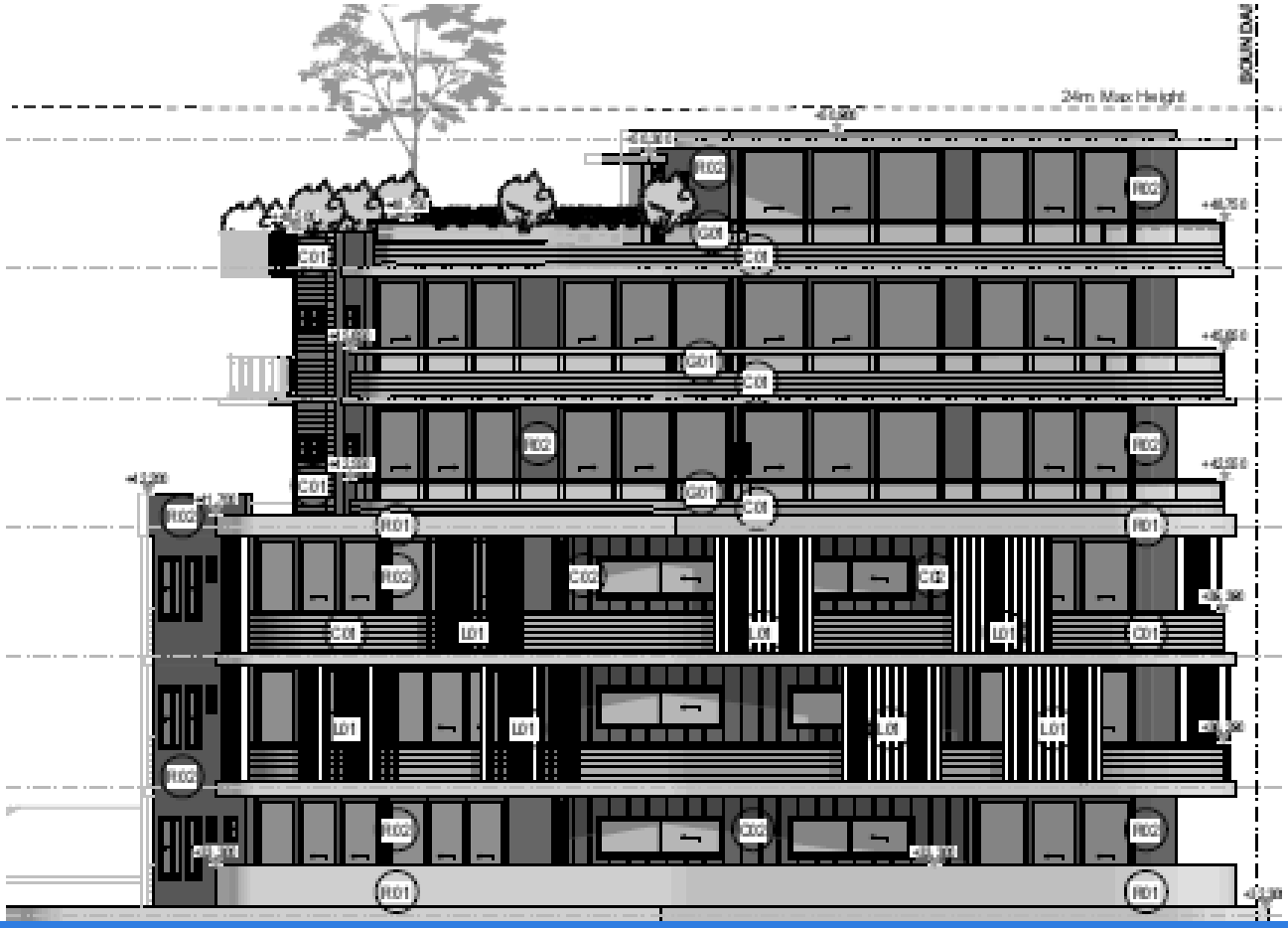

118-120 Station Street, Penrith
Traffic and Parking Assessment

Prepared for:

ADS Architects

29 September 2020

The Transport Planning Partnership

118-120 Station Street, Penrith

Traffic and Parking Assessment

Client: ADS Architects

Version: Final

Date: 29 September 2020

TTPP Reference: 20270

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
Draft	18/09/20	Kenta Lam	Ken Hollyoak	Ken Hollyoak	-
Final	29/09/20	Kenta Lam, Oasika Faiz	Ken Hollyoak	Ken Hollyoak	[redacted]

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APPENDICES

1 Introduction

This traffic and parking assessment report relates to a proposed mixed-use development at 118-120 Station Street, Penrith.

