Transport Assessment

Warehouse 6 & 7 – Aspect Industrial Estate

788 – 882 Mamre Road, Kemps Creek
17/10/2024
P2455r01

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-	13/12/2023	Draft	A. Ji	
I	04/03/2024	Issue	A. Ji	K. Ballurkar
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APPENDICES

Glossary

Acronym	Description
AIE	Aspect Industrial Estate
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)
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
RMS Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
SSD	State Significant Development
TfNSW	Transport for New South Wales
TA	Transport Assessment
TS	Transport Statement
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

1 Introduction

1.1 Overview

Ason Group has been engaged by Mirvac to prepare a Transport Statement (TS) supporting the Development Application for an industrial development proposal. The application relates to development of Warehouse 6, Warehouse 7, and an estate café (the Proposal) of the Aspect Industrial Estate (AIE), located on Lots 1, 2 & 5 DP1285305 and Lots 6 & 7 DP1291562, Mamre Road, Kemps Creek (the Site).

AIE is currently subject to a Concept Masterplan approval (reference: SSD-10448-Mod-3[1]). Consent was also provided for a Stage 1 development, which included the detailed consent for Warehouse 1 and 3. This application refers to the detailed design for Warehouse 6, Warehouse 7 and the estate café of the approved Concept Masterplan.

In this regard, Ason Group has reviewed all relevant documentation and undertaken an assessment of the Proposal, focusing on:

- Parking compliance in accordance with Mamre Road Precinct Development Control Plan 2021 (MRP DCP) and the site-specific Aspect Industrial Estate Development Control Plan 2020 (AIE DCP).
- Traffic Assessment to determine the Proposal's consistency with the traffic generation of that assumed for the warehouse under the current Concept Masterplan.
- Design compliance in accordance with AS 2890.1:2004, AS 2890.2:2018 and AS 2890.6:2009.

1.2 Site Context

The Proposal is located within the AIE, which is legally described as Lots 1, 2 & 5 DP1285305 and Lots 6 & 7 DP1291562, Mamre Road, Kemps Creek (the Site). The AIE has an area of approximately 56.3 hectares (ha) and with an approximately 950m of direct frontage to Mamre Road. It has a proposed intersection providing vehicular access via Mamre Road to the M4 Motorway and Great Western Highway to the north and the Elizabeth Drive to the south.

The Site is located approximately 4km north-west of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13km south-east of the Penrith CBD and 40km west of the Sydney CBD. A Site and Location Plan within the context of the Mamre Road Precinct (MRP) is presented in **Figure 1**.

The subject site, Warehouse 6, Warehouse 7 and the estate café, is located to the east of the AIE.

[1] https://www.planningportal.nsw.gov.au/major-projects/projects/aspect-industrial-estate-modification-3

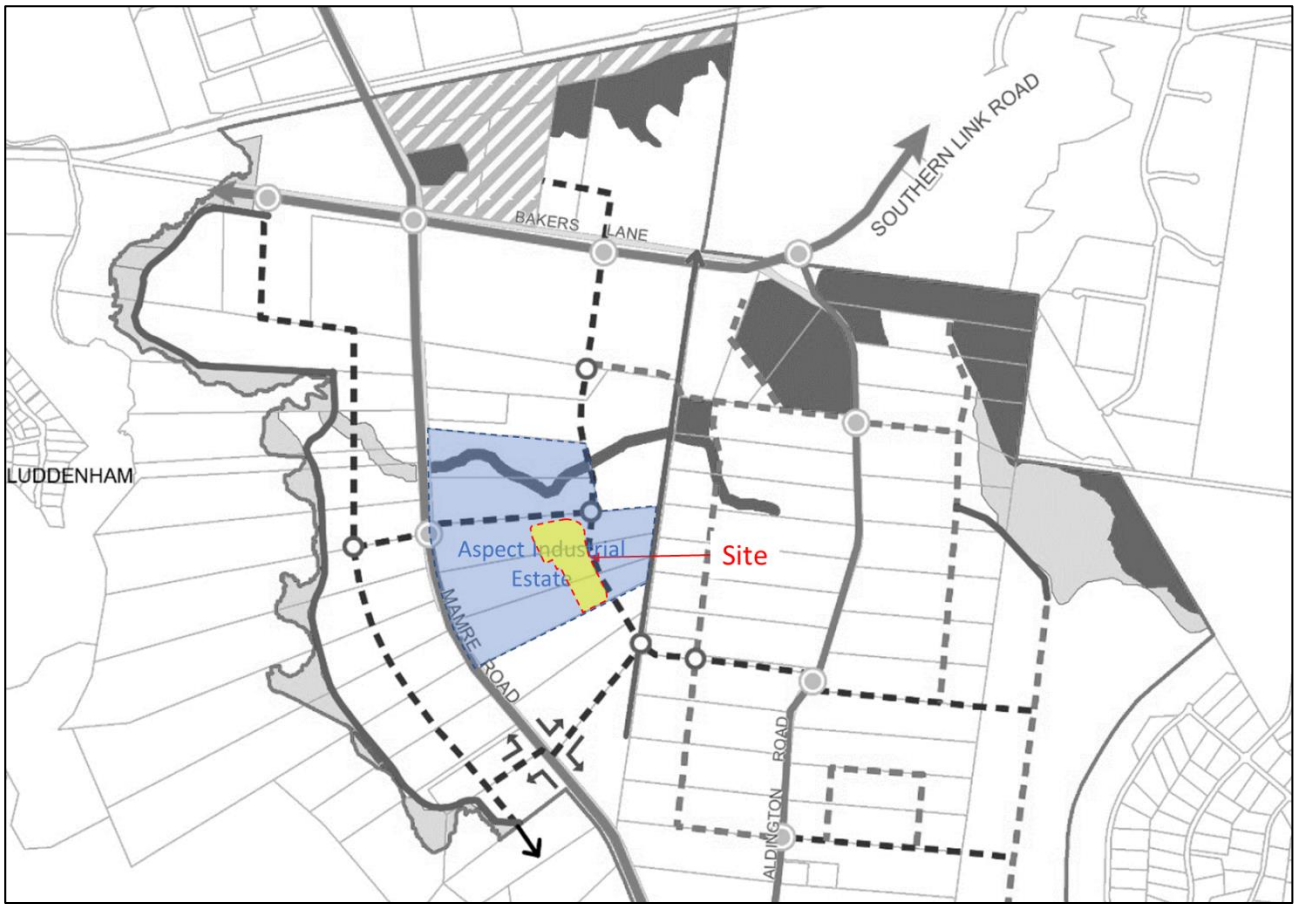

Figure 1: Site Location within Mamre Road Precinct

1.3 Reference Documents

Having regard to the above, the following key documents have been referenced in preparing this TS:

- Ason Group, *Transport and Accessibility Management Plan, Aspect Industrial Estate State Significant Development Application, Lots 54 – 58 Mamre Road, Kemps Creek*, revision 3, dated 13/08/2021 (Ason TMAP);
- Ason Group, *Aspect Industrial Estate, Mamre Road – Request for Further Information*, P1029l03 (Ason RFI);
- Ason Group, *Aspect Industrial Estate, Mamre Road Precinct – Modification 3 to State Significant Development Application (SSD 10448),* P1901l01v5 (Ason MOD-3 TS);
- Ason Group, *Aspect Industrial Estate, Mamre Road Precinct – Modification 6 to State Significant Development Application (SSD 10448),* P2169r01v1 (Ason MOD-6 TS);
- SBA Architects, *SSDA-MOD 6 ESTATE MASTERPLAN – 22247_AIE_MOD 6 – MP6-02_A_SSDA Estate Masterplan*, dated 06/09/2023 (MOD-6 Masterplan);
- SBA Architects, *WAREHOUSE 6 SITE PLAN – 23256_DA601_A_Lot 6 Site Plan,* dated 19/20/2024 (Warehouse 6 Plan).
- SBA Architects, *WAREHOUSE 7 SITE PLAN – 23256_DA701_A_Lot 7 Site Plan,* dated 19/20/2024 (Warehouse 7 Plan).

1.4 Government Agency Advice

Penrith City Council's pre-lodgement advice in relation to the DAs were issued on 20 November 2023. The comments relating to traffic engineering and transport planning matters are summarised in table below, with corresponding responses provided.

TABLE 1: PENRITH CITY COUNCIL PRE-LODGEMENT ADVICE

Council Advice	Report Section / Response
Traffic, Transport and Accessibility matters – including:	
The application shall be supported by a traffic report prepared by a suitably qualified person addressing, but not limited to, traffic generation, access, car parking, and manoeuvring.	Noted. This report has been prepared by suitably qualified traffic engineer and transport planner, and addresses the traffic generation potential of the Site, car parking, and heavy vehicle access to and from the Site and manoeuvring within the Site.
The application must demonstrate that access, car parking, and manoeuvring details comply with AS 2890 Parts 1, 2 & 6 and the MRP DCP.	Design review for the Site, including swept paths assessment, are annexed as **Appendix D**.
In accordance with the MRP DCP, the proposed development shall be designed to be serviced as a minimum by an Articulated Vehicle.	The minimum design vehicle has been adopted with reference to Table 13 of the MRP DCP 2021. In this regard, 20m AVs and 26m B-Doubles have been adopted for Warehouse 6 and 7, respectively.
A fully dimensioned car parking plan is to be provided demonstrating that access ramp grades & widths, car parking bays, car parking aisles and manoeuvring details comply with AS 2890 Parts 1, 2 & 6 and the Mamre Road Precinct DCP.	Refer to the architectural plan set provided separately. Refer to **Section 7** for parking requirements.
The application shall be supported by turning paths in accordance with AS 2890.1 & AS 2890.2 clearly demonstrating satisfactory manoeuvring on-site and forward entry and exit to and from the public road. The turn paths are to show full turning movements for heavy vehicles entering and leaving the public road. Turn paths for car parking spaces shall also be included. The turn paths are to show full turning movements for vehicles entering and leaving each car parking space and shall be in accordance with Figure B8 of AS2890.1. Turn paths shall include required clearances and shall not encroach over kerbs or garden beds.	Swept path assessments for heavy vehicles have been conducted in accordance with AS2890.2:2018. Car parking spaces and aisles have been assessed to fully comply with Figure 2.2 of AS2890.1:2004. Further, it should be noted that swept path assessment for light vehicle entering or leaving car parking spaces are non-standard practice. AS2890.1:2004 B4.3 states that "Figures B7 and B8 show typical swept paths for 90 degree reverse-in manoeuvres for B99 and B85 vehicles respectively. These templates are intended for use only at residential or domestic car parks to cater for unusually shaped manoeuvre areas in front of parking spaces." The Site is predominantly for industrial and warehousing land use and car parking spaces are provided for employee parking. Therefore, it is concluded that swept path assessments for LV entering and leaving each car parking space is not necessary or required.
Vehicular access to GPT's shall be demonstrated for maintenance purposes.	The current GPT site has its own existing site access with 4 driveways. Further, the approved GPT development has a temporary solution with a left-in left-out site access onto Mamre Road.

	Therefore, it is not envisaged that any vehicle access for maintenance purposes would be required. Nevertheless, GPT and Mirvac are working collectively to deliver the internal vehicular access between the two sites. Further, this connection to the northeast of the wider AIE Masterplan is outside the site boundary of the Site, as such, is outside the scope of this transport assessment. As it relates to access to the Site, Access Road 3 will be delivered in advance of Warehouse 6 and 7 becoming operational.

1.5 Response to Submissions

1.5.1 Penrith City Council Comments

Penrith City Council (Council) provided comments in relation to a previously submitted application (DA24/0264). With respect to the previous Transport Assessment reviewed by Council (P244r01v2 dated 2 April 2024), Ason Group has responded to each item as outlined in **Table 2**.

TABLE 2: COUNCIL COMMENTS

No.	Council Comment	Report Section / Response
13	It is unclear whether the layout of the cafe will provide for compliance with AS4674-2004 and suitable space for a grease trap. Furthermore, concern is raised regarding the ability for the cafe and the site office, to be serviced by waste collection and delivery vehicles, and the inadequate bin / waste storage space. In this regard it is noted that the supporting Traffic Assessment Report indicates a heavy rigid vehicle entering the cafe driveway, encroaching upon the road centreline and verge area, and then being required to reverse from the site. These arrangements are unacceptable, and all associated service vehicles must be able to manoeuvre on-site and exit the site in forward direction.	It is clarified that that the swept path analysis submitted indicates the movement path of a specialist fire appliance (HRV) in an emergency situation, where sirens would be used to warn motorists and pedestrians of incoming movement. The Proposal has been amended to include on-site servicing collection for the café. The nominated design vehicle is an 8.8m Medium Rigid Vehicle (MRV) which would be suitable for private contractors and including waste collection. The revised swept path analysis in **Appendix D** demonstrates that the MRV can undertake access movements and circulation in a forward direction. Notwithstanding, car parking spaces have been identified which will need to be vacant to allow for the MRV to complete a three-point-turn. In this regard, it is proposed that servicing movements would occur outside trading hours for the café under a Tenant Management Plan to enable the above operation.
27	The supporting Traffic Assessment Report indicates that 'B-double' vehicles are to be the largest vehicle servicing the warehouses, however there are 'A- double' uncoupling areas provided within the manouvering / hardstand areas of both warehouse buildings. Furthermore in this regard, it is unclear how a 'B-double' vehicle would be able to access 'Warehouse 7' given the position of the uncoupling area.	It is clarified that the de-coupling area for Warehouse 6 and Warehouse 7 has been designed to accommodate B-Double Vehicles. References to A-Double Vehicles have been removed from this revision of the report. The position of the Uncoupling Area for Warehouse 7 is directly aligned with the outer edge of the hardstand area which allows the entering B-

		Double Vehicle to directly pull-in straight. For exit movements: • A tenant management plan will include provisions for particular RSD docks to be vacant so that the B-Double can turn around. • If already uncoupled, the vehicle would be able to reverse into an available RSD dock (consistent with an AV) in order to exit the hardstand area in a forward direction.

2 Planning History

2.1 Summary of Original Development (SSD-10448)

The AIE was originally granted development consent under SSD-10448 in May 2022 and provided for the following:

- A Concept Masterplan for the site comprising 11 industrial buildings for warehousing, distribution centre and general industrial uses, internal road network layout, building locations, gross floor area (GFA), car parking, concept landscaping, building heights, setbacks and built form parameters with the following GFAs:
  - 236,510m^2 of warehousing, 10,080m^2 of office space, 1,400m^2 of dock office and 122m^2 for Café
- A Stage 1 development including:
  - Warehouse 1: A total of 36,722m^2 GFA, including 34,970m^2 of warehouse GFA, 1,430m^2 of ancillary office GFA, 200m^2 of dock office and a 122m^2 café.
  - Warehouse 3: A total of 21,535m^2 GFA, including 20,735m^2 of warehouse GFA, 800m^2 of ancillary office GFA and 100m^2 of dock office GFA.
- A new signalised intersection to Mamre Road to accommodate Stage 1 traffic.

The Stage 1 and Concept Masterplan approved under SSD-10448 is reproduced as **Figure 2** and **Figure 3**.

Figure 2: SSD-10448 Approved Architectural Stage 1 Plan

Figure 3: SSD-10448 Approved Architectural Masterplan

With reference to the original approval under SSD-10448, the Ason TMAP forecast that the AIE Site would, once fully operational, generate:

- 570 vehicle trips per hour (vph) in the AM peak hour
- 595 vph in the PM peak hour
- 7,217 vehicles per day.

2.2 AIE SSD-10448 Modifications

Subsequent to the approval of the Concept Masterplan, SSD-10448 is currently the subject to a number of modifications. DPE requested an administrative change to the Conditions of Consent, which is formed MOD-1. The subsequent modifications include:

- MOD-2, to the Concept Plan and the Stage 1 Development, relates to the relocation of Access Road 2, revised parking provision across Lots 1, 2, and 3, and revised GFA across Warehouse 1 and 3.
- MOD-3, to the Concept Plan relates to the reconfiguration of the estate to reduce the overall number of lots from 11 to 9, relocate Access Road 4 and revise warehouse footprints.

- MOD-4, to incorporate the Elizabeth Enterprise Precinct (EEP) site into the AIE concept proposal for stormwater management purposes only.
- MOD-5, modification to SSD-10448 Condition D6 for using construction access roads for operational vehicles associated with Stage 1 development of the AIE.

MOD-3 presents the latest approved modification to the Concept Masterplan, which alerted the proposed layout. Consolidated consent was approved on 02 March 2023. The approved MOD-3 masterplan is produced in reduced scale below.

Concurrent to the approval of MOD-3, the Stage 2 development (SSD-46516461[2]) which relates to Warehouse 9 was also approved.

Figure 4: Approved SSD-10448 MOD-3 Architectural Masterplan

2.3 SSD-10448-Mod-6 (MOD 6)

A sixth modification (MOD-6) is currently being prepared, which provides for the redesign to the Concept Masterplan to accompany the speculative design of Warehouse 8. It includes the amendments to the intended development configuration on Lot 8 of the AIE.

The MOD 6 Masterplan is presented in **Figure 5**.

[2] https://www.planningportal.nsw.gov.au/major-projects/projects/aspect-industrial-estate-stage-2-development-warehouse-9

Figure 5: Proposed SSD-10448 MOD-6 Masterplan

2.4 SSD-10448-Mod-7 (MOD 7)

The seventh modification (MOD-7) was approved on 15 July 2024 and as detailed below, relates only to interim access requirements which are unrelated to the final design outcomes for the estate:

"The modification involves use of the temporary left-in/left-out construction access on Mamre Road by Warehouses 1 and 9 operational vehicles until the signalised Mamre Road/Access Road 1 intersection is constructed and commissioned."

3 Infrastructure Review

3.1 SSD-10448 Condition A14

Conditions A14 of the Conditions of Consent associated with the approved SSD requires the following:

A14. The Applicant must prepare an Infrastructure Review to support each future stage of the Concept Proposal. The Infrastructure Review must demonstrate the surrounding road infrastructure can accommodate the relevant stage and other approved developments in the MRP. The Infrastructure Review must:

(a) detail traffic volumes from all operating stages of the Concept Proposal;

(b) include background traffic volumes from key roads within the MRP, including Mamre Road;

(c) assess the operating performance of key intersections in the MRP, including Mamre Road and Access Road 1;

(d) detail the current level of approved development within the MRP, including total approved GFA;

(e) consider consistency with the latest approved Concept Proposal traffic volumes;

(f) demonstrate the road network has sufficient capacity to accommodate the proposed stage of the Concept Proposal, and if the proposed stage would trigger the need for any road upgrades, including those identified in the traffic modelling for the MRP;

(g) if road upgrades are required to support the proposed stage, identify the timing and mechanisms to contribute to the delivery of the required road upgrades.

Table 3 details the response to each of the requirements.

TABLE 3: INFRASTRUCTURE REVIEW

<table>
<tr><th>Item</th><th>Condition</th><th>Response</th></tr>
<tr><td>(a)</td><td>detail traffic volumes from all operating stages of the Concept Proposal</td><td>There are no stages currently operational and therefore no operational volumes are currently generated by the Site.</td></tr>
<tr><td>(b)</td><td>include background traffic volumes from key roads within the MRP, including Mamre Road;</td><td>A recent traffic survey of the Mamre Road / Bakers Lane intersection (undertaken in August 2022) found the following traffic flows:
August 2022 Traffic Volumes
<table><tr><th>Direction</th><th>AM</th><th>PM</th></tr><tr><td>Mamre Road Northbound</td><td>643</td><td>867</td></tr><tr><td>Mamre Road Southbound</td><td>791</td><td>710</td></tr></table>
Note that the above includes construction traffic generated by SSD-9522.
The modelling assessment detailed in the Ason RFI adopted May 2018 traffic flows and applied a 3% growth rate per year to establish baseline flows (noting the COVID-19 pandemic restrictions to movement of people), as requested by TfNSW. The flows recorded in 2018 were as follows:</td></tr>
</table>

		May 2018 Traffic Volumes Direction / AM / PM Mamre Road Northbound: 609 / 865 Mamre Road Southbound: 782 / 678 Therefore, on the basis of actual survey data, the resulting growth rates are as follows: **% Change per Year** Direction / AM / PM Mamre Road Northbound: +1.4% / +0.1% Mamre Road Southbound: +0.3% / +1.2% As shown by the current survey data, despite construction commencing on other development projects, the increase in traffic flows over the past 4 years is actually less than the growth rate requested for use by TfNSW in the Ason RFI modelling assessment. Therefore, the modelling assessment already undertaken is expected to be conservative.
(c)	assess the operating performance of key intersections in the MRP, including Mamre Road and Access Road 1	There have been no changes in the MRP that would change the modelling assessment already undertaken (i.e. such as additional approved developments) and documented in the Ason TMAP and Ason RFI. Note that the relevant sections of the Ason RFI have been provided as **Appendix A**. All conditions within the MRP remain the same as when this assessment was undertaken. Therefore, the expected intersection performance will remain consistent with the level already considered acceptable.
(d)	detail the current level of approved development within the MRP, including total approved GFA	Since consent was provided for SSD-10448, the following developments have recently been approved: • SSD-10479, located at 200 Aldington Road, which provides for 340,540m^2 of GFA-[3]; • SSD-9138102, being Stage 1 of the Westlink Estate, at 290-308 Aldington Road, 59-62 Abbotts Road and 63 Abbotts Road, which provides for 81,317m^2 of GFA-[4]; • SSD-9522-Mod-2, located at 657-703 Mamre Road (north west of the AIE) which provides for 187,378m^2 of industrial warehouse GFA-[5]; • SSD-10272349, located at 754-786 Mamre Road, Kemps Creek which provides for 54,982 m^2 of GFA-[6]; and • A place of worship at 230-242 Aldington Road (DA17/1247) which provides for a GFA of 3,821m^2. Note that no traffic from this development is expected to actually travel past the Site.

