Macquarie

Sydney Metro Martin Place Integrated Station Development

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

CSWSMP-MAC-SMN-OM-REP-999901

2 | 7 September 2018

Job number 247838-72

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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 **North 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 northern entrance to Metro Martin Place 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 SSD DA) for two OSD commercial towers above the northern and southern 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 SSD DA) must be consistent.

This application does not seek approval for elements of the Metro Martin Place Precinct (the 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 North 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 report 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 North Site – this application – and one for the South Site via a separate application.

Site Description

The Metro Martin Place Precinct 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**, being the city block bounded by Hunter Street, Castlereagh Street, Elizabeth Street, and Martin Place (refer to Figure 1).

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 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.

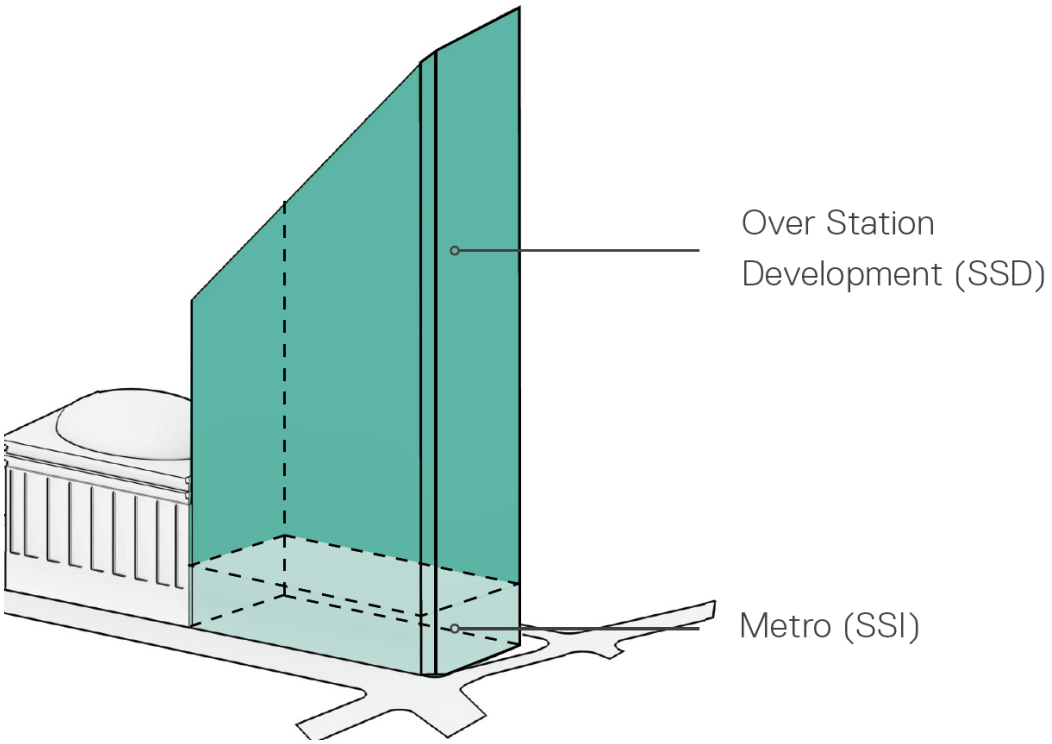
On 22 March 2018, the Minister approved Modification 3 to the Sydney Metro CSSI Approval. This enabled the inclusion of Macquarie-owned land at 50 Martin Place and 9-19 Elizabeth Street within Metro Martin Place station, and other associated changes (including retention of the opening to the existing 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 (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 125,437m^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 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 Metro Martin Place Precinct through the inclusion of a site-specific provision in the Sydney Local Environmental Plan (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.

Overview of the Proposed Development

The subject application seeks approval for the detailed design, construction and operation of the North 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. 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 areas 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 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 SSD DA for the South Site (Stage 2 South Site SSD DA). A Stage 1 Amending SSD DA to the Concept Proposal (Stage 1 Amending DA) has also been submitted that has the effect of aligning the approved South Site 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).

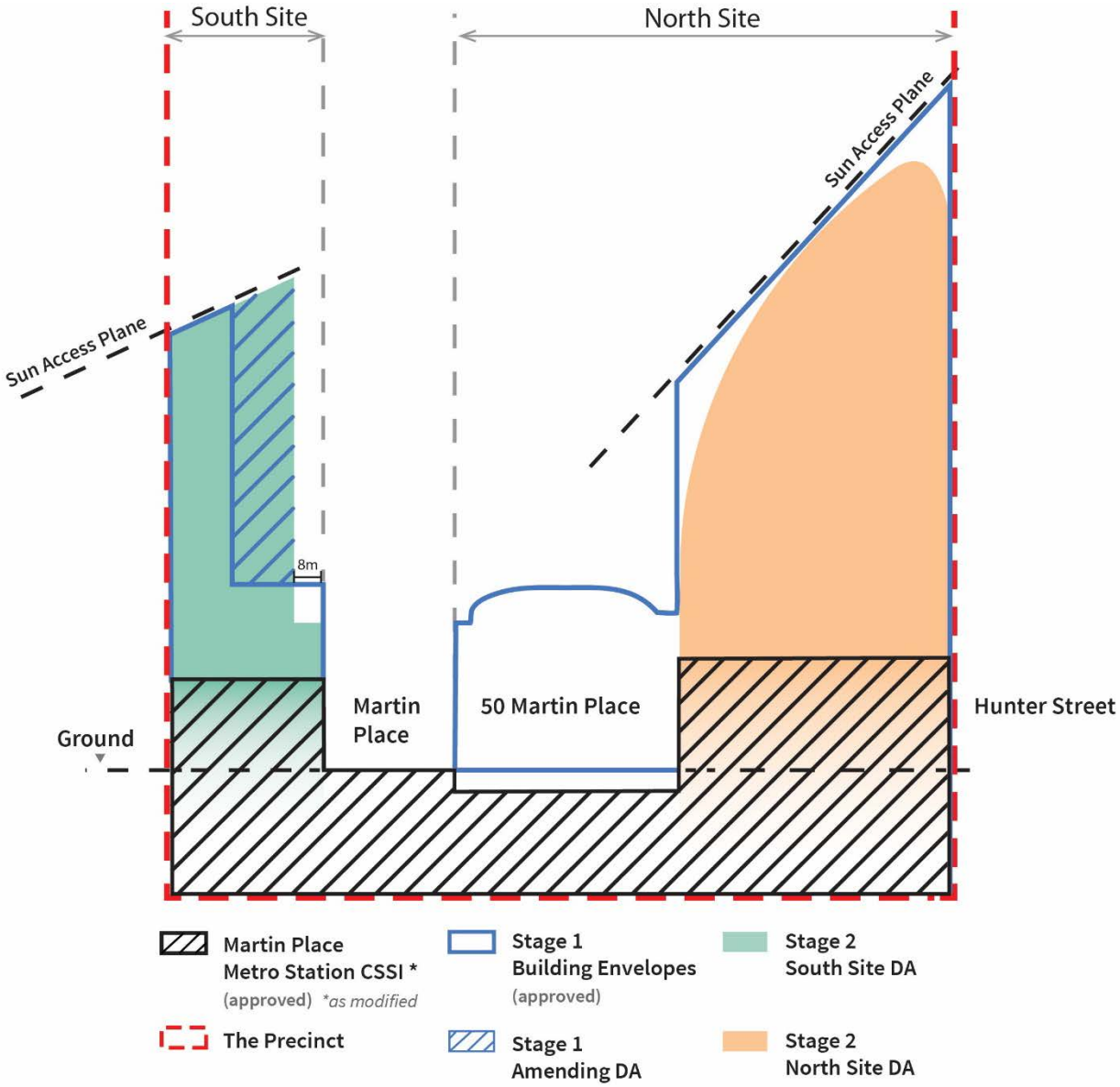


Figure 3: Relationship of key planning applications to the Stage 2 North Site DA (this application)

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:

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 site 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 site 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.
Retail and public concourses below street level, excluding a pedestrian link beneath 50 Martin Place.	Included. Retail and public concourses included.
Facilities and technical rooms below street level that supports the operations of the North Tower.	Included.
Existing Macquarie headquarters at 50 Martin Place.	Not included. 50 Martin Place maintains its own loading dock and is expected to continue operating independently.
North Tower Over Station Development (OSD).	Included.
North Tower and Station entrances, retail and public concourses at street level.	Included.
Technical rooms and risers within the North 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-308012: North Tower Level LG General Arrangement
- CSWSMP-MAC-SMP-AT-DRG-308112: North Tower Level B1 General Arrangement
- DD-A-9000 02.02.18 Rev 01: North 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 North Tower, above and below ground retail, restaurant/café areas, lobby areas and the Metro Martin Place station (through the North Tower loading dock).

