



Locomotive Workshop (Retail Development) Australian Technology Park Transport Impact Assessment

Client //	Mirvac Projects Pty Limited
Office //	NSW
Reference //	N117430
Date //	13/11/17

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(Retail Development)
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Transport Impact Assessment

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Quality Record

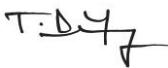
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1. Introduction

1.1 Preface

This report supports a State Significant Development Application (SSDA) submitted to the Minister for Planning pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The Application (referred to as SSDA 8517) seeks approval for the adaptive reuse and redevelopment of the eastern portion of the Locomotive Workshop (being Bays 1-4a) within the Australian Technology Park (ATP), Eveleigh as described in the Proposed Development Description section of this report.

The ATP site has been continuously developed since its establishment in 1996, but has been underutilised as a technology and business precinct for some time. UrbanGrowth NSW has actively encouraged new development and employment opportunities at the site for the past 15 years, and Mirvac intends to continue with this and deliver upon the precinct's full potential.

1.2 Background

Historically, ATP was used for railway maintenance, storage and other associated industries. Use of the site as marshalling yards and workshops formed part of a large railway-based precinct on both sides of the main railway line, dating from 1882 and growing in size until its closure in 1989. Since this time, the precinct has been progressively redeveloped and repurposed.

In 2014, the NSW Government resolved to offer development sites within the ATP for sale through a selective tender process conducted by Urban Growth NSW Development Corporation (UGDC). In November 2015 Mirvac Projects Pty Ltd (Mircac) was named as the successful party and ownership and development rights of the precinct were subsequently transferred.

In December 2015, an SSDA was submitted to the Department of Planning & Environment for a multi-building redevelopment (i.e. Buildings 1, 2 and 3 shown in Figure 2.3) of the ATP to provide new commercial office, retail and community uses and a significant upgrade to the ATP public domain. Following public exhibition, and the submission of additional information, the development was approved by the Planning Assessment Commission on 20 December 2016. The construction of Buildings 1, 2 and 3 is currently underway.

The redevelopment of the Locomotive Workshop is also part of Mirvac's redevelopment strategy for the ATP. The Locomotive Workshop is to be redeveloped in its entirety, however planning approvals are sought through the submission of two separate SSDAs. This Application relates to the eastern portion encompasses the heritage Bays 1 and 2, the existing Blacksmith operation and Bays 3,4 and 4a. In conjunction with SSDA 8449 that relates to Bays 5-15, this Application is envisaged to be the next phase of urban regeneration within the ATP.

1.3 Planning Framework

State Environmental Planning Policy (SEPP) State Significant Precincts is the principal environmental planning instrument applying to the ATP. Schedule 3, Part 5 of the State Significant Precincts SEPP sets out the zoning, land use and development controls that apply to development on the Site.

As the development has a capital investment value of more than \$10 million, it is identified as State Significant Development under the *State Environmental Planning Policy (State and Regional Development) 2011*, with the Minister for Planning being the consent authority for the project.

The Department of Planning and Environment issued the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement for the proposed development. The issues raised in the SEARs have been considered during the preparation of this transport assessment report. Table 1.1 summarises the relevant issues (related to "Transport, Traffic and Parking Impact Assessment and Green Travel Plan") and the location of the report where they have been addressed.

Table 1.1: Secretary's Environmental Assessment Requirements

Issues	Report Section
Green Travel Plan to:	
○ demonstrate how the development will support Government strategies in promoting sustainable travel choices, and determine the adequacy of pedestrian and cycle facilities to meet the likely future demand of the proposed development and give consideration of measures to be implemented; and	Refer to separate Work Travel Plan prepared for the site and provided at Attachment 2.
○ outlines the measures to be implemented to encourage users of the development, including workers and visitors, to make sustainable travel choices, including walking, cycling, public transport and car sharing, particularly the provision of end-of-trip facilities, and wayfinding strategies;	
Traffic and Transport Impact Assessment, in particular:	
○ addresses the relevant planning controls provisions, goals, and strategic planning objectives of the Development Near Rail Corridors and Busy Roads - Interim Guideline;	Refer to Section 3.1
○ demonstrates that the demand for car parking generated by the development will be accommodated within the existing and approved car parking spaces provided across the ATP site;	Refer to Section 0
○ details the traffic and transport impacts (including bus services and infrastructure) during construction and how these will be mitigated including the preparation of a Construction Traffic Management Plan and consideration of cumulative impacts with any other construction activities within the ATP site;	Refer to separate Construction Traffic Management Plan prepared for the site and provided at Attachment 3.
○ details daily and peak traffic movements likely to be generated by the proposed development, the cumulative traffic impacts on the surrounding road network due to other developments within the ATP, and the impact on the surrounding road network and key intersections;	Refer to Section 8.1
○ assesses road and pedestrian safety adjacent to the proposed development and measures to mitigate any identified issues;	Refer to Section 5
○ details of existing and proposed access arrangements for cars, emergency vehicles, bicycles and point-to-point transport, including compliance with relevant Australian Standards; and	Detailed throughout report
○ how any servicing and delivery access and loading requirements for the commercial uses will be provided (including vehicle type and the likely arrival and departure times).	Refer to Section 7
Preliminary Construction Management Plan, in particular:	
○ addressing traffic and transport impacts during construction	Refer to separate Construction Traffic Management Plan prepared for the site and provided at Attachment 3.
○ (traffic related) Cumulative construction impact assessment (i.e. arising from concurrent construction activity)	
Engagement	
○ Stakeholder and community engagement	Refer to Section 1.4

1.4 Stakeholder Consultation

In preparing this report, GTA has been involved in both stakeholder consultation as required by SEARs and community consultation processes. This includes the following:

- Community consultation held at the ATP site dated 19th July 2017 (GTA in attendance) and 22nd July 2017 (GTA not in attendance)
- Meeting with City of Sydney (Attendees from Council including Maria O'Donnell, Michael Soo, Brigid Kelly, Katherine Navin) to discuss the loading strategy for the proposed development on 22nd August 2017
- Meeting with Roads and Maritime Services (Mohamed Tita) and Transport for New South Wales (Katherine McCray) to present the proposal and provide opportunity to raise any initial feedback, suggestions or concerns dated 22nd August 2017

1.5 References

In preparing this report, reference has been made to the following:

- an inspection of the site and its surrounds
- City of Sydney Development Control Plan (DCP) and Local Environment Plan (LEP)
- 'Australian Technology Park, Eveleigh 2005 Master Plan' prepared by Nettleton Tribe Architects (Minister Approval 23 June 2005)
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- traffic and car parking surveys undertaken as referenced in the context of this report
- plans for the proposed development prepared by Sissons Architects, Drawing Number SA-AR-DWG-BB-B4, Revision D, dated 06/09/20117
- other documents and data as referenced in this report.

2. Existing Conditions

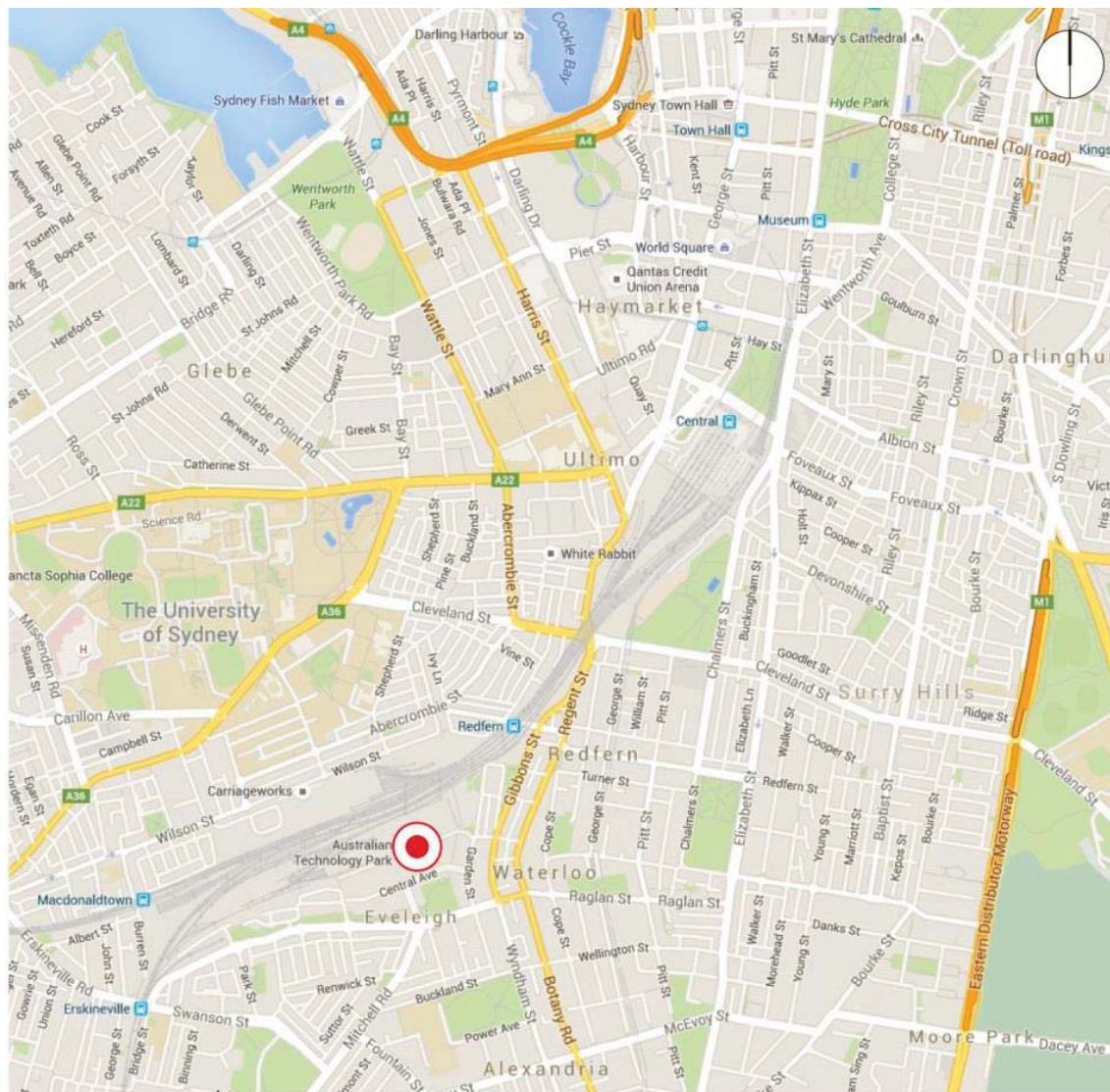
2.1 Subject Site

2.1.1 Site Location

The ATP site is located approximately 5km south of the Sydney CBD, 8km north of Sydney airport and within 300m of Redfern Railway Station. The site, with an overall area of some 13.2 hectares, is located within the City of Sydney local government area (LGA).

Figure 2.1 provides a graphic representation of the site location and broader context, with Figure 2.2 providing an aerial image of the ATP site and Figure 2.3 providing site context in relation to the other site developments.

Figure 2.1: Site Location



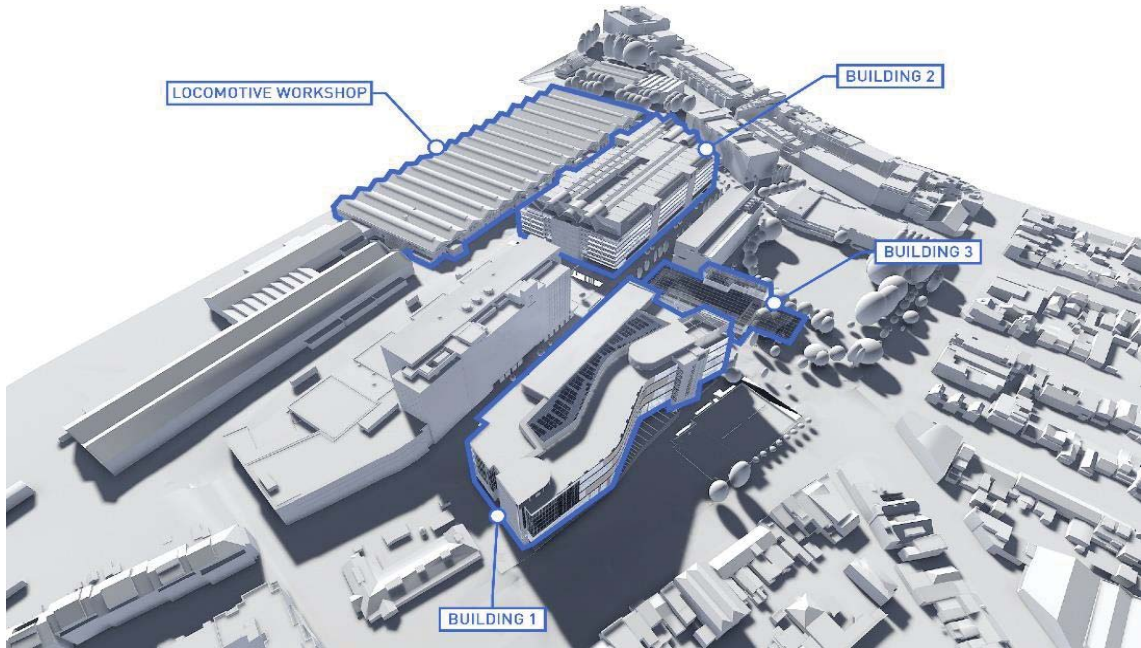
● The Site

Figure 2.2: Existing Site Layout



 The ATP Precinct

Figure 2.3: Locational context of the Locomotive Workshop



2.1.2 Site Operation

Existing Uses on the Site

The ATP accommodates predominantly commercial/business uses with a focus on technology and innovation. The Locomotive Workshop also is available for conference and function events but includes approximately 35,000m² of commercial floorspace, blacksmith and small retail/café uses.

The current tenants at ATP include the Commonwealth of Australia, University of Sydney, Channel 7, Pacific Magazines, Roads and Maritime Services, and Fuji Xerox. Commonwealth Bank of Australia will be a future tenant of ATP and will occupy Buildings 1 and 2 (under construction) and community building (Building 3).

A summary of the existing and future land uses/tenants at ATP is provided in Table 2.1.

Table 2.1: Summary of Existing and Under Construction Land Uses

Tenant	Existing Floor Area	Proposed Floor Area (under construction)
Media Centre Building (Channel 7 Building)	Approx. 40,000sqm GFA	-
Biomedical Building	Approx. 7,600sqm	-
NICTA Building	Approx. 11,200sqm GFA	-
National Innovation Centre (NIC)	Approx. 7,000sqm	-
International Business Centre (IBC)	Approx. 950sqm	-
Locomotive Workshop (Commercial Uses and Exhibition Centre)	[1] Approx. 35,000sqm	-
Commonwealth Bank of Australia (Buildings 1, 2 & Community Building)	-	Approx. 107,400sqm
Total	Approx. 110,750sqm	Approx. 107,400sqm

[1] Has an allowable GFA of approximately 42,055m²

Table 2.1 indicates that following the completion of Buildings 1, 2 and the Community Building, ATP will have an overall floor area of approximately 218,000sqm. In addition to the above commercial land uses, it is noted that there are other existing supplementary uses at ATP, including cafes and child care uses.

Existing Car Parking Supply

A summary of the historic and future car parking provision at the ATP site following the completion of Buildings 1, 2 and the Community Building is provided in Table 2.2.

Table 2.2: ATP On-Site Car Parking Provisions

Building/Location	No. of Car Parking Spaces	
	Historic	Future
Channel 7 Building Staff Parking	363	363
Channel 7 Building Visitor Parking	339	339
Open Air Car Park (Lot 8)	53	0
Open Air Car Park (Lot 9) / Building 1	272	205
Open Air Car Park (Lot 12) / Building 2	280	500
Biomedical Building Staff Parking	33	33
Locomotive Workshop	4	4
Nicta Building	66	66
National Innovation Centre (NIC)	4	4
International Business Centre (IBC)	17	17
On-street Spaces	22	33
Total	1,453	1,564

Table 2.2 indicates that there will be a total of 1,564 car parking spaces on the site (following the completion of Buildings 1 and 2).

The above provision includes four existing accessible car spaces and one motorbike parking area associated with the Locomotive Workshop.

2.2 Road Network

2.2.1 Overview

The ATP is generally bounded by local streets with Garden Street and Cornwallis Street located to its east and Henderson Road located to its south. On the northern boundary runs the railway line. The ATP site is accessed by three internal roads, namely at Central Avenue and Locomotive Street from Garden Street and Davy Road from Henderson Road. A description of the roads in the immediate vicinity of the site is summarised below.

Henderson Road

Henderson Road is a two-way road aligned in an east-west direction.

Henderson Road is a four-lane road to the east of Davy Road and a two-lane road to the west of Davy Road. Henderson Road is a regional road which is owned by Roads and Maritime Services (RMS), but maintained by Council with funding from the State Government. It contains a carriageway width of 14 to 17 metres within an approximately 25 metre road reserve.

At intersections, Henderson Road includes auxiliary turning lanes. Kerbside parking lanes are also available on both sides of the road.

Garden Street

Garden Street is a two-way, two-lane local road aligned in the north-south direction.

It has a 12 metre wide carriageway with kerbside parking within a 25 metre wide road reserve. North of Central Avenue, the carriageway widens to allow 90 degree parking on the western side

of the road. Garden Street bends to the east at its intersection with Cornwallis Street and continues in an east-west alignment to the Gibbons Street intersection with Wyndham Street.

Cornwallis Street

Cornwallis Street continues in a north-south alignment from Garden Street to Redfern Station. Cornwallis Street is a one-way local road in the southbound direction configured with a 6 metre carriageway within a 12 metre wide road reserve. Kerbside parking is permitted on the eastern side of the road.

ATP Internal Roads

Locomotive Street is an internal two-way road configured with kerb along its southern side and bollards and planter boxes along the northern side, on a 6m wide carriageway.

