Macquarie

Sydney Metro Martin Place Integrated Station Development

South Tower, SSD DA Stage 2: Loading Dock Management Plan

CSWSMP-MAC-SMS-OM-REP-999901

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1 Introduction

This report supports a State Significant Development (SSD) Development Application (DA) (SSD 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 **South Site** Over Station Development (OSD), located above and integrated with Metro Martin Place station (part of the NSW Government's approved Sydney Metro project). The southern entrance to Metro Martin Place station and the South Site OSD above are located at 39-49 Martin Place.

This application follows:

- Approval granted by the Minister for a Concept Proposal (otherwise known as a Stage 1 SSDA) for two OSD commercial towers above the northern (North Site) and southern (South Site) entrances of Metro Martin Place 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 SSDA) must be consistent.
- Gazettal of site specific amendments to the Sydney Local Environmental Plan (LEP) 2012 (Planning Proposal reference: PP_2017_SYDNE_007_00) permitting greater building height (over a portion of the South Site) and additional floor space (over both the North and South Sites).

Lodged concurrently with this SSD DA, is a Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA), which seeks approval for an amended concept for the Metro Martin Place Precinct (the Precinct), aligning the approved South Site building envelope with the new planning controls secured for the Precinct.

To ensure consistency, the Stage 1 Amending DA must be determined prior to the determination of the subject Stage 2 SSD DA for the South Site.

This application does not seek approval for elements of the Metro Martin Place Precinct which relate to the Sydney Metro City and Southwest 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 concourse areas;
- Ground level public domain works; and
- Station related elements in the podium of the South Tower.

However, this application does seek approval for OSD areas in the approved Metro 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 Sydney Metro CSSI approved station building that will contain some OSD elements not already approved by the CSSI Approval. 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.

This defines the demand, requirements and operation of the loading dock so that it may be operated safely, efficiently and effectively. It will:

- Determine the vehicle demand that the tower and associated retail areas above and below ground, are likely to generate and use the information to set out the loading dock requirements and specifications;
- Define the overall logistics strategy to be employed for the movement of goods into, and waste and goods out of, the development; and

Define how the loading dock will operate and the facilities be managed as a basis for the design.

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 and Southwest (Stage 2).

Stage 2 of Sydney 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) Sydney 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 approval is being sought for the South Site – this application – and one for the North Site via a separate application.

Site Description

The Metro Martin Place 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 South Site**, being the land at 39-49 Martin Place (refer to Figure 1).

The North Site is the subject of a Stage 2 SSD DA.

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

Background

Sydney Metro Stage 2 Approval (SSI 15_7400)

The Sydney Metro CSSI Approval 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.

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

Concept Proposal (SSD 17_8351)

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

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
  - 28+ storey building on the South Site (see Figure 2)
  - 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 125,437m^2 across both sites
- 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 Metro 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.*

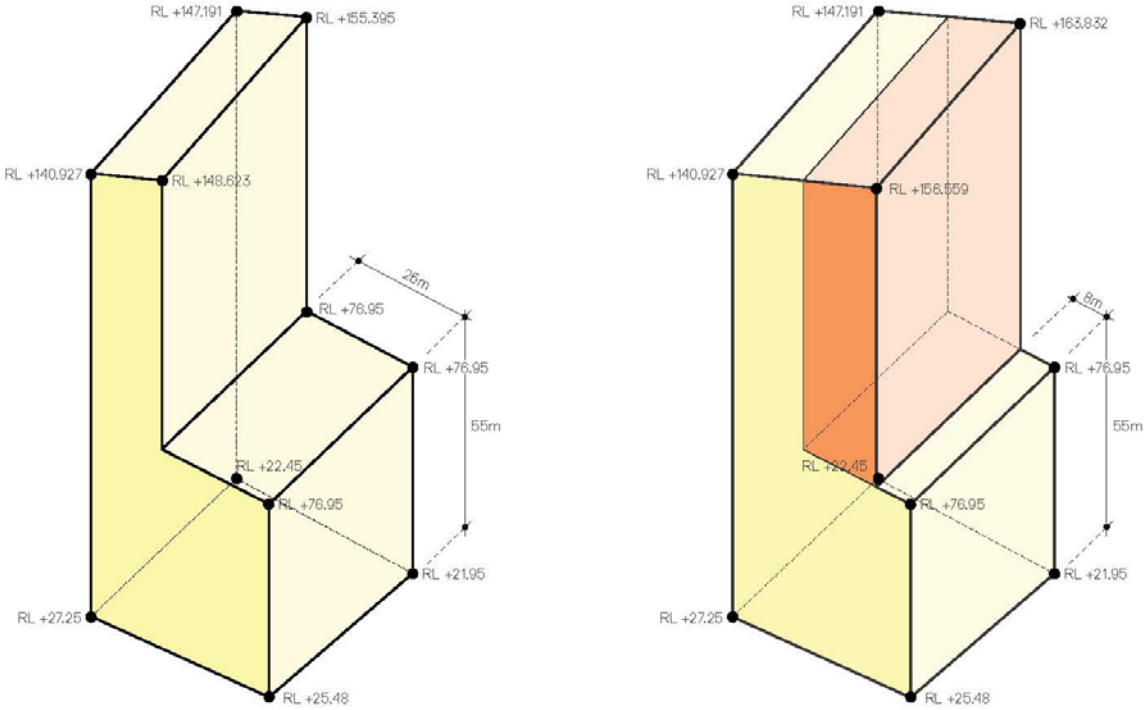
Figure 2: North Site and South Site Approved OSD Building Envelopes

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 Metro Martin Place 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 permits 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 (Amendment No. 46) on 8 June 2018 and reflect the new planning controls applying to the Precinct.

The Concept Proposal was prepared and determined prior to the site specific Sydney LEP 2012 amendment (PP_2017_SYDNE_007_00) being gazetted and was developed based on the height development standards that applied to the South Site at the time. As a result, the Concept Proposal allows for a tower on the South Site that is now inconsistent with the building envelope envisaged through the amendment to the Sydney LEP 2012. Accordingly, a Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA) has been lodged concurrently with this subject Stage 2 SSD DA, which seeks to align the approved Concept Proposal building envelope for the South Site with the revised site specific development standards applying under the Sydney LEP 2012, being increased FSR and building height. This Stage 1 Amending DA seeks to amend

the planning and development framework established under the approved Concept Proposal that is used to assess this Stage 2 SSD DA. The Stage 1 Amending DA is to be assessed concurrently with, and determined prior to the subject Stage 2 SSD DA, with the amended South Site building envelope setting the broad development parameters for the South Site (see Figure 3 below).



Approved South Site OSD Envelope

Proposed Amended South Site OSD Envelope (aligning with site specific amendment to Sydney LEP 2012)

Figure 3: Relationship between the approved and proposed amended South Site building envelope

Overview of the Proposed Development

The subject application seeks approval for the detailed design, construction and operation of the South 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 Sydney Metro City and Southwest in 2024. The application seeks consent for the following:

- The design, construction and operation of a new 28 storey commercial OSD tower (plus rooftop plant) within the approved building envelope for the South Site, including office space and retail tenancies.
- Vehicle loading within the basement levels.
- Extension and augmentation of physical infrastructure / utilities as required.
- Detailed design and delivery of 'interface areas' within both the approved station and Concept Proposal envelope that contain OSD-exclusive elements, such as 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.

Figure 4 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).

