JMT Consulting

Atlassian Central Station

Draft Loading Dock Management Plan

Prepared for: **Atlassian**

23 November 2020

PROJECT INFORMATION

Project Name:	Atlassian Central Station
Client:	Atlassian
Project Number:	1902
Prepared By:	JMT Consulting

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Document Title	Revision	Date issued	Author
Atlassian Central Station – preliminary loading dock management plan	Initial draft report	20.04.20	JM
Atlassian Central Station – preliminary loading dock management plan	Draft for review	19.08.20	JM
Atlassian Central Station – preliminary loading dock management plan	For Atlassian review	04.09.20	JM
Atlassian Central Station – preliminary loading dock management plan	Final	23.09.20	JM
Atlassian Central Station – preliminary loading dock management plan	For SSDA submission	23.11.20	JM

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1 Introduction

1.1 Background

JMT Consulting has been commissioned by Atlassian (the Applicant) to prepare this draft loading dock management plan in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the SSD-10405 for a commercial and hotel development above the Former Inwards Parcel Shed at 8 – 10 Lee Street, Haymarket.

The Department of Planning, Industry and Environment (DPIE) issued a list of the Secretary's Environmental Assessment Requirements (SEARs) which inform the Environmental Impact Statement (EIS). The SEARs relevant to the development of a draft loading dock management plan are as follows:

Table 1 Response to SEARs

SEARs – Transport and Accessibility	Section Discussed
Details of loading dock size and accessibility, including	
modelling of forecast freight and service vehicle movements, including daily and peak hour volumes	3.2
proposed management strategies	4
demonstrating that the dock can accommodate all forecast freight and servicing vehicle movements so that these movements do not create localised congestion or detract from the amenity of the surrounding environment.	3.2.2

1.2 Report purpose

This document details a draft Loading Dock Management Plan (LDMP) for the operation of the future Atlassian building. The purpose of the LDMP is to outline the proposed loading dock design and principles around dock management. A more comprehensive loading dock management plan will be prepared prior to the opening of the building which will provide further details around delivery types, times and management strategies to be implemented.

2 Loading Dock Access and Design

2.1 Vehicle site access

A two-staged approach to vehicle access into the loading dock is proposed which aligns with the broader development of the Central Station precinct. This staged vehicle access approach is illustrated in Figure 1 and described in the sections below. The staging considers the following:

- Interim solution: Prior to an integrated basement being delivered as part of the redevelopment of Henry Deane Plaza by Dexus-Frasers. Access to be via a new driveway located off Lee Street at Upper Carriage Lane.
- End state solution: Following the delivery of an integrated basement being delivered as part of the redevelopment of Henry Deane Plaza by Dexus-Frasers, including a single vehicle access point at the southern end of Lee Street.

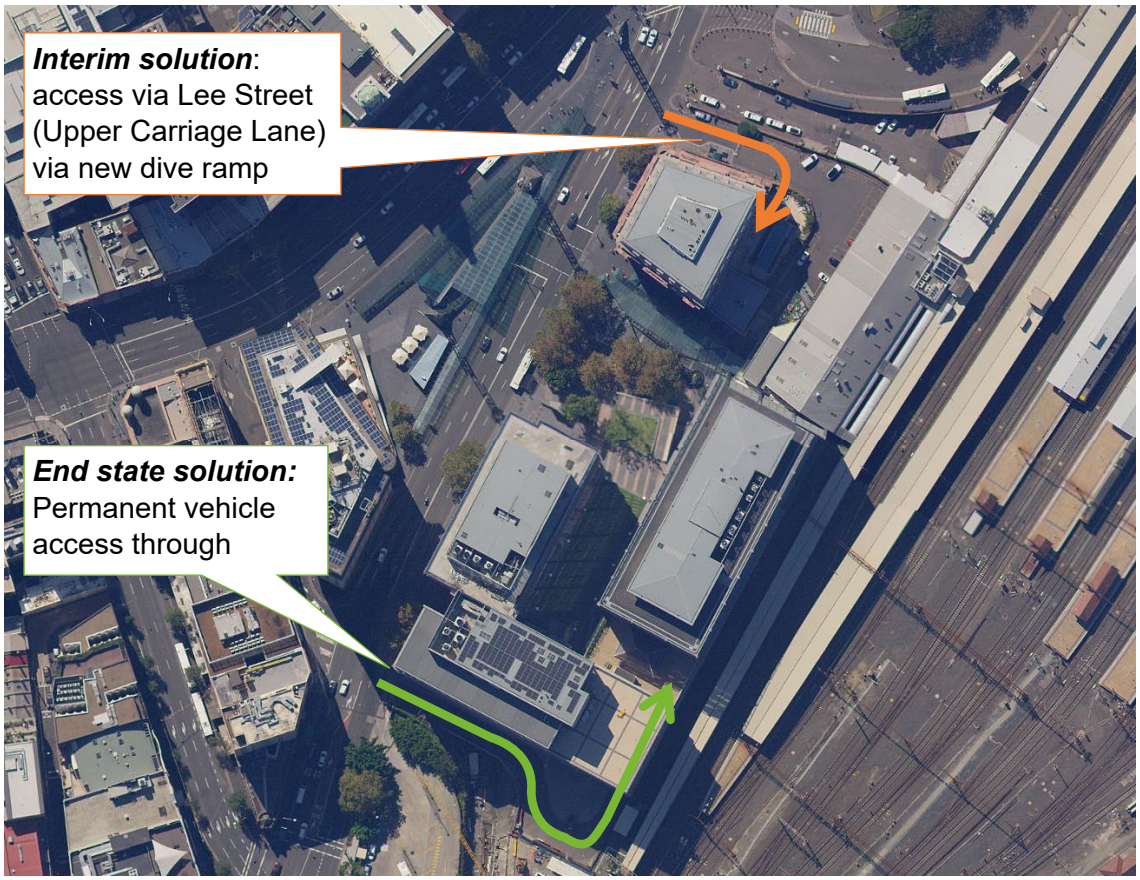


Figure 1 Proposed vehicle access arrangements

2.1.1 Access arrangements – 'Day 1' solution

Prior to the redevelopment of Henry Deane Plaza by Dexus-Frasers, vehicle access to the Atlassian building will temporarily be provided via a new dive structure from Lee Street located at Upper Carriage Lane (existing access point to YHA). This dive structure will also service the Adina hotel car park, given the existing vehicle access point on Ambulance Avenue will close following the pedestrianisation of Ambulance Avenue.

The dive structure ramp would grade down from Lee Street and provide access to the existing Adina Hotel car park (Level B1) and the Atlassian loading dock (Level B2). This dive structure will also facilitate access to the new Adina loading dock, located within Level B2 of the Atlassian building.

The ramp has been designed so that a medium rigid vehicle (MRV) can pass a small rigid vehicle (SRV) at all locations on the ramp. Around the corner of the ramp between levels B1 and B2 there is insufficient width for two MRVs to pass one another at the same time. While the likelihood of this situation occurring is relatively low, vehicles travelling up the ramp and exiting the site will be required to stop and view any oncoming vehicles travelling down into the loading dock (through the installation of mirrors). MRVs exiting the site will be required to wait to allow the entering MRV to turn the corner and safely pass them, before proceeding up towards Lee Street.