Central Avenue is an internal two-way road configured with two lanes separated by a central median, on a 20 metre wide carriageway and with a 30 metre wide road reserve.

Davy Road is an internal two-way road configured with four lanes separated by a central median on a 15 metre carriageway and a 25 metre wide road reserve. At the intersection with Henderson Road, Davy Road includes an additional southbound, right turn lane.

Locomotive Street, Central Avenue and Davy Road are private roads.

Another site access is provided on the western side of Cornwallis Street opposite the Margaret Street intersection. This driveway provides vehicles access to the northern end of Innovation Plaza and surrounding uses on the northeast corner of the site.

2.2.2 Surrounding Intersections

The following intersections currently exist in the vicinity of the site:

- Henderson Road-Davy Road-Mitchell Road (signalised)
- Henderson Road-Garden Street(signalised)
- Garden Street-Central Avenue (non-signalised)
- Garden Street-Cornwallis Street-Locomotive Street (non-signalised)
- Henderson Road-Alexander Street (roundabout).

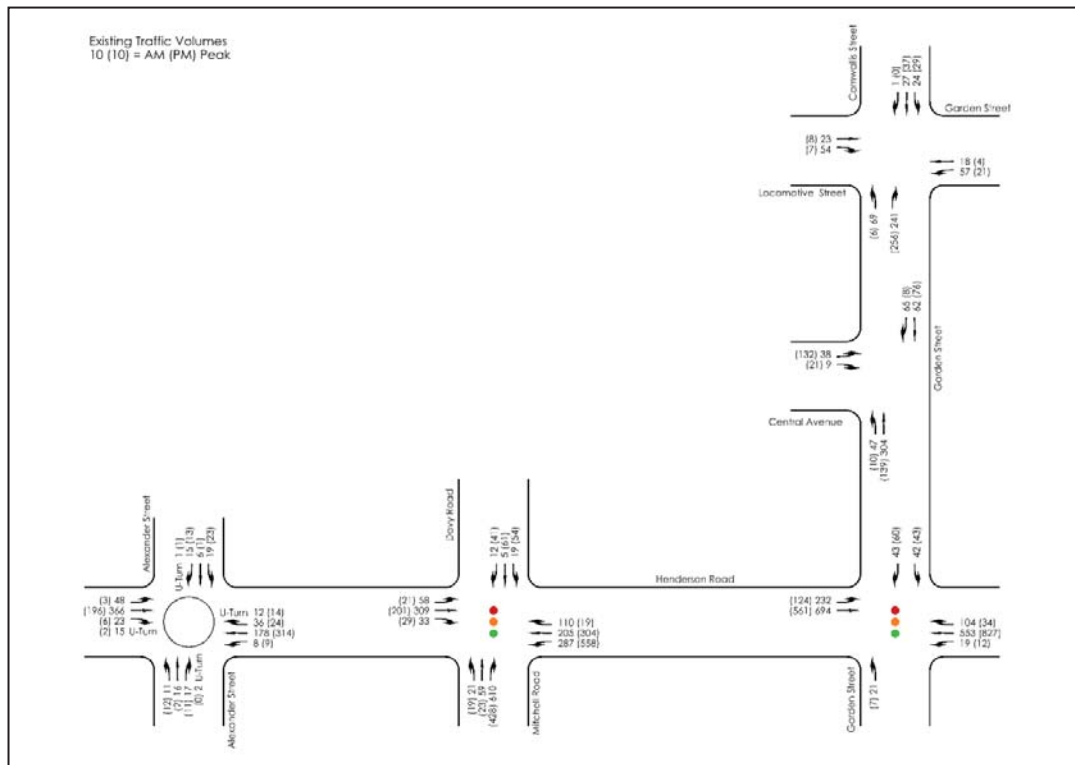
2.2.3 Traffic Volumes

Peak period intersection turning movement counts at the above key intersections have been conducted. The turning movement counts were carried out on 20 October 2015 for the following peak periods:

- morning period from 7:00am to 9:00am
- evening period from 4:00pm to 6:00pm.

The peak hour intersection turning movement volumes are shown in Figure 2.4. These volumes exclude any traffic generation associated with the development of Building 1 and 2 (currently under construction).

Figure 2.4: Existing Peak Hour Intersection Turning Movement Volumes



2.2.4 Intersection Operation

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION¹, a computer based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the RMS, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service. Table 2.3 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service, with Table 2.4 presenting a summary of the existing operation of the intersection.

Table 2.3: SIDRA INTERSECTION Level of Service Criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

¹ Program used under license from Akcelik & Associates Pty Ltd.

Table 2.4: Existing Condition Intersection Modelling Results

Peak Hour	Intersection	Intersection Control	Historic		Future [1]	
			Delay (sec)	LOS	Delay (sec)	LOS
AM	Garden St-Henderson Rd	Signal	14	A	15	B
	Mitchell Rd-Henderson Rd	Signal	41	C	47	D
	Alexander St-Henderson Rd	Roundabout	12	A	12	A
	Garden St-Central Ave	Give way	8	A	8	A
	Garden St-Locomotive St	Stop	11	A	11	A
PM	Garden St-Henderson Rd	Signal	15	B	17	B
	Mitchell Rd-Henderson Rd	Signal	41	C	43	D
	Alexander St-Henderson Rd	Roundabout	10	A	10	A
	Garden St-Central Ave	Give way	7	A	7	A
	Garden St-Locomotive St	Stop	10	A	10	A

[1] Following the development of Buildings 1 and 2.

Table 2.4 indicates that the intersections surrounding the site have historically operated satisfactorily (LOS C or better). Following the completion of Buildings 1, 2 and 3, each of the intersections is anticipated to continue to operate satisfactorily, noting that the Mitchell Road / Henderson Road intersection is anticipated to operate with a LOS D.

2.3 Car Parking

On-street car parking is typically provided on both sides of each of the roads in the vicinity of the ATP site. The surrounding on-street car parking is subject to a variety of restrictions, including 1P, 2P permit excepted and unrestricted spaces.

The time restricted spaces are typically provided on the low density residential frontages are intended to protect residential amenity.

Observations indicate that car parking occupancies are high for the unrestricted spaces, particularly during the day. Occupancies for the time restricted spaces (1P and 2P) are typically lower than the unrestricted spaces.

2.4 Loading Areas

Locomotive Street currently provides up to 16 on-street loading bays which are used to service the current loading requirements of the Locomotive Workshop. The bays are located along the northern side of Locomotive Street and are aligned in both a 90 degree angled and parallel arrangement.

2.5 Public Transport

2.5.1 Train Services

Existing

Redfern Railway Station is located approximately 300m north-east of the ATP site and is within a 4 minute walk. The station is a major stop in the Sydney Trains network, with frequent services on four rail lines, namely T1 North Shore, Northern & Western Line, T2 Airport, Inner West & South Line, T3 Bankstown Line, T4 Eastern Suburbs & Illawarra Line. The services are shown in Table 2.5.

Table 2.5: Rail Service Provision

Lines	Frequency Peak Period	Frequency Off Peak
T1 North Sore, Northern & Western Line	3 minutes	4 minutes
T2 Airport, Inner West & South Line	5 minutes	5-15 minutes
T3 Bankstown Line	10-15 minutes	15 minutes
T4 Eastern Suburbs & Illawarra Line	3 minutes	5-10 minutes

Data Source: www.transportnsw.info (accessed 24 July 2017)

Future

A future metro station will be provided at Waterloo as part of the Sydney Metro Project, linking Northwest to Bankstown, via the CBD.

The project includes the construction of 66km of new tracks, 31 new metro stations and will have a capacity of 40,000 passengers per hour. The entire project is scheduled to be constructed and operational by the end of 2024.

The proposed station at Waterloo is located between Botany Road and Cope Street, Raglan Street and Wellington Street, approximately 500m from the site. The new rail link will further connect the site to the greater metropolitan Sydney area.

2.5.2 Bus Services

Regular scheduled bus services also service the area. Bus stops are located within 2 minute walking distance from the site including on Henderson Road and Wyndham Street. The available bus services are summarised in Table 2.6.

Table 2.6: Bus Service Provision

Service	Route	Route Description	Location of Stop	Distance to Nearest Stop	Frequency On/Off Peak
Bus	305	Mascot (Stamford Hotel) to Railway Square	Wyndham St near Boundary Street	120m	30 minutes 6am to 9am and 3pm to 6.30pm
Bus	308	Marrickville Metro to City	Wyndham St near Boundary Street	120m	15 minutes peak/ 30 minutes off peak
Bus	309	Port Botany to Railway Square	Wyndham St near Boundary Street	120m	5-15 minutes peak/ 20 minutes off peak
Bus	310	Eastgardens to Railway Square	Wyndham St near Boundary Street	120m	15 minutes peak/ 20 minutes off peak

Data Source: www.transportnsw.info (accessed 24 July 2017)

2.6 Pedestrian Infrastructure

Pedestrian footpaths are located on both sides of all streets, surrounding and internal to the Australian Technology Park overall site.

Public roads include footpath widths of 1.5-2 metres along Henderson Road, and 2.5 metres along Garden Street. Locomotive Street has a pedestrian path which runs along its northern side. Hoarding for the construction of Building 2 currently sits along the southern edge of Locomotive Street which prevents any pedestrian activity along this area.

Marked foot crossings are provided at all signalised intersections within the area including along Henderson Road, and on the western and southern legs of the Wyndham and Garden Street intersection, which is located on the way to Redfern Railway Station from the site.

2.7 Cycle Infrastructure

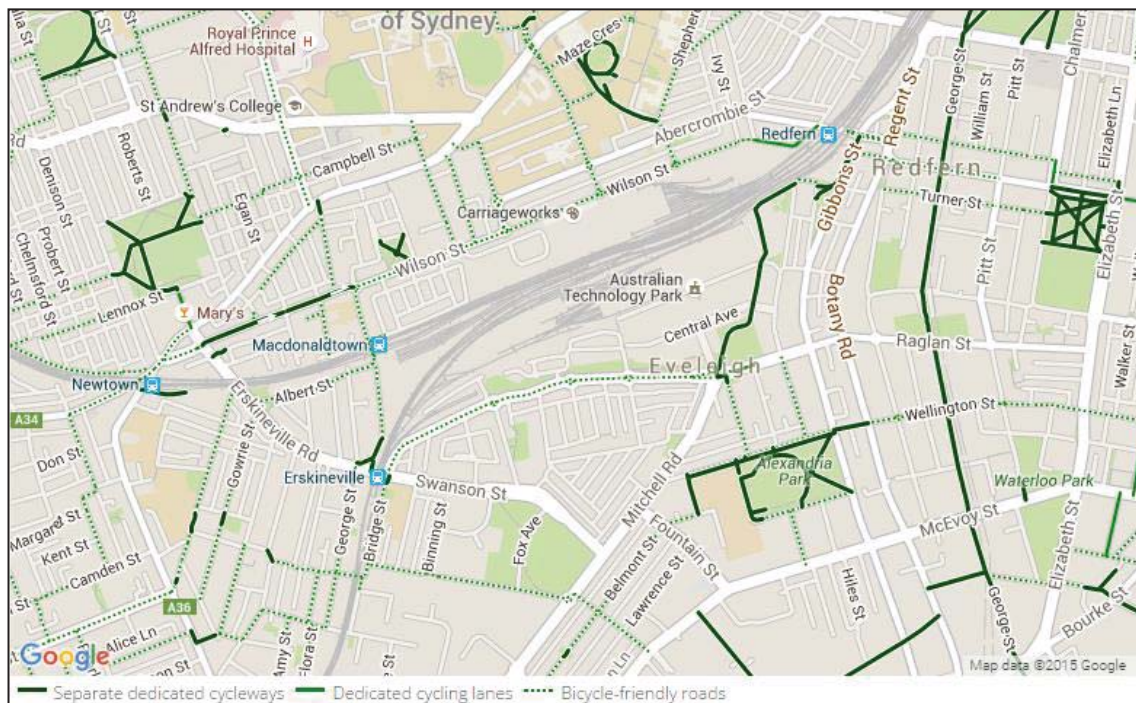
The ATP site is well situated within Sydney's cycle network with cycle routes surrounding the site and an off-road cycle route passing the site itself. A shared path between Henderson Road and Cornwallis Road runs through the site via the Vice Chancellors Oval and Mitchell Way (internal road).

Bicycle parking facilities are provided throughout the ATP site with bicycle racks located at the following locations:

- the top of Cornwallis Street
- Innovation Plaza
- 8 Central Avenue
- near the Biomedical Building, and
- at Mitchell Way.

The bicycle network surrounding the site is shown in Figure 2.5.

Figure 2.5: Cycle Network



Source: <http://www.sydneycycleways.net/map/> (accessed 05 November 2015)

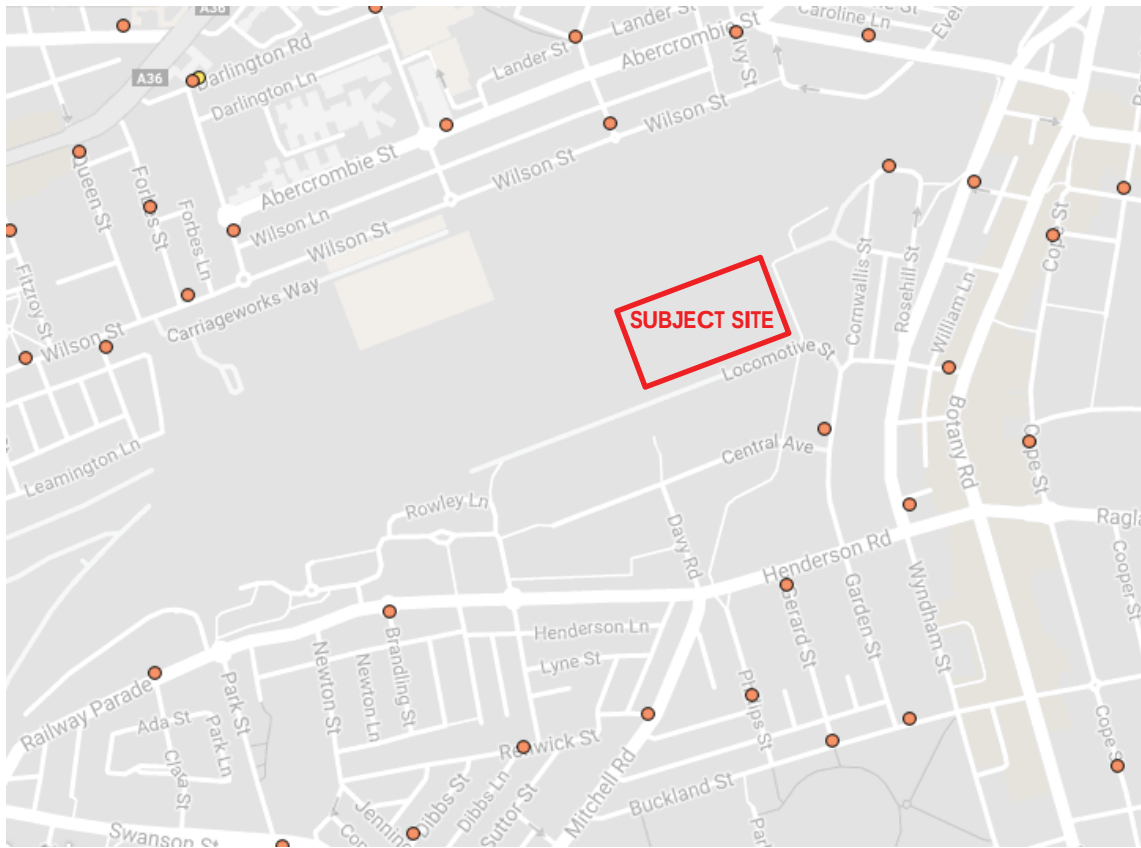
2.8 Car Sharing

Car share is a concept by which members join a car ownership club, choose a rate plan and pay an annual fee. The fees cover fuel, insurance, maintenance, and cleaning. The vehicles are mostly sedans, but also include SUVs and station wagons. Each vehicle has a home location, referred to as a "pod", either in a parking lot or on a street, typically in a highly-populated urban neighbourhood. Members reserve a car by web or telephone and use a key card to access the vehicle.

Similarly located councils (i.e. City of Canada Bay Council) have reported that "each share car replaces between 8 and 23 private car parking spaces, depending on the location of the development". Consequently, provision of car share in the site should be able to reduce both the parking demand for the site and the traffic generated by it.

As shown in Figure 2.6, ATP contains two car share vehicles within the northern, at-grade car park and several others in the surrounding area.

Figure 2.6: Car Share Pods



Source: City of Sydney, 17 August 2017

2.9 Existing Transport Modes

Travel mode information of existing staff employed at the ATP site has been obtained from the Bureau of Transport Statistics website (www.bts.nsw.gov.au). The information was derived from Journey to Work (JTW) data from the five-yearly Census of Population and Housing conducted by the Bureau of Statistics (ABS). Based on the JTW data, there are currently 1,881 people employed at the ATP site. The travel modes for employed staff at ATP are presented Table 2.7.

Table 2.7: Existing ATP Travel Modes

Mode Share	Per Cent
Vehicle Driver	46%
Vehicle Passenger	2%
Train	40%
Bus	2%
Walked Only	6%
Other Mode	4%
Total	100%

Table 2.7 indicates that the majority of employed staff at ATP travel to work by private vehicles or train. It is expected in the future that travel mode would change to be heavily biased towards public transport modes as the developments within this overall ATP site (B1, B2, B3 and Locomotive Workshop) would implement measures to encourage people to use more sustainable transport modes.

3. Transport Policy and Document Review

3.1 Development Near Rail Corridors and Busy Roads

The Department of Planning released the 'Development Near Rail Corridors and Busy Roads – Interim Guideline' in 2008. The document notes that these guidelines must be taken into account for development under the following (for rail corridors):

“Clause 85: any development on land that is in or immediately adjacent to a rail corridor, if the development is:

- likely to have an adverse effect on rail safety;
- involves the placing of a metal finish on a structure and the rail corridor concerned is used by electric trains, or;
- involves the use of a crane in air space above any rail corridor.