[3] https://www.planningportal.nsw.gov.au/major-projects/projects/200-aldington-road-industrial-estate
[4] https://www.planningportal.nsw.gov.au/major-projects/projects/westlink-industrial-estate-stage-1
[5] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-9522-MOD-2%2120220412T002309.267%20GMT
[6] https://www.planningportal.nsw.gov.au/major-projects/projects/yiribana-logistics-estate

(e)	consider consistency with the latest approved Concept Proposal traffic volumes	As detailed in Section 6.2, the Proposal presents a slight reduction in GFA than that envisaged under the latest approved Masterplan. Therefore, on adoption of the approved trip rate, it is evident that the traffic volumes associated with the Proposal would be consistent with that envisaged under the Concept Masterplan.
(f)	demonstrate the road network has sufficient capacity to accommodate the proposed stage of the Concept Proposal, and if the proposed stage would trigger the need for any road upgrades, including those identified in the traffic modelling for the MRP	As detailed above, the conditions have not changed in the MRP that would require revision of the modelling assessment already undertaken for the approved Concept Masterplan (detailed in the Ason TMAP and the Ason RFI). Therefore, there would be no change in the expected operation of the road network.
(g)	if road upgrades are required to support the proposed stage, identify the timing and mechanisms to contribute to the delivery of the required road upgrades	As detailed in Section 6, no further upgrades are required to support the Proposal. It is critical to recognise that the Proponent is offsetting the impacts of the whole Concept Masterplan approved by delivery of the signalised access intersection; rather payment of contributions that would otherwise contribute to upgrades of the wider road network required to support the whole MRP.

4 Proposal Summary

As part of the stage development of AIE, Mirvac is seeking approval for a new DA for the staged development of Warehouse 6, Warehouse 7 and an estate café. The development has been prepared in accordance with the approved concept development as well as the approved Stage 1, site preparation works and pad levels (SSD-10448).

This application seeks approval for detailed design of the Site. A detailed description of each tenancy and Gross Floor Areas (GFA) is provided below.

Warehouse 6 (Lot 6):

- Construction of a single building comprising Warehouse 6A and 6B to a height of 13.7m including:
  - Warehouse 6A: 4,212m^2 GFA of warehouse area and 500m^2 GFA of office space.
  - Warehouse 6B: 4,212m^2 GFA of warehouse area and 500m^2 GFA of office space.
- Construction of two heavy vehicle crossings and two car park crossings to Access Road 3.
- Construction of hardstand area to the north-east of the warehouse for truck manoeuvring.
- On site services and infrastructure.
- Grading and civil works, including a retaining wall.
- Landscaping along site frontages and within car park area.
- Parking for 70 cars across two carparking areas at the north-west and south-east sides of the warehouse building.
- Use of Warehouse 6A and 6B for the purpose of a Warehouse & Distribution Centre use 24 hours a day, 7 days a week.

Warehouse 7 and Café (Lot 7):

- Construction of a single building comprising Warehouse 7 to a height of 13.7m, including:
  - 12,258m^2 GFA of ambient warehouse area, with an additional 2,100m^2 of internal loading area.
  - 750m^2 GFA of office space.
  - 100m^2 GFA of dock office.
- Construction of a 112m^2 GFA Café building at the north-west corner of Lot 7 to a height of 2.8m.
- Construction of one heavy vehicle crossing and one car park crossing to Access Road 3 for access to Warehouse 7. Construction of one car park crossing to Access Road 4 for dedicated access to the proposed café.
- On site services and infrastructure.
- Grading and civil works, including retaining walls.
- Landscaping along site frontages and within car park area.
- Parking for 82 cars across:
  - 62 parking spaces at the carpark area to the north-east of the warehouse building in support of the proposed Warehouse 7 operations.
  - 20 parking spaces at the carpark area to the north-west of the warehouse building in support of the estate café.

- Use of Warehouse 7 for the purposes of a Warehouse & Distribution Centre use 24 hours a day, 7 days a week. Use of Café as a Food and Drink Premises.

A reduced copy of Site plan, prepared by SBA Architects, is presented in **Figure 6** and **Figure 7** for Warehouse 6 and Warehouse 7 respectively.

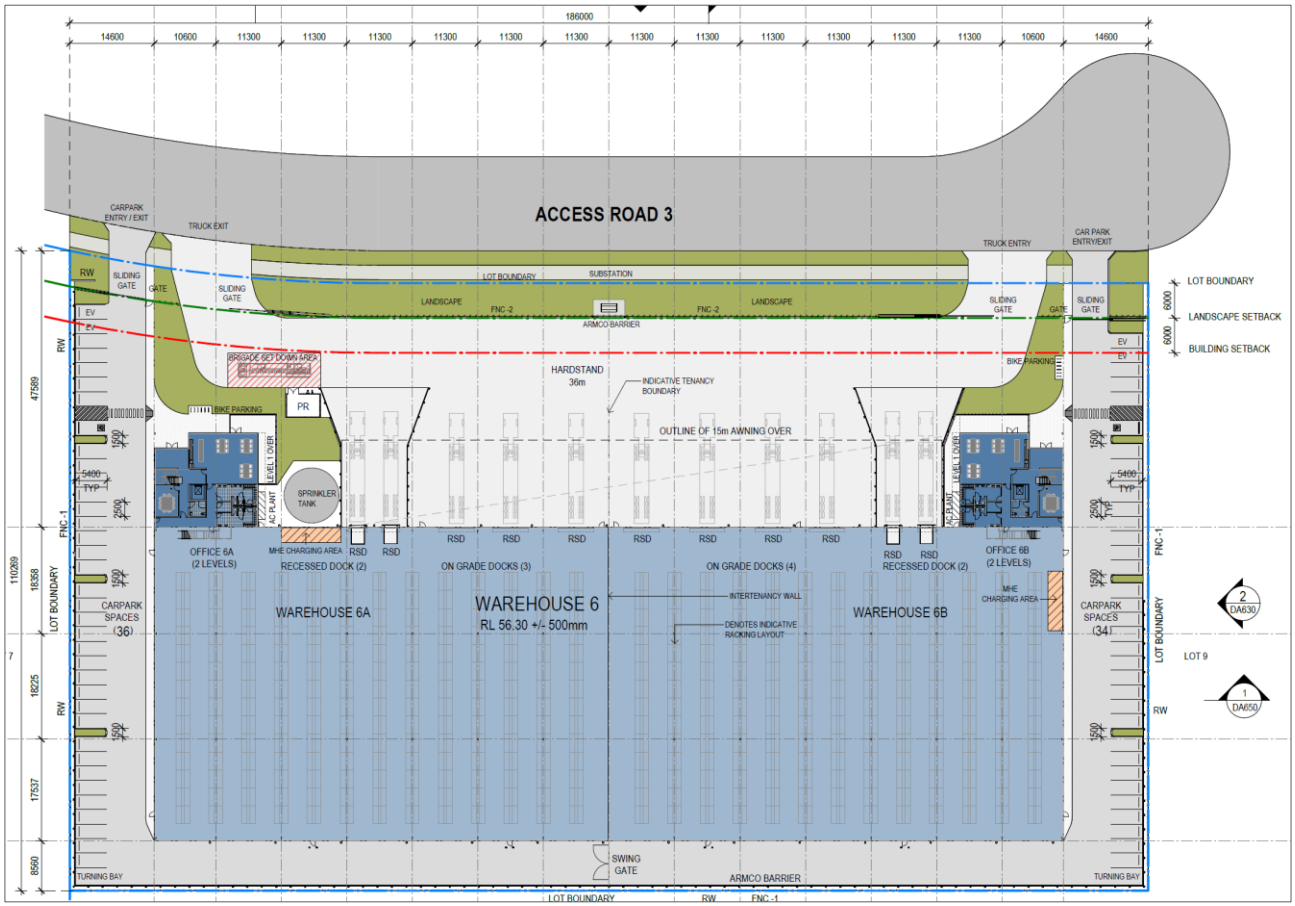

Figure 6: Proposed Warehouse 6 Site Plan

Figure 7: Proposed Warehouse 7 & Estate Café Site Plan

5 Parking Requirements

5.1 Car Parking

The Ason TMAP adopted rates which were consistent with the MRP DCP and the AIE DCP. In this regard, the rates applicable to the proposed development are as follows:

- Warehouse: 1 space per 300m^2
- Office: 1 space per 40m^2
- Café: 1 space per 10m^2

With reference to the parking rates provided in the AIE DCP, **Table 4** details the parking requirements of the Proposal.

TABLE 4: PARKING REQUIREMENTS

Lot	Use	Gross Floor Area	Requirement	Provision
6	Warehouse	8,424	28	**70**
	Office GFA	1,000	25	
	Total	**9,424**	**53**	
7	Warehouse Note1	12,258	41	**62**
	Office GFA	850	21	
	Total	**13,108**	**62**	
Café	Café	**112**	**11**	**20**

Note 1: Warehouse 7 GFA excludes internal loading area.

As shown in Table 4, AIE DCP requires the provision of 53, 62 and 11 spaces for Warehouse 6, Warehouse 7, and the estate café respectively. The car parking provision for the Proposal outlines 70, 62 and 20 spaces and is therefore compliant and is superior to the DCP requirement.

5.2 Accessible Parking

The AIE DCP provides the following in regard to accessible parking:

Disability (Access to Premises – Buildings) Standards 2010, Building Code of Australia.

Accessible parking for industrial developments is to be provided at a rate of:

- 1 space for every 100 car parking spaces or part thereof

Compliance with the Disability (Access to Premises – Buildings) Standards 2010 from the BCA, as well as the accessible parking requirements provided in Appendix B of AS 2890.6 is required.

In this regard, one accessible parking space each is required for Warehouse 6, Warehouse 7, and the estate café respectively; 2, 1 and 1 accessible parking spaces has been provided for Warehouse 6, Warehouse 7 and the estate café and is compliant with the DCP requirement.

5.3 Electric Vehicle Parking

Section 4.6.1(8) of the MRP DCP notes the following:

Parking areas should incorporate dedicated parking bays for electric vehicle charging

However, it does not provide for guidance on the specific number of bays. Therefore, it is proposed to provide 6 Electric Vehicle (EV) charging bays, including 2 EV spaces for Warehouse 7 and 4 EV spaces for Warehouse 6 (2 spaces for each tenancy).

5.4 Bicycle Parking and End of Trip Facilities

Bicycle parking rates from the MRP DCP have been adopted to assess the parking requirements of the Proposal. The AIE DCP provides the following in regard to bicycle parking:

8. Consideration is to be given to the delivery of infrastructure and / or the implementation of management measures that encourage the use of alternative forms of transport, which could include:

a. Safe storage/parking areas for bicycle facilities.

b. Shower and change room facilities for staff.

In this regard, the MRP DCP provides for the following requirements.

TABLE 5: BICYCLE PARKING & EOTF REQUIREMENTS

Type	Land Use	Requirements
Bicycle Parking	Warehouse	1 space per 1000m^2 of gross floor area of industrial activities (over 2000m^2 gross floor area)
	Office	1 space per 600m^2 of gross floor area of office and retail space (over 1200m^2 gross floor area)
End of Trip Facilities	Warehouse	For industrial activities with a gross floor area over 4000m^2, at least 1 shower cubicle with ancillary change rooms
	Office	For ancillary office and retail space with a gross floor area over 2500m^2, at least 1 shower cubicle with ancillary change rooms

Based on the above, the Proposal provides for at least:

- 8 bicycle parking spaces for Warehouse 6;
- 12 bicycle parking spaces for Warehouse 7; and
- 1 shower room, with change facilities for both Warehouse 6 and Warehouse 7.

6 Traffic Impact Assessment

6.1 Trip Rates

To determine the traffic generation potential of the Proposal, reference is made to the traffic generation rates adopted in the Ason TMAP under the approved development (SSD-10448). In this regard, the relevant rates, are as follows:

- AM Road Network Peak: 0.23 vph per 100m^2 GFA
- PM Road Network Peak: 0.24 vph per 100m^2 GFA
- Daily: 2.91 daily vehicle trips per 100m^2 GFA

6.2 Approved SSD-10448-MOD-3 Traffic Generation

The Site's GFA under the approved SSD-10448-MOD-3 and the corresponding vehicle trips through the application of the approved traffic generation rates are provided below:

Warehouse 6 – 9,574m^2:

- 23 vph in the AM peak
- 23 vph in the PM peak, and
- 279 vehicles per day.

Warehouse 7 (excludes estate Café) – 15,208m^2:

- 35 vph in the AM peak
- 37 vph in the PM peak
- 443 vehicles per day.

In this regard, Warehouse 6 and Warehouse 7 (excluding estate café GFA and internal loading area) GFA proposed under the current Development Application are 9,424m^2 and 13,108m^2 respectively, which presents a reduction in trip generation potential than that approved under SSD-10448-MOD-3.

The above vehicle trips establish the acceptable traffic generation threshold in which to assess the detailed Proposal against.

6.3 Warehouse 6 and 7 Traffic Generation

6.3.1 Comparative Assessment – Approved Concept Masterplan

The Proposal provides for a GFA slightly less than that under the approved MOD-3 Masterplan and, as such, the traffic generation will remain consistent. The daily breakdown of this operational traffic generation associated with the Proposal is provided in **Appendix C**.

The Ason TMAP provided for a detailed assessment of the traffic impacts associated with the whole Masterplan and were mitigated accordingly through the provision of a signalised access at the intersection of Road 01 and Mamre Road.

The Ason TMAP and Ason RFI found that the key intersection of Mamre Road / Road 01 would operate at satisfactory levels of service under the approved development. The relevant SIDRA analysis detailed in the Ason RFI is provided in **Appendix A**.

Noting that the Proposal is generally consistent with the approved MOD-3 Masterplan; no further assessment or mitigation is required to be necessary. As such, it is concluded that the development is acceptable from a traffic impact perspective.

Finally, as already noted, the traffic generation assessed for the originally approved Concept Masterplan forms the acceptable traffic generation threshold for the AIE. On the basis of the current development proposal, **Table 6** provides the remaining traffic generation balance for future developments.

TABLE 6: COMPARATIVE ASSESSMENT

Development	GFA (m^2)	AM Peak	PM Peak	Daily
Original Masterplan (SSD-10447) Note 1	247,990	570	595	7,217
Stage 1 (Warehouse 1 & 3)	(-) 55,421	(-) 67	(-) 69	(-) 1,007
Warehouse 9 (SSD-46516461)	(-) 66,516	(-) 153	(-) 160	(-) 1,936
Warehouse 4 (SSD-46516458)	(-)18,905	(-) 44	(-) 46	(-) 551
Warehouse 2 (SSD-58257960)	(-) 24,295	(-) 56	(-) 58	(-) 707
Warehouse 8 (SSD-60513208)	(-) 43,850	(-) 101	(-) 106	(-) 1,277
Warehouse 6	(-) 9,424	(-) 22	(-) 23	(-) 274
Warehouse 7 Note 1	(-) 13,108	(-) 31	(-) 32	(-) 381
Remaining Balance	16,471	97	102	1,083

Note 1: Excludes GFA associated with café as it is anticipated trips would be linked to warehouse uses.

As the Proposal entails the last stage of the overall AIE masterplan development, the remaining balance demonstrates that total GFA proposed under the detailed developments are less than that envisaged by the original Concept Masterplan.

It is evident that 7% of the overall GFA remains within the level approved under SSD-10448. However, 15% of the overall traffic generation balance remains.

6.4 Revised Traffic Modelling Assessment

Regardless of the above, it is noted that Condition A14 of the Conditions of Consent associated with the AIE Masterplan approval (SSD-10448) requires the following:

A14. The Applicant must prepare an Infrastructure Review to support each future stage of the Concept Proposal. The Infrastructure Review must demonstrate the surrounding road infrastructure can accommodate the relevant stage and other approved developments in the MRP.

In this regard, reference is made to the traffic modelling assessment undertaken within the Ason TMAP and Ason RFI with the methodology agreed with TfNSW, which includes the full Masterplan of the AIE and only the approved development within the MRP. Therefore, the approved development which would impact flows through the site access intersection, being Kemps Creek Warehouse, Logistics and Industrial Facilities Hub (SSD-9522), have been included within the Ason RFI modelling.

Since then, a number of developments within the broader MRP have received approval, therefore, a revised traffic modelling assessment has been undertaken to include the recently approved projects within the MRP. The projects included in the revised modelling assessment are summarised in **Table 7** below.

TABLE 7: REVISED MRP MODEL - APPROVED DEVELOPMENTS

Development	SSD No.	Max allowable GFA as stated in the CoC (m^2)	Note
Aspect Industrial Estate	10448	247,646	Developments included within the Ason TMAP and Ason RFI modelling
Kemps Creek Warehouse, Logistics and Industrial Facilities Hub	9522	187,378	
Yiribana Logistics Estate	10272349	54,982	Developments included in the revised traffic modelling assessment
Access Logistics Park	17647189	88,040	
Westlink Industrial Estate - Stage 1	9138102	81,317	
200 Aldington Road Industrial Estate	10479	340,540	

It should be noted that the Access Logistics Park (SSD-17647189) application has significantly progressed through the assessment process and is expected to receive approval. Therefore, its GFA has been included for the revised model.

The corresponding background and development traffic at the Mamre Road / AIE Access Road 01 intersection in assessment year 2026 and 2031 are demonstrated in **Figure 8** and **Figure 9** below.

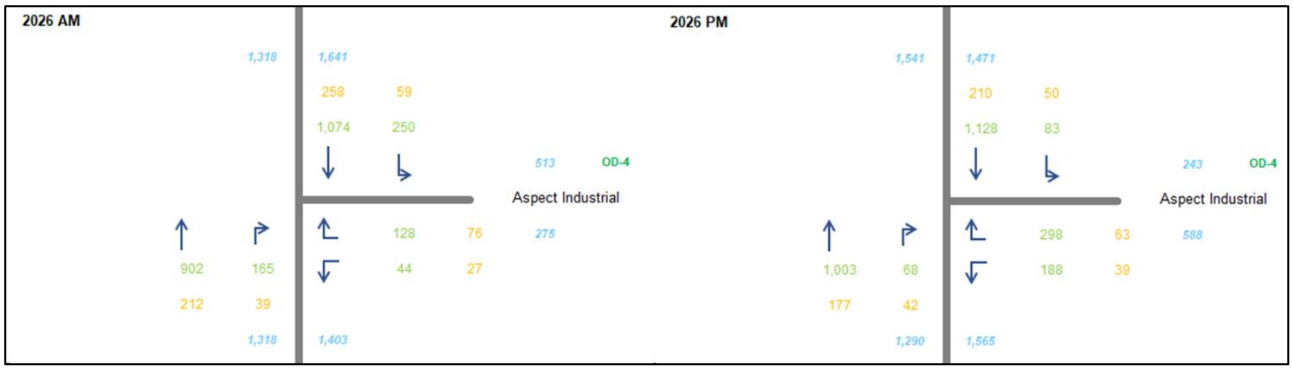

Figure 8: 2026 Background and Approved Development Traffic Flows

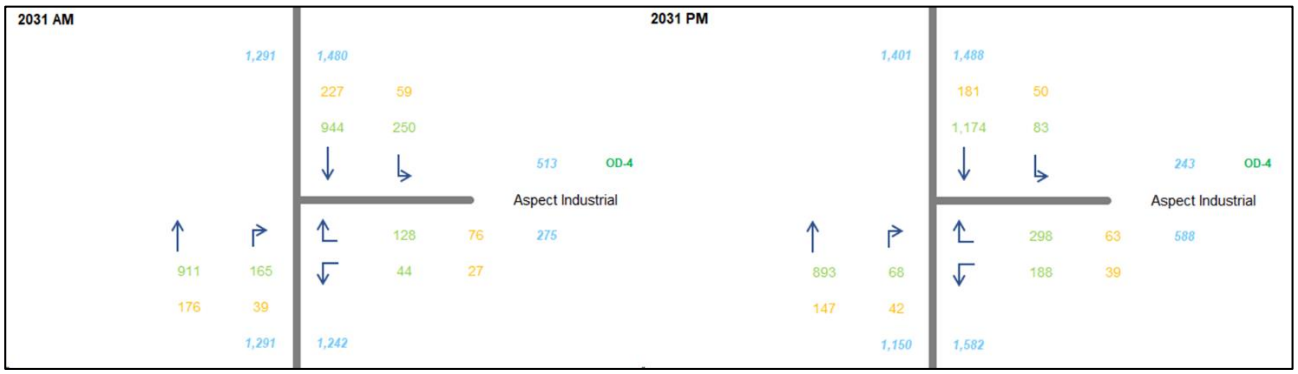

Figure 9: 2031 Background and Approved Development Traffic Flows

The revised SIDRA modelling analysis results are summarised in table below and detailed SIDRA outputs are annexed in **Appendix B**.

TABLE 8: REVISED MODELLING SUMMARY

Intersection	Configuration	Year	Peak Period	DoS	LoS	Delay
Mamre Road / AIE Access Road 01	Signals	2026	AM	0.772	B	22.7
			PM	0.746	B	27.6
		2031	AM	0.711	B	22.0
			PM	0.746	B	27.0

As shown, the Mamre Road / Access Road 01 intersection is anticipated to operation at LoS B with capacity for additional traffic in assessment year 2026 and 2031, it is also noted that all queues for turning movements are expected to be contained within the turning bays.