Current estimated Gross Floor Area (GFA) and area use information for the North 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	**North Tower**
	GFA (m2)
Office	70,224
Retail	1,251.5
Restaurant/Café	1,251.5
Lobby	-
Total	**72,727**

3.1.1 Tenancy

No assumptions have been made on whether the development 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 to the South Tower (shown in Figure 4). 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.

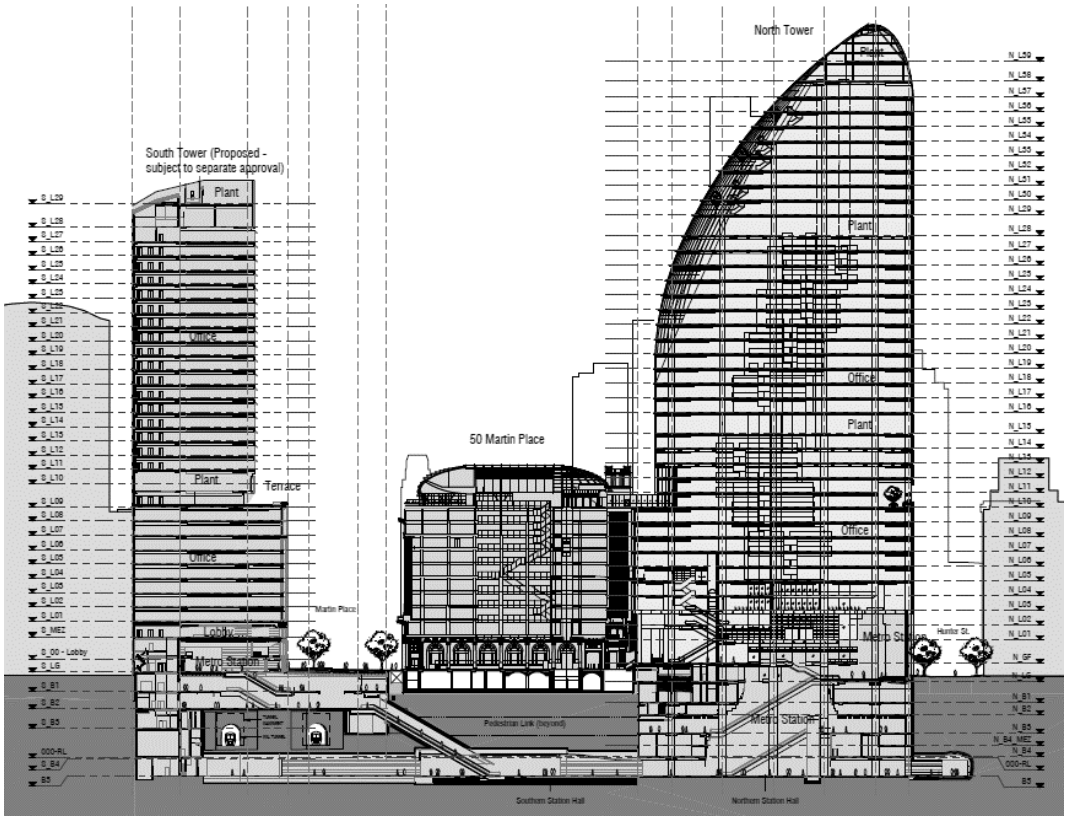


Figure 4: Major site elements (section)

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 North Tower loading dock, located at Level B1 in the North Tower, consisting of 6 loading bays; 3 x Medium Rigid Vehicle (MRV) and 3 x Small Rigid Vehicle (SRV). Note that 1 x SRV loading bay in the North Tower has been provisioned on a transition ramp. This complies with AS2890.2-2002 as the ramp does not exceed 1:25.
- The station loading bay, located at Level B1 in the North Tower loading dock, consisting of 1 loading bay (1 x SRV) for the exclusive use of TfNSW.

The layout of the loading bays is shown in Figure 5.

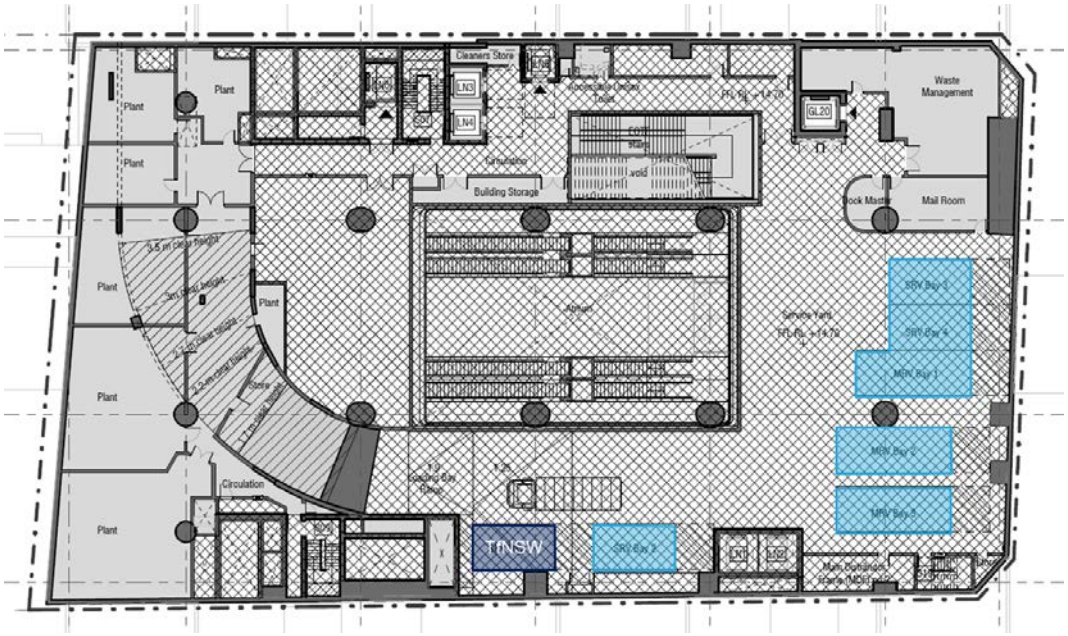


Figure 5: North Tower loading bay layout (B1 level)

4 Logistics Strategy

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

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 an approved off-street location 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 6.

The key operating principles of the approach are:

a) No long-dwell vehicles (e.g. maintenance and trade vehicles) will be permitted into either loading dock. These will be re-directed to a nominated public carpark suitable for the relevant service vehicles.

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

c) Loading dock operating hours will be 14 hours per day seven days per week, though be available for exceptional out-of-hours deliveries 24 hours per day.

d) A dock master 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.

e) No goods will be moved via the pedestrian link under 50 Martin Place between the South and North Towers. It is understood that his 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.

f) Supply chain consolidation of goods should be encouraged though is not necessary for the loading dock to operate.

Further detail is provided in subsequent sections of this plan.

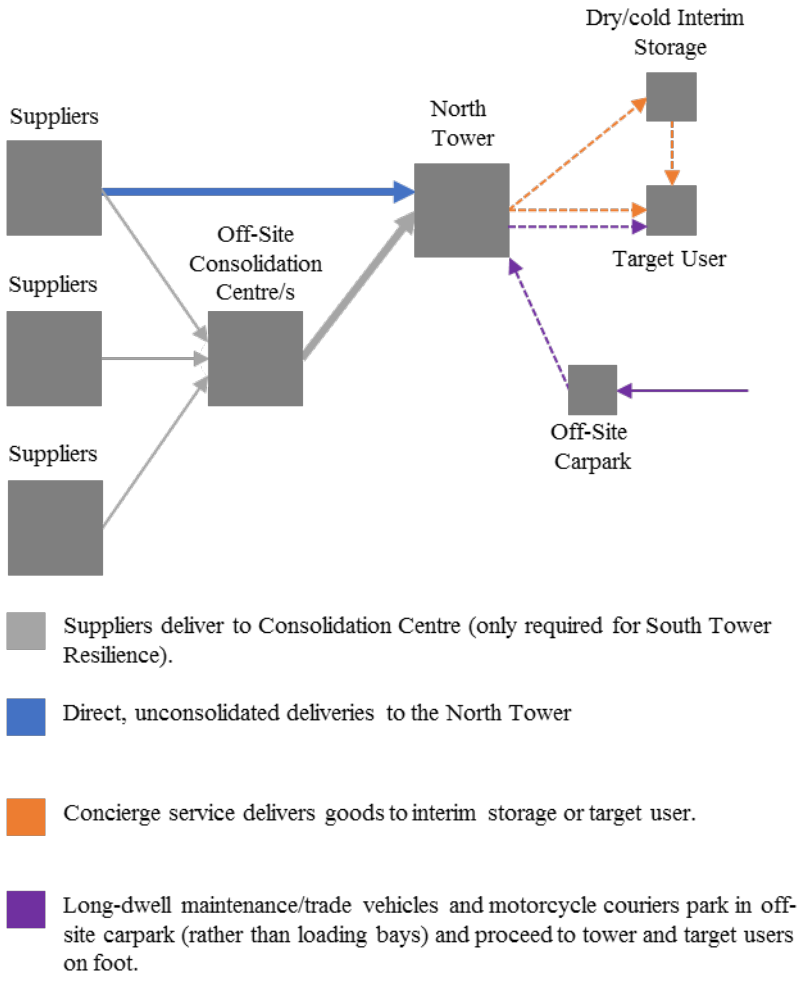


Figure 6: Logistics model

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.