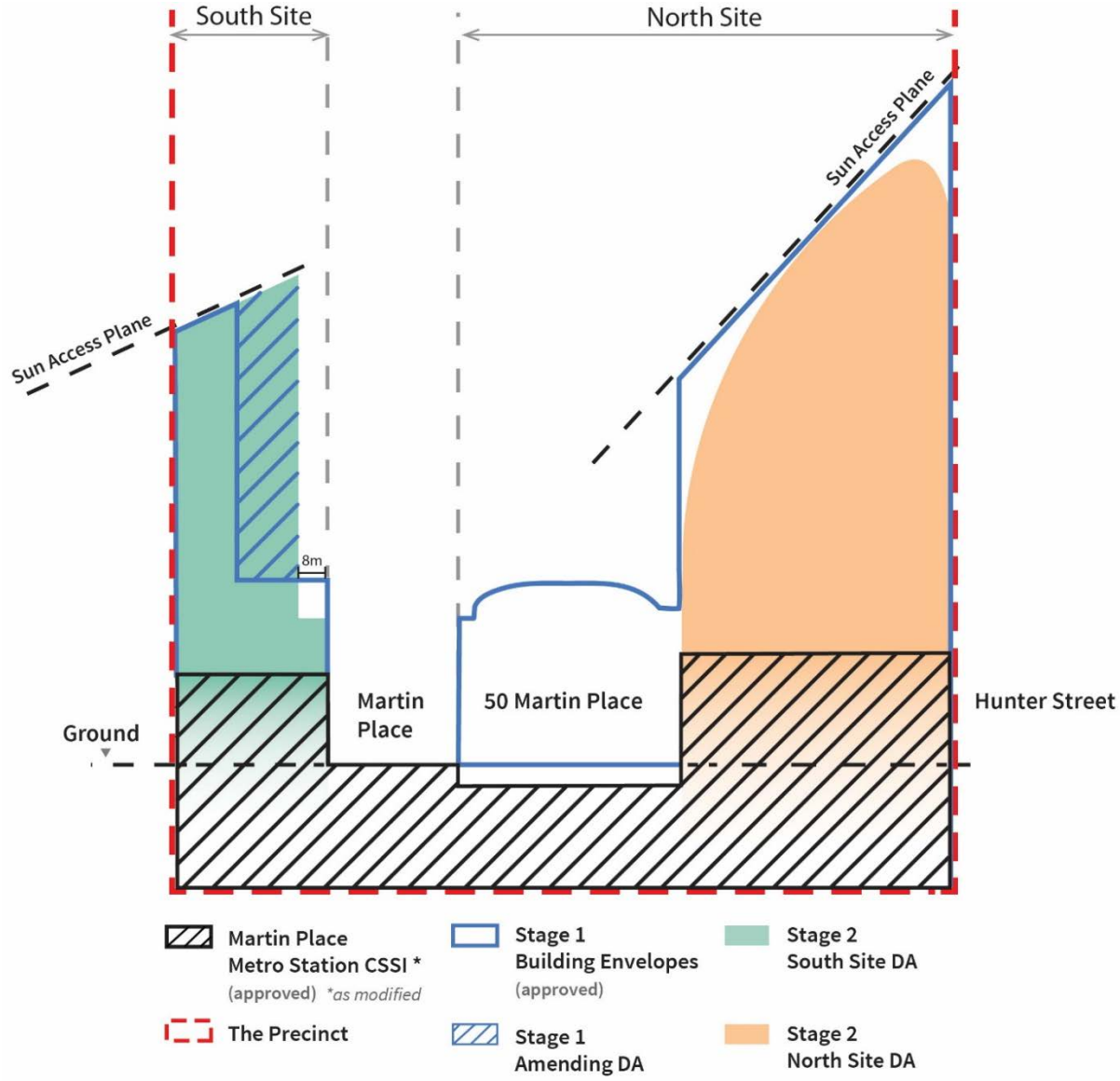


Figure 4: Relationship of key planning applications to the Stage 2 South Site DA (this application)

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:

The EIS shall include a traffic, parking and access assessment providing:

- details of existing and proposed vehicle access arrangements, including parking, loading dock and servicing 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.

The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the EP&A Regulation 2000. Provide these as part of the EIS rather than as separate documents.

In addition, the EIS must include the following:

- Draft loading dock management plan.

Furthermore, Condition B9 of the Development consent, Section 4.38 of the Environmental Planning and Assessment Act 1979, states:

The Applicant shall provide a loading dock management plan, prepared in consultation with Council and the Sydney Coordination Office of TfNSW, with any Future Development Application(s). The loading dock management plan shall include, but not limited to, the following:

a) detailed swept path analysis of service vehicles accessing the loading docks

b) confirmation that vehicular access is located as far as reasonably practical away from the traffic control signals on Castlereagh Street and will not result in queuing on Castlereagh Street

c) sufficient capacity exists for the service vehicle demands of the development and Sydney Metro

d) management of incidents at the access to the loading docks

e) loading bay management details, including service vehicle movements during peak periods

f) management of conflicts between pedestrians and the service vehicles using the loading bays

g) arrangements to accommodate the development's servicing requirements, including consideration of off-site consolidation

h) identification of the precinct logistics infrastructure and activities that form part of the development

i) details of a pre-booking system

j) details of certification with relevant standards, including relevant Australian Standards.

2 Scope

This plan specifically considers the servicing requirements for the majority of the precinct elements; however, some areas have been excluded or partially included as shown in Table 1.

Table 1 Consideration of site elements

Consideration of site elements	
Site Element	**Consideration**
Metro Martin Place station.	Partially included. 1 x SRV loading bay is required to be provided for the exclusive use of Transport for NSW (TfNSW) in the North Site. (see North Site LDMP)
Facilities and technical rooms below street level that support the operations of the North and South Towers.	Included.
South Tower OSD.	Included.
South Tower and Station entrances, retail and public concourses at street level.	Included.
Technical rooms and risers within South Tower which support the operation of the Station.	Included.

2.1 Applicable Standards

Designed with reference to:

- Australian Standard AS2890.2-2002 Off-street Commercial Vehicle Facilities
- Sydney Development Control Plan 2012

2.2 Referenced Documents

- CSWSMP-MAC-SMP-AT-DRG-308111: South Tower Level B1 General Arrangement
- CSWSMP-MAC-SMS-AT-DRG-308010: South Tower Level LG General Arrangement
- SK188, NLA/GLAR 06.12.17 Rev F: South Tower area schedule (NLA)
- SK-A-3050: LONG SECTION (Grimshaw)
- CSWSMP-MAC-SMO-WS-REP-999901: OSD Waste Management Plan
- CSWSMP-MAC-SMA-TF-PLN-999901: Traffic and Transport Design Report
- CSWSMP-MAC-SMP-SC-SMP-999901: Security Management Plan

- CSWSMP-MAC-SMA-SC-IMP-999901: Precinct Wide Incident Management Plan

3 Site Details

3.1 Area Use

The relevant elements of the development for the purposes of this report are the South Tower, above and below ground retail, restaurant/café areas and lobby areas.

Current estimated Gross Floor Area (GFA) and area use information for the South Tower is provided in Table 2. These have been used as the basis for vehicle demand calculations.

Table 2 - Tower area use and estimated GFA

Tower area use and GFA	
Area Use	**South Tower**
	GFA (m2)
Office	35,282
Retail	1,132.5
Restaurant/Café	1,132.5
Lobby	-
Total	**37,547**

3.1.1 Tenancy

No assumptions have been made on whether the development or each tower will be single or multiple tenancy. This plan has been developed to take into account both possibilities.

3.1.2 Tower Concourse Link

A key consideration in the development of this strategy has been the pedestrian link under 50 Martin Place connecting the North Tower and South Tower (shown in Figure 5). It is understood that this link will be public-facing and in constant use. As such, it has been deemed unsuitable for the movement of any significant quantity of goods and waste. Only in exceptional circumstances will small quantities of goods be moved from the North Tower loading dock to South Tower tenants.

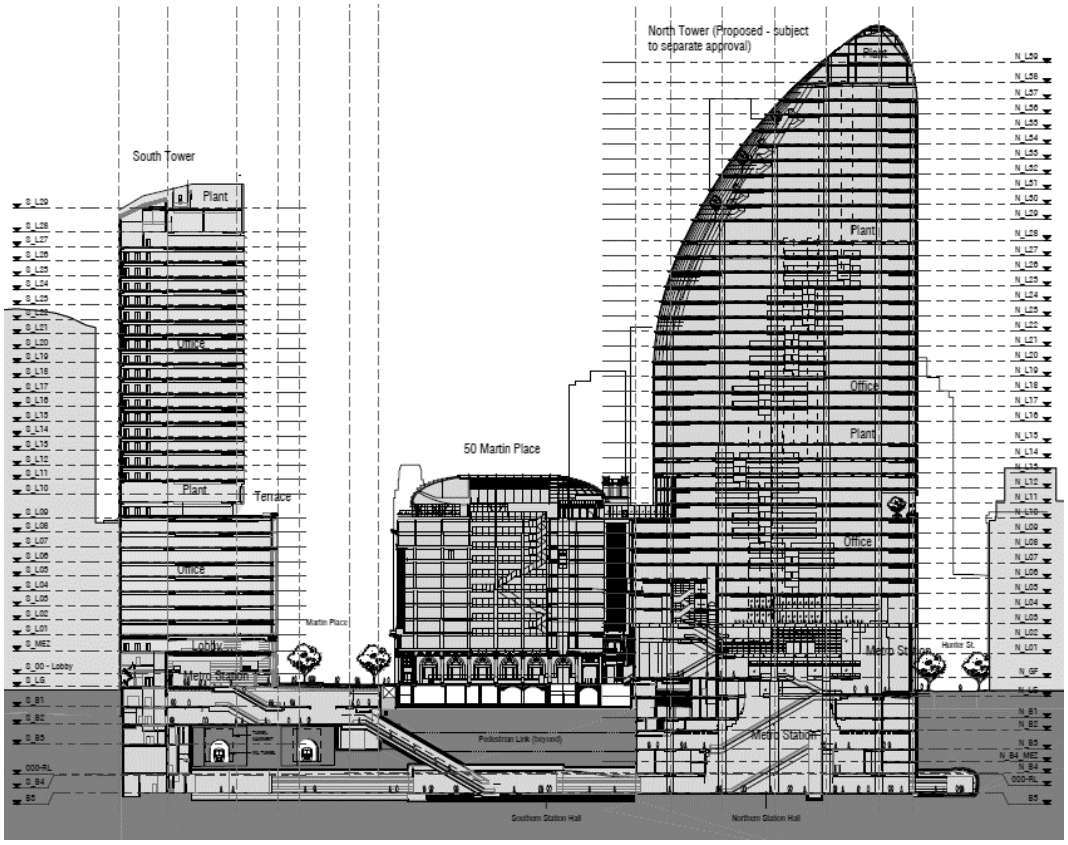


Figure 5: Major site elements (section)

3.2 Loading Dock Provision & Layout

The basement area of the tower is constrained due the spatial requirements of the Metro Martin Place station and the OSD. This has necessitated a more compact loading dock layout than would be ideal for a development of this size. The site will be serviced using:

- The South Tower loading dock, located at Level LG in the South Tower, and consisting of one loading bay with a turntable (1 x Medium Rigid Vehicle (MRV)).