Clause 86: any development (other than development to which clause 88 of the Infrastructure SEPP applies) that involves the penetration of the ground to a depth of at least 2m below ground level (existing) on land that is:

- within or above a rail corridor; or
- within 25m (measured horizontally) of a rail corridor; or
- within 25m (measured horizontally) of the ground directly above an underground rail corridor

Note: the consent authority must not grant consent without consulting with the rail authority and obtaining concurrence consistent with clauses 86(2)–(5).

Clause 87: Development for any of the following purposes that is on land that is in or immediately adjacent to a rail corridor and the consent authority considers development is likely to be adversely affected by rail noise or vibration:

- building for residential use
- a place of public worship
- a hospital
- an educational establishment or
- childcare centre”

GTA understands that the proposed development, which does not include any of the noted land uses and involves the repurposing of an existing building, does not formally trigger any of the above Clauses and, as such, reference to the guidelines is not specifically required.

3.2 NSW Long Term Transport Master Plan (2012)

The NSW Long Term Transport Master Plan sets the framework for the NSW Government to deliver an integrated, modern transport system.

The final version of the NSW Long Term Transport Master Plan was released in December 2012 and sets out 220 short, medium and long-term actions to integrate, grow, modernise and manage the transport network across NSW.

Whilst the Master Plan does not provide any specific actions for the subject site, it does earmark a number of CBD railway stations, including Redfern Station, for upgrades. In addition, the Master Plan does inform a number of major transport studies referenced throughout this section (including Sydney's Rail Future, Walking Future, Cycling Future and Bus Future).

3.3 Sydney's Rail Future

The Sydney Metro project includes the development of Waterloo Station. This occurs in Stage 2 of the project and is located between Botany Road and Cope Street, Raglan Street and Wellington Street in Waterloo. The metro station will be approximately the same distance from the ATP site as Redfern Station. As such, it would be expected that the opening of Waterloo Station post-2024 will ease pedestrian congestion on Redfern Station.

3.4 Sydney's Walking Future (2013)

Sydney's Walking Future was released in December 2013 following the release of the NSW Long Term Transport Master Plan to provide a mode-specific walking strategy for Sydney.

The Strategy recognises that walking is a fundamental component of an integrated transport system with most public transport trips starting and ending with walking. The key aim of *Sydney's Walking Future* includes:

- **Promoting** walking for transport.
- **Connecting** people to places through safe walking networks around centres and public transport interchanges.
- **Engaging** with partners across government, councils, non-government organisations and the private sector.

The Strategy seeks to create a culture of walking for transport by promoting walking as a viable and attractive transport choice, particularly for travelling to and from work and school, and focuses infrastructure investment on completing connections within two kilometres of centres and public transport interchanges. In addition, the Strategy seeks to link walking to urban growth and to prioritise the needs of pedestrians in the planning, design and construction of new transport and urban development projects.

The proposed development is consistent with the intent of this policy, with staff, customers and visitors encouraged to utilise public transport or methods of active travel to access the site.

3.5 Sydney's Cycling Future (2013)

Sydney's Cycling Future was prepared by Transport for NSW and was released in December 2013 following the release of the NSW Long Term Transport Master Plan to provide a mode specific cycling strategy.

It presents a new direction for bicycle infrastructure planning in metropolitan Sydney by focusing on people who would like to ride more often if cycling was made a safer and more convenient option. It aims to make cycling a feasible transport option for these people by:

- **investing** in separated cycleways and providing connected bicycle networks to major centres and transport interchanges
- **promoting** better use of existing infrastructure
- **engaging** with partners across government, councils, developers and bicycle users.

The strategy aims to prioritise investment on projects that have the greatest potential to get the most people to shift their short transport trips to bicycle. In order to achieve this, it aims to invest in connected routes within 5 kilometres of major centres and public transport interchanges. It proposes a three-tier hierarchy of safe cycleways to major centres:

- **Regional bicycle corridors** – highly used routes that connect to major destinations, on cycleways that are separate from motor vehicles and pedestrians.

- **Local bicycle network** – lower use corridors that connect to priority corridors and neighbourhood destinations within catchments.
- **Quiet local streets** – connecting residential destinations and local services in low traffic environments, design treatments make provision for people on bikes.

The subject site is reasonably located to promote cycling as a viable transport mode for staff of the site, noting the sites proximity to a number of existing active travel networks. As such, the proposal is considered to be consistent with the intent of the policy, by encouraging and facilitating staff to ride a bicycle to/from the site as an alternative to driving, utilising bicycle routes and shared paths.

3.6 Sydney's Bus Future (2013)

Sydney's Bus Future is the NSW Government's long-term plan to improve Sydney's bus network. Primarily, it aims to improve connectivity and accessibility by introducing a three-tiered network comprised of Rapid, Suburban and Local services.

Table 3.1: Features of Rapid, Suburban and Local bus

Rapid	Suburban	Local
○ Frequent 'turn up and go' services without the need for consulting a timetable ○ 13 routes (2 Growth Centre routes, 5 new end-to-end services and 6 established routes) ○ Stops every 800 metres to 1 km ○ Investment in bus priority infrastructure for fast and reliable journeys ○ A mix of frequent 'turn up and go' and timetabled services	○ 20 cross-metropolitan routes initially, including 8 new end-to-end services ○ Additional Suburban routes to be identified and introduced ○ Stops every 400 metres ○ Bus priority targeted at key pinch points to speed up services.	○ Timetabled services ○ Completes the network, providing services such as local shopping services, CBD shuttles, peak expresses ○ Stops every 400 metres ○ Peak express services with variable stop spacing ○ Services use local streets and roads, and bus priority for peak express connections.

4. Development Proposal

4.1 Proposed Development Description

The Bay 5-15 SSDA for seeks approval for the following:

- demolition of existing 'modern' infill fit-out elements to Bays 5-13 and 15;
- the adaptive reuse of the western portion of the Locomotive Workshop Building for 'commercial premises' uses including light industrial floorspace;
- construction of internal and external improvements to the Locomotive Workshop Building;
- heritage interpretation and conservation works;
- public domain improvements within the curtilage of the Building;
- provision of an external building illumination system;
- signage; and
- associated utilities and infrastructure.

This Bay 1-4a SSDA seeks approval for the following:

- demolition of existing 'modern' infill fit-out elements to Bays 3-4a, including display barriers in Bays 1 & 2;
- relocation of moveable heritage items;
- adaptive reuse of the Bays 1-4a and two annex structures for retail premises uses, function centre uses, information and education facility uses, general industrial uses, recreation facility (indoor) uses and associated back of house facilities;
- construction of internal and external alterations to Bays 1-4a;
- heritage interpretation and conservation works;
- public domain improvements within the curtilage of Bays 1-4a;
- provision of an external building illumination system;
- signage; and
- associated utilities and infrastructure.

A more detailed and comprehensive description of the proposal is contained in the EIS prepared by Ethos Urban.

4.2 Land Uses

The proposal includes the repurposing of the Locomotive Workshop for a mixed-use development.

For the purposes of presenting a comprehensive assessment of transport impacts, this report has regard to the likely overall development of the Locomotive Workshop.

Mirvac's ultimate vision for the Locomotive Workshop Building includes a combination of office, supermarket, retail, gym, medical centre and library land uses. It is noted that the non-office land uses are intended to service the future employees of ATP and the surrounding residents, rather than operate as a traditional standalone or destination centre.

A summary of the overall proposed land uses is set out in Table 4.1.

Table 4.1: Development Schedule

Locomotive Bays	Land Use	Size
Bays 1 to 4 (approx.)	Retail	11,358sqm
Bay 5 to 15	Office (incl. Retail & Light Industrial)	27,237sqm
Total		39,595sqm

[1] Approximate land uses. To be confirmed within documentation to be submitted for the Retail SSDA for Bays 1-5.

4.3 Car Parking and Vehicle Access

With the exception of the four DDA compliant bays proposed in SSDA 8449, it is not proposed to provide any additional standard car parking as part of the repurposing of the Locomotive Sheds. The total on-site car parking supply will therefore increase to 1568.

As noted below, a number of additional on-street parking bays will be provided including approximately two taxi bays, eight loading bays and one pick-up/drop-off bays. Access to these bays will be gained from Locomotive Street via Garden Street as per the existing arrangement.

4.4 Bicycle Facilities

An end of trip facility is located in the northwest corner of the building servicing the office component of the development. The facility contains 227 cycling spaces and supporting shower and changeroom facilities.

All other bicycle spaces (i.e. racks) will be provided elsewhere throughout the site.

4.5 Loading Areas

Loading for the proposed site is to be provided in two areas:

- i Within on-street loading bays provided on Locomotive Street, generally per existing arrangements; and
- ii Within a designated loading dock to be provided in the northeast corner of Bay 1 that will be shared between the commercial and retail floor area.

It is proposed that the on-street loading will occur within eight bays. These bays will replace and /or utilise the existing loading arrangements which are situated along Locomotive Street and are proposed to be principally used for the small vehicle deliveries, couriers etc. The on-street loading bays are proposed to be located strategically along the street to provide a high level of accessibility to the commercial floor area in particular. The design of these bays will be sensitive to the proposed function of the streetscape and the increased level of pedestrian activity.

The loading dock in the northeast corner of Bay 1 will be delivered as part of the proposed retail development in Bays 1 to 4a but will ultimately service both the retail and commercial floor area. It is expected that the final design of this dock will incorporate approximately five loading bays, as discussed later in this report. As the proposed loading dock is partially separated from the commercial floor area, the service 'right of way' that exists along the northern side of the building will be utilised to transport waste and/or major deliveries between the loading dock from the various site tenancies².

² In the event that the retail development is delayed, it is expected that an alternate strategy will need to be developed for waste collection and major deliveries. This arrangement may presumably still include deliveries and waste collection occurring from a temporary loading area near the northeast corner of Bay 1.

4.6 Locomotive Street Layout

Locomotive Street is proposed to be upgraded as part of the public domain works under the SSD 7317 development. Under its existing arrangement, Locomotive Street incorporates three round steel pit lids. These lids have heritage value and are not able to be modified. As such, the proposed Locomotive Street layout incorporates the lids into the carriageway by including local area traffic management measures and turnaround facilities.

It is noted that the street is required to provide vehicle access to the Channel 7 loading dock and the Sydney Trains Large Erecting Shed. As part of the proposal, additional traffic will be discouraged from utilising Locomotive Street.

Any loading vehicles (6.4m small rigid vehicle or larger) which enter Locomotive Street will be required to turnaround at the existing western end cul-de-sac as per the current arrangement. All other smaller vehicles (cars) will be able to turnaround at the westernmost pit lid which sits at the western end of the Locomotive Workshop.

The only vehicles which will be required to access and utilise Locomotive Street will be loading vehicles for Channel 7 and the Sydney Trains Large Erecting Sheds and a portion of the commercial loading requirements for the Locomotive Workshop, together with any vehicles using the taxi or pick-up/drop-off bays. As such, vehicle volumes are expected to remain low, particularly when the site is expected to ultimately have a loading dock and on-street loading facilities.

Locomotive Street provides a key pedestrian facility to integrate Building 2 to the Locomotive Workshop. Whilst Locomotive Street will not be a formal shared zone, the carriageway width is proposed to be reduced to 6m encourage low vehicle speeds and promote pedestrian activity.

Furthermore, four DDA compliant car bays, two taxi bays and one pick-up/drop-off bays are to be provided under the proposed Locomotive Street arrangement, however the exact details are yet to be determined given the detailed final design has not been approved.

For further clarity of the proposed Locomotive Street layout, refer to Attachment 1.

5. Car Parking

5.1 Car Parking Provisions

The car parking provision requirements for the ATP site is set out in the State Environmental Planning Policy (SEPP) State Significant Precincts 2005.

The SEPP 2005 restricts the parking provision for the ATP site to a maximum provision of 1,600 car parking spaces.

5.2 Appropriateness of Car Parking Supply

5.2.1 Overall

As outlined above, with the exception of an additional 4 DDA compliant accessible car parks, it is not proposed to provide any standard car parking spaces as part of the Locomotive Workshop development, and therefore the ultimate post-development car parking provision of 1,568 spaces to be provided across the entire ATP precinct will be 1,568. As such, the total car parking provision accords with the maximum parking requirement outlined in the SEPP2005 where the proposed total site parking is less than 1,600 spaces. Notwithstanding this statutory compliance, further discussion regarding the adequacy of the car parking supply is presented below.

5.2.2 Retail Land Uses (Bays 1 to 4a)

It is not proposed to provide any specific car parking for the retail component of the development.

However, 339 spaces are currently located in the Channel 7 Building. These are provided to cater for the demand generated by the heritage buildings and provide parking for visitors to the ATP. This overall visitor car parking provision is expected to adequately cover the occasional parking demands of the retail floor area, noting that the retail uses are not expected to operate as a traditional standalone or destination centre. Rather, it is understood that the retail uses will largely service the employees of ATP and the surrounding residents who are already in the vicinity of the site (i.e. "walk up" trade).

It is noted, a separate SSDA is expected to be developed which seeks the approval to utilise the 339 car spaces within the Channel 7 Building for commercial car parking associated with the Building 2 development. The bays located within the Channel 7 Building will be proposed to be utilised by Building 2 employees. This will provide an opportunity to reconfigure the proposed car park layout within Building 2 to be utilised for retail visitor car parking. Further, motorists will be able to access the Locomotive Workshop building via the proposed travelator from the Building 2 car park.

Mirvac will also continue to promote alternative travel modes for existing car drivers within ATP. In this regard, measures would be developed to encourage all workers within the ATP site to use more sustainable travel modes to access the site. Details of this are documented further within the Green Travel Plan which is attached as Attachment 2 to the rear of this report.

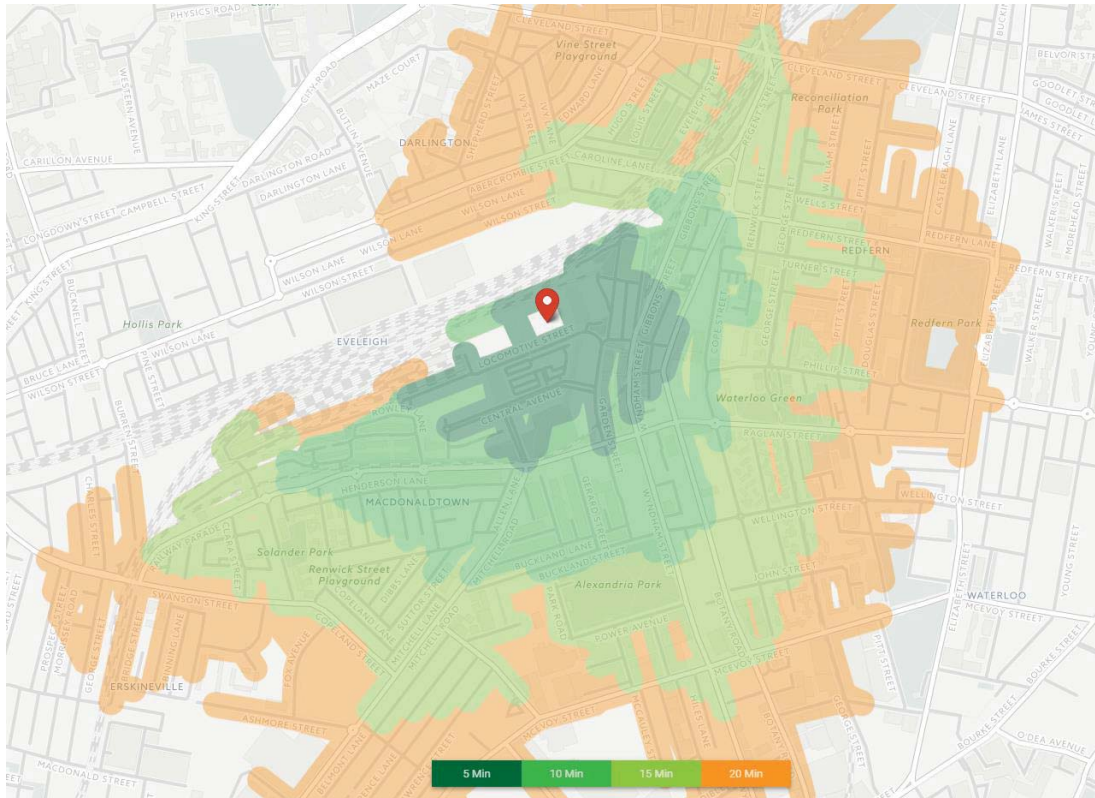
Finally, as noted above, four DDA compliant car bays, two taxi bays and one pick-up/drop-off bays are to be provided under the proposed Locomotive Street arrangement. These bays will be able to be utilised for visitors to the commercial and retail floor area.

Overall, GTA considers the proposed car parking approach/provision for the Bays 1-4a to be appropriate and consistent with the relevant planning controls for the site.

For reference, a visual representation of the available walking catchment for nearby residents is presented in Figure 5.1. The figure illustrates the walking catchments at 5-minute intervals up to 20 minutes travel time to/from the site (using Route 360 software) and indicates:

- The remaining land uses within the ATP site are located within a 5-minute walking catchment of the retail component of the site and are on the key pedestrian desire line to Redfern Railway Station.
- There is a significant catchment of residents within a 20-minute walking distance, with the residential catchments to the south and west of the site.

Figure 5.1: Walking Catchment Area 5 to 20 Minutes



(Source: using Route 360 software <https://apps.route360.net>)

It is further noted that the gymnasium/wellness centre and medical centre uses are expected to almost exclusively service the needs of employees on the ATP site and, as such, are expected to operate as an ancillary use to the broader site. Moreover, it is understood that the proposed event space will operate in a similar fashion to the existing event space albeit at a vastly reduced scale (floor area reduction of 96%), with visitors encouraged to use public transport to access the site.

