

Transport Assessment

State Significant Development Application

Proposed Lot 10 – Kemps Creek Warehouse, Logistics and Industrial Facilities Hub

Ref: 1732r01v08 SSD TA_Proposed Lot 10_Kemps Creek
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Glossary

Acronym	Description
CC	Construction Certificate
Council	Penrith City Council
DA	Development Application
DCP	Development Control Plan
DPE	Department of Planning and Environment
GFA	Gross Floor Area
HRV	Heavy Rigid Vehicle (as defined by AS2890.2:2018)
LEP	Local Environmental Plan
LGA	Local Government Area
MOD	Section 4.55 Modification (also referred as a S4.55)
RMS Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
TDT 2013/04a	TfNSW Technical Direction, Guide to Traffic Generating Developments – Updated traffic surveys, August 2013
TfNSW	Transport for New South Wales
TA	Transport Assessment
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

1 Introduction

1.1 Overview

Ason Group has been engaged by Altis and Frasers JV Pty Ltd (JV) to prepare a Transport Assessment (TA) to support a State Significant Development (SSD) Application to construct, fit out and operate a manufacturing facility and associated warehouse facility at 657-769 Mamre Road, Kemps Creek (proposed Lot 10) which will be occupied and operated by Ardex.

Refer to **Table 2**, which presents the relevant SSD-25725029 Secretary's Environmental Assessment Report relating to the traffic and transport matters and Ason Group's responses which reference the relevant sections of this TA where each requirement is addressed.

Kemps Creek Warehouse, Logistics and Industrial Facilities Hub (also known as the Mamre South Precinct – MSP) is located at 657 – 769 Mamre Road, Kemps Creek, approximately 40 kilometres (km) west of the Sydney Central Business District. MSP comprises 118 hectares (ha) and is partially located within the Western Sydney Employment Area (WSEA) and the Western Sydney Aerotropolis (WSA).

The original SSD Approval for MSP (SSD-9522) was granted on 21 December 2020, which envisioned construction and operation of 8 warehouses comprising a total of 162,355 m² of Gross Floor Area (GFA).

The Proposal generally seeks to construct and operate a Warehouse / Industrial facility at the Site. It should be noted that the entire Lot 10 within MSP is 15.8 ha and the proposed development under this SSD application only occupies 4.37 ha of the land, as indicated in **Figure 1**.

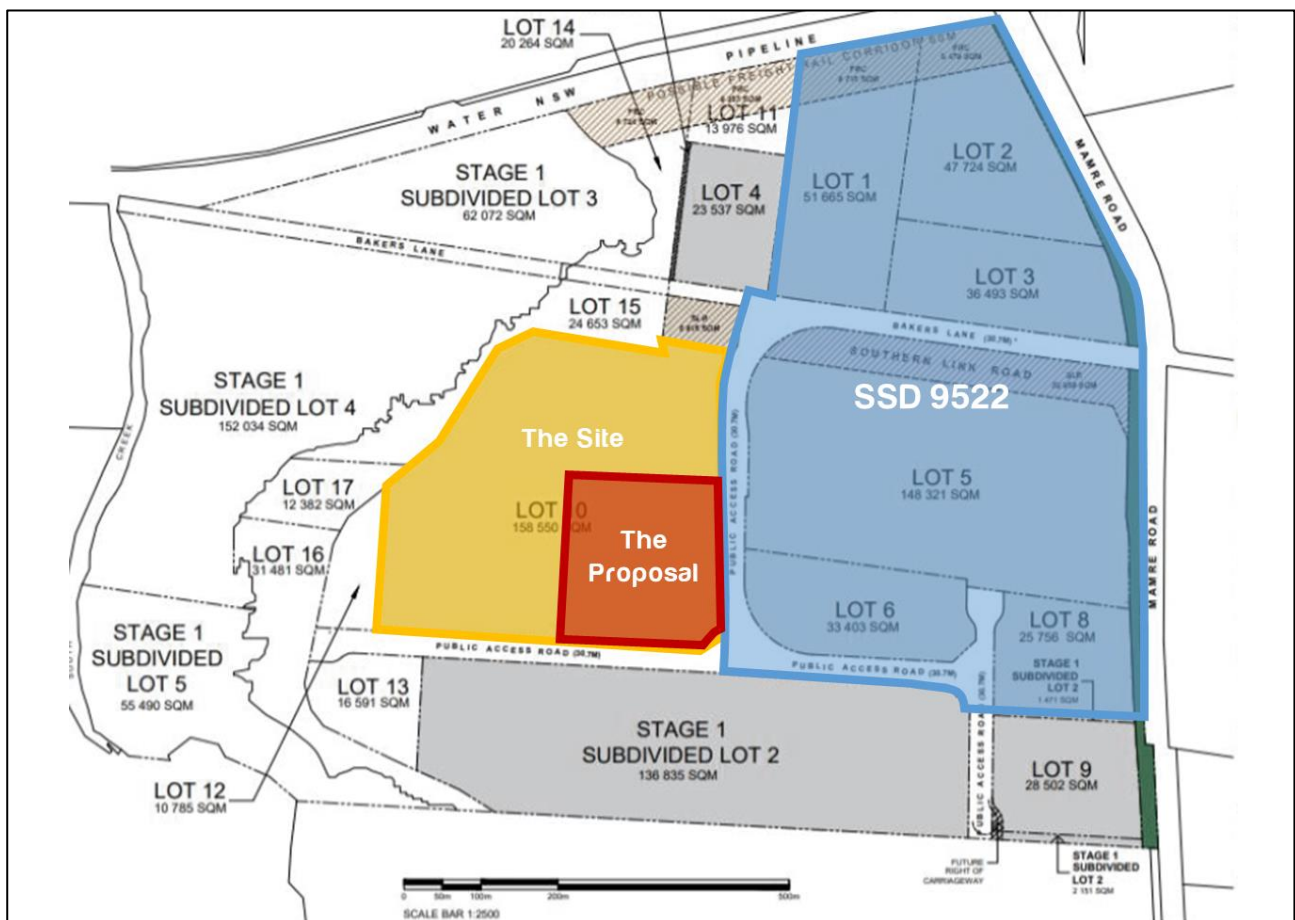


Figure 1: MSP Estate Subdivision Plan (subject to SSD-9522 MOD 1)

1.2 MSP (SSD-9522)

1.2.1 Original Approval

As discussed above, the original SSD Approval for MSP (SSD-9522) was granted on 21 December 2020 accompanied by series of Conditions of Consent (CoC), some of which relates to traffic and transport matters.

According to the Schedule 1 of the Development Consent, the approved SSD-9522 characteristics are as follows:

- Demolition of existing structures, site-wide earthworks, landscaping, stormwater and other infrastructure and an internal road network,
- Construction and operation of eight warehouses comprising 162,355 m² of floor space,
- Intersection upgrade works in Mamre Road,
- 744 parking spaces; and
- 21-lot Torrens title subdivision over two stages, being Stage 1 residual lot subdivision (5 lots) and Stage 2 residual and development lot subdivision (17 lots).

With reference to relevant assessments for SSD-9522, it is understood that the entire MSP has a possible overall built form scheme of 421,820 m² (indicative Ultimate Master Plan) as well as appropriate assumption for the Southern Lots, supported by the following upgrade strategies for the intersection of Mamre Road / Bakers Lane:

- **Sequence 1A:** an interim access connection to accommodate the SSD with 166,225 m² GFA and up to 2025 design year. This Sequence has already been replaced by the Modified Sequence 1A as part of MOD 1 approval that can accommodate the traffic from the MSP Ultimate Master Plan (with 421,820 m²).
- **Sequence 1B:** following Sequence 1A, Sequence 1B is expected to accommodate the traffic from the MSP Ultimate Master Plan (with 421,820 m²) and some potential developments to the south of MSP (the Southern Lots). According to SSD-9522 Condition B11, construction of the Sequence 1B shall be completed by 31 December 2025.
- **Sequence 2:** Sequence 2 will be delivered in the longer-term future (when Southern Link Road (SLR) is delivered by TfNSW and terminated as a cul-de-sac at the access to the MSP).
- **Sequence 3:** designed to be aligned with the ultimate configuration of SLR in the future and when it is extended west through the MSP.

To support the original SSD for MSP, Ason Group has previously prepared a TA and several Response to Submission letters (SSD-9522 TA), which include detailed traffic generation assessments and SIDRA modelling for all above mentioned Sequences.

It is therefore noted that, while the proposed development (within Lot 10) does not form part of the original SSD-9522 application, the potential traffic generation / impact of the proposed development is captured by the traffic assessments undertaken for the MSP Ultimate Master Plan and the SIDRA modelling undertaken for Sequence 1B, Sequence 2 and Sequence 3, which form part of the SSD-9522 approval.

1.2.2 Approved MOD 1

Approved Modification 1 (MOD 1) of the SSD-9522 seeks to change Sequence 1A to Modified Sequence 1A, which allows for extra intersection capacity and also accommodates proposed changes to Lots 5-8. It is noteworthy that the MOD 1 has been approved by the Department of Planning, Industry & Environment on 3 September 2021. Furthermore, this sequence will be referred to as approved Modified Sequence 1A within the context of this report.

1.2.3 MOD 2

It is understood that Modification 2 to the SSD-9522 Plan (MOD 2) has now been approved, which generally seeks to:

- Revise the overall Estate Plan.
- Revise estate road reserve width from a current approval (SSD-9522) from 30.7 metres to 26.4 metres and removal of central medians on all estate roads to provide full vehicular access and movement.

It is emphasised that these amendments are relevant to the MOD 2 and does not relate to this TA.

Detailed discussion regarding the operation of the approved Modified Sequence 1A (at Mamre Road / Bakers Lane) is provided in **Section 4**.

1.3 Study Purpose

As discussed in **Section 1.2**, it is critical to state that, while the original SSD-9522 application does not cover the entire MSP, the SSD-9522 TA provided detailed traffic generation / impact assessments for the MSP Ultimate Master Plan, which form part of the SSD-9522 Approval.

Therefore, the SSD-9522 Approval is considered to set the 'benchmark' for the subsequent applications within the MSP. Providing that these conditions have inherently been considered and validated by the key consent authorities, including the DPE and Transport for NSW (TfNSW), this TA therefore provides an assessment of the parking and traffic characteristics for the proposed development, which has been compared to the approved characteristics of the MSP to determine any departures from the current approval.

In summary, the main objective of this TA is to clarify that this SSD addresses the SEARs, TfNSW comments and CoC set for the original approval and to ascertain that proposed Lot 10 associated traffic can be captured through the approved Modified Sequence 1A, Sequence 1B, Sequence 2 and Sequence 3 plans without having any adverse impact. Furthermore, this TA undertakes necessary traffic analysis to show that the proposed development traffic will have no additional impacts on the approved Modified Sequence 1A Plan.

1.4 Key References

In preparing this TA, Ason Group has referenced the following key planning documents. These include:

- Penrith City Council Development Control Plan (DCP 2014);
- Penrith City Council Local Environmental Plan (LEP 2010); and
- NSW Department of Planning and Environment (DPE), Mamre Road Development Control Plan, November 2021 (Mamre Road DCP).

This TA also references general access, traffic and parking guidelines, including:

- Australian Standard 2890.1:2004 - Parking Facilities – Off Street Car Parking (AS 2890.1:2004);
- Australian Standard 2890.2:2018 - Parking Facilities – Off Street Commercial Vehicle Facilities (AS 2890.2:2018);
- Australian Standard 2890.3:2015 – Parking Facilities – Bicycle Parking (AS 2890.3:2015);
- Australian Standard 2890.6:2009 – Parking Facilities – Off Street Parking for People with Disabilities (AS2890.6:2009);

- Roads and Maritime Services (RMS), Guide to Traffic Generating Developments, 2002 (RMS Guide); and
- Roads and Maritime Services (RMS), Guide to Traffic Generating Developments Updated Traffic Surveys, 2013.

The following key documents have also been referenced:

- Mamre West Land Investigation Area, Planning Proposal Mamre Road, Western Sydney Priority Growth Area, prepared by Ason Group (ref: 0124r03v3) and dated 23 February 2016 (MWP TIA);
- Stage 1 SSDA, Proposed Warehouse and Logistics Hub; 585-649 Mamre Road, Orchard Hills, Western Sydney Priority Growth Area (the SSD TIA), prepared by Ason Group (ref: 0124r04v2) and dated 5 April 2016. This report was submitted as a State Significant Development (SSD) application for Stage 1 (Lots 7, 8 and internal roads) of the Mamre West Precinct;
- Mamre Road Upgrades Kerrs Road to M4 Motorway, prepared by Roads and Maritime Services (RMS) and dated November 2017;
- Proposed Warehouse, Logistics and Industrial Facilities Hub - 657-769 Mamre Rd, Kemps Creek, Traffic Impact Assessment, prepared by Ason Group (ref: 0584r04v04) dated 03 August 2020 (SSD 9522 TA); and

Modification 1 – Warehouse, Logistics and Industrial Facilities Hub – 657 – 769 Mamre Road, Kemps Creek, Traffic Assessment, prepared by Ason Group (ref: 1565r02v3) dated 04 March 2021 (MOD 1).

1.5 Test of Adequacy Comments

It is understood that DPE has reviewed our traffic report and has provided the additional two comments as part of the Test of Adequacy process as outlined below.

TABLE 1 RESPONSE TO DPE

No.	Comment	Ason Response
Traffic and Transport		
1	Ensure all figures are legible. For example, Figures 10 and 11 in the Traffic Assessment (TA)	Noted and amended
2	Justification for the location and an assessment of the potential impacts of the proposed car entry/exit point which the Department notes is within close proximity to the intersection.	<ol style="list-style-type: none"> 1. The proposed access crossover for the car parking facility is located some 16.5m to the west of the intersection between North-South Road and East-West Road. Accordingly, this access point is compliant with the requirement of AS2890.1: 2004 Figure 3.1 of the Standard, which requires a minimum of 6.0m from the tangent point of the intersection. 2. The proposed carparking facility accessed via this crossover will accommodate a total of 157 car parking spaces mainly for staff attending the Site. As such, a Category 2 access driveway is applicable to this crossover, which requires a combined driveway between 6.0 to 9.0m. Therefore, the provision of a 6.2m combined access driveway is deemed to be sufficient for a Category 2 access driveway. 3. The sightline assessment undertaken for this access is deemed satisfactory. 4. The traffic associated with this access crossover is mainly related to the staff and as such, this access serves a low traffic number during network peak hours. With reference to Section 6.3, the AM peak hour generates a total of 38 cars and the PM peak hour generates a total of 0 cars.

1.6 Response to Secretary's Environmental Assessment Report

A summary of the relevant SSD-25725029 SEARs relating to the traffic and transport aspects is presented in **Table 2**, which also includes reference to the relevant sections of this TA where each requirement is addressed.

TABLE 2 RESPONSE TO SEARS

No.	Comment	Ason Response																								
Traffic and Transport																										
1	Details of all daily and peak traffic volumes likely to be generated during construction and operation, including a description of key access / haul routes, vehicle types and potential queuing impacts	<p>A description of the proposed access points is outlined in Section 2.2.</p> <p>The Proposal is not anticipated to generate significant pedestrian and/or public transport trips during the construction or operation of the proposed development. However, details of daily and peak hour traffic generation of the Proposal have been reviewed (at the operational phase) and outlined in Section 6. As such, the proposed SSD will generate the following vehicular traffic generation onto the surrounding road network (when assessed against the SSD-9522 APPROVED rates):</p> <table><tr><th>Lot</th><th>AM Peak</th><th>PM Peak</th><th>Daily</th></tr><tr><td>10</td><td>68</td><td>50</td><td>725</td></tr></table> <p>Based on the operational data provided by the immediate tenant of the Site, the proposed SSD would generate the following vehicular traffic generation onto the surrounding road network (actual anticipated operational traffic generation of the SSD):</p> <table><tr><th>Lot</th><th>AM Peak</th><th>PM Peak</th><th>Daily</th></tr><tr><td>10</td><td>44</td><td>5</td><td>350</td></tr></table> <p>In summary, the traffic associated with the proposed SSD will not have any additional impact from what has already been assessed and approved as part of SSD-9522 and approved MOD 1.</p> <p>It is also noted that a detailed Construction Traffic Management Plan (CTMP) for the proposed development can be prepared separately and in response to a condition of consent as part of the Construction Certificate (CC) phase of this SSD. However, a preliminary CTMP is provided in Section 7 which estimates the following daily construction traffic movements for the proposal:</p> <table><tr><th>Lot</th><th>Light Vehicles</th><th>Heavy Vehicles</th><th>Total</th></tr><tr><td>10</td><td>196</td><td>49</td><td>245</td></tr></table>	Lot	AM Peak	PM Peak	Daily	10	68	50	725	Lot	AM Peak	PM Peak	Daily	10	44	5	350	Lot	Light Vehicles	Heavy Vehicles	Total	10	196	49	245
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2	An assessment of the predicted impacts of traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections using SIDRA or a similar traffic model. This is to include the identification and consideration of approved and proposed developments / planning proposals / road upgrades in the vicinity, including SSD-9522. The assessment needs to consider the impact on Mamre Road at Bakers Lane (Aldington Road) for the duration of the works.	<p>In accordance with the SIDRA modelling results of the approved Modified 1A, 1B, 2 and 3 as part of the original SSD-9522 approval and MOD 1 approval (refer to Section 4.2.1), intersections in the broader locality of the MSP can accommodate the anticipated traffic of the MSP Ultimate Master Plan GFA (421,820 m² and assumed GFA for the Southern Lots), which captured the estimated traffic generation associated with the proposed development.</p> <p>It is also important to note that based on operational traffic volumes provided by the immediate tenant of the Site, their anticipated AM and PM peak hour and daily traffic volumes are LOWER than what has been estimated as part of the MSP Ultimate Master Plan for this Site, which further confirms immaterial impact from this SSD onto the surrounding road network.</p> <p>Accordingly, this TA determines that the revised modelling is not deemed necessary. A copy of the relevant SIDRA results prepared for the approved SSD-9522 as well as the approved Modified 1A Sequence Plan (under the MOD 1 approval) are attached in Appendix A.</p> <p>However, in response to the TfNSW <i>comment 8i</i> in Table 3, Ason Group have completed additional option testing for the Modified 1A sequence plan at Mamre Road / Bakers Lane signalised intersection for the design years of 2026, 2031 and 2036. The additional modelling has been</p>																								

undertaken to inform TfNSW as to what would be performance of the Modified 1A intersection in case that Southern Link Road (SLR) would not be delivered in a medium to longer term future. Results of the SIDRA analysis for the additional option testing is provided in **Appendix B**.

- 3 Details of vehicles waiting to unload, unloading / servicing, including predicted haulage routes, including over size over mass vehicles and impacts to the state road network.