It would be expected that a development the size of the North Tower would also be serviced by larger HRV (12.5m). However, due to the constrained manoeuvring area available this is not possible and an MRV is the maximum size design vehicle provisioned for; as in common in CBD loading docks.

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 that 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 late 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 developed to utilise Arup research and other survey information from similar mixed-use developments. The generation tool applies a delivery vehicle trip rate for each of the proposed area uses to the relevant GFA for that area use.

The trip rates, which are expressed as vehicles per 100m^2 GFA per day, have been derived from survey data from office, retail and other facilities, as well as relevant design guidelines and local authority regulations. The surveys recorded vehicle arrival and departure times, vehicle type and size of goods vehicle use to make the delivery.

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) are not included;
- Station loading dock provided within North Tower;
- NLA figures assumed to be 85% of GFA for all areas; and
- Floor area allocated for retail is assumed to be 50% retail and 50% restaurant/café until otherwise confirmed.

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	**North Tower GFA (m2)**	**Maximum Daily Trips (unconsolidated)**
Office	70,224	129
Retail	1,251.5	7
Restaurant/Café	1,251.5	28
Total	**72,727**	**162**[1]

[1] Bicycle, motorcycle couriers and long-dwell time vehicles (trades and maintenance people) 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	2	3	+1
SRV	W3.5 x L6.4	2	3	+1
Total		**4**	**6**[1]	+2

[1] 3 SRV, 3 MRV bays in North Tower loading dock. Excludes loading bay designated for exclusive use of TfNSW

Assuming a 30 minute booking slot provided for each vehicle (regardless of size) and a 14 hour operating window, the capacity of the dock would be 168 trips (or booking slots) per day, or 12 per hour. This slightly exceeds the calculated demand of 162 trips/booking slots per day (11.5 trips per hour) providing a limited level of resilience and operational flexibility.

6 Loading Dock Access

6.1 Street Entry

Entry to the North 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 7.

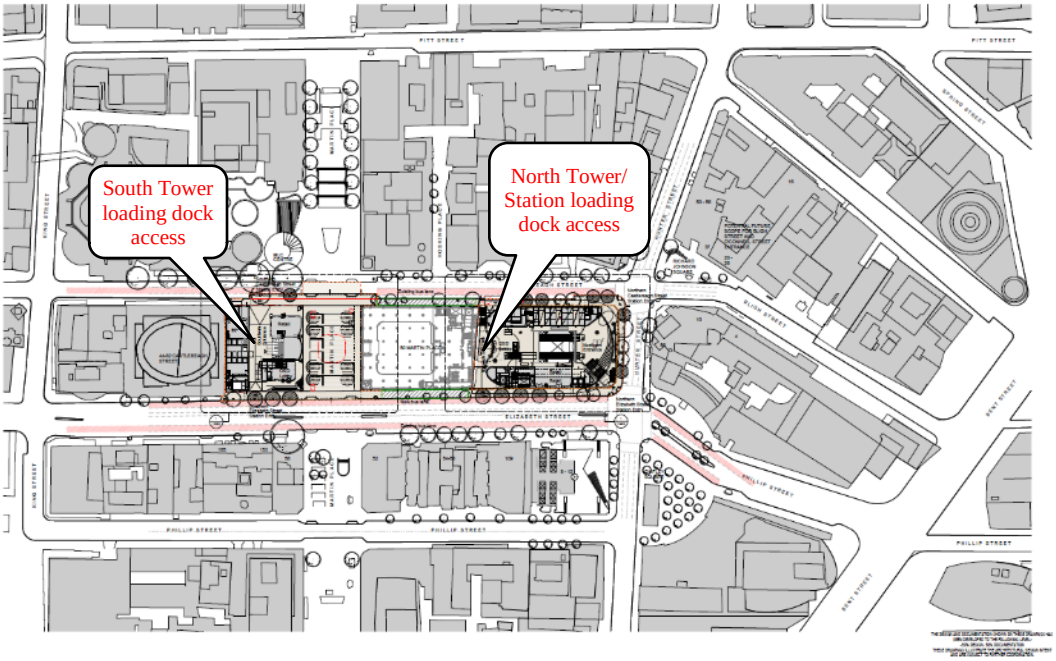


Figure 7: Loading dock entrances

6.2 Driveway

The North Tower dock driveway is approximately 10m in width (12.5m at the edge of roadway) with the footpath gradient 1:40 up to the property line. The first 2.3m of the driveway has a 1:9 gradient before levelling for 3m. 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 North Tower dock ramp width is not sufficient to accommodate two-way movements along its entire length. Therefore, a traffic control system is proposed to ensure only one vehicle at a time passes the narrowest section of the ramp. This will take the form of a combined boom gate/traffic light system for vehicles entering and a traffic light for vehicles exiting.

Insofar as operationally possible, priority will be given to vehicles entering the site in order to reduce the risk of vehicle queuing occurring on entry. The potential for queuing, however, is further mitigated by the operation of a booking system.

The gradient of the main ramp is 1:6.5 which is the maximum recommended under AS2890.2, with 1:9 transitions for 5m at both ends of the ramp, and a further 1:25 transition at the bottom end of the ramp. This will ensure that the required clearance of 3.6m is met.

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 8 and Figure 9.