The layout of the loading bay is shown in Figure 6.

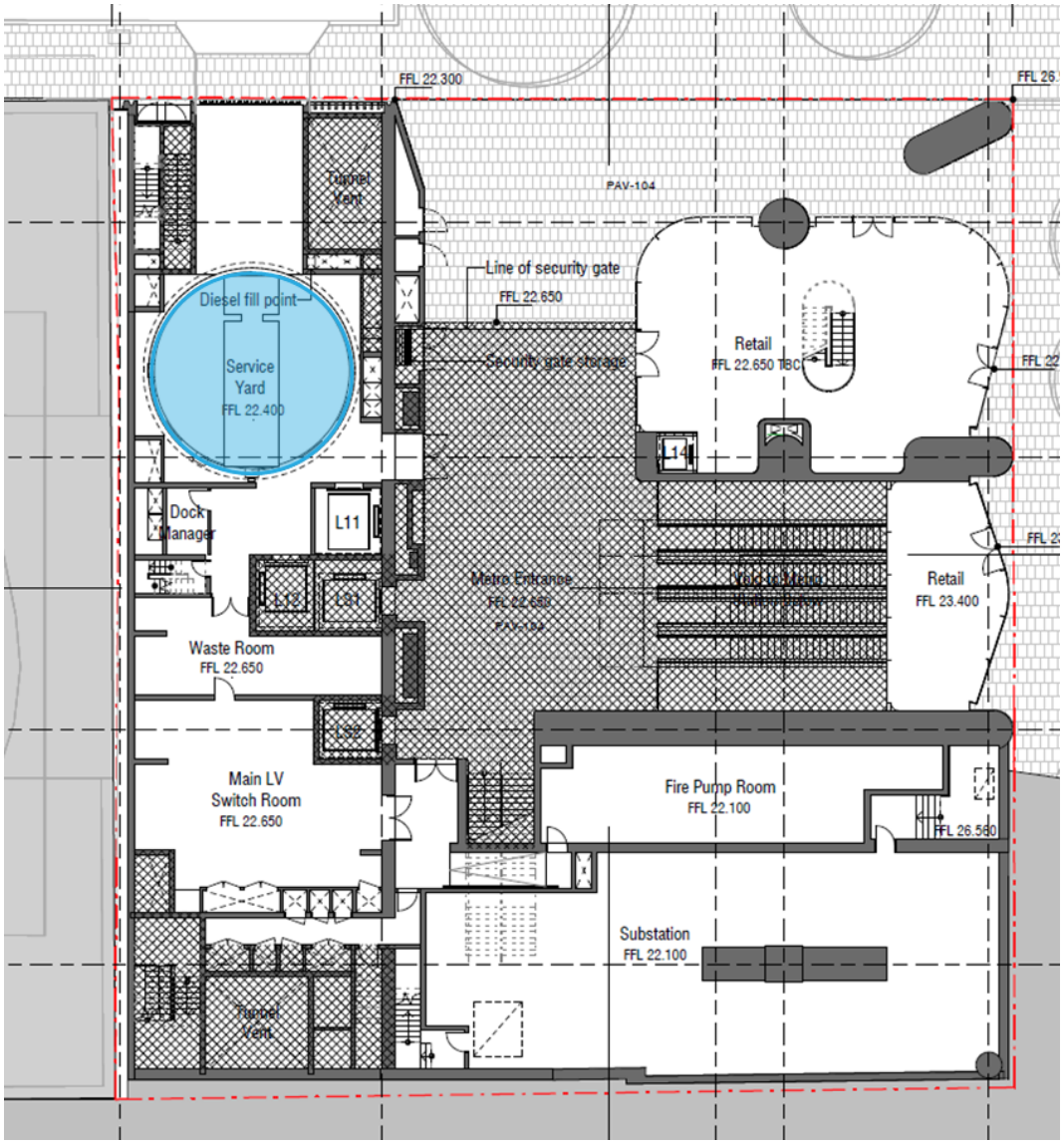


Figure 6: South Tower loading bay layout (LG level)

4 Logistics Strategy

This section presents the over-arching logistics concept that defines the management of the loading dock and sets out the key principles.

Initial vehicle demand modelling for the development was calculated to ascertain the expected daily delivery profile. This analysis indicated that an un-controlled logistics strategy (vehicles arriving and departing at times that suited them with part-loads) could not be accommodated in this development. This was due to peak demand for loading facilities exceeding the capacity of provisioned loading bays. An approach was then developed to reduce and control the demand profile to enable the loading docks to operate effectively.

4.1 Key Principles

An independent logistics approach to managing the North and South Tower loading docks has been adopted. The approach assumes that the loading docks will operate independently with the North Tower or other approved off-street location(s) providing resilience for the South Tower should an incident occur and the dock be closed. The logistics concept showing the movements of goods and vehicles is described in Figure 7.

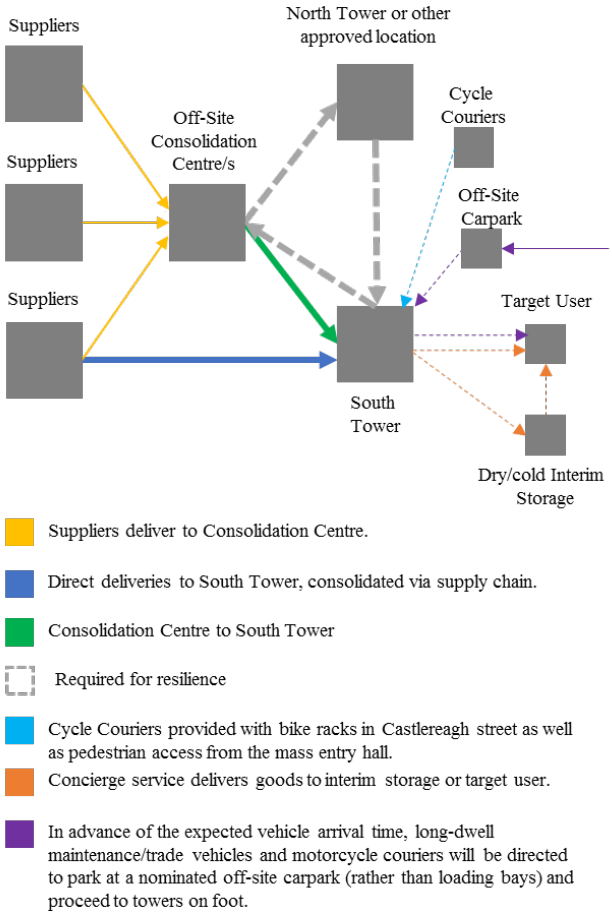


Figure 7: Logistics model

The key operating principles of the approach are:

1) Off-site consolidation of goods will be employed by a nominated carrier to reduce the quantity of daily deliveries and therefore demand on the loading dock. The off-site consolidation service will provide cold storage for use by the Food and Beverage tenants.

2) No long-dwell vehicles (e.g. maintenance and trade vehicles) will be permitted into either loading dock. Macquarie will consider arrangements to assist contractors etc. by re-directing them to nominated public carparks suitable for the relevant service vehicles.

3) A loading dock booking system will be employed to control access to docks and spread the demand profile over the day. Deliveries will be required to be pre-booked to an allocated time slot.

4) Loading dock operating hours will be 18 hours per day seven days per week, though be available for exceptional out-of-hours deliveries 24 hours per day.

5) A dock master for each dock and a concierge service will be present during the loading dock operating hours. The concierge will move goods away from the loading dock once off-loaded and delivered to the target user.

6) No goods will be moved via the pedestrian link under 50 Martin Place. It is understood that this link will be public-facing and in constant use. As such, it has been deemed unsuitable for the movement of any significant quantity of goods and/or waste.

7) The North Tower Loading Dock or approved off-street location(s) will be provided for resilience should the South Tower Loading Dock not be available for use.

Further detail is provided in subsequent sections of this plan.

4.2 Benefits

The benefits of a consolidated and managed solution for the development include:

- Reduced number of vehicles entering the CBD and using the road network
- Reduced number of vehicles entering loading docks
- Reduced CO^2 emissions from reduction in vehicles
- Increased level of security with fewer number and known vehicles accessing the site
- Reduced requirement for quantity of loading bays

4.3 Consolidation

The goal of consolidation is to reduce the number of vehicles entering a target area by ensuring their carrying capacity is as fully utilised as possible. Consolidation can achieve a significant reduction in vehicle movements to a

specified destination with an associated reduction in emissions, congestion, noise pollution traffic movements in absolute terms, peak traffic levels, queuing and loading bay area requirement.