Therefore, it is concluded that the Mamre Road / Access Road 01 intersection is anticipated to operate with satisfactory level of performance in 2026 and 2031 whilst accommodating the background traffic growth, as well as development traffic flows of the AIE and other approved developments in the MRP.

6.5 Traffic Impact Summary

The Ason TMAP and Ason RFI found that the key intersection of Mamre Road / Road 01 would operate at satisfactory levels of service under the approved development. Further, the approved MOD-3 TS found that the MOD-3 Masterplan represents a decrease in the forecast traffic generation that was assumed in the Ason TMAP and Ason RFI.

The GFA for the Site is less than that envisaged under the approved MOD-3 Concept Masterplan, as such the traffic generation assessed also remains consistent (when considered against adoption of the trip rates detailed in the Ason TMAP).

Finally, the revised traffic modelling analysis including all approved developments within the MRP found that the Mamre Road / Access Road 01 intersection would operate with satisfactory level of performance in 2026 and 2031 whilst accommodating the background traffic growth, as well as development traffic of the AIE and other approved developments in the MRP.

Therefore, it is concluded that the development remains supportable on traffic planning grounds.

7 Design Review

7.1 Relevant Design Standards

The Site's access, car park and service areas 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;
- AS2890.6:2009 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 and would form a standard Condition of Consent further to approval.

7.2 Design Vehicle

A 26m B-Double has been adopted as the design vehicle for Warehouse 6 and 7 site access and circulation.

20m Articulated Vehicles are generally adopted for loading dock parking, with smaller vehicles identified as required. This includes an 8.8m Medium Rigid Vehicle (MRV) for servicing the café via the car park which would occur outside of customer trading hours such that the MRV can manoeuvre using vacant car parking spaces via a tenant management plan.

7.3 Vehicle Access, Internal Circulation, and Parking

In regard to the proposed design, the following is notable:

- All access driveways (to the internal road network) are to be designed with reference to AS2890.1:2004, AS2890.2:2018 and the MRP DCP, with service driveways to provide for vehicles up to and including a 26.0m B-Double Vehicle. This includes requirements for gradients and transitions corresponding to the relevant design vehicle for each access and circulation roadway.
- Swept path analysis demonstrates that the necessary manoeuvres can be accommodated by the design. The circulation areas for commercial (heavy) vehicles have been designed having regard for the requirements of AS2890.2:2018 (see **Appendix D**).
- Any minor modifications conducted at the detailed design stage, prior to Construction Certificate works, will need to be in compliance with AS2890.1:2004, AS2890.2:2018 and the MRP DCP.
- All staff and employee parking access and modules are generally provided in accordance with AS2890.1:2004 for Class 1A users, which requires a minimum space length of 5.4m, a minimum width of 2.4m and a minimum aisle width of 5.8m. Accessible parking space are to be designed in accordance with AS2890.6:2009.
- Parking spaces dedicated for the estate café parking are provided in accordance with AS2890.1:2004 for Class 3 Users, which requires a minimum space length of 5.4m, a minimum width of 2.6m and a minimum aisle width of 5.8m.
- A security gate will be located at the Site boundary, which will remain open during operational hours. Entry and exit to the hardstand will be managed by boom gates.

8 Summary and Conclusion

8.1 Summary

In summary:

- The Proposal generally seeks a detailed development approval for Warehouse 6, Warehouse 7 and the estate café of the approved Aspect Industrial Estate (AIE) Concept Masterplan.
- The AIE Site is currently subject to an approved Concept Masterplan and Modification (MOD-3) by way of State Significant Development 10448, with the GFA of the Proposal presents a slight reduction than the MOD-3 Masterplan approval.
- The car parking provision for the Proposal complies with the accepted methodology detailed in the Ason TMAP, which requires 53, 62 and 11 spaces to service Warehouse 6, Warehouse 7 and the estate café respectively.
- The Proposal provides for 70, 62 and 20 parking spaces, and is compliant and exceeds the DCP requirement. As such, the development remains supportable on parking grounds and would satisfy the parking demands of the Site.
- Application of the traffic generation rates detailed in the Ason TMAP to the Proposal results in a traffic generation potential of 22 veh/hr and 23 veh/hr in the AM and PM Peak hours for Warehouse 6, and 31 veh/hr and 32 veh/hr in the AM and PM Peak hours for Warehouse 7 (excluding the estate café and internal loading area) respectively. This presents a reduced traffic generation potential than the permissible threshold set by the approved Ason MOD-3 TS, which supported the approved MOD-3 Masterplan under SSD-10448.
- Further, the revised traffic modelling analysis indicates that the Mamre Road / Access Road 01 intersection would operate with satisfactory level of performance in 2026 and 2031 whilst accommodating the background traffic growth, as well as development traffic of the AIE and other approved developments in the MRP.

  It is therefore concluded that the development is acceptable on transport planning grounds.
- In relation to the internal configuration of the Site which includes light, heavy and emergency vehicular access, car parking and servicing areas will be designed in accordance with the relevant Australian Standards series.
- It is expected that any detailed construction drawings in relation to any modified areas of the car park or site access would comply with the relevant standards.
- Furthermore, compliance with the above standards would be expected to form a standard condition of consent to any development approval.

8.2 Conclusions

With regard for the above key findings, the Proposal is supportable on traffic and transport planning grounds; with no material impacts to the external road network expected over and above the previously approved development. Accordingly, it is concluded that the design is supported, and the Proposal remains consistent with parking, traffic, and design conclusions of the Concept Masterplan.

Appendix A. Ason RFI Modelling Assessment

P1029l03

Mirvac
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Sydney NSW 2000

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Suite 17.02, Level 17,
1 Castlereagh Street,
Sydney, NSW 2000
ABN: 81 168 423 872

RE: Aspect Industrial Estate, Mamre Road – Request for Further Information

Dear Russell,

The modelling assessment as requested by Transport for New South Wales (TfNSW) in relation to SSD-10448 has been undertaken, with the results summarised below. Further, the Transport & Accessibility Plan has also been updated and is attached to this letter.

The modelling assessment to be undertaken, as requested by TfNSW is as follows:

1. *Revised SIDRA intersection modelling for the Mamre Road / Aspect Access Road intersection for the 2026, 2031 and 2036 horizon year assuming:*
   a. *Stage 1 DA (Lots 1 & 3)*
   b. *Full masterplan for Aspect Industrial Estate*
2. *Only approved developments are to be included in the model.*

Modelling Assessment

The following baseline information has been included in the assessment:

- Noting the current restrictions placed on movement of people as a result of the COVID-19 pandemic, 2018 survey data has been referred to.
- A growth rate of 3% has been applied to the baseline traffic flows to establish the future years.
- The only approved development which would impact flows through the intersection relate to the Kemps Creek Warehouse, Logistics and Industrial Facilities Hub (SSD-9522), which has detailed approval for 166,225m2 GFA, and a traffic generation of 411 veh/hr in the AM peak and 303 veh/hr in the PM peak.
- Noting that the intersection will ultimately be subject to future capacity to accommodate the traffic associated with growth and the wider MRP itself, the interim intersection to be delivered by Mirvac has been adopted for all assessment years.
- The current Concept Plan has a GFA of 246,625m^2. This GFA, has been adopted for assessment of all years, noting the Stage 1 has a GFA of 59,640m^2.
- All other assumptions remain as previously documented (trips rates, distribution, etc.).

The results are summarised in Table 1, with the SIDRA outputs provided as **Attachment 1**.

TABLE 1: MAMRE ROAD & AIE ACCESS INTERSECTION OPERATIONS

Heading	Peak Period	Delay (s)	Level of Service	Degree of Saturation
2026	**AM**	17.8	B	0.57
	PM	17.2	B	0.63
2031	**AM**	18.5	B	0.62
	PM	18.3	B	0.68
2036	**AM**	18.6	B	0.65
	PM	23.8	B	0.75

With reference to the above, the SIDRA analysis indicates that the proposed intersection can accommodate the traffic generation associated with 100% of the traffic associated with Masterplan

Other Comments

Further to the above, TfNSW also provided the following in regard to the TMAP:

It is noted that in the Interim drawing Turning path plans for the test vehicle of 36.5m PBS Level 3 type A vehicles are provided but TMAP report doesn't have any turning path for the test vehicle accessing the warehouse to and from the access road 1.

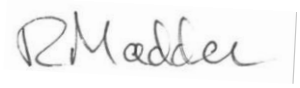
The warehouse developments have been designed to accommodate 26m b-double vehicles. The roads have been tested with a 36.5m PBS Level 3 type as this is the requirement provided within Section 3.4 of the Draft Mamre Road Precinct Development Control Plan (DCP). Driveways are only to be designed for sites that specifically need to accommodate a 36.5m PBS Level 3 type vehicle (as per 4.7.3 of the Draft DCP).

Further, Table 13 of the Draft DCP requires a design vehicle of up to a 26m b-double vehicle for industrial developments. The assessment of the 30m A-double has been undertaken in response to comments received.

As there is no current requirement operationally to accommodate a PBS Level 3 type vehicle within the Site, it has not been designed as such. Nevertheless, swept paths for Stage 1 (**Attachment 2**) have been undertaken to demonstrate that, should a future tenant require larger vehicles, they could be accommodated by the driveways, subject to some minor modifications. Any detailed requirements such as this would be subject to a different assessment process.

I trust this satisfies your requirements at this stage. Should you have any queries, please contact the undersigned.

Yours sincerely,



Rebecca Butler-Madden
Senior Transport Planner
E: rebecca.bmadden@asongroup.com.au

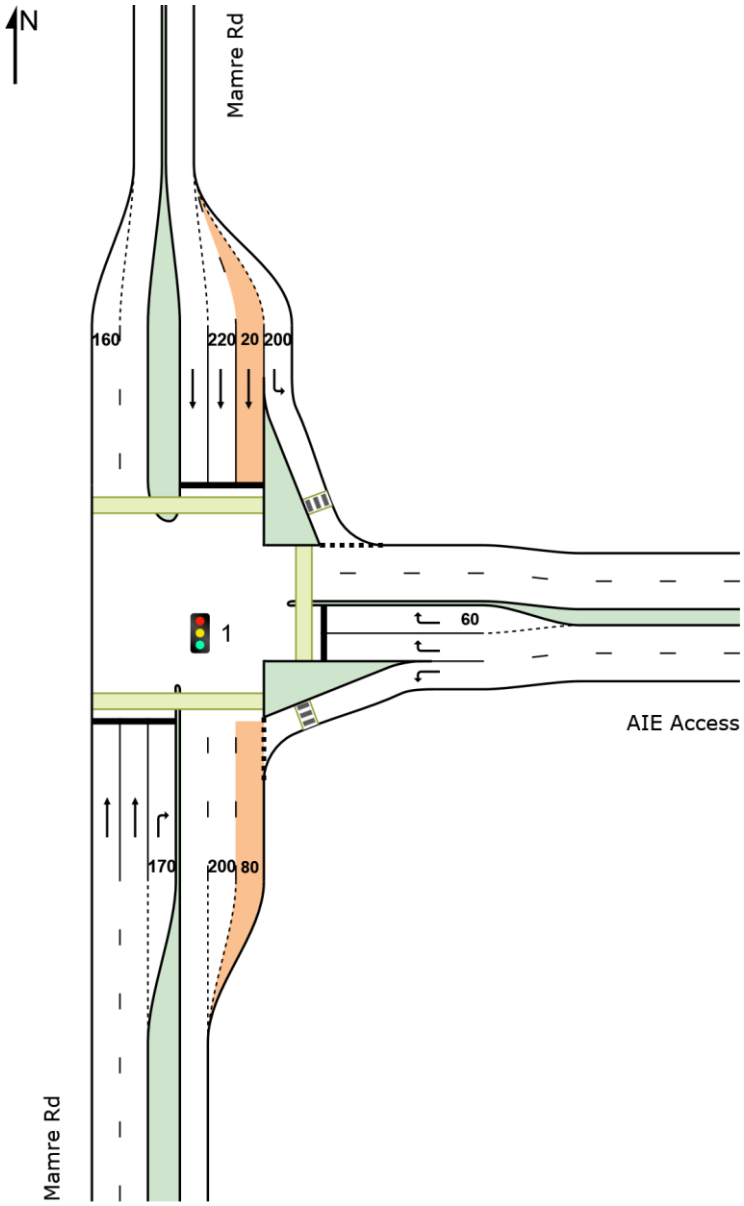
Attachment 1

SITE LAYOUT

Site: 1 Mamre x AIE

Mamre Road x Aspect Industrial Estate Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 1 [Mamre x AIE - 2026 AM (Site Folder: 2026 Base + Dev)]

Mamre Road x Aspect Industrial Estate Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	1078	143	1135	13.3	0.459	7.6	LOS A	12.0	93.9	0.44	0.40	0.44	62.8
3	R2	199	60	209	30.2	* 0.565	43.8	LOS D	9.2	81.1	0.93	0.82	0.93	34.4
Approach		1277	203	1344	15.9	0.565	13.2	LOS A	12.0	93.9	0.52	0.46	0.52	55.6
East: AIE Access														
4	L2	86	26	91	30.2	0.113	10.9	LOS A	1.2	10.3	0.34	0.60	0.34	44.7
6	R2	86	26	91	30.2	* 0.237	49.9	LOS D	2.2	19.1	0.93	0.74	0.93	30.1
Approach		172	52	181	30.2	0.237	30.4	LOS C	2.2	19.1	0.64	0.67	0.64	36.0
North: Mamre Rd														
7	L2	199	60	209	30.2	0.183	9.2	LOS A	2.1	18.5	0.29	0.65	0.29	51.1
8	T1	803	148	845	18.4	* 0.570	24.5	LOS B	15.7	127.0	0.82	0.72	0.82	48.2
Approach		1002	208	1055	20.8	0.570	21.5	LOS B	15.7	127.0	0.71	0.70	0.71	48.7
All Vehicles		2451	463	2580	18.9	0.570	17.8	LOS B	15.7	127.0	0.61	0.58	0.61	50.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	216.2	223.5	1.03
East: AIE Access												
P2	Full	50	53	23.9	LOS C	0.1	0.1	0.69	0.69	190.4	216.5	1.14
North: Mamre Rd												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	216.2	223.5	1.03
All Pedestrians		150	158	37.5	LOS D	0.1	0.1	0.86	0.86	207.6	221.2	1.07

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [Mamre x AIE - 2026 PM (Site Folder: 2026 Base + Dev)]

Mamre Road x Aspect Indusrial Estate Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	877	114	923	13.0	0.383	7.0	LOS A	8.7	67.4	0.43	0.38	0.43	63.1
3	R2	89	27	94	30.3	* 0.607	52.2	LOS D	4.3	37.6	1.00	0.81	1.07	31.9
Approach		966	141	1017	14.6	0.607	11.2	LOS A	8.7	67.4	0.49	0.42	0.49	57.9
East: AIE Access														
4	L2	207	62	218	30.0	0.347	17.6	LOS B	4.1	36.4	0.53	0.68	0.53	43.2
6	R2	207	62	218	30.0	* 0.513	46.1	LOS D	4.9	42.9	0.97	0.78	0.97	31.0
Approach		414	124	436	30.0	0.513	31.8	LOS C	4.9	42.9	0.75	0.73	0.75	36.1
North: Mamre Rd														
7	L2	89	27	94	30.3	0.074	8.1	LOS A	0.5	4.8	0.21	0.62	0.21	51.9
8	T1	1154	160	1215	13.9	* 0.628	18.1	LOS B	18.6	145.8	0.76	0.68	0.76	53.8
Approach		1243	187	1308	15.0	0.628	17.3	LOS B	18.6	145.8	0.72	0.67	0.72	53.7
All Vehicles		2623	452	2761	17.2	0.628	17.4	LOS B	18.6	145.8	0.64	0.59	0.64	51.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	211.2	223.5	1.06
East: AIE Access												
P2	Full	50	53	15.6	LOS B	0.1	0.1	0.59	0.59	182.2	216.5	1.19
North: Mamre Rd												
P3	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	211.2	223.5	1.06
All Pedestrians		150	158	31.4	LOS D	0.1	0.1	0.82	0.82	201.5	221.2	1.10

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [Mamre x AIE - 2031 AM (Site Folder: 2031 Base + Dev)]

Mamre Road x Aspect Industrial Estate Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	1248	208	1314	16.7	0.542	9.0	LOS A	15.3	122.7	0.48	0.44	0.48	62.2
3	R2	214	60	225	28.0	* 0.626	45.2	LOS D	10.1	88.1	0.95	0.83	0.95	34.0
Approach		1462	268	1539	18.3	0.626	14.3	LOS A	15.3	122.7	0.55	0.50	0.55	55.4
East: AIE Access														
4	L2	86	26	91	30.2	0.118	12.1	LOS A	1.3	11.2	0.37	0.60	0.37	44.4
6	R2	86	26	91	30.2	* 0.237	50.8	LOS D	2.2	19.1	0.93	0.74	0.93	30.1
Approach		172	52	181	30.2	0.237	31.4	LOS C	2.2	19.1	0.65	0.67	0.65	35.8
North: Mamre Rd														
7	L2	199	60	209	30.2	0.184	9.5	LOS A	2.2	19.6	0.30	0.66	0.30	50.9
8	T1	895	165	942	18.4	* 0.621	24.8	LOS B	17.8	144.3	0.83	0.74	0.83	48.1
Approach		1094	225	1152	20.6	0.621	22.0	LOS B	17.8	144.3	0.74	0.72	0.74	48.6
All Vehicles		2728	545	2872	20.0	0.626	18.5	LOS B	17.8	144.3	0.63	0.60	0.63	50.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	216.2	223.5	1.03
East: AIE Access												
P2	Full	50	53	23.2	LOS C	0.1	0.1	0.68	0.68	189.7	216.5	1.14
North: Mamre Rd												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	216.2	223.5	1.03
All Pedestrians		150	158	37.2	LOS D	0.1	0.1	0.86	0.86	207.4	221.2	1.07

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [Mamre x AIE - 2031 PM (Site Folder: 2031 Base + Dev)]

Mamre Road x Aspect Indusrial Estate Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	978	126	1029	12.9	0.427	7.6	LOS A	10.1	78.5	0.45	0.40	0.45	62.8
3	R2	89	27	94	30.3	* 0.683	54.4	LOS D	4.4	38.8	1.00	0.84	1.16	31.3
Approach		1067	153	1123	14.3	0.683	11.5	LOS A	10.1	78.5	0.50	0.44	0.51	57.9
East: AIE Access														
4	L2	207	62	218	30.0	0.368	22.2	LOS B	4.7	41.1	0.58	0.70	0.58	42.4
6	R2	207	62	218	30.0	* 0.513	46.4	LOS D	4.9	42.9	0.97	0.78	0.97	31.0
Approach		414	124	436	30.0	0.513	34.3	LOS C	4.9	42.9	0.77	0.74	0.77	35.8
North: Mamre Rd														
7	L2	89	27	94	30.3	0.074	8.1	LOS A	0.5	4.8	0.21	0.62	0.21	51.9
8	T1	1284	176	1352	13.7	* 0.684	19.6	LOS B	21.5	167.6	0.78	0.71	0.78	53.7
Approach		1373	203	1445	14.8	0.684	18.8	LOS B	21.5	167.6	0.75	0.70	0.75	53.6
All Vehicles		2854	480	3004	16.8	0.684	18.3	LOS B	21.5	167.6	0.66	0.61	0.66	51.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	211.2	223.5	1.06
East: AIE Access												
P2	Full	50	53	15.1	LOS B	0.1	0.1	0.58	0.58	181.6	216.5	1.19
North: Mamre Rd												
P3	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	211.2	223.5	1.06
All Pedestrians		150	158	31.2	LOS D	0.1	0.1	0.82	0.82	201.3	221.2	1.10

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [Mamre x AIE - 2036 AM (Site Folder: 2036 Base + Dev)]

Mamre Road x Aspect Industrial Estate Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	1314	170	1383	12.9	0.558	9.5	LOS A	16.5	127.9	0.49	0.45	0.49	62.0
3	R2	199	60	209	30.2	* 0.646	47.3	LOS D	9.7	85.3	0.97	0.83	0.99	33.3
Approach		1513	230	1593	15.2	0.646	14.5	LOS A	16.5	127.9	0.55	0.50	0.56	55.7
East: AIE Access														
4	L2	86	26	91	30.2	0.124	13.4	LOS A	1.4	12.1	0.39	0.61	0.39	44.0
6	R2	86	26	91	30.2	* 0.237	51.2	LOS D	2.2	19.1	0.93	0.74	0.93	30.1
Approach		172	52	181	30.2	0.237	32.3	LOS C	2.2	19.1	0.66	0.67	0.66	35.7
North: Mamre Rd														
7	L2	199	60	209	30.2	0.181	9.5	LOS A	2.2	19.5	0.30	0.66	0.30	50.9
8	T1	986	181	1038	18.4	* 0.653	24.2	LOS B	19.7	159.1	0.84	0.74	0.84	48.7
Approach		1185	241	1247	20.3	0.653	21.7	LOS B	19.7	159.1	0.75	0.73	0.75	49.0
All Vehicles		2870	523	3021	18.2	0.653	18.6	LOS B	19.7	159.1	0.64	0.60	0.64	51.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	216.2	223.5	1.03
East: AIE Access												
P2	Full	50	53	21.8	LOS C	0.1	0.1	0.66	0.66	188.4	216.5	1.15
North: Mamre Rd												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	216.2	223.5	1.03
All Pedestrians		150	158	36.8	LOS D	0.1	0.1	0.85	0.85	206.9	221.2	1.07