Overall, GTA considers the proposed car parking approach/provision for the retail floor area to be appropriate and consistent with the relevant planning controls for the site.

5.2.3 Office/Commercial Land Uses (Bays 5 to 15)

In accordance with the controls of SEPP 2005, it is not proposed to provide any standard car parking for the commercial component of the development, although 4 accessible spaces will be provided.

Notwithstanding, it is noted that employees of the new commercial office space will have access to lease a car parking space from the overall pool of parking provided on the ATP site. Existing car parking is managed through DIVVY, a web-based platform that allows you to book and manage car parking online.

6. Sustainable Transport Infrastructure

6.1 Green Travel Plan

The SEARS requires a Green Travel Plan to be implemented for the development to promote ecologically sustainable forms of transport.

A separate Green Travel Plan has been prepared (in accordance with the SEARs requirements) for the broader ATP site and details specific measures to encourage workers to use more sustainable travel modes to and from the ATP site. The Green Travel Plan is provided at Attachment 2.

6.2 Bicycle End of Trip Facilities

6.2.1 Provision

The site is to provide secure bicycle parking at a rate of 1 space per 100 car parking spaces or part thereof and shower and change room facilities. Given that the development does not propose any additional car parking, there is no minimum bicycle parking requirement.

Notwithstanding, as cycling is considered a key mode of transport for the site, guidance on the appropriate bicycle parking requirements has been sought from the City of Sydney DCP. The requirements for the provision of bicycle parking are set out in Clause 3.11 of the DCP. Assuming the rates of this DCP, the requirements for the provision of bicycle facilities for the overall development proposal are set out in Table 6.1.

Table 6.1: DCP Requirement for Bicycle Facilities for Overall Development

Use	Size	DCP Rate		DCP Requirement	
		Employee	Visitor/Shopper	Employee	Visitor/Shopper
Bays 1 to 4a (retail))	11,358sqm	1 per 150sqm GFA	1 per 400sqm GFA	76	28
Bays 5 to 15 (office)	27,237sqm	1 per 200sqm GFA	1 per 300sqm GFA	137	90
Total				213	118

Table 6.1 indicates that, if applicable, the overall development proposal would have a DCP bicycle parking requirement of 331 bicycle spaces, including 213 employee and 118 visitor spaces. Of this total, 227 bicycle spaces, including 139 employee and 90 visitor spaces, would be required for the commercial floor area.

It is noted, the Building 1, Building 2 and Building 3 developments within the ATP site provides a total of 37 visitor bicycle spaces for a 107,427sqm of GFA. This equates to one visitor bicycle space per 2,903sqm. Based on this assessment and if applied to the proposed development, a total of 13 visitor bicycle spaces would be required for this site.

The proposed development includes a secure bicycle parking for a total of 227 bicycles and end of trip facilities for staff within Bay 15. These facilities are provided for the use of staff within the Locomotive Workshop. The above indicates that the proposed provision of 227 bicycle spaces exceeds the total DCP requirement for employees for both SSDA 8449 and SSDA 8517 combined.

With respect to commercial visitor bicycle parking, it is proposed to provide 46 visitor spaces across the retail and commercial developments. This equates to one visitor bicycle space per 839spm which represents an increase in visitor bicycle parking provision in comparison to Building 1, 2 and

3. This parking is proposed in the public domain area adjacent to the southern side of the Locomotive Workshop.

6.2.2 Bicycle Parking Layout & Access

The proposed bicycle parking layout within the End of Trip facility in Bay 15 has been designed in accordance with the relevant Australian Standards (AS2890.3-2015).

7. Loading Facilities

7.1 Loading Requirements

Reference has been made to Schedule 7 of the City of Sydney DCP which outlines service vehicle requirements (and is reproduced below):

"(b) Commercial premises:

(i) 1 space per 3,300sqm GFA, or part thereof, for the first 50,000sqm; plus

(ii) 1 space per 6,600sqm, or part thereof, for additional floor area over 50,000sqm and under 100,000sqm; plus

(iii) 1 space per 13,200sqm, or part thereof, for additional floor area over 100,000sqm.

(c) Shops, shopping centres:

(i) 1 space per 350sqm GFA, or part thereof, up to 2,000sqm; then

(ii) 1 space per 800sqm GFA thereafter."

Application of these rates to the proposed retail and commercial components of the proposed development suggests the following loading requirements:

- Retail: 17 loading bays
- Commercial: 8 loading bays
- Total: 25 loading bays

In this instance, the provision of 21 loading bays, as required by the DCP, is considered excessive for the proposed land uses and would effectively prevent the realistic re-use of the Locomotive Workshop if it were required (particularly given the heritage constraints).

7.2 Proposed Loading Arrangements

7.2.1 Loading Provision (when utilising dock within Bay 1 and 2)

It is Mirvac's intension (subject to development approval) that a dedicated loading area is to be provided in the northeast corner of the Locomotive Workshop Building in Bays 1 and 2.

The loading area will comprise a total of up to three (3) bays plus a compactor, as follows:

- one (1) loading bay for a 12.5m heavy rigid vehicle (HRV)
 - one (1) loading bay for an 8.8m medium rigid vehicle (MRV)
 - one (1) compactor bay
- or
- three (3) bays for 6.4m small rigid vehicles (SRV) – only accessible outside of compactor or large loading vehicle times

Due to the limitations of the existing building and associated heritage requirements, any vehicle larger than a 6.4m SRV is required to manoeuvre within Innovation Plaza and reverse into the loading dock. As such, the HRV and MRV bays are proposed to be utilised between 10pm-7am only. Further, due to the constraints of the dock size, the number of deliveries is limited on the ability for a maximum of two large vehicles to be present at any given time.

The SRV bays are proposed to utilise the same area as the HRV, MRV and compactor loading bays, but during the period when these vehicles are restricted from accessing the dock. This is proposed to be accessible between the hours of 9:30am-11:30am and 2pm-4pm. These bays will be used for commercial and specialty retail loading purposes and will only be accessed by vehicles which are

6.4m (small rigid vehicle) or smaller. All 6.4m vehicles will be able to enter and exit the loading dock in a forward direction, with any manoeuvring occurring completely within the dock.

In addition to the three 6.4m SRV bays provided within the loading dock, smaller vans and cars will be able to continue to load from Locomotive Street as noted above.

Whilst the proposed provision is less than the DCP requirement (i.e. half), a number of management measures will be implemented to offset this requirement. This includes adoption of a vehicle booking system, sharing of the dock between the various uses and the continued use of the existing waste compound which is discussed in further detail in section 7.3 below.

It is understood that a single waste contractor is proposed to service the site, enabling single vehicles for pickup of multiple waste types. In addition, a compactor is proposed, which will minimise the volume of waste, further minimising waste collection movements. With these measures in place, we are advised that the number of vehicle movements associated with waste collection are forecast not to increase for the combined commercial and retail components of the ATP Locomotive Workshop development.

7.2.2 Loading Dock Layout & Management

The proposed loading dock area will be designed to meet the relevant Australian Standards requirements and its accessibility by vehicles of a size up to and including a 12.5m HRV has been confirmed using AutoTURN (a computer package designed to simulate vehicle swept paths in a CAD environment). The results of this swept path assessment are shown in Attachment 1.

Access to the loading dock will require vehicles between 8.8m long to 12.5m long to reverse into the dock from the pedestrian plaza. Understanding the potential safety concerns in mixing reversing loading vehicles with a pedestrianised area, time restrictions of the loading dock will be implemented to minimise this conflict. These include:

- Vehicles 8.8m (medium rigid vehicle) or longer and any compactor vehicles to only access the loading dock between 10pm – 7am
- All other vehicles to access the dock at the above nominated time and between the times of 9:30am-11:30am and 2pm-4pm

7.2.3 Loading Vehicle Access

Due to various constraints affecting the site, four vehicle access route options were considered for the proposed loading dock:

- Option 1 – Rosehill Street / Marion Street / Cornwallis Street
- Option 2 – Rosehill Street / Margaret Street / Cornwallis Street
- Option 3 – Locomotive Street
- Option 4 – Cornwallis Street

The accessibility of each option has been assessed for vehicles of sizes up to and including a 12.5m heavy rigid vehicle. The access via these vehicles has been confirmed using AutoTURN (a computer package designed to simulate vehicle swept paths in a CAD environment). The results of this swept path assessment are shown in Attachment E.

Maps for each option is shown in Figure 7.1, noting that the green lines represent the entry movement and red lines represent the exit movement.

On balance, the recommended access route is Option 2 (Rosehill Street / Margaret Street / Cornwallis Street) followed by Option 1 (Rosehill Street / Marion Street / Cornwallis Street) based on the following:

- Limiting impact on nearby local road network including the loss of on-street car parking and modification to existing road geometry

- Further discussion regarding the pros and cons of each vehicle access option (and the basis of this recommendation) is outlined below.

The figure displays four maps of a residential area, each showing a proposed bicycle route. The routes are color-coded: red for the primary route and green for an alternative or secondary route. The maps are labeled Option 1, Option 2, Option 3, and Option 4.

- Option 1:** The red route starts at the intersection of Locomotive St and Margaret St, travels north on Margaret St, then turns east on Cornwallis St, and finally turns south on Rosehill St. The green route follows a similar path but turns east on Cornwallis St and then south on Rosehill St.
- Option 2:** The red route starts at the intersection of Locomotive St and Margaret St, travels north on Margaret St, then turns east on Cornwallis St, and finally turns south on Rosehill St. The green route follows a similar path but turns east on Cornwallis St and then south on Rosehill St. A north arrow is present in the top right corner.
- Option 3:** The red route starts at the intersection of Locomotive St and Margaret St, travels north on Margaret St, then turns east on Cornwallis St, and finally turns south on Rosehill St. The green route follows a similar path but turns east on Cornwallis St and then south on Rosehill St.
- Option 4:** The red route starts at the intersection of Locomotive St and Margaret St, travels north on Margaret St, then turns east on Cornwallis St, and finally turns south on Rosehill St. The green route follows a similar path but turns east on Cornwallis St and then south on Rosehill St.

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Option 1

This access route proposes vehicles enter Rosehill Street at its southern end northbound, continue through Marion Street westbound, turning into Cornwallis Street southbound. The loading vehicle would then enter the site through the existing site access ramp opposite Margaret Street and utilise existing road infrastructure within the site to travel towards the loading dock.

Upon exit, loading vehicles would travel along the northern edge of the NIC Innovation Building and exit through the existing access out on to Cornwallis Street.

The issues and opportunities associated with this option are outlined below.

Issues	Opportunities
○ Modifications required to a number of locations within the road network to accommodate the design vehicles larger than 8.8m medium rigid vehicles, including civil works and loss of on-street parking, requiring Council and RMS approval. ○ Loading vehicles are being directed through the proposed 'shared zone' between Redfern Station and ATP which Mirvac have committed to upgrade as part of the Building 1 and 2 developments on the site. A key requirement of a 'shared zone' is to have low volumes of large vehicles. ○ Loading vehicles are directed through a residential area ○ The vehicle path has some conflict with pedestrian paths at the northern end of the Innovation plaza. ○ Impact on trees within Innovation plaza ○ Upon exit, larger vehicles are limited to travelling south along Garden Street as exiting road geometry restricts the eastbound movement along Boundary Street.	○ The vehicle route within the ATP site is generally limited to existing internal vehicle routes. ○ The exit route utilises existing loading area along eastern side of innovation building ○ No modifications within ATP site would be required, excluding trees within the pedestrian plaza. ○ No civil works required to accommodate vehicles up to 8.8m medium rigid vehicles ○ Loading vehicles could be time managed to arrive outside of peak pedestrian periods to limit interaction through the shared zone ○ The route is currently accessed by City of Sydney waste collection vehicles ○ Acceptable restricted hours of use to limit loading vehicles travelling through the proposed shared zone located between Redfern Station and the site during peak pedestrian periods ○ Preferred acoustic outcome

It is noted, this option utilises the existing waste collection and vehicle route for the site. Should this option be adopted, minor civil works would be required to accommodate any vehicles larger than a City of Sydney waste collection vehicle.

Option 2

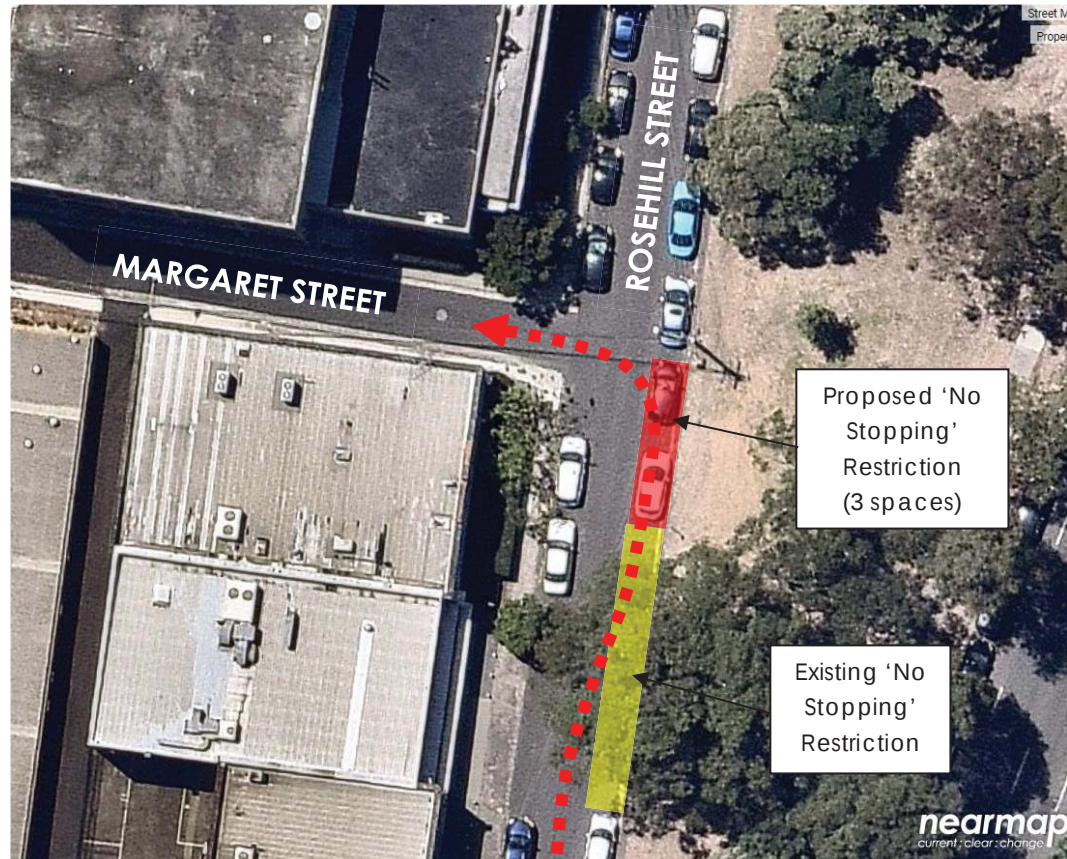
This access route is similar to 'Option 1', however, instead of continuing northbound along Rosehill Street towards Marion Street, vehicles would utilise Margaret Street and travel westbound towards the subject site. Entry to the dock via Margaret Street provides a more direct route than Option 1.

The issues and opportunities associated with this option are outlined below.

Issues	Opportunities
○ Modifications required within the road network (in particular, Margaret Street) to accommodate the design vehicles, including civil works and loss of on-street parking at certain periods of the day, requiring Council and RMS approval. Refer to Figure 7.2 below. ○ Loading vehicles are directed through a residential area ○ Impact on trees within pedestrian plaza. ○ Margaret Street is a low order local street and has not typically been relied on for heavy vehicles in the past.	○ The vehicle route within the ATP site is generally limited to existing internal vehicle routes. ○ The exit route utilises existing loading area along eastern side of innovation building ○ No modifications within ATP site would be required, excluding trees within the pedestrian plaza. ○ Margaret Street does not have any driveways, on-street parking or key pedestrian routes. ○ The proposed shared zone at the northern end of Cornwallis Street is avoided. ○ There will be less civil works required to enable heavy vehicle movement to the site than Option 1.

Figure 7.2 illustrates that the area of 2-3 unrestricted on-street car parking spaces, north of the existing 'No Stopping' area, Rosehill Street will need to be free of parked vehicles to cater for the design vehicle (tracking shown as red dashed line).

Figure 7.2: On-Street Parking on Rosehill Street affected by Truck Sweep Path



The 2-3 on-street car parking spaces identified in Figure 7.2 are currently signposted as unrestricted parking. Observations suggest that these car parking spaces currently accommodate long-term resident and employee car parking demands. If possible, the loss of bays here could potentially be offset by the recreation of bays elsewhere within a close proximity to limit/remove the need to lose the on-street parking provision in the area.

The potential reduction in unrestricted on-street car parking spaces and in turn a reduced reliance on private motor vehicles is entirely consistent with the transport strategy for the site. Furthermore, the reduced reliance on private motor vehicles is consistent with the broader transport strategy for metropolitan Sydney. However, discussions with the City of Sydney have confirmed that reduction in on-street car spaces in this area would not be supported.

It is noted that an opportunity exists to limit the 'no stopping restriction' to the hours of large truck movements only; that is, 10pm to 7am only (as discussed above). In this context, the restriction is considered to be reasonable and unlikely to materially impact car parking availability in the area.

It is our understanding that the loss of on-street car bays is a potentially sensitive issue for local residents and Council. As such, Mirvac is willing to assist in implementing one or more of the following strategies to offset the loss of the three bays. This includes:

- Removal of existing kerb outstand with trees located on the western side of Rosehill Street, approximately 40 south of Marion Street.