Refer to **Section 6** which includes details regarding the vehicles expected to load, unload and service the development. The proposed SSD includes provision of 11 roller shutter doors and 4 recessed docks i.e., a sum of 15 loading and unloading spaces are provided on-site. An uncoupling area has also been provided for the proposal in line with AS2890.2:2018 requirements. Swept path analysis confirm suitability for 36.2m A-Double movements at the proposed access points and internal commercial areas. However, it is noted that based on the proposed tenant's operational information, the proposal will only require 26.0m B-Double as the design vehicle. Hence, the simulation for 36.2m A-Double (based on the Mamre Road Precinct DCP) is considered to be conservative.

According to the approved SSD-9522 TA, the approved service bay provision is expected to fall within a range of 1 space per 778m² – 2,535m² of warehouse GFA.

Having regard to the above, the minimum and maximum service bay requirement have been applied and is shown in the following table:

Warehouse GFA (m ²)	Service Bay Requirement (Lower)	Service Bay Requirement (Higher)	Service Bay Provision
15,390	6	20	15

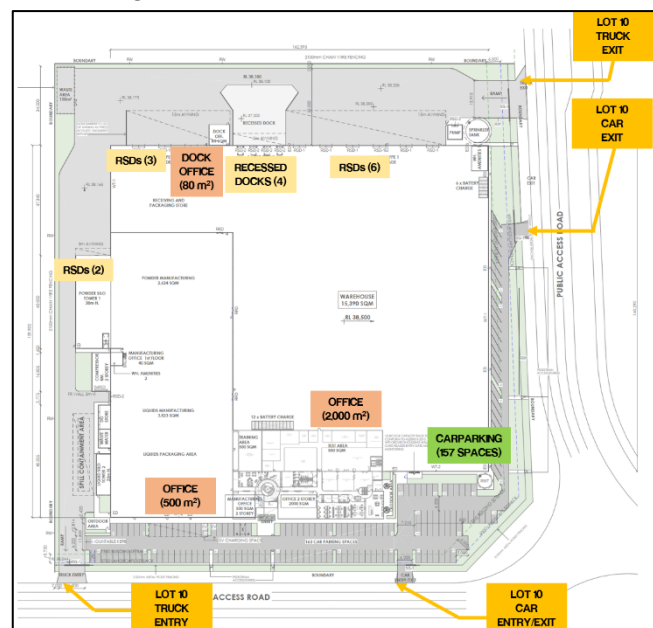
As it is evident from this table, an appropriate number of service bays have been provided for the proposed Site.

Section 6.5 also addresses the traffic impact associated with these vehicles to the state road network which is deemed to be lower than what has already been approved under SSD-9522 and approved MOD 1.

Accordingly, the proposed Site plan has been designed to cater for ALL anticipated vehicle sizes and the proposed traffic will NOT have any additional impact onto the estate roads and external road network beyond what has already been approved.

- 4 Detailed plans of all proposed site access points, justification for their location and an assessment of potential traffic impacts from the proposed access points.

Section 2 provides a detailed analysis of the proposed access points with a swept path analysis included in **Appendix D**. A copy of the access arrangement is also shown below.



Furthermore, **Section 6.7** details the impact the proposed egress point will have with regards to the Site.

Moreover, with regards to the justification of the access point location, it is noted that the access locations are in line with current estate road

approval and that the sight distance has been reviewed and is in line with the requirements set out in the Australian Standards. Furthermore, the exit point is located approximately 150m from the potential future Mamre Road / Bakers Lane / NS Road 01 signalised intersection, which is deemed to be in line with TfNSW requirements for separation of access points to future signals at Greenfield sites. Furthermore, SIDRA analysis for this intersection has been completed for 2036 which suggests that the left turn exit crossover would not be impacted by queues from this signal.

- 5 Detailed plans of the proposed layout of the internal road and pedestrian network and parking on site in accordance with the relevant Australian Standards and Mamre Road Precinct Development Control Plan.

Section 2.2 provides a detailed assessment of the proposed layout of the internal roads. The parking assessment is detailed in **Section 5** and a detailed design review of that car parking assessment is shown in **Section 8**.

In summary, this SSD parking provision is in line with the requirements of the Mamre Road DCP 2021 and is NOT anticipated to have any adverse parking impact onto the internal Estate Roads.

A summary of the car parking requirements from the Mamre Road DCP 2021 are shown in the following table:

Land Use	Parking Rate
Warehouse	1 space per 300 m ² GFA
Manufacturing	1 space per 200 m ² GFA
Office	1 space per 40 m ² GFA

Application of these rates to the proposed Site results in the following requirements:

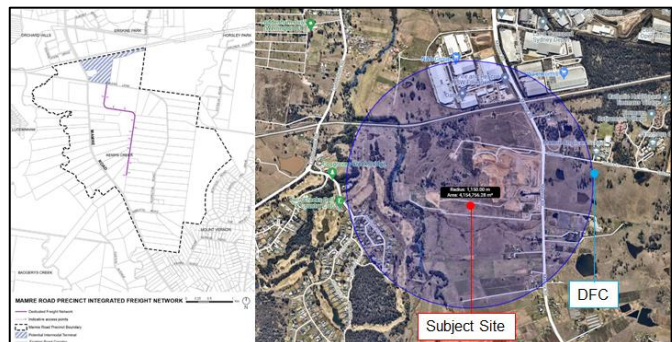
Land Use	Yield (m ²)	Car Parking Required	Provision
Warehouse	17,730	59	157
Manufacturing	6,449	32	
Office	2,580	65	
Total	26,759	156	157

Notes: 1)744m² GFA of Silo Towers have been excluded in the calculation of car parking requirements.

It is noted that the proposed development complies with the parking requirements set out in the above table by a surplus of 1 space.

- 6 Demonstrating compliance with clause 33C of the SEPP WSEA, specifically the integration with the Mamre Road Precinct dedicated freight corridor (DFC) including provision for access from the DFC to the entire estate.

The location of the Mamre Road Precinct Dedicated Freight Corridor (DFC) is shown on the left hand side within the following figure. The subject Site is located approximately 1.15km from the Mamre Road Precinct DFC.



Furthermore, concurrence has been made with TfNSW. **Table 3** responds to the required comments that have been made by TfNSW.

- 7 Swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site.

Swept path assessment has been undertaken as part of the design review in accordance with AS2890.2:2018 and is provided in **Appendix D**. It is noted that the swept path analysis has been undertaken for a 36.2m A-Double truck in accordance with the requirements of the Mamre Road DCP. However, the clients have advised that the largest size truck they would consider entering the Site is a 26.0m B-Double truck. Hence,

the assessments included in this TA is considered conservative and representing the worst-case scenario.

- 8 Details of road upgrades, infrastructure works or new roads or access points required for the development.

Reference should be made to **Section 3** which outlines the approval history of the project (and the upcoming road upgrades in the future). In this regard, the traffic generation associated with this SSD is deemed to be consistent with previous modelling (even lower) hence no additional upgrades are required beyond what has already been approved previously.

Furthermore, additional options testing undertaken for the approved Modified Sequence 1A signalised intersection (for 2026, 2031 and 2036) is summarised as follows:

Intersection	Period	AVD	LoS
Year 2026			
Mamre Road / Bakers Lane	AM	41.1	C
	PM	48.1	D
Year 2031			
Mamre Road / Bakers Lane	AM	40.6	C
	PM	51.1	D
Year 2036			
Mamre Road / Bakers Lane	AM	40.2	C
	PM	53.1	D

For a more detailed analysis, the SIDRA modelling results for the ultimate built-form for 2025 has been shown in **Section 4.2**. The analysis of the SIDRA modelling results for the ultimate built-form of 2026, 2031 and 2036 has been shown in **Section 6.6**.

1.7 TfNSW Comments

It is important to note the key requirements provided by TfNSW within the *Request for SEARs - Ardex Warehouse and Manufacturing Facility – 657-769 Mamre Road - Kemps Creek* letter dated 23 August 2021 (TfNSW Reference: SYD21/00981/01). The relevant requirements as well as their brief responses are outlined in **Table 3**.

TABLE 3 RESPONSE TO KEY REQUIREMENTS

No.	Requirement	Ason Response																
1	Details of all traffic types and volumes likely to be generated by the proposed development during construction and operation, including a description of haul route origins and destinations, including: a. Daily inbound and outbound vehicle traffic profile by time of day and day of week (if travel patterns differ across the week) broken down per vehicle types;	<p>Refer to Section 6.4 for the operational traffic vehicle volumes broken down per day and per the peak hours as shown in the table below:</p> <table><tr><th>Lot</th><th>AM Peak</th><th>PM Peak</th><th>Daily</th></tr><tr><td>10</td><td>44</td><td>5</td><td>350</td></tr></table> <p>Furthermore, the estimation of the construction traffic entering the Site (daily) is shown in the following table:</p> <table><tr><th>Lot</th><th>Light Vehicles</th><th>Heavy Vehicles</th><th>Total</th></tr><tr><td>10</td><td>196</td><td>49</td><td>245</td></tr></table>	Lot	AM Peak	PM Peak	Daily	10	44	5	350	Lot	Light Vehicles	Heavy Vehicles	Total	10	196	49	245
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2	b. Site and traffic management plan which includes details of all traffic types and volumes likely to be generated by the proposed development during construction and operation and awaiting loading, unloading or servicing, including predicted haulage routes, including over size over mass vehicles, and consider any impacts to the state road network (i.e. where the haulage route meets the state road);	<p>Refer to Section 6 which includes details regarding the vehicles expected to load, unload and service the development. Section 6.5 also addresses the traffic impact these vehicles will have to the state road network.</p> <p>The information provided to Ason Group regarding operational vehicle types and the respective traffic volumes likely to be generated by the proposed development are described below:</p> <ul style="list-style-type: none">- 8.8 m Medium Rigid Vehicles (MRVs)<ul style="list-style-type: none">o 10 daily incoming trips and 10 daily outgoing tripso 1 incoming trip and 1 outgoing trip in AM Peak Houro 1 incoming trip in the PM Peak Hour- 20.0 m Articulated Vehicles (AVs)<ul style="list-style-type: none">o 15 daily incoming trips and 10 daily outgoing tripso 1 incoming trip and 1 outgoing trip in AM Peak Houro 1 incoming trip and 1 outgoing trip in the PM Peak Hour- 26.0 m B-double trucks<ul style="list-style-type: none">o 10 daily incoming trips and 15 daily outgoing tripso 1 incoming trip and 1 outgoing trip in AM Peak Houro 1 incoming trip and 1 outgoing trip in the PM Peak Hour <p>Furthermore, a detailed Operational Traffic Management Plan (OTMP), if necessary, can be provided as part of the response CoC and prior to the CC stage.</p> <p>With regards to the peak construction traffic volumes, the breakdown for it is shown overleaf, noting that the AM and PM Peaks are based on 70% of the approved traffic generation rates.</p>																

		Lot	AM Peak	PM Peak	
		10	48	35	
	With regards to the daily construction traffic volumes, the breakdown for it is shown below in the following table:				
		Lot	Light Vehicles	Heavy Vehicles	Total
		10	196	49	245
3	c. Details of the origin/destination of dangerous goods movements to/from the site (if any);	Refer to Section 3.3.2 of Riskcon Engineering's report which clarifies the transport operations of dangerous goods to / from the site. A copy of this report will be attached within Appendix E for further reference.			
4	d. Detailed plan of proposed layout of internal road network to demonstrate that the site will be able to accommodate the most productive vehicle types and parking on site in accordance with the relevant Australian Standard and Council's Development Control Plan;	Section 2.2 provides a detailed assessment of the proposed layout of the internal road and pedestrian network. The parking assessment is detailed in Section 5 and a detailed design review of that car parking assessment is shown in Section 8 . Swept paths are also included in Appendix D . Again, it is emphasised that the largest size truck is expected to be a 26.0m B-Double truck based on the tenant's advice, however, our assessment has been based on a 36.2m A-Double truck which is deemed to be more conservative and in line with the Mamre Road DCP requirements for completeness.			
5	e. demonstrate compliance with the Western Sydney Employment Area State Environmental Planning Policy, Part 6; clause 33C; Development within the Mamre Road Precinct; specifically: i. integration with the Mamre Road Precinct dedicated freight corridor (DFC), including provision for access from the DFC to the entire estate. The applicant should continue to liaise with TfNSW to ensure the DFC is incorporate;	Refer to the item 7 response in the above table.			
6	f. Plans detailing how the proposed development connects to adjoining sites to facilitate their future development for their intended purposes;	As indicated in Figure 1 of the report, the proposed Site will be connected to the Southern Lots through the NSR-01 (currently shown as a cul-de-sac adjacent to Lot 9). As such, the approved SSD-9522 allows for that connection with the neighbouring Lots and this SSD does not intend to change anything in that regard.			
7	g. Provide a swept path analysis in accordance with Austroads turning templates to demonstrate that the largest vehicle likely to utilise the access can enter and exit the driveway in a forward direction and manoeuvring throughout the site;	A swept path assessment has been undertaken as part of the design review in accordance with AS2890.2:2018 and has been provided in Appendix D . A design review assessment of the largest vehicle anticipated is a 36.2m A-double truck which will access the hardstand in accordance with AS2890.2:2018. Swept path analysis has been completed and provided in Appendix D .			
8	h. An assessment of the forecast impacts on traffic volume generated on road safety and capacity of road network including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model as prescribed by TfNSW. The traffic modelling should consider the scenarios of year 2026, 2031, 2036. These should include, but not be limited to: i. Mamre Road at Bakers Lane (Aldington Road); and	It is important to note that an assessment of the forecast impacts on traffic volumes (as prescribed previously by TfNSW) has been completed for APPROVED Modified Sequence 1A until the year 2025. It is noted that the 2025 SIDRA analysis has previously completed for the full ultimate master plan GFA as well as the Southern Lots. As such, the existing approval for the Modified 1A (Mamre Road / Bakers Lane) already allows for the Ultimate Master Plan GFA. The SSD-9522, assumes that the Southern Link Road would be delivered by 2026 which sets a benchmark for this assessment. However, additional SIDRA modelling for this intersection layout (under the approved Modified Sequence 1A) has been completed for the years 2026, 2031 and 2036 and is provided within Section 6 of the report. This additional option testing is therefore assumed to inform the performance of this intersection in case that the SLR wouldn't be delivered by TfNSW in longer term future.			
9	i. An assessment of potential impact on load road pavement lifespan including: i. Mamre Road.	The potential impacts on the load road pavement lifespan for Mamre Road need to be addressed by others.			
10	j. To ensure that the above requirements are fully addressed, an assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including	In accordance with the SIDRA modelling results of Sequences 2 and 3 as part of the original SSD-9522 Approval and the SIDRA modelling undertaken for the approved Modified Sequence 1A			

	consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model. This is to include the identification and consideration of approved and proposed developments/planning proposals/road upgrades in the vicinity. The assessment needs to consider the impact on Mamre Road for the duration of the works because traffic growth in this area is expected to increase more quickly than standard growth rates;	(refer to Section 6), intersections in the broader locality of the MSP can accommodate the anticipated traffic of the MSP Ultimate Master Plan, which captured the estimated traffic generation associated to the proposed development. It is also important to note that based on operational traffic volumes provided by the immediate tenant of the Site, their anticipated AM and PM peak hour and daily traffic volumes are LOWER than what has been estimated as part of the MSP Ultimate Master Plan, which further confirms immaterial impact from this SSD onto the surrounding road network. Additional SIDRA modelling for this intersection layout (under the approved Modified Sequence 1A) will be completed for the years 2026, 2031 and 2036 and is provided within Section 6 of the report.														
11	k. Details of road upgrades, infrastructure works, or new roads or access points required for the development;	Section 2.2 provides a detailed assessment of the proposed layout of the internal road and pedestrian network. Section 2 provides a detailed assessment of the proposed access points. Furthermore, Section 6.7 details the impact the proposed egress point will have with regards to the Site.														
12	l. Details of the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand for the proposed development;	Refer to Section 3.4 for further details. The existing bus stop servicing the Site is bus route 779. With regards to future public transport provision, there is a possibility to extend bus route 779 to include stops within the future internal road network of the MSP. This route would also help connect the proposed Site to the St Marys railway station and to the broader transport network in the upcoming future. Detailed discussion regarding future bus routes would be a scope for the broader estate and should be undertaken in consultation with TfNSW. Furthermore, a preliminary Green Travel Plan (GTP) has been prepared and is submitted as part of this application. This document is subject to TfNSW's review and will require further liaison from TfNSW as it contains information regarding the planning infrastructure for the future public transport provision.														
13	m. Measures to integrate the development with the existing/future public transport network;	Refer to the above response outlined in item 12.														
14	n. Measures to ameliorate any adverse traffic and transport impacts due to the development based on the above analysis, including: i. travel demand management programs to increase sustainable transport (such as a Green Travel Plan); and	A preliminary Green Travel Plan (GTP) has been prepared and is submitted as part of this application.														
15	The preparation of a preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) to demonstrate the proposed management of the impact in relation to construction traffic addressing the following:	It is noteworthy that an overarching CTMP has been prepared for the Estate which has been consulted with TfNSW, Council and the schools in the vicinity of the Site. A preliminary CTMP for the proposed development has been provided in Section 7 . A detailed site specific CTMP for the proposed development can be prepared separately and in response to the condition of consent as part of the Construction Certificate (CC) phase of this SSD.														
16	i. assessment of cumulative impacts associated with other construction activities (if any);	A detailed CTMP for the proposed development can be prepared separately and in response to the condition of consent as part of the Construction Certificate (CC) phase of this SSD. With regards to the peak construction traffic volumes, the likely breakdown for it is shown below, noting that the AM and PM Peaks are based on 70% of the of the theoretical operational traffic volumes. <table><tr><th>Lot</th><th>AM Peak</th><th>PM Peak</th></tr><tr><td>10</td><td>48</td><td>35</td></tr></table> With regards to the daily construction traffic volumes, the breakdown for it is shown below in the following table: <table><tr><th>Lot</th><th>Light Vehicles</th><th>Heavy Vehicles</th><th>Total</th></tr><tr><td>10</td><td>196</td><td>49</td><td>245</td></tr></table>	Lot	AM Peak	PM Peak	10	48	35	Lot	Light Vehicles	Heavy Vehicles	Total	10	196	49	245
Lot	AM Peak	PM Peak														
10	48	35														
Lot	Light Vehicles	Heavy Vehicles	Total													
10	196	49	245													

