



Proposed Bunnings Small Format Store Valley Drive, Lithgow Traffic Impact Assessment

Prepared for:
Ceedive Pty Ltd

8 July 2022

The Transport Planning Partnership

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Proposed Bunnings Small Format Store Valley Drive, Lithgow Traffic Impact Assessment

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V01	29/04/22	Jason Rudd	
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APPENDICES

- A. VEHICLE SWEPT PATH ANALYSIS
- B. SIDRA INTERSECTION MODELLING RESULTS SUMMARY

1 Introduction

A development application (DA) is to be lodged with Lithgow City Council (Council) for a proposed new Bunnings Small Format Store development at Valley Drive Lithgow.

The site of the DA is located within the Pottery Estate Precinct as defined by the recently updated Lithgow Development Control Plan 2021 (DCP 2021).

The Transport Planning Partnership Pty Ltd (TPPP) has been commissioned by Ceedive Pty Ltd to prepare a traffic and parking impact assessment of the proposed Bunnings Small Format Store development to accompany the DA to Council.

The remainder of the report is set out as follows:

- Chapter 2 provides an overview of the DCP 2021 vision and controls for the Pottery Estate Precinct generally and specifically for the proposed Bunnings Small Format Store development site
- Chapter 3 discusses the existing conditions and context, including a description of the subject site and planning associated with the precinct
- Chapter 4 provides a brief description of the proposed development
- Chapter 5 assesses the proposed on-site parking provision and internal layout
- Chapter 6 assesses the vehicle access, internal circulation and servicing arrangements
- Chapter 7 examines the traffic generation and its impact
- Chapter 8 presents the conclusions of the assessment

2 Pottery Estate Precinct

2.1 DCP 2021 – Establishment of Indicative Structure Plan

In November 2021, the Lithgow Development Control Plan 2021 came into force. The overarching aims of DCP 2021 are specified to be as follows:

- To implement and support the objectives of LLEP2014;
- To provide clear and concise development guidelines for various forms of development;
- To promote appropriate growth and development in the Lithgow Local Government Area and ensure it occurs in an orderly, environmentally friendly and sustainable manner;
- To ensure positive planning outcomes are maximised for the benefit of the broader community.

DCP 2021 included a new chapter which contains site specific controls that apply to development within the “Pottery Estate”.

As noted within DCP 2021:

“The Pottery Estate represents a development opportunity of a site located adjacent to the Valley Plaza and in close proximity to the Lithgow town centre. It is well positioned to provide a mix of housing, employment, and retail services with access to public transport, the local and regional road network and existing services and facilities.”

DCP 2021 includes an Indicative Structure Plan which has been developed to ensure that development occurs in a coordinated manner consistent with the vision and development principles for the Pottery Estate.

The Indicative Structure Plan as extracted from the DCP 2021 is shown in Figure 2.1. The proposed site of the Bunnings Small Format Store is superimposed on the DCP 2021 extract for reference purposes.

As shown in Figure 2.1 the proposed Bunnings Small Format Store site is located within the ‘Mixed Use’ zone as prescribed by the Indicative Structure Plan.

Figure 2.1: DCP 2021 – Pottery Estate Precinct Indicative Structure Plan

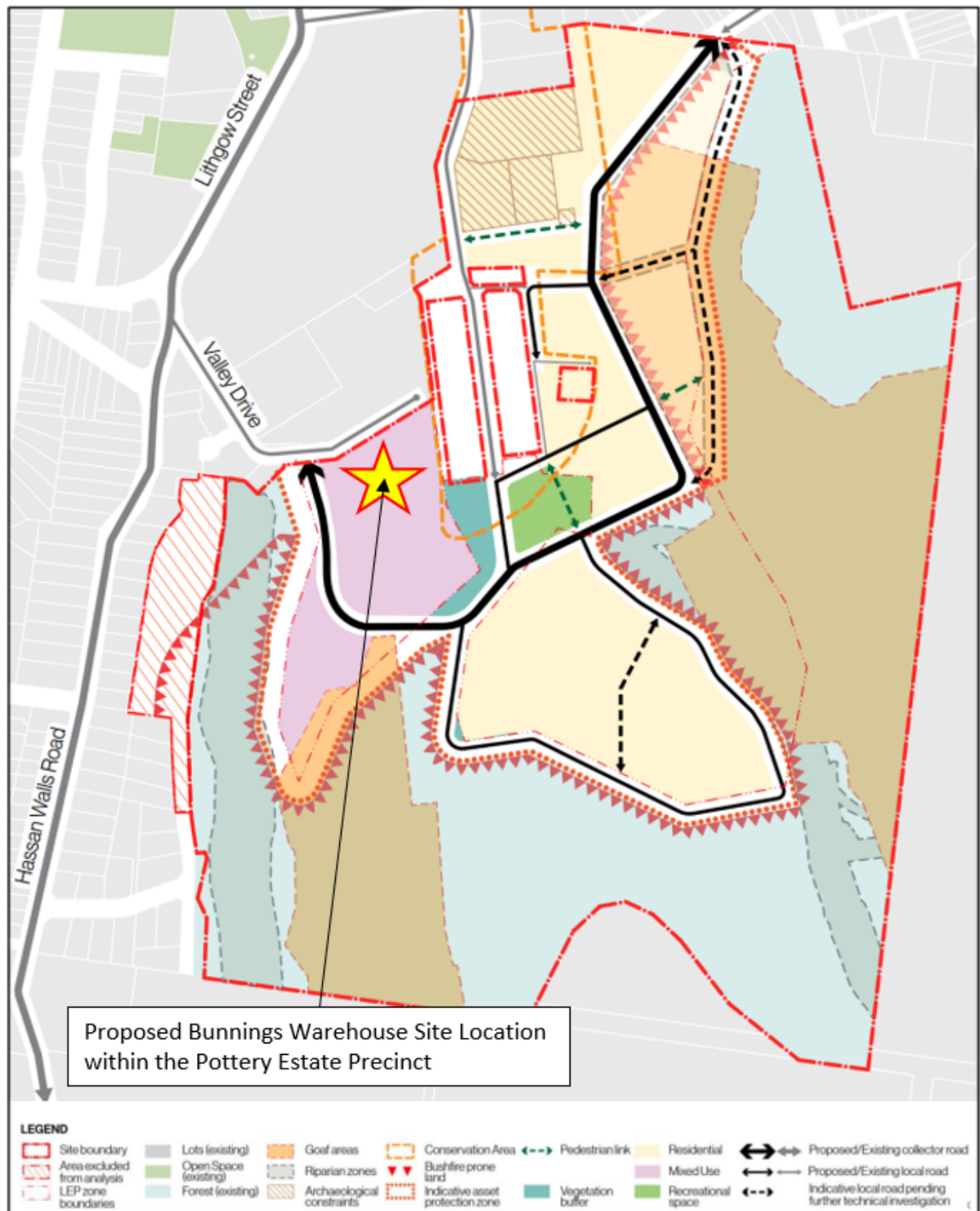


Figure 3: Pottery Estate Indicative Structure Plan

Source: Group GSA

Source: DCP 2021: Chapter 9 Figure 3

2.2 Indicative Structure Plan - Key Elements

With regard to the Mixed Use business elements the key elements of the Indicative Structure Plan as presented in the DCP 2021 are provided in Table 1 of DCP 2021 as shown below:

Element	Description
Business	<ul style="list-style-type: none"> ▪ To provide a mixture of compatible land uses that do not detract from the role of the Lithgow town centre, Lithgow Valley Estate Plaza and surrounding business and retail. ▪ Provide an opportunity to expand the local and regional economy by attracting businesses and employment opportunities to Lithgow. ▪ To promote a built form compatible with large retail format character established on the northern side of Valley Drive. ▪ Ensure a built form with suitable height and provision for landscaped setbacks that does not detract from the outlook from, or visually impact on the adjacent Heritage Conservation Area "C11" (Silcock Street). ▪ Ensure that new development provides adequate vehicular access and parking arrangements for proposed land uses.
Movement network	<ul style="list-style-type: none"> ▪ New streets & pedestrian pathways to create a permeable movement network that links into the existing streets adjoining the site. ▪ The inclusion of a perimeter road between the developable areas and the adjacent bushland. ▪ Provide linkages to surrounding fire trails. ▪ Provide linkages that promote pedestrian access to heritage assets located within and immediately adjoining the DCP precinct.