Consolidation is a growing delivery solution worldwide and emerging to Sydney. TfNSW is exploring options for the inner city. Major department stores have their own consolidation solutions with logistics hubs outside city centres and reduced vehicle movements to the store and point of use.

Arup has conducted a preliminary investigation in the Sydney logistics and consolidation market. To date we have identified the following carriers who have indicated capability and services that provide consolidation for developments such as Martin Place. The following have expressed interest in providing such services:

- Pack and Send Sydney City;
- Fracht Australia;
- StarTrack;
- Toll; and
- Linfox.

While there are a number of methods that can be employed to reach this aim, the two methods selected for this development are the operation of an off-site consolidation centre and supply chain consolidation

4.3.1 Off-site Consolidation Centre

A consolidation centre is a logistics facility that is located in relative proximity to the area it serves. Goods destined for the area are delivered to the consolidation centre by vehicles from multiple suppliers. The goods are then sorted and consolidated onto fewer vehicles, which make the delivery to the final destination. While a consolidation centre is not strictly a warehouse, it can provide short-term storage until goods are required by the customer. This allows users to take advantage of bulk buying discounts when space is limited on their own premises.

4.3.2 Supply Chain Consolidation

Procurement-led consolidation is the sharing of transport resources through collaboration between businesses can lead to a reduction in vehicle trips as well as financial and environmental savings. Bunching orders is a simple solution that does not involve a major change in the way goods are bought. Regardless of the number of orders placed from tenants in site are given a time period, the supplier only makes the delivery on a given day or date. Individual orders are ‘bunched’ so they arrive together on a single vehicle. This reduces the overall number of trips needed and associated emissions. It results in less delivery costs for the operator and where the minimum order value is increased, leads to less order processing costs for the customer. This approach is ideally suited to daily fresh, frozen or chilled consumables for office, retail and food and beverage tenants.

5 Vehicle Demand

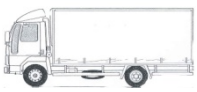
This section sets out the estimated number of daily deliveries and loading bay requirements for each area use within the development.

Trip generation rates are derived from survey information of similar mix-use developments to determine the number of delivery and servicing trips expected to be made to the development.

5.1 Typical Vehicle Types

Typical vehicles delivering goods to the development, including their estimated turnaround time, are shown in Table 3.

Table 3 - Servicing and delivery vehicle types and turnaround times

Servicing and delivery vehicle types and turnaround times			
Vehicle Type	**Vehicle**	**Characteristics**	**Typical Turnaround Time (minutes)**
Bicycle		Bicycle couriers	-
Motorcycle		Motorcycle couriers.	-
Long-stay service vehicle		Typically, does not exceed SRV specifications.	45
Small Rigid Vehicle (SRV)		Typically, 6.4m length, 4 Tonne load capacity, single rear axle and either single or dual tyres.	10 – 15
Medium Rigid Vehicle (MRV)		Typically, 8.8m length, 8 Tonne load capacity, single rear axle and dual tyres.	15 – 20

Note while the above turnaround times are typical for the vehicle types described, a booking slot of 30 minutes has been assumed to allow for arrival time variations. The Booking System is described in further detail later in this document.

5.2 Daily Delivery Trips

This section presents the number of daily delivery trips for the development and the loading bay requirements to manage the daily demand.

The estimated daily trips to the site were calculated using an in-house vehicle generation tool. Arup has undertaken multiple loading dock projects across the UK, USA and now in Australia over the past 10 years. In each case we have used our in-house service demand calculation tool which has been populated with data from relevant standards, observational analysis and data collected from numerous buildings in central London. The projects have been selected based on the use (eg office, retail, food and beverage and residential). A recent validation by two Sydney based carrier companies confirmed the calculations provided were suitable for the South Tower and a single managed loading dock serviced through an off-site consolidated supply chain.

This information has been used to determine vehicle trip rates (vehicles per 100m2 of Gross Internal Area per day) for deliveries and servicing by use (e.g. retail, residential, office). The vehicle generation tool applies these trip rates to the relevant facility areas to calculate the daily delivery and servicing vehicle trips for the facility.

To provide Trip Rate resilience in the South Tower Loading dock we have provided the following as risk mitigation:

- Assumed on 50% of food and beverage deliverables will be consolidated with direct deliveries occurring between 6.00am and 12.00 noon.
- A total operating window for the Loading Dock of 18 hours seven days per week.
- Managed consolidation service to the site through a combination of supply chain consolidation as well as off-site consolidation by the carriers. During the hours of 6:00am and 12:00 noon, a three (3) hour window for direct, supply chain consolidation deliveries will be provided for the 50% of fresh, chilled or frozen food and beverage deliverables.
- A Loading Dock management software providing on-line access for bookings and scheduling changes.
- Concierge service efficiently and safely moving goods from the vehicle and away from the loading dock area to either an interim storage space on Level B2 or directly to the target user.
- Long dwell time vehicles will be assisted in advance by the dock master to an appropriate off-site parking facility.
- Trained Dock Master staff providing direction to drivers for the site entry, unloading, and site exit in a timely manner. Staff will also be trained in incident management should there be a blockage in the loading dock.

The following assumptions have been used to determine daily number of delivery trips:

- 0.18 vehicles/100m²/day for office/commercial deliveries;

- 0.53 vehicles/100m²/day for retail deliveries;
- 2.20 vehicles/100m²/day for restaurant/café deliveries;
- 50 Martin Place loading dock (within the North Tower) is not included;
- Station loading dock provided within North Tower;
- NLA figures assumed to be 85% of GFA for all areas;
- Floor area allocated for retail/lobby is assumed to be 50% retail and 50% restaurant/café until otherwise confirmed;
- Food and Beverage storage outlets located in the Station box are serviced from the North Tower Loading Dock; and
- To encourage the use of cycle couriers, bike racks will be provided on Castlereagh Street together with pedestrian access to the loading dock, accessed via the main entry hall.

The number of daily deliveries to the loading dock, based on the area schedule, have been calculated and are shown in Table 4.

Table 4: Daily deliveries

Daily deliveries			
Area Use	**South Tower GFA (m2)**	**Maximum Daily Trips (unconsolidated)**	**Maximum Daily Trips (consolidated)**
Office	35,282	64	20 [1]
Retail	1,132.5	6	3 [2]
Restaurant/Café	1,132.5	25	13 [2]
Total	**37,547**	**95**	**36 [3]**

[1] Consolidation rate of 70% applied
[2] Consolidation rate of 50% applied
[3] Bicycle and motorcycle couriers are excluded from trip calculations

From the daily trips rates, the minimum loading bay requirement has been calculated, and is presented in Table 5.

Table 5 Loading bay requirement

Loading bay requirement				
Vehicle	**Min. Loading Bay Size (m)**	**Min. Quantity Required**	**No. Provisioned**	**Gap**
MRV	W3.5 x L8.8	1	1	-
SRV	W3.5 x L6.4	0	0	-
Total		**1**	**1**	-

Assuming a 30 minute booking slot provided for each vehicle (regardless of size) and an 18 hour operating window, the capacity of the dock would be 36 trips (or

booking slots) per day, or 2 per hour. This equals the calculated demand of 36 trips/booking slots per day (2 trips per hour).

Direct Food and Beverage deliveries will take precedence during the morning and will be scheduled between 6.00am and 12.00 noon for both consolidated and unconsolidated deliveries.

6 Loading Dock Access

6.1 Street Entry

Entry to the South Tower loading dock is via Castlereagh Street. This is a one-way street southbound and consists of one bus lane and one traffic lane. On the both sides of the road, there are parking lanes which are mainly designated as loading bays or bus zones on weekdays. This loading dock strategy specifically excludes the requirement to utilise any on-street loading facilities.

Traffic control signals are located on the intersections of Castlereagh Street with Martin Place and Hunter Street. The entrances to the loading docks have been located as far as possible from the signals as shown in Figure 8.

