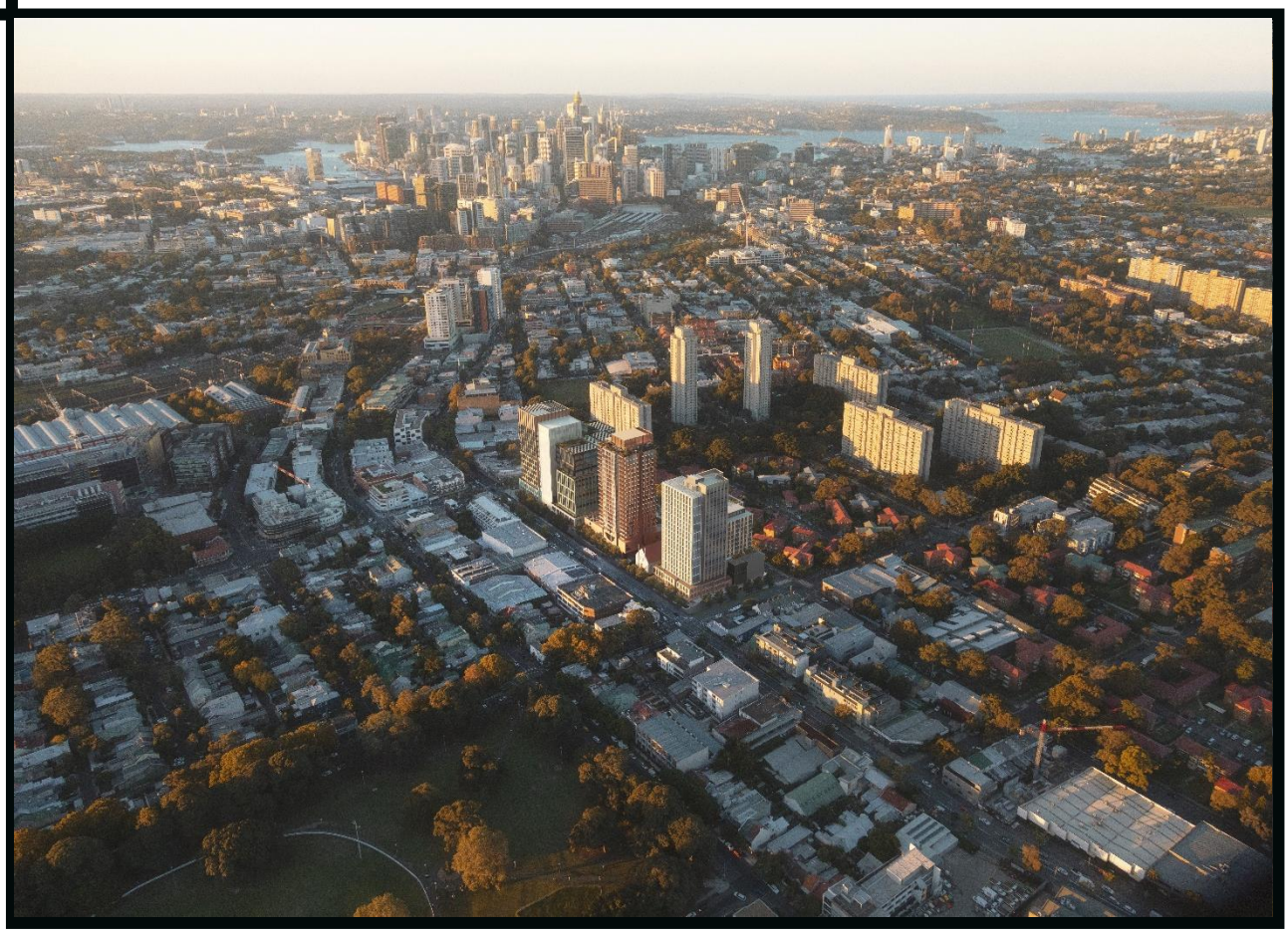


ENVIRONMENTAL IMPACT STATEMENT

Waterloo Metro Quarter
Over Station Development
Southern Precinct
Detailed State Significant
Development Application

Prepared for
WL DEVELOPER PTY LTD
26 October 2020

URBIS

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Peter Strudwick
Associate Director	Danielle Blakely
Consultant	Charlotte Ryan

Reference	Description
Applicable SSD Applications	SSD-10437 – Southern Precinct Detailed Design SSDA
Author	Urbis Pty Ltd Danielle Blakely
Reviewed	Waterloo Developer Pty Ltd Simon Joseph
Document Number	WMQ-BLD3-EIS-RPT-003
Status	Final
Version	5
Date of Issue	26 October 2020
© Waterloo Developer Pty Ltd 2020	

urbis.com.au

CONTENTS

FIGURES

PICTURES

TABLES

SIGNED DECLARATION

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT

This Environmental Impact Statement has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulations 2000*.

Environmental Assessment prepared by:

Names:	Peter Strudwick, Director Urbis Pty Ltd (Bachelor of Town Planning) Danielle Blakely, Associate Director Urbis Pty Ltd (Bachelor of Science, Master of Urban and Regional Planning) Charlotte Ryan, Consultant Planner Urbis Pty Ltd (Bachelor of Planning)
Address:	Urbis Pty Ltd Level 8, 123 Pitt Street Sydney NSW 2000
In respect of:	SSD-10437 – Waterloo Metro Quarter OSD – Southern Precinct Detailed Design SSDA

Applicant and Land Details:

Applicant:	WL Developer Pty Ltd
Applicant address	Level 10, 54 Park Street Sydney NSW 2000
Land to be developed:	The Waterloo Metro Quarter site - land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street. The heritage listed Waterloo Congregational Church located at 103–105 Botany Road is within this street block but is not part of the Waterloo Metro Quarter site boundaries.
Legal description:	1368 Raglan Street (Lot 4 DP 215751), 59 Botany Road (Lot 5 DP 215751), 65 Botany Road (Lot 1 DP 814205), 67 Botany Road (Lot 1 DP 228641), 124-128 Cope Street (Lot 2 DP 228641), 69-83 Botany Road (Lot 1, DP 1084919), 130-134 Cope Street (Lot 12 DP 399757), 136-144 Cope Street (Lots A-E DP 108312), 85 Botany Road (Lot 1 DP 27454), 87 Botany Road (Lot 2 DP 27454), 89-91 Botany Road (Lot 1 DP 996765), 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891), 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831), 156-160 Cope Street (Lot 31 DP 805384), 107-117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116), 170-174 Cope Street (Lot 2 DP 205942).
Project Summary	Detailed State significant development application for the construction and operation of a mixed use over station development (**OSD**) and public domain works located at the Southern Precinct of the Waterloo Metro Quarter site.

We certify that the content of the Environmental Impact Statement, to the best of our knowledge, has been prepared:

- In accordance with the requirements of the *Environmental Planning and Assessment Act 1979*, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*, and *State Environmental Planning Policy (State and Regional Development) 2011*;
- Contains all available information relevant to the environmental assessment of the development, activity, or infrastructure to which that statement relates; and
- The information contained in this statement is neither false nor misleading.

Name/Position:	**Peter Strudwick, Director**	**Danielle Blakely, Associate Director**	**Charlotte Ryan, Consultant**
Signature:			
Date:	26 October 2020	26 October 2020	26 October 2020

GLOSSARY AND ABBREVIATIONS

Reference	Description
100 year ARI	1 in 100 year flood (average recurrence interval)
ACHAR	Aboriginal Cultural Heritage Assessment Report
ADG	Apartment Design Guide
AHD	Australian height datum
AMS	Archaeological Method Statement
AQIA	Air Quality Impact Assessment
ARD	Archaeological Research Design
BASIX SEPP	State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
BC Act	Biodiversity Conservation Act 2016
BC Reg	Biodiversity Conservation Regulation 2017
BCA	Building Code of Australia
BDAR	Biodiversity Development Assessment Report
CEEC	critically endangered ecological community
CEMP	Constructional Environmental Management Plan
CHP	Community Housing Provider
CIV	capital investment value
CMP	Construction Management Plan
Concept DA	A concept DA is a staged application often referred to as a ‘Stage 1’ DA. The subject application constitutes a detailed subsequent stage application to an approved concept DA (SSD 9393) lodged under section 4.22 of the EP&A Act.
Contributions Plan 2015	City of Sydney Development Contributions Plan 2015
Council	City of Sydney Council
CPTED	Crime Prevention Through Environmental Design
CPTMP	Construction Pedestrian Traffic Management Plan
CSSI approval	critical State significant infrastructure approval
CTMP	Construction Traffic Management Plan
DA	development application

Reference	Description
DAPS	Disability (Access to Premises - Buildings) Standards, 2010
DCP 2012	Sydney Development Control Plan 2012
DDA	Disability Discrimination Act 1992
DEEP	Design Excellence Evaluation Panel
Design Guidelines	Waterloo Design Amenity Guidelines
DIR	Design Integrity Report
DPIE	NSW Department of Planning, Industry and Environment
DRP	Sydney Metro Design Review Panel
DTS	Deemed-to-Satisfy
EIS	Environmental Impact Statement
EOI	Expression of Interest
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPA Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESD	ecologically sustainable design
GANSW	NSW Government Architect's Office
GEM	Gust Equivalent Mean
GFA	gross floor area
GTP	Green Travel Plan
HCA	Heritage Conservation Area
HIA	Heritage Impact Assessment
HIS	Heritage Interpretation Strategy
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
LAHC	Land and Housing Corporation
LGA	Local Government Area
LSPS	Local Strategic Planning Statement
MGB	1100L bin

Reference	Description
MRV	Medium Rigid Vehicle
NCC	National Construction Code
OSD	over station development
PIR	Preferred Infrastructure Report
PMF	Probable Maximum Flood
POM	Plan of Management
PSI	Preliminary Site Investigation
RL	Reduced Level
RMS	Roads and Maritime Services
SACL	Sydney Airport Corporation Limited
SDRP	NSW State Design Review Panel
SDRP SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SEPP 55	State Environmental Planning Policy No 55—Remediation of Land
SEPP 64	State Environmental Planning Policy No. 64 – Advertising and Signage
SEPP 65	State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development
SLEP 2012	Sydney Local Environmental Plan 2012
SRV	Small Rigid Vehicle
SSD	State significant development
SSD 9393	Concept DA
SSDA	State significant development application
SSI	State significant infrastructure
SSI 15_7440	CSSI Approval
Sydney CBD	Sydney Central Business District
TfNSW	Transport for New South Wales
The Church	Waterloo Congregational Church
The proposal	The proposed development the subject of the detailed SSDA

Reference	Description
The site	The site the subject of the detailed SSDA
The Station Contractor	John Holland
TIA	Traffic Impact Assessment
Transport for NSW	Transport for New South Wales
VIA	Visual Impact Assessment
VPA	Voluntary planning agreement
WMP	Waste Management Plan
WMQ	Waterloo Metro Quarter
WSUD	water sensitive urban design

EXECUTIVE SUMMARY

This Environmental Impact Statement (**EIS**) has been prepared to accompany a detailed State significant development application (**SSDA**) for the construction and operation of a mixed-use over station development (**OSD**) and public domain works located at the Southern Precinct of the Waterloo Metro Quarter (**WMQ**) site.

This EIS should be read in conjunction with the Secretary's Environmental Assessment Requirements (**SEARs**) dated 8 April 2020 and included at **Appendix A,** and the supporting technical documents provided at **Appendix B – Appendix TT**.

This EIS has been prepared in accordance with and meets the minimum requirements of Clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (**the Regulation**) and contains an assessment of the proposal against the relevant considerations under Section 4.15 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**).

SYDNEY METRO

Sydney Metro is Australia's biggest public transport project. There are four core components:

Metro North West Line (formerly the 36 kilometre North West Rail Link)

Services started in May 2019 in the city's North West between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and $1 billion under budget.

Sydney Metro City & Southwest

The Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of the Metro North West Line at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Barangaroo, Crows Nest, Victoria Cross, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs.

The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

The NSW Government is assessing an optional station at Pyrmont and further planning is underway to determine the location of a new metro station in the Sydney CBD.

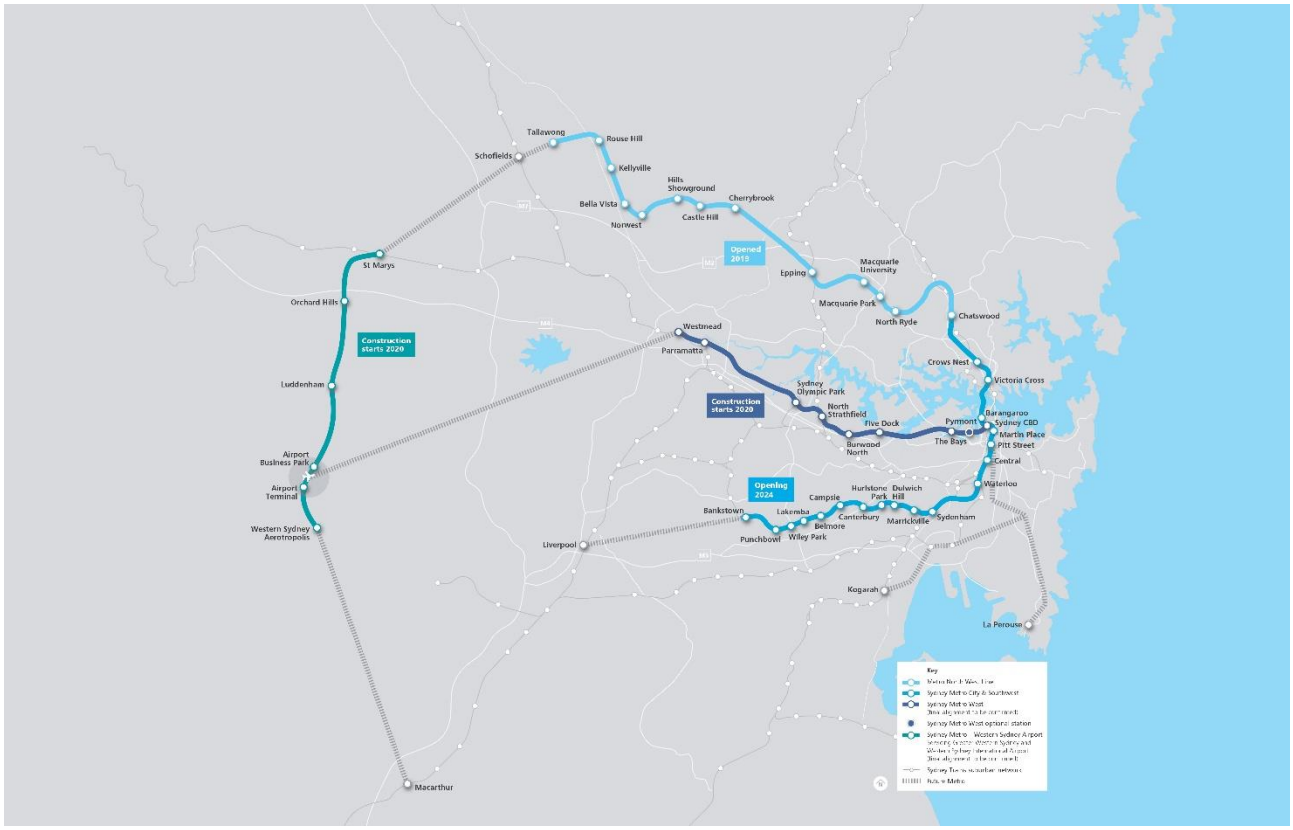
Sydney Metro - Western Sydney Airport

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service. Six new stations will be delivered at St Marys, Orchard Hills, Luddenham, Airport Business Park, Airport Terminal and Western Sydney Aerotropolis. The Australian and NSW governments are partners in the delivery of this new railway.

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a Critical State significant infrastructure project (reference **SSI 15_7400**) (**CSSI Approval**).

The terms of the CSSI Approval includes all works required to construct the Sydney Metro Waterloo Station, including the demolition of existing buildings and structures. The CSSI Approval also includes construction of below and above ground structures associated with the metro station and structures required to facilitate the construction of the OSD.

Figure 1 Sydney Metro Alignment Map



Source: Sydney Metro

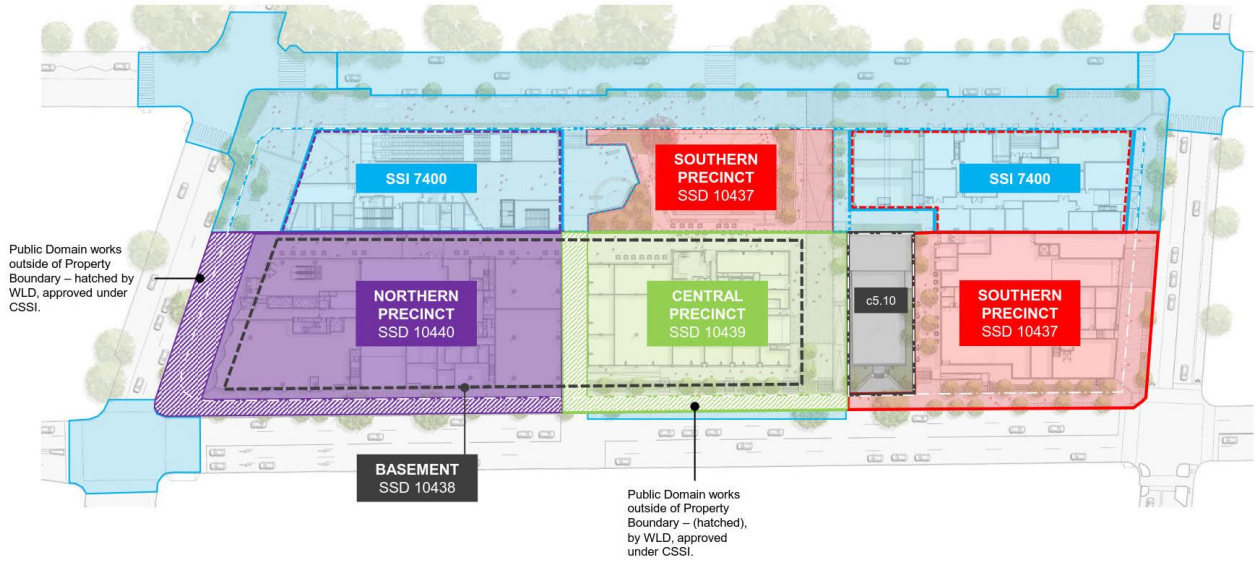
THE SITE

The site is located within the City of Sydney Local Government Area (**LGA**). The site is situated approximately 3.3 kilometres south of Sydney CBD and approximately 8 kilometres northeast of Sydney International Airport within the suburb of Waterloo.

The Waterloo Metro Quarter (**WMQ**) site comprises land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street (refer to Figure 2). The heritage listed Waterloo Congregational Church located at 103–105 Botany Road is within this street block but does not form a part of the Waterloo Metro Quarter site boundaries.

The WMQ site is a rectangular shaped allotment and has an overall site area of approximately 1.287 hectares. The detailed SSDA applies to the Southern Precinct (**the site**) of the WMQ site. The boundaries of the Southern Precinct are illustrated at Figure 2.

Figure 2 Waterloo Metro Quarter Station Site Precinct Identification (SSDA Boundaries)



Source: WL Developer Pty Ltd

BACKGROUND

Approval – SSD 9393

Development consent was granted on 10 December 2019 for the concept development application (SSD 9393) for Waterloo over station development including:

- Maximum building envelope for podium, mid-rise and tower buildings.
- A maximum gross floor area of 68,750sqm, excluding station floor space.
- Conceptual land use for non-residential and residential floor space.
- Minimum 12,000sqm of non-residential gross floor area including a minimum of 2,000sqm of community facilities.
- Minimum 5% residential gross floor area as affordable housing dwellings.
- 70 social housing dwellings.
- Basement car parking, motorcycle parking, bicycle parking and service vehicle spaces.

This detailed SSDA seeks development consent for the over station development located within the Southern Precinct of the site, consistent with the parameters of SSD 9393.

CSSI Approval – CSSI 7400

CSSI Approval 7400, as it relates to the Waterloo Station, includes:

- Demolition of existing buildings within the site.
- Excavation of the rail tunnel, concourse and platforms and therefore the setting of surrounding structural zones, services and accesses.
- Establishment of an aboveground station footprint (station boxes).
- Space provision for future lift cores, access, minor associated parking provision, retail and building services for the future OSD.
- Station entry via Raglan Street and via the public plaza from Cope Street.
- Public domain works (including parts of the Raglan Street Plaza and the Cope Street Plaza).

The CSSI Approval included Indicative Interface Drawings for the below and above ground works at Waterloo metro station. Section 2.3 of the Preferred Infrastructure Report (**PIR**) noted that the integration of the OSD elements and the metro station elements would be subject to the design resolution process, noting that the detailed design may vary from the concept design assessed within the planning approval.

Condition E101 of CSSI 7400 approval requires that detailed Station Design and Precinct Plans be approved by the Secretary of the Department prior to the construction of above ground works.

The building design in the podium levels for the areas allocated to the OSD as approved by SSD 9393 will need to be coordinated with the Station Design and Precinct Plans prior to approval by the Secretary.

DEVELOPMENT DESCRIPTION

This proposal seeks subsequent 'Stage 2' detailed development consent for the design, construction, and operation of two residential buildings within the Southern Precinct of the site with podium non-residential uses and public domain improvements including the construction of the Cope Street Plaza (see Figure 3).

The detailed SSDA seeks development consent for the design, construction and operation of:

- 25-storey (plus roof plant) residential building (Building 3) comprising student accommodation, to be delivered as a mixture of studio and twin apartments with approximate capacity of 474 students;
- 9-storey residential building (Building 4) above the southern station box (Metro Services Box) to accommodate 70 social housing dwellings;
- Ground level retail, Makerspace, gymnasium lobby, student accommodation lobby, social housing lobby and loading facilities;
- Level 1 and Level 2 gymnasium and student accommodation communal facilities;
- Landscaping and private and communal open space at podium and roof top levels to support the residential accommodation;
- New public open space including the delivery of the Cope Street Plaza, including vehicle access to the site via a shared way from Cope Street, expanded footpaths on Botany and Wellington Streets and public domain upgrades;
- Signage zone locations;
- Removal of five trees;
- Utilities and service provision; and
- Stratum subdivision (staged).

The OSD will comprise residential accommodation above the podium and non-residential land uses within the podium.

Figure 3 Artist's Impression of the proposed development

Picture 1 The proposed development as viewed from corner of Botany Road and Wellington Street.

Source: Bates Smart

Picture 2 The proposed development as viewed from corner of Cope Street and Wellington Street.

Source: Bates Smart

Proposed Concurrent Amending DA

An Amending concept DA has been lodged concurrently with this DA in accordance with Section 4.22 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). It seeks approval to amend the building envelope and description of development for the Northern Precinct and Central Precinct of the Waterloo Metro Quarter site approved under SSD 9393. No changes are proposed to the concept approval as it relates to the Southern Precinct.

Specifically, the proposal seeks to modify the approved building envelope for the Northern Precinct (previously comprising 'Building A', 'Building B', 'Building C' and 'Building D' under SSD 9393), as well as a minor amendment to Building 2 which is located in the Central Precinct of the site, through:

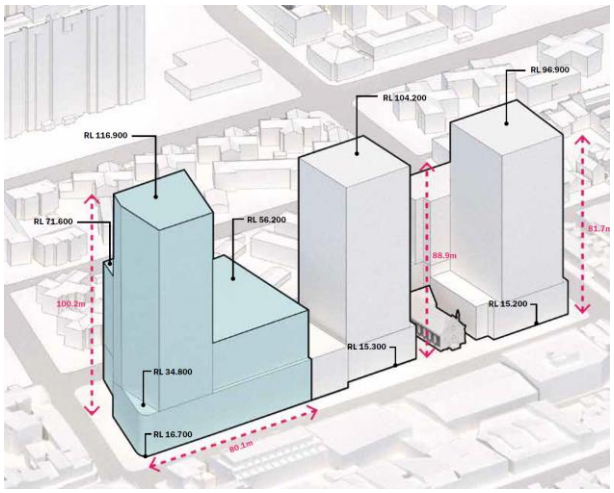
- Increasing the maximum building height for the southern portion of the building envelope from RL56.2 to RL72.60 (Refer Figure 4).
- Removing the 'tower component' of the northern precinct, reducing the overall height of the tower envelope from RL116.9 to RL90.40, to enable the redistribution of floor space to commercial office floor plates.
- Amending the description of development to refer to a mid-rise (approximately 17-storey) commercial office building, comprising approximately 34,125sqm of commercial office floor space within the northern portion of the site, rather than a third residential tower.
- Minor amendment to the podium design of Building 2 along the Cope Street Plaza eastern façade to accommodate increased community GFA.
- Condition amendments to enable balustrades, pergola, solar panels and the like to be located outside of the approved building envelope and provide clarity on minor design items.

The modification of the approved concept SSDA will enable the detailed design of a new commercial building (comprising office and retail premises) to be pursued on the site, significantly increasing the proportion of employment generating floor space on the Waterloo Metro Quarter site. This new commercial building is

proposed in replacement of four building envelopes approved under SSD 9393, which comprised one residential tower and three mid-rise residential buildings.

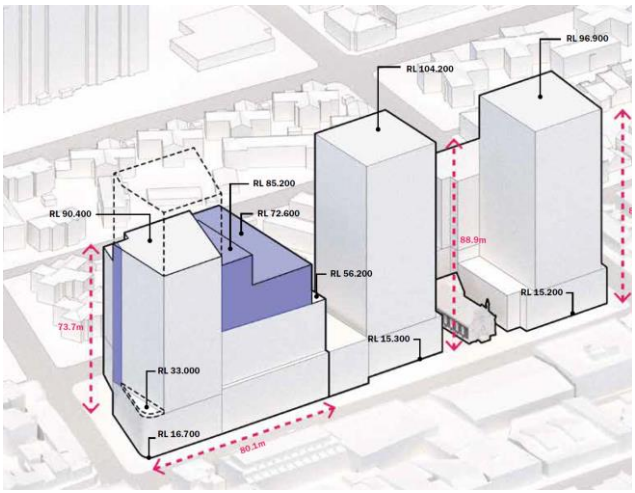
No changes are proposed to the concept approval as it relates to the Southern Precinct of the Waterloo Metro Quarter site.

Figure 4 Approved and Proposed Building Envelopes



Picture 3 Approved Envelope

Source: Hassell



Picture 4 Proposed Amended Envelope

Source: Hassell

PROJECT NEEDS AND BENEFITS

The Sydney Metro Waterloo Station is a key new station on the Sydney metro network, comprising one of five metro stations in City of Sydney LGA, alongside Barangaroo Station, Martin Place Station, Pitt Street Station and Central Station (new underground platforms). The Station will be a key catalyst for the revitalisation of the Redfern-Waterloo Area and assist in reducing overcrowding at Redfern and Green Square Stations.

The primary objective of the proposal is to capitalise on the significant NSW Government investment into Sydney metro by providing a combination of social housing and student accommodation above and adjacent the Sydney metro network, with connections to the Sydney CBD and other strategic centres. In achieving this objective, the proposal also seeks to achieve the following:

- Maximise the opportunity to truly integrate transport and land use by integrating the Southern Precinct OSD with the construction of the station;
- Support the growing student population in the Eastern City District by providing high-quality residential accommodation for tertiary students, ensuring they are not priced out by the expensive cost of living in the Eastern City District;
- Positively contribute to housing affordability by providing appropriately priced and diverse social housing within close proximity to public transport, recreation, local shopping, facilities and services;
- Support the future renewal of Waterloo Estate;
- Create an inviting entrance to the station and improve the interface with Waterloo Estate through the delivery of Cope Street Plaza;
- Create a new sense of place where the local community can live, work and spend leisure time by co-locating the public plaza with residential development; and,
- Improve connectivity by providing a pedestrian through-site link from Cope Street Plaza to the bus interchange and a link from Cope Street to Botany Road adjacent the Metro Service Box and Waterloo Congregational Church.

PLANNING FRAMEWORK

As the proposal is for the purposes of a residential development associated with railway infrastructure and has a capital investment value of more than $30 million, it is classified as State significant development pursuant to Clause 8 (b), Schedule 1 of *State Environmental Planning Policy* (*State and Regional Development) 2011*.

The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the SSDA and the application is lodged with the NSW Department of Planning, Industry and Environment (**DPIE**) for assessment.

This application constitutes a detailed staged application subsequent to an approved concept DA (**SSD 9393**) which granted consent for a maximum building envelope on the site, lodged under Section 4.22 of the EP&A Act. An amending DA to the approved concept DA has been lodged concurrently with this application.

The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the SSDA and the application is lodged with the DPIE for assessment.

This EIS considers the relevant regulatory framework applicable to the site and contains an assessment of the proposal against the following statutory controls and regulatory instruments:

- *Environmental Planning and Assessment Act 1979;*
- *State Environmental Planning Policy (State and Regional Development) 2011;*
- *State Environmental Planning Policy (Infrastructure) 2007;*
- *State Environmental Planning Policy No. 55 – Remediation of Land;*
- *State Environmental Planning Policy No. 64 – Advertising and Signage;*
- *State Environmental Planning Policy No. 65 – Design Quality of Residential;*
- *Apartment Development and accompanying Apartment Design Guide (SEPP 65);*
- *State Environmental Planning Policy (Affordable Rental Housing);*
- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017;*
- *Draft State Environmental Planning Policy (Environment);*
- *Draft State Environmental Planning Policy (Remediation of Land);*
- *Sydney Local Environmental Plan 2012;*
- *Sydney Development Control Plan 2012; and,*
- *Any exhibited Planning Proposal or draft State Environmental Planning Policy related to the land.*

The proposal has also been assessment in accordance with its consistency with the key planning objectives, priorities and actions outlined within relevant strategic land use and transport planning policies including:

- NSW State and Premier Priorities;
- A Metropolis of Three Cities;
- Eastern City District Plan;
- Towards our Greater Sydney 2056;
- Future Transport Strategy 2056;
- State Infrastructure Strategy 2018;
- Sustainable Sydney 2030;
- Waterloo Metro Quarter Design and Amenity Guidelines;

- Development near Rail Corridors and Busy Roads – Interim Guideline;
- Guide to Traffic Generating Developments, Roads and Maritime Services;
- Heritage Council Guideline on Heritage Curtilages 1996; and,
- Heritage Council Guideline, Design in Context – guidelines for infill development in the Historic Environment, 2005.

STAKEHOLDER CONSULTATION

To inform the detailed design of the development, consultation has been undertaken with the local community, government agencies including, though not limited to:

- Department of Planning, Industry and Environment;
- City of Sydney Council;
- Transport for NSW;
- Sydney Trains;
- Sydney Metro;
- Transport Coordination Office (TCO) within Transport for NSW;
- Land and Housing Corporation;
- Department of Community Justice – Family and Community Services;
- Aboriginal Affairs NSW;
- NSW Fire;
- Sydney Water;
- Ausgrid;
- Jemena;
- NSW Police;
- Sydney Local Health District;
- Surrounding residents and businesses including though not limited to the Waterloo Congregational Church; and,
- Relevant community groups including Waterloo Redevelopment Group, REDWatch, and South Sydney Business Chamber

Various strategies were implemented to ensure collaborative community involvement in the project, including emails to subscribers and stakeholders, stakeholder briefings, website information, community newsletters and updates, pop ups and community information sessions. Specific consultation has also occurred with the Aboriginal community through yarning circles, workshops, formal and informal briefings, updates, and partnerships.

Feedback received through the consultation has informed the detailed design of the proposed OSD. It is noted that feedback received through the consultation process will also inform the detailed design of the station, public domain design, further work related to the future retail tenancy strategy, programming works for the publicly accessible space, and other matters that are outside of the scope of the SSDA for the OSD.

IMPACTS AND MITIGATION MEASURES

This EIS has addressed the SEARs requirements issued for the development and includes an assessment against the relevant environmental planning instruments, policies, and guidelines. It also demonstrates that the proposed development does not result in any significant departures from applicable controls or unreasonable environmental effects.

The general and key impacts resulting from the proposed development are outlined in detail in the EIS. Key impacts resulting from the proposed development include:

- Consistency with concept approval;
- Land use and gross floor area;
- Design excellence and built form;
- Integration with Sydney metro station infrastructure;
- Visual and amenity impacts;
- Heritage;
- Ecologically sustainable development;
- Traffic, parking and access;
- Noise and vibration;
- Construction impacts;
- Public benefits;
- Contamination and remediation;
- Stormwater and flooding;
- Biodiversity; and,
- Consultation.

In considering each of the above key planning issues and potential impacts associated with the development, the EIS outlines the proposed mitigation measures to address each of these matters. Each of these outstanding impacts have been addressed within this EIS.

CONCLUSION

The development proposed within the detailed SSDA is considered appropriate for the site and warrants approval for the following reasons:

- The proposal is consistent with the concept approval (SSDA 9393) and CSSI approval (CSSI 7400).
- The proposal contributes to the achievement of the objectives for development within the Eastern City District as outlined within the relevant strategic plans and policies.
- The proposal results in an orderly and economic use of the land that leverages significant NSW Government investment in public transport to the site, specifically Sydney metro.
- The proposal supports 18,839sqm of new residential GFA which is capable of contributing to the housing targets of the Eastern City District by delivering 70 social housing dwellings and beds for an estimated 474 students.
- The proposal satisfies the applicable State planning policies and relevant environmental planning instruments that apply to the site.
- The proposed uses are permitted with consent and meet the objectives of the B4 mixed use zone in Sydney Local Environmental Plan 2012 (**SLEP 2012**).
- The proposal complies with the overshadowing controls pertaining to Alexandria Park and results in significantly less overshadowing compared to the approved concept envelope.
- The proposal will not have any unacceptable environmental impacts, as follows:
  - The proposal has no unacceptable traffic impacts.
  - The proposal minimises pedestrian and vehicle conflicts and maximises legibility and accessibility to the Waterloo metro station.

  - The proposal is sympathetic to the heritage items in the vicinity of the site, including the adjacent Waterloo Congregational Church and Cauliflower Hotel located opposite the site.
  - The proposal achieves design excellence as outlined in the Design Excellence Strategy.
  - Whilst the proposal does not strictly comply with the ADG building separation requirements, careful consideration has been given to the design of the western façade to maintain visual and acoustic privacy whilst achieving adequate sunlight access and outlook.
- The proposed detailed design of the OSD has considered and is integrated with, the detailed design of the Sydney Metro Waterloo Station and its related works including the construction of the development up to the transfer slab and the public domain.
- The proposal satisfies the SEARs as demonstrated in this EIS and accompanying specialist reports.

In view of the above, it is submitted that the proposal is in the public interest and should be approved subject to appropriate consent conditions.

1. INTRODUCTION

This Environmental Impact Statement (**EIS**) has been prepared to accompany a detailed State significant development application (**SSDA**) which seeks consent for the construction and operation of a mixed use over station development (**OSD**) and public domain works located at the Southern Precinct of the Waterloo Metro Quarter site.

This report has been prepared by Urbis Pty Ltd on behalf WL Developer Pty Ltd, the applicant of the detailed SSDA. Following the completion of a competitive tender bid process, Sydney Metro appointed WL Developer Pty Ltd as the preferred development partner to deliver the Waterloo Station OSD.

Lodgement of this detailed SSDA follows the approval of a concept DA (**SSD 9393**) granted by the Minister for Planning on 10th December 2019.

To achieve the project outcomes, an amending DA to the concept DA has been submitted concurrently with this application. The amending DA seeks approval to amend the building envelope and description of development for the Northern Precinct and Central Precinct of the Waterloo Metro Quarter site approved under SSD 9393. No changes are proposed to the concept approval as it relates to the Southern Precinct.

This EIS is submitted to the NSW Department of Planning, Industry and Environment (**DPIE**) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the detailed SSDA.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (**SEARs**) dated 8th April 2020 included within **Appendix A**, and should be read in conjunction with the supporting documents provided at **Appendix B - Appendix TT.**

1.1. PROJECT OVERVIEW

The detailed SSDA seeks approval for the detailed design, construction, and operation of two residential buildings within the Southern Precinct of the site with podium non-residential uses and public domain improvements including the construction of Cope Street Plaza.

The proposed development comprises a maximum height of 25-storeys (plus roof plant) OSD with two interconnected buildings above a podium for student accommodation (Building 3) and social housing dwellings (Building 4). The construction of the Metro Service Box is the subject of the CSSI approval and does not form part of this SSDA.

The proposed residential buildings will provide additional student accommodation and social housing in the City of Sydney LGA. A Makerspace and gym are also proposed at the ground and first floor to activate the site and surrounds during and outside typical business hours. Level 2 of the Building 3 podium will also include amenities associated with the student accommodation tower above.

The detailed design of the proposal has been the subject of design development, testing and ongoing review from various government and independent parties such as the Design Review Panel (**DRP**) to ensure that it achieves the highest standard in architectural design.

In summary, the detailed SSDA seeks development consent for the design, construction and operation of:

- 25-storey (plus roof plant) residential building (Building 3) comprising student accommodation, to be delivered as a mixture of studio and twin apartments with approximate capacity of 474 student beds;
- 9-storey residential building (Building 4) above the southern station box to accommodate 70 social housing dwellings;
- Ground level retail, Makerspace, gymnasium lobby, student accommodation lobby, social housing lobby, and loading facilities;
- Level 1 and Level 2 gymnasium and student accommodation communal facilities;
- Landscaping and private and communal open space at podium and roof top levels to support the residential accommodation;

- New public open space including the delivery of the Cope Street Plaza, including vehicle access to the site via a shared way from Cope Street, expanded footpaths on Botany and Wellington Streets and public domain upgrades;
- Loading / servicing area for Building 3 and Building 4 at ground level accessed off Wellington Street;
- Signage zone locations;
- Removal of five trees;
- Utilities and service provision; and
- Stratum subdivision (staged).

An image of the proposed development is included at Figure 5.

Figure 5 Artist's impressions of proposed development

Picture 5 The proposed development as viewed from the corner of Botany Road and Wellington Street,

Source: Bates Smart

Picture 6 The proposed development as viewed from the corner of Wellington Street and Cope Street.

Source: Bates Smart

1.2. PROJECT OBJECTIVES

The objectives of the proposed development are to:

- Increase the supply and diversity of affordable housing in an accessible location with walkable amenities, cycling and public transport infrastructure in close proximity to the site;
- Achieve a high-quality built form that respects the local character of the area and positively contributes to the streetscape;
- Respect the curtilage of Waterloo Congregational Church and enhance the church's visual presence in the public domain;
- Provide students and social housing residents with a high-quality living environment;

- Establish a new public plaza that will provide access to the southern station entries, connect the Waterloo Metro Quarter with surrounding streets and function as a multi-modal space for passive recreation and social interaction;
- Propose buildings that are consistent with the concept DA;
- Support the NSW Government's planning strategies and objectives, including the *Greater Sydney Region Plan (2018)* and the *Eastern City District Plan (2018);*
- Enable the development of a mixed-use precinct at the site which caters for a range of different uses and creates a fully integrated station precinct at Waterloo; and,
- Enable a building form that minimises overshadowing to public open space and nearby residential areas.

1.3. STRATEGIC NEED

As identified in the *Greater Sydney Region Plan* (2018), Sydney's population is forecast to grow to eight million by 2056. Sydney metro responds to the transport demand that will accompany this growth with its plan to deliver a new standalone railway with 31 stations and more than 66 kilometres of new rail. Once completed, Sydney metro, along with other signalling and infrastructure upgrades across the existing networks, will increase the capacity of Sydney's train services from approximately 120 per hour today up to 200 services beyond 2024 – a 60 per cent increase resulting in an extra 100,000 train customers per hour in the peak. The project has been endorsed by the NSW Government as a key component of *Sydney's Rail Future: Modernising Sydney's Trains*.

The Waterloo metro station will be a key catalyst for change in the Redfern-Waterloo area, providing residents, workers and visitors access to the Sydney metro network and connecting to surrounding Metropolitan and strategic centres, such as Central Sydney, St Leonards and Macquarie Park.

The proposal capitalises on the introduction of Sydney metro by providing for two residential towers integrated within the future Waterloo metro station. Additional non-residential uses within the podium and the new Cope Street plaza will activate the precinct and deliver new publicly accessible open space for the community to connect, interact and engage with. The proposal directly aligns with a key actions in the *Eastern City District Plan* (2018) by delivering high quality public open space and providing housing supply, choice and affordability, with access to jobs, services and public transport.

The proposal also responds to the need for housing a diverse population and sustainable development, renewal, and design. As detailed in the *Sustainable Sydney 2030* (2019), the City of Sydney Council is seeking to make the City 'more green, global and connected'. The Waterloo Metro OSD project will deliver sustainable transport options whilst contributing to housing supply and providing for a range of lifestyle choices and household types through the provision of social housing and student accommodation.

Consistency of the proposal with key strategic plans, strategies and policies is discussed in detail in Section 5 of this EIS.

1.4. PROJECT ALTERNATIVES

This section discusses the consideration of feasible alternatives to the carrying out of the proposed development as per clause 7(1)(c), Part 3, Schedule 2 of the E*nvironmental Planning and Assessment Regulation 2000* (**EP&A Regulation**). Four options for the proposal could be considered to address the project objectives and site constraints and opportunities, which include:

- Scenario 1 – 'do nothing';
- Scenario 2 – development of the project at an alternative location;
- Scenario 3 – development of Building 3 as a market residential building;
- Scenario 4 – development of Building 3 as a social housing development and Building 4 as a student accommodation development.

1.4.1. Do Nothing

The 'do nothing' scenario, involving no OSD above the approved Waterloo metro station, is not a feasible development option for the site. OSD forms a key component of the overall Sydney metro project which Transport for New South Wales (**TfNSW**) is committed to delivering.

It is also noted that demolition of the existing structures was approved under the CSSI approval and has been completed on the site. Construction works are currently underway on site for the delivery of the Waterloo Station elements approved under the CSSI approval.

No future OSD development on the site provides minimal placemaking benefits and would result in a net loss of floor space on the site. Ultimately a 'do nothing' scenario constitutes gross under-development of a valuable site within Waterloo.

Also, a 'do nothing' scenario could create further issues should the site be developed separately in the future. A separate, future, development would likely result in a less integrated development that does not maximise the opportunities of new transport infrastructure.

1.4.2. Development of the Proposal at Alternative Location

A second option for the proposal involves proposing the development at an alternative location. This would result in the student accommodation and social housing development that would otherwise not be classified as SSD due to not being associated with a rail corridor.

This option would also be inconsistent with NSW transport policy and State and local strategic objectives for the site. In particular, the proposal would not maximise opportunities to leverage off the significant investment in Sydney metro for employment generating and housing uses.

In addition, the alternative location scenario would not include the significant development of a large student accommodation and social housing development being developed above the Waterloo Station. The opportunity cost to the local community and broader metropolitan region would be significant and key economic, transport, housing and social benefits presented by the proposal not being realised.

1.4.3. Development of Building 3 as a market residential development

A third option is to develop Building 3 for market residential apartments as opposed to student accommodation. The student accommodation market in Australia has recorded strong growth in the last decade underpinned by educating international students in Australia. With a growing student population, there has been increasing competition between the private residential market and student residential market.

Affordable housing is a basic requirement for those studying at University and access to affordable and safe student accommodation on or near campus delivers a range of both social and economic benefits to the community. If the site were developed for the purposes of purely private residential accommodation, it would be a missed opportunity to provide affordable and safe student accommodation within proximity to public transport and nearby tertiary educational establishments.

Given 150 private residential apartments (24 affordable residential apartments and 126 market residential) are proposed in the adjoining Central Building, it is considered appropriate to provide a diverse range of housing typologies including student housing to meet unmet demand for student accommodation. The alternative scenario would only increase demand and affordability pressures in the local housing market for students and residents, rather than alleviate. The proposal is considered appropriate as it responds to the current undersupply in housing stock for students by increasing the number of affordable beds.

Providing additional private residential accommodation in place of student accommodation would also be inconsistent with the *Eastern City District Plan* which identifies the importance of including a mix of dwelling types, tenures, price points, sizes, universal design, student accommodation, group homes, and boarding houses.

1.4.4. Development of Building 3 as a social housing development and Building 4 as a student accommodation development

A fourth option is to develop Building 3 as a social housing development and Building 4 as a student accommodation development. This alternative scenario would result in the student housing component being developed above the Metro Services Box, directly opposite Waterloo Estate.

The social housing development is considered to be more appropriately located above the Metro Service Box due to its relationship with Waterloo Estate. The eastern edge of the site would then accommodate the new Cope Street Plaza, southern entry point to Waterloo Station and social housing development. The social housing development has a significant role in supporting the future renewal of Waterloo Estate, with 70 dwellings provided as social housing.

Furthermore, to achieve the same number of student beds, locating the student accommodation building above the Metro Service Box would require increasing the height of Building 4. This would be inconsistent with the approved envelope and could result in additional overshadowing to the social housing dwellings.

Building 3 also adjoins Botany Road which is a major transport corridor and thoroughfare for both light and heavy vehicles. The road generates a lot of background noise which may make it difficult to satisfy the design requirements outlined in the Apartment Design Guide regarding noise pollution. As outlined in the guidelines, physical separation between buildings and the noise source is encouraged. By locating the student accommodation within Building 3, it acts as a barrier between Botany Road and the social housing accommodation.

1.5. STRUCTURE OF THE EIS

The EIS provides the following sections:

- **Section 2**: provides background of the proposal and relevant approvals in relation to the site.
- **Section 3:** A description of the site and surrounding context, including identification of the site, existing development on the site and surrounding development.
- **Section 4:** a detailed description of the proposed development.
- **Section 5:** details the strategic context including the planning policies and guidelines relevant to the site and the proposal.
- **Section 6**: provides a detailed assessment of the State, regional and local strategic planning policies and the development contributions framework.
- **Section 7:** details the community and stakeholder engagement undertaken by the applicant as part of the preparation of this EIS.
- **Section 8:** provides a comprehensive assessment of the existing environment, potential impacts, and mitigation measures for each of the key criteria in the SEARs.
- **Section 9:** lists the recommendations and mitigation measures based on the technical studies undertaken as part of this application.
- **Section 10:** provides concluding statements and a recommendation for determination of the application.

1.6. SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

A request was made to the Minister for the issuance of SEARs, pursuant to clause 3(1), Part 2, Schedule 2 of the Regulation. SEARs were subsequently issued on 8 April 2020 (**Appendix A**) and have informed the preparation of this EIS and supporting technical documents Table 1 provides a summary of the SEARs and identifies the section of this EIS where the relevant requirement is addressed.

Table 1 Summary of SEARs

Description / Requirement	Reference
GENERAL REQUIREMENTS	
The environmental impact statement (EIS) must be prepared in accordance with and meet the minimum requirements of clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation).	Refer to **Statement of Validity** and throughout.
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	See **Section 9 Environmental Risk Assessment**

Description / Requirement	Reference
Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: ▪ Adequate baseline data ▪ Consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed); ▪ Measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment; and ▪ A health impact assessment of local and regional impacts associated with the development, including those health risks associated with relevant key issues.	See **Section 9 Environmental Risk Assessment**
The EIS must also be accompanied by a report from a qualified quantity surveyor providing: ▪ A detailed calculation of the capital investment value (**CIV**) (as defined in clause 3 of the Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived. ▪ An estimate of jobs that will be created during the construction and operational phases of the proposed development; and ▪ Certification that the information provided is accurate at the date of preparation.	See **Appendix B** and **Section 8.19.2.**
KEY ISSUES	
The EIS shall address the following specific matters: **1. Environmental Planning Instruments, Policies and Guidelines**	See **Section 6 Statutory Context**
Address the statutory provisions applying to the development contained in all relevant environmental planning instruments, including: ▪ *State Environmental Planning Policy (State and Regional Development) 2011* ▪ *State Environmental Planning Policy (Infrastructure) 2007* ▪ *State Environmental Planning Policy No. 55 – Remediation of Land* ▪ *State Environmental Planning Policy No. 64 – Advertising and Signage* ▪ *State Environmental Planning Policy No. 65 – Design Quality of Residential* ▪ *Apartment Development and accompanying Apartment Design Guide (SEPP 65)* ▪ *State Environmental Planning Policy (Affordable Rental Housing)*	See **Section 6 Statutory Context**

Description / Requirement	Reference
▪ *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* ▪ *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* ▪ *Draft State Environmental Planning Policy (Environment)* ▪ *Draft State Environmental Planning Policy (Remediation of Land)* ▪ *Sydney Local Environmental Plan 2012 (SLEP 2012)* ▪ *Any exhibited Planning Proposal or draft State Environmental Planning Policy related to the land.*	
The EIS shall address the provisions, goals and objectives of the following policies: ▪ *NSW State and Premier Priorities* ▪ *A Metropolis of Three Cities* ▪ *Eastern City District Plan* ▪ *Towards our Greater Sydney 2056* ▪ *Future Transport Strategy 2056* ▪ *State Infrastructure Strategy 2018* ▪ *Sustainable Sydney 2030* ▪ *Development near Rail Corridors and Busy Roads – Interim Guideline* ▪ *Guide to Traffic Generating Developments, Roads and Maritime Services* ▪ *Heritage Council Guideline on Heritage Curtilages 1996* ▪ *Heritage Council Guideline, Design in Context – guidelines for infill development in the Historic Environment, 2005* ▪ *City of Sydney's Environmental Action 2016 – 2021 Strategy and Action Plan* ▪ *NSW Government Climate Change Policy Framework* ▪ *NSW Government's Draft Climate Change Fund Strategic Plan and A Plan to Save NSW Energy and Money* ▪ *Better Placed – an integrated design policy for the built environment in NSW 2017 and relevant policy documents published by the Government Architect NSW* ▪ *Draft Contaminated Land Planning Guidelines* ▪ Other relevant Council policies, codes and guidelines (where required pursuant to relevant Local Environmental Plan)	See **Section 5 Strategic Context**

Description / Requirement	Reference
▪ *NSW Aquifer Interference Policy (2012) and any relevant Water Sharing Plans* ▪ *Guidelines for Protecting of Critical Infrastructure from terrorism.* ▪ *NSW Critical Infrastructure Protection Management Framework.* ▪ *Guidelines of NSW Police Safe Places A Comprehensive Guide for Owners, Operators and Designers.* ▪ *Sydney Development Control Plan 2012 (SDCP 2012)* ▪ *City of Sydney: Alternative natural ventilation of apartments in noisy environments- Performance Pathway Guideline (Performance Pathway Guideline)* ▪ *City of Sydney Interim Floodplain Management Policy* ▪ *City of Sydney Guidelines for Waste Management in New Developments* ▪ *City of Sydney Interim Guidelines for Public Art in Private Developments* ▪ *City of Sydney Landscape Code Volume 2* ▪ *City of Sydney Public Domain Manual* ▪ *City of Sydney Light Design Code* ▪ *City of Sydney Street Tree Masterplan* ▪ *City of Sydney Technical Streets Specification and Street Design Code*.	
2. Consistency with the Concept Approval	
The EIS shall: ▪ Demonstrate the proposal is consistent with the Concept Approval and provide details of consistency with any modification(s) to the concept approval if sought concurrently. ▪ Include a staging and delivery plan (or be consistent with an approved plan) for the coordinated delivery of public domain, car parking and other common facilities and any public benefits such as social and affordable housing.	See **Section 2.3.** See **Appendix Q.**
3. Land Use and Gross Floor Area	
The EIS shall: ▪ Address the site specific SLEP 2012 provisions (under Part 6, Division 5) in relation to land use mix and floor space requirements. ▪ Include a table and plans identifying the proposed GFA, floor space ratio and land uses, including a floor-by-floor breakdown of gross floor area (GFA) and the overall residential GFA and non-residential GFA split proposed for the Southern Precinct.	See **Section 6.13.** See **Appendix F.**

Description / Requirement	Reference
▪ Include details of the proposed uses and/or operational details for the development, including but not limited to fit-out and operational details and preliminary operational management plan.	See **Section 4.5.**
4. Design Excellence and Built Form	
The EIS shall: ▪ Demonstrate compliance with the endorsed Design Excellence Strategy and submit a Design Integrity Report in accordance with the requirements of the Concept Approval or as amended.	See **Appendix Y.**
▪ Demonstrate compliance with the endorsed Design and Amenity Guidelines, dated March 2020 or any subsequent endorsed revision of the guidelines.	See **Section 6.14.**
▪ Ensure that the podium building envelopes, as identified by the Concept Approval, must be used for non-residential uses only.	See **Section 6.13.3.**
5. Integration with Sydney Metro Station Infrastructure	
The EIS shall: ▪ Identify the extent of the proposal that is State Significant Development (SSD) and how this relates to the approved Critical State Significant Infrastructure (CSSI) applications and any modifications to the CSSI. ▪ Address how the development supports the design objectives, principles and standards of the Station Design Precinct Plan and Interchange Access Plan under the CSSI. ▪ Show how the SSD will integrate with the CSSI infrastructure such as structural design, detailed architectural approach, access, wayfinding, public domain works and construction management.	See **Section 4.4.**
6. Visual and Amenity Impacts	
The EIS shall: ▪ Provide a detailed visual / view impact analysis of the proposed building when viewed from the public domain and key vantage points surrounding the site. This is to include a written description of the existing view, the likely impact and justification of the proposal and any required mitigation measures. The view locations and methodology for the analysis must be prepared in consultation with the Department and Council.	See **Appendix HH** and **Section 8.3.1.**
▪ Provide a visual impact assessment of the proposed buildings as viewed by a pedestrian from the future Cope Street Plaza and the surrounding public domain surrounding the site.	See **Appendix HH** and **Section 8.3.1.**
▪ Provide a solar access and overshadowing analysis, comparing the overshadowing impacts of the proposal to the existing situation and the approved envelopes having regard to the impact of the proposal on solar access to Alexandria Park and Alexandria Heritage Conservation Area.	See **Appendix LL** and **Section 8.3.3**

Description / Requirement	Reference
This shall include a statement on the benefits and issues of any alternative design options that was considered with respect to shadow impacts to Alexandria Park.	
▪ Provide a reflectivity analysis demonstrating that external treatments, materials and finishes of the development do not cause adverse or excessive glare.	See **Appendix GG** and **Section 8.16**
▪ Include a wind assessment, identifying the impact of the proposal on surrounding wind conditions having regard to the wind study criteria under the Concept Approval and providing any required measures to ameliorate wind impacts at podium level, street level and at the locations of existing and future pedestrian crossings.	See **Appendix KK** and **Section 8.5.**
7. Heritage	
The EIS shall:	
▪ Include a detailed heritage impact statement (HIS) that identifies, considers and addresses any potential impact of the proposal to surrounding heritage items, including any built and landscape items, conservation areas, heritage views and settings, having particular regard to the impact of the proposal on adjoining Waterloo Congregational Church and the and Cauliflower Hotel.	See **Appendix H** and **Section 8.2.**
▪ Include a Heritage Interpretation Strategy, providing opportunities for the proposal to reflect on the heritage character and significance of the site and surrounding area.	See **Appendix CC** and **Section 8.2.**
▪ Demonstrate how the impacts are mitigated through selection of external materials and finishes, façade design and treatment, public domain design and landscaping, signage and public art strategy.	See **Appendix H** and **Section 8.2.**
▪ Consider any archaeological impacts.	See **Appendix H** and **Section 8.2.**
▪ Consider the extent of Aboriginal heritage impacts of the proposal on the site.	
8. Ecologically Sustainable Development (ESD)	
The EIS shall:	
▪ Detail how ESD principles (as defined in clause 7(4) Schedule 2 of the EP&A Regulation 2000) will be incorporated in the design, construction and operation of the development.	See **Appendix M** and **Section 8.4.**
▪ Include a framework (or demonstrate consistency with an approved framework) for how the proposed development will reflect national best practice sustainable building principles to improve environmental performance, including energy and water efficient design and technology, use of renewable energy and best practice in waste management strategy.	See **Appendix M** and **Section 8.4.**
▪ Identify whether parts of student housing development may fall outside BASIX assessment, and if so, what energy efficiency solutions will be used	

Description / Requirement	Reference
to align with national best practice as opposed to National Construction Code Section J - Energy Efficiency (minimum standard). ▪ Demonstrate sufficient waste and recycling management facilities storage and holding areas for servicing.	See **Appendix M** and **Section 8.4.** See **Appendix L.**
9. Traffic, Parking and Access (Construction and Operation)	
The EIS shall include a traffic, parking and access assessment that provides, but is not limited to, the following: ▪ Details on the current and likely estimated future mode share for the various land uses (workers, visitors, etc) accessing the proposed development. ▪ Details of the current and likely estimated future daily and peak hour vehicle, public transport, point to point transport, pedestrian and bicycle movements to/from the site, including an indication of whether it relates to the station or OSD, and any associated impacts. ▪ Measures to mitigate impacts of the proposed development on the operation of existing and future traffic, public transport, pedestrian and bicycle networks, including any required upgrades. ▪ Justification for the car parking provision with measures to encourage users of the development to make sustainable travel choices, including a green travel plan, walking, cycling, public transport and car sharing, adequate provision of bicycle parking and end of trip facilities and the minimisation of private car trips. ▪ Modelling and analysis of pedestrian and cyclist access to the proposed development in consultation with TfNSW, taking into account the existing and planned Sydney Bike Network. ▪ An assessment and details of proposed service vehicle access arrangements, including service vehicle parking, a draft Freight and Servicing Management Plan detailing loading dock and servicing provision, adequacy and management with consideration of precinct wide shared loading docks and/or remote or off-site loading zone hub facilities, ensuring all servicing and loading occurs on-site and does not rely on kerbside controls. ▪ Detailed queuing analysis to show that vehicles would not queue onto Botany Road from the loading dock. ▪ Details of measures to segregate hostile vehicles from public transport users and areas of people congregation. ▪ Demonstrate how pedestrian safety and amenity will be provided along Raglan Street, the shared laneway located between Raglan Street and Cope Street plaza will be designed to prioritise pedestrian movements, including any measures to protect pedestrians entering and exiting the building and retail outlets.	See **Appendix I** and **Section 8.8.**

Description / Requirement	Reference
▪ A draft Construction Pedestrian and Traffic Management Plan to demonstrate the proposed management of impact. This Plan needs to include works zone location, vehicle routes, number of trucks, hours of operation, indicative construction program, access arrangements and traffic control measures for all demolition/construction activities.	
10. Noise and Vibration Impacts (Construction and Operation)	
The EIS shall: ▪ Include an assessment of construction noise and vibration impacts. The assessment must also outline proposed noise and vibration mitigation and monitoring procedures having particular regard for potential impacts to the adjoining heritage listed 'Waterloo Congregational Church' site. ▪ Provide a quantitative assessment of any noise and vibration generating sources and activities during operation and outline mitigation measures (if necessary) to ameliorate and manage impacts including impacts on the adjoining heritage listed 'Waterloo Congregational Church' site. ▪ The noise and vibration impact assessment shall have regard to the recommendations of the Concept Acoustic Assessment Report, SLR consulting dated 9 November 2019.	See **Appendix K** and **Section 8.6.**
11. Construction Impacts	
The EIS shall include a Construction Environmental Management Plan, developed in consultation with TfNSW and Council, providing: ▪ An assessment of potential impacts of the construction on surrounding buildings and the public domain, including air quality and odour impacts, dust emissions, water quality, stormwater runoff, groundwater seepage, soil pollution and construction and demolition waste, and proposed measures to mitigate any impacts. ▪ Assessment of the potential cumulative impacts (noise, vibration, traffic, air quality etc) of the proposed development with regards to the works being carried out on site as part of the Sydney Metro Chatswood to Sydenham approval (CSSI 7400) and other developments in proximity to the site during the construction phase.	See **Appendix Q** and **Section 8.9.**
12. Prescribed airspace for Sydney Airport	
The EIS shall identify any impacts of the proposal on the prescribed airspace for Sydney Airport.	See **Appendix DD** and **Section 8.7.**
13. Public Benefits, Contributions and/or Voluntary Planning Agreement Public Benefits	
The EIS shall identify the provision of public benefit, services and contributions that will be delivered as part of the proposal in consultation with key stakeholders, such as the Department, Council and TfNSW, and address voluntary planning agreement (VPA) or other legally binding instrument agreed between a relevant public authority and the Applicant.	See **Section 5.20.**

Description / Requirement	Reference
14. Utilities	
The EIS shall: ▪ Identify and address the existing capacity to service the development proposed and any augmentation requirements for utilities in consultation with relevant agencies. ▪ Identify any potential impacts of the proposed construction and operation on the existing utility infrastructure and service provider assets, and demonstrate how these will be protected, or impacts mitigated.	See **Appendix T** and **Section 8.12.**
15. Contamination and Remediation	
The EIS shall: ▪ Address the provisions of SEPP 55. ▪ Demonstrate the suitability of the site for the proposed use having regard to contamination and remediation	See **Appendix OO** and **Section 6.5.**
16. Stormwater and Flood Impact	
The EIS shall: ▪ Include an assessment of flood impact having regard to the requirements of Sydney LEP 2012 and the recommendations of the Concept Water Quality, Flooding and Stormwater Report dated 31 August 2018. ▪ Include a stormwater management strategy that considers the relevant local council stormwater management policy, including details of onsite stormwater capture, storage and re-use measures developed for the site.	See **Appendix O** and **Section 8.15.**
17. Biodiversity	
The EIS shall provide an assessment of the proposal's biodiversity impacts in accordance with Section 7.9 the Biodiversity Conservation Act 2016, the Biodiversity Assessment Method and document the findings in a Biodiversity Development Assessment Report (BDAR) where required under the Act.	See **Appendix V** and **Section 6.2.**
18. Pre-submission Consultation Statement	
The EIS shall include a report describing pre-submission consultation undertaken, including a record of the stakeholders consulted, the issues raised during the consultation and how the proposal responds to those issues. The statement must include evidence of consultation with the adjoining Waterloo Congregational Church on the following matters (but not limited to) car parking during large church events (funerals and weddings), waste servicing, building maintenance, design of the public domain around the curtilage of the church and design of the setback zones and edge interfaces so as to promote passive surveillance.	See **Appendix U** and **Section 7 Community & Stakeholder** Engagement
Plans and Documents	

Description / Requirement	Reference
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents.	
In addition, the EIS must include the following:	
▪ Site title diagrams and survey plan, showing existing levels, location and height of existing and adjacent structures/buildings	Site Title Diagrams and Survey Plans at **Appendix C.**
▪ Site analysis plan;	
▪ Schedule of proposed gross floor area per land use	**Appendix D.**
▪ Social and economic analysis (including social needs, employment and retail studies)	**Appendix D.**
▪ Building envelopes showing the relationship with proposed and existing buildings in the locality	**Appendix AA.**
▪ Architectural and urban design statement	**Appendix D** and **Appendix F.**
▪ Visual and view impact analysis and photomontages	**Appendix HH**
▪ Design guidelines and design excellence strategy	
▪ Staging plan and any associated activation and infrastructure delivery strategy	**Appendix G and Appendix X**
▪ Solar access analysis report and diagrams: View from the sun diagrams are to be provided between 9am and 3pm during the winter solstice at 15minute intervals.	**Appendix Q**
▪ Wind impact assessment	**Appendix NN**
▪ Flood assessment/storm water management plan	**Appendix KK**
▪ Public domain plans defining extent of works (if any proposed)	**Appendix O**
▪ Landscape design statement and plans	**Appendix II**
▪ Heritage impact assessment	**Appendix JJ**
▪ Heritage interpretation strategy	**Appendix H.**
▪ Transport, traffic and parking assessment	**Appendix CC.**
▪ Construction traffic and pedestrian management plan	**Appendix I.**
▪ Noise and vibration impact assessment	**Appendix J.**
▪ Air quality management plan (where relevant)	**Appendix K.**
▪ Access/DDA impact statement	**Appendix K.**
▪ Flood impact assessment/storm water management strategy including any geotechnical assessment	**Appendix S.**
	Appendix O.

Description / Requirement	Reference
▪ Physical and 3D digital model (generally in accordance with City of Sydney Council requirements) ▪ Services and utilities infrastructure report ▪ ESD statement (incorporating a sustainability framework) ▪ Tree removal plan and arborist report (where relevant) ▪ Contamination and remediation report (including any site audits, soil specification where relevant) ▪ Waste management plan ▪ Archaeological statement ▪ Reflectivity statement ▪ Signage details (if proposed) ▪ Public art strategy ▪ Operational noise and vibration report ▪ CPTED assessment ▪ Construction management statement ▪ Acoustic impact assessment ▪ Pre-submission consultation report.	**Submitted.** **Appendix T.** **Appendix M.** **Appendix M.** **Appendix OO.** **Appendix L.** **Appendix H.** **Appendix GG.** **Appendix D.** **Appendix JJ.** **Appendix K.** **Appendix N.** **Appendix Q.** **Appendix K.** **Appendix U.**
Consultation	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: ▪ City of Sydney Council ▪ Transport for NSW ▪ Sydney Trains ▪ Sydney Metro ▪ Transport Coordination Office within Transport for NSW ▪ Surrounding residents and businesses including the Waterloo Congregational Church ▪ Relevant community groups ▪ Relevant special interest or recreational groups The EIS must describe the consultation process and the issues raised and identify where the design of the development has been amended in response	See **Appendix U** and **Section 7.**

Description / Requirement	Reference
to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	

2. BACKGROUND

2.1. SYDNEY METRO

Sydney Metro is Australia's biggest public transport project. There are four core components:

Metro North West Line (formerly the 36 kilometre North West Rail Link)

Services started in May 2019 in the city's North West between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and $1 billion under budget.

Sydney Metro City & Southwest

The Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of the Metro North West Line at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Barangaroo, Crows Nest, Victoria Cross, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs.

The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

The NSW Government is assessing an optional station at Pyrmont and further planning is underway to determine the location of a new metro station in the Sydney CBD.

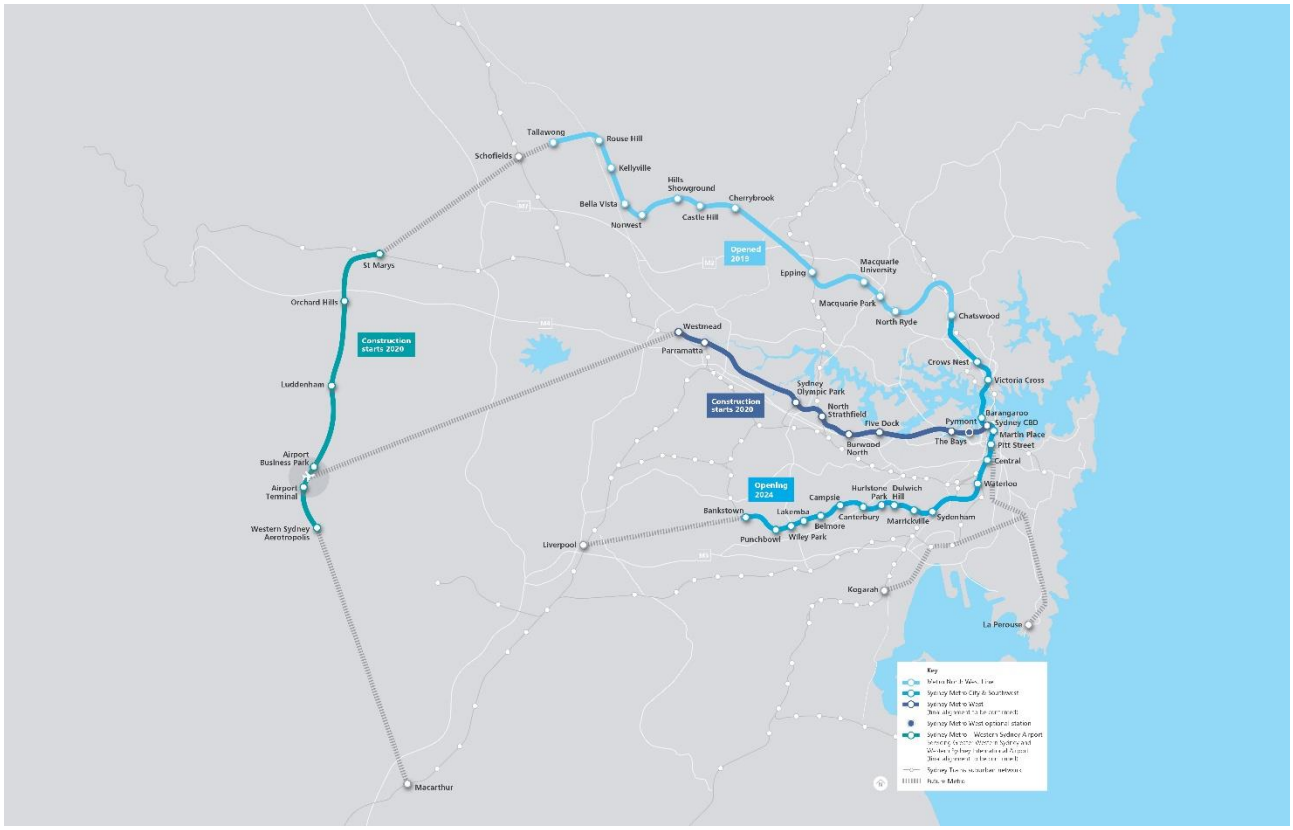
Sydney Metro - Western Sydney Airport

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service. Six new stations will be delivered at St Marys, Orchard Hills, Luddenham, Airport Business Park, Airport Terminal and Western Sydney Aerotropolis. The Australian and NSW governments are partners in the delivery of this new railway.

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a Critical State significant infrastructure project (reference SSI 15_7400) (CSSI approval).

The terms of the CSSI approval includes all works required to construct the Sydney Metro Waterloo Station, including the demolition of existing buildings and structures. The CSSI approval also includes construction of below and above ground structures associated with the metro station and structures required to facilitate the construction of the OSD.

Figure 6 Sydney Metro Alignment



Source: Sydney Metro

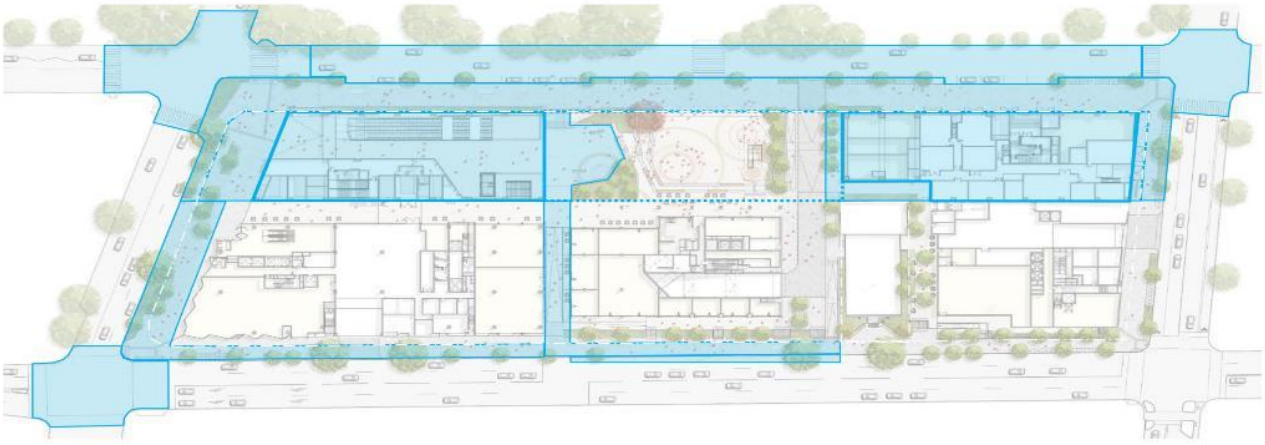
2.2. CSSI APPROVAL – CSSI 7400

The CSSI approval, as it relates to the Waterloo metro station, includes:

- Demolition of existing development including vegetation removal.
- Excavation and remediation of the station box site undertaken in line with a Remediation Action Plan and Earthworks Management Plan.
- Design and construction of station box above existing ground level up to RL 33.1, including primary station works, structural works (base build), retail/commercial tenancies, structural and service provision for the OSD (e.g. structure, lift cores and mechanical services).
- Design and construction of station services box above existing ground level up to RL 35.1, including primary station works, structural works (base build), retail/commercial tenancies, structural and service provision for the OSD (e.g. structure, lift cores and mechanical services).
- Station structure including the concourse and platforms.
- Retail spaces within the station building.
- Public domain improvements, including the through site link from metro to bus stop adjacent to Building 2 (physical connection excluding awnings).
- Access arrangements including vertical transport such as escalators and lifts.
- Structural and service elements and relevant space provisioning necessary for constructing OSD, such as columns and beams, space for lift cores, plant rooms, access, parking, retail and building services.

In addition to the two station boxes themselves, a significant component of the public domain improvements to be delivered on and adjacent to the Waterloo Metro Quarter site will be delivered under the scope of the CSSI approval where this work is required to service the functionality of the metro station itself. This is clearly illustrated in the following figure. The remaining public domain works will be delivered under the terms of the relevant detailed SSDA for that precinct.

Figure 7 Scope of public domain and ground plane works to be completed under the CSSI approval



Source: Applicant

Further detailed discussion on the relationship of public domain works proposed is discussed in Section 4.4.

The CSSI approval included Indicative Interface Drawings for the below and above ground works at Waterloo metro station. Section 2.3 of the Preferred Infrastructure Report (**PIR**) noted that the integration of the OSD elements and the metro station elements would be subject to the design resolution process, noting that the detailed design may vary from the concept design assessed within the planning approval.

Condition E101 of that approval requires that detailed Station Design and Precinct Plans be approved by the Secretary of the Department prior to the construction of above ground works.

The building design in the podium levels for the areas allocated to the OSD as approved by SSD 9393 will need to be coordinated with the Station Design & Precinct Plans prior to their approval by the Secretary.