For business uses it is noted that the DCP 2021 envisages that large retail format uses are to be developed within the mixed use area of the Precinct in a manor which is consistent with the existing large retail formats located on the northern side of Valley Drive.

The development of a Bunnings Small Format Store within the Precinct is consistent with the envisaged land use for the mixed use area of the Precinct.

2.3 Transport Planning for Indicative Structure Plan

As part of the development of the Indicative Structure Plan, TTPP prepared a traffic and transport assessment¹ for the overall Pottery Estate Precinct as envisaged by the Indicative Structure Plan.

The assessment considered the internal and external implications of envisaged future development within the Precinct and established road, pedestrian and cycle network connections to the surrounding network, road hierarchy and bus / servicing arrangements.

The traffic assessment of the surrounding road network concluded that:

"the analysis of the existing surrounding road network has identified that there is substantial spare capacity within the existing road network to accommodate additional traffic, whether it be by the Pottery Estate or other local developments. As such it is envisaged that the need for road network infrastructure improvements would not be required."

As noted above, the Indicative Structure Plan has envisaged that the site of the proposed Bunnings Small Format Store development would be developed in a manner consistent with large format retailing.

The substantial spare capacity within the surrounding road network and the ability to accommodate significant future development traffic generation was considered to be one factors in the appropriateness of the mixed use are of the Precinct for large format retail uses such as a Bunnings Small Format Store.

Notwithstanding the above, the implications of a Bunnings Small Format Store development on the site has been considered in Chapter 6 of this assessment report.

¹ Pottery Estate Lithgow – Traffic and Transport Report (prepared by TTPP, 18 May 2021)

3 Existing Conditions

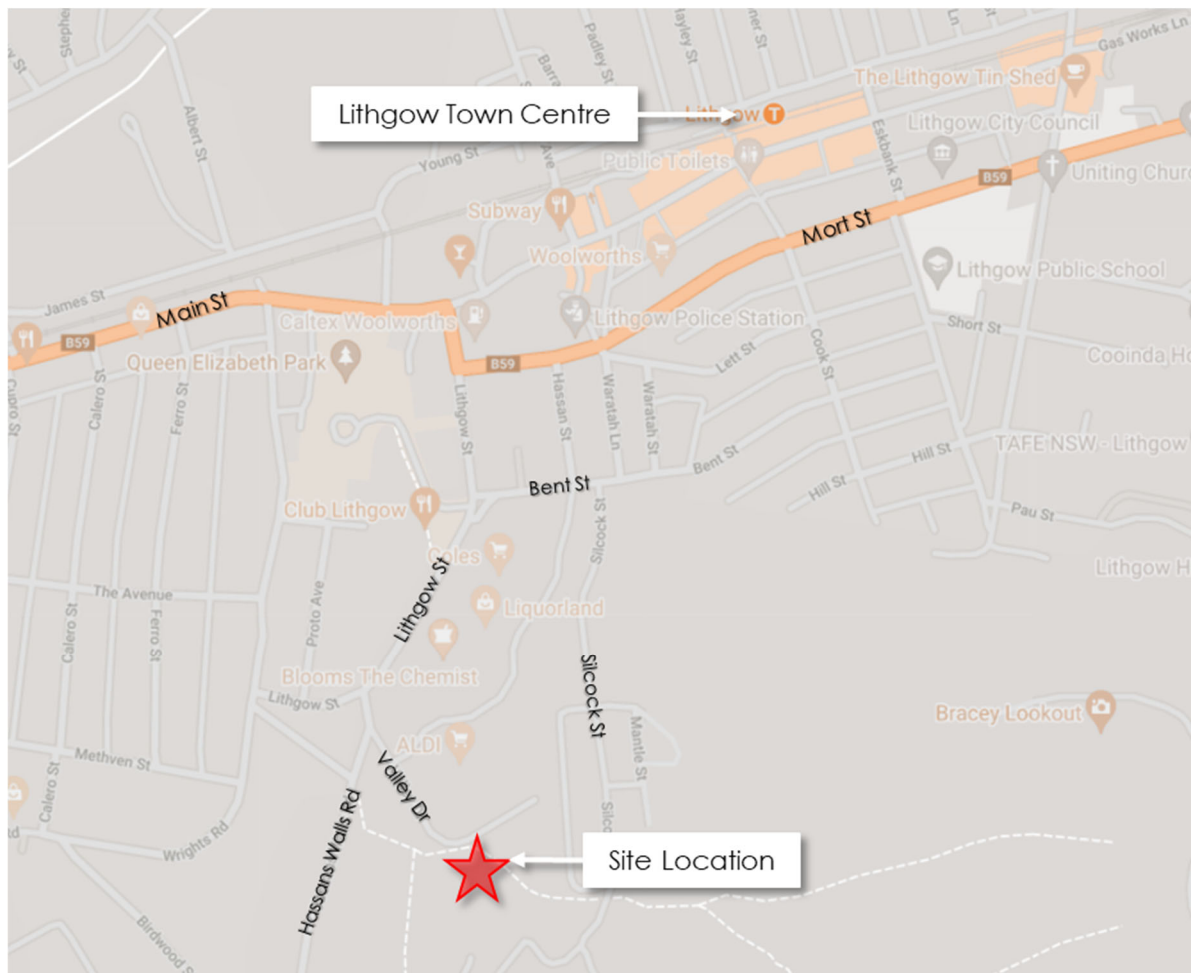
3.1 Site Description

The subject site is located at on the southern side of Valley Drive, Lithgow and falls within the local government area of Lithgow City Council as shown in Figure 3.1.

The site is located approximately 1.1 kilometres south of Lithgow Station.

The site is currently unoccupied.

Figure 3.1: Site and Surrounding Environs



Source: Google MyMaps, accessed 23 September 2021

The site is located adjacent to the Pottery Plaza which contains uses such as Repco Auto Parts, Aldi Supermarket and home goods furniture store. Also within the close proximity of the site is the Lithgow Valley Shopping Plaza which contains stores such as Target, Coles, Liquorland, Commonwealth Bank and Services NSW.

3.2 Surrounding Road Network

The road network surrounding the Pottery Estate Precinct and the proposed Bunnings Small Format Store development site comprises local access roads, local collector roads and regional (classified) roads.

The following provides a summary of the roads within the immediate vicinity of the Precinct.

Silcock Street

Silcock Street is currently the primary vehicle access to existing development within the Pottery Estate .

Running between the existing residential dwellings, Silcock Street has a sealed road width of approximately 14 metres with kerb and gutter treatments on both sides of the street. On street parking is permitted on both sides of the street.

Further north towards Bent Street, the sealed road width of Silcock Street narrows to approximately 7 metres with no kerb and gutter and parking permitted on the unsealed verge.

No pedestrian footpaths are currently provided along Silcock Street.

Silcock Street provides direct vehicle access to a number of existing residential dwellings and the Lithgow State Emergency Services / Rural Fire Service site.

The intersection of Silcock Street and Bent Street is priority controlled (give way) intersection.

Bent Street

Bent Street is a local access road with a sealed road width of approximately 10 metres. A footpath is provided on the southern side of the street and on both sides of the street at the western end near the Valley Plaza.

Bent Street provides a connection to Lithgow Street at a priority controlled intersection with protected turning lanes.

The western end of Bent Street is subject to "school Zone" speed limits during school hours at the adjacent St Patricks School site.

Lithgow Street

Lithgow Street is a local collector road providing two way traffic flows and on street parking on both sides of the street.

Lithgow Street forms part of the local collector road system with Wrights Road and Methven Street connecting the Great Western Highway and Main Street to the local road network on the southern side of the Lithgow township.

The intersection of Lithgow Street / Mort Street / Main Street is traffic signalled controlled.

Lithgow Street provides a number of vehicle access driveways to the Valley Plaza shopping centre car parking facilities.

Kirkland Link / Valley Drive

Kirkland Link forms a priority controlled intersection at Lithgow Street and provides local road connections to the residential areas in Sheedy Gully.