The proposed development will include a seven-storey building comprising 19 residential apartment units (including seven affordable housing units), two commercial offices located on the ground floor. A two-level basement car park will accommodate 34 car parking spaces.

The Transport Planning Partnership (TTPP) has prepared this report on behalf of ADS Architects to accompany the development application (DA) and assess the traffic and parking implications of the proposed development.

The remainder of the report is set out as follows:

- Chapter 2 discusses the existing conditions including a description of the subject site
- Chapter 3 provides a brief description of the proposed development
- Chapter 4 assesses the proposed on-site parking provision
- Chapter 5 examines the traffic generation and its impact, and
- Chapter 6 presents the conclusions of the assessment.

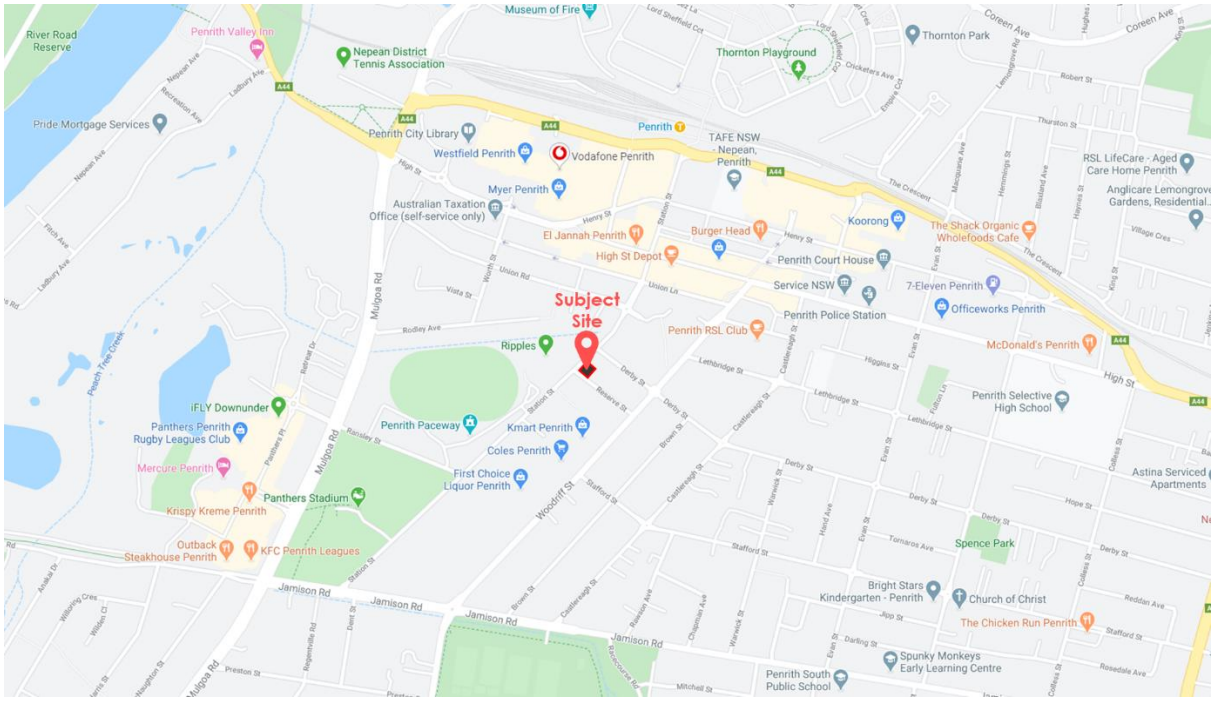
2 Existing Conditions

2.1 Site Description

The proposed development is located at 118-120 Station Street, Penrith. The site is currently vacant with no existing buildings present.

The site is located within the Penrith City Centre, with Penrith CBD and Penrith Railway Station located approximately 670m to the north, Nepean Village Shopping Mall 170m to the south and Penrith Raceway and Panthers Stadium located within 450m to the west. The subject site and surrounding environs are shown in Figure 2.1.