The gradient of the main ramp is 1 in 6.5 at it's steepest point which is in accordance with AS2890.2, with a 1:9 transition for 5m at the end of the ramp. This will ensure that the clearance for the design vehicle (3.6m) is achieved. A 1:20 gradient for the first 6m from the edge of the property boundary has been provided in order to achieve appropriate sight distances for drivers to view pedestrians walking along Lee Street.

A 6.42m clear width will be provided within the link zone, which will be used by service vehicles accessing the Atlassian or Adina loading docks on Level B2. The area will be managed by a dock-master who will direct service vehicles into their allocated parking spaces.

It should be noted that in the event that the integrated basement option (end state access solution) does not proceed, this interim access solution has the ability to accommodate expected traffic movements for the Atlassian building for the life of the building.

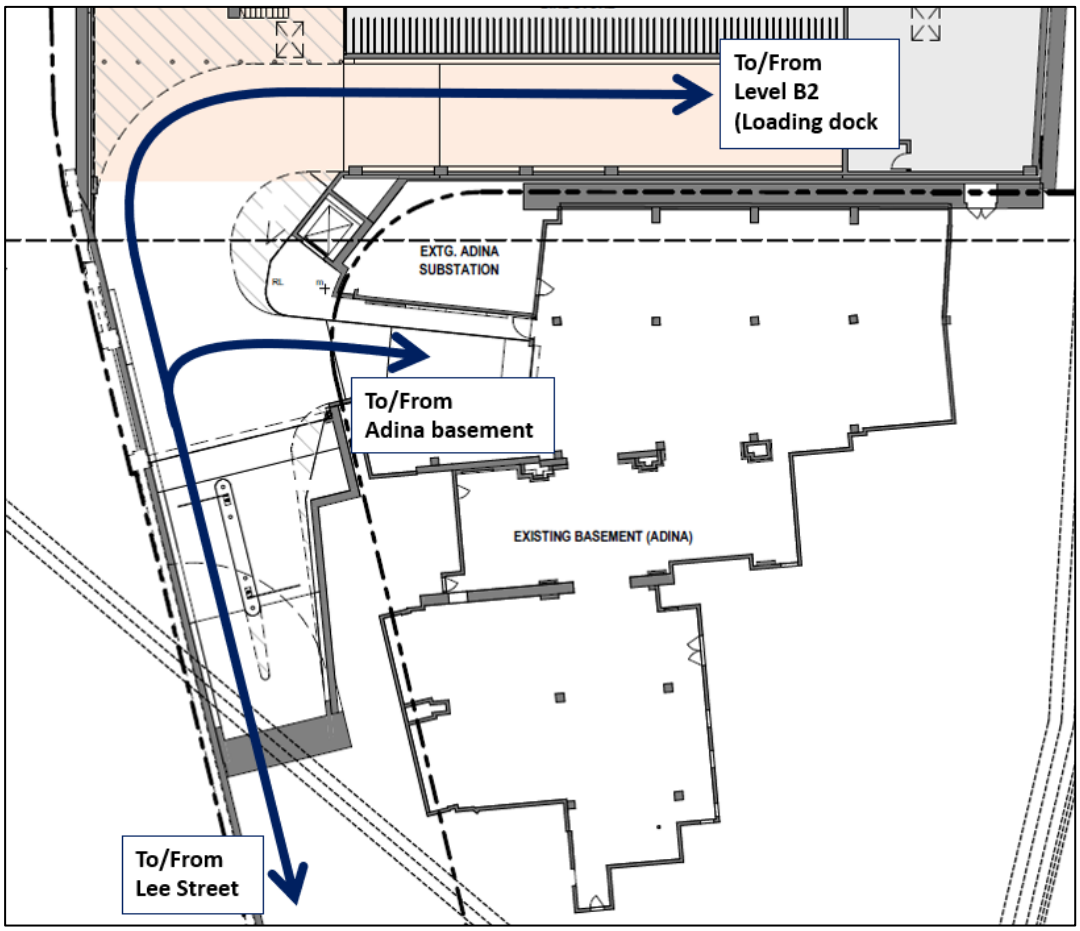


Figure 2 Access arrangements – 'day 1' solution

2.1.2 Access arrangements – 'Day 2' solution

Under the 'Day 2' arrangement, access for all vehicles will be via a new connection as part of the proposal currently being investigated by Dexus-Frasers for the redevelopment of Block B (Henry Deane Place) into a large scale mixed-use development. Vehicle access from the adjacent road network would be via the southern end of Lee Street at the existing driveway located opposite Little Regent Street. This driveway currently services the buildings located in Henry Dean Plaza and would act as the singular access point for vehicles in the wider Central Station precinct. Vehicle access for the Adina hotel would also revert to this new connection. A connection point between the Dexus-Frasers basement and Atlassian basement will be provided to facilitate seamless movement of vehicles between the two sites. Vehicle swept paths (prepared by Arup) indicating the movement of vehicles between the Block B and Block A loading docks is provided as Appendix B of this document.

The existing dive ramp structure on Lee Street would be modified to not permit any vehicular access following the introduction of the end-state access solution. Instead this would solely provide access for cyclists entering the Atlassian building end of trip facility area.

A 6.42m clear width will be provided within the link zone, which will be used by service vehicles accessing the Atlassian or Adina loading docks on Level B2 as well as vehicles servicing the OSD (when completed). The area will be managed by a dock-master who will direct service vehicles into their allocated parking spaces.

2.2 Loading dock design

The current design proposes to provide a total of nine service vehicle bays within the Atlassian loading dock (see Figure 3), comprising of:

- Two bays for medium rigid vehicles (MRVs)
- Three bays for small rigid vehicles (SRVs)
- Four bays for vans / courier vehicles

In the interim state a vehicle turntable is required to allow vehicles to enter and exit the loading dock in a forwards direction. Smaller trucks and vans will not be required to use this turntable, only larger MRVs which have larger turning circles that don’t have the ability to turn around in the available space.

The Atlassian loading dock has been designed in accordance with Australian Standard AS2890.2 -2002 Off-street commercial parking facilities. The facilities have been designed for use by 8.8m long MRV delivery vehicles with a travel and minimum operational height clearance of 3.6m. Within the central link zone area an operational clearance height of 4.5m is provided which is in accordance with the requirements of Transport for NSW.

The loading dock design also makes provision for servicing for the Adina Hotel, including one MRV bay and two-three van / courier spaces in the north-west corner of the site.