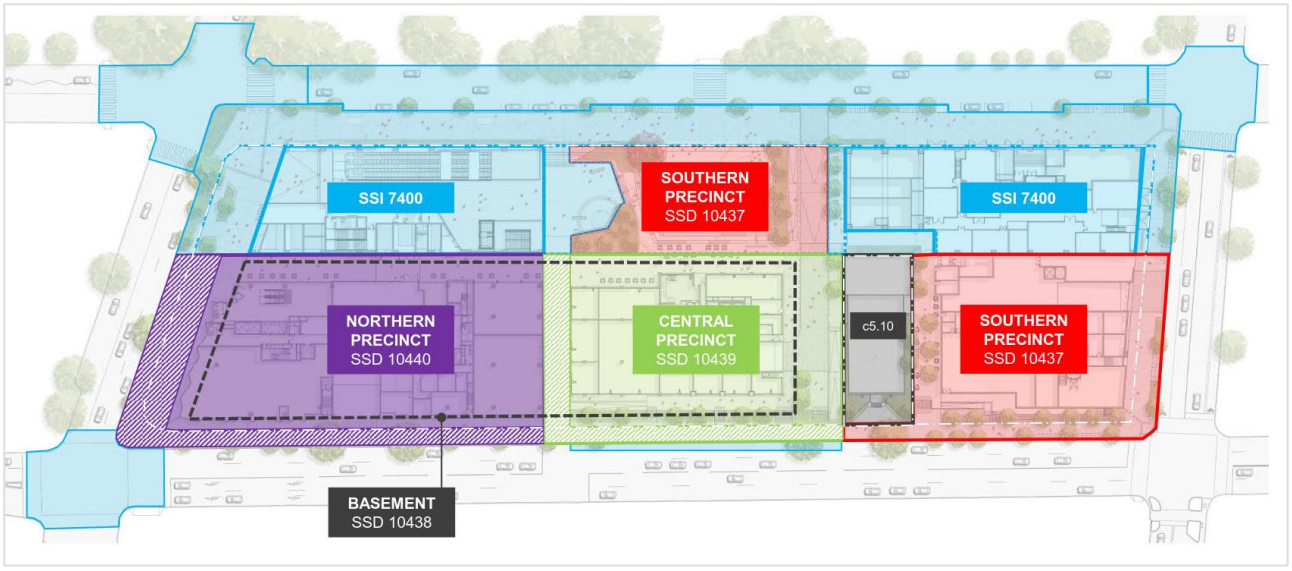
2.3. CONCEPT APPROVAL – SSD 9393

Development consent was granted on 10 December 2019 for the concept DA (**SSD 9393**) for Waterloo OSD including:

- A maximum building envelope for podium, mid-rise and tower buildings.
- A maximum gross floor area of 68,750sqm, excluding station floor space.
- Conceptual land use for non-residential and residential floor space.
- Minimum 12,000sqm of non-residential gross floor area including a minimum of 2,000sqm of community facilities.
- Minimum 5% residential gross floor area as affordable housing dwellings.
- 70 social housing dwellings.
- Basement car parking, motorcycle parking, bicycle parking, and service vehicle spaces.

The concept DA instrument of approval does not grant consent to any physical works commencing on site. This SSDA seeks development consent for the construction and operation of a mixed use OSD and public domain works located at the Southern Precinct of the Waterloo Metro Quarter site. The boundaries of the Southern Precinct are illustrated at Figure 8.

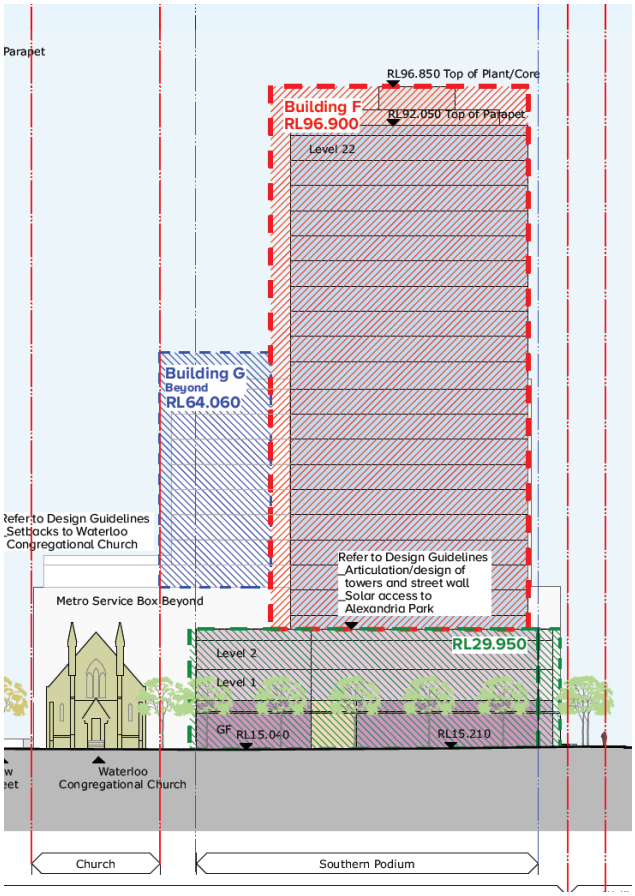
Figure 8 Waterloo Metro Quarter station site precinct identification (SSDA Boundaries)



Source: WL Developer Pty Ltd

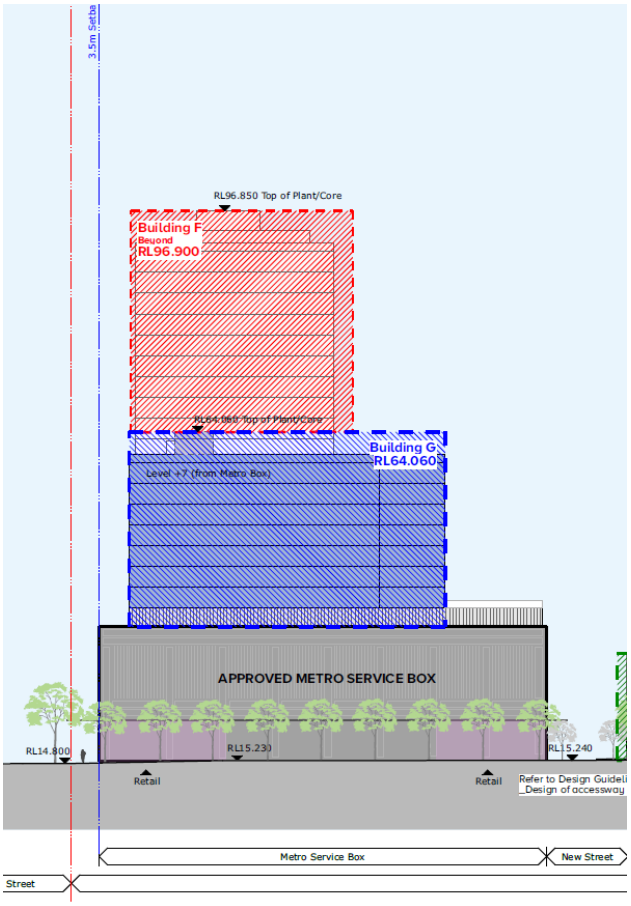
The approved concept for the SSDA building envelope in relation to this DA is provided in Figure 9.

Figure 9 Approved concept SSDA building envelope – Southern Precinct



Picture 7 Botany Road Elevation

Source: Turner



Picture 8 Cope Street Elevation

Source: Turner

Separate SSDA's will be prepared for the Northern Precinct of the site, Central Building and Basement which will support the Northern Precinct and Central Building. A further application for site preparation works, including archaeological works and remediation works (where required) will be submitted to the DPIE.

The development consent for application SSD 9393 issued on 10th December 2019 included two components. 'Part A' related to the terms of the consent, whilst 'Part B' included the conditions to be satisfied in future detailed development application(s).

Table 2 below outlines the conditions to be satisfied as identified under Part B of the concept development consent and how they relate to and/or are addressed within this EIS as part of the detailed SSDA.

Table 2 Concept DA SSD 9393 conditions of consent to be satisfied

Condition / Requirement	**Document Reference**
MAXIMUM BUILDING ENVELOPES	
B1. Future development applications must demonstrate that the buildings are wholly contained within the building envelopes consistent with the plans listed in Condition A2, as modified by the conditions of this consent.	The Architectural Plans in **Appendix D** illustrate that the Southern Precinct development is contained wholly within the concept plan building envelope.
B2. Building height and gross floor area is to be measured in accordance with the definitions under Sydney Local Environmental Plan 2012.	Building height and GFA has been measured in accordance with SLEP 2012. See **Section 6.12.**
B3. The maximum achievable gross floor area for the non-station related floor space is 68,750sqm and this amount will only be achieved subject to demonstration of: a) Being wholly contained within the approved building envelopes; b) Compliance with the conditions of this concept approval; c) Demonstration of design excellence; d) Consistency with the Design Guidelines (as amended by Condition A14).	a) Yes – See **Section 6.13.2.** b) Yes - see **Section 2.3.** c) Yes – see **Section 8.1.2.** d) Yes - see **Section 6.14**.
B4. The approved podium building envelopes, as identified with green shading in the approved plans in Condition A2 must be used for non-residential uses only.	Yes - See **Section 6.13.3.**
BUILT FORM AND URBAN DESIGN	
B5. The detailed development applications shall address compliance with: a) The Design Guidelines as endorsed by the Planning Secretary pursuant to Condition A14;	a) Yes - see **Section 6.14.** b) Yes - see **Appendix G**.

Condition / Requirement	Document Reference
b) The Design Excellence Strategy as endorsed by the Planning Secretary pursuant to Condition A15 c) The conditions of this consent.	c) Yes - see **Section 2.3.**
B6. The following elements are not inconsistent with the consent proposal but are subject to further assessment with the relevant detailed development application: i) Conceptual land uses, except for the approved minimum non-residential GFA, community facilities GFA, affordable housing rate and number of social housing dwellings approved. ii) Indicative signage zones, following preparation of a Signage Strategy. iii) Subdivision.	i) See **Section 6.13.1.** ii) See **Section 4.10.** iii) See **Section 4.13.**
B7. Future development applications shall address the following: a) Botany Road setback of 6.5m is to be extended to the north as identified in Response to Submissions (Figure 10, Page 139). The extended setback is to be incorporated into revised Building Envelope Plans to the satisfaction of the Planning Secretary prior to the lodgement of any future development application. b) Submission of a Design Integrity Report to the satisfaction of the Planning Secretary that demonstrates how design excellence and design integrity will be achieved in accordance with: i. The design objectives of the Concept Development ii. Consistency with the approved Design Guidelines as amended by Condition A14. iii. The DEEP's Design Excellence Report. iv. The advice of the SDRP (or approved alternative under Condition A15). c) The Design Integrity Report (**DIR**) as required by Condition B7 must include a summary of feedback provided by the SDRP (or alternative approved in accordance with Condition A15) and responses by the Applicant to this advice. The DIR shall also include how the process will be implemented through to completion of the approved development.	a) See **Section 8.1.1** and **Appendix D.** b) See **Appendix Y.** c) See **Appendix Y.**
CAR PARKING AND BICYCLE PARKING	
B8. Future development applications shall reduce total car parking provision to reduce private car ownership and promote use of active and public transport. Future development applications must demonstrate compliance with: a) The maximum number of car spaces to be provided for all residential accommodation within the development is limited to 170 spaces, including	a) Complies – see **Section 8.8.2** and **Appendix I.** b) Complies – see **Section 8.8.2** and **Appendix I.**

Condition / Requirement	Document Reference
residents' spaces and residential car share spaces but excluding visitor spaces and service vehicle spaces. b) The allocation of residential car parking spaces, up to the maximum of 170 spaces must not exceed the following rates: i. 0.1 space per studio dwelling ii. 0.3 parking spaces per 1 bedroom dwelling iii. 0.7 parking spaces per 2 bedroom dwelling iv. 1 parking space per 3 bedroom or more dwelling v. Residential car share parking rate of 1 space per 50 residential car parking spaces provided c) Non-residential car parking to be provided in accordance with the following: i. A maximum of 1 space for 435sqm of GFA for any commercial uses. ii. A maximum of 2 spaces for use of the Waterloo Congregational Church. iii. Non-residential car share parking at rate of 1 space per 30 non-residential car parking spaces.	c) Complies – see **Section 8.8.2** and **Appendix I.**
B9 Future development applications must include a Car Parking Strategy and Management Plan adopting the maximum residential parking cap and allocation rates above and demonstrating compliance with the following: a) Accessible car parking spaces provided as per Sydney DCP 2012 rates. b) Motorcycle parking spaces provided as per Sydney DCP 2012 rates.	a) Complies – see **Section 8.8.2** and **Appendix I.**
B10 Bicycle parking and end-of-trip facilities for the OSD shall be in accordance with the rates specified within the Sydney DCP 2012 for the final land use mix in the future development application.	a) Complies – see **Section 8.8.2** and **Appendix I.**
CONSULTATION WITH WATERLOO CONGREGATIONAL CHURCH	
B11. Future development applications must demonstrate consultation with the owners and operators of Waterloo Congregational Church and project responses. Consultation is to include consideration of: a) Potential for church gathering space b) Wedding and funeral cars c) Waste and servicing d) Building maintenance e) Design of the public domain around and within the Church property including safe access and passive surveillance in the setbacks.	a) Yes – see **Section 7** and **Appendix U.**

Condition / Requirement	Document Reference
HERITAGE IMPACT ASSESSMENT	
B12. Future development applications for aboveground works shall include a detailed Heritage Impact Statement and a Heritage Interpretation Strategy for the proposed works prepared in consultation with the City of Sydney Council.	See **Appendix H** and **Appendix CC.** See **Section 8.2.**
WIND IMPACT ASSESSMENT	
B13. Future development applications for above ground works shall be accompanied by a Wind Impact Assessment including computer modelling of detailed building form and demonstrating compliance with the criteria in Pedestrian Wind Environment Study by Windtech dated 26 September 2019. B14. The Wind Impact Assessment must consider the locations of existing and future pedestrian crossings and apply outstanding criteria zones to match the width of crossings and the waiting zones for crossings, including on the opposite side of streets.	See **Appendix KK** and **Section 8.5.**
TRAFFIC, ACCESS AND PARKING ASSESSMENT	
B15. Future development applications shall be accompanied by a Traffic and Transport Impact Assessment.	See **Appendix I** and **Section 8.8.**
B16. Future development applications shall include a Construction Traffic and Pedestrian Management Plan (CTMP) prepared in consultation with the Sydney Coordination Office and City of Sydney, and to the satisfaction of the relevant road authorities. The CTMP shall include, but not be limited to: a) Construction car parking strategy b) Haulage movement numbers/routes including contingency routes c) Detailed travel management strategy for construction vehicles including staff movements. d) Maintaining property accesses e) Maintaining bus operations including routes and bus stops f) Maintaining pedestrian and cyclist links / routes g) Independent road safety audits on construction related traffic measures h) Measures to account for any cumulative activities / work zones operating simultaneously.	See **Appendix Q** and **Section 8.9.**
B17. Independent road safety audits are to be undertaken for all stages of further design development involving road operations and traffic issues and cognisant of all road users. Any issues identified by the audits will need to be closed out in consultation with Sydney Coordination Office, RMS and/or City of Sydney to the satisfaction of the relevant roads authorities.	See **Appendix I.**
ENVIRONMENTAL PERFORMANCE / ESD	

Condition / Requirement	Document Reference
B18. Future development applications must demonstrate how the principles of ecologically sustainable development (ESD) have been incorporated into the design, construction and ongoing operation of the proposal. This shall include preparation and implementation of Environmental Sustainability Strategies that incorporate low-carbon, high efficiency targets aimed at reducing emissions, optimising use of water, reducing waste and optimising car parking provision to maximise sustainability and minimise environmental impacts.	See **Appendix M** and **Section 8.4.**
B19. The minimum performance targets for environmental performance are: a) Precinct overall: i) 6 star Green Star Communities Rating Tool ii) Endorsed under One Living Planet Framework b) Commercial/office uses i) 5 star Green Star Design and As-Built Rating Tool ii) 5.5 Star NABERS Energy iii) 4.5 Star NABERS Water iv) Gold Certification: Shell and Core under WELL Building Standard c) Residential Uses: v) 5 Star Green Star Design and As-Built Rating Tool vi) More than BASIX 40 Water vii) More than BASIX 30 Energy.	Yes – see **Appendix M** and **Section 8.4.**
SECURITY AND CRIME ASSESSMENT	
B20. Future development applications shall be accompanied by a Security and Crime Risk Assessment prepared in consultation with NSW Police having regard to Crime Prevention Through Environmental Design (**CPTED**) Principles and NSW Police publication “Safe Place: Vehicle Management: A comprehensive guide for owns, operators and designers.” The future development is to have regard to the recommendations contained within the submission by NSW Police on the Concept SSD.	See **Appendix N** and **Section 8.19.1.**
CONSTRUCTION IMPACT ASSESSMENT	
B21. Future development applications shall provide analysis and assessment of the impacts of construction works and include: a) Construction Traffic and Pedestrian Management Plan, as per Condition B9 b) Community Consultation and Engagement Plan (s) c) Noise and Vibration Impact Assessment	See **Appendix J.** See **Appendix U.** See **Appendix K.** See **Appendix J.**

Condition / Requirement	Document Reference
d) Construction Waste Management Plan e) Air Quality Management Plan.	See **Appendix J.**
B22. The plans above may be prepared as part of a Construction Environmental Management Plan prepared for the implementation under the conditions of any consent for future development applications, having regard to the Construction Environmental Management Framework and Construction Noise and Vibration Strategy prepared for the Sydney Metro City & Southwest (CSSI 7400).	See **Appendix J.**
NOISE AND VIRBATION ASSESSMENT	
B23. Future development applications shall be accompanied by a Noise and Vibration Impact Assessment that demonstrates the following requirements are met: a) vibration from construction activities does not exceed the vibration limits established in British Standard 8S7385-2:1993 Excavation and measurement for vibration in buildings. A guide to damage levels from groundborne vibration. b) vibration testing is conducted before and during vibration generating activities that have the potential to impact on heritage items to identify minimum working distances to prevent damage. In the event the vibration testing and monitoring shows that the preferred values for vibration are likely to be exceeded, the Applicant must review the construction methodology and, if necessary, propose additional mitigation measures. c) advice of a heritage specialist has been incorporated on methods and locations for installed equipment used for vibration movement and noise monitoring of heritage-listed structures.	See **Appendix K** and **Section 8.6.**
B24. The Noise and Vibration Assessment must provide a quantitative assessment of the main noise generating sources and activities during operation. Details are to be included outlining any mitigating measures necessary to ensure the amenity of future sensitive land uses on the site and neighbouring sites is protected during the operation of the development.	See **Appendix K** and **Section 8.6.**
B25. The Noise and Vibration Assessment must address the conclusions and recommendations of the Concept Acoustic Assessment Report, SLR Consulting dated 9 November 2019.	See **Appendix K** and **Section 8.6.**
FLOODING AND STORMWATER ASSESSMENT	
B26. Future development applications shall be accompanied by a Flood and Stormwater Impact Assessment. The Assessment must demonstrate the conclusions and recommendations of the Concept Water Quality, Flooding and Stormwater Report dated 31 October 2018 prepared by AECOM.	See **Appendix O** and **Section 8.15.**
REFLECTIVITY ASSESSMENT	

Condition / Requirement	Document Reference
B27. Future development applications for aboveground works shall include a Reflectivity Assessment demonstrating that external treatments, materials and finishes of the development do not cause adverse or excessive glare.	See **Appendix GG** and **Section 8.17.**
ARCHAROLOGICAL AND ABORIGINAL CULTURAL HERITAGE ASSESSMENT	
B28. Future development applications shall demonstrate the recommendations and mitigation measures of the following Sydney Metro City & Southwest (CSSI 7400) reports are to be incorporated during the construction of the SSD project: a) Artefact 2016, Sydney Metro City & Southwest, Chatswood to Sydenham: Aboriginal Cultural Heritage Assessment b) Artefact 2016, Sydney Metro City & Southwest, Chatswood to Sydenham: Aboriginal Heritage - Archaeological Assessment.	Archaeological and Aboriginal cultural considerations have been covered under the detailed basement SSDA, and do not form a consideration under this proposal. See **Appendix H** and **Section 8.2.**
B29. Future development applications shall include an Archaeological Research Design (ARD) and subsequent Archaeological Method Statement (AMS), or updated/amended CSSI ARD and AMS that clearly applies to the SSD scope of works, informed by the results of the archaeological works undertaken for the CSSI works. This may include consultation with the Registered Aboriginal Parties for the project and may include further field study. The AMS must: a) provide an assessment of the findings of the eastern clearance works and reporting (i.e. the CSSI works) b) identify any new research questions, if required c) make recommendations for any revised archaeological mitigation measures, if required d) provide an assessment of benefits of completing archaeological testing, clearance and salvage and/or make a recommendation, if appropriate, that these measures are not required.	See **Appendix H** and **Section 8.2.**
AIRSPACE PROTECTION	
B30. Future detailed development applications for aboveground works must comply with the following requirements: a) buildings must not exceed a maximum height of 116.9 metres AHO. This includes all lift over-runs, vents, chimneys, aerials, antennas, lightning rods, and roof top garden plantings, exhaust flues, etc. b) the tallest building at the site (proposed Building A at the northernmost extent of the site as indicated in the Aeronautical Impact Assessment V2.1 dated 1 November 2018) must be obstacle lit by medium intensity steady red lighting during hours of darkness at the highest point of the building. Obstacle lights	Noted – the proposal complies with all requirements approved under SSD 9393.

Condition / Requirement	Document Reference
are to be arranged to ensure the building can be observed in a 360 degree radius as per subsection 9.4.3 of the Manual of Standards Part 139-Aerodromes (MOS Part 139). Characteristics for medium intensity lights are stated in subsection 9.4.7 of MOS Part 13A. c) the Proponent must ensure that the obstacle lighting has a built-in alarm system that will provide remote monitoring to notify the person responsible for the maintenance of the building's obstacle lighting. The designated person must be available 24 hours per day, 7 days per week. Immediate action must be taken to repair the obstacle lighting and notify Sydney Airport of any outage. Contact details for the person responsible for the obstacle lighting must be provided to Sydney Airport prior to the completion of the building construction and kept up to date. d) the proponent must advise Airservices Australia at least 3 business days prior to the controlled activity commencing by emailing ifp@airservicesaustralia.com and quoting YSSY-CA-146. e) as soon as construction commences, the Proponent must complete the Vertical Obstacle Notification Form for tall structures and submit the completed form to AirServices Australia. f) separate approval must be sought under the Airports (Protection of Airspace) Regulations 1996 for any construction equipment (i.e. cranes) required to construct the building. Construction cranes may be required to operate at a height significantly higher than that of the proposed controlled activity and consequently, may not be approved under the Regulations. Therefore, it is advisable that approval to operate construction equipment (i.e. cranes) be obtained prior to any commitment to construct. g) Within 7 days of completion of each building, the Proponent must provide the airfield design manager at Sydney Airport with a written report from a registered surveyor on the finished height of the building	

2.4. AMENDING DA - SSD 10441

Following Sydney Metro's appointment of WL Developer Pty Ltd as the preferred partner to deliver the Waterloo Metro OSD, and ongoing design development, minor modifications to the concept approval are now required to accommodate the detailed design.

An amending DA has been lodged concurrently with this DA in accordance with Section 4.22 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). It seeks approval to amend the building envelope and description of development for the Northern Precinct of the Waterloo Metro Quarter site approved under SSD 9393. No changes are proposed to the concept approval as it relates to the Southern Precinct.

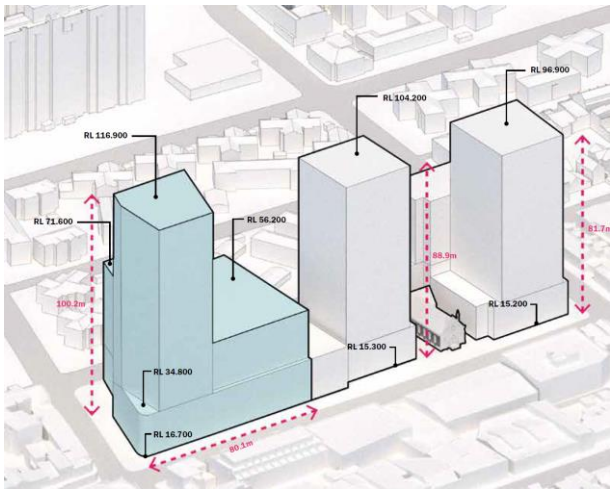
Specifically, the proposal seeks to modify the approved building envelope for the Northern Precinct (previously comprising 'Building A', 'Building B', 'Building C' and 'Building D' under SSD 9393), as well as a minor amendment to Building 2 which is located in the Central Precinct of the site, through:

- Increasing the maximum building height for the southern portion of the northern precinct from RL56.2 to RL72.60 (refer to Figure 10).

- Removing the 'tower component' of the northern precinct, reducing the overall height of the tower envelope from RL116.9 to RL90.40, to enable the redistribution of floor space to commercial office floor plates.
- Amending the description of development to refer to a mid-rise (approximately 17 storey) commercial office building, comprising approximately 34,125sqm of commercial office floor space within the northern portion of the site, rather than a third residential tower.
- Minor amendment to the podium design of Building 2 along the Cope Street Plaza eastern façade to accommodate increased community GFA.
- Condition amendments to enable balustrades, pergola, solar panels and the like to be located outside of the approved building envelope and provide clarity on minor design items.

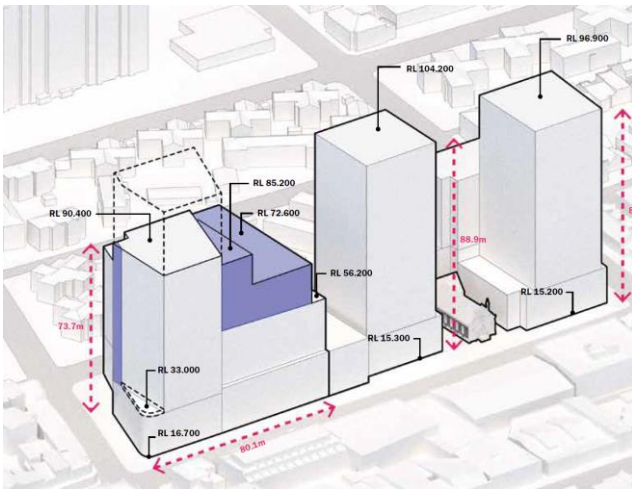
The modification of the approved concept SSDA will enable the detailed design of a new commercial building (comprising office and retail premises) to be pursued on the site, significantly increasing the proportion of employment generating floor space on the Waterloo Metro Quarter site. This new commercial building is proposed in replacement of four building envelopes approved under SSD 9393, which comprised one residential tower, and three mid-rise residential buildings.

Figure 10 Approved and Proposed Building Envelopes



Picture 9 Approved Envelope

Source: Hassell



Picture 10 Proposed Amended Envelope

Source: Hassell

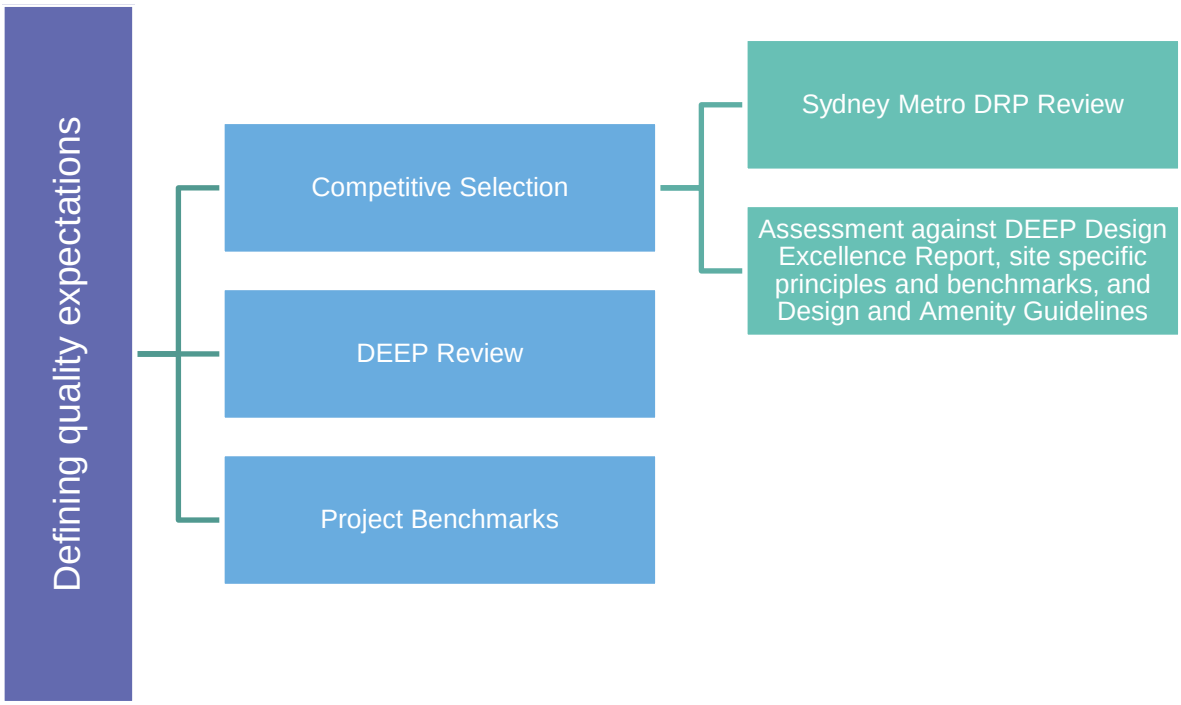
2.5. WATERLOO METRO QUARTER DESIGN EXCELLENCE STRATEGY

The concept DA exercises the discretion available under clause 6.21(6) o*f Sydney Local Environmental Plan 2012* (**SLEP**) to waive the requirement for a Competitive Design Process under clause 6.21(5) as the concept design has been subject to the Sydney Metro Waterloo Design Excellence Strategy.

The Design Excellence Strategy and a set of specific Design Guidelines for the Waterloo Station OSD were established to guide the detailed design of the future OSD and ensure a high quality of design is achieved for the site and other over station developments.

The endorsed Design Excellence Strategy is included at **Appendix G.** The Design Excellence Strategy comprises a multi-phase process including a competitive selection which involved an Expression of Interest (**EOI**) and Request for Tender process, benchmarking studies and continued design review by a Design Excellence Evaluation Panel (**DEEP**) and subsequently the Sydney Metro Design Review Panel (**DRP**). A summary of the design excellence process undertaken is illustrated in Figure 11 below.

Figure 11 Summary of design excellence process



A critical objective of the competitive tendering process was to review alternative approaches to the WMQ site and strive for design excellence for the OSD project. Following the approval of the Concept DA and completion of the EOI and Request for Tender process, WL Developer Pty Ltd and its architect Bates Smart were chosen as the successful development partner for the Sydney Metro Waterloo Station OSD.

The Design Excellence Strategy also requires DRP to review and provide feedback on the SSDA's prior to lodgement, including assessment against site specific principles, benchmarks, design guidelines and the DEEP report.

Since the selection of WL Developer Pty Ltd as the development partner for the Waterloo Station OSD, the applicant has presented to the Sydney Metro DRP 10 times. Throughout this process, the DRP has provided ongoing design review of the proposed Central Precinct proposal to ensure design excellence and integrity have been achieved.

The specific details of the design excellence process is outlined within the Design Excellence Strategy (**Appendix G**) and Design Guidelines in **Appendix X,** with a detailed discussion of the proposal's design excellence included at **Section 8.1.2**.

3. SITE ANALYSIS

3.1. SITE CONTEXT AND LOCATION

The site is located within the City of Sydney Local Government Area (**LGA**). The site is situated approximately 3.3 kilometres south of Sydney CBD and 8 kilometres northeast of Sydney International Airport.

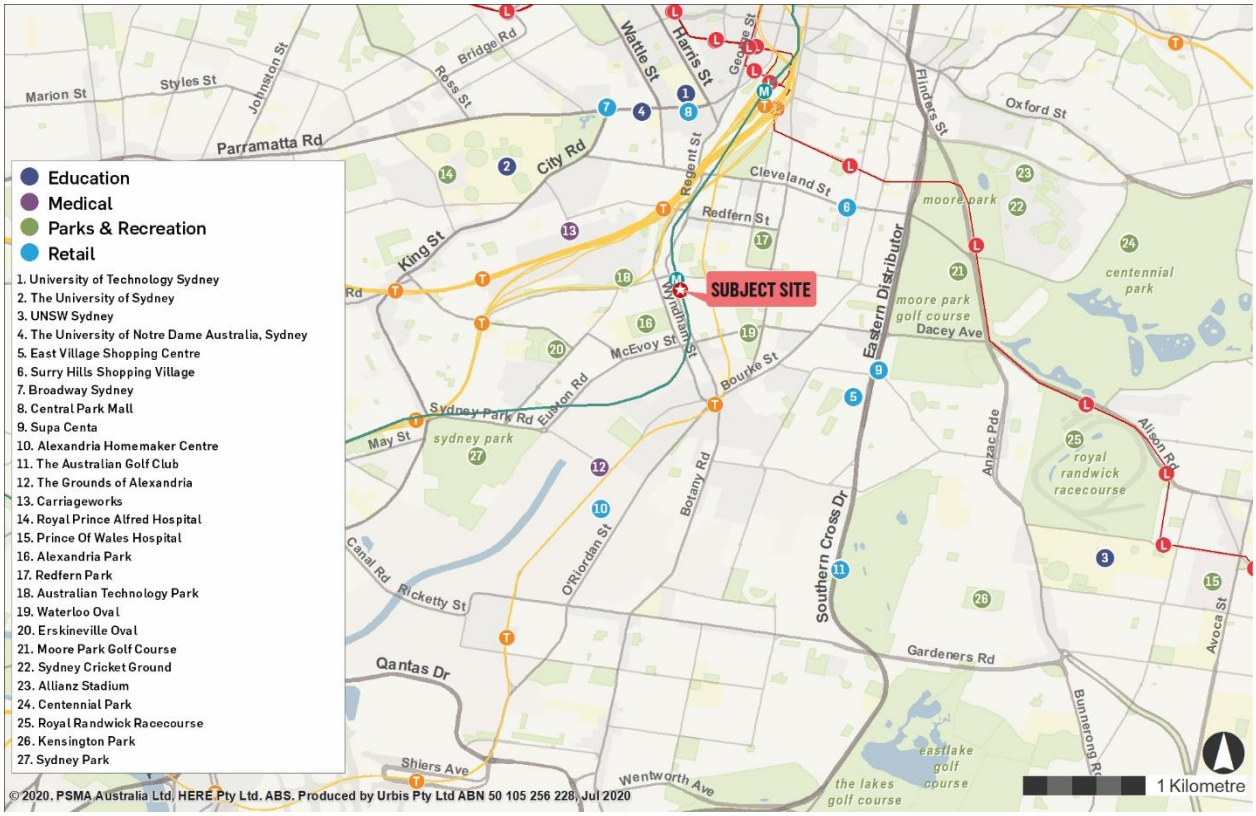
The Waterloo Metro Quarter site comprises land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street (refer to Figure 12). The heritage listed Waterloo Congregational Church located at 103–105 Botany Road is within this street block but is not part of the Waterloo Metro Quarter site boundaries.

The Waterloo Metro Quarter site is a rectangular shaped allotment with an overall site area of approximately 1.287 hectares. The Southern Precinct is approximately 4,700sqm. The boundaries of the overall site are identified in Figure 12.

Figure 12 Aerial of the Site

Source: Urbis

Figure 13 Location Map of site



Source: Urbis

3.2. LEGAL DESCRIPTION

The Waterloo Metro Quarter site comprises the following allotments and legal description at the date of this report. Following consolidation by Sydney Metro (the Principal) the land will be set out in deposited plan DP1257150.

- 1368 Raglan Street (Lot 4 DP 215751);
- 59 Botany Road (Lot 5 DP 215751);
- 65 Botany Road (Lot 1 DP 814205);
- 67 Botany Road (Lot 1 DP 228641);
- 124-128 Cope Street (Lot 2 DP 228641);
- 69-83 Botany Road (Lot 1, DP 1084919);
- 130-134 Cope Street (Lot 12 DP 399757);
- 136-144 Cope Street (Lots A-E DP 108312);
- 85 Botany Road (Lot 1 DP 27454);
- 87 Botany Road (Lot 2 DP 27454);
- 89-91 Botany Road (Lot 1 DP 996765);
- 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891);
- 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831);
- 156-160 Cope Street (Lot 31 DP 805384);
- 107-117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116); and
- 170-174 Cope Street (Lot 2 DP 205942).

The detailed SSDA applies to the Southern Precinct (the site) of the Waterloo Metro Quarter site. The site has an area of approximately 4,830sqm. The site comprises the following allotments and legal description at the date of this report.

- Part 130-134 Cope Street (Lot 12 DP 399757);
- Part 136-144 Cope Street (Lots A-E DP 108312);
- 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891);
- 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831);
- 156-160 Cope Street (Lot 31 DP 805384);
- 107-117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116); and
- 170-174 Cope Street (Lot 2 DP 205942).

3.3. EXISTING DEVELOPMENT

The site previously included three to five-storeys of commercial, light industrial and shop top housing buildings. All previous structures except for an office building at the corner of Botany Road and Wellington Street have been demolished to facilitate construction of the new Sydney Metro Waterloo Station. As such the existing site is predominately vacant and being used as a construction site.

Construction of the Sydney metro is currently underway on site in accordance with the CSSI approval (**CSSI 7400**). Photographs of the existing site context are provided in Figure 14.

Figure 14 Photographs of existing site condition at Waterloo Metro Quarter site (dated 21 July 2020)

Picture 11 South western corner of site, located at the corner Wellington Street and Botany Road

Source: Urbis

Picture 12 Botany Road street frontage, looking north east

Source: Urbis

Picture 13 North western corner of site, looking north east illustrating station construction vehicular entrance

Source: Urbis

Picture 14 Raglan Street frontage, looking east

Source: Urbis

Picture 15 Cope Street frontage, looking north

Source: Urbis

Picture 16 South eastern corner of site, located at corner of Cope Street and Wellington Street

Source: Urbis

3.4. SURROUNDING DEVELOPMENT

The area surrounding the site consists of a mix of commercial, residential and light industrial uses, civic uses and open space. An overview of surrounding development is provided below. Photographs of surrounding site context and development are included at Figure 15.

3.4.1. Waterloo Estate

The Waterloo Estate located to the east of the site will be redeveloped over the next 15-20 years, and will seek to deliver a mix of social, affordable, and market housing.

The NSW Land and Housing Corporation has submitted a planning proposal to the City of Sydney requesting to redevelop the public and private lands in the southern part of the Waterloo Estate by changing the planning controls that currently apply to the precinct. This planning proposal is referred to as 'Waterloo South.'

Waterloo South includes land bounded by Cope, Raglan, George, Wellington, Gibson, Kellick, Pitt and McEvoy streets, and has an approximate site area of 12.32 hectares (approximately 65% of the total estate). It currently comprises 749 social housing dwellings owned by the NSW Land and Housing Corporation, 125

privately owned dwellings, and some commercial properties on the south-east corner of Cope and Wellington streets.

With up to 3,000 new dwellings proposed, the redevelopment is sought to be delivered in a staged approach and is still the subject of a finalised master planning process. Waterloo South is set to see building heights of up to 30-storeys and will benefit from the delivery of improved public transport from the new metro station and the services provided within the Waterloo Metro Quarter OSD.

3.4.2. North

To the north of the site on the northern side of Raglan Street is a mix of one and two-storey commercial buildings with ground floor retail. Further to the north is Redfern Station and Town Centre which is characterised by a mix of residential, retail and student accommodation uses. Redfern Park is located approximately 500m north-east of the site and is a well-used recreational space with a grassy recreational park, sports fields, grandstand, and children's playground.

3.4.3. East

To the east of the site is a mix of one and three-storey residential flat buildings and attached dwellings that form part of the Waterloo social housing estate. Further to the east and north east are high density residential dwellings which also form part of the estate.

3.4.4. West

Beyond Botany Road to the west are two and three-storey commercial and light industrial buildings, as well as a five-storey mixed use residential flat building. Council recently granted consent for an affordable housing development located at 74-88 Botany Road. The proposal includes ground floor retail fronting Botany Road.

Further to the west is the Alexandria Park Heritage Conservation Area (**HCA**). The HCA comprises a mix of late nineteenth-century houses including one to three-storey terraces and cottages. The area also includes corner shop buildings, industrial and warehouse buildings. The Australian Technology Park is a business and technology centre in Eveleigh, located approximately 400m north-west of the site.

3.4.5. South

Land to the south of the site is characterised by a mix of low to mid rise industrial, commercial and residential buildings. Immediately to the south of the site on the opposite side of Wellington Street is the Cauliflower Hotel, a locally listed heritage item. Further to the south along Botany Road are a mix of residential apartments and row of terraces. Alexandria Park, a large area of public open space is located to the south-west of the site.

Green Square Station and Green Square Town Centre are located approximately 800m south of the site. The town centre comprises a mix of mid to high rise buildings containing retail, commercial, civic and residential uses. Existing surrounding buildings are shown in Figure 15**.**

Figure 15 Photographs of surrounding site context (dated 21 July 2020)

Picture 17 Locally heritage listed Cauliflower Hotel, located at 123 Botany Road

Source: Urbis

Picture 18 Alexandria Park, located to the south west of the site

Source: Urbis

Picture 19 Locally heritage listed Waterloo Congregational Church located at 103-105 Botany Road

Source: Urbis

Picture 20 Locally heritage listed Former CBC Bank, including Interior located at 60 Botany Road

Source: Urbis

Picture 21 Residential flat buildings on Cope Street, east of the site, looking east

Source: Urbis

Picture 22 Terrace housing on Wellington Street, south of the site, looking south

Source: Urbis

3.4.6. Surrounding Development – Waterloo Metro Quarter Site

The site is located within the Southern Precinct of the Waterloo Metro Quarter. Upon completion of the Waterloo Metro Quarter, the site will be surrounded by the following development.

To the north of the future Cope Street Plaza will be the metro station and Raglan Street Plaza which will be located within the same street block. The local heritage listed Waterloo Congregational Church will remain in its current location, immediately adjacent the future student accommodation building, separated by a courtyard. To the east of the site is Waterloo Estate. To the south and west of the site is a mix of industrial, commercial and residential land uses.

3.5. BUILT HERITAGE

The site is not heritage listed or located within a heritage conservation area under the SLEP 2012. The site is located directly adjacent the Waterloo Congregational Church. The church is listed as a local heritage item. The site is also proximate to several local heritage items, as illustrated in Figure 16. Local and state heritage items of particular significance to the proposal are detailed in Table 3.

Table 3 Heritage Items in proximity to the site

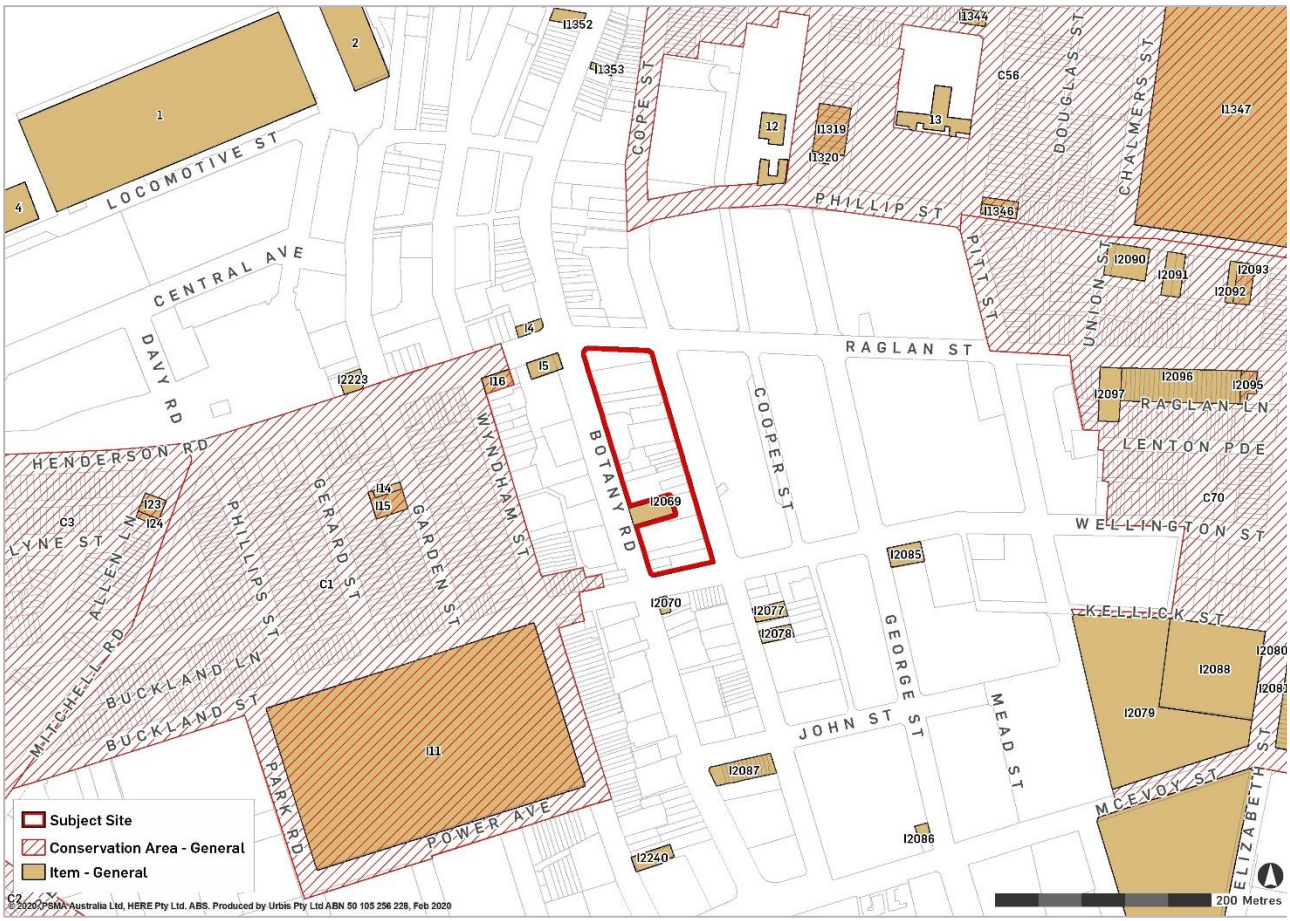
Item	Name and Address	Significance	Statement of Significance
I2069	Waterloo Congregational Church, 103-105 Botany Road	Local	*The Gothic church of rendered brick construction was constructed in 1883 to replace the congregation chapel built in 1865. The symmetrical design of the façade demonstrate high quality architectural traits of the building. It is one of the earliest worship venues in Waterloo.*
I2070	Cauliflower Hotel, 123 Botany Road	Local	*The Cauliflower Hotel is a good example of a mid-Victorian hotel in the Georgian style and was built in c1862 by George Rolfe who was a leaseholder and a market gardener. The hotel was under the ownership and operation by the Rolfe family until 1920s, and later by Tooheys and Tooth & Co. The name "Cauliflower Hotel" is associated with former market gardens on the site which were said to be used for cauliflower growing. The hotel has been continually licensed since its establishment. This Georgian style building and the unique cauliflower sign is the landmark on Botany Road.*
I5	Former CBC Bank, including Interior, 60 Botany Road	Local	*It represents a good example of the Victorian Italianate style by prominent government architect Mansfield. It is a landmark building on a prominent corner site.*
C3	Alexandria Park Heritage Conservation Area	Local	*The Alexandria Park Conservation Area is significant for its ability to demonstrate the growth of the municipality of Alexandria in the second half of the nineteenth century and the first half of the twentieth century. The area developed in association with the industrial growth of Waterloo and the establishment of the Eveleigh Railway and Goods Yards, providing housing for workers. The housing stock reflects successive subdivisions of the Coopers freeholds*

Item	Name and Address	Significance	Statement of Significance
			and Park View Estate. The industrial development illustrates a later overlay reflecting the growing importance of the area as an industrial centre in the early twentieth century. Alexandria Park provides a focus for the community.

Potential impacts of the Southern Precinct proposal on the surrounding heritage items have been carefully considered in the detailed design of the proposal to ensure the built form and heritage significance of these items continues to be appreciated and enjoyed.

These potential impacts have been discussed in further detail in **Section 8.2** of this EIS and within the Heritage Impact Assessment in **Appendix H.**

Figure 16 Surrounding heritage items



Source: Urbis / SLEP 2012

3.6. TRANSPORT AND ACCESSIBILITY

3.6.1. Public Transport

The site is well serviced by various forms of public transport, both existing and under construction.

Heavy Rail

The site is located between Redfern Station (located approximately 650m north of the site) and Green Square Station (located approximately 900m south of the site). Redfern Station currently services all Sydney Trains lines, excluding the T2 Airport Line, and some NSW Trainlink services. Green Square Station

currently services the T2 Airport, Inner West and South Line. This line provides high frequency services between Macarthur and the City via the Sydney International and Domestic Airports.

Waterloo metro station will provide alternative access to the rail network, reducing pressure on Redfern and Green Square Station to accommodate residential and commercial growth in the area.

Bus

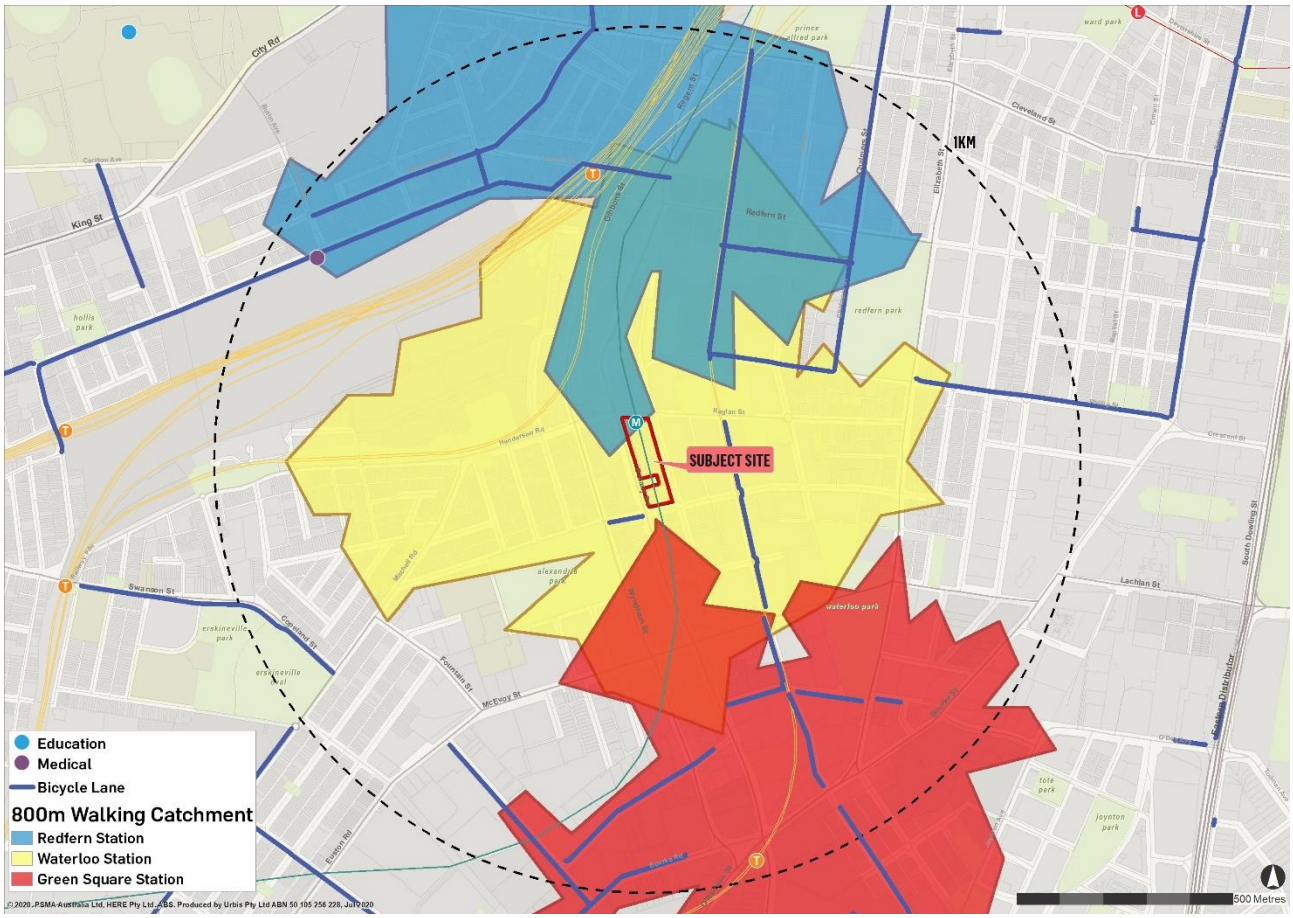
The site is located close to multiple bus stops operating the following State Transit bus services:

- Botany Road
  - Route 309 – Central Station to Banksmeadow via Mascot.
- Raglan Street
  - Route 308 – Redfern to Marrickville Metro via Eveleigh, Surry Hills and Erskineville.
  - Route 301, 302, 303 and 305 – Eastgardens to Redfern via Mascot, Eastgardens to Redfern via Kingsford, Sans Souci to Redfern via Mascot.
- Wellington Street
  - Route 355 – Marrickville Metro to Bondi Junction via Moore Park and Erskineville.

Sydney Metro

The site is located directly above the future Waterloo Station. Waterloo Station is part of the NSW Government's Sydney Metro: City & Southwest transport project which is the second stage of the Sydney metro project. The project will extend the Stage 1 Metro Line (Sydney Metro: Northwest) from Chatswood to Bankstown via Sydney CBD. Between Sydenham to Bankstown, the existing T3 line will be converted to metro standards.

Figure 17 Walking catchment to high frequency public transport



Source: Urbis

3.6.2. Road Network

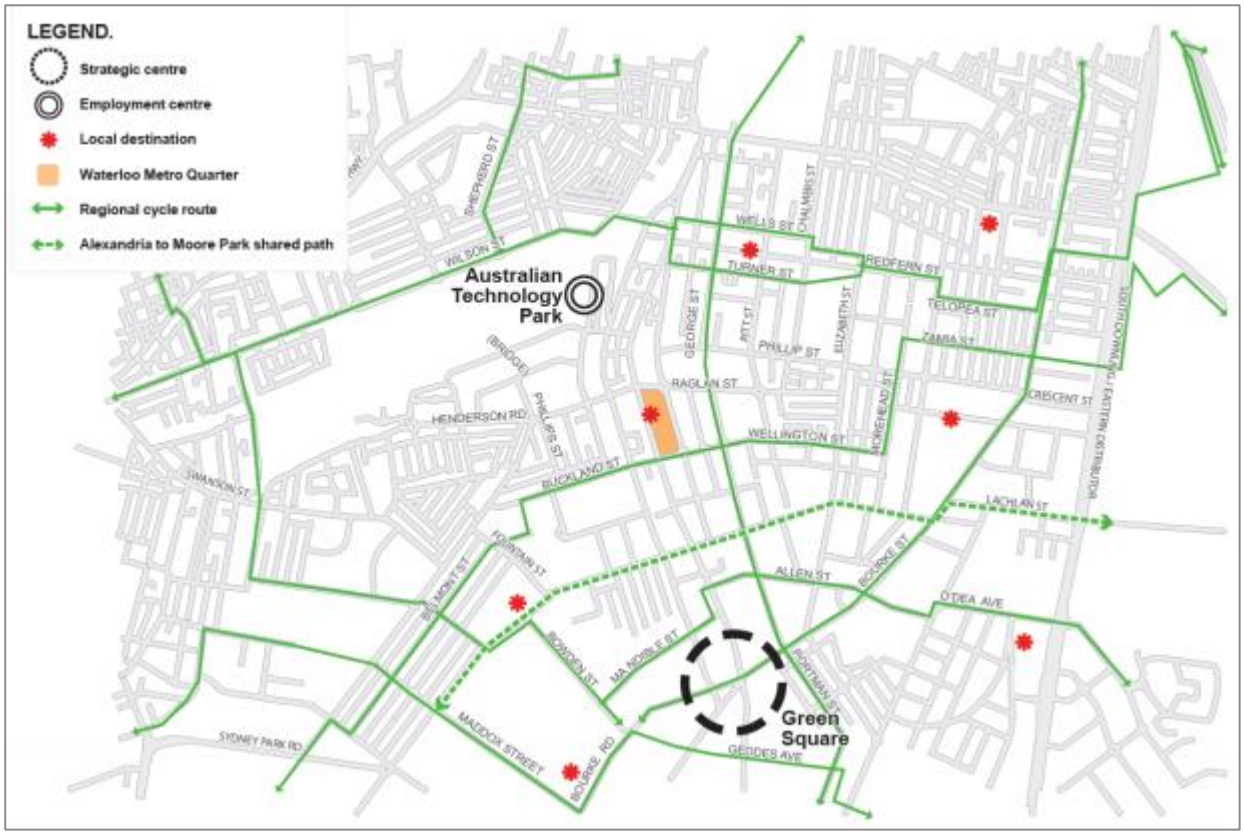
Arterial roads

The site is well connected by key regional roads. The site has frontage to Botany Road which is identified as a Classified State Road. Botany Road is a key corridor connecting the site to Sydney Airport. McEvoy Street and Henderson Road both run east-west, providing links between the inner west and the Sydney CBD or the eastern suburbs.

Cycleways

The site benefits from proximity to several dedicated cycleways (see Figure 18). These include a combination of separate dedicated cycleways and bike lanes along Wellington Street, Raglan Street and George Street. There is currently no dedicated cycleway along Botany Road given the high volumes of traffic along this road.

Figure 18 Existing and planned Cycle Network



Source: City of Sydney

3.6.3. Pedestrian Network

Pedestrians can access the site via dedicated footpaths on all street frontages. The surrounding street network comprises a grid pattern which facilitates high pedestrian permeability and activity. Due to the traffic volumes of Botany Road, east-west pedestrian movements from the site to adjoining neighbourhoods are limited.

The site is well located for residents to walk to Green Square Station and Redfern Station as well as various retail, community facilities and public spaces.

3.7. OPEN SPACE AND SPECIAL AREAS

The site is in proximity to the following public open space areas:

- **Raglan Street Basketball Courts** are located directly to the north of the site on the opposite side of Raglan Street.

- **Waterloo Park** is located approximately 280m south-east of the site. It comprises a playing field, skate park, basketball court and children's playground.
- **Alexandria Park** is located approximately 220m south-west of the site. It comprises a multipurpose sports field, tennis courts, a basketball court and children's playground. The playground is fenced and comprises equipment for children of all ages. Picnic shelters, bubblers and bike storage racks are also located within the park. An off-leash dog area is also located outside the oval, courts and playground.
- **Redfern Park** is located approximately 500m north-east of the site. It is a large, heritage listed park comprising a total of 4.8 hectares. It comprises an oval, grandstand and children's playground. The park underwent a refurbishment in 2007/08 which included upgrading of all paths, kerbs, lights and furniture and the restoration of the park's historic features.
- **Eveleigh Green** formerly known as the Vice Chancellor's Oval is an active recreational space that provides grassed lawn areas, playground equipment and sports courts. It adjoins Yerrabingin House which is a community building fitted with café, gym and public toilets.

The following public parks and recreation facilities are also proposed to be provided:

- **Perry Park and Recreation Centre** – a new multi-purpose sports centre is proposed in Perry Park, Alexandria. The sports centre will comprise two indoor and two outdoor multi-purpose courts for sports such as netball, basketball and futsal.
- **Gunyama Park Aquatic and Recreation Centre** – a new aquatic and recreation centre is proposed on Zetland Avenue, Zetland. It will be the largest pool built in Sydney since the 2000 Olympics. Outdoor recreational space will also be provided in the form of a playground, picnic facilities, a fitness training circuit and a 4,950sqm multipurpose sports field. The aquatic centre is due for completion in 2020.
- **Cope Street Plaza and Raglan Street Plaza** – these two new public domain spaces will be provided within the WMQ and will comprise a minimum of 2,200sqm of new public domain. The Cope Street Plaza is located to the east of Building 2, between the metro station and the metro service box. Raglan Street Plaza is located to the north of the metro station adjacent to Raglan Street.

3.8. PROXIMITY TO COMMUNITY FACILITIES, SERVICES, AND EDUCATION

The site is within walking distance to three community facilities and within 1km of 16 others. Community facilities located within walking distance include Alexandria Town Hall, Salvation Army Street level and Counterpoints Factory Community Centre.

Carriageworks, The Aboriginal Dance Theatre Redfern and the Green Square Community and Cultural Precinct including Joynton Avenue Creative Centre, Banga Community Shed and Performing Arts Hub are all within 1km of the Waterloo Metro Quarter site.

There are two primary schools, four high schools and two combined primary and high schools within 1km of the site. This includes the Alexandria Park Community School, a combined primary and high school, which is currently being redeveloped to cater for 1,000 primary students and up to 1,200 secondary students.

There are 14 childcare facilities located within 1km of the site with a total number of 806 approved childcare places.

There are two health facilities located within walking distance to the site; Waterloo Medical Centre and Healthcare Family Medical Centre, and eight health facilities located within 1km of the site including the Redfern Community Health Centre and the Aboriginal Medical Service.

3.9. UTILITIES AND INFRASTRUCTURE (SERVICES)

The site is located within an established urban area and currently contains all necessary services including electricity, gas, water, communications, drainage and sewerage. Future development on the site can be connected to these services when required. **Section 4.11** provides a detailed discussion of the required utility and service infrastructure provisions associated with the detailed design and future use of the OSD.

4. PROPOSED DEVELOPMENT

4.1. DESCRIPTION OF THE PROPOSAL

This detailed SSDA seeks approval for the detailed design, construction and operation of two residential buildings within the Southern Precinct with non-residential uses in the podium, and public domain improvements including the construction of Cope Street Plaza.

Specifically, this detailed SSDA seeks development consent for the design, construction and operation of:

- 25-storey (plus roof plant) residential building (Building 3) comprising student accommodation, to be delivered as a mixture of studio and twin rooms with approximate capacity of 474 students;
- 9-storey residential building (Building 4) above the southern station box to accommodate 70 social housing dwellings;
- Ground level retail, Makerspace, gymnasium lobby and loading facilities;
- Mezzanine level for bike storage and plant;
- Level 1 and Level 2 gymnasium and student accommodation communal facilities;
- Landscaping and private and communal open space at podium and roof top levels to support the residential accommodation;
- New public open space including the delivery of the Cope Street Plaza, including vehicle access to the site via a shared way from Cope Street, expanded footpaths on Botany and Wellington Streets and public domain upgrades;
- Signage zone locations;
- Removal of five trees;
- Utilities and service provision; and
- Stratum subdivision (staged).

The proposed development comprises a maximum height of 25-storeys (plus roof plant) with two interconnected buildings over a podium for student accommodation (Building 3) and social housing dwellings (Building 4).

The proposal responds to the key site constraints including surrounding heritage, built form and visual and view impacts (solar access and overshadowing), to deliver an integrated OSD which exhibits design excellence and provides a range of land uses within the site.

Figure 19 Photomontage of the proposed development

Picture 23 The site as viewed from corner of Botany Road and Wellington Street.

Source: Bates Smart

Picture 24 The site as viewed from corner of Cope Street and Wellington Street.

Source: Bates Smart

4.2. NUMERIC OVERVIEW

The key numerical aspects of the proposed detailed OSD design are summarised below in Table 4.

Table 4 - Detailed SSDA numerical overview

Component	Proposal
Site area	Approx. 4,700sqm
OSD Gross Floor Area (GFA)	Social Housing: 5,437sqm Student Accommodation: 12,129sqm Non-residential: 1,273sqm
Building Height	Social Housing: ▪ RL 64.06 maximum height of building (48.46m) ▪ 9-storeys Student Housing: ▪ RL 93.250 maximum height of building inclusive of all plant and ancillary features (76.87m) ▪ 25-storeys (plus roof plant)

Component	Proposal
Unit Mix	Social Housing ▪ 26 studios ▪ 2 one bedroom ▪ 30 two bedroom ▪ 4 two bedroom (adaptable) ▪ 7 three bedroom (adaptable) ▪ 1 four bedroom (adaptable) Total: 70 units Student Accommodation ▪ 393 studios ▪ 3 DDA studios ▪ 39 twin rooms Total rooms: 435 rooms (total beds = 474)
Setbacks (to glazing line)	Building 3 ▪ A 2.5m – 2.85m building setback is proposed to the southern end of Botany Road. ▪ A 6.5-6.75m building setback is proposed to the northern end of Botany Road. ▪ 3.5m-6.4m setback to Wellington Street. Building 4 ▪ 1.2m setback to Cope Street boundary. ▪ 5.55m-14.4m to northern boundary.
Loading and Parking	Car Parking ▪ Student accommodation: Nil ▪ Social housing: 8 spaces ▪ 1 motorcycle space. Bicycle Parking ▪ Student accommodation: 87 resident spaces ▪ Social housing: 70 resident spaces, 7 visitor ▪ Retail (Makerspace and gym): 5 staff, 15 visitors ▪ Loading and delivery vehicles: 1 space

Component	Proposal
	▪ Note. 5 courier bays are provided within the Basement car park (subject to a separate Detailed SSDA).

4.3. LAND USE AND GROSS FLOOR AREA

A combination of residential and non-residential land uses will be accommodated within the proposed OSD. The proposal seeks approval for the use of the two tower forms within the Southern Precinct for *residential accommodation* (specifically a *'boarding house'* and *'residential flat building'*). Non-residential uses are also proposed within the podium including a Makerspace and gymnasium.

As discussed throughout this EIS, residential uses for the OSD directly align with the strategic objectives for the Eastern City District, which seek to increase the diversity and affordability of residential accommodation in accessible locations.

The combination of residential and non-residential land uses will also assist in activating the precinct throughout the day. The residential uses have been specifically located above the podium to manage acoustic impacts from Botany Road and the publicly accessible ground plane. The proposed non-residential land uses have been located at the ground and podium levels, to create an activated interface with the ground plane and clustered around key pedestrian corridors associated with the Waterloo metro station, and also provide spaces to support the ongoing use of the Waterloo Congregational Church.

The detailed design of the OSD building envelope yields a total GFA of 18,839sqm which specifically relates to the student accommodation and social housing development. The Architectural Design Report at **Appendix F** includes a table which identifies the proposed land uses and a floor by floor breakdown of GFA and total GFA.

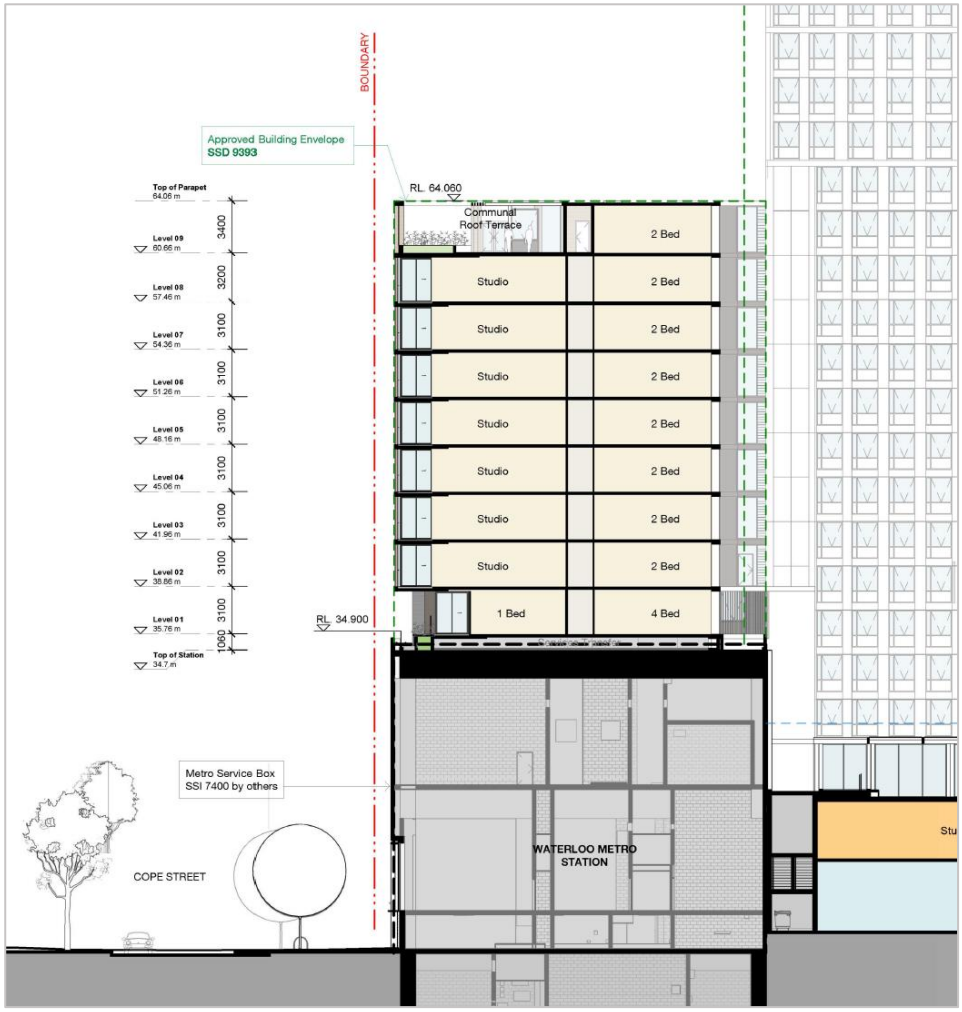
4.4. RELATIONSHIP BETWEEN OSD (SSD) AND STATION (CSSI) COMPONENTS

The concept SSDA establishes the building envelope and the indicative integration between the proposed OSD envelope with the approved CSSI Waterloo metro station. It is important to identify the relationship and clearly delineate between the works included within the CSSI approval and the components sought for approval under the detailed SSDA.

The detailed SSDA for the OSD seeks approval for integration with the approved building structure up to the transfer slab level (including structures, services, lift cores etc).

The design and construction of a portion of the Cope Street Plaza is also provided for under the CSSI approval including a zone of approximately 6m directly to the south of the Waterloo metro station southern entry and a service accessway running along the north-western corner and northern façade of the Metro Service Box. The remainder of Cope Street Plaza is proposed to be approved under this SSDA. The construction of the Metro Service Box is provided for under the CSSI approval and does not form part of this SSDA.

Figure 20 Section view illustrating interface areas



Source: Bates Smart

4.4.1. Interface Areas

The proposed envelope comprises two building forms situated above a podium that integrate with the Metro Service Box which has a transfer level of RL 34.7m. The Architectural Drawings (**Appendix D**) and Architectural Design Report (**Appendix F**) prepared by Bates Smart further delineate the integrated elements of the detailed SSDA and CSSI with illustrative references.

A summary of the relationship between the detailed SSDA and the CSSI approval for the Waterloo metro station is provided below.

CSSI Approval (not the subject of this EIS):

- Demolition of existing development.
- Excavation and remediation of the station box site undertaken in line with a Remediation Action Plan and Earthworks Management Plan.
- Design and construction of station services box above existing ground level up to RL 34.7 (top of station), including primary station works, structural works (base build), retail/commercial tenancies, structural and service provision for the OSD (e.g. structure, lift cores and mechanical services).
- Station structure including the concourse and platforms
- Retail spaces within the station building
- Public domain improvements
- Access arrangements including vertical transport such as escalators and lifts

- Structural and service elements and relevant space provisioning necessary for constructing OSD, such as columns and beams, space for lift cores, plant rooms, access, parking, retail and building services

Detailed SSDA (the subject of this EIS):

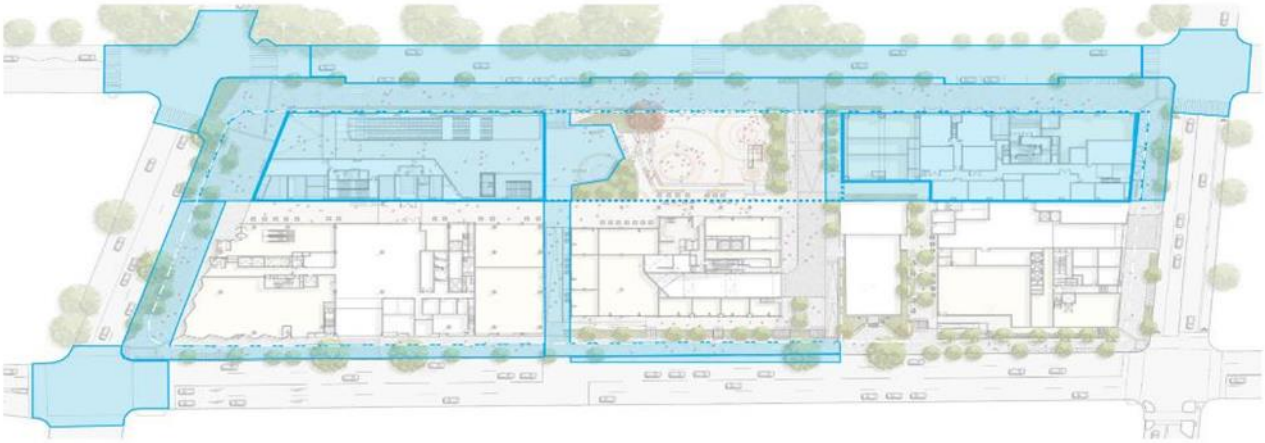
- Design, construction and operation of the OSD (i.e. above the 'transfer slab' level) for *residential accommodation;*
- Podium commercial and recreational uses;
- Design and construction of share-way/through-site link and driveway access;
- Design and construction of the remainder of Cope Street Plaza; and,
- Design and construction of Wellington Street and Botany Road footpaths with the exception of the footpath adjacent the Metro Service Box.
- Provision of signage zones.
- Stratum subdivision.