Figure 2.1: Site Locality



Basemap Source: Google Maps Australia

2.2 Adjoining Road Network

2.2.1 Station Street

Station Street is a local two-lane, two-way road servicing the Nepean Village Shopping Centre and public recreational areas such as Penrith Park. Kerbside parking is generally provided along both sides of the road.

2.2.2 Reserve Street

Reserve Street is a two-way local road providing access to a few residential dwellings and public car park on the north side and Nepean Village Shopping Centre to the south. The road is configured with one lane in each direction in the east-west alignment. Unrestricted kerbside parking is available along both sides of the road.

The default speed limit of Reserve Street is 50km/h.

2.3 Public Transport

Public bus services in the near vicinity of the site are provided along Station Street and Derby Street. The nearest bus stop is located on Station Street and is approximately within 80m walking distance from the site. The bus service routes provide services to nearby suburbs such as Emu Plains, Springwood, Mount Druitt and St Marys.

Penrith Railway Station is approximately 700m walking distance from the site. The T1 Western Line provides high frequency rail services to key commercial suburbs such as Blacktown, Parramatta, Westmead, Strathfield and Sydney CBD. The BMT Blue Mountains Line provides high frequency services to greater western NSW suburbs such as Bathurst and Katoomba.

A summary of the available public transport services in the surrounding site is presented in Table 2.1.

Table 2.1: Public Transport Services

Public Transport	Route No.	Route Description	Typical Weekday Frequency	
			Peak Periods	Off-Peak Periods
Rail	T1	City to Emu Plains or Richmond	5mins – 15mins	15mins
	BMT	Central to Bathurst	15mins	60mins
Bus	688	Penrith to Emu Heights (Loop Service)	N/A	60mins
	689	Penrith to Leonay (Loop Service)	N/A	60mins
	690P	Penrith to Springwood	N/A	60mins
	691	Mount Riverview to Penrith	1 service at 8:03am	120mins
	770	Mount Druitt to Penrith via St Marys	24mins – 29mins	30mins
	774	Mount Druitt to Penrith via Nepean Hospital	24mins -30mins	30mins
	775	Mount Druitt to Penrith via Erskine Park	21mins – 30mins	30mins
	779	Erskine Park to St Marys	30mins	N/A

	781	St Marys to Penrith via Glenmore Park	2 services at 6:59am and 4:31pm	N/A
	791	Penrith to Jamisontown via South Penrith (Loop Service)	12mins – 20mins	30mins
	793	Penrith to Jamisontown (Loop Service)	30mins	60mins
	794	Glenmore Park to Penrith via The Northern Road	18mins – 30mins	60mins
	795	Warragamba to Penrith	AM Peak: 60mins PM Peak: 14mins – 80mins	N/A
	797	Penrith to Glenmore Park (Loop Service)	17mins – 30mins	30mins
	799	Glenmore Park to Penrith via Regentville	18mins – 30mins	60mins
	S13	Penrith to Mountainview Village (Loop Service)	N/A	4 services between 9:35am and 2:05pm

Source: Transport for NSW, last accessed 2/09/20

Figure 2.2 shows the public transport facilities surrounding the site.