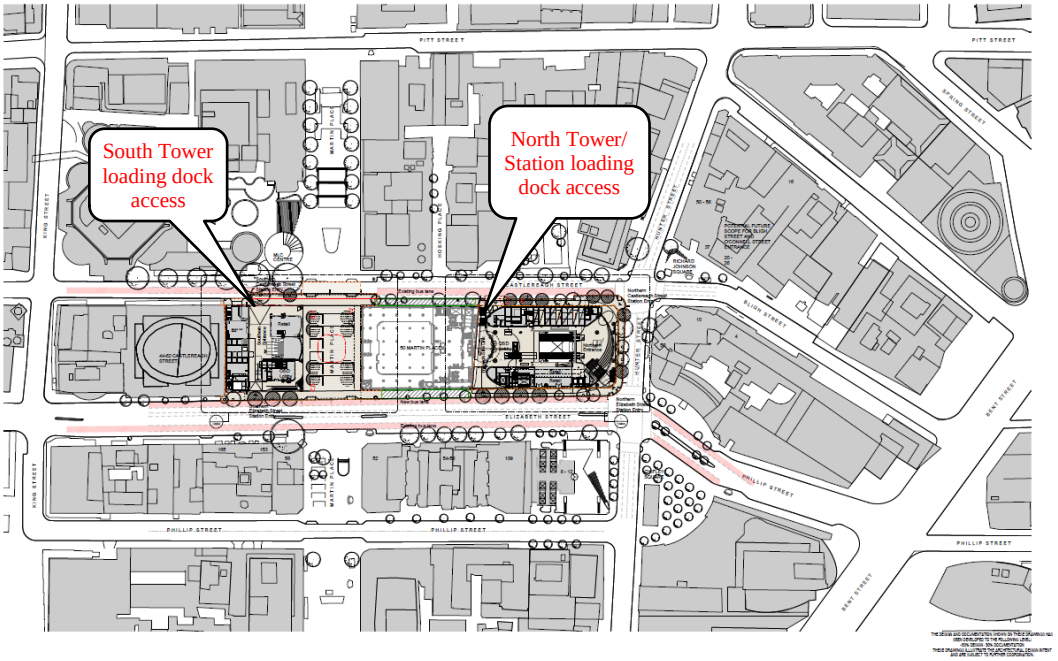


Figure 8: Loading dock entrances

6.2 Driveway

The South Tower dock driveway is approximately 5.2m in width (7m at the edge of roadway) with the footpath gradient 1:40 up to the property line. A height clearance of 3.6m is provided on entry to the property and throughout the service area.

The driveway traverses a footpath, bringing vehicular and pedestrian movement paths into conflict. Safety measures to be implemented at the driveway to provide a safe environment for pedestrian and vehicle movements include the following:

- Warning signage on each side of the crossover for pedestrians and signage for drivers leaving the driveway;

- Yellow flashing warning lights at the site boundary for pedestrians as vehicles depart the site;
- CCTV surveillance of the access with connection to the security office;
- An intercom at the entry with an audible device to talk to security; and
- Mirrors to assist exiting drivers to view pedestrians on the footpath.

6.3 Ramp

The South Tower loading dock is located at street level off Castlereagh Street and does not include an access ramp.

7 Loading Dock Operation

7.1 Operations Management

The loading dock will be managed by the Facilities Manager in accordance with the requirements outlined in this document. The loading dock will have a dock master on-site during the hours of operation to coordinate the safe movement of goods, vehicles and personnel within the loading dock area.

A concierge service will operate with personnel tasked with the onward movement of goods from loading dock areas to interim storage or target users.

The principal facilities and areas for the operation of the loading dock are presented in Figure 9 and

Figure 10.

Further detail on the distribution routes for goods from the loading dock throughout the tower are presented in Appendix B.\

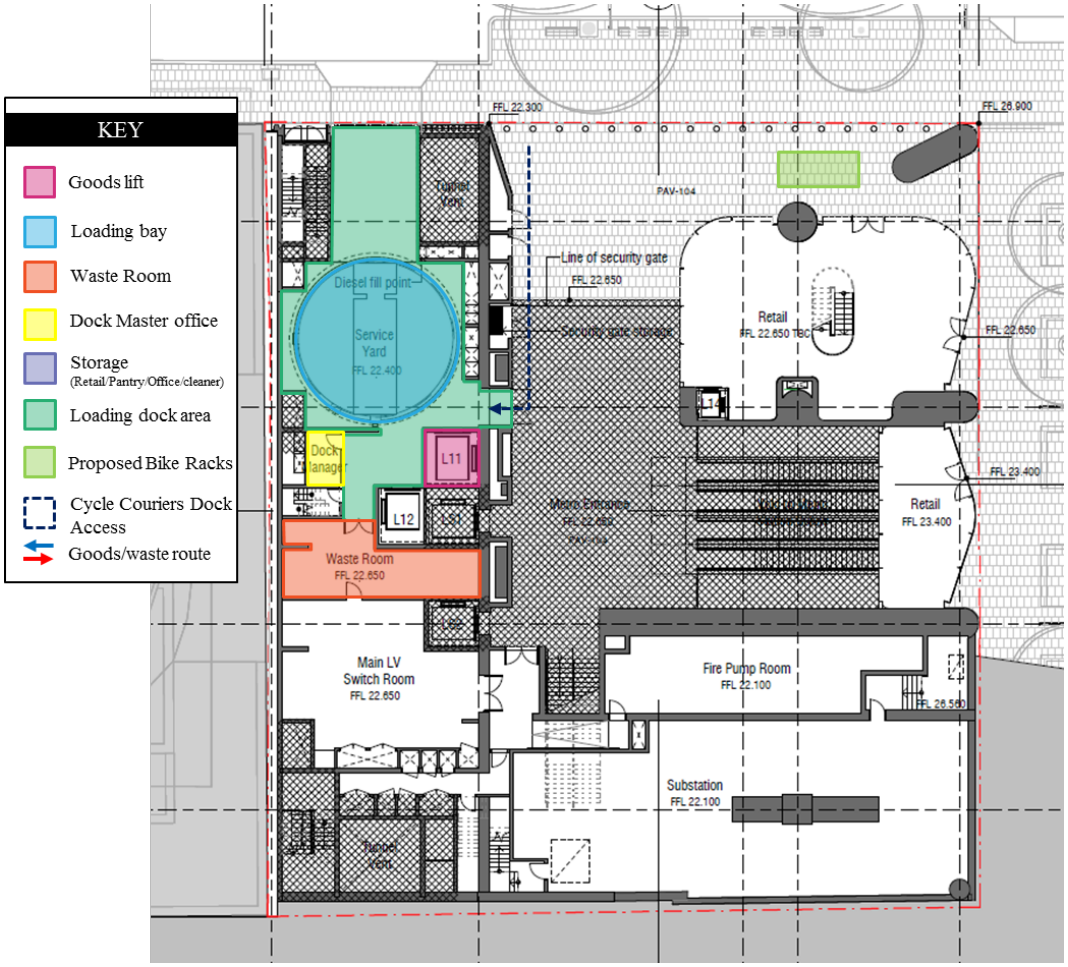


Figure 9: LG level loading dock facilities

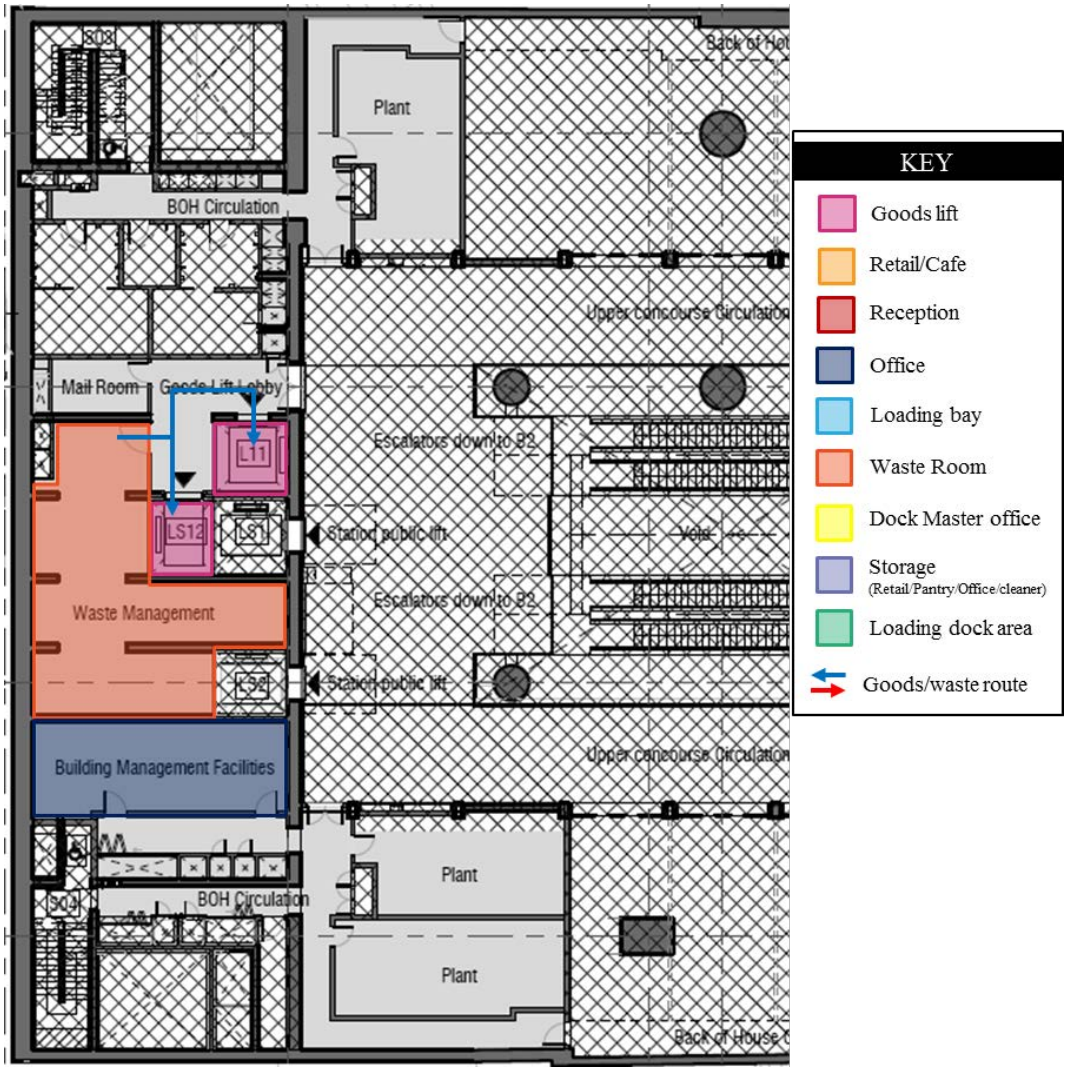


Figure 10: B1 level loading dock facilities

7.2 Delivery and Servicing Arrangements

A range of items will be demanded by tenants in the development. Table 6 describes how deliveries and servicing arrangements will be managed by the type of goods demanded.