To further clarify the above, the section at Figure 20 provides an illustrative breakdown of the Metro Service Box including how each building component is to be considered in the detailed SSDA.

It is noted that the proposed development has been developed concurrently with Sydney Metro and the Waterloo Contractor alongside the evolution of the Station Design Precinct Plan (**SDPP**) and the Interchange Access Plan (**IAP**) as required under the terms of the CSSI approval.

The majority of the public domain improvements to be delivered on and adjacent to the Waterloo Metro Quarter site will be delivered under the scope of the CSSI approval where this work is required to service the functionality of the metro station itself. This is clearly illustrated in Figure 21 below. The remaining public domain works will be delivered under the terms of the relevant detailed SSDA for that precinct.

Figure 21 Scope of public domain and ground plan works to be completed under the CSSI approval



Source: Applicant

Further detailed discussion on the relationship between the CSSI public domain works and the public domain works proposed under this detailed SSDA is provided in Sections 4.6 and 4.7.

It is noted that the proposed development has been developed concurrently with Sydney Metro and the Waterloo Contractor as well as alongside the evolution of the SDPP and IAP as required under the terms of the CSSI approval.

4.4.2. Structural Integration

Building 4 is supported entirely by the Metro Services Box. The design of the OSD has been informed by the full loadings in '*Technical Memorandum – Metro Quarter Development – Southern OSD – Interface Loadings'* which defines all vertical and horizontal loadings that are transferred from Building 4 to the station structure.

Building 4 is a concrete framed building with reinforced concrete columns and post tensioned floor slabs. A reinforced concrete core and shear walls resists the lateral loads due to wind and earthquake. The lateral stability system has been designed to resist the site wind and earthquake loads for strength and serviceability. The lateral loads are resisted by a central stair / lift core and shear walls which are carried up through the tower. The lateral loads from Building 4 are transferred into and resisted wholly by the station structure.

The floorplates are supported by reinforced concrete columns and walls which have been generally aligned vertically throughout the building eliminating the need for major transfer. Refer to Structural Report at **Appendix P.**

4.5. OPERATION AND FIT OUT DETAILS

The proposed development seeks to deliver residential accommodation in the form of social housing and student accommodation above the Metro Service Box. Non-residential uses including a Makerspace and gym are also proposed within the podium which will assist in activating the precinct after business hours.

The Makerspace is proposed to support community uses on the site, in addition to the community facilities provided within the Central Precinct and required in accordance with Clause 6.45 of the SLEP and the concept DA conditions. The land use of the tenancies within the podium are proposed as part of this Detailed DA, however the final use, operation and fit out of these spaces will be subject to a separate future approval process.

4.5.1. Student Accommodation

A Plan of Management has been prepared by Iglu and included at **Appendix SS.** Access to the student accommodation lobby will be available via the main ground floor entry foyer off Botany Road. Access will be restricted via an electronically coded swipe card provided only to current in-house residents and staff. Level one contains a reception desk, positioned at the top of the stairs, to give Iglu staff good visibility of all incoming residents and visitors. This will function as a security desk overnight. An admin office and staff amenities are also discreetly located behind the reception desk.

The primary shared communal spaces for the student accommodation are located within the northern portion of Levels 1 and 2 in the podium. These spaces are proposed to be for the exclusive use of current residents of the student accommodation however will be active and vibrant spaces and do not include any residential accommodation.

A smaller communal room is located at each level. These spaces provide students on each level the opportunity to form smaller communities on the various floors. It is located adjacent the lift lobby to allow students easy access and good visibility into the space. Iglu's General Manager will be responsible for the running of Iglu WMQ and will be supported by a team of Iglu property management staff members. The General Manager will be contactable 24 hours per day, 7 days per week with a team of professional staff members and Resident Leaders who are also available at various times.

A communal outdoor terrace is proposed at Level 2 with tables, BBQs and seating provided. The external area will be managed by Iglu Staff and will be locked between the hours of 10pm and 7am, 7 days a week. Residents will not be permitted to play loud music. Further operational details are provided in the Plan of Management included at **Appendix SS.**

4.5.2. Social Housing

The social housing component is being delivered by the WL Developer Pty Ltd and on completion the ownership will be transferred to Land and Housing Corporation (**LAHC**). A Community Housing Provider (**CHP**) selected by LAHC to manage the social housing in accordance with the CHP's approved management approach utilised across their social housing portfolio.

4.5.3. Makerspace

This application seeks approval for a space on the ground floor to be used for community uses, with the intention for it to be used as a Makerspace. As this use may include a range of uses to be defined and evolve over time, it is proposed as a *'commercial premises'* land use, which to maximise flexibility and respond to community needs and interests. The space is approximately 300sqm and will have its own amenities. It has been designed to be accessed from Botany Road as well as the new Church Yard which

will support activation of this new public space. Fit out and use of the makerspace will be subject to a separate future approval process.

4.5.4. Gym

The gym is located on Level 1 and 2 with the entry lobby located at the south-western corner of the site. Fit out of the gym will be subject to a future planning approval. A Plan of Management outlining hours of operation, security and general management procedures will be prepared and submitted with a future application.

4.6. BUILT FORM AND DESIGN

The proposed OSD is detailed in the Architectural Plans (**Appendix D**) and Design Report (**Appendix F**) prepared by Bates Smart. The following sections of the EIS establish the design principles which underpin the detailed design of the OSD and provide a description of the key design elements.

4.6.1. Podium

A three-storey podium (plus mezzanine) is proposed to respond to the scale and character of the existing streetscape along Botany Road and manage the interface of the proposed OSD development with the adjacent Waterloo Congregational Church.

The podium is divided into three volumes on Botany Road, representing the different land uses and breaking down the building mass. The podium is reduced to a two-storey scale alongside Church Yard and is set back to create a 6m wide space between the church and podium.

The social housing lobby is located on the eastern edge of Wellington Street towards the metro station. The lobby sits as part of a recessed two-storey brick podium with a 3.5m ground floor to floor. The podium has been broken into smaller volumes that reflect the finer grain of lots to the southern side of Wellington Street. Inactive facades have been consolidated to minimise the impact on the streetscape.

The podium does not comprise any residential uses. It provides 2,230sqm of GFA which comprises a gym, Makerspace and communal facilities associated with the student accommodation tower above.

Podium level uses

The podium comprises the student accommodation lobby, social housing lobby, Makerspace, gym and communal open space associated with the student accommodation.

The entries to the Makerspace, gym and student accommodation lobby can be accessed via an elevated terrace, set back from Botany Road behind a landscaped planter. The social housing lobby is accessed via Wellington Street, connecting to lifts on the western side of the Metro Services Box. The lobby has a split level design with a generous floor to ceiling height.

On the lower level, the lobby entry is at street level and contains bike storage and the mailboxes. The upper level is elevated above the flood planning level and contains the building lifts and a small seating area. Accessible access between the two levels is via a platform, discreetly located to one side of the lobby.

4.6.2. Social Housing Tower Design

The social housing building envelope has been designed to enable full integration of the OSD with Waterloo metro station. The social housing building is a mid-rise building (nine-storeys) located above the Metro Services Box. The mid-rise building reflects the building typologies of recent residential infill buildings in the locality and provides a transition between the adjoining towers. This typology also serves to scale down toward Cope Street and the publicly accessible plaza.

The building massing, articulation and facade expression responds to the surrounding built context, site orientation and environmental conditions. The floorplate design aims to provide a high level of amenity to both the apartments and the shared common spaces, whilst a communal rooftop terrace and community room provides residents with shared spaces for relaxation and socialising.

The facade design has been developed to create a building ‘skin’ that offers a high degree of privacy, solidity and environmental performance. A simple palette of materials consisting of brick, concrete and metal has been chosen for their longevity, durability, and their timeless quality.

4.6.3. Student Accommodation Tower Design

The student accommodation building comprises a high-rise tower form (25-storeys plus roof plant) located above a three-storey podium. The tall building form seeks to act as a destination marker for the Waterloo metro station and the new activity centre whilst the three-storey podium is proposed to respond to the scale and character of the existing streetscape along Botany Road and the adjoining church. The proposed tower has a secondary 3.5m setback on Botany Road and average setback on Wellington Street of 3.7m.

The proposed podium establishes a setting that responds to the Waterloo Congregational Church to reconnect it as a social anchor within the community and reflect the historical context of Waterloo. To better integrate the Waterloo Congregational Church within the Metro Quarter OSD, the following design responses have been implemented:

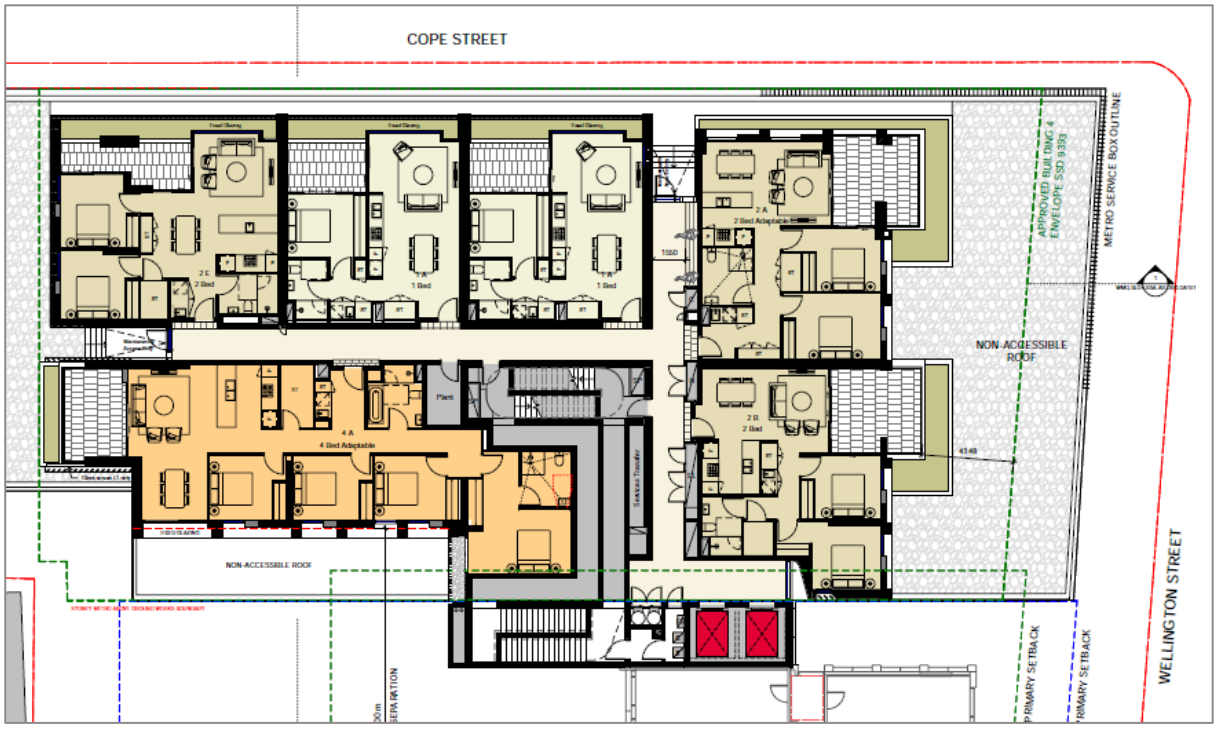
- Align the podium height with the height of the church along Botany Road;
- Align the tower setback with the existing church to respect its presence within the streetscape and increase view to and from the church along Botany Road;
- Increasing the podium setback on the southern side of the Church;
- Create Church Yard which will be activated through the use of the Makerspace and allow for a flexible use of the space for activities related to the Waterloo Congregational Church; and
- Engage the rear of the church within the community square (Cope Street Plaza) to establish a destination marker within the precinct.

The design of the student accommodation tower aims to maximise views and access to daylight, while minimising wind and noise impacts for residents and pedestrians on the ground plane. The tower form maximises frontage and planning efficiency, with a central core and the floorplate layout allowing for natural light to the corridors.

4.6.4. Social Housing Floor Plate

The proposed social housing building offers 70 social housing apartments including 26 studio apartments, 2 one-bedroom apartments, 34 two-bedroom apartments, 7 three-bedroom apartments and 1 four-bedroom apartment (see Figure 22).

Figure 22 Typical floor plate for the social housing



Level 1 Floor Plan

The residential floor plates are generally consistent across levels one to nine. An overview of each level is provided below:

- **Level 1** which consists of 2 one-bedroom apartments, 3 two-bedroom apartments, 1 four-bedroom apartment and 576sqm of GFA.
- **Level 2 – Level 4** which consists of 4 studio apartments, 4 two-bedroom apartments, 1 three-bedroom apartment and 641sqm of GFA per level.
- **Level 3 – Level 7** which consists of 4 studio apartments, 4 two-bedroom apartments, 1 three-bedroom apartment and 641sqm of GFA per level.
- **Level 8** which consists of 2 studio apartments, 5 two-bedroom apartments, 1 three-bedroom apartment and 638sqm of GFA.
- **Level 9** which consists of 2 two-bedroom apartments and 214sqm of GFA.

Each floor level has been designed to maximise solar access and cross ventilation, with the larger apartments located on the building corners and narrower studio apartments consolidated along the longer eastern side of the building. Open ended corridors draw in natural light and natural ventilation into common spaces, whilst providing views and outlook.

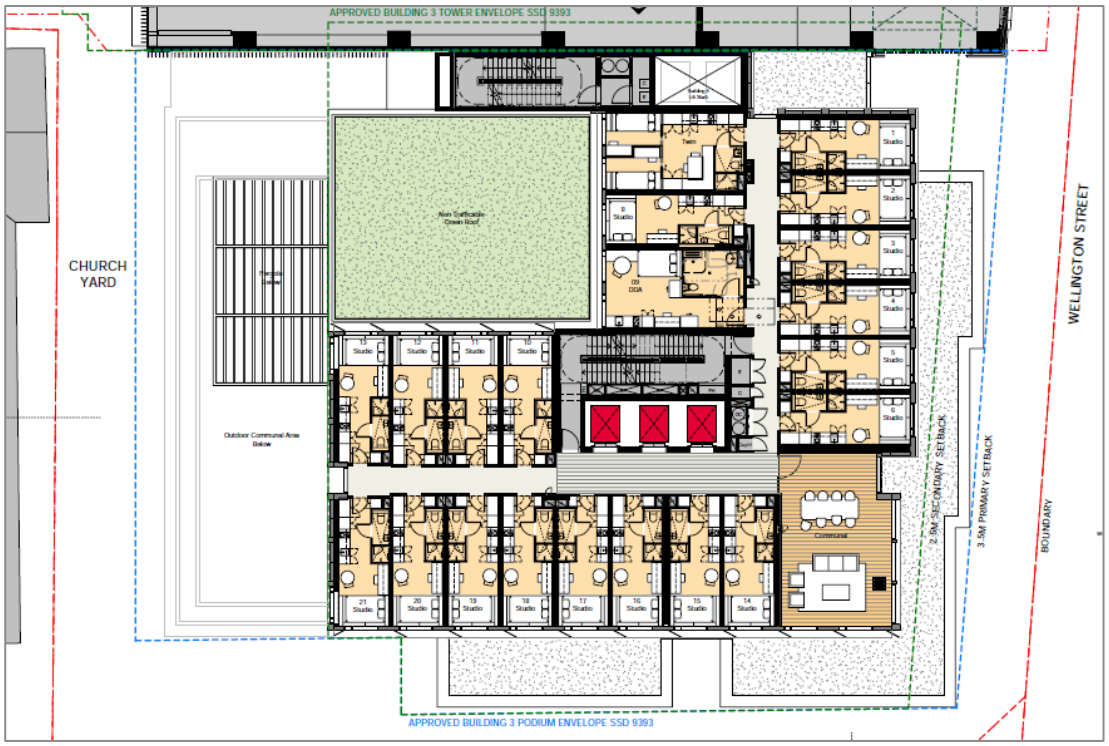
4.6.5. Student Accommodation Floor Plate

The proposed student accommodation tower offers a mix of studio and twin rooms. An overview of each level is provided below:

- **Level 3 – 5** which consists of 19 studios, 1 DDA studio, 1 twin room at each level and 538sqm of GFA.
- **Level 6-15** which consists of 19 studios, 2 twin rooms at each level and 538sqm of GFA.
- **Level 16-22** which consists of 20 studios, 2 twin rooms and 559sqm of GFA at each level.
- **Level 23** which consists of 6 studios, 2 twin rooms and 265sqm of GFA at each level.

The floor plates are generally consistent in their arrangement, with an average of 23-24 beds provided at each level (see Figure 23). Typical floor plates range between 265sqm to 559sqm of gross floor area allowing for studio rooms of approximately 17-18sqm and twin rooms of approximately 28sqm. The typical floor plates for the student accommodation rooms are illustrated below. Each floor includes a communal room to foster the creation of smaller communities within the residents on each floor.

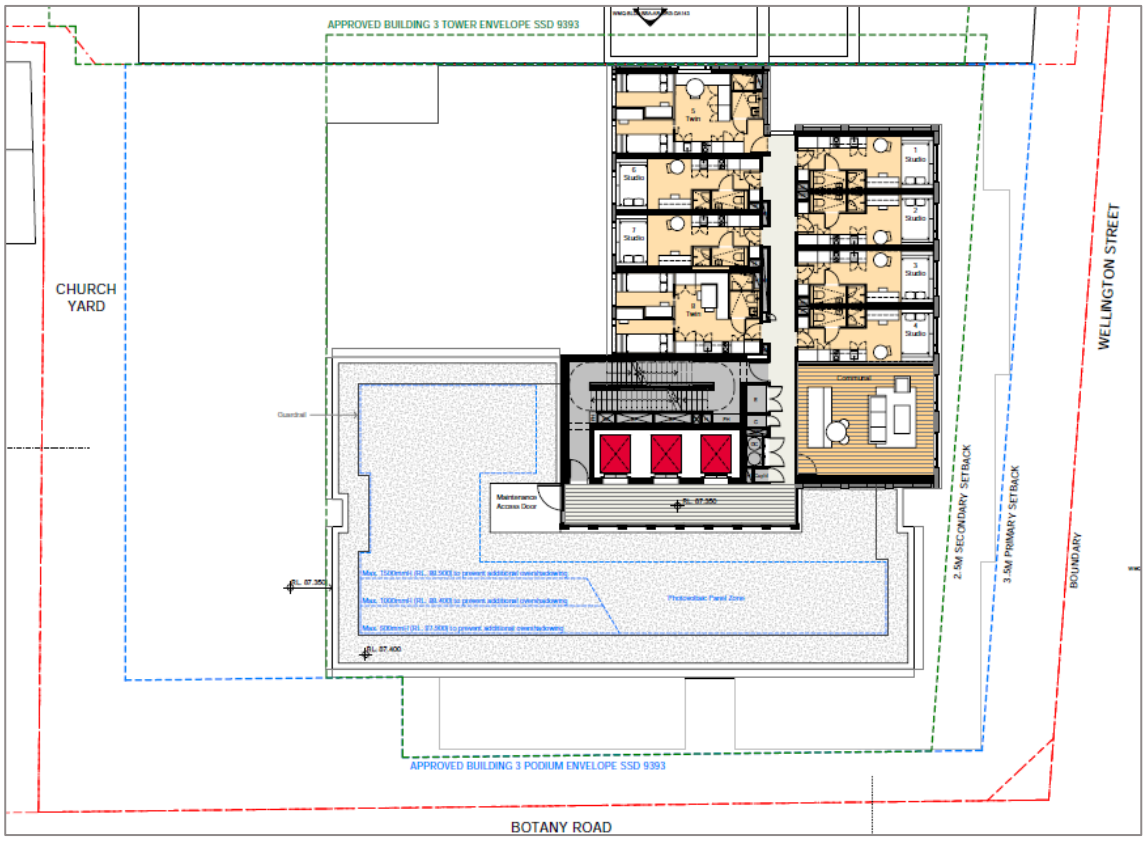
Figure 23 Typical floor plans for the student housing



Level 3-5 Floor Plan

Level 6-15 Floor Plan

Level 16-22 Floor Plan



Level 23 Floor Plan

Source: Bates Smart

4.6.6. Landscaping and Open Space

The landscape strategy and plans, prepared by Aspect and included in **Appendix II** and **Appendix JJ,** illustrates three primary landscaped areas for use by the residents of the social housing apartments and student accommodation in addition to Cope Street Plaza. An overview of each landscaping component is provided in Table 5.

Table 5 Landscaped areas and functions

Level	Description	Purpose
Public Domain	Cope Street Plaza	Provide a meeting place, neighbourhood square and communal gathering area that showcases cultural artworks and stories and provides opportunities for outdoor dining, markets and recreation.
	Church Yard	Provide a protected courtyard framed by the Church and the facade of the student accommodation building. Allows activities to flow out from the Church and Maker Space. The space will be kept open and clutter free and allows for loose furniture to be arranged informally. Interfacing with the heritage church is a densely planted garden bed with areas of seating, permeable paving and feature trees.
Level 1 (Building 4)	Non-accessible green roof	Provide a greener outlook for residents from balcony windows through the provision of a low maintenance green roof.
Level 3 (Building 3)	Outdoor communal open space	Provide a communal outdoor space adjacent the communal lounge that accommodates a range of seating and studying opportunities. Provide a heavily landscaped buffer along Botany Road frontage to provide shelter from the traffic. Integrate seating and a vegetated pergola structure to provide shade.
Level 3 (Building 3)	Non-accessible green roof	Provide a greener outlook from adjoining windows on Level 3. Create a habitat area by planting a mix of low groundcovers and grasses that can thrive in challenging urban conditions and with minimal soil volume.
Level 9 (Building 4)	Communal terrace and community garden for use by social housing residents	Provide a communal roof terrace for the residential tenants with opportunities for tenants to grow edibles and gather in small groups. An open mesh wraps around the eastern edge of the roof terrace providing a place for climbing plants to create a green screen.

4.6.7. Public Art

A Public Art Strategy has been prepared by Aileen Sage Architects with art curators Tess Allas and Sebastian Goldspink and is submitted at **Appendix MM.** Public art is proposed to be delivered across the Waterloo Metro Quarter site. The artworks will be distributed across the precinct within the public domain areas and integrated into the built fabric and landscape strategy for the site.

Opportunities for public art themes identified within the Strategy include:

- Opportunity 1 – Celebrating country
- Opportunity 2 – Celebrating community and language
- Opportunity 3 – Celebrating knowledge and innovation

The following opportunities for public art have been identified in the Southern Precinct and Cope Street Plaza:

- A series of 3 dimensional sculptural elements integrated with the landscape and public domain areas extending from Raglan Walk through to Cope Street Plaza, celebrating the area's Aboriginal history and future with a focus on innovation, incorporating in particular ideas and practices celebrating Aboriginal knowledge of the skies.
- Embedded text within the site as illuminated, etched or integrated elements in key strategic places, speaking to identity, culture, community and the role of Earth as healer. Opportunities may include:
  - Integration within glass building awnings along Botany Road.
  - Illuminated text around or upon strategic walls or vertical surfaces in the precinct – in particular in locations where safety and security will benefit from considered lighting and activation.
  - Integrated text (engraved /etched /inlaid into materials) within specific functional design elements within the public domain such as public seats /seating areas, the skylight, the public domain lighting strategy and hostile vehicle mitigation structures.

4.6.8. Materials and Finishes

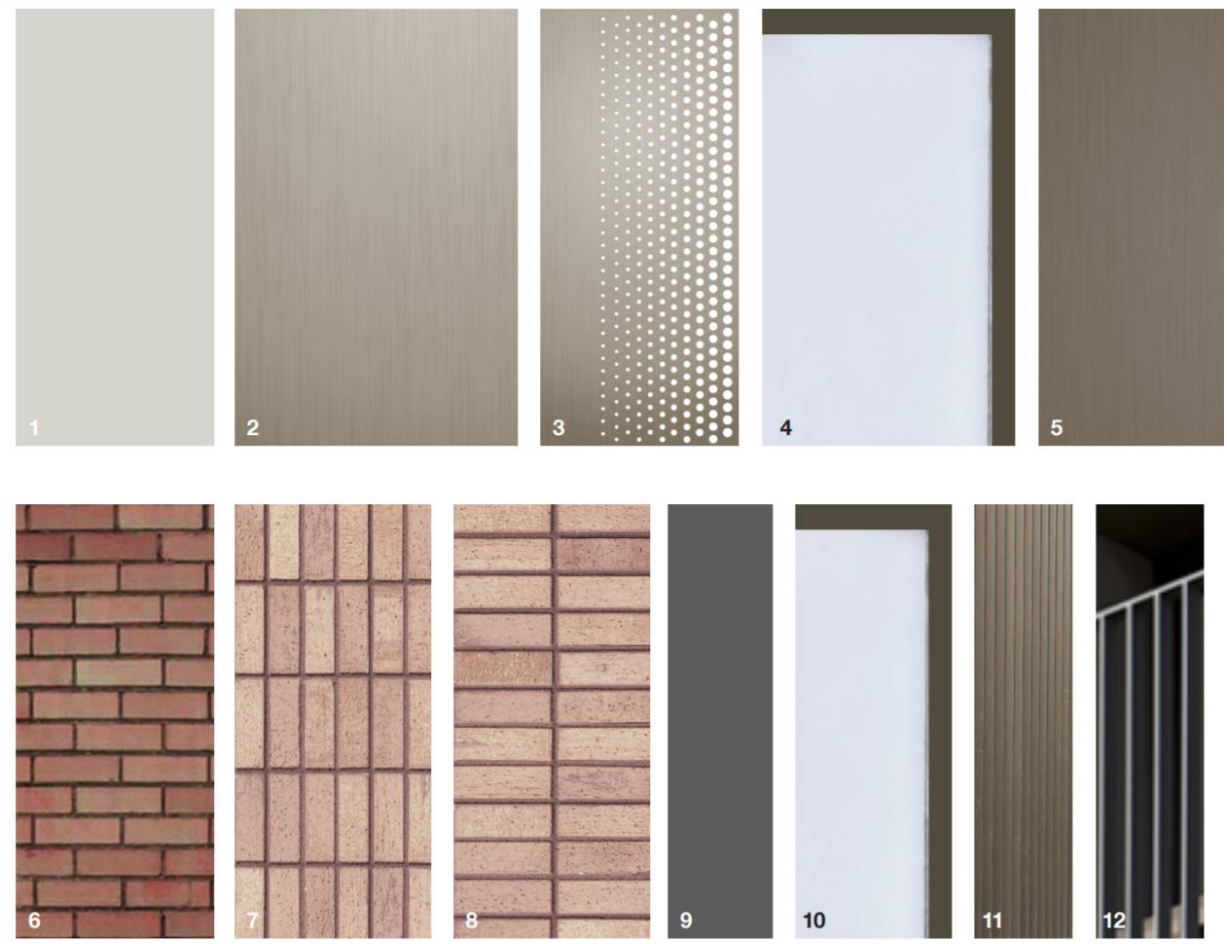
As documented in the Architectural Design Report prepared by Bates Smart in **Appendix F,** the masonry materiality of the podium seeks to reflect the brick terrace houses and warehouse typology in the surrounding context. The podium façade will comprise a brick frame, brick spandrel panels and aluminium frame windows above ground floor steel frame shopfronts. The colour palette will comprise red brick tones, dark grey metal, charcoal window frames and clear glass. Metal awnings with retractable fabric awnings along Church Yard are also proposed. A concrete planter is proposed along the top of the two-storey podium framing the student accommodation communal terrace, with planting spilling over the brick edge.

Similar shading hues and tones have been adopted in the tower component. This also creates visual interest and cohesion with the existing heritage buildings within the local context when viewed from the public domain.

The other notable items which will contribute to the overall streetscape and presentation of the student accommodation tower when viewed from the street will include:

- Perforated aluminium vertical sunshades;
- Double glazed and insulated shadow box spandrels;
- Aluminium frame awning windows and horizontal sunshades;
- Colour palette comprising a mix of champagne and bronze aluminium cladding, dark bronze window frames, fibre cement slab edges and clear glass.

Figure 24 Materiality and Colour Selection – Building 3

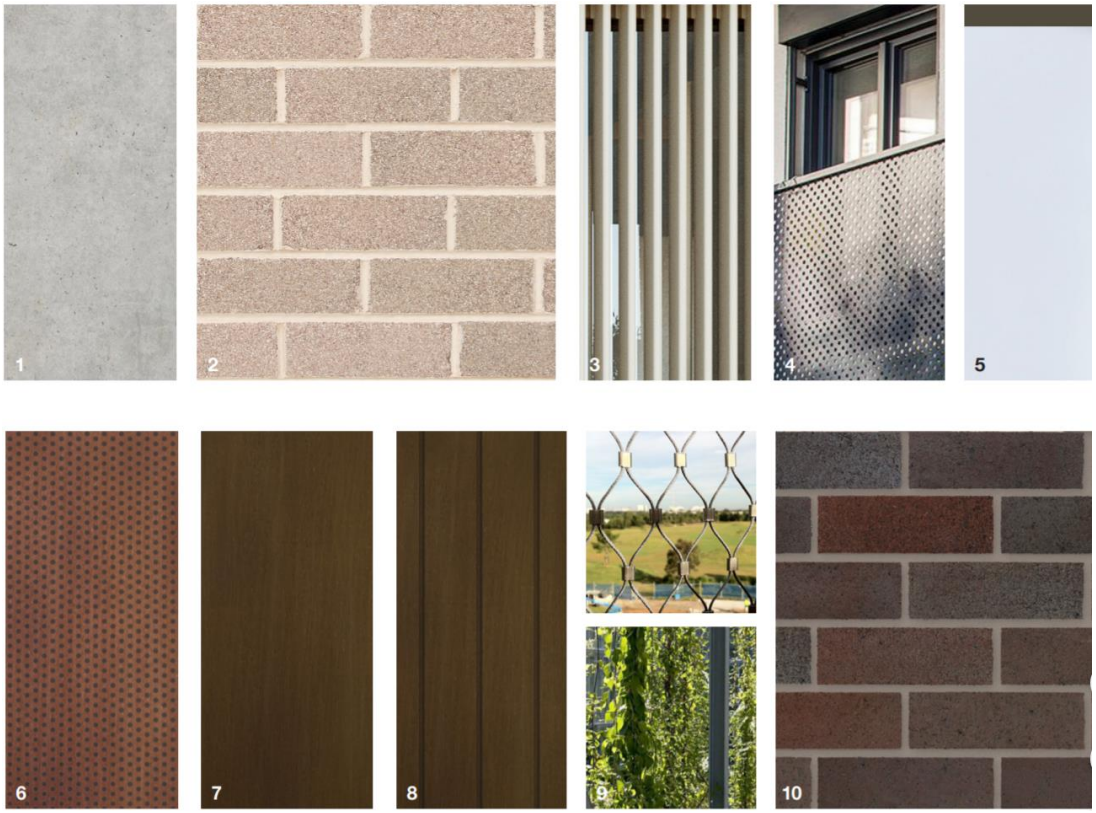


Source: Bates Smart

The following materials and finishes are proposed to the social housing tower above the Metro Services Box:

- Exposed concrete slab edges;
- Cream/grey and brown brickwork;
- Light bronze vertical aluminium batten screens;
- Dark bronze perforated aluminium ballustrades;
- Clear glass;
- Dark bronze window frames;
- Perforated aluminium panels and aluminium spandrels;
- Dark bronze metal cladding;
- Stainless steel tensile wire mesh screen; and
- Vertical planting.

Figure 25 Materiality and Colour Selection – Building 4



Source: Bates Smart

4.7. PUBLIC DOMAIN – COPE STREET PLAZA

Cope Street Plaza will provide a public open space area of 1,341sqm. It will provide a meeting place for the community as well as showcase cultural artworks and stories. The Plaza will be located at footpath level and subtly separated from the surrounding circulation zones and outdoor dining areas to create a protected place for the community. The Plaza will be surrounded by active ground floor building uses to enhance activation during the day and evening.

Distinctive planting will also allow an understanding of the six indigenous seasons to be highlighted through the native planting selection. Three feature trees are also proposed along the perimeter of the Plaza.

Circulation routes are clearly defined and separated from places where people can sit and linger. The upper area of the plaza is located at a higher level, adjacent the station and separate from the main circulation route. Similarly, the lower plaza is contained on three sides by seating terraces which create a sheltered place for sitting or enjoying small scaled events.

Pole mounted luminaires are proposed in the plaza to achieve a balance of safety and ambience. Further details of Cope Street Plaza are provided in the Landscape Plans and Design Report submitted at **Appendix II** and **Appendix JJ.**

Figure 26 Cope Street Plaza

Source: Aspect

4.8. PARKING AND ACCESS

The following sections discuss the access, parking and transport arrangements associated with the proposal. The Traffic and Transport Impact Assessment attached at **Appendix I** provides further clarification on these matters.

4.8.1. Pedestrian Access

The proposal focuses on delivering a pedestrian focused public domain that integrates with the broader Waterloo Metro Quarter. The following key elements are provided as part of this SSDA:

- New public plaza;
- Pedestrian through-site links from Cope Street Plaza to bus interchange on Botany Road;
- Through-site link from Cope Street to Botany Road adjacent Metro Services Box and south of the Waterloo Congregational Church (via Church Yard);
- New single-access shared zone off Cope Street;
- Vehicle entrance points for servicing and loading vehicles towards the edge of the precinct on Wellington Street to minimise conflicts with pedestrians;
- Pedestrian access off Botany Road to the ground floor makers space, student accommodation lobby and gym lobby; and,
- Pedestrian access to the social housing lobby via Wellington Street.

The entries to the Makerspace, gym and student accommodation lobby can be accessed via an elevated terrace, set back from Botany Road behind a landscaped planter. The social housing lobby is accessed via Wellington Street, connecting to lifts on the western side of the Metro Services Box. The social housing lobby has a split level design with a generous floor to ceiling height. On the lower level of the social housing lobby, the lobby entry is at street level and contains bike storage and the mailboxes. The upper level is elevated above the flood planning level and contains the building lifts and a small seating area. Accessible access between the two levels is via a platform lift, discreetly located to one side of the lobby.

4.8.2. Bicycle Parking

The proposal includes the following on-street and secure cyclist parking facilities:

Student Housing

- Residential: 87 spaces

Social Housing

- Residential: 70
- Visitor: 7

Non-residential

- Staff: 5
- Visitors: 15

Bike parking for student residents is provided within the Building 3 podium in a dedicated bike store at ground level and Level 2. Bike parking is provided for social housing residents and visitors within the Building 4 ground floor lobby.

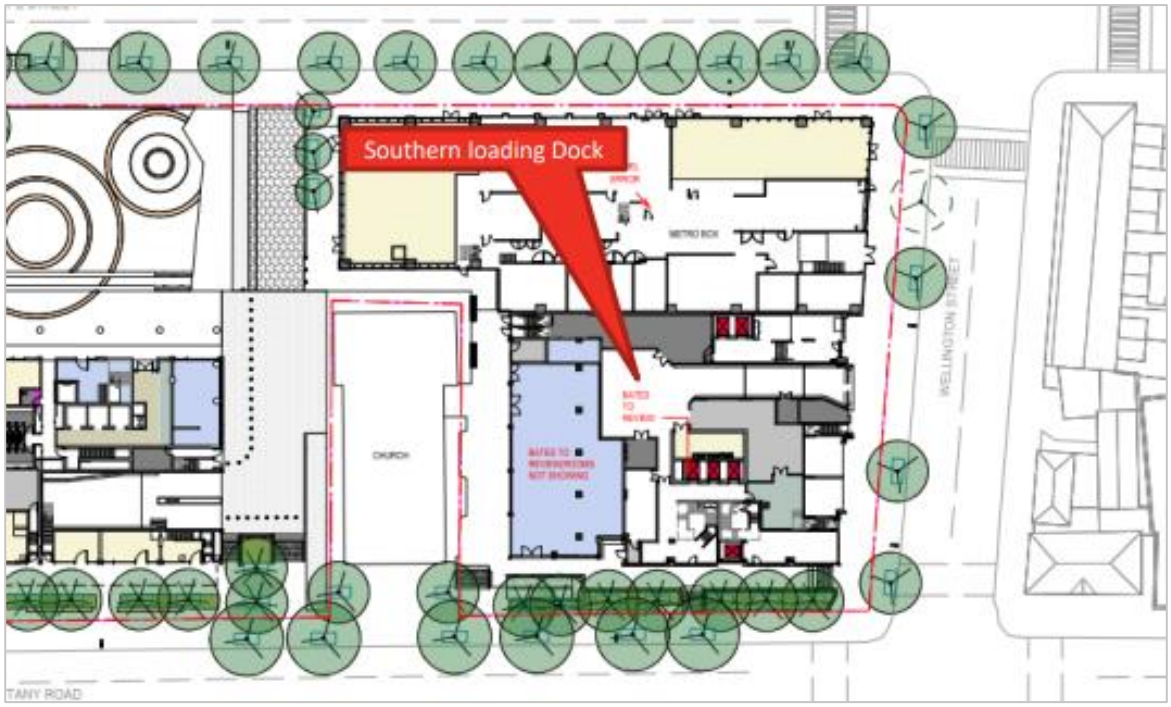
4.8.3. Parking

Eight residential car spaces for residents of the social housing building will be provided within the basement which sits below the Northern and Central Precincts and is subject to a separate SSDA (SSDA 10439). Nil car parking is proposed for residents, staff or visitors of the student accommodation, and visitors of the non-residential components of the proposal.

4.8.4. Vehicular Access

Vehicular access to the shared basement of the Northern and Central Precincts is accessed via Cope Street and the shared zone known as Church Street. Access to the loading dock is proposed from Wellington Street. The proposed vehicular access is outlined in Figure 27**.**

Figure 27 Vehicular access to Southern Loading Dock



Source: ptc.

4.8.5. Loading, Unloading and Servicing

Loading vehicles will access the loading dock via Wellington Street. The service area is at-grade, with a minimum 4m height clearance. The loading dock can accommodate MRV, sized to include the waste collection vehicle.

A 9m turntable (30 tonne capacity) with a 600mm clearance zone is proposed. The provision of the turntable ensures that all vehicles can access and egress the loading docks in a forward movement.

4.8.6. Sustainability Initiatives

A key objective of the proposal is to realise a development which achieves the high ecologically sustainable development (**ESD**) targets as set out in development consent SSD 9393. The project's commitment to sustainability is demonstrated by targeting the following ratings:

The building will achieve national best practice sustainability demonstrated through third party certification of the following rating tools:

- 5 Star rating – Green Star Design and As-Built rating tool
- BASIX Energy score of ≥30
- BASIX Water score of >40

The broader Waterloo Metro Quarter site which will obtain the following site-wide certifications:

- 6 star rating – Green Star Communities rating tool
- One Planet Community – recognition by BioRegional Australia

An ESD Report has been prepared by Cundall Johnston and Partners and is included **Appendix M.** This report provides further detail on how the overall planning and design of the building has incorporated ESD principles as defined in clause 7(4) Schedule 2 of the Regulations.

The proposal aims to maximise the environmental quality outcomes of the Southern Precinct by promoting the use of low environmental impact materials for building and construction, maintaining energy efficiency levels, and encouraging the use of public transport and cycling with the provision of bicycle storage. In achieving the sustainability outcomes, the development promotes waste reduction levels by its users, maximum thermal comfort for the residents and encourages passive solar design for the OSD.

4.9. WASTE MANAGEMENT

The storage, management and disposal of waste generated by the operation of the proposed development have been appropriately considered in the Waste Management Plan prepared by Elephant Foot at **Appendix L.** The primary waste streams expected to be generated by the ongoing operation of the total development are summarised below.

Table 6 Summary of operational waste generation and management requirement

Building component	Type of Waste	Waste Generated (L/wk)	No. of bins required
Social Housing	General waste	8,400	4 x 1100L MGBs collected 2 x weekly
	Recycling	8,400	8 x 1100L MGBs collected weekly
Student Housing	General waste	23,125	9 x 1100L MGBs collected 5 x weekly
	Recycling	23,125	5 x 1100L MGBs collected 5 x weekly
Makerspace*/gym	General	3,812	1 x 1100L MGBs collected 5 x weekly
	Food	2,442	5 x 120L MGBs collected 5 x weekly

Building component	Type of Waste	Waste Generated (L/wk)	No. of bins required
	Recycling	24,183	4 x 1100L MGBs collected 5 x weekly

* Assessed based on its highest waste generating use under *'commercial premises'* being that it operates as a *'retail premises'*.

The spatial allocation for the bins and circulation space required to service the development is outlined in **Appendix L.** This area is accommodated within the loading dock and the waste and recycling room for the residential OSD located at ground level. Waste is to be collected on site within the loading dock, accessed from Wellington Street.

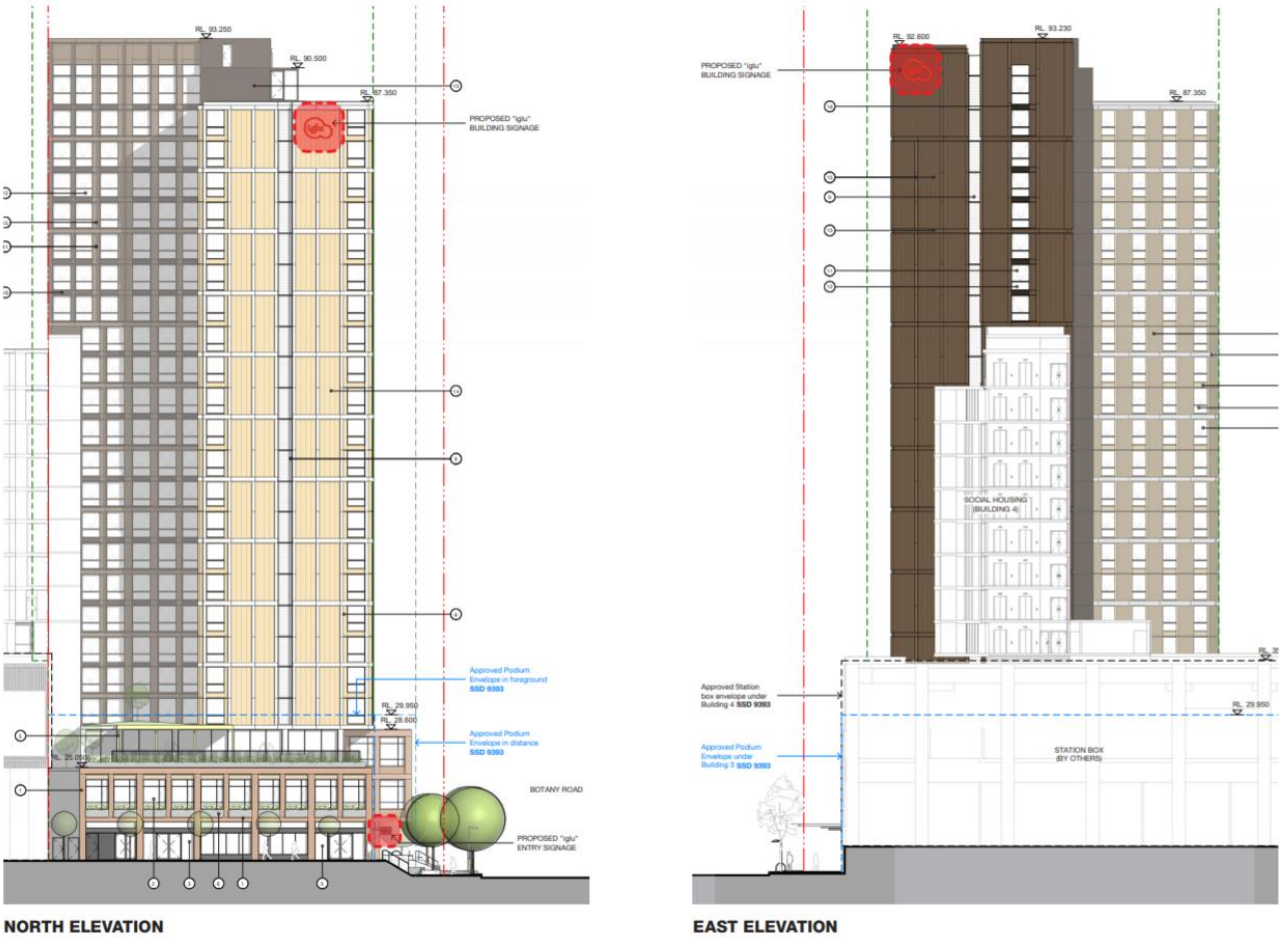
4.10. SIGNAGE ZONES

This application seeks consent for the installation of three signs including top of building signage and smaller building entry signage. The following signs are proposed:

- 2 x Top of building signs
  - Sign type: Building identification
  - Sign text: Iglu logo
  - Location: Level 23 northern façade and Level 23 eastern façade
  - Dimensions: 2,700 wide x 2,200 high
- 1 x Building identification sign
  - Sign type: Building identification
  - Sign text: Iglu logo
  - Location: Ground floor entrance to student accommodation lobby
  - Dimensions: 800 wide x 625 high

Further signage details are provided in the Signage Plans submitted at **Appendix F.**

Figure 28 Proposed Signage



Source: Bates Smart

4.11. SERVICES AND UTILITIES

The detailed SSDA design further develops the concept design to establish the capacity and augmentation requirements of the utility provisions for the development. Generally, to support the development, the approach has included measures to avoid, protect, augment or relocate/remove utilities within the surrounding area. Connections into the OSD and station include electrical, communications, fire, gas, potable water, and sewer services, utilising existing connections where possible.

The assessment of the existing infrastructure capabilities and identification of new connections required to be provided as part of the development is provided in the services and infrastructure report prepared by WSP Pty Ltd is provided at **Appendix T.**

4.12. CONSTRUCTION MANAGEMENT AND STAGING

4.12.1. Site Establishment

A Construction Environmental Management Plan (**CEMP**) has been prepared by John Holland and provided at **Appendix Q.** Demolition and excavation works associated with the CSSI approval have commenced on site. Hoardings will be installed by John Holland Building Pty Ltd (OSD Contractor) following handover of the Southern Precinct work areas by the Station Contractor.

The site will be surrounded by both A-Class and B-Class hoardings along the perimeter of the site. These hoardings will be erected along Raglan Street, Cope Street, Wellington Street and Botany Road. No unauthorised access will be permitted.

The project office will be located within one block of the site and will include accommodation for project management staff. Accommodation and amenities such as lunch sheds, office sheds, first aid sheds, change rooms and toilets for the construction workforce will be provided in stages.

Initial site accommodation sheds will be erected on top of the B class hoarding along the surrounding streets (Wellington Street, Botany Road and/or Raglan Street). As the works progress, accommodation will be relocated into the basement and lower floors of the building.

4.12.2. Construction Hours

Construction hours for the site have been established in accordance with the concept DA approval and approved Noise and Vibration report.

It is proposed to retain these hours for the construction of the OSD with the exception of extending Saturday construction hours from the approved construction hours of 8am to 1pm to the proposed construction hours of 7.30am to 3.30pm.

- Monday to Friday: 7am – 6pm
- Saturday: 7.30am – 3.30pm

There will be times when out of hours works may be required. An out of hours protocol for the assessment, management and approval of work outside of the standard construction hours will be prepared and submitted as required.

4.12.3. Construction Staging

The Southern Precinct consists of three building zones that integrate into the overall WMQ development. A staged delivery approach of the three key zones will be implemented in the following sequence.

1. Social Housing Building
2. Public Plaza (Cope Street)
3. Student Accommodation Building

The construction of each of these zones is described in the CEMP provided at **Appendix Q**. The Southern Precinct will be delivered in conjunction with the Basement of the North and Central Buildings and will be the completed prior to the Northern and Central Precinct buildings.

4.13. SUBDIVISION

The SSDA seeks for the staged stratum subdivision of the OSD pertaining to the Southern Precinct. Preliminary subdivision plans for the Southern Precinct Subdivision Stage are included in **Appendix Z.**

The CSSI Approval provided consent for the subdivision and creation of the Station allotment (Lot 1) while also creating the amalgamated development (Lot 2). Further subdivision of Lot 2 is to take place through subsequent SSDA stages set out below:

- Southern Subdivision Stage
- Central Subdivision Stage
- Northern Subdivision Stage

It is proposed that the stratum lots be created in a staged manner. The staged subdivision consent is to allow for the sequential creation / registration of allotments to occur as is required to coincide with the construction and occupation program for the Integrated Station Development without the need for separate ongoing subdivision applications.

The Southern Subdivision Stage once complete will be subdivided into the following stratum lots:

- Lot 4 – Social Housing Lot
- Lot 5 – Building 3 Retail Lot
- Lot 6 - Building 3 Student Accommodation Lot

The sequencing of lot numbers will need to comply with the requirements of the Land Registry Services and as such the final sequencing may vary subject to the staging of subdivisions.

The anticipated titling of the southern stage titling relates to everything associated with the southern precinct student, retail and social building and the air space around the towers. The residual OSD land will remain within the development allotment (Lot 2).

5. STRATEGIC CONTEXT

5.1. NSW STATE AND PREMIER PRIORITIES

The NSW Premier's Priorities is the State Government's and Premier's plan to guide policy and decision making across the State. The proposal is consistent with the relevant key objectives contained within the plan. Particularly, the proposal will positively contribute to achieving the 'Greener Public Spaces' priority of the NSW Premier:

> *Increase the proportion of homes in urban areas within 10 minutes' walk of quality green, open and public space by 10 per cent by 2023.*

The proposal will increase housing supply in a location that is within 10 minutes' walk of a number of high-quality green, open and public spaces including Alexandria Park, Waterloo Park and Redfern Park. The site will deliver student accommodation for approximately 474 students and 70 social housing units in a highly accessible location with excellent connectivity to public spaces and public transport links to Greater Sydney. The proposed development is consistent with the goals and objectives set out within the NSW State Priorities.

5.2. GREATER SYDNEY REGION PLAN: A METROPOLIS OF THREE CITIES

A Metropolis of Three Cities is a bold vision for three, integrated and connected cities that will rebalance Greater Sydney – placing housing, jobs, infrastructure and services within greater reach of more residents, no matter where they live.

The Plan sets a 40-year vision (to 2056) and establishes a 20-year plan to manage growth and change for Greater Sydney in the context of social, economic and environmental matters. The Plan informs district and local plans, assists infrastructure agencies to align infrastructure delivery and informs the private sector and wider community of the growth management and infrastructure investment intentions moving into the future.

The vision of the plan is built on three 30-minute cities within Greater Sydney with the intent of improving access to jobs, services, entertainment and cultural facilities through different modes of transport.

The Eastern Harbour City is well-established, well-serviced and highly accessibly by its radial rail network, with half a million jobs and the largest office market in the region. The proposed Waterloo Metro OSD is considered to be consistent with the Plan, in particular the following objectives:

- **Objective 1:** *Infrastructure supports the three cities*
- **Objective 4:** *Infrastructure use is optimised*
- **Objective 7:** *Communities are healthy, resilient and socially connected*
- **Objective 10:** *Greater housing supply*
- **Objective 11:** *Housing is more diverse and affordable*
- **Objective 13**: *Environmental heritage is identified, conserved and enhanced.*
- **Objective 14**: *A Metropolis of Three Cities – integrated land use and transport creates walkable and 30-minute cities*

As outlined below, the proposal specifically aligns with the above objectives by:

- Delivering residential accommodation directly above and adjacent to transport infrastructure, in a location which will encourage use of the Sydney metro by future residents;
- Providing dwellings in a location where use of the future metro will be optimised;
- Encouraging a mixed-use activity centre within close proximity to the Station, ensuring activity throughout the day and night;
- Significantly increasing housing supply in the City of Sydney LGA and Eastern City District by delivering 70 social housing dwellings and 474 student accommodation beds;

- Contributing to the provision of 70 social housing dwellings and a mix of different housing typologies including studios, one, two, three and four bedroom apartments;
- Delivering a publicly accessible plaza with active street life;
- Prioritising opportunities for people to walk, cycle and use public transport by limiting on-site car parking and co-locating residential accommodation in proximity to the new Metro;
- Providing social infrastructure to foster socially connected communities including a Makerspace, gym and Cope Street Plaza;
- Contributing to the provision of a 30-minute Eastern City by co-locating housing and employment at a site with access to services and employment;
- Providing a sympathetic design response to the adjoining heritage listed Waterloo Congregational Church; and
- Integrating residential, retail and commercial land uses within close proximity to public transport to facilitate 30-minute cities.

5.3. OUR GREATER SYDNEY 2056: EASTERN CITY DISTRICT PLAN

The Eastern City District Plan covers the LGAs of Sydney, Woollahra, Waverley, Randwick, Bayside, Inner West, Burwood, Strathfield and Canada Bay. Planning Priorities that directly relate to the proposed Waterloo Station Southern Precinct OSD include:

- **E1 - Planning for a City supported by infrastructure**

The Waterloo metro station is a key driver for the delivery of the Metro Quarter OSD. The proposal will deliver new dwellings and amenities in a highly accessible location and enable a new centre with key services and infrastructure that will become a focal point of activity within Waterloo.

- **E4 – Fostering healthy, creative, culturally rich and socially connected communities**

The non-residential uses in the podium and Cope Street Plaza will contribute positively to the social and physical wellbeing of the Waterloo community. The ground floor plane has been designed to improve site permeability and pedestrian connections to the station by creating clear sight lines and view corridors. The combination of residential accommodation and non-residential land uses will further activate the Southern Precinct during the night and weekends, creating a rich depth and diversity of activation.

- **E5 - Providing housing supply, choice and affordability with access to jobs, services and public transport**

The OSD provides premium student accommodation and social housing accommodation within a highly accessible location, close to jobs, services and public transport. The proposal will deliver 70 social housing dwellings and include a mix of dwelling types, responding to the needs of the local community and projected demand for dwellings that are suited to both small households and families. The development will also deliver housing close to jobs and services connected to other strategic job clusters such as Sydney CBD. The location of the site in close proximity to multiple tertiary institutions also makes it a prime location to support student housing with access to key services and public transport.

- **E6 – Creating and renewing great places and local centres, and respecting the District's Heritage**

The proposed development will provide a fully integrated precinct comprising social housing, student accommodation and ground floor community uses. The proposed uses within the podium will activate the Southern Precinct and create a safe and inviting place for people to visit. The proposal will also provide high-quality public spaces in the form of Cope Street Plaza. The adjoining heritage listed Waterloo Congregational Church, has been considered and the development responds to the significance of this item by setting the building form back to allow for pedestrian access to the southern elevation of the church, and facilitate the interpretation and appreciation of this heritage item. The development also provides a sympathetic and appropriate response to the traditional detailing and materiality of the Cauliflower Hotel. The development proposes a strong corner architectural response and includes cantilevered awnings which add to the architectural layering of the area without detracting from the prominence and significance of the Hotel.

- **E10 - Delivering integrated land use and transport planning and a 30-minute city**

The development is located directly above and adjacent to the Waterloo metro station which is a prime opportunity to truly integrate transport and land use by delivering residential accommodation above the metro station. The surrounding residential community will also benefit from the Waterloo metro station, improved public transport and a publicly accessible plaza.

The proposal is also considered sustainable as it is likely to reduce car travel and increase the use of public transport, walking and cycling further reducing carbon emissions and improving overall health through physical exercise.

5.4. TOWARDS OUR GREATER SYDNEY

Towards our Greater Sydney 2056 is a draft amendment to the *Greater Sydney Region Plan*. The Plan focuses on the regional significance of central and western Sydney and provides a framework that will underpin strategic planning for a more productive, liveable and sustainable city.

The Eastern City is described as an 'economic engine' comprising the established Sydney City as well as economic corridors such as Macquarie Park, Sydney Airport and Port Botany to Kogarah. Opportunities to enhance the Eastern City include the renewal of government-owned land near Sydney City and reducing congestion.

The metropolitan priorities of relevance to the detailed SSDA aim to:

- Accommodate 1.74 million additional people and more than 725,000 new homes;
- Focus on international students and inbound tourism;
- Increase the range of jobs and services and other opportunities that people can get to within 30 minute;
- Increase the proportion of people with good access to jobs and prioritise socially disadvantaged areas;
- Improve accessibility to jobs across all districts;
- Improve the ability to walk to local services and amenities;
- Support a range of housing choices at different price points to suit people through all stages of life; and,
- Provide affordable rental housing specifically for eligible households on very low and low incomes.

The detailed SSDA is consistent with all of the above priorities. The proposal will accommodate approximately 474 students and 70 social dwellings. The provision of high-quality student accommodation will also further attract international students and provide a diverse mix of student accommodation rooms including studios and twin rooms.

The provision of residential accommodation directly above the station increases the range of jobs and services that people can access within 30 minutes of their home, improving accessibility to jobs across all districts and the ability to walk to local services and amenities.

The proposed social housing development also supports a range of housing choices including one, two, three and four bedroom apartments to suit people and households at different stages of life. It will increase the volume of social housing stock within Waterloo, and social housing with good access to public transport, jobs, services and amenities.

5.5. FUTURE TRANSPORT 2056 STRATEGY

The NSW Government's *Future Transport Strategy 2056* sets the 40-year vision, directions and outcomes framework for the transport system and customer mobility in NSW, which are outlined for Regional NSW and Greater Sydney. It will guide transport investment over the longer term delivered through a series of services and infrastructure plans and other supporting plans.

The Strategy acknowledges the importance of transport in supporting a productive economy, liveable communities and more sustainable transport solutions. The strategic location of student and social housing accommodation above Waterloo metro station delivers economic benefits for Sydney by enhancing connectivity between dwellings, businesses and people. The proposal provides an opportunity to boost the city's productivity by allowing residents to access jobs faster and more reliably.

As outlined in the Strategy, integrated land use and transport planning can activate public spaces, corridors and networks. The proposed development will contribute to the liveability of the Southern Precinct by

delivering a mix of residential and non-residential land uses, active ground floor frontages and Cope Street Plaza, all of which will contribute to a sense of place and provide pedestrian friendly spaces around the station. Cope Street Plaza has been designed to be fully integrated with the station development to ensure the public domain is well utilised, vehicle conflicts minimised and pedestrian amenity maximised.

The Southern Precinct boasts proximity to future public transport opportunities for site users and visitors, which supports public transport patronage and active modes of transport. The proposal will support the activation of Waterloo Station and deliver a memorable pedestrian experience by integrating the OSD built form with the Metro Services Box, providing public open space in the form of Cope Street Plaza and improved pedestrian links and providing additional non-residential uses that respond to the needs of the local community.

5.6. STATE INFRASTRUCTURE STRATEGY 2018

The *State Infrastructure Strategy 2018-2038* sets out the NSW Government's vision for infrastructure over the next 20 years, focusing on aligning investment with sustainable growth. The Strategy goes beyond current projects and identifies policies and strategies to provide infrastructure that meets the needs of a growing population and a growing economy. For Metropolitan NSW, the primary goal is to provide residents with access to jobs and services within 30 minutes, known as the '30-minute city' model.

The Strategy sets out six cross-sectoral strategic directions for infrastructure in NSW, the following which are relevant to this proposal:

- **Better integrating land use and infrastructure planning**

The proposal will deliver additional dwellings in coordination with the new Waterloo metro station beneath, so that public transport use is maximised.

- **Delivering infrastructure to maximise investment and use of public funds**

The proposal directly assists in the timely delivery of the new Waterloo metro station and aligned with the priority to provide infrastructure projects on-time and on-budget. Through the provision of bicycle storage and end of trip facilities, and minimal car parking (delivered as part of the concurrent Basement SSDA), the proposal will assist in promoting the use of the existing walking and cycling networks in the area, as well as encouraging the use of the heavy and light rail metro network.

- **Optimising asset management**

The proposal has been designed with consideration of the life cycle of the asset so that the integrated station and OSD solution is 'futureproofed', and that the life, availability and use of railway infrastructure on the site are appropriately safeguarded.

- **Making our infrastructure more resilient**

The proposal has been designed with regards to flooding and other environmental considerations, ensuring that the development is not vulnerable to natural hazards and human-related threats.

- **Using innovative service delivery models**

The proposal brings together the best skills of the private sector in delivering the Waterloo metro station. It represents an innovative approach that supports the NSW Government in funding the cost of this step-change piece of public transport infrastructure and delivering a range of public benefits, integrated within the Southern Precinct OSD.

5.7. SUSTAINABLE SYDNEY 2030

Sustainable Sydney 2030 is a long-term plan prepared by the City of Sydney to achieve a green, global and connected city. The plan includes ten targets for the measurement of sustainability success, as well as ten strategic directions intended to guide the future direction of Sydney.

As outlined below, the proposal has been designed to achieve the relevant targets and be consistent with the strategic directions contained within *Sustainable Sydney 2030*. The following strategic directions are of relevance to the proposal:

- A globally competitive and innovative city;

- Integrated transport for a connected city;
- A city for walking and cycling;
- Housing for a diverse community;
- A cultural and creative city;
- Resilient and inclusive cities; and,
- Sustainable development, renewal and design.

A globally competitive and innovative city

The proposal enhances Sydney's global position and attractiveness as a destination for people, business and investment by delivering high-quality dwellings with high living standards, amenity and affordability. This will support the attraction of a talented workforce in an accessible location and support economic productivity by delivering diverse and affordable housing options and high-quality urban infrastructure. The workforce will also have access to affordable housing.

Integrated transport for a connected city

The established Waterloo and Redfern communities will greatly benefit from the proposed metro station, improving access to the Sydney CBD and other strategic centres. The proposal will deliver student and social housing in proximity to jobs and reliable and efficient public transport. This will alleviate pressures on the existing Green Square Station. The public domain works will also provide an attractive environment for pedestrians and allow them to move comfortably and safely through the precinct. The proposal will provide bicycle storage and end-of-trip facilities, encouraging more people to utilise active modes of transport to and from Waterloo Station.

A city for walking and cycling

As outlined in Sustainable Sydney 2030, the experience of walking will influence decisions about whether people walk. The proposed non-residential podium will create a comfortable, interesting, safe and activated ground plane which will encourage walking and improve the pedestrian experience.

The proposal also delivers a substantial number of residential dwellings directly above and adjacent to Waterloo Metro, ensuring future residents are within a reasonable walking distance to public transport and local services. The proposal will also provide end-of-trip facilities for people to walk and cycle to work. Cope Street Plaza will be 'traffic free' to allow people to move around easily and provide a pedestrian-focused, space for the community.

The shared way from Cope Street will provide access to the basement below Buildings 1 and 2 and provide an extension of the Cope Street Plaza public domain.

Housing for a diverse community

In accordance with Sustainable Sydney 2030, housing affordability is the number one issue affecting Sydney's social and economic progress. Long commutes further add to social pressures and reduce time spent with families and their communities.

The proposal will increase housing supply and deliver a combination of social housing and student accommodation to ensure people on a range of incomes can live and work in close proximity to jobs, public transport and community facilities and services. The proposal also delivers a range of studio, one, two- and three-bedroom apartments to ensure that households of different sizes can be accommodated, including families with children, singles and shared households.

Sustainable development, renewal and design

The detailed SSDA will help to realise the vision for a greener global city that will improve the places, spaces and buildings serving the greater community and the residents that it serves by providing an energy-efficient building and residential dwellings with access to public transport. The location allows employees to walk and cycle to places of interest including Alexandria Park and nearby cultural and entertainment hubs.

5.8. DEVELOPMENT NEAR RAIL CORRIDORS AND BUSY ROADS – INTERIM GUIDELINE

The *Development Near Rail Corridors and Busy Roads* guideline assists in the planning, design and assessment of development which is in or adjacent to rail corridors and busy roads. The application of the guideline shares a close relationship with the *State Environmental Planning Policy (Infrastructure) 2007* (**ISEPP**), supporting specific rail and road provisions contained within.

The Guideline relates to development impacted by rail corridors and busy roads, in terms of noise and vibration and air quality, as well as the potential impact of adjacent development on roads and railways, with regards to safety and design issues and excavation, earthworks and other construction-related issues.

The Waterloo Southern Precinct OSD proposal capitalises on concentrating residential development above the future Sydney metro station, therefore improving access and opportunities for increased rail patronage.

With regards to noise and vibration impacts by rail corridors on development and vice versa, this SSDA is accompanied by a Noise and Vibration Impact Assessment, prepared by Stantec Pty Ltd **(Appendix K**), which demonstrates that the proposed design is capable of meeting the requirements of the Guideline.

5.9. GUIDE TO TRAFFIC GENERATING DEVELOPMENTS, ROADS AND MARITIME SERVICES

The *RMS' Guide to Traffic Generating Development* outlines all aspects of traffic generation considerations relating to developments. The Guide establishes the grounds for traffic impact assessment in terms of daily traffic volumes and peak traffic volumes for residential and retail land uses.

A Transport, Traffic and Parking Impact Assessment (**TIA**) has been prepared by ptc. and is provided at **Appendix I.** The TIA considers the traffic impacts associated with the development. Traffic generation impacts are further discussed in **Section 8.8.**

5.10. HERITAGE COUNCIL GUIDELINES ON HERITAGE CURTILAGES 1996

The Heritage Impact Assessment (**HIA**) (**Appendix H**) and Heritage Interpretation Strategy (**HIS**) (**Appendix CC)**, prepared by Urbis, provides a comprehensive assessment of key heritage impacts and establishes the heritage management framework for the development of the Southern Precinct and entire Waterloo Metro Quarter site. Heritage impacts with regards to the proposal are discussed further in **Section 8.2.**

5.11. HERITAGE COUNCIL GUIDELINE, DESIGN IN CONTEXT – GUIDELINES FOR INFILL DEVELOPMENT IN THE HISTORIC ENVIRONMENT, 2005

The assessment of heritage impacts within the Heritage Impact Statement prepared by Urbis in **Appendix H** and Heritage Interpretation Strategy in **Appendix CC** provides a comprehensive assessment of key heritage impacts and establishes the heritage management framework for the development of the site. Heritage impacts are further discussed in Section 8.

5.12. CITY OF SYDNEY'S ENVIRONMENTAL ACTION 2016 – 2021 STRATEGY AND ACTION PLAN

The *City of Sydney's Environmental Action 2016-2021 Strategy and Action Plan* focuses on defining actions to 2021 on the way to achieving 2030 environmental targets. By 2021, the City aims to reduce emissions in its operations by 44 per cent from 2006 levels and move to 50 per cent renewable energy.

An ESD Report has been prepared by Cundall Johnston and Partners and included at **Appendix M.** The report details how ESD principles will be incorporated in the design, construction and operation of the development and includes a framework for how the proposed development will reflect national best practice sustainable building principles.

5.13. NSW GOVERNMENT CLIMATE CHANGE POLICY FRAMEWORK

The ESD report provided at **Appendix M** includes a Sustainability Framework that will inform design, construction and operational stages of the project. The framework includes specific goals, targets and

practical actions to manage risks from climate impacts, protect communities and strengthen the resilience of the local economy. These include:

Goals / Targets

- A Climate Adaptation Plan will inform the design of the project in accordance with international guidelines.

Initiatives

- Prepare and implement a Climate Adaptation Plan (plan to be prepared during design development) including agreeing on the climate change scenario to be adopted (2°C and/or 4°C).
- Reduce heat island effect – green roofs, street tree planting, PV panels, hard surfaces with high Solar Reflective Index (SRI).
- Passive design of facades to improve thermal performance and reduce impact of extreme weather days.
- Design cooling system capacity for higher design temperatures to allow for increasing peak temperatures. Stormwater systems designed for increased storm frequency and intensity.

5.14. NSW GOVERNMENT'S DRAFT CLIMATE CHANGE FUND STRATEGIC PLAN AND A PLAN TO SAVE NSW ENERGY AND MONEY

As discussed above, the ESD report included at **Appendix M** includes specific goals, targets and initiatives regarding climate change that will inform the design, construction and operational stages of the project.

5.15. BETTER PLACED – AN INTEGRATED DESIGN POLICY FOR THE BUILT ENVIRONMENT IN NSW 2017 AND RELEVANT POLICY DOCUMENTS PUBLISHED BY THE GOVERNMENT ARCHITECT NSW

Better Placed (2017) is an integrated design policy for the built environment, prepared by the Government Architect of NSW, to create a transparent approach to ensure good design outcomes are achieved to deliver desired architecture, public places and environments throughout NSW (September 2017). The policy includes seven applicable objectives:

- Objective 1 - Better fit – contextual, local and of its place;
- Objective 2 - Better performance – sustainable, adaptable and durable;
- Objective 3 - Better for the community – inclusive, connected and diverse;
- Objective 4 - Better for people – safe, comfortable and liveable;
- Objective 5 - Better working – functional, efficient and fit for purpose;
- Objective 6 - Better value-creating and adding value;
- Objective 7 - Better look and feel – engaging, inviting and attractive.

The detailed design has been subject to an extensive design review that involved a collaborative, cyclical and iterative process. The final design outcome will accommodate a built form that is sustainable, functional, sensitive to its context and visually distinctive as encouraged by objectives of Better Placed, in line with the modified concept DA.

5.16. DRAFT CONTAMINATED LAND PLANNING GUIDELINES

The *Draft Contaminated Land Planning Guidelines* (**Planning Guidelines**) have been prepared by the DPIE and Environment Protection Authority (**EPA**) to assist planning authorities address land contamination issues and assess development applications for remediation works. The Guidelines are primarily for planning authorities however have been considered as part of this assessment.

A Contamination Strategy has been prepared by Douglas Partners to establish the proposed strategy for managing contamination on the site (refer to **Appendix OO**). Subject to adhering to the Contamination

Strategy and preparing and implementing a Remediation Action Plan (**RAP**), the site can be made suitable for the proposed land uses. Refer to **Section 6.5** for further discussion.

5.17. GUIDELINES OF NSW POLICE SAFE PLACES A COMPREHENSIVE GUIDE FOR OWNERS, OPERATORS AND DESIGNERS

These guidelines provide an overview of hostile vehicle management in risk situations and is useful to all owners and operators responsible for management of public spaces and buildings. It offers insight into how protective measures can be integrated into public and private spaces to mitigate and/or reduce the impact of vehicles being used as weapons.

The assessment of crime, safety and security impacts within the Crime Prevention Through Environmental Design (CPTED) prepared by Connley Walker Pty Ltd in **Appendix N** and Security Risk Assessment prepared by Connley Walker Pty Ltd **Appendix FF** provides a comprehensive assessment of elements of crime, and the fear of crime that may be associated with the proposed development and public domain area. This is further discussed in Section 8.16.

5.18. OTHER RELEVANT STATE AND LOCAL STRATEGIES, POLICIES AND GUIDELINES

Other relevant State and local strategies, policies and guidelines are discussed in Table 7 below.

Table 7 Relevant State and Local strategies, policies and guidelines

Strategy	Consistency
City of Sydney: Alternative natural ventilation of apartments in noisy environments- Performance Pathway Guideline (Performance Pathway Guideline)	A Natural Ventilation Assessment Report has been prepared by RWDI (**Appendix RR**) with consideration of City of Sydney: Alternative natural ventilation of apartments in noisy environments- Performance Pathway Guideline (Performance Pathway Guideline).
City of Sydney Interim Floodplain Management Policy	A Stormwater Management and Flood Impact Assessment has been prepared by WSP (**Appendix O**) in accordance with the City of Sydney Interim Floodplain Management Policy.
City of Sydney Guidelines for Waste Management in New Developments	A Waste Management Plan has been prepared by Elephant's Foot (**Appendix L**) in accordance with City of Sydney Guidelines for Waste Management in New Developments.
City of Sydney Interim Guidelines for Public Art in Private Developments	A Public Art Strategy has been prepared by Aileen Sage Architects (**Appendix MM**) in accordance with the City of Sydney Interim Guidelines for Public Art in Private Developments.
City of Sydney Landscape Code Volume 2	The integrated landscaping proposed by Aspect Studio across the site has been designed to be consistent with the relevant City of Sydney guidelines. This is illustrated within the indicative landscape plans prepared by Aspect Studio included at **Appendix II.**
City of Sydney Public Domain Manual	
City of Sydney Light Design Code	

Strategy	Consistency
City of Sydney Street Tree Masterplan	
City of Sydney Technical Streets Specification and Street Design Code	

5.19. CITY PLAN 2036

City Plan 2036 is the draft Local Strategic Planning Statement (**LSPS**) for the City of Sydney and links the state and local strategic plans with the planning controls to guide future development and the Local Environmental Plan review. It delivers on the 10 strategic directions of our community strategic plan, Sustainable Sydney 2030, and has been informed by the City's other social, environmental, economic and cultural plans and strategies.

The City Plan sets 13 priorities to achieve the City's Green, Global, Connected vision and guide future changes to the City's planning controls, of which the following are notably relevant:

1. Movement for walkable neighbourhoods and a connected city

The proposed development is integrated with the future Sydney metro and will directly facilitate the development of a place-base infrastructure service which encourages active transit methods such as walking and cycling and the Sydney Metro Waterloo Station.

2. Align development and growth with supporting infrastructure

The proposal directly assists in the timely delivery of the new Waterloo metro station and in achieving the priority to provide infrastructure projects on-time and on-budget. Through the provision of bicycle storage and end of trip facilities, and the provision of minimal necessary car parking (delivered as part of the concurrent basement SSDA), the proposal will assist in promoting the use of the existing walking and cycling networks in the area, as well as encouraging the use of the heavy and light rail metro network.