- Implementation of a car share bay within proximity to the site. This would potentially reduce the demand for the car bays by nearby residents if this service were made available to them.
- Redesign of the pedestrian path and shared use path at the northern end of Rosehill Street, thereby creating more kerbside space to implement an additional on-street car bay.
- Negotiate with Council to make a contribution to offset the loss of any bays by creating new bays elsewhere within the Council.

It is noted, Mirvac understands additional consultation and stakeholder engagement may be necessary to work through the above strategies and agree on an outcome.

Option 3

This access route proposes vehicle entry to the site at Locomotive Street and travelling north via the pedestrian plaza to the loading bay.

The issues and opportunities associated with this option are outlined below.

Issues	Opportunities
○ Vehicle route extends along key pedestrian route within the site. ○ Safety issues associated with vehicle/pedestrian conflict. ○ Likely to require highly restricted hours of access due to high level of pedestrian conflict. ○ Impact on trees within pedestrian plaza.	○ Direct vehicle access from road network which already accommodates large vehicles accessing the Channel 7 site. ○ Vehicle access can be controlled via the Locomotive Street access ○ Preferred acoustic outcome

Option 4

This access route proposes entry via Cornwallis Street northbound before deviating along the Innovation Centre loading accessway and continuing along internal service roads similar to Option 1 and Option 2 to the loading bay. This option requires a significant modification to the existing one-way southbound Cornwallis Street to accommodate two-way movement.

The issues and opportunities associated with this option are outlined below.

Issues	Opportunities
○ Loss of on-street parking along Cornwallis Street – likely need to be replaced elsewhere for local residents. ○ Cornwallis Street would need to become a two-way street (currently one-way southbound). ○ Innovation Centre loading access is one-way southbound and would need to be reversed. ○ Reversal of traffic flow will result in grades exceeding Australian Standards. This may have associated civil works. ○ Changes to functionality of roads may have a lengthy approval process. ○ Impact on trees within pedestrian plaza.	○ The vehicle route within the ATP site is generally limited to existing internal vehicle routes. ○ The entry route utilises existing loading area along eastern side of innovation building

7.3 Refuse Collection

Waste collection is proposed to occur through the proposed loading dock located in the north east corner of the site. A compactor is located within the dock. Similarly to the limitations placed on the MRV and HRV for loading purposes, compactor vehicles will only be able to access the site between 10pm – 7am. Access to the compactor requires the other bays within the dock to be

vacant. This is to be coordinated with other loading requirements with the use of the loading dock management system which is proposed to be implemented.

In the event that the retail component of the proposal is not delivered, all waste collection will occur through the existing waste compound north of the pedestrian plaza at the eastern end of the Locomotive Workshop. Waste collection is proposed to occur three times a week between 4am-5am (Mon/Wed/Fri).

8. Traffic Impact Assessment

8.1 Traffic Generation

As detailed earlier, it is not proposed to provide any additional car parking to service the proposed retail or commercial uses and, as such, the proposal cannot be expected to materially increase traffic volumes to/from the site.

Notwithstanding this, it is noted that the proposal will still generate traffic associated with loading and servicing requirements as well as pick up and drop off demands. These are detailed below.

Service / Loading Vehicle Movements

The ultimate scenario proposes to provide two loading bays to service the proposed retail development within the loading dock in Bays 1 and 2 and eight loading bays to service the commercial/specialty retail development on Locomotive Street. To determine a typical hourly traffic generation rate, it is assumed that each loading bay turns over once in the hour (i.e. two movements per bay).

Application of this rate to the proposed number of loading bays indicates a peak hour traffic generation rate of up to 4 movements during peak loading periods for the bays within the loading dock. However, as detailed in Section 7, it is proposed to restrict the operating hours of the loading area to maintain pedestrian amenity and safety in the plaza during peak periods, including during the road network peak hours (7:30 to 9:30am and 4:30 to 6:30pm).

Adopting the same approach as above, the on-street loading zones proposed for Locomotive Street could be expected to generate 8 movements in a peak hour. There would be no time restrictions imposed on these spaces and, as such, they would be expected to generate traffic during the road network peak hours.

In the event the retail development does not proceed, loading for the commercial development will continue to occur along Locomotive Street. If this occurs, the number of vehicle movements during the peak period is not expected to increase.

Pick Up / Drop Off Movements

It is proposed to provide three car parking spaces on Locomotive Street to cater for pick up and drop off movements (one public spaces and two taxi spaces). To estimate a peak hour traffic generation rate, it is assumed that each car parking space turns over every 10 minutes or 6 times per hour (i.e. 12 movements per space).

Application of this rate to the proposed number of car parking spaces on Locomotive Street indicates a peak hour traffic generation rate of 36 movements during the AM and PM peak hours.

Accessible Car Bays

It is proposed to provide four accessible car parking spaces on Locomotive Street. To estimate a peak hour traffic generation rate, it is assumed that each car parking space turns over every 15 minutes or 4 times per hour (i.e. 8 movements per space).

Application of this rate to the proposed number of accessible car parking spaces on Locomotive Street indicates a peak hour traffic generation rate of 32 movements during the AM and PM peak hours.

Summary

A summary of the anticipated traffic generation to and from the site is provided in Table 8.1.

Table 8.1: Traffic Generation Summary

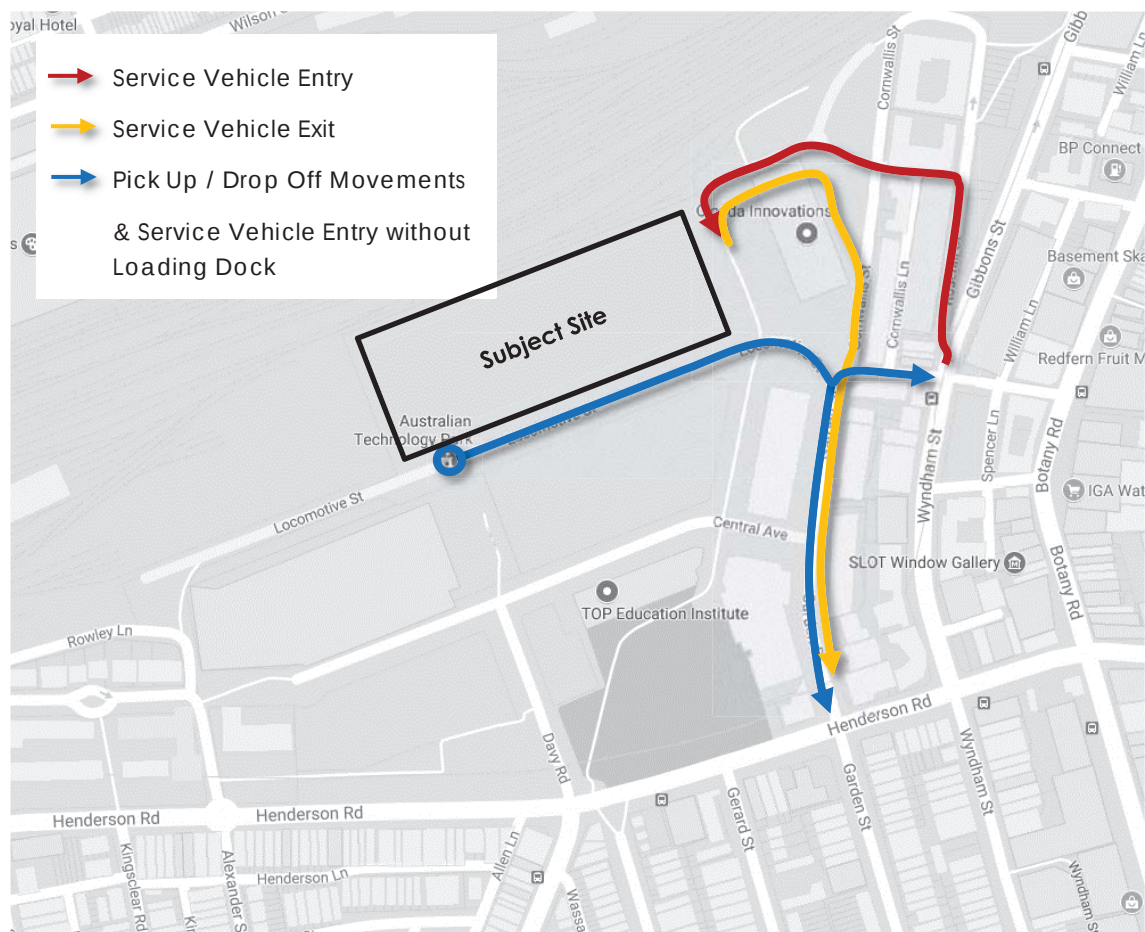
Movement Type	Vehicle Type	No. of Peak Hour Movements		
		Total	In	Out
Service / Loading Vehicle (Loading Dock)	Up to 12.5m	0	0	0
Service / Loading Vehicle (Locomotive Street)	Up to 6.4m	16	8	8
Pick Up / Drop Off Movements	Passenger vehicles	36	18	18
Accessible Car Bays	Cars	32	16	16
Total		84	42	42

Table 8.1 indicates that the overall proposed development is anticipated to generate a total 84 vehicle movements to the external road network (42 in / 42 out). This estimate is considered to be conservative on the high side and likely to represent the 'worst case' traffic generation scenario.

8.2 Traffic Distribution

Figure 8.1 illustrates the vehicle routes, separated into service/loading vehicles and pick up/drop off movements, to and from the site.

Figure 8.1: Vehicle Routes Accessing the Site



8.3 Traffic Impact

Having regard to the low traffic generation of the proposal and existing traffic volumes in the vicinity of the site, the additional traffic generated by the proposed development could not be expected to compromise the safety or function of the surrounding road network.

8.4 Construction Traffic Management

The proposed construction traffic management arrangements for the proposed development are detailed in the report in Appendix E.

9. Conclusion

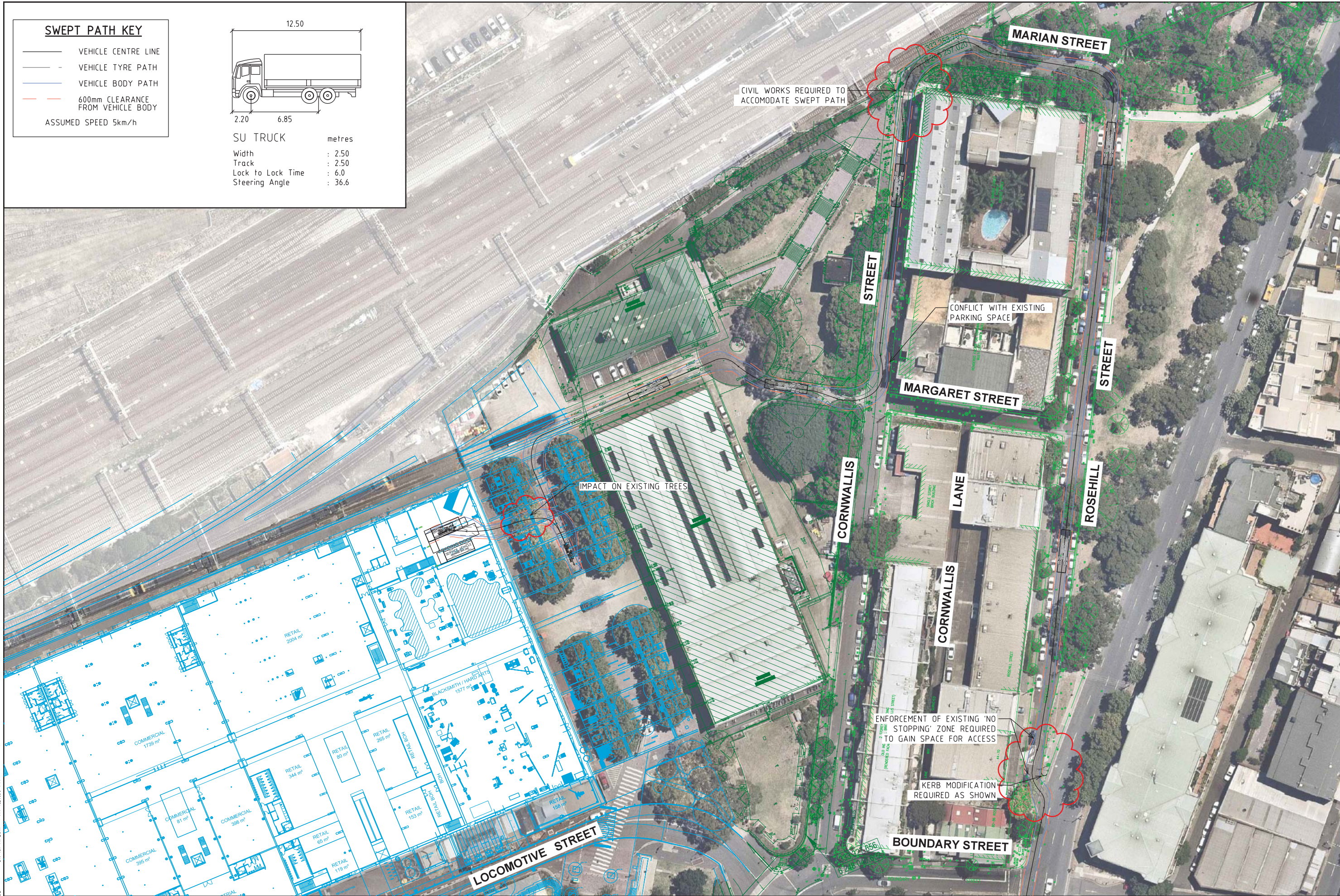
Based on the analysis and discussions presented within this report, the following conclusions are made:

- i The proposed development includes the redevelopment of the existing Locomotive Workshop which includes 27,237m² of commercial floor area and 11,358m² (approx.) of retail floor area.
- ii The proposed development does not include additional car parking to service the future use. Rather, the car parking provision approved for Buildings 1, 2 and 3 will remain as the total on-site car parking supply.
- iii The proposed car parking supply is compliant with the statutory maximum permissible car parking requirements.
- iv The development is proposed to provide a new loading dock with three loading bays. In addition, Locomotive Street proposes 5 on-street bays. Should the retail development not proceed, the commercial development will be serviced by the on-street loading and existing waste compound.
- v Loading vehicles will access the site via the existing road network.
- vi Locomotive Street is proposed to be redeveloped to promote slow vehicle speeds and an enhanced pedestrian environment. The traffic generation is expected to remain low as per existing operation.
- vii Given no additional standard parking is being provided, except for 4 additional DDA compliant accessible bays, and the increase in loading requirements is minimal, the surrounding intersections are expected to be able to accommodate the estimated traffic generation from the proposed development.
- viii The proposed combined retail and commercial development includes enclosed 227 employee bicycle parking spaces and associated end of trip facilities, together with 46 visitor bicycle spaces.
- ix Green Travel Plan (GTP) will be implemented following the occupation of the proposed developments to encourage sustainable travel modes and reduce car usage to the ATP site. It is expected that the GTP would be finalised as a Condition of Consent.

Overall, it is considered the overall transport impacts of the proposed development would be satisfactory.

Attachment 1.

Swept Path Assessment & Locomotive Street Concept



ON 10/11/2017 AT 4:39:00 PM
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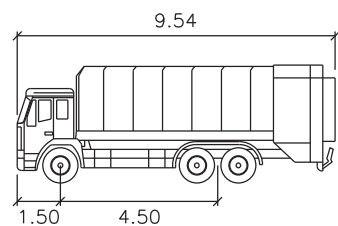
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AUSTRALIAN TECHNOLOGY PARK
EVELEIGH
LOCOMOTIVE WORKSHOP
SWEEP PATH ASSESSMENT (OPTION 1)

DRAWING NO. N117430-04-03-01 SHEET 01 OF 09 ISSUE P5

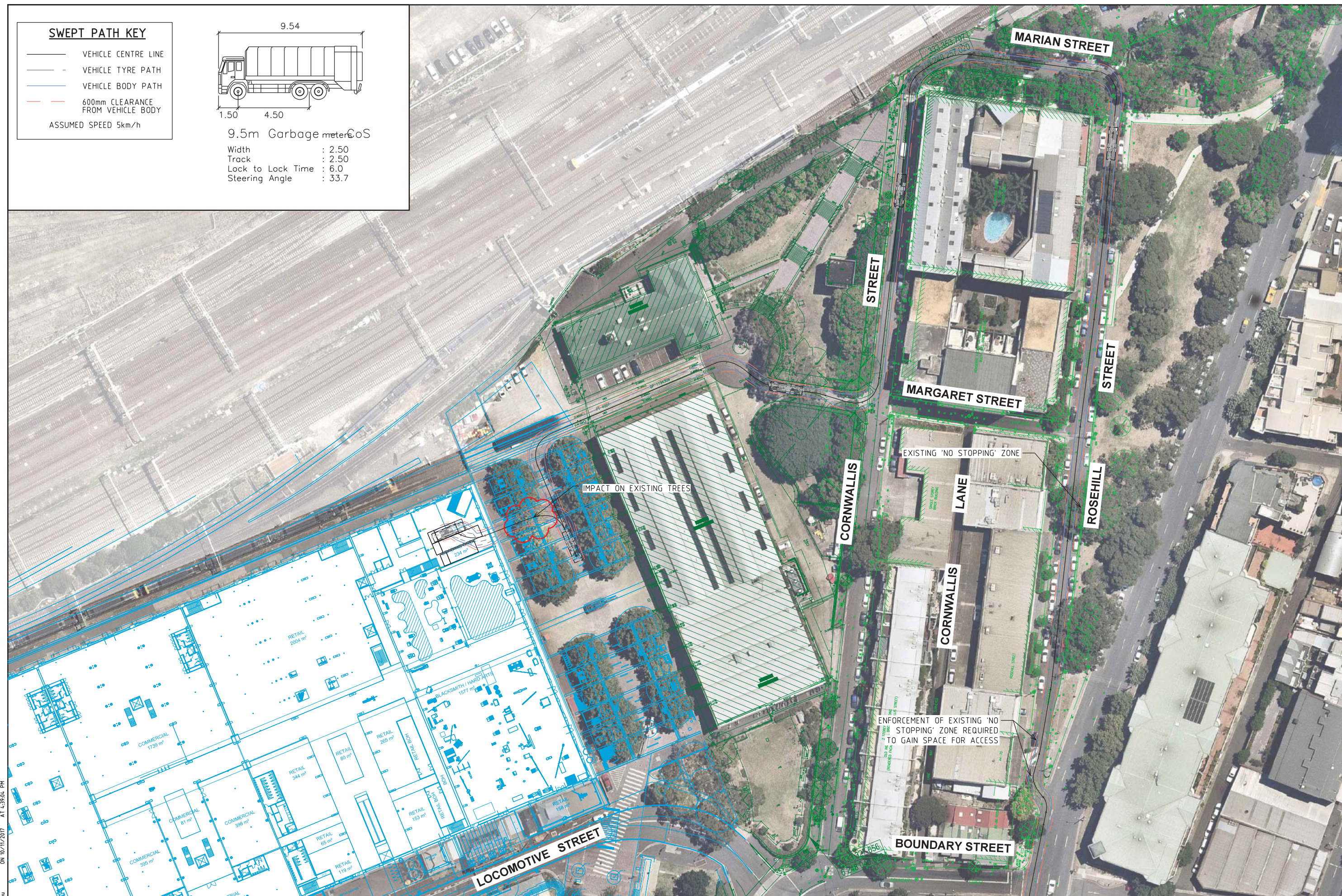
SWEPT PATH KEY

- VEHICLE CENTRE LINE
 - VEHICLE TYRE PATH
 - VEHICLE BODY PATH
 - 600mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