Figure 2.2: Public Transport Facilities Surrounding the Site

Map Source: Nearmap

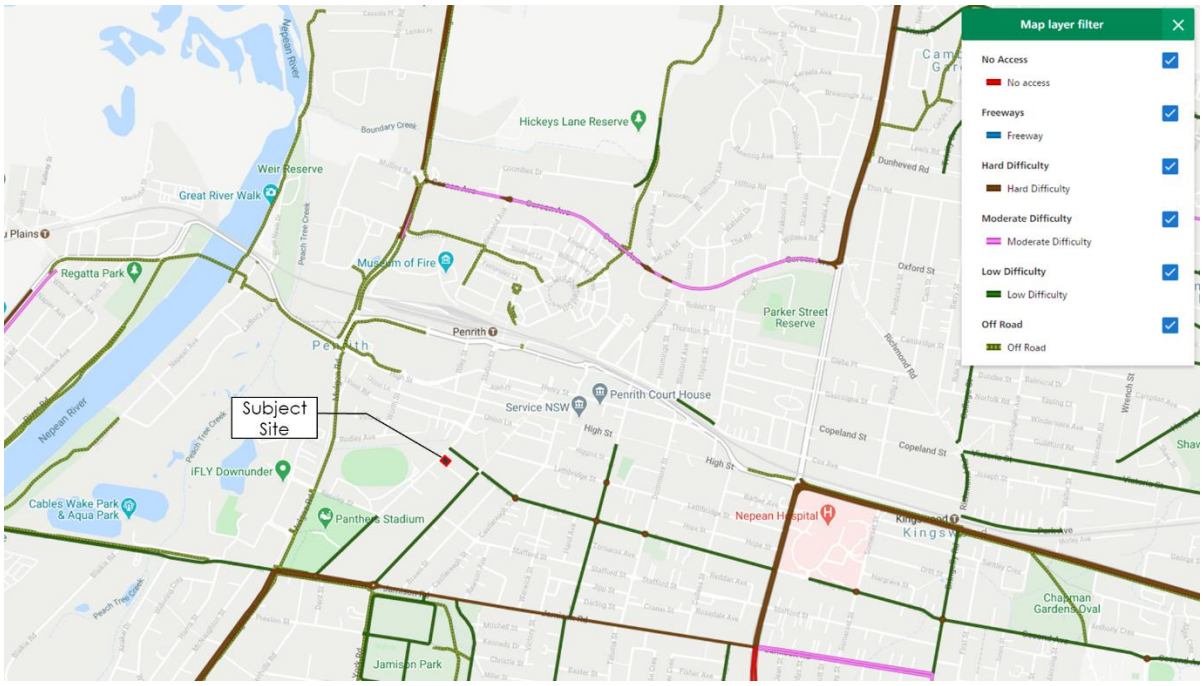
2.4 Pedestrian and Cycle Infrastructure

Well established footpaths are provided along both sides of all roads in the vicinity of the site. Safe crossing opportunities across Station Street and Reserve Road are provided via signalised pedestrian crossings and pedestrian refuge islands.

Based on the RMS cycleway finder, there are multiple cycle routes surrounding the site varying in cycling difficulty. Low difficulty cycle route is available along Derby Street and Woodriff Street which is connected to the wider cycle route within Penrith.

The existing cycle routes surrounding the site is shown in Figure 2.3.

Figure 2.3: Existing Cycle Routes



Source: RMS Cycleway Finder

3 Proposed Development

3.1 Proposal Description

The proposed development is located at 118-120 Station Street, Penrith and involves the excavation and construction of a new six storey mixed use building comprising:

- 19 Residential Apartments including
  - 4 x affordable 2-bedroom units
  - 3 x affordable 3-bedroom units
  - 6 x non-affordable 2-bedroom units
  - 6 x non-affordable 3-bedroom units
- Two commercial offices with 135.12m^2 GFA and 82.11m^2 GFA located on the ground floor.
- Two level basement car park accommodating 34 car parking spaces.
- A new vehicular access via Reserve Road.

The proposed residential apartments include two adaptable units.

