BUILDING CODE OF AUSTRALIA REPORT

Revision: D 22 August 2018

Sydney Metro Martin Place Integrated Station Development: North Tower

Prepared for: Macquarie

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Date	Rev No	No. of Pages	Issue or Description of Amendment	Checked By	Approved By	Date Approved
12.07.18	A	34	Draft – Stage 2 DA submission	Vijay Perumal	Brigitte Thearle	13.07.18
03.08.18	B	29	Final – DA Submission	Vijay Perumal	Brigitte Thearle	08.08.18
08.08.18	C	37	Final – Updated with stakeholder comments	Vijay Perumal	Brigitte Thearle	08.08.18
22.08.18	D	37	Final	Vijay Perumal	Brigitte Thearle	22.08.18

Executive Summary

As Accredited Certifiers, we have reviewed design documentation (Appendix A) for “The North Tower” Commercial Building located above the new Metro Station in Sydney CBD against the relevant provisions of the Building Code of Australia (BCA) and can confirm that the project is capable of achieving compliance with the BCA through a combination of deemed-to-satisfy provisions and performance based solutions as required by the BCA.

This report identifies the future design requirements and considerations that will need to be resolved through detailed design documentation through the Construction Certificate process.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act, 1979 (As Amended) and the Environmental Planning & Assessment Regulation, 2000.

Where items for which a performance solution is prepared relate to Category 2 items under the Environmental Planning & Assessment Regulation, 2000, approval will be required by the NSW Fire Brigade as part of the Construction Certificate process.

Assessed By

Vijay Perumal

Introduction

This report supports a State Significant Development (SSD) Development Application (DA) submitted to the Minister for Planning (Minister) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) on behalf of Macquarie Corporate Holdings Pty Limited (Macquarie), who is seeking to create a world class transport and employment precinct at Martin Place, Sydney.

The SSD DA seeks approval for the detailed design and construction of the **North Site** Over Station Development (OSD), located above and integrated with the Martin Place Metro Station (part of the NSW Government's approved Sydney Metro project). The northern entrance to Martin Place Metro Station will front Hunter Street, Elizabeth Street and Castlereagh Street, with the North Site OSD situated above.

This application follows the approval granted by the Minister for a Concept Proposal (otherwise known as a Stage 1 DA) for two OSD commercial towers above the northern and southern entrances of Martin Place Metro Station (SSD 17_8351). The approved Concept Proposal establishes building envelopes, land uses, Gross Floor Areas (GFA) and Design Guidelines with which the detailed design (otherwise known as a Stage 2 DA) must be consistent.

This application does not seek approval for elements of the Martin Place Station Precinct which relate to Stage 2 of the Sydney Metro infrastructure project, which is subject to a separate Critical State Significant Infrastructure (CSSI) approval. These include:

- Demolition of buildings on the North Site and South Site;
- Construction of rail infrastructure, including station platforms and concourses;
- Ground level public domain works; and
- Station related elements in the podium of the North Site building.

However, this application does seek approval for OSD areas in the approved Martin Place Station Structure, above and below ground level, which are classified as SSD as they relate principally to the OSD. These components are within the Metro CSSI approved station envelope that will contain some OSD elements not approved in the CSSI consent. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.

The report is intended as an overview of the relevant provisions of the Building Code of Australia for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

Context

The New South Wales (NSW) Government is implementing Sydney's Rail Future (Transport for NSW, 2012), a plan to transform and modernise Sydney's rail network so that it can grow with the city's population and meet the needs of customers in the future.

Sydney Metro is a new standalone rail network identified in Sydney's Rail Future. The Sydney Metro network consists of Sydney Metro Northwest (Stage 1) and Sydney Metro City & Southwest (Stage 2).

Stage 2 of the Metro entails the construction and operation of a new Metro rail line from Chatswood, under Sydney Harbour through Sydney's CBD to Sydenham and onto Bankstown through the conversion of the existing line to Metro standards. The project also involves the delivery of seven (7) new Metro stations, including Martin Place.

This step-change piece of public transport infrastructure once complete will have the capacity for 30 trains an hour (one every two minutes) through the CBD in each direction catering for an extra 100,000 customers per hour across the Sydney CBD rail lines.

On 9 January 2017 the Minister approved the Stage 2 (Chatswood to Sydenham) Metro application lodged by Transport for NSW (TfNSW) as a Critical State Significant Infrastructure (CSSI) project (reference SSI 15_7400). Work is well underway under this approval, including demolition of buildings at Martin Place.

The OSD development is subject to separate applications to be lodged under the relevant provisions of the EP&A Act (one application is being sought for the North Site – this application – and one for the South Site via a separate application).

Site Description

The Sydney Metro Martin Place Station Precinct (the Precinct) project relates to the following properties (refer to **Figure 1**):

- 50 Martin Place, 9 – 19 Elizabeth Street, 8 – 12 Castlereagh Street, 5 Elizabeth Street, 7 Elizabeth Street, and 55 Hunter Street (North Site);
- 39 – 49 Martin Place (South Site); and
- Martin Place (that part bound by Elizabeth Street and Castlereagh Street).

This application relates **only to the North Site**, which refers to the city block bounded by Hunter Street, Castlereagh Street, Elizabeth Street, and Martin Place (refer to **Figure 2**).

The South Site (39 – 49 Martin Place) is the subject of a separate Stage 2 SSD DA.

Figure 1 – Aerial Photo of the North and South Site of the Martin Place Metro Station Precinct

Background

Sydney Metro Stage 2 Approval (SSI 15_7400)

On 9 January 2017, the Minister approved Stage 2 of the Sydney Metro project, involving the construction and operation of a metro rail line between Chatswood and Sydenham, including the construction of a tunnel under Sydney Harbour, links with the existing rail network, seven metro stations (including a station at Martin Place), and associated ancillary infrastructure. The project approves the demolition of existing buildings at Martin Place, excavation and construction of the new station (above and below ground) along with construction of below and above ground structural and other components of the future OSD, although the fit-out and use of such areas are the subject of separate development approval processes.

Modification 3 to the Sydney Metro consent, approved 22 March 2018, enabled the inclusion of Macquarie-owned land at 50 Martin Place and 9-19 Elizabeth Street within the Martin Place Station footprint, and other associated changes (including retention of existing MLC pedestrian link).