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [Mamre x AIE - 2036 PM (Site Folder: 2036 Base + Dev)]

Mamre Road x Aspect Indusrial Estate Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	1080	138	1137	12.8	0.472	8.3	LOS A	11.7	90.6	0.47	0.42	0.47	62.5
3	R2	89	27	94	30.3	* 0.683	54.4	LOS D	4.4	38.8	1.00	0.84	1.16	31.3
Approach		1169	165	1231	14.1	0.683	11.8	LOS A	11.7	90.6	0.51	0.46	0.52	58.1
East: AIE Access														
4	L2	207	62	218	30.0	0.381	41.0	LOS C	5.2	46.0	0.64	0.72	0.64	41.4
6	R2	207	62	218	30.0	* 0.513	46.9	LOS D	4.9	42.9	0.97	0.78	0.97	31.0
Approach		414	124	436	30.0	0.513	43.9	LOS D	5.2	46.0	0.80	0.75	0.80	35.5
North: Mamre Rd														
7	L2	89	27	94	30.3	0.074	8.1	LOS A	0.5	4.8	0.21	0.62	0.21	51.9
8	T1	1413	192	1487	13.6	* 0.753	28.8	LOS C	25.1	196.1	0.83	0.76	0.83	52.9
Approach		1502	219	1581	14.6	0.753	27.5	LOS B	25.1	196.1	0.80	0.75	0.80	52.8
All Vehicles		3085	508	3247	16.5	0.753	23.8	LOS B	25.1	196.1	0.69	0.64	0.69	51.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	211.2	223.5	1.06
East: AIE Access												
P2	Full	50	53	15.1	LOS B	0.1	0.1	0.58	0.58	181.6	216.5	1.19
North: Mamre Rd												
P3	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	211.2	223.5	1.06
All Pedestrians		150	158	31.2	LOS D	0.1	0.1	0.82	0.82	201.3	221.2	1.10

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix B. Revised Traffic Modelling Assessment

MOVEMENT SUMMARY

Site: 2 [[ID: 1] Mamre x Mirvac Access - AM (Site Folder: 2026)]

Mamre Road x Mirvac Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	1114	212	1173	19.0	0.452	7.0	LOS A	11.3	91.9	0.36	0.33	0.36	75.5
3	R2	204	39	215	19.1	* 0.753	61.6	LOS E	12.7	103.6	1.00	0.88	1.11	31.6
Approach		1318	251	1387	19.0	0.753	15.5	LOS B	12.7	103.6	0.46	0.42	0.48	66.5
East: Mirvac Access														
4	L2	71	27	75	38.0	0.127	24.1	LOS B	1.8	16.7	0.49	0.67	0.49	44.3
6	R2	204	76	215	37.3	* 0.740	70.2	LOS E	6.7	61.7	1.00	0.88	1.18	38.6
Approach		275	103	289	37.5	0.740	58.3	LOS E	6.7	61.7	0.87	0.82	1.00	39.5
North: Mamre Rd														
7	L2	309	59	325	19.1	0.264	10.4	LOS A	4.5	36.5	0.30	0.68	0.30	64.0
8	T1	1334	260	1404	19.5	* 0.772	25.5	LOS B	31.8	259.7	0.85	0.78	0.85	62.0
Approach		1643	319	1729	19.4	0.772	22.6	LOS B	31.8	259.7	0.74	0.76	0.74	62.4
All Vehicles		3236	673	3406	20.8	0.772	22.7	LOS B	31.8	259.7	0.64	0.62	0.66	61.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	10	11	54.2	LOS E	0.0	0.0	0.95	0.95	240.4	223.5	0.93
East: Mirvac Access												
P2	Full	10	11	18.2	LOS B	0.0	0.0	0.55	0.55	199.0	217.0	1.09
North: Mamre Rd												
P3	Full	10	11	54.2	LOS E	0.0	0.0	0.95	0.95	240.8	224.0	0.93
All Pedestrians		30	32	42.2	LOS E	0.0	0.0	0.82	0.82	226.8	221.5	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 2 [[ID: 2] Mamre x Mirvac Access - PM (Site Folder: 2026)]

Mamre Road x Mirvac Access
Site Category: Proposed Interim
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Mamre Rd														
2	T1	1180	177	1242	15.0	0.500	13.4	LOS A	15.4	121.6	0.47	0.43	0.47	72.9
3	R2	110	42	116	38.2	* 0.746	69.1	LOS E	7.2	66.8	1.00	0.87	1.18	29.5
Approach		1290	219	1358	17.0	0.746	18.2	LOS B	15.4	121.6	0.51	0.46	0.53	67.7
East: Mirvac Access														
4	L2	227	39	239	17.2	0.363	32.1	LOS C	6.9	55.5	0.58	0.73	0.58	46.8
6	R2	361	63	380	17.5	* 0.722	65.9	LOS E	11.1	89.7	1.00	0.86	1.08	41.2
Approach		588	102	619	17.3	0.722	52.9	LOS D	11.1	89.7	0.84	0.81	0.89	42.6
North: Mamre Rd														
7	L2	133	50	140	37.6	0.123	9.4	LOS A	1.3	11.7	0.21	0.64	0.21	64.4
8	T1	1340	212	1411	15.8	* 0.741	27.4	LOS B	30.7	244.0	0.81	0.75	0.81	62.8
Approach		1473	262	1551	17.8	0.741	25.8	LOS B	30.7	244.0	0.76	0.74	0.76	62.9
All Vehicles		3351	583	3527	17.4	0.746	27.6	LOS B	30.7	244.0	0.68	0.65	0.69	60.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Mamre Rd												
P1	Full	10	11	54.2	LOS E	0.0	0.0	0.95	0.95	240.4	223.5	0.93
East: Mirvac Access												
P2	Full	10	11	17.6	LOS B	0.0	0.0	0.54	0.54	198.4	217.0	1.09
North: Mamre Rd												
P3	Full	10	11	54.2	LOS E	0.0	0.0	0.95	0.95	240.8	224.0	0.93
All Pedestrians		30	32	42.0	LOS E	0.0	0.0	0.81	0.81	226.6	221.5	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix C. Operational Traffic Flows

Warehouse 6 Traffic Generation Traffic Profile (Generic Assessment)							
Start Time	All Vehicle[1]	Light Vehicle	Heavy Vehicle	Rigid	Semi-trailer	B-double	A-double
0:00	2	2	1	0	0	0	0
1:00	2	1	1	0	0	0	0
2:00	2	1	1	0	0	0	0
3:00	2	2	1	0	0	0	0
4:00	8	6	1	1	0	0	0
5:00	15	12	3	2	0	0	1
6:00	20	16	4	3	0	0	1
7:00[2]	**20**	**15**	**5**	**3**	**0**	**0**	**1**
8:00	18	13	6	4	0	0	1
9:00	16	10	6	4	0	0	2
10:00	15	9	6	4	0	0	2
11:00	16	10	6	4	0	0	2
12:00	17	12	6	4	0	0	1
13:00	21	15	6	4	0	0	1
14:00	22	17	5	3	0	0	1
15:00	19	15	4	3	0	0	1
16:00[3]	**16**	**12**	**4**	**2**	**0**	**0**	**1**
17:00	13	10	3	2	0	0	1
18:00	8	6	2	1	0	0	1
19:00	5	3	1	1	0	0	0
20:00	3	2	1	1	0	0	0
21:00	4	4	1	1	0	0	0
22:00	6	5	1	1	0	0	0
23:00	4	3	1	1	0	0	0
Total	274	200	74	49	5	1	19

Note: 1) Minor discrepancies between sum numbers due to 'rounding'.
2) AM Peak: 7am – 8am
3) PM Peak: 4pm – 5pm

Warehouse 7 Traffic Generation Traffic Profile (Generic Assessment)							
Start Time	All Vehicle[1]	Light Vehicle	Heavy Vehicle	Rigid	Semi-trailer	B-double	A-double
0:00	3	2	1	1	0	0	0
1:00	3	2	1	1	0	0	0
2:00	3	2	1	1	0	0	0
3:00	3	3	1	1	0	0	0
4:00	11	9	2	1	0	0	0
5:00	21	16	4	3	0	0	1
6:00	28	22	6	4	0	0	1
7:00[2]	**28**	**21**	**7**	**5**	**0**	**0**	**2**
8:00	26	18	8	5	1	0	2
9:00	22	14	9	6	1	0	2
10:00	21	12	8	6	1	0	2
11:00	22	13	8	6	1	0	2
12:00	24	16	8	5	1	0	2
13:00	29	21	8	5	1	0	2
14:00	31	24	7	5	0	0	2
15:00	27	20	6	4	0	0	2
16:00[3]	**22**	**17**	**5**	**3**	**0**	**0**	**1**
17:00	18	14	4	3	0	0	1
18:00	11	8	3	2	0	0	1
19:00	6	5	2	1	0	0	0
20:00	5	3	1	1	0	0	0
21:00	6	5	1	1	0	0	0
22:00	8	7	1	1	0	0	0
23:00	6	4	1	1	0	0	0
Total	381	279	103	68	7	2	26

Note: 1) Minor discrepancies between sum numbers due to 'rounding'.
2) AM Peak: 7am – 8am
3) PM Peak: 4pm – 5pm

Appendix D. Swept Path Assessment

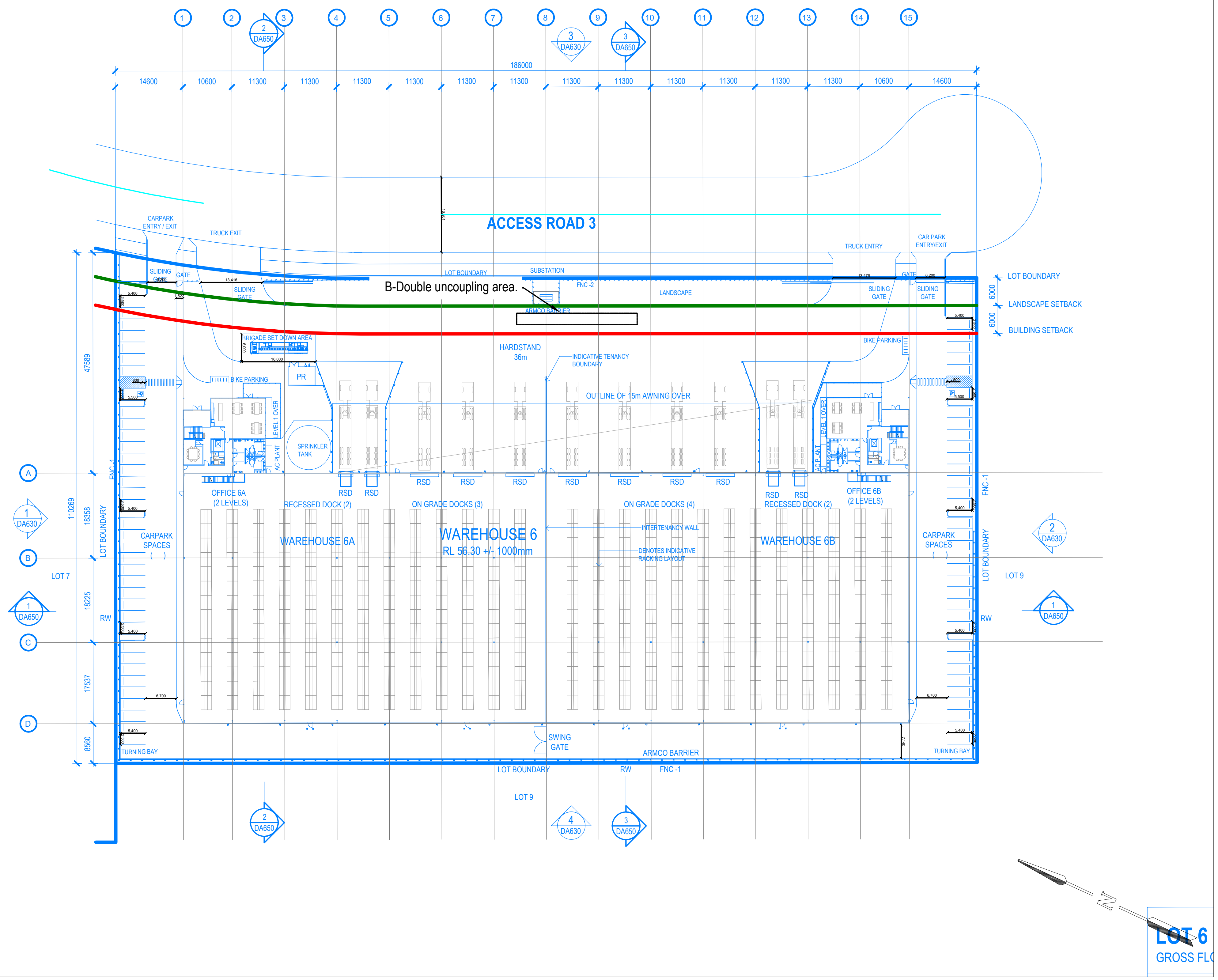
Note:

1. Car parking provision:
   1.1 Warehouse 6: MRP DCP 2021 requires 53 car parking spaces (including 1 accessible space) to be provided. 70 spaces (including 2 accessible parking spaces) are indicated on plan.

2. Parking module design assessed as User Class 1A per AS2890.1:2004.

3. Design vehicles adopted:
   3.1 26.0m B-Doubles: site access and circulation
   3.2 20.0m Articulated Vehicles (AVs): hardstand area rear-loading.
   3.3 HRV: for fire circulation.

4. Grades not shown and therefore was not assessed.



SITE LEGEND

FNC-1 CHAINMESH FENCE

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by SBA, received 2024.10.17.

DESIGNED: Kedar Ballurkar	PAPER SIZE: A3	CLIENT: Mirvac	DOCUMENT INFORMATION: Design Review Summary
APPROVED BY: Kedar Ballurkar	DATE: 17.10.2024	PROJECT: 2455	Warehouse 6
SCALE: 1:1000	0 10 20	Warehouse 6, 804-882 Mamre Road, Kemps Creek	FILE NAME: AG2455-01-v08.dwg; SHEET: AG00

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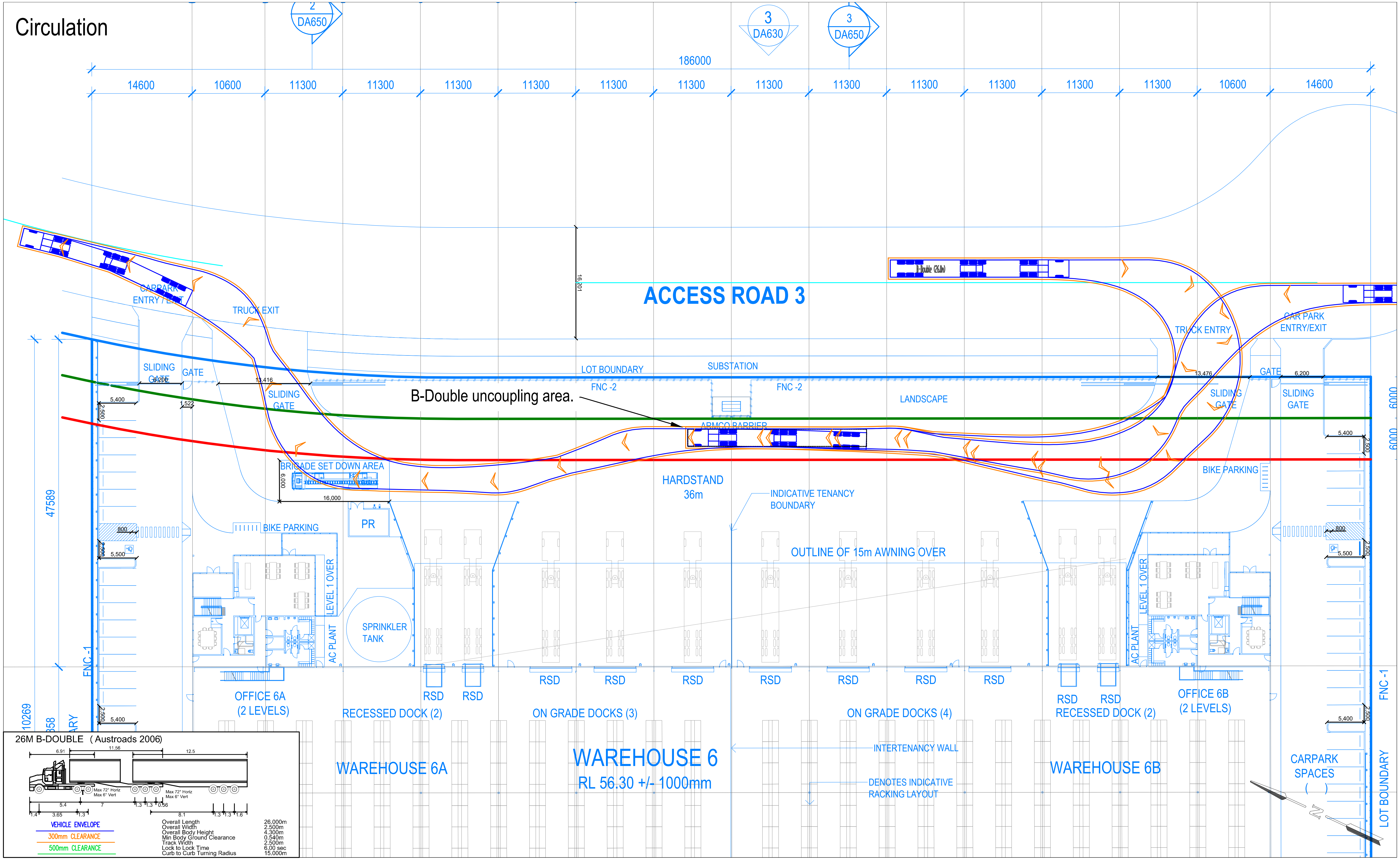
Circulation



2 DA650
3 DA630
3 DA650
186000
14600
10600
11300
11300
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11300
11300
11300
10600
14600
ACCESS ROAD 3
16,201
CARPARK ENTRY / EXIT
TRUCK EXIT
TRUCK ENTRY
CAR PARK ENTRY/EXIT
SLIDING GATE
GATE
6,200
5,400
2,500
1,522
13,416
13,476
LOT BOUNDARY
SUBSTATION
FNC -2
FNC -2
LANDSCAPE
B-Double uncoupling area.
ARMCO BARRIER
BRIGADE SET DOWN AREA
6,000
16,000
HARDSTAND
36m
INDICATIVE TENANCY BOUNDARY
BIKE PARKING
PR
800
5,500
OUTLINE OF 15m AWNING OVER
LEVEL 1 OVER
SPRINKLER TANK
AC PLANT
47589
10269
FNC -1
RSD
RECESSED DOCK (2)
ON GRADE DOCKS (3)
ON GRADE DOCKS (4)
OFFICE 6A
(2 LEVELS)
OFFICE 6B
(2 LEVELS)
WAREHOUSE 6A
WAREHOUSE 6
RL 56.30 +/- 1000mm
WAREHOUSE 6B
INTERTENANCY WALL
DENOTES INDICATIVE RACKING LAYOUT
CARPARK SPACES
LOT BOUNDARY
6000
6000
N
26M B-DOUBLE (Austroads 2006)
VEHICLE ENVELOPE
300mm CLEARANCE
500mm CLEARANCE
Overall Length 26.000m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.540m
Track Width 2.500m
Lock to Lock Time 6.00 sec
Curb to Curb Turning Radius 15.000m

GENERAL NOTES

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Base Plan prepared by SBA, received 2024.10.17.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV Check Vehicle: 26m B-Double

DESIGNED: Kedar Ballurkar	PAPER SIZE: A3	CLIENT: Mirvac	DOCUMENT INFORMATION: Warehouse 6 - Swept Path Assessment
APPROVED BY: Kedar Ballurkar	DATE: 17.10.2024	PROJECT: 2455	26m B-Double Circulation
SCALE: #####	0 5 10	Warehouse 6, 804-882 Mamre Road, Kemps Creek	FILE NAME: AG2455-01-v08.dwg / SHEET: AG01

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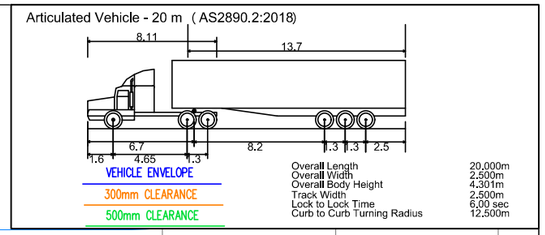