Kirkland Link also connects to Valley Drive which is a vehicle access to the Pottery Plaza retail site which includes an Aldi and Repco outlets.

Valley Drive has a sealed road width of between 8-9m and provides access to the proposed Bunnings Small Format Store site.

3.3 Road Network Operation

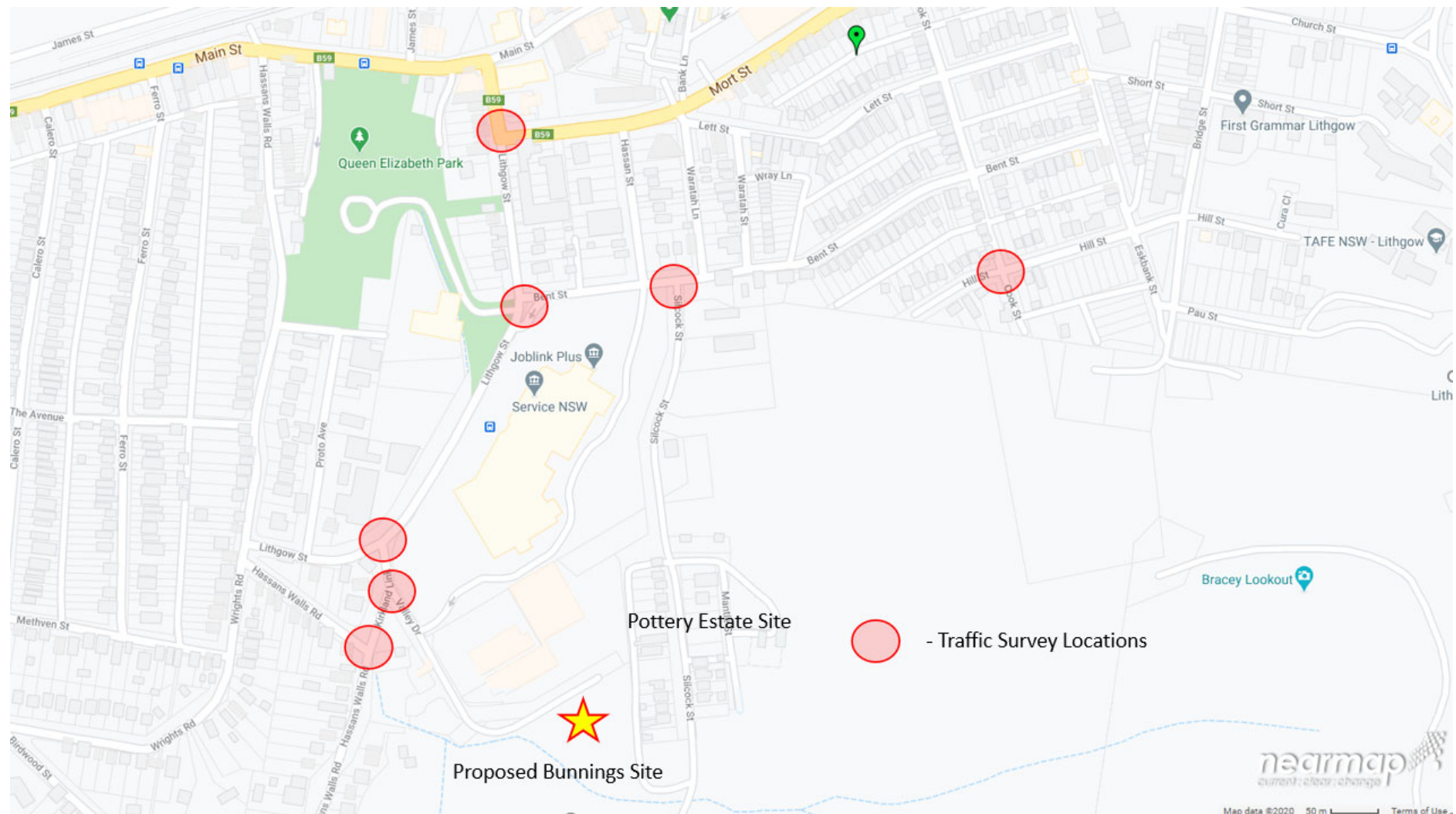
3.3.1 Intersection Traffic Surveys

As part of the traffic assessment for the Indicative Structure Plan, peak period traffic surveys were undertaken by TTPP at a number of key surrounding local road intersections to obtain an understanding of the existing road network operating conditions.

The locations of the traffic surveys undertaken are presented in Figure 3.2.

Traffic surveys were undertaken on 21 December 2020 and represented a busy period on the road network associated with high retail activity at both the Valley Plaza and the Pottery Plaza retail land uses.

Figure 3.2: Traffic Survey Locations



3.3.2 Surveyed Traffic Flows

The results of the traffic flow surveys are presented in Figure 3.3 and Figure 3.4.

The peak hour periods were determined to be:

- Weekday AM Peak: 8am – 9am
- Weekday PM Peak: 3pm – 4pm.

Observations indicated that during the traffic survey period, all intersections operated satisfactorily and without delay or incidences.

3.3.3 Intersection Operation

The operational capacity of the surrounding road network has been analysed using the computer-based modelling package SIDRA Intersection 9.0. Roads and Maritime (now TfNSW) uses the performance measure Level of Service to establish the efficiency of an intersection under given prevailing traffic conditions.

Level of Service (LoS) is directly related to the delays experienced by traffic traversing the intersection. Level of service indicators range from LoS A (indicating good intersection operation) to LoS F (indicating over-saturated conditions with long delays and queues).

At signalised intersections, the average delay is the volume weighted average of all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the worst movement.

Table 3.1 shows the criteria that SIDRA Intersection adopts in assessing the LoS.

The results of TTPP's traffic surveys have been used in the SIDRA analysis of intersection operation and capacity.

The modelling results for the AM and PM peak periods are summarised in Table 3.2.

The results of the SIDRA intersection analysis indicates that the surrounding road network is operating satisfactory with minimal vehicle delays and substantial spare operating capacity.