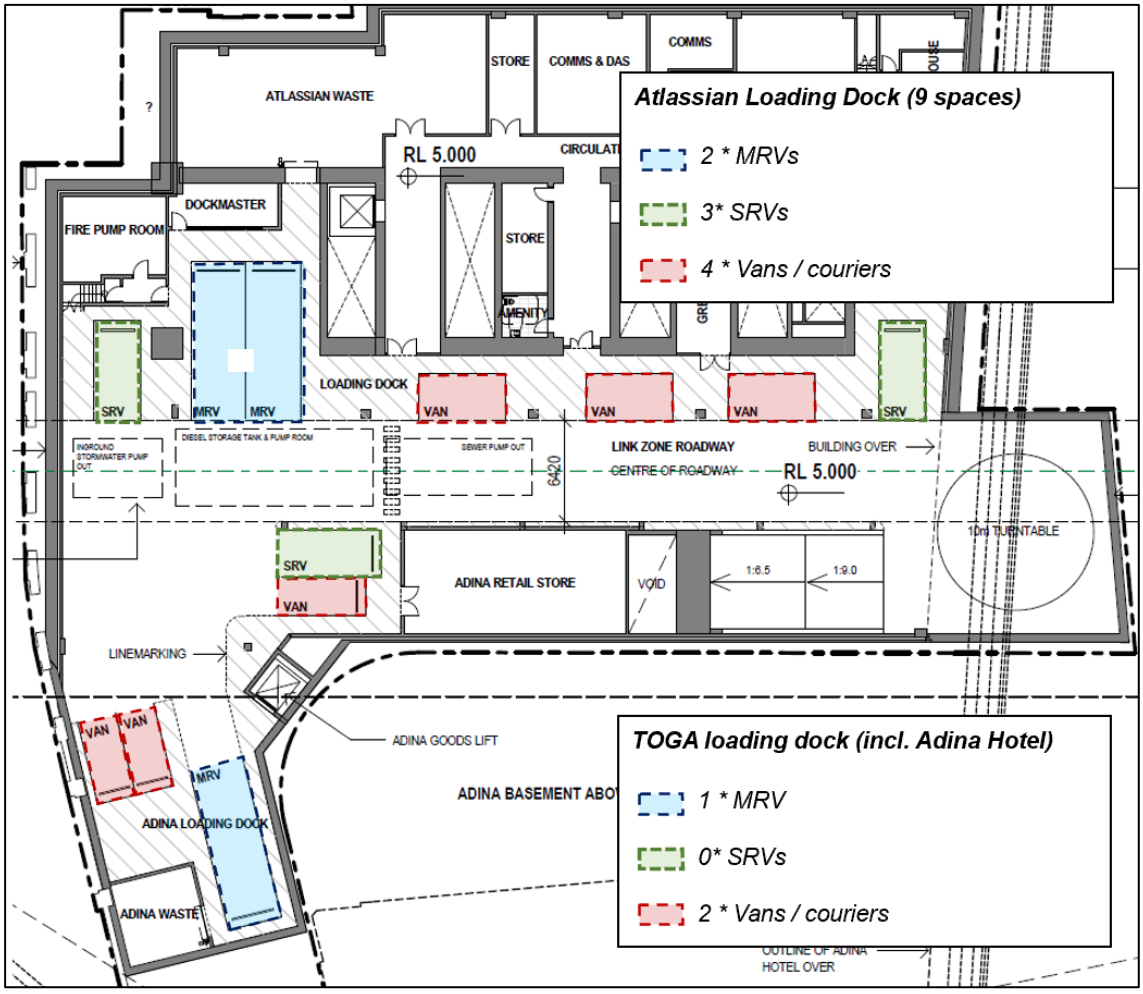


Figure 3 Loading dock layout

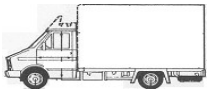
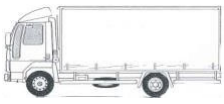
Vehicle swept path analysis into and out of each parking space is provided in Appendix A of this document.

3 Expected Demand

3.1 Vehicle types

An overview of vehicle types expected to service the Atlassian building is shown in Table 2. The largest vehicle expected to service the building is an 8.8m long Medium Rigid Vehicle (MRV). Typical dwell (turnaround) times for these vehicle types within the loading dock are also indicated in this table.

Table 2 Vehicle types and typical dwell times

Vehicle Type	Vehicle	Characteristics	Turnaround Time (minutes)
Bicycle		Bicycle couriers	5-10
Motorcycle		Motorcycle couriers.	5-10
Service vehicle typically a Van or Car (B99 vehicle)		Typically, 5.2m length, load capacity does not exceed SRV.	10-15
Small Rigid Vehicle (SRV)		Typically, 6.4m length, 2.33m width, 4-tonne load capacity, single rear axle and either single or dual tyres.	10 – 15
Medium Rigid Vehicle (MRV)		Typically, 8.8m length, 2.5m width, 8-tonne load capacity, single rear axle and dual tyres.	15-30

3.2 Loading dock movements

3.2.1 Daily movements

A typical rate of service vehicle generation of 0.18 vehicles/100m²/day for office/commercial deliveries has been adopted at this initial stage to determine the likely number of daily service vehicles accessing the Atlassian loading dock. Applying this generation rate to the 70,000m^2 of floor space proposed for the building yields an overall daily number of approximately 126 vehicles.

Assuming an average vehicle dwell time of approximately 30 minutes, with the loading dock operational for 10 hours per day, the 9 parking spaces could accommodate 180 vehicles per day – well in excess of the forecast daily demand generated by the Atlassian building.

3.2.2 Peak hour movements

To determine the appropriate number of vehicles to accommodate within the loading dock, research undertaken by Arup in 2018 has been referenced. This Arup research led to the development of relationship between GFA and loading dock peak hour vehicle movements (shown in Figure 4). While the level of loading activity is dependent on a number of factors and not simply the GFA of the building, this does provide a useful forecasting tool when assessing the loading and servicing requirements for planned office buildings.

Given the Atlassian development proposal is expected to have approximately 70,000m^2 GFA, approximately 20 loading dock movements are anticipated during the peak hour. The design proposes to provide a total of nine service vehicle bays within the loading dock. This provision (at a turnover rate of approximately 20 minutes) is therefore sufficient to accommodate the loading and servicing demands during peak hours.