		Construction traffic activities and volumes are less than what has been proposed as part of the SSD-9522 and approved MOD 1 traffic volumes and even less than the operational traffic volumes. Therefore, the road network can satisfactorily accommodate the construction traffic activities and will not result in any adverse impacts to the surrounding road network.														
17	ii.	<div><div>an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity;</div><div>With regards to the peak construction traffic volumes, the likely breakdown for it is shown below, noting that the AM and PM Peaks are based on 70% of the of the theoretical operational traffic volumes.<table><tr><th>Lot</th><th>AM Peak</th><th>PM Peak</th></tr><tr><td>10</td><td>48</td><td>35</td></tr></table></div><div>With regards to the daily construction traffic volumes, the breakdown for it is shown below in the following table:<table><tr><th>Lot</th><th>Light Vehicles</th><th>Heavy Vehicles</th><th>Total</th></tr><tr><td>10</td><td>196</td><td>49</td><td>245</td></tr></table></div><div>Furthermore, the construction traffic volumes are less than what has been proposed as part of the SSD-9522 and approved MOD 1. Therefore, the construction traffic associated with the Site will have not any additional impact from what has already been assessed and approved as part of SSD-9522 and approved MOD 1.</div></div>	Lot	AM Peak	PM Peak	10	48	35	Lot	Light Vehicles	Heavy Vehicles	Total	10	196	49	245
Lot	AM Peak	PM Peak														
10	48	35														
Lot	Light Vehicles	Heavy Vehicles	Total													
10	196	49	245													
18	iii.	<div><div>details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process;</div><div>Ason Group has been provided with a high-level overview for the construction programme (and its starting dates). A brief description of this indicative programme is detailed below:<ul style="list-style-type: none">- Design commencement (on 30 September 2021);- Earthworks commencement (on 01 April 2022);- Site Construction commencement (on 11 May 2022); and- Practical completion (on 14 December 2022).</div></div>														
19	iv.	<div><div>details of anticipated peak hour and daily construction vehicle movements to and from the site;</div><div>With regards to the peak construction traffic volumes, the likely breakdown for it is shown below, noting that the AM and PM Peaks are based on 70% of the of the theoretical operational traffic volumes.<table><tr><th>Lot</th><th>AM Peak</th><th>PM Peak</th></tr><tr><td>10</td><td>48</td><td>35</td></tr></table></div><div>With regards to the daily construction traffic volumes, the breakdown for it is shown below in the following table:<table><tr><th>Lot</th><th>Light Vehicles</th><th>Heavy Vehicles</th><th>Total</th></tr><tr><td>10</td><td>196</td><td>49</td><td>245</td></tr></table></div></div>	Lot	AM Peak	PM Peak	10	48	35	Lot	Light Vehicles	Heavy Vehicles	Total	10	196	49	245
Lot	AM Peak	PM Peak														
10	48	35														
Lot	Light Vehicles	Heavy Vehicles	Total													
10	196	49	245													
20	v.	<div><div>details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle;</div><div>Construction workers are expected to park on-site. However, a detailed CTMP for the proposed development can be prepared separately and in response to the condition of consent as part of the Construction Certificate (CC) phase of this SSD.</div></div>														
21	vi.	<div><div>details of temporary cycling and pedestrian access during construction.</div><div>A detailed CTMP for the proposed development can be prepared separately and in response to the condition of consent as part of the Construction Certificate (CC) phase of this SSD.</div></div>														

2 Description of the Proposal

Full details of the SSD are provided in the Environmental Impact Statement (EIS) which this TA accompanies. As mentioned before, the Site (Lot 10) forms part of the MSP being developed as a joint venture between Frasers and Altis. The Site subject to this proposal is approximately 15.8 ha and the area which will contain the Proposal is 4.37 ha which will be subdivided under this application.

The Proposal is generally in relation to the construction and operational use of Warehouse / Industrial facility.

2.1 SSD Plans

A reduced scale copy of the SSD plans is provided in **Figure 2** for context. For detailed plans, please refer to the architectural package by Pace Architects.

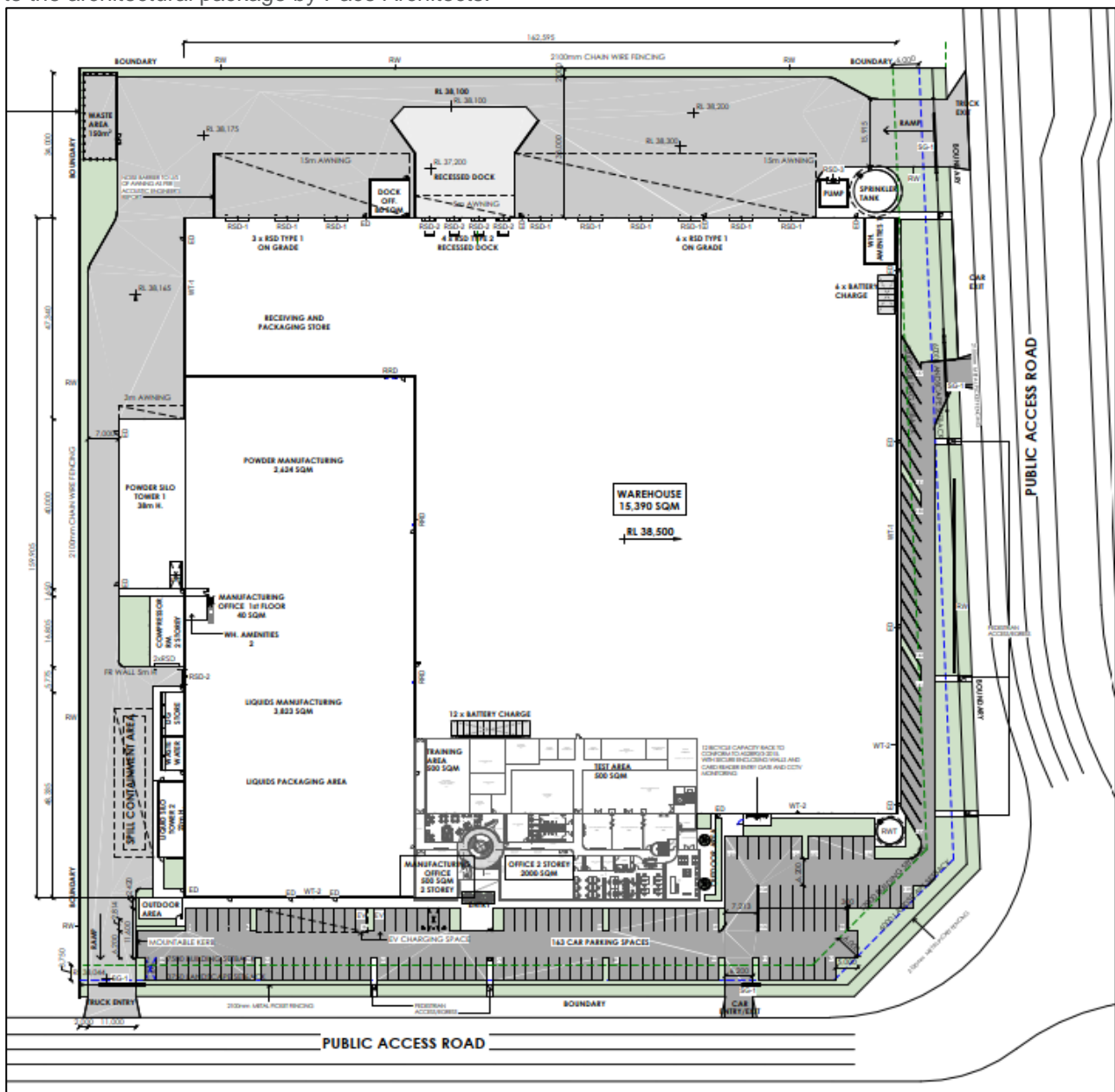


Figure 2: Proposed SSD Site Plan

The Proposal includes the following building components:

TABLE 4 PROPOSAL YIELD

Component	Lot 10
Warehouse GFA (m ²)	17,730
Manufacturing GFA (m ²)	6,449
Office GFA (m ²)	2,580
Total GFA (m ²)	26,759 ³
Loading Dock Provision	15 ¹
Car Parking Provision (Spaces)	157 ²

Note: 1) This provision includes 4 recessed docks and 11 Roller Shutter Doors (RSDs).

2) This provision includes 2 accessible spaces.

3) Total GFA excludes Silo Tower GFA.

2.2 Vehicular Access Strategy

The Site has four proposed vehicular access points. It has a separate car entry / exit point and truck entry point on the public access road to the south of the Site. It has a car exit point and truck exit point located on the public access road to the east of the Site (North-South spine road – NS Road 01).

The proposed vehicular access strategy is shown in **Figure 3**.

3 Existing Conditions

3.1 Existing Site Traffic Generation

The proposed Lot 10 does not currently generate any significant traffic volumes. As such, and for the purposes of a conservative assessment, the additional traffic associated with the development is considered as a NET increase in traffic to the surrounding road network.

3.2 Road Network

With reference to **Figure 4**, the key local roads influenced by the application include:

- **Mamre Road** – an arterial road servicing traffic between the Great Western Highway and M4 to the north and Elizabeth Drive to the south. In the vicinity of the MSP, Mamre Road generally provides 2 lanes for two-way traffic, with additional through movement and turning infrastructure at key intersections, specifically at Erskine Park Road and James Erskine Drive. Mamre Road has a posted speed limit of 80 km/h.
- **Erskine Park Road** – a sub-arterial road servicing traffic between the Great Western Highway and M4 to the north, Mamre Road to the south-west, as well as linking Lenore Drive (Erskine Park Link Road) to the M7 to the east. Erskine Park Road provides 4 lanes for two-way traffic north-east from the intersection of Mamre Road. Erskine Park Road has a posted speed limit of 70 km/h.
- **James Erskine Drive** – a local industrial access road, providing local access for the Erskine Park Industrial Precinct, which lies to the east of Mamre Road, northeast of the Precinct. James Erskine Drive provides 4 lanes for two-way traffic and provides additional turning infrastructure on the approach to Mamre Road. On-street parking is permitted; however, demand for this parking is low and therefore rarely used.
- **Bakers Lane (East)** – a two lane undivided Local Road which operates under a 60 km/hr sign posted speed limit. Bakers Lane (East) provides primary access to a number of local schools and colleges in the area, with School Zone speed limit restrictions (40 km/h) in operation during school peak periods. At present, Bakers Lane (East) forms a Signalised T intersection with Mamre Road.

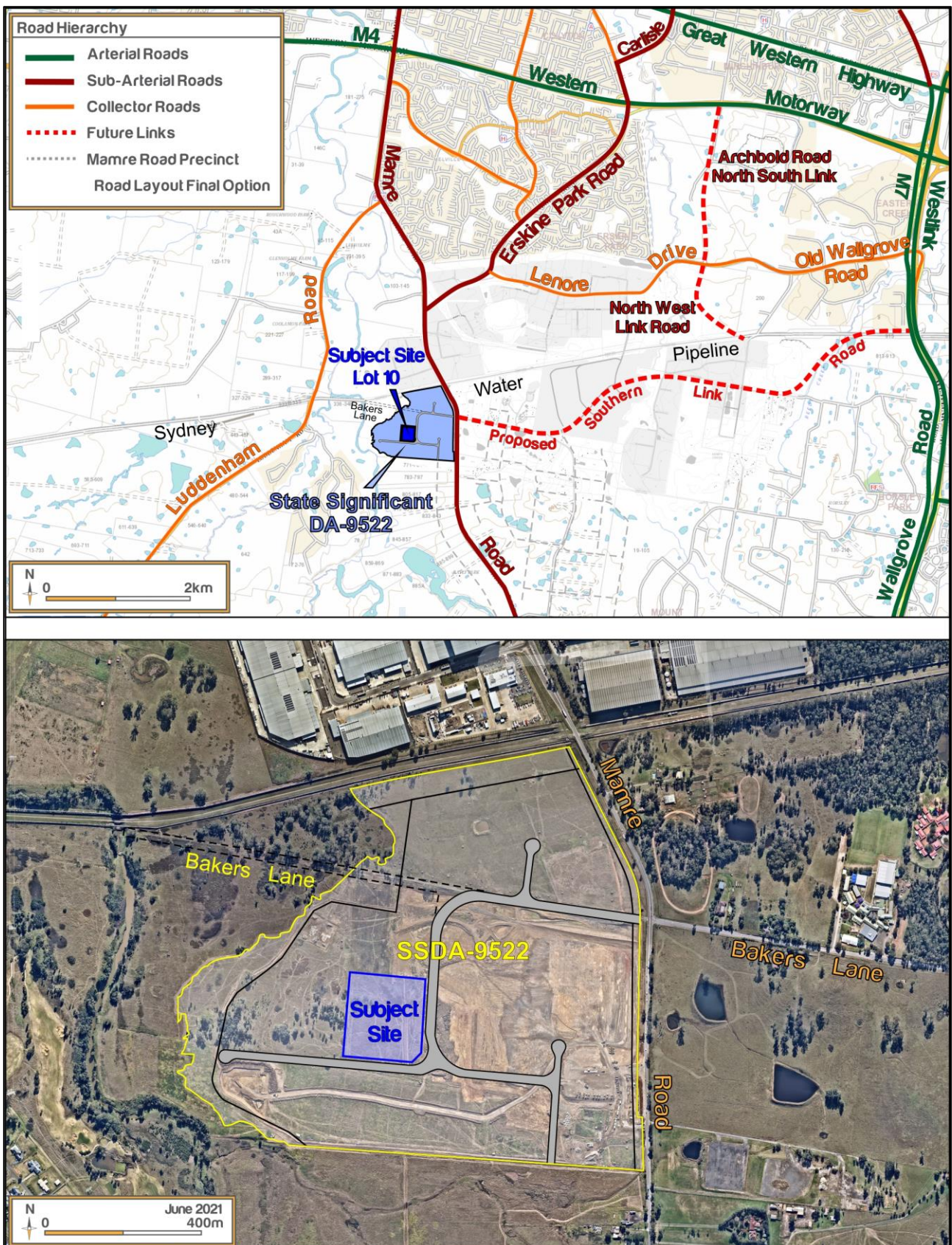


Figure 4: Existing Road Network

3.3 Key Intersections

The key intersections in the vicinity of the MSP are considered as follows:

- Mamre Road / Bakers Lane (Signal) as shown in **Figure 5**;
- Mamre Road / Erskine Park Road (Signal) as shown in **Figure 6**;
- Mamre Road / James Erskine Drive (Signal) as shown in **Figure 6**; and
- Mamre Road / Distribution Drive (Signal) as shown in **Figure 6**.

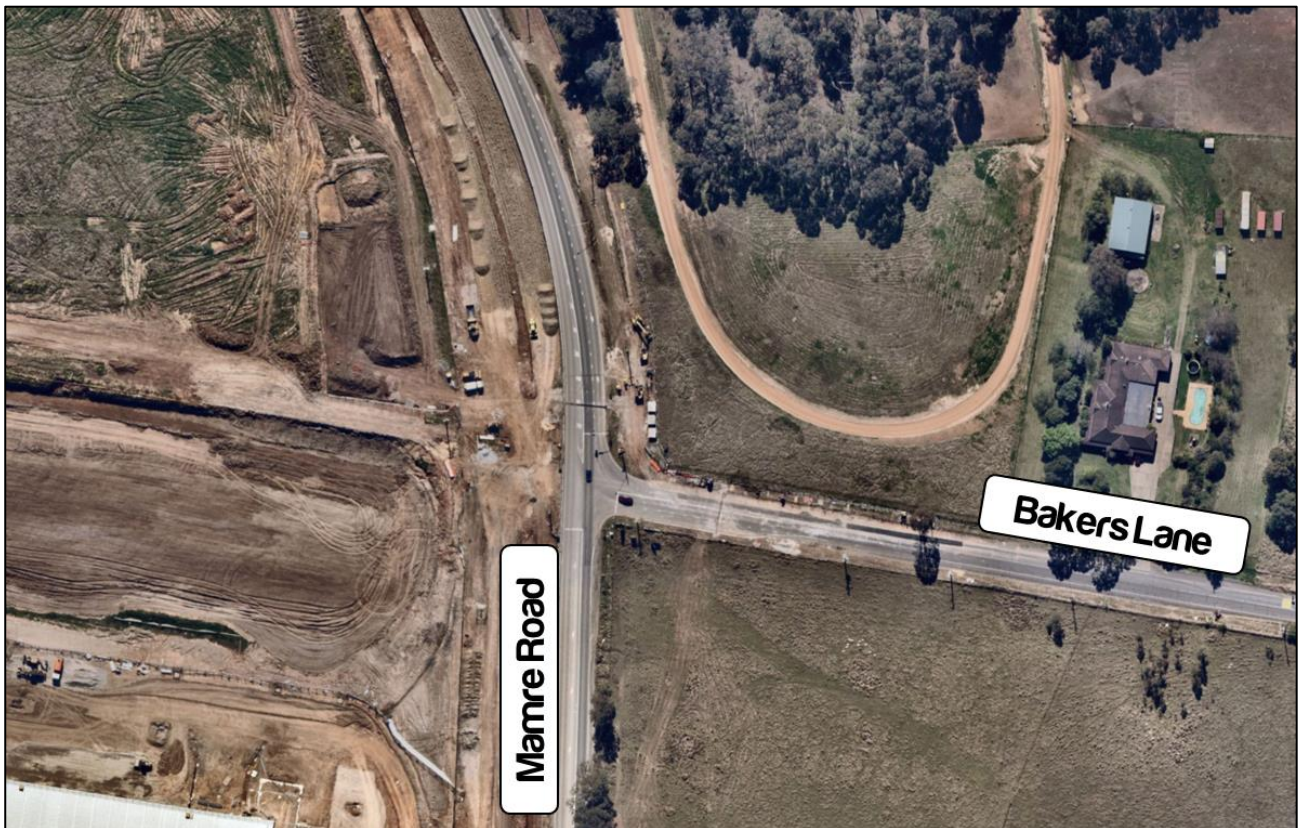


Figure 5: Existing Intersection of Mamre Road / Bakers Lane



Figure 6: Key Intersections in the Vicinity of the Site

Performance of these key intersections during a typical weekday AM and PM peak periods have been assessed and reviewed as part of the SSD-9522 application. SIDRA modelling results indicate that all key intersections currently performance at acceptable Level of Service (LoS D or better) during both AM and PM peak periods.

Detailed SIDRA modelling results are attached in **Appendix A** for reference.

3.4 Public Transport

3.4.1 Existing Bus Services

The existing bus services in the vicinity of the MSP are shown in **Figure 7**.