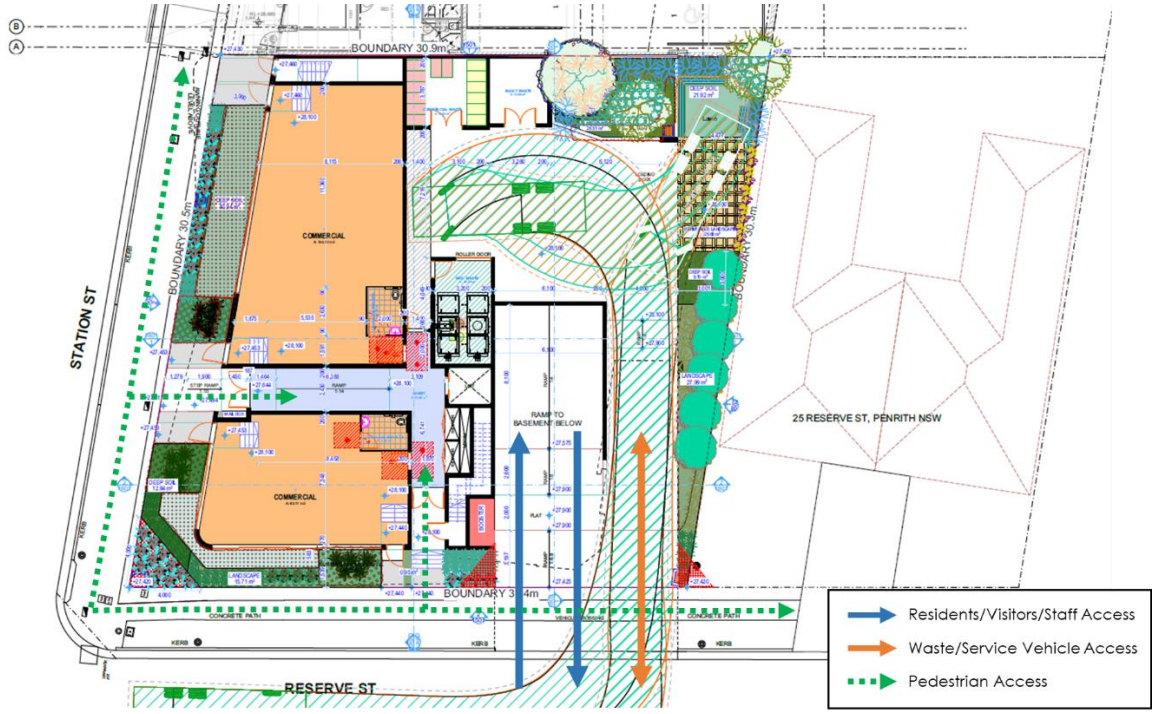
The basement car park of 34 car parking spaces also includes 11 bicycle parking spaces. A loading dock accommodating up to a 9.7m HRV, is provided on the ground floor level of the building.

3.2 Access and Servicing Arrangements

The proposed basement car park is to be accessed via a new two-way driveway off Reserve Road. The loading dock located on the ground floor is accessed via a separate driveway directly adjacent to the basement car park access ramp. Pedestrian access is provided on the eastern and southern frontages of the site via Station Street and Reserve Street.

The site access points for light and heavy vehicles and pedestrians are shown in Figure 3.1.

Figure 3.1: Proposed Site Access Arrangement



Source: ADS Architects

The proposed loading dock is designed to accommodate up to a 9.7m Heavy Rigid Vehicle (HRV) primarily for weekly waste pick ups undertaken by Council's waste truck. The waste truck would be required to traverse the permeable landscape and deep soil area to undertake turning manoeuvres into and out of the site.

Swept path diagrams of a 9.7m Council waste truck entering and exiting the loading dock is provided in Appendix B.

4 Parking Assessment

4.1 Car Parking

Parking requirements for the site have been assessed against the State Environmental Planning Policy (SEPP) Affordable Rental Housing 2009 for the 7 affordable residential units and the Penrith Development Control Plan (DCP) 2014 for the 12 residential units and commercial office spaces.

It is noted that the SEPP 2009 does not specify a parking rate for residential visitors. As such, the Penrith DCP 2014 visitor parking rate has been applied.

The car parking requirement of the subject site is summarised in Table 4.1.

Table 4.1: Car Parking Requirement

Land Use	Size	Parking Rate	Parking Required	Proposed Parking
Residential (Affordable)		*SEPP 2009 Parking Rate*		
- 2-bedroom	4	1 space per unit	4	4
- 3-bedroom	3	1.5 spaces per unit	5	6
Residential (Non-Affordable)		*Penrith DCP 2014*		
- 1-bedroom	0	1 space per unit	0	0
- 2-bedroom	6	1 space per unit	6	6
- 3-bedroom	6	2 spaces per unit	12	12
- Visitors	19	1 space per 5 units	4	4
Sub-total	**19**		**31**	**32**
Commercial (Office 1)	135.12m² GFA	1 space per 100m² GFA	1	1
Commercial (Office 2)	82.11m² GFA	1 space per 100m² GFA	1	1
Total			**33**	**34**

From Table 4.1, the proposed development requires a total car parking provision of 33 car parking spaces including 27 residential parking spaces, 4 visitor parking spaces and 2 staff parking spaces for the commercial offices.

It is proposed to provide a total of 34 car parking spaces in the basement car park which includes 28 residential parking spaces, 4 visitor parking spaces and 2 commercial staff parking spaces. The proposed parking provision will have a surplus of 1 residential parking space.

Hence, the car parking provision is in accordance with the SEPP 2009 and the Penrith DCP 2014 and is considered satisfactory.