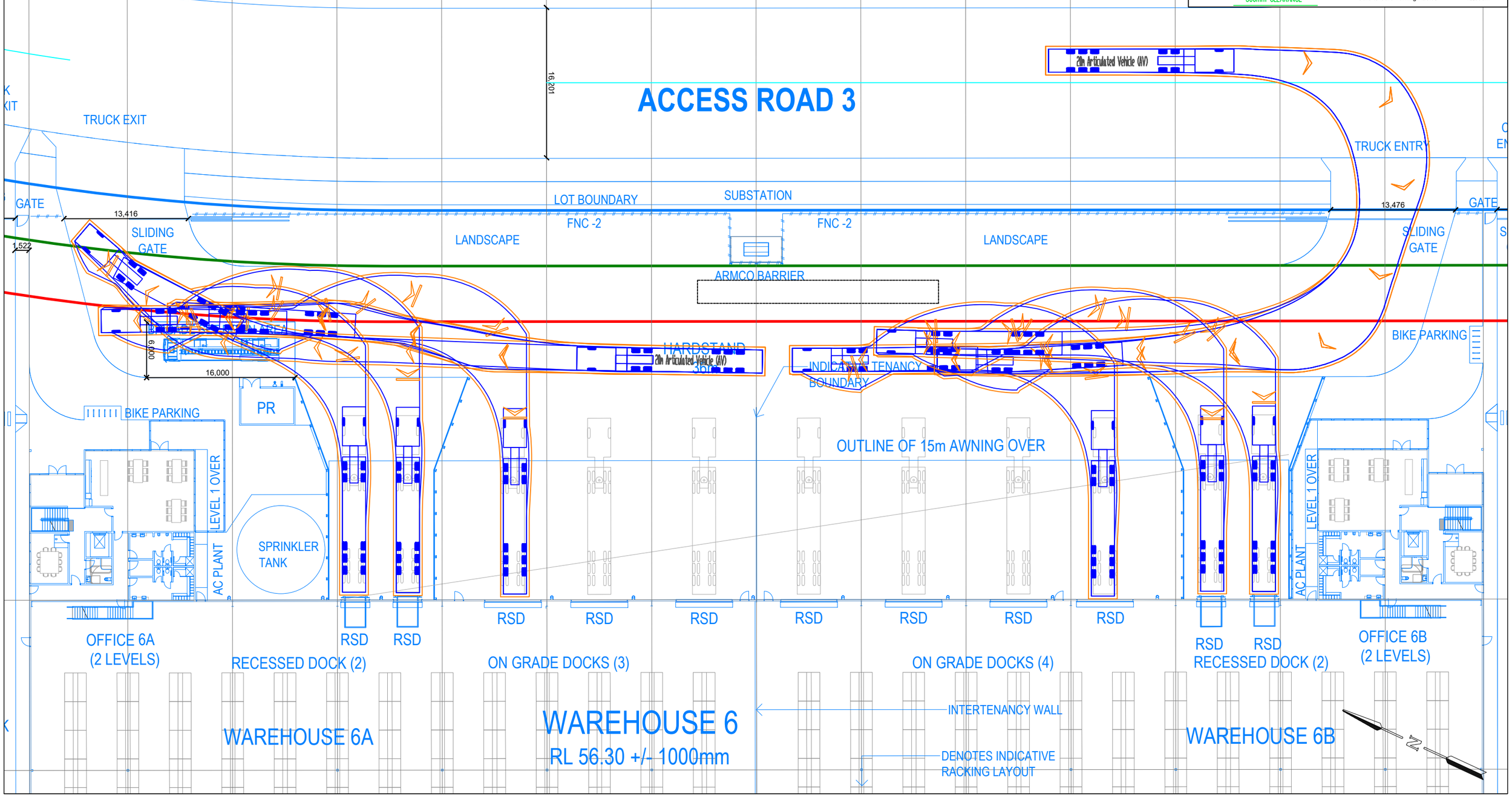

REAR LOADING

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Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV Check Vehicle: 20m AV

DESIGNED	PAPER SIZE	CLIENT	DOCUMENT INFORMATION	
Kedar Ballurkar	A3	Mirvac	Warehouse 6 - Swept Path Assessment	
APPROVED BY	DATE	PROJECT	20m AV	
Kedar Ballurkar	17.10.2024	2455		
SCALE	0 4 8		FILE NAME	SHEET
1:400		Warehouse 6, 804-882 Mamre Road, Kemps Creek	AG2455-01-v08.dwg	AG02

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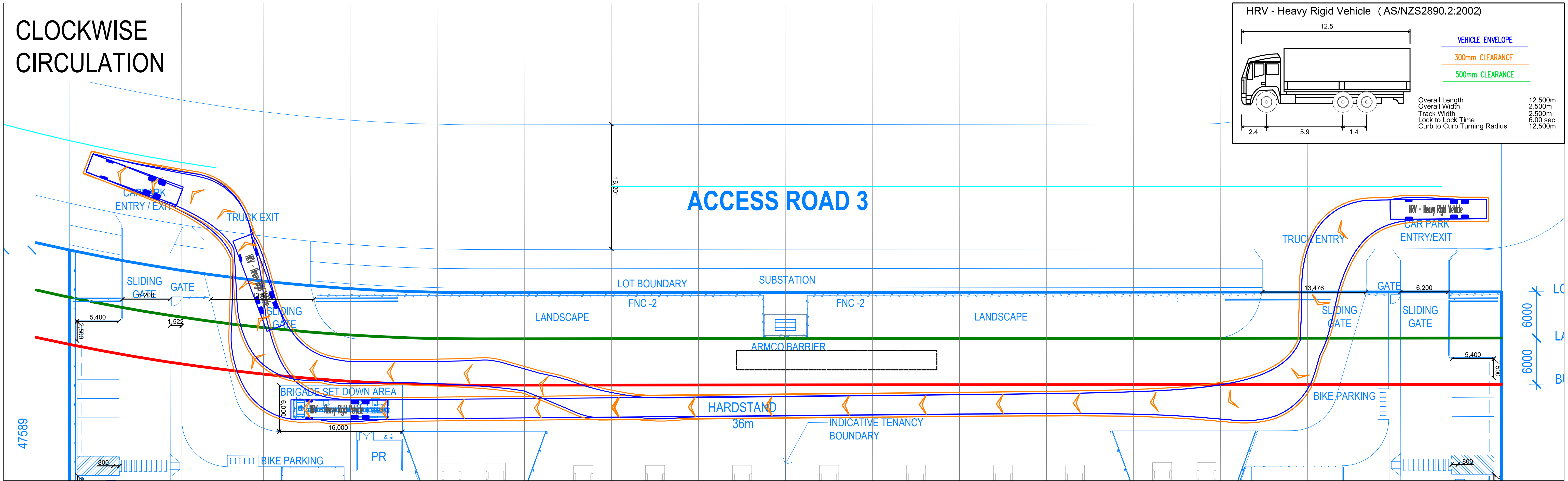

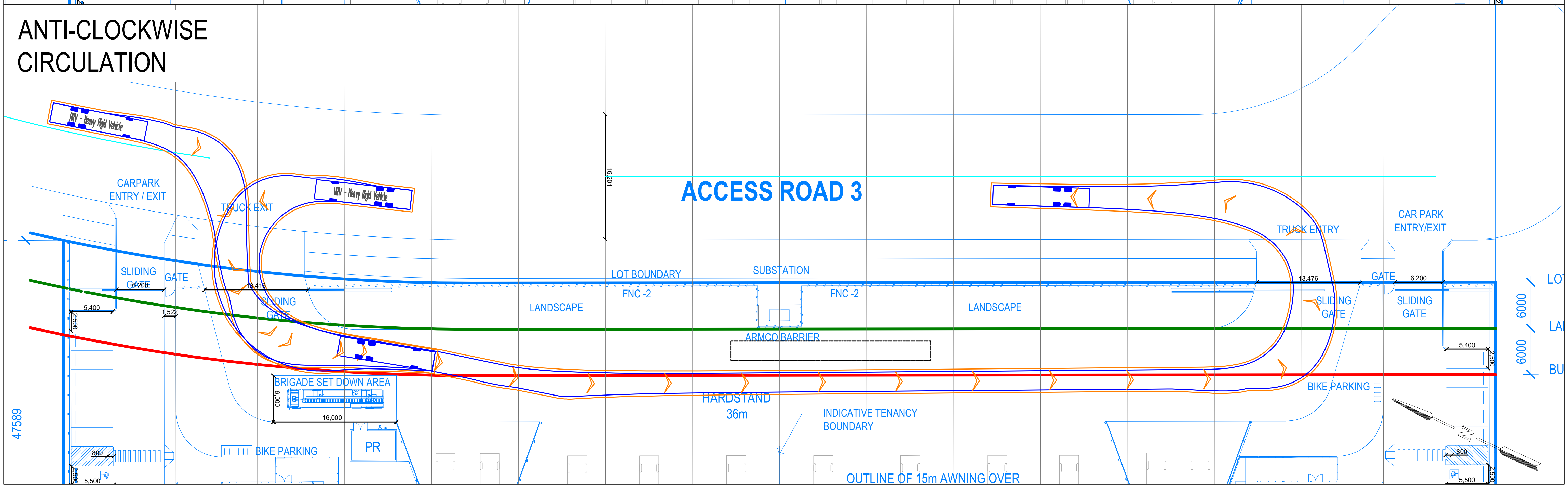

GENERAL NOTES

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Base Plan prepared by SBA, received 2024.10.17.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV Check Vehicle: 12.5m HRV

DESIGNED: Kedar Ballurkar	PAPER SIZE: A3 OR A1
APPROVED BY: Kedar Ballurkar	DATE: 17.10.2024
SCALE: 1:500	0 5 10

CLIENT
Mirvac

PROJECT
2455
Warehouse 6, 804-882 Mamre Road, Kemps Creek

DOCUMENT INFORMATION
Warehouse 6 - Swept Path Assessment
Fire Truck - 12.5m HRV

FILE NAME: AG2455-01-v08.dwg
SHEET: AG03

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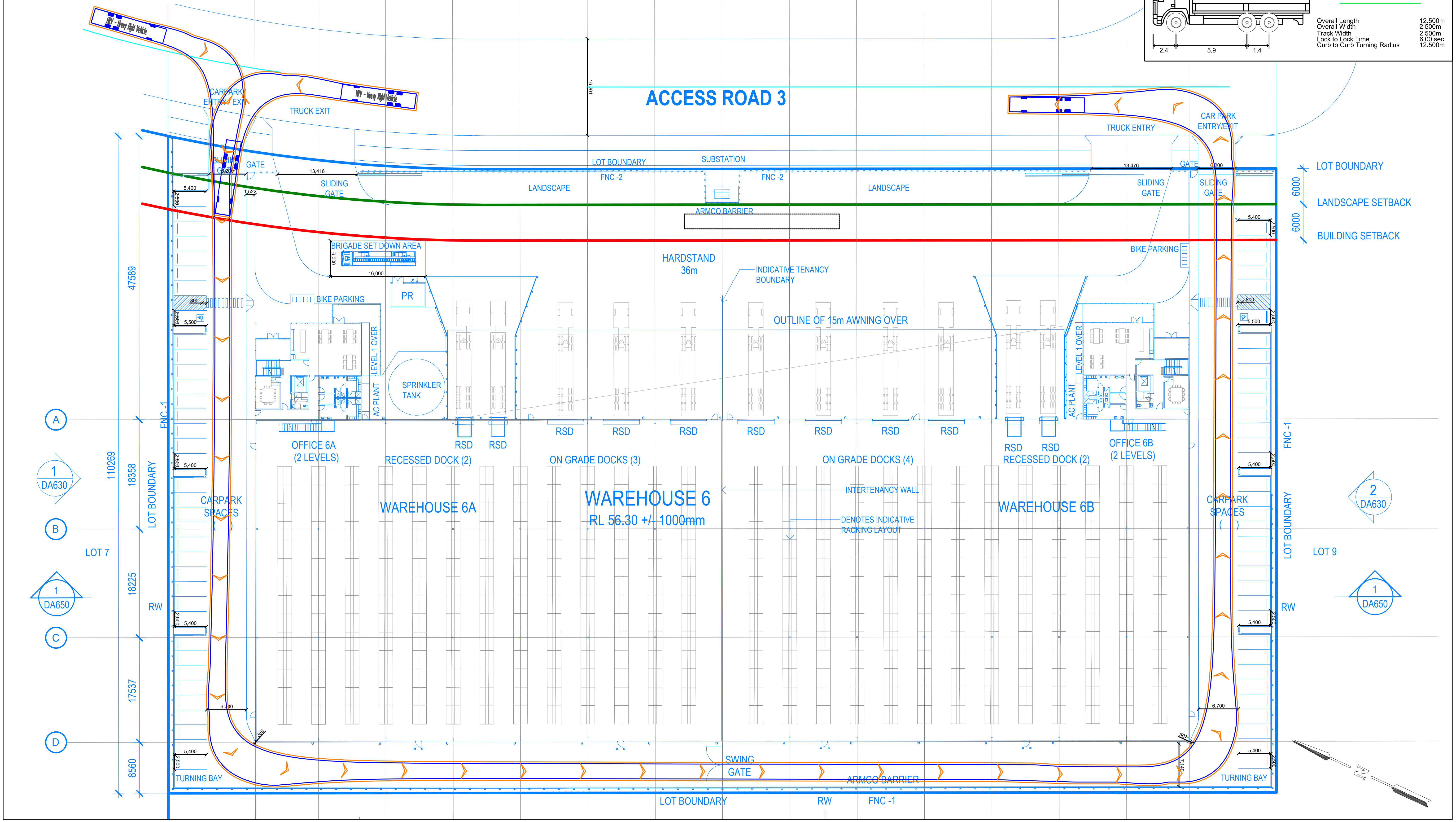
ANTI-CLOCKWISE CIRCULATION



GENERAL NOTES

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Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV Check Vehicle: 12.5m HRV

DESIGNED	Kedar Ballurkar
PAPER SIZE	A3 OR A1
APPROVED BY	Kedar Ballurkar
DATE	17.10.2024
SCALE	1:600 NTS
CLIENT	Mirvac
PROJECT	2455 Warehouse 6, 804-882 Mamre Road, Kemps Creek
DOCUMENT INFORMATION	Warehouse 6 - Swept Path Assessment Fire Truck - 12.5m HRV
FILE NAME	AG2455-01-v08.dwg
SHEET	AG04

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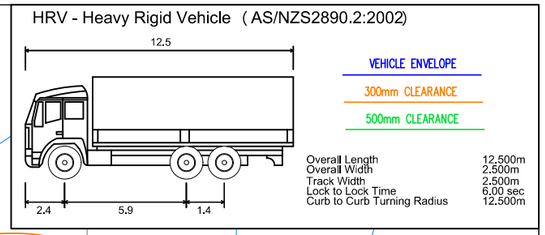
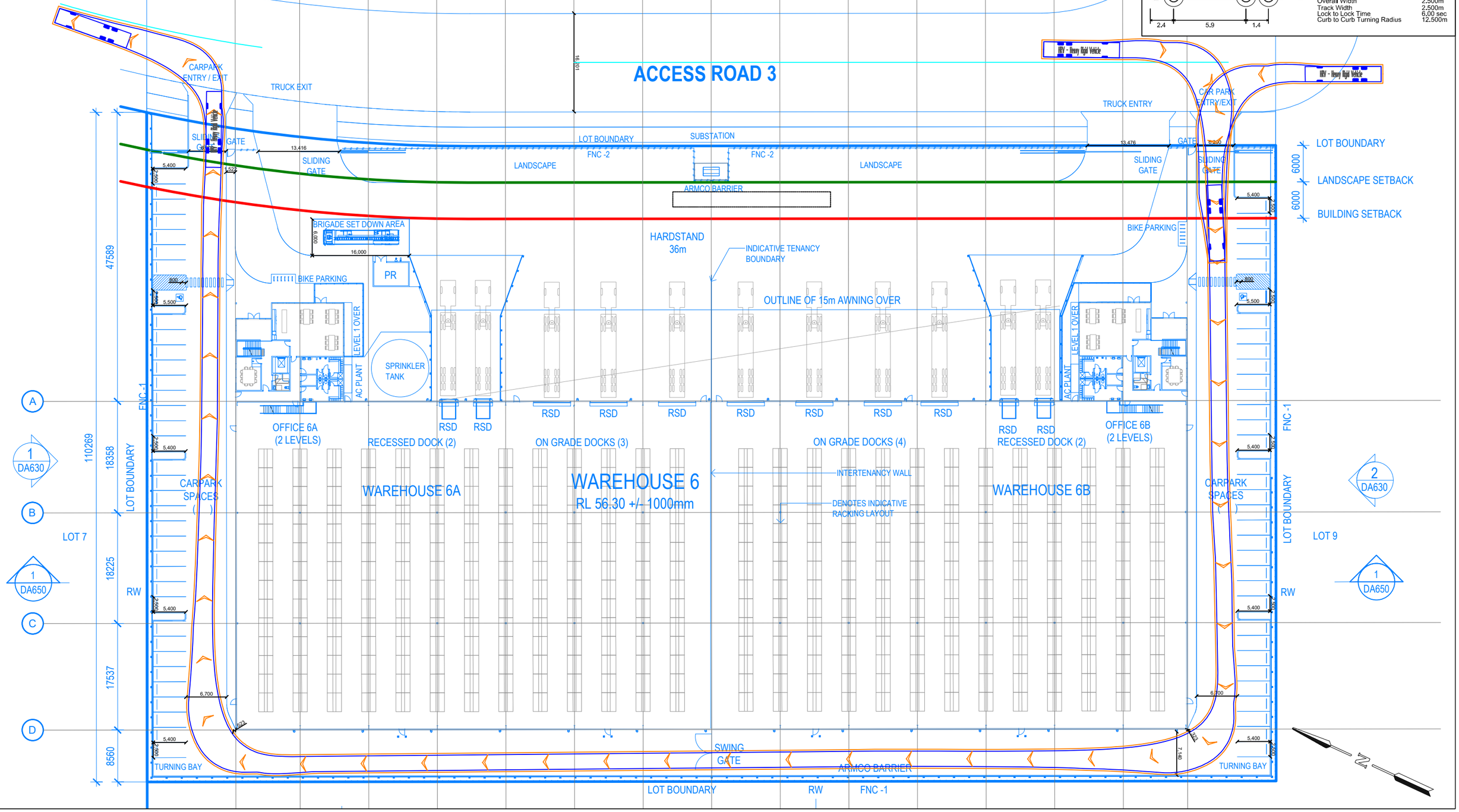
CLOCKWISE CIRCULATION





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Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV Check Vehicle: 12.5m HRV

DESIGNED	Kedar Ballurkar
PAPER SIZE	A3 OR A1
APPROVED BY	Kedar Ballurkar
DATE	17.10.2024
SCALE	1:600
	NTS

CLIENT
Mirvac

PROJECT
2455
Warehouse 6, 804-882 Mamre Road, Kemps Creek

DOCUMENT INFORMATION
Warehouse 6 - Swept Path Assessment
Fire Truck - 12.5m HRV

FILE NAME	SHEET
AG2455-01-v08.dwg	AG05

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Note:

1. Car parking provision:
   MRP DCP requires 62 and 12 spaces to be provided for WH7 and the Cafe respectively:

   1.1 Warehouse 7: 62 car parking spaces (including 1 accessible parking space) are indicated on plan.

   1.2 Cafe: 20 car parking spaces (including 1 accessible parking space) are indicated on plan.

2. Parking module design assessed as User Class 1 for employee parking and User Class 3 and Spaces for Small Cars for Cafe parking per AS2890.1:2004.

3. Design vehicles adopted:

   3.1 26.0m B-Doubles: site access and circulation.

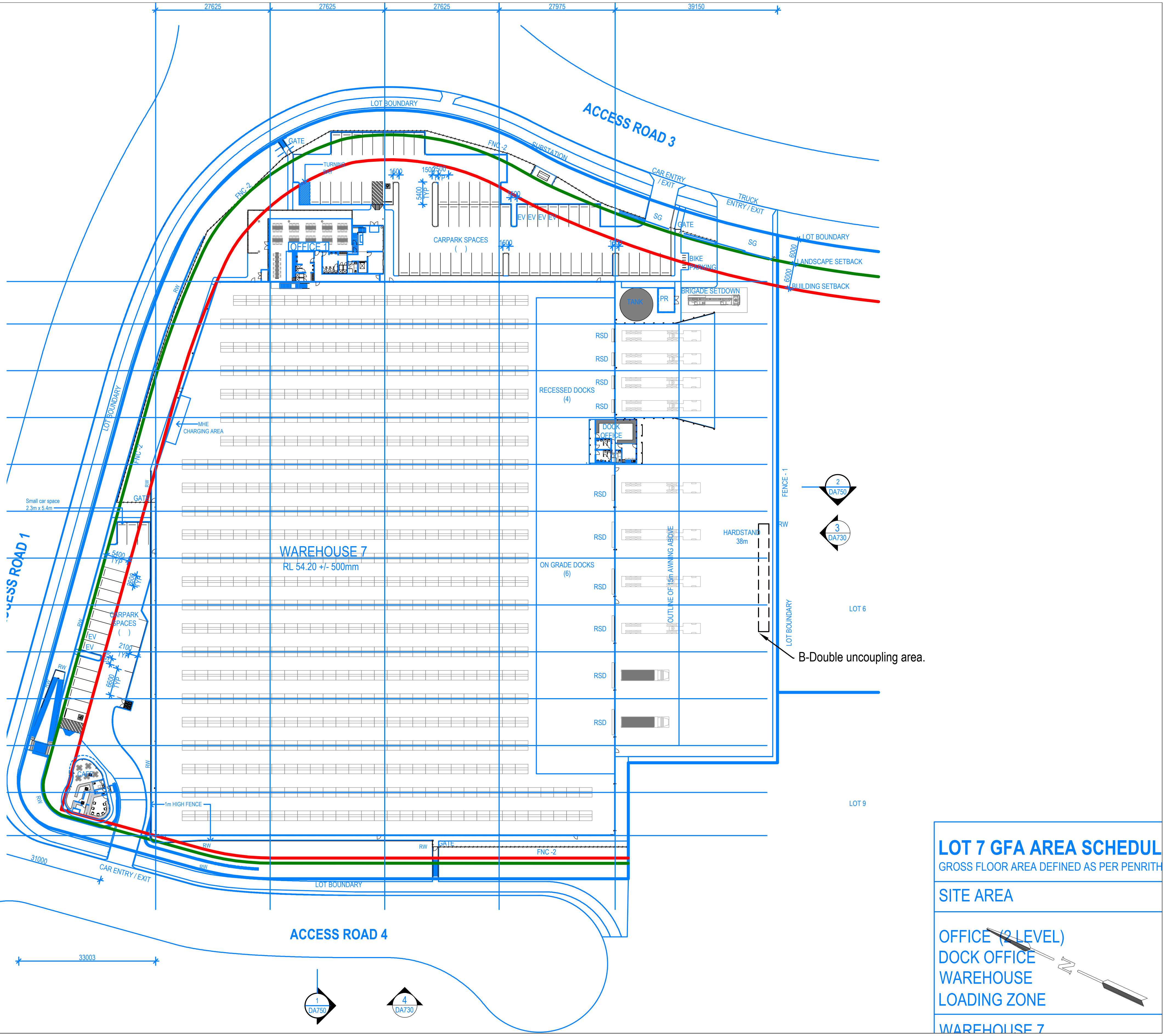
   3.2 20.0m Articulated Vehicles (AVs): hardstand area rear-loading.