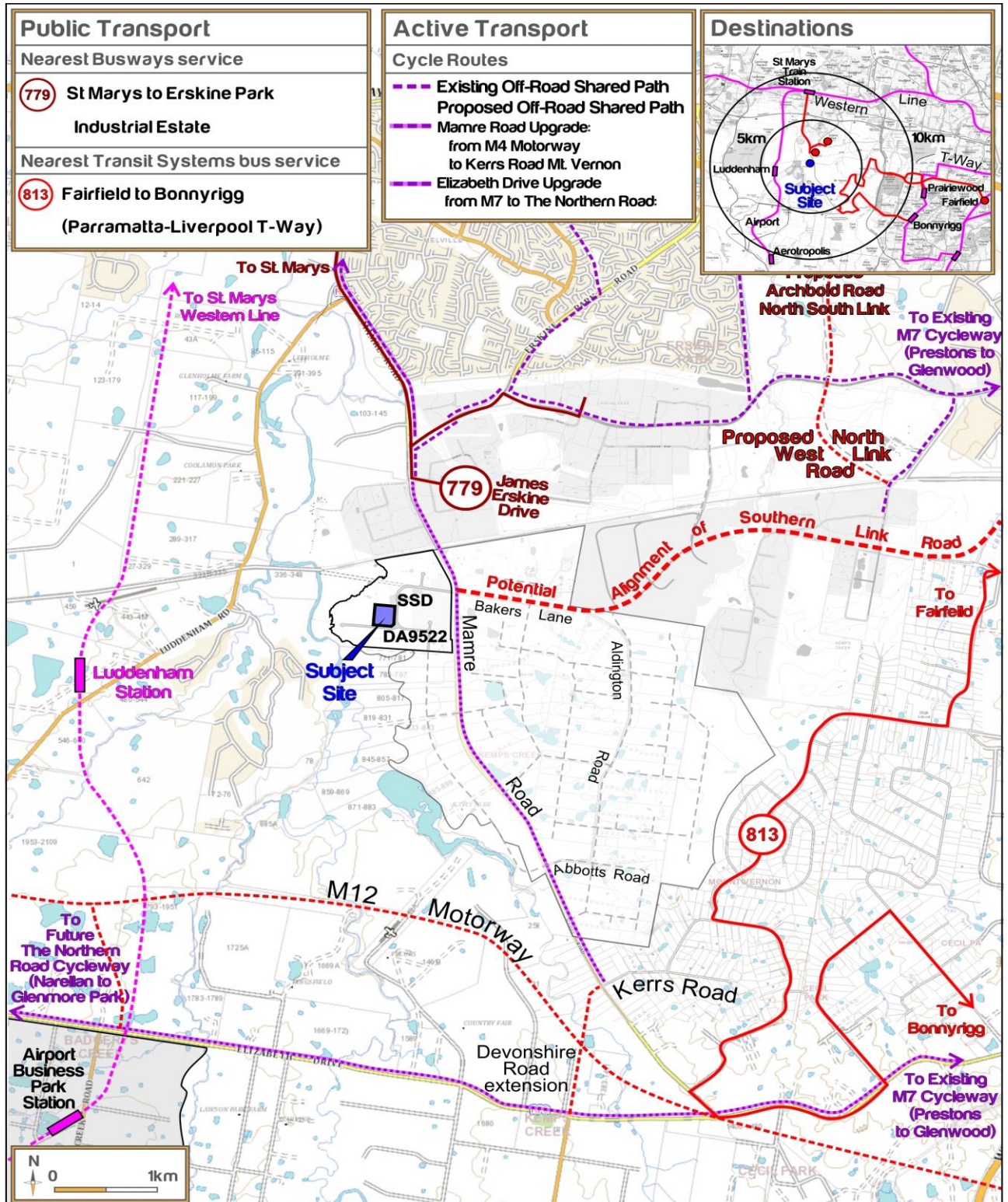


Figure 7: Public Transport Services & Cycling Routes

It is evident that the MSP is not directly serviced by public transport operations at this time. Notwithstanding, opportunities for future connections have been identified and are discussed further below.

3.4.2 Future Bus Service Opportunities

While it is apparent that the MSP will be well served by a future road network, it is nonetheless important that people have the opportunity to use public transport, which requires significantly improved connectivity to the broader area in the first instance. This could be possible through an extension of the 779-bus route to include stops within the future internal road network of the MSP. This route would provide a direct connection to St Marys railway station and to the broader transport network.

The planning of bus services in Sydney is governed by the NSW Service Planning Guidelines, which aims to establish Strategic Transport Corridors and a hierarchy of bus route types that:

- link to Regional centres (such as Penrith and Mt Druitt);
- pass through patronage generators such as district centres, TAFE colleges, hospitals and universities;
- connect with other transport modes (trains, ferries and other buses);
- are multifunctional (serving journeys to work, education, shopping and recreation);
- are direct and frequent; and
- meet the network planning principles.

It is also the case that the establishment of public transport services as early as possible in the development stages of the area is important to achieve a culture of public transport use from the outset. To make public transport a viable choice in the study area, the services should ideally:

- integrate with existing bus services in the area;
- connect to regional centres of Penrith, Mt Druitt and Blacktown; and
- in the long term, connect to areas such as Leppington in the South West Growth Centre, Prairiewood and the Liverpool to Parramatta T-Way.

3.5 Cycling

There are opportunities and infrastructure for cyclists to access the Site via Mamre Road which have been readily allowed for and proposed as part of the Mamre Road Upgrade project.

Furthermore, bicycle lanes are provided along Erskine Park Road and sections of Mamre Road, in addition to carriageway shoulders that could also be utilised by cyclists. Notwithstanding, there are opportunities to improve cycling infrastructure through the provision of shared paths along Mamre Road fronting the MSP that could be connected to paths along Erskine Park Road.

4 Future Context

4.1 Mamre Road Upgrade

It is known that the road network in the general vicinity of the MSP is due to receive significant road upgrades in the future as part of the Mamre Road Upgrade strategy.

With reference to the SSD-9522, the JV proposes to upgrade Mamre Road to 2-lanes in each direction (4-lanes in total) from the southern boundary of the MSP to the existing Distribution Drive signalised intersection. It is noted that these upgrade works are separate to that proposed by RMS (now part of TfNSW) as part of other regional projects (Mamre Road Upgrades and Southern Link Road projects). Modelling assumptions for the major proposed road upgrades in the immediate vicinity of the Site are extracted from Mamre Road Upgrade document prepared by RMS in November 2017 and also reference has been made to the TfNSW [website](#).

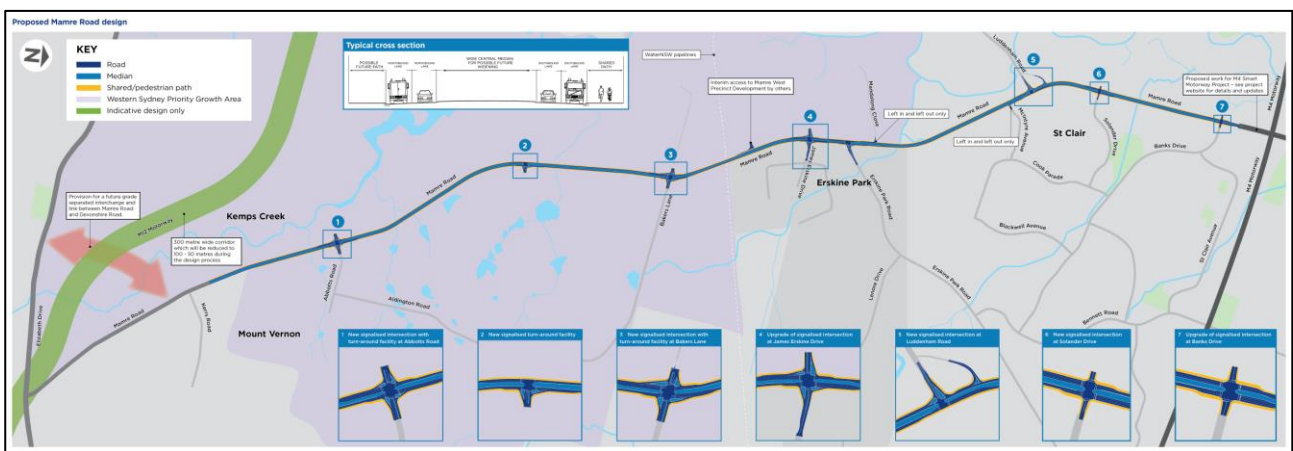


Figure 8: Mamre Road Upgrade Concept Design

In February 2019, the NSW Government announced \$220M funding for a 3.8-kilometre section of the Mamre Road Upgrade between M4 Motorway and Erskine Park Road (including this signal) to:

“...transform the existing two-lane undivided road into a four-lane divided road, providing a safer, higher-capacity link. The Mamre Road upgrade will also be future proofed, allowing another two lanes to be added down the track,”

This makes it clear that the additional upgrades offered by the JV will form a continuation of RMS planned upgrades and provides significant link capacity improvements for this vicinity. Furthermore, based on recent liaison with the Mamre Road Upgrade Team at TfNSW (former RMS), the following timeline has been outlined for this regional upgrade:

- Construction is expected to start by 2023,
- The aim is to complete this upgrade work by 2026 in time for the airport and
- Late 2025 is TfNSW's expected date for completion for Stage 1 regional upgrade including the intersection of Mamre Road and Erskine Park Road.

4.2 Upgrades at the Mamre Road / Bakers Lane Intersection

4.2.1 Approved Sequence Plans (SSD-9522 Plan and Approved MOD 1)

SSD-9522 and approved MOD 1 includes 4 access Sequence strategies at the intersection of Mamre Road and Bakers Lane, which are briefly discussed as follows:

Approved Modified Sequence 1A:

Approved Modified Sequence 1A is expected to accommodate the potential estate-wide traffic associated with MSP Ultimate Master Plan (with 421,820 m²) and the assumed GFA for Southern Lots without relying on the previously approved Sequence 1A. The approval for the approved Modified Sequence 1A has been granted under MOD 1 which replaces Sequence 1A.

For context, a reduced copy of the approved Modified Sequence 1A layout is provided in **Figure 9**.

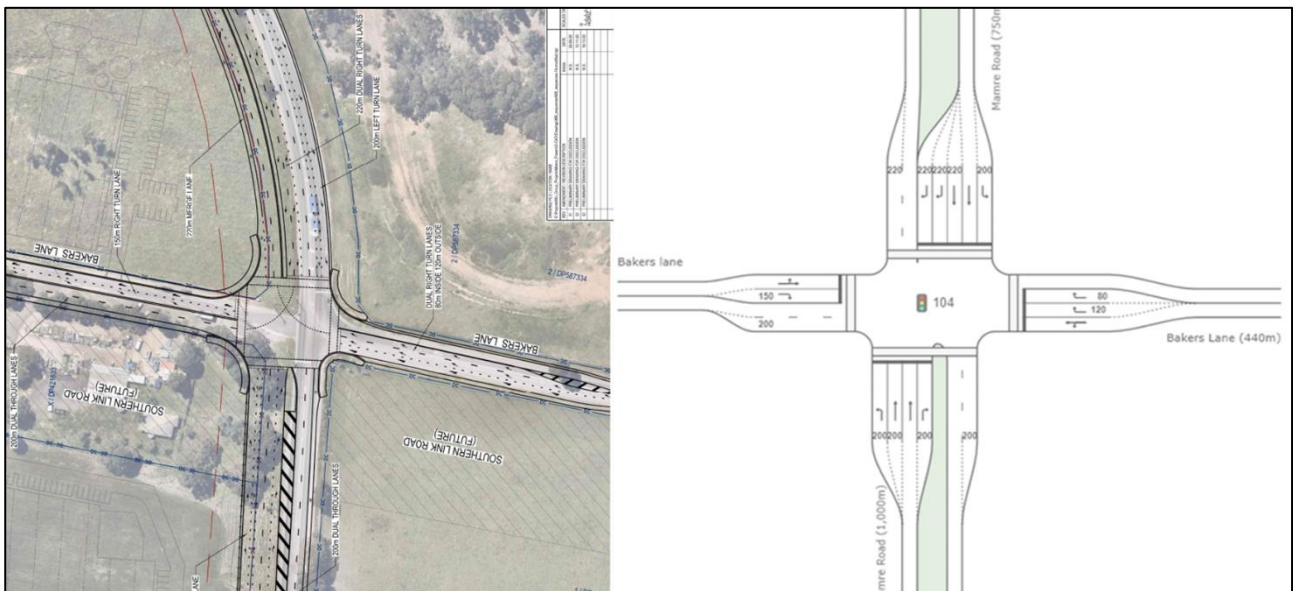


Figure 9: Approved Modified Sequence 1A Mamre Road / Bakers Lane Signal layout

Accordingly, the network SIDRA modelling analysis have been updated for the approved Modified Sequence 1A of the Mamre Road / Bakers Lane intersection with 3 other intersections which include:

- Mamre Road / Erskine Park Road;
- Mamre Road / James Erskine Drive; and
- Mamre Road / Distribution Drive.

SIDRA modelling results are summarised in **Table 5**.

TABLE 5 APPROVED SIDRA MODELLING RESULTS (APPROVED MODIFIED SEQUENCE 1A - 2025)

Intersection	Peak Period	Average Delay (Seconds)	Level of Service (LoS)
Mamre Road / Erskine Park Road	AM	24.9	B
	PM	25.9	B
Mamre Road / James Erskine Drive	AM	13.5	A
	PM	11.6	A
Mamre Road / Distribution Drive	AM	9.7	A
	PM	13.6	A
Mamre Road / Bakers Lane	AM	41.3	C
	PM	47.0	D

It is indicated that all key intersections are expected to operate at an acceptable LoS (LoS D or better) during both AM and PM peak periods and the approved Modified Sequence 1A can readily accommodate the potential estate-wide traffic associated with MSP Ultimate Master Plan (with 421,820 m²), which include the potential traffic generation of the proposed development within the proposed Lot 10.

In summary, the proposed Sequence 1A Modified plan CAN ACCOMMODATE the ultimate built form of the entire MSP as well as the Southern Lots traffic. Furthermore, to address TfNSW's comment, we have extended the traffic modelling for this sequence plan up to the year of 2036 to review the performance of this intersection in light of regional background growth in case that SLR would not be delivered by 2036.

It is again emphasised that the original approval (SSD-9522) assumes delivery of SLR by 2026, and as such the additional traffic assessments undertaken for 2026, 2031 and 2036 are considered as option testing to show the performance of this intersection should SLR not be delivered by 2036.

Approved Sequence 1B:

As approved under SSD-9522 MOD 1, Sequence 1B will be delivered by Dec 2025. Sequence 1B relates to the Mamre Road / Bakers Lane signalised intersection, with Mamre Road upgrades to 4 lanes (2-lanes in each direction) from the southern boundary of the Site to the existing Mamre Road / Distribution Drive signalised intersection. The layout of Sequence 1B is shown in **Figure 10**.

Approved Sequence 3:

As approved under SSD-9522, Sequence 3 shows the ultimate configuration of the SLR in the future and when it is extended west through the MSP, as shown in **Figure 12**.

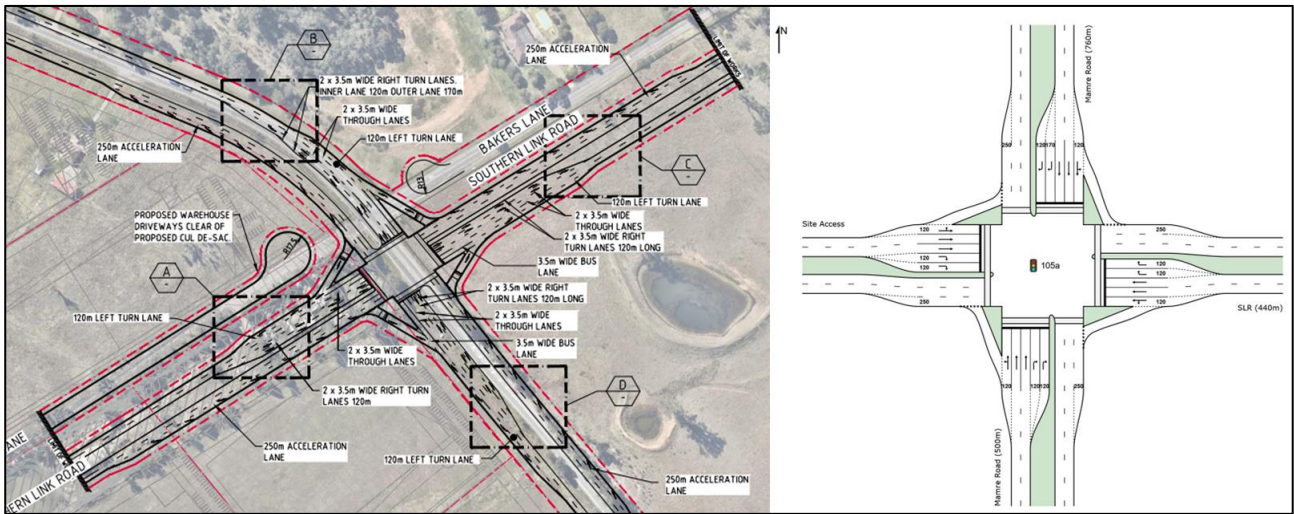


Figure 12: Approved Sequence 3 Mamre Road / Bakers Lane Signal layout

5 Parking Provisions

5.1 Car Parking

Parking rates for the Site has been provided in accordance with the rates set out in the Mamre Road DCP 2021 as shown below in **Table 6**.

TABLE 6 CAR PARKING RATES SET OUT IN THE MAMRE ROAD DCP 2021

Land Use	Parking Rate
Warehouse	1 space per 300 m ² GFA
Office	1 space per 40 m ² GFA
Manufacturing	1 space per 200 m ² GFA

5.2 Parking Assessment

Application of the above rates to the proposed Site results in the following car parking requirements (as shown in **Table 7**).

TABLE 7 CAR PARKING REQUIREMENT AND PROVISION FOR THE PROPOSED SITE

Land Use	Lot 10 Yield (m ²)	Car Parking Required	Parking Provided
Warehouse	17,730	59	157
Manufacturing	6,449	32	
Office	2,580	65	
Total	26,759	156	157

Application of the approved parking rates to the proposed development results in the requirement of 156 spaces. In response, the proposal provides 157 on-site car parking spaces, satisfying these requirements by a surplus of 1 space.

5.3 Accessible Parking

As per the requirements of Mamre Road DCP 2021, it is important to adhere to the rates set out in the National Codes of Construction (NCC) 2019. The NCC 2019 specifies the following accessible parking rates for the Site:

- 1 space for people with disabilities for every 100 car parking spaces.

This equates to a required provision of 2 accessible spaces. In response, 2 accessible spaces have been provided, satisfying the above requirement.

5.4 Electric Vehicle Charging Stations

The Site also provides Electric Vehicle Charging Stations at the following rate:

- 1 percent of car parking spaces.

This equates to a provision of 2 spaces that shall have a conduit provision for Electric Vehicle Charging Stations. In response, 2 spaces have been provided.

5.5 Bicycle Parking

The Mamre Road DCP 2021 refers to the Planning Guidelines for Walking and Cycling, which requires bicycle parking to be provided at the following rates.