Concept Proposal (SSD 17_8351)

On 22 March 2018, the Minister approved a Concept Proposal (SSD 17_8351) relating to the Sydney Metro Martin Place Station Precinct project. The Concept Proposal establishes the planning and development framework through which to assess the detailed Stage 2 applications.
Specifically, the Concept Proposal encompassed:

- Building envelopes for OSD towers on the North Site and South Site comprising:
  - 40+ storey building on the North Site (see Figure 2)
  - 28+ storey building on the South Site
  - Concept details to integrate the North Site with the existing and retained 50 Martin Place building (the former Government Savings Bank of NSW)

- Predominantly commercial land uses on both sites, comprising office, business and retail premises

- A maximum total GFA of 125,437m2 across both sites

- Consolidated Design Guidelines to guide the built form and design of the future development

- A framework for achieving design excellence

- Strategies for utilities and services provision, managing drainage and flooding, and achieving ecological sustainable development

- Conceptual OSD areas in the approved Martin Place Metro Station structure, above and below ground level 1

[1] *Refers to those components within the Metro CSSI approved station envelope that will contain some OSD elements not approved in the CSSI consent. Those elements include the end of trip facilities, office entries, office space and retail areas, along with other office/retail plant and back of house requirements that are associated with the proposed OSD and not the rail infrastructure.*

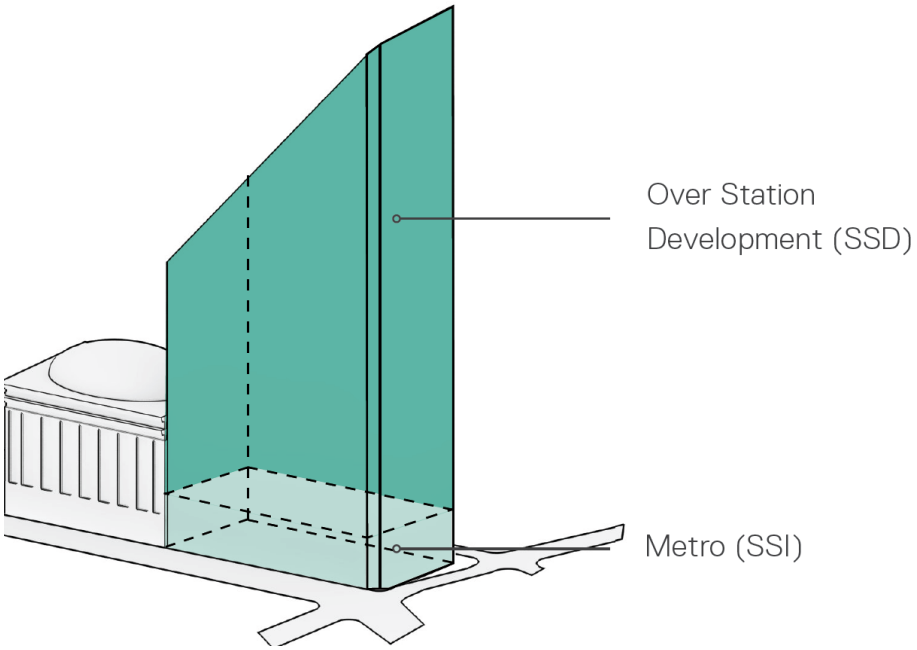

Figure 2 – North Site Approved OSD Building Envelope

Planning Proposal (PP_2017_SYDNE_007_00) - Amendment to Sydney LEP 2012
The Planning Proposal (PP_2017_SYDNE_007_00) sought to amend the development standards applying to the Sydney Metro Martin Place Station Precinct through the inclusion of a site-specific provision in the Sydney LEP 2012. This site-specific provision reduced the portion of the **South Site** that was subject to a 55 metre height limit from 25 metres from the boundary to Martin Place, to 8 metres, and applies the Hyde Park North Sun Access Plane to the remainder of the South Site, forming the height limit of the tower. It also permitted a revised FSR of 22:1 on the South Site and 18.5:1 on the North Site. These amendments were gazetted within Sydney LEP 2012 and reflect the new planning controls applying to the precinct.

Overview of the Proposed Development

The subject application seeks approval for the detailed design, construction and operation of the North Site OSD commercial tower. The proposal has been designed as a fully integrated Station and OSD project that intends to be built and delivered as one development, in-time for the opening of the Sydney Metro line in 2024. This application seeks consent for the following:

The design, construction and operation of a new 39 storey commercial OSD tower (plus rooftop plant) within the approved building envelope for the North Site, including office space and retail tenancies. Physical connections between the OSD podium and the existing 50 Martin Place building, to enable the use of the North Site as one integrated building.

Vehicle loading and parking areas within the basement levels.

Extension and augmentation of physical infrastructure / utilities as required.

Detailed design of 'interface areas' within both the approved station and Concept Proposal envelope that contain OSD-exclusive elements, such as end of trip facilities, office entries, office space and retail areas not associated with the rail infrastructure.

Planning Approvals Strategy

The State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD) identifies development which is declared to be State Significant. Under Schedule 1 and Clause 19(2)

of SEPP SRD, development within a railway corridor or associated with railway infrastructure that has a capital investment value of more than $30 million and involves commercial premises is declared to be State Significant Development (SSD) for the purposes of the EP&A Act.
The proposed development (involving commercial development that is both located within a rail corridor and associated with rail infrastructure) is therefore SSD.

Pursuant to Section 4.22 of the EP&A Act a Concept DA may be made setting out concept proposals for the development of a site (including setting out detailed proposals for the first stage of development), and for which detailed proposals for the site are to be the subject of subsequent DAs. This SSD DA represents a detailed proposal and follows the approval of a Concept Proposal on the site under Section 4.22 of the EP&A Act.

Submitted separately to this SSD DA is a detailed proposal/SSD DA for the South Site (Stage 2 South Site DA), together with an amending DA to the Concept Proposal (Stage 1 Amending DA) that has the effect of aligning the approved South Site building envelope with the new planning controls established for the South Site (achieved through the site specific amendment to the Sydney LEP 2012).

Figure 3 below is a diagrammatic representation of the suite of key planning applications undertaken or proposed by Macquarie and their relationship to the subject application (the subject of this report). The amending Stage 1 Concept Plan Proposal relates to the blue hatched area only.