   3.3 HRV: for fire circulation.

   3.4 MRV: for service vehicles (Cafe Only)

4. Grades not shown and therefore was not assessed.

5. It is assumed that all sliding gates shall be open at all times when operational. As such, these are not considered 'control points' for the purposes of this review.



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Base Plan prepared by SBA, received 2024.10.10.

DESIGNED	PAPER SIZE	CLIENT	DOCUMENT INFORMATION
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APPROVED BY	DATE	PROJECT	Warehouse 7
Kedar Ballurkar	17.10.2024	2455	
SCALE	0 10 20	Warehouse 7, 804-882 Mamre Road, Kemps Creek	FILE NAME: AG2455-02-v08.dwg
1:1000			SHEET: AG00

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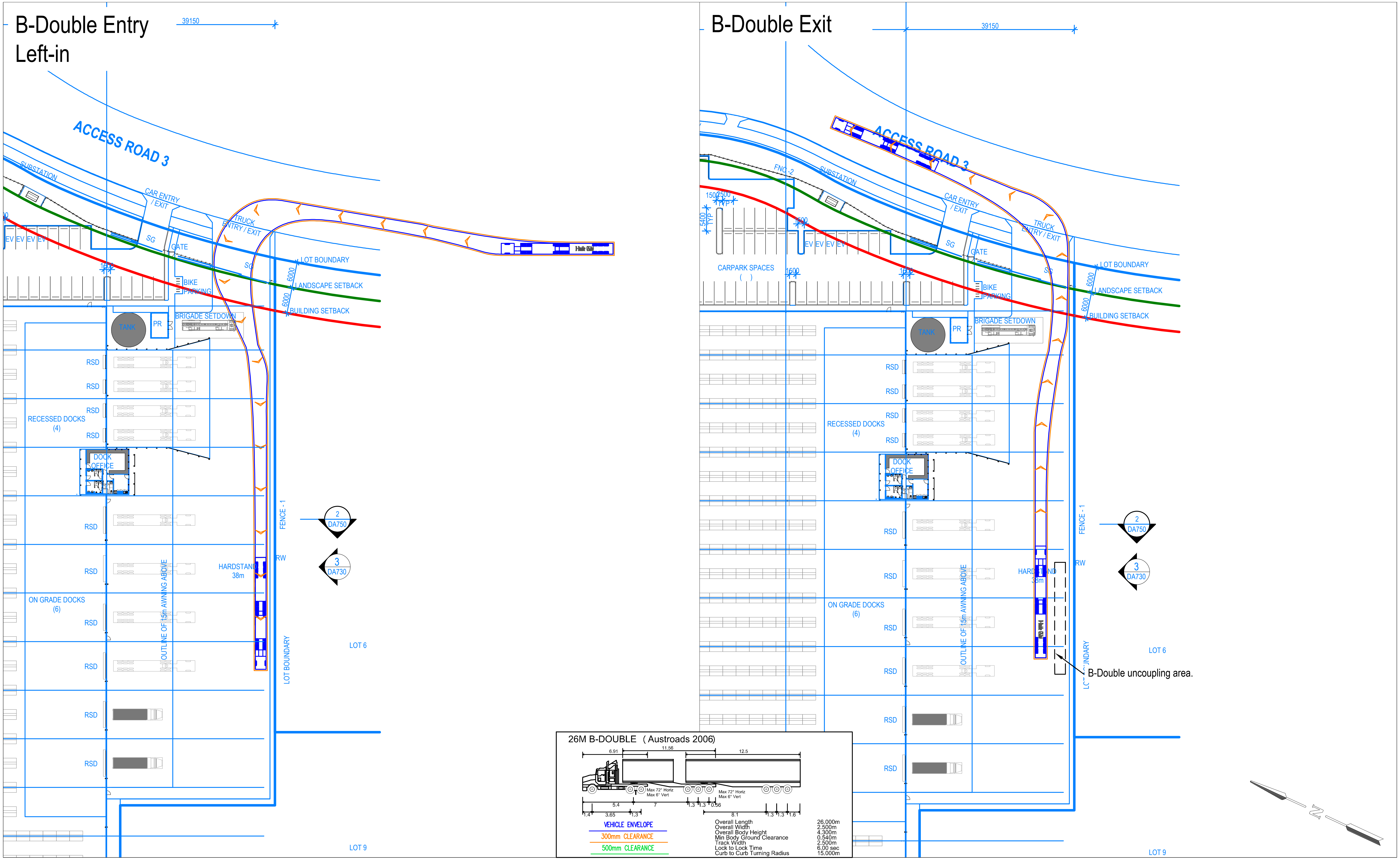

GENERAL NOTES

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Base Plan prepared by SBA, received 2024.10.10.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 26m B-Double Check Vehicle: 26m B-Double

DESIGNED: Kedar Ballurkar	PAPER SIZE: A3	CLIENT: Mirvac	DOCUMENT INFORMATION: Warehouse 7 - Swept Path Assessment
APPROVED BY: Kedar Ballurkar	DATE: 17.10.2024	PROJECT: 2455	26m B-Double Vehicle (Worst Case - Brigade Setdown Scenario)
SCALE: #####	NTS	Warehouse 7, 804-882 Mamre Road, Kemps Creek	FILE NAME: AG2455-02-v08.dwg; SHEET: AG01

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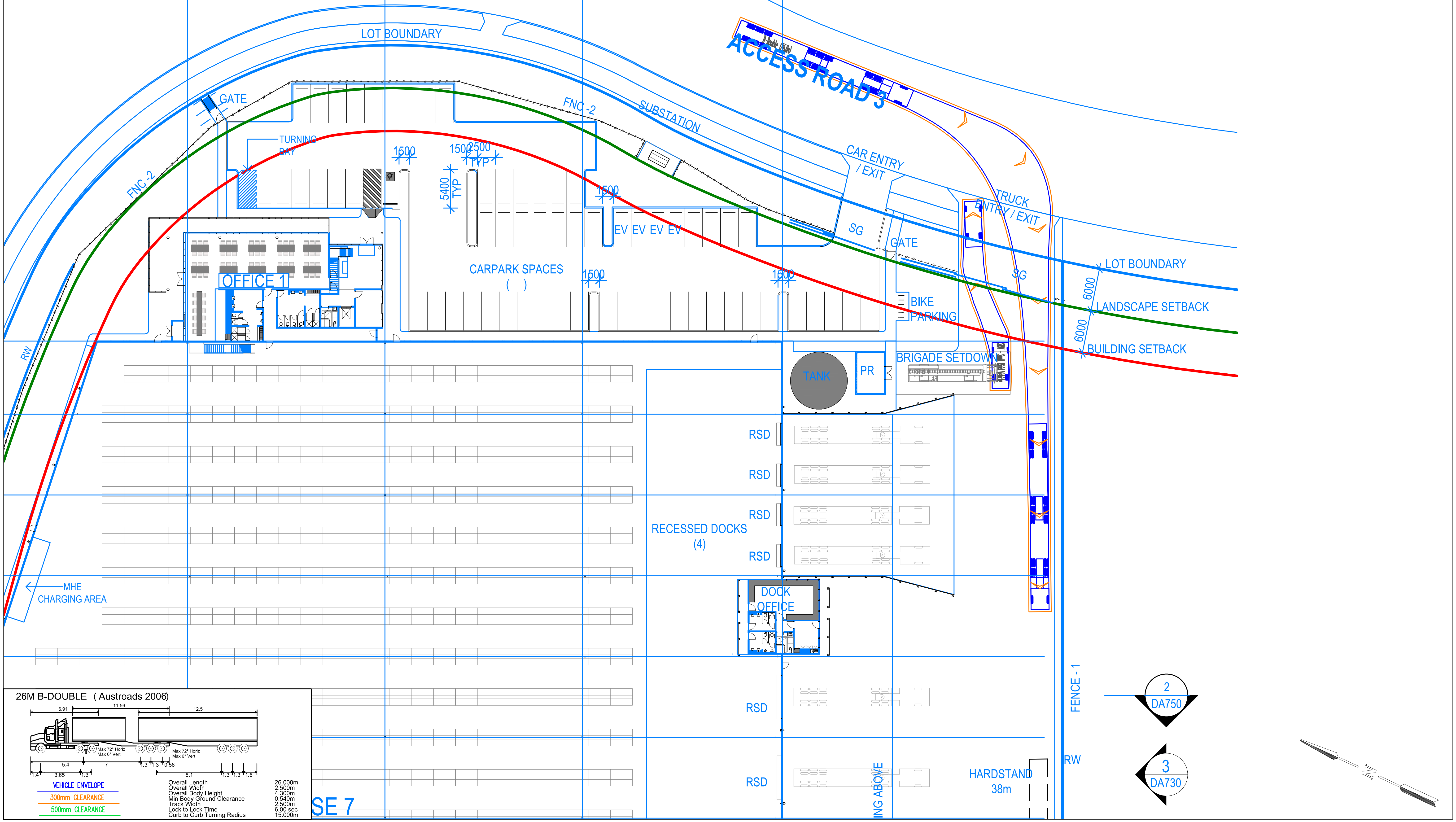
B-Double Entry Right-in



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Base Plan prepared by SBA, received 2024.10.10.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 26m B-Double   Check Vehicle: 26m B-Double

DESIGNED	Kedar Ballurkar
PAPER SIZE	A3
APPROVED BY	Kedar Ballurkar
DATE	17.10.2024
SCALE	#####
	NTS

CLIENT
Mirvac

PROJECT
2455
Warehouse 7, 804-882 Mamre Road, Kemps Creek

DOCUMENT INFORMATION
Warehouse 7 - Swept Path Assessment
26m B-Double Vehicle - Regular Access

FILE NAME	SHEET
AG2455-02-v08.dwg	AG02

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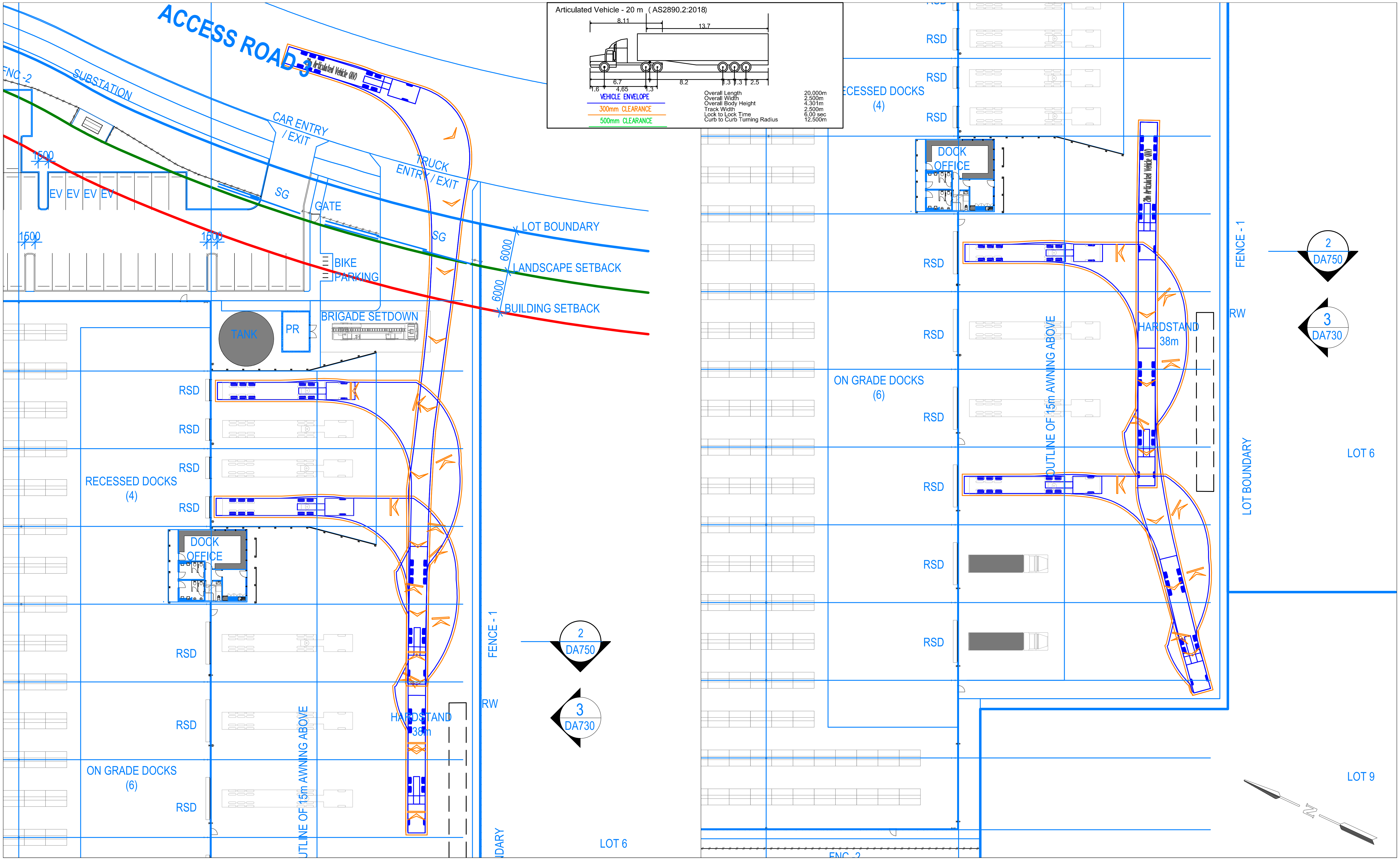

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Base Plan prepared by SBA, received 2024.10.10.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV   Check Vehicle: 20m AV

DESIGNED: Kedar Ballurkar	PAPER SIZE: A3	CLIENT: Mirvac	DOCUMENT INFORMATION: Warehouse 7 - Swept Path Assessment
APPROVED BY: Kedar Ballurkar	DATE: 17.10.2024	PROJECT: 2455	20m AV
SCALE: 1:500	0 5 10	Warehouse 7, 804-882 Mamre Road, Kemps Creek	FILE NAME: AG2455-02-v08.dwg; SHEET: AG03

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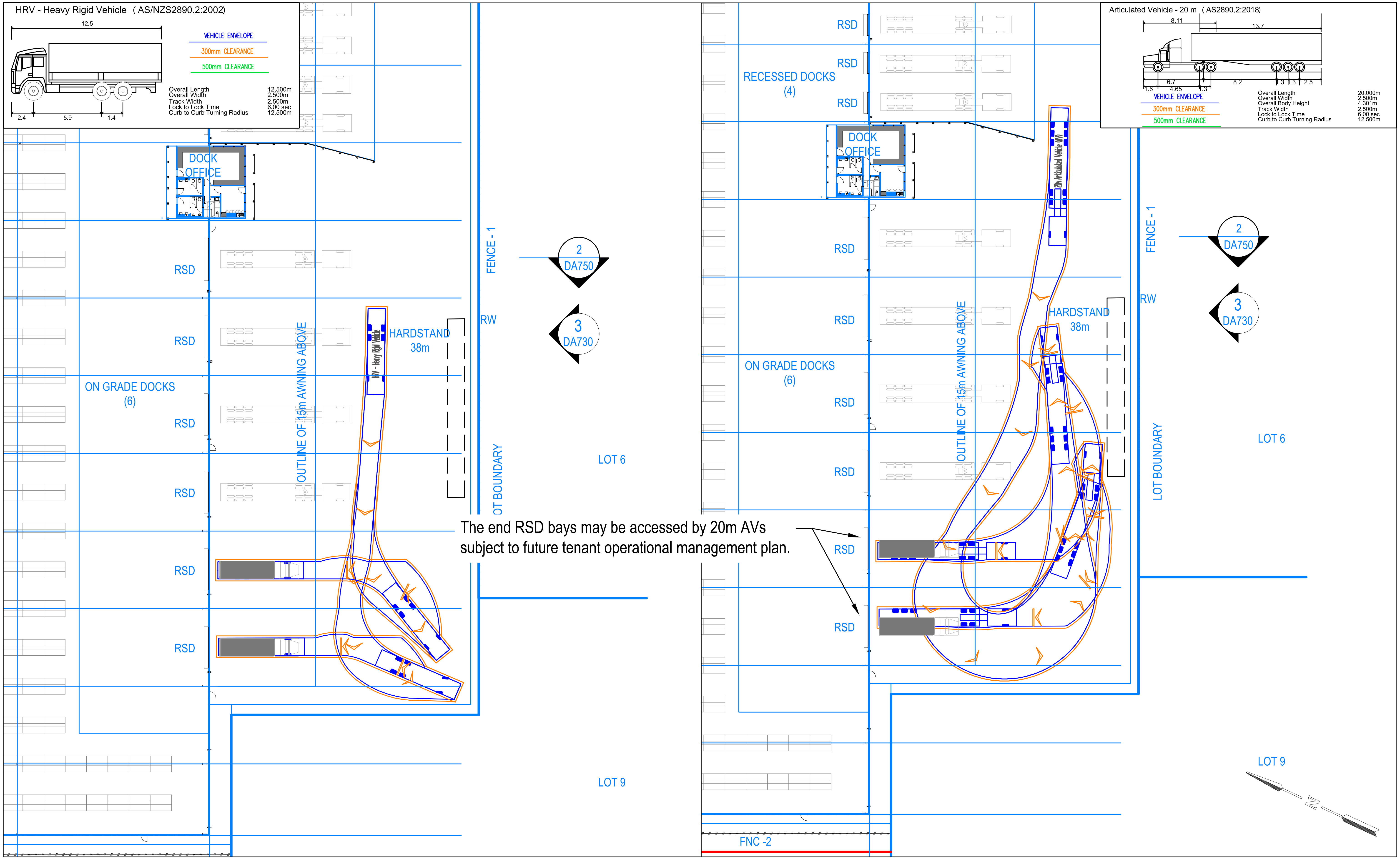

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Base Plan prepared by SBA, received 2024.10.10.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV   Check Vehicle: 12.5m HRV

DESIGNED	Kedar Ballurkar
PAPER SIZE	A3
APPROVED BY	Kedar Ballurkar
DATE	17.10.2024
SCALE	1:500 (0 5 10)
CLIENT	Mirvac
PROJECT	2455 Warehouse 7, 804-882 Mamre Road, Kemps Creek
DOCUMENT INFORMATION	Warehouse 7 - Swept Path Assessment 12.5m HRV
FILE NAME	AG2455-02-v08.dwg
SHEET	AG04

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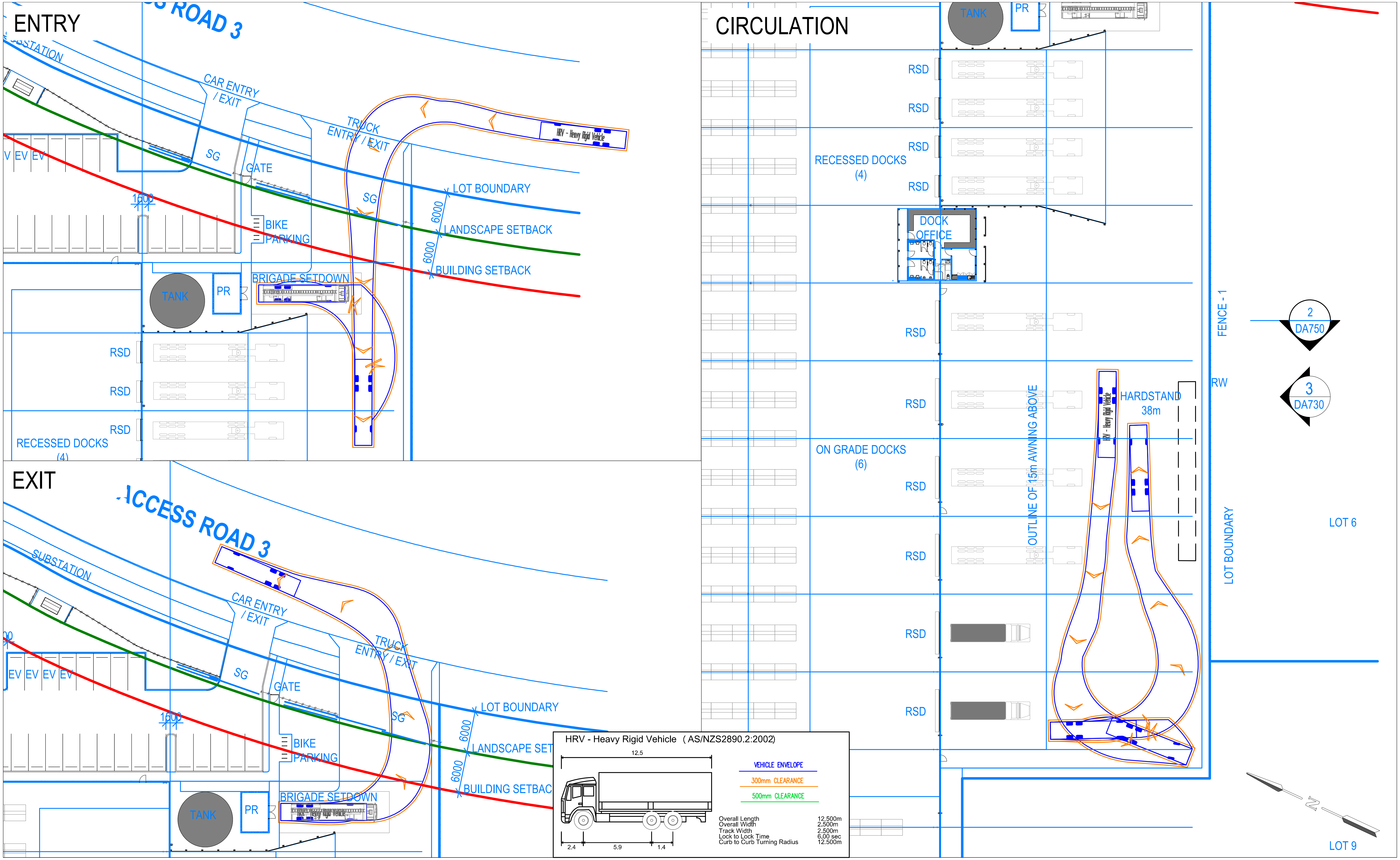