TABLE 8 BICYCLE PARKING RATES SET OUT IN THE MAMRE ROAD DCP 2021

Land Use	Parking Rate
Office	1 space per 600 m ² GFA (over 1,200 m ² GFA)
Industrial	1 space per 1,000 m ² GFA (over 2,000 m ² GFA)

Application of the above rates to the proposed Site results in the following bicycle parking requirements (outlined in **Table 9**):

TABLE 9 BICYCLE PARKING REQUIREMENTS

Lot	Land Use	Lot 10 Yield (m ²)	Bicycle Parking Requirement (Bicycle Spaces)
10	Office	2,580	2
	Industrial	24,179	22
	Total		24

Additionally, the Mamre Road DCP 2021 outlines the following End of Trip (EoT) facilities for staff (shown in **Table 10**).

TABLE 10 EOT RATES SET OUT IN THE MAMRE ROAD DCP 2021

Land Use	Rate
Office	1 shower cubicle with ancillary change rooms (over 2,500 m ² GFA)
Industrial	1 shower cubicle with ancillary change rooms (over 4,000 m ² GFA)

A minimum of 2 shower cubicles with ancillary change rooms are required.

In response, the Proposal will provide 24 bicycle parking spaces near the proposed office with relevant EoT facilities (i.e. lockers, showers and change rooms) provided at the office ground floor.

6 Traffic Assessment

6.1 Approved Trip Generation Rates

Based on the approved SSD-9522 TA, trip generation rates have been referred to the following three (3) industrial sites for vehicles trips during the adjacent road AM and PM peak periods:

- Site 1: Erskine Park Industrial Estate, Erskine Park,
- Site 2: Wonderland Business Park, Eastern Creek, and
- Site 3: Riverwood Business Park, Riverwood

In order to account for a worst-case assessment, this assessment adopts traffic rates which reflect the average of the 3 Sydney industrial sites (during adjacent road network AM and PM peak hours). The worst-case assessment trip rates are as follows:

- AM Rate: 0.247 trips per 100 m² GFA
- PM Rate: 0.182 trips per 100 m² GFA
- Daily Rate: 2.640 trips per 100 m² GFA

6.2 Traffic Assessment (Based on Approved Rates)

Application of the traffic generation rates to the proposed Site's yield (excluding the amenities) results in the following AM, PM and daily traffic volumes (shown in **Table 11**).

TABLE 11 TRAFFIC GENERATION (BASED ON THE SSD-9522 RATES)			
Development Yield (m ²)	AM Peak (veh/hr)	PM Peak (veh/hr)	Daily (veh/day)
27,470	68	50	725

Table 11 demonstrates indicative total hourly traffic generation of 68 trips during the AM Peak and 50 trips during the PM Peak periods (inbound + outbound movements). **Table 11** demonstrates 725 total vehicles trips throughout the day (inbound + outbound movements) for the proposed Site.

6.3 First Principles Assessment

The immediate tenant for the proposed Site has provided a traffic generation forecast in accordance with their operational needs.

Table 12 provides a summary of the forecast vehicular trip generation (during the weekday) for the proposed development based on the operational requirements.

TABLE 12 FIRST PRINCIPLES TRAFFIC GENERATION ESTIMATION - OPERATIONAL

Vehicle Types	Peak Hour Trip Generation (trips/hr) ¹		Daily Trip Generation ¹ (veh/day)
	AM Peak (veh/hr)	PM Peak (veh/hr)	
Light Vehicles	38	0	280
Heavy Vehicles	6	5	70
Total	44	5	350

Note: 1) Including both inbound and outbound movements.

Having regard for the future operational assessment, the Site will generate 44 trips and 5 trips during the AM and PM peak periods (inbound + outbound movements) respectively and 350 total vehicle trips throughout the day (inbound + outbound movements).

It is indicated that the actual anticipated vehicular trip generation associated with the proposed development is likely to be lower than the theoretical estimation at both daily and peak period level.

6.4 Operational Traffic (Vehicle Types)

The immediate tenant for the proposed Site has provided the operational heavy vehicle types that will enter and exit the Site. The operational heavy vehicle types are described as follows:

- 8.8 m MRVs
 - 10 daily incoming trips and 10 daily outgoing trips
 - 1 incoming trip and 1 outgoing trip in AM Peak Hour
 - 1 incoming trip in the PM Peak Hour
- 20.0 m AVs
 - 15 daily incoming trips and 10 daily outgoing trips
 - 1 incoming trip and 1 outgoing trip in AM Peak Hour
 - 1 incoming trip and 1 outgoing trip in the PM Peak Hour
- 26.0 m B-double trucks
 - 10 daily incoming trips and 15 daily outgoing trips
 - 1 incoming trip and 1 outgoing trip in AM Peak Hour
 - 1 incoming trip and 1 outgoing trip in the PM Peak Hour

6.5 Traffic Impact

Table 13 provides a comparison between the indicative traffic based on the SSD rates and the operational traffic data.

TABLE 13 TRIP GENERATION COMPARISON

Period	Adopting Approved Traffic Generation Rates (SSD-9522)	Indicative Operation	Comparison of Trips
AM Peak	68	44	- 24
PM Peak	50	5	- 45
Daily	725	350	- 375

The operational traffic generation assessment predicts fewer trips than what was previously approved as part of the SSD-9522 and MOD 1 approval (which included detailed traffic modelling for the entire Kemps Creek in sequences Modified 1A, 1B, 2 and 3). Therefore, the proposed Site will not have any additional traffic impact beyond what has been approved as part of the previous approvals. Furthermore, the approved Modified Sequence 1A has also captured the additional traffic impacts for the proposed Site. Even with the approved Modified Sequence 1A, the Site will still not have any additional traffic impacts beyond what has been modelled for this assessment.

6.6 Additional Option Testing Modelling (for 2026, 2031 and 2036)

Regardless of what has been previously approved in MOD 1, it is noted that one of the requirements provided by TfNSW within the *Request for SEARs - Ardex Warehouse and Manufacturing Facility – 657-769 Mamre Road - Kemps Creek* letter dated 23 August 2021 (TfNSW Reference: SYD21/00981/01) states that:

- “h. An assessment of the forecast impacts on traffic volumes generated on road safety and capacity of road network including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model as prescribed by TfNSW. The traffic modelling should consider the scenarios of year 2026, 2031, 2036. These should include, but not be limited to:
 - Mamre Road at Bakers Lane (Aldington Road); and”

As requested by TfNSW, additional SIDRA modelling for this intersection layout (under approved Modified Sequence 1A) has been completed for the years 2026, 2031 and 2036. This additional option testing is therefore assumed to inform the performance of this intersection in case that the SLR wouldn't be delivered by TfNSW in longer term future.

With regards to the input traffic volumes for the respective years (2026, 2031 and 2036), a breakdown is showcased in the figures below. Notably, the traffic generation for the scenarios is based on the potential estate-wide traffic associated with the MSP Ultimate Masters Plan (with 421,820 m²) and the assumed GFAs for the Southern Lots, which includes the potential traffic generation of the proposed development within the proposed Lot 10.

To begin, the traffic volume distribution for the year 2026 is shown overleaf in **Figure 13**.

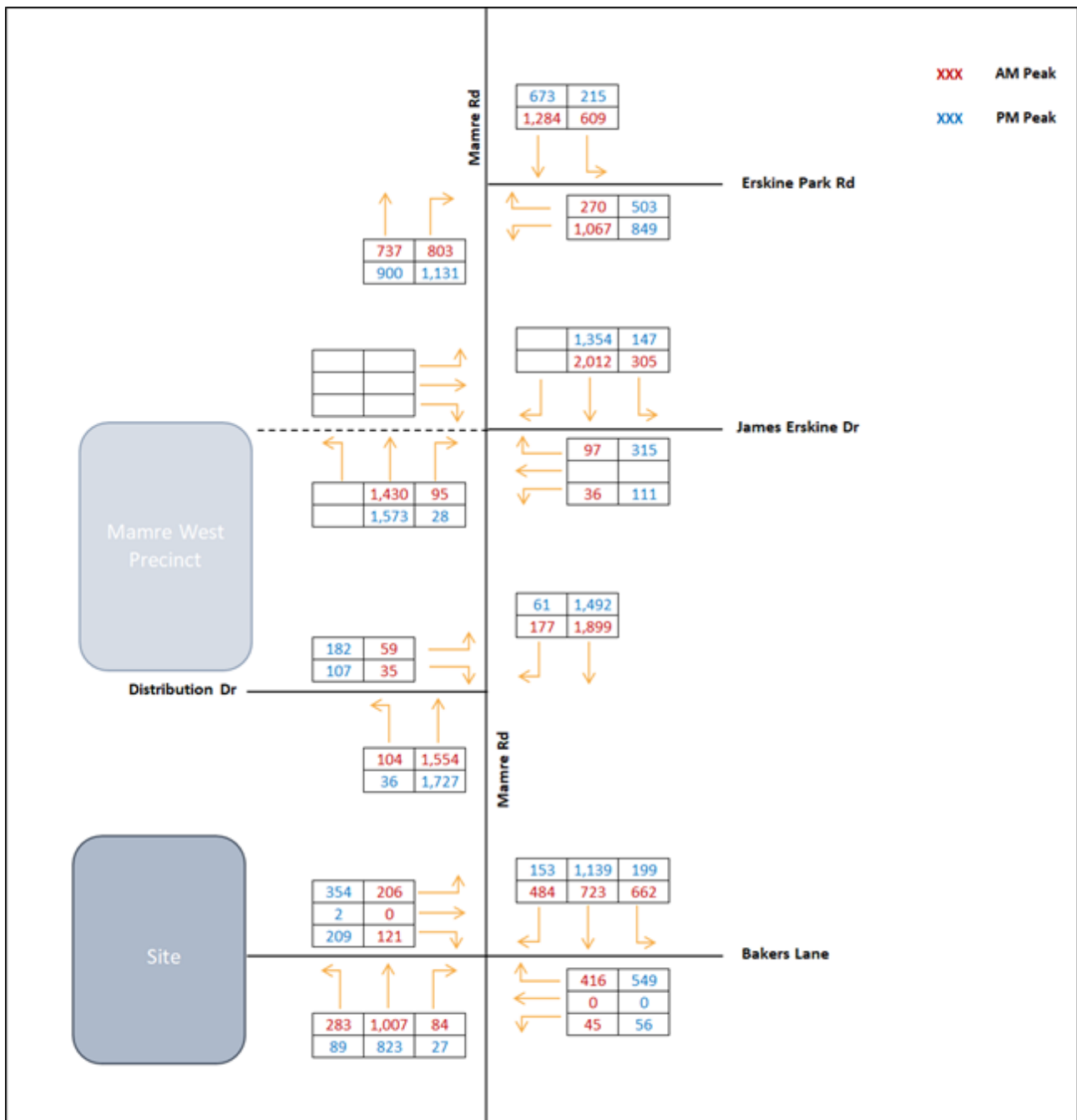


Figure 13: Traffic Volume Distribution for the MSP Ultimate Plan and Southern Lots GFA for 2026

The traffic volume distribution for the year 2031 is shown overleaf in **Figure 14**.

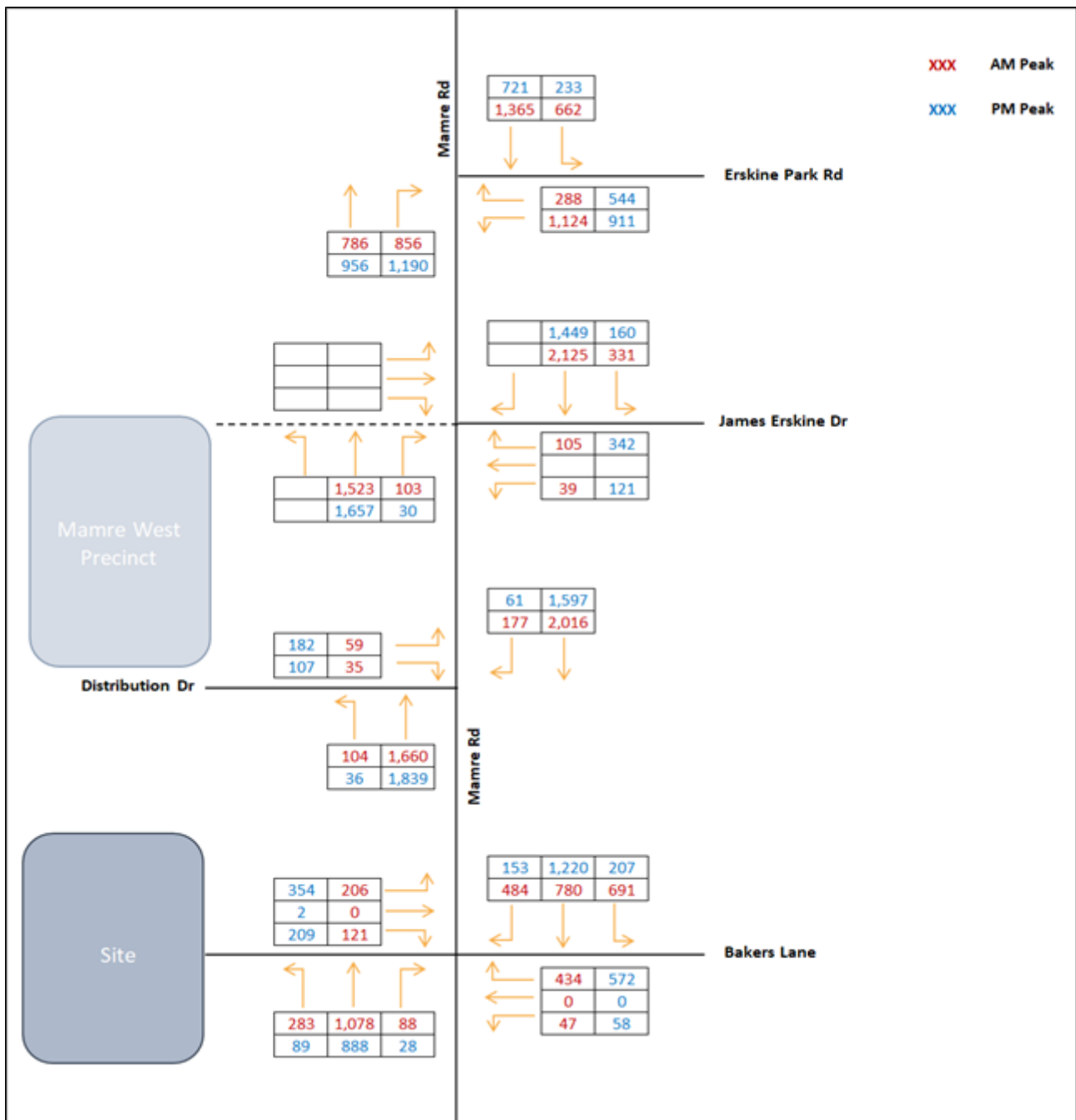


Figure 14: Traffic Volume Distribution for the MSP Ultimate Plan and Southern Lots GFA for 2031

The traffic volume distribution for the year 2036 is shown overleaf in **Figure 15**.

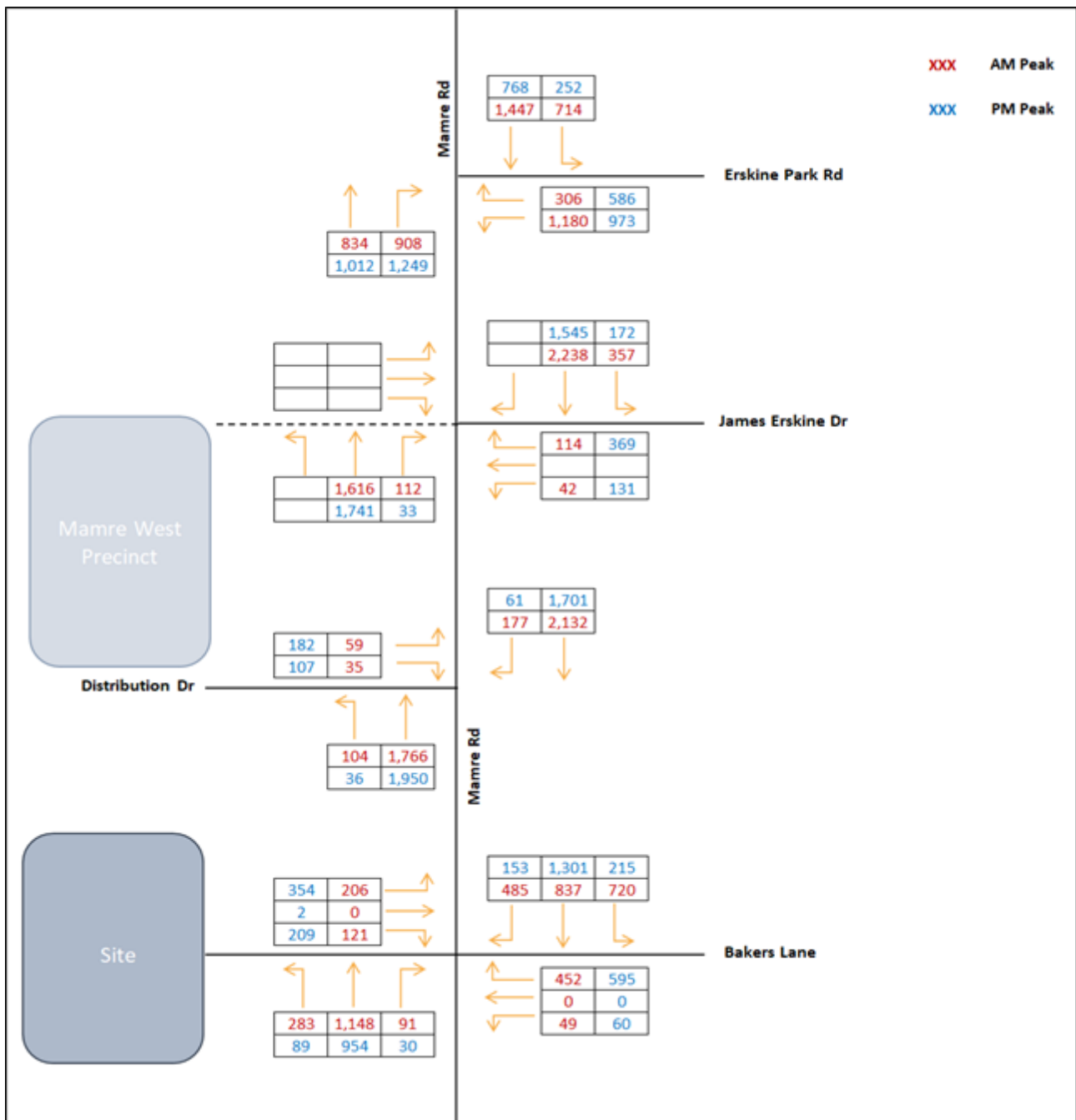


Figure 15: Traffic Volume Distribution for the MSP Ultimate Plan and Southern Lots GFA for 2036

Accordingly, the network SIDRA modelling analysis (for the three years mentioned above) have been updated for the approved Modified Sequence 1A of the Mamre Road / Bakers Lane intersection with 3 other intersections which include:

- Mamre Road / Erskine Park Road;
- Mamre Road / James Erskine Drive; and
- Mamre Road / Distribution Drive.