8. Developing innovative and diverse business clusters in the City Fringe

The development facilitated through the proposed amendment to the approved building envelopes, directly aligns with the City's strategic priority to develop innovative and diverse business clusters in the City Fringe.

The proposal delivers a commercial office building and an increase in employment floor space within Sydney's inner suburbs with direct access to the Sydney CBD via the future Sydney Metro Waterloo Station. The site is also in proximity to the Green Square-Mascot Strategic Centre.

The proposal works to achieve the objectives of this priority as follows:

- Providing a place for investment and innovation at a suitable scale that can contribute to the Waterloo and Redfern locality to develop as a knowledge intensive cluster, while enhancing urban amenity and local character.
- Providing through-site links to improve the walkability and amenity of the precinct and provide connected places within the precinct to support knowledge sharing and collaboration between diverse businesses, institutions, and talent.
- The proposal delivers a genuine mixed-use precinct that celebrates distinct economic, social, heritage and cultural characteristics of Waterloo.
- The proposal also delivers a genuine mix of uses to support lively and thriving village economies within the City Fringe, including residential development that has been designed meet a variety of housing demand and needs, and does not compromise commercial or enterprise uses.

11. Creating better buildings and places to reduce emissions and waste, and use water efficiency

The sustainability framework for the project implements both the Green Star rating scheme and the NABERS rating. Green Star assesses projects based on their performance in the categories of management, indoor environmental quality, energy, transport, water, materials, land use and ecology, emissions and innovation. The development will reflect leading industry practice for commercial development by incorporating appropriate sustainability measures and initiatives.

5.20. CITY OF SYDNEY DEVELOPMENT CONTRIBUTIONS PLAN 2015

The OSD is subject to the City of Sydney Council's contributions requirements under the *City of Sydney Development Contributions Plan 2015* (**Contributions Plan 2015**). The levy aims to assist the funding of public facilities such as facilities, amenities and services required to meet the needs of an increasing workforce population.

As per the terms of the Contributions Plan 2015, development contributions are not payable for the delivery of social or affordable housing. The balance of the proposed development will be the subject of development contributions payable by either monetary contribution or works provided in kind.

In accordance with the Concept Conditions of Consent and SLEP 2012, public benefits will be delivered to the satisfaction of the Secretary.

5.21. CITY OF SYDNEY LOCAL STRATEGIC PLANNING STATEMENT

City Plan 2036 is the draft Local Strategic Planning Statement (**LSPS**) for the City of Sydney and links the state and local strategic plans with the planning controls to guide future development and the Local Environmental Plan review. The City Plan sets 13 priorities to achieve the City's Green, Global, Connected vision and guide future changes to the City's planning controls. The following are of relevance to the proposal:

1. Movement for walkable neighbourhoods and a connected city

The proposed development is co-located with the Waterloo Metro and will directly facilitate the development of a place-base infrastructure service which encourages active transit methods such as walking and cycling and the Waterloo metro station.

By locating additional student and social housing accommodation above Waterloo metro station, the proposal contributes to the vision for a 30-minute city. Further, the proposal is considered sustainable as it increases the proportion of trips by public transport, walking and cycling trips to reduce emissions and heath.

6. New homes for a diverse community

The proposed student and social housing accommodation within the development is providing high-quality, diverse dwellings within a highly accessible location. The mixed tenant scheme delivers diverse tenure options for residents within Sydney, designed to suit the evolving needs of short-term student tenants and long term social housing tenants who value additional communal facilities that meet changing needs. The communal facilities provide greater opportunities for socialising, exercising, and working/studying from home.

6. STATUTORY CONTEXT

As outlined in the SEARs, the statutory provisions contained in the planning instruments listed below have been addressed:

- *Environmental Planning and Assessment Act 1979;*
- *State Environmental Planning Policy (State and Regional Development) 2011;*
- *State Environmental Planning Policy (Infrastructure) 2007;*
- *State Environmental Planning Policy No. 55 – Remediation of Land;*
- *State Environmental Planning Policy No. 64 – Advertising and Signage;*
- *State Environmental Planning Policy No. 65 – Design Quality of Residential;*
- *Apartment Development and accompanying Apartment Design Guide (SEPP 65);*
- *State Environmental Planning Policy (Affordable Rental Housing);*
- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017;*
- *Draft State Environmental Planning Policy (Environment);*
- *Draft State Environmental Planning Policy (Remediation of Land);*
- *Sydney Local Environmental Plan 2012 (SLEP 2012);* and,
- *Any exhibited Planning Proposal or draft State Environmental Planning Policy related to the land.*

The proposals compliance with the relevant statutory provisions is outlined in the following sections.

6.1. ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Pursuant to Section 4.36(2) of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**):

> *(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development*

The proposal is classified as SSD as detailed in Section 6.2 below. In accordance with Section 4.5 of the EP&A Act, the Independent Planning Commission is designated as the consent authority if there is a Council objection to the DA or there are more than 25 submissions, unless otherwise declared by the Minister as a State Significant Infrastructure related development.

Unless otherwise declared, the Minister will be the consent authority for the detailed SSDA (refer Clause 8A of the SRD SEPP and Instrument of Delegation dated 11 October 2018).

Table 8 below provides an assessment of the proposal against the objectives contained within Section 1.3 of the EP&A Act.

Table 8 Objectives of the EP&A Act

Objectives	Comment / Response
To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	The proposal promotes the social and economic welfare of the community and a better environment through the delivery of an integrated transport-oriented development above the Waterloo metro station.
To facilitate ecologically sustainable development by integrating relevant economic, environmental	The ESD commitments are consistent with those included within the concept DA. This detailed

Objectives	Comment / Response
and social considerations in decision-making about the environmental planning and assessment.	proposal is committed to achieving high standards of ecologically sustainable development as outlined in the ESD Report in **Appendix M.**
To promote the orderly and economic use and development of land.	The proposal promotes the orderly and economic use and development of land by maximising residential accommodation and non-residential community uses within the approved concept DA building envelope.
To promote the delivery and maintenance of affordable housing.	The proposal will deliver 70 social housing units and 474 beds for student accommodation which promotes the delivery of affordable housing in Waterloo.
To protect the environment, including the conservation of threatened and other species of native animals and plants, ecologically communities and their habitats.	The OSD is located within an established urban environment. A BDAR waiver has been issued from the DPIE which determined the proposal will have no impact on threatened species or their habitats (**Appendix V**).
To promote sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	The proposal respects the significance of surrounding built heritage as outlined in the Heritage Impact Assessment and Archaeological Statement (**Appendix H**).
To promote good design and amenity of the built environment.	The detailed design of the OSD exhibits design excellence and mitigates adverse amenity impacts. The endorsed Design Excellence Strategy to which the building responds is attached at **Appendix G** and discussed in further detail in **Section 8.1.2.**
To promote proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	Construction staging and impact management are discussed in **Section 8.9.** A Construction Environmental Management Plan is attached at **Appendix Q.**
To promote the sharing of responsibility for environmental planning and assessment between different levels of government in the State.	Relevant Government agencies have been consulted throughout the concept and detailed design processes. It is noted that the Minister for Planning and Public Spaces is the consent authority as the development is considered SSD.
To provide increased opportunity for community participation in environmental planning and assessment.	An inclusive public consultation strategy has been implemented throughout the project design process (refer to **Section 7** and **Appendix U).**

Overall, the proposed development is consistent with the objects and general terms of the EP&A Act.

6.2. BIODIVERSITY CONSERVATION ACT 2016

The purpose of the *Biodiversity Conservation Act 2016* is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and in the future, consistent with the principles of ecologically sustainable development.'

In accordance with Clause 7.9 of the *Biodiversity Conservation Act 2016,* any State Significant Development Application is to be accompanied by a Biodiversity Development Assessment Report (**BDAR**) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity value.

A request seeking a waiver for the requirement for a BDAR associated with SSD-10437 was submitted to the NSW DPIE on 9 July 2020. This was accompanied by an assessment of the proposal development against the relevant provisions of the *Biodiversity Conservation Act 2016* and the *Biodiversity Conservation Regulation 2017.* The assessment determined the proposal is unlikely to have a significant impact on the eight biodiversity values as defined in Section 1.5 of the *Biodiversity Conservation Act 2016* and clause 1.4 and clause 6.1 of the *Biodiversity Conservation Regulation 2017.* Accordingly, a request to waive the requirement for a BDAR was made.

The NSW DPIE granted a waiver on 24 July 2020 under Clause 7.9(2) of the Biodiversity Conservation Act 2016, concluding that:

> *"The proposed development is not likely to have any significant impact on biodiversity values. The application, therefore, does not need to be accompanied by a BDAR."*

A copy of the BDAR waiver is provided at **Appendix V.**

6.3. STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011

The *State Environmental Planning Policy (State and Regional Development) 2011* (**SRD SEPP**) has the purpose of identifying development that is SSD, State significant Infrastructure (SSI) (including critical) and regionally significant development.

The concept DA was classified as SSD under Section 4.36 of the EP&A Act as the development has a CIV in excess of $30 million, and is for the purpose of residential accommodation associated with railway infrastructure under clause 8(1)(b) of the SRD SEPP.

In accordance with clause 12 of the SRD SEPP, subsequent detailed DAs under the concept DA are considered SSD regardless of CIV, as follows:

> *12 Concept development applications*
>
> *If—*
>
> *a) development is specified in Schedule 1 or 2 to this Policy by reference to a minimum capital investment value, other minimum size or other aspect of the development, and*
>
> *b) development the subject of a concept development application under Part 4 of the Act is development so specified,*
>
> *any part of the development that is the subject of a separate development application is development specified in the relevant Schedule (whether or not that part of the development exceeds the minimum value or size or other aspect specified in the Schedule for such development).*

Accordingly, all subsequent detailed DAs to be sought for the Waterloo Metro Quarter site are considered SSD. For clarity this includes applications for the following:

1. Southern Precinct (SSD-10437) – Cope Street Plaza; Social Housing; Student Accommodation; Gym; Commercial Premises.
2. Central Building (SSD-10438) – Community Facilities; Affordable Housing; Market Housing; Retail Premises.

3. Basement (SSD-10439) – to support the Northern Precinct and Central Building.
4. Northern Precinct (SSD-10440) – Commercial Office; Retail Premises.

6.4. STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007

State Environmental Planning Policy (Infrastructure) 2007 (**ISEPP**) came into force in December 2007 and aims to facilitate the effective delivery of infrastructure across the State. The SEPP identifies matters for consideration in the assessment of types of infrastructure development, including all new development that generates large amounts of traffic in a local area. The following clauses are relevant to this application:

- Excavation in, above, below or adjacent to rail corridors (clause 86 of Division 15 Railways)
- Residential development on land in or adjacent to a rail corridor (clause 87 of Division 15 Railways).
- Development in or adjacent to an interim rail corridor (clause 88 of Division 15 Railways).
- Major development within the Interim Metro Corridor (clause 88A of Division 15 Railways).
- Development near proposed metro stations (clause 88B of Division 15 Railways).
- Development with a frontage to a classified road (clause 101 of Division 17 Roads and Traffic).
- Impact of road noise or vibration on non-road development (clause 102 of Divisions 17 Roads and Traffic).
- Traffic generating development (Schedule 3).

As per clause 85, the consent authority must provide notice to the relevant rail authority within seven days after the application is made for their consideration prior to the determination of the DA. The proposal relates to development located within the Sydney metro city & south-west corridor and will be referred to Sydney Metro and TfNSW for comment.

Pursuant to clause 104 (Traffic Generating development) and schedule 3 of the ISEPP, the application also triggers consultation with TfNSW, as the proposed development has more than 75 dwellings with access to a road that is less than 90m from a classified road. The proposed development is not considered to substantially impact the surrounding road network due to the minimal car parking provided. Traffic impacts associated with the proposed development are discussed in detail within the Transport, Traffic and Parking Assessment prepared by ptc. at **Appendix I** and **Section 8.8**.

6.5. STATE ENVIRONMENTAL PLANNING POLICY NO. 55 – REMEDIATION OF LAND AND DRAFT REMEDIATION OF LAND SEPP

State Environmental Planning Policy No.55 – Remediation of Land (**SEPP 55**) provides a State-wide approach to the remediation of contaminated land, and primarily promotes the remediation of contaminated land for the purpose of reducing the risk of harm to human health.

All demolition will be completed as part of the Sydney Metro station works, and potential site contaminants will be addressed and remediated across the Waterloo Metro Quarter site in accordance with the relevant conditions of the CSSI approval. Any site remediation for the eastern portion of the site affected by the construction of the Sydney Metro Waterloo Station is wholly assessed and approved in accordance with the CSSI approval.

Further consideration of SEPP 55 is therefore only required on the western portion of the site. This affects the land immediately below the proposed student accommodation building only. Contamination present in the western portion of the WMQ has been identified to potentially present a risk to future site users.

A Contamination Strategy has been prepared by Douglas Partners to establish the proposed strategy for managing contamination at the site (refer to **Appendix OO**). This Strategy considers the findings of the combined Phase 1 and Phase 2 Site Contamination Investigation which was previously conducted for the western portion of the WMQ. This previous investigation identified that management and remediation of contamination is required.

The proposed strategy to address contamination for the western portion of the site is as follows:

- Engage a suitably experienced Contaminated Lands Consultant and NSW EPA Accredited Site Auditor;

- Undertake Supplementary Contamination Investigation and Assessment to obtain additional data on the site conditions and further assess the risk the identified contamination potentially presents under the proposed development;
- Prepare a Remediation Action Plan (RAP);
- Prepare an Unexpected Contaminated Land and Asbestos Finds Procedure;
- Implement the RAP and Unexpected Contaminated Land and Asbestos Finds Procedure;
- Validation Assessment of the remediation works by the Contaminated Lands Consultant;
- Prepare a Validation Assessment Report. This will be prepared by the Contaminated Lands Consultant; and
- Prepare a Site Audit Statement and Site Audit Report, by the NSW EPA Accredited Site Auditor, and submit to the Secretary and Council for information. The Site Audit Statement will state that the land is suitable for the proposed land use.

Douglas Partners consider that the adoption of the proposed strategy (**Appendix OO)** is suitable to address the requirements of SEPP 55 for the Southern Precinct and ensure that the site is suitable for its intended use.

6.6. STATE ENVIRONMENTAL PLANNING POLICY NO. 64 – ADVERTISING AND SIGNAGE

State Environmental Planning Policy No. 64 – Advertising and Signage (**SEPP 64**) aims to ensure that advertising and signage is compatible with the desired amenity and visual character of an area and provides effective communication in suitable locations and is of high-quality design and finish. It does not regulate the content of signs and advertisements.

The scope of the detailed SSDA seeks consent for the installation of three building identification signs associated with the student accommodation building. Clause 13 of SEPP 64 indicates that a consent authority must not grant consent to display signage unless it is consistent with the objectives of the policy and complies with the assessment criteria contained within Schedule 1 of SEPP 64.

This application seeks consent for two *'top of building identification'* signs on the north and east elevations of Building 3. The signage will display the 'Iglu' logo. Smaller building entry signage has been proposed on the ground floor of the western facade, adjacent to the student accommodation lobby entry door.

An assessment of the proposed signage included as part of the SSDA against the beforementioned provisions is provided below.

Table 9 SEPP 64 Compliance Table

Control	Proposal	Compliance
3 – POLICY AIMS AND OBJECTIVES		
Clause 3(1)(a) – to ensure that signage: • Is compatible with the desired amenity and visual character of an area; • Provides effective communication in suitable locations; and • Is of high-quality design and finish	The proposed signs will provide effective communication to the student accommodation building and will be of a high-quality design and finish.	Yes
SCHEDULE 1 – ASSESSMENT CRITERIA		
1 – Character of the Area		

Control	Proposal	Compliance
• Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?	The proposal for top of building identification signage is considered consistent with the future character of Waterloo and WMQ as it evolves into a vibrant mixed-use precinct.	Yes
• Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	The proposed signage is for building identification purposes only. No advertising is proposed. Notwithstanding this, the surrounding area is characterised by a mix of commercial and industrial land uses, many of which feature business and building identification signs.	Yes
2 – Special Areas		
• Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?	The proposal is not located within an environmentally sensitive areas or a heritage conversation area. The proposed top of building signage is located at a different height datum to Waterloo Congregational Church and the proposed entry signage at ground level is set back from the Church by the Church Yard. The proposed signs will not adversely impact the visual qualities of this heritage item. The proposed signage zones do not form an interface with the heritage listed Cauliflower Hotel.	Yes
3 – Views and Vistas		
• Does the proposal obscure or compromise important views?	The proposed signage is contained wholly within the concept building envelope and the building façade. As such, the proposed signage will not adversely impact important views or view corridors.	Yes
• Does the proposal dominate the skyline and reduce the quality of vistas?	The proposed signage is contained wholly on the building façade and therefore will not dominate the skyline or reduce the quality of vistas.	Yes
• Does the proposal respect the viewing rights of other advertisers?	The proposal will not impact on the viewing rights of any advertisers.	Yes
4 – Streetscape, Setting or Landscape		
• Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?	The scale, proportion and form of the proposal is considered appropriate as, it responds to the overall size of the building and broader WMQ Precinct.	Yes

Control	Proposal	Compliance
• Does the proposal contribute to the visual interest of the streetscape, setting or landscape?	The proposed signs will improve the visual interest of the streetscape, by incorporating high quality signage that integrates with the architectural built form of the building at ground and Level 23.	Yes
• Does the proposal reduce clutter by rationalising and simplifying existing advertising?	The proposed signage will be installed on a new building. It does not seek to rationalise or simplify existing advertising.	Yes
• Does the proposal screen unsightliness?	N/A. The proposed signage will be installed on a new architecturally designed building that exhibits design excellence.	Yes
• Does the proposal protrude above buildings, structures or tree canopies in the area or locality?	The proposed signage is contained wholly on the building façade and does not protrude above the building or structures.	Yes
• Does the proposal require ongoing vegetation management?	The proposal does not require any ongoing vegetation management.	Yes
5 – Site and Building		
• Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?	The proposed signs have been designed to be compatible with the scale and proportions of the building and is considered appropriate for the context of the site and future character of Waterloo.	Yes
• Does the proposal respect important features of the site or building, or both?	The proposed signs align with the height of façade articulation and are respectful of the architectural built form. They will not dominate the surrounding locality or detract from any of the important features of the building.	Yes
• Does the proposal show innovation and imagination in its relationship to the site or building, or both?	The proposed signs have been considered in the context of the building achieving design excellence and its role in identifying the location of the student accommodation building.	Yes
7 – Illumination		
Would illumination result in unacceptable glare? Would illumination affect safety for pedestrians, vehicles or aircraft? Would illumination detract from the amenity of any residence or other form of accommodation?	No illumination is proposed.	Yes

Control	Proposal	Compliance
Can the intensity of the illumination be adjusted, if necessary? Is the illumination subject to a curfew?		
8 – Safety		
• Would the proposal reduce the safety for any public road?	The proposed signs are located at the top of building and ground floor plane, orientated away from Botany Road. They will have a limited impact on the public road, pedestrians, or cyclists.	Yes
• Would the proposal reduce the safety for pedestrians or bicyclists?		
• Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?		

6.7. STATE ENVIRONMENTAL PLANNING POLICY NO. 65 – DESIGN QUALITY OF RESIDENTIAL APARTMENT DEVELOPMENT AND ACCOMPANYING APARTMENT DESIGN GUIDE (SEPP 65)

State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development (**SEPP 65**) applies to development for the purposes of a building that comprises three or more storeys and four or more self-contained dwellings.

This EIS assesses the proposed social housing dwellings against the requirements of SEPP 65 and the ADG. As per clause 4(4) of SEPP 65, the SEPP and the ADG do not apply to a boarding house (which includes student accommodation) development, unless otherwise prescribed by a local environmental plan. SLEP makes no such prescription and as such SEPP 65 and the ADG do not apply to the student accommodation component of the proposal.

A Design Verification Statement has been provided by Bates Smart, which confirms that the proposal can meet the objectives of Parts 3 and 4 of the ADG. The performance of the proposal in relation to the key numeric requirements of the ADG is shown in Table 10.

Table 10 Apartment design guide key numeric requirements

Requirement	Proposal
Communal Open Space	290sqm (20.36% of the Building 4 site area) is provided as communal open space. Refer to discussion in Section 6.7.1.
Deep Soil Zones	The ADG requires 7% of the site to be deep soil. However, due to Building 4 being located directly above the Metro Services Box, the development is unable to achieve the minimum deep soil requirements within the Building 4 site. Notwithstanding this, the development should be viewed in the context of deep soil area which is provided across the whole WMQ site. Consideration should be given to the urban context of the site and the broader WMQ development. As discussed in the Landscape Report submitted at **Appendix JJ**, over 15% deep soil landscaping is provided across the broader WMQ site. This volume of deep soil landscaping across the whole WMQ site far exceeds the ADG requirement and will support the delivery of large trees which can provide tree canopy cover and positively contribute to

Requirement	Proposal
	the existing and proposed public domain spaces in and around the site. In addition, the landscaping strategy within the Building 4 site has adopted a range of landscaping strategies within the proposed landscaped areas Landscaping alternatives are proposed throughout the development including low maintenance green roofs on level one and a landscaped communal terrace on level 9 which will include garden beds, planters and opportunities for climbing plants. These landscaping initiatives will support the greening of the Building 4 site and provide good open space amenity for future residents of the building. This is discussed further in Section 6.7.2.
Building Separation and Visual Privacy	The proposal complies with the majority of building separation requirements with the exception of the upper levels. This is discussed further in **Section 6.7.1** below.
Solar Access	73% (51/70) of apartments within the proposed development receive at least 2 hours of direct sun to their living room and private open space between 9am and 3pm at mid-winter 21% of apartments (15/70) receive no direct sunlight of any size on their living space windows and private open space between 9am and 3pm at mid-winter. This matter is addressed in detail in **Section 8.3.2**.
Natural Cross Ventilation	60% (42/70) of apartments within the proposed development are naturally cross ventilated. This matter is addressed in detail in **Section 6.7.5.**
Floor to Ceiling Heights	Habitable rooms to all apartments within the proposed development exceed the 2.7m ceiling height requirement.
Minimum Apartment Size	All proposed apartments layouts comply with the requirements of the ADG with regards to room layouts and dimensions.
Private Open Space	All apartment types achieve the minimum required private open space areas identified within the ADG.
Common Circulation	The maximum number of apartments off a circulation core on a single level is eight. At levels 2 to 7, the maximum number of apartments off a circulation core is nine. Notwithstanding this, two lifts are provided which is considered to achieve good amenity and adequately service the number of apartments.
Storage	All apartments comply with the storage requirements of the ADG.

As demonstrated above, the proposed social housing dwellings comply with the key requirements prescribed in the ADG. The non-compliances with regards to communal open space, deep soil landscaping, building separation and common circulation are discussed in detail below.

6.7.1. Communal Open Space

The ADG requires a minimum 25% of the site area to be provided as communal open space. The proposal provides 290sqm of outdoor communal open space which equates to 20.36% of the Building 4 site area. It should be noted that for the purposes of this calculation, the applicable site area of Building 4 includes the sum total of the Metro Services Box roof and the ground floor lobby area. Communal open space is provided in the form of an outdoor rooftop terrace on level 9.

Whilst the proposed development seeks a minor departure from the requirement for a communal area equal to 25% of the site, the proposal achieves the objective of the control which is to:

> *Objective 3D-1 An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping*

Consideration was given to providing communal open space on the Metro Services Box roof however this location was deemed unsuitable for the following reasons:

- The setback requirements from the Metro Services 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 Metro Services Box north roof is not practical.
- The south Metro Services Box roof has poor solar access.

Consideration has been given to the design guidance provided in the ADG. An assessment of the proposal against these design guidelines is provided below.

Table 11 ADG Design Guidance – Communal Open Space

Design Guidance	**Proposed**	**Achieves**
Communal open space should be consolidated into a well-designed, easily identified and usable area	Communal open space has been consolidated into a well-designed, easily identified and usable area on Level 9. A canopy and pergola provide shading and shelter enabling the roof terrace to be used all year round. Two community spaces directly adjoin the rooftop terrace, one of which includes a music room. Residents have the opportunity to book these rooms to hold meetings and small gatherings. The music room can also be booked so residents can play their musical instruments without disturbing other residents.	✓
Communal open space should have a minimum dimension of 3m, and larger developments should consider greater dimensions	The communal rooftop terrace has a minimum dimension of 3m.	✓
Communal open space should be co-located with deep soil areas.	The communal terrace is located on the level 9 rooftop. Due to the site being situated over the Metro Services Box it is difficult to comply with the deep soil landscaping requirements. Notwithstanding this, a comprehensive landscape strategy for the rooftop terrace has been prepared and submitted at **Appendix JJ.**	✓

Design Guidance	Proposed	Achieves
Direct, equitable access should be provided to communal open space areas from common circulation areas, entries and lobbies	The rooftop terrace is accessible via the primary lift core and provides direct and accessible pedestrian access from all levels of the building.	✓
Where communal open space cannot be provided at ground level, it should be provided on a podium or roof.	Careful consideration has been given to the location of the outdoor communal open space. Given the building is located directly above the Metro Services Box, there is no opportunity to provide communal open space at ground level. Furthermore, due to the setback requirements from the Metro Box vents, it is not practical to locate the communal open space directly above the Metro Service Box. Accordingly, the communal open space has been located on the rooftop in accordance with the ADG design guidance above which provides better amenity for residents in terms of solar access, views, visual and acoustic privacy.	✓
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 should: *• 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 and facilities and/or provide contributions to public open space*	A landscaped roof terrace has been provided in accordance with the above design guidance. All apartments have access to private open space in the form of a balcony which either meets or exceeds the minimum private open space requirements of the ADG. The site is also located in close proximity to a number of high-quality open space areas including Alexandria Park. Residents will also have access to Cope Street Plaza which directly adjoins Building 4 and provides high-quality open space for enjoyment by local residents.	✓

In summary, the proposed location and quantity of communal open space is considered appropriate on merit for the following reasons:

- It is located on Level 9 and benefits from excellent solar access and view amenity.
- It provides direct and accessible access for all residents from a common circulation area.
- The communal terrace will provide shade and space for undercover activities, landscaped planters and a community garden.
- Residents will have access to a shared 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 both within the WMQ site and surrounding neighbourhood.

Accordingly, for the reasons outlined above the proposal communal open space area is considered appropriate on merit having regards to the urban context and site constraints.

6.7.2. Solar Access

A Solar Access Report has been prepared by RWDI and submitted at **Appendix NN.** As per the ADG, living rooms and private open spaces of at least 70% of apartments are to receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid-winter. A maximum of 15% of apartments in a building are to receive no direct sunlight between 9am and 3pm at mid-winter.

A total of 73% (51 out of 70) of apartments within Building 4 receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid-winter, which complies with the ADG.

21% of apartments (15 out of 70) on Building 4 receive no direct sunlight of any size on their living space windows and private open space.

Whilst this does not strictly comply with the ADG requirement between 9am and 3pm, less than 15% of apartments will receive no direct sunlight of any size on their living space windows and private open space when an extended solar access window of 9am to 3.45pm is considered.

As discussed in the Solar Access Report, the apartments on the western aspect (unit type 09) start to receive sunlight from 3.30pm. If the study time period is adjusted from 9am to 3.45pm, the number of apartments with no access to direct sunlight is reduced to 11% (8 out of 70) which is well below the 15% control in the ADG.

The ADG acknowledges that achieving the design criteria may not be possible on some sites. This includes:

- 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;
- Where significant views are oriented away from the desired aspect for direct sunlight.

Whilst the proposed development does not strictly comply with the requirement between 9am and 3pm, the proposal achieves the objective of the control which is to:

> *'To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space.'*

As discussed above, 73% of apartments receive direct sunlight for a minimum of 2 hours per day which exceeds the 70% requirement.

The majority of the apartments receiving no sunlight between 9am and 3pm are oriented to the south which makes it difficult to achieve sunlight. The volume of apartments with a southern orientation is high due to the site orientation, the proximity of the site to Botany Road which is a busy road, and the location of the building above the Station Service Box Direct solar access between 3.00pm and 3.45pm can still significantly add value to the amenity of residents of the apartments even though this time falls outside of the strict ADG guideline.

Residents also have access to a communal rooftop courtyard which is open to all residents and can be accessed via the lifts. The north-east aspect of the communal courtyard ensures that at least 50% of its area receives at least two hours of sun between 9.00am and 3.00pm during the winter solstice.

It is considered that solar access should be considered for the extended hours of 9am and 3.45pm as:

- The proposed development demonstrates a high standard of design and responses to its urban context;
- Due to the site orientation, proximity to Botany Road and adjoining student accommodation building, apartments have been orientated towards the south towards Wellington Street to maintain visual and acoustic privacy;
- Residents of the proposed development are likely enjoy solar access during the extended hours and will receive westerly sun from 3.45pm onwards; and,
- Residents have access to an outdoor communal courtyard on Level 9 (rooftop) and Cope Street Plaza, both of which receive sufficient sun access during mid-winter.

6.7.3. Deep Soil Landscaping

The ADG requires 7% of the site to be deep soil landscaping. Building 4 is located directly above the Metro Services Box and therefore the development is unable to achieve the minimum deep soil requirement. Notwithstanding this, consideration should be given to the urban context of the site and the broader WMQ development.

As discussed in the Landscape Report submitted at **Appendix JJ**, over 15% deep soil is provided across the broader WMQ site. Landscaping alternatives are proposed throughout the development including low maintenance green roofs on level one and a landscaped communal terrace on level 9 which will include garden beds, planters and opportunities for climbing plants. This is discussed further in Section 6.7.2.

6.7.4. Building Separation

Section 2F of the ADG identifies minimum building separation distances. The objective of the building separation requirement is to:

- *Ensure that new development is scaled to support the desired future character with appropriate massing and spaces between buildings;*
- *Assist in providing residential amenity including visual and acoustic privacy, natural ventilation, sunlight and daylight access and outlook;*
- *Provide suitable areas for communal open spaces, deep soil zones and landscaping.*

An overview of the building separation requirements and proposed building separation is provided below in Table 12.

In view of ADG building separation, the proposed social housing building generally complies with the required minimum separation distance however it does not comply with the 24m separation requirement at level nine and above. It is important to note that the proposed social housing development is constructed directly above the Metro Services Box. The Metro Services Box has a height of approximately 18.32m (as measured from ground level) and is a services zone that accommodates building services such as stormwater, hydraulic pipework, electrical and communications to transfer back to the core. No habitable spaces are proposed within the Metro Services Box.

SEPP 65 does not apply to the Metro Services Box. Therefore, the building separation requirements are not considered applicable to the proposed development below a height of 19m. Accordingly, the first habitable 'floor level' of the development is technically at RL 35.76. If the ADG requirements for buildings up to four storeys (approx. 12m) is applied to the building **above** the Metro Services Box, the proposed development is fully compliant with the ADG separation requirements with the exception of Level 9 which seeks a 6m variation to the 24m setback requirement.

If the minimum building separation requirements are applied to **both** the Metro Services Box and the social housing building above, the proposal seeks a 6m variation to the minimum separation requirements on Level 5 to Level 9 (see Table 12). For the purposes of this assessment, the worst-case scenario has been considered.

As evident in the architectural drawings provided by Bates Smart at **Appendix D,** the reduced building separation only occurs in some habitable rooms at the upper levels. The levels disadvantaged by the reduced separation distance are only a small percentage of the overall development. The reduced building separation only affects a total of 5 apartments (Apartment 2C) on levels 5 to 9, or 7% of the total number of apartments. The remainder of the dwellings comply with the minimum building separation requirements. It is noted that if the ADG is applied only to the form above the Metro Service Box then only one apartment is affected by the building separation reduction, which amounts to less than 1.5% of apartments.

These affected apartments would enjoy the same level of amenity as Apartment 2C on levels 1 to level 4, which also have an 18m separation distance and comply with the ADG. The areas of non-compliance relate to the dining room, balcony and two west-facing bedrooms within Apartment 2C.

It is important to note that the concept DA (SSD 9393) assessment report prepared by the DPIE recognised building separation non-compliances and that design measures could be imposed where minimum building separation distances are not achieved. An extract of the assessment report is provided below:

"Where full separation is not achieved, suitable design elements will be proposed to ensure visual privacy is achieved including:

- *Operable screens, louvres, planting, integrated landscape design.*

Outlook and privacy will be managed by building articulation, dividing walls and privacy screens."

Consideration has been given to the above mitigation measures and implemented in the proposed design. The concept DA envelope for Building 3 and 4 has a number of constraints that have limited the ability to provide increased building separation. These constraints include:

- The envelopes for Building 3 and 4 are located back to back in an L-shaped plan, limiting the potential to orientate the building layouts to face away from one another.
- To transfer to ground, the Building 4 lift core is located within the Building 3 envelope. The internal corner, which would typically be used for the core, becomes usable floor space.
- The Building 4 envelope is atypical in the sense that it is located above a ~20m high metro box and being adjacent to the 3-storey high podium of Building 3.
- To utilise the Building 4 envelope efficiently, a double loaded corridor is required, with some apartments orientated to the west.

These constraints were highlighted in the concept DA envelope.

Figure 29 Area of non-compliance

Source: Bates Smart

Table 12 Proposed Building Separation

ADG Requirement	Proposed (if metro services box is included)	Proposed (if taking first floor level from above metro box)
Up to four storeys (approximately 12m): • 12m between habitable rooms/balconies • 9m between habitable and non-habitable rooms • 6m between non-habitable rooms	Metro Box (19m)	Level 1 – 18m Level 2 – 18m Level 3 – 18m Level 4 – 18m
Five to eight storeys (approximately 25m): • 18m between habitable rooms/balconies • 12m between habitable and non-habitable rooms • 9m between non-habitable rooms	Level 1 – 18m Level 2 – 18m Level 3 – 18m Level 4 – 18m	Level 5 – 18m Level 6 – 18m Level 7 – 18m Level 8 – 18m
Nine storeys and above (over 25m): • 24m between habitable rooms/balconies • 18m between habitable and non-habitable rooms • 12m between non-habitable rooms	Level 5-18m Level 6-18m Level 7-18m Level 8 -18m Level 9 -18m *6m non-compliance at levels 5 to 9*	Level 9 -18m *6m non-compliance on level 9 only*

It is extremely challenging to provide a 24m building separation at level five as the development is constrained by the Metro Services Box below. If the proposed development was not constructed atop of the Metro Services Box, the proposed development would be fully compliant with the building separation requirements with the exception of level 9 (see Table 12).

Given the unique circumstances of the building being constructed on top of the Metro Services Box and the ability of the proposal to satisfy the objectives of the control, the proposed variation is considered acceptable on merit. A detailed assessment of the proposal against the ADG objectives is provided below.

- **Objective**: *Ensure that new development is scaled to support the desired future character with appropriate massing and spaces between buildings.*

Response: The building massing, articulation and facade expression has been developed to respond to the built context, building orientation and environmental conditions whilst supporting the desired future character of the area.

The proposed massing has been designed with respect to the urban scale and built form within the broader Waterloo Metro Quarter site and is consistent with the approved concept DA Envelope. The mid-rise building envelope reflects the building typologies of recent residential infill buildings throughout the locality and provides an appropriate transition to the taller student housing development to the west whilst providing adequate space between the two buildings.

The proposed building form is a mid-rise building and therefore the scale of the building would not deliver an architecturally suitable response to the site if it was stepped back at Level 5 or Level 9 to achieve the 24m separation distance. Setting the entire building back 24m would also lead to an inefficient use of the highly connected site.

Consideration was given to relocating Building 3 further west to increase the building separation however this consequently negated the urban design benefits of the proposed Botany Road setback and relationship

with Waterloo Congregational Church. The proposed tower has been set back from Botany Road to align with the Church. The proposed tower form has provided a superior urban design outcome and improves the relationship with the adjoining heritage Church by defining the podium and tower as two distinct volumes.

Accordingly, the proposed development is considered entirely consistent with the desired future character of the area.

- **Objective**: *Assist in providing residential amenity including visual and acoustic privacy, natural ventilation, sunlight and daylight access and outlook.*

Response: There are several key matters that have been considered regarding the acceptability of the proposed separation distance. These include:

- Visual privacy;
- Acoustic privacy;
- Natural ventilation;
- Sunlight and daylight access; and
- Outlook.

These matters are discussed in detail below.

Visual Privacy

The scheme proposes an innovative design to the western façade of the upper levels of Building 4 to ensure visual privacy is maintained between the social housing building (Building 4) and the student accommodation building (Building 3). The design also ensures that no amenity of the habitable rooms will be compromised by the proposed 18m building separation. The Building 4 massing is positioned as far east as possible to maximise the building separation. The residential floor plate has also been planned to minimise the number of apartments with west facing living spaces to one per floor, with bedrooms and bathrooms making up a significant proportion of the facade.

- Further mitigation measures improve visual privacy include: Glazing to bedrooms is limited to a single window that is 1.05m wide with 0.8m high solid spandrels. Bedroom windows are also located in the corner of the rooms to limit view angles
- Perforated aluminium balustrades to provide further visual privacy.
- Providing a high level of 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.
- Angled privacy/sunscreens to the Building 3 facade to partially obscure the windows to the student accommodation studios and direct views towards Cope Street Plaza and Cope Street.

Acoustic Privacy

The design features that maintain visual privacy also serve to maintain acoustic privacy. The proposed 18m separation distance is considered adequate to maintain acoustic privacy between habitable living areas and bedrooms.

Natural Ventilation

The proposed design has been developed to maximise natural ventilation opportunities, with the larger apartments located on the building corners and narrower studio apartments consolidated along the longer eastern side of the building.

A total of 60% of dwellings are deemed to be cross ventilated which complies with the ADG. Accordingly, the 18m building separation at Levels 5 and above does not compromise the ability to comply with the ADG natural and cross ventilation requirements. Furthermore, Apartment 2C achieves the cross-ventilation requirements and therefore is not adversely affected by the 18m separation distance.

Sunlight, daylight access and outlook

The building has been designed to incorporate open ended corridors to draw in natural light and natural ventilation into common spaces, whilst providing views and outlooks. Apartment layouts have been designed to maximise resident amenity with living spaces typically being located on the perimeter to achieve maximum solar access and building outlook.

Whilst the living spaces of five apartments (or one apartment if the ADG setback control is applied from above the Metro Service Box) will be setback only 18m instead of 24m from the adjoining student accommodation building, privacy and outlook will be maintained by the inclusion of vertical screens and fixed sunshades that direct views from the adjoining student accommodation rooms away from Apartment 2C.

Furthermore, a total of 77% of dwellings will receive at least two hours direct sunlight to their balconies and living spaces between 9am and 3pm on the winter solstice which exceeds the 70% requirement.

Taking into consideration all the design factors incorporated by the proposal, the proposed separation distance is considered acceptable on visual privacy, acoustic privacy, solar access and natural ventilation grounds.

- **Objective**: *Provide suitable areas for communal open spaces, deep soil zones and landscaping*.

The area of non-compliance relates to Apartment 2C at levels 5 to 9 only. Communal open space is located at level 9 and situated in the north-east corner of the building, with a separation distance >18m from the student accommodation building. Accordingly, the amenity of the communal open space will not be affected by the proposed building separation distance.

For the reasons outlined above, the proposed 18m building separation is considered appropriate on merit. As discussed, the site is unusually constrained by the Metro Services Box which has a height of approximately 18.32m. Whilst it could be argued that building separation is only required above the Metro Services Box, consideration has been given to the worst-case scenario.

Notwithstanding this, the dwellings affected by the reduced separation distance are only a small percentage of the overall development, equating to a total of 5 apartments (Apartment 2C) on levels 5 to 9 or 7% of the total number of apartments. As discussed above, careful consideration has been given to the design of the western façade to maintain visual and acoustic privacy whilst achieving adequate sunlight access and outlook. The development also complies with the minimum natural ventilation and solar access requirements and therefore the proposed shortfall of 6m will not detract from the amenity of the dwellings.

6.7.5. Ventilation

An assessment of natural cross ventilation has been undertaken by RWDI and is provided at **Appendix RR.** The assessment concludes that 60% (42/70) of the residential apartments within Building 4 satisfy the requirements of the ADG to be naturally cross ventilated.

The design of the ventilation plenum for two apartments (Apartment 209 and 309) has been to ensure suitable airflow rates can be achieved whilst accounting for opening louvres, acoustic treatment and fire dampers. Detailed wind tunnel assessments will be undertaken during the detailed design development phase to verify these airflow rates.

6.8. STATE ENVIRONMENTAL PLANNING POLICY (AFFORDABLE RENTAL HOUSING) 2009

The *State Environmental Planning Policy (Affordable Rental Housing) 2009* **(AHR SEPP)** aims to facilitate the delivery of new affordable housing through incentives such as expanded zoning permissibility and floor space ratio bonuses. The SEPP applies to in-fill affordable housing, secondary dwellings, boarding houses and supportive accommodation.

Clause 1.9(2A) of the *Sydney Local Environmental Plan 2012* states that the AHRSEPP does not apply to:

> *(c) land at the Waterloo Metro Quarter.*

Accordingly, the AHRSEPP does not apply to the proposed development.

The proposal provides 70 social housing dwellings and student accommodation for 474 students. The SSDA does not seek to use incentives contained within the ARH SEPP. Notwithstanding this, an assessment of the proposal against the key relevant standards for the social housing and student housing has been undertaken below in Table 13 and Table 15.

The following table provides an assessment of the proposed social housing development against the AHSEPP provisions for in-fill affordable housing.

Table 13 AHR SEPP Assessment – Social Housing

Provision	Proposed / Compliance
14 Standards that cannot be used to refuse consent	
Site Area If the site area is at least 450sqm.	The site has an area greater than 450sqm.
Landscaped area If at least 30% of the site area is landscaped.	As discussed above, due to the location of the Metro Services Box below Building 4, no deep soil landscaping is proposed. However, a 290sqm landscaped communal open space area is proposed on level 9 which provides a high-quality landscaped area for enjoyment by residents.
Deep soil zones If there is soil of a sufficient depth to support the growth of trees and shrubs on an area of not less than 15% of the site area and each area forming part of the deep soil zone has a minimum dimension of 3 metres, and if practicable, at least two-thirds of the deep soil zone is located at the rear of the site area.	Due to the location of the Metro Services Box below Building 4, it is not possible to provide deep soil planting on the site directly below Building 4. Notwithstanding this, consideration should be given to the broader WMQ site whereby 15% of the site will comprise deep soil landscaping.
Solar access If living rooms and private open spaces for a minimum of 70% of the dwellings of the development receive a minimum of 3 hours direct sunlight between 9am and 3pm in mid-winter.	The proposal complies with the solar access requirements within the ADG. 73% (51/70) of apartments within the proposed development receive at least 2 hours of direct sun between 9am and 3pm on 21 June.
Parking If at least 0.5 parking spaces are provided for each dwelling containing 1 bedroom, at least 1 parking space is provided for each dwelling containing 2 bedrooms and at least 1.5 parking spaces are provided for each dwelling containing 3 or more bedrooms.	A total of 8 car spaces are provided which complies with the maximum rates stipulated in the concept DA (SSD 9393).
Dwelling size If each dwelling has a gross floor area of at least— ▪ Studio – 35sqm	The proposed apartments comply with the minimum dwelling sizes as stipulated in the AHSEPP.

Provision	Proposed / Compliance
▪ 1 bedroom – 50sqm ▪ 2 bedroom – 70sqm ▪ 3+ bedroom – 95sqm	
16A Character of local area	
A consent authority must not consent to development to which this Division applies unless it has taken into consideration whether the design of the development is compatible with the character of the local area.	Refer to **Section 8.1** for discussion on the proposed developments compatibility with the character of the local area.
17 Must be used for affordable housing for 10 years	
For 10 years from the date of the issue of the occupation certificate: ▪ The dwellings must be used for the purposes of affordable housing; ▪ All accommodation that is used for affordable housing will be managed by a registered community housing provider; ▪ A restriction is to be registered, before the date of the issue of the occupation certificate, against the title of the property on which development is to be carried out.	This application seeks to deliver 70 social housing apartments. No affordable housing is proposed within the Southern Precinct.

The following table provides an assessment of the proposed student accommodation against the AHR SEPP provisions for boarding houses.

Table 14 Student accommodation AHR SEPP Assessment

Provision	Proposed/Compliance
29 Standards that cannot be used to refuse consent	
Floor Space Ratio If the density and scale of the buildings when expressed as a floor space ratio are not more than— (a) the existing maximum floor space ratio for any form of residential accommodation permitted on the land, or (b) if the development is on land within a zone in which no residential accommodation is permitted—the existing maximum floor space ratio for any form of development permitted on the land, or (c) if the development is on land within a zone in which residential flat buildings are permitted and the land does	The proposal does not seek to utilise the FSR incentives provided for in the AHSEPP.

Provision	Proposed/Compliance
not contain a heritage item that is identified in an environmental planning instrument or an interim heritage order or on the State Heritage Register—the existing maximum floor space ratio for any form of residential accommodation permitted on the land, plus— (i) 0.5:1, if the existing maximum floor space ratio is 2.5:1 or less, or (ii) 20% of the existing maximum floor space ratio, if the existing maximum floor space ratio is greater than 2.5:1.	
Building Height If the building height is not more than the maximum building height permitted under another environmental planning instrument for any building on the land.	The proposed student accommodation development has a maximum height of RL 93.250 and complies with the SLEP 2012 and concept DA (SSD 9393).
Landscaped area If the landscape treatment of the front setback area is compatible with the streetscape in which the building is located.	Landscaping is proposed at all street frontages to Botany Road and Wellington Street adjoining Building 3. A comprehensive landscape scheme has been developed by Aspect and submitted at **Appendix JJ.**
Solar access Where the development provides for one or more communal living rooms, if at least one of those rooms receives a minimum of 3 hours direct sunlight between 9am and 3pm in mid-winter.	Both the Level 01 and Level 02 communal spaces receive at least 3 hours sunlight between 9am – 3pm at mid-winter.
Private open space If at least the following private open space areas are provided (other than the front setback area)— (i) one area of at least 20sqm with a minimum dimension of 3m is provided for the use of the lodgers, (ii) if accommodation is provided on site for a boarding house manager—one area of at least 8sqm with minimum dimension of 2.5m adjacent to that accommodation.	An outdoor communal terrace of 179sqm is provided on level two with a minimum dimension of 8m.
Parking If - (i) in the case of development carried out by or on behalf of a social housing provider in an accessible area—at least 0.2 parking spaces are provided for each boarding room, and	No car parking is provided for student housing residents.

Provision	Proposed/Compliance
(iia) in the case of development not carried out by or on behalf of a social housing provider—at least 0.5 parking spaces are provided for each boarding room, and (iii) in the case of any development—not more than 1 parking space is provided for each person employed in connection with the development and who is resident on site.	
Accommodation size If each boarding room has a GFA (excluding any area used for the purposes of private kitchen or bathroom facilities) of at least— (i) 12sqm in the case of a boarding room intended to be used by a single lodger, or (ii) 16sqm in any other case.	All studios are a minimum of 16.5sqm. All twin rooms are a minimum of 25sqm.
A boarding house may have private kitchen or bathroom facilities in each boarding room but is not required to have those facilities in any boarding room.	Noted.
30 Standards for boarding houses	
(1) A consent authority must not consent to development to which this Division applies unless it is satisfied of each of the following—	
(a) if a boarding house has 5 or more boarding rooms, at least one communal living room will be provided.	A communal living room is provided at each level for use by residents of that level only.
(b) no boarding room will have a GFA (excluding any area used for the purposes of private kitchen or bathroom facilities) of more than 25sqm.	Twin boarding rooms will have a maximum size of 28sqm. Single studios will not exceed 25sqm.
(c) no boarding room will be occupied by more than 2 adult lodgers.	The proposal provides a combination of studio and twin rooms. No studio rooms will be occupied by more than 2 adult lodgers.
(d) adequate bathroom and kitchen facilities will be available within the boarding house for the use of each lodger.	Adequate bathroom and kitchen facilities are provided within each boarding room.
(e) if the boarding house has capacity to accommodate 20 or more lodgers, a boarding room or on site dwelling will be provided for a boarding house manager.	Resident assistants will live on site. They are readily available to student residents.
(g) if the boarding house is on land zoned primarily for commercial purposes, no part of the ground floor of the boarding house that fronts a street will be used for residential purposes unless another environmental planning instrument permits such a use.	No boarding rooms are proposed at the ground floor.

Provision	Proposed/Compliance
(h) at least one parking space will be provided for a bicycle, and one will be provided for a motorcycle, for every 5 boarding rooms.	A total of 87 bicycle spaces are provided. No motorcycle spaces are specifically dedicated to student residents.
30A Character of local area	
A consent authority must not consent to development to which this Division applies unless it has taken into consideration whether the design of the development is compatible with the character of the local area.	Refer to **Section 8.1** for discussion on the proposed developments compatibility with the character of the local area.

6.9. DRAFT HOUSING DIVERSITY STATE ENVIRONMENTAL PLANNING POLICY

The *Draft Housing Diversity SEPP* aims to facilitate the delivery of diverse housing that meets the needs of the State's growing population and will support the development of a build-to-rent sector. Whilst the AHR SEPP and SEPP 70 does not apply to the WMQ site and accordingly do not apply to this detailed SSDA, consideration has been given to the Draft Housing Diversity SEPP and proposed amendments. In summary, the new SEPP proposes four key changes:

- Consolidates the following SEPPs:
  - ARH SEPP (with proposed amendments).
  - Seniors SEPP (with proposed amendments).
  - SEPP 70 (Affordable Housing) (to remain unchanged)
- Introduces new LEP definitions for build-to-rent housing (BTR), student living and co-living.
- Amends some provisions for boarding houses and seniors housing developments.
- Amends some provisions for social housing on government owned land.

The proposed development will deliver a diversity of housing that responds to the changing needs of the State's growing population including 70 social housing dwellings and 474 student beds.

6.10. STATE ENVIRONMENTAL PLANNING POLICY (BUILDING SUSTAINABILITY INDEX: BASIX) 2004

The *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* (**BASIX SEPP**) requires all residential development in NSW to achieve a minimum target for energy efficiency, water efficiency and thermal comfort.

In the case of SHMH Properties Australia Pty Ltd v City of Sydney Council [2018] NSWLEC 66, a development which included the land use definition of boarding house, constituted a BASIX affected building.

The proposed student accommodation and social housing has been assessed in accordance with the relevant requirements, and a BASIX Certificate has been issued. The BASIX Certificate confirms the achievement of the project-specific BASIX commitments made in the concept DA (**Appendix QQ**). The certificate confirms that the proposed development achieves the minimum water and thermal performance ratings required (refer to **Appendix RR**).

6.11. STATE ENVIRONMENTAL PLANNING POLICY (VEGETATION IN NON-RURAL AREAS) 2017

The *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (**Vegetation SEPP**) works together with the *Biodiversity Conservation Act 2016* and the *Local Land Services Amendment Act 2016* to create a framework for the regulation of clearing of native vegetation in NSW. The Vegetation SEPP applies to the Sydney metropolitan areas and land zoned for urban purposes.

This Policy does not affect the provisions of any other SEPP or any provisions of a local environmental plan. The removal of five trees of low to moderate retention value is necessary to allow for the future redevelopment of the site. Tree removal is permissible with consent under SLEP and as such SEPP Vegetation.

It is noted that the new planting is proposed across the site including along all street frontages and within Cope Street Plaza which will result in more trees being provided on the site that proposed to be removed.

6.12. DRAFT STATE ENVIRONMENTAL PLANNING POLICY (REMEDIATION OF LAND)

In January 2018, the DPIE exhibited the draft Remediation of Land SEPP, which seeks to provide an updated framework for the management of contaminated land in NSW. It is proposed that the new Remediation of Land SEPP will:

- Provide a state-wide planning framework for the remediation of land;
- Maintain the objectives and reinforce those aspects of the existing framework that have worked well;
- Require planning authorities to consider the potential for land to be contaminated when determining development applications and rezoning land;
- Clearly list the remediation works that require development consent; and,
- Introduce certification and operational requirements for remediation works that can be undertaken without development consent.

Any site remediation for the eastern portion of the site affected by the construction of the Sydney Metro Waterloo Station is assessed and approved in accordance with the CSSI approval. Further consideration of SEPP 55 is therefore only required on the western portion of the site. This affects the land immediately below the proposed student accommodation building only.

As discussed in Section 6.5, a Contamination Strategy has been prepared by Douglas Partners (**Appendix OO)**. Douglas Partners consider that the proposed Contamination Strategy is suitable to address the requirements of SEPP 55 for the Southern Precinct and upon completion of all site remediation works, the site will be suitable for the proposed development.

6.13. SYDNEY LOCAL ENVIRONMENTAL PLAN 2012 (SLEP 2012)

The *Sydney Local Environmental Plan 2012* (**SLEP**) is the principal environmental planning instrument governing development at the Site. An assessment against the relevant controls of the SLEP has been undertaken in the subsections below.

6.13.1. Zoning and Permissibility

The site is zoned as B4 Mixed Use. The prominent land use proposed in this SSDA is *'residential accommodation'*, which is defined in SLEP as:

> ***residential accommodation*** means a building or place used predominantly as a place of residence, and includes any of the following:
>
> *(a) attached dwellings,*
>
> *(b) boarding houses,*
>
> *(c) dual occupancies,*
>
> *(d) dwelling houses,*
>
> *(e) group homes,*
>
> *(f) hostels,*
>
> *(g) multi dwelling housing,*

(h) residential flat buildings,

(i) rural workers' dwellings,

(j) secondary dwellings,

(k) semi-detached dwellings,

(l) seniors housing,

(m) shop top housing,

but does not include tourist and visitor accommodation or caravan parks.

The proposed student housing ('*boarding house'*) and social housing (*''residential flat buildings'*) are permissible with consent in the B4 Mixed Use Zone.

Consent is sought for approval of the ground and first floor of Building 3 as a mix of land uses which include a gym, makerspace, as well as lobby for the student and social housing, and servicing areas.

The gym is defined under the SLEP as a *'recreational facility (indoor)'* and the Makerspaces will be for a range of community uses but is proposed to be a *'retail premises'* for the purpose of land use.

The relevant objectives of the B4 Mixed Use zone are:

- *To provide a mixture of compatible land uses.*
- *To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.*
- *To ensure uses support the viability of centres.*

The detailed SSDA is consistent with the zone objectives as it:

- Provides an appropriate mix of compatible land uses including retail, residential, recreation and community that will support the viability of the neighbourhood;
- Maximises public transport patronage by locating residential development directly above the Waterloo metro station;
- Encourages walking, cycling and public transport usage by providing adequate on-site bicycle parking and end of trip facilities and reducing on-site car parking; and,
- Provides a diverse mix of residential and non-residential uses to activate the site out of business hours and ensure the viability of the centre.

6.13.2. Key Development Standards

The proposed development has been assessed against the relevant development standards contained within the SLEP 2012 in Table 15 below.

Table 15 SLEP 2012 Compliance of Development Standards

Clause	Control	Proposal/Compliance
4.3 Height of buildings	The maximum height of building control for the site is mapped as RL 96.9 (82m) for the Southern Precinct.	**Complies** The proposed development has a maximum height of RL 93.250
4.4 Floor space ratio	6:1 (across the site)	**Complies** 5.34:1 (across the site)

Clause	Control	Proposal/Compliance
5.6 Architectural roof features	Development that includes an architectural roof feature that exceeds or causes a building to exceed the height limits set by the LEP may be carried out, but only with development consent.	**Complies** The proposed development does not seek to rely on Clause 5.6. The proposed roof of the OSD does not exceed the height limit detailed in SLEP.
5.10 Heritage Conservation	A heritage management document may be required to be prepared for land that is within the vicinity of a heritage item. The document is to assess the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item.	**Complies** The site is located within close proximity to a number of local heritage items listed under the SLEP 2012. The proposed SSDA will not have any adverse impacts on the surrounding heritage items. The proposed building's relationship with the adjoining heritage items, specifically Waterloo Congregational Church and the Cauliflower Hotel, are discussed in further detail in **Section 8.2** of this EIS and within the Heritage Impact Assessment at **Appendix H.**
6.12 Additional floor space outside Central Sydney	The GFA of a building on land outside Central Sydney may exceed the maximum permitted by an amount no greater than the sum of any one or more of the following for which the building may be eligible— (a) any community infrastructure floor space under clause 6.14, (b) any amount determined by the consent authority under clause 6.21(7)(b), (c) any end of journey floor space under clause 6.13.	**Complies** The proposal does not seek to exceed the permitted FSR on the site (6:1).
6.13 End of journey floor space	Land outside Central Sydney used only for the purposes of commercial premises and that has all of the following facilities together in one area of the building, is eligible for an amount of additional floor space (end of journey floor space) equal to the floor space occupied by those facilities— (a) showers, (b) change rooms, (c) lockers,	**N/A.** The proposed OSD is not used **only** for the purposes of commercial premises and is therefore not eligible for additional floor space under clause 6.6.

Clause	Control	Proposal/Compliance
	(d) bicycle storage areas. (2) The amount of end of journey floor space cannot be more than the amount of floor space that can be achieved by applying a floor space ratio of 0.3:1 to the building.	
6.21 Design excellence	Deliver the highest standard of architectural, urban and landscape design. Development consent must not be granted to the following development to which this clause applies unless a competitive design process has been held in relation to the proposed development— (a) development in respect of a building that has, or will have, a height above ground level (existing) greater than— (i) 55 metres on land in Central Sydney, or (ii) 25 metres on any other land, (b) development having a capital investment value of more than $100,000,000, (c) development in respect of which a development control plan is required to be prepared under clause 7.20, (d) development for which the applicant has chosen such a process	**Complies** The concept DA exercised the discretion available under clause 6.21(6) of SLEP to waive the requirement for a competitive design process under clause 6.21(5) as the concept design has been subject to the Sydney Metro Waterloo Design Excellence Strategy. The Design Integrity Report at **Appendix Y** confirms that the detailed SSDA meets the design excellence requirements established for the site in accordance with the Design Excellence Strategy at **Appendix G** and has received feedback from the Design Review Panel. Further discussion of design excellence has been addressed in **Section 8.1.2.**
6.45 Waterloo Metro Quarter - General	The consent authority must not consent to development on land at the Waterloo Metro Quarter unless it is satisfied that the development is consistent with the following objectives: ▪ 12,000 sqm of GFA below podium for land uses other than residential accommodation or passenger transport facilities. ▪ 2,000 sqm of GFA for the purpose of community facilities.	The proposed development comprises a three-storey podium with the following uses: ▪ Ground Floor – Makerspace, student accommodation lobby, social housing lobby and gym lobby. ▪ Level One – Gym ▪ Level Two – Gym and communal facilities to support the student accommodation. In accordance with clause 6.45, a 'whole of precinct' approach has been adopted whereby consideration has been given to the provision of the above land uses across the Northern

Clause	Control	Proposal/Compliance
	▪ 2,200 sqm of land for publicly accessible open space. Further, the consent authority must not consent to the construction of one or more dwellings on land at the Waterloo Metro Quarter unless: ▪ It is satisfied that at least 5% of the GFA used affordable housing. ▪ It is satisfied that no dwelling used for the purposes of affordable housing will have a GFA less than 50 square metres. It is satisfied that land uses other than residential accommodation or passenger transport facilities will be evenly distributed throughout the Waterloo Metro Quarter. It has taken into consideration any guidelines made by the Planning Secretary relating to the design and amenity of the Waterloo Metro Quarter.	Precinct, Southern Precinct and Central Precinct. The following precinct wide conclusions have been made: ▪ A total of 11,347.6sqm GFA is proposed within the indicative scheme to be located at or below the podium (3-storeys for Buildings 2 and 3, and 4-storeys for Building 1) for land uses other than residential accommodation or passenger transport facilities across the Waterloo Metro Quarter. This figure excludes residential lobbies, however includes the communal facilities within the podium of Building 3. Further approximately 720sqm retail GFA will be delivered within the ground level of the two station boxes under the CSSI approval which in total will exceed the minimum 12,000sqm non-residential GFA proposed at or below the podiums of development at the Waterloo Metro Quarter site. ▪ Non-residential GFA is proposed to be located across all four buildings proposed on the Waterloo Metro Quarter site. While numerically the proportion of non-residential GFA is weighted towards the northern precinct given the location of the commercial office building, it is noted that the podium levels of all buildings will include a variety of non-residential land uses including community facilities, retail, future community uses, commercial office, and recreation facilities (gymnasium). ▪ A total of 2,219sqm GFA is to be provided for the purposes of community facilities within Building 2. Under the detailed SD DA for Building 2 it is proposed that this community facility will be used for the purposes of not-for-profit, community centre-based childcare. Furthermore it is noted that an additional 630sqm of ground level GFA is proposed to be used for a variety of community uses including for instance a medical/health centre, enterprise café, Makerspace, community hub etc, however with the specific uses to be determined at a future stages.

Clause	Control	Proposal/Compliance
		▪ A minimum 2,200sqm of publicly accessible open space is proposed to be provided within the boundaries of the Waterloo Metro Quarter site, with additional publicly accessible open space to be delivered outside of the property boundaries through widened footpaths and the delivery of the full scope of Raglan Plaza. Cope Street Plaza contributes to 1,341sqm. The proposal provides 70 social housing dwellings. In addition, 24 affordable housing apartments are proposed within the Central Precinct which exceeds the 5% affordable housing target. The proposed affordable housing dwellings at Building 2 (Central Precinct) will have a minimum GFA of 50sqm.
6.46 Waterloo Metro Quarter - State public infrastructure	Development consent must not be granted for development for the purposes of residential accommodation on land at the Waterloo Metro Quarter that results in an increase in the number of dwellings on that land, unless the Planning Secretary has certified in writing to the consent authority that satisfactory arrangements have been made to contribute to the provision of designated State public infrastructure in relation to the land.	**Complies** As per the Assessment Report for the concept DA (SSD 9393), it has been confirmed that the Secretary is satisfied that an arrangement has been made for the contribution to the provision of designated State public infrastructure through the Waterloo Metro Quarter ISD project.
Clause 7.20 Development requiring or authorising preparation of a development control plan	A DCP is required for sites outside of Central Sydney if the site area is more than 5,000 sqm or if the development will result in a building with a height greater than 25m above existing ground level. However, this obligation can be satisfied by the approval of a staged development application for the site.	**Complies** A staged development application has been approved for the site (SSD 9393), therefore clause 7.20 has been satisfied.
7.3 Car parking not to exceed maximum set	The LEP sets a maximum provision of car parking based on site area. The site is located on Category A land.	**Complies** The proposal does not exceed the maximum parking provision stipulated in the concept DA (SSD 9393).

Clause	Control	Proposal/Compliance
out in this Division		
7.14 Acid Sulfate Soils	Ensure development does not disturb, expose or drain acid sulfate soils and cause environmental damage.	**Complies** The site is classified as containing Class 5 acid sulfate soils. Under the CSSI approval, the impacts on acid sulfate soils have been addressed.
7.15 Flood Planning	Minimise flood risk to life and property associated with the use of land and significant adverse impacts on flood behaviour and the environment.	**Complies** A Stormwater Management and Flood Impact Assessment Report has been prepared by WSP and submitted at **Appendix O.** The assessment concludes the proposed development has a negligible impact on the existing flood regime. This is discussed further in **Section 8.15.**
7.16 Airspace Operations	Provide for the effective and on-going operation of the Sydney (Kingsford-Smith) Airport by ensuring that such operation is not compromised by proposed development that penetrates the Limitation or Operations Surface for that airport.	**Complies** The proposed development has a maximum building height of RL 93.250. This does not exceed the existing airspace height approval to the maximum height of 116.9m AHD. Refer to **Appendix DD.**
7.17 Development in areas subject to aircraft noise	Applies to development that is on land that— (i) is near the Sydney (Kingsford-Smith) Airport, and (ii) is in an ANEF contour of 20 or greater, and (b) the consent authority considers is likely to be adversely affected by aircraft noise.	**Complies** The Waterloo Metro Quarter is not located directly under the flight path and is not directly impacted by aircraft noise.
7.23 Large retail development outside of Green Square Town Centre and other planned centres	Consent must not be granted to development on land to which this clause applies for the purposes of shops or markets with a gross floor area greater than 1,000sqm.	**N/A** This clause does not apply to the site.
7.26 Public Art	Consent must not be granted for public art unless the consent authority is satisfied that the development—	**Complies** A detailed Public Art Strategy has been prepared by Aileen Sage and submitted at **Appendix MM.** The proposed public art will not involve advertising and will not increase

Clause	Control	Proposal/Compliance
	(a) will not involve the display of an advertisement, and (b) will not increase the gross floor area of any building, and (c) will not have a significant adverse impact on any heritage conservation area, heritage item or other object or place of heritage significance, and (d) will not have a significant adverse impact on the amenity of the public domain, including by overshadowing, wind or noise impacts, and (e) if it is to be carried out on land to which a plan of management (within the meaning of the Local Government Act 1993) applies, will be in accordance with the plan of management.	the GFA of the building. The Strategy has been prepared with consideration of local heritage and the amenity of the public domain. Refer to **Section 4.6.7** for further discussion.
7.27 Active Street frontages	Development consent must not be granted to the erection of a building, or a change of use of a building, on land to which this clause applies unless the consent authority is satisfied that, after its erection or change of use— (a) all premises on the ground floor of the building that face the street will be used for the purposes of business premises or retail premises, and (b) those premises will have active street frontages	**Complies** Botany Road, Wellington Street and Cope Street are identified as active street frontages. The proposed design of the OSD will promote active street frontages to Botany Road, Wellington Street and Cope Street and will provide lobby and entrance spaces to the residential accommodation within the OSD. Refer to **Section 8.1** for further discussion.

6.13.3. Clause 6.45 – Waterloo Metro Quarter

In accordance with Clause 6.45, the consent authority must not consent to development on land at the Waterloo Metro Quarter unless it is satisfied that the development is consistent with the following objectives:

- 12,000 sqm of GFA below podium for land uses other than residential accommodation or passenger transport facilities.
- 2,000 sqm of GFA for the purpose of community facilities.
- 2,200 sqm of land for publicly accessible open space.

For the purposes of calculating GFA and satisfying Clause 6.45, a 'whole of precinct' approach has been adopted whereby consideration has been given to the provision of the above land uses across the Northern Precinct, Southern Precinct and Central Precinct.

Further, the consent authority must not consent to the construction of one or more dwellings on land at the Waterloo Metro Quarter unless:

- It is satisfied that at least 5% of the GFA used affordable housing.
- It is satisfied that no dwelling used for the purposes of affordable housing will have a GFA less than 50 square metres.
- It is satisfied that land uses other than residential accommodation or passenger transport facilities will be evenly distributed throughout.

A discussion of each of these matters is provided below.

Non-residential podium (Clause 6.45 (1) (a)

In accordance with Clause 6.45 and Condition B4 of the concept approval, the approved podium building envelopes must be used for non-residential uses only. The proposed podium includes a mix of land uses including:

- Makerspace;
- Student accommodation lobby,
- Social housing lobby;
- Gym; and,
- Student accommodation communal area and outdoor terrace.

The concept proposal proposed a minimum 12,000sqm of non-residential floor space within the podiums across the WMQ site. The proposed 12,000sqm was consistent with the requirements of the finalised Waterloo SSP which included minimum non-residential floor space requirements to support greater strategic opportunities (adopted Clause 6.45 of SLEP).

In accordance with the concept approval and the SEARs requirements (SEAR 4), the podium must be used for non-residential uses only. Whilst there are no residential dwellings within the podium, the residential lobby, communal area and outdoor terrace associated with the student accommodation dwellings above are located within the podium.

The underlying objective of Condition B4 and Clause 6.45 is to ensure the development supports greater strategic opportunities for employment generation, caters to local needs such as community services and convenience needs, and activation of the site. A non-residential podium will also deliver upon the urban design principle of creating a diverse and commercially thriving mix of uses that activate the precinct. The design also sought to respond to site constraints including Botany Road and its associated amenity impact.

The proposal complies with Clause 6.45 by providing a minimum of 12,000sqm of GFA within the or below the podium levels for land uses other than residential accommodation or passenger transport facilities, across the site. The proposed development contributes to 18% (2,230sqm GFA) of this minimum requirement.

Whilst the proposed podium in Building 3 does incorporate communal area ancillary to the student accommodation above, the proposed land use mix is considered appropriate for the following reasons:

- The podium provides a diverse range of land uses for the local community including a Makerspace and gym which will support employment and cater to the local needs of the community;
- There are no residential dwellings located within the podium that may be adversely impacted by noise and fumes from Botany Road. All residential dwellings are located at level four and above;
- The podium will be perceived as a non-residential podium. There is a clear delineation between residential and non-residential land uses and entry points;

- The student accommodation and social housing lobby and outdoor communal terrace located at level three will improve passive surveillance over the ground plane and Church Yard, enhancing the overall experience for pedestrians walking through this space;
- The proposed non-residential uses within the podium shield Cope Street Plaza from noise and other adverse amenity impacts from Botany Road;
- More sensitive uses such as student accommodation and social housing dwellings are elevated above Botany Road to manage impacts from potential noise and other impacts from Botany Road and a highly trafficable public domain;
- The proposed communal area and outdoor terrace provides a high-quality environment for student residents through easy access to the Metro;
- The broader Waterloo Metro Quarter site will deliver a genuine mix of uses, including a mixture of residential accommodation (both market housing, affordable housing, social housing, and student accommodation), as well as approximately 34,125sqm of commercial office floor space above and adjacent to the Sydney metro network, with connections to the Sydney CBD and strategic centres; and
- The broader Waterloo Metro Quarter site includes the development of commercial office building supporting commercial and retail uses in Sydney's inner suburbs that has the potential to accommodate up to 3,591 employees once operational.

Community facilities (Clause 6.45 (2) (b)

Approximately 2,219sqm of GFA for community facilities is proposed within the Central Precinct (Building 2), which exceeds the minimum required by Clause 6.45(2)(b).

Publicly accessible open space (Clause 6.45 (3) (c)

In accordance with Clause 6.45, 2,200sqm of land is to be dedicated to publicly accessible open space. Across the broader WMQ site. This SSDA seeks consent for works to Cope Street Plaza which comprises approximately 1,341sqm of the total publicly accessible open space provided. The balance of the public open space will be located in the Raglan Street Plaza which will accommodate 875sqm.

Affordable Housing (Clause 6.45 (2) (a), (b)

The consent authority must not consent to the construction of one or more dwellings on land at the Waterloo Metro Quarter unless:

- It is satisfied that at least 5% of the GFA is used to provide affordable housing.
- It is satisfied that no dwelling used for the purposes of affordable housing will have a GFA less than 50 square metres.

Affordable housing will be delivered in the Central Precinct. All affordable housing apartments will have a GFA greater than 50sqm. The proposed Southern Precinct development will also deliver 70 social housing apartments which will positively contribute to the diversity of housing stock across the WMQ.

Non-residential land uses (Clause 6.45 (2) (c)

The broader WMQ development satisfies Clause 6.45 (2) (c) by delivering a diverse mix of non-residential uses across the precinct to activate public domain areas whilst integrating with Waterloo Station.

The proposed development contributes to this mix by delivering a non-residential podium, with ground floor Makerspace and gym on level one and two. These uses have been located at ground level to activate the precinct throughout the day and evening whilst also managing impacts from potential noise from Botany Road and a highly trafficked public domain.

Waterloo Design Amenity Guidelines (Clause 6.45 (2) (d)

In accordance with Clause 6.45 (2) (d), an assessment of the proposed development against the Waterloo Design Amenity Guidelines is provided in **Section 6.14.**

6.14. WATERLOO METRO QUARTER DESIGN AND AMENITY GUIDELINES

To reflect condition requirements of the concept DA, Sydney metro has revised the Waterloo Metro Quarter Design and Amenity Guidelines which have guided the detailed design of the proposed residential tower and OSD project.

An assessment of how the proposed development is consistent with the Waterloo Metro Quarter Design and Amenity Guidelines is set out in the following table.