4.2 Accessible Parking

The Penrith DCP 2014 stipulates that accessible car spaces should be in accordance with the Access to Premises Standards, Building Code of Australia (BCA) and AS2890.6.

Accessible car parking requirements of the proposed development has been assessed under AS4299:1995 and BCA 2019 Volume One. The following accessible parking rates have been applied to the proposed development:

- One accessible space per adaptable unit, and
- One space for every 100 car parking spaces or part thereof for commercial.

The proposed development is proposing to provide two adaptable units which equates to two accessible parking spaces.

In addition, the commercial offices are required to provide a total of one accessible parking space.

A total of four accessible parking spaces are proposed in the basement car park and this complies with the AC4299:1995 and BCA 2019 Volume One.

4.3 Bicycle Parking

The Penrith DCP 2014 stipulates that bicycle parking is to be in accordance with the suggested bicycle parking provision rates for different land use types in the Planning Guidelines for Walking and Cycling.

The Planning Guidelines for Walking and Cycling states the following bicycle parking rates:

- 20% - 30% of the total number of units for residents
- 5% - 10% of the total number of units for visitors
- 3% - 5% of commercial staff for staff
- 5% - 10% of commercial staff for visitors

For a conservative assessment, the higher percentage was applied to determine the bicycle parking provision for the proposed development. A provision of four bicycle parking spaces is required for the residential component of 19 units.

Applying a mean employee density of 21m^2 GFA per employee from the RMS Guide to Traffic Generating Developments, it is assumed that the two proposed commercial spaces would accommodate a total of 10 staff. This would result in the provision of a single bicycle space in accordance with the above bicycle parking rates.

Bicycle racks accommodating four bicycles and seven bicycles will be provided in the upper and lower basement levels, respectively. The proposed 11 bicycle parking spaces with a surplus of six bicycle parking spaces will sufficiently cater for the proposed development.

4.4 Car Park Layout

The basement car park and associated access arrangements have been reviewed for compliance with Australian Standard design requirements, namely AS2890.1:2004 and AS2890.2:2018.

4.4.1 Parking Layout and Dimensions

All residential, visitor and commercial car parking spaces have been designed for User Class 1A with 2.4m width and 5.4m length, with a minimum aisle width of 5.8m plus 0.3m clearance to high obstructions (e.g. walls).

The accessible car parking spaces have been designed in accordance with AS2890.6:2009 with a 2.4m by 5.4m space with an adjoining shared area of the same dimensions.

Bicycle parking has been provided in the basement as per AS2890.3:2015, with dimensions 0.5m wide by 1.2m long, with a minimum aisle width of 1.5m.

The car park is generally compliant with AS2890 with minor non-compliances to be addressed prior to CC. The proposed basement car park layout is provided in Appendix A.

4.4.2 Site Access

The site access from Reserve Street permits two-way flows between B99 vehicles (i.e. cars) into the basement car park ramp, and one-way access to the loading dock for up to a 9.7m long HRV (i.e. a waste vehicle).

The site is located in a heavy flood prone area. On this basis, the driveway from the site boundary has been designed with a 3.5m freeboard with a gradient of 1:12, to prevent flooding of the basement.

AS2890.1 allows a maximum gradient of 1:8 for the first 6m of a driveway provided that the access is at a downgrade for traffic exiting the site, and the site car park provides less than 100 Class 1, 1A or 2 car spaces. On this basis, the proposed grade of 1:12 complies with AS2890.1 for a B99 car.

However, AS2890.2 requires a maximum grade of 1:20 (5%) for "*a distance extending from the property line for at least 6m or the longest wheelbase of any vehicle likely to use the driveway, whichever is greater*".

On this basis, access to the loading dock for a waste vehicle is not compliant with standards. However, site constraints prevent the ability to provide a 1:20 grade for the first 6m due to the requirement for the flood control treatment. On this basis, traffic management measures are proposed to improve pedestrian safety during heavy vehicle egress, such as:

- a flashing light system which lights up as a vehicle is exiting the loading dock to warn on-coming pedestrians as shown in Figure 4.1.

Figure 4.1: Flashing Light System

- dynamic warning signage for pedestrians passing the driveway stating; "caution vehicle exiting", which would light up as a vehicle exits the loading dock. An example of this signage is shown in Figure 4.2.