The SIDRA network layout for the Site is indicated below in **Figure 16**.

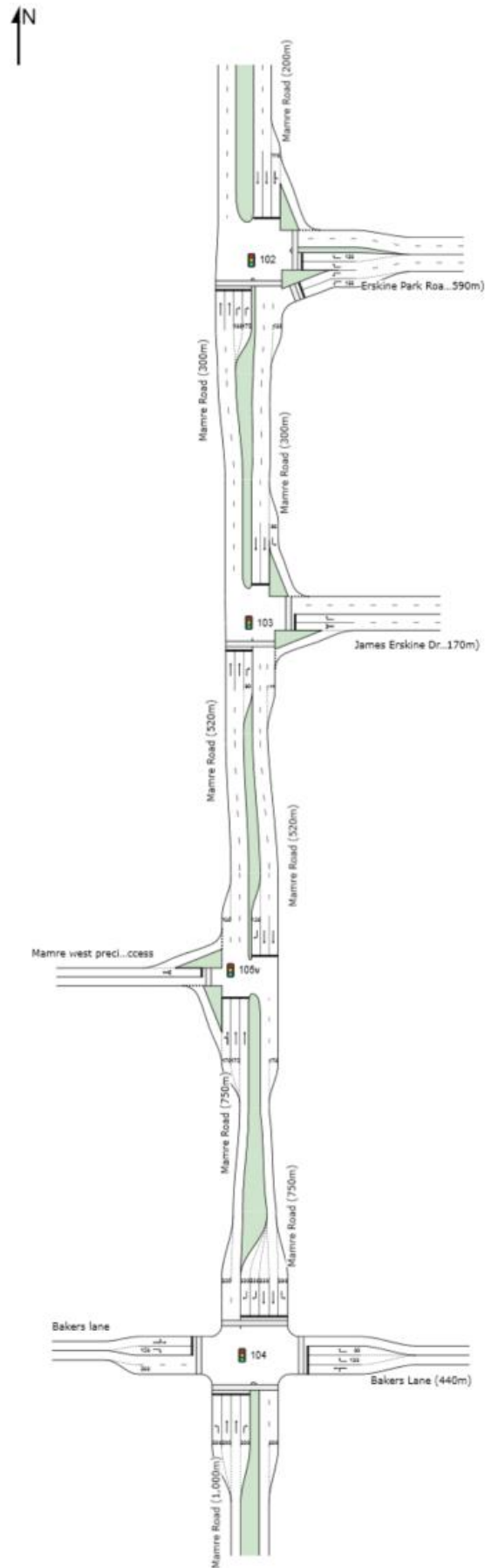


Figure 16: SIDRA Network Layout for Approved Modified Sequence 1A (2025, 2026, 2031 and 2036)

The following SIDRA modelling results were found, utilising the SIDRA Intersection 8.0 modelling package.

SIDRA modelling results for the year 2026 are summarised in **Table 14**.

TABLE 14 SIDRA MODELLING RESULTS (APPROVED MODIFIED SEQUENCE 1A - 2026)			
Intersection	Peak Period	Average Delay (Seconds)	Level of Service (LoS)
Mamre Road / Erskine Park Road	AM	41.8	C
	PM	28.2	B
Mamre Road / James Erskine Drive	AM	16.9	B
	PM	11.6	A
Mamre Road / Distribution Drive	AM	10.1	A
	PM	13.8	A
Mamre Road / Bakers Lane	AM	41.1	C
	PM	48.1	D

SIDRA modelling results for the year 2031 are summarised in **Table 15**.

TABLE 15 SIDRA MODELLING RESULTS (APPROVED MODIFIED SEQUENCE 1A - 2031)			
Intersection	Peak Period	Average Delay (Seconds)	Level of Service (LoS)
Mamre Road / Erskine Park Road	AM	51.1	D
	PM	33.0	C
Mamre Road / James Erskine Drive	AM	12.5	A
	PM	13.1	A
Mamre Road / Distribution Drive	AM	9.5	A
	PM	14.3	A
Mamre Road / Bakers Lane	AM	40.6	C
	PM	51.1	D

It is indicated that all key intersections are expected to operate at an acceptable LoS (LoS D or better) during both AM and PM peak periods and the approved Modified Sequence 1A (for 2026 and 2031) can readily accommodate the potential estate-wide traffic associated with MSP Ultimate Master Plan (with 421,820 m²) and the Southern Lots, which include the potential traffic generation of the proposed Lot 10.

SIDRA modelling results for the year 2036 are summarised in **Table 16**.

TABLE 16 SIDRA MODELLING RESULTS (APPROVED MODIFIED SEQUENCE 1A - 2036)

Intersection	Peak Period	Average Delay (Seconds)	Level of Service (LoS)
Mamre Road / Erskine Park Road	AM	72.6	F
	PM	36.3	C
Mamre Road / James Erskine Drive	AM	16.0	B
	PM	19.8	B
Mamre Road / Distribution Drive	AM	9.1	A
	PM	20.5	B
Mamre Road / Bakers Lane	AM	40.2	C
	PM	53.1	D

It is indicated that all key intersections (excluding the Mamre Road / Erskine Park Road during the AM peak) are expected to operate at an acceptable LoS (LoS D or better) during both AM and PM peak periods. However, the Mamre Road / Erskine Park Road intersection operates at a LoS F. It is noted that the LoS F for this AM peak period assessment is related to the background traffic growth of the area in the next 15 years, and it is not directly relevant to the proposed Lot 10 traffic, which is negligible in the scheme of Mamre Road traffic growth.

In summary, the approved Sequence 1A Modified plan can accommodate the ultimate built form of the entire MSP as well as the Southern Lots traffic (for years 2026, 2031 and 2036) satisfactorily.

6.7 Mamre Road / Bakers Lane / NS Road 01

Additionally, SIDRA modelling has been undertaken for the potential future SLR / Bakers Lane / North-South 01 Access Road intersection for an assumed year 2036. This assessment has been undertaken noting that the SLR / Bakers Lane / North-South Road 01 intersection is likely to operate as a signalised intersection when a Sequence 3 upgrade plan is delivered by TfNSW.

The intersection layout for this scenario is shown overleaf in **Figure 17** which is based on Costin Roe functional layout. It is noted that the traffic estimation at this intersection has been obtained through review of EMME Data as well as the traffic volumes estimated for the entire Master Plan and the Southern Lots.

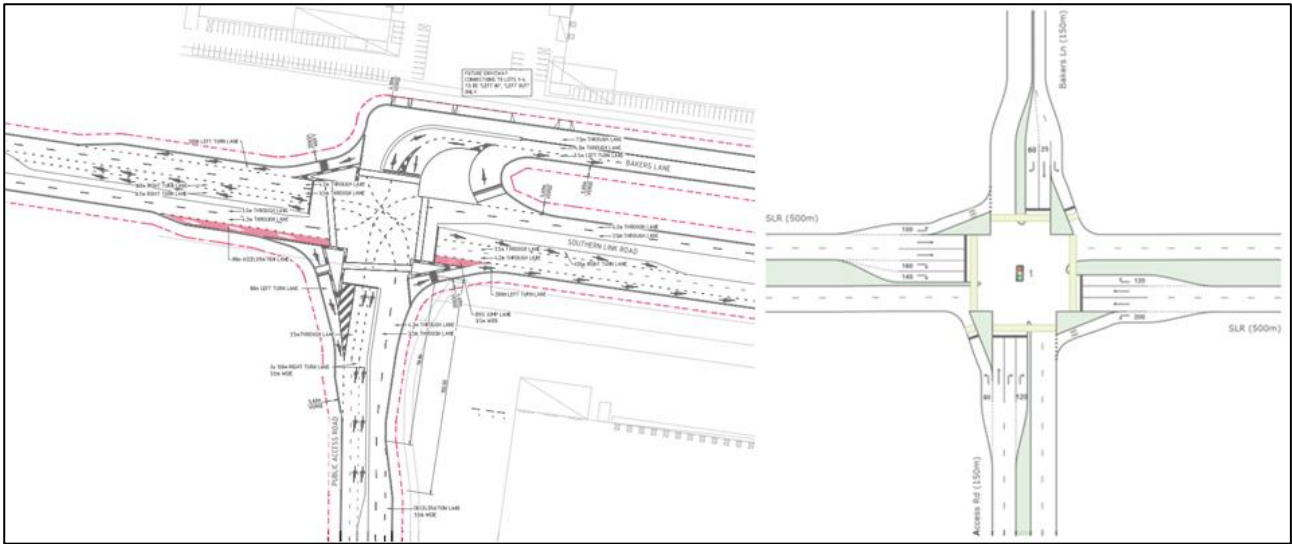


Figure 17: Potential Intersection Layout (Signalised Intersection) for SLR / Bakers Lane (in 2036)

The SIDRA modelling results (attached in **Appendix C**) indicated that the signalised intersection operates at a LoS “C” in both the morning and afternoon peak hours.

With regards to queuing from the southern leg towards the Site’s truck exit point, this assessment indicated that the proposed 120 metre right turn bay can sufficiently accommodate the AM and PM peak hour queues (which are approximately 63 and 97 metres).

Furthermore, the Site’s truck exit point has been located approximately 150 metres from the stop line of the southern approach for the potential signalised intersection which confirms that the queue back from the signal will not impact the access point.

Finally, TfNSW has previously advised that the separation from new signalised intersections in a green field site should be in the order of 50-100 metres. As such the location of this truck exit point also satisfies this requirement.

In summary, the SIDRA analysis for this signal is supportive and can accommodate the overall MSP and Southern Lots traffic (inclusive of the proposed Site’s traffic) with no material issues.

7 Preliminary Construction Traffic Management Plan

A detailed Construction Traffic Management Plan (CTMP) will be provided as part of detailed construction planning. For the purposes of this TA report, the following general principles for managing construction traffic have been assumed and provide an understanding of the likely traffic impacts during the construction period.

7.1 Potential Haulage Routes

The primary potential haulage route to and from the Site would be via Mamre Road, and in line with the overarching CTMP prepared previously by Ason Group.

7.2 Proposed Working Hours

The construction work would vary depending on the phase of construction and associated activities and includes both construction and design personnel. The size of the on-site workforce has not been finalised and as a result, the peak working population on-site at any given time during the construction period may vary. Construction works would be undertaken during standard construction-working hours, which are likely to be as follows:

- Monday to Friday: 7.00 AM to 6.00 PM
- Saturday: 7.00 AM to 1.00 PM
- Sunday and Public holidays: No planned work.

It may (on occasion) be necessary to undertake night works to minimise disruption to traffic or for oversize deliveries under a special permit.

7.3 Anticipated Construction Program Traffic Generation

Light vehicle traffic generation would be generally associated with contractor movements to and from the Site. Contractors would be comprised of project managers, various trades, and general construction personnel. Over the full construction period, the peak workforce represents the worst-case scenario for vehicle movements during the AM or PM road network peak hour. The workforce arrival and departure periods (6:30 – 7:00 AM and 5:00 – 5:30 PM) represent the peak construction traffic generation periods.

Light vehicle construction trips are expected to arrive in the morning and depart in the evening and the number of trips would be based on the workforce numbers. Parking for this construction related-vehicles would be provided on-site.

Heavy vehicle traffic would mainly be generated by activities associated with the delivery of construction equipment and delivery of material for construction works.

Ason Group has been advised that the construction traffic vehicle movements per day for the Site is expected to be around 70% of the operational traffic numbers (from the First Principles assessment) shown in **Table 12**.

The expected construction vehicle movements (inbound and outbound) and their vehicle types are therefore provided as follows:

- Light vehicles: 196 trips;
- Heavy vehicles (up to 26.0m B-Doubles): 49 trips; and
- Total: 245 trips

Furthermore, the likely breakdown for the peak construction traffic volumes are shown below, noting that the AM and PM Peaks are based on 70% of the theoretical operational traffic volumes for the proposed Lot 10.

- AM Peak: 48 trips; and
- PM Peak: 35 trips

Notwithstanding, majority of the deliveries are likely to occur outside of the peak road network traffic periods and would have limited (if any) impact onto surrounding road network. Again, it is emphasised that a detailed CTMP will be provided in response to a suitable CoC for the Proposal.

Importantly, the construction traffic volumes are lower than the volumes anticipated for SSD-9522 (and this SSD) once it becomes operational. Therefore, recognising that the key intersection is anticipated to perform satisfactorily once the Site is completed, it can be assumed that the intersection would satisfactorily accommodate the lower volumes of construction traffic.

7.4 Anticipated Construction Programme

Ason Group has been provided with a high-level overview for the construction programme that will be undertaken in the future. A brief description of this programme and its expected starting dates is detailed below:

- Design commencement (on 30 September 2021);
- Earthworks commencement (on 01 April 2022);
- Site Construction commencement (on 11 May 2022); and
- Practical completion (on 14 December 2022).

7.5 Construction Mitigation Measures

While the traffic impacts of construction of the development are likely to be less than the operational phases, the following measures will be undertaken to minimise the impacts of the construction activities of the development:

- Traffic control would be required to manage and regulate traffic movements into and out of the Site during construction; and
- Disruption to road users would be kept to a minimum by scheduling intensive delivery activities outside of peak network hours.

Construction and delivery vehicles would be restricted to using Mamre Road, Erskine Park Road, Elizabeth Drive, the M4 Motorway, or the M7 Motorway. At no stage are construction vehicles associated with the Site to use Bakers Lane, east of Mamre Road.

8 Design Commentary

The relevant design commentary is explained in the following sections.

8.1 Relevant Design Standards

The Site access, car park and loading should be designed to comply with the following relevant Australian Standards:

- AS2890.1:2004 for car parking areas;
- AS2890.2:2018 for commercial vehicle loading areas; and
- AS2890.6:2009 for accessible spaces.

It is expected that any detailed construction drawings in relation to any modified areas of the car park or Site access would comply with these Standards. Furthermore, compliance with the above Standards would be expected to form a standard Condition of Consent prior to any development approval.

8.2 Design Vehicle

Proposed internal estate roads and warehouse hardstand areas have been designed to accommodate movements of a 36.2 metre A-double truck. In this regard, **Appendix D**, provides a swept path analysis for this vehicle type. Based on the operational information provided by the immediate tenant, the largest size truck required for the operation of this Site is 26.0 metre B-Doubles. As such the assessment undertaken for A-doubles are deemed conservative.

8.3 Commercial Hardstand Area

The design review indicates that access and egress to recessed docks and roller shutter doors can generally occur noting that hardstand operational management would effectively facilitate the movements of trucks within the hardstand area.

All commercial vehicles can enter and exit the site in a forward direction. In this regard, consideration shall be given to the design commentary and dock limitations included in **Appendix D**.

8.4 Car Parking Design

Staff and visitor parking – situated in proximity to tenancies – is demonstrated to generally comply with AS2890.1:2004 in line with User Class 2 which is superior to the minimum User Class 1/1A required for staff parking. Accessible spaces generally comply with AS2890.6:2009.

9 Summary and Conclusions

Ason Group has been engaged by Altis Property Partners (Altis) and Frasers Property Australia (FPA) Joint Venture (JV) to prepare a TA to assess the traffic and parking implications associated with the proposed Lot 10 within the Kemps Creek Warehouse, Logistics, and Industrial Facilities Hub.

9.1 Key Findings

The key findings of this TA are:

- The estimated proposed SSD traffic generation having regard for the approved traffic generation rates as part of the SSD-9522 TA are shown in **Table 17** as follows:

TABLE 17 TRAFFIC GENERATION (BASED ON SSD RATES) FOR LOT 10

Lot No.	GFA (m ²)	AM Peak	PM Peak	Daily
10	27,470	68	50	725

- Furthermore, based on the operational data provided by immediate tenant of the proposed Lot 10, the SSD will generate the following vehicular traffic generation onto the surrounding road network (actual anticipated traffic generation of the Site) is shown below in **Table 18** as follows:

TABLE 18 TRAFFIC GENERATION (FIRST PRINCIPAL ASSESSMENT) FOR LOT 10

Lot No.	GFA (m ²)	AM Peak	PM Peak	Daily
10	27,470	44	5	350

- Traffic associated with the proposed Lot 10 has already been assessed as part of SSD-9522 and approved MOD 1 (APPROVED Sequences Modified 1A, 1B, 2 and 3). In this regard, the traffic report accompanying the approved SSD-9522 included detailed modelling for the surrounding road network.
- The SIDRA modelling for the approved Modified Sequence 1A still indicates that the traffic associated with the proposed Site will not result in any material impacts in the surrounding road network operation.
- It is noted that the key intersections within the broader locality have also been assessed for the years 2026, 2031 and 2036 with a brief summary shown overleaf:

TABLE 19 SIDRA MODELLING RESULTS (APPROVED MODIFIED SEQUENCE 1A – 2026, 2031 AND 2036)

Intersection	Peak Period	Average Delay (Seconds)	Level of Service (LoS)
Year 2026			
Mamre Road / Erskine Park Road	AM	41.8	C
	PM	28.2	B
Mamre Road / James Erskine Drive	AM	16.9	B
	PM	11.6	A
Mamre Road / Distribution Drive	AM	10.1	A
	PM	13.8	A
Mamre Road / Bakers Lane	AM	41.1	C
	PM	48.1	D
Year 2031			
Mamre Road / Erskine Park Road	AM	51.1	D
	PM	33.0	C
Mamre Road / James Erskine Drive	AM	12.5	A
	PM	13.1	A
Mamre Road / Distribution Drive	AM	9.5	A
	PM	14.3	A
Mamre Road / Bakers Lane	AM	40.6	C
	PM	51.1	D
Year 2036			
Mamre Road / Erskine Park Road	AM	72.6	F
	PM	36.3	C
Mamre Road / James Erskine Drive	AM	16.0	B
	PM	19.8	B
Mamre Road / Distribution Drive	AM	9.1	A
	PM	20.5	B
Mamre Road / Bakers Lane	AM	40.2	C
	PM	53.1	D

- Notably, it is indicated that the key intersections (excluding the Mamre Road / Erskine Park Road intersection during the AM peak for 2036) are expected to operate at an acceptable LoS (LoS D or better) during both AM and PM peak periods. However, the Mamre Road / Erskine Park Road intersection (for 2036) operates at a LoS F. It is noted that the LoS F for this AM peak period assessment is related to the background traffic growth of the area in the next 15 years, and it is not directly relevant to the proposed Lot 10 traffic, which is negligible in the scheme of the background Mamre Road traffic growth.
- Moreover, a separate assessment has also been undertaken at SLR / Bakers Lane / Internal North-South Road 01 for 2036. This assessment indicates that this intersection operates at an acceptable LoS with an acceptable average delay in the peak hours with no unacceptable 'spill back' of queues to the upstream intersections.
- In summary, the projected traffic associated with this SSD will not result in requirements for any additional upgrades onto the surrounding road network ultimate from what has already been approved.
- On-site car parking provisions for the proposed Lot 10 in this SSD meet the requirements of Mamre Road DCP 2021. Therefore, the proposed SSD will not result in any adverse parking impact onto the surrounding road network.
- Detailed design of each individual building is deferred to their respective DA assessment. However, the site access, car park and loading areas for all buildings are expected to comply with the following relevant Australian Standards:
 - AS 2890.1:2004 for car parking areas;
 - AS 2890.2:2018 for commercial vehicle loading areas; and
 - AS 2890.6:2009 for accessible (disabled) parking.
- It is expected that any detailed construction drawings in relation to the car park or Site access would comply with these Standards. Furthermore, compliance with the above Standards would be expected to form a standard Condition of Consent prior to any development approval.