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

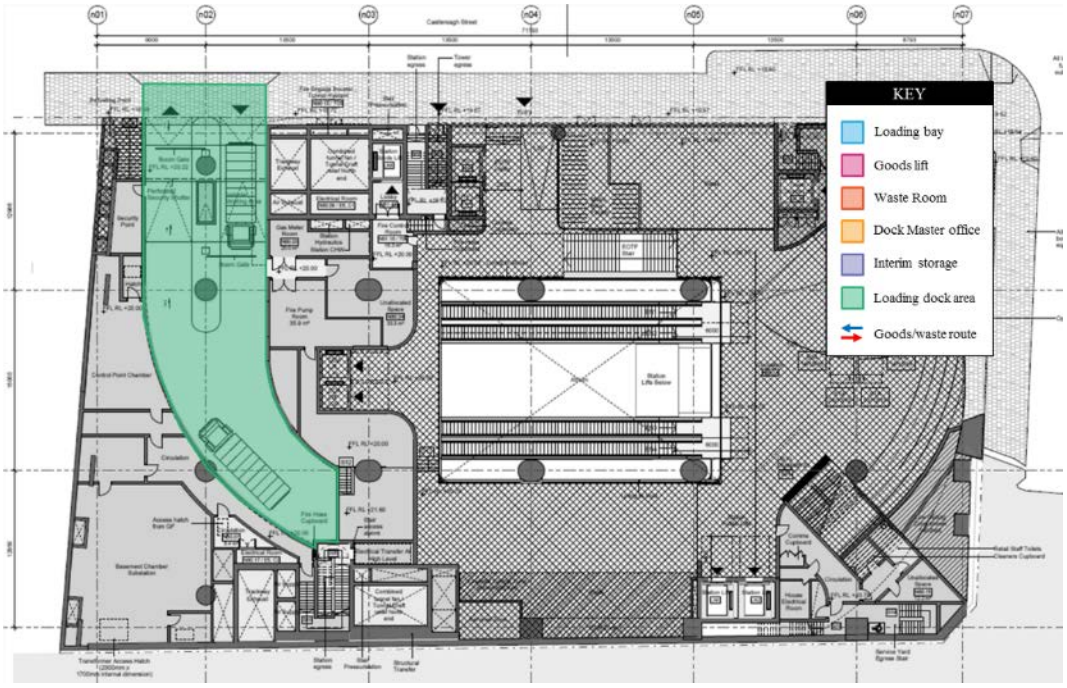


Figure 8: LG level loading dock facilities

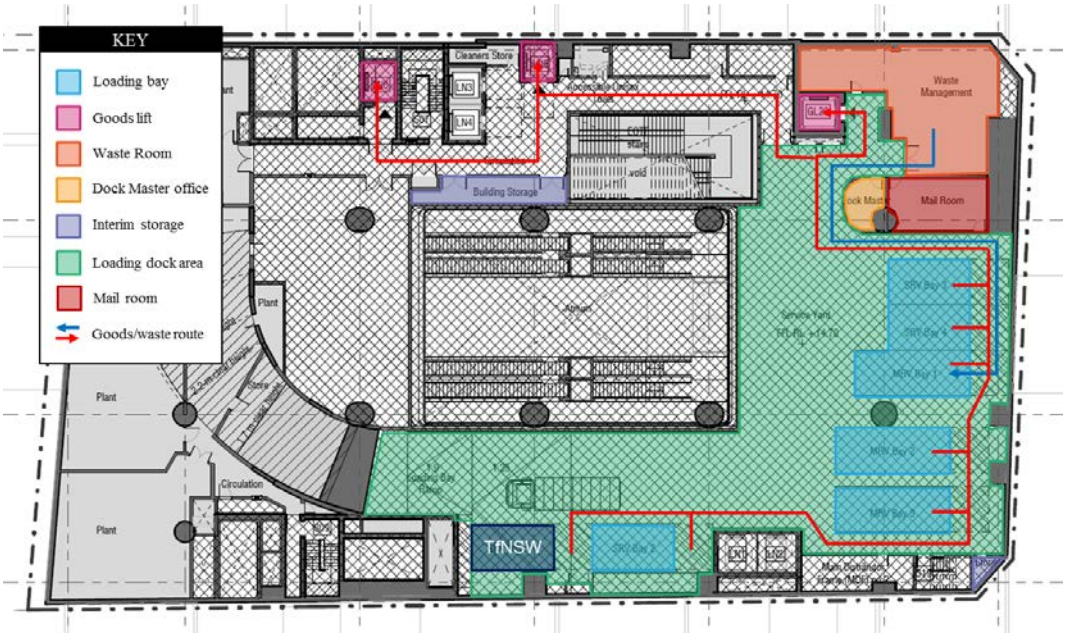


Figure 9: B1 level loading dock facilities

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.
Food and beverage (cold/fresh)	50% of cold/fresh goods are consolidated through supply chain. 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 North Tower dock then driven to South Tower loading dock by same vehicle ('milk run').
Office goods	70% of daily consumables will be consolidated and deliveries are received to the loading dock.
Exhibition/auditorium goods/equipment	Deliveries received out of hours. Booking required.
Bulky/exceptional goods	Outside of operating hours by prior arrangement and booking.
TfNSW deliveries/collections	Exclusive-use loading bay provided. Booking required.
Motorcycle courier deliveries/collections	Redirected off-site to nominated local carpark.
Bicycle courier deliveries/collections	End of Trip Facilities (EOTF) will be used for access by bicycle courier deliveries to the tower.
Mail	Received by the North Tower loading dock for target users in the North 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)	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 14 hours per day – 6am to 8pm – 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 docks and that the Station loading bay, within the North Tower, will also be subject to pre-booking.

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 North Tower will maintain a consistent procedure for controlling access to the loading docks.

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.

The North Tower will include a traffic control system to ensure only one vehicle at a time passes the narrowest section of the ramp.

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 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 area after hours by the facilities management team and stored in one loading bay ready for collection. The waste contractor will collect the bins before commencement of the dock operations. The facilities management team will return the bins to the waste room.

7.7 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.

The current layout for the North Tower loading dock provides 3m of clear space behind each loading bay to allow for tail lifts and for the offloading of goods. Safe routes for the movement of people and goods between the loading bays and goods lifts that avoid vehicle manoeuvring areas 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 the loading dock entrance, will be managed in accordance with the Precinct Wide Incident Management Plan.

7.8 Associated Infrastructure

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

7.8.1 Interim Goods Storage

Space has been provided in the loading docks area 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.

7.8.2 Mail Room

The tower includes a mail room (located at B1 level) for the receipt and sortation of mail.

7.8.3 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 target users.

The North Tower loading dock will utilise three (3) goods lifts for vertical circulation with selection depending on the final destination of the goods (identified in Figure 9). The lifts are the:

- Tower Goods Lift (GL20);
- Retail Goods Lift (LN5); and
- Station Goods Lift (LN6). For use by Sydney Metro operations and OSD by arrangement.

7.9 Contingency & Resilience

7.9.1 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. A 14 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 loading dock and approved off-street locations, handling deliveries for the South Tower.

7.9.2 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.
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
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.

7.10 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); and
- Small Rigid Vehicle (SRV)

The vehicles used for the tracking were Austroads 2013 design vehicles, 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 project 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

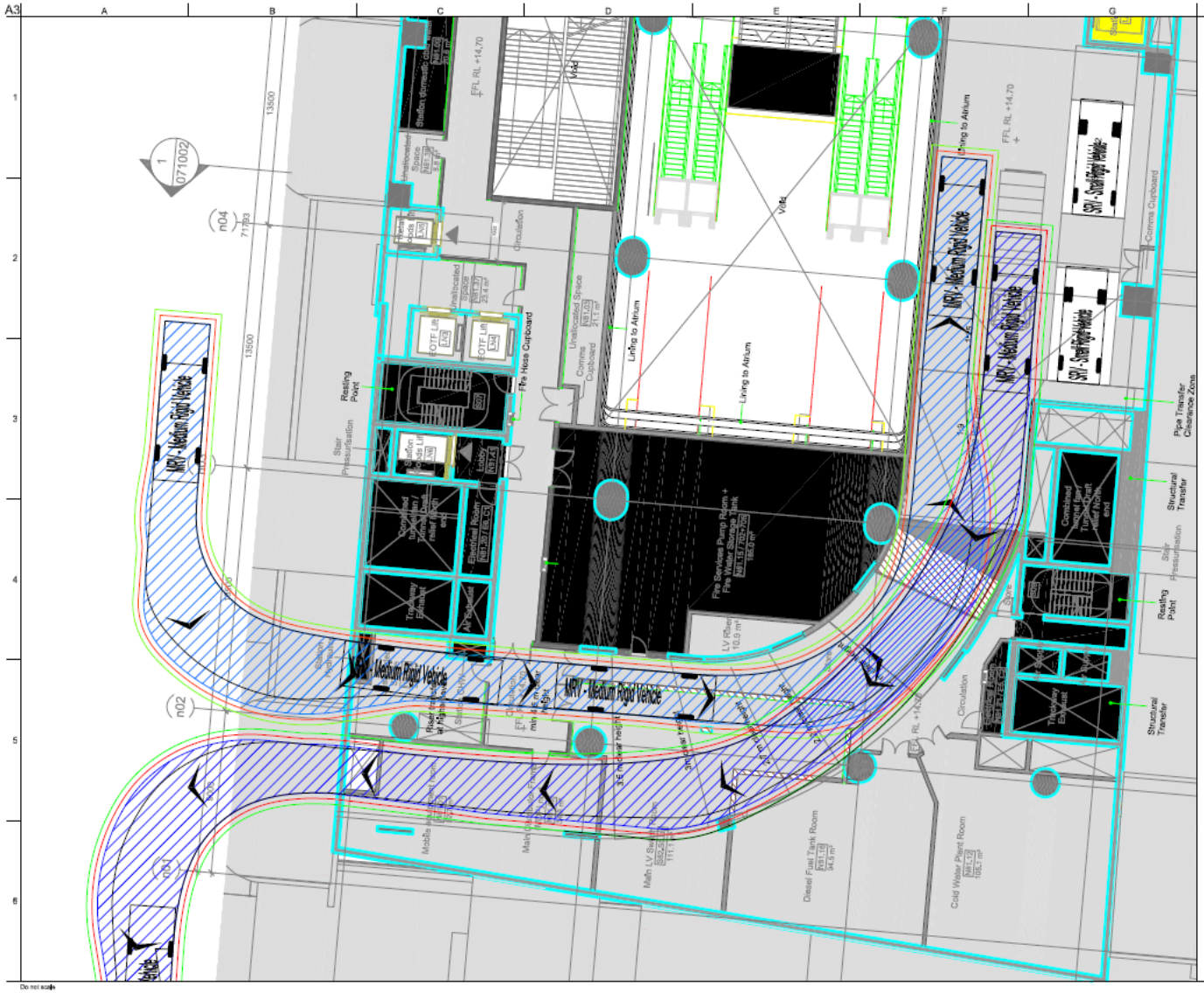
As has been demonstrated in this LDMP, the North Site loading dock has been designed to deliver an efficient operation while minimising its impact on city infrastructure.