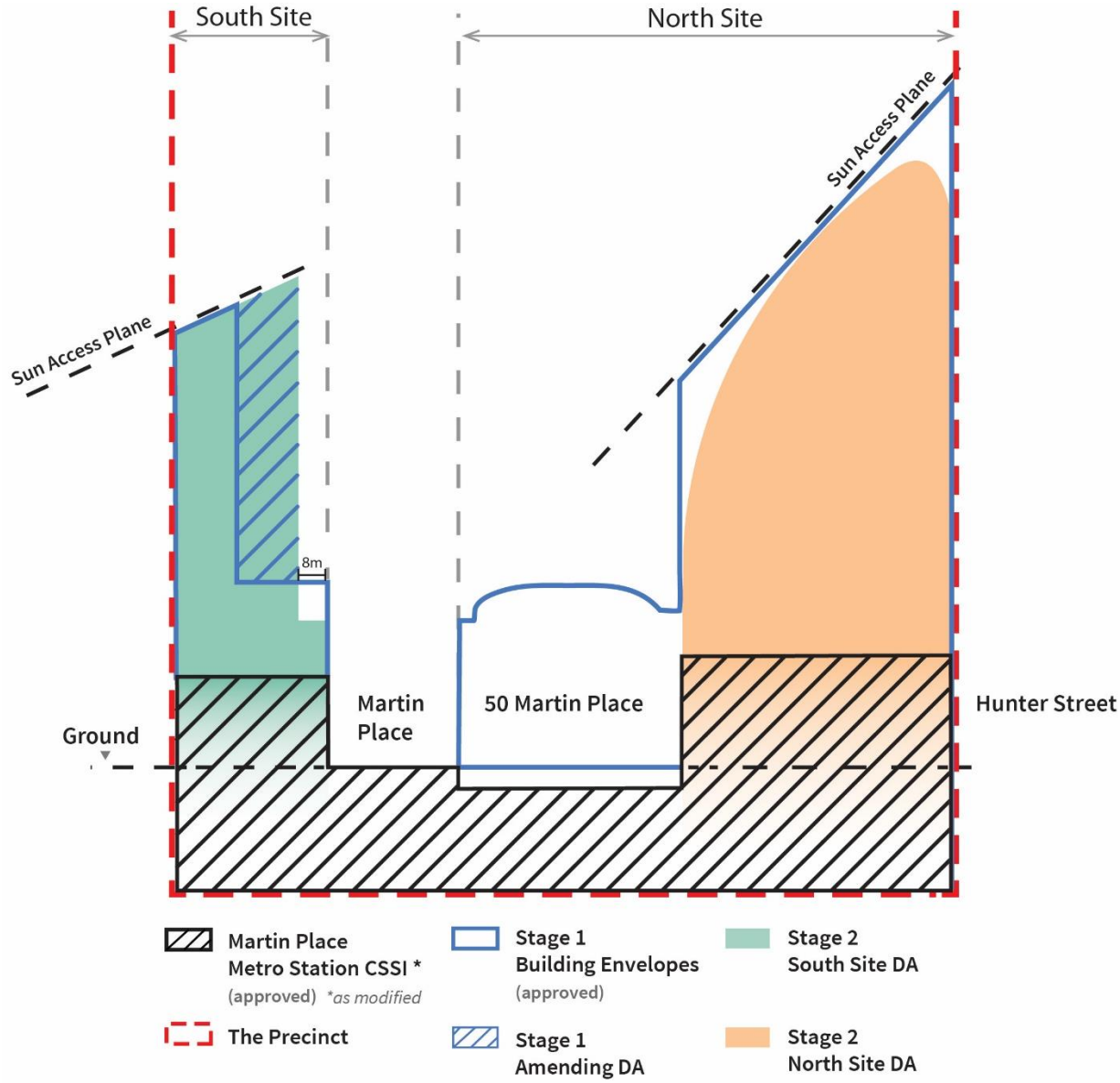

Figure 3 – Relationship of key planning applications to the **Stage 2 North Site DA** (this application)

The Department of Planning and Environment have provided Secretary's Environmental Assessment Requirements (SEARs) to the applicant for the preparation of an Environmental Impact Statement for the proposed development. This report has been prepared having regard to the SEARs as follows:

- To ensure the proposed development is capable of complying with the Building Code of Australia (BCA)

The north tower, south tower and station buildings have been considered as separate buildings with regards to their assessment against the Building Code of Australia 2016 (Amendment One). The building considered the 'station' generally includes all underground portions, and ground floor areas functioning as part of the station. The North Tower includes the ground floor reception area, mezzanine reception area, Macquarie Lounge and Level 3 function spaces. These portions are proposed to be separated from the station building by a combination of smoke proof and two hour fire rated construction and staged certification/occupation requirements. The South Tower includes the ground floor reception area, the reception and retail on the mezzanine area, and all areas above. From a BCA compliance perspective, the station portions and any retail on the ground floor or below (excluding café's in reception areas) are considered as one building and have been assessed accordingly.

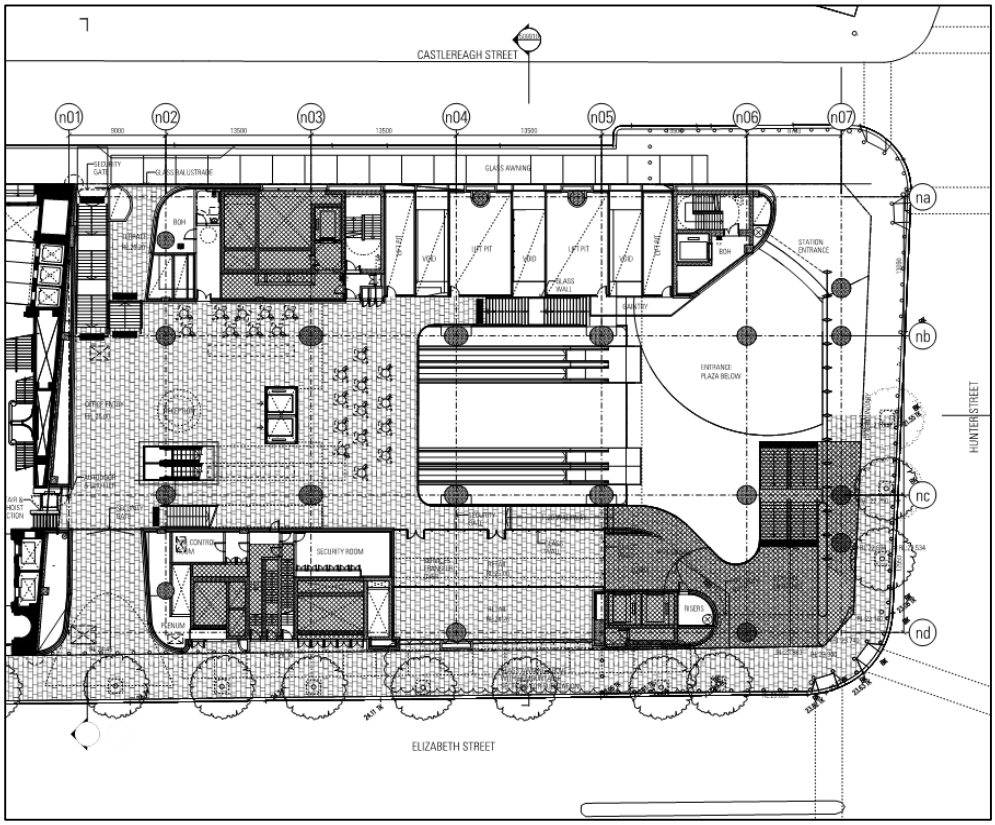

Figure 5 − North tower ground level plan

Compliance Summary

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. The submission for Construction Certificate will need to include verification from a suitably accredited fire engineer:

It should be noted the Fire Engineering Brief (FEB) process has commenced with relevant stakeholders, relating the design development of required Performance Solutions in order to satisfy the relevant Performance Solutions of the BCA, as identified in the below table.