Figure 3.3: Surveyed AM Peak Hour Traffic Flows

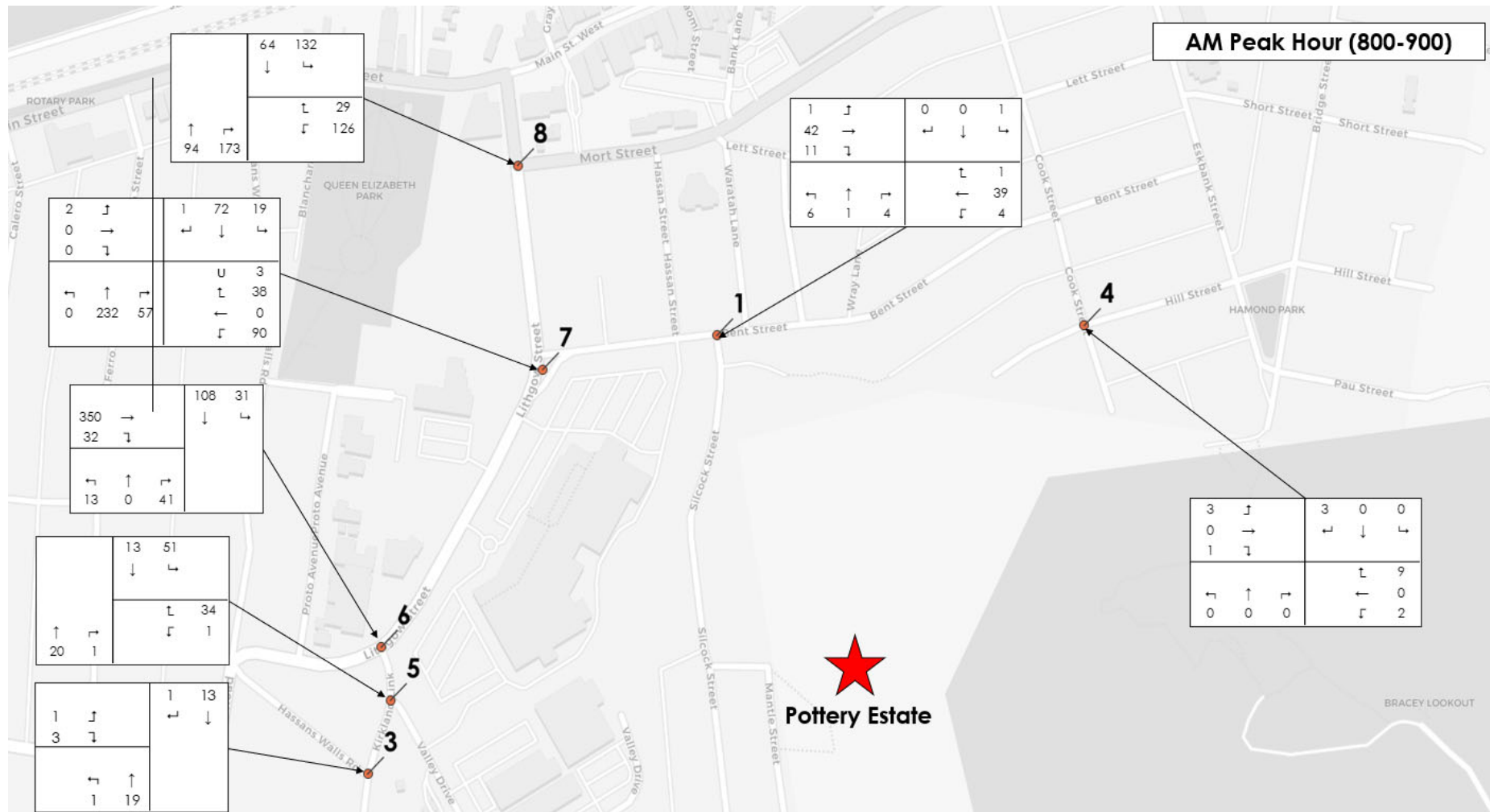


Figure 3.4: Surveyed PM Peak Hour Traffic Flows

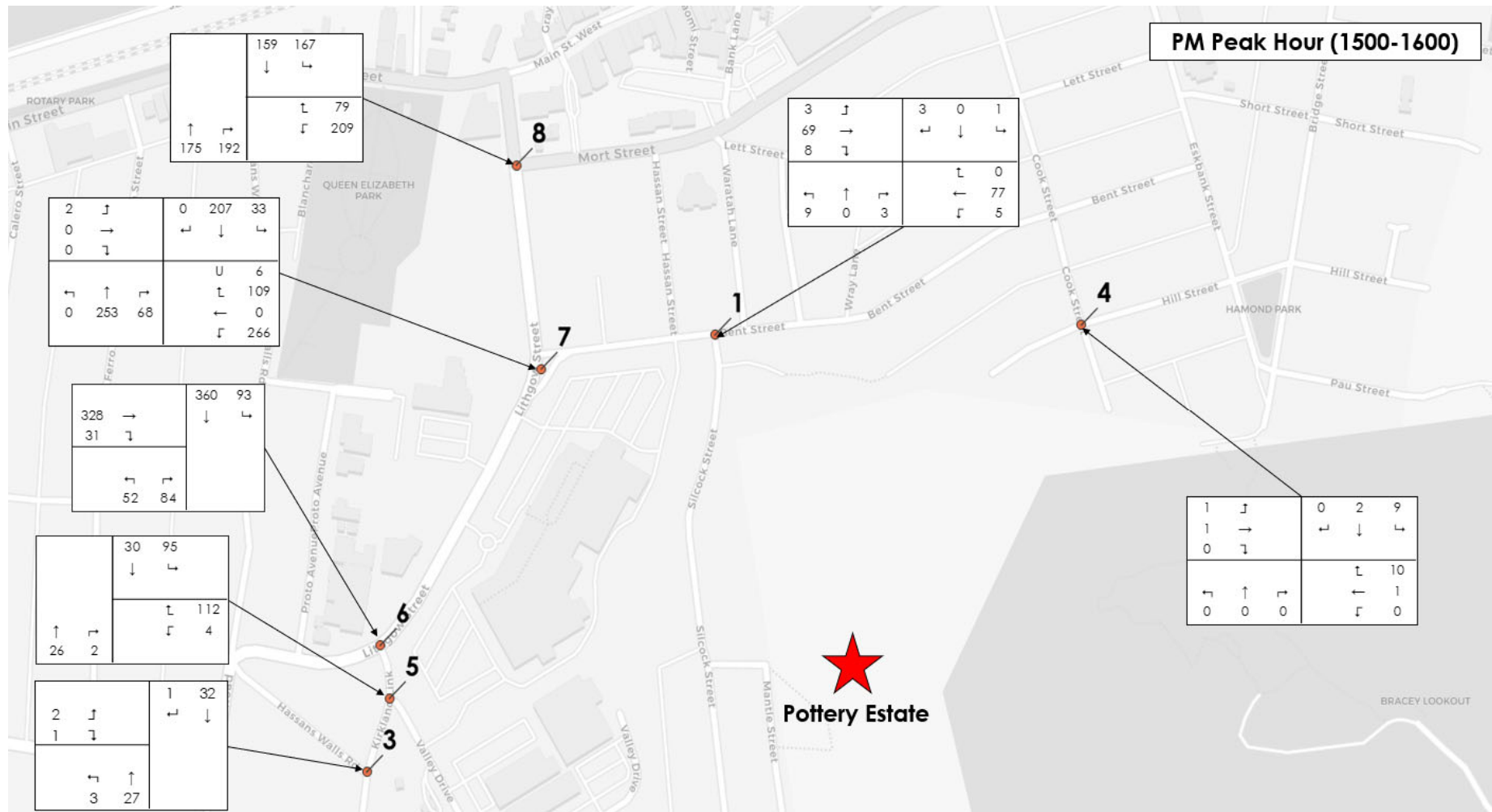


Table 3.1: Level of Service Criteria for Intersection Operation

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 would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

Table 3.2: Intersection Operation – SIDRA Modelling Results

Intersection	AM Peak Hour		PM Peak Hour	
	Ave. Delay (seconds / vehicle)	Level of Service	Ave. Delay (seconds / vehicle)	Level of Service
Bent St / Silcock St	5.8	A	6.6	A
GWH / Bayonet St	20.4	B	21.6	B
Hannans Wall Rd / Lirkland Link	6.7	A	5.6	A
Cook St / Hill St	6.4	A	5.6	A
Kirkland Link / Valley Dr	8.3	A	8.7	A
Kirkland Link / Lithgow St	8.3	A	12.3	A
Lithgow St / Bent St	5.8	A	6.4	A
Lithgow St / Mort St	17.4	B	21.7	B

3.4 Public Transport Operations

Public bus transport services in Lithgow are provided by Lithgow Buslines. Buslines operate extensively throughout the Lithgow area, including intertown links to Portland, Wallerawang and Bathurst. The company also offers a comprehensive school bus service as well as group and school excursion charter.

Within the Lithgow township, Buslines operates 6 service routes, as set out below:

Route	Description
100	LITTLETON & LITHGOW HOSPITAL via Strathlone Estate & Kirkley Gardens
200	BOWENFELS via Coerwull & Lithgow Hospital
304	McKELLARS PARK & OAKEY PARK via Hermitage Flat & Morts Estate
500	VALE of CLWYDD via Hill Street
600	PORTLAND - LITHGOW via Wallerawang (& return)
636	LITHGOW to BATHURST via Wallerawang- Portland- Meadow Flat- Mt Lambie- Yetholme (& return)

Source: www.buslinesgroup.com.au/lithgow-public-timetables

These services are shown in the bus route map provided in Figure 3.5.

As shown in Figure 3.5, the Lithgow Valley Plaza on Lithgow Street is a bus node for all 6 different bus routes provided by Buslines offering public transport access to areas within the local and broader Lithgow region.

Lithgow Buslines also provides extensive school bus services between schools in the Lithgow area and local and regional residential populations.

3.5 Pedestrian and Cycle Facilities

Existing pedestrian and cycle facilities within the vicinity of the Pottery Estate are relatively limited. Formalised footpaths on at least one side of the road are generally provided on local collector roads and local access roads.



It is noted that formal pedestrian footpaths are currently not provided on roads at any of site's access points; namely:

- Silcock Street;
- Hill Street; nor
- Valley Drive.