Table 16 Waterloo Metro Quarter Design and Amenity Guidelines

Design Criteria	Detailed SSDA design response
3C Public Domain	
Provide 2,200m2 of publicly accessible open space within the precinct comprising the Cope Street Plaza and the Raglan Street Plaza. Space beneath cantilevered buildings can be included in the calculation of publicly accessible open space.	A minimum 2,200sqm of land is proposed to be provided within the boundaries of the Waterloo Metro Quarter site, with additional publicly accessible open space to be delivered outside of the property boundaries through widened footpaths and the delivery of the full scope of Raglan Plaza. This SSDA seeks consent for Cope Street Plaza which comprises approximately 1,341sqm of the total publicly accessible open space provided.
Design of all buildings which overhang Cope Street Plaza are to include treatment to the soffit to provide interest and reduce visual bulk.	The proposed buildings located within the Southern Precinct do not overhang Cope Street Plaza.
Design of the Cope Street Plaza space underneath any building overhang is to incorporate wind mitigation.	An undercroft area is proposed along the eastern aspect of Building 2 connecting to Cope Street Plaza. Testing for the wind conditions in this region (which will be used for retail seating space) was found to satisfy the sitting criteria throughout the year without the need for any design mitigation measures. This is due to the built form and positioning of the towers on the site. As discussed in the Wind Impact Assessment provided at **Appendix KK,** 60% of Cope street receives comfortable conditions 90% of the time, marginally below the required 95% requirement. The inclusion of younger tree planting will provide greater separation between the foliage of each tree to allow for future growth. As these trees mature, they will continue to grow in height and canopy width which will further enhance conditions for the Plaza.
At least 50 percent of the area of the Cope Street plaza receives at least two hours sunlight between 9am and 3pm on 21 June.	As discussed in the Overshadowing Analysis provided at **Appendix LL,** at least 57.3% of the total area of Cope Street Plaza receives at least two hours of sunlight between 9am and 3pm on 21 June.
The public domain and landscaping design should meet the requirements of City of Sydney Urban Forest Strategy 2013 (adopted February 2013).	The Landscape Design Report provides a planting schedule for the communal terraces and roof top

Design Criteria	Detailed SSDA design response
	gardens which is consistent with the *City of Sydney Urban Forest Strategy 2013.*
The Cope Street plaza, Raglan Street plaza and through-site links are to be publicly accessible 24 hours a day.	Cope Street Plaza, Raglan Street Plaza and through-site links (Raglan Walk) will be publicly accessible 24 hours a day.
Publicly accessible areas are to be designed to allow access as required by DDA requirements with consideration of use for people of all abilities.	Morris Goding Access Consulting has assessed the proposed development with regards to the DDA requirements and confirmed that accessibility requirements, pertaining to external site linkages, building access, common area access and sanitary facilities can be readily achieved (refer to **Appendix S**). MGAC will continue to work with the project team as the scheme progresses to ensure appropriate outcomes are achieved in building design and external domain design.
Awnings are provided along all street frontages for wind and weather protection (except on the southern side of the central podium where a 10 metre setback is required to the Waterloo Congregational Church).	Awnings are proposed along Botany Road, Wellington Street and the northern elevation of Building 3 adjoining Church Yard to provide weather and wind protection.
Awnings located above Council footpaths are to be designed in accordance with Section 3.2.4 of Sydney DCP 2012.	The Landscape Design Report outlines the design details of the proposed awnings in accordance with Section 3.2.4 of the SDCP 2012.
Public domain lighting in areas under Council's control shall be in accordance with City of Sydney's Sydney Lights Code (March 2015).	City of Sydney "smart pole lighting" is proposed within the Botany Road and Wellington Street frontages in accordance with Council's guidelines.
Lighting provided to the plazas and publicly accessible spaces within the development should comply with AS4282-1997.	All lighting provided to Raglan Plaza, Raglan Walk and Cope Street Plaza will comply with relevant Australian Standards as outlined in the lighting strategy provided within the Landscape Design Report (refer **Appendix JJ**).
3D Streets, lanes and footpaths	
Provide a through-site pedestrian link from Cope Street to Botany Road that provides a clear, safe, direct and convenient connection from the metro station to the bus interchange.	Grit Lane is a 6m wide open-air pedestrian laneway connecting Botany Rd (bus stop) with the southern metro station entrance (northern metro station box), Cope St Plaza and Raglan Walk. This will be delivered as part of the CSSI approval. It is also noted that this detailed SSDA seeks to deliver vehicle access to the site via a shared way from Cope Street and a through-site pedestrian link from Cope Street to Botany Road. Refer to Landscape Public Domain Plans and Report at **Appendix II** and **Appendix JJ**.

Design Criteria	Detailed SSDA design response
The through-site link should: ▪ Have a minimum width of 6m and have a clear height of at least 6m. ▪ Align with breaks between buildings so that views are extended and there are is less sense of enclosure. ▪ Be clearly distinguished from vehicle access ways. ▪ Include materials and finishes such as paving materials, tree planting and furniture generally consistent with adjoining streets and public spaces and be graffiti and vandalism resistant. ▪ Be clear of obstructions or structures, such as service vents etc. ▪ Be fully accessible 24 hours a day. ▪ Be at ground level and lined with active uses. ▪ Be open at each end.	Two through site links are provided between Cope Street and Botany Road: Grit Lane and Church Square. The through-site links has been designed as follows: ▪ Grit Lane is 6 metres wide and open to the air. It is noted that an awning is proposed above (partially) to provide wind and weather protection for pedestrians. Church Square is 10 metres wide and open to the sky. ▪ Church Square is a shared way designed for both vehicle access to the basement below the Northern and Central Precinct buildings as well as for pedestrians and cyclists to traverse the WMQ site east-west. ▪ Grit Lane is provided between buildings 1 and 2 to maintain view corridors from Botany Road and reduce the sense enclosure. ▪ Grit Lane features activated shopfronts on either side which open and incorporates paving as part of landscaping strategy which is typical for a pedestrian laneway. ▪ The landscaping strategy for Grit Lane is consistent with other laneways and public domain areas throughout the Waterloo Metro Quarter site. ▪ Grit Lane is unobstructed and publicly accessible 24 hours a day. ▪ Grit Lane is open at both ends and lined with retail shopfronts.
Provide wide footpaths and a 5m minimum building setback on the southern side of Raglan Street between the metro station and the Botany Road intersection (refer to Figures 13 and 14).	An 8.88m wide footpath is maintained along Raglan Street from the building line.
Provide adequate footpath widths and building setbacks between 2.5m and 6.5m along Botany Road in the vicinity of the bus interchange to provide capacity for pedestrians (refer to Figures 17 and 18).	A 2.5m – 2.85m building setback is proposed to the southern end of Botany Road. A 6.5-6.75m building setback is proposed to the northern end of Botany Road.
Construct footpaths in accordance with the Sydney Streets Design Code. Design footpaths so that pedestrians, regardless of mobility impairments, are able to move comfortably and safely.	The footpaths have been designed in accordance with these requirements. The footpaths are DDA compliant which has been verified by the DDA consultants.
Provide a new laneway along the southern edge of the Cope Street Plaza that:	A new shared laneway, Church Square, is proposed along the southern edge of Cope Street Plaza which

Design Criteria	Detailed SSDA design response
▪ Prioritises pedestrian movement but also provides access to bicycle parking and resident car parking. ▪ Uses brick paving or other materials that integrate with the public domain and differentiate it from public roads.	provides both pedestrian access connecting Botany Road to Cope Street and vehicular access to the basement. Brick paving is proposed to distinguish the shared way from the Cope Street and Botany Road.
The new laneway prioritises walking and cycling and is designed to accommodate a low volume of car vehicles and low traffic speed - 10kph.	The shared laneway includes the following design features to prioritise walking and cycling: ▪ The surface is an interlocking concrete unit paver, a material used commonly for shared zones as it is very different from typical asphalt road surface and sends a clear message to vehicular drivers to proceed with caution. ▪ The entrances to the shared laneway will also have signage stating 'Shared Zone 10km/h' as per TfNSW requirements for shared zones. ▪ The shared zone surface is defined by planters, low walls and bollards that demarcate the area where vehicles can traverse, with these elements arranged to limit opportunity for vehicles to move at higher speeds. ▪ The northern edge of the shared zone is a pedestrian/cycle only space, separated from vehicles via line of bollards. This means pedestrians and cyclists can use the shared space if they are comfortable to mingle with vehicles or can use the separated space if they need.
Development adjacent to the lane is to: ▪ Include active uses at ground level to encourage pedestrian activity. ▪ Include lighting appropriate to the scale of the lane. ▪ Enhance pedestrian access and activity. ▪ Avoid projections over the lane which overshadow the lane, obstruct a view or vista or impede pedestrian activity at ground level. ▪ Ensure access rights of the public and other owners of property abutting the lane. ▪ Provide access for service vehicles as necessary and design to avoid or minimise any conflict with pedestrian and cyclist functions.	The proposed development does not directly adjoin the laneway along the southern edge of Cope Street Plaza however a 2m wide pedestrian accessway, known as 'Church Yard,' is proposed along the northern edge of Building 3 and Building 4 connecting to the laneway.
The buildings are setback from the property boundary in accordance with Figures 12 to 18.	The proposed development complies with the building setback requirements in Figures 12 to 18.A 2.5m – 2.85m building setback is proposed to the southern end of Botany Road. A 6.5-6.75m building setback is proposed to the northern end of Botany

Design Criteria	Detailed SSDA design response
	Road and 3.5m (podium) and 6.4m (tower) setback to Wellington Street.
Respond to and complement the City of Sydney's public domain requirements for works on Council land.	Public domain works outside of the private property boundaries are to be delivered as part of the CSSI approval.
Consultation is to be undertaken with the City of Sydney for any works in, under or over the public footpaths.	Consultation with the City of Sydney regarding public domain works have commenced and are ongoing.
Street furniture is to be consistent with the Sydney Streets Design Code.	Street furniture proposed is consistent with the Sydney Streets Design Code as outlined in the Landscape Design Report (**Appendix JJ**).
Integrate new and relocated utilities underground within the street reservation, with services located underground and in a manner that facilitates tree planting.	As outlined in the Services and Utilities Report attached at **Appendix T**, all new and augmented service and utility provisions for potable water, wastewater, natural gas, stormwater, electrical and communications are proposed to be integrated underground with minimal impacts on the landscaping strategy.
Where feasible, incorporate water sensitive urban design techniques such as landscaped swales to improve the quality of groundwater and water entering the waterways and tree bays	A key initiative of the ESD Strategy submitted at **Appendix M** is to use water efficiently, protecting local water resources and reducing flooding, drought and water pollution. Water sensitive urban design (WSUD) to reduce stormwater run-off and water pollution will be implemented in accordance with the City of Sydney Development Control Plans. Water Quality Targets and WSUD include: ▪ Reduction of baseline annual pollutant load for litter and vegetation larger than 5mm by 90%; ▪ Reduction of baseline annual pollutant load for total suspended solids by 85%; ▪ Reduction of baseline annual pollutant load for total phosphorous by 65%; and ▪ Reduction of baseline annual pollutant load for total nitrogen by 45%.
In designing that portion of the cycleway adjacent to the site, consider its relationship with the design (if available) of the regional cycleway on Wellington Street from Botany Road to George Street, including how it would integrate with these other elements.	The design of the cycleway along the southern edge of the site will match the regional cycleway designs typically implemented by the City of Sydney. The team will implement the layout agreed between City of Sydney and TfNSW.
3E Tree canopy cover	
New street tree planting must be consistent with the City of Sydney's Street Tree Master Plan 2011 (updated 2015), Park Tree Management Plans and the Landscape Code	Street tree planting is to be delivered under the CSSI approval and is outside the scope of this detailed SSDA. Notwithstanding, all street tree

Design Criteria	Detailed SSDA design response
	planting will be provided in accordance with Council's guidelines.
The development must achieve the following minimum tree canopy cover targets: ▪ 23% overall canopy cover ▪ 50% street canopy cover	The broader WMQ development will provide: ▪ A total 25.7% overall canopy cover; and ▪ 54.8% street canopy cover.
A secondary alignment of trees are to be provided set further back from Botany Road in front of the central podium near the bus stop.	Refer to Landscape Plans and Landscape Design Report at **Appendix II** and **Appendix JJ.**
New habitat features including trees, shrub and ground cover vegetation, waterbodies, rockeries and green roofs and walls are to be included, wherever possible.	Landscaping within the Southern Precinct includes a combination of outdoor terraces and inaccessible green roofs. The rooftop terrace (Building 4) comprises a range of native species with a focus on flowering and bird attracting shrubs and small trees and shade tolerant species. To provide a greener outlook from adjoining windows, low maintenance, inaccessible green roofs are also proposed. This habitat area will be a mix of low groundcovers and grasses that can thrive in challenging urban conditions and with minimal soil volume.
Landscaping is to comprise a mix of locally indigenous tree, shrub and groundcover species as outlined in City's Landscape Code. Where this is not possible, it is preferred that plants native to Australia are used.	Landscaping comprises a mix of locally indigenous tree, shrub and groundcover species as outlined in City's Landscape Code. The Landscape Design Report at **Appendix JJ** outlines the planting schedule which adopts a mix of trees, shrubs and grasses that has considered the landscape code and the provision of native Australian planting.
Shrubs are densely planted and trees are to be well spaced, as outlined in the City's Landscape Code.	The planting strategy adopts dense shrubbery and appropriately spaced tree vegetation informed by the landscape code.
Awnings and canopies are to be located and designed to maximise tree canopy.	The awning strategy adopted as part of the northern precinct has been designed with consideration of street tree planting on the respective frontages to Botany Road and Wellington Street so as to maximise tree canopy where possible.
Tree planting details are to specify horizontal clearance to awnings and buildings and tree spacing.	The sections and landscaping plans provided within the Landscape Design Report at **Appendix JJ** detail the planting strategy with consideration of vertical and horizontal clearances to awnings and built form elements.
Centreline of new trees along Botany Road should be a minimum of 1m back from the front of the kerb	Following coordination with the services and utility provisions, new street trees proposed along the

Design Criteria	Detailed SSDA design response
and up to 1.5m from the front of the kerb subject to services investigations.	Botany Road frontage will be setback from the kerb accordingly.
3F Tree planting specifications	
Any existing trees proposed to be retained are to be assessed and then protected as per the requirements outlined in the Australian Standard 4970 – Protection of Trees on Development Sites.	Refer to Arborist Report at **Appendix TT.**
Overhead power lines and communication cables are to be under-grounded within all streets adjacent to the Metro Quarter.	Overhead power lines and communication cables will be relocated under-grounded within all streets adjacent to the WMQ.
If existing trees occur within the planned under grounding routes then the routes shall be modified to avoid incursions into the tree(s) calculated Tree Protection Zones, as defined under Australian Standard 4970 – Protection of Trees on Development Sites. Where this cannot be reasonably accommodated, alternative methods of construction must be used such as under-boring, directional drilling or non-destructive trenching to install the cabling without impact to the trees' health or stability.	Refer to Arborist Report at **Appendix TT.**
All new trees shall be installed in accordance with new tree planting requirements contained in Appendix A.	The approval process for public domain works in the City of Sydney LGA following SSDA approval will include a separate Public Domain Plan Submission to the City of Sydney as outlined in their Public Domain Manual.
Where trees are planted within a potentially constrained soil environment (on-structure), appropriate soil volumes are to be provided.	Appropriate soil volumes have been provided. Refer to Landscape Plans at **Appendix JJ**.
Consult with the City of Sydney in relation to tree planting in the public domain, comprising the public footpaths around the Metro Quarter	Compliant. Refer to Deep Soil Diagram at **Appendix JJ.**
The following design criteria apply for tree planting around the Metro Quarter: ▪ All new street tree planting shall be a minimum of 200L container sizes with this increased to 400L for the key feature trees being preferred. Sizes of >800L should be considered where suitable and quality advanced stock is available. ▪ All trees shall be grown to the minimum standards of AS2303 – 2015 Tree Stock For Landscape Use with certification provided by the supplying nurseries. Trees shall be true to type and the species and cultivars specified. ▪ Tree planting ideally should be undertaken in either autumn or winter.	Compliant. Refer to Planting Palette and Schedule at **Appendix JJ.**

Design Criteria	Detailed SSDA design response
▪ Surrounding pavements and tree grates shall allow for proper expansion of the trees base over time. ▪ Trees shall be planted a minimum of 675mm from the back of adjoining kerbs. Distances greater than are 1000mm preferred. ▪ Trees shall be transported, lifted and planted in a manner that limits any possibility of physical damage. ▪ Trees shall be regularly maintained for a minimum of 12 months from the date of planting. This is to include pest and disease monitoring and control, watering and timely replacement if required.	
3G Wind	
Mitigate wind impacts on the public domain and achieve the following targets: ▪ At least 50% of the publicly accessible open space meets the wind comfort standard for sitting. Outdoor dining and casual seating areas should correspond with these areas. ▪ Waiting areas at bus stops and pedestrian crossings is to meet the wind comfort standard for standing. ▪ Development must not exceed the wind safety standard of 24m/s (gust - 0.1% exceedance).	A Wind Impact Assessment has been prepared by RWDI and submitted at **Appendix KK**. The assessment confirms: ▪ Wind conditions at all ground level areas within and around the WMQ precinct were noted to satisfy the Wind Safety Standard of 24 m/s. ▪ The majority of the ground level areas throughout the WMQ precinct are noted to satisfy the sitting or standing criteria throughout the year, this includes wind conditions along Botany Road (where the future bus stop is proposed), laneways including Raglan Walk and Grit Land. ▪ Cope Street Plaza area will satisfy the required sitting criteria for 90% of the time, marginally below the required 95% requirement. ▪ Greater than 50% of public open space meets the wind comfort standard for sitting as 90% of Cope Street Plaza meets this criterion.
3H Building uses	
Provide 70 social housing dwellings and 5% of the residential floor space as affordable housing.	The Waterloo Metro Quarter site will provide 70 social housing dwellings and 24 affordable housing dwellings which exceeds 5% of the proposed residential GFA. Social housing is proposed to be located within Building 4, whereas affordable housing is to be located within Building 2.
The social housing and affordable housing is to be not readily distinguishable from the market housing.	The social housing building (Building 4) has been designed to not be readily distinguishable from the market housing. The affordable housing has been designed as part of the overall Building 2 design and is entirely integrated into the building which also includes market housing. These buildings have been designed in an aesthetically cohesive way which

Design Criteria	Detailed SSDA design response
	does not make their use distinguishable from any other residential development on the WMQ site.
Provide a minimum of 2,000m2 of floor space for community facilities in accordance with LEP 2012.	As discussed in **Section 6.12.2**, a total of 2,219sqm GFA is to be provided for the purposes of community facilities within the Central Building. It is proposed that this community facility will be used for the purposes of not-for-profit, community centre-based childcare Furthermore, it is noted that an *additional* 630sqm of ground level GFA is proposed to be used for a variety of community uses including for instance a medical/health centre, enterprise café, Makerspace, community hub etc. However the specific use of these additional community use spaces is to be determined at a future stages.
The community facilities can be located within the podium and should have an identity, connection and presence to Cope Street Plaza.	Not applicable to this application.
The entrance to the community facilities should be easily identifiable and accessible from the plaza.	Not applicable to this application.
A Noise Management Plan is required to ensure compatibility of late-night premises uses and residential uses.	Late night premises are not proposed within this application.
3I Street activation	
Provide fine grain activation at ground level along all street frontages including Botany Road.	The proposed Makerspace and Church Yard will support the activation of Botany Road and the broader WMQ precinct by facilitating community interaction and providing opportunities to linger. Open shopfronts are also proposed to provide activation to the various frontages.
Provide fine grain retail surrounding the Cope Street Plaza and along through site links.	Fine grain retail uses are proposed within the ground floor of the Central Precinct, directly opposite Cope Street Plaza. Whilst the Building 3 podium does not directly adjoin Cope Street Plaza, it will comprise a Makerspace, gym and residential lobby, all of which will activate Church Yard and the through-site link to Cope Street Plaza.
Provide frequent building entries that face and open towards the street.	The proposed ground floor lobby comprises a glazed façade to Botany Road with clearly identifiable building entries to the Makerspace, gym and residential lobby. Access is also available via Wellington Street to the social housing lobby.
Building and ground floor entries are to be located and spaced to maximise street level activation.	Entries to the student accommodation, Makerspace, gym and the social housing building activate the frontages to Botany Road and Wellington Street.

Design Criteria	Detailed SSDA design response
Provide wider footpaths along Botany Road adjacent to the bus stops that accommodate pedestrians and encourage retail activation.	Footpaths along Botany Road have been designed with adequate widths to accommodate pedestrians and encourage retail activation.
3J Podium and street wall	
Articulate the podiums as a separate element from the towers above and use accessways or building cut-outs to break up the overall length of the podium.	The proposed massing is divided into three volumes on Botany Road to represent the different uses, break down the building mass and differentiate the tower which is set back from the podium. The careful use of masonry, metal and concrete also differentiates the tower from the podium and ensures architectural diversity.
Materials and finishes are to be used in the podium that respond to the local character and the surrounding built environment with articulation that expresses a fine vertical grain.	The masonry materiality echoes the brick terrace houses and warehouse typology in the surrounding context. The variation in brick colour and coursing provides a variation and diversity reinforcing the different volumes.
The height, proportion, scale and architectural articulation of the Botany Road podium must consider the proportion, scale and architecture of the Church.	The podium is reduced to a 2-storey scale along Church Yard to relate to the church volume. See **Section 8.2** for further discussion.
The following setbacks apply to the podium to increase the church's visual presence within the streetscape: ▪ A minimum of 10 metres from the Botany Road street alignment on either side of the church. ▪ A minimum of 6.5 metres from the northern face of the church at ground level. ▪ A minimum of 4 metres from the southern face of the church at ground level. ▪ A minimum of 10 metres from northern face of the church at the tower level. ▪ A minimum of 14 metres from the southern face of the church at the tower level. ▪ A minimum of 3 metres at the tower level from the street wall on Wellington Street.	A minimum of 10 metres from the Botany Road street alignment on either side of the church. 10m - Complies ▪ *A minimum of 6.5 metres from the northern face of the church at ground level.* Not applicable ▪ *A minimum of 4 metres from the southern face of the church at ground level*. 5.95m – Complies. ▪ *A minimum of 10 metres from northern face of the church at the tower level.* Not applicable. ▪ *A minimum of 14 metres from the southern face of the church at the tower level.* 14.4m -Complies ▪ *A minimum of 3 metres at the tower level from the street wall on Wellington Street.* The tower is set back 2.9m from the podium. The SSD9393 envelope requires a 2.5m setback.
Encourage active uses at the southern setback of the church and opportunities for Church users to meet.	A 180sqm pedestrian "yard" known as "Church Yard" is proposed between Waterloo Congregational Church and the podium of Building 3. Church Yard is framed by the Church to the north and the community Makerspace to the south. It is a 6m wide intimate space with a human scale, planted edges and integrated seating that will provide opportunities for Church users to meet.
Promote safe access and passive surveillance in and around the setback areas between the Metro	Church Yard and the student accommodation communal space located on level one will provide

Design Criteria	Detailed SSDA design response
Quarter and the Church consistent with crime prevention through environmental design (CPTED) principles.	casual surveillance in and around the setback areas between the Metro Quarter and the Church.
3K Built form above the podium	
The three tower buildings must not be identical in appearance and architectural diversity is encouraged through the design excellence process.	The three towers located on the WMQ site (including Building 3 and 4) have been designed by three different Architectural teams and each have been designed to have a unique character.
The residential towers must have a maximum floorplate size of 900m2 (gross building area).	Each residential floor plate has a maximum area of 709sqm.
The built form of the towers, including any articulation, must be in accordance with any building envelopes approved by SSD-9393.	The proposed development within the Southern Precinct is entirely within the building envelopes approved by SSD 9393.
Design of residential mid-rise buildings and towers will need to be in accordance with the NSW Apartment Design Guide.	Building 4 has been designed in accordance with the NSW Apartment Design Guide. It is noted that Building 3 is for student accommodation and the ADG does not apply. Refer to **Section 6.7.**
Wind mitigation is to be achieved through building form with reliance on devices such as impermeable canopies, awnings, pergolas and trees as secondary measures.	As discussed in the Wind Impact Assessment at **Appendix KK,** wind conditions at the south-western corner of Building 3 have been improved by incorporating additional tree planting. As the street trees mature, the conditions will be further enhanced. Refer to **Section 8.5** and Wind Impact Assessment included at **Appendix KK.**
Identify opportunities to improve solar access to Alexandria Park through redistribution of floorspace and building bulk and scale between the hours of 9am and 10am in midwinter (21 June) when compared to the shadow cast by the indicative scheme lodged with the Response to Submissions.	As outlined in the concurrent amending SSDA to the concept approval, the overall height of the development within the Northern Precinct has been reduced by redistributing building massing to accommodate contemporary office floor plates. This has resulted in significant reduction in overshadowing to Alexandria Park compared to the approved building envelope. Refer to **Appendix LL** and **Section 8.3.3.**
3L Residential amenity	
Noise amenity to be confirmed against the following requirements: ▪ Clause 3.6 of the Development Near Rail Corridors and Busy Road - Interim Guideline for Noise Criteria for all uses including windows closed and; ▪ Clause 4.2.3.11 of Sydney DCP 2012 for windows and doors open.	The Noise and Vibration Impact Assessment submitted at **Appendix K** has assessed the development against Clause 3.6 of the Development Near Rail Corridors and Busy Road - Interim Guideline for Noise Criteria for all uses including windows closed and Clause 4.2.3.11 of Sydney DCP 2012 for windows and doors open.

Design Criteria	Detailed SSDA design response
Refer to part 4J of the NSW Apartment Design Guide and clause 3.8 of *Development Near Rail Corridors and Busy Road - Interim Guidelines* for general guidance on how to reduce the impact of noise, noting that these measures may not be sufficient to meet the required noise criteria.	The Noise and Vibration Impact Assessment submitted at **Appendix K** has considered the *Apartment Design Guide 2015* and *Development near Rail Corridors and Busy Roads – Interim Guideline.*
Residential apartments are to fully comply with the requirements of the NSW Apartment Design Guide for natural ventilation, solar amenity, communal open space and private open space.	The proposed social housing apartments fully comply with the NSW Apartment Design Guide for natural ventilation, solar amenity and private open space. Whilst not strictly compliant with the minimum requirement for communal open space, the proposed rooftop terrace is considered appropriate on merit having regards to the urban context and site constraints (see **Section 6.7**).
The design must consider potential wind impacts and incorporate appropriate mitigation measures to provide amenity and comfort.	A Wind Impact Assessment has been prepared to consider potential wind impacts of the proposed development. The report provides specific mitigation measures to provide amenity and comfort. Refer to **Section 8.5** and **Appendix KK** for further discussion.
3M Solar access and amenity	
Development does not result in any additional overshadowing of Alexandria Park after 10am on 21 June.	The proposed development and adjoining buildings within the WMQ do not result in any additional overshadowing of Alexandria Park after 10am on 21 June. Refer to Overshadowing Analysis at **Appendix LL.**
No more than 30% of Alexandria Park excluding the oval (as shown in Figure 21) is overshadowed by the development as measured at any time after 9am on 21 June.	No more than 30% of Alexandria Park excluding the oval is overshadowed by the development as measured at any time after 9am on 21 June.
Proposed apartments in a development and neighbouring developments must achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1m² of living room windows and a minimum 50% of the required minimum area of private open space area. Note: This applies to at least 70% of the apartments in a development in accordance with the NSW Apartment Design Guide.	70% of apartments within Building 4 achieve minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1m² of living room windows and a minimum 50% of the required minimum area of private open space area. Refer to Solar Access Report at **Appendix NN.**
New development does not create any additional overshadowing onto a neighbouring dwelling where that dwelling currently receives less than 2 hours direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm on 21 June.	An Overshadowing Analysis has been prepared and submitted at **Appendix LL.** An assessment of the grade level conditions in the surrounding neighbourhood and Waterloo Heritage Precinct indicated that the proposed development would have a minimal impact on solar access to the

Design Criteria	Detailed SSDA design response
	residences in the Heritage Precinct and other neighbouring buildings. The simulations indicate that it is primarily the areas immediately south of the proposed development where the impact can occur, and that no areas within the Waterloo Heritage Precinct which currently receive 2 hours of direct sunlight experience a reduction to below 2 hours. Conversely, the approved concept DA envelope was predicted to create areas within the Heritage Precinct that see reductions below 2 hours.
3N Pedestrian and cycle network	
Provide generous footpath widths that can accommodate the forecast pedestrian flows from the metro station.	As illustrated in the Public Domain Plans and Report submitted at **Appendix II** and **Appendix JJ,** footpaths with a minimum width of 2m are proposed to accommodate the forecast pedestrian flows from the metro station.
Provide marked pedestrian crossings at the Raglan Street and Cope Street intersection and at the Wellington Street and Cope Street intersection in accordance with the Interchange Access Plan.	These crossings are being provided as part of the CSSI approval. The Raglan/Cope Street crossing will be a signalised intersection, whereas the Wellington/Cope Street crossing will be a raised pedestrian crossing.
Provide on-site bicycle parking for residents at a minimum rate of 1 space per dwelling and 1 visitor space per 10 dwellings.	The proposal complies with the minimum bicycle rates in accordance with SDCP 2012. See **Section 8.8** and **Appendix I.**
Provide bike parking spaces within the precinct for Metro customers in accordance the CSSI Approval.	Not applicable to this application.
3O Carparking and access	
The maximum number of residential carparking spaces is in accordance with the Category A rate for residential flat buildings under the City of Sydney LEP 2012 as follows: ▪ 0.1 spaces for each studio dwelling ▪ 0.3 spaces for each 1 bedroom dwelling ▪ 0.7 spaces for each 2 bedroom dwelling ▪ 1 space for each 3 or more bedroom dwelling	The proposal does not exceed the maximum number of residential carparking spaces stipulated in the SLEP 2012. See **Section 8.8** and **Appendix I.**
Design basement car parking including depth and setback form property boundaries to ensure adequate soil volume and depth for street tree planting.	Not applicable to this application.
Vehicular access to the site should be located and designed to minimise potential conflicts with metro	It is noted that vehicular access to the basement is provided off Cope Street via the shared zone (as part of the southern precinct SSDA). Consolidating

Design Criteria	Detailed SSDA design response
customers and pedestrians and disruption to the active frontages.	basement services in the one basement with a single accessway minimises potential vehicle and pedestrian conflicts and minimises street frontage disruption to maximise active ground floor uses. The shared way off Cope Street has been specifically situated away from the northern and southern metro entrances.
Car share parking spaces are to be provided in addition to the maximum number of car parking spaces permitted in the development and be in accordance with the following rates: ▪ 1 per 50 car spaces provided for residential development (i.e. Category A rate). ▪ 1 per 30 car spaces provided for office premises, business premises or retail premises (i.e. Category D rate).	One car share space is proposed in the basement which complies with the maximum rates.
3P Service vehicles and waste collection	
Service vehicles and garbage trucks must access and egress the site in a forward direction. Mechanical turntables can be provided in the loading areas.	As discussed in the Transport, Traffic and Parking Assessment (**Appendix I**) and Freight and Servicing Management Plan (**Appendix I**), service vehicles and garbage trucks will access and egress the Southern loading dock in a forward direction. A mechanical turntable is provided.
Separate parking spaces are to be provided for service vehicles and are not to be shared with parking provided for any other purpose.	Service vehicle parking within the Southern loading dock are designated for service vehicles only. Parking for the residential component of the development is provided within the Basement located below the Northern and Central Precincts which is subject to a separate SSDA.
Waste collection and loading are to be in accordance with the City of Sydney's Guidelines for Waste Management in New Developments.	Waste collection and loading are to be in accordance with the City of Sydney's Guidelines for Waste Management in New Developments. Refer to **Section 8.10** and **Appendix L.**
Waste collection and loading areas are to be accommodated wholly within the development in the following order of preference: ▪ In the building's basement. ▪ At grade within the building in a dedicated collection or loading bay. ▪ At grade and off street within a safe vehicular circulation system where in all cases vehicles will enter and exit the premises in a forward direction.	Waste collection and loading areas are located wholly within the ground floor of the development. All vehicles will enter and exit the site in a forward direction. Refer to **Section 8.10** and **Appendix L.**

Design Criteria	Detailed SSDA design response
The waste collection and loading points are to be designed to: ▪ Allow waste collection and loading operations to occur on a level surface away from vehicle ramps. ▪ Provide sufficient side and vertical clearance to allow the lifting arc for automated bin lifters to remain clear of any walls or ceilings and all ducts, pipes and other services.	Waste collection and loading operations will occur on a level surface away from the access ramp. Sufficient side and vertical clearance is provided to allow the lifting arc for automated bin lifters to remain clear of any walls or ceilings and all ducts, pipes and other services. Refer to **Section 8.10** and **Appendix L.**
3Q Integration with the metro station	
OSD structural elements, building grids, column loadings, building infrastructure and services to coordinate/interface with the metro station.	Refer to Section 4.4.2 and Structural Report at **Appendix P**.
Coordinate OSD future lift cores, access, parking and building services with the metro station.	The design of the OSD lift cores and access have been coordinated with the Metro Services Box so as not to compromise the operation of either component. In addition, the loading dock facilities accessed off Botany Road to the Basement (subject to a separate concurrent SSDA) are shared with Sydney Metro and the OSD. The shared parking and building services are accommodated within the basement SSDA, including the provision of two parking spaces for Sydney metro uses.
The station and over station development must have functional autonomy and be designed to ensure that: ▪ All building services required for the OSD's use, operation and maintenance are located entirely within the OSD and must not pass through the station unless specifically required by relevant authorities. ▪ All pathways required for emergency egress and access for the station are located within the station and independent of the development. ▪ All pathways required for maintenance access of the station are located within the station are independent of the development with the exception of shared loading docks. ▪ The utility services for the station must not pass through the OSD.	The tower structure will be constructed on a suitably engineered transfer level. All OSD services required for the OSD use, operation and maintenance are located entirely within the OSD and must not pass through the station unless specifically required by relevant authorities.
Provide adequate clearance zones to ensure that the location of air intakes and exhaust outlets, including cooling tower discharges, eliminates the potential for cross contamination of air flows for exhaust and smoke discharge (in event of fire).	The design has responded to various requirements outlined by Metro Box Scope of Works Technical Criteria around separation of openings and vents. The building openings comply with all setback requirements. Plant to Building 4 is located on Level 9 and not on top of the Metro Services Box,

Design Criteria	Detailed SSDA design response
	removing any risk of cross contamination of intakes and exhausts.
3R Sustainability	
Comply with the performance targets specified in development consent SSD-9393	An ESD Strategy and Sustainability Framework is included at **Appendix M.** The proposal complies with the performance targets specified in development consent SSD-9393. Refer to **Section 8.4** for further discussion.
Water sensitive urban design measures are incorporated to improve stormwater quality flowing into waterways.	WSUD to reduce stormwater run-off and water pollution will be implemented in accordance with the City of Sydney Development Control Plans – refer to **Appendix O.** WSUD measures include Stormfilters to treat the runoff, a rainwater tank and EnviroPod filters.
3S Stormwater and flooding	
Provide a total on-site detention volume of approximately 480m³. On-site detention should be situated above the 100 year ARI flood level to facilitate discharge into potentially fully charged stormwater pipes.	As discussed in **Section 8.14**, the Sydney Water requirements for the WMQ and Southern Precinct are referenced in the Water Quality, Flooding and Stormwater Report prepared by AECOM dated October 2018. The report recommended the development provide a combined OSD tank volume of 480m^3 however did not clarify why the OSD tank volume increased from the Sydney Water requirement of 208 m^3 to 480m^3. 208m^3 of On-Site Detention have been provided in the stormwater management plan. For further discussion, refer to **Section 8.15** and **Appendix O.**
The development should implement measures to achieve the following water quality targets: ▪ Reduction of baseline annual pollutant load for litter and vegetation larger than 5mm by 90%. ▪ Reduction of baseline annual pollutant load for total suspended solids by 85%. ▪ Reduction of baseline annual pollutant load for total phosphorous by 65%. ▪ Reduction of baseline annual pollutant load nitrogen by 45%.	These requirements have been adopted as they provide the highest level of water quality treatment and are consistent with the City of Sydney requirements.
The building floor levels are to be generally consistent with the flood planning levels below: ▪ Residential habitable rooms: 100 year ARI flood level + 0.5m of the PMF (whichever is the higher). ▪ Residential non-habitable rooms: 100 year ARI flood level.	Refer to **Section 8.15.**

Design Criteria	Detailed SSDA design response
▪ Retail floor levels: 100 year ARI flood level with stepped up zone inside property for shelter in place evacuation for emergency response. ▪ Below ground car parking: 100 year ARI flood level + 0.5m of the PMF (whichever is the higher). Areas contiguous with the metro station (including station entrances) are to be compliant with the CSSI approval.	
3T Waste management	
Comply with the City of Sydney's Guidelines for Waste Management in New Developments.	The Waste Management Plan attached at **Appendix L** outlines in detail the consistency of the proposal with the 3T design criteria.
Provide space inside each dwelling for separate storage of at least two days' volume of general waste, recyclables and compostable material.	Residents will be supplied with a collection area in each unit to deposit waste suitable for two day's minimum storage. Refer to **Appendix L.**
Provide a centralised waste and storage area(s) near the collection point with capacity to store all waste and recycling likely to be generated in the building(s) in the period between normal collection time.	A centralised waste and storage area is located at ground level, adjoining the waste collection point. Refer to **Appendix L.**
Provide a separate space (attached to the waste and storage area) for the storage and recycling of bulky waste, textile waste and problem waste for collection.	A room or caged area will be made available for the storage of discarded bulky items. This room should be located within close proximity of the collection area and has been provided with double doors for easy movement of large waste items in and out of the room. Refer to **Appendix L.**
If a chute system is used, a dual chute system (i.e. one chute for waste and one for recycling) is to be provided for buildings with more than nine storeys.	A dual chute system is proposed. Refer to **Appendix L.**
A chute room is required on each habitable floor that has a chute system. The chute room is to be designed in accordance with the City of Sydney's Guidelines for Waste Management in New Developments.	A Chute room is located on each habitable floor of that has a chute system. Refer to **Appendix L.**
3U Culture	
Develop measures in response to *Transport for NSW's Reconciliation Action Plan 2019-2021* to improve employment, empowerment, and economic development opportunities for Aboriginal and Torres Strait Islander peoples.	As outlined in the pre-submission Consultation Report submitted at **Appendix U,** in addition to a program for Aboriginal participation in construction, consideration will also be given to ways to promote Aboriginal enterprise and employment opportunities within the precinct as part of the retail strategy and the placemaking activation program.

Design Criteria	Detailed SSDA design response
Participation of Aboriginal artists, designers and landscapers is encouraged as part of the creative development of place-making and built form to incorporate and reflect Aboriginal cultural values.	Opportunities to engage local Aboriginal artists have been identified in the Public Art Strategy at **Appendix MM.**
3V Public art	
The Sydney Metro Public Art Strategy will be used to deliver public art for the station.	Noted.
Deliver public art that is coordinated with the design and considers opportunities to: ▪ Connect and orientate the Metro Quarter to its neighbouring villages, supporting pedestrian movement and experience. ▪ Support an active street life, public access and personal safety. ▪ Integrate public art with the planning and delivery of landscaping and way finding. ▪ Provide art works within the station entrance that are publicly visible and enhance the entry experience. ▪ Deliver public art in locations that correspond with high movement corridors, sight lines, key entry and activation areas. ▪ Allow artists to respond to the site and be embedded into the early stages of the design process.	A detailed Public Art Strategy has been prepared by Aileen Sage Architects and submitted **Appendix MM** These guidelines have been prioritised and are clearly reflected in the Public Artwork Strategy. This is reflected in both the proposed artwork opportunities as well as the process that has resulted in these proposed opportunities - of working in collaboration with Aboriginal Cultural and Community Consultants Murawin Consulting & experienced Contemporary Aboriginal Art Curators Tess Allas and Sebastian Goldspink - in the endeavour to ensure the incorporation of contemporary Aboriginal cultural values, perspectives and opportunities within this Public Art Strategy.
Any artworks proposed on Council owned land will require consultation and approval from the City of Sydney.	Noted.

6.15. SYDNEY DEVELOPMENT CONTROL PLAN 2012

In accordance with Clause 11 of the State and Regional Development SEPP, the provisions of *Sydney Development Control Plan 2012* (**SDCP 2012**) do not apply to this development. Notwithstanding this, the SDCP 2012 has been considered as a reference point for the detailed design of the proposed development. A summary of key SDCP 2012 provisions relevant to the site are discussed in Table 17.

Table 17 Consistency of the Proposed Development with Key Provisions of the SDCP

Section	Response
2. Locality Statements	The site is located in the Regent Street / Botany Road locality. The proposal is consistent with the principles of the Regent Street / Botany Road as the development delivers a mix of tall and medium rise building types, provides a range of residential and non-residential uses to create a diversity of form and mass, presents an active edge to Botany Road and Wellington Street and addresses the street at ground level.

Section	Response
	Residential uses are also encouraged on Cope Street to create an appropriate transition between the adjacent commercial and residential areas.
3.1.1 Streets, lanes and footpaths	The proposed shared way prioritises pedestrians, cycling and transit use.
3.1.5 Public Art	A Public Art Strategy has been prepared by Aileen Sage Architects and submitted at **Appendix NN.** Whilst the proposed public art is not being commissioned by the Council, the Public Art Strategy recognises its location within the City of Sydney Local Government Area and has been developed with reference to the *Sydney DCP 2012*, *City of Sydney Interim Guidelines for Public Art in Private Developments* September 2006, *City of Sydney Public Art Policy January 2016, City Art: Public Art Strategy 2011* and *Sustainable Sydney 2030 Community Strategic Plan 2017–2021.*
3.2.1.1 Sunlight to publicly accessible spaces	A Solar Access Report and Overshadowing Report have been prepared by RWDI and submitted at **Appendix NN** and **Appendix LL.** 73% of apartments within the proposed development receive at least 2 hours of direct sun between 9am and 3pm on 21 June, which complies with the ADG. At least 50 percent of the area of the Cope Street plaza also receives at least two hours sunlight between 9am and 3pm on 21 June.
3.2.1.2 Public Views	A View and Visual Impact Analysis has been prepared and provides an assessment of impacts on public views resulting from the proposed OSD, as discussed in **Section 8.3.1.**
3.2.2 Addressing the street and public domain	The proposal has been designed to positively address the street with a number of building entry points proposed from both Botany Road and Wellington Street. An assessment of the proposed development with respect to addressing the adjoining Waterloo Congregational Church has been provided in the Heritage Impact Statement (**Appendix H**) and Heritage Interpretation Strategy (**Appendix CC**). A further assessment is provided in the Architectural Design Report in **Appendix F.**
3.2.3 Active frontages	The development has frontage to Botany Road, Wellington Street and Cope Street. The frontage to Wellington and Cope Street will have an active station entrance and separate entrance to the social housing lobby. The entrance on Botany Road will provide access to the Makerspace, gym and student accommodation lobby which will promote passive surveillance of the lobby space and Botany Road.
3.2.6 Wind effects	A Wind Impact Assessment has been prepared and provides an assessment of wind impact at the pedestrian level of the proposed development at **Appendix KK,** as outlined in **Section 8.5.**
3.2.7 Reflectivity	A Reflectivity Report has been prepared and provides an assessment of the impacts of reflectivity from the OSD, as discussed in **Section 8.17** and **Appendix GG.**

Section	Response
3.3 Design Excellence and Competitive Design process	The proposal has been informed by the completion of a Design Excellence Process as described in **Section 8.1.2** and **Appendix G.**
3.4 Hierarchy of Centres, City South	The site is located within the Green Square Town Centre Primary Trade Area. The proposed development contains predominantly residential land uses that will complement rather than detract from Green Square Town Centre as the primary retail, community and entertainment centre. A Social and Economic Analysis has been prepared by Urbis and is submitted at **Appendix AA.**
3.5 Urban Ecology	A comprehensive Landscape Plan and Strategy has been prepared by **Aspect** and is submitted at **Appendix II.**
3.6 Ecologically Sustainable Development	An ESD report has been prepared and provides an assessment of the BASIX, NABERS and Green Star ratings of the proposed development at **Appendix M.**
3.7 Water and Flood Management	The management of water and potential flooding impacts have been addressed with the preparation of a Stormwater Management Strategy which is provided in **Appendix O** demonstrating that with appropriate management measures, the site can suitably be addressed through stormwater management practices. **Section 8.15** of the EIS provides a detailed assessment of the stormwater and flooding management proposed for the site.
3.8 Subdivision, Strata Subdivision and Consolidation	Refer to Section 4.13 and **Appendix Z.**
3.9.1 Heritage Impact Statements	A Heritage Impact Assessment (**HIA**) has been prepared and is provided at **Appendix H.** The HIS identifies the existing heritage items within proximity of the site and the potential impacts of the OSD proposal on the local and state heritage items. **Section 8.2** of the EIS provides a detailed assessment of the heritage impacts of the OSD.
3.9.3 Archaeological assessments	An Archaeological Method Statement (**AMS**) has been prepared by AMBS Ecology + Heritage and submitted at **Appendix H.** This is further discussed in **Section 8.2.**
3.9.5 Heritage Items	The site adjoins Waterloo Congregational Church, a locally listed heritage item and is within the vicinity of several other heritage items. An assessment of the proposed developments impact on surrounding heritage is provided in the HIS prepared by Urbis submitted at **Appendix H.** Refer to **Section 8.2** for further discussion.
3.11 Transport and Parking	A Transport, Traffic and Parking assessment has been prepared by ptc. and submitted at **Appendix I.** Refer to **Section 8.8** for further discussion.
3.11.2 Car share scheme parking spaces	The site is located on land identified as Category A. A total of 8 car spaces is provided for the social housing building only. Nil parking is proposed for the

Section	Response
	student accommodation building. The proposed car parking does not exceed the maximum parking rates stipulated in the SLEP 2012 and concept conditions of consent.
3.11.3 Bike parking and associated facilities	In accordance with Condition B10 of the concept consent, bike parking is to be provided in accordance with SDCP 2012. The following rates apply. **Social Housing** • *Residents: 1 per dwelling Customers/visitors: 1 per 10 dwellings* A total of 70 resident spaces and 7 visitor spaces are provided for Building 4 which complies with the DCP. **Student Housing** The DCP does not identify specific bike parking rates for boarding houses. Accordingly, consideration has been given to the AHSEPP requirements which stipulate that 1 bicycle space shall be provided for every 5 boarding rooms. Based on the provision of 435 rooms, the proposed 87 bike spaces complies with this requirement. **Gym / Makerspace** • *Retail: 1 Space per 435m2 GFA* For the purposes of this assessment, the Makerspace and gym has been assessed on the basis that it is a 'retail space,' being the most intensive generating land use under the proposed 'commercial premises' definition. 5 spaces are provided for staff and 15 spaces are provided for visitors which complies with the SDCP 2012 requirement.
	End of trip facilities • 1 personal locker per bike space • 1 shower and change cubicle for up to 10 bike spaces • 2 shower and change cubicles for 11 to 20 or more bike parking spaces are provided • 2 additional showers and cubicles for each additional 20 bike parking spaces or part thereof • Showers and change facilities may be provided in the form of shower and change cubicles in a unisex area in both female and male change rooms; and • Locker, change room and shower facilities are to be located close to the bike parking area, entry and exit points and within an area of security camera surveillance where there are such building security systems. As outlined in the Transport, Traffic and Parking Assessment at **Appendix I,** end of trip facilities have been provided in accordance with the requirements of each user group. Four lockers and 1 shower has been provided.

Section	Response
3.12 Accessible design	The OSD has been assessed against the relevant accessibility requirements of the *Building Code of Australia* access requirements and *Disability Discrimination Act 1992*. The assessment concludes that the proposed design generally meets the requirements of the applicable legislation, where strict compliance has not been achieved a deemed to satisfy solution has been proposed. A detailed assessment of the accessible design is provided in **Section 8.18** of this EIS.
3.13.1 Crime Prevention Through Environmental Design	A detailed CPTED Assessment of the proposed development has been undertaken. The report in **Appendix N** concludes that subject to the implementation of the CPTED mitigation measures outlined in the report, the remaining impacts associated with the proposed development are deemed to be appropriate and acceptable. Further discussion and assessment of the proposed development against CPTED principles is undertaken in **Section 8.19.1** of this EIS.
3.14 Waste	Waste generation and minimisation initiatives have been addressed in the accompanying Waste Management Plan at **Appendix L.** The proposal satisfactorily addresses the requirements of the SDCP 2012.
4.2.1 Building height	The proposed development has a maximum height of RL 93.250 which complies with SLEP 2012.
4.2.1.2 Floor to ceiling heights and floor to floor heights	Buildings with a commercial or retail use are to have a minimum floor to floor height of 4.5m on the ground floor; and 3.6m on the first commercial floor and any commercial floor above. Habitable rooms in multi-unit residential development and mixed use development are to have a minimum floor to ceiling height of 2.7m. Proposed ground floor: 4.5m - complies (note. there are some areas of the ground floor that are 2.42m high. These areas are only limited to areas where there is a mezzanine above and do not impact the retail space). Proposed first floor: 4m – complies.
4.2.3 Amenity	The student accommodation and social housing dwellings have been designed with a focus on achieving a high level of amenity by providing: **Student Housing** – outdoor terraces, study rooms, communal lounges, storage. **Social Housing** – rooftop terrace, community music room, community garden. A detailed assessment of the residential amenity is provided in **Section 8.3.5** of this EIS.
4.2.3.1 Solar access	A Solar Access Report has also been prepared by RWDI and submitted at **Appendix NN.**
4.2.3.5 Landscaping	A Landscape Plan and Strategy has been prepared by Aspect Studios and is submitted at **Appendix II** and **Appendix JJ.**

Section	Response
4.2.3.7 Private open space and balconies	All residential dwellings have access to private open space in the form of balconies.
4.2.3.8 Common open space	As part of the landscape strategy, high-quality outdoor communal open space area is provided for all residents.
4.2.3.9 Ventilation	60% (42/70) of apartments within Building 4 are naturally cross ventilated. This matter is addressed in detail in **Section 8.3.4.**
4.2.3.11 Acoustic privacy	A Noise and Vibration Impact Assessment has been prepared by Stantec and is submitted at **Appendix K**.
4.2.3.12 Flexible housing and dwelling mix	The proposed development delivers a mix of one, two and three bedroom apartments and combination of studio and twin rooms for the student accommodation component.
4.2.4 Fine Grain, Architectural Diversity and Articulation	As outlined in the Architectural Design Report at **Appendix F** and **Section 8.1** of this report, the proposed street frontages are highly articulated through the introduction of brick verticals and concrete horizontals that provide scale and articulation. Along Wellington Street, the podium steps perpendicular to Botany Road to create a podium that relates to the finer grain building mass opposite Wellington Street.
4.2.6 Waste and recycling management	The assessment of the waste generation and minimisation initiatives has been addressed in the accompanying Waste Management Plan at **Appendix L.** The proposal satisfactorily addresses the requirements of the SDCP 2012. Further impacts of the waste generated, and management practices are discussed in **Section 8.10** of this EIS.
4.4.1 Boarding Houses and Student Accommodation	**Bedrooms** The proposal contains: ▪ Studios: 17-18sqm ▪ Twin rooms: 28sqm ▪ Windows to bedrooms have been maximised to ensure access to natural light. ▪ No bedrooms contain bunk beds. ▪ The proposed development will satisfy all applicable requirements of the BCA either by compliance with Deemed to Satisfaction Provisions or through the development of satisfactory alternate solutions. **Communal kitchen areas** ▪ All studios and twin rooms are provided with kitchenettes. No communal kitchen areas are proposed. A sink and stove is provided within each kitchenette. There is a communal kitchen area in the communal area located on level 2. ▪ Adequate space for a refrigerator, freezer and cupboard storage is provided. **Communal living areas and open space**

Section	Response
	▪ The proposal provides 1,750sqm of indoor communal living area. Assuming the proposal is at capacity (474 students) and applying the proposed 1,750sqm, this will allow for 3.7sqm per student. ▪ The proposal delivers an indoor communal area at Level 2 adjacent the outdoor communal terrace. ▪ The indoor communal area is oriented to the north and is expected to receive 2 hours of sunlight each day. ▪ No student rooms are located at level two to maintain privacy from the indoor and outdoor communal area. ▪ A 179sqm outdoor terrace is provided on Level 2 which exceeds the 20sqm requirement. ▪ The communal terrace is oriented to the north to maximise sunlight. ▪ The ground plane has been dedicated to the Makerspace, gym and residential lobbies. The proposed location on level 2 is considered appropriate. ▪ A comprehensive landscaping strategy is proposed for the communal outdoor terrace. ▪ Due to the location, proximity to adjoining residential buildings, noise from Botany Road, nature of the use as student accommodation and the building design, private open space in the form of balconies is not considered to be necessary or desirable. This also conflicts with Iglu's intended operation to encourage students to interact with each other within the high-quality communal areas provided at each level and on Level 2. **Bathroom, laundry and drying facilities** ▪ Each room has access to a private bathroom for either single or dual occupant. ▪ Level 1 contains a communal laundry providing 11 x 8kg commercial washing machines and 12 x 9kg dryers, clothes folding table and chairs for those waiting for their washing. It is noted the current laundry provision is less than the required provision however this is consistent with existing Iglu approvals and the level of usage within existing Iglu facilities. ▪ Based on the anticipated occupancy (approximately 474 students) the proposal provides a ratio of 1 washing machine per 43 students and 1 dryer per 39 students. Based on Iglu's historical statistics of usage from Iglu Redfern, Iglu Chatswood, Iglu Central Park and Iglu Brisbane City this provision is considered more than adequate to support the laundry requirements of future student residents. ▪ No communal drying racks or clothes lines are provided due to issues associated with theft and student safety, however sufficient space is available within each of the rooms to accommodate clothes drying. **Amenity, safety and privacy** ▪ Building 3 has been designed to maximise amenity, safety and privacy by providing generous outdoor communal open space on level 2, bicycle parking and minimising on-site parking to reduce overall traffic impacts. ▪ Outdoor communal spaces are located on level two which is co-located with the internal common areas.

Section	Response
	▪ As per the Noise and Vibration Impact Assessment, suitable noise insultation will be provided to reduce noise from Botany Road. **Plan of Management** ▪ Iglu have prepared a Preliminary Plan of Management and is provided at **Appendix SS.**
Schedule 7 – Transport, Parking and Access	
7.5 The requirements for a Parking and Access Report	A Transport, Parking and Access report has been prepared by ptc. and submitted at **Appendix I.**
7.5.1 Assessment of the appropriate provision of on-site car parking	On-site parking requirements for the proposed Makerspace and gym are not specified in the LEP or DCP. Accordingly, the proposed Parking and Access Report has considered the criteria identified in **Section 7.5.1** of the SDCP to determine the appropriate parking rate. Refer to Traffic and Parking Report at **Appendix I.**
7.6 Green Travel Plan requirements	A Green Travel Plan has been prepared by ptc. and submitted at **Appendix I.**
7.8 Required parking spaces and design	The following minimum service vehicle requirements apply: **Residential buildings:** *1 space for the first 50 dwellings + 0.5 spaces for every 50 dwellings or part thereafter.* *Note. For mixed use developments, the total number of service vehicle spaces is to be calculated on a pro rata basis of spaces required for the relative proportions of different uses within the building.* The ground floor service area can accommodate an MRV, sized to include the waste collection vehicle.
7.8.4 Motorcycle parking spaces	1 motorcycle space for every 12 car parking spaces. With 151 parking spaces proposed across the entire WMQ site, 12 motorcycle bays are required. The proposed development provides 12 motorcycle spaces, therefore meeting the minimum requirement of the DCP.
7.8.5 Accessible car parking spaces	One accessible car parking space is to be provided for every adaptable residential unit. One space for every 20 car parking spaces or part thereof is to be allocated as accessible visitor parking. The accessible car parking provision has been reviewed by the access consultant. The assessment concludes that no car parking has been provided for the student accommodation building and therefore no accessible car parking needs to be provided under Deemed to Satisfy Provisions of BCA. The design shows a reduction of adaptable unit car bays within building 4 in line with the proposed ratio of general car bays and apartments. The reduction of adaptable unit car bays is a reasonable proposition given the immediate proximity of the railway station, and precedence with regards to the reduction of adaptable unit car bays at other Councils as well as

Section	Response
	Department Planning requirements with residential projects at Barangaroo and Darling Square. Refer to Access Report at **Appendix S.**

7. COMMUNITY & STAKEHOLDER ENGAGEMENT

7.1. COMMUNITY CONSULTATION

Community consultation has been undertaken with the relevant community groups, including the local community and surrounding landowners/occupiers. This has occurred throughout all stages of the development approval process from CSSI to concept SSDA, through to the subject detailed SSDA. A Pre-submission Consultation Report has been prepared and submitted at **Appendix U.**

The timeframe for engagement coincided with the restrictions imposed to respond to the COVID 19 pandemic. Accordingly, engagement activities were modified to comply with requirements to minimise community exposure and transmission. Whilst opportunities to conduct face to face engagement were limited, the applicant hosted a series of online events for the surrounding community to respond to emerging ideas and designs for the OSD.

Various strategies were implemented to ensure collaborative community involvement in the project. This included online forums, targeted emails to stakeholders and invitations to contact the Stakeholder Manager to discuss issues and opportunities relating to the design of the Waterloo Metro Quarter ISD as well as construction impacts. A specific program to engage with Aboriginal stakeholders was also undertaken by Murawin, an Aboriginal placemaking consultancy.

Specific community consultation actions undertaken are summarised in Table 18 below.

Table 18 Summary of community consultation activities

Activity	Content	Date
Aboriginal Yarning Circle	Aboriginal Yarning Circle.	11 May 2020
One on one stakeholder meeting	Meeting with City of Sydney, Community Infrastructure Team.	5 June 2020
One on one stakeholder meeting	Meeting with landowner – 60 Botany Road, Waterloo.	16 June 2020
One on one stakeholder meeting	Meetings with: ▪ Licensee, Cauliflower Hotel. ▪ Custodian, Waterloo Congregational Church. ▪ Waterloo Redevelopment Group (including Inner Sydney Voice). ▪ Body Corporate – Botany Road, Waterloo (opposite site)	17 June 2020
One on one stakeholder meeting	Meeting with REDWatch.	18 June 2020
One on one stakeholder meeting	Meetings with: ▪ Land and Housing Corporation. ▪ Department of Community Justice – Family and Community Services.	19 June 2020
Webinar	General community webinar with Wellington Street residents.	20 June 2020
One on one stakeholder meeting	South Sydney Business Chamber.	23 June 2020.
One on one stakeholder meeting	Ethics Communities Council – Cope Street.	1 July 2020

Activity	Content	Date
One on one stakeholder meeting	Sydney Local Health District	8 July 2020
Webinar	General community webinar.	14, 15 & 18 July 2020 22 & 24 June 2020
Forum	Aboriginal forums	14-15 July 2020

The above events were notified by:

- Emails to approximately 1700 subscribers;
- Flyers distributed to 5000 properties within 500 metres of the site, incorporating residents, landowners, businesses and community groups; and,
- Invitations to community-based groups and organisations.

The community consultation strategy and all content (responses) received throughout the engagement phase are included at **Appendix U.** A summary of the matters raised by the community during the consultation that relate to the SSDA and the proposal's response is included in **Table 19.**

Table 19 Summary of responses to community consultation matters

Matters Raised	Proposals Response / Document Reference
Traffic, Transport and Pedestrian Access	
Suggested that CCTV be placed throughout the precinct.	▪ CCTV will operate within the station and throughout the precinct.
Encouraged a strategic approach to planning for pedestrian movement including the need to: ▪ See detailed modelling for vehicular and pedestrian traffic. ▪ Consider cumulative impacts of the development upon pedestrian flows and traffic flows. ▪ Facilitate pedestrian flows across Botany Road for commuters travelling to and from Eveleigh, Redfern Station and the south via Wellington/Buckland Streets.	▪ Enhanced pedestrian crossings are being created at the intersections of Cope Street and Wellington Street and Cope Street and Raglan Street. ▪ Provision is also made for a potential midblock crossing on Botany Road. ▪ The WMQ precinct links directly into the regional cycle network via the bike path on Wellington Street. The Wellington Street bike path is a City of Sydney / TfNSW requirement.
▪ Congestion of surrounding streets particularly Botany Road.	▪ Refer to Transport, Traffic and Parking Assessment at **Appendix I** and **Section 8.8.** ▪ The traffic modelling undertaken demonstrated that the external road network should operate at acceptable levels of service or at a level of service less than the approved concept DA and therefore, the development should not have a detrimental effect on the network operation.
Feedback about buses noted that more consideration should be given to planning for:	▪ Suggestions for improvements to Botany Rd and bus operations will be passed onto TfNSW.

Matters Raised	Proposals Response / Document Reference
▪ A layby for northbound buses to accommodate increased numbers of buses queuing along Botany Road between Raglan and Wellington Streets. ▪ Protection and shelter for bus patrons.	▪ Within the site there are two new bus stops on Raglan and Botany Road. Widened footpaths around the perimeter of the precinct will enable waiting bus passengers to safely queue whilst also allowing pedestrians to pass. ▪ Within the precinct, awnings on Botany Road and Raglan Street will provide weather protection for bus patrons.
▪ More parking should be provided on site. Others felt parking within the new development should be limited.	▪ Carparking is in accordance with City of Sydney requirements. ▪ Bicycle parking is provided throughout the precinct to promote active transport and discourage reliance on cars with 80 racks on surrounding footpaths and 320 undercover bicycle spaces within the station.
▪ Concerns regarding loss of carparking along Cope and Wellington streets. Retention of longer stay and disability parking spaces in Cope Street for older people and people with disability who regularly access the services of the Ethnic Communities Council.	▪ The kiss and ride area is an essential part of enabling access to the station and the broader precinct. It was envisaged in the CSSI approval.
▪ When the precinct is operational, implement measures to ensure no commuter, workers or residents park in surrounding streets.	▪ As an integrated station development, public and active transport is the dominant and preferred mode of access to both the station and the development. ▪ On street parking regulation and enforcement is the responsibility of the City of Sydney. This feedback will be passed onto the City.
▪ Requested additional detail regarding how parking for construction workers would be managed.	▪ Refer to Constructional Environmental Management Plan at **Appendix Q.**
Precinct Level Design Considerations	
Reduction in height from concept DA was well received. Others felt the buildings were too tall, would cast shadows, were dominant and would result in loss of amenity, views, and privacy.	▪ Building heights are lower than what is permitted in the approved concept DA.
Some of the responses that were more frequently heard included: ▪ The need for building design that pushes the envelope and is unique to, and reflective of, Waterloo. ▪ Greenery and landscaping to soften the appearance of the buildings and plaza. ▪ The southern buildings do not seem to have the same level of design detail and resolution as the central and northern towers. ▪ The designers should not be afraid of some colour on the buildings. ▪ A palette of warmer natural materials was preferable to harder industrial materials and finishes. ▪ Incorporation of public art across the precinct is important to telling the story of this area.	▪ All buildings have been developed to the same level of design resolution. ▪ Buildings and public domain have benefited from an extensive DRP process and the team has focused on developing highly distinctive buildings while also ensuring the precinct remains cohesive. ▪ A diverse palette of building materials and finishes have been employed to provide visual interest with a focus on highly detailed podium structures. ▪ The proponent has also made a significant contribution to public art that will be integrated throughout the precinct.

Matters Raised	Proposals Response / Document Reference
	▪ The public art strategy has been informed by a deep understanding of the area and development of individual works will entail additional community engagement. Refer to **Appendix MM.**
Concerns about amenity impacts arising from the development included: ▪ Measures to reduce the heat island effect. ▪ Minimising wind impacts within the plaza and around the precinct. ▪ Measures to attenuate noise from servicing and plant for the station. ▪ Overshadowing and loss of sunlight to Wellington Street and the Alexandria heritage area. ▪ Noise from people congregating on balconies. ▪ Loss of privacy and outlook for residents to the north of the site in the Cope Street apartments.	▪ Balconies in the Southern Precinct are an ADG requirement. Potential amenity impacts from the use of these balconies have been addressed by setting the social housing building 9 metres back form the approved building line. ▪ Deep balconies and use of solid concrete balustrades will also reduce noise transmission. ▪ Refer to Wind Impact Assessment at **Appendix KK** and **Section 8.5.** ▪ Refer to Overshadowing Analysis at **Appendix LL** and **Section 8.3.3.**
Social, Student and Affordable Housing	
Mixed views on location and amount of student and social housing.	The delivery of social housing was a requirement of the bid and is permitted under the approved concept plan. Student housing is also a permitted use under the concept plan.
Consideration of ensuring some social and affordable housing be targeted to Aboriginal people who are being forced out of this area by the high cost of dwelling ownership.	To be addressed in Consultation Strategy.
The current proposal concentrates too many people in the southern portion of the site and could create amenity issues for this area. Suggested student and social housing be more equitably distributed.	Both buildings need to be single tenure making and this is best achieved in the two southern buildings.
Community Uses and Facilities	
Suggested a Health One centre, new school facilities, community library or learning centre, small movie theatre or farmer's market.	▪ Childcare is an approved community use under the terms of the bid.
Officers of the City of Sydney noted consideration should be given to providing a medical hub or a Health One facility on site.	▪ Preliminary discussions are underway with Sydney Local Health District to explore opportunities for providing health services from the precinct.
Officers of the City of Sydney noted the importance of working with local organisations to explore: ▪ Activities within the Makerspace. ▪ An ongoing program of community, recreational and cultural events. ▪ Providing services and amenities that respond to changing demographics and community needs including affordable retail.	▪ In addition to public art there will be a contribution to placemaking, activation and events within the precinct. Details of the nature and operation of the Makerspace will be developed in consultation with the community over the three year construction period.
Secure economic opportunities for Aboriginal people and residents of social housing who live within the Waterloo area. This should not just cover participation in	There is a program for Aboriginal participation in construction. Consideration will also be given

Matters Raised	Proposals Response / Document Reference
construction but extend to working with employers locating to the precinct.	to ways to promote Aboriginal enterprise and employment opportunities within the precinct.
Retail and Services	
Consideration whether a supermarket is needed or desirable. Other suggestions included: ▪ Smaller local offers with no chains. ▪ Good quality cafes and food. ▪ Butchers, delis and a bakery. ▪ A small specialty gift shop that showcases the work of local artisans and producers. ▪ Not competing with established local retailers on Regent Street. ▪ Affordable retail to respond to the needs of people on low incomes. ▪ Positioning of retail in the station building on the corner of Cope and Wellington Streets was supported.	The feedback is noted and will inform the retail and procurement strategy that will be implemented closer to the time when the station and precinct is ready to operate. The intention is for retail to support the varied needs of: ▪ Metro customers ▪ Workers and residents within the precinct ▪ The surrounding community. Activation of the frontages along Cope Street and Botany Road is a key feature of the proposal.
The Plaza and Public Domain	
Concerns regarding adequacy of open space provided. Suggested rooftops and podium areas be landscaped to extend the amount of planting and available open space across the precinct. Others noted that green walls would help to provide room for nature.	Provision of open space was addressed in the CSSI and concept DA approval. The plaza is consistent with these approvals. The community facility proposed for the plaza has been removed to increase open space and secure unobstructed access to and from the station.
Supported reduction in height of northern building. Would like more detail on the extent of sunlight to the plaza at different times of the year.	The reduction in height of the commercial building will increase sunlight to the plaza. The amount of sunlight the plaza receives is consistent with City of Sydney requirements.
Other suggestions were: ▪ Minimising hard surfaces, planting trees, making the public spaces safe. ▪ Including areas to sit, managing anti-social behaviour, infrastructure to support events and activation of the plaza. ▪ Introducing water features, considering the final design of the plaza in the context of the park across the road as envisaged in the Waterloo Estate masterplan, using endemic trees and plants as part of the Aboriginal story of the area. ▪ Providing awnings around the perimeter of the precinct and particularly near the bus stop on Botany Road.	▪ Durable hard surfaces are required to withstand the significant foot traffic the plaza will receive. ▪ Visual interest will be provided by an inground artwork that will extend throughout the plaza area. ▪ Extensive plantings and advanced trees will be provided to soften the appearance of the plaza and provide shade. Endemic plants will be featured across the precinct and their significance to Aboriginal people will be interpreted. ▪ Vertical gardens are not proposed due to issues of maintenance and public health. ▪ Additional seating has been incorporated into planter boxes and within the plaza. It is required to be provided around all street frontages. ▪ CCTV and the utilisation of CPTED principles will assist to address concerns around safety and antisocial behaviour.

Matters Raised	Proposals Response / Document Reference
Southern Building	
The Southern Precinct attracted the most commentary due to height and a view that the design of these two buildings was not as resolved as other buildings. It was noted by some residents these buildings concentrated a lot of residential in the south of the site and there would be an increase in noise and movement at all hours of the day. Requests were made to: ▪ Orient the entrance of the social housing building to the plaza. ▪ Remove balconies from south facing building façades. ▪ Set back the social housing building further from Wellington Street. ▪ Improve the design and visual interest of these buildings to the level of others within the precinct	▪ The delivery of social housing was a requirement of the bid and is permitted under the approved concept DA. Student housing is also a permitted use under the concept DA. ▪ Both buildings need to be single tenure making and this is best achieved in the two southern buildings. ▪ Balconies in the southern building are an ADG requirement. Potential amenity impacts have been addressed by setting the social housing building 9 metres back form the approved building line. Deep balconies and use of solid concrete balustrades will reduce noise transmission. ▪ Both buildings have been subject to an extensive Design Review Panel process.
Public Art	
The commitment to public art was considered to add a distinctive dimension to the precinct. Suggestions included: ▪ A sculpture that acknowledges First Nations people's links to the land. ▪ Works that speak to the contemporary Aboriginal culture of the area. ▪ Street art in laneways. ▪ Bold largescale works like in Madrid Airport. ▪ Bring colour into the area particularly the station. ▪ Works that reference the rich and diverse multicultural nature of the area. ▪ Ongoing arts events and production not just large fixed public art works.	The Public Art Strategy (**Appendix MM**) provides for a series of significant works to be commissioned throughout the precinct. These works will be in a range of media and scales. The strategy has been developed by curators Tess Allas and Sebastian Goldspink and informed by the work of Murawin, a specialist placemaking consultancy. A key focus of the strategy is responding to the links First Nations people have, and continue to have, with Country as well as the contemporary stories of Waterloo. One theme that will be explored will be the diversity people who have come to Waterloo from other countries and the areas multicultural history. One of the selection criteria for public artists involves their capacity and willingness to engage with the community in development of works. This will create further connections between the community and the precinct and ensure the work is reflective of the character and stories of this very diverse community. Sydney Metro is also commissioning a large-scale public artwork which will be located within the station. There is a PDA commitment to establish a placemaking fund to run events and activations. A Place Manager will also be employed to coordinate activities on site. As the

Matters Raised	Proposals Response / Document Reference
	site is being constructed, the applicant will be working with local organizations to explore: ▪ The nature of this program; ▪ How it would be curated; and, ▪ Opportunities for local creatives.
Precinct Operation and Governance	
▪ Prohibit drinking of alcohol (outside of licensed areas). ▪ Train management and security to deal with challenging behaviour in a sensitive way. ▪ Security and centre managers will also have to build relationships with local health services and community service providers to assist in difficult situations. ▪ Clear precinct governance about who is responsible for maintaining the area given multiple ownership and that different parts of the precinct would fall under the responsibility of Sydney Metro, Mirvac, City of Sydney, Land and Housing Corporation and a community housing provider. ▪ More information was sought about emergency management. Some were concerned that the “crowded nature” of the site and surrounding streets could make it difficult for services to access the station.	▪ The plaza has been designed as both a gathering place and access way to the station. Design of the public domain is compliant with all requirements for disability access. ▪ Retail uses around the edges of the plaza, at key points along street frontages and residential balconies will provide passive surveillance throughout the day. ▪ The plaza area is publicly accessible private open space and managed by the commercial lot owner. The plaza is intended to be an alcohol-free area with exemptions for licensed restaurants and small bars surrounding the plaza and events such as food festivals. ▪ Footpaths around the precinct are under control of the City of Sydney. The applicant will pass on this community feedback for the City to consider. ▪ CCTV will operate within the station and throughout the precinct. ▪ Security within the station and at entrances to the station will be responsibility of Sydney Metro. We will pass on community feedback regarding security for them to consider. ▪ The Place Manager will also build networks with local first responders and mental health services to appropriately manage difficult situations. ▪ Responsibility for maintaining areas within and around the precinct is outlined below. **Station area:** Sydney Metro **Wider precinct:** Plaza, Laneways, Interfaces with Buildings: Commercial lot owner **Footpaths and local streets**: the City of Sydney. ▪ A structure will be developed for these different parties to liaise with each other, share information and where required, coordinate response.
Precinct Activation	
▪ Support for reducing the number of residential apartments and creating more commercial space.	The Plaza has been designed:

Matters Raised	Proposals Response / Document Reference
▪ Programming and events in the plaza, community hub and Makerspace to activate the precinct. ▪ Suggestions included: farmers markets, local artisan market, spaces for affordable retail and social enterprises, opportunities for Aboriginal enterprises and workshops to make and repair things. ▪ The use of the Makerspace for artist studios was not supported as it was felt this would not provide any extended community benefit.	▪ As a welcoming and inclusive community gathering space. ▪ For community events appropriate to a space of its size. ▪ To facilitate ready and unencumbered access to the station. ▪ While the station is constructed over the next few years, engagement will occur with community organisations to identify locally relevant activations for publicly accessible areas and facilities when the precinct is operational.
Cultural Heritage	
▪ Some community members noted the significance of Redfern and Waterloo to new Australians who had settled in the area and that diversity is strongly reflected in the social housing community. ▪ The Ethnic Communities Council building in Cope Street was the birthplace of SBS and played a key role in the evolution of multiculturalism as a tenet of civic life within Australia. The ECC noted that this contribution should be celebrated within the precinct and offered to provide details of this history to inform the heritage and cultural strategy.	These points are noted. The Public Art Strategy and Placemaking Strategy has a strong emphasis on recognition and celebration of Aboriginal culture and the multicultural diversity of the area. Refer to **Appendix MM.**
Construction Management	
Community members in proximity to the site noted that: ▪ While there have been amenity impacts from works to date these have generally been well managed and complaints have been addressed. ▪ The contractor will need to continue to work with the community and keep them informed. ▪ Night works should be minimised.	These comments are noted. For further detail of how impacts will be managed please refer to the CTMP at **Appendix Q**. A comprehensive community relations program will also be implemented to keep the neighbours informed of the construction program and provide ready channels for receiving feedback and responding to queries.
Aboriginal Perspectives	
Aboriginal stakeholders raised the following concerns: ▪ Waterloo Station should be distinctive and highlight the contemporary Aboriginal culture of Redfern and Waterloo. ▪ The Gadigal language and local heroes of the Aboriginal community should be celebrated. ▪ Support for Murawin's cultural landscapes approach of telling the First People's stories first and using this foundation then tell the stories of colonial and multicultural immigration to the area. ▪ Opportunities for Aboriginal participation should not just be limited to public art. There should also be opportunities for Aboriginal enterprise, procurement, and employment.	These points are noted. The Public Art Strategy and Placemaking Strategy have a strong emphasis on recognition and celebration of Aboriginal culture, as well as the multicultural and social diversity of the area.