9.5m Garbage meter CoS

Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 33.7



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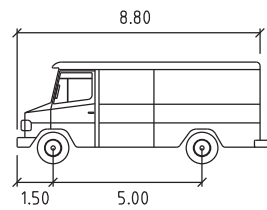
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AUSTRALIAN TECHNOLOGY PARK
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LOCOMOTIVE WORKSHOP
SWEPT PATH ASSESSMENT (OPTION 1)

DRAWING NO. N117430-04-03-02 SHEET 02 OF 09 ISSUE P5

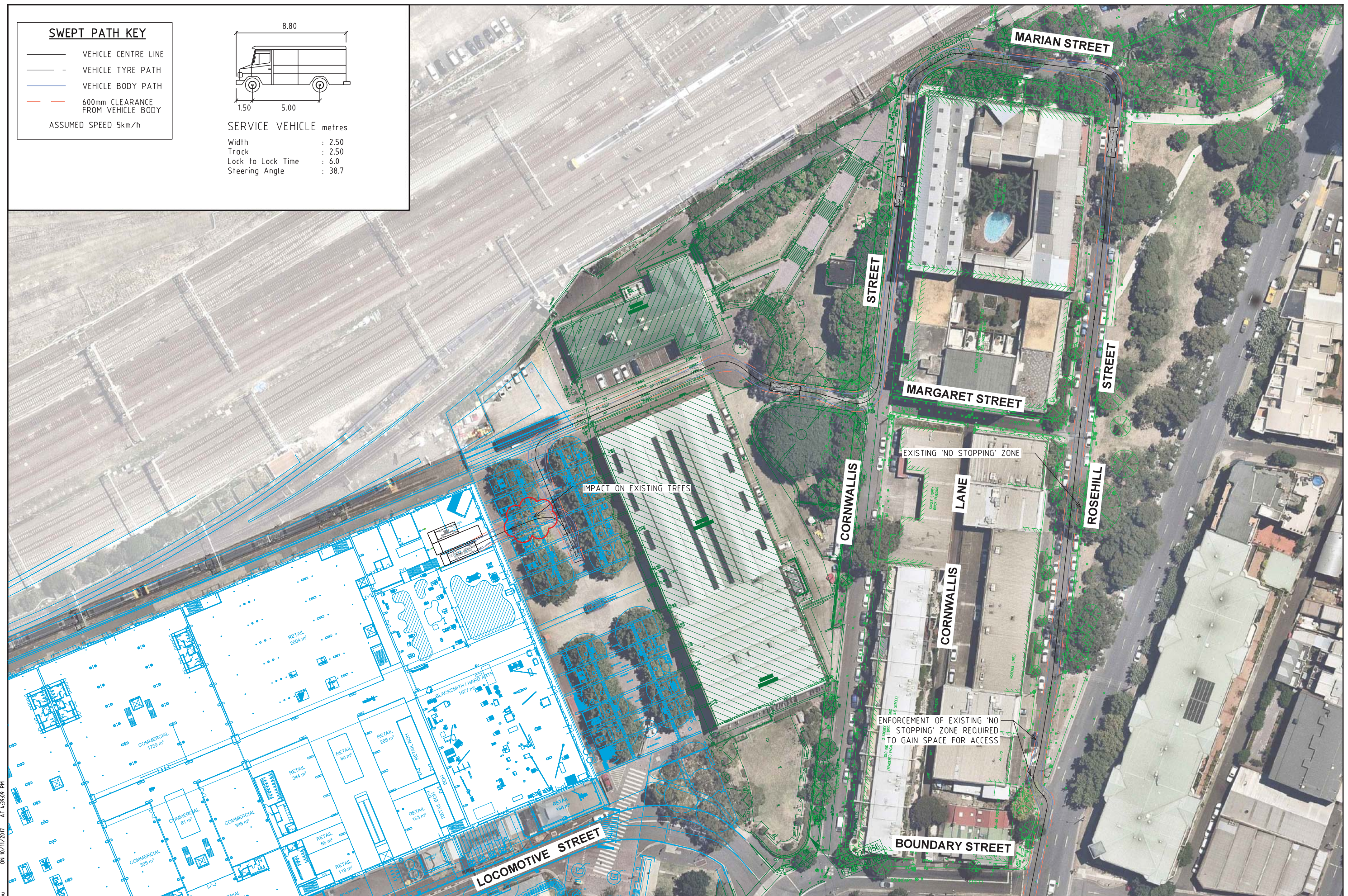
SWEPT PATH KEY

- VEHICLE CENTRE LINE
 - - VEHICLE TYRE PATH
 - VEHICLE BODY PATH
 - 600mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



SERVICE VEHICLE metres

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7



ON 10/11/2017 AT 4:39:09 PM

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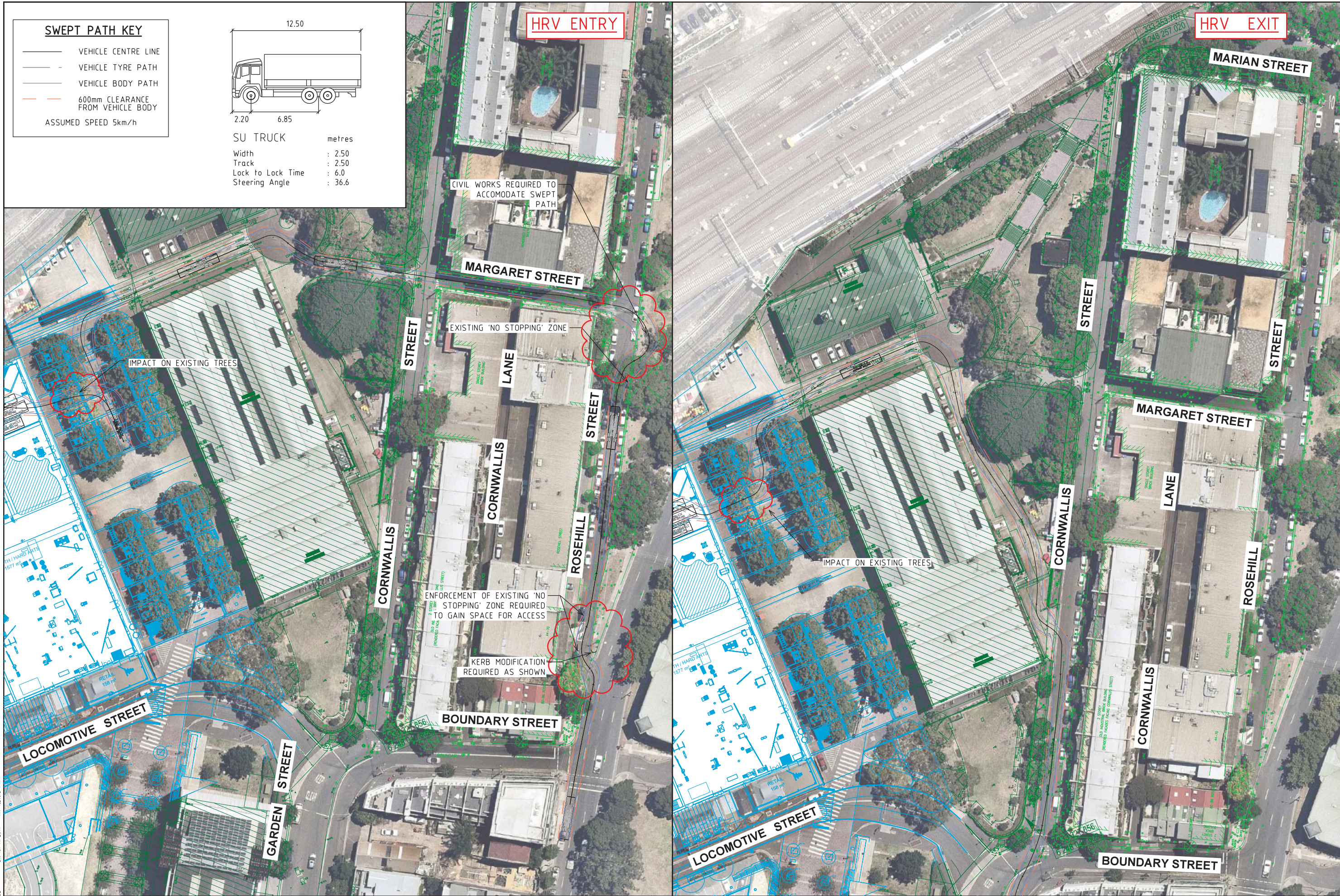
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AUSTRALIAN TECHNOLOGY PARK
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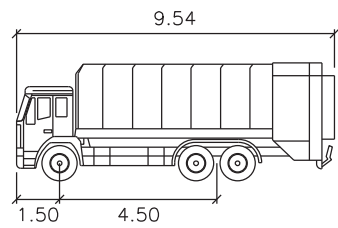
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LOCOMOTIVE WORKSHOP
SWEEP PATH ASSESSMENT (OPTION 2)

DRAWING NO. N117430-04-03-04 SHEET 04 OF 09 ISSUE P5

SWEPT PATH KEY

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- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h

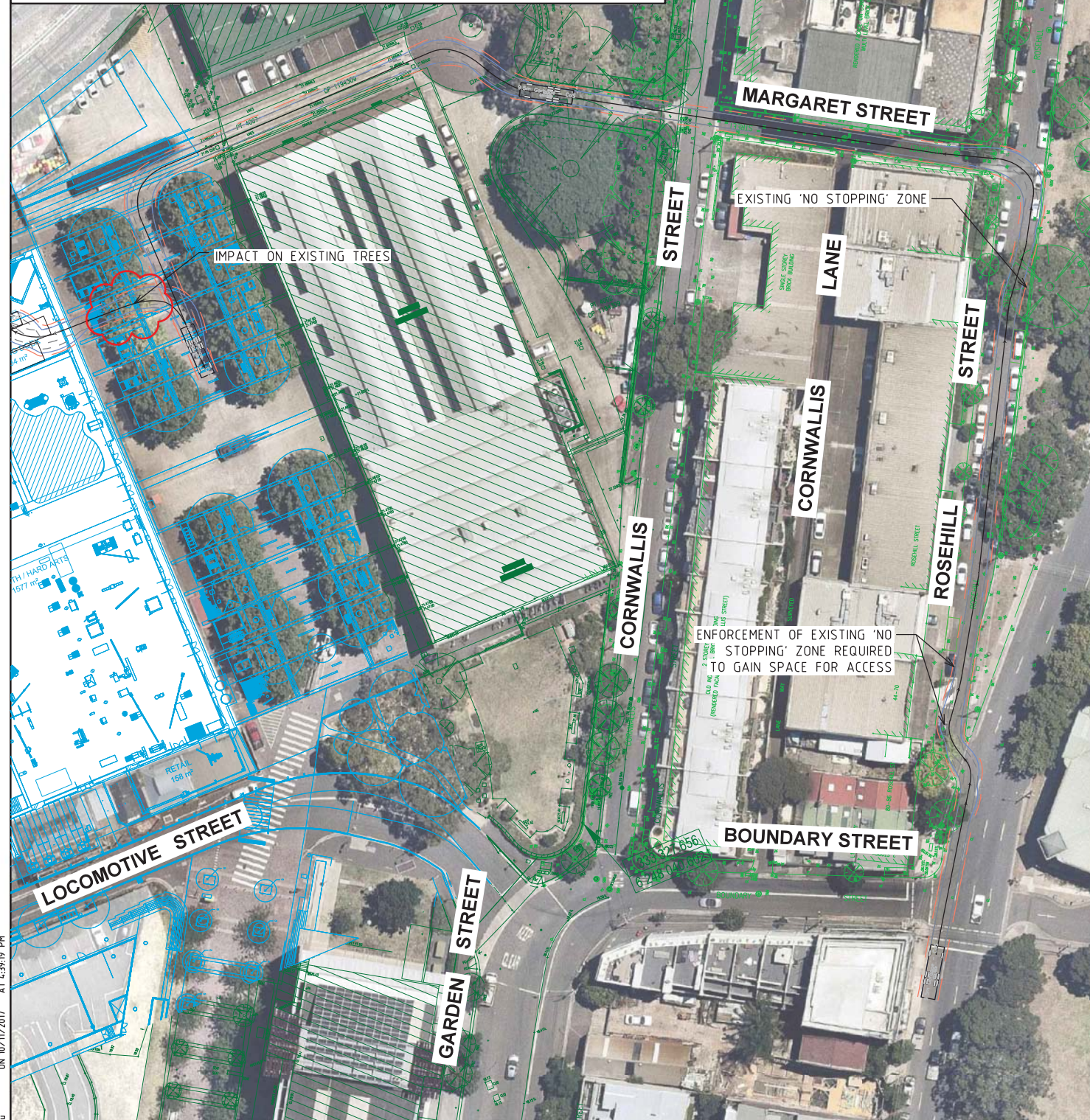


9.5m Garbage meter CoS

Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 33.7

GARBAGE TRUCK ENTRY

GARBAGE TRUCK EXIT



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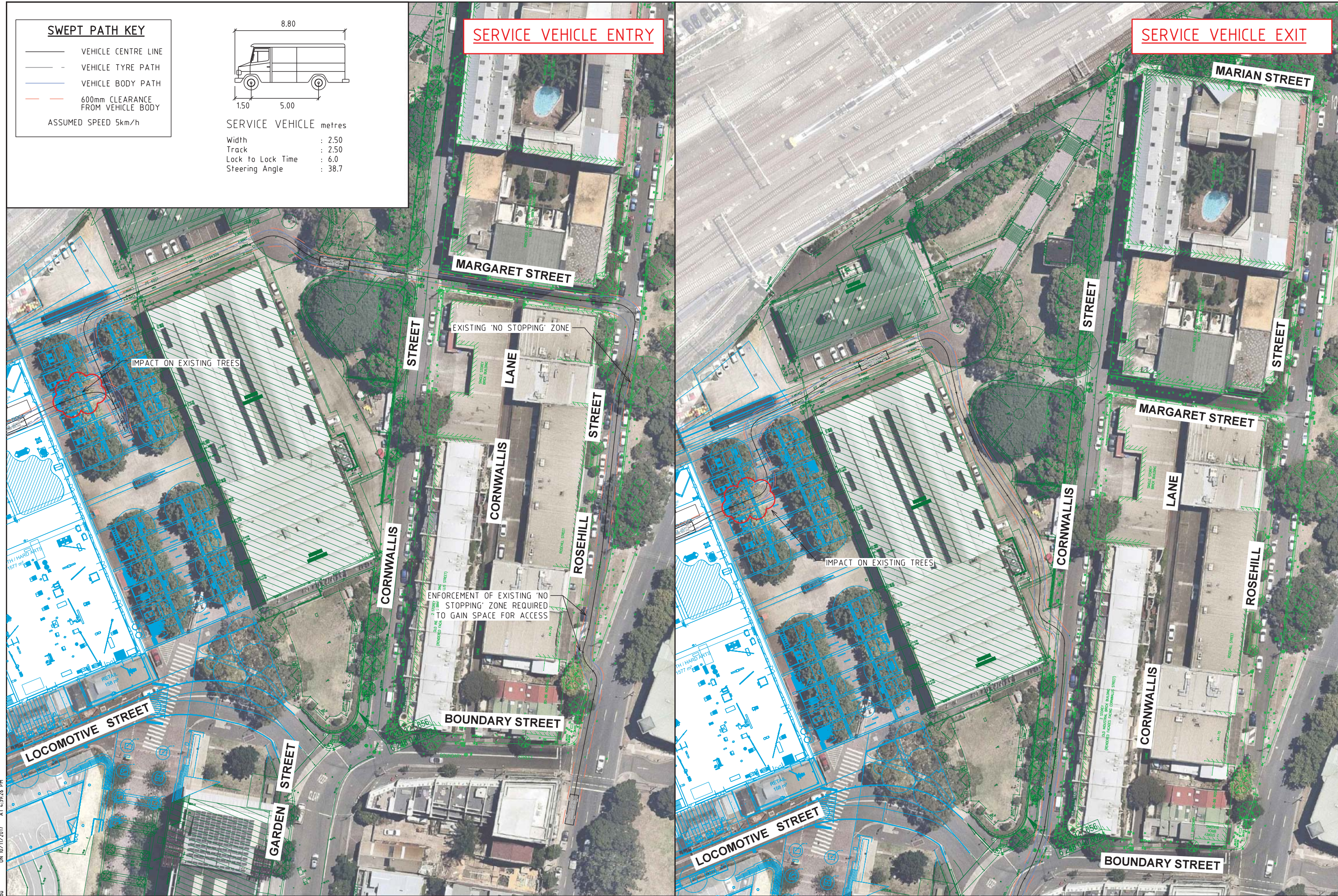
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AUSTRALIAN TECHNOLOGY PARK
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LOCOMOTIVE WORKSHOP
SWEPT PATH ASSESSMENT (OPTION 2)