No.	Alternative Solution Description	Deemed to Satisfy (DTS) Clause	Performance Requirement
Fire Safety Items			
1.	**Reduced FRL – Glazed Flooring** Glazed flooring is proposed to be provided to the level 11 bridge. This flooring is not proposed to achieve an FRL of 120/120/120	C1.1, Spec C1.1	CP1, CP2
2.	**Reduced FRL – Glazed Compartmentation** The walls proposed that form part of the compartmentalising construction to the Flexible space include drencher protected glazed construction in lieu of construction achieving an FRL of 120/120/120. In addition, the glazed doorways in the walls are not proposed to be drenched.	C1.1, Spec C1.1	CP2
3.	**Separation from Station Below** The construction providing separation between the North Tower, the South Tower and the station building is proposed to be a combination of both horizontal and vertical elements in lieu of a vertical fire wall that extends the full height of the building to the underside of the roof. The buildings are proposed to be considered as separate buildings in lieu of united buildings.	C1.1, C2.7, Spec C1.1	CP1, CP2, EP2.2
4.	**Reduced FRL – Separation from Station Below** The building separation line between the station building below and the North Tower is proposed to be a combination of smoke proof and two hour fire rated construction in lieu of construction achieving an FRL of 120 minutes.	C1.1, C2.7, Spec C1.1	CP2
5.	**Egress** The structure supporting the building is located within the building considered to be the station building. The	C1.1, Spec C1.1, D1.4	CP1, CP2, DP4

	cascade of alarms etc. to ensure occupant evacuation occurs within the FRL parameters of the structure		
6.	**Separation from Station – Smoke Hazard Management** The station and tower are proposed to be considered as separate buildings in all respects, except that the alarm systems and smoke hazard management systems will be connected with a precinct cascade strategy. Note this does not include 50 Martin Place as 50 Martin Place is assessed as a separate building under the deemed to satisfy provisions, therefore there is no requirement for linked smoke hazard management.	C2.7, C2.8, C2.9, EP2.2	CP2, EP1.6, EP2.2
7.	**Separation of Lift Shafts** The lift shafts are proposed to be separated from the remainder of the floor by construction that achieves an FRL of -/60/- in lieu of 120/120/120. Openings are proposed to be protected by sliding glass doors with Tyco WS wall-wetting sprinklers in lieu of being protected in accordance with clause C3.10. It is noted that all tower lifts are proposed to be located in one shaft except the goods lift.	C2.10, C3.10	CP2, CP6, CP8
8.	**Separation of Lift Overrun** The overrun to the lift shafts providing access for people with disabilities is not proposed to achieve an FRL of 120 minutes.	C2.10, C3.10	CP2, CP6, CP8
9.	**Protection of Openings Exposed to Adjacent/ Adjoining Buildings** The proposed bridge connections to 50 Martin Place are considered as part of the North Tower. Under the deemed to satisfy provisions, the openings to the connection bridge that are within 6m of 50 Martin Place or the station building below would require protection; however no protection is proposed to be provided.	C3.2, C3.4	CP2, CP8
10.	**Protection of Openings – Openings to Bridges** The openings in the North Tower façade between the North Tower and the bridges to 50 Martin Place are not proposed to be protected.	C3.2, C3.4	CP2, CP8
11.	**Separation to 50 Martin Place**	C3.5	CP2, CP8

	The separation proposed between the northern above ground portion and 50 Martin Place includes a fire rated roller shutter that is not proposed to achieve the required insulation rating.		
12.	**Exits Serving Multiple Buildings** The exits serving the over station buildings serve the station building also and need to pass through the station building to reach road or open space in lieu of each building having its own independent egress routes.	D1.2, D1.7	DP4
13.	**Extended Travel Distances** Extended travel distances are proposed throughout the building. Refer part 4 of this report for distances as currently indicated on the drawings.	D1.4, D1.5	DP4, EP2.2
14.	**Reduced Aggregate Egress Width** The aggregate egress width provided to the Level 3 Flexible Space is less than the required 6m.	D1.6	DP4, DP6, EP2.2
15.	**Fire Isolated Stairs** Fire stairs serving the tower are proposed to pass through the station building and vice versa before discharging to road or open space	D1.7	DP4, DP5, EP2.2
16.	**Required Non-Fire Isolated Stairs** Required non-fire isolated stair serving as exits from the Level 3 Flexible Space does not provide egress via their own flights to the level of road or open space.	D1.9	DP4, DP5, EP2.2
17.	**Required Non-Fire Isolated Stairs & Plant Egress** The following deviations occur with regards to egress from the level 38 and 39 plant areas: ▪ The required non-fire isolated stairs to level 39 do not provide egress via their own flights to the level of road or open space, and the egress path is discontinuous ▪ Plant areas open directly to fire isolated stairs ▪ Doors into fire isolated stairs encroach by more than 500mm in swing and more than 100m when fully open	D1.9, D1.7	DP4, DP5, EP2.2
18.	**Non-Required Non-Fire Isolated Stairs** Non-required non-fire isolated stairs (excluding those in an atrium) are proposed to connect more than two storeys and are not proposed to be enclosed by	D1.12, Spec D1.12	DP4, CP2, EP2.2