Matters Raised	Proposals Response / Document Reference
Other points included: ▪ The extent of change within the area is displacing Aboriginal people. ▪ A proportion of affordable housing should be targeted to Aboriginal people who are being forced out of the area. ▪ The public plaza and surrounding areas should be welcoming to Aboriginal people. It was also noted that Sydney Metro needs to: ▪ Run programs to recruit, train and employ Aboriginal staff. ▪ Require consultant teams working for them to provide employment for Aboriginal professionals. ▪ Consult Aboriginal people in the early stages of a project rather than when designs are fully developed.	
Waterloo Congregational Church	
Given their proximity within the precinct the Church was a key stakeholder. Discussions with the Church focused upon: ▪ Ensuring access for vehicles for weddings and funerals. ▪ Enabling continued operations throughout construction ▪ Security given no fences are proposed. ▪ Managing changes in levels around the Church. ▪ The Church custodian and the proponent have agreed to meet regularly throughout planning and construction.	An initial meeting was held on the 17 June 2020 with the Church custodian. Construction activities will be planned to avoid or minimise disruption of Church operations as much as possible. As the existing vehicle zone will be retained on Botany Road, there is no disruption envisaged to the church. The Church will have a dedicated relationship manager, who will be the sole point of contact and the interface with the construction team to resolve any issues. The existing dedicated wedding and funeral vehicle zone on Botany Road, immediately outside the church, will be retained. This was presented to the Transport Coordination Office on 25 June 2020 and agreed by all parties present at the session. The public domain has been designed to integrate the Church seamlessly into the Waterloo Metro Quarter precinct. Bollards, vehicle mitigation devices and planting is proposed to control movement of vehicles and pedestrians in the vicinity of the church. The landscape design has been integrated with the existing Church levels to ensure access via the side doors is retained. The custodian of the Church and the developer have agreed to meet regularly throughout planning and construction.

7.2. GOVERNMENT AGENCIES

The applicant and its consultants have engaged with the relevant Government agencies and City of Sydney Council throughout the preparation of the detailed SSDA, as outlined in **Table 20** below.

Table 20 Summary of responses to community matters

Agency / Meeting Details	Matters Raised	Response / Reference
City of Sydney Council 4 March 2020 8 April 2020 28 April 2020 28 April 2020 6 May 2020 19 May 2020 26 May 2020 22 July 2020	**Sustainability** - Matters raised included: ▪ Opportunity with the precinct-wide renewal to achieve carbon neutrality. ▪ BASIX would apply to student housing. ▪ City of Sydney would like to see: ▪ Separation of organics and use of City of Sydney Guidelines for Waste Management in New Developments. ▪ Initiatives that support the circular economy and local community needs. ▪ Five per cent development energy targets for use of renewables. ▪ Measures to optimise thermal performance and comfort of the student housing building through use of natural ventilation strategies. ▪ Glazing and insulation use. ▪ NABERS for apartments rating and the incorporation of energy metering to facilitate these assessments.	The sustainability strategy was developed over several sessions with City of Sydney. Refer to **Appendix F-** Architectural Design Report, **Appendix** L- Waste Management and **Appendix** M– Ecologically Sustainable Development Report.
	Community Facilities - Requested consideration be given to health services or a Health One facility on site. Cited study saying limited demand for childcare in the area. They also noted the importance of working with local organisations to explore: Nature of activities provided within the Makerspace to complement what is already occurring within the area. An ongoing program of community, recreational and cultural events. Works that reference the rich and diverse multicultural nature of the area. Ongoing arts events and productions not just large fixed public artworks. Providing services and amenities that respond to changing demographics and community needs, including affordable retail and particularly fresh food. Engaging with LAHC to work on the specific needs of the social housing residents.	There will be flexibility within the retail strategy to meet the diverse needs of people within the precinct and the surrounding area. This may include health and medical facilities, Services NSW and other potential operators. There is a commitment to establish a placemaking fund to run events and activations. A place manager will also be employed to coordinate activities on site. As the site is being constructed, the developer will be working with local organisations to explore: The nature of this program. How it would be curated. Opportunities for local creatives. The intention is for retail to support the varied needs of the metro customers, workers and residents within

Agency / Meeting Details	Matters Raised	Response / Reference
	Provide opportunities for social and local procurement beyond Aboriginal Participation in Construction. Any social enterprises should also have a strong local connection. Sought clarification on how the Makerspace for artist studios would provide any extended community benefit.	the precinct and surrounding community. In addition to the Aboriginal Participation in Construction program, we will also look at ways to promote Aboriginal enterprise and employment opportunities within the precinct, as part of the retail strategy and the placemaking activation program.
	Traffic and Transport - The CoS had minor comments on the traffic and transportation components of the development, presented on 5 May 2020.	The developer confirmed traffic and pedestrian modelling is being undertaken collaboratively across the precinct. For more detail refer to **Appendix I.**
	Public Domain - The City did not support the use of the Makerspace for artist studios as it was felt this would not provide any extended community benefit	Refer to Waterloo Congregational Church section. These comments were all considered in the development of the design. For more detail refer to the **Appendix II** – Landscape and Public Domain Report. No actions or follow-up sessions for public domain were requested.
	Urban Design and Built Form – The urban design and built form components presented on 28 April 2020. City of Sydney supported the southern precinct scheme and encouraged additional rationale be demonstrated in the Architectural Design Report, with respect to the objectives of building separation. City of Sydney acknowledged the voluntary setback alignment with the church and desire to maximise sunlight access to Alexandria Park.	Refer to the Architectural Design Report at **Appendix F.**
	Noise, vibration and natural ventilation Minor comments on the noise, vibration and natural ventilation requirements, particularly on the residential dwellings impacted by Botany Road.	The noise attenuation strategy employed on the residential buildings, includes the use of external wall integrated noise attenuators to achieve natural ventilation. Refer to Noise and Vibration Assessment at **Appendix K.**

Agency / Meeting Details	Matters Raised	Response / Reference
Design Review Panel 18 February 2020 17 March 2020 31 March 2020 9 April 2020 21 May 2020 4 May 2020 19 May 2020 1 June 2020 12 June 2020 30 July 2020	The refinement of the SSDA also benefitted from an exhaustive Design Review Panel (DRP) process led by the NSW Government Architect. This panel convened ten times to iteratively review and advise on the emerging design that was being developed within the parameters of the 2017 and 2019 approvals. A key focus of the panel's guidance was to optimise integration of the station and the public spaces and buildings throughout the precinct.	Details of this process and responses to issues raised by the DRP are contained in the Design Integrity Report at **Appendix Y.**
Sydney Trains 4 August 2020	Discussion with Sydney Trains staff on 4 August 2020 focused on the following: ▪ Wayfinding to support ease of movement between Sydney Trains at Redfern Station, buses and the metro. ▪ Positive responses to precinct design, landscaping and public art particularly Aboriginal artwork and cultural elements. ▪ Student housing allocation to respond to changes in demand due to COVID-19.	Wayfinding and signage will be implemented close to completion of the station. Connections to Redfern Station will be highlighted. Student allocation remains unchanged. The WISD place manager has committed to regularly updating and liaising with Sydney Trains. Attendees invited to opt in to receive email correspondence, including notifications and newsletters.
Transport Coordination Office (TCO) 17 June 2020 25 June 2020 5 August 2020	Consultation with the TCO occurred on 17 and 25 June, and 5 August 2020. Discussions focused primarily on the location and operation of the loading docks in the commercial building (northern precinct) and student accommodation building (southern precinct) and the capacity of the bus stop on Botany Road to accommodate a higher frequency of services given Waterloo's status as an interchange station.	Issues surrounding the loading dock were resolved to the satisfaction of the TCO at the meeting on 25 June 2020. Additional detail can be found in the relevant section of SSD-10438 Basement Car Park. The Botany Road bus stop has been designed to accommodate a number of buses at any one time with ample room for customers to queue without blocking pedestrian access along Botany Road. Detailed pedestrian modelling work was undertaken to ensure sufficient pedestrian movement at the bus stop, particularly in peak periods. Provision for the church

Agency / Meeting Details	Matters Raised	Response / Reference
		vehicle zone (for wedding and funeral vehicles), currently located immediately outside the church on Botany Road, was discussed and agreed that it would remain in place. The retention of this dedicated zone has no impact on the increased bus movements anticipated at the new bus interchange.
NSW Fire 16 April 2020 20 April 2020 13 May 2020	Correspondence and meetings with Fire Rescue NSW occurred as follows: ▪ 16 April 2020 - emails and phone discussion to agree on the content of the Fire Engineering Strategy ▪ 20 April 2020 - emails and phone discussion to agree on the presentation date and attendees for the Fire Engineering Strategy ▪ 13 May 2020 - virtual meeting to present the Fire Engineering Safety Strategy for WMQ. Fire Rescue NSW provided general positive feedback.	Refer to the Fire Strategy Report at **Appendix EE.**
Sydney Water 28 May 2020 29 June 2020	Correspondence and meetings with Sydney Water occurred as follows: ▪ 8 May 2020 - Sydney Water Statements of Flow and Pressure issued and received for WMQ water mains ▪ 22 May 2020 - submission of application for Feasibility Notice of Requirements for WMQ ▪ 28 May 2020 - emails and phone calls to confirm acceptance of application for Feasibility Notice of Requirements for WMQ ▪ 29 June 2020 - virtual meeting to discuss options and status on the Feasibility Notice of Requirements for WMQ ▪ 8 July 2020 - emails to follow up on agreements and actions from virtual meeting ▪ 21 July 2020 - emails from Sydney Water providing status on Feasibility Notice of Requirements for WMQ ▪ 31 July 2020 - Feasibility Notice of Requirements issued for WMQ	Refer to Services and Utilities Infrastructure Report at **Appendix T.**
Ausgrid 22 May 2020 25 May 2020 22 June 2020 8 July 2020	Correspondence and meetings with Ausgrid occurred as follows: ▪ 22 May 2020 - email, confirm and accept application for power for Buildings 3 and 4 mini chambers	Refer to Services and Utilities Infrastructure Report at **Appendix T.**

Agency / Meeting Details	Matters Raised	Response / Reference
6 July 2020 6 July 2020 9 July 2020	▪ 25 May 2020 - email, confirm and accept application for power for Building 1 chamber ▪ 22 June 2020 - virtual meeting, confirm appointment of Ausgrid contestable project coordinator ▪ 8 July 2020 - virtual meeting, discuss AN21263 Building 3 mini substation flood planning and position ▪ 6 July 2020 - email and virtual meeting, AN21263 PDS received ▪ 6 July 2020 - email and virtual meeting, AN21264 PDS received ▪ 9 July 2020 - virtual meeting, Buildings 3 and 4 substation flood planning levels.	
NSW Police 13 July 2020	Correspondence and meetings with NSW Police (South Sydney Police Area Command) occurred as follows: ▪ 13 July 2020 - present the scheme, discuss local crime issues and items of consideration for the Waterloo precinct. ▪ 4 August 2020 - further consultation to understand the operational context and specific security threats. Items raised have been incorporated into the Security Risk Assessments.	Refer to the CPTED Assessment at **Appendix N** and Security Risk Assessment at **Appendix FF.**
Jemema 17 June 2020 18 June 2020 1 July 2020	Correspondence and meetings with Jemena occurred as follows: ▪ 17 June 2020 - email to confirm contact details in Jemena's Network Development Team ▪ 18 June 2020 - email, response to WMQ gas connection assessment and request for estimated design load for assessment from the design team ▪ 1 July 2020 - email to confirm WMQ gas connection capacity based on the information provided to Jemena as per its previous request.	Refer to Services and Utilities Infrastructure Report at **Appendix T.**
Land and Housing Corporation (LAHC) 19 June 2020 11 August 2020	Virtual meeting with LAHC development managers and communications manager. There have been regular discussions with LAHC department staff and these will continue about the over-station development. During consultation the following was noted: ▪ Significant reduction in basement car parking. ▪ Clarification of height of the commercial building. ▪ Purpose of the pre-DA consultation and what it would achieve.	Car parking is provided in line with City of Sydney requirements. Height of the commercial building has been reduced by up to 25 metres below the approved envelope within the concept plan. The plaza faces Cope Street and the park proposed in the latest version of the Waterloo Estate master plan. The social

Agency / Meeting Details	Matters Raised	Response / Reference
	▪ Interest in the plaza facing the housing estate. ▪ Delivery date of the social housing.	housing building is expected to be completed by late 2023.
Department of Communities and Justice – Family and Community Services 19 June 2020	Virtual meeting with Department of Communities and Justice – Family and Community Services Waterloo housing estate client liaison and assets management representatives. There have been regular discussions with LAHC department staff and these will continue about the over-station development. During consultation the following was noted: ▪ Disability access to the station. ▪ Interest in social housing finishes and external elements. ▪ Concerns about the impact to McEvoy Street and surrounding areas from development of the site. ▪ Interest in over-station building design and future community facilities.	Design of the station's public areas complies with all requirements for disability access. Social housing internal and external finishes will be as agreed in the PDA and are outlined in the SSD-10437 Southern Precinct. As an integrated station development, public transport will be the dominant and preferred mode of travel to and from the station precinct. Ample bike parking facilities will also help to encourage cycling as a mode of travel to the station precinct. This will reduce vehicular traffic on local roads, including McEvoy Street. Community facilities are in the Southern and Central Precinct, including a Makerspace, community hub and childcare centre.
Sydney Local Health District 8 July 2020	Preliminary discussions have been had with the Sydney Local Health District to explore opportunities for providing health services from the precinct.	Preliminary discussions are still underway.

Under section 4.55(2)(b) of the EP&A Act, the consent authority must consult with the relevant Minister, public authority or approval body in respect of a condition imposed as a requirement of concurrence to the consent. We, therefore, anticipate that the NSW DPIE will further consult with government agencies such as Ausgrid and TfNSW as part of the assessment of the detailed SSDA.

For further discussion of one-on-one stakeholder briefings, please refer to the Pre-Consultation Report at **Appendix U.**

7.3. SYDNEY METRO DESIGN REVIEW PANEL

To inform the preparation of the detailed SSDA, the scheme has been presented to the Design Excellence Evaluation Panel (**DEEP**) and Design Review Panel (**DRP**) 10 times since the appointment of WL Developer Pty Ltd as the development partner, to seek feedback and to confirm design integrity.

The matters raised by the DEEP and DRP are summarised below in Table 21.

Table 21 Summary of DEEP and DRP feedback

Agency / Meeting Details	Matters Raised	Response / Reference
Design Excellence Evaluation Panel 29 January 2019 19 February 2019 26 March 2019 7 May 2019	Refer to Design Integrity Report submitted at **Appendix Y.** Further design resolution was recommended to be considered through the design integrity process, including further consideration to: The approach to flooding, retail levels and the impact on Botany Road interface and public domain needs reconsideration, including setbacks. Expand the public art strategy and embed Aboriginal culture and local community identity into the design of the station, buildings and public realm. More considered response to the local context in the design of the podiums, laneways and facades (e.g. grain, materials and character). Additional technical testing and studies on the resulting wind impact and noise mitigation strategies for all buildings. Any opportunities to improve solar access to public spaces and increase deep soil planting.	Refer to Design Integrity Report submitted at **Appendix Y.** As presented to the DRP, these items were further considered through the design integrity process, including lowering retail floor levels to achieve a more activated streetscape along Botany Road, further development of the public art strategy, and refining the architectural treatment of the podium and towers to respond to the local context. The proposed maximum height of the towers has been reduced to improve solar access to Alexandria Park and the Alexandria Park Heritage Conservation Area. Further, additional technical testing and studies regarding wind and noise mitigation are included within the detailed SSDAs for the detailed design of the proposed development.
Department of Planning, Industry and Environment 3 February 2020 4 June 2020 23 June 2020 29 July 2020	**3 February 2020** – This meeting was the original scoping meeting to discuss objectives and intended vision for the project, including notably the proposal to increase commercial office floor space on the site. The following matters were discussed: Splitting the WMQ Precinct into separate multiple detailed applications. Appropriate planning pathway to amend the concept envelope (i.e. either a Section 4.55 (2) Modification or an Amending DA). The DPIE confirmed an Amending DA would be required.	Separate detailed SSDA's have been lodged for each precinct. An Amending DA has been prepared and is submitted separately, as per the DPIE's recommendation.

Agency / Meeting Details	Matters Raised	Response / Reference
	4 June 2020 – The indicative agenda for this meeting was as follows: Demarcation between the CSSI approval and scope of each detailed SSDA. The Waterloo Metro Quarter Amenity and Design Guidelines and specifically questions and comments regarding: Apartment Design Guide Overshadowing calculations Traffic and transport The Amending DA regarding: Envelope modifications Deliverables Structure of reports that apply across the whole site, and clarification of SEARs.	An assessment of the proposal against the Waterloo Metro Quarter Amenity and Design Guidelines is provided in Section 6.14. A detailed assessment of Building 4 against the Apartment Design Guide is provided in Section 6.7. An Overshadowing Report has been prepared by RWDI and included at **Appendix MM.** The assessment concludes the proposed development complies with the design criteria in the Waterloo Metro Quarter Design and Amenity Guidelines. Refer to Section 8.3.3. A Transport, Traffic and Parking Assessment has been prepared by ptc and included at **Appendix I.** Refer to Section 8.8. The traffic modelling undertaken demonstrates that the external road network should operate at acceptable levels of service or at a level of service less than the approved concept DA (SSD 9393) and therefore, the development should not have a detrimental effect on the network operation.
	23 June 2020 – The DPIE provided feedback on the matters presented on the previous meeting held on the 4th June 2020. The discussion focused on the proposed demarcation between the CSSI/SSDA including notably the planning pathway for archaeological studies on the site and remediation.	A Contamination Strategy has been prepared by Douglas Partners (**Appendix OO**). Douglas Partners consider that the proposed Contamination Strategy is suitable to address the requirements of SEPP 55 for the western portion of the site and upon completion of all remediation works, the site will be suitable for the proposed development. The concept SSDA establishes the building envelope and the indicative integration between the proposed OSD envelope with the approved CSSI Waterloo metro station. Section 4.4 clearly delineates between the works included within the CSSI approval and

Agency / Meeting Details	Matters Raised	Response / Reference
		the components sought for approval under the detailed SSDA.
	29 July 2020 – This meeting involved confirming the progress of the development and strategy for lodging four detailed SSDA's concurrently. The DPIE proposed their preference was to stagger the lodgement of the Detailed SSDAs.	To meet Sydney Metro commitments, the proposed detailed SSDA's must be lodged concurrently. This will also enable the community to review all Detailed SSDA's concurrently, assist with understanding the total vision for the WMQ precinct and consider cumulative impacts.

8. ENVIRONMENTAL IMPACT ASSESSMENT

The EIS accompanying this detailed SSDA is required to consider and assess impacts from the proposal pertaining to the natural and built environment and the social and economic landscape while determining the suitability of the site and the overall public interest associated with the proposal. These aspects are assessed accordingly in the following section.

8.1. BUILT FORM AND URBAN DESIGN

8.1.1. Built Form

The proposed OSD is detailed in the Architectural Drawings (**Appendix D**) and Architectural Design Report (**Appendix F**) prepared by Bates Smart. The overall built form and massing of the proposed development has been considered with respect to the urban scale and built form within the Waterloo Metro Quarter and surrounding built form context.

Consideration has been given to building alignment, proportions, setbacks, and articulation of building elements to reduce the perception of bulk and scale from the public domain. Importantly, the proposed built form is consistent with the Stage 1 concept envelope and has been designed to enable full integration of the OSD with Waterloo Station.

Building 3

Located on the south-west corner of WMQ, Building 3 comprises the student accommodation tower and a mixed use podium containing a Makerspace and gym. The podium design aims to reflect the scale and character of the surrounding area, whilst the use of brick and metal echoes the materiality of the local built context.

The proposed three-storey podium maintains the scale and character of Botany Road before stepping down to a two-storey scale along Church Yard to respect the volume of Waterloo Congregational Church. The height of the podium form does not exceed the height of the church's pinnacles. The podium form also provides a complementary scale to the two-storey buildings on the southern side of Wellington Street, including the Cauliflower Hotel building which is a locally listed heritage item. The podium is divided into three volumes on Botany Road to represent the different land uses whilst also reducing the building mass.

The podium is elevated to improve the public domain, whilst maintaining the tower setback and creating sheltered entry spaces for the gym and student accommodation. Along Wellington Street, the podium incorporates both strong vertical and horizontal lines to refine the podium form to relate to the finer grain building mass on the southern side of Wellington Street.

The Makerspace creates an active frontage to Church Yard, an intimate public space situated between Building 3 and the Waterloo Congregational Church. Entries to the student accommodation, the gym and the social housing building will activate the Botany Road and Wellington Street frontages.

The L-shaped tower above accommodates 474 students in a range of studio and twin studio units located over 20 floors. The tower is articulated into two distinct volumes with the facades on each elevation varying according to the specific environmental conditions. On each level a common room is located in the south-west corner of the floor plate, maximising views to the west and south.

The western volume of the tower is reduced in scale to reduce overshadowing to Alexandria Park. The building massing of the social housing tower above the Metro Services Box has been articulated with a setback from the southern boundary to Wellington Street of 9 metres. This building is a maximum of nine storeys and provides a transition to the taller student accommodation tower to the west whilst allowing for better integration with the streetscape and public domain.

Building 4

Situated above the southern Metro Services Box on the corner of Wellington Street and Cope Street, Building 4 contains 70 residential apartments over nine levels. The building massing, articulation and facade expression responds to the built context, building orientation and environmental conditions such as solar shading, acoustics, and privacy.

The floorplate design aims to provide a high level of amenity to both the apartments and the shared common spaces, whilst a communal rooftop terrace and community room provide residents with shared spaces for relaxation and socialising.

The facade design has been developed to create a building skin that offers a high degree of privacy, solidity, and environmental performance. A simple palette of materials consisting of brick, concrete and metal has been chosen for their longevity, durability and their timeless quality.

Overall, the proposed development delivers a built form that is responsive to the context of the existing and desired future character of the site and the surrounding area. Further, the design of the OSD responds to the site-specific constraints and opportunities of the site and features of the surrounding area, which are evolving over time.

Urban Design Drivers

An Urban Design Report has been prepared by Hassell and is submitted at **Appendix E.** The Report outlines the vision, urban design objectives, principles, and strategies for the broader WMQ, which includes the Southern Precinct.

The vision for WMQ is focused on creating a vibrant public domain that is authentic, diverse and community oriented. The proposed development fulfils this vision by delivering:

- A public plaza on Cope Street;
- More spaces to sit, dwell, interact and learn within Cope Street Plaza and Church Yard;
- New workplaces that support local and broader economies;
- High-quality student and social housing;
- An activated and engaging ground plane;
- A diversity of homes for both student and social housing residents, community and retail spaces;
- Community engagement and employment programs during design, construction and beyond; and,
- A place-inspired public art and public events commitment.

Four design objectives have been established specific to the vision, objectives, principles, opportunities, and challenges identified for the WMQ. These include:

- **An authentically public place** with central public spaces, a network of connections, a community hub and clustering of community, retail and commercial spaces.
- **Ultra-diversity in use, form, and character** with a diversity of uses for expanded choice, 24/7 activation and a contemporary planting strategy that reflects the complexity of original natural systems.
- **Responsive to a complex and changing context** with buildings that respond to both human, street and tower scale, articulation of buildings that engage at street level and respond to the urban grain of the surrounding context, a consistent street edge with expressed corners, setbacks to match the Church and insets at entry points and enhanced public amenity through placement and modulation of buildings.
- **A local neighbourhood network** with green connectors, generous landscaping, prioritisation of pedestrians within main spaces and streets, connections through the site to create a network of distinct, engaging and open spaces on rooftops and terraces to create “soft centre” of community spaces and landscape expression.

The urban design response has been driven by the desire to deliver a diversity of places and experiences whilst responding to the changing needs of the community. Throughout the site, the ground plane has been designed to create useable and attractive public places.

The ground plane comprises landscaped terraced edges with opportunities to incorporate seating and planting. The ground surface materials are intended to vary in response to the type of place, with opportunities to include public art. The proposed ground floor Makerspace, gym and residential lobbies seek to activate the ground floor whilst Cope Street Plaza seeks to attract and encourage people to dwell in the precinct.

Cope Street Plaza

Cope Street Plaza will provide a meeting place, a neighbourhood square, and a communal gathering area that showcases Aboriginal artworks and stories. Located at ground level, the square is subtly separated from the surrounding circulation zones and outdoor dining areas to create a protected place for community use.

Distinctive planting will allow an understanding of the six indigenous seasons to be highlighted through the native planting selection. Active building uses are edges to the square, making this an attractive space to be during day and evening. Circulation routes are clearly defined and slightly separate from places to dwell.

Streetscape

The streetscape will be positively enhanced by the proposed development as it adopts a high-quality and well-resolved design that will provide definition for the WMQ site from a southern approach from Botany Road, Cope Street and Wellington Street. The building has been carefully articulated within the approved concept envelope to maximise internal amenity and the appearance of the building from all street frontages.

The proposed development will significantly enhance the streetscape and public domain by replacing a vacant construction site previously used as a mix of low-scale commercial and light-industrial uses with a high quality, architecturally designed development that will provide a new landmark identify on the southern end of the WMQ site.

The proposal will activate Botany Road with ground floor commercial uses, residential lobbies and a publicly accessible through-site link connecting Botany Road to Cope Street Plaza. The co-location of these uses provides opportunities for people to linger and utilise the publicly available spaces, as well as support the ongoing operation of the Waterloo Congregational Church with the creation of a new public domain space adjacent to the church, known as Church Yard.

The site and surrounding street network currently experience high volumes of vehicle and pedestrian foot traffic. The through-site link along Church Yard will increase the connectivity and permeability of the site and provides alternative pedestrian routes throughout the block to the new metro station and Cope Street Plaza.

The ground floor plane has been designed to integrate the building with the surrounding neighbourhood to encourage increased activity and social interaction, whilst providing an appropriate buffer from Botany Road. The development will present a strong and memorable address to Botany Road with fine grain detailing that conveys a sense of human scale within the podium levels and landscape design. The building materials and finishes have been influenced by the masonry materiality of the adjoining heritage listed church, but also the site's former industrial character and historic use.

Accordingly, the proposal is considered to significantly improve the existing streetscape and public domain and revitalise this section of Botany Road.

8.1.2. Design Excellence

The Design Excellence Strategy (**Appendix G**) endorsed by the Planning Secretary on 29 June 2020 establishes the framework within which Sydney Metro and their partners will deliver design excellence for the Waterloo Metro Quarter ISD.

The Design Excellence Strategy approved under the concept SSDA (SSD 9393) was proposed as an alternative to the completion of a competitive design process otherwise required by the SLEP 2012 for the Waterloo Metro Quarter site. This alternative strategy was supported by the DPIE as the completion of a competitive design process, as defined under the City of Sydney Competitive Design Policy, was considered not reasonable or necessary under the circumstances of this development.

The DPIE accepted as per clause 6.21(6) of the SLEP 2012, that discretion be afforded to the development to propose an alternative design excellence process, as formalised through the Design Excellence Strategy. The Design Excellence Strategy includes several rigorous steps to inform and evaluate the design quality of the proposed development, including:

1. Establishing design quality expectations – Sydney Metro DRP
2. Competitive selection – Design Excellence Evaluation Panel (DEEP)
3. Design Integrity – State DRP or alternative

The Design Excellence Strategy draws from the NSW Government Architect's *Better Placed* and is consistent with the underlying principles of the NSW Government Architect's draft Design Excellence Competition Guidelines.

Following contract award, the Sydney Metro DRP is convened for the design integrity process, whereby the DRP reviews and provides advice on the detailed building design to ensure the achievement of design excellence, having regard to the Waterloo Metro Quarter Design and Amenity Guidelines. The applicant is required to obtain Sydney Metro DRP advice of the scheme prior to the lodgement of the detailed SSDA and throughout the assessment and post-approval stages.

The Design Integrity Report provided at (**Appendix Y**), and the summary provided at **Section 7.3** outlines the comments received from the DRP on the design evolution of proposed development including the refinements to the building envelopes.

The consent authority can therefore be satisfied that the proposal demonstrates design excellence in accordance with the Design Excellence Strategy as endorsed by the Secretary of the DPIE pursuant to conditions A14 and A15 of the concept SSDA.

8.2. HERITAGE IMPACT

A Heritage Impact Assessment (**HIA**) has been prepared by Urbis and is attached at **Appendix H.** The HIA identifies and assesses the potential impacts associated with the detailed design of the Southern Precinct OSD on the significant characteristics of neighbouring heritage items, their context and setting.

The HIS provides a comprehensive assessment of key heritage impacts and establishes the heritage management framework for the development of the site. The assessment of heritage impacts has been prepared in accordance with the condition B12 of the concept DA, the SEARs and the relevant provisions of the applicable planning instruments and Waterloo Design Amenity Guidelines.

In particular, the assessment provides a discussion of the potential impacts of the development on the adjoining Waterloo Congregational Church and Cauliflower Hotel which are locally listed heritage items.

Assessment

As discussed previously, the site is located within the vicinity of a number of locally listed heritage items under the SLEP 2012. The HIS has been prepared in accordance with the Heritage NSW's (former Heritage Office) guidelines 'Assessing Heritage Significance', and 'Statements of Heritage Impact'. The philosophy and process adopted is that guided by the *Australia ICOMOS Burra Charter* 1999 (revised 2013).

Site constraints and opportunities have been considered with reference to the *Waterloo Metro Quarter Design and Amenity Guidelines (March 2020)*.

Waterloo Congregational Church

The Waterloo Congregational Church (the **Church**) located adjacent to the Southern Precinct is identified as a local heritage item under SLEP 2012 (see Figure 30). The proposed student accommodation building (Building 3) is located immediately to the south of the Church. The Church is significant as it is one of the earliest worship venues in Waterloo. The Gothic church was constructed in 1883 to replace the congregation chapel built in 1865 and is renowned for its high-quality architectural traits including the symmetrical design of the façade.

Figure 30 Existing Waterloo Congregational Church

Source: Urbis

The potential impact of the proposed development on the heritage significance of the Church includes views to the item, physical connections, construction adjacent to the Church, and potential visual 'domination' of the item. In addressing these impacts, the proposed development has been designed to:

- Setback the building form to provide a sympathetic response to the heritage listed Church building.
- Provide a significant 4-metre setback along the southern elevation of the Church towards the northern elevation of Building 3's podium to allow for pedestrian access to the southern elevation of the Church and facilitate the interpretation and appreciation of this heritage item.
- Align the western elevation of Building 3 with the setback from Botany Road of the Church, consistent with other setbacks applied along the Botany Road frontage in other proposed buildings.
- Provide generous upper level setbacks to the Building 3 built form to prevent domination of the traditional scaled Church building.
- Setback the ground floor and first floor levels 4-metre from the Church to accommodate the creation of the southern Church Yard outdoor space.
- Provide a further setback at level two and above to move the bulk of the tower density as far south as possible providing maximum space around the Church.
- Adopt a masonry (brick) façade on the western elevation fronting Botany Road to respond to the masonry materiality of the adjacent Church building whilst also reflecting the former industrial character and historic uses on the WMQ site.
- Ensure the podium form does not exceed the height of the Church pinnacles; and
- Allow the Church to be read as a key element within the streetscape retaining its own physical setting and curtilage.

The assessment also notes the proposed Makerspace adjacent to Church Yard will provide for a broad audience base to interpret and appreciate the Church building. This is considered a positive heritage

outcome and will enhance the presence of the Church within the broader development and allow interaction with pedestrians using other spaces within the building.

As outlined in the HIS, whilst views towards the Church will inevitably be altered as a result of the proposed development, the detailed design has sought to mitigate these visual impacts through the adoption of appropriately scaled podium forms and setbacks which enhance view lines towards the Church. Outward views from the Church will not be altered.

The proposed social housing building (Building 4) is located to the rear of the Church (see

Figure 31). The proposed building has been stepped to move density away from the heritage item. The HIS considers that Building 4 does not have a critical interface with the church and the design of this building does not need to respond directly to the Church as Building 3 does.

Overall the proposal is considered acceptable from a heritage perspective. The proposed development of the Southern Precinct buildings and immediate pedestrian setting including Church Yard to the south will provide the Church with an expanded visual setting and curtilage to enable greater public appreciation and interpretation of the item's significance.

Figure 31 View of the listed church in the context of Building 3 (to the right) and Building 4 (background)

Source: Bates Smart

Cauliflower Hotel

The Cauliflower Hotel (the **Hotel**) located opposite the site on the south-east corner of Botany Road and Wellington Street is identified as a local heritage item under SLEP 2012 (see Figure 32). The Hotel is an example of a mid-Victorian hotel in the Georgian style and was built in c1862. The Georgian style building and the unique cauliflower sign is the landmark on Botany Road.

Figure 32 Existing Cauliflower Hotel

Source: Urbis

The potential impact of the proposed development on the heritage significance of the Hotel includes views to the item and potential visual 'domination' of the item. The proposed development will be of a significantly larger scale than previous development at the site and will be substantially greater in scale compared to the Hotel. Accordingly, the Hotel will have altered outward views towards a new mixed-use urban precinct which includes the proposed Building 3.

In addressing these impacts, the proposed development has been designed to:

- Provide a sympathetic and appropriate response to the traditional detailing and materiality of the Hotel by proposing a strong corner architectural response and inclusion of cantilevered awnings in the design that add to the architectural layering of the area without detracting from the prominence and significance of the Cauliflower Hotel.
- Set back the tower form above the three-storey podium from Botany Road and Wellington Street to provide as much physical distance between the low scale heritage item and the dominant bulk of the new building.
- Respond to the scale of the street wall on the southern side of Wellington Street which includes the Cauliflower Hotel.

As outlined in the HIS, whilst the proposed development will be of a significantly larger scale than previous development at the site, the proposed Building 3 will not obscure significant views and view corridors towards the Cauliflower Hotel.

Alexandria Park Heritage Conservation Area

The Alexandria Park Conservation Area is located to the west of the site. It is significant for its ability to demonstrate the growth of the municipality of Alexandria in the second half of the nineteenth century and the first half of the twentieth century. The area developed in association with the industrial growth of Waterloo and the establishment of the Eveleigh Railway and Goods Yards, providing housing for workers. The housing stock reflects successive subdivisions of the Coopers freeholds and Park View Estate. The industrial development illustrates a later overlay reflecting the growing importance of the area as an industrial centre in the early twentieth century. Alexandria Park is also a focus for the community.

The potential impact of the proposed development on Alexandria Park Conservation Area include views to and from the conservation area and overshadowing. The HIS concludes that the scale and design of the proposed Southern Precinct is not considered to have any detrimental impacts on the Alexandria Park Heritage Conservation Area. This conservation area is identified to be significant for its collection of nineteenth century terrace and cottage building stock, which would not be physically affected by the proposed development.

The conservation area generally consists of single and two-storey small scale dwellings with minimal setbacks and street trees throughout. This small scale at pedestrian level creates an insular streetscape with minimal views beyond the immediate context.

The street orientation within the conservation area is principally north-south alignment, with the Waterloo Metro Quarter being located to the east. Therefore, distant views along view corridors within the conservation area are rare towards the Waterloo Metro Quarter and specifically the location of the proposed development. As such, the proposed southern building would have a negligible, if any, visual impact on the conservation area.

Overall the proposed buildings within the Southern Precinct will not have a material difference in visual impact terms on the Alexandria Park Heritage Conservation Area as compared with the approved concept envelope under SSD-9393.

Figure 33 Photomontages of proposed development as viewed from Alexandria HCA

Picture 25 Viewpoint D

Source: Cardno

Picture 26 Viewpoint H

Source: Cardno

Other heritage items in the vicinity

The proposal has no other significant interfaces with any other heritage items within the vicinity of the site and the HIS concludes that overall, the scale and form of the Southern Precinct is not considered to have detrimental impacts on any proximate heritage items.

Mitigation Measures

The detailed design of the proposed development is sympathetic to the heritage fabric of significant heritage items within the vicinity of the site. Notably, the proposal implements various design strategies, including:

- Providing a 4-metre setback along the southern elevation of the Church towards the northern elevation of the podium to allow for pedestrian access to the southern elevation of the Church and facilitate the interpretation and appreciation of the heritage item.
- Providing a further setback at level two and above to move the bulk of the tower density as far south as possible away from the Church.
- Aligning the western elevation of Building 3 with the setback from Botany Road of the Church.
- Providing generous upper level setbacks to Building 3 to prevent domination of the traditional scaled Church.
- Adopting a masonry (brick) façade materiality which responds to both the masonry materiality of the Church, but also reflects the site's former industrial character and historic use.

- Employing materials in a clearly contemporary design so as not to detract from the more detailed architecture of the heritage listed Church.
- Complementing the podium form and materiality to the scale of the Church and ensuring the height of the podium does not exceed the height of the Church's pinnacles.
- Allowing the Church to the read as a key element within the streetscape retaining its own physical setting and curtilage.
- Providing a sympathetic and appropriate response to the traditional detailing and materiality of the Hotel by proposing a strong corner architectural response and inclusion of cantilevered awnings in the design that add to the architectural layering of the area without detracting from the prominence and significance of the Cauliflower Hotel.
- Providing as much physical distance between the Hotel and the new building.

Conclusion

Based on the implementation of the above mitigation measures which have been adopted into the proposal for the Southern Precinct, the proposed development has an acceptable impact on the heritage context of the site and nearby heritage items.

8.3. AMENITY

8.3.1. View and Visual Impact

Assessment

A Visual Impact Assessment Report has been prepared by Cardno and is provided at **Appendix HH**. The report has been prepared to assess the visual impact of the development when viewed from the public domain and key vantage points surrounding the site. The visual impact assessment also considers views by a pedestrian from the future Cope Street Plaza and the surrounding public domain.

A total of eight local views and 10 regional views were selected. Views from surrounding heritage conservation areas have also been considered. For each of the selected views, the report provides a qualitative assessment of:

- The existing visual environment;
- The capacity of the visual environment to absorb change;
- The amount of change that would be experienced as a result of the implementation of the proposal (carried out with the aid of survey accurate photomontages prepared from agreed critical viewing points); and,
- The visual quality of the changed visual environment in comparison with the environment prior to development.

The assessment of impacts on views from the public domain has been informed by relevant planning principles for assessment of such impacts set by the Land and Environment Court of NSW, specifically in *Rose Bay Marina Pty Ltd v Woollahra Council and anor [2013] NSWLEC 1046*.

Local Views

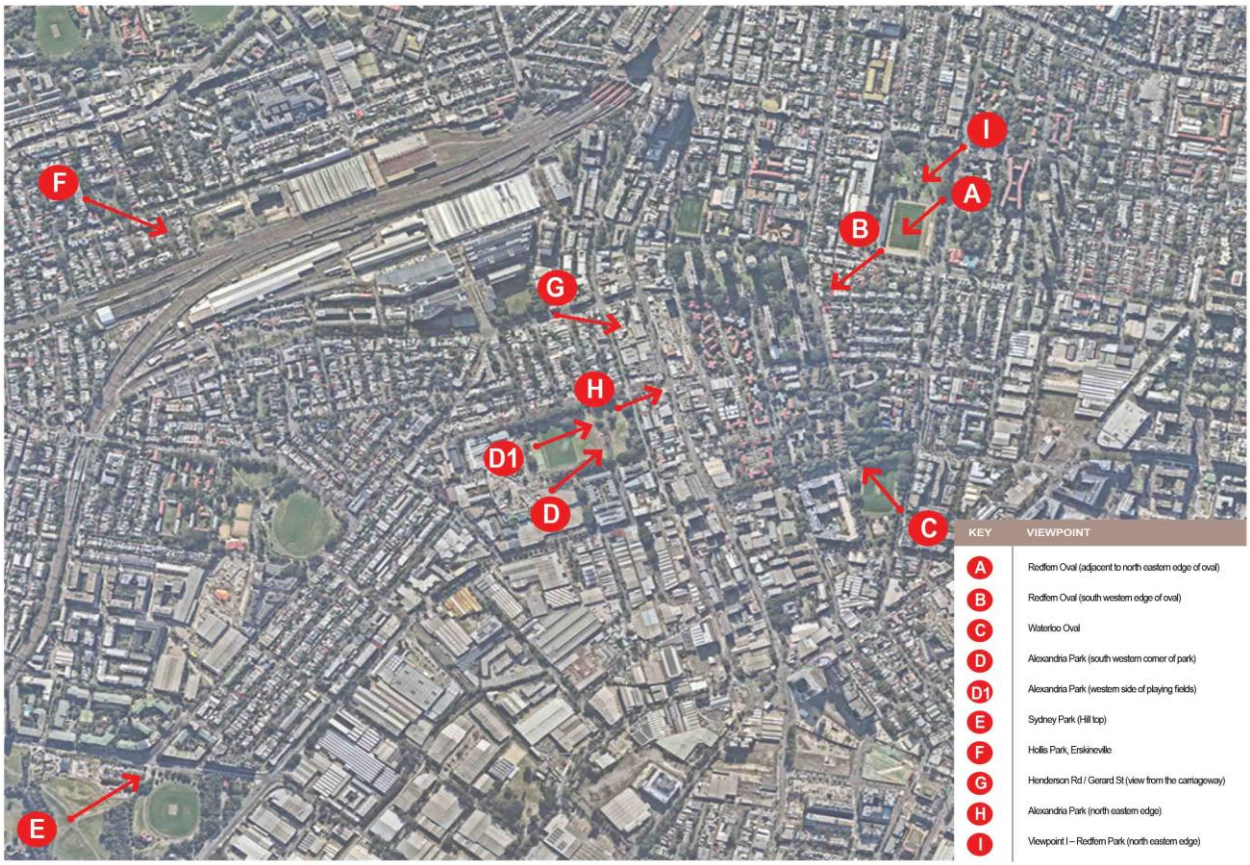
Local viewpoints were selected from within the greater Waterloo Precinct and along Botany Road to provide an accurate representation of views to the Southern Precinct from local streets and the surrounding public domain (see Figure 34).

Figure 34 Local view points

Regional Views

Selected regional view points are provided in Figure 35.

Figure 35 Regional View Points



Heritage Conservation Areas

Selected viewpoints from surrounding Heritage Conservation Areas are provided in Figure 34. Conservation Areas within the vicinity of the site include:

- The Redfern Estate (Viewpoint A, B and I);
- The Alexandria Park Conservation Area (Viewpoint D, D1, H); and,
- The Waterloo Conservation Area (Viewpoint C).

The Visual Impact Assessment was carried out for the following categories of views:

- Close views – streets adjacent to the site;
- Medium distant views – streets and open spaces within the Waterloo Precinct;
- Medium distant views - streets and parks outside of the Waterloo Precinct and between 200 and 700m of the development site; and,
- Distant views – significant viewpoints up to 2kms from the site.

Close Views

Existing Environment

The visual environment immediately surrounding the site is characterised by Botany Road and streets adjacent to Waterloo Estate. The heritage listed Waterloo Congregational Church is the only structure of significance remaining on the Botany Road frontage. The visual environment of this portion of Botany Road is of low quality, dominated by vehicular traffic, buildings of low architectural quality and low pedestrian amenity.

Streets to the north, south and west of Botany Road are significantly different in character to Botany Road. They are less urban and comprise traditional residential and fine grain retail uses. There is a relatively high level of pedestrian amenity. Street trees are also significant components of the visual environment.

Capacity to absorb change

Botany Road has a high capacity for change and the proposed development represents an opportunity for major improvement to visual quality at street level. The primary constraint for the Botany Road frontage is ensuring the development responds appropriately to the heritage values of the Waterloo Congregational Church.

The streets to the north, south and west of the site reflect built form and landscape elements that contribute to a relatively intact visual character of medium quality. The streets are considered to have a moderate capacity to absorb change.

Changes to close views resulting from the proposal

The increased setbacks to Botany Road and Raglan Street and proposed through-site link from Botany Road to Cope Street would increase the visual permeability at street level. The increased setbacks of the tower at podium level would also reduce building bulk and view impacts from all four streets adjoining the site.

The montages at Figure 36 indicate an improvement in the visual quality of close views from the south at Wellington Street, Cope Street and Botany Road due to the articulation in façade design and the implementation of good urban design principles. Close views from the south-west are substantially dominated by the approved Metro Service Box.

The Southern Precinct includes the proposed Cope Street Plaza on the western side of the WMQ addressing Cope Street. The montage from viewpoint 7 (see Figure 38) addresses the requirement in the SEARs to assess views of the proposed buildings that would be experienced by a pedestrian in the future Cope Street Plaza. The montage illustrates the presentation of the plaza and the Southern Precinct building group in the context of the overall WMQ and indicates that the plaza will provide visual relief to the building group by allowing for open views of the sky and opening up views towards the heritage listed Waterloo Congregational Church.

Figure 36 Viewpoint 3 – Corner Botany Rd and Wellington St facing north

Picture 27 Previous site development (prior to site clearing)

Source: Cardno

Picture 28 Proposed viewpoint

Source: Cardno

Figure 37 Cope Street Plaza and the Southern Precinct in the context of the overall WMQ

Picture 29 – Existing view

Source: Cardno

Picture 30 Viewpoint 7 – Proposed View

Source: Cardno

Medium distant views

Existing visual environment

The Waterloo Estate incorporates a number of elements that contribute to its existing visual character. These include a mix of residential buildings including 29-storey, 6-storey and 3-storey apartment blocks, wide streets lined with large street trees, buildings that are well set back from the streets resulting in a feeling of spaciousness and large “forest scale” trees.

Capacity to absorb change

The assessment concludes Waterloo Estate has a moderate capacity to absorb change, contingent on:

- Retention and improvement of the existing streetscape quality and open character with buildings set back from the street. This constraint is of less significance at the interface with Botany Road.
- The Southern Precinct has the capacity to support tall buildings, provided that they do not result in continuous skyline elements and that they exhibit architectural design excellence.
- Tall buildings appearing as sculptural elements would be appropriate in the redevelopment of the Southern Precinct.

Changes to medium distant views within Waterloo Estate

Likely impacts on the visual quality from medium distant viewpoints within the Waterloo Estate have been assessed via montages from a series of representative street intersections within the site.

From locations in the southern portion of Waterloo Estate, illustrated by the montages from Viewpoints 5 & 7 (see Figure 38), the proposed development will be a new built element to the skyline. It will be viewed in the context of the existing built environment. Substantial trees within Waterloo Estate and, contingent on achievement of high design quality, will make a positive contribution to the visual character of the locality in these views.

From the central eastern part of the Waterloo Estate, the proposed development would present as a substantial new built element on the skyline to the north-west. As discussed above, its contribution to local visual character will be contingent on achieving high quality design outcomes in built form and finishes.

Figure 38 Viewpoint 5 and Viewpoint 7 from the southern portion of Waterloo Estate

Picture 31 Corner Cope Street and John Street facing north-west - Existing

Source: Cardno

Picture 32 Corner Cope Street and John Street facing north-west - Proposed

Source: Cardno

Picture 33 Corner George Street and John Street facing north-west – Existing

Source: Cardno

Picture 34 Corner George Street and John Street facing north-west – Proposed

Source: Cardno

Medium distant views – outside the Waterloo Estate

Visual environment

Views towards the site from the suburban environments in the medium distance generally include the existing Waterloo towers and residential blocks as prominent visual elements. Substantial areas of open space in close proximity to the Waterloo Precinct include:

- Redfern Oval and Park;
- Waterloo Park (north and south); and

- Alexandria Park.

These open space areas provide visual relief and contrast in the densely developed environment. They are critical to the visual amenity and character of the region.

Capacity to absorb change

Due to the dominance of existing large-scale development within the Waterloo Precinct, views from locations at middle distances from the site are considered to have a high capacity to absorb change. Specifically, views from the north-east, the existing Waterloo Precinct built form dominates the skyline as an almost continuous wall, providing a screen between the viewer and the site.

From the south, the proposed development is less visible due to the screening properties of the local topography and existing trees within the southern section of the Waterloo Precinct.

From the west, the Waterloo tall towers are isolated but significant skyline elements appearing above a foreground of large trees. From some closer locations to the west, axial view lines towards the Waterloo Precinct are available along road corridors.

The Alexandria Park Heritage Conservation Area is located to the west of the site. Views out of and into the Conservation Area are contained by dense traditional terrace housing and mature trees so that the area has a high capacity to absorb change in its surroundings. Specifically, views in the direction of the Southern Precinct are substantially screened by these elements.

Changes to medium distant views outside the Waterloo Precinct resulting from the proposal

The amount of likely change to medium distant views outside the Waterloo Precinct resulting from the proposal was assessed via preparation of montages from several viewpoints. Anticipated change to the existing visual environment is assessed below with reference to each of these viewpoints.

Views from the north

Assessment of views from Redfern Park within Redfern Estate Heritage Conservation Area provide an indication of the general visibility of the Southern Precinct from Redfern Estate.

Viewpoints A, B & I montages indicate that the proposed development would largely be screened by the existing large apartment blocks when viewed from the western side of Redfern Oval. The southern tower (Building 3) would be the only visible element within the Southern Precinct and it would appear marginally above the existing Waterloo Estate apartment blocks.

At the southern edge of Redfern Oval and the north-eastern edge of the adjoining Redfern Park (Viewpoints B & I) the proposed development will sit below the line of sight and will not be visible. In other areas within the Redfern Estate, the development will be screened by existing buildings on the Waterloo site or within the Estate. The visual impacts of the Southern Precinct on this Conservation Area would be minimal.

Figure 39 Existing and Proposed Viewpoint from Redfern Oval

Picture 35 Viewpoint A – Existing viewpoint from Redfern Oval

Source: Cardno

Picture 36 Viewpoint A – Proposed viewpoint from Redfern Oval

Source: Cardno

Views from the south

The proposed development will not be visible from locations adjacent to the southern boundary of the Waterloo Precinct, including Waterloo Oval and its environs.

Views from the west

The impacts of the proposal on views from Alexandria Park Conservation Area have been assessed via selected view points within Alexandria Park and along Henderson Road.

The montages illustrate that from the western edge of Alexandria Park (Viewpoints D & D1), the Southern Precinct will appear as a visually prominent new built element on the skyline, partially screened by existing foreground trees.

From the north eastern point of Alexandria Park (Viewpoint H) only a portion of the developed Southern Precinct would be visible behind the existing tall, forest scale trees and buildings.

The impact of the proposed Southern Precinct on views from Alexandria Park and the Alexandria Park Conservation Area is considered acceptable, contingent on achievement of design excellence in the proposed tower elements.

In views towards the site from nearby roads, the Southern Precinct building group is substantially screened by existing buildings and trees. Whilst the proposed development will change the character of these views, primarily by decreasing the amount of visible sky and introducing sculptural forms on the skyline, it is considered that the high-quality design of the proposed tower will not impact negatively on visual quality. Rather, it will function as visual markers that will enhance wayfinding in the neighbourhood and contribute to the presentation of Waterloo Metro as a new regional node of activity.

Views from the east

Views towards the site from within the Waterloo Conservation Area to the east were tested and investigated via a visit to the locality. The outcome of the investigation was that there are no views to the Southern Precinct available from the parks and streets in this location. As a result, development of the Southern Precinct will have no impact on views from these locations to the east.

Distant Views

Visual environment

Given the highly developed regional environment, opportunities for panoramic long views towards the site are limited. The only open distant view from a public place is from the hilltop at Sydney Park. The Sydney Park hilltop provides a relatively rare publicly available 360 panorama that includes the Sydney CBD. This view is considered to be critically important at a regional level.

Capacity to absorb change

In distant views, notably from Sydney Park, the Southern Precinct forms a small component of this broad and expansive view and a change on the site would only impact on this small portion of the panorama. With the Waterloo building wall as a backdrop, it is considered that the view has a high capacity to absorb change.

Changes on distant views resulting from the proposal

The assessment concludes that the Sydney Park view line is the most representative publicly available regional view that includes the site. The montage from Viewpoint E indicates that the three tall towers of the Northern, Central and Southern Precinct will be the only new elements in this view post construction of the WMQ.

The buildings will be foreground elements in the highly built portion of the view that incorporates high rise housing within the Waterloo Precinct and Redfern. Forest scale trees within Alexandria Park will also soften the impact of the proposed development and also screen lower level development on the site. It is concluded the proposed development would be an acceptable addition to the view.

In response to a request from City of Sydney Council, an assessment from Hollis Park, a suburban park in Erskineville approximately 1.5km west of the site has also been undertaken.

This small park is slightly elevated above Wilson Street, Erskineville and has an easterly aspect which is in the direction of the site. Hollis Park supports a continuous row of mature trees along its eastern and north eastern borders which screen all skyline views in those directions. The entire development would not be visible in views from the Park.

Assessment

The above provides an assessment of the visual effects of the proposed development from surrounding local and distant viewpoints, including adjoining developments, key vantage points and streetscape locations. The report concludes that:

- The existing visual character of the site is relatively non-descript with the only built element of particular value to local visual quality being the heritage listed Waterloo Congregational Church.
- The proposed development, including Cope Street Plaza and through site link to Botany Road, will impact positively on the heritage significance of the Congregational Church by enhancing views to and around the Church that were not available prior to the development of the site.
- At a local level, the site would only be substantially visible from its surrounding streets and from residential blocks immediately to its east. The immediate street frontages will change significantly in character but the net change will be positive in that it will result in a substantial increase in amenity
- The development will contribute to distinctive and interesting urban skyline that, in combination with the WMQ, would create distinctive local place markers and contribute positively to the local built environment.
- The introduction of tall buildings onto the site will reduce the amount of open sky that appears in the view. This reduction in the visibility of open sky as a result of the Southern Precinct proposal will be more pronounced in closer views where the new built form will occupy a larger percentage of the view and will correspondingly screen more open sky.

Mitigation Measures

The following mitigation measures are recommended to ensure a high-quality development that will have an acceptable impact on the visual character of the proposed development and its surrounds:

- Further design development to result in a high-quality ground plane;
- Implement principles of design excellence as articulated in "*Better Placed – an integrated policy for the built environment in NSW*" (Government Architect NSW, September 2017);
- Prepare and implement an integrated public domain plan that includes judicious planting of trees along Botany Road, Wellington Street, and Cope Street that will reach mature heights sufficient to provide tree canopies consistent with the existing local tree canopy;
- Break up continuous built form and provide human scale with tree planting. Trees with mature heights between 10m and 20m would be expected to achieve this objective. The proposed alternating *Robinia* and *Brush Box* trees on Botany Road, *Lilly Pillies* on Wellington Street and *Yellow Bloodwoods* on Cope Street are considered suitable to achieve this objective; and,
- Detailed design of the public domain and Cope Street Plaza. Large scale street trees will be a requisite to maintain human scale and to reinforce a visual connection with the residential precinct.

Conclusion

It is considered the development will contribute positively to the local and regional visual environment. The design of the buildings and public domain spaces has adopted the mitigation measures to ensure that the proposal will have an acceptable impact on the visual character of the site when viewed from a range of vantage points from close, medium and distant locations around the site. In summary, the proposal is considered suitable for its locality with respect to changes to the local and regional visual environment.

8.3.2. Solar Access

A Solar Access Report has been prepared by RWDI and is submitted at **Appendix NN.** The report assesses the ability for the proposed residential apartments to access direct sunlight. The analysis was based on computational 3D modelling of the proposed development and its surrounding context combined with meteorological data for Sydney.

The ADG requires that at least 70% of residential apartments in a development found in an urban environment must receive at least 2 hours of direct solar access to the window(s) of the main living area and to the private open space associated with that living space measured at 1m above finished floor level between 9:00am and 3:00pm on 21 June. A total of 73% (51 out of 70) of apartments within Building 4 receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid-winter, which complies with the ADG.

21% of apartments (15 out of 70) on Building 4 receive no direct sunlight of any size on their living space windows and private open space. Whilst this does not strictly comply with the ADG requirement, by extending the solar access period to between 9am and 3.45pm, the number of apartments with no access to direct sunlight is reduced to 11% (8 out of 70) which complies with the ADG maximum of 15% receiving no direct sunlight.

As discussed in Section 6.7.2, the ADG acknowledges that achieving the design criteria may not be possible on some sites. This includes:

- 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;
- Where significant views are oriented away from the desired aspect for direct sunlight.

The proposal achieves the objectives of the design criteria which is to optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space.

The majority of apartments receiving no sunlight between 9am and 3pm are oriented to the south which makes it difficult to achieve sunlight. The volume of apartments with a south orientation is due to site constraints including the orientation of the site, proximity to Botany Road which is a busy road to the west, and limitations on building siting on the site due to the presents of the Metro Service Box. Direct solar access between 3.00pm and 3.45pm can still significantly add value to the amenity of residents within the building even though this time falls outside of the strict ADG guideline.

Residents also have access to a communal rooftop courtyard which is open to all residents and can be accessed via the lifts. The north-east aspect of the communal courtyard ensures that at least 50% of its area receives at least two hours of sun between 9.00am and 3.00pm during the winter solstice.

Solar access should be considered for the extended hours of 9am and 3.45pm as:

- The proposed development demonstrates a high-level standard of design and response to its urban context;
- Due to the site orientation, proximity to Botany Road and adjoining student accommodation building, apartments have been orientated towards the south towards Wellington Street to maintain visual and acoustic privacy;
- Residents of the proposed development are likely to be in residence during the extended hours and will receive westerly sun from 3.45pm onwards; and,
- Residents have access to an outdoor communal courtyard on level nine and Cope Street Plaza, both of which receive sufficient sun access during mid-winter.

On this basis, the proposed design meets the objectives of the solar access design criteria in the ADG with the minor extension of the solar access hours from 9am to 3.45pm. These hours are considered to be suitable given the site constraints, and the ability of the site to deliver less than 11% of apartments with no solar access.

8.3.3. Overshadowing

Assessment

An Overshadowing Report has been prepared by RWDI and submitted at **Appendix LL** to determine the effect of the proposed development on the contribution of additional shadowing to Alexandria Park, Waterloo Heritage Conservation Area and Cope Street Plaza.

The analysis was based on computational 3D modelling of the proposed development and its surrounding context combined with climate data for Sydney.

In accordance with the Waterloo Design Amenity Guidelines, the following design criteria must be met:

- The development does not result in any additional overshadowing of Alexandria Park after 10am on 21 June.
- No more than 30% of Alexandria Park excluding the oval is overshadowed by the development as measured at any time after 9am on 21 June.
- Proposed apartments in a development and neighbouring developments including the Waterloo Heritage Precinct must achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1m² of living room windows and a minimum 50% of the required minimum area of private open space area. Note: This applies to at least 70% of the apartments in a development in accordance with the NSW Apartment Design Guide.
- The new development does not create any additional overshadowing onto a neighbouring dwelling where that dwelling currently receives less than 2 hours direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm on 21 June.
- At least 50 percent of the area of the Cope Street plaza receives at least two hours sunlight between 9am and 3pm on 21 June.

To undertake a complete assessment of the impacts of the development the overshadowing impacts have been considered cumulatively for the entire WMQ development, as summarised below.

Alexandria Park

The simulations predict that the proposed development will not create new shadowing on Alexandria Park between 10:00am and 3:00pm on 21 June. Minor additional shadowing is predicted on Alexandria Park before 10:00am. This shadowing is expected to be at a maximum at 9:00am, amounting to 29.94% of the Park area and reducing rapidly (see Figure 40).

No more than 30% of Alexandria Park excluding the oval is overshadowed by the development as measured at any time after 9am on 21 June.

Furthermore, the overshadowing caused by the proposed scheme is significantly less than that caused by the approved concept envelope. Therefore, the proposed development complies with the criteria stipulated for Alexandria Park.

Table 22 Shadow percentage of Alexandria Park (excluding the oval)

Time	Approved envelope (21 June)	Proposed development (21 June)
9:00	41.5%	29.94%
9:15	27.41%	18.39%
9:30	14.86%	7.67%
9:45	4.99%	0.62%
10:00-15:00	0.00%	0.00%

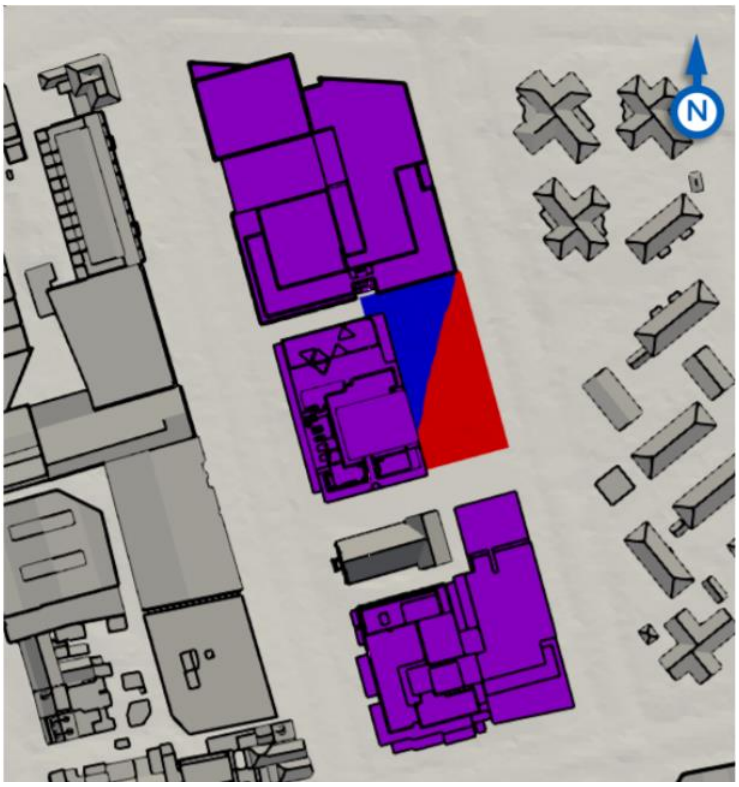
Figure 40 Comparison of 21 June 9:00 AM Overshadowing on Alexandria Park between approved concept DA and proposed development

Source: RWDI

Cope Street Plaza

The simulations predict that 57.3% of Cope Street Plaza can receive at least 2 hours of direct sunlight between 9 am and 3 pm on June 21, thereby complying with the requirement in the Waterloo Metro Quarter Design and Amenity Guidelines (see Figure 41).

Figure 41 Area in Cope Street Plaza where Direct Solar Access is Available Above 2 Hours (red)



Source: RWDI

Neighbouring Developments and Waterloo Heritage Conservation Area

The new development does not create any additional overshadowing onto a neighbouring dwelling where that dwelling currently receives less than 2 hours direct sunlight to habitable rooms and 50% of the private open space between 9am and 3pm on 21 June (see Figure 42).

The simulations also indicate that no areas within the Heritage Conservation Area which currently receive 2 hours of direct sunlight experience a reduction to below 2 hours. The approved concept envelope was predicted to create areas within the Heritage Conservation Area that see reductions below 2 hours. The proposed development reduces the total impacted area by approximately 1,330 m², or approximately 12% which is a significant improvement.

Figure 42 - Comparison of approved concept DA and proposed development of grade level areas where direct solar access is reduced to less than two hours on 21 June

*Source: **RWDI***

Mitigation Measures

No mitigation measures are required.

Conclusion

In conclusion, the overshadowing caused by the proposed development complies with the design criteria in the Waterloo Metro Quarter Design and Amenity Guidelines.

8.3.4. Natural Cross Ventilation

Assessment

A Natural Cross Ventilation Assessment has been undertaken by RWDI (**Appendix RR**) to ensure the proposed residential apartments within the social housing development (Building 4) comply with the natural cross ventilation requirements found within the Waterloo Design and Amenity Guidelines and Apartment Design Guide (ADG). The student accommodation building (Building 3) is defined as a Boarding House and not subject to the ADG.

The Waterloo Design Amenity Guidelines require all residential apartments to fully comply with the requirements of the ADG for natural cross ventilation. In accordance with the ADG, at least 60% of apartments are to be naturally cross ventilated in the first nine-storeys of the building. Apartments located on Level 10 and above can be considered naturally cross ventilated due to their elevated position providing

sufficient exposure to wind pressures at opening locations. Consideration has therefore been given to the elevated nature of apartments within Building 4 above the Metro Services Box, as well as the current and future exposure of the site to the prevailing winds for the region.

Building 4 is located above the Metro Services Box and therefore the ability for apartments to achieve natural cross ventilation is limited. This is heightened by the fact that lift access is required via Building 3 (located to the west of Building 4) which prevents the ability for traditional “corner” apartments or inclusion of cross-over apartments.

As such, consideration has been made for alternative means to achieve cross ventilation, which is supported by the ADG. Objective 4B-2 of the ADG notes that natural cross ventilation for single aspect apartments can have primary windows augmented with plenums and light wells. This can be utilised to facilitate natural cross ventilation where required and site constraints exist. Noting the limitations for Building 4 as discussed above, the site is considered a suitable candidate for this approach. A summary of the natural ventilation conditions is provided below:

- 60% (42/70) of the residential apartments on the 9 Levels of Building 4 are considered naturally cross ventilated in accordance with the ADG.
- Two apartments (Apartments 609 and 709) will utilise a ventilation plenum above the internal corridor to connect the northern aspect of the façade to the apartment.
- Seven apartments (201, 301, 401, 501, 601, 701 and 801) will achieve natural cross ventilation via a ventilated corridor to the northern aspect. This is due to the limited potential for natural cross ventilation due to the complexity of the Metro Services Box below and access being required via the Building 3 lobby on Wellington Street.
- 25 of the 70 apartments of Building 4 are noted in the Noise and Vibration Impact Assessment report by Stantec to be noise affected apartments. 20 of these apartments are also noted as being naturally cross ventilated.

Consideration has also been given to noise affected locations within Building 4 that affect the ability for apartments to achieve both the natural ventilation requirements and acoustic requirements. This is further discussed in Section 8.6.1 and **Appendix K.**

Mitigation Measures

As discussed above, 60.0% (42/70) of the residential apartments over the nine levels of Building 4 satisfy the requirements of the ADG to be considered naturally cross ventilated.

25 of the apartments noted in the Noise and Vibration Impact Assessment by Stantec (**Appendix K**) will require consideration of noise impacts from Botany Road and the metro station. More detailed wind tunnel measurements and analysis can be undertaken during the design development phase to verify these airflow patterns.

The design of the ventilation plenum for Apartments 609 and 709 has been developed with the mechanical engineer to ensure suitable airflow rates can be achieved whilst accounting for open louvres, acoustic treatment, and fire dampers. More detailed wind tunnel measurements and analysis can be undertaken during the design development phase to verify these airflow rates.

8.3.5. Residential Amenity

Assessment

As outlined in Section 6 of this EIS, the proposed social housing development has been comprehensively assessed against SEPP 65 and the ADG. While the ADG does not apply to the proposed social housing apartments, they have been designed achieve a high degree of amenity in regard to solar access, privacy, noise, views, communal and private open space, ventilation, apartment size and storage.

Student Housing

Communal Open Space and Amenities

The student housing development includes generous internal and external communal facilities that offer on-site amenities including a communal area and outdoor terrace on level three. The communal area offers a

variety of seating options and meeting rooms to provide residents with space to both study and socialise. Facilities such as a laundry, media room and library are also provided communally for residents.

Room Size

Whilst the AHSEPP does not strictly apply to the proposed development, all rooms have been designed to comply with the minimum room size requirements under the AHSEPP.

Social Housing

Communal Open Space

The residential corridors within Building 4 have been treated as communal spaces to encourage interactions between neighbours and to create a sense of address to each apartment. A communal seating area is provided within the corridor of each level, providing space for a community noticeboard that supports social interaction between residents.

A large north-facing communal terrace, indoor communal room and music room is provided on level 9. The roof terrace has been located on the top floor, orientated to the north and east to maximise sunlight and views and protect residential privacy from the taller towers to the north. A canopy and pergola are also proposed to provide shade and shelter and enable the terrace to be used all year round. The roof terrace is partly enclosed on the eastern and northern sides to create a safe and secure space. Integrated seating, an outdoor kitchen area and integrated planters for a community garden are also provided.

A Community Room is located on level 9. The Community Room is a bookable space for residents to hold meetings or small social gatherings.

Apartment and Balcony Sizes

Each apartment has been designed to be compliant with the minimum apartment and balcony areas prescribed by the ADG. Balconies are positioned to the east, north, and western site boundaries to maximise solar access.

Solar Access

As discussed in the Architectural Design Report submitted at **Appendix F,** larger apartments have been located on the building corners whilst smaller studios have been positioned along the eastern elevation to maximise the number of apartments with solar access. A total of 73% of dwellings will receive at least two hours of direct sunlight to their balconies and living spaces between 9am and 3pm on the winter solstice.

Ventilation

A total of 60% of dwellings are cross ventilated. Two apartments (Apartments 609 and 709) will utilise a ventilation plenum above the internal corridor to connect the northern aspect of the façade to the apartment. Seven apartments (201, 301, 401, 501, 601, 701 and 801) will achieve natural cross ventilation via a ventilated corridor to the northern aspect.

Metro Services Box

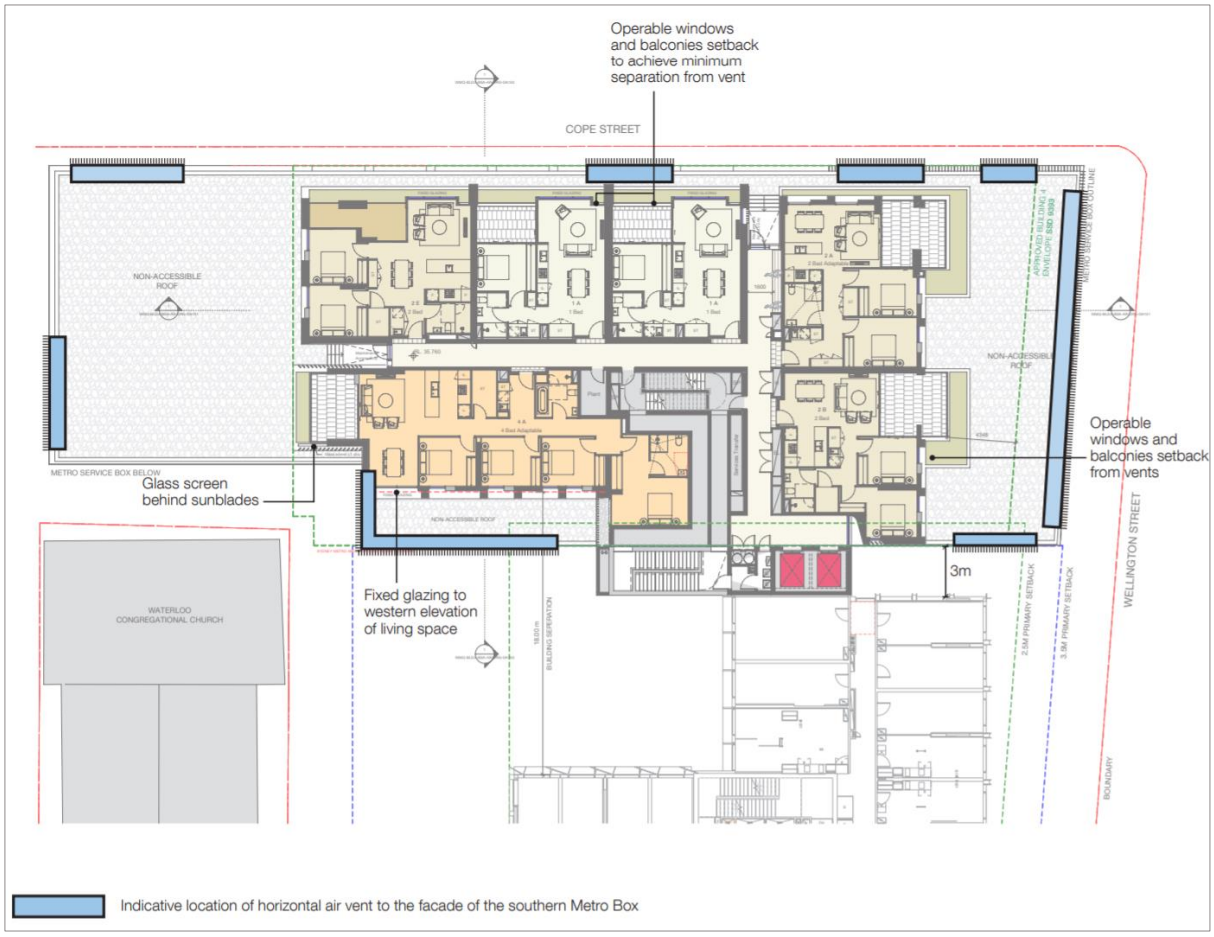
The interface with the Metro Services Box has been developed in coordination with the Metro Service Box architects and engineers and is governed by the Scope of Works Technical Criteria (**SWTC**), an overarching standards document for the construction of the metro station and interface with the OSD. The Metro Services Box has several intake and exhaust vents to service the station.

The Level 1 floorplate has been designed to respond to the required setbacks from these station vents. The minimum required setback from the vents to any operable windows or balconies is a 6m stringline (as defined by the SWTC). All apartments comply with this requirement.

Figure 43 indicates the location of the station vents on each side of the building and how the building has been designed to achieve the required setbacks from balconies and operable windows. Mitigation measures include:

- Operable windows and balconies set back to achieve minimum separation from vent.
- Fixed glazing on windows within 6 metres of a vent.
- Glass screen behind sun blades to provide sufficient separation between.

Figure 43 Level 1 Plan and Location of exhaust vents



Source: Bates Smart

Conclusion

As outlined above and in consideration of the high level of public transport accessibility and serviceability of the site, the proposed apartments have a high level of amenity for future residents.