9.2 Conclusions

In summary, the proposed Lot 10 warehouse and manufacturing development is deemed supportable on traffic and transport planning grounds and will not result in any adverse impacts on the surrounding road network.

Appendix A. SSD-9522 and Approved MOD 1 Sequences - SIDRA Result Summary Tables

Intersection	Configuration	Period	Scenario 1				
			2025 Modified Sequence 1A				
			Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS
Erskine Park Rd / Mamre Rd	Signallised (3-way)	AM	24.9 - B	N	123	24.5	0.85
				E	97	34.5	0.85
				S	73	17.1	0.84
		PM	25.9 - B	N	55	27.1	0.69
				E	61	33.0	0.91
				S	100	20.4	0.77
James Erskine Dr / Mamre Rd	Signallised (3-way)	AM	13.5 - A	N	169	18.6	0.86
				E	16	29.8	0.50
				S	24.1	4.9	0.82
		PM	11.6 - A	N	96	13.0	0.68
				E	39	33.8	0.73
				S	60	4.7	0.63
Distribution Dr / Mamre Rd	Signallised (3-way)	AM	9.9 - A	N	98	8.5	0.70
				S	70	11.7	0.59
				W	7	9.9	0.17
		PM	13.6 - A	N	86	10.3	0.68
				S	97	16.0	0.68
				W	45	15.7	0.50
Bakers Ln / Mamre Rd (*Isolated)	Signallised (4-way)	AM	41.3 - C	N	114	40.4	0.91
				E	72	80.4	0.89
				S	87	23.7	0.56
				W	72	62.1	0.65
		PM	47.0 - D	N	163	44.6	0.81
				E	86	69.3	0.81
				S	94	33.1	0.60
				W	133	52.2	0.79

Intersection	Configuration	Period	Scenario 2									
			2026 Sequence 2 (no SL)					2026 Sequence 2 (with SL)				
			Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS	Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS
Erskine Park Rd / Mamre Rd	Signalised (3-way)	AM		N	194	31.6	0.87		N	199	32.4	0.88
			35.7 - C	E	140	47.5	0.91	37.1 - C	E	152	51.0	0.91
				S	126	30.3	0.86		S	127	30.7	0.86
		PM		N	68	32.6	0.75		N	70	33.1	0.75
			27.4 - B	E	70	34.2	0.90	27.7 - B	E	70	34.2	0.90
				S	123	20.4	0.83		S	126	20.9	0.84
James Erskine Dr / Mamre Rd	Signalised (4-way)	AM		N	128	17.7	0.71		N	133	17.5	0.71
			21.4 - B	E	20	55.9	0.73	21.3 - B	E	20	56.0	0.73
				S	139	22.2	0.71		S	141	22.3	0.72
		PM		W	23	45.8	0.84		W	23.2	46.0	0.84
			31.5 - C	N	88	20.4	0.61	32.4 - C	N	89	20.4	0.62
				E	40	42.1	0.67		E	40	42.1	0.67
Distribution Dr / Mamre Rd	Give-way Controlled (3-way)	AM		N	0	0.2	0.55		N	0	0.2	0.56
			14.3 - A	S	0	7.5	0.44	14.4 - A	S	0	7.5	0.44
				W	1	14.3	0.08		W	1	14.4	0.08
		PM		N	0	0.1	0.47		N	0	0.1	0.47
			18.9 - B	S	0	7.5	0.48	19.3 - B	S	0	7.5	0.49
				W	4	18.9	0.31		W	4	19.3	0.32
Bakers Ln / Mamre Rd	Signalised (4-way)	AM		N	79	25.1	0.79		N	84	31.5	0.80
			32.3 - C	E	55	57.1	0.74	35.8 - C	E	54	55.9	0.70
				S	135	32.4	0.78		S	147	34.4	0.82
		PM		W	42	38.7	0.80		W	43	38.5	0.78
			34.5 - C	N	102	34.2	0.62	34.5 - C	N	102	34.4	0.63
				E	62	43.6	0.54		E	62	43.6	0.54
			S	99	31.1	0.63	S	99	30.9	0.63		
			W	61	31.4	0.61	W	64	31.6	0.63		

Intersection	Configuration	Period	Scenario 3									
			2026 Sequence 3 (no SL)					2026 Sequence 3 (with SL)				
			Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS	Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS
Erskine Park Rd / Mamre Rd	Signalised (3-way)	AM		N	194	31.6	0.87		N	199	32.4	0.88
			35.7 - C	E	140	47.5	0.91	37.1 - C	E	152	51.0	0.91
				S	126	30.3	0.86		S	127	30.7	0.86
		PM		N	68	32.6	0.75		N	70	33.1	0.75
			27.4 - B	E	70	34.2	0.90	27.7 - B	E	70	34.2	0.90
				S	123	20.4	0.83		S	126	20.9	0.84
James Erskine Dr / Mamre Rd	Signalised (4-way)	AM		N	128	17.7	0.71		N	133	17.5	0.71
			21.4 - B	E	20	55.9	0.73	21.3 - B	E	20	56.0	0.73
				S	139	22.2	0.71		S	141	22.3	0.72
		PM		W	23	45.8	0.84		W	23.2	46.0	0.84
			31.5 - C	N	88	20.4	0.61	32.4 - C	N	89	20.4	0.62
				E	40	42.1	0.67		E	40	42.1	0.67
Distribution Dr / Mamre Rd	Give-way Controlled (3-way)	AM		N	0	0.2	0.55		N	0	0.2	0.53
			14.4 - A	S	0	7.5	0.44	14.5 - A	S	0	7.5	0.44
				W	1	14.4	0.08		W	1	14.5	0.08
		PM		N	0	0.1	0.47		N	0	0.1	0.47
			19.4 - B	S	0	7.5	0.48	19.8 - B	S	0	7.5	0.49
				W	4	19.4	0.32		W	5	19.8	0.33
Bakers Ln / Mamre Rd	Signalised (4-way)	AM		N	74	23.7	0.70		N	77	24.0	0.71
			32.4 - C	E	54	55.4	0.70	32.7 - C	E	54	55.4	0.70
				S	107	37.5	0.69		S	109	38.4	0.71
				W	21	27.3	0.24		W	23	27.4	0.25
		PM		N	98	31.3	0.59		N	98	31.5	0.59
			32.8 - C	E	64	46.2	0.60	32.8 - C	E	64	46.2	0.60
				S	67	32.7	0.47		S	68	32.7	0.47
				W	33	22.7	0.42		W	36	22.7	0.44

**Appendix B. SIDRA Result Summary Table
for Modified Sequence 1A (for 2026, 2031
and 2036)**

Intersection	Configuration	Period	Scenario 1																			
			2025 Modified Sequence 1A					2026 Modified Sequence 1A					2031 Modified Sequence 1A					2036 Modified Sequence 1A				
			Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS	Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS	Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS	Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS
Erskine Park Rd / Mamre Rd	Signalised (3-way)	AM	24.9 - B	N	123	24.5	0.85	41.8 - C	N	169	34.2	0.93	51.1 - D	N	202	42.9	0.96	72.6 - F	N	282	68.8	1.03
			E	97	34.5	0.85	E		141	75.1	1.16	E		127	86.0	1.24	E		149	104.0	1.31	
			S	73	17.1	0.84	S		93	22.0	0.93	S		122	31.1	0.99	S		167	50.6	1.05	
	PM	25.9 - B	N	55	27.1	0.69	28.2 - B	N	60	29.6	0.75	33.0 - C	N	67	31.5	0.80	36.3 - C	N	60	27.7	0.81	
		E	61	33.0	0.91	E		66	33.2	0.91	E		86	42.0	0.99	E		114	59.3	1.09		
		S	100	20.4	0.77	S		128	24.1	0.85	S		151	27.5	0.90	S		142	24.1	0.93		
James Erskine Dr / Mamre Rd	Signalised (3-way)	AM	13.5 - A	N	169	18.6	0.86	16.9 - B	N	206	24.5	0.90	12.5 - A	N	151	16.1	0.84	16.0 - B	N	173	20.8	0.87
			E	16	29.8	0.50	E		20	31.1	0.58	E		21	30.9	0.64	E		22	30.8	0.62	
			S	24.1	4.9	0.82	S		39	5.1	0.83	S		53	6.5	0.91	S		89	9.1	0.83	
	PM	11.6 - A	N	96	13.0	0.68	11.6 - A	N	97	12.1	0.69	13.1 - A	N	114	14.0	0.77	19.8 - B	N	182	28.1	0.89	
		E	39	33.8	0.73	E		40	36.0	0.74	E		44	38.1	0.76	E		48	37.5	0.77		
		S	60	4.7	0.63	S		58	4.4	0.65	S		70	5.2	0.69	S		91	6.7	0.75		
Distribution Dr / Mamre Rd	Signalised (3-way)	AM	9.9 - A	N	98	8.5	0.70	10.1 - A	N	115	9.0	0.73	9.5 - A	N	92	7.8	0.71	9.1 - A	N	81	7.0	0.69
			S	70	11.7	0.59	S		76	11.4	0.62	S		82	11.2	0.64	S		87	11.1	0.67	
			W	7	9.9	0.17	W		7	10.7	0.18	W		8	11.1	0.19	W		8	11.6	0.20	
	PM	13.6 - A	N	86	10.3	0.68	13.8 - A	N	100	10.5	0.73	14.3 - A	N	114	10.8	0.78	20.5 - B	N	177	18.6	0.87	
		S	97	16.0	0.68	S		102	16.2	0.70	S		112	17.0	0.74	S		135	22.5	0.84		
		W	45	15.7	0.50	W		46	16.3	0.50	W		48	17.6	0.51	W		43	17.9	0.50		
Bakers Ln / Mamre Rd (*Isolated)	Signalised (4-way)	AM	41.3 - C	N	114	40.4	0.91	41.1 - C	N	109	40.4	0.92	40.6 - C	N	110	39.2	0.90	40.2 - C	N	106	38.2	0.89
			E	72	80.4	0.89	E		73	81.4	0.90	E		75	79.5	0.89	E		77	77.9	0.88	
			S	87	23.7	0.56	S		101	23.9	0.61	S		117	25.1	0.66	S		130	25.7	0.70	
	PM	47.0 - D	N	163	44.6	0.81	48.1 - D	N	190	45.8	0.84	51.1 - D	N	213	47.4	0.87	53.1 - D	N	248	54.1	0.91	
		E	86	69.3	0.81	E		90	73.2	0.85	E		98	75.9	0.89	E		101	75.8	0.89		
		S	94	33.1	0.60	S		96	31.0	0.60	S		103	30.5	0.62	S		118	31.8	0.68		
W	133	52.2	0.79	W	143	57.0	0.84	W	153	71.2	0.88	W	160	65.3	0.90							

**Appendix C. SIDRA Result Summary Table
for Bakers Lane / Southern Link Road /
Access Road 01**

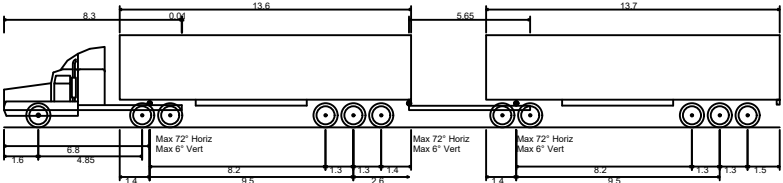
Intersection	Configuration	Period	Scenario 1				
			Proposed 2036 Scenario				
			Overall Intersection Delay - LoS	Approach	Queue	Avg. Delay	Degree of Saturation - DoS
Southern Link Rd / Bakers Ln / Access Rd	Signallised (4-way)	AM	29.8 - C	N	23	52.0	0.13
				E	65	22.1	0.46
				S	63	57.9	0.46
				W	152	27.8	0.48
		PM	35.4 - C	N	47	60.0	0.34
				E	137	25.4	0.44
				S	97	53.6	0.45
				W	87	31.8	0.32

Appendix D. Swept Path Analysis and Design Commentary

- THE HARDSTAND ACCESS POINTS HAVE BEEN REVIEWED AND IT IS IMPORTANT TO NOTE THE FOLLOWING:
 - ALL TRUCKS WILL ACCESS THE HARDSTAND AREA FROM THE SOUTH AND EXIT IN A NORTHWARDS DIRECTION. THIS ONLY ALLOWS FOR A ONE-WAY TRAFFIC FLOW WITHIN THE HARDSTAND AREA.
 - 36.2m A-DOUBLE TRUCKS CAN UNCOUPLE WITHIN THE HARDSTAND AREA. REFER TO AG02 FOR FURTHER DETAILS.
- 20.0 m AVs HAVE BEEN TESTED FOR REAR LOADING.
 - WHEN TWO OF THE 20.0 m AVs ARE REAR LOADING INTO THE RSDs NEAR THE POWDER MANUFACTURING AREA, TRAFFIC MANAGEMENT DEVICES AND A CONVEX MIRROR SHALL BE REQUIRED TO MANAGE THESE MOVEMENTS.
- FIRE TRUCKS (12.5 m HRVS) HAVE BEEN TESTED WITHIN THE HARDSTAND AREA AND THE CAR PARKING AREA IN A CLOCKWISE DIRECTION, AS PER THE FRNSW GUIDELINES. REFER TO AG06.

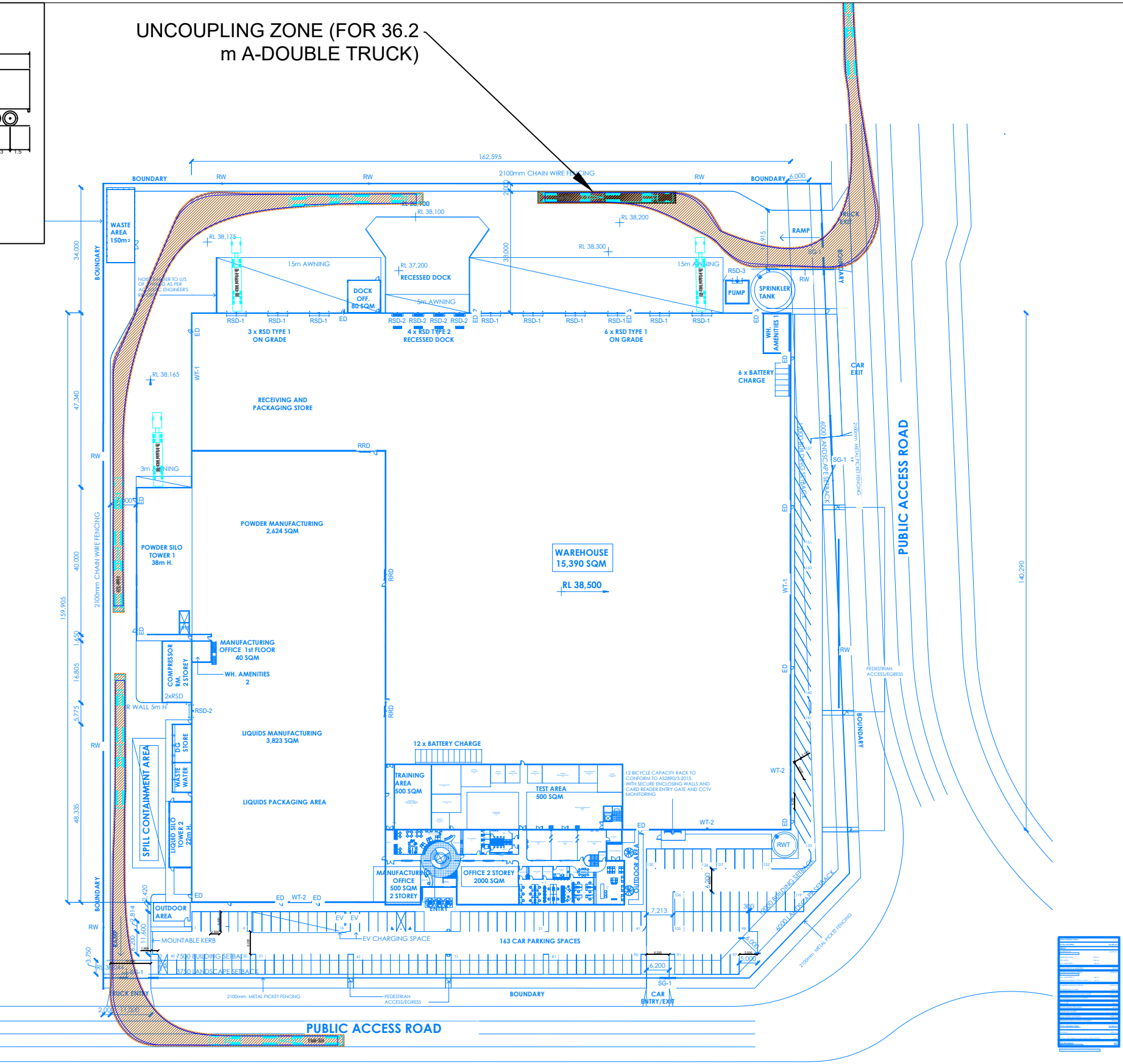


VEHICLE PROFILE



A-Double (36.2m)	
Overall Length	36.200m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

UNCOUPLING ZONE (FOR 36.2 m A-DOUBLE TRUCK)



LEGEND
LANDSCAPE AREA

Notes:
Plan assessed (blue) were provided by Pace Architects on 23.09.2022.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

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Document Info:
Drawn by: J WONG
File name: AG1732-07-v09.dwg

Client:
JV

Project:
1732
LOT 10, KEMPS CREEK - INDUSTRIAL HUB

Drawing Title:
SWEPT PATH ASSESSMENT
36.2 m A DOUBLE UNCOUPLING

Date:
26-Sep-2022

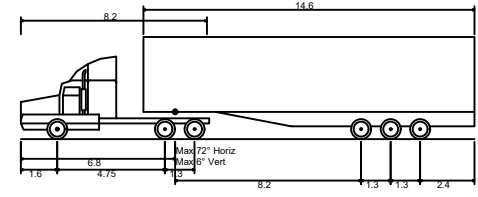
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Drawing Number:
AG02

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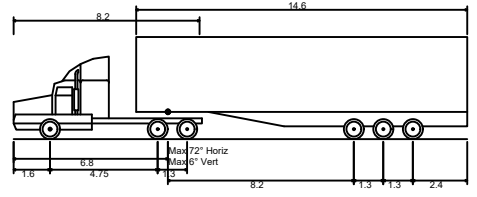
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