Figure 4.2: Dynamic Warning Signage

Source: https://www.directionalsystems.com/products/parking_signs/warning

5 Traffic Assessment

5.1 Traffic Generation

The traffic generation of the proposed mixed-use development is based on the RMS' Guide to Traffic Generating Development and the updated technical direction (TDT 2013/04a). The following trip generation rates have been used to estimate the development traffic of the proposed development:

- Residential
  - 0.19 vehicle trips per unit in the AM peak hour
  - 0.15 vehicle trips per unit in the PM peak hour
- Commercial
  - 1.6 vehicle trips per 100m^2 GFA in the AM peak hour
  - 1.2 vehicle trips per 100m^2 GFA in the PM peak hour

Based on the above trip generation rates, a summary of the vehicle trips generated by the proposed development is presented in Table 5.1.

Table 5.1: Traffic Generation

Land Use	Yield	Traffic Generation Rates		Traffic Generation	
		AM Peak	PM Peak	AM Peak	PM Peak
Residential	19 units	0.19 trips per unit	0.15 trips per unit	4 vph	3 vph
Commercial	217.23m^2 GFA	1.6 trips per 100m^2 GFA	1.2 trips per 100m^2 GFA	3 vph	3 vph
Total				**7 vph**	**6 vph**

From Table 5.1, the proposed development is anticipated to generate 7 vehicle trips per hour (vph) in the morning peak and 6 vph in the evening peak.

The development traffic is considered to be minimal and is not expected to cause any adverse impacts to the local road network. Intersection modelling programs would not to be able to discern any impact from this low level of development traffic.

6 Conclusion

This traffic and parking assessment report relates to a proposed mixed-use development at 118-120 Station Street, Penrith. The key findings of the report are presented below.

- The proposed development would involve the excavation and construction of a new six storey mixed-use building at 118-120 Station Street, Penrith. The proposed development will include 19 residential units (including 7 units as affordable housing) and two commercial spaces with a total floor area of 217.23m^2 GFA. The proposed development will also include a two-level basement car park accommodating 34 car parking spaces via a new site access off Reserve Street.
- The proposed development will provide 34 car parking spaces including 28 residential parking spaces, 4 visitor parking spaces and 2 commercial staff parking spaces. The proposed parking provision will have a surplus of 4 residential parking spaces.
- The overall proposed car parking provision complies with parking requirements stipulated in the SEPP 2009 and Penrith DCP 2014, as such the proposed parking provision is considered to be satisfactory.
- The proposed development is anticipated to generate 7 and 6 vehicle trips per hour in the morning and evening peaks respectively. The development traffic is considered to be minimal and is not expected to cause any adverse impacts to the local road.

Overall, the traffic and parking implications of the proposed development is considered to be satisfactory.

Appendix B

Swept Path Diagrams

VEHICLE ENTERING

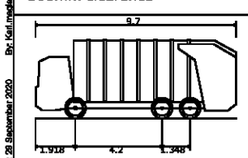
VEHICLE EXITING

SWEPT PATH ENCROACHES LANDSCAPING

SWEPT PATH ENCROACHES COLUMN

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



9.7m Heavy Rigid Rear Load Waste Collection

Overall Length	9700mm
Overall Width	2800mm
Overall Body Height	3804mm
Min Body Ground Clearance	356mm
Track Width	2800mm
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8500mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KL	KH	16/09/20