8.4. ENVIRONMENTAL PERFORMANCE/ESD

Assessment

An Ecologically Sustainable Development (**ESD**) Report has been prepared by Cundall Johnston and Partners in accordance with SEARs Item 8 and is provided at **Appendix M**. The report demonstrates that the proposed development is committed to achieving the following ESD targets:

- 5 Star rating – Green Star Design and As-Built rating tool;
- BASIX Energy score of ≥30;
- BASIX Water score of ≥41.

Through the detailed design of the development, the proposal aims to achieve a 6-star Green Star Communities v1.1 rating and recognition under the One Living Planet framework.

BASIX commitments are further outlined in **Section 6.9** of this EIS, which demonstrates that the proposal exceeds the minimum compliance requirements defined in *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* and achieves a minimum BASIX 30 Energy rating and more than BASIX 40 Water rating in accordance with Condition B19 of the concept DA.

In accordance with the SEARs, an analysis of the proposal against the principles of ecologically sustainable development set out in the clause 7(4), Schedule 2 of the EP&A Regulation is provided within the ESD Report at **Appendix M.**

A modified version of the standard One Planet Living categories has been adopted as the Sustainability Framework for the project. The framework will inform design, construction and operational stages of the project. An integrated design approach will be adopted for the incorporation of sustainability measures, with input from the sustainability consultant from early planning through to construction phases. The sustainability framework also aligns with:

- Mirvac's This Changes Everything strategy;
- John Holland's Approach to Sustainability;
- UN Sustainable Development Goals;
- Sustainable Sydney 2030 – Community Strategic Plan 2017-2021;
- Concept SSDA (SSD 9393) dated 10 December 2019;
- Secretary's Environmental Assessment Requirements (SEARs) dated 8 April 2020;
- Waterloo Metro Quarter Design and Amenity Guidelines – Section 3R sustainability;
- Sydney Metro City & Southwest Sustainability Strategy 2017-2024 (June 2019 update);
- Green Star Design and As-Built rating tool;
- Green Star Communities rating tool;
- One Planet Community principles; and,
- BASIX.

The table below identifies how sustainability initiatives are currently being considered throughout design development of the project.

Table 23 Sustainability Initiatives

Category	Objective	Goals/Target	Initiative
Zero Carbon Energy	Make buildings and infrastructure energy efficient, reduce use of fossil fuels and maximise renewable energy.	▪ BASIX Energy 30	Fossil Fuels: ▪ Strategy to be prepared to phase out fossil fuels for domestic hot water in both buildings in the future. Passive design: ▪ Student Housing: Building façade designed to optimise wall/glazing ratios, provide external shading and exceed minimum Section J1 requirements of NCC 2019. ▪ Social Housing: Building façade designed to achieve an average NatHERS rating of [6.5 stars]. Energy efficient HVAC: ▪ Ceiling fans provided in Social Housing apartments to provide comfort cooling. ▪ Room key controls provided in student rooms to turn off AC system when rooms are vacant.

Category	Objective	Goals/Target	Initiative
			▪ Openable windows fitted with reed switches to turn off AC when windows are opened for natural ventilation. Energy efficient lighting and lifts: ▪ LED lighting with zoned control, occupancy sensors and daylight dimming to suit the use of different spaces. ▪ Energy efficient motors and regenerative braking on main lifts. Renewable energy: ▪ A minimum of 17.5KW photovoltaic panels installed on the roof of Building 3. No PV's are proposed to Building 4.
Sustainable Water	Use water efficiently, protecting local water resources and reducing flooding, drought and water pollution.	▪ BASIX Water 40+	▪ 4 star WELS rated taps, toilets, showers, washing machines. ▪ Landscaping design and plant selection to minimise irrigation demand. ▪ Rainwater collection and water sub-metering of major water uses. ▪ Water Sensitive Urban Design (WSUD) to reduce stormwater run-off and water pollution will be implemented in accordance with the City of Sydney DCP.
Waste Minimisation	Reduce consumption and re-use and recycle to work towards minimising waste to landfill.	▪ > 90% of construction & demolition waste diverted from landfill ▪ Facilities to enable a proportion of operational waste to be diverted from land fill.	▪ Demolition and Construction Waste Minimisation Plan to Best Practice Green Star standards and achieve waste credit. ▪ Prefabrication of bathroom pods in student accommodation, façade components and service risers to reduce on-site waste generation. ▪ Waste and recycling receptacles positioned within Cope Street Plaza for public use. ▪ General recycling facilities to the residential units including the use of a recycling chute. ▪ General recycling facilities for paper and cardboard and glass for the makerspace and gym.
Materials and Supply Chain	Use materials from sustainable sources, apply life	▪ Selection of materials and products that are certified, reused or	▪ Conduct life cycle assessment to identify material selection / specification improvements during design development.

Category	Objective	Goals/Target	Initiative
	cycle principles, and prioritise products with transparent, ethical supply chains.	contain recycled content (> 3% by cost) ▪ Life Cycle Assessment to achieve >50% of Green Star LCA credits and reduce embodied carbon by minimum 10%	▪ Concrete mix to reduce embodied carbon. ▪ All timber is FSC certified or equivalent. ▪ Hazardous material risk assessment to reduce use of toxic materials. ▪ Low-off gassing materials to be selected – floor finishes, joinery and painting. ▪ Best practice PVC compliance for formworks, pipes, flooring, blinds & cables. ▪ Encourage key sub-contractors to become members of the Australian Supply Chain Sustainability School (Mirvac and John Holland are both Partners with the school). ▪ Preference materials and suppliers with third party accreditation (social and/or environmental sustainability.
Land and Nature	Restore, preserve and protect land, biodiversity and natural capital for the benefit of people and wildlife.	▪ 30% of roof area to be green roof. ▪ Tree canopy coverage to streets achieves 55%.	▪ Street tree planting. ▪ A communal roof terrace with planting for students in Building 3 (student housing). ▪ A communal roof terrace with planting for residents in Building 4 (social housing). ▪ Inaccessible green roofs in Building 3 (student housing). ▪ Native plant species selected for edible/usable properties and which may provide habitat or food sources for native birds, bees and insects. ▪ External lighting to minimise night sky pollution.
Travel and Transport	Reduce the need to travel and encourage walking, cycling and low carbon transport.	▪ Encourage cycling by residents, workers and visitors.	▪ Safe and quick access to the Waterloo metro station. ▪ Secure bicycle storage for students and social housing. ▪ No car parking for student accommodation and limited car park parking for social housing. ▪ Design vehicle intersections to prioritise pedestrian and cyclist safety.

Category	Objective	Goals/Target	Initiative
Sustainable Food	Promote sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein.	▪ Encourage retailers to provide healthy food options. ▪ Urban food production Initiatives.	▪ Incorporate edible plants into the landscaping. ▪ Provide rooftop garden terraces in both buildings for residents to grow and harvest edible plants. ▪ Community plan to include healthy eating and cooking classes.
Climate Risk and Adaptation	Apply practical actions to manage risks from climate impacts, protect communities and strengthen the resilience of the local economy.	▪ A Climate Adaptation Plan will inform the design of the project in accordance with international guidelines.	▪ Prepare and implement a Climate Adaptation Plan (plan to be prepared during design development) including agreeing on the climate change scenario to be adopted (2°C and/or 4°C). ▪ Reduce heat island effect – green roofs, street tree planting, PV panels, hard surfaces with high Solar Reflective Index. ▪ Passive design of facades to improve thermal performance and reduce impact of extreme weather days. ▪ Stormwater systems designed for increased storm frequency and intensity
Health and Wellbeing	Encourage active, social, meaningful lives and provide the buildings, infrastructure and spaces to support good health and wellbeing for all ages. Goals / Targets	▪ Fitness facilities accessible to residents and guests	▪ Cycle storage to encourage healthy transport options. ▪ Physical and mental health programs for workers during construction. ▪ Access to gym on site (in Southern precinct). ▪ Accessible green roofs and community spaces. ▪ [6.5 star] NatHERS average ratings in Building 4 to improve thermal comfort above the minimum BASIX requirements (which is equivalent to 5 star NatHERS average). ▪ Low-off gassing materials to be selected – floor finishes, joinery and painting – to improve indoor air quality.
Ethics and Equity	Create safe, just and equitable places to live, work, learn & trade, and support local prosperity and fair trade	▪ Responsible procurement policies ▪ Targets for employment during construction	▪ 70 apartments of social housing provided. ▪ Implement a sustainable procurement policy addressing modern slavery, child labour and other social equity and ethics issues in the project supply chain.

Category	Objective	Goals/Target	Initiative
			▪ Set targets for employment of disadvantaged groups during construction. ▪ Support local SMEs and disadvantaged local residents including Aboriginal enterprise and employment. ▪ Implement affordable retail and food strategies. ▪ High speed internet to support working from home. ▪ Design for best practice accessibility.
Community and Culture	Nurture local identity and heritage, empower communities and promote a culture of sustainable living.	▪ Public Art program ▪ >2,000m² of community facilities and uses to be provided on whole precinct (shared between Northern, Central and Southern) ▪ Precinct Activation Fund and Committee to curate activation	The Community initiatives are site wide and cover all three precincts including the Northern, Central and Southern: ▪ Community Hub Café in Central Precinct – curated with a not-for-profit organisation that will offer education in food to the underprivileged, providing social cohesion and connection in the precinct. ▪ Cope Street Plaza - focus for local activity, interim activation and events. ▪ Health and Medical Centre in Northern Precinct. ▪ Childcare centre in Central Precinct - with extended hours of operation. ▪ Makerspace– proposed to be accessible and community originated. It will support the sharing economy (such as through a tool exchange) and broker social relationships between the diverse housing and community groups. ▪ Public art program - including Aboriginal curators, public art competitions and co-evolved works with community. ▪ Creative hoardings program as part of public art strategy during construction. ▪ Place naming and wayfinding programs to engage with local community. Community Place Manager will be engaged.

Conclusion

Overall, the development will reflect leading industry practice for residential and commercial development by incorporating the measures documented above.

8.5. WIND IMPACTS

A Wind Impact Assessment has been prepared by RWDI and is included at **Appendix KK**. The assessment included wind tunnel testing to identify the impact of the proposal on surrounding wind conditions. The report considers the wind study criteria under the concept approval (SSD 9393) and identifies specific measures to ameliorate wind impacts at podium level, street level and at the locations of existing and future pedestrian crossings. The assessment also considers critical pedestrian areas, public sidewalks and elevated terrace areas.

Assessment

The pedestrian wind comfort and safety conditions were accessed based on the Lawson Criteria, consistent with the wind study criteria under the concept approval. In general, the combined effect of mean and gust speeds on pedestrian comfort can be quantified by a Gust Equivalent Mean. All wind tunnel testing was carried out for the built form design only, without consideration of landscaping or wind mitigation elements such as awnings. This enables an initial understanding of the wind flow patterns and comfort conditions based on the built form only.

The key findings from the wind testing are outlined as follows:

Southern Precinct Ground Level Areas and Surrounding Streets

- Wind conditions for all the ground level areas within and around the Southern Precinct were noted to satisfy the safety limit criteria of 24 m/s.
- Conditions along Cope Street are generally found to satisfy the standing criteria along the length of the street with localised areas at the northern and southern ends of the WMQ site which satisfy walking conditions. The inclusion of street trees along Cope Street was found to further enhance conditions, providing areas adjacent to Cope Street Plaza and metro station boxes which satisfy the sitting criteria.
- Conditions at the corner of Wellington Street and Botany Road will be able to satisfy standing conditions. During the summer months, the conditions at the corner of Botany Road and Wellington Street will satisfy the walking and standing conditions.
- Areas along Wellington Street will satisfy standing conditions, whilst the area adjacent to the Building 4 lobby will satisfy sitting conditions.
- Wind Conditions along Botany Road will generally satisfy the standing comfort criteria, in line with the wind comfort targets. Localised uncomfortable conditions were observed at the corner of Botany Road and Raglan Street due to downwash and side-stream effects. It is noted that the inclusion of the awnings along Botany Road and proposed tree planting will largely satisfy the standing or sitting criteria.
- Conditions at the entrance to Waterloo Congregational Church were found to satisfy the sitting criteria. Conditions for both Church Square and Church Yard are noted to generally satisfy the standing criteria throughout the year.

Southern Precinct Elevated Areas

- The terrace space on Level 2 of Building 3 and Level 9 of Building 4 benefit from significant shielding from the development and localised porous screening.
- Both areas are expected to experience conditions equivalent to standing or better throughout the year. Any noted landscaping for these spaces will only further enhance conditions

Cope Street Plaza

- Without consideration of landscaping, Cope Street Plaza generally satisfies the standing criteria. Some localised areas at the southern end satisfy the walking criteria which is in line with the wind comfort standards.
- Consideration has been made for the inclusion of landscaping in the form of trees at the southern and northern ends of the plaza, with more mature trees along Cope Street. This will ensure conditions throughout the entire plaza satisfy either the standing or sitting criteria throughout the year.
- Most of the plaza was found to achieve sitting conditions for 90% or more of the time. The northern portion was found to be slightly more beneficial during the winter period due to the shielding from the prevailing westerly winds.

- Locations adjacent to the southern east-west walkway between Cope Street and Botany Road are more exposed to the southerly and westerly winds given their location and hence achieve the sitting criteria around 80-85% of the year. The raised planter bed at the southern end of the plaza will provide further wind protection to the proposed bench seating.
- Given the need for a large central open area of the plaza which will be exposed to direct sunlight, it should be noted that some wind flow, especially during the warmer months of the year will be beneficial and will assist with overall thermal comfort, which is a more true account of human comfort.

Metro Station Entrance

- The southern entrance to Cope Street Plaza will satisfy the standing criteria for patron comfort. The noted street trees on Cope Street will provide further improvement for the conditions associated with the ramp and stair access to Cope Street.

In summary, the wind assessment identified that the ground conditions would be acceptable for walking and standing around the development.

Mitigation Measures

Mitigation measures have been provided for areas that are exposed to prevailing wind conditions. There are no mitigation measures applicable to the Southern Precinct.

Conclusion

In summary, the wind assessment found that the majority of the WMQ will satisfy the required wind comfort criteria, noting that wind conditions will improve as landscaping matures. The inclusion of the awnings detailed on the architectural plans (**Appendix D**) and tree planting outlined in the landscape plans (**Appendix II**) enable the ground plane areas to satisfy the required wind comfort conditions for the precinct. The tree planting considered to date as part of the wind tunnel study is the form expected at the time of planting and not a mature tree. As tree planting grows to full maturity, localised wind conditions will improve.

8.6. NOISE AND VIBRATION

A Noise and Vibration Impact Assessment has been prepared by Stantec Pty Ltd and is included at **Appendix K.** The report addresses the impacts of construction noise, operational noise, mechanical noise and vibration and the intrusion of ambient noise such as traffic and future rail corridor noise, into and out of the development, with particular regard to Waterloo Congregational Church. Consideration has also been given to the recommendations of the concept DA Acoustic Assessment Report prepared by SLR Consulting dated 9 November 2019.

In accordance with the Waterloo Design Amenity Guidelines, the existing and proposed conditions resulting from the proposed development have been assessed against:

- *Development Near Rail Corridors and Busy Road - Interim Guideline for Noise Criteria;*
- *Sydney Development Control Plan 2012;*
- *NSW Apartment Design Guide.*

Measuring Noise and Vibration

Site noise investigations were conducted to obtain background noise levels at surrounding noise sensitive receivers together with characteristic noise emission statistics associated with vehicle movements along Botany Road.

The results of the site noise investigations were acquired from a combination of noise monitoring conducted by Stantec Australia between the 7th and 13th April 2020, and previous noise monitoring conducted by SLR Consulting as these results were obtained prior to the COVID-19 pandemic and are a better representation of traffic noise and background levels under typical conditions.

The site location of surrounding noise and vibration sensitive receivers are shown in Figure 44.

Figure 44 Surrounding noise-sensitive receivers

Source: Stantec

8.6.1. Operational Noise

Traffic Generation Noise Impact Assessment

For the road traffic noise assessment, existing peak hour traffic count and traffic generation for the site was based on the Transport, Traffic and Parking Assessment prepared by ptc. and submitted at **Appendix I**. This data has been used to calculate the expected noise increase due to traffic associated with the development on Botany Road, Wellington Street, Raglan Road and Cope Street.

The results indicate there is predicted to be less than a [1.3] dB increase in traffic noise levels. The predicted increase is less than 2dB and therefore the proposed development is expected to comply with the requirements of the NSW Road Noise Policy.

Road Noise Impact Assessment

To provide acoustic amenity to occupants of the proposed development and comply with the project specific internal noise limits, the noise impacts of surrounding roads were assessed at the façade of the residential apartments within the proposed development. A closed and open windows assessment was undertaken. Details of this assessment and proposed mitigation measures are provided below.

Closed Windows Assessment

The traffic noise on Botany Road places the largest acoustic demand on the facades of the residential apartments. To achieve the project internal noise limits, the following mitigation measures are required:

- The glazing components of the façade of the proposed development must meet the acoustic demand ratings presented in Table 24.
- The solid/non-glazed elements of the façade shall have an acoustic performance of no less than Rw 55.
- The acoustic performance of the glazing facade may be reduced at certain locations within the development during the detailed design phase of the project.

Open Windows Assessment

An open windows assessment has been conducted to assess whether the habitable spaces can meet the project internal noise limits with windows open for natural ventilation in accordance with the natural ventilation requirements of the *National Construction Code 2019* and *Apartment Design Guide.* The assessment was conducted under the assumption when the windows are open to 5% of the floor area of the room being ventilated, with a reduction of incident noise level to internal noise level of 10dB(A).

The locations of all noise-affected habitable spaces are indicated on the drawings provided in Section 15.4 of **Appendix K.** An extract is provided below.

Figure 45 Noise affected apartments

Picture 37 Building 3, Level 3 Floor Plan

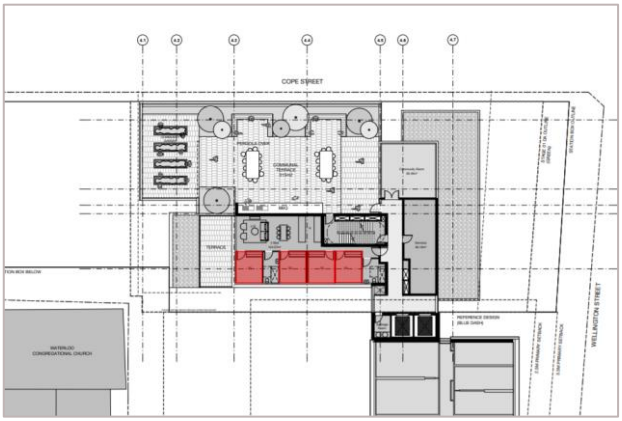
Source: Bates Smart / Stantec

Picture 38 Building 3, Level 7 Floor Plan

Source: Bates Smart / Stantec

Picture 39 Building 4, Level 7 Floor Plan

Source: Bates Smart / Stantec



Picture 40 Building 4, Level 14 Floor Plan

Source: Bates Smart / Stantec

Each noise-affected habitable space will require an alternative means of ventilation. All other apartments may rely on opening their windows to achieve the natural ventilation requirements of the *National Construction Code 2019* and *Apartment Design Guide* while simultaneously complying with the project internal noise limits.

The predicted noise levels at the surrounding noise-sensitive receivers are expected to comply with the project noise trigger levels upon implementation of the mitigation measures below:

- The habitable spaces within apartments that are noise-affected and hence require an alternative means of ventilation will be provided with an acoustic ventilator to meet the project internal noise limits.
- To achieve the project internal noise limits, the acoustic plenum shall achieve a transmission loss values equal to or greater than the values presented in Table 31.

The ventilation performance of the acoustic ventilators has been assessed and modelled to the requirements of the City of Sydney's *Draft Alternative Natural Ventilation of Apartments in Noise Environments – Performance Pathway Guideline*. Stantec confirm the design of the acoustic ventilator and all of the constituents of the acoustic ventilator satisfy the requirements of City of Sydney's Performance Pathway Guideline.

Table 24 Acoustic demand ratings for façade of the proposed development

Acoustic Demand Rating	**Single-Glazed Acoustic Performance (Weighted Sound Reduction Index, Rw)**	**Double-Glazed Acoustic Performance (Weighted Sound Reduction Index, Rw)**
1	32	34
2	34	36
3	36	38
4	40	42

Table 25 Minimum transmission loss requirements for each acoustic ventilator

Required Transmission Loss– Octave Band Centre Frequency						
63 Hz	125 Hz	250 Hz	500 hz	1 kHz	2 kHz	4 kHz
4	9	11	15	20	19	15

Mechanical Plant and Equipment Assessment

It has been assumed the mechanical plant and equipment will operate during all periods in any given day and the load demanded of the mechanical plant and equipment will be reduced to approximately 60% during the evening period (6:00pm – 10:00pm) and 40% during the night-time period (10:00pm – 7:00am).

The predicted noise levels at the surrounding noise-sensitive receivers as a result of the rooftop mechanical plant and equipment are expected to comply with the project noise trigger levels subject to the implementation of the mitigation measures outlined below:

- Install acoustic barriers to the Level 24 plantroom to the height shown in the architectural documentation. Acoustic barriers can be solid or can be an acoustic louvre, though the barrier must have a noise reduction of no less than the values shown in Table 26.
- Generators must be enclosed with an acoustic canopy to ensure the sound pressure level measured at 7 metres in each octave band centre frequency does not exceed the values shown in Table 36 of the Noise Report.
- Additional mitigation measures for the mechanical plant should be considered during the design development stage to ensure compliance with the outlined criteria at the nearest sensitive receivers. These amelioration measures could include:
  - Positioning mechanical plant away from nearby receivers;

- Acoustic attenuators fitted to duct work;
- Screening around mechanical plant;
- Acoustic insulation within duct work.

Table 26 Noise reduction required for types of acoustic barriers

Louvre	**Noise Reduction (dB) – Octave Band Centre Frequency**					
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Type 1	8	8	8	10	15	21

Loading Dock and Waste

An assessment of the noise generated by activities within the ground level loading dock (such as garbage collections and deliveries) has been conducted. The predicted noise levels at the surrounding noise-sensitive receivers are expected to comply with the project noise trigger levels upon implementation of the following mitigation measures:

- It is recommended that activities conducted within the loading dock are performed with the loading dock shutter door is closed.
- It is recommended that the activities shall be conducted with the implementation of the following management practices:
  - Maintaining rubbish trucks and braking materials to minimize or eliminate noise such as squeaky brakes; and,
  - Educating drivers and collectors to be careful and to implement quiet work practices.

Level one and two gym

An assessment of noise emissions from the operation of the gym interfacing the residential units above has been conducted. The noise emissions from the gym have been assessed to the threshold of human hearing and based on the assumption that music has a sound power level of 80. The noise emission from the gym is not expected to exceed the threshold of human hearing subject to the following mitigation measures:

- The separating floor-ceiling construction between the gym and residential apartments should be designed to achieve a transmission loss with values equal to or greater than those provided in Table 27
- The gym floor will likely require vibration isolation. This should be reassessed in a future fit-out development application.
- The vibration isolation of the gym should be designed once the detailed design develops.
- As a preliminary mitigation method, the proposed thickness of the gym floor should be 201mm+ the support channel thickness, from structural floor.
- The floor structure will likely be resiliently mounted on isolation springs.
- Isolated gym floor shall have no physical contact with room partitions. Therefore, any gap between the isolated floor and partitions shall be fully sealed with a close cell neoprene seal along the junction between isolated floor and partitions.
- An insulation blanket shall be installed between floating gym floor and supporting concrete slab. Insulation shall have 75mm minimum thickness and achieve a minimum density of 15 kg/m3 when uncompressed.
- The following isolation platform for any deadlift zones is recommended: Rogue Deadlift Platform (2.2m x 1.2m)

Table 27 Transmissions loss requirements of construction separating L07 and L08

Item	Transmission Loss (dB)								
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Floor-Ceiling Construction	25	40	53	58	58	57	55	55	50

Cope Street Plaza

The activation of Cope Street Plaza will increase the general ambient and background noise in the surrounding area. However, the noise emission characteristics of the plaza are not expected to be offensive to surrounding noise-sensitive receivers.

As discussed in Section 8.1, Cope Street Plaza will primarily be used as a passive recreational space where people can sit, socialise, or take respite. Whilst there will be noise associated with people talking, walking and socialising, this will contribute to the activation of the space throughout the day and evening.

Mitigation measures such as acoustic barriers to reduce this background noise would inherently screen the plaza from the street, inhibiting the activation of the space. The proposed comprehensive landscaping scheme is considered sufficient to help mitigate and reduce background noise levels to Waterloo Congregational Church and residents within Building 3 and 4.

8.6.2. Construction Noise

Noise criteria for construction sites are established in accordance with the *Interim Construction Noise Guideline (ICNG July 2009)* under the NSW Environment Protection Authority, together with the *City of Sydney's Construction Hours/Noise within the Central Business District – Code of Practice 1992.* In undertaking the assessment of potential noise intrusion associated with the proposed construction activities, Chapter 4 of the NSW EPA ICNG (July 2009) were specifically referenced.

Noise impacts from the construction works have been assessed based on the following hours:

- Monday to Friday: 7.00am to 6.00pm;
- Saturday: 7.30am to 3.30pm
- Sunday and public holidays: no work.

The assessment considers the noise impacts associated with the following construction works:

- Civil works;
- Structure;
- Façade;
- Fit out, finishes and services.

The excavation and piling for each of the precincts within WMQ will occur simultaneously. The predicted noise level at the nearest noise sensitive receiver (Waterloo Congregational Church) will exceed the noise management level by 21 dB(A). This result is conservative in that the majority of the noise is generated by rock breakers in close proximity to the receiver, where this may not be the case in reality given the predominant soil type (sand).

Upon implementation of the mitigation measures outlined below, it is not expected there will be significant construction noise impacts on the surrounding noise-sensitive receivers within the nearby noise catchment areas.

- A solid acoustic barrier (made from plywood or similar) 2.4 metres above ground level is recommended to be erected around the perimeter of the site. The acoustic barrier could be either Class A or Class B type hoarding.

- Where it proves reasonable and feasible, heavy truck movements are recommended to travel along Botany Road to enter the construction site. This will not be possible for significant durations of construction due to other site constraints that must be addressed by travelling along Cope Street and Raglan Street.
- Noise monitoring is recommended to be conducted at the most-affected noise-sensitive receivers in accordance with the monitoring programme proposed in Section 13.6.3 (**Appendix K).**

General noise control measures in accordance with AS 2436 – *2010 "Guide to noise and vibration control on construction, demolition and maintenance sites"* are also proposed to reduce the spread of noise and vibrations to the potential receivers.

8.6.3. Construction Vibration

Consideration has been given to the safe working distances for vibration impacts contained within the transport for NSW '*Construction Noise Strategy'* document. This document presents the safe construction working limits for Cosmetic Damage to adjacent structures (in accordance with BS 7385) and Human Comfort.

Concrete vibrators are expected be used in close proximity to the Waterloo Congregational Church when pouring the level one slab. Mitigation measures to ensure vibration generated on the structure of the Waterloo Congregational Church does not exceed the project vibration requirements are provided below:

- When pouring the Level 01 slab, attended vibration measurements should be conducted on the structure of the Waterloo Congregational Church to ensure the vibration generated on the structure does not exceed the values for cosmetic damage and structural damage outlined in BS 7385 and DIN 4150 (project construction vibration limits established in Section 9.6.4 of **Appendix K).**

A General Noise and Vibration Monitoring Strategy is also provided in **Appendix K.** Key elements of the strategy include:

- Noise and vibration levels should be monitored from time to time to ensure that noise generated as a result of remediation and construction activities does not disturb local businesses and residents.
- Monitoring may be in the form of regular checks by the builder or indirectly by an acoustic consultant engaged by the builder and in response to any noise or vibration complaints.
- Where noise and vibration criteria are being exceeded or in response to valid complaints, noise and / or vibration monitoring should be undertaken.
- Monitoring is to be undertaken by an experienced noise and vibration monitoring professional or an acoustic consultant. The results of any noise or vibration monitoring are to be provided to the relevant party or person in a timely manner allowing the builder to address the issue and respond to the complaints.

8.7. AIRSPACE

Approval has been sought from Sydney Airport Corporation Limited (SACL) under the *Airports (Protection of Airspace) Regulations 1996* (the Regulations) for the intrusion of multi-storey buildings at the site into airspace which, under the Regulations, is prescribed airspace for Sydney Airport.

Approval has been granted for the controlled activity for the intrusion of the development into prescribed airspace to a maximum height of 116.9 metres AHD.

The proposed development has a maximum building height of RL 93.250 (to top of roof) inclusive of all plant and ancillary features and therefore will not introduce additional risks to those already assessed in the concept approval.

8.8. TRAFFIC, ACCESS AND CAR PARKING

A Transport, Traffic and Parking Assessment has been prepared by ptc. and is submitted at **Appendix I.** The report identifies the traffic impacts associated with the Southern Precinct and broader WMQ development. It also specifically responds to the SEARs requirements and the conditions of consent for the concept DA (SSD 9393). The report also includes a Green Travel Plan, Loading Dock Management Plan and draft Freight and Servicing Management Plan.

8.8.1. Mode Share

An assessment of the existing travel behaviour within the suburb of Waterloo has been undertaken in relation to the following:

- Travel to work, Waterloo as a place of work; and,
- Travel to work, Waterloo as a place of residence.

In summary, when travelling to Waterloo as a place of work, approximately 59% of staff travel to work by car, 23% travel to work via public transport and 7.04% travel by an active mode of travel. When travelling to work from Waterloo, approximately 36% travelled by car, 41% travel to work via public transport and 12% travel by an active mode of transport.

An assessment of the potential future mode shares has been undertaken in consultation with TfNSW and City of Sydney and is based on existing data and the strategic opportunities associated with the WMQ development. The future mode share targets agreed for the AM peak for all trip purposes are:

- Train – 40%
- Walk only – 25%
- Car – 20%
- Bus – 10%
- Cycle – 5%

The above targets are based on a number of factors, including:

- Proximity to Sydney Metro's Waterloo Station, which will provide access to high quality mass transit service;
- Densely located land uses and proximity to Sydney CBD and Green Square, enabling shorter trip lengths more conducive to walking and cycling;
- Existing low traffic generation rates due to high density apartments and limited parking;
- Enhancements to the bus network to strengthen east-west routes, enabled by Sydney Metro City & Southwest;
- Improved cycling connections; and
- Consideration of City of Sydney's maximum LEP parking requirements to represent best practice in the provision of transport facilities appropriate for the development.

A Green Travel Plan has also been prepared to encourage a modal shift away from car usage and encourage active transport. This is further discussed in **Section 8.8.6**.

8.8.2. Traffic Generation and Road Network Impact

Assessment

Existing development

The development is proposed on land which is currently vacant and therefore does not generate any traffic activity. However, consideration has been given to the construction works currently being undertaken within the site. Traffic activity associated with these construction works has been captured within the traffic surveys undertaken by ptc.

To determine the current traffic volumes within the vicinity of the site, intersection surveys were conducted on Tuesday 12th March 2020, between 7.30am - 9.30am and 4.00pm – 7.00pm. Traffic surveys were undertaken prior to any restrictions placed on movement (on 22nd March 2020) due to the Covid-19 outbreak.

The peak hour for the below intersections was determined as follows:

- Henderson Road and Wyndham Street

  - 7.45am to 8.45 am - 2812 vehicles
  - 5.15pm to 6.15pm - 2995 vehicles
- Botany Road, Henderson Road and Raglan Street
  - 7.45am to 8.45am - 3162 vehicles
  - 5.45pm to 6.45pm - 3272 vehicles
- Raglan Street and Cope Street
  - 8.15am to 9.15am - 732 vehicles
  - 5.30pm to 6.30pm - 806 vehicles
- Cope Street and Wellington Street
  - 8.30am to 9.30am - 487 vehicles
  - 5.15pm to 6.15pm - 510 vehicles
- Botany Road, Buckland Street and Wellington Street
  - 7.45am to 8.45am - 2376 vehicles
  - 5.15pm to 6.15pm - 2303 vehicles

Based on the traffic volumes from the traffic surveys, the network AM and PM peak were observed to be 7:45am - 8:45am and 5:15pm - 6:15pm respectively. The majority of intersections above are currently operating at a good capacity with acceptable delays and spare capacity. Henderson Street and Wyndham Street is currently operating near capacity during the AM peak whilst Botany Road and Raglan Street is currently operating at near capacity during the PM peak.

Proposed Development

The proposed traffic assessment was undertaken using SIDRA modelling software. The total peak hour trip generation was concluded as follows:

- Social Housing– 0.96;
- Student Accommodation – Nil;
- Retail (Gym and Makerspace) – Nil.

The estimated traffic generation associated with the Southern Precinct development is approximately 1 trip in the peak hour. Nil traffic will be generated by the student accommodation, Makerspace and gym as no parking spaces are provided for these uses.

Mitigation Measures

No specific mitigation measures proposed.

Conclusion

The traffic modelling undertaken demonstrated that the external road network should operate at acceptable levels of service or at a level of service less than the approved concept DA (SSD 9393) and therefore, the development should not have a detrimental effect on the network operation.

It should also be noted, the proposed WMQ comprises less residential units than what was originally assumed by the approved concept DA, therefore generating less residential traffic than what was assessed under the concept DA approval.

Assessment

On-site car parking has been provided in accordance with the maximum rates stipulated in the concept Conditions of Consent (SSD 9393) and Waterloo Design Amenity Guidelines. Given the availability of public transport in proximity to the site, nil parking is proposed for student residents and limited parking (8 spaces) is proposed for social housing residents. No parking is proposed for the gym and Makerspace.

The provision of nil parking spaces for the Student accommodation is considered appropriate on the basis that this portion of the development will be targeted at residents studying at nearby educational campuses. The residents would travel to and from these educational campuses using either public transport and/or active transport modes such as walking or cycling. In addition, research shows that the majority of these residents do not own a motor vehicle.

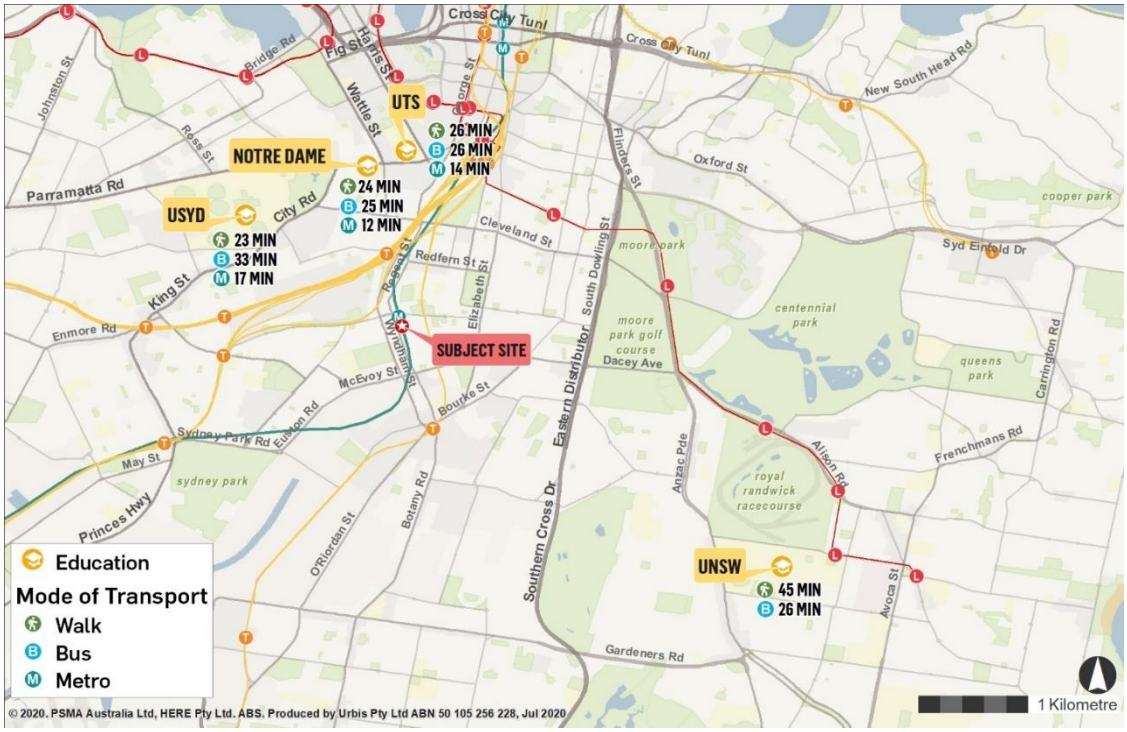
The nil parking provision for the gym and the community space is on the basis that these facilities are expected to be utilised by future residents or staff within the broader WMQ precinct, and therefore would be undertaken as part of a combined trip, utilising parking already provided within the development or public transport. The site is highly accessible to high frequency public transport services including buses, trains, light rail and the future Waterloo metro station.

As such, the proposed parking provision is considered appropriate and a positive inclusion in the development to support the initiatives of the Green Travel Plan and the encouragement of sustainable transport modes.

Conclusion

The proposed parking does not exceed the maximum parking rates stipulated in the concept Conditions of Consent (SSD 9393), Sydney LEP 2012 or Waterloo Design Amenity Guidelines and is considered appropriate for the reasons outlined above.

Figure 46 Surrounding Public Transport and Educational Institutions



Source: Urbis

8.8.3. Loading and Servicing

A loading dock is proposed at ground floor, with access from Wellington Street. The loading dock has been designed in accordance with AS2890.2, Councils '*Policy for Waste Minimisation in New Developments'* and performance tested through swept path analysis. It can accommodate an MRV, sized to include the waste collection vehicle.

The dock includes the provision of a 9m turntable (30 tonne capacity) with a 600mm clearance zone. The provision of the turntable ensures that all vehicles can access and egress the loading dock in a forward movement whilst limiting access to the dock to one vehicle at a time.

A Freight and Servicing Management Plan has been prepared by ptc. and included at **Appendix I.** In accordance with the SEARs, the Freight and Servicing Management Plan details loading dock and servicing provision, adequacy and management with consideration of precinct wide shared loading docks.

The loading dock will be utilised by both commercial tenants and residents for the purposes of maintenance, deliveries, waste collection and removalists. The loading dock will operate 24 hours per day 7 days per week. The access may be provided partially as manned access and partially as an electronic management system to provide afterhours access.

Access to the dock would generally be restricted to waste collection vehicles between 10pm and 5am with general access allowed between 5am and 10pm. These restrictions are to be incorporated into the booking system and access outside of the dock opening hours (5am to 10pm) is to be managed by an electronic access system. Removalist activity would be restricted to weekends, with maintenance being undertaken on an ad hoc basis as required.

To prevent queuing onto Botany Road and Wellington Street, the loading dock will be available for use by appointment only. For regular activities and deliveries, a regular time slot should be determined in coordination with the Building Manager. Bookings will be managed by an electronic 'app' based booking management system. This type of system allows the loading dock manager, tenants and vehicles using the dock to book in time slots and see in real time the availability of docks and bays for use. This would also allow tracking of vehicles on-route and allow for adjustments due to delays.

To segregate vehicles from public transport users and areas of people congregation, only authorised users will be allowed within the Loading Dock area and will be required to wear high visibility safety gear at all

times. The entry shutter will be equipped with visual strobe lighting to warn pedestrians when the Loading Dock shutter is opening. All vehicles must enter and exit the Loading Dock in a forward direction.

8.8.4. Pedestrian Access and Movements

Assessment

A Pedestrian Modelling Report has been prepared by WSP and is attached at **Appendix I.**

Pedestrian Modelling

Modelling and analysis of the existing and future pedestrian and cyclist movement, connectivity and circulation within the extent of the site and surrounding areas has been undertaken by WSP (refer to Appendix 2 of **Appendix I**). A Pedestrian Modelling Report is attached at **Appendix I.** It considers the following four key components:

- Demand related to the proposed metro station;
- Demand related to the proposed over station development;
- Demand related to existing land uses in the wider area;
- Demand related to the Botany Road bus stops.

The forecast demand has been defined for two design years:

- Initial design year (2026) – the requirement for the capacity to be provided from the start of operations;
- Ultimate design year (2056) – the requirement for the capacity to be safeguarded to allow for long term patronage growth.

Waterloo Station

The demand forecasts include an assumed level of development within the WMQ. Demand forecasts provided are limited to the AM peak. To determine the approximate demand for the PM peak, the matrices have been transposed and multiplied by a factor of 0.91. This factor has been retained from previous Sydney Metro City & Southwest reports and is based on historical observation of the flatter customer profile during the PM peak period.

Consequently, as a conservative assumption for assessing the WMQ, the OSD has been calculated separately and added to the station peak hour passenger demands to forecast the total precinct demand.

Over Station development

The OSD demand for the station during the AM and PM peak hours was estimated by:

- Reviewing the proposed development yields for the various land uses.
- Estimating the AM and PM peak person trip generation for each of the proposed land uses.
- Estimating the future mode share split for the person trips based on benchmarking against nearby areas with a similar level of rail access.
- Estimating the OSD's future peak period demand for the station.

The OSD related demand for the metro station is summarised below:

- 1,188 customers, with 515 utilising the station during the AM peak;
- 943 customers, with 400 utilising the station during the AM peak.

For the assessment of the PM peak period, a conservative assumption was adopted. In place of adopting the 400 customers as per the generation rates, a value of 468 customers was assumed based on the transposition of the AM peak movements multiplied by a factor of 0.91 for consistency with the methodology discussed above.

For the resilience scenario, the OSD related pedestrian demand for the metro station is summarised below:

- 2,572 customers, with 1,138 utilising the station during the AM peak;

- 1,884 customers, with 823 utilising the station during the AM peak.

Botany Road bus stop

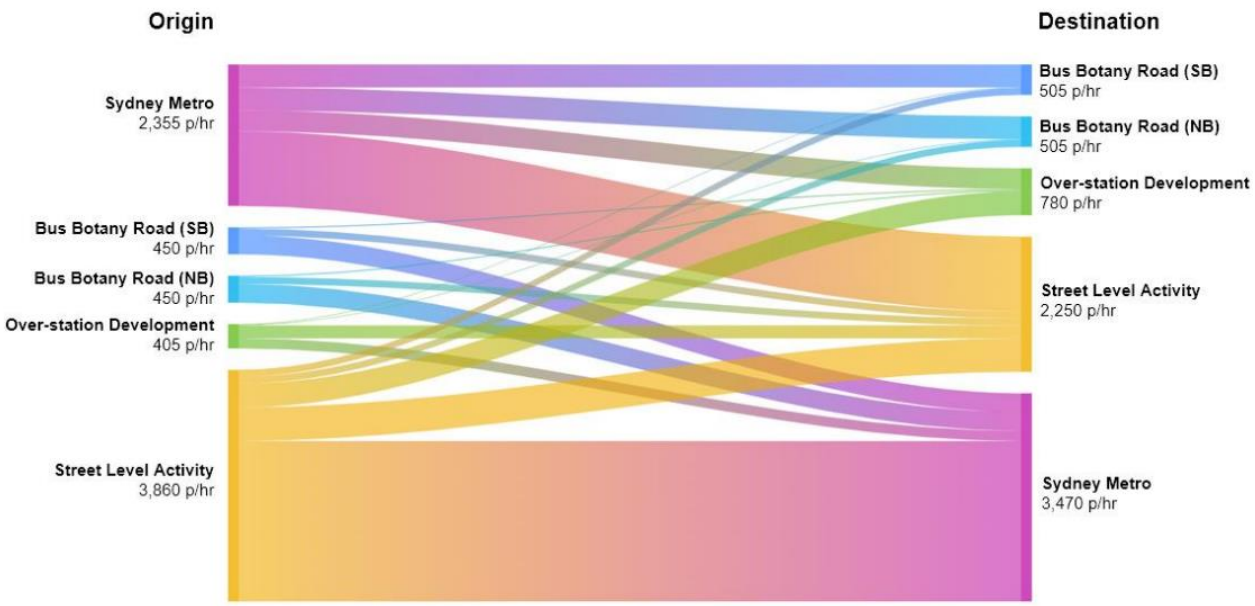
In addition to the metro station, customers can access bus services from Botany Road. Bus demand was consolidated to the two Botany Road stops, which represents the worst-case scenario for the Botany Road stops. If in the future, the bus stops are installed at Raglan Street, it is envisaged some bus routes would be reconfigured to serve these stops therefore reducing the loading on Botany Road.

The southern footpath of Raglan Street (referred to as Raglan Walk) is a sizeable thoroughfare and already accommodates a proportion of the Botany Road bus stop customer demand and therefore anticipated to be able to accommodate the additional bus stop activity.

Demand Scenario

The total customer demand during the AM peak hour through the WMQ and along the surrounding footpaths is based on the four key sources of demand and summarised below:

Figure 47 2026 AM and 2056 AM Waterloo Metro Quarter precinct demand – total



Picture 41 2026 AM Waterloo Metro Quarter precinct demand – total

Source: WSP

Picture 42 2056 AM Waterloo Metro Quarter precinct demand – total

Source: WSP

The pedestrian flows for the WMQ has been assessed to confirm the provisions of pedestrian infrastructure within and around the precinct. A summary of the precinct performance and its compliance with project requirements is shown below. Overall, the precinct design is compliant with the project requirements.

Table 28 WMQ streetscape performance summary

Location	**Assessment scenarios**	
	2056 AM	**2056 AM Resilience**
Precinct connectivity		
Internal walkways	✓	✓
External footpaths	✓	✓
Queueing at intersections	✓	✓
Botany Street Bus Stop (southbound)		
Bus customers (waiting)	✓	✓
Non-bus customers (those travelling along Botany Road)	✓	✓
Legend ✓ Compliant ✗ Non-compliant		

Cyclist Access

As discussed in Section 8.8.1, the existing travel mode split for cyclists are approximately 1.5% when travelling to Waterloo for work and 3.5% for travelling from Waterloo for work. The development proposes 70 residential units, 435 student beds and 1,273sqm of non-residential GFA.

Based on the BCA rate of 10sqm per employee within the gym and Makerspace, it is reasonable to calculate that the non-residential uses could accommodate approximately 128 people. Based on the existing mode split for cyclists of 1.5% this would generate two cycle trips.

Based on the existing travel to work (from Waterloo) mode split of 3.5%, it is calculated that the residential portion of the development would generate 18 cycle trips. Taking into consideration the future mode share target of 5% cycle trips, the target cycle trips would be 7 for staff and 26 trips for residents.

There is a substantial existing and proposed cycle network in the vicinity of the site and it is considered that an increase in 33 cycle trips would not have a detrimental impact on the operation of the existing bicycle infrastructure within the vicinity of the site and in the context of existing and proposed cyclist activity.

It should also be noted that the development proposes 164 residential and 20 non-residential bicycle parking spaces and that these facilities can accommodate the future mode share target bicycle trips.

Pedestrian Safety and Amenity

Pedestrian safety and amenity have been a key consideration in the design of the development. The shared laneway adjacent Cope Street Plaza includes the following design features to prioritise walking and cycling:

- The surface is an interlocking concrete unit paver, a material used commonly for shared zones as it is very different from typical asphalt road surface and sends a clear message to vehicular drivers to proceed with caution.
- The entrances to the shared laneway will also have signage stating ‘Shared Zone 10km/h’ as per TfNSW requirements for shared zones.
- In addition to these elements, the shared zone surface is defined by planters, low walls and bollards that identify the area where vehicles can traverse, with these elements arranged to limit opportunity for vehicles to move at higher speeds.
- The northern edge of the shared zone is a pedestrian/cycle only space, separated from vehicles via line of bollards. This means pedestrians and cyclists can use the shared space if they are comfortable to mingle with vehicles or can use the separated space if they need.

8.8.5. Cycle Access and Parking

Assessment

The development provides the following bike parking:

Student Housing

- Residential: 87 spaces

Social Housing

- Residential: 70
- Visitor: 7

Non-residential

- Staff: 5
- Visitors: 15

Residential bicycle parking (Class 1) has been provided within the ground floor social and student housing lobby and on level 2.

In terms of cyclist demand, consideration has been given to the existing travel mode split for cyclists. The existing travel mode split for cyclists is approximately 1.5% when travelling to Waterloo for work and 3.5% when travelling from Waterloo for work.

Based on the existing mode split and taking into consideration the future mode share target of 5% cycle trips, the target cycle trips would be 7 for staff and 26 trips for residents. There is a substantial existing and proposed cycle network in the vicinity of the development, and it is deemed that an increase in 33 cycle trips would not have a detrimental impact on the operation of the cycle provisions within the vicinity of the site.

8.8.6. Green Travel Plan

The requirement for a Green Travel Plan (**GTP**) was requested in the SEARs for the proposed development. The GTP prepared by ptc. included at **Appendix I** provides an assessment of the existing methods of public and active transport links to the site and outlines how the development intends to make travel to and from the site safer and more sustainable.

Data from the Australian Bureau of Statics 2016 (ABS 2016) was reviewed to gain a better understanding of the method of travel to Waterloo as both a place of work and residence. It was noted that:

- The majority of staff who travel to Waterloo for work purposes travel by car (approximately 59%) and by train (which accounts for 17.2% of mode share). Active travel modes such as walking and cycling currently only form a small proportion of the travel mode share (approximately 7% walking and cycling combined).
- For residents living in Waterloo, the majority of residents travel to work by car (36%) and by public transport (accounting for approximately 40.5% of mode share). On the other hand, walking and cycling comprised 11.9% of mode share.

Based on this data, it is evident that active travel modes are not currently highly utilised. The objectives of the GTP are therefore to promote and reduce the reliance of private car usage and encourage and support active transport. The GTP focuses on promoting four sustainable modes, including walking, cycling, public transport and carpooling.

Walking

The existing pedestrian connectivity is generally good in all directions. Opportunities to promote walking include:

- Encourage residents to utilise the numerous public transport options available through promotional material to raise awareness of these transport options.
- Establish a working partnership with City of Sydney to determine whether there are opportunities to improve the pedestrian connectivity to the site.
- Encourage staff to implement the '10,000 steps per day initiative.'
- Staff could be encouraged to celebrate 'Walk to Work' day on an annual basis.

Cycling

The development will provide 184 bicycle parking spaces and associated end of trip facilities. The provision of bicycle parking has been calculated in accordance with the minimum requirements contained within Sydney DCP 2012.

Public Transport

The site is highly accessible to high frequency public transport services including buses and trains. The Waterloo metro station beneath the site will significantly shorten the travel distance to public transport services for tenants, residents and visitors. To increase the public transport usage, the following measures should be considered:

- Create a map identifying the location of bus stops and routes and make this available to all users;
- Improved wayfinding signage between the site and nearby public transport interchanges;
- Promote the use of apps for public transport connectivity.

Carpooling

A carpooling forum could be developed to encourage employees to travel in groups. This would provide a platform for employees travelling on the same route to the site to travel together. Existence of the platform could be provided through brochures, noticeboards and social media.

Conclusion

Section 12 of the GTP includes a list of strategies to encourage residents, visitors and employees to adopt alternative sustainable transport options. Given the GTP is a live document, the GTP should be monitored

and reviewed to understand whether and how the travel plan is having an impact on the mode share. An annual review of the GTP is recommended to identify how mode share has changed over time.

8.8.7. Transportation-related Air Quality

A Transportation-Related Air Quality Assessment report has been prepared RWDI and is attached at **Appendix W.**

The report assesses air quality impacts from emissions associated with transportation in the vicinity of the proposed development. Two potential sources of emissions were considered:

- Exhaust associated with the Sydney metro; and
- Motor vehicle emissions from major roadways.

Emissions associated with the Metro exhaust have been considered, however as noted in Sydney Metro's Environmental Impact Statement (Chapter 22, Air Quality), the concentrations of particulates and other compounds are expected to be minor and that *"it is unlikely that the project would have air quality impacts on the surrounding environment, including sensitive receivers"*. Therefore, the focus of this study is limited to emissions from roadway sources only, with focus on traffic on Botany Road, to determine the potential for adverse air quality effects at the proposed development.

The assessment was based on the nominal peak hour traffic volume of 2,200 along Botany Road, which provides a worst-case of existing and future 2036 traffic volumes.

The simulation results indicate that compliance is easily achieved at the kerb of Botany Road for carbon monoxide (CO), nitrogen dioxide (NO2), and inhalable particulate matter (PM10). The findings indicate that vehicle emissions on Botany Road will be compliant with NSW air quality criteria anywhere within the development site, for both existing and future 2036 scenarios.

Accordingly, no mitigation measures were recommended by RWDI and the site is considered suitable for residential development.

8.9. CONSTRUCTION MANAGEMENT

Assessment

A Construction Environmental Management Plan (**CEMP**) has been prepared by John Holland (**Appendix Q**) which details the procedures and processes associated with the construction methodology for the proposed development. In accordance with the SEARs, the CEMP provides an assessment of potential impacts of the construction on surrounding buildings and the public domain, including air quality and odour impacts, dust emissions, water quality, stormwater runoff, groundwater seepage, soil pollution and construction and demolition waste, and proposed measures to mitigate any impacts.

The assessment also considers the potential cumulative impacts of the proposed development with regards to the works being carried out on site as part of the Sydney Metro Chatswood to Sydenham approval (CSSI 7400) and other developments in proximity to the site during the construction phase.

Station Works Interface

The WL Developer will ensure that effective communication channels are established and maintained through regular correspondence, engagement, meetings, reporting and evaluation on an ongoing basis. The elected interface manager will actively engage with interface parties to ensure that their requirements are proactively sought, managed and delivered by the project team.

With respect to the external interfaces, there are significant Interface Contractor works that run through the development that will create complex interfaces with the proposed works. These interfaces will have to be carefully managed throughout the design and construction phase of the Waterloo OSD project.

The WL Developer will work with John Holland Pty Ltd (the Station Contractor) to ensure that the delivery and handover of the Station box is integrated. WL Developer will also identify if any of the site constraints or conditions are different from those identified in the Station Contractors Design and Assurance Documentation for the station handover.

Handover from the Station Contractor will be marked upon transfer of as-built documentation, engineering signoff and access to site is provided. The proposed interface with the Station Contractor will allow for early identification of changes in design so that change can be managed.

Site Establishment

A-Class and B-Class hoardings will be installed around the perimeter of the site following the handover of the Southern Precinct work areas by the Station Contractor. These hoardings will be erected along Raglan Street, Cope Street, Wellington Street and Botany Road.

The site will be secured at all times with no unauthorised access permitted. Out of hours security patrols will be utilised strategically during the project. with a focus on shutdown periods such as Christmas and Easter when potential for theft and vandalism increases.

Access to the site will be controlled through a secured gate system. Individuals will require personalised identity swipe cards which will ensure a live record of the workers on-site at any given time. The proposed hoardings and/or fencing will also help delineate between the Station Contractors site and the Southern Precinct site to ensure that Station Contractor and the Southern Precinct workforce cannot access the opposing work areas.

The project office will be located within one block of the site and will include accommodation for project management staff. Accommodation and amenities such as lunch sheds, office sheds, first aid sheds, change rooms and toilets for the construction workforce will be provided in stages.

Initial site accommodation sheds will be erected on top of the B class hoarding along the surrounding streets. As the works are progressed accommodation will be relocated into the basement and lower floors of the building.

Hours of Construction

The following construction hours are proposed:

- Monday to Friday: 7am – 6pm;
- Saturday: 7.30am –3.30pm;
- Sunday: No work

There will be times when out of hours works may be required. An out of hours protocol for the assessment, management, and approval of work outside of the standard construction hours will be prepared and submitted as required.

8.9.1. Construction Pedestrian and Traffic Management Plan (Preliminary CPTMP)

The Preliminary Construction Pedestrian and Traffic Management Plan prepared by ptc. included at **Appendix J** outlines the construction process associated with the Southern precinct and preliminary construction traffic management measures to improve and regulate the safety of pedestrians, motorists and workers within the vicinity of the construction site.

Construction Traffic Generation

The delivery of materials to and from the site will result in some generated traffic activity associated with the construction works. The estimated construction traffic volumes (incoming from all directions) for the key stages are summarised below. The final expected truck volumes are to be confirmed in the construction stage.

Table 29 Estimated Southern Precinct Construction Traffic Volumes

SSD	Construction Stage	Longest Vehicle Types	Average no. of Trucks per day	Peak no. of Trucks per day
Southern Precinct	Excavation & Civil Works	N/A	N/A	N/A
	Construction	Up to 19m AV (Works Zone) Up to 19m Truck & Dog (site access)	33	66
	Services & Finishes	Up to 12.5m Heavy Rigid Vehicles (HRV)	20	40
Total			53	106

The cumulative truck volumes in conjunction with construction of the broader WMQ has also been considered. It is noted that construction for each SSD will occur at different time periods, with the worst-case scenario being the Basement Car Park, Central Precinct and Southern Precinct construction occurring concurrently followed by the Northern Precinct Construction. The Waterloo integrated station development works also coincide with the Civil and Southern Precinct construction works, however, the total truck volumes anticipated are lower than the worst-case scenario.

The worst-case scenario would be during the construction stage when the peak daily truck volumes estimate to be 198 trips. This results in 18 truck movements per hour (or 1 truck every 3-4 minutes) assuming the typical hours of work for weekdays being 11 hours, which will not necessarily arrive via the same route as trucks will be arriving via the north, south, east or west. As such, it is not anticipated that the daily truck volumes for the concurrent construction stages will have any adverse impacts on the road network.

Construction Car Parking Strategy

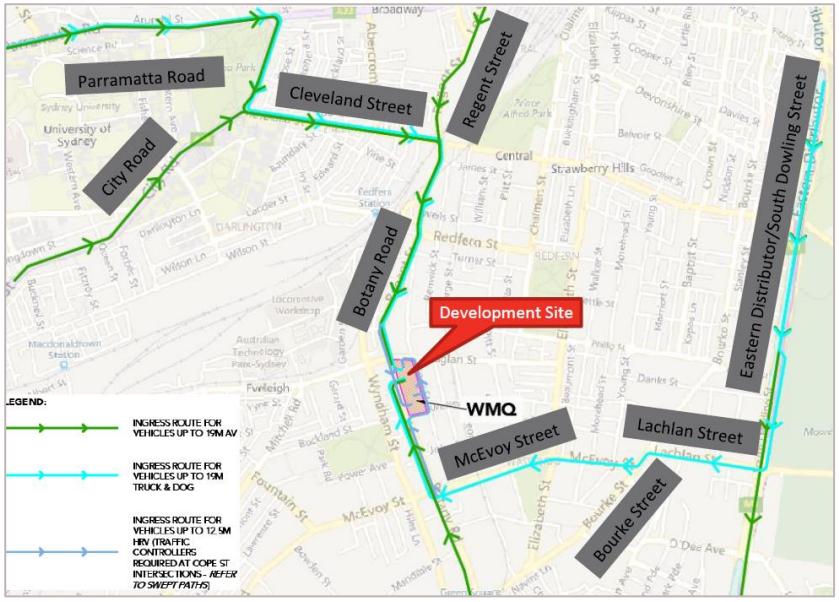
On street parking on roads immediately adjoining the WMQ site will need to be temporarily removed to facilitate some access or egress manoeuvres (driveway locations and Works Zones). These spaces will need to be converted to ‘No Stopping’ zones to provide adequate manoeuvring area for construction vehicles.

Due to site constraints, there will be limited parking available for construction staff. All site personnel are advised to not park on streets within the vicinity of the site. To minimise parking demand, all construction workers and contractors are encouraged to carpool or utilise public transport. Construction works and contractors will be informed of the bus and train services readily available.

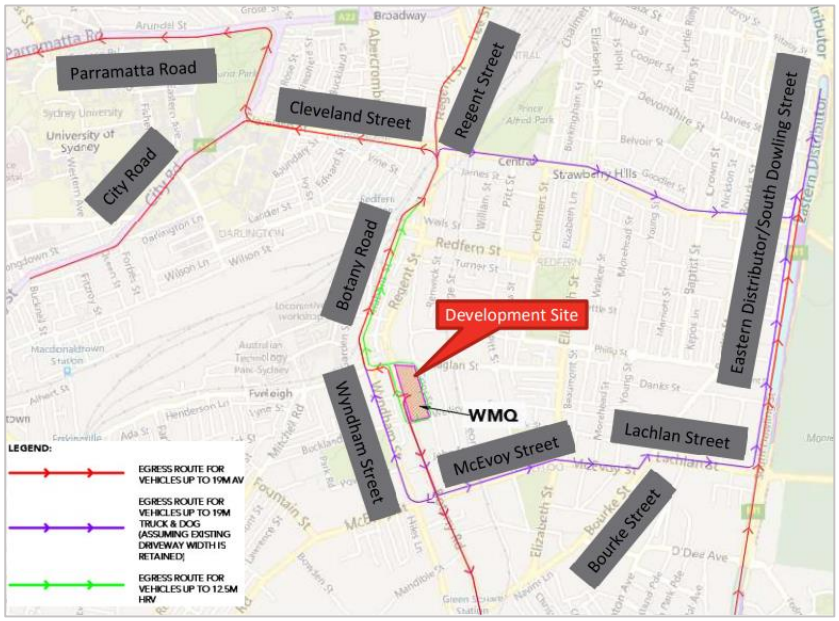
Haulage Movement Numbers and Routes

The construction vehicle access and egress routes are illustrated below. Construction vehicles will access the site via gates situated within the frontages to Botany Road, Raglan Street, Cope Street and Wellington Street as shown in Figure 48. Ingress/egress driveways are provided on the four frontages on Raglan Street, Botany Road, Cope Street and Wellington Street.

Figure 48 Vehicle access and egress routes



Picture 43 Vehicle Access



Picture 44 Vehicle egress

The delivery of materials to and from the site will result in some generated traffic activity. During the construction stage of the Southern Precinct, an average of 33 trucks are expected per day (132 across the entire WMQ precinct). During the services and finishes stage, an average of 20 trucks to the Southern Precinct are expected each day (average of 80 across the entire WMQ precinct).

Detailed Travel Management Strategy for Construction vehicles including staff movements

A Green Travel Plan has been prepared by ptc. to outline the transport options and arrangements associated with construction workers. It seeks to reduce the use of vehicles travelling to and from the site. The Green Travel Plan indicates that public transport for construction workers is encouraged and details the measures in place to monitor and manage the uptake of sustainable travel options. It is envisaged that this Plan will be reviewed and amended accordingly in the detailed CPTMP to address comments raised during this consultation process.

Maintaining Property Access

Any proposed road closures will require approval from Council and will retain access for emergency vehicles. Appropriate traffic management measures (such as traffic controllers) will be implemented to ensure access is maintained to closed roads in the event of an emergency.

Access to all adjoining properties will be maintained throughout the works. The adjacent landowners will be notified of works via letter box distribution and road signage to advise of anticipated truck movements.

Maintaining bus operations including routes and bus stops

The existing bus stop 'Botany Road at Wellington Street' (Stop ID: 201712) will be removed to facilitate signal works for the development of the Waterloo Integrated Station Development. A temporary bus stop replacement will be utilised.

A new permanent bus stop location will follow post OSD construction works. Details will be provided in the detailed CPTMP for the construction stage post consultation with TfNSW and STA and will address timing and identify the temporary bus stop location. No other bus stops will be affected by the proposed works. The CPTMP has assumed this area can be accessible by vehicles during construction.

Maintaining pedestrian and cyclist links / routes

Pedestrian Management

Works Zones are required on Botany Road, Raglan Street and Wellington Street frontages to facilitate loading and unloading of materials for construction vehicles. Partial closures of the footpath and/or diversion of pedestrians will be required.

Traffic control plans will be prepared as part of the detailed CPTMP detailing mitigation measures and signage to support pedestrian access arrangements. A summary of the proposed works zones and impacts on pedestrians is provided below.

Table 30 Impact of proposed Works Zones on pedestrians

Impact	Mitigation measure
Botany Road	
Due to the required Works Zones and multiple vehicular access and egress gates, it is proposed to close the footpath between Raglan Street and the Waterloo Congregational Church to eliminate the interaction between heavy vehicles and pedestrians. This will require partial closure of the footpath along the western frontage of the site between Raglan Street and the Waterloo Congregational Church.	Appropriate pedestrian diversion measures will be implemented to safely guide pedestrians across Botany Road to maintain pedestrian safety. Pedestrians will require guidance (via appropriate signage) to the nearest pedestrian crossings. Pedestrians can be safely redirected to the footpath on the western side of Botany Road by using the signalised pedestrian crossings. Pedestrians can also utilise the pedestrian facilities on Cope Street.
Pedestrian access to the Church and the bus stop will be maintained. The footpath between the Church and Wellington Street will remain open or locally diverted. As such, no Works Zone will occupy the Botany Road frontage directly outside the Church.	A works zone (approximately 23m long, accommodating up to 12.5m HRVs) is required on Botany Road between Gate 6 and Wellington Street. This will either occupy the kerbside (option 1) or kerbside lane, whilst ensuring pedestrian access to the church is retained and facilitated safely.
Raglan Street	
Due to the required Works Zones occupying the footpath and vehicle access/egress gate on the	Pedestrians will require guidance (via appropriate signage) to the nearest pedestrian crossings.

Impact	Mitigation measure
southern side of Raglan Street, it is proposed to close the footpath between Cope Street and Botany Road to eliminate the interaction between heavy vehicle movements, vehicle unloading activities and pedestrians. The proposed Works Zone on Wellington Street will occupy the footpath on the northern side of the carriageway.	Pedestrians can be safely redirected to the footpath on the northern side of Raglan Street by using the signalised pedestrian crossings. The proposed Works Zone on Wellington Street will require the closure of the northern footpath on Wellington Street and pedestrian diversion measures will need to be implemented (to be further detailed in the Construction CTMP) to guide pedestrians to use the alternate footpath on the southern side of Wellington Street.
Wellington Street	
The proposed Works Zone on Wellington Street will occupy the footpath on the northern side of the carriageway. As such, this will require the closure of the northern footpath on Wellington Street.	Pedestrian diversion measures will need to be implemented (to be further detailed in the Construction CTMP) to guide pedestrians to use the alternate footpath on the southern side of Wellington Street. Pedestrians will require guidance (via appropriate signage) to the nearest pedestrian crossings. The nearest pedestrian crossing facilities are located at the signalised intersection of Botany Road/Wellington Street and the priority intersection of Wellington Street/Cope Street. As such, pedestrians can be safely redirected to the footpath on the southern side of Wellington Street.
Cope Street	
The proposed Works Zone on Cope Street will occupy the footpath on the western side of the carriageway. As such, this will require the closure of the western footpath on Cope Street to separate pedestrian movements from the Cope Street frontage of the construction site as a method of eliminating the pedestrian and heavy vehicle interaction at Gate 8.	Pedestrians will be diverted to the eastern side of Cope Street via the pedestrian crossings provided at the intersections of Raglan Street/Cope Street and Wellington Street/Cope Street.

Cyclist Management

The existing cycling infrastructure in the vicinity of the site is predominantly in the form of on-road environments (shared with other users) with a partial cycle lane commencing on the southern side of Wellington Street connecting to Buckland Street. A Works Zone is proposed on the northern side of Wellington Street which will occupy the footpath.

As there are no existing cycleways on the northern side, it is anticipated there will be minimal impacts to the existing cycle network in the site vicinity. As such, no closures of any existing cyclist links for the proposed OSD construction works is required.

In the event any closures are required, temporary replacement/diversion facilities will be provided to provide comparable levels of safety and convenience. All staff and subcontractors engaged on site will be required to undergo a site induction, which will include the need to exercise due care with regard for pedestrian and cyclist safety in the site vicinity during site access/egress manoeuvres.

Independent road safety audits

Independent road safety audits will be conducted by a suitably qualified consultant in due course when required in further design development involving road operations and traffic issues, cognisant of all road users.

Cumulative activities and work zones

Cumulative construction activities or Works Zones operating simultaneously between the Southern Precinct and broader WMQ development have been considered. Construction for all four precincts will occur simultaneously at one point (i.e. November 2022) despite differing commencement times.

The Southern Precinct consists of three building zones (highlighted red in the below figure) that integrate into the overall WMQ development. A staged delivery approach of the three key zones will be implemented in the following sequence.

1. Social Housing Building;
2. Student Accommodation Building;
3. Public Plaza (Cope Street).

The construction of each of these zones is described in detail in Section 10.1 of the CEMP. The Southern Precinct will be delivered in conjunction with the Basement of the North and Central Buildings and will be the completed prior to the Northern and Central Precinct buildings.

Consideration has also been given to the Waterloo Station works that are programmed to be occurring during the Southern Precinct construction. The timing for other external developments (e.g. renewal of the Waterloo social housing estate) are not planned to be undertaken concurrently with any of the Southern Precinct at this stage, therefore, specific impacts are not able to be assessed as part of this CEMP.

8.9.2. Construction Waste

Assessment

The Contractor will ensure that the project supply chain is responsible and accountable for maintaining a clean, clear and safe working environment. A detailed Waste Management Plan will be prepared by a separate party appointed by the developer.

Mitigation Measures

The following waste management initiatives are proposed for this development:

- The head contractor will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements;
- Bins will be provided for work areas and will be regularly removed to a suitable skip bin location for collection and transport from the site to the waste recycling facility;
- Bins will be moved using the man and materials hoists and also by tower cranes, dependant on where they are loaded from and the waste material being removed from site;
- Crane lifted steel bins will be used to service the top floors where structure trades will be working, and large wheelie bins/or similar will service the lower levels where fit-out and service trades will be working. The site skips will be suitably located to ensure easy pick-up by the waste subcontractor;
- Excess materials generated throughout construction will be separated at an approved waste management facility;
- Auditable records will be kept of quantities of all materials both recycled and disposed to landfill;
- Records will be maintained to ensure any applicable recycling targets can be achieved. This information will be collected and reported in compliance with the WMP over the duration of the project. It is intended to engage a licenced entity for the purpose of waste management and recycling;
- Waste will be classified according to the *EPA's Waste Classification Guidelines 2014*, prior to disposal. Spoil excavated is expected to be classified as excavated natural material (ENM) or as identified in a remediation action plan prepared for the site; and,

- The EPA waste hierarchy will be implemented by ordering materials in appropriate quantities, requesting minimal packaging, giving a high priority to using non-hazardous products where practical and investigating packaging takeback schemes with suppliers during the procurement phase.

8.9.3. Noise and Vibration

Assessment

Noise and vibration generated from construction activities will be managed to minimise adverse impact on neighbouring residents, businesses and associated building structures. Special consideration will be given to the neighbouring Waterloo Congregational Church during the construction of the substructure and ground floor slab.

All noise generating activities are proposed to occur during the approved Standard Construction Hours. It is proposed to extend Saturday hours to 3.30pm, consistent with the City of Sydney standard construction hours. The primary source of noise generated will be associated with vehicle movements, generators, heavy machinery, hand-held machinery and tools.

Mitigation Measures

To manage construction noise and vibration the following mitigation measures are proposed:

- Any noise activities proposed outside the nominated site operating hours will require prior written consent from the nominated approval authority.
- During construction, the Contractor will utilise existing noise impact assessment data to determine noise sources and confirm ambient background levels. Alternatively, baseline noise monitoring will be conducted prior to construction work commencing.
- The Contractor may engage an acoustic consultant to monitor construction noise level during its activities.
- Routine inspections of plant and equipment will be conducted to ensure performance relative to compliance requirements.
- When planning for construction work that includes vibration, all practical efforts to protect vibration sensitive buildings and the amenity of adjoining stakeholders (specifically the Church) will be considered.
- A practical and economical combination of vibration control measures will be applied to manage vibration impacts such as:
  - Substitution by an alternative process;
  - Restricting times when work is carried out;
  - Screening or enclosures;
  - Consultation with affected residents; and,
  - Utilisation of temporary supports where deemed necessary.
- Undertake site inspections and monitoring to confirm noise and vibration levels are being met.

8.9.4. Air Quality and Odour Management

Sources of air emissions from the proposed construction works are deemed to be minimal as no bulk excavation is proposed. Potential air and odour impacts are primarily associated with traffic movements as a result of deliveries to the site.

The minimisation of air borne pollution will be a key component of the construction phase CEMP for the site. Air quality impacts will be minimised by incorporating appropriate dust suppression such as sprinklers, misting and stabilised/cover stockpiles. The layout of the construction site and placement of plant will also consider air quality impacts to nearby receivers, pedestrian, commercial receivers, public and road traffic.

8.9.5. Soil and Water Quality Management

Stormwater runoff

Environmental protection during construction will involve the installation, use and maintenance of a number of temporary erosion and sediment control measures (as required) in accordance with the following principles:

- Before undertaking excavation work, implement all soil and water management controls required to minimise pollution of waters;
- All erosion and sediment controls will be installed in accordance with NSW Blue Book Volumes 1 and 2D (Landcom, 2004 and DECC, 2008);
- Minimisation of soil erosion and mobilisation of sediment during rain events;
- Use of suitable sediment retention structures and control measures to filter or retain mobilised sediment generated during rain events over surface disturbances;
- Maximum sediment capture through effective positioning of temporary erosion and sediment control structures;
- Regular inspection and maintenance of all erosion and sediment controls to ensure they are effective;
- Ensure that any road, footpath, shared path or cycleway is at all times kept free of mud, dirt, dust, deleterious material, debris, obstructions and trip hazards;
- Site exit controls may include wheel wash facilities. These measures would be put in place to mitigate the risk of any loss of fuels, lubricants, load or other substances;
- Any spillage or build-up of such material or debris would be cleaned up as soon as practicable;
- An erosion and sediment control plan will be developed for the site prior to the commencement of excavation. This will be prepared in accordance with the NSW Blue Book requirements. All stormwater will be managed to prevent off site pollution.