	construction that achieves compliance with Specification D1.12.		
19.	**Location of Fire Services Infrastructure** Fire services pumps are proposed to be located in the station building in lieu of being located in the tower. In addition, the stair pressurisation infrastructure that also serves some of the stairs that continue through the station building in addition to the Tower is to be located within the tower. This is also to be assessed in the station building performance solution.	E1.3, E1.5, E2.2	EP1.3, EP1.4, EP2.2
20.	**Systems Serving Ancillary & Plant Areas** The ancillary areas to the towers that are in the station building are proposed to be served by tower fire services and the plant areas serving the station that are in the tower building are proposed to be served by station services. The interconnection and cascade strategy are to be assessed as part of the performance solution.	EP1.2, E1.3, E1.4, E1.5, E2.2, E3.4, E4.9, G3.8	EP1.1, EP1.3, EP1.4, EP1.6, EP2.2, EP3.2, EP 4.3
21.	**Booster Assembly - Location and Protection** The North Tower booster assembly is understood to be proposed on Elizabeth Street adjacent to the discharge of the fire isolated stairs at the southern end of the site. Due to the tower containing several main entrances, the booster assembly is not within sight of all of them, and is not afforded radiant heat protection that extends 2m either side and 3m above the upper hose connections that achieves an FRL of 90/90/90.	E1.3	EP1.3
22.	**Location of Infrastructure – Hydrant** The pump room and tanks associated with the tower hydrant and sprinkler system are proposed to be located within the station building in lieu of being located within the tower building.	E1.3, E1.5	EP1.3, EP1.4
23.	**Hydrant System Infrastructure** The following deviations from AS 2419.1-2005 with regards to the hydrant system infrastructure are proposed: ▪ A single hydrant relay pump is proposed to serve the whole building in lieu of providing separate relay pumps for every 50m ▪ More than 50% of the hydrants on each floor are proposed to be isolated	E1.3	EP1.3

24.	**Connectivity Between Station & Tower Buildings** As the deemed to satisfy provisions would consider the station and tower [and any other buildings connected through connection with the station] as the same building, the proposal to have separate fire control rooms is to be assessed as part of the performance solution.	E1.8, E2.2	EP1.6, EP2.2
25.	**Connectivity Between Station & Tower Buildings** Due to the connectivity between buildings, and the interconnection between buildings, the smoke hazard management of all three buildings, including the alarm and cascade strategy, are to be reviewed collaboratively and assessed as part of the performance solution.	E1.8, E2.2	EP1.6, EP2.2
26.	**Fire Control Room – Access** The North Tower fire control room is proposed to have one entry into the room in lieu of two separate entrances (one from the main entry and one from outside/a fire isolated exit. Furthermore, an electrical room is located off the fire isolated airlock to the fire control room. It is noted that the airlock and entry door can be accessed from the main entry and via a fire isolated exit.	E1.8	EP1.6
27.	**Smoke Hazard Management** Smoke hazard management (exhaust) is proposed to be assessed on a performance basis to the Flexible space. This includes the provision of exhaust to the Flexible space.	C2.3, E2.2	EP2.2
28.	**Separation of Atrium** The main low rise and mid rise atriums are proposed to be separated from the floor plate by smoke-proof construction including fire curtains in lieu of compliant bounding walls	G3.3	CP2, EP2.2
29.	**Separation of Small Atriums** Additional smaller atriums are proposed that are to allow up to 3 storeys to be connected with no provision for bounding walls	G3.3	CP2, EP2.2
30.	**Atrium Smoke Hazard Management** It is anticipated that the smoke hazard management relating to the proposed atriums will be assessed on a performance basis.	E2.2, G3	EP2.2

Accessibility Items			
1.	**Access to North Tower** The main entrances to the North Tower is proposed to be from the through site connection at the southern end of the site, with one entrance from Elizabeth Street and one from Castlereagh Street. The entrance from Elizabeth Street is proposed to be accessible, however the entrance on Castlereagh Street is proposed to be by stairs. A secondary accessible entrance is proposed further north on Castlereagh Street. An alternate solution is to be prepared to address that one of the principle public entries to the north tower is not proposed to be accessible. This will be required to be reflected in the access report for the station building.	D3.2	DP1

This above performance solution table has been prepared by assessment from McKenzie Group Consulting based on the design documentation as referenced in Appendix A, other facts and matters known at the time of preparation of this document.

The fire engineered solution relating to items EP1.3, EP1.4, EP1.6, EP2.2, and EP3.2 will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act, 1979 (as amended) and the Environmental Planning & Assessment Regulation 2000.

In addition, it is noted that an Interim/Final Occupation Certificate will be required for the relevant portions of the station building prior to the issuance of any Occupation Certificate relating to the North Tower. Where the station relies on infrastructure located in the North Tower e.g. stair pressurisation or the like, the initial Occupation Certificates incorporating this infrastructure will be required to be issued concurrently.

Assessed By

Vijay Perumal
McKenzie Group Consulting

Current Legislation

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act, 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is the version that is in place at the time of the application to the certifying authority for the Construction Certificate. For the purposes of this Report, BCA 2016 Amendment 1 has been utilised as the version of the BCA applicable at the time of preparation this Report.

Purpose of this Report

This report has been prepared to accompany a detailed development application for a commercial office development located above the new Metro Station in Sydney's CBD. It addresses the relevant Secretary's Environmental Assessment Requirements (SEARS) Requirements for the project.

These Director-General Requirements are discussed in the Environmental Impact Statement (EIS) prepared to support the application.

Building Assessment Data

Summary of Construction Determination: -

Part of Project	Station Building	North Tower
Classification	5, 6, 7a, 7b, 9b	5, 6, 9b
Number of Storeys	8 [below separation from over station buildings]	36 [above separation from station building]
Rise In Storeys	2 [below separation from over station buildings]	36 [above separation from station building]
Type of Construction	A	A
Effective Height (m)	>50m	>50m

* Plant rooms at the top of the building are not counted in the rise in storeys.

It is noted that under the deemed to satisfy provisions, the station building, North Tower and South Tower are considered as one building due to the station sitting under and linking all three buildings. This gives a number of storeys of 46 and a rise in storeys of 39, with an overall effective height of more than 50m.

The assessment of each building as a separate building, including the separation proposed between each building is to be assessed as part of the performance solution. Refer the schedule of performance solutions above and the body of this report for deviations from the deemed to satisfy provisions.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Assumed Population (BCA Ratio)	Assumed Population (1:8 Ratio)
Ground Floor North – Retail [F&B]	6	Refer to "Stage 2 – North tower design report		-
Ground Floor North – Plant/Back of House	5, 9b	"	6	-
Ground Floor North – North Tower Lobby	5	"	48	-
Level 01 North – Cafe	6	"	205	
Level 01 North - Reception	5	"	82	103
Level 01 North – Plant/ Back of House	5, 9b	"	10	
Level 02 North – Macquarie Lounge	6, 9b	"	Population to be confirmed	
Level 02 North - Plant	5, 9b	"	1	
Level 03 North – Flexible Space	9b	"	800 as advised	-
Level 03 North – Flexible Space / Kitchen	9b	"	24	-
Level 03 North - Plant	9b	"	9	-
Level 04 North – Flexible Space Mezzanine	9b	"	200 as advised	-
Level 04 North – Plant	9b	"	9	-
Level 05 – Office	5	"	171	213
Level 05 – Plant	5	"	11	-
Level 06– Office	5	"	123	159
Level 07 – Office	5	"	201	252
Level 08 - Office	5	"	211	263
Level 09 – Office	5	"	211	263
Level 10 – Office	5	"	180	225
Level 11 – Office	5	"	166	207
Level 12 – Office	5	"	211	263
Level 13 – Office	5	"	222	278