GENERAL NOTES

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Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 20m AV Check Vehicle: 12.5m HRV

DESIGNED: Kedar Ballurkar	PAPER SIZE: A3
APPROVED BY: Kedar Ballurkar	DATE: 17.10.2024
SCALE: 1:500	0 5 10

CLIENT
Mirvac

PROJECT
2455
Warehouse 7, 804-882 Mamre Road, Kemps Creek

DOCUMENT INFORMATION
Warehouse 7 - Swept Path Assessment
Fire Truck

FILE NAME	SHEET
AG2455-02-v08.dwg	AG05

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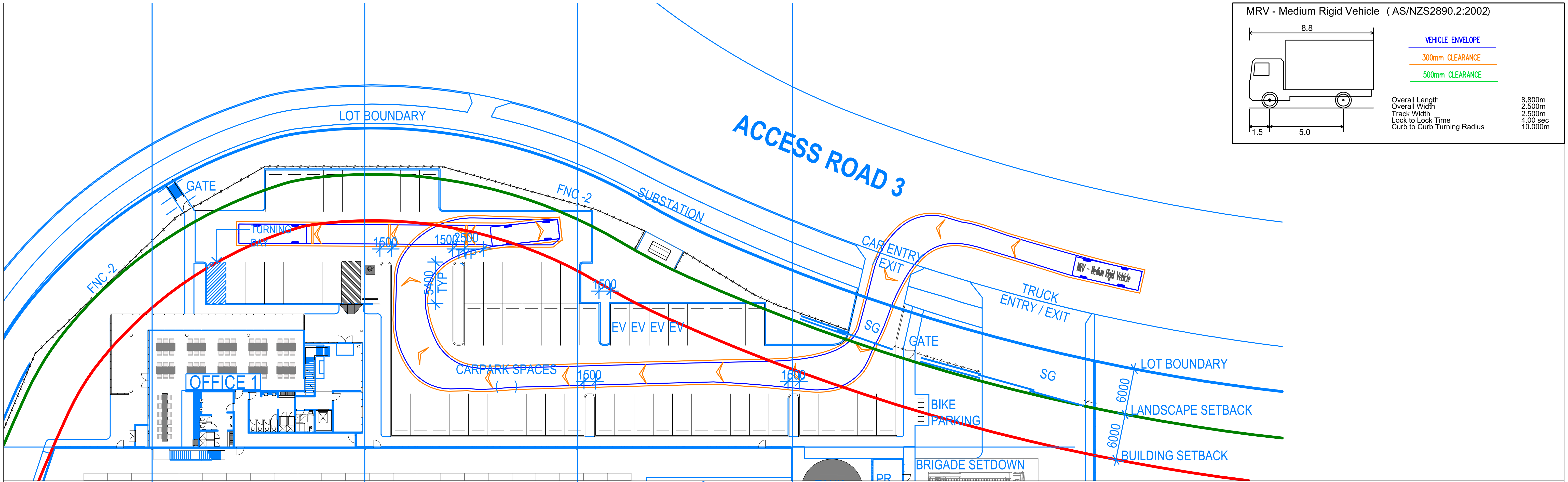

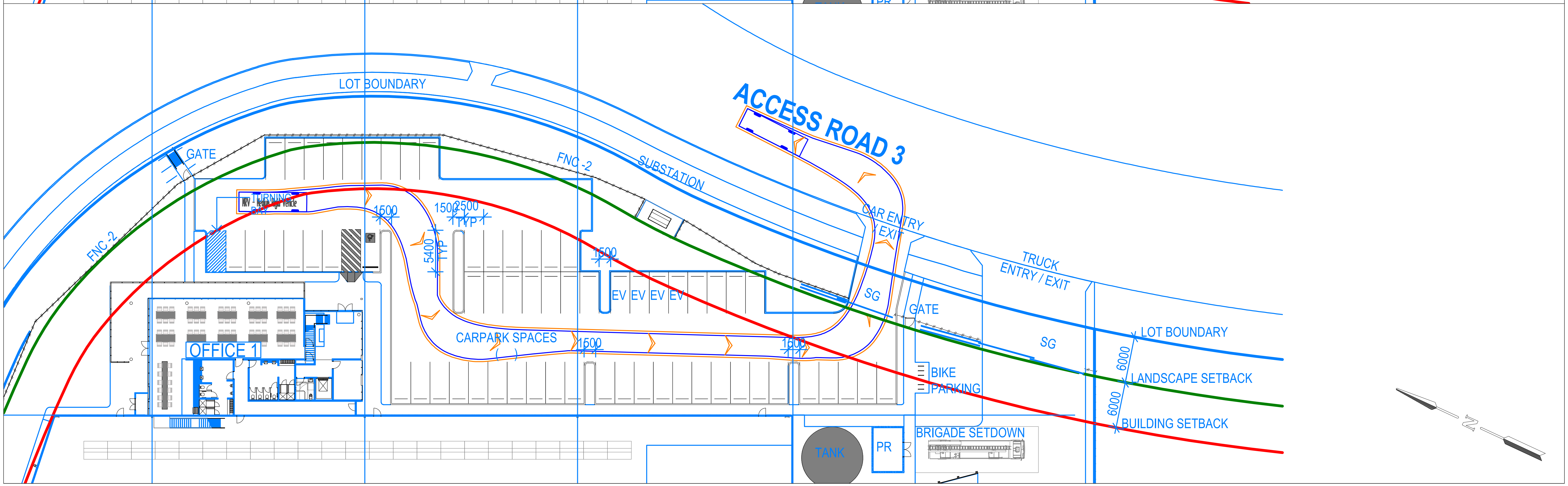

GENERAL NOTES

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Base Plan prepared by SBA, received 2024.10.10.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 8.8m MRV

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APPROVED BY	DATE	PROJECT		
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SCALE	0 4 8		FILE NAME	SHEET
1:500		Warehouse 7, 804-882 Mamre Road, Kemps Creek	AG2455-02-v08.dwg	AG06

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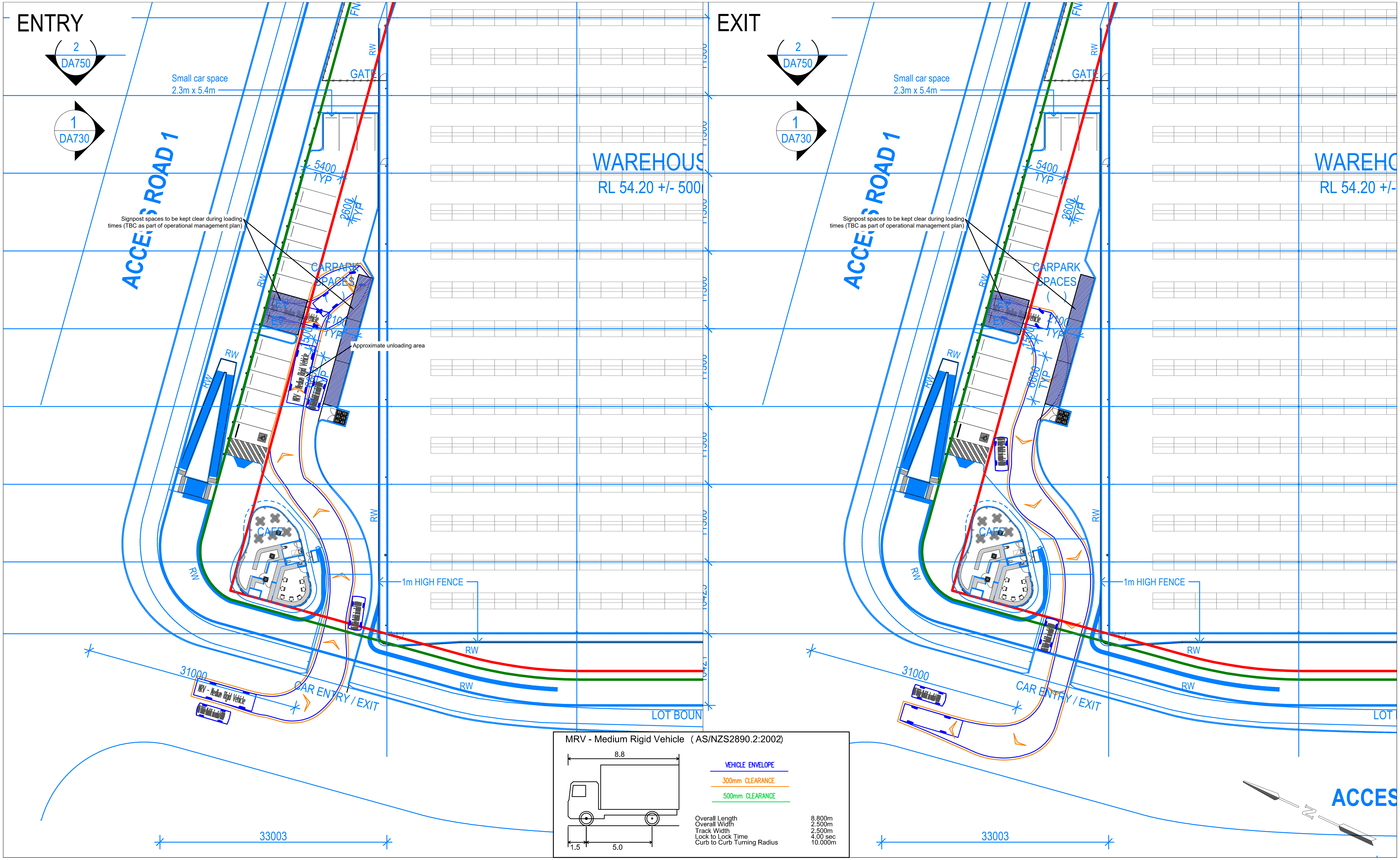

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by SBA, received 2024.10.10.
Access Road 3 has a posted speed limit of 50km/hr.
Swept path assessments for circulation movements completed at 10 km/h and 300mm clearance.
Design vehicle: 8.8m MRV

DESIGNED	Kedar Ballurkar
PAPER SIZE	A3
APPROVED BY	Kedar Ballurkar
DATE	17.10.2024
SCALE	##### (0 5 10)

CLIENT
Mirvac

PROJECT
2455
Warehouse 7, 804-882 Mamre Road, Kemps Creek

DOCUMENT INFORMATION
Cafe - Swept Path Assessment
Service Vehicle - 8.8m MRV

FILE NAME	SHEET
AG2455-02-v08.dwg	AG07

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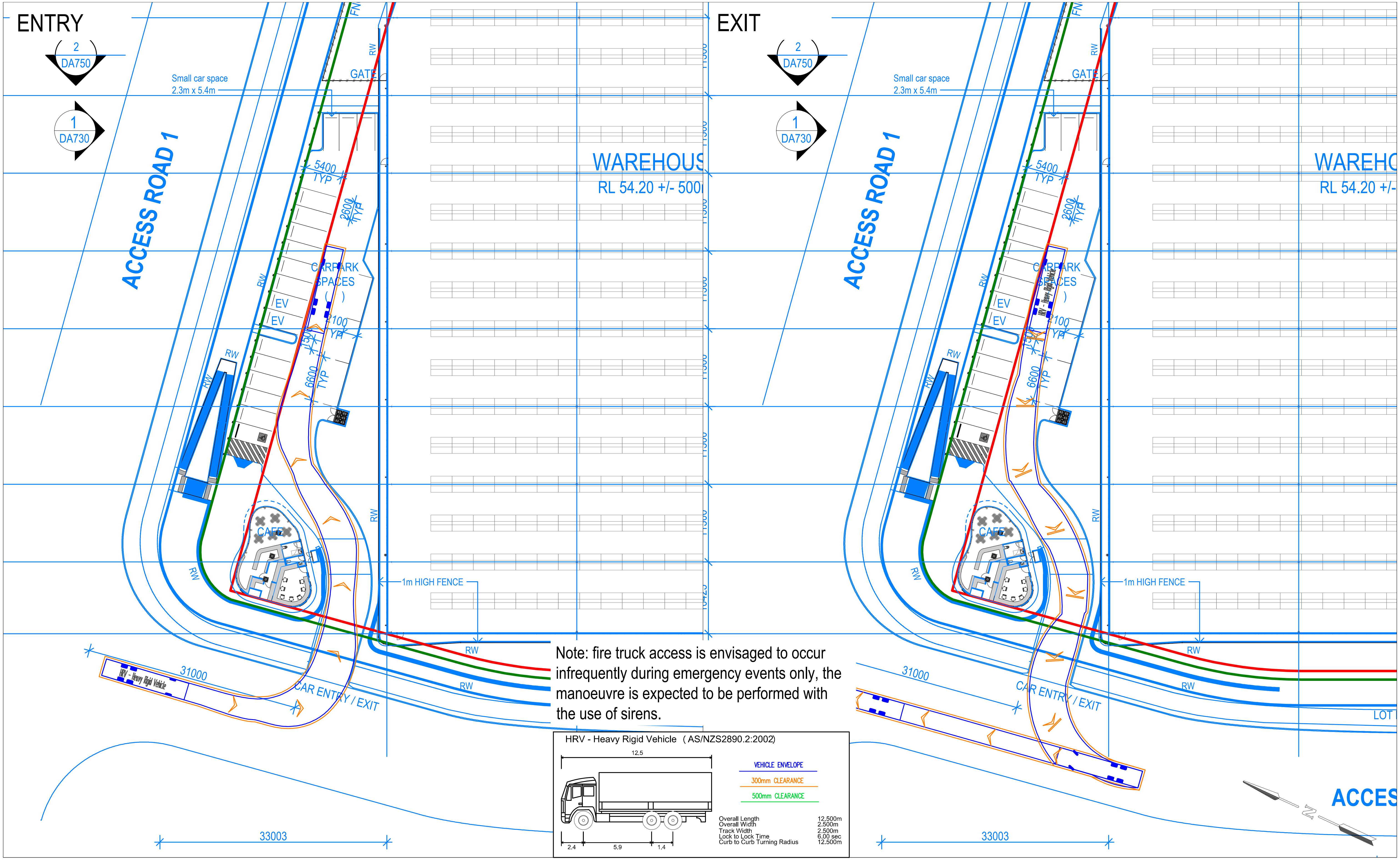

Note: fire truck access is envisaged to occur infrequently during emergency events only, the manoeuvre is expected to be performed with the use of sirens.

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Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 12.5m HRV Check Vehicle: 12.5m HRV

DESIGNED: Kedar Ballurkar	PAPER SIZE: A3	CLIENT: Mirvac	DOCUMENT INFORMATION: Cafe - Swept Path Assessment
APPROVED BY: Kedar Ballurkar	DATE: 17.10.2024	PROJECT: 2455	Fire Truck - 12.5m HRV
SCALE: #####	0 5 10	Warehouse 7, 804-882 Mamre Road, Kemps Creek	FILE NAME: AG2455-02-v08.dwg / SHEET: AG08

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Appendix E. Approved Preliminary Construction Traffic Management Plan

Prepared for

MIRVAC PROJECTS PTY LTD

Preliminary Construction Traffic Management Plan

Lot 54 – 58 Mamre Road, Kemps Creek

Ref: 1029r03v1
30/07/2020

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Document Control

Project No: 1029

Project: Lot 54 – 58 Mamre Road, Kemps Creek

Client: Mirvac Projects Pty Ltd

File Reference: 1029r03v1 Draft CTMP_Mamre Road

Revision History

Revision	Date	Details	Author	Approved by
-	15/05/2020	Draft	V. Cheng	A. Reisch
I	29/05/2020	Final	V. Cheng A. Reisch	A. Reisch

Table of Contents

Appendices

1 Introduction

1.1 Overview

Ason Group has been engaged by Mirvac Projects (Mirvac) to prepare a Draft Construction Traffic Management Plan (CTMP) in regard to the future construction of the Aspect Industrial Estate (AIE) at Lots 54 – 58 Mamre Road, Kemps Creek (the Site).

This CTMP details the proposed construction management strategies which would provide for the safe and efficient completion of the proposed works while minimising construction traffic impacts on the surrounding road network and public road network users.

From the outset, it is noted that the this CTMP is designed to be updated over time as additional details in regard to the construction proposal are revised / finalised as is standard in any major construction project, noting that all such updates would be completed in consultation with Penrith City Council (Council) in whose Local Government Area (LGA) the Site lies; and / or with the relevant authorities such as Transport for NSW (TfNSW) where special road occupancy or the like are required.

Importantly, Ason Group has been responsible for the preparation of this CTMP, which has been prepared with reference to all available information in regard to the construction program, and all relevant CTMP preparation guidelines. The implementation of the recommendations and strategies detailed in this CTMP are the strict responsibility of Mirvac and / or Mirvac's designated construction Project Manager.

1.2 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements (SEARs, dated 30 April 2020) have been received from the Department of Planning, Industry & Environment (DPIE); these include general SEARs provided by DPIE, as well as more detailed SEARs provided by TfNSW, a number of which speak directly to the scope of work required in this CTMP.

A summary of the TfNSW SEARs is provided in Table 1 below; where relevant, Ason Group has provided a summary response to each SEAR, and reference to the section of this CTMP providing a more detailed assessment of each SEAR.

Table 1: TfNSW Requirements Compliance Table

Reference	Requirement	Response
1.11	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:	
1.11.1	assessment of cumulative impacts associated with other construction activities (if any);	This preliminary CTMP has considered the cumulative construction impacts of future development across the Mamre Road Precinct, including the Mamre Road Upgrade and key connections to the existing and future regional road network. This is discussed further in **Section 4.3.** Due to uncertainties in regard to the timing of development across the Mamre Road Precinct, the modelling of the Site access intersection includes background traffic growth to 2022, by which time it is expected that the construction task will be completed. It is noted that TfNSW has recently commenced a detailed traffic modelling assessment of the broader Mamre Road Precinct; the outcomes of this assessment will be instrumental to future revisions to this CTMP as required.
1.11.2	an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity;	An assessment of the existing crash data is provided in **Section 2.3**. An assessment of potential heavy vehicle impacts is provided in **Section 4.4**. As heavy vehicles will only utilise TfNSW Restricted Access Vehicle routes - routes which have little pedestrian activity – there is no expectation of any impacts on pedestrian safety.
1.11.3	details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process;	See **Section 3.1** and **3.2**.
1.11.4	details of anticipated peak hour and daily construction vehicle movements to and from the site;	See **Section 4.1**
1.11.5	details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle;	See **Section 3.3** and **4.6**.
1.11.6	details of temporary cycling and pedestrian access during construction	See **Section 3.3.3**.

2 The Site

2.1 Site Location

The Site is legally described as Lots 54 – 58 in DP 259135, Mamre Road Kemps Creek, and has an area of approximately 56.3 hectares (ha). The Site is located approximately 6.5km north-east of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13.5km south-east of the Penrith CBD and 40km west of the Sydney CBD.

The Site in its sub-regional context is shown in **Figure 1**, as well as the broader Mamre Road Precinct as designated by DPIE.