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. 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



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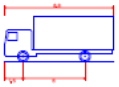
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle

Overall Length	8,800m
Overall Width	2,500m
Overall Body Height	3,353m
Min Body Ground Clearance	0.428m
Track Width	2,500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10,000m

Issue	Date	By	Chkd	Appd
D	28/02/18	JRT	AMH	AMH
Base drawings issue 25/01/18				
C	12/02/18	JRT	AMH	AMH
Base drawings issue 25/01/18				
B	18/08/17	JRT	AMH	AMH
Western turntable added				
A	12/04/17	JRT	AMH	AMH
For Information				

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Client
Grimshaw

Job Title
SMMPS
North Tower

Drawing Title
Turning Paths
Main access

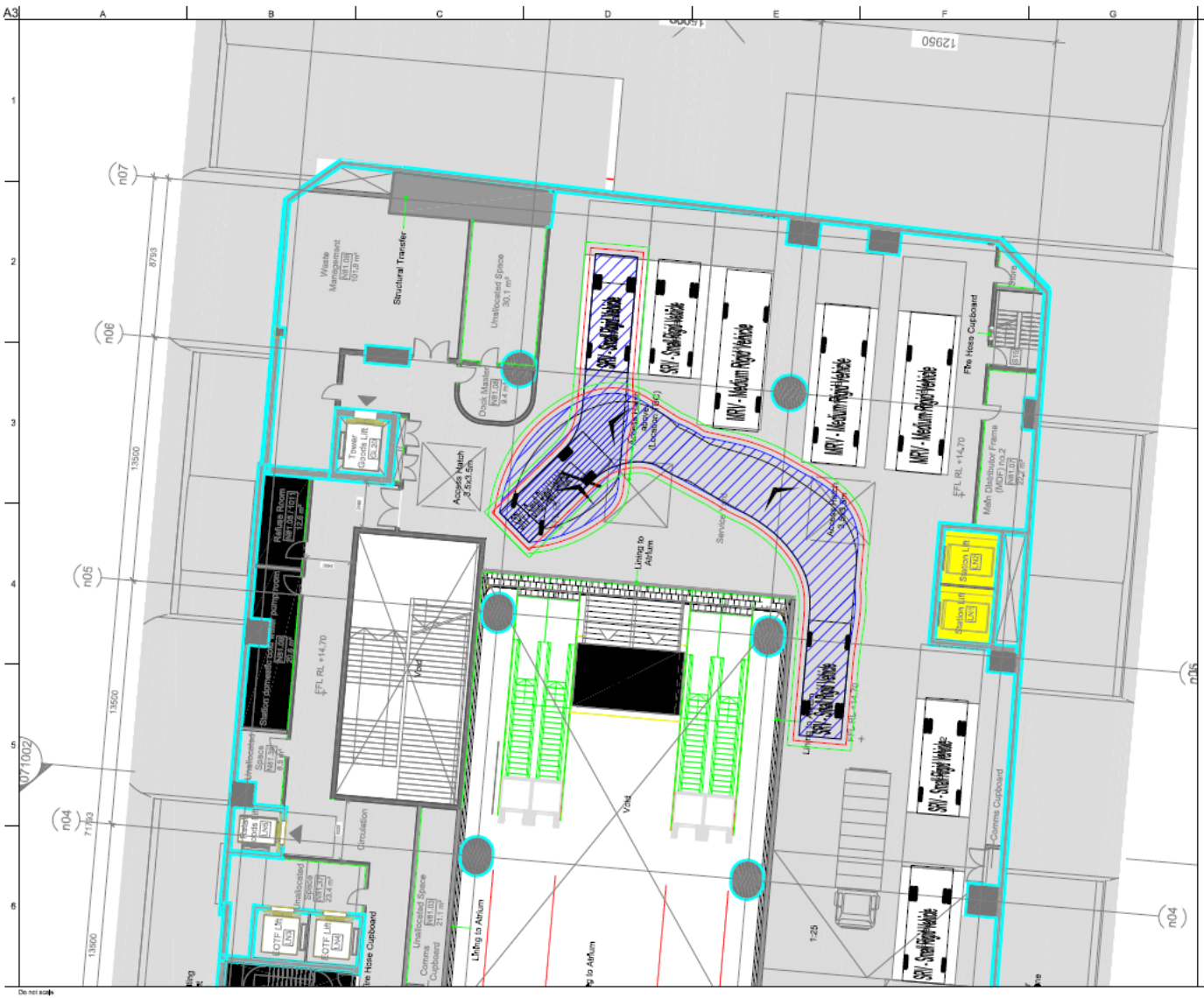
Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
247838	SKT100	D

Do not scale



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- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)

SRV - Small Rigid Vehicle

Overall Length	8.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.365m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb-to-Curb Turning Radius	7.100m

Issue	Date	By	Chkd	Appd
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G	12/02/18	JRT	AMH	AMH
F	20/11/17	JRT	AMH	AMH
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D	08/11/17	JRT	AMH	AMH
C	31/10/17	JRT	AMH	AMH
B	18/08/17	JRT	AMH	AMH
A	31/05/17	JRT	AMH	AMH

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Client
Grimshaw

Job Title
SMMPS
North Tower

Drawing Title
Turning Paths
Loading dock
North-western bay

Scale at A3
1:200

Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
247838	SKT102	H

Do not scale

Legend

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- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)

SRV - Small Rigid Vehicle	
Overall Length	8.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.395m
Track Width	2.330m
Lock-to-lock time	4.80s
Curb to Curb Turning Radius	7.100m

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C	31/10/17	JRT	AMH	AMH
B	18/08/17	JRT	AMH	AMH
A	31/05/17	JRT	AMH	AMH

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Client
Grimshaw

Job Title
SMMPS
North Tower

Drawing Title
Turning Paths
Loading dock
Northern bay

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
247838	SKT103	G

Do not scale

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)

SRV - Small Rigid Vehicle	
Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.366m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

Issue	Date	By	Chkd	Appd
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H	12/02/18	JRT	AMH	AMH
G	20/11/17	JRT	AMH	AMH
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E	10/11/17	JRT	AMH	AMH
D	08/11/17	JRT	AMH	AMH
C	31/10/17	JRT	AMH	AMH
B	18/08/17	JRT	AMH	AMH
A	31/05/17	JRT	AMH	AMH