Level 14 – Office	5	"	222	277
Level 15 – Office	5	"	73	91
Level 15 – Plant	5	"	54	-
Level 16 – Office	5	"	248	310
Level 17 – Office	5	"	227	284
Level 18 – Office	5	"	225	281
Level 19 – Office	5	"	222	277
Level 20 – Office	5	"	218	272
Level 21 – Office	5	"	214	267
Level 22 – Office	5	"	209	261
Level 23 – Office	5	"	204	255
Level 24 – Office	5	"	198	248
Level 25 – Office	5	"	192	240
Level 26 – Office	5	"	185	232
Level 27 – Office	5	"	178	222
Level 28 – Plant	5	"	64	-
Level 29 – Office	5	"	182	227
Level 30 – Office	5	"	164	205
Level 31 – Office	5	"	156	195
Level 32 – Office	5	"	154	193
Level 33 – Office	5	"	132	164
Level 34 – Office	5	"	115	143
Level 35 – Office	5	"	114	143
Level 36 – Office	5	"	94	117
Level 37 – Office	5	"	88	109
Level 38 - Plant	5, 9b	"	9	-
Level 39 – Plant	5, 9b	"	12	-

Notes:
1. The above populations have been based on the floor areas and calculations in accordance with Table D1.13 of the BCA.

2. The floor areas have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.
3. The carpark areas have been considered ancillary to the use for the purposes of population numbers
4. Where additional population is proposed to any storeys, this is to be advised to enable assessment.
5. Food and Beverage premises have been calculated at 1 person/m2 for 70% of the floor area

Fire Resistance

The buildings should be constructed generally in accordance with Part C of the Building Code of Australia.

The building has been assessed on the basis of the following fire separation / compartmentation within the development:

- Separation between the retail levels and the commercial portions; and
- Fire compartmentation of the building at each floor level as appropriate.

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Lift motor rooms;
- Emergency power supply;
- Emergency generators;
- Electricity supply;
- Boilers or batteries;
- Hydrant Pump rooms;
- Sprinkler Pump Rooms; and
- Fire Control Room.

It should be noted that the above areas are required to be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120/120/120.

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to Specification C1.10 of the BCA.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Separation of Buildings

The BCA permits parts of buildings that are connected to be considered as separate buildings where the parts are separated by a fire wall that meets the following requirements:

(i) The fire wall extends through all storeys and spaces in the nature of storeys that are common to that part and any adjoining part of the building.
(ii) The fire wall is carried through to the underside of the roof covering.
(iii) Where the roof of one of the adjoining parts is lower than the roof of the other part, the fire wall extends to the underside of—

(A) the covering of the higher roof, or not less than 6 m above the covering of the lower roof; or
(B) the lower roof if it has an FRL not less than that of the fire wall and no openings closer than 3 m to any wall above the lower roof; or
(C) thelower roof if its covering is non-combustible and the lower part has a sprinkler system complying with Specification E1.5.

The station building, north tower and south tower are proposed to be considered as separate buildings, however are provided with a combination of horizontal and vertical separation in lieu of a vertical fire wall complying with the above. It is also noted that the construction proposed to separate the buildings is a combination of smoke-proof construction and fire rated construction achieving an FRL of 120 minutes, in lieu of all being 2 hour fire rated construction. This is to be assessed as part of the performance solution to BCA Performance Requirement CP1, CP2 and EP2.2 by an accredited fire safety engineer.

Separation from the north and south towers above the station is proposed to include a significant amount of glazed construction. The insulation requirement to the fire rated glazing is proposed to be reduced as part of the performance solution and is to be assessed to BCA Performance Requirement CP2 by the accredited fire safety engineer.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Fire Hazard Properties

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to specification C1.10 of the BCA. The following requirements apply:

Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 1.2 kW/m2
b) Wall and Ceiling Linings – Material Group No.1, 2 or 3
c) Other Materials – Spread of Flame Index not exceeding9 and Smoke Developed Index not exceeding 8 if the Spread of Flame Index is more than 5

Non-Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 2.2kW/m2 a maximum smoke development rate of 750 percent-minutes
b) Wall and Ceiling Linings – Material Group No. 1 or 2 and with a smoke growth rate index not more than 100, or an average specific extinction area less than 250m2/kg
c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding 8 (if Spread of Flame if >5)

Rigid and flexible air handling ductwork must comply with AS4254 parts 1 & 2 2012.

Floor linings and floor coverings used in lift cars must have a critical radiant flux not less than 2.2, and wall and ceiling linings must be a Material Group No. 1 or 2.

External Wall Cladding

As the building is of Type A construction the external walls, including any external and internal claddings & linings must be non-combustible as determined by AS1530.1. 1994.

The following materials may be used wherever a non-combustible material is required:

a) Plasterboard.
b) Perforated gypsum lath with a normal paper finish.
c) Fibrous-plaster sheet.
d) Fibre-reinforced cement sheeting.
e) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.

f) Bonded laminated materials where—
   i. each lamina, including any core, is non-combustible; and
   ii. each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2mm; and
   iii. the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole does not exceed 0 and 3 respectively.

The BCA does nominate that ancillary elements may be fixed to an external wall that is required to be non-combustible unless they comprise of the following:

a) An ancillary element that is non-combustible.
b) A gutter, downpipe or other plumbing fixture or fitting.
c) A flashing.
d) A grate or grille not more than 2 m² in area associated with a building service.
e) An electrical switch, socket-outlet, cover plate or the like.
f) A light fitting.
g) A required sign.
h) A sign other than one provided under (a) or (g) that—
   i) achieves a group number of 1 or 2; and
   ii) does not extend beyond one storey; and
   iii) does not extend beyond one fire compartment; and
   iv) is separated vertically from other signs permitted under (h) by at least 2 storeys.

It is recommended that once material selections are made, copies of the fire test certificates/reports be provided for review and approval.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Egress

The egress provisions from the proposed building are provided in fire isolated stairways and external perimeter doorways. The locations of the proposed exits would appear to indicate that the travel distances and distances between alternative exits and egress widths will comply with the BCA (through prescriptive and performance based assessments), and can be resolved through ongoing design development.

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
- Details of Separation of rising & descending Stairs
- Discharge from the Fire Isolated Exits
- Details of the egress provisions to the Road.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Access for Persons with a Disability

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Part D3 of the BCA. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009.