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ISSUE P5



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AUSTRALIAN TECHNOLOGY PARK
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LOCOMOTIVE WORKSHOP
SWEPT PATH ASSESSMENT (OPTION 2)

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AUSTRALIAN TECHNOLOGY PARK
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SWEPT PATH ASSESSMENT

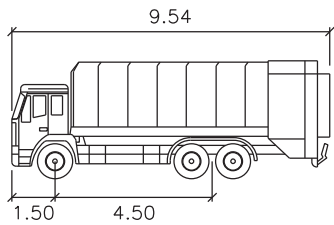
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ISSUE P5

SWEPT PATH KEY

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- - VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h

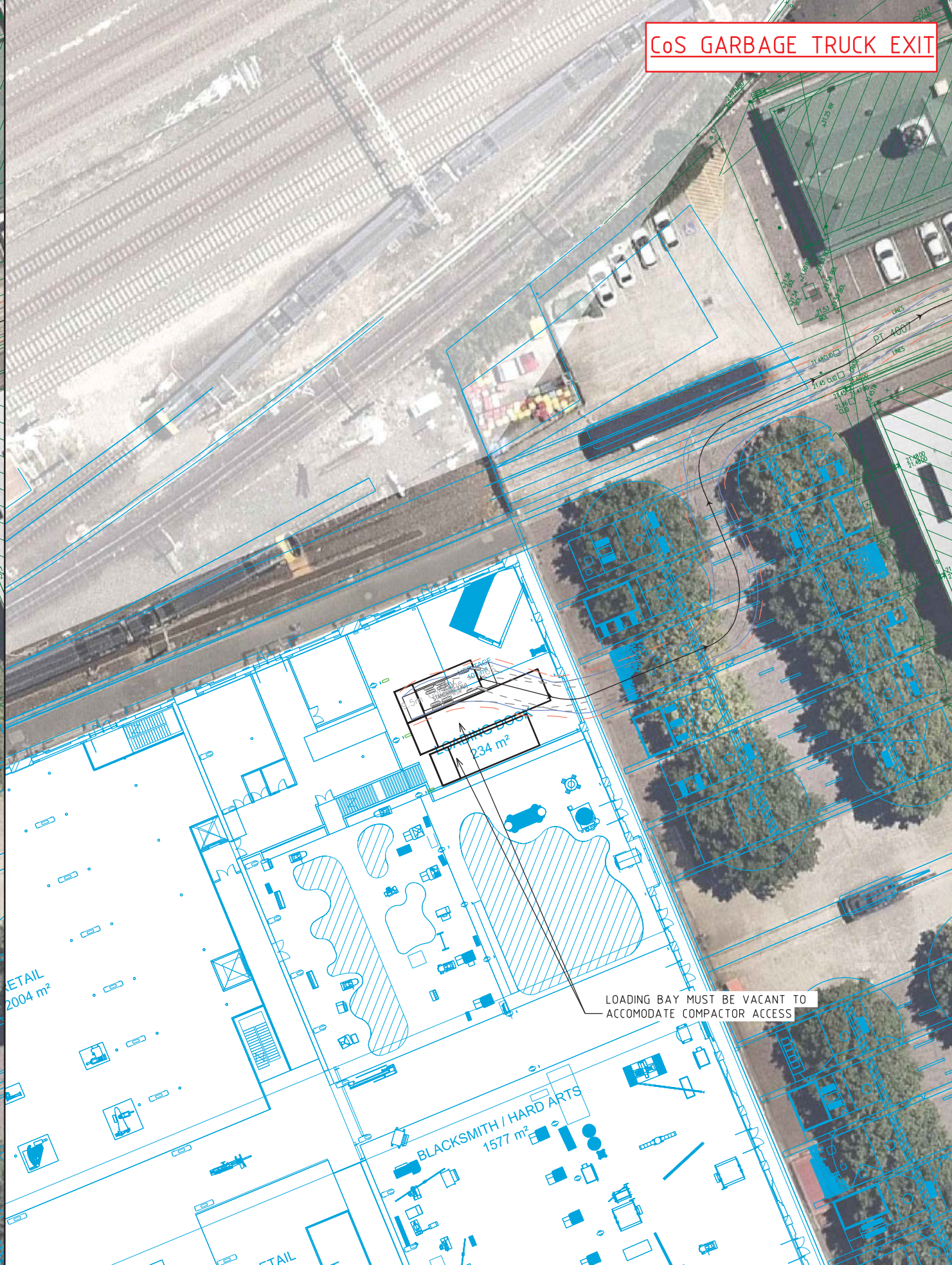
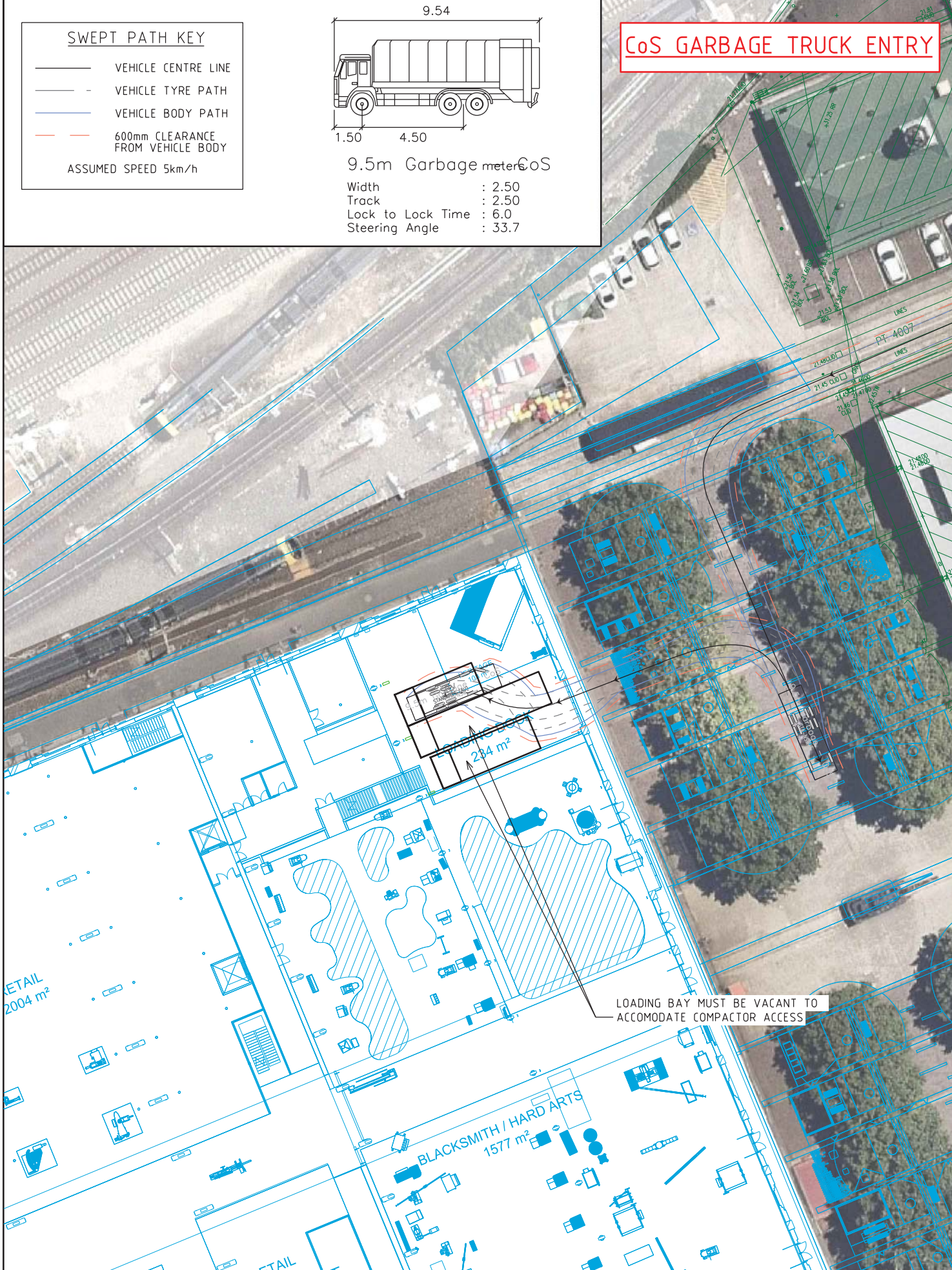


9.5m Garbage meter CoS

Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 33.7

CoS GARBAGE TRUCK ENTRY

CoS GARBAGE TRUCK EXIT



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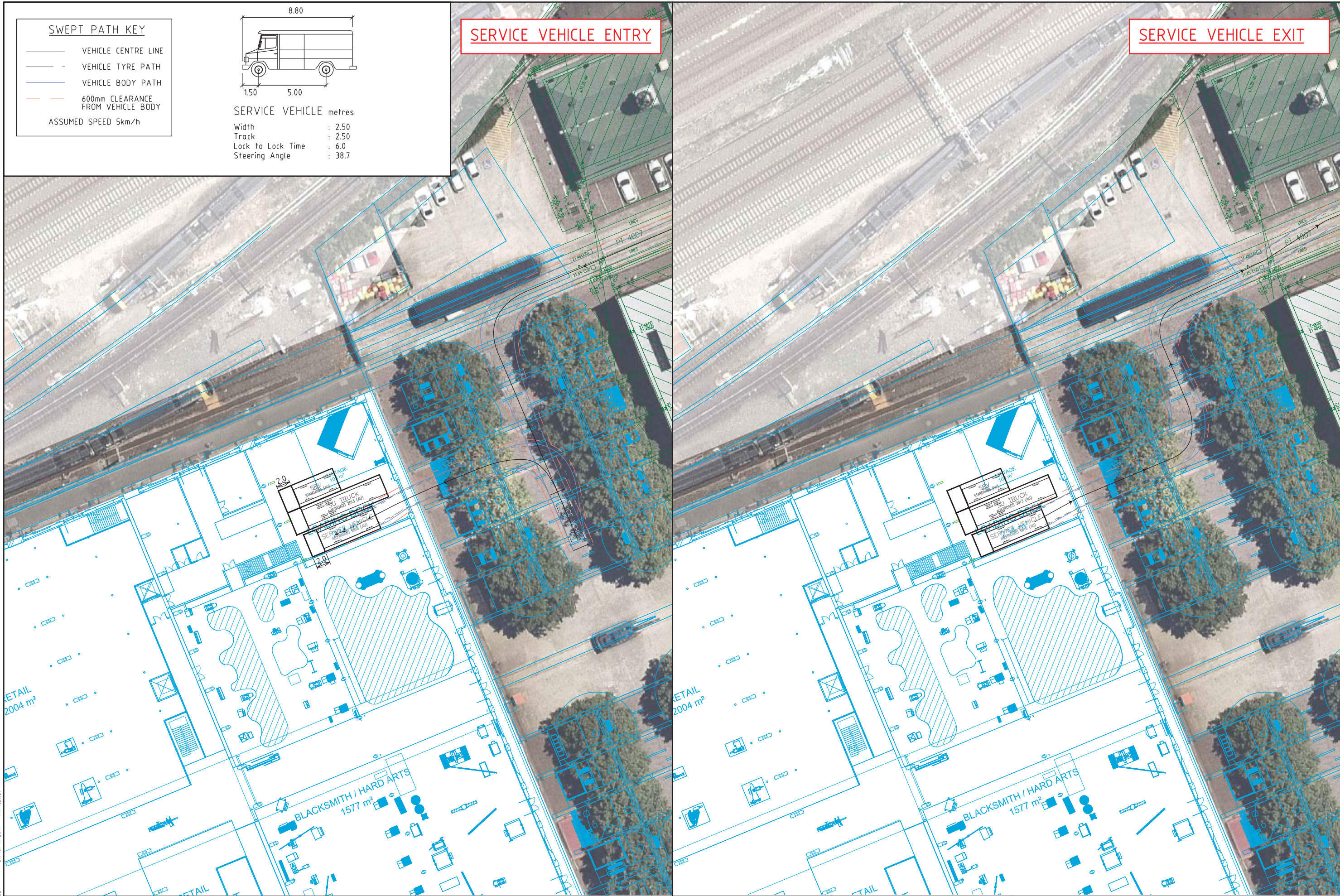
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AUSTRALIAN TECHNOLOGY PARK
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LOCOMOTIVE WORKSHOP LOADING DOCK
SWEPT PATH ASSESSMENT

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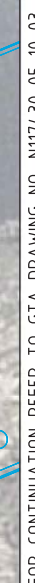
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LOCOMOTIVE WORKSHOP LOADING DOCK
SWEPT PATH ASSESSMENT

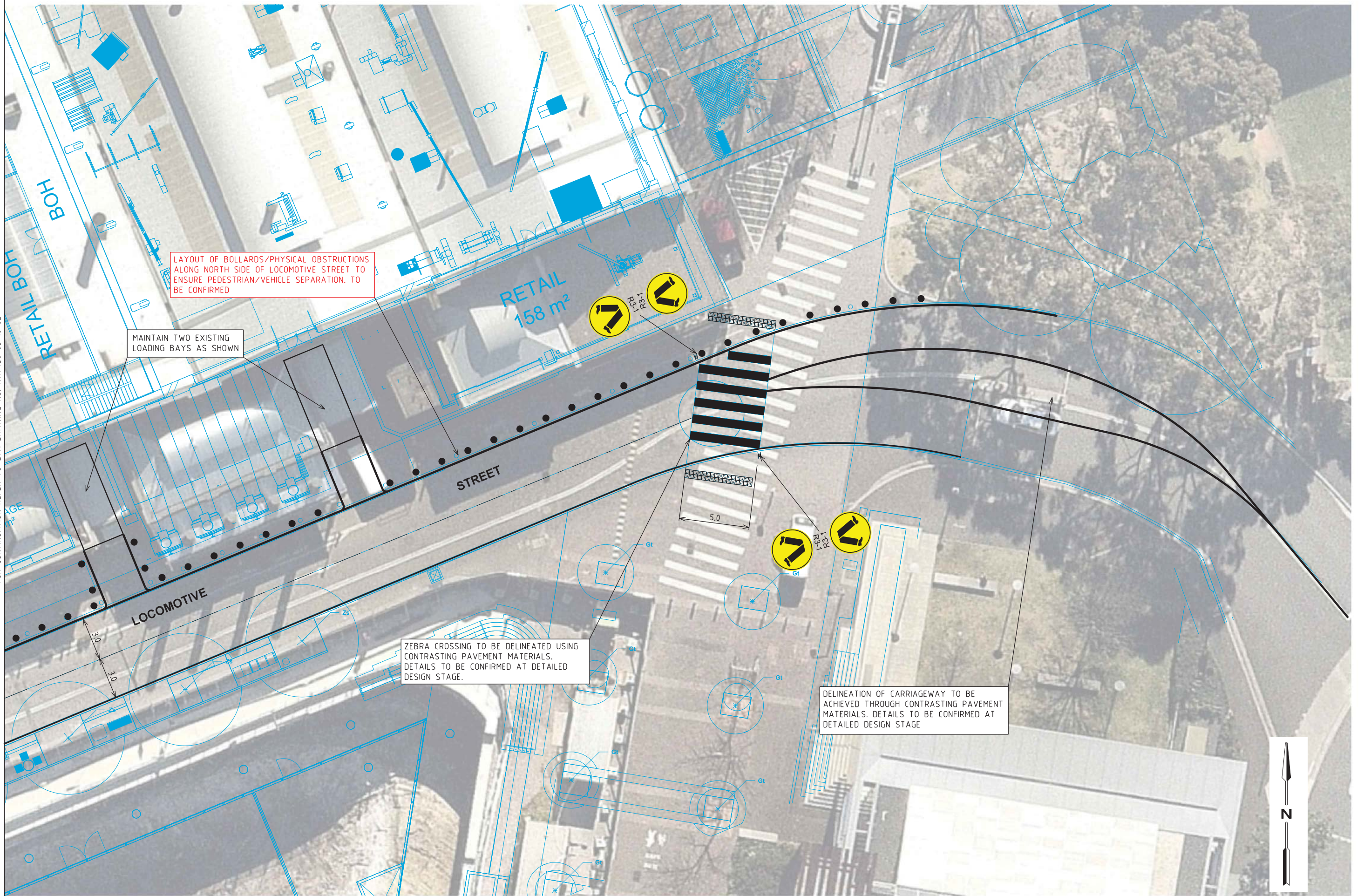
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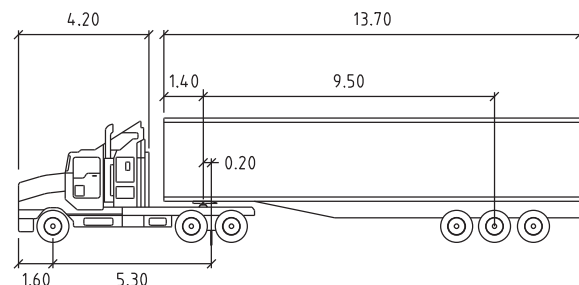
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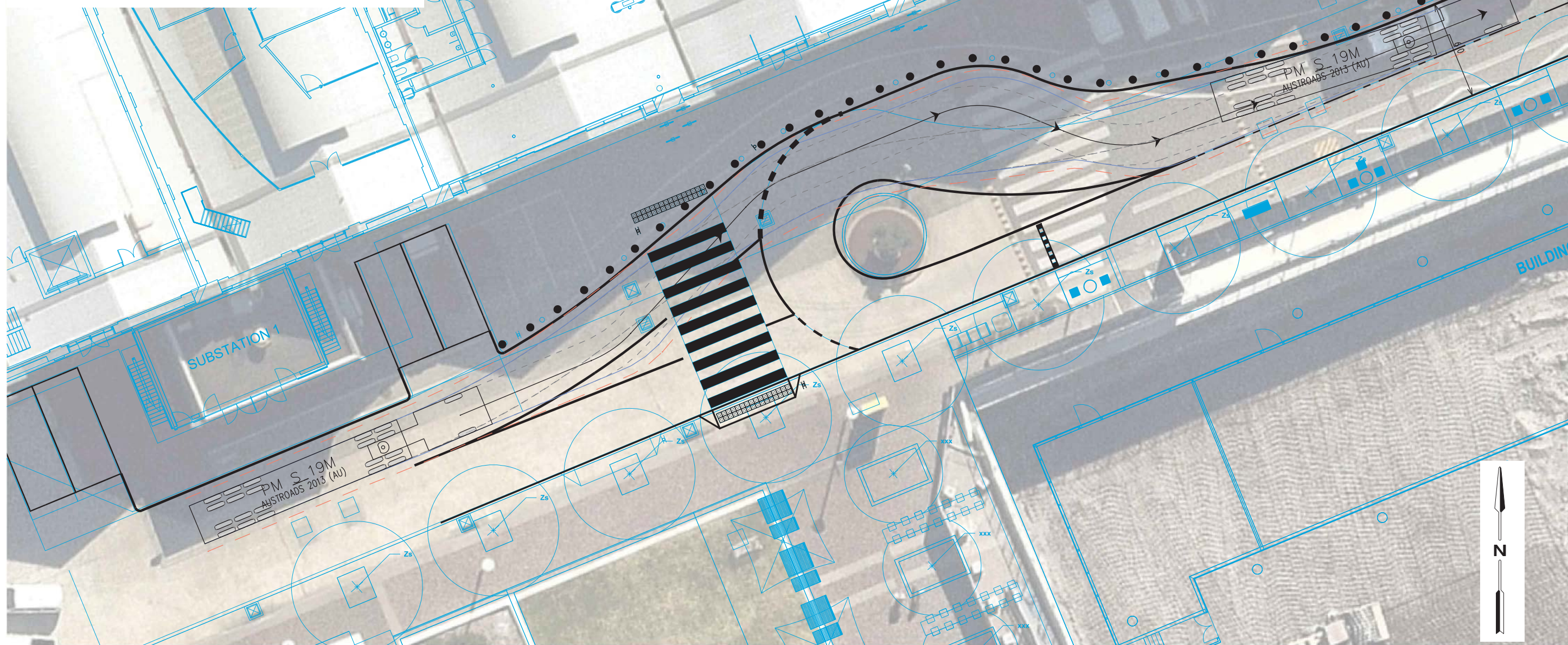
SWEPT PATH KEY