Notwithstanding the above there are a number of informal pedestrian paths exist within the Pottery Estate with connections to Hassans Wall Road, Hill Street and the unnamed laneway to the north of Hill Street.

4 Proposed Development

4.1 Existing Bunnings Small Format Store in Lithgow

A Bunnings Small Format Store currently operates from a site at 295 Main Street Lithgow.

The existing Bunnings Small Format Store site comprises of the following:

- 1,170m² of warehouse area
- 1,209m² of nursery
- 1,724m² of timber trade
- 17 car parking spaces

The demand for limited on-site parking has been observed by TTPP to be an issue with customers generally parking on street and walking into the store during periods of peak demand.

It is understood that the existing store will close once the proposed new facility at Valley Drive is operational.

Notwithstanding the above, for the purpose of this traffic assessment, it is assumed that the existing Bunnings Small Format Store and its existing traffic generation would be retained within the surrounding road network.

4.2 Proposed Bunnings Small Format Store Valley Drive Development Scheme

The proposed Bunnings Small Format Store to be located at Valley Drive will comprise of the following:

- 2,735m² of warehouse area (including amenities and support office)
- 1,184m² of nursery (and bagged goods) area
- 2,295m² of timber trade
- 114 car parking spaces, comprising;
 - 103 normal car parking spaces
 - 5 accessible spaces and
 - 6 trailer bays

Vehicle access to the on-site car parking area will be facilitated via two separate entry / exit driveways, one accessing the site from the northern frontage and the other on the eastern frontage.

The northern car park access will be located at Valley Drive while the eastern access will be provided via the new 'private' road that will access the Pottery Estate mixed use area.

A separate service vehicle entry driveway will be provided via Valley Drive. This entry connects to a one-way internal service vehicle only road which circulates around the rear of the warehouse and to a service vehicle exit only access at the new 'private' road.

The proposed site layout and vehicle access arrangements are shown in Figure 4.1.

4.3 Service Vehicles and Loading Facilities

Commercial vehicles will enter via Valley Drive and exit to the proposed 'private' road, allowing for forward entry and exit without large on-site turning manoeuvres.

The loop road system provides a vehicle storage or queuing area between the designated loading area and the site boundary of some 100 metres of internal roadway. This would accommodate some 5-8 service vehicles standing within the site.

Loading docks are designed to be able to accommodate small, medium and heavy rigid vehicles as defined by AS2890.2.

5 Parking Assessment

5.1 Car Parking Requirement

The minimum car parking requirements for a “hardware, building & rural supplies and plant nursery” is set out in Lithgow Development Control Plan (DCP) 2021.

A review of the car parking requirement rates and the floor area schedule results in a DCP 2021 car parking requirement for the proposed development as summarised in Table 5.1.

Table 5.1: DCP Parking Requirements

Use Class	Size	DCP 2021 Parking Rate	DCP 2021 Parking Requirement
Warehouse	2,735 m ²	1 space per 130m ²	-
Nursery (& bagged goods)	1,184 m ²	1 space per 130m ²	-
Timber Trade	2,295 m ²	1 space per 130m ²	-
Total Area	6,214 m²	1 space per 130m²	47.8

Therefore, the DCP 2021 requires a minimum provision of 48 on-site car parking spaces.

The proposed provision of 114 on site parking spaces significantly exceeds the minimum DCP 2021 parking requirements and would be more than adequate to accommodate the parking demands of the proposed Bunnings Small Format Store development on the site.

5.2 Accessible Car Parking

Accessible car parking provisions are outlined in the Building Code of Australia (BCA). For Class 6 buildings in the BCA, accessible parking is to be provided at the rate of one space per 50 spaces, or part thereof.

Therefore, three (3) spaces are required for the development. The development has allocated five (5) spaces and would thus be compliant with BCA requirements.

5.3 Trailer Bay Requirements

Trailer bay parking space are not a DCP 2021 requirement but rather their provision reflects the need for the particular use that is Bunnings.

Generally, bays are provided at the rate of between four to eight bays per Bunnings site. The provision 6 trailer parking bays is considered appropriate for the proposed Lithgow Small Format Store at Valley Drive.

6 Vehicle Access, Internal Circulation and Service Vehicle Arrangements

6.1 Vehicle Access

As noted in Chapter 4, access to the proposed Bunnings Small Format Store car park will be provided via Valley Drive and the new private road.

The design of the car park access will facilitate forward entry and forward exit movements to and from the site in accordance with AS2890.1 and DCP 2021 requirements.

The proposed location of the vehicle access driveways will facilitate appropriate sight lines to approaching traffic.

The site's location at the end of Valley Drive will mean that there is minimal through traffic along Valley Drive thus minimising the potential for conflicts with turning traffic to and from the proposed Bunnings Small Format Store.

6.2 Internal Circulation

The design of the internal circulation and parking including aisles and bays accords with the design criteria of AS2890.1/2 and 6.

The two way traffic circulation aisles in the car park will provide flexible arrangements.

6.3 Servicing Arrangements

The proposed loading arrangement will be separated from the proposed car parking area.

A vehicle swept path analysis for heavy rigid vehicles (HRV-12.5m long), articulated vehicles (AV- 19m long) and B-Double (26m long) has been undertaken for the proposed service vehicle arrangements. The results of the assessment are presented in Appendix A.

It is expected that the majority of service vehicle deliveries would be undertaken using HRV and AVs. B-Doubles are not expected to service the site noting that Valley Drive is not an approved B-Double route. Notwithstanding the above, the design of the loading area and access requirements have been set out to accommodate a B-double vehicle should it be required in the future.

The assessment indicates that the proposed service vehicle arrangements will satisfactorily accommodate the servicing requirements of the proposed Bunnings Small Format store development.

7 Traffic Assessment

7.1 Existing Traffic Generation

RMS released Technical Direction TDT 2013-4b which includes traffic generation criteria for 'hardware' uses. However, this data is considered to be inappropriate to apply to a contemporary Bunnings Small Format Store as the survey data predominately utilised smaller Mitre 10 outlets.

Thus, for the assessment of the proposed Bunnings Small Format Store Lithgow, actual traffic generation rates for similar sized regional Bunnings Small Format stores have been used.

The traffic rates for similar stores are summarised in Table 7.1.

Table 7.1: Summary of vehicle trips and floor area

Store Location	Floor Area (m ²)	Thu PM		Sat Midday	
		Vehicle trips/hour	Vehicle trips/hour/ 100m ²	Vehicle trips/hour	Vehicle trips/hour/ 100m ²
Nowra (RMS)	9,948	198	1.99	447	4.49
Wollongong	10,619	260	2.45	550	5.18
Mudgee	4,918	137	2.78	306	6.22

7.2 Proposed Lithgow Bunnings Small Format Store Traffic Generation

For the purpose of this assessment, the traffic generation rates for the Bunnings Small Format Store at Mudgee have been used in this assessment to estimate the potential traffic generation of the Lithgow Bunnings Small Format Store at Valley Drive.

Accordingly, for the proposed Bunnings Small Format Store GFA of 6,214m², the site is expected to generate:

- 173 trips in the Thursday PM peak, and
- 387 trips in the Saturday midday peak.

7.3 Intersection Performance

As noted above, the proposed Bunnings Small Format Store at Lithgow would generate peak traffic flows during the Saturday midday period.

Traffic surveys outside of COVID conditions have not been obtained for the surrounding road network.

To assess the ability of the surrounding road network to accommodate the traffic generation of the proposed Bunnings Small Format Store at Lithgow, the peak Saturday traffic generation for the development has been added to the surveyed weekday PM peak conditions for the surrounding road network.

By assessing the peaks of the road network and the development together, the assessment represents a worst case scenario given that these peaks would typically not occur simultaneously.

The results of the SIDRA intersection analysis with the additional traffic generation of the proposed Bunnings Small Format Store are summarised in Table 7.2. Detailed results are presented in Appendix B.