Groundwater Seepage

The site is constructed above the water table and therefore groundwater inflow/seepage is expected to be minimal. If ground water is encountered during piling and localised excavation points it will be dealt with via the unexpected finds procedure.

Soil

Potential impacts to soil will be limited to areas of landscaping within the site. Minimal cumulative impacts are expected based on limited ground disturbance work at the site. Where soil pollution occurs as a result of spills or leaks, the impacted soil will be removed and disposed at an appropriately licenced facility. As discussed in Section 6.5, all known areas of contamination will be managed and remediated prior to commencement of construction works within the Southern Precinct.

8.9.6. Cumulative assessment

Assessment

Consideration has been given to the works that are programmed to occur concurrently during the construction of the proposed development. The timing for other external developments such as renewal of the Waterloo social housing estate are not planned to be undertaken concurrently with any of the proposed works. Accordingly, specific impacts have not been able to be assessed.

Mitigation Measures

The CEMP will be further developed prior to commencement of construction and address any further Cumulative Impacts as a result of other developments in proximity to the Southern Precinct.

8.9.7. Stakeholder Management

The applicant is committed to respecting and valuing all stakeholders and engaging positively with the community, government and non-government stakeholders. A stakeholder management plan will be developed prior to project commencement.

In order to achieve this, the following strategies are proposed:

- Establish and maintain effective and open communication with community members, stakeholders' groups and the project partners;
- Be open and accessible to the community, stakeholders and customers;
- Listen and respond to what the community and stakeholders have to say;
- Provide timely, informative communications material that clearly explains the project works and any potential impacts; and,
- Identify and address key risks, impacts and opportunities; and,
- Actively look for opportunities to incorporate the community and stakeholder suggestions in the design, construction and delivery phases of the project.

8.10. TREE REMOVAL

An Arborist Report has been prepared by Urban Forestry Australia and submitted at **Appendix TT.** The proposal requires the removal of five trees as construction impacts will adversely affect tree health and stability. Several of the trees proposed for removal have restricted root zones and have been subjected to past lopping for power line clearances.

As part of the redevelopment of the WMQ Precinct and to compensate for the loss of these trees, a comprehensive landscape scheme has been prepared by Aspect to enhance the character and amenity of the local area, streetscape and neighbourhood.

No high retention value trees are proposed to be removed. All five trees proposed for removal have a low to medium retention value. It was also observed that Tree 4, 5 and 6 have restricted root zones and are routinely lopped below power lines.

Urban Forestry Australia considers the removal of the five existing trees acceptable on the basis they will be replaced by 25 new trees within the public domain around the Church and Botany road frontage. Overall, this mitigates the impact from the loss of the existing trees,

The long-term benefits gained from removing overhead power lines and allowing replacement trees to develop their natural form and height without threat of repeated pruning, are considered a significant improvement.

As discussed in the Arborist Report, pruning and its associated costs will be substantially reduced, the risk of poor branch architecture will decrease, the overall visual amenity of trees that are allowed to mature without repeated crown reduction will vastly enhance the streetscape, and the urban tree canopy cover in this area will increase.

8.11. OPERATIONAL WASTE MANAGEMENT

The storage, management and disposal of waste generated by the operation of the student housing, social housing, gym and Makerspace has been considered in the Operational Waste Management Plan prepared by Elephants Foot at **Appendix L.** For the purposes of this assessment, the Makerspace has been assessed on the basis that it is a 'retail space,' being the most intensive waste generating land use under the proposed 'commercial premises' definition.

Assessment

The primary waste streams expected to be generated by the ongoing operation of the total development are summarised below.

Table 31 Proposed Waste Generation

Building component	Type of Waste	Waste Generated (L/wk)	No. of bins required
Social Housing	General waste	8,400	4 x 1100L MGBs collected 2 x weekly
	Recycling	8,400	8 x 1100L MGBs collected weekly
Student Housing	General waste	23,125	9 x 1100L MGBs collected 5 x weekly
	Recycling	23,125	5 x 1100L MGBs collected 5 x weekly
Makerspace*/gym	General	3,812	1 x 1100L MGBs collected 5 x weekly
	Food	2,442	5 x 120L MGBs collected 5 x weekly
	Recycling	24,183	4 x 1100L MGBs collected 5 x weekly

Collection of Waste

The spatial allocation for the bins required to service the development is outlined in **Appendix L**. This area is accommodated within the waste and recycling room located at ground level as shown in Figure 34. Waste is to be collected on site within the loading dock, accessed from Wellington Street.

Council will service the social housing waste. The Council collection vehicle will park in the designated vehicle loading area and service all MGBs directly from the social housing waste room at ground level.

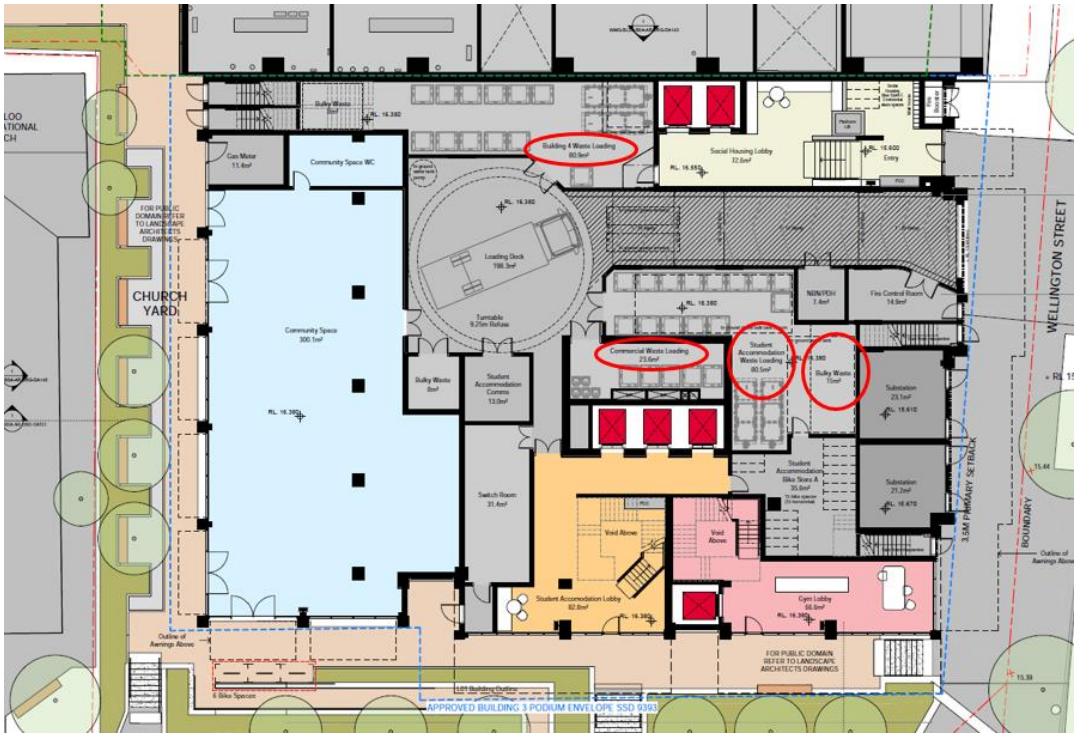
Private waste contractors will be engaged to service the separate waste streams of the student housing, gym and Makerspace to an agreed collection schedule. Collection will occur directly from the boarding house waste room via the designated vehicle loading bay.

The collection areas have been reviewed by ptc. to confirm the swept paths, load requirements and clearances for waste collection. Collection vehicles can enter and exit the site in a forward direction from Wellington Street.

In accordance with the Waterloo Design Amenity Guidelines, the following design criteria has been met:

- All service vehicles and garbage trucks can enter and exit the site in a forward direction;
- Waste collection and loading has been designed in accordance with the City of Sydney *Guidelines for Waste Management in New Developments;*
- Waste collection and loading areas are located at-grade and wholly within the development; and,
- Sufficient side and vertical clearance have been provided for to allow the lifting arc for automated bins to remain clear of walls, ceilings, ducts, pipes and other services.

Figure 49 Ground Level Waste Room Locations



Mitigation Measures

To ensure operational waste is managed, the following mitigation measures are proposed:

- The social housing building caretaker and building manager are responsible for monitoring the capacity of MGBs and replacing full MGBs with empty MGBs on the track systems when required.
- All residents will be supplied with a collection area in each unit to deposit waste suitable for two day's minimum storage.
- Recycling must not be bagged. Cardboard collection bins will be available in the bulky goods storage room.
- A room or caged area will be made available for the storage of discarded bulky items such as whitegoods and furniture. Bulky goods will be collected regularly.
- Disposal or recycling of electronic waste will be organised with the assistance of a building caretaker.
- Chemical wastes will be disposed of at a suitable licensed disposal facility. Residents will need to liaise with the building manager where necessary.
- Space for composting and worm farming will be made available for residents.
- Contract cleaners will circulate the gym after standard operating hours and perform cleaning tasks.
- Tenants of the gym and Makerspace will be responsible for their own storage of waste. At the end of each day, nominated staff or cleaners must transfer the waste to the dedicated waste storage room.
- The building manager is responsible for transporting bins to their respective collection area prior to scheduled collection times.
- Appropriate waste room signage is to be installed.

Conclusion

In conclusion, the WMP indicates that the proposed development has sufficient space within the allocated waste storage rooms to accommodate the estimated waste generated by the future use and development across the site.

8.12. UTILITIES

A Services and Utilities Infrastructure Report has been prepared by WSP (**Appendix T**) to identify any potential impacts of the proposed construction and operation on the existing utility infrastructure and service provider assets, and demonstrate how these will be protected, or impacts mitigated.

The report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures.

- Disconnection and demolition of the existing utilities and services to allow the proposed development construction;
- Proceed with Sydney Water Notice of Requirements application for Southern Precinct, and associated conditions of consent for connection of Potable Water, Sewer and Stormwater services;
- Proceed with Ausgrid contestable works approval process for Southern Precinct, and associated submission and approvals for connection of high voltage power and construction of chamber substation;
- Proceed with City of Sydney Tap In application for Southern Precinct, and associated conditions of consent for connection of Stormwater services;
- Proceed with Jemena connection application for Southern Precinct, and associated conditions of consent for connection of Natural Gas services;
- Proceed with Carrier application for connection process for Southern Precinct, and associated conditions of consent for connection of carrier communication services;
- Proceed with NBN application for connection process for Southern Precinct, and associated conditions of consent for connection of NBN communication services;
- Proceed with Carrier application for connection process for Southern Precinct, and associated conditions of consent for connection of carrier communication services.

Subject to the implementation of the above mitigation measures, the remaining impacts are appropriate.

8.13. STRUCTURAL ENGINEERING

A Structural Design Report has been prepared by Robert Bird Group and included at **Appendix P.** The report includes an assessment of the stability of the proposed development and coordination of the Metro Services Box and OSD.

Robert Bird Group have identified the structural design is compliant with the relevant design and planning criteria including:

- *AS 1170.0 Structural Design Actions Part 0: General Principles 2002;*
- *AS 1170.1 Structural Design Actions Part 1: Permanent, Imposed and other 2002;*
- *AS1170.2 Structural Design Actions Part 2: Wind Actions 2009;*
- *AS1170.4 Structural Design Actions Part 4: Earthquake Loads 2007;*
- *AS 3600 Concrete Structures 2018;*
- *AS 3700 Masonry Structures 2001; and,*
- *AS 4100 Steel Structures 1998.*

Further design development will be required prior to the issue of a Construction Certificate.

8.14. CIVIL

WSP have prepared a Civil Engineering Report provided at **Appendix BB.** The report identifies specific mitigation measures to manage impacts from earthworks, soil and erosion.

Earthworks

The proposed development does not require any bulk excavation. A building pad will be required to be prepared for the construction of Building 3. The building pad will be constructed by carrying out earthworks, excavation, laying and compaction of suitable material to the required levels.

Soil and Erosion Control

Sediment and erosion controls will be adopted in accordance with "*Managing Urban Stormwater, Soils and Construction, 4th Edition March 2004, Landcom*". A sediment and erosion control plan will be prepared by the building contractor following the completion of detailed design, staging and construction works.

Notwithstanding this, the following erosion and sediment controls are to be implemented:

- Install and maintain erosion and sediment management controls. These controls must be modified on-site when required by construction schedules to ensure compliance with environmental and council legislation.
- Submit details of erosion and sediment control management procedures for approval by the PCA. The erosion and sediment control plan is to include a schedule detailing the stages at which various management techniques will be in place.
- Submit engineering drawings for each stage of the development.
- Protect stockpiling to prevent them becoming a source of dust or sediment.
- Restore the site and any adjoining affected lands where sediment deposition has occurred as a result of construction activity associated with the development.

Temporary Site Drainage

The following mitigation measures are proposed to manage temporary site drainage:

- Utilise sandbags to divert stormwater run-off around or through the site in a non-erosive manner.
- Divert clean water from external catchments around any disturbed areas of the site. A temporary sedimentation basin may be constructed where sediment laden water will be allowed to deposit any sediment. Once settled and subject to Council approval, clean water would be pumped to Council's stormwater pit and pipe system.

Sediment Control

The following controls are proposed within the site boundaries to control sedimentation during construction:

- **Sediment fence -** A sediment fence to retain solids coarser than .02mm.
- **Filter Strips** - Strips of vegetation left or constructed downstream from earthworks to provide a simple method of trapping coarse sediment in most storm events other than large ones.
- **Stabilised site access** – reduces the likelihood of vehicles tracking soil materials onto public road.
- **Stockpiles** – set aside in protected areas of reduced grade.
- **Water Wetting** - During dry weather water wetting should be utilised on dust areas to keep the dust from spreading.
- **Sedimentation Control** Pit - Designed to intercept sediment-laden runoff and retain most sediment and other materials, thereby protecting downstream waterways from pollution.
- **Filter rolls/sandbags** - Placed upstream of kerb inlet pits to prevent sediment from entering the stormwater system. To be maintained by a cleaning program.

Pre-Construction

Demolition or construction works will not be permitted until the erosion and sediment controls are installed and functional. Before the commencement of construction activities, the following measures will be implemented to ensure minimal disturbance to the site.

- Establish a single stabilised site entry/exit point and agreed with the PCA and Council (if required) for the site. Hoarding or barrier fencing to be used to restrict all vehicular movements to this point.
- Review the need for a Shaker Pad to remove excess spillage collected on construction vehicles.
- Erect sediment/barrier fencing.
- Define the location of any construction vehicle compound, site office and vehicle servicing area.
- Establish diversion devices to divert runoff around potentially exposed areas and control site discharges.
- Educate site personnel to the importance of erosion and sediment control measures and their maintenance.
- Provide bins for building waste, concrete and mortar slurries, paints, acid washings and litter and make arrangements for regular collection and disposal.

During Construction

The Contractor is required to undertake a visual erosion and sediment control monitoring and maintenance program for the site. This inspection should be conducted at least weekly, prior to forecast rain, at regular intervals not exceeding 14 hours during prolonged rainfall events, and immediately after each rain event resulting in runoff from the site.

Lands adjacent to the site and on the footpath will not be disturbed during works except where essential. Where works are necessary, they will be undertaken in such a manner as to minimise the occurrence of soil erosion.

Post Construction

Following the completion of construction works, permanent stormwater mitigation devices will be implemented as early as possible.

Conclusion

The Civil Report submitted at **Appendix BB** addresses the potential impacts of the civil engineering design, which consists of pavement design and earthworks.

The report demonstrates the design decisions and measures taken to mitigate against civil engineering design risks including designing pavements to comply with City of Sydney and Disability Discrimination Act requirements and the production of an Erosion and Sediment Control Plan.

8.15. FLOODING AND STORMWATER

WSP have prepared a Stormwater Management and Flood Impact Assessment Report (**Appendix O**) which considers the flood and risks and establishes the proposed stormwater management strategy associated with the detailed design of the Southern Precinct.

8.15.1. Stormwater

The WMQ site (of which the Southern Precinct and Cope Street Plaza are one part of) drains to four frontages including Botany Road, Cope Street, Wellington Street and Raglan Street. Botany Road frontage is serviced by a 900mm diameter pipe with undersized inlet pits. Cope Street is serviced by a Council stormwater main and a Sydney Water owned box culvert. Raglan Street and Wellington Street are provided with surface drainage infrastructure. The site drains to Sheas Creek via Sydney Water trunk drainage and ultimately to Alexandria Canal and Botany Bay.

For a 100-year storm event, the existing site discharge rate is approximately 1.3m3/s for a two hour storm duration, predominantly via discharge to Council's kerb and gutter. The site does not currently have any documented stormwater quantity management systems.

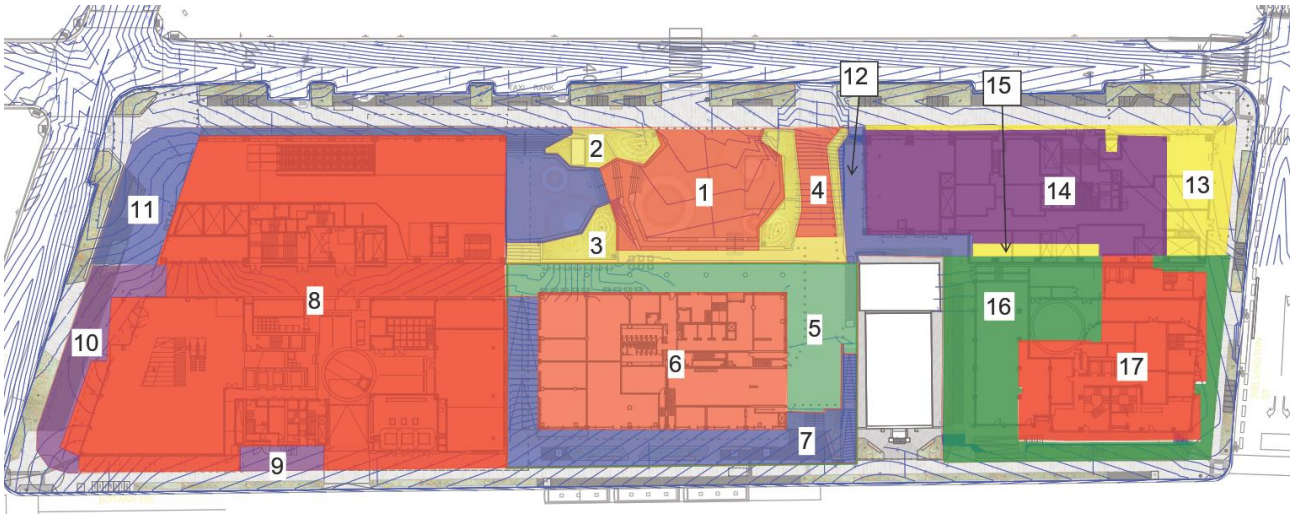
The Sydney Water requirements for the WMQ and Southern Precinct are referenced in the Water Quality, Flooding and Stormwater Report prepared by AECOM dated October 2018. They are as follows:

- On Site Detention - 208 cubic meters
- Permissible Site Discharge - 503 L/s

The WMQ site was assumed to be 13,500sqm. The catchment areas assumed for the WMQ are shown below in Figure 40.

The AECOM report recommended the development provides a combined OSD tank volume of 480m^3 despite Sydney Water's requirement of 208m^3. The AECOM report did not clarify why the OSD tank volume increased from the Sydney Water requirement of 208m^3 to 480m^3.

Figure 50 WMQ Site Catchment Areas



Source: WSP

The site areas assumed for the Southern Precinct are detailed below.

Table 32 On Site Detention and Permissible Site Discharge

	Bypass Area (SQM)	**Captured Area (SQM)**	**Total Site Area (SQM)**
Cope Street Plaza			
Total	756	495	1251
Building 3			
Total	1202	698	1900
Building 4			
Total	478	1157	1635
Southern Precinct Total			
Total	2,436	2,350	4,786

Key components of the proposed Stormwater Management Strategy are outlined below:

- The roof and pavement runoff will be directed to a Stormfilter chamber prior to discharge to Council's stormwater system.

- A separate water quality chamber is proposed at the site boundary to treat runoff from pavement areas in addition to roof runoff.
- The main method of treatment is as follows:
  - 7 Stormfilter cartridges for Building 3 & 4; and,

The following additional water quality treatment methods are to be provided:

  - A 10kL rainwater tank is to be installed within Building 3 & 4; and,
  - EnviroPod filters (or similar approved equivalent products) are to be installed within every stormwater inlet pit on the site.

In accordance with Condition B26 of the concept consent, the assessment has considered the conclusions and recommendations of the concept Water Quality, Flooding and Stormwater Report dated 31 October 2018 prepared by Aecom. The Aecom report recommends the development provides a combined OSD tank volume of 480 m^3 despite Sydney Water's requirement of 208 m^3.

The Aecom report does not clarify why the OSD tank volume has increased from the Sydney Water requirement of 208 m^3 to 480 m^3. 208m^3 of On-Site Detention have been provided in the stormwater management plan. The DRAINS modelling undertaken demonstrates that the Sydney Water required OSD volume of 208m^3 is sufficient to reduce the overall Permissible Site Discharge to less than the required 503L/s and therefore meets the intention of the Sydney Water discharge requirements.

Furthermore, the flooding impact of the site is reduced as a result of the On-Site Detention, which reduces the peak stormwater runoff from the site.

8.15.2. Flooding

The key findings of the Flood Impact Assessment confirmed:

- The site is within the Alexandria Canal catchment.
- The site and surrounding area may be affected by flooding with the key source of flood risk expected to be surface water flooding.
- There is negligible afflux for the 20 and 100 year ARI events along Botany Road, Raglan Street and Wellington Street.
- Flood planning levels at ground floor are set above 100 year ARI with allowance for climate change.
- Occupants of Area 2 (student accommodation lobby), 3 (gym lobby), 4 (loading dock) and 7 (bike and waste room) and 3 can remain safe during an extreme flood events as flood planning level is above 100 year ARI and 100 year ARI+500 mm.
- Occupants of Area 5 (social housing lobby) can remain safe within the area during an extreme flood event as flood planning level is above 100 year ARI + 500 mm and PMF.
- The proposed building footprints occupy a reduced area in respect to the existing buildings and do not exceed the existing building boundaries. As such the proposed buildings are not expected to negatively affect the existing flood conditions.
- No residential accommodation is proposed at the ground floor which significantly reduces the vulnerability of the site.
- Residents of the development (above first floor) could remain safely within their apartments as safe refuge is provided from their higher floor level. The level of the first floor is 21.1 m AHD which would protect residents even in an extreme event PMF that has a maximum predicted water level of 16.59 (in Cope Street) m AOD.

The following flood mitigation measures are proposed:

- Adopt the permissible minimum building floor levels and below ground development flood planning levels for the WMQ site as defined within the Stage 1 concept DA Water Quality, Flooding and Stormwater Report (October 2018) – refer to Table 3 and 4 within the Flood Impact Assessment at **Appendix O.**

- Prepare a flood warning and evacuation plan to inform the residents and managers of the building on the procedures to adopt to in case of an emergency associated to flood risk.

Conclusion

The Stormwater Management Plan and Flood Impact Assessment submitted at **Appendix O** demonstrates that the strategy meets the objectives of complying with relevant local council stormwater management policy, meets the design criteria of the original concept DA Water Quality, Flooding and Stormwater report prepared by AECOM and meets the critical objective of the Waterloo Design and Amenity Guidelines by improving quality and reducing the peak stormwater runoff.

While the proposal includes an OSD tank volume less than recommended in the AECOM report, the proposed OSD meets the Sydney Water requirements and will provide sufficient OSD capacity for the proposed Southern Precinct development.

8.16. CONTAMINATION

Assessment

A Contamination Strategy has been prepared by Douglas Partners and is submitted at **Appendix OO**. For the purposes of the regulation of contaminated land management, the site can be considered in two portions. The portions comprise:

- Waterloo metro station box comprising the below ground level development in the area shaded yellow in Figure 51);
- The OSD, the area excluding the Station Box, comprising:
  - Above ground level development in the area shaded yellow on Figure 51; and,
  - The area not shaded on Figure 51.

Figure 51 WMQ Boundary (red line) and Sub-Areas

Source: Douglas Partners

The Waterloo metro station box (i.e. metro services box) located below Building 4 has previously been remediated. All contamination sources from within the Station Box were removed as part of the station box excavation works and is documented in the following reports:

- Report on Validation of Remediation, Sydney Metro City & South West – Tunnel and Station Excavation Works Package, Waterloo Station, Botany Road, Waterloo, NSW (DP, 2020); and
- Site Audit Report Waterloo Station Box Excavation and Validation (Ramboll).

However, contamination present in the western portion of the site has been identified to potentially present a risk to future site users of Waterloo Station.

A combined Phase 1 and Phase 2 Site Contamination Investigation was previously conducted for the western portion of the WMQ. The investigation identified:

- The presence of contamination impact to the quality of the soil, soil vapour and groundwater, and recommended that appropriate remediation / management would be required to render the site suitable for an assumed commercial / mixed-use development.
- Additional investigation was recommended to further assess the site prior to remediation due to data gaps in the investigation.

The Contamination Strategy identifies specific works that need to be undertaken to ensure the site is suitably remediated for the proposed development. For the OSD, the following is required:

- Engage a suitably experienced Contaminated Lands Consultant and NSW EPA Accredited Site Auditor;
- Undertake Supplementary Contamination Investigation and Assessment to obtain additional data on the site conditions and further assess the risk the identified contamination potentially presents under the proposed development. The investigation and assessment will provide sufficient data to allow for the development of a suitable remediation strategy.
- Prepare a Remediation Action Plan based on the results of the supplementary contamination investigation and assessment and will be specific to the proposed development. The Site Auditor will review the RAP and provide Interim Advice supporting the suitability of the RAP prior to its implementation;
- Prepare an Unexpected Contaminated Land and Asbestos Finds Procedure. This will be prepared and included in the RAP;
- Implement the RAP and Unexpected Contaminated Land and Asbestos Finds Procedure;
- Validation Assessment of the remediation works by the Contaminated Lands Consultant;
- Prepare a Validation Assessment Report; and,
- Prepare a Site Audit Statement and Site Audit Report, by the NSW EPA Accredited Site Auditor, and submit to the Secretary and Council for information. The Site Audit Statement will state that the land is suitable for the proposed land use.

Subject to the above being carried out, Douglas Partners confirm the proposed Contamination Strategy is suitable to address the requirements of SEPP 55. The Strategy is also required to satisfy the CSSI 7400 conditions of approval to remediate the site to a standard suitable for the proposed development prior to the commencement of the detailed SSDA.

8.17. REFLECTIVITY

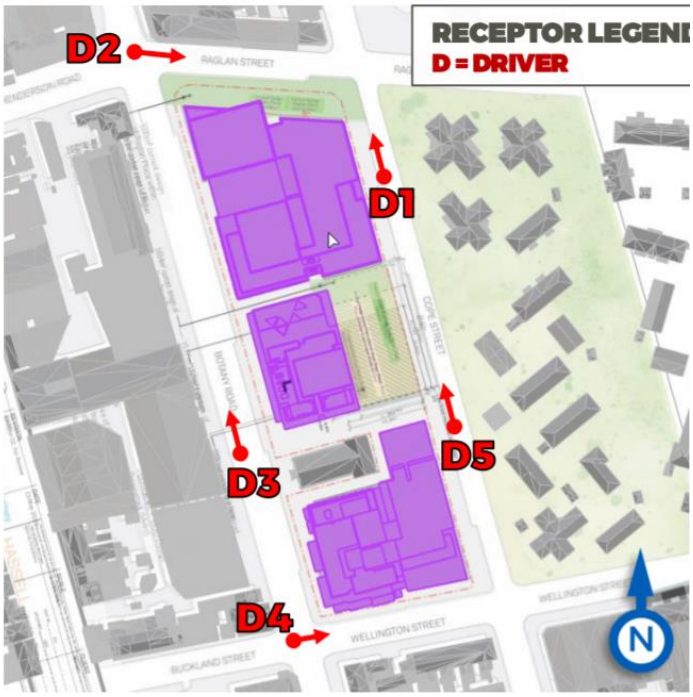
Assessment

RWDI have prepared a Solar Reflectivity Report (**Appendix GG**) to assess the potential for hazardous glare from the façade of the proposed development affecting motorists, pedestrians, and occupants of neighbouring buildings. A summary of the methodology, assessment and recommended mitigation measures are provided below.

A reflectivity analysis to demonstrate that the external treatments, materials and finishes of the development do not cause adverse or excessive glare was undertaken. The analysis was conducted in two parts. First a ‘screening’ simulation estimated peak reflection intensities and the frequency of occurrence of reflections which may cause glare for a broad area around the development. If reflections were predicted on roadways, a second ‘detailed’ analysis was undertaken.

Five representative points were selected for the detailed analysis. These receptor locations are illustrated in Figure 52**.**

Figure 52 Key receptors of solar reflectivity



Source: RWDI

The assessment found that none of the reflections were predicted to have a veiling luminance that exceeded 500 cd/m². In summary:

- The reflective surfaces of the proposed development are naturally causing solar reflections;
- The maximum intensities of the reflected solar energy are predicted to be moderate, with the majority of reflections having a maximum intensity below 650 W/m²;
- RWDI does not anticipate any significant heat gain issues on people or property, nor expect the reflections to create significant additional heat loads in adjacent buildings;
- The screening analysis predicted low potential for glare. Most locations had the potential for glare less than 5% of daylight hours, even with the conservative assumption that the viewer would be looking horizontally towards the source of the reflection;
- The detailed analysis predicted that driver receptor points travelling on roads in the vicinity of the site have the potential to be exposed to reflections. However, assuming that drivers are maintaining forward eye contact, the predicted veiling luminance of all reflections is below the 500 cd/m² limit; and,
- Given the safety risks associated with glare impacts to drivers, RWDI's analysis is intentionally conservative. The analysis assumed clear skies and ignored the effects of any landscaping, the use of sunglasses as well as obstructions to reflected light due to the car body.

In summary, the solar reflectivity assessment confirms there is negligible risk for the proposed development to cause due discomfort and glare to pedestrians and vehicle drivers.

8.18. BUILDING CODE OF AUSTRALIA (BCA)

Assessment

McKenzie Group Consulting has undertaken an assessment of the architectural design documents prepared by Bates Smart against the Deemed-to-Satisfy (DTS) provisions of the relevant sections of the Building Code of Australia (BCA) and applicable Building Regulations (**Appendix R**). The report is intended as an overview of the relevant provisions of the BCA for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

The assessment of the design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA, as they deviate from the deemed-to-satisfy provisions of the BCA:

- Fire resistance levels;
- Number of exits required;
- Exit travel distances;
- Travel via fire isolated exits;
- Service penetrations in fire-isolated exits;
- Re-entry from fire-isolated exits;
- Sprinkler protection;
- Vertical sections in Ring Mains;
- Service penetrations in Fire-isolated exits;
- Hydrants;
- Fire control centres;
- Weatherproofing of external walls; and
- Location of external openings.

Mitigation Measures

Performance solutions to the above non-compliances have been proposed by the design team to justify the non-conformances with the Deemed-to-satisfy provisions. The Performance Solutions are to be prepared by a suitably qualified fire engineer in consultation with Fire & Rescue NSW.

The assessment identified that additional information is required to complete the assessment and/or several areas need to be reviewed. Documentation to enable assessment and demonstrate compliance will be required to address the above items prior to approval. Further information is required on the following:

- Fire resisting construction;
- Non-combustible building elements;
- Fire hazard properties;
- Ancillary elements/attachments to the façade;
- Exit travel distances;
- Swinging doors;
- Accessibility;
- Fire control ventilation;
- Emergency lift with access to the gym;
- Sanitary facilities for patrons of the gym; and,
- Lot boundaries and protection of openings.

Key fire safety services are also required to meet the minimum DTS requirements.

Conclusion

McKenzie Group Consulting has undertaken an assessment of the architectural design documents prepared by Bates Smart against the Deemed-to-Satisfy (DTS) provisions of the relevant sections of the Building Code of Australia (BCA) and applicable Building Regulations (**Appendix R**). The report is intended as an overview of the relevant provisions of the BCA for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

Subject to review of the above items being addressed and review of the finalised Fire Engineering Report, the development is capable of meeting the Performance Requirements of the Building Code of Australia 2019. The Fire Engineering Assessment Report is to be prepared in consultation with Fire & Rescue NSW and submitted as part of the Construction Certificate application.

8.18.1. Accessibility

Assessment

Morris Goding Access Consulting has assessed the proposed development with regards to the requirements set out in:

- *Disability Discrimination Act (DDA) 1992;*
- *Disability (Access to Premises) Standards 2010* (Amendment 1);
- *National Construction Code - Volume One 2019;*
- *Australian Standards for Disability Access;* and,
- *City of Sydney DCP 2012* and *City of Sydney Access DCP 2004.*

The assessment (**Appendix S**) provides advice and strategies to maximise reasonable provisions of access for people with disabilities to ensure the development achieves DDA compliance. In many instances, the report provides recommendations, indicating the current design is readily available to provide compliance with the relevant DDA requirements subject to ongoing refinement through detailed design development.

External Linkages

All access requirements appear capable of achieving compliance subject to resolution of some issues regarding accessible external linkages. Further work will be required during design development stage to ensure appropriate outcomes are achieved.

Entrances

All access requirements appear capable of achieving compliance within all retail commercial and residential areas. Further work will be required during design development stage to ensure appropriate outcomes are achieved

Paths of Travel

All access requirements appear capable of achieving compliance subject to resolution of some minor issues regarding corridor ends, circulation spaces and latch side clearances for wheelchair users. Further work will be required during design development stage to ensure appropriate outcomes are achieved.

Passenger Lifts

All access requirements appear capable of achieving compliance subject to resolution of minor issues regarding lift lobby circulation spaces at the ground floor. Further work will be required during design development stage to ensure appropriate outcomes are achieved.

Stairs and Ramps

All access requirements appear capable of achieving compliance subject to resolution of some minor issues regarding stair tread offsets. Further work will be required during design development stage to ensure appropriate outcomes are achieved.

Adaptable Unit Provision

A total of 70 ILU's including a total of 12 adaptable units have been provided. A total of 17.14% adaptable units have been proposed which satisfies the minimum amount of 15% of dwellings required to be adaptable in line with Council's DCP.

Adaptable Unit Design

Based on the current level of detail, all access requirements appear capable of achieving compliance subject to resolution of some minor issues regarding adaptable unit layouts. Further work will be required during design development stage to ensure appropriate outcomes are achieved.

Common Areas

MGAC has reviewed the drawings and documentation in relation to the above requirements. Based on the current level of detail all access requirements appear capable of achieving compliance. Further work will be required during design development stage to ensure appropriate outcomes are achieve

Car Parking

No car parking has been provided for the Student Accommodation Building and therefore no accessible car parking needs to be provided under Deemed to Satisfy Provisions of BCA.

The 70 social housing units will have access to 8 car spaces. The Social Housing Building shows a reduction of adaptable unit car bays in line with the proposed ratio of general car bays and apartments. A total of 2 adaptable unit car spaces have been provided. The reduction of adaptable unit car bays is a reasonable proposition given the immediate proximity of the railway station, and precedence with regards to the reduction of adaptable unit car bays within other LGA's (such as Willoughby Council), other planning documents (such as City of Sydney Access DCP 2004) as well as DPIE requirements with residential projects at Barangaroo and Darling Square.

The design shows a reduction in adaptable unit car bays and leniency in this matter is sought. This has been discussed in detail in the mitigation measures recommended by MGAC outlined below.

Accessible SOU Provision (Student Accommodation)

The *Disability (Access to Premises - Buildings) Standards, 2010* (DAPS) requirement for accessible units in Class 3-Student Accommodation Buildings is 4%, which equates to 18 accessible units. A Performance Solution has been proposed and endorsed by MGAC to support the provision of a reduced number of accessible units for students with mobility issues whilst providing additional units for users from other sectors of the community with specific needs such as vision, hearing and intellectual disabilities.

The Performance Solution acknowledges that the general population has varying disabilities and therefore it has been agreed to provide several accessible units to address the needs of people with this wider variety of disabilities.

Therefore, the following accessible units have been allocated within this development:

- 3 Type A rooms;
- 10 Type B rooms;
- 5 Type C Rooms.

The student accommodation building has been assessed in accordance with the relevant regulatory documents including the NCC/BCA, State Building Legislation, Australian Standards, the Disability (Access to Premises – Buildings) Standards, 2010 and the spirit and intent of the Disability Discrimination Act 1992 (DDA).

Mitigation Measures

The report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures.

- An appropriate quantum of adaptable units (15% of total apartments) has been proposed. The adaptable units will be design in accordance with AS4299 within Building 4.
- The design shows a reduction of adaptable unit car bays within Building 4 in line with the proposed ratio of general car bays and apartments. The reduction of adaptable unit car bays is a reasonable proposition given the immediate proximity of the railway station, and precedence with regards to the reduction of adaptable unit car bays at other Councils as well as the Department of Planning Industry and Environment requirements with residential projects at Barangaroo and Darling Square.
- Performance solution report for accessible SOU accommodation shall be documented. The performance solution supports the provision of a reduced number of accessible units for students with mobility issues while in addition providing additional units for users with vision, hearing and intellectual disabilities.
- Performance solution for Student Accommodation (Building 3) garbage rooms shall be documented. The solution will include suitable door componentry and management plan to remove rubbish by staff.

- 100% of units within the Social Housing component will comply with Silver Level Liveable Housing Australia (LHA) Guidelines.
- A system of strong wayfinding signage will be required throughout the Cope Street Plaza to and from transport nodes. The signage and pictograms are to comply with AS1428.2 which can be achieved
- During design development stage, a means of access will be provided at the main entry points from the site boundaries.

In conclusion, the proposed drawings indicate that accessibility requirements, pertaining to external site linkages, building access, common area access and sanitary facilities can be readily achieved. MGAC will continue to work with the project team as the scheme progresses to ensure appropriate outcomes are achieved in building design and external domain design.

8.18.2. Fire Safety

Assessment

Omnii (NSW) Pty Ltd have undertaken a performance-based fire engineering review of the NCC Deemed-to-Satisfy (DTS) non-compliances for the development (refer to **Appendix EE**). The fire engineering assessment addresses the relevant Performance Requirements of the *National Construction Code 2019 Volume One* (NCC).

The Fire Engineering Review identifies several fire safety measures and departures from the relevant NCC performance requirements and deemed-to-satisfy clauses. Utilising the NCC, an acceptable Compliance Solution is to be achieved by a combination of compliance with the NCC DTS provisions and formulating an acceptable Performance Solution. This approach is intended to allow the development of an effective performance-based building design, whilst maintaining an acceptable level of Fire and Occupant Life Safety.

Section 9 of the report provides appropriate Performance Solutions. All other items of fire and life safety, where not specifically addressed or reviewed, are to be in accordance with the DTS provisions of the NCC.

Mitigation Measures

The proposed Performance Solutions detailed in Section 9 will be further reviewed and developed following the completion of a detailed fire safety engineering assessment and approval by the relevant Authorities.

8.19. SOCIAL AND ECONOMIC IMPACTS

8.19.1. Crime and Safety

A Crime Prevention Through Environmental Design (**CPTED**) Report has been prepared by Connley Walker Pty Ltd (**Appendix N**) to address the potential for anti-social and criminal behaviour within the public domain footprint and more broadly, throughout the entire detailed OSD design. Further, the reports mitigation focus and strategy includes assessing and mitigating crime risks by applying CPTED principles.

Table 33 CPTED assessment and mitigation measures

CPTED Principle	Assessment / Mitigation Measures
Building 3 – Ground Floor	
Access Control	Investigate bollards to the eastern edge of the Loading dock entry to prevent forced vehicle movement into Station HVM perimeter.
Surveillance	External lighting in pedestrian areas to AS1158.3.1:2005. CCTV coverage of all entrances, goods lift, and public areas.

CPTED Principle	Assessment / Mitigation Measures
	Electronic access control or secure key for external entrances and goods lift.
Building 4 – Level 1	
Access Control	Investigate design options to Level 1 balcony to prevent occupants stepping onto the roof.
Surveillance	Consider securing the door to the roof. Consider CCTV viewing of the door to the roof.

Notwithstanding the above, the proposed design has demonstrated consideration and implementation of CPTED principles through:

- Active spaces within the building have been located to maximise casual surveillance from outside the buildings via transparent glazing.
- Toilets are located and designed to maximise casual surveillance to facility entries.
- Blind-corners, recesses and other external areas that have the potential for concealment or entrapment have been minimised.
- Ground floor lobbies and entrances are clearly visible, unobstructed and easily identifiable from the street.
- Lobbies enable surveillance from the public domain to the inside of the building at night.
- Residential accommodation entries have a clearly defined transitional space between public and private areas.
- Signage clearly defines the purpose of areas.
- Appropriate lighting levels.
- Consideration of escape paths to avoid entrapment.

8.19.2. Security Risk Assessment

Assessment

A Security Risk Assessment has been prepared by Connley Walker and is provided at **Appendix FF.** The assessment has been carried out in accordance with the requirements of the Australian Standard for Risk Management AS/NZS ISO 31000. The AS/NZS ISO 3100 methodology is based on assessing risks and mitigating them based on the level of risk. Specifically, it involves the following:

- Establish the context;
- Risk assessment;
  - Risk identification
  - Risk analysis
  - Risk evaluation
- Risk treatment.

To ensure consistency with the adjoining Waterloo Station Development, the Security Risk Assessment has used the methodology for analysing and assessing the risks that is used by Sydney Metro. Consultation with South Sydney Police was conducted to gain an understanding of the operational context and specific security threats.

In addition to CPTED measures, the following security risk mitigation measures are recommended:

- CCTV surveillance of all public spaces, all building entries, lift lobbies, car park, bicycle storage, within all lifts, concierge points, roof access points and plant room entries.
- Electronic access control is also recommended at all residential lobby entries, lifts, entries to building management areas and non-public entries

The recommendations of the assessment are provided to mitigate against potential security risks and to ensure an appropriate level of security is applied, through sound security principles and standards, for the operation of the basement. The proponent is committed to implementing the recommended mitigation measures to aid the ongoing safe operation.

Further, a separate Blast Vulnerability Assessment **(BVA)** has been prepared to support the proposed development. The BVA demonstrates the Southern Precinct development adopts a balanced risk mitigation strategy, combining strategic operational and physical security treatments.

8.19.3. Employment Generation

A Social and Economic Assessment has been prepared by Urbis and is submitted at **Appendix AA**. The assessment estimates the number of jobs to be created by the broader Waterloo Metro Quarter development of the site as outlined in the table below.

Table 34 Job Creation

Stage	Timing	No. and type of jobs
During construction	Over 4.5 years	196 direct jobs 270 indirect jobs **Total – 466 jobs**
After construction (operation)	Ongoing	Commercial – 3,384 Child Care – 31 Retail – 137 Gym – 15 Student accommodation – 24 **Total – 3,591 jobs**

Job targets have been projected for the Harbour CBD in the Eastern City District Plan. These targets seek to inform planning authorities and infrastructure agencies of anticipated growth. The lower end of the range of these job targets reflects the baseline of projected job growth, while the upper end is an aspirational higher growth scenario to reflect outcomes in the case of future investment and land use planning. Overall, the Greater Sydney Commission is targeting an additional 165,100 – 235,100 jobs from 2016 to 2036. The proposed Waterloo Metro Quarter OSD is projected to generate around 3,591 jobs, which will help achieve the growth targets.

Overall, the proposed development is supported as it is anticipated to create a vibrant mixed-use precinct on the fringe of the Sydney CBD. The mix of uses including retail, residential and gym are supported with the market assessment identifying demand for these uses.

In summary, the development will contribute to the ongoing economic activity of the New South Wales workforce and support employment generation in the local area consistent with the objectives of the Sydney Region Plan and the Eastern District Plan.

8.20. HEALTH IMPACTS

The following key environmental and health issues have been addressed in detail through this EIS:

- Built Form
- Heritage Impact
- View and Visual Impact
- Overshadowing
- Wind Impacts
- Noise and Vibration
- Transportation Air Quality
- Airspace
- Traffic, Access and Car Parking
- Construction Impact(s)
- Utilities and infrastructure
- Flooding and Stormwater
- Reflectivity
- Accessibility
- Fire safety
- Social and Economic Impacts
- Crime and Safety

The ESD Report for the proposal includes health and well-being objectives to encourage active, social, and meaningful lives. The WMQ Precinct seeks to provide buildings, infrastructure, and spaces to support good health and wellbeing outcomes for all ages. Notably, the proposal will provide limited car parking and sufficient on-site bicycle parking and end of trip facilities to encourage healthy active transport options, whilst reducing automobile dependence and minimising carbon emissions.

Construction impacts relating to waste, noise and vibration, air quality and soil and water quality will be managed accordingly throughout the construction phase in line with the CEMP (refer **Appendix Q**). A Stormwater Management Strategy and Flood Impact Assessment has been prepared to ensure appropriate treatment of stormwater runoff to surrounding water catchments and mitigate potential flood impacts (**Appendix O**).

The proposal is accompanied by a Transportation Air Quality Management Plan (**Appendix W**) which indicates that compliance is achieved at the kerb of Botany Road for carbon monoxide (CO), nitrogen dioxide (NO2), and inhalable particulate matter (PM10) under the proposed peak hour traffic volume at mid-block on Botany Road.

The design has considered CPTED principles to mitigate potential health risks associated with anti-social and criminal behaviour.

8.21. SUITABILITY OF THE SITE

Suitability of the site for the development was primarily established as part of the concept DA. In summary, the detailed SSDA proposal is considered suitable for the site for the following reasons:

- The proposal is a prime opportunity to take advantage of the approved Sydney metro project, with the airspace created as part of the Waterloo Metro Quarter site envisaged to be developed for the purposes of OSD under the CSSI Approval and concept DA.

- The proposal will positively contribute to the delivery of a key new public domain space, Cope Street Plaza which will support a range of use modes for the existing and in-coming population of Waterloo.
- Will contribute to the creation of a network of public domain spaces and community uses within the WMQ site, including Cope Street Plaza, Church Yard and the makerspace which is of a size and design to flexibly adapt its use to meet the evolving needs of the community.
- The site is in proximity to several tertiary educational institutions, facilitating high levels of public transport usage for students.
- The separation of the site from the Northern and Central Precinct provides sufficient space to allow residential development to be proposed on the site whilst maintaining high levels of amenity in terms of solar access and privacy.
- The development will contribute to the creation of a vibrant mixed-use precinct, increasing pedestrian activity in and around the future metro station.
- The proposed scale and density of the development is highly appropriate in the context of other transit-oriented centres in the Eastern City District and Greater Sydney.
- The proposed envelope fully complies with the approved concept envelope and has been designed to ensure that overshadowing to Alexandria Park is minimal.
- The shape and size of the site has allowed the proposal to be designed to ensure that the operations of Sydney metro, or the future expansion of the Sydney metro network of stations are not inhibited, as well as to ensure the effective movement of pedestrians through and around the site.
- The proposal will contribute to the provision of additional dwellings in a location which reinforces the '30-minute city' concept proposed by the Greater Sydney Commission, locating dwellings and employment in a location which is proximal to services, open space, transport and jobs.
- The development is appropriate with regards to matters such as flooding, geotechnical and contamination, air quality, noise and vibration, reflectivity, aeronautical safety and wind.

8.22. PUBLIC INTEREST

The detailed SSDA is considered to be in the public interest for the following reasons:

- The proposal provides significant employment opportunities in the short-term through construction (466 jobs). In the long term, the student accommodation, gym and Makerspace will generate approximately 39+ jobs.
- The proposal will deliver high-quality public open space in the form of Cope Street Plaza and Church Yard.
- The detailed design of the development supports an activated public domain during the day and evening with improved pedestrian connectivity to the metro station and surrounding area.
- The proposal maintains solar access to significant areas of public open space, specifically Alexandria Park.
- The detailed design respectfully integrates with adjacent local heritage items including Waterloo Congregational Church and the Cauliflower Hotel.
- The detailed design provides an activated podium and public domain through the delivery of Church Yard and Cope Street Plaza which increases opportunities for natural surveillance to minimise anti-social and criminal behaviour within the locality.
- The proposal will support the delivery of 70 new social housing dwellings and 474 student accommodation beds which will be located within immediate proximity to the new Waterloo metro station, with direct access to employment, educational institutions, high quality public domain spaces, and community facilities.

9. ENVIRONMENTAL RISK ASSESSMENT

9.1. RISK ASSESSMENT

The SEARs require an environmental risk analysis to identify potential environmental impacts associated with the proposal.

This analysis comprises a qualitative assessment consistent with the methodology used for the concept DA and the *Australian Standard AS4369:1999 Risk Management and Environmental Risk Tools*. The level of risk was assessed by considering the potential impacts of the proposed development prior to application of any mitigation or management measures.

The significance of the impact is assigned a value between 1 and 5 based on:

- The sensitivity of the environment receiving the impact;
- The level of understanding of the type and extent of the impact;
- The likely response to the environmental consequence of the project.

The manageability of the impact is assigned a value between 1 and 5 based on:

- The complexity of mitigation measures;
- The known level of performance of the mitigation measures proposed;
- The opportunity for adaptive management.

The sum of the significance and manageability values provides an indicative ranking (between 1 and 10) of the potential residual impacts after the mitigation measures are implemented. The risk levels for likely and potential impacts were, therefore derived using the following risk matrix.

Table 35 Risk Matrix

		MANAGEABILITY OF IMPACT				
		A – COMPLEX	B – SUBSTANTIAL	C – ELEMENTARY	D – STANDARD	E – SIMPLE
SIGNIFICANCE	5	High	High	Medium	Low	Very Low
	4	High	High	Medium	Low	Very Low
	3	Medium	Medium	Medium	Low	Very Low
	2	Low	Low	Low	Low	Very Low
	1	Very Low	Very Low	Very Low	Very Low	Very Low

The results of the environmental risk assessment for the detailed SSDA are presented in Table 36.

Following the application of each of the mitigation measures, only three residual risks are identified that have a risk profile of ‘medium’ or greater, including:

- Wind - Adverse impact on the pedestrian wind environment of surrounding streets.
- Noise - Adverse noise conditions within the OSD from surrounding development and road network.
- Structural Interface - Structural interface with metro station and Infrastructure

These risks can be appropriately managed through the minimisation and mitigation measures which are proposed as part of this application.

Table 36 Risk Assessment

Aspect	Potential Impact	Significance	Manageability	Risk Level
Design Excellence	The development does not achieve design excellence.	3	D	Low
Aboriginal Heritage	Potential impacts on Aboriginal places of significance (Construction).	3	D	Low
Non-Aboriginal Heritage	Impact on the significance of heritage items in the vicinity notably Waterloo Congregational Church.	2	D	Low
View and Visual Impact	Adverse view impacts to surrounding developments.	2	D	Low
Solar Access	The residential apartments and student rooms do not achieve adequate sunlight.	3	D	Low
	Potential impacts on adjoining residential dwellings and public open space.	2	D	Low
Privacy	Adverse impact on visual and acoustic privacy of surrounding residential properties.	2	D	Low
Overshadowing	Increase in overshadowing to Alexandria Park.	2	B	Low
Natural Ventilation	The residential apartments do not achieve adequate natural ventilation.	3	D	Low
Environmental Performance / ESD	Irreversible increase in energy usage.	2	C	Low
Wind Impact	Adverse wind environment to outdoor areas in the OSD, including to private balconies, communal areas and Cope Street Plaza. Potential for general and localised wind effects.	3	C	Medium
Noise and Vibration	Adverse noise conditions within the OSD from Sydney Metro infrastructure.	2	D	Low
	Adverse noise conditions within the OSD from surrounding development and road network. Adverse external noise conditions to surrounding development (Operation).	3 2	C D	Medium Low

Aspect	Potential Impact	Significance	Manageability	Risk Level
	Adverse external noise conditions to surrounding development (Construction).	3	D	Low
Airspace	Impact on prescribed and protected airspace	2	D	Low
Traffic and Transport	Increased traffic on local roads (Operational).	2	C	Low
	Increased traffic on local roads (Construction).	3	D	Low
	Additional demand for on-street car parking spaces (Operational and Construction).	3	D	Low
Pedestrian Management	Conflict with pedestrian and cycle/vehicle operations (Operational).	2	C	Low
	Conflict with pedestrian and cycle/vehicle operations (Construction).	3	D	Low
Pedestrian amenity	Adverse impact on the pedestrian wind environment of surrounding streets.	3	C	Medium
	Pedestrian volumes and footpath/public domain capacity.	2	C	Low
Waste	Waste production (Operation).	2	D	Low
	Waste production (Construction).	2	D	Low
Air Quality, Odour and Dust	Air quality, odour and dust emissions (construction)	2	C	Low
Construction	Impacts associated with public safety, visual amenity, noise, waste and traffic management in the locality during construction	3	D	Low
Soil and Water	Impact on water table	2	D	Low
Infrastructure provision	Adequate connection to infrastructure and utilities and adequate infrastructure capacity	2	D	Low
Structure	Structural interface with metro station and Infrastructure	3	C	Medium
	Structural impact on Waterloo Congregational Church	3	D	Low

Aspect	Potential Impact	Significance	Manageability	Risk Level
Flooding	Potential flooding of the OSD.	2	B	Low
	Potential flooding of aspects of the CSSI ‘Sydney metro box’ including the public domain.	2	B	Low
Stormwater	Adverse impact on the quality of stormwater runoff (Operation).	2	D	Low
	Adverse impact on the quality of stormwater runoff (Construction).	3	D	Low
Contamination	Exposure of contamination or hazardous materials during construction and operation.	2	D	Low
Reflectivity	Adverse impact on reflectivity of the proposed buildings on public domain, pedestrians and motorists.	2	D	Low
Building Standards	Adequate access for people with a disability.	2	C	Low
	Adherence to Building Code of Australia	2	D	Low
Safety and Security	Adverse impact on the safety and security of local community.	2	D	Low
Social Impact	General disruption to community associated with large scale construction.	3	D	Low
	Antisocial and criminal behaviour.	2	C	Low
Signage	Detracts from the architectural integrity of the building.	2	D	Low
	Adverse impact on public domain, pedestrians and motorists.	2	D	Low
Cumulative Impacts	Cumulative impacts (traffic, noise, dust, etc.) associated with concurrent construction of station and OSD, and other development in the area.	3	D	Low
	Cumulative impacts (traffic, noise emissions, etc.) during concurrent operation of station and OSD, and other development in the area.	3	D	Low

9.2. MITIGATION MEASURES

The measures identified to mitigate the potential environmental impacts of the proposed development are described in detail within Section 8 of the EIS and summarised in the table below.

Table 37 Mitigation Measures

Item	Potential Impact	Mitigation Measure
Design Excellence	The development does not achieve design excellence.	Comply with the requirements of the design Excellence Strategy. Maintain engagement with the 'design Architect' through the detailed design of the proposed development.
Aboriginal Heritage	Potential impacts on Aboriginal places of significance (Construction).	The potential impact upon aboriginal heritage will be considered under the construction of the Basement Precinct. The updated Archaeological Method Statement (AMS) prepared by AMBS Ecology + Heritage dated 30 September 2020 (**Appendix H**) must be adhered to for the full extent of excavation and construction associated with the basement. This AMS outlines the proposed excavation methodology for the site to manage archaeological significance and impacts.
Non-Aboriginal Heritage	Impact on the significance of heritage items in the vicinity notably Waterloo Congregational Church.	Adopt the recommendations of the Heritage Impact Statement (**Appendix H**) prepared by Urbis, dated 30 September 2020, with regard to maintaining the proposed building setbacks, materiality and finishes.
View and Visual Impact	Adverse view impacts to surrounding developments	Compliance with the approved concept DA building envelope, and the assessment of the proposed façade features and embellishments to ensure no further adverse impacts result. Further design development to result in a high-quality ground plane. Implementation of principles of design excellence as articulated in "Better Placed – an integrated policy for the built environment in NSW" (Government Architect NSW, September 2017). Preparation and implementation of an integrated public domain plan that includes judicious planting of trees along Botany Road, Wellington Street, and Cope Street that will reach mature heights sufficient to provide tree canopies consistent with the existing local tree canopy. Detailed design of the public domain and Cope Street Plaza. Large scale street trees will be a requisite to maintain human scale and to reinforce a visual connection with the residential precinct.

Item	Potential Impact	Mitigation Measure
Solar Access	The residential apartments and student rooms do not achieve adequate sunlight.	Maintain approved concept envelope and proposed building orientation and floor layout.
	Potential impacts on adjoining residential dwellings and public open space.	Compliance with the approved concept DA building envelope, and the assessment of the proposed façade features and embellishments to ensure no further adverse impacts result.
Privacy	Adverse impact on visual and acoustic privacy of surrounding residential properties	Maintain proposed building orientation and floor layout, including privacy treatments and location of windows.
Overshadowing	Increase in overshadowing to Alexandria Park.	No more than 30% of Alexandria Park excluding the oval is overshadowed by the development as measured at any time after 9am on 21 June. Maintain proposed building height, setbacks and overall envelope. No additional mitigation measures are required.
Natural Ventilation	The residential apartments do not achieve adequate natural ventilation.	Maintain proposed floor plan layout. Adhere to the mitigation measures outlined in the Natural Ventilation Report prepared by RWDI dated 30 September 2020 (**Appendix RR**) including utilisation of a ventilation plenum above the internal corridor to Apartments 609 and 709 and ventilated corridor to the northern aspect (Apartments 201, 301, 401, 501, 601, 701 and 801).
Metro Services Box	Adverse amenity impacts from exhaust vents.	Maintain proposed floorplate which has been designed to respond to the required string line setbacks from these station vents. Maintain proposed setback of operable windows and balconies to achieve minimum separation from vent, install fixed glazing and glass screen behind sun blades to ensure all windows and balconies achieve the required separation distances.
Environmental Performance / ESD	Irreversible increase in energy usage.	Adhere to recommendations within the ESD Report prepared by Cundall Johnston and Partners and Partners dated 30 September 2020.
Wind Impact	Adverse wind environment to outdoor areas in the OSD, including to private balconies, communal areas and Cope Street Plaza. Potential for general and localised wind effects.	Maintain awnings detailed on the architectural drawings and tree planting as illustrated in the landscape plan prepared by Aspect to ensure the ground plane, elevated areas, surrounding streets and Cope Street Plaza satisfy the required wind comfort conditions for the Southern Precinct.

Item	Potential Impact	Mitigation Measure
Noise and Vibration	Adverse noise conditions within the OSD from Sydney Metro infrastructure and surrounding development.	Adhere to the recommendations provided within the Noise and Vibration Impact Assessment prepared by Stantec, dated 30 September 2020. All noise-affected apartments to be ventilated with an acoustic ventilator to meet the project internal noise limits. The acoustic plenum shall achieve a transmission loss values equal to or greater than the values presented in the Natural Ventilation Report prepared by RWDI dated 30 September 2020.
	Adverse external noise conditions to surrounding development (Operation).	**Mechanical Plant and Equipment** ▪ Reduce load demand of the mechanical plant and equipment to approximately 60% during the evening period (6:00pm – 10:00pm) and 40% during the night-time period (10:00pm – 7:00am). ▪ Install acoustic barriers to the Building 3 Level 24 plantroom to the height shown in the architectural documentation. Acoustic barriers can be solid or can be an acoustic louvre, though the barrier must have a noise reduction of no less than the values identified in the Noise and Vibration Report prepared by Stantec dated 30 September 2020. ▪ Generators must be enclosed with an acoustic canopy to ensure the sound pressure level measured at 7 metres in each octave band centre frequency does not exceed the values shown in Table 36 of the Noise Report. ▪ Additional mitigation measures for the mechanical plant should be considered during the design development stage to ensure compliance with the outlined criteria at the nearest sensitive receivers. **Loading Dock** ▪ Activities conducted within the loading dock are to be performed with the loading dock shutter door is closed. ▪ Activities within the loading dock to be conducted with the implementation of the following management practices: - Maintaining rubbish trucks and braking materials to minimize or eliminate noise such as squeaky brakes; and, - Educating drivers and collectors to be careful and to implement quiet work practices. **Building 3 Level one and two gym**

Item	Potential Impact	Mitigation Measure
		▪ The separating floor-ceiling construction between the gym and residential apartments are to be designed to achieve a transmission loss with values equal to or greater than those specified in the Noise and Vibration Report prepared by Stantec dated 30 September 2020. ▪ The gym floor will likely require vibration isolation. This is to be reassessed in a future fit-out development application. ▪ The vibration isolation of the gym is to be designed as the design develops and when more information is known regarding the structure, natural frequency and construction. ▪ As a preliminary mitigation method, the proposed thickness of the gym floor is to be 201mm+ the support channel thickness, from structural floor. ▪ The floor structure will likely be resiliently mounted on isolation springs. ▪ Isolated gym floor must have no physical contact with room partitions. Therefore, any gap between the isolated floor and partitions is to be fully sealed with a close cell neoprene seal along the junction between isolated floor and partitions. ▪ An insulation blanket is to be installed between floating gym floor and supporting concrete slab. Insulation shall have 75mm minimum thickness and achieve a minimum density of 15 kg/m3 when uncompressed. ▪ The following isolation platform for any deadlift zones is recommended: Rogue Deadlift Platform (2.2m x 1.2m).
	Adverse external noise conditions to surrounding development (Construction).	Adhere to the recommendations contained within the Noise and Vibration Impact Assessment (Operational and Construction) prepared by Stantec dated 30 September 2020 (**Appendix K**) including: ▪ Written consent from the nominated approval authority is to be obtained prior to any noise activities outside the nominated site operating hours being undertaken. ▪ Contractor to utilise existing noise impact assessment data to determine noise sources and confirm ambient background levels. Alternatively, baseline noise monitoring is to be conducted prior to construction work commencing. ▪ The Contractor may engage an acoustic consultant to monitor construction noise level during its activities.

Item	Potential Impact	Mitigation Measure
		▪ Routine inspections of plant and equipment are to be conducted to ensure performance relative to compliance requirements. ▪ All practical efforts to protect vibration sensitive buildings and the amenity of adjoining stakeholders (specifically the Church) are to be considered when planning for construction work that includes vibration. ▪ Implement a practical and economical combination of vibration control measures to manage vibration impacts such as: - Substitution by an alternative process; - Restricting times when work is carried out; - Screening or enclosures; - Consultation with affected residents; and, - Utilisation of temporary supports where deemed necessary. ▪ Undertake site inspections and monitoring to confirm noise and vibration levels are being met.
Airspace	Impact on prescribed and protected airspace	Maintaining proposed maximum building height in accordance with concept DA envelope, as proposed to be modified (SSD 9393).
Traffic and Transport	Increased traffic on local roads (Operational).	The provision of nil parking to the student accommodation building and limited (8 car spaces) for social housing residents. Implementation of a loading dock management plan to schedule services and deliveries to mitigate traffic movements from and to the site.
	Increased traffic on local roads (Construction).	The provision of zero parking spaces on site during construction for workers.
	Additional demand for on-street car parking spaces (Operational and Construction)	Implementation of a Green Travel Plan. A Green Travel Plan has been prepared by ptc. which is attached to the Traffic Impact Assessment (**Appendix I**)to encourage a modal shift towards higher active and public transport usage.
Pedestrian Management	Conflict with pedestrian and cycle/vehicle operations (Operational).	The provision of minimal resident car parking spaces on the site. Implementation of a loading dock management plan to schedule services and deliveries to mitigate traffic movements from and to the site.
	Conflict with pedestrian and cycle/vehicle operations (Construction).	Consistency with the Construction Traffic and Pedestrian Management Plan prepared by ptc. dated 30 September 2020 (**Appendix I**).
Pedestrian amenity	Adverse impact on the pedestrian wind environment of surrounding streets.	Maintain awnings detailed on the architectural drawings and tree planting outlined in the landscape design to enable the ground plane

Item	Potential Impact	Mitigation Measure
		areas to satisfy the required wind comfort conditions for the Southern Precinct and the surrounding public open space areas including Cope Street Plaza.
	Pedestrian volumes and footpath/public domain capacity.	Maintain safe and legible footpaths design and delivered in accordance with the Waterloo Metro Quarter Design and Amenity Guidelines and supporting architectural documentation.
Waste	Waste production (Operation).	Implementation of the Operational Waste Management Plan prepared by Elephants Foot dated 30 September 2020 (**Appendix L).**
	Waste production (Construction).	Preparation and implementation of a detailed Construction Waste Management Plan.
Air Quality, Odour and Dust	Air quality, odour and dust emissions (construction)	Maintain compliance with AS1668.2.
Construction	Impacts associated with public safety, visual amenity, noise, waste and traffic management in the locality during construction	The CEMP development by John Holland dated 30 September 2020 and included at **Appendix Q** will be further developed prior to commencement of construction and address any further cumulative impacts as a result of other developments in proximity to the Southern Precinct.
Soil and Water	Soil and water pollution	Installation, use and maintenance of a number of temporary erosion and sediment control measures as detailed within the CEMP prepared by John Holland dated 30 September 2020 and included at **Appendix Q**.
Infrastructure provision	Adequate connection to infrastructure and utilities and adequate infrastructure capacity	Adhere to mitigation measures identified in the Services and Utilities Infrastructure Report prepared by WLD dated 30 September 2020 at **Appendix T.**
Structure	Integration of OSD with CSSI Infrastructure and impacts to adjacent structures including Waterloo Congregational Church	Comply with: ▪ AS 1170.0 Structural Design Actions Part 0: General Principles 2002; ▪ AS 1170.1 Structural Design Actions Part 1: Permanent, Imposed and other 2002; ▪ AS1170.2 Structural Design Actions Part 2: Wind Actions 2009; ▪ AS1170.4 Structural Design Actions Part 4: Earthquake Loads 2007; ▪ AS 3600 Concrete Structures 2018; ▪ AS 3700 Masonry Structures 2001; and, ▪ AS 4100 Steel Structures 1998.

Item	Potential Impact	Mitigation Measure
Flooding	Potential flooding of the OSD.	Comply with the recommendations and mitigation measures contained within the Stormwater and Flood Impact Assessment prepared by WSP dated 30 September 2020 (**Appendix O).** Adopt the permissible minimum building floor levels and below ground development flood planning levels for the WMQ site as defined within the Stage 1 concept DA Water Quality, Flooding and Stormwater Report (October 2018). Prepare a flood warning and evacuation plan to inform the residents and managers of the building on the procedures to adopt to in case of an emergency associated to flood risk.
Stormwater	Adverse impact on the quality of stormwater runoff (Operation).	▪ Direct roof and pavement runoff to a Stormfilter chamber prior to discharge to Council's stormwater system. ▪ Provide a separate water quality chamber at the site boundary to treat runoff from pavement areas in addition to roof runoff. ▪ Provide 7 Stormfilter cartridges for Building 3 & 4. ▪ Install a 10kL rainwater tank within Building 3 & 4. ▪ Install EnviroPod filters (or similar approved equivalent products) within every stormwater inlet pit on the site.
	Adverse impact on the quality of stormwater runoff (Construction).	Environmental protection during construction will involve the installation, use and maintenance of a number of temporary erosion and sediment control measures as required in accordance with a range of principles detailed in the CEMP prepared by John Holland dated 30 September 2020 (**Appendix Q**).
Contamination	Exposure of contamination or hazardous materials during construction and operation.	Adopt the recommendations of the Contamination Strategy (**Appendix OO**) prepared by Douglas Partners dated 30 September 2020.
Reflectivity	Adverse impact on reflectivity of the proposed buildings on public domain, pedestrians, and motorists.	Maintain the proposed external materials and finishes and adhere to the recommendations within the Solar Reflectivity Assessment (**Appendix GG**) prepared by RWDI dated 30 September 2020. All glazing and other reflective materials used on the façade shall have a maximum normal specular reflectivity of visible light of 20%.
Biodiversity	Loss of significant vegetation.	A BDAR waiver (**Appendix V**) was issued by the NSW DPIE and OEH. It was on determined on the

Item	Potential Impact	Mitigation Measure
		24th July 2020 that a BDAR is not required as part of this detailed SSDA.
Building Standards (including Fire)	Adequate access for people with a disability.	Ensure adherence to BCA, accessibility objectives under the BCA, Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards), and the relevant Australian Standards as they relate to access to premises and the intent of the Disability Discrimination Act 1992 (Cth) (DDA) as outlined in the BCA Assessment prepared by McKenzie Group Consulting dated 30 September 2020 (**Appendix R**) and DDA Assessment prepared by Morris Goding Access Consulting dated 30 September 2020 (**Appendix S**). Ensure detailed design adherence to Fire Safety Strategy Report prepared by Omnii Fire dated 30 September 2020.
Safety and Security	Adverse impact on the safety and security of local community.	Detailed design to include compliance with mitigation measures and recommendations within the CPTED Report prepared by Connley Walker dated 30 September 2020 (**Appendix N**) including additional surveillance devices, mechanised access controls, and clear way-finding signage. Design consideration should be given to preventing hostile vehicle penetration. Implementation of camera surveillance, public domain furniture design, anti-graffiti façade protections and the location of a high visibility security room.
Social Impact	General disruption to community associated with large scale construction.	Consistency with the recommendations of the Construction Environmental Management Plan prepared by John Holland dated 30 September 2020 (**Appendix Q**) including notably ongoing engagement and consultation with the surrounding landowners and occupants during the construction period, including a complaints register.
	Antisocial and criminal behaviour.	Adoption of the recommendations of the CPTED assessment prepared by Connley Walker dated 30 September (**Appendix N**).
Signage	Detracts from the architectural integrity of the building. Adverse impact on public domain, pedestrians and motorists.	Consistency with the approved signage plans submitted as part of this Detailed SSDA including dimensions, materials and no illumination.
Cumulative Impacts	Cumulative impacts (traffic, noise, dust, etc.) associated with concurrent construction and	Implementation and finalisation of the Draft Construction Pedestrian and Traffic Management Plan and the Construction Environmental Management Plan prepared by John Holland,

Item	Potential Impact	Mitigation Measure
	operation of the station OSD, and other development in the area.	dated 30 September 2020 (**Appendix Q**). A detailed Construction Management Plan to be prepared at CC stage, which should detail how screening, hoarding and construction zones should be coordinated to ensure public safety and amenity. Preparation and implementation of a Plan of Management for the proposed non-residential land uses. Adherence to the Preliminary Plan of Management prepared by Iglu for the student accommodation building (**Appendix SS**). Implementation of a loading dock management plan to schedule services and deliveries to mitigate traffic movements from and to the site.

10. CONCLUSION AND JUSTIFICATION

This EIS has been prepared to accompany a detailed SSDA for the construction and operation of a mixed use OSD and public domain works located at the Southern Precinct of the overall Waterloo Metro Quarter site. This EIS has comprehensively addressed the general and key issues relating to the proposed development and has included the plan and document requirements identified in the SEARs and in Schedule 2 of the EP&A Regulation. This EIS is submitted to the NSW DPIE pursuant to Part 4 of the EP&A Act. The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the detailed SSDA.

The lodgement of the detailed SSDA follows the approval of a concept SSDA (SSD 9393) granted by the Minister for Planning on 10 December 2019.

The detailed SSDA seeks approval for the detailed design, construction, and operation of two residential buildings within the Southern Precinct of the site with podium non-residential uses, and public domain improvements including the construction of the Cope Street Plaza.

The detailed design of the proposed Southern Precinct development and public domain improvements has been the subject of design development and testing and ongoing review from various government and independent parties to ensure that it achieves the highest standard in architectural design, while ensuring a functional interface is delivered with the Sydney metro.

Overall the proposed development sought within the detailed SSDA is considered appropriate for the site and warrants approval from the Minister for Planning and Public Spaces for the following reasons:

- The proposal is consistent with the concept approval (SSDA 9393) and CSSI approval (CSSI 7400).
- The proposal contributes to the achievement of the objectives for development within the Eastern City District as outlined within the relevant strategic plans and policies. The proposal results in an orderly and economic use of the land that leverages significant NSW Government investment in public transport to the site, specifically Sydney metro.
- The proposal supports 18,839sqm of new residential GFA which is capable of contributing to the housing targets of the Eastern City District by delivering 70 social housing dwellings and beds for an estimated 474 students.
- The proposal satisfies the applicable State planning policies and relevant environmental planning instruments that apply to the site. The proposed uses are permitted with consent and meet the objectives of the B4 mixed use zone in SLEP 2012.
- The proposal complies with the overshadowing controls pertaining to Alexandria Park and results in significantly less overshadowing compared to the approved concept envelope.
- The proposal will not have any unacceptable environmental impacts, as follows:
  - The proposal has no unacceptable traffic impacts.
  - The proposal minimises pedestrian and vehicle conflicts and maximises legibility and accessibility to the Waterloo metro station.
  - The proposal is sympathetic to the heritage items in the vicinity of the site, including the adjacent Waterloo Congregational Church and Cauliflower Hotel located opposite the site.
  - The proposal achieves design excellence as outlined in the Design Excellence Strategy and Design Integrity Report.
  - Whilst the proposal does not strictly comply with the ADG building separation requirements, careful consideration has been given to the design of the western façade to maintain visual and acoustic privacy whilst achieving adequate sunlight access and outlook.
- The proposed detailed design of the OSD has considered and is integrated with, the detailed design of the Sydney Metro Waterloo Station and its related works including the construction of the development up to the transfer slab and the public domain.

In view of the above, we submit that the proposal is in the public interest and that the detailed SSDA should be approved subject to appropriate conditions.

DISCLAIMER

This report is dated 26 October 2020 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of WL DEVELOPER PTY LTD **(Instructing Party)** for the purpose of Environmental Impact Statement **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

In preparing this report, Urbis may rely on or refer to documents in a language other than English, which Urbis may arrange to be translated. Urbis is not responsible for the accuracy or completeness of such translations and disclaims any liability for any statement or opinion made in this report being inaccurate or incomplete arising from such translations.

Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.