- VEHICLE CENTRE LINE
 - - VEHICLE TYRE PATH
 - VEHICLE BODY PATH
 - 600mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



PM S 19M

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Trailer Track	: 2.50		



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AUSTRALIAN TECHNOLOGY PARK
PUBLIC DOMAIN
LOCOMOTIVE STREET
SWEPT PATH ASSESSMENT

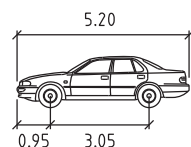
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SHEET 04 OF 07

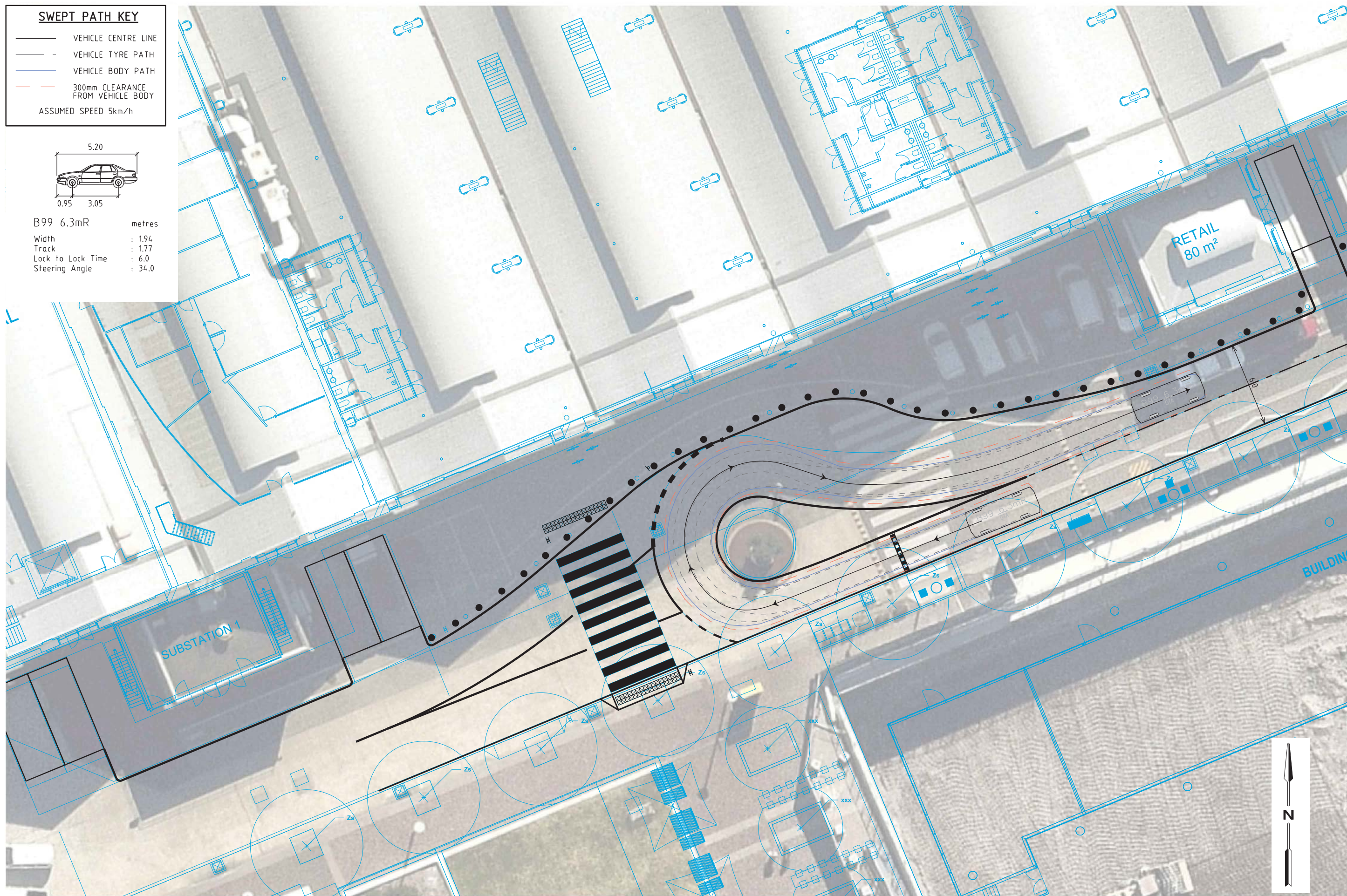
ISSUE P4

SWEPT PATH KEY

- VEHICLE CENTRE LINE
 - VEHICLE TYRE PATH
 - VEHICLE BODY PATH
 - 300mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



B99 6.3mR metres
Width : 1.94
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.0



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AUSTRALIAN TECHNOLOGY PARK
PUBLIC DOMAIN
LOCOMOTIVE STREET
SWEPT PATH ASSESSMENT

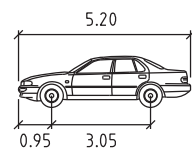
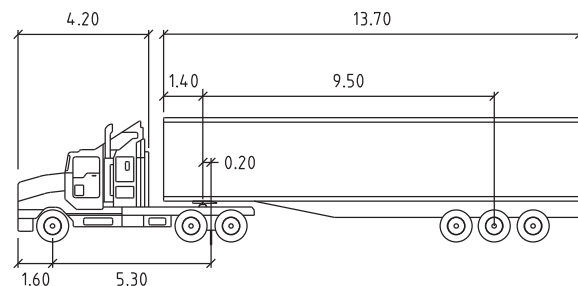
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SHEET 05 OF 07

ISSUE P4

SWEPT PATH KEY

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- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



PM S 19M

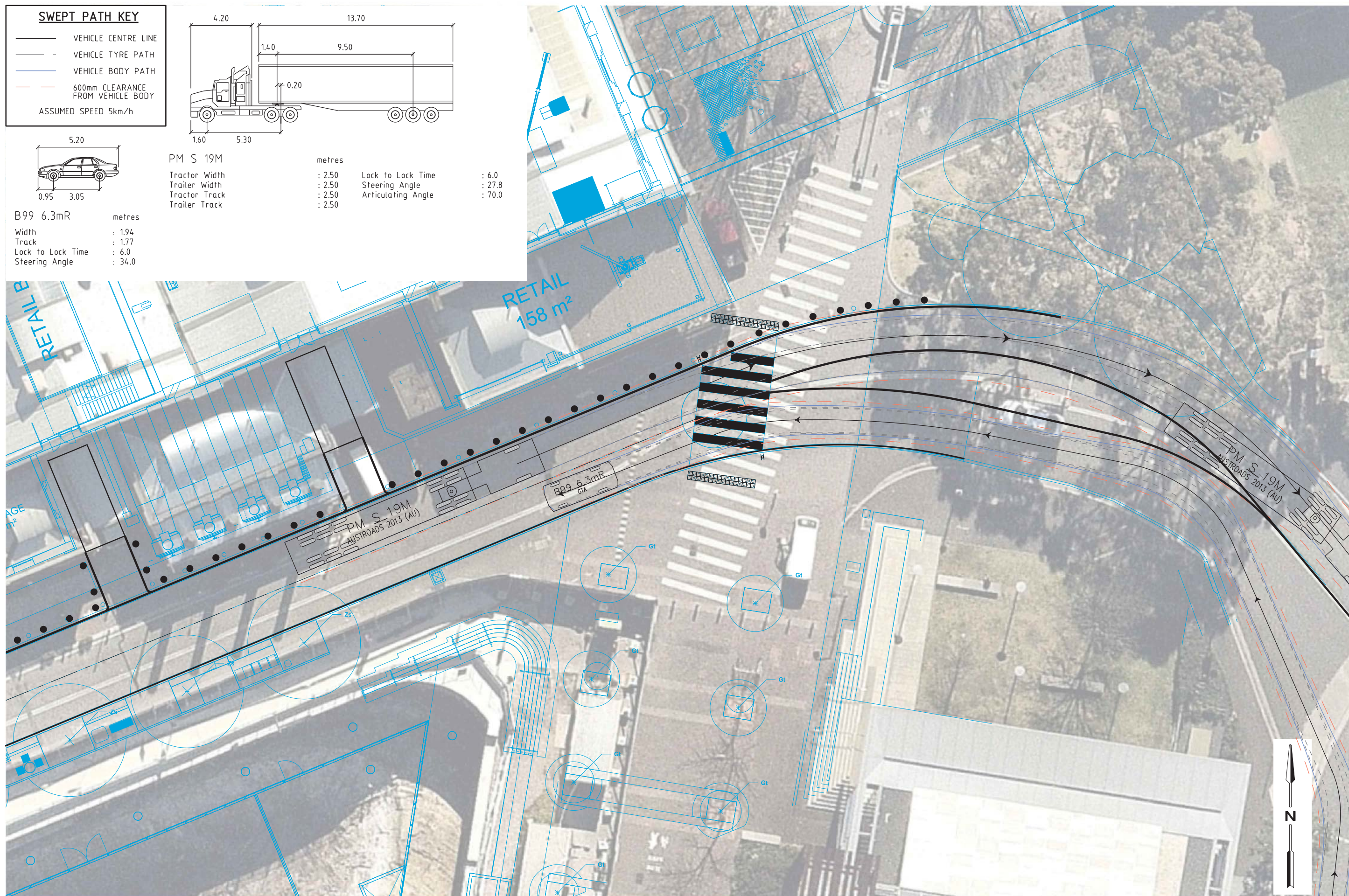
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Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

metres

B99 6.3mR

metres

Width	: 1.94
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



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AUSTRALIAN TECHNOLOGY PARK
PUBLIC DOMAIN
LOCOMOTIVE STREET
SWEPT PATH ASSESSMENT

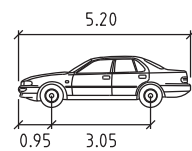
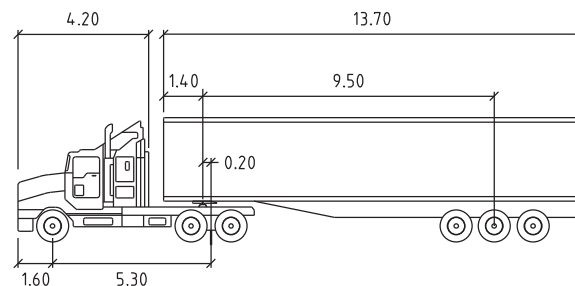
DRAWING NO. N117430-05-10-06

SHEET 06 OF 07

ISSUE P4

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h

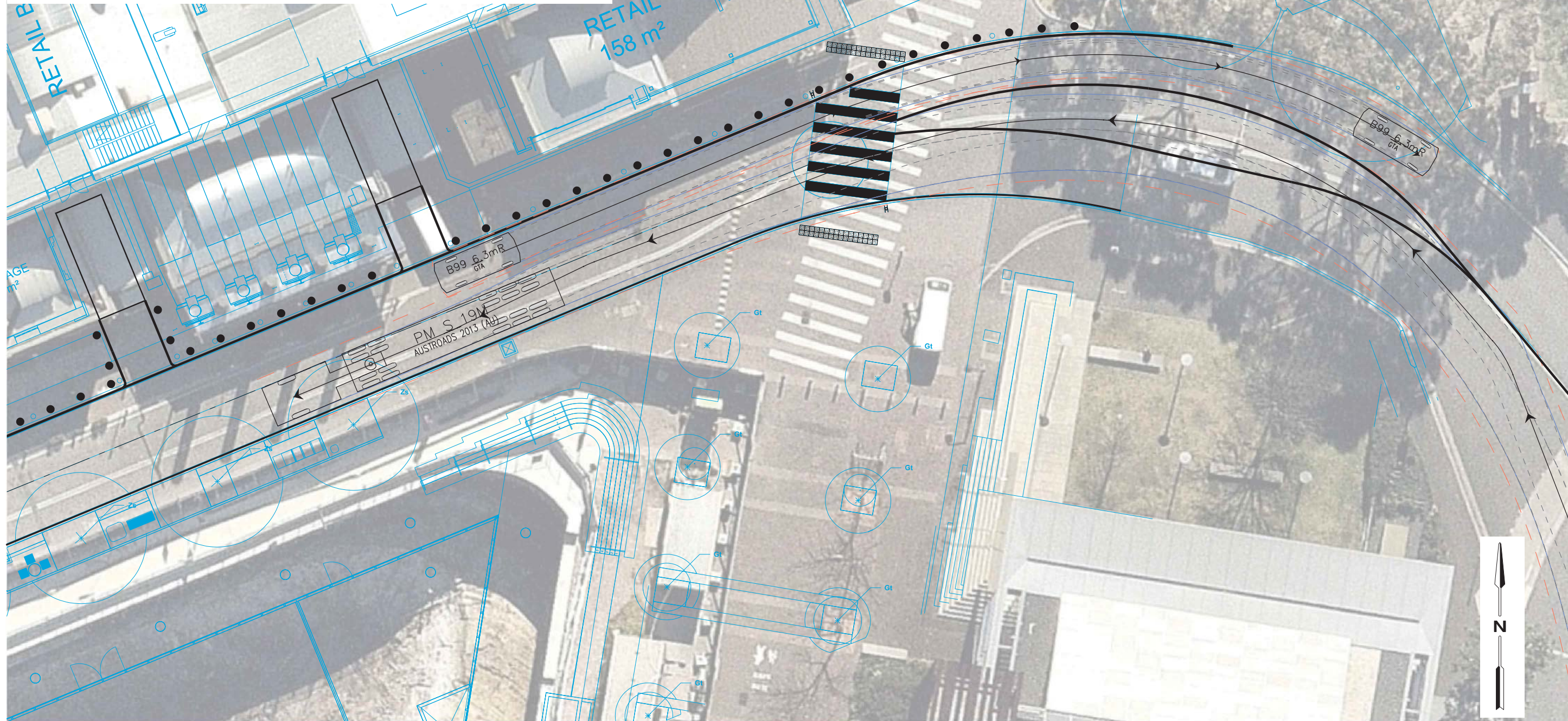


PM S 19M

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

B99 6.3mR

Width	: 1.94
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



ON 13/11/2017 AT 5:08:27 PM

PLOTTED BY : ChenYang>You



Melbourne 03 9851 9600
Sydney 02 9446 1800
Brisbane 07 3113 5000
Canberra 02 6243 9400
Adelaide 08 8334 3400
Gold Coast 07 5510 4814
Townsville 07 4722 2745
Perth 08 6169 1000

PRELIMINARY PLAN

FOR DISCUSSION PURPOSES
ONLY SUBJECT TO CHANGE
WITHOUT NOTIFICATION

DESIGNED
C.YOU

DESIGN CHECK
K.WILLIAMS

APPROVED BY
K.WILLIAMS

DATE ISSUED
13 NOVEMBER 2017

SCALE
A3 0 2.5 5 1:250

CAD FILE NO.
N117430-05-10-P4.dgn

AUSTRALIAN TECHNOLOGY PARK
PUBLIC DOMAIN
LOCOMOTIVE STREET
SWEPT PATH ASSESSMENT

DRAWING NO. N117430-05-10-07

SHEET 07 OF 07

ISSUE P4