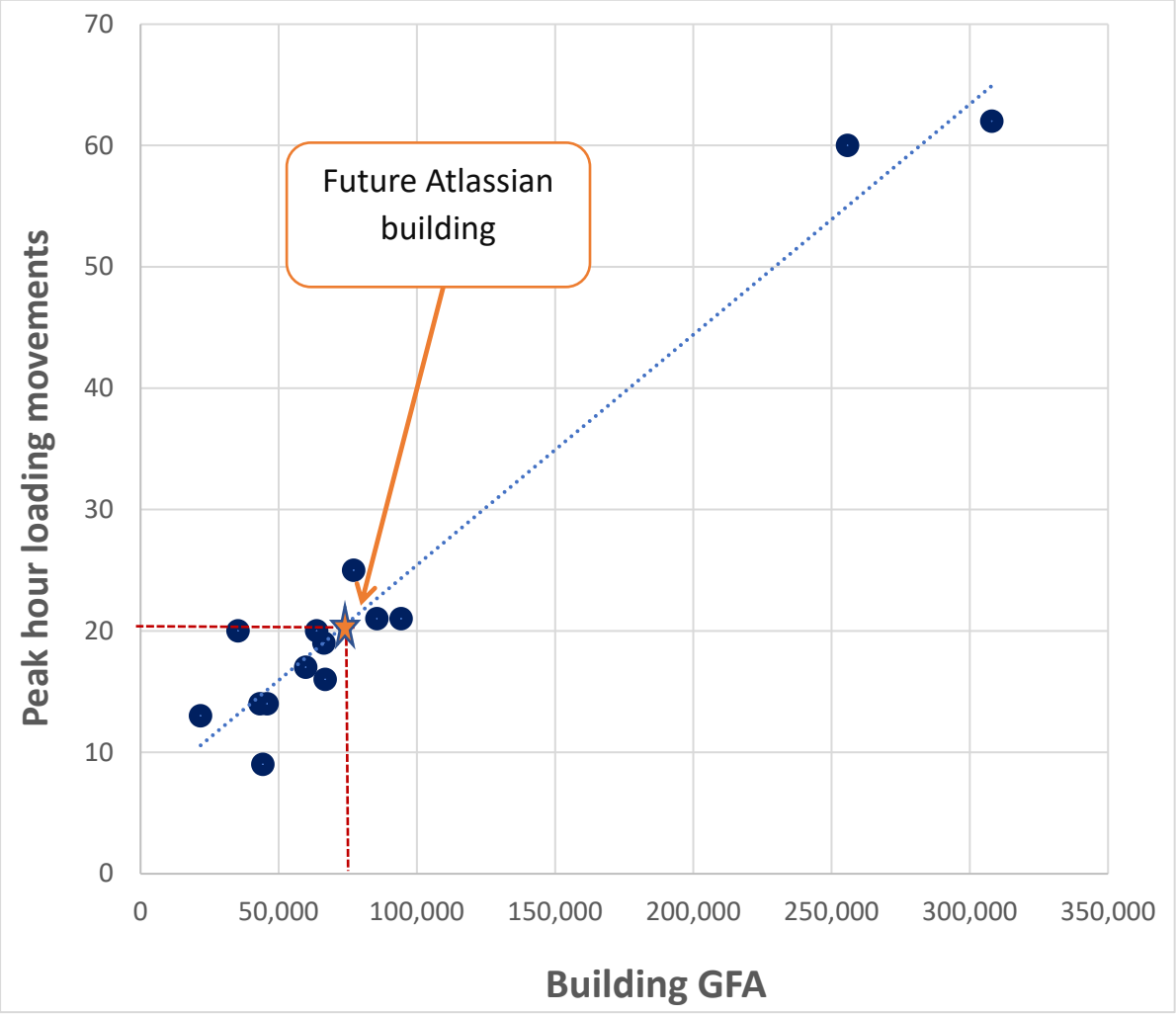


Figure 4 Relationship between building GFA and peak hour service vehicle activity

Source: Arup, 2018

4 Management Strategies

4.1 Operations management

When in operation the loading dock will have a dock master on-site to coordinate the safe movement of goods, vehicles and personnel within the loading dock area. 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.

4.2 Access control

Access to the loading dock will be controlled via a boom gate system to be located on the new Lee Street dive structure ramp. 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. Unauthorised vehicles or vehicles without a booking will be instructed by the dockmaster to exit the site immediately.

4.3 Turntable redundancy

In the event that the turntable malfunctions there are the following typical safeguards that would be built in:

- Main and “battery backup” power supply
- Principal and “backup rotation motors
- All else fails” ability to “free wheel” and rotate the turntable and vehicle manually to ensure forward exit movement

In the unlikely event the turntable is not operational all vehicles (including 8.8m MRVs and 6.5m SRVs) will still have the ability to enter the loading dock. As shown in the swept paths in Appendix A, these vehicles would need to undertake a five a three point turn respectively, however under management from the dockmaster could still enter and exit the loading dock.

4.4 Booking system

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 of 30 minutes maximum dwell time. Vehicles will only be allowed to approach loading bays once the occupying vehicle has departed from the bay.

Trucks intending to use the docks will not be permitted to come to site without making a booking beforehand. The major benefit of the implementation of such a system is the ability to moderate demand throughout the day. The allocation of deliveries to timeslots (with strict length of stay limits) reduces the risk the loading dock reaching capacity and manages traffic flow into the Site during peaks. The booking system also largely mitigates the risk of vehicle queues forming to enter the Site and improving the flow of traffic on adjacent streets.

4.5 Vehicle queuing

To manage conflicts on the B2 ramp when a vehicle is exiting the loading dock via the turntable, a waiting bay (with associated traffic light system) will be provided at the top of the B2 ramp as shown in Figure 5 below. When a vehicle is positioned on the turntable within the loading dock, a red traffic light will be triggered which will direct entering vehicles to wait at the top of the B2 ramp. This will provide sufficient manoeuvring space for vehicles to pass each other on the ramp.

It should be noted that this arrangement will only be in place in the ‘Day 1’ scenario. In the ‘Day 2’ scenario the turntable will be removed and all vehicle access will be via Block B site rather than the Lee Street dive structure.