Table 6 Delivery arrangements by goods type

Goods Type	Arrangement
Retail goods	50% of retail deliveries will be consolidated and received to the loading dock.

Goods Type	Arrangement
Food and beverage (cold/fresh)	50% of cold/fresh goods are consolidated through supply chain rather than off-site consolidation. Deliveries are received to the loading dock.
Food and beverage (dry)	50% of food and beverage deliveries (dry) will be consolidated and deliveries are received to the loading dock.
Office goods	70% of daily consumables will be consolidated and deliveries are received to the North Tower dock then driven to South Tower loading dock by same vehicle ('milk run').
Bulky/exceptional goods	Outside of operating hours by prior arrangement and booking.
Motorcycle courier deliveries/collections	Redirected off-site to nominated local carpark.
Bicycle courier deliveries/collections	Door connecting the loading dock to the Site Link area will be used for access by bicycle courier deliveries.
Mail	Received by the South Tower loading dock for target users in the South Tower. Booking required.
Personal goods (e.g. flowers or online packages)	Redirected off-site (e.g. to preferred carrier, consolidation centre, or package lockers)
Long-dwell vehicles (e.g. servicing, trades and maintenance)	In advance of the expected vehicle arrival time, long term deliveries will be re-directed to a nominated local carpark (suitable for the relevant vehicle) unless there is an emergency maintenance or repair requiring an onsite vehicle.

7.3 Hours of Operation

The loading dock will be available 24 hrs per day, with an operational window of 18 hours per day – 4am to 10pm – 7 days per week. This period has been selected to allow for operational flexibility in the timing of deliveries with non-priority deliveries retimed to lower demand periods.

On occasion, it will be necessary to receive deliveries (e.g. for exhibitions, building materials, plant and other equipment) and removal of builders' waste. The provision of access outside of operational hours will be at the discretion of, and special arrangement by, the Facilities Manager who may grant access as required. Booking via the booking system will be required.

7.4 Booking System

In order for the tower to be adequately serviced, a delivery booking system will be utilised. The major benefit of the implementation of such a system is demand levelling and reducing loading bay requirement. The allocation of deliveries to timeslots prevents a 'peak hour' for delivery vehicles occurring at the loading dock, which can lead to congestion, delays and incidents. It also largely mitigates the risk of vehicle queues forming to enter the site, blocking the flow of traffic on Castlereagh Street. It has been assumed that 30 minute booking slots will operate for the dock. The South Tower dock will not accept vehicle arrivals from the Consolidation Centre between 0900 and 1200.

The implementation of this system also aims to streamline internal logistics (the onward goods distribution from the loading dock to target users), as the input of goods to the dock is known in advance and sufficient manual handling equipment and resources can be planned to meet demand.

7.4.1 Typical Operation

There are a number of commercial delivery booking systems available. The functionality of a typical system is outlined below:

- A delivery or service vehicle operator logs a delivery or service requirement with the loading dock through an online/mobile app and selects from a list of available timeslots. The delivery or service vehicle operator is provided with:
  - The loading dock entry address and allocated a loading bay for delivery;
  - A security code to be used at the entrance to the dock for access;
  - Contact information for the dock operator and instructions if a timeslot is unable to be met;
  - The vehicle operator is sent a reminder notification or text message to alert them that their timeslot is upcoming; and
  - Upon arrival at the correct dock, the vehicle operator uses the security code provided to gain access to the site, unload goods or provide service, and uses the code to leave the dock area.

7.4.2 Examples

There are numerous examples of managed loading docks in the Sydney CBD. Two examples are as follows:

Barangaroo, Sydney

- Precinct style dock serving entire Barangaroo development
- Bookings made in advance through Bestrane.
- No booking = no entry!
- Vehicles are pre-allocated a space within the loading dock based on the building they are servicing and the size of the vehicle

- Dock master on site between 6am and 6pm, however 24-hour access to the dock is provided
- Centralised precinct courier / mail room located within the dock

200 George Street, Sydney

- Concierge directs all deliveries through to loading dock.
- Bookings for deliveries made in advance through 'Scatter' system. This is associated with availability of the goods lift rather than the spaces within the dock
- No booking required for couriers. Most of them are known to the dock master who simply directs them to their space
- Separate contractor parking on B1 (bookings required)
- Dock master on site between 6.30am and 6.30pm
- Bookings only from 7pm

Emporium, Melbourne

- Located in the Melbourne CBD
- Accessed via two hydraulic truck lifts
- Services over 200 retailers including David Jones and Myer with over 100 deliveries each day.
- Bestrane software is sued for the managed dock appointment system with 20 minute booking slots
- Queuing times have been eliminated
- 14 spaces are allocated for the Emporium retail, two for David Jones and two for Myers
- Waste is collected three times per week and generally outside of the dock operating hours
- Security staff operate the hydraulic truck lifts from the security control room
- StarTrack and Toll self-consolidate deliveries as they service a number of retailers
- With the same drivers delivering to Emporium on a regular basis, the system is efficient and timely.

7.5 Access Control

The South Tower will maintain a consistent procedure for controlling access to the loading dock.

Outside of operating hours, vehicular and personnel access to the loading dock will be controlled by a roller shutter door.

During operating hours (when security and dock master are present), the roller door will remain open and boom gates will control vehicular access into and out of the loading dock.

Access will be granted only to those vehicles that are booked via the loading dock booking system. Signage to this effect will be displayed prominently at the loading dock entrance to deter entry attempts by unbooked vehicles.

Depending on the software used, drivers will either receive a code which they will be able to use at the boom gate to access the site and will be directed to their pre-booked space by the dock master. Alternatively, they will communicate with the dock master via intercom before being granted access and being directed to their pre-booked space.

Vehicles may be refused entry for reasons such as arriving before or after their allocated time slot, not having a booking or entering the driveway by mistake. Rejected vehicles will not be granted entry into the loading dock. Should a vehicle be refused entry at the boom gate (via intercom communication with the dock master), they will be required to wait until met by the dock master or security personnel. The dock master/security personnel will stop the passage of pedestrians on the footpath and instruct the driver of the vehicle to reverse safety on to Castlereagh Street and move away.

7.6 Turntable Operation

A circular turntable is provided which can accommodate an MRV. This will allow vehicles to drive into and out of the loading dock in a forward direction. The turntable will be operated by the dock master in accordance with safe working practices.

7.7 Waste Collection

Waste and recycling will be collected outside of operational hours to ensure minimal impact on the operation of loading dock. Waste bins will be provided, moved to the loading dock after hours prior to collection. The waste contractor will return bins to the waste room.

7.8 Loading Dock Management

The loading dock makes provision for a dock master office. This typically houses a desk and chair, computer equipment, small amount of interim storage and other facilities required for the dock master to perform their duties.

The dock master will ensure the loading dock (including designated safe walking routes) are kept clear of goods at all times and ensure delivery vehicles strictly adhere to their allotted booking slot. Any vehicles overstaying their booking will be moved on to ensure later bookings are not affected.

Safe routes for the movement of people and goods between the loading bay and goods lifts that avoid vehicle manoeuvring area have also been designated.

Pavement markings will be required to indicate safe access for people and delivery movement through the loading dock area.

Incidents occurring within the loading dock area, or at loading dock entrance, will be managed in accordance with the Precinct Wide Incident Management Plan.

7.9 Associated Infrastructure

This section describes the associated infrastructure required for the loading dock to operate effectively.

7.9.1 Interim Goods Storage

Space has been provided in the loading dock area on level B2 for the temporary storage of dry and cold goods that have been delivered and are waiting to be moved to their final destination. The concierge will manage the interim storage room. Refer to Appendix B2.

7.9.2 Mail Room

The tower includes a mail room for the receipt and sortation of mail.

7.9.3 Goods Lifts

Direct access has been provided for the movement of goods from the loading docks to the goods lifts. From the lifts, goods will be distributed to interim storage rooms or directly to target users.

The South Tower loading dock will utilise one (1) goods lift for vertical circulation to the final destination of the goods (identified in Figure 9). The lift is:

- L11 Goods Lift.