VEHICLE PROFILE

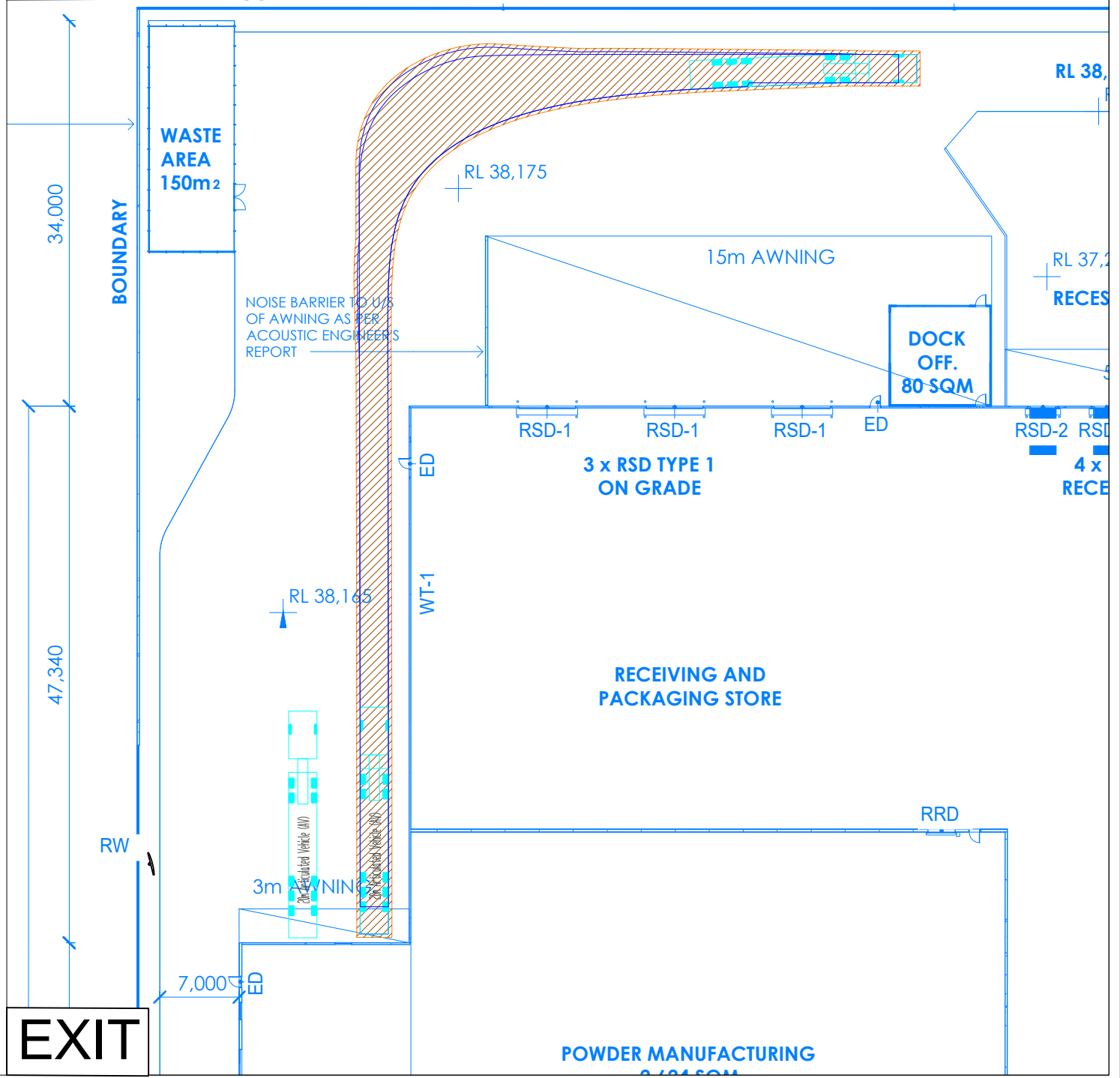
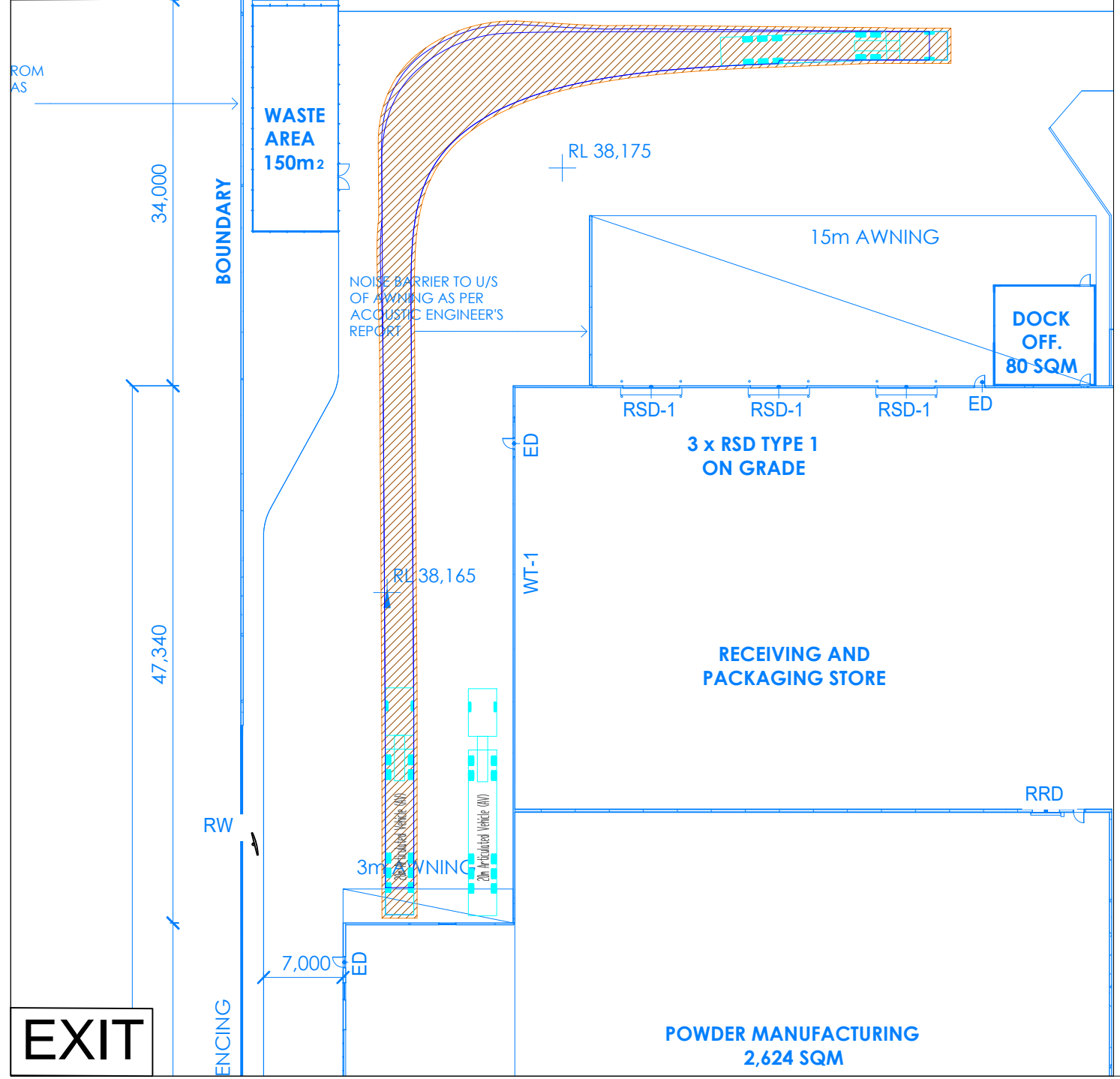


20m Articulated Vehicle (AV)	20.000m
Overall Length	2.500m
Overall Width	4.500m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

VEHICLE PROFILE



20m Articulated Vehicle (AV)	20.000m
Overall Length	2.500m
Overall Width	4.500m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m



EXIT

EXIT

Notes:
Plan assessed (blue) were provided by Pace Architects on 23.09.2022.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

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Drawn by: J WONG
File name: AG1732-07-v09.dwg

Client:
JV

Project:
1732
LOT 10, KEMPS CREEK - INDUSTRIAL HUB

Drawing Title:
SWEPT PATH ASSESSMENT
20.0 m AV REAR LOADING

Date:
26-Sep-2022

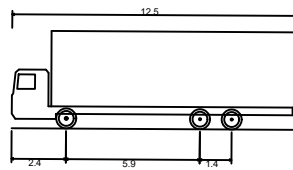
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Drawing Number:
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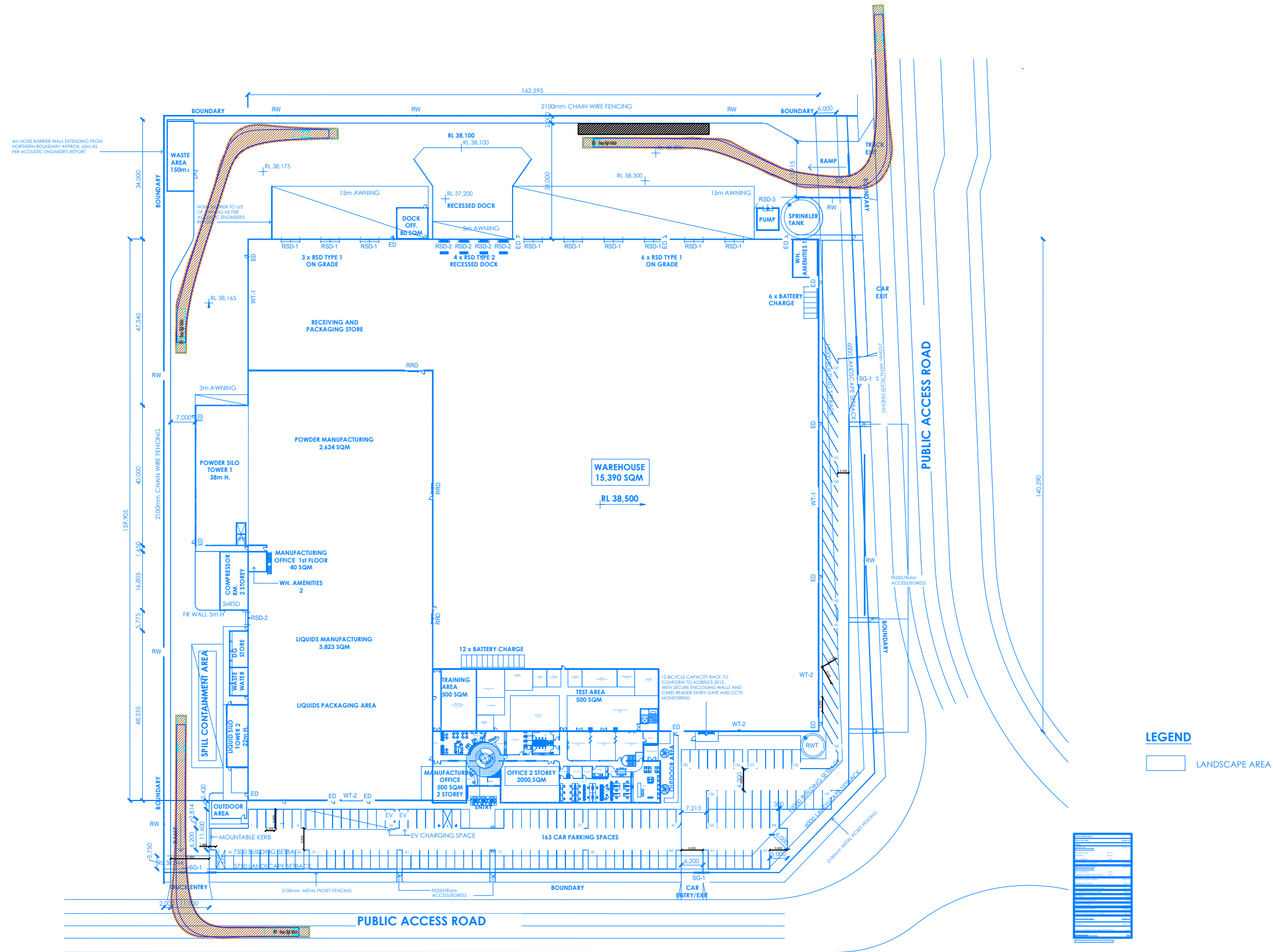
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Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

VEHICLE PROFILE



HRV - Heavy Rigid Vehicle
Overall Length 12.500m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.417m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 12.500m



CLOCKWISE

Notes:
Plan assessed (blue) were provided by Pace Architects on 23.09.2022.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

This drawing is provided for information purposes only and should not be used for construction.

Document Info:
Drawn by: J WONG
File name: AG1732-07-v09.dwg

Client:
JV

Project:
1732
LOT 10, KEMPS CREEK - INDUSTRIAL HUB

Drawing Title:
SWEPT PATH ASSESSMENT
FIRE TRUCK CIRCULATION (12.5 m HRV)

Date:
26-Sep-2022

Scale @ A3:
1:1250

Drawing Number:
AG06



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Appendix E. Copy of the Relevant Section of Riskcon Engineering Report

Figure 9: Class 3PGII and 3PGIII Flammable Liquids

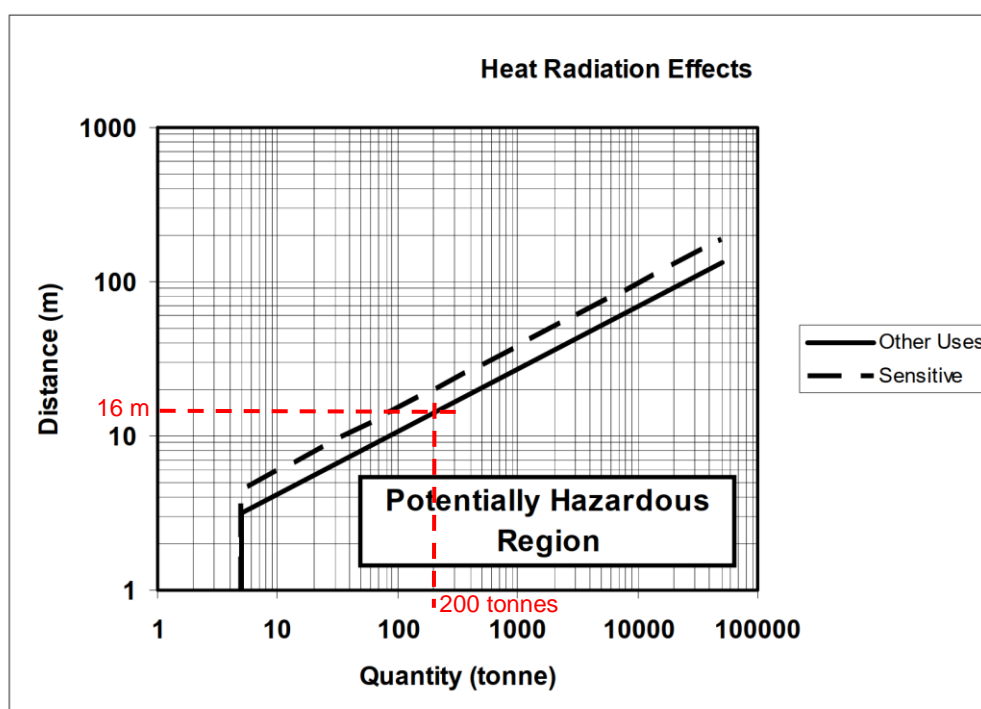


Figure 3-4: SEPP 33 Storage Screening Threshold for Flammable Liquids

3.3 Assessment of Hazards

3.3.1 Storage

Threshold limits for the application of SEPP 33 are presented in **Table 3-2** along with maximum DG quantities that will be stored. The results summarised in the table indicates the SEPP 33 criteria is not exceeded; hence, no further assessment would be required.

Table 3-2: Quantities Stored and SEPP 33 Threshold

Class	Description	PG	Quantity (kg)	SEPP Threshold (kg)	Threshold Exceeded? (Y/N)
2.1	LPG	n/a	900	10,000	N
3	Flammable Liquids	II	111,675	200,000	N
		III	71,973	200,000	N
4.1	Flammable Solids	II	484	5,000	N
5.1	Oxidising Substances	III	153	5,000	N
(6.1)	(sub-risk Toxic Substances)			2,500	N
6.1	Toxic Substances	II	2000	2,500	N
8	Corrosive Substances	II	13,302	25,000	N
		III	21,297	50,000	N

3.3.2 Transport

Table 2 from Applying SEPP 33 has been extracted and reproduced in **Figure 3-5**. A review of the figure with reference to the quantities stored indicates the warehouse storage would not exceed the cumulative annual transport limits based solely on the total quantity which is stored in the warehouse. Therefore, SEPP 33 does not apply to the transport operations at this site.

Class	Vehicle Movements		Minimum quantity*	
	Cumulative Annual	Peak or Weekly	per load (tonne)	
			Bulk	Packages
1	see note	see note	see note	
2.1	>500	>30	2	5
2.3	>100	>6	1	2
3PGI	>500	>30	1	1
3PGII	>750	>45	3	10
3PGIII	>1000	>60	10	no limit
4.1	>200	>12	1	2
4.2	>100	>3	2	5
4.3	>200	>12	5	10
5	>500	>30	2	5
6.1	all	all	1	3
6.2	see note	see note	see note	
7	see note	see note	see note	
8	>500	>30	2	5
9	>1000	>60	no limit	

Figure 3-5: Transportation Screening Thresholds

3.4 Assessment of Offense

SEPP 33 also contains a requirement for review of operations that may cause offense in the form of odour, environmental impact, nuisance (noise), etc. An indication of whether “offensiveness” may occur at the facility is whether an Environmental Protection Authority (EPA) licence is required for specific operations at the site. A review of the warehouse and manufacturing operations indicates that there are no processes that would result in the manufacture, production, or transfer of materials in a form that may result in the release of bulk materials at the site or that could result in odour generation or excessive noise. An EPA licence would not be required for this site.

The total quantity of chemicals stored at the Ardex facility is approximately 537 tonnes (<550 kL). The Protection of Environmental Operations Act 1997 (Ref. [2]) and Regulations 2009 (Ref. [3]) indicates that chemical storage facilities that exceed 5,000 kL of storage would trigger an administrative fee unit. As there is less than 550 kL of chemicals stored, an administrative fee unit is not triggered, and a licence is not required for the site.

Further, there would be no unusual operations that would cause potential odours, or noise closest residential area is located over 1.5 kms from the site and noise from normal warehouse operations would not impact this area.

In summary, there is no potential for “offensive” operations at the site and therefore SEPP 33 does not apply in this case.