Where the main public entrance is via a ramp, tactile indicators shall be provided in accordance with AS 1428.4 at the top and bottom. Parking shall be provided for people with disabilities in accordance with Part D3 of the BCA. Facilities services and features of the building accessible to people with disabilities shall be identified by signage complying with Part D3 of the BCA.

General
Access to be provided to and within the building pursuant to AS1428.1-2009 as follows:

- Via the principle public entry and at least 50% of all other entrances;
- From another accessible building connected by a pedestrian link;
- All areas used by the public; and
- Where access is not proposed to be provided as required by the BCA, these items will be required to be addressed through a performance solution, where the accredited Access consultant will need to confirm feasibility.

It is noted that MGCA has provided an Accessible Assessment under a separate cover.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Fire Services & Equipment

The following fire services will need to be provided throughout the building, and demonstrated through the detailed documentation phase:

- An automatic sprinkler system in accordance with the relevant provision of Part E of the BCA;
- Fire hydrants in accordance with the BCA and AS 2419-2005 including access to the proposed; Booster assembly for fire brigade vehicles;
- Fire hose reels in accordance with the BCA and AS 2441-2005;
- Portable Fire Extinguishers in accordance with BCA and AS 2444;
- Sound System and Intercom System for Emergency Purposes in accordance with the BCA; and
- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with Part E of the BCA

.
A fire control room shall be provided to the building in accordance with Part E of the BCA.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Ventilation and Smoke Hazard Management

The de tailed documentation phase will be required to outline the smoke hazard management to be provided throughout the building by means of:

- An automatic air pressurisation system to the fire isolated exits;
- Zone smoke control system; and
- An automatic smoke exhaust system to BCA Part E.

Throughout the development the provision of natural or mechanical ventilation is required to all habitable rooms in accordance with Part F of the BCA.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Lift Services

The passenger lifts to be installed are to be: -

- Fitted with warning signs, fire service controls in accordance with AS 1735.2;
- Stretcher facilities are to be provided within the emergency lifts with minimum dimensions of 600m wide, 2000mm long and 1400mm high;
- An emergency lift with stretcher facilities in accordance with part E of the BCA and AS 1735.2;
- Provided with the following: -
  - A handrail in accordance with AS 1735.12;
  - Minimum internal floor dimensions as specified in AS 1735.12;
  - Fitted with a series of door opening sensory devices which will detect a 75mm diameter rod across the door opening between 50mm and 1550mm above floor level; and
  - Have a set of buttons for operating the lift located at heights complying with AS 1735.12.

Where two or more passenger lifts are installed and serve the same storeys, at least two emergency lifts must be provided to serve those storeys and, if located within different shafts, at least one emergency lift must be provided in each shaft.

An emergency lift must be contained within a fire-resisting shaft in accordance with the requirements of Part C.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Sanitary Facilities

Retail

Sanitary facilities are required to be provided for employees. In relation to the public, sanitary facilities are required to be provided either where more than 600 persons can be accommodated (standard shops) or for café / restaurant where there are more than 20 seats.

Offices

The sanitary and other facilities within the development would generally consist of: -

Sanitary Facilities Provided			
	WC	Urinals	Basins
Male	4 (+1 accessible)	3	3 (+1 accessible)
Female	5 (+1 accessible)	N/A	3 (+1 accessible)
Accessible	1	N/A	1
The Above Facilities are adequate for 100 males and 90 females which is sufficient to cater for either a 1:10 or 1:8 population ratio to the office storeys.			

Macquarie Lounge

Facilities for staff should be provided at the following rates:

- Males: 1 WC per 20 occupants, 1 basin per 30 occupants and 1 urinal for 11-25 occupants, 2 urinals for 26-50 occupants and an additional 1 urinal per 50 occupants above 50; and
- Females: 1 WC per 15 occupants, 1 basin per 30 occupants.

The sanitary facilities provided to the Macquarie Lounge are to be assigned a gender and ambulant facilities, compliant with AS 1428.1-2009 are to be provided at that bank. Ambulant facilities are to be provided for each sex.

Flexible Space

Facilities for staff should be provided at the following rates:

- Males: 1 WC per 20 occupants, 1 basin per 30 occupants and 1 urinal for 11-25 occupants, 2 urinals for 26-50 occupants and an additional 1 urinal per 50 occupants above 50; and
- Females: 1 WC per 15 occupants, 1 basin per 30 occupants.

The sanitary facilities for patrons to the Flexible Space is as follows:

Sanitary Facilities Provided			
	WC	**Urinals**	**Basins**
Male	3 (+1 accessible)	8	3 (+1 accessible)
Female	10 (+1 accessible)	N/A	3 (+1 accessible)
Accessible	1	N/A	1
The Above Facilities are adequate for 550 males & 550 females			

Note:
1. The Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009.

Ambulant facilities are to be provided to serve the Flexible space.

An accessible sanitary facility compliant with AS 1428.1-2009 is required to be provided to all levels that are required to be accessible and contain sanitary facilities. In addition, an ambulant facility for each sex that is compliant with AS 1428.1-2009 is also required to be provided at each bank of sanitary facilities that contain an accessible facility. Where multiple banks of sanitary facilities are provided to a storey, an accessible facility is required to be provided to at least 50% of the banks on that floor.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Weatherproofing of External Walls

Performance Requirement FP1.4 which relates to the prevention of the penetration of water through external walls, must be complied with. It is noted that there are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls.

As such, a performance solution is to be prepared by a suitably qualified professional as part of the detailed document phase that demonstrates that the external walls of the proposed building complies with Performance Requirement FP1.4 which reads as follows:

> *A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause—*
>
> *a) unhealthy or dangerous conditions, or loss of amenity for occupants; and*
> *b) undue dampness or deterioration of building elements.*

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Energy Efficiency

The building is required to comply with the energy provisions of the BCA. It is proposed that the ESD assessment shall incorporate the relevant part J provision of the BCA as part of the construction certificate process.

Options available are:

- Comply with either JV3

Or

- Comply with the deemed to satisfy provisions in relation to:
  - Building Fabric
  - External Glazing
  - Building dealing
  - Air movement
  - Air conditioning and ventilation systems
  - Artificial light and power
  - Hot water supply

Certification from an appropriately qualified engineer should be provided for either option with a report/computations outlining how compliance is achieved.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Access for Maintenance

The following criteria must also be observed in the special design of the plant areas.