Table 7.2: Intersection Operation – SIDRA Modelling Results

Intersection	PM Peak Hour Base	PM Peak Hour Base + Development
	Level of Service	Level of Service
Bent St / Silcock St	A	A
GWH / Bayonet St	B	B
Hannans Wall Rd / Lirkland Link	A	A
Cook St / Hill St	A	A
Kirkland Link / Valley Dr	A	A
Kirkland Link / Lithgow St	A	C
Lithgow St / Bent St	A	A
Lithgow St / Mort St	B	B

The results indicate that the surrounding road network can satisfactorily accommodate the estimate traffic generation of the proposed Bunnings Small Format Store at Valley Drive Lithgow.

8 Conclusion

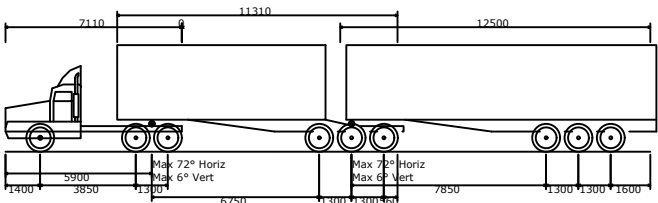
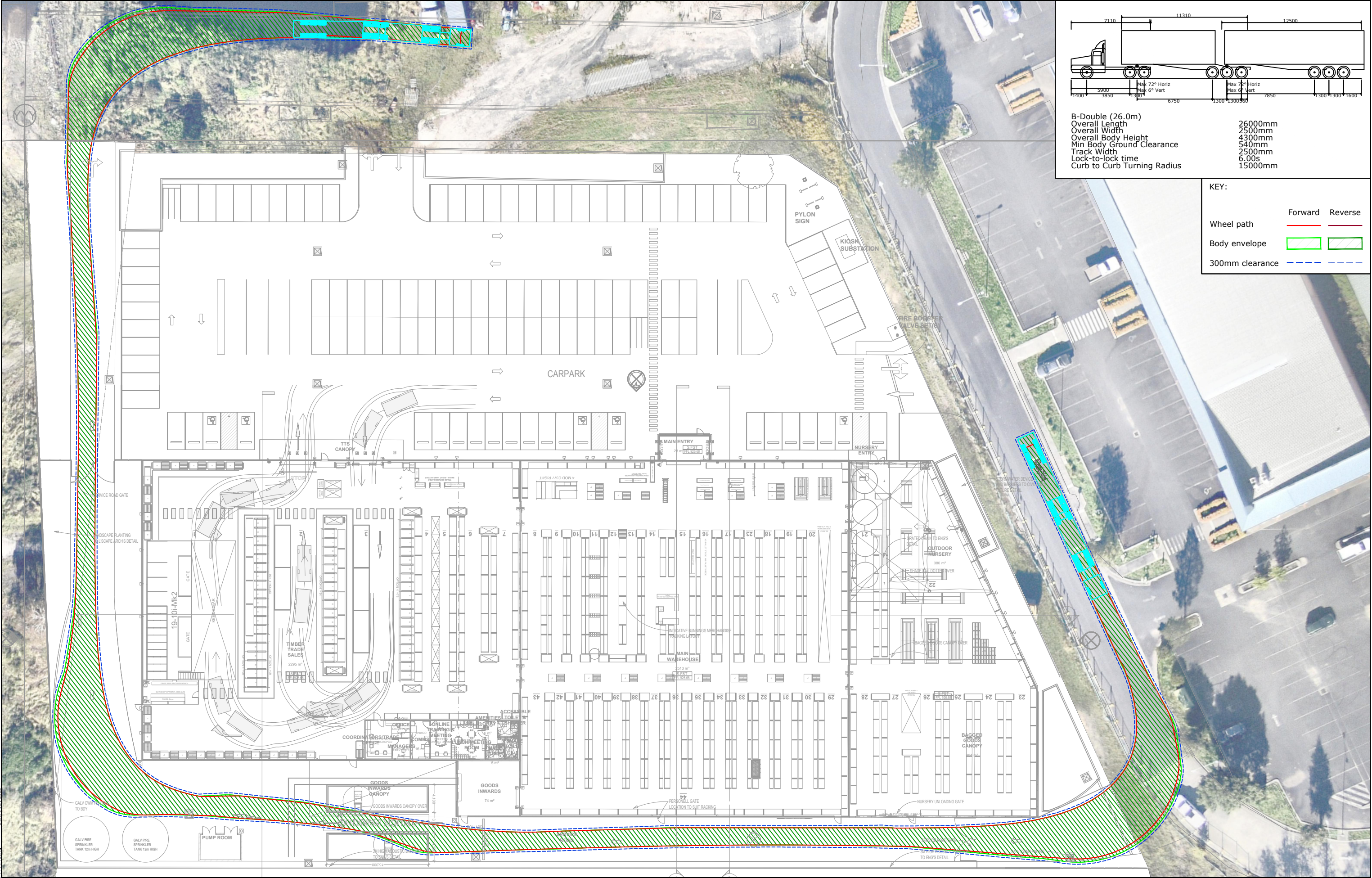
This traffic impact assessment report relates to a proposed Bunnings Small Format Store along Valley Drive, Lithgow, as part of the Pottery Estate growth DCP.

This assessment has concluded that:

- The proposed development is consistent with the objectives and envisaged future development use as set out in the Pottery Estate Precinct Indicative Structure Plan and DCP 2021.
- The proposed car parking provision is consistent with other Bunnings Small Format Store developments and significantly exceeds the DCP 2021 minimum requirements. The proposed provision is considered to be adequate to serve the anticipated use of the site
- The potential traffic generation of the proposed development can be adequately accommodated within the existing capacity of the surrounding road network.
- The proposed service vehicle arrangements are appropriate and will facilitate efficient servicing of the proposed development.

Appendix A

Vehicle Swept Path Analysis



B-Double (26.0m)
Overall Length 26000mm
Overall Width 2500mm
Overall Body Height 4300mm
Min Body Ground Clearance 540mm
Track Width 2500mm
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 15000mm

KEY:

	Forward	Reverse
Wheel path	—	—
Body envelope	—	—
300mm clearance	---	---

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	JY	JR	JR	08/07/22



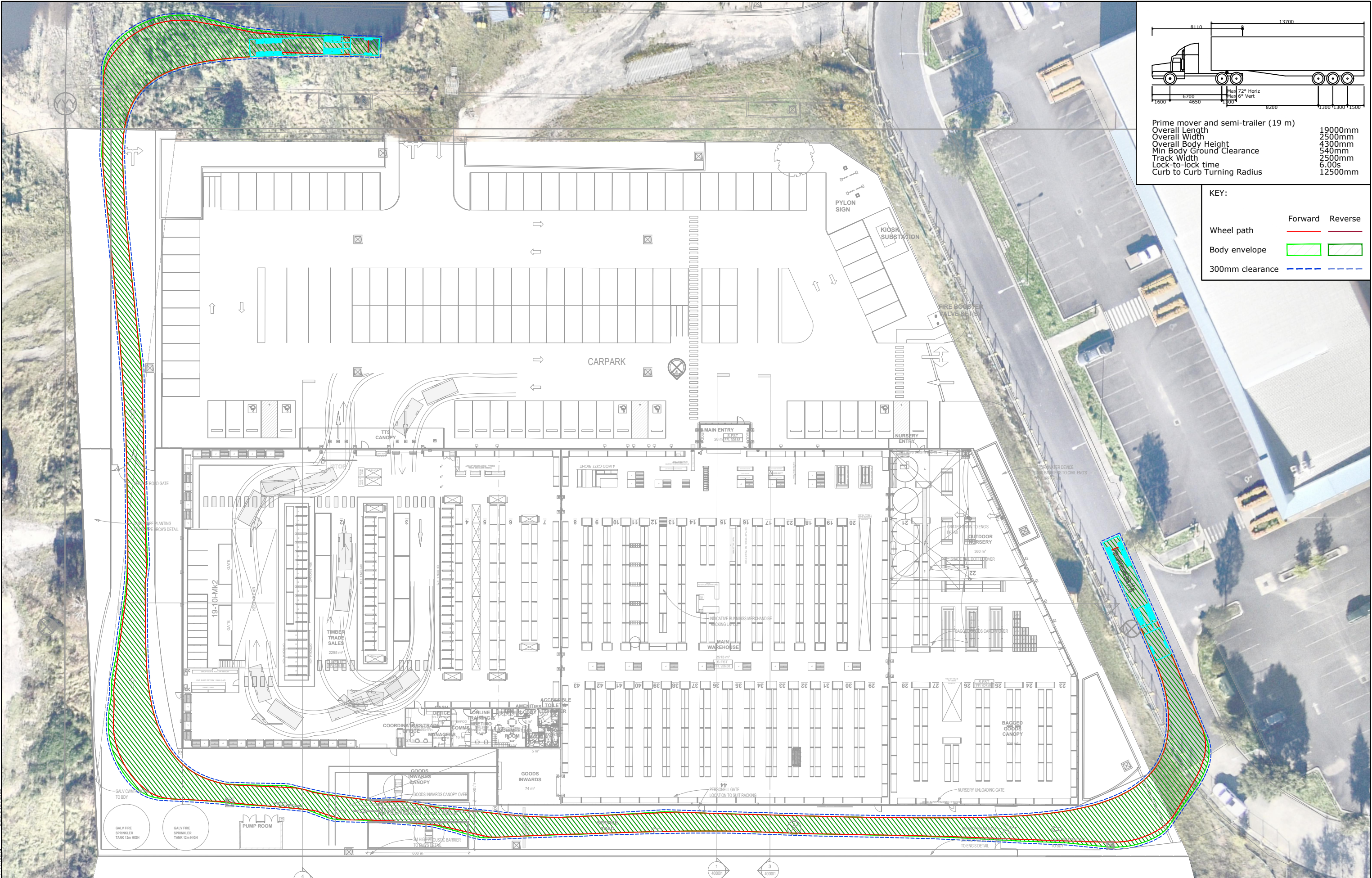
PROJECT

BUNNINGS VALLEY DRIVE LITHGOW

TITLE

SWEPT PATH ANALYSIS
26m B-DOUBLE

DWG No.	21305CAD004
FIGURE 1	
DATE STAMP	08 JULY 2022
PROJECT No.	21305
SCALE	1:500 @A3
REV.	A



8110

13700

Prime mover and semi-trailer (19 m)

Overall Length19000mm

Overall Width2500mm

Overall Body Height4300mm

Min Body Ground Clearance540mm

Track Width2500mm

Lock-to-lock time6.00s

Curb to Curb Turning Radius12500mm

KEY:

	Forward	Reverse
Wheel path	<div></div>	<div></div>
Body envelope	<div></div>	<div></div>
300mm clearance	<div></div>	<div></div>

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	JY	JR	JR	08/07/22

PROJECT

BUNNINGS VALLEY DRIVE LITHGOW

TITLE

SWEPT PATH ANALYSIS
19m PRIME MOVER & SEMI-TRAILER

DWG No.	21305CAD004
FIGURE 2	
DATE STAMP	08 JULY 2022
PROJECT No.	21305
SCALE	1:500 @A3
REV.	A

Document Set ID: 2023598
Version: 1, Version Date: 15/07/2022

12500

2400

5900

1400

HRV - Heavy Rigid Vehicle

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Track Width

Lock-to-lock time

Curb to Curb Turning Radius

12500mm

2500mm

4300mm

417mm

2500mm

6.00s

12500mm

KEY:

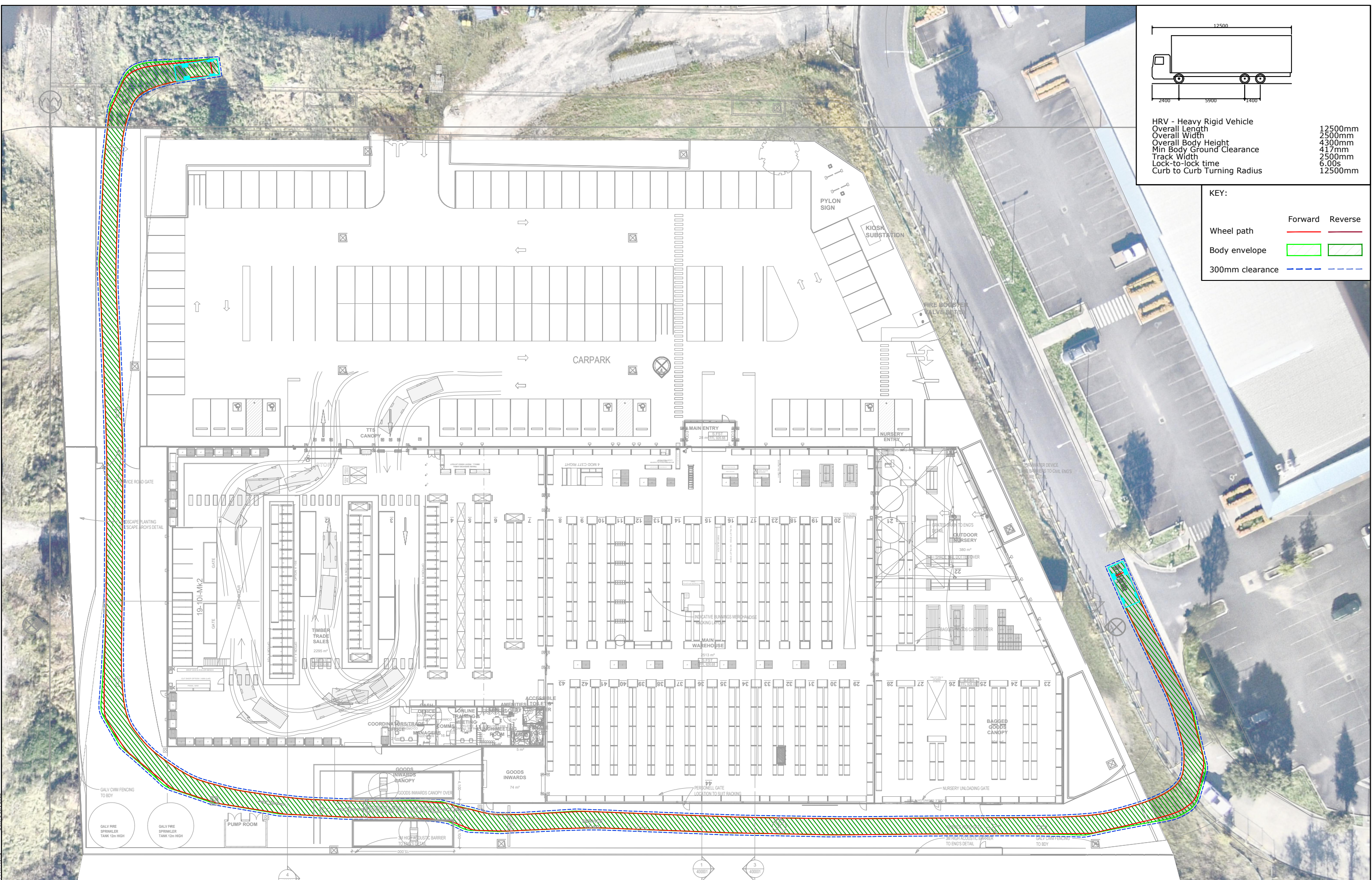
Wheel path

Body envelope

300mm clearance

Forward

Reverse



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	JY	JR	JR	08/07/22



PROJECT

BUNNINGS VALLEY DRIVE LITHGOW

TITLE

SWEPT PATH ANALYSIS
AS2890.2 12.5m HEAVY RIGID VEHICLE

DWG No.	21305CAD004
FIGURE 3	
DATE STAMP	08 JULY 2022
PROJECT No.	21305
SCALE	1:500 @A3
REV.	A

Appendix B

SIDRA Intersection Modelling Results Summary

PM Base Case					
Intersection	Approach	Movement	Aver. Delay (sec)	Level of Service	95th %ile. Queue (m)
Bent St / Silcock St (Priority)	South: Silcock St	L2	5.9	LOS A	0.3
	South: Silcock St	R2	6.6	LOS A	0.3
	East: Bent St	L2	6	LOS A	0
	East: Bent St	T1	0	LOS A	0
	West: Bent St	T1	0	LOS A	0.4
	West: Bent St	R2	5.7	LOS A	0.4
GWH / Bayonet St (Signalised)	South: GWH	L2	18.3	LOS B	35.7
	South: GWH	T1	13	LOS A	36.5
	South: GWH	R2	20.8	LOS B	23.8
	East: Bayonet St	L2	23.7	LOS B	28.8
	East: Bayonet St	T1	39	LOS C	13.4
	East: Bayonet St	R2	44.5	LOS D	13.4
	North: GWH	L2	29.1	LOS C	60.4
	North: GWH	T1	23.9	LOS B	61.1
	North: GWH	R2	27.4	LOS B	5.6
	West: Ninda Place	L2	43.2	LOS D	2
	West: Ninda Place	T1	38.7	LOS C	10.6
	West: Ninda Place	R2	44.4	LOS D	10.6
	All Vehicles		21.6	LOS B	61.1
Hassans Walls Rd / Kirkland Link (Priority)	South: Hassans Walls Rd	L2	5.5	LOS A	0
	South: Hassans Walls Rd	T1	0	LOS A	0
	North: Kirkland Link	T1	0	LOS A	0
	North: Kirkland Link	R2	4.3	LOS A	0
	West: Hassans Walls Rd	L2	5.6	LOS A	0.1
	West: Hassans Walls Rd	R2	5.6	LOS A	0.1
Cook St / Hill St (Priority)	South: Cook St	L2	5.6	LOS A	0
	South: Cook St	T1	0	LOS A	0
	South: Cook St	R2	5.5	LOS A	0
	East: Hill St	L2	5.5	LOS A	0.2
	East: Hill St	T1	4.2	LOS A	0.2
	East: Hill St	R2	5.5	LOS A	0.2
	North: Cook St	L2	5.5	LOS A	0.1
	North: Cook St	T1	0	LOS A	0.1
	North: Cook St	R2	5.5	LOS A	0.1
	West: Hill St	L2	5.5	LOS A	0.1
	West: Hill St	T1	4.2	LOS A	0.1
	West: Hill St	R2	5.5	LOS A	0.1
Kirkland Link / Valley Dr (Priority)	South: Kirkland Link	T1	0.1	LOS A	0.1
	South: Kirkland Link	R2	4.7	LOS A	0.1
	East: Valley Drive	L2	8.1	LOS A	3.8
	East: Valley Drive	R2	8.7	LOS A	3.8
	North: Kirkland Link	L2	3.7	LOS A	0
	North: Kirkland Link	T1	0	LOS A	0
Kirkland Link / Lithgow St (Priority)	South: Kirkland Link	L2	5.1	LOS A	1.3
	South: Kirkland Link	R2	12.3	LOS A	5.6
	East: Lithgow St	L2	5.6	LOS A	0
	East: Lithgow St	T1	0.1	LOS A	0
	West: Lithgow St	T1	0	LOS A	0
	West: Lithgow St	R2	6.8	LOS A	0.8
Lithgow St / Bent St (Priority)	South: Lithgow St	T1	0	LOS A	0
	South: Lithgow St	R2	6.4	LOS A	1.6
	East: Bent St	L2	6.1	LOS A	0
	East: Bent St	R2	10	LOS A	5.3
	North: Lithgow St	L2	5.5	LOS A	0
	North: Lithgow St	T1	0	LOS A	0
Lithgow St / Mort St (Signalised)	South: Lithgow St	T1	12.8	LOS A	32.9
	South: Lithgow St	R2	23.2	LOS B	45.5
	East: Mort St	L2	33.5	LOS C	63.2
	East: Mort St	R2	31	LOS C	20.8
	North: Lithgow St	L2	18.6	LOS B	34
	North: Lithgow St	T1	12.7	LOS A	30.2
	All Vehicles		21.7	LOS B	63.2

PM Base Case + Development Traffic						
Intersection	Approach	Movement	Aver. Delay (sec)	Level of Service	95th %ile. Queue (m)	Additional Vehicle Movements (vph)
Bent St / Silcock St (Priority)	South: Silcock St	L2	6.2	LOS A	0.3	0
	South: Silcock St	R2	7.2	LOS A	0.3	0
	East: Bent St	L2	6	LOS A	0	0
	East: Bent St	T1	0	LOS A	0	79
	West: Bent St	T1	0.1	LOS A	0.5	22
	West: Bent St	R2	6	LOS A	0.5	2
GWH / Bayonet St (Signalised)	South: GWH	L2	18.3	LOS B	35.7	0
	South: GWH	T1	13	LOS A	36.5	0
	South: GWH	R2	20.8	LOS B	23.8	0
	East: Bayonet St	L2	23.7	LOS B	28.8	0
	East: Bayonet St	T1	39	LOS C	13.4	0
	East: Bayonet St	R2	44.5	LOS D	13.4	0
	North: GWH	L2	29.1	LOS C	60.4	0
	North: GWH	T1	23.9	LOS B	61.1	0
	North: GWH	R2	27.4	LOS B	5.6	0
	West: Ninda Place	L2	43.2	LOS D	2	0
	West: Ninda Place	T1	38.7	LOS C	10.6	0
	West: Ninda Place	R2	44.4	LOS D	10.6	0
	All Vehicles		21.6	LOS B	61.1	0
Hassans Walls Rd / Kirkland Link (Priority)	South: Hassans Walls Rd	L2	5.5	LOS A	0	0
	South: Hassans Walls Rd	T1	0	LOS A	0	0
	North: Kirkland Link	T1	0	LOS A	0	0
	North: Kirkland Link	R2	4.3	LOS A	0	0
	West: Hassans Walls Rd	L2	5.6	LOS A	0	0
	West: Hassans Walls Rd	R2	5.6	LOS A	0	0
Cook St / Hill St (Priority)	South: Cook St	L2	5.6	LOS A	0	0
	South: Cook St	T1	0	LOS A	0	0
	South: Cook St	R2	5.5	LOS A	0	0
	East: Hill St	L2	5.5	LOS A	0.2	0
	East: Hill St	T1	4.2	LOS A	0.2	0
	East: Hill St	R2	5.5	LOS A	0.2	0
	North: Cook St	L2	5.5	LOS A	0.1	0
	North: Cook St	T1	0	LOS A	0.1	0
	North: Cook St	R2	5.5	LOS A	0.1	0
	West: Hill St	L2	5.5	LOS A	0.1	0
	West: Hill St	T1	4.2	LOS A	0.1	0
	West: Hill St	R2	5.5	LOS A	0.1	0
Kirkland Link / Valley Dr (Priority)	South: Kirkland Link	T1	0.2	LOS A	0.1	0
	South: Kirkland Link	R2	5.6	LOS A	0.1	0
	East: Valley Drive	L2	8.3	LOS A	5.8	0
	East: Valley Drive	R2	10	LOS A	5.8	187
	North: Kirkland Link	L2	3.7	LOS A	0	187
	North: Kirkland Link	T1	0	LOS A	0	0
Kirkland Link / Lithgow St (Priority)	South: Kirkland Link	L2	5.2	LOS A	1.3	72
	South: Kirkland Link	R2	20.8	LOS C	9.4	116
	East: Lithgow St	L2	5.6	LOS A	0	140
	East: Lithgow St	T1	0.1	LOS A	0	0
	West: Lithgow St	T1	0	LOS A	0	0
	West: Lithgow St	R2	6.9	LOS A	0.8	47
Lithgow St / Bent St (Priority)	South: Lithgow St	T1	0	LOS A	0	91
	South: Lithgow St	R2	6.6	LOS A	2.3	25
	East: Bent St	L2	6.3	LOS A	0	79
	East: Bent St	R2	12.9	LOS A	7.1	0
	North: Lithgow St	L2	5.5	LOS A	0	0
	North: Lithgow St	T1	0	LOS A	0	61
Lithgow St / Mort St (Signalised)	South: Lithgow St	T1	12.1	LOS A	40.3	43
	South: Lithgow St	R2	23	LOS B	58.2	48
	East: Mort St	L2	35.9	LOS C	77.2	35
	East: Mort St	R2	32.5	LOS C	21.5	0
	North: Lithgow St	L2	17.5	LOS B	32.6	0
	North: Lithgow St	T1	11.8	LOS A	34	26
	All Vehicles		21.7	LOS B	77.2	152

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