ttpp transport planning

PROJECT: 118-120 STATION STREET, PENRITH

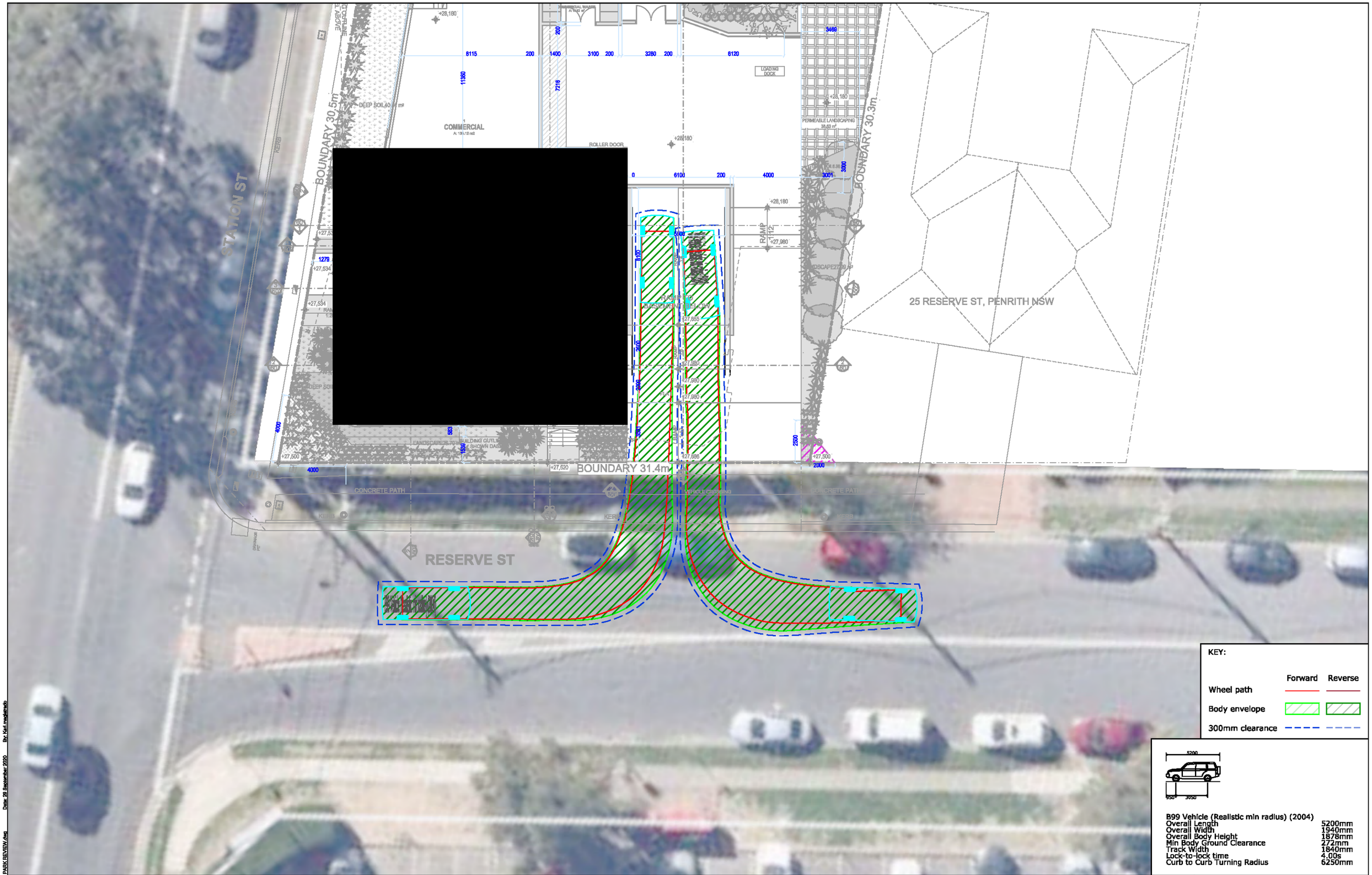
TITLE: SWEPT PATH ANALYSIS - GROUND LEVEL
9.7m HEAVY RIGID REAL LOADER WASTE TRUCK

DWG No. 20270CAD006
FIGURE 4

DATE STAMP 29 SEPTEMBER 2020

PROJECT No. 20270 | SCALE 1:200 @A3 | REV. A

Filename: 20270CAD006-200929 -CAR PARK REVIEW.dwg Date: 29 September 2020 By: Kerl.mydanedo



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5200mm
Overall Width	1940mm
Overall Body Height	1878mm
Min Body Ground Clearance	272mm
Track Width	1840mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6250mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	KL	KH	16/09/20

ttpp transport planning

PROJECT: 118-120 STATION STREET, PENRITH

TITLE: SWEPT PATH ANALYSIS - GROUND LEVEL
AS2890.1 5.2m B99 VEHICLE

DWG No. 20270CAD006
FIGURE 5

DATE STAMP 29 SEPTEMBER 2020

PROJECT No.	SCALE	REV.
20270	1:200 @A3	A

Filename: 20270CAD006-200929 - CAR PARK REVIEW.dwg Date: 29 September 2020 By: Karl.medenado

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