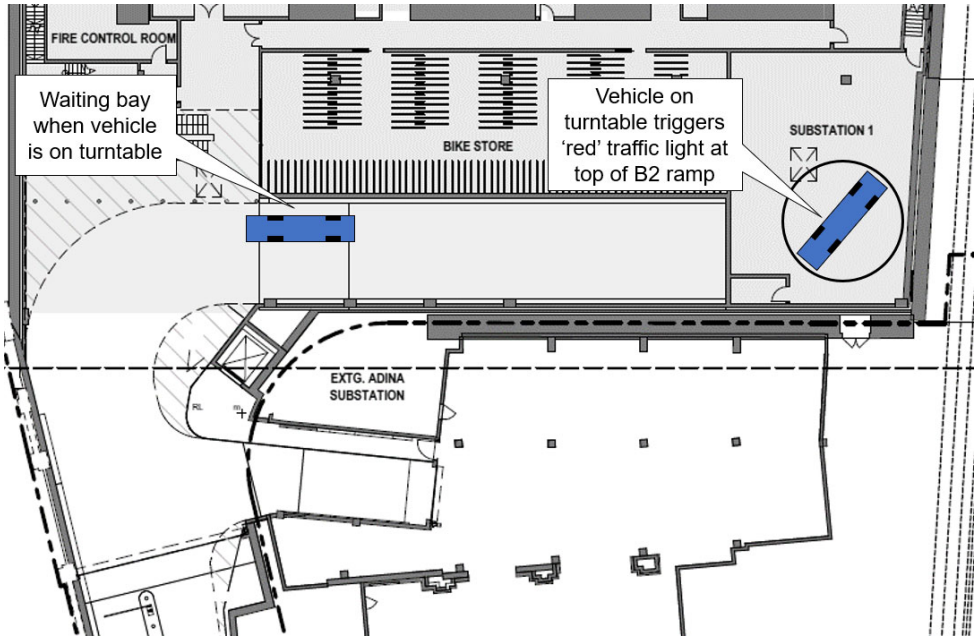


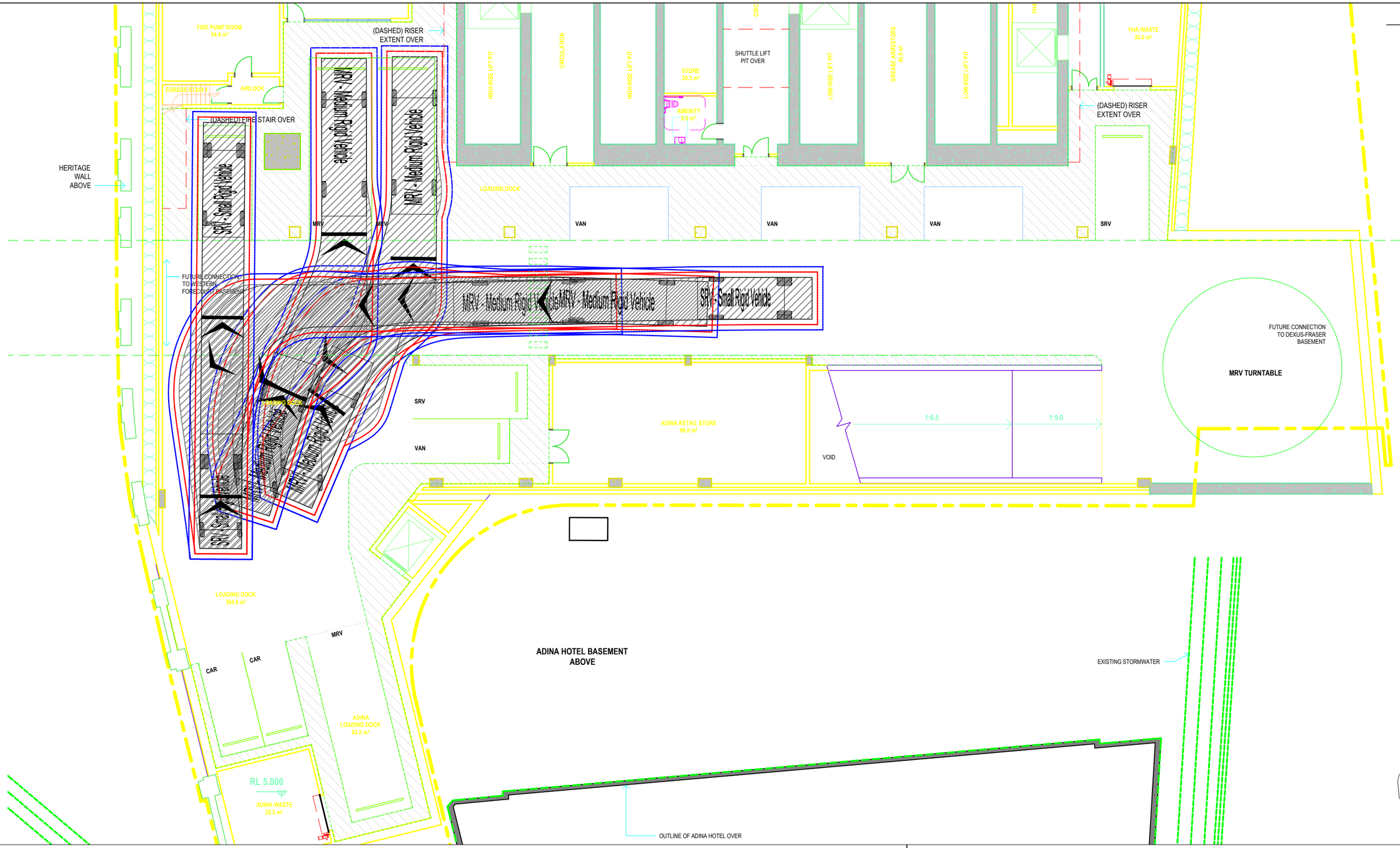
Figure 5 Vehicle queueing arrangements

5 Summary

This Draft Loading Dock Management Plan (LDMP) has been developed for the future Atlassian building. The LDMP has demonstrated that the loading dock has been designed in order to accommodate the forecast daily and peak hour service vehicle demand – without relying on any on-street loading areas. The dock will be managed (employing a pre-booking system) to provide efficient operations and minimise the impacts on the transport network.

A more comprehensive loading dock management plan will be prepared prior to the opening of the building which will provide further details around expected delivery types, times and management strategies to be implemented.

Appendix A: Vehicle Swept Path Analysis



Client
Atlassian

Job Title
Atlassian Central Station

Drawing Title
Turning Paths
B2 Loading Dock

Date
18/08/20

Job No
1902

Drawing No
01

Drawing Status
For SSDA submission

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Legend

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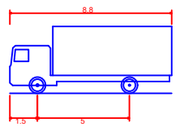
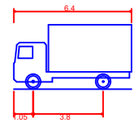
- 600mm Envelope
- Wheel Envelope

Vehicle type(s)



MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m



SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

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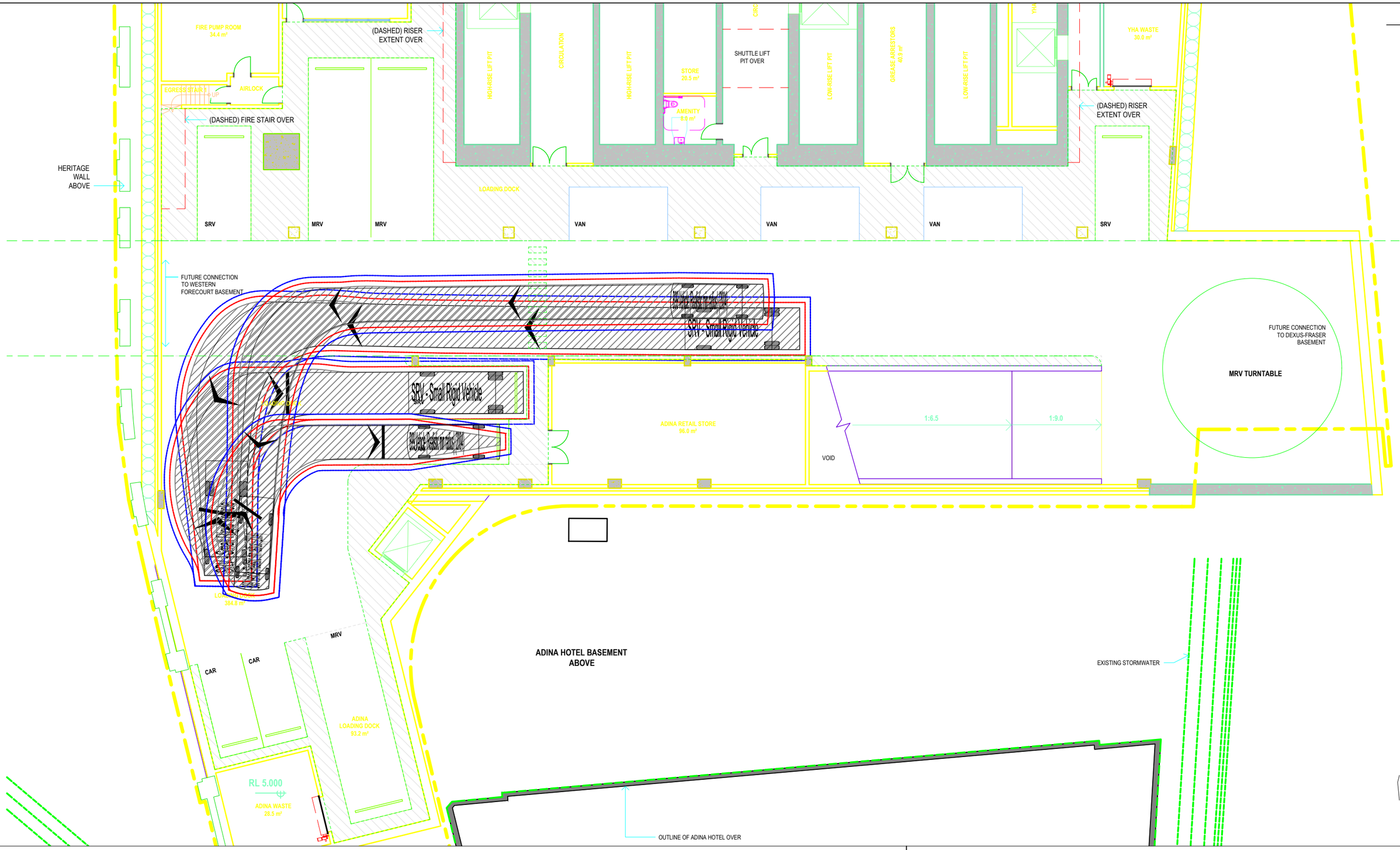