NSW J8.2 Access for maintenance

Access for maintenance must be provided to—

a) adjustable or motorised shading devices;
b) time switches and motion detectors;
c) room temperature thermostats;
d) plant thermostats such as on boilers or refrigeration units;
e) motorised air dampers and control valves;
f) reflectors, lenses and diffusers of light fittings;
g) heat transfer equipment; and

h) plant that receives a concession under verification method JV3(b) for the use of energy obtained from—
   i). a source that is renewable on-site such as solar, geothermal or wind; or
   ii). another process as reclaimed energy.

The current design details indicate the above requirements are capable of compliance with the relevant parts of the BCA, through a combination of deemed to satisfy provisions and/or performance based solutions.

Appendix A - Design Documentation

The following documentation was used in the assessment and preparation of this report: -

Drawing No.	Title	Date	Drawn By	Stage
CSWSMP-MAC-SMN-AT-DRG-DA-000000	GROUND PLAN – ELIZABETH STREET GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300100	LEVEL 01 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300200	LEVEL 02 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300300	LEVEL 03 GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300400	LEVEL 04 GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300500	LEVEL 05 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300600	LEVEL 06 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300700	LEVEL 07 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300800	LEVEL 08 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-300900	LEVEL 09 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301000	LEVEL 10 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301100	LEVEL 11 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301200	LEVEL 12 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301300	LEVEL 13 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA

CSWSWP-MAC-SMN-AT-DRG-301400	LEVEL 14 GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301500	LEVEL 15 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301600	LEVEL 16 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301700	LEVEL 17 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301800	LEVEL 18 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-301900	LEVEL 19 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302000	LEVEL 20 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302100	LEVEL 21 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302200	LEVEL 22 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302300	LEVEL 23 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302400	LEVEL 24 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302500	LEVEL 25 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302600	LEVEL 26 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302700	LEVEL 27 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302800	LEVEL 28 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-302900	LEVEL 29 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA

CSWSWP-MAC-SMN-AT-DRG-303000	LEVEL 30 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303100	LEVEL 31 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303200	LEVEL 32 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303300	LEVEL 33 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303400	LEVEL 34 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303500	LEVEL 35 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303600	LEVEL 36 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303700	LEVEL 37 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303800	LEVEL 38 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-303900	LEVEL 39 PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-305000	ROOF PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-308000	LOWER GROUND PLAN – CASTLEREAGH STREET GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-310000	GROUND REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-310100	LEVEL 01 REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-310200	LEVEL 02 REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-310300	LEVEL 03 REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA

CSWSWP-MAC-SMN-AT-DRG-310400	LEVEL 04 REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-311200	LEVEL 12 REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-312600	LEVEL 26 REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-313200	LEVEL 32 REFLECTED CEILING PLAN GENERAL ARRANGEMENT	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-370700	INDICATIVE INTEGRATED FITOUT TYPICAL PODIUM FLOOR	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-372200	INDICATIVE INTEGRATED FITOUT TYPICAL MID-RISE-HIGH	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-373300	INDICATIVE INTEGRATED FITOUT TYPICAL HIGH RISE	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-409900	EAST ELEVATION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-409901	NORTH ELEVATION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-409902	WEST ELEVATION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-409903	SOUTH ELEVATION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-409910	EAST ELEVATION PODIUM – TOWER	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-409912	WEST ELEVATION PODIUM – TOWER	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-509900	NORTH – SOUTH SECTION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-509910	EAST – WEST SECTION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-519902	INTERNAL SECTION	22.08.18	JPW	Stage 2 DA

CSWSWP-MAC-SMN-AT-DRG-519903	INTERNAL SECTION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-519950	INTERNAL ELEVATION	22.08.18	JPW	Stage 2 DA
CSWSWP-MAC-SMN-AT-DRG-519951	INTERNAL ELEVATION	22.08.18	JPW	Stage 2 DA

Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Access Panels, Doors and Hoppers	BCA Clause C3.13
2.	Automatic Fail Safe Devices	BCA Clause D2.19 & D2.21
3.	Automatic Fire Detection and Alarm System	BCA Spec. E2.2a & AS 1670.1 – 2015, AS/NZS 1668.1 - 2015
4.	Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 1999 Amdt 1, AS 2118.6 – 2012 (Combined sprinkler & hydrant)
5.	Building Occupant Warning System	BCA Spec. E1.5, BCA Spec. E2.2a & AS 1670.1 – 2015 – Clause 3.22
6.	Emergency Lifts	BCA Clause E3.4 & AS 1735.2 – 2001 Performance solution by accredited fire safety engineer
7.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2005 Amdt 1 & 2
8.	EWIS (Sound Systems and Intercom Systems for Emergency Purpose)	BCA Clause E4.9 & AS 1670.4 - 2015 & AS 4428.4-2004
9.	Emergency Evacuation Plan	AS 3745 – 2002
10.	Exit Signs	BCA Clauses E4.5, NSW E4.6 & E4.8 and AS/NZS 2293.1 – 2005 Amdt 1 & 2
11.	Fire Control Rooms	BCA Spec. E1.8 Performance solution by accredited fire safety engineer
12.	Fire Dampers	BCA Clause C3.15, AS/NZS 1668.1 – 2015 & AS 1682.1&2 - 1990
13.	Fire Doors	BCA Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8, Spec C3.4 and AS 1905.1 – 2015
14.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005 Amdt 1
15.	Fire Hydrant System	BCA Clause E1.3 & AS 2419.1 – 2005 Amdt 1 Performance solution by accredited fire safety engineer
16.	Fire Seals, Collars	BCA Clause C3.15, C3.16 & AS 1530.4 – 2014
17.	Fire Windows	BCA Spec. C3.4
18.	Lightweight Construction	BCA Clause C1.8, C3.17 & AS 1530.3 – 1999
19.	Mechanical Air Handling System	BCA Clause E2.2, AS/NZS 1668.1 – 2015
20.	Paths of Travel	EP&A Reg 2000 Clause 186 Performance solution by accredited fire safety engineer
21.	Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
22.	Pressurising Systems	BCA Clause E2.2 & AS/NZS 1668.1 – 2015
23.	Smoke Hazard Management System	BCA Part E2 & AS/NZS 1668.1 – 2015

	Essential Fire Safety Measures	Standard of Performance
		Performance solution by accredited fire safety engineer
24.	Stand-by Power System	BCA Clause G3.8
25.	Wall-Wetting Sprinkler and Drencher Systems	BCA Clause C3.4 & AS 2118.2 – 2010 Performance solution by accredited fire safety engineer
26.	Warning and Operational Signs	EP&A Reg 2000 Clause 183, BCA Clause D2.23, E3.3

Appendix C - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2016 Amendment 1:

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building — FRL: (in minutes)			
	Structural adequacy/Integrity/Insulation			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
For *loadbearing* parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-*loadbearing* parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is—				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60