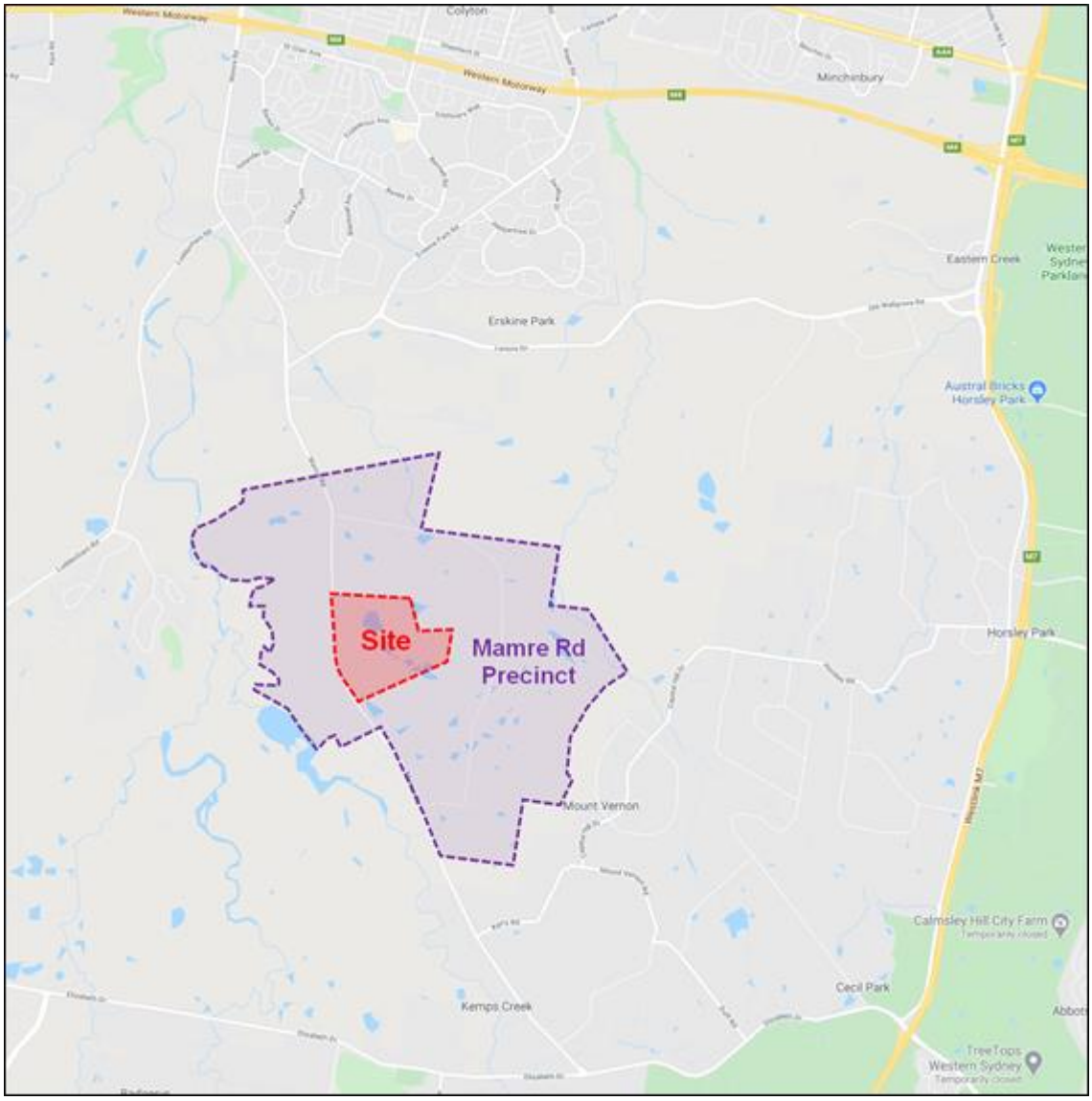


Figure 1: Site Location

2.2 Road Network

Key roads in the vicinity of the Site are shown in **Figure 1**, and include:

- **Westlink M7 Motorway:** M7 Motorway is a high capacity road link of state significance and was built to accommodate future traffic growth in the Western Sydney region. It provides a key north-south link between the M2 Motorway to the north and the M5 Motorway to the south as part of the Sydney orbital road network. A major interchange between the M7 Motorway and M4 Western Motorway is located approximately 3.5 km north of the Site, which connects the Sydney CBD and western Sydney suburbs. The M7 Motorway provides 4 lanes (2 lanes per direction, divided carriageway) and has a posted speed limit of 100 km/h
- **(Future) M12 Motorway**: A proposed 16km motorway generally running in an east-west between the existing M7 motorway and the Northern Road. It is expected to run in parallel with Elizabeth Drive and is to have 2 lanes in each direction separated by a central median. Construction is expected to commence in 2020.
- **Wallgrove Road:** Wallgrove Road is an arterial road that runs in a north-south direction to the east of the Site and parallel (to the west of) the M7, functioning as a service road. The 2-lane, two-way road provides a link between the Great Western Highway to the north and Elizabeth Drive to the south. As with the M7, Wallgrove Road connects to the M4 motorway approximately 2.5 kilometres to the north of the Site.
- **Elizabeth Drive:** An TfNSW classified main road (MR 535) that runs in an east-west direction to the south of the site. Elizabeth Drive in the vicinity of the site generally provides 2 lanes (1 lane per direction) and has a posted speed limit of 80km/h. This road forms the Site's southern frontage and provides a vital link between Westlink M7 Motorway and The Northern Road.
- **The Northern Road:** The Northern Road is TfNSW classified main road (MR 154) that runs in a north-south direction to the west of the site. The Northern Road section near the vicinity of the site generally provides 3 lanes (1 to 2 lanes per direction) and has a posted speed limit of 80km/h. Currently, The Northern Road is undergoing multiple stages of road upgrades by RMS, including a realignment of the road in the south. The road upgrades between The Old Northern Road, Narellan and Peter Brock Drive, Oran Park, has been completed.
- **Mamre Road:** Mamre Road is 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 Site, Mamre Road generally provides 2 lanes for two-way traffic, with additional through movement and turning infrastructure at key intersections to the north through the Erskine Park and Mamre West industrial precincts, and at Elizabeth Drive to the south. Mamre Road has a posted speed limit of 80km/h in the vicinity of the Site. TfNSW has confirmed road upgrades will be undertaken for Mamre Road between Elizabeth Drive and Luddenham Road.

Further to the above, it is clear that the Site is well located in regard to immediate access to the local and sub-regional road network, as shown in **Figure 2** with specific reference to TfNSW Restricted Access Vehicle (RAC) routes, which allow for up to 25m/26m B-Double combinations.

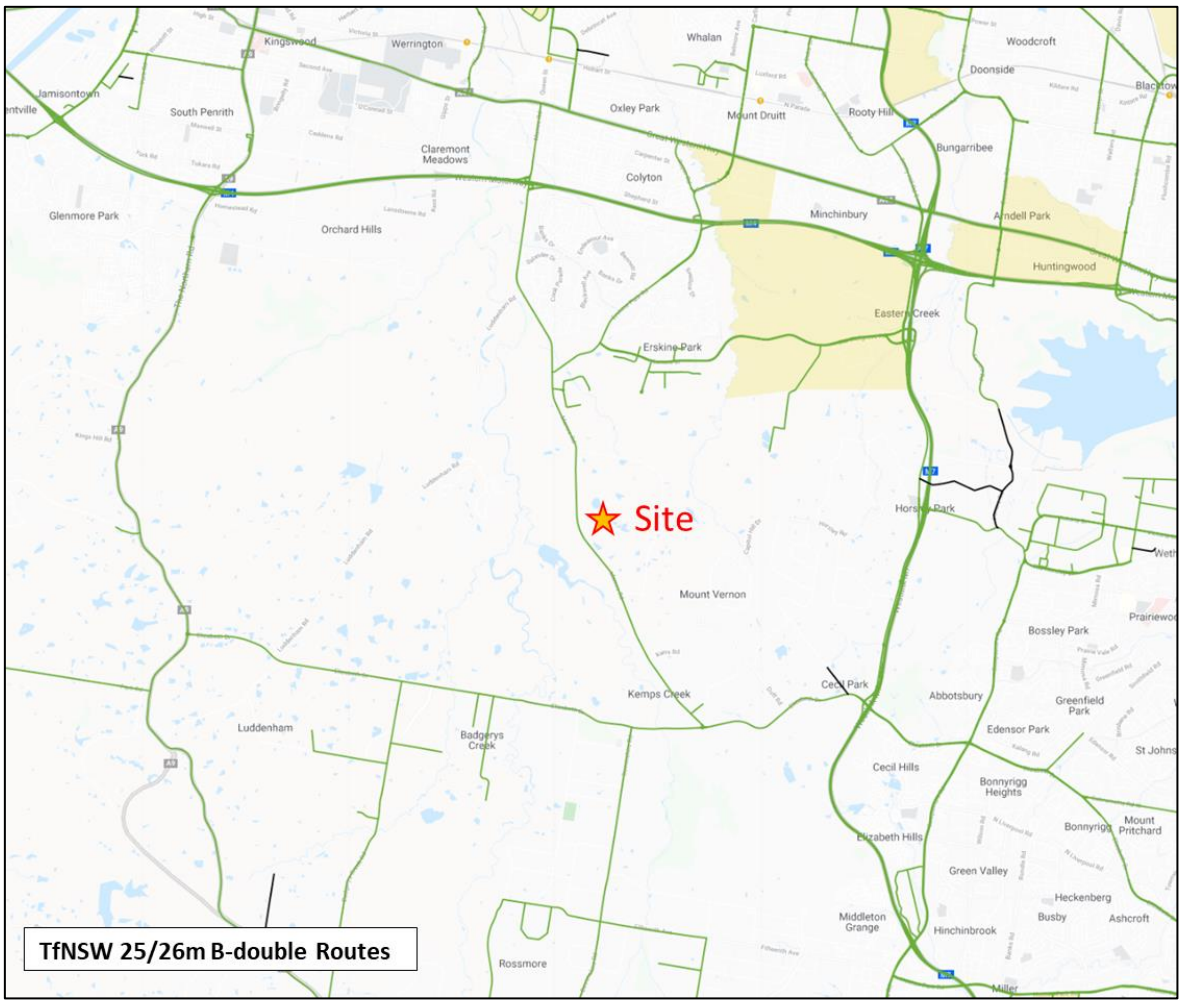


Figure 2: TfNSW Approved 25/26m B-Double Routes

2.3 Crash Data at Key Intersections

Mamre Road will be the key road to access the Site for heavy vehicles. As such, a crash history of the road and nearby key intersections of Mamre Road / Bakers Lane and Mamre Road / Abbotts Road have been reviewed using TfNSW Centre for Road Safety's crash statistics between 2014 – 2018. **Figure 3** below details all crashes identified by TfNSW, while

Table 2 details the severity of each of these crashes.

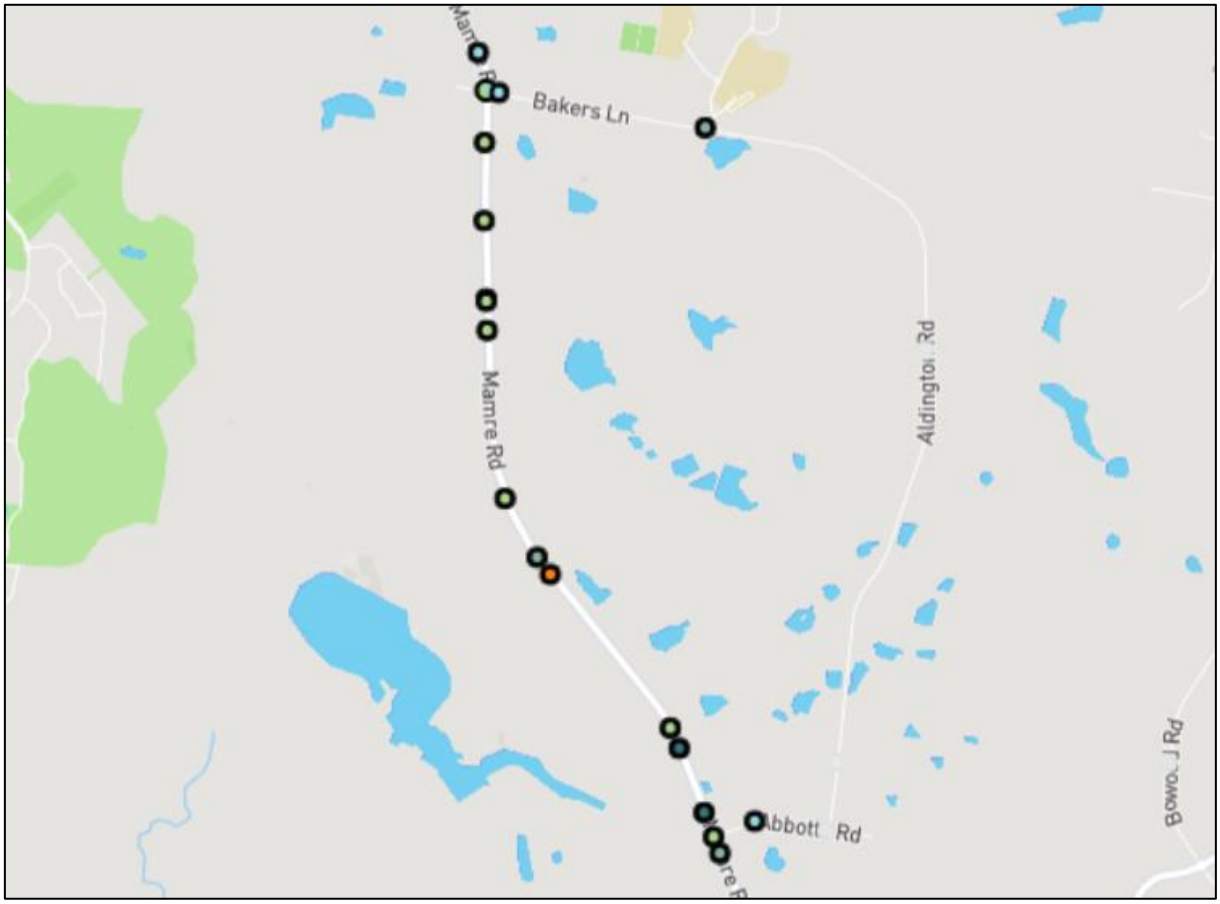


Figure 3: Crash History along Mamre Road

Table 2: Historical Crash Data

Year	Degree of Crash	RUM Code	RUM Description
Mamre Road / Bakers Lane			
2014	Minor/Other Injury	30	Rear end
2017	Non-casualty	19	Other adjacent
2017	Minor/Other Injury	39	Other same direction
Mamre Road			
2014	Minor/Other Injury	30	Rear end
2014	Non-casualty	71	Left off carriageway into object / parked vehicle
2014	Serious Injury	71	Left off carriageway into object / parked vehicle
2015	Moderate Injury	71	Left off carriageway into object / parked vehicle
2015	Non-casualty	83	Off carriageway right on right bend into object / parked vehicle
2016	Non-casualty	30	Rear end
2017	Non-casualty	39	Other same direction
2017	Non-casualty	32	Right rear
2017	Serious Injury	49	Other maneuvering
2017	Non-casualty	30	Rear end
2017	Fatal	20	Head on
Mamre Road / Abbotts Road			
2015	Moderate Injury	59	Other overtaking
2016	Non-Casualty	19	Other adjacent

As shown in **Table 2**, there has only been one fatality in the vicinity of the Site (2017) and no crashes are reported in the vicinity of the Site during 2018.

3 Overview of Construction Works

3.1 Staging and Duration of Works

Based on information provided to Ason Group by Mirvac, it is anticipated that construction works would commence in Start 2021 and be completed over a duration between 2-3 years, subject to authority approvals and inclement weather delays.

The following summarises key aspects of the construction stages:

- Demolition works are set to have a duration for 8-12 weeks commencing Start 2021.
- Excavation activities would continue for 12-18 months commencing Start 2021 finishing Mid-Late 2022.
- General Construction works are estimated to continue concurrently to excavation activities for 12-24 months commencing Mid-End 2021.

3.2 Construction Hours

The type of work being undertaken will remain consistent throughout the duration of construction and associated activities. All works will be undertaken within the following hours:

- Monday to Friday (other than Public Holidays): 7:00am – 6:00pm.
- Saturday: 8:00am – 1:00pm
- Sunday & Public Holidays: No works to be undertaken.

Any work to be undertaken outside of the standard construction hours will be required to obtain an Out of Hours (OOH) approval; any such works would necessarily be undertaken in accordance with the appropriate OOH protocols and approval processes.

3.3 Site Access

3.3.1 Construction Vehicle Access

All construction vehicles will enter and depart the Site from / to Mamre Road via a temporary access driveway, which be constructed on the alignment of the future Access Road 1.

It is anticipated that the largest vehicle accessing the Site would be a 19.6m Truck & Dog combination, which the temporary access driveway will be designed for. It is expected that two-way heavy vehicle flow would be enabled along Mamre Road. Regardless, construction management protocols will require that the vehicle entering site access road will have right of way in order to ensure that there is no queueing on Mamre Road.

It is anticipated that for the first stages of construction (at least), access to and from the Site onto Mamre Road will be restricted to left-in and left-out movements; this is discussed further in **Section 4**. The following **Figure 4** shows the indicative Site access location.

Further to this restriction, **Figure 5** details the likely key access strategy into the routes between the Site and the regional road network.

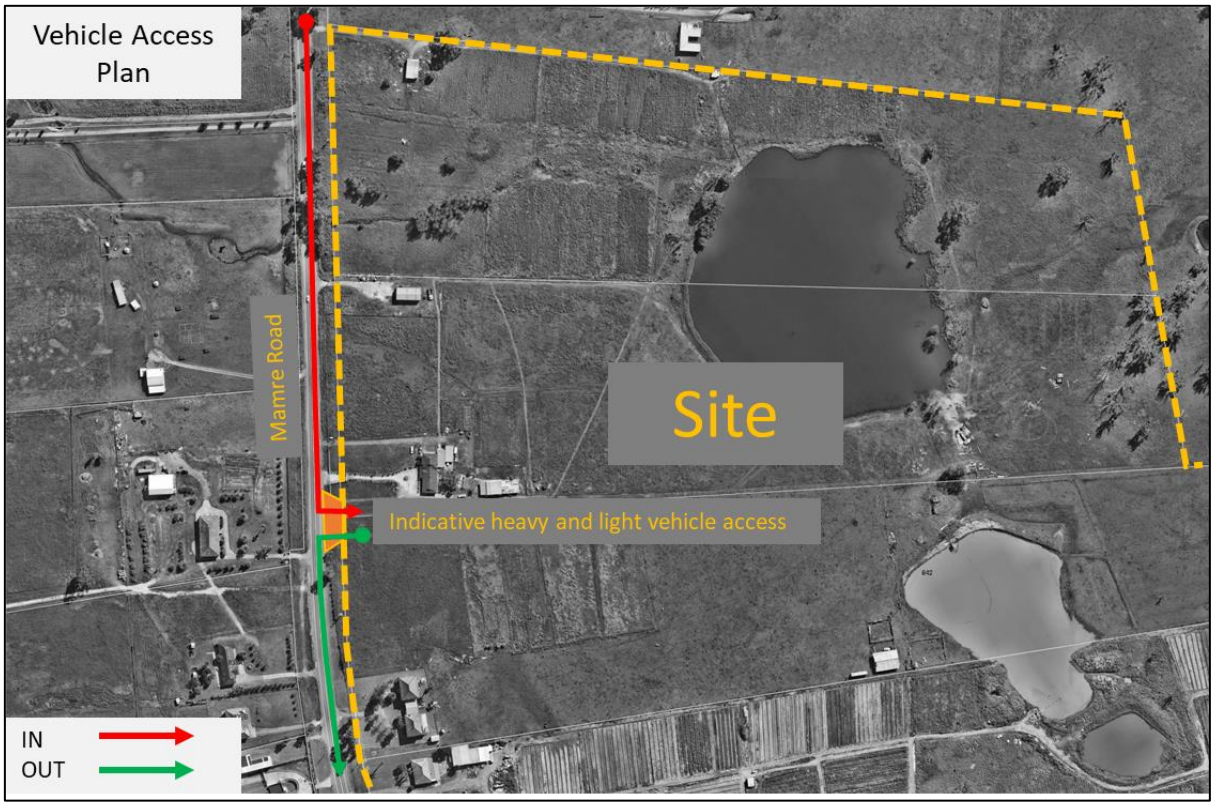


Figure 4: Indicative Vehicle Access Plan

3.3.2 Emergency Vehicle Access

Emergency vehicle access to and from the Site will be available at all times while the Site is occupied by construction workers; emergency protocols during the works will be developed by the Project Manager for inclusion within the final CTMP.

3.3.3 Pedestrian Access

There are currently no pedestrian amenities or footpaths along Mamre Road adjacent to the Site. However, the grassed verge on both sides of the road remains usable for any pedestrian that may wish to walk along Mamre Road.

Further to the above, while there is no expectation of pedestrians crossing the future construction access road (at Mamre Road), pedestrian safety will be managed through the provision of appropriate signage and pedestrian barriers. Construction personnel will also be able to access the Site by foot via a secure access gate along the temporary access road, though with all construction staff (and vehicle) parking to be provided within the Site there is again little potential for such pedestrian demand.

3.4 Construction Vehicle Access Routes

As discussed, all construction vehicles will enter and exit the Site via Mamre Road.

It is anticipated that all heavy vehicles will access Site via the approved RAV routes shown in **Figure 2**, though the following routes are expected to provide for the majority of construction vehicle trips:

- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and left into the Site.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then south along Mamre Road and left into the Site.
- Departure Trips:
  - Route 1: From the Site, left onto Mamre Road then south to Elizabeth Drive and left to the M7 Motorway and sub-regional routes to the east.
  - Route 2: From the Site, left onto Mamre Road then south to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

These routes are shown in **Figure 5**.

A copy of the approved routes will be distributed by the Project Manager to all drivers as part of their induction process.

In the event that an oversized or over-mass vehicles is required to travel to and / or from the Site, a permit from Roads and Maritime Services and / or the National Heavy Vehicle Register (NHVR) will be required prior to arrival to the site. Notwithstanding, this CTMP relates to general construction which does not seek the use of oversize vehicles; a separate application would be submitted if such access is required.