Client
Atlassian

Job Title
Atlassian Central Station

Drawing Title
Turning Paths
B2 Loading Dock

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Date
18/08/20

Job No
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Drawing No
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Drawing Status
For SSDA submission

Scale at A3
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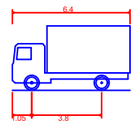
Vehicle type(s)



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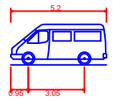
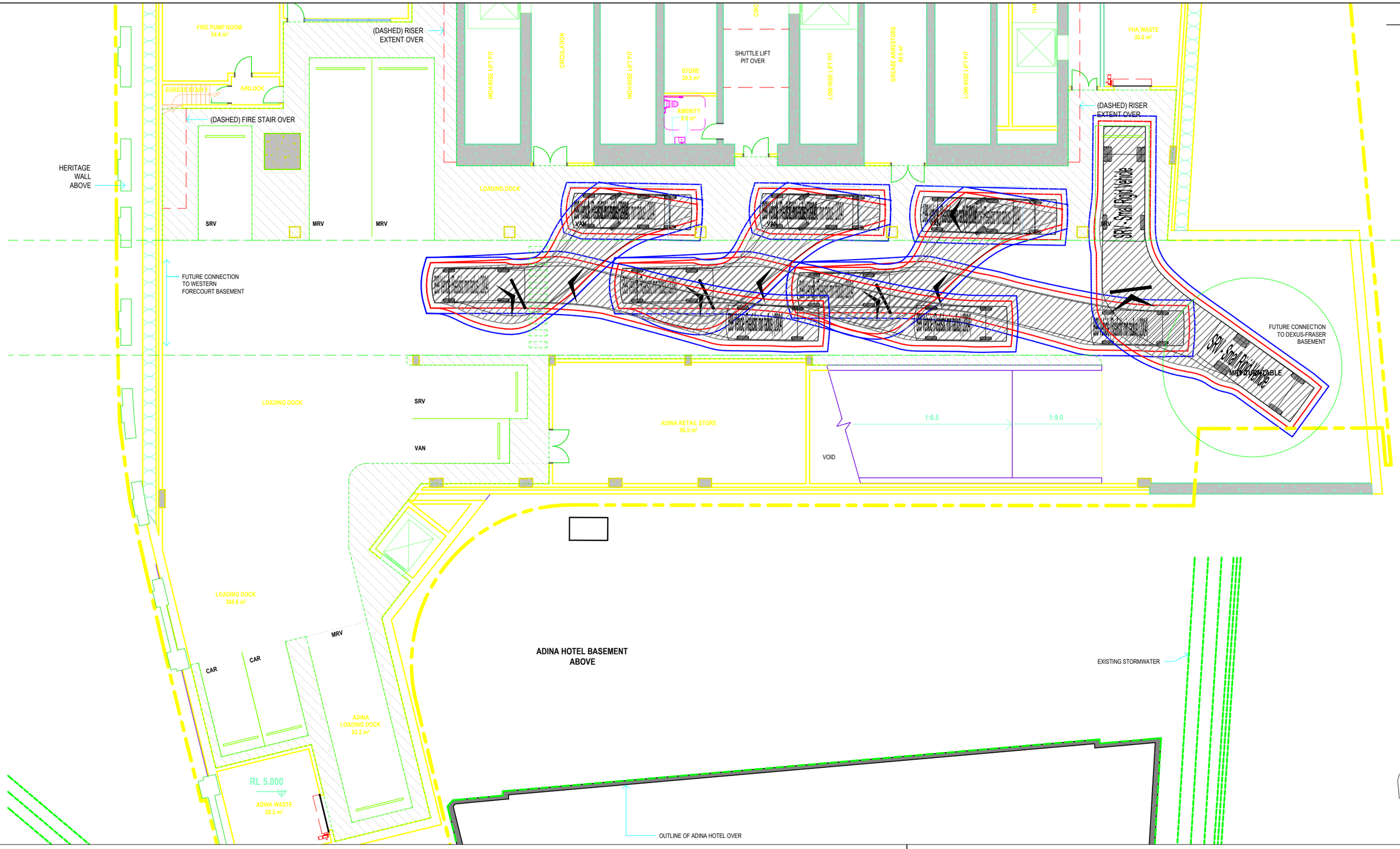


Car/van vehicle (5.2 m)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.300m



Client
Atlassian

Job Title
Atlassian Central Station

Drawing Title
Turning Paths
B2 Loading Dock

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Date
18/08/20

Job No
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Drawing No
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Drawing Status
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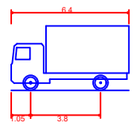

SRV - Small Rigid Vehicle

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Track Width	2.330m
Lock-to-lock time	4.00s
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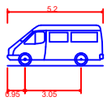