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Client
Grimshaw

Job Title
SMMPS
North Tower

Drawing Title
Turning Paths
Loading dock
Eastern bays

Scale at A3
1:200

Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
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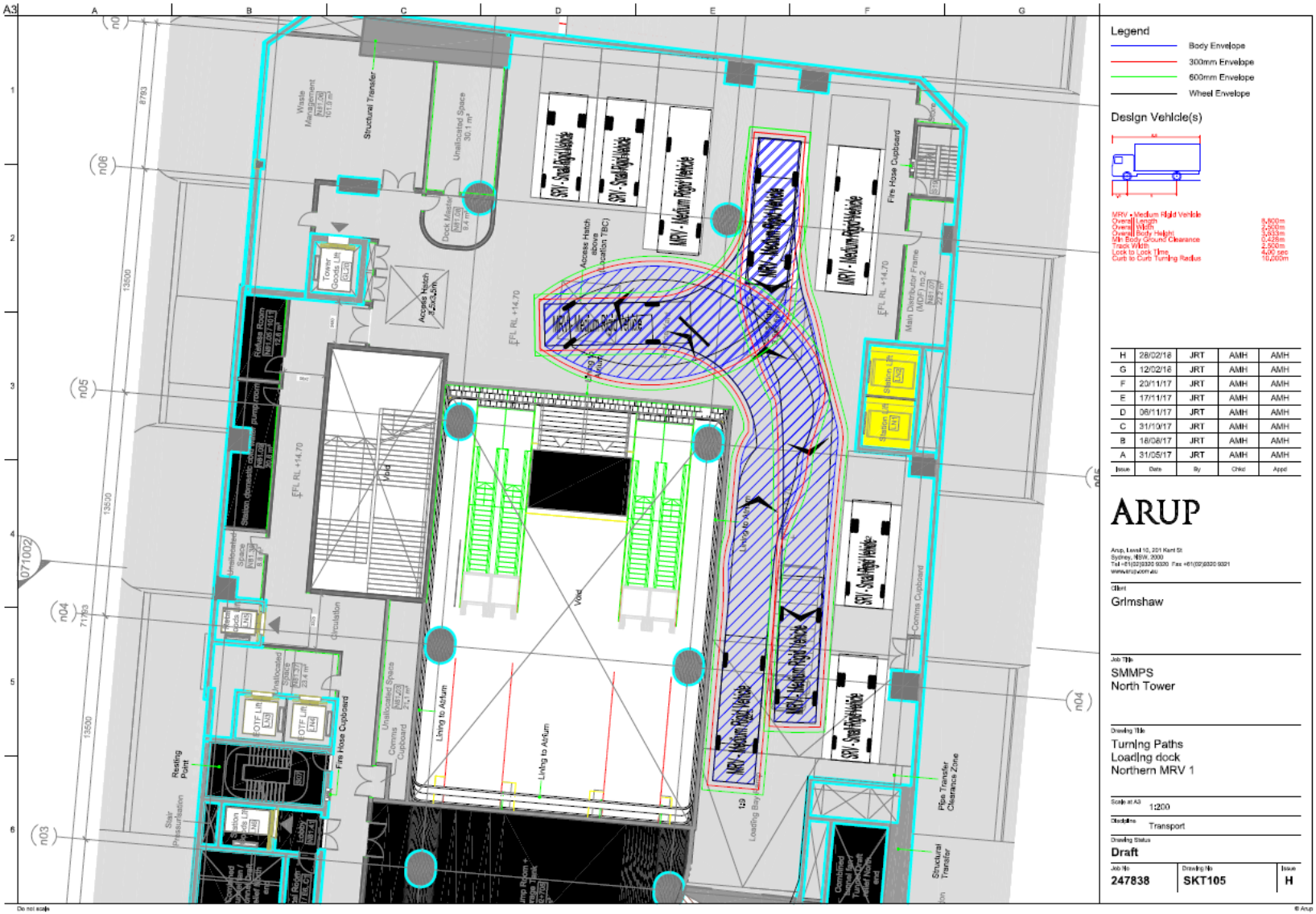
A3
Legend
Body Envelope
300mm Envelope
600mm Envelope
Wheel Envelope
Design Vehicle(s)
MRV - Medium Rigid Vehicle
Overall Length 8,800m
Overall Width 2,500m
Overall Body Height 3,933m
Min Body Ground Clearance 0.428m
Track Width 2,500m
Lock to Lock Time 4.00 sec
Curb to Curb Turning Radius 10.200m
H 28/02/18 JRT AMH AMH
G 12/02/18 JRT AMH AMH
F 23/11/17 JRT AMH AMH
E 17/11/17 JRT AMH AMH
D 08/11/17 JRT AMH AMH
C 31/10/17 JRT AMH AMH
B 18/08/17 JRT AMH AMH
A 31/05/17 JRT AMH AMH
Issue Date By Chkd Appd
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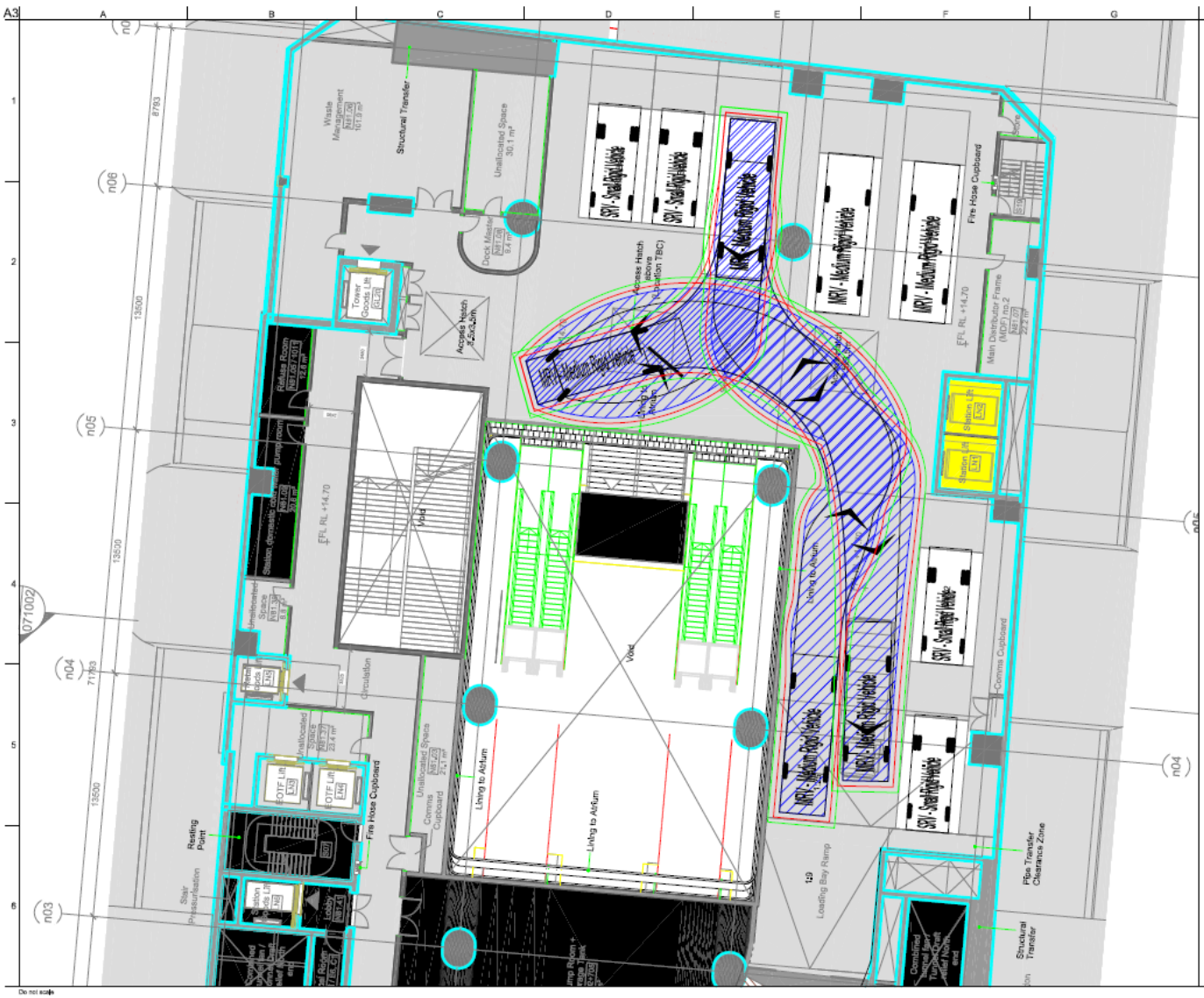
www.arup.com.au
Client
Grimshaw
Job Title
SMMPS
North Tower
Drawing Title
Turning Paths
Loading dock
Northern MRV 1
Scale at A3 1:200
Discipline Transport
Drawing Status
Draft
Job No 247838
Drawing No SKT105
Issue H
Do not scale
© Arup



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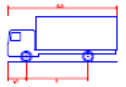
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle

Overall Length	8,500m
Overall Width	2,500m
Overall Body Height	3,933m
Min Body Ground Clearance	0.428m
Track Width	2,500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.200m

Issue	Date	By	Chkd	Appd
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C	31/10/17	JRT	AMH	AMH
B	18/08/17	JRT	AMH	AMH
A	31/05/17	JRT	AMH	AMH