7.10 Contingency & Resilience

7.10.1 Resilience

A degree of resilience has been built in to the assumptions used in this plan. For example, 30mins booking slots have been assumed to allow for variations in arrival times of vehicles even though turn-around times are typically 15-20mins. An 18 hour operating window has been designated to provide the flexibility to retime lower priority deliveries to quieter parts of the day.

For the single loading bay in the South Tower, resilience will be provided through North Tower or alternate location loading dock handling deliveries for the South Tower in contingency scenarios.

7.10.2 Contingency Plans

To test the logistics and loading dock management strategy, a number of incidents have been considered for the loading dock. In each case, operational procedures are proposed to maintain the flow of deliveries into the docks. Contingency responses have been prepared to address potential scenarios:

Table 7: Contingency responses for potential incidents

Incident and Impact	Response
Blocked access - A vehicle has broken down at the entrance driveway to the loading dock and cannot be moved. This has prevented other service vehicles accessing the loading docks.	A towing service will be called immediately to remove the vehicle. Deliveries will be re-timed through the dock management system. Carriers will be advised by text message of the changed time slot. Time critical deliveries will be redirected to the North Tower Loading Dock, or approved off-street location(s)
Delivery outside of booking slot - A vehicle has arrived at the entrance to the loading dock without a booking. This has temporarily blocked access for booked vehicles.	The driver will communicate via intercom with dock master. **Option 1** - The Dock Master will have discretion to allow entry if there is available capacity either during peak hours or non-peak hours. **Option 2 -** If there is no available capacity within the dock the driver will be asked to turn vehicle away, assisted by the dock master to move away safely. The dock master will be appropriately trained and equipped to do this task.
Driver taking too long to deliver - A driver has had an issue making a delivery and has exceeded the delivery slot allocated. This will impact other vehicles arriving for their booked timeslot and delay the daily operation.	The dock master will be responsible for monitoring delivery timeslots and moving on slow drivers. This will be further mitigated by drivers not leaving the loading dock area, with a concierge service responsible for the onward movement of goods from loading dock/interim storage to target user.

Incident and Impact	Response
Failure of turntable - The turntable in the South Tower loading dock has mechanically failed, preventing the turntable from rotating. The impact of the failure means that service vehicles are unable to be rotated and are therefore unable to enter or exit the loading dock in a forward gear. Access to the loading dock is unaffected.	Some turntable suppliers can provide turntables with a redundant drive system, where should this system have a failure with the motor or controller, the faulty drive can be disengaged within 15 minutes without the need of an emergency call out of an engineer. Meaning the turntable will be operational within 15 minutes of the mechanical failure. **Option 1 -** An engineer will be called immediately to respond to the failure. Only high-priority deliveries will be accepted. The dock master who will be appropriately trained and equipped, will guide vehicles into the loading dock in reverse gear ensuring safety. The vehicle will be unloaded and move out of the dock in forward gear. **Option 2 -** An engineer will be called immediately to respond to the failure. Only high-priority deliveries will be accepted. Vehicles will enter the loading dock in a forward gear. The dock master will rotate the turntable manually (this is dependent on manufacture of turntable). The vehicle will unload and exit the dock in forward gear. Depending on length of expected outage, non-priority deliveries will either be re-timed to a 24 hours operation, or they will be delivered to the North Tower outside of peak times, and moved to South Tower target users.
Emergency access - A burst water pipe has occurred within the South Tower loading dock requiring emergency access for responders. The plumbing contractor vehicle requires exclusive use of the loading dock for some time in order to resolve the issue. This has prevented other service vehicles accessing the South Tower loading dock.	A plumbing contractor will be called immediately to respond to the issue. Critical deliveries (e.g. fresh produce) will be directed to the North Tower loading dock, non-critical deliveries will be re-timed through the dock management system. Non-critical North Tower deliveries will be retimed to free capacity if required. Carriers will be advised by text message of the changed location and time for delivery. Goods will be moved from the North Tower dock to South Tower users.

7.11 Swept Path Analysis

Swept path analysis has been conducted to ascertain whether the arrangement of the loading dock is able to accommodate the manoeuvring and parking of service vehicles requiring access.

The swept path analysis was conducted for the following vehicle sizes:

- Medium Rigid Vehicle (MRV)

The vehicle used for the tracking was an Austroads 2013 design vehicle, provided in the vehicle library of the vehicle tracking software. The swept path analysis drawings are appended to this report.

8 Agency consultations

The Metro Martin Place team met with the RMS Sydney Coordination Office (SCO) on 18 April 2018 to provide a brief on the upcoming SSDA Stage 2 submission. The contents of this report were discussed and another meeting was requested regarding the Loading Dock Management Plan; this meeting was conducted on 25 May 2018 and all designs presented were agreed to in principle.

The Metro Martin Place team met with the City of Sydney 30 July 2018 to provide a brief on the upcoming SSDA Stage 2 submission. The contents of this report were discussed and all designs presented were agreed to in principle, and a draft of this report was provided to City of Sydney for comment.

9 Conclusion

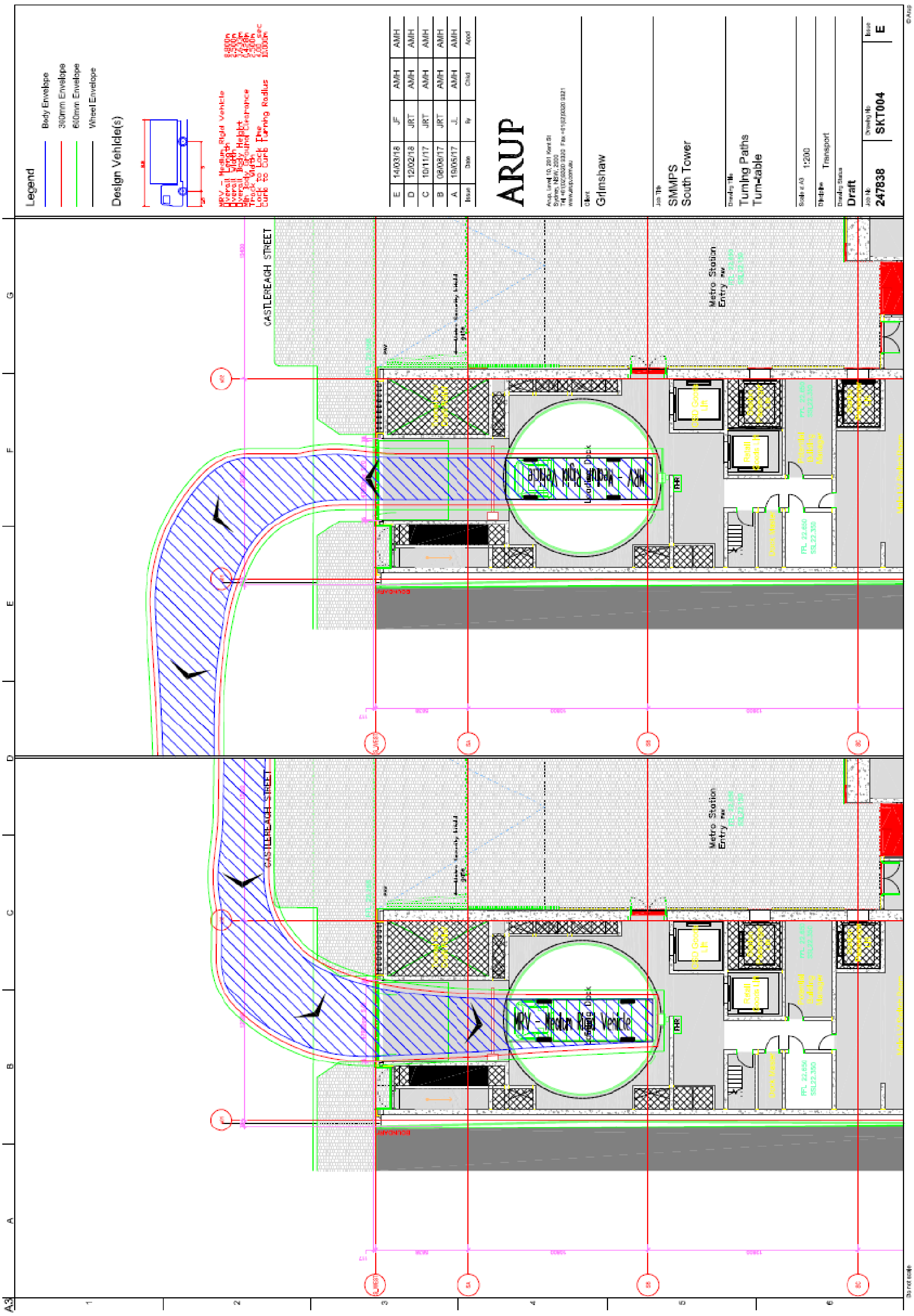
As has been demonstrated in this LDMP, the South Site loading dock has been designed to deliver an efficient operation while minimising its impact on city infrastructure.

Operationally, it demonstrates that sufficient vehicle manoeuvring envelopes and capacity exists for the level of demand that the development is expected to generate. The proposed operation of the dock is highly managed, employing a pre-booking system, on-site dock master and concierge service to ensure goods are received and moved to target users in a safe and efficient manner.