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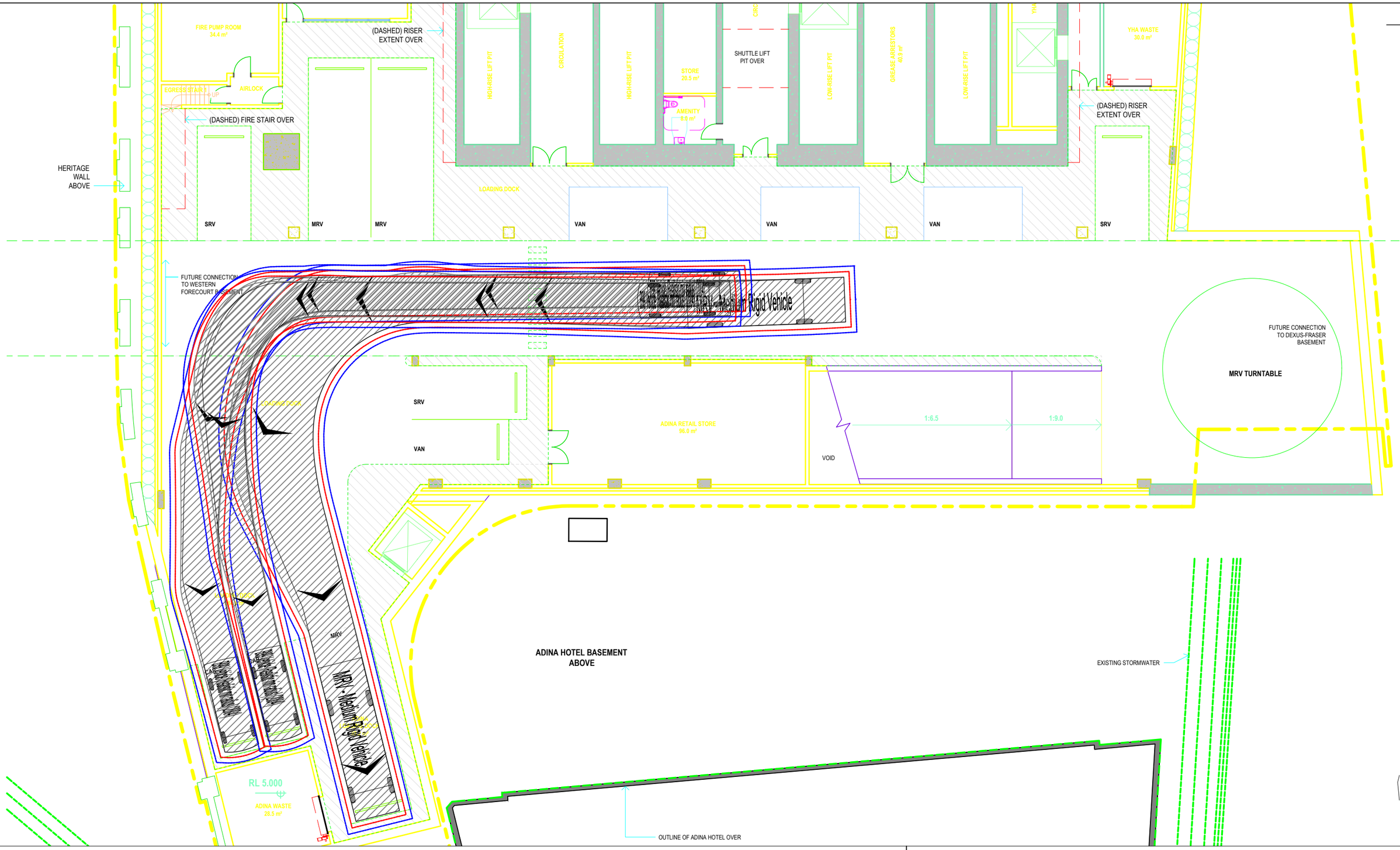

Client
Atlassian

Job Title
Atlassian Central Station

Drawing Title
Turning Paths
B2 Loading Dock

Date
18/08/20

Job No
1902

Drawing No
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Drawing Status
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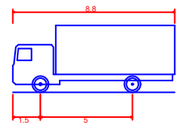
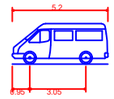
Vehicle type(s)



MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m



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Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.300m

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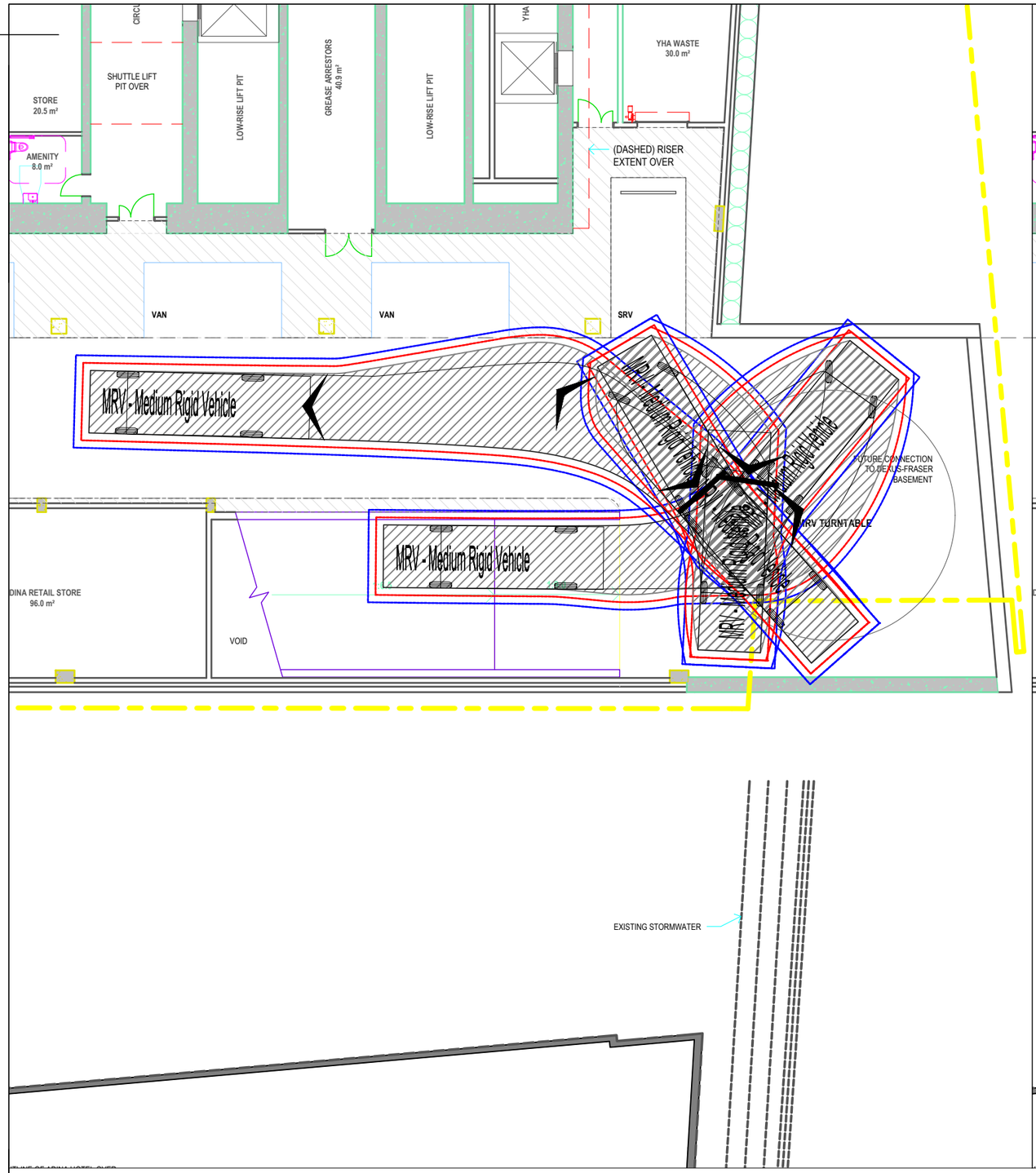