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Client
Grimshaw

Job Title
SMMPS
North Tower

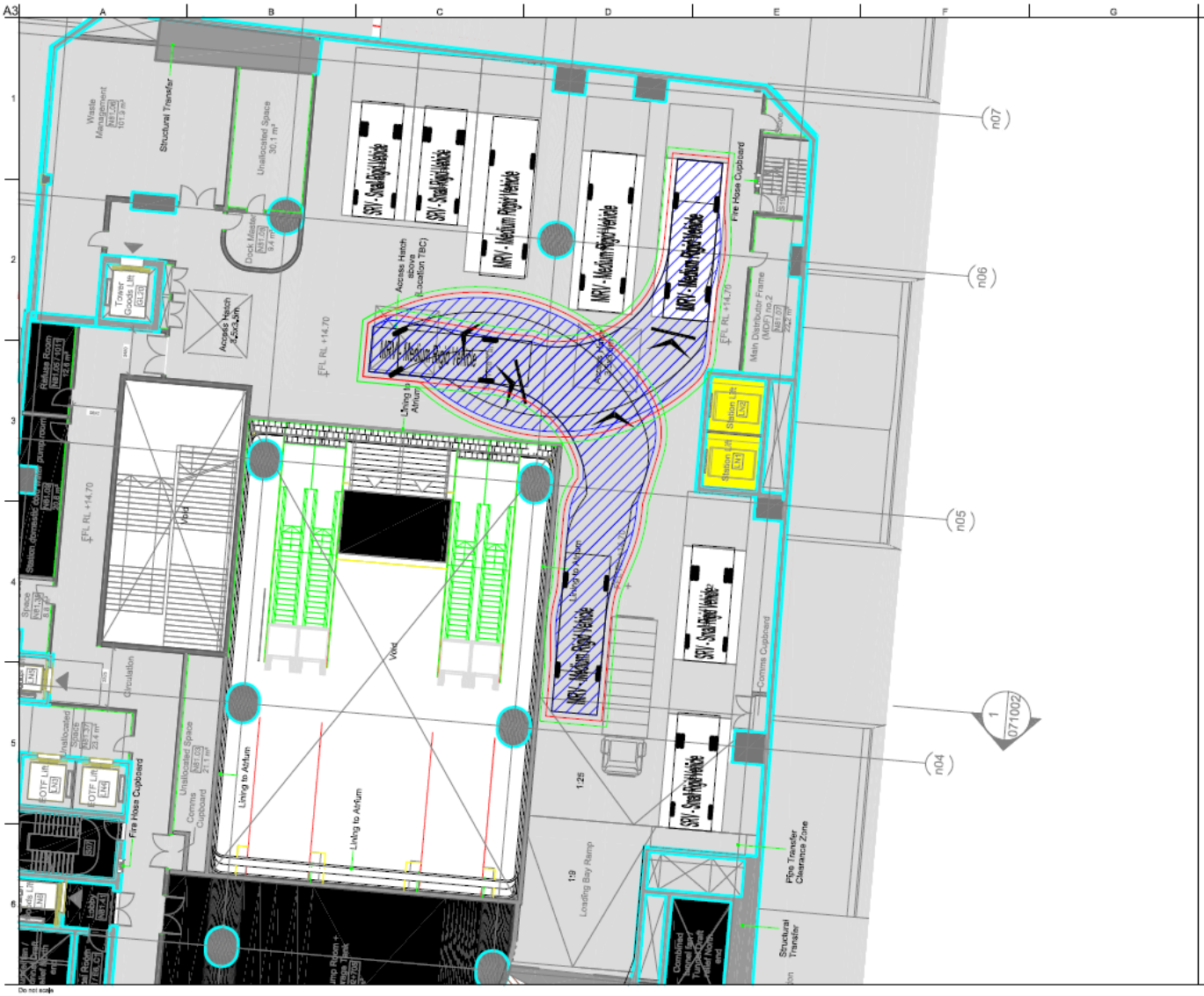
Drawing Title
Turning Paths
Loading dock
Northern MRV 3

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
247838	SKT106	H



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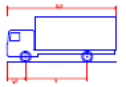
Design Vehicle(s)



MRV - Medium Rigid Vehicle

Overall Length	8,800m
Overall Width	2,500m
Overall Body Height	3,933m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10,200m

Issue	Date	By	Chkd	Appd
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C	18/08/17	JRT	AMH	AMH
B	02/06/17	JRT	AMH	AMH
A	31/05/17	JRT	AMH	AMH

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Client
Grimshaw

Job Title
SMMPS
North Tower

Drawing Title
Turning Paths
Loading dock
Northern MRV 2

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
247838	SKT107	J

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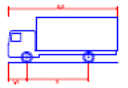
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle

Overall Length	8,800m
Overall Width	2,500m
Overall Body Height	3,933m
Min Body Ground Clearance	0.429m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

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C	18/08/17	JRT	AMH	AMH
B	02/06/17	JRT	AMH	AMH
A	31/05/17	JRT	AMH	AMH

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Client
Grimshaw

Job Title
SMMPS
North Tower

Drawing Title
Turning Paths
Loading dock
Garbage loading options

Scale at A3 1:250

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
247838	SKT108	I

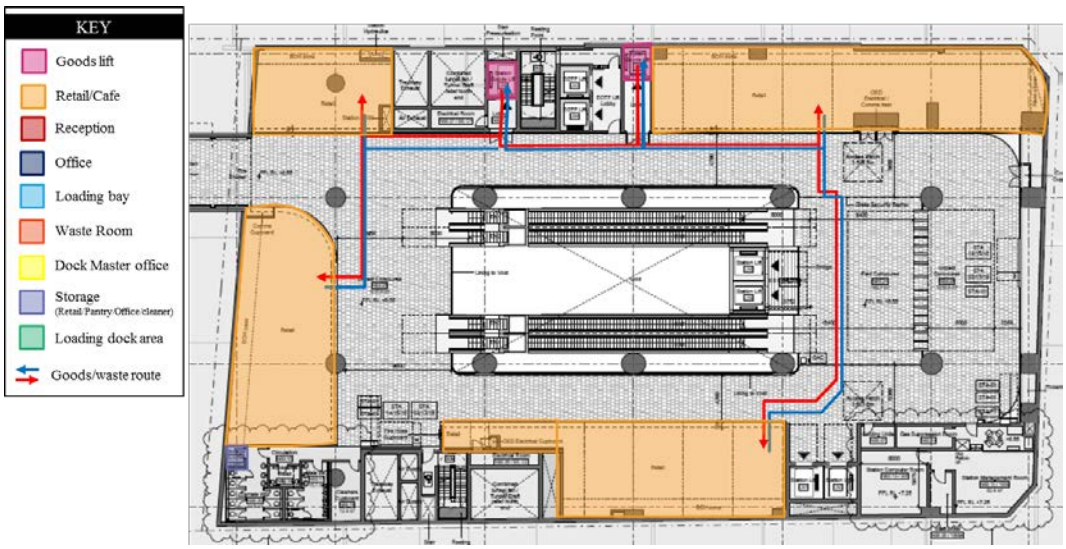
Do not scale

Appendix B

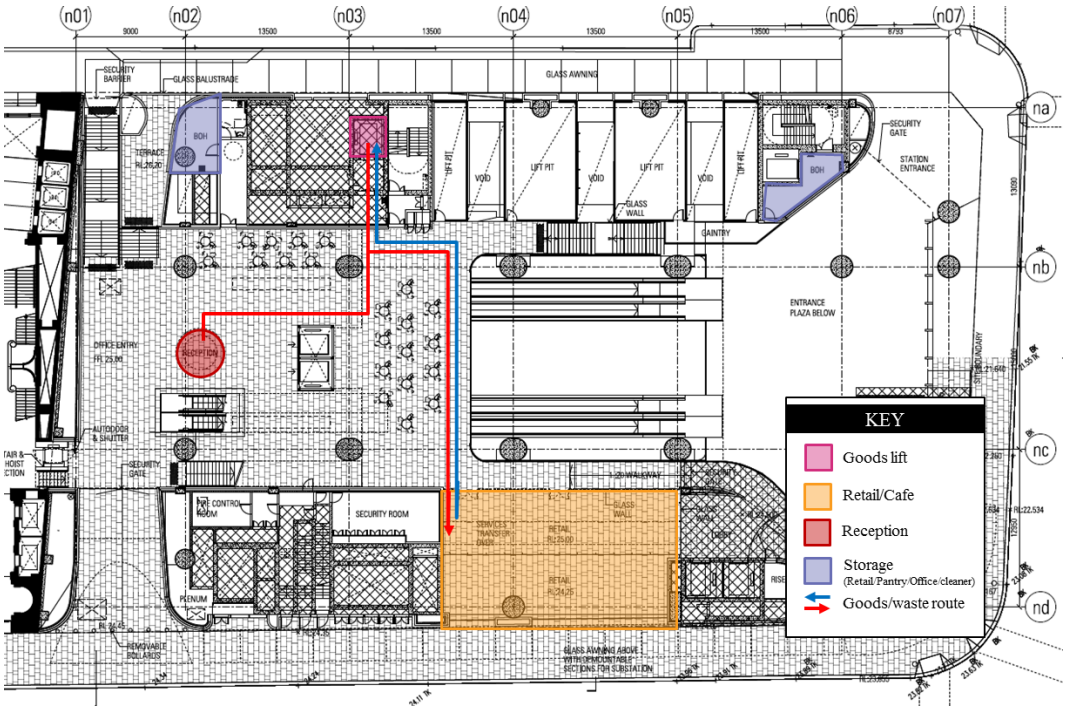
Goods Distribution Routes

B1 North Tower

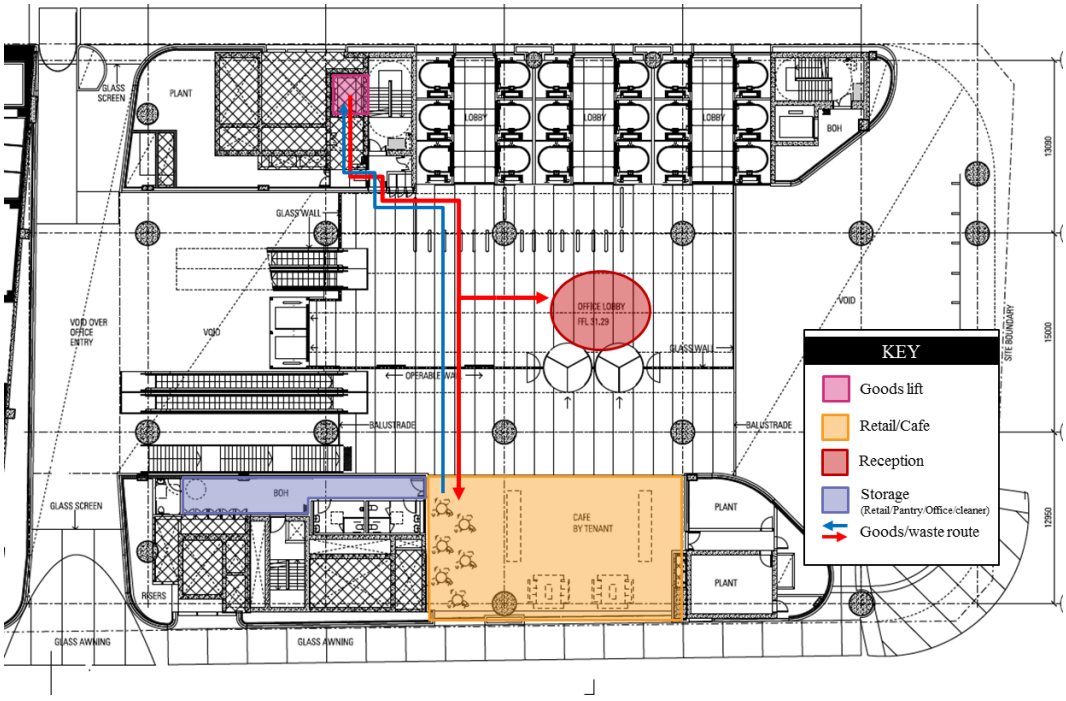
LEVEL B3 PLAN – CONCOURSE



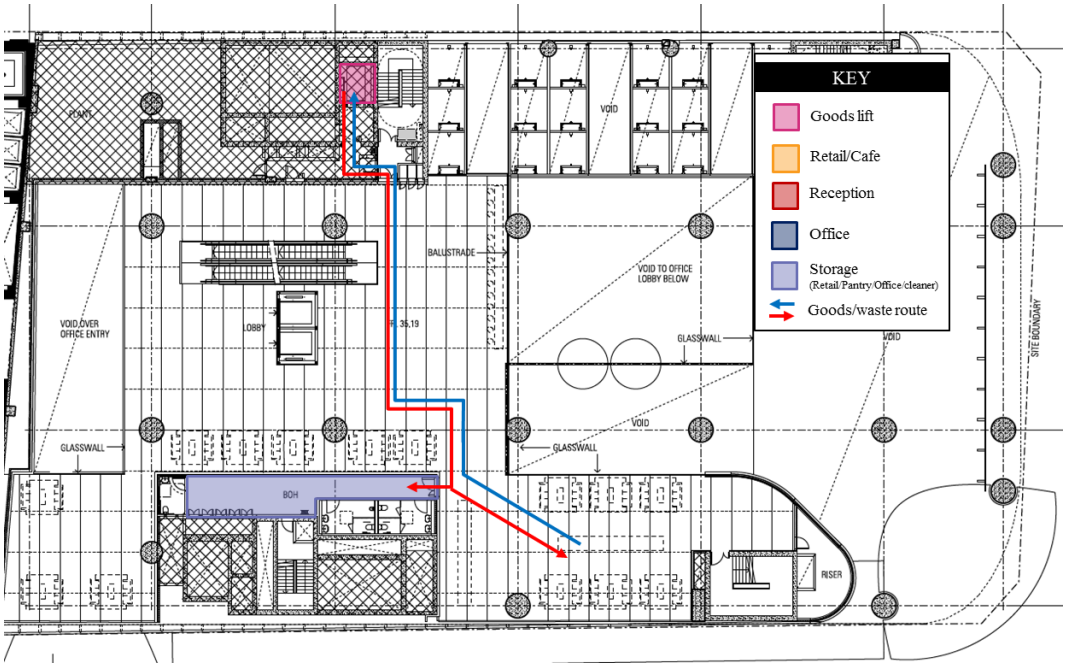
LEVEL 00 GROUND FLOOR PLAN



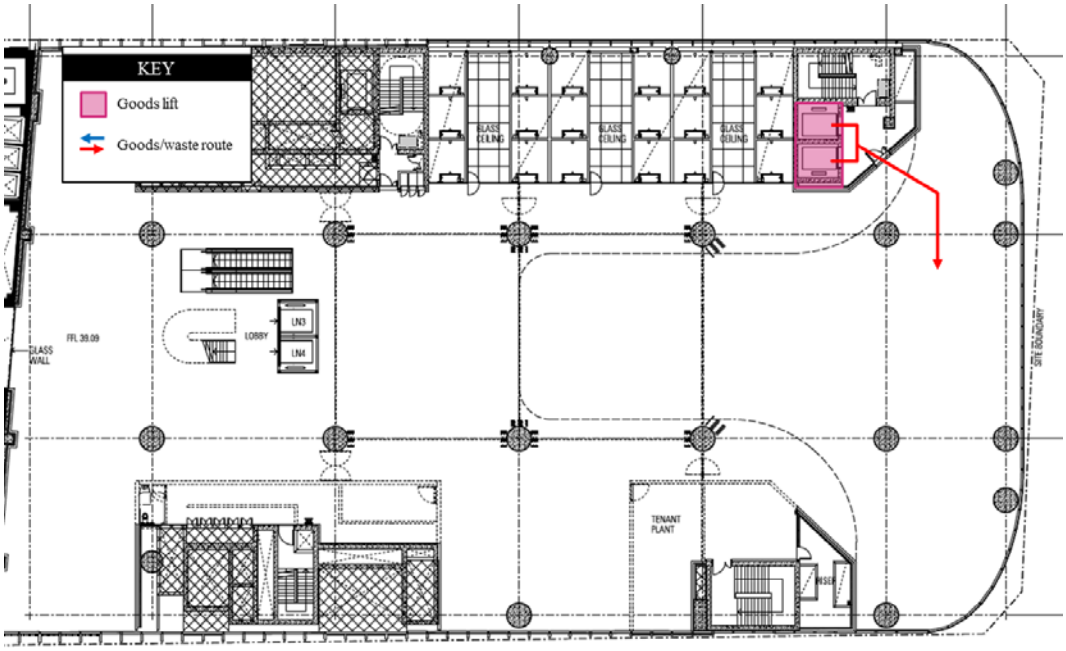
LEVEL 01 PLAN



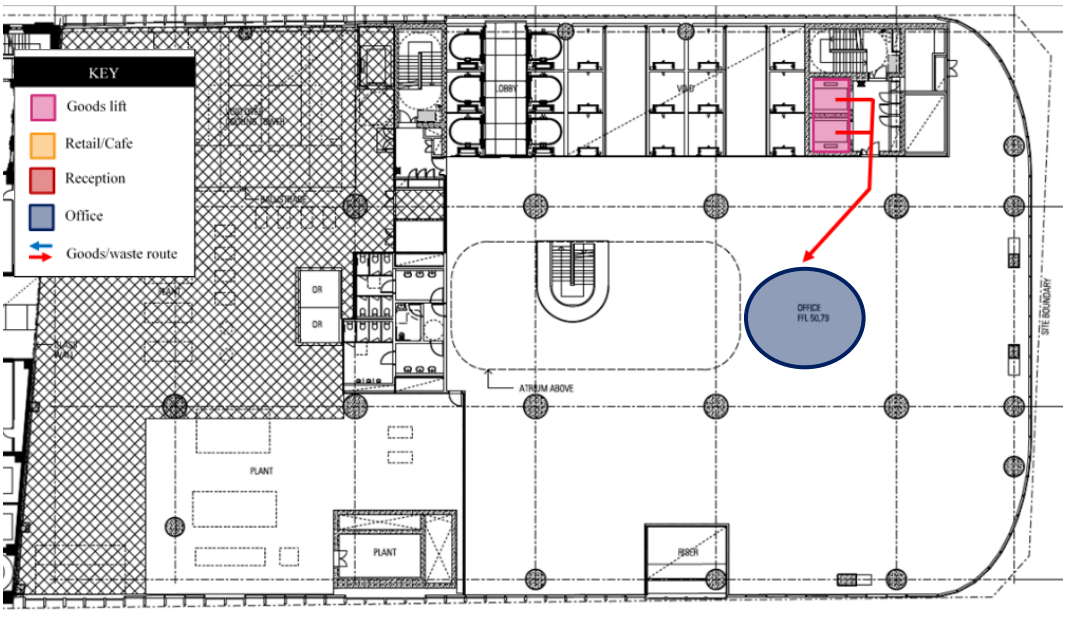
LEVEL 02 PLAN



LEVEL 03 PLAN



INDICATIVE OFFICE PLAN



Level 10 PLAN