The plan requires no use of on-street loading bays, minimises the risks of vehicles queuing onto Castlereagh Street and disrupting traffic flows, proposes measures to minimise the risk of vehicle-pedestrian collisions at the driveway-footpath interface and outlines contingency measures to be employed should disruption to operations occur. Furthermore, it proposes the use of off-site consolidation to reducing the number of deliveries made to the site which commensurately works to reduce CO2 emissions and inner-city road network congestion. As such, risks of impacts to the city have been mitigated insofar as possible. For these reasons, the LDMP meets the requirements of SEARS and conditions of SSDA Stage 1.

Appendix A

Swept Path Analysis

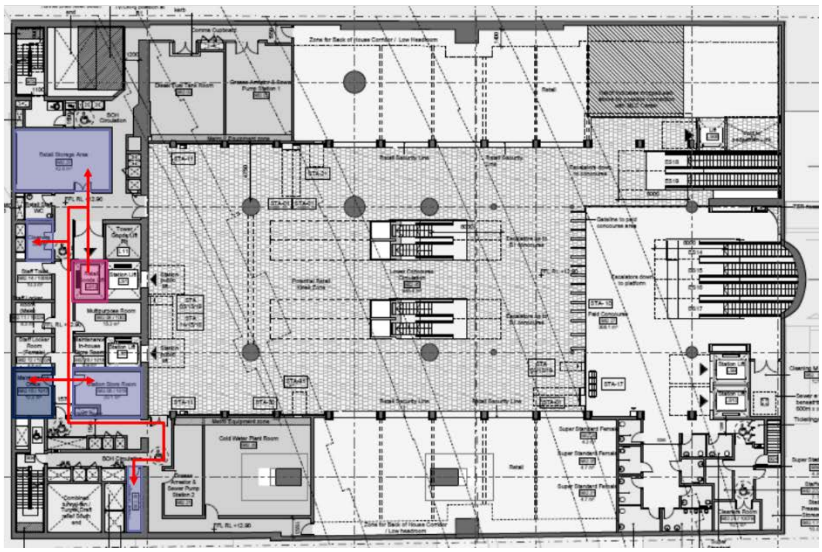


Legend
Body Envelope
300mm Envelope
600mm Envelope
Wheel Envelope
Design Vehicle(s)
CASTLEREAGH STREET
Metro Station Entry
Loading Dock
MRV - Medium Rigid Vehicle
ARUP
Grimshaw
SMMPS
South Tower
Turning Paths
Turn-table
1:200
Transport
Draft
247838
SKT004
E

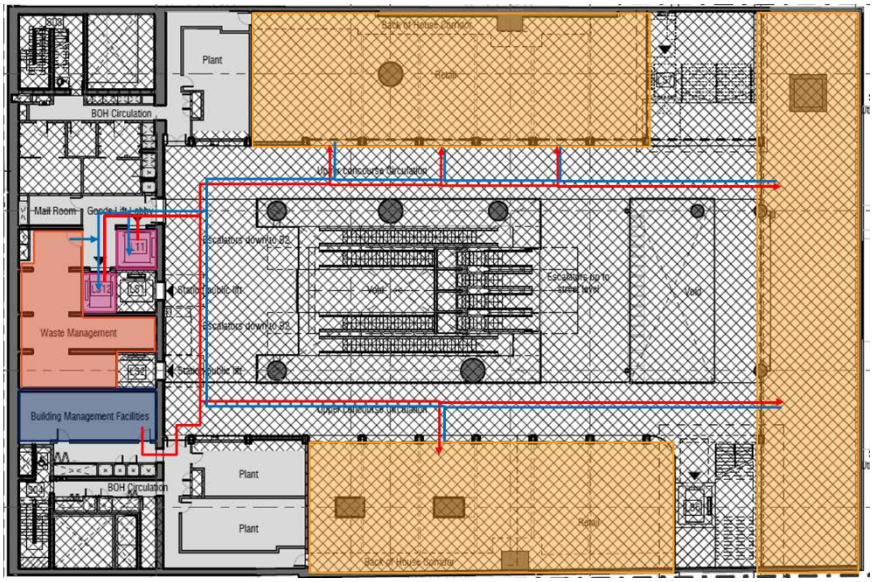
Appendix B

Goods Distribution Routes

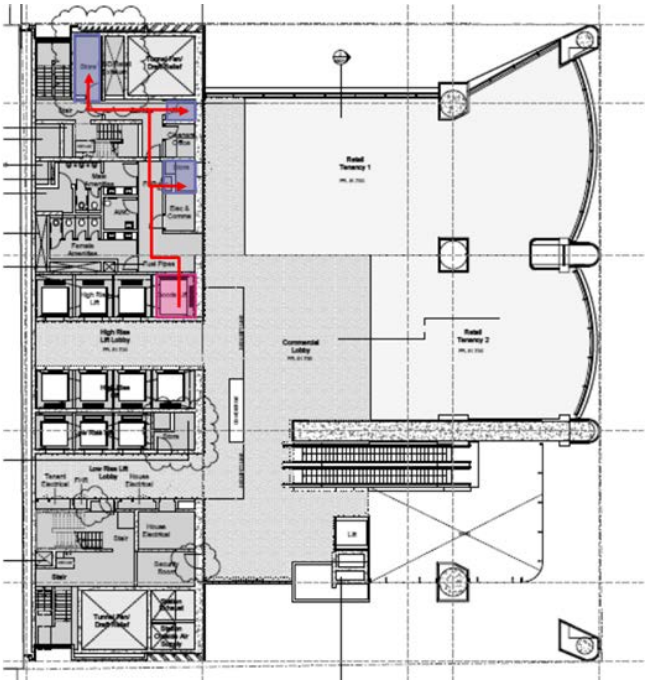
LEVEL B2 PLAN - LOWER CONCOURSE



LEVEL B1 PLAN - UPPER CONCOURSE



LEVEL MEZZANINE



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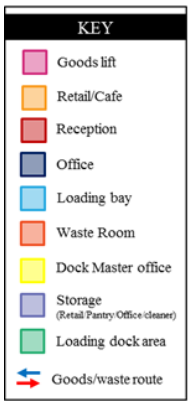
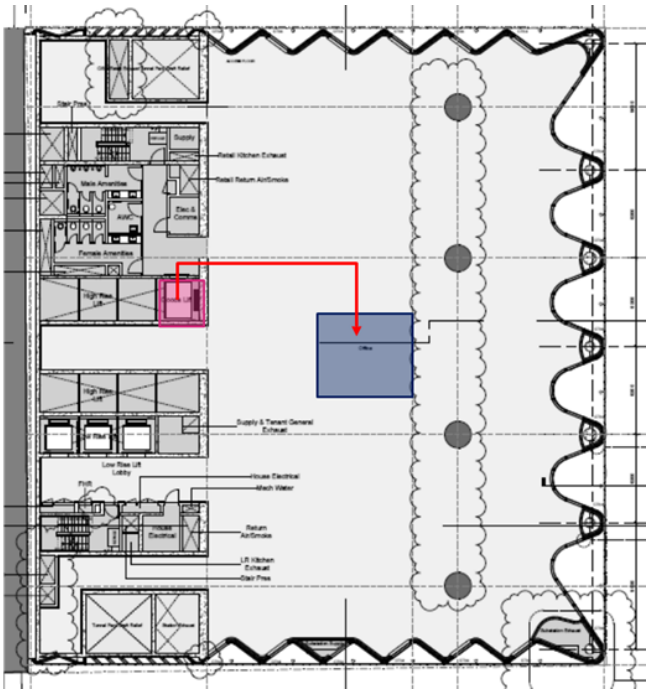
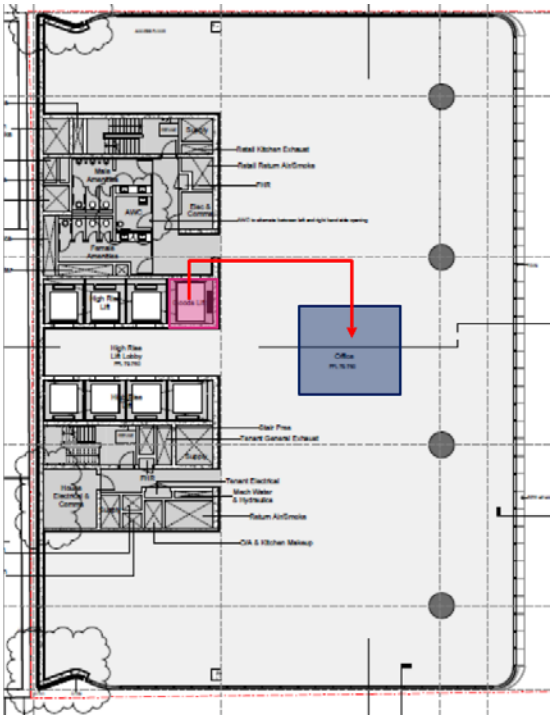




LEVEL 12-26



LEVEL 27