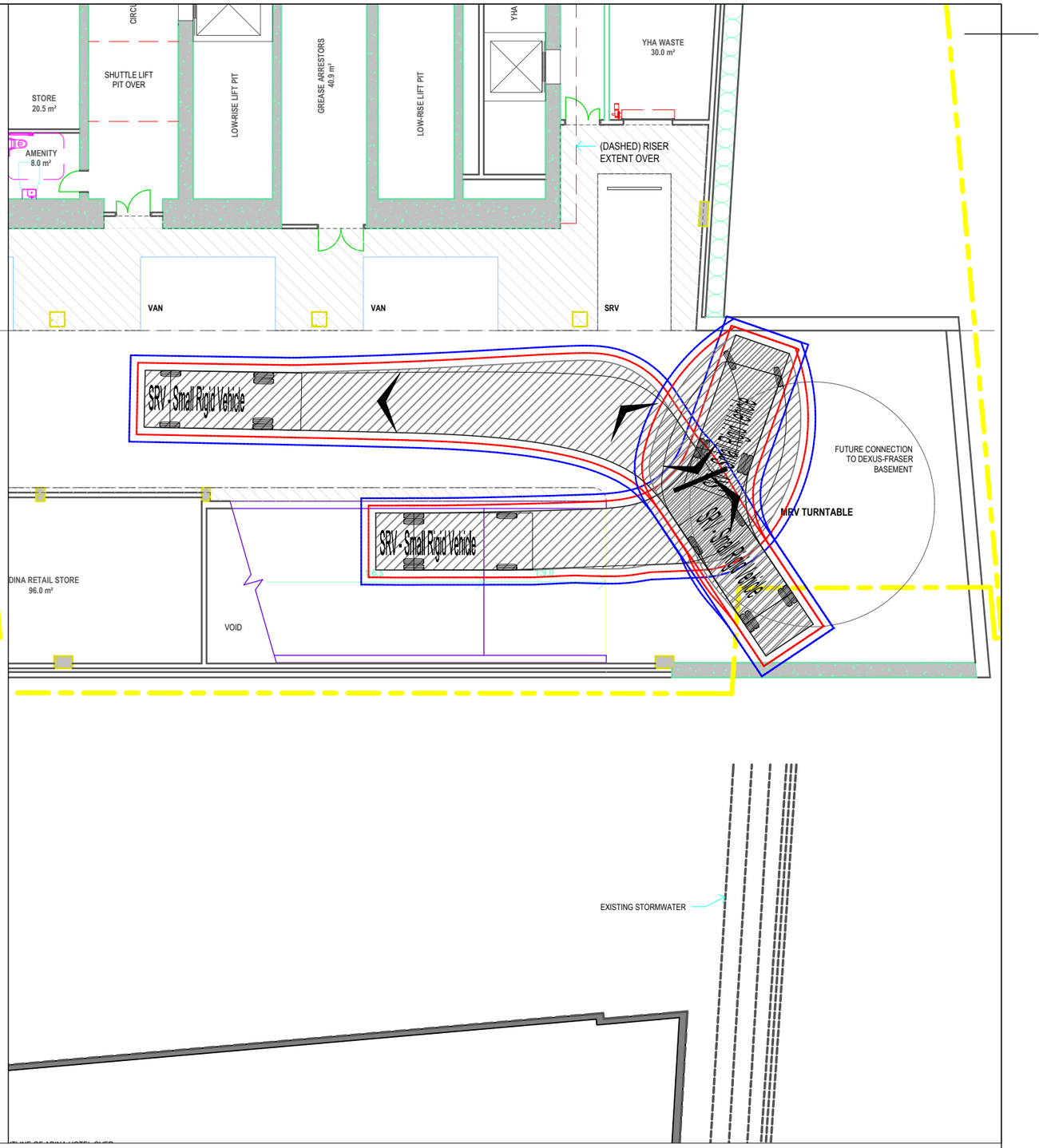

Client
Atlassian

Job Title
Atlassian Central Station

Drawing Title
Turning Paths
B2 Loading Dock - Turntable malfunction

Date
18/08/20

Job No
1902

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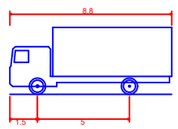

MRV - Medium Rigid Vehicle

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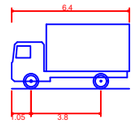
Curb to Curb Turning Radius	10.000m



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Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

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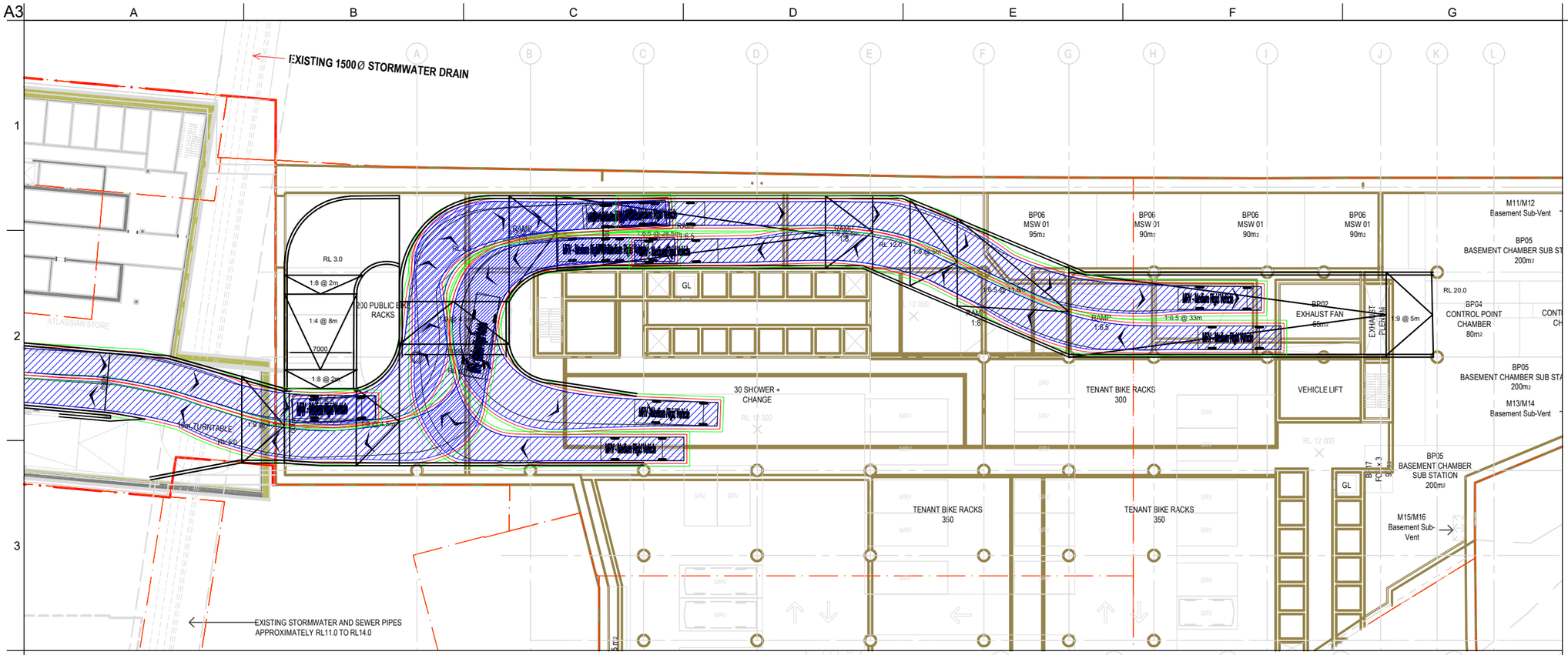
Appendix B: Day 2 Basement Connection

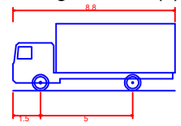
A3



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	3.633m
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
A	16/03/20	JRT	JRT	JRT
For Information				

ARUP

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Sydney, NSW, 2000
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Client
Dexus Frasers

Job Title
Western Gateway

Drawing Title
Turning Paths
Basement 2

Scale at A3
1:500

Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
601138-00	**SKT005**	**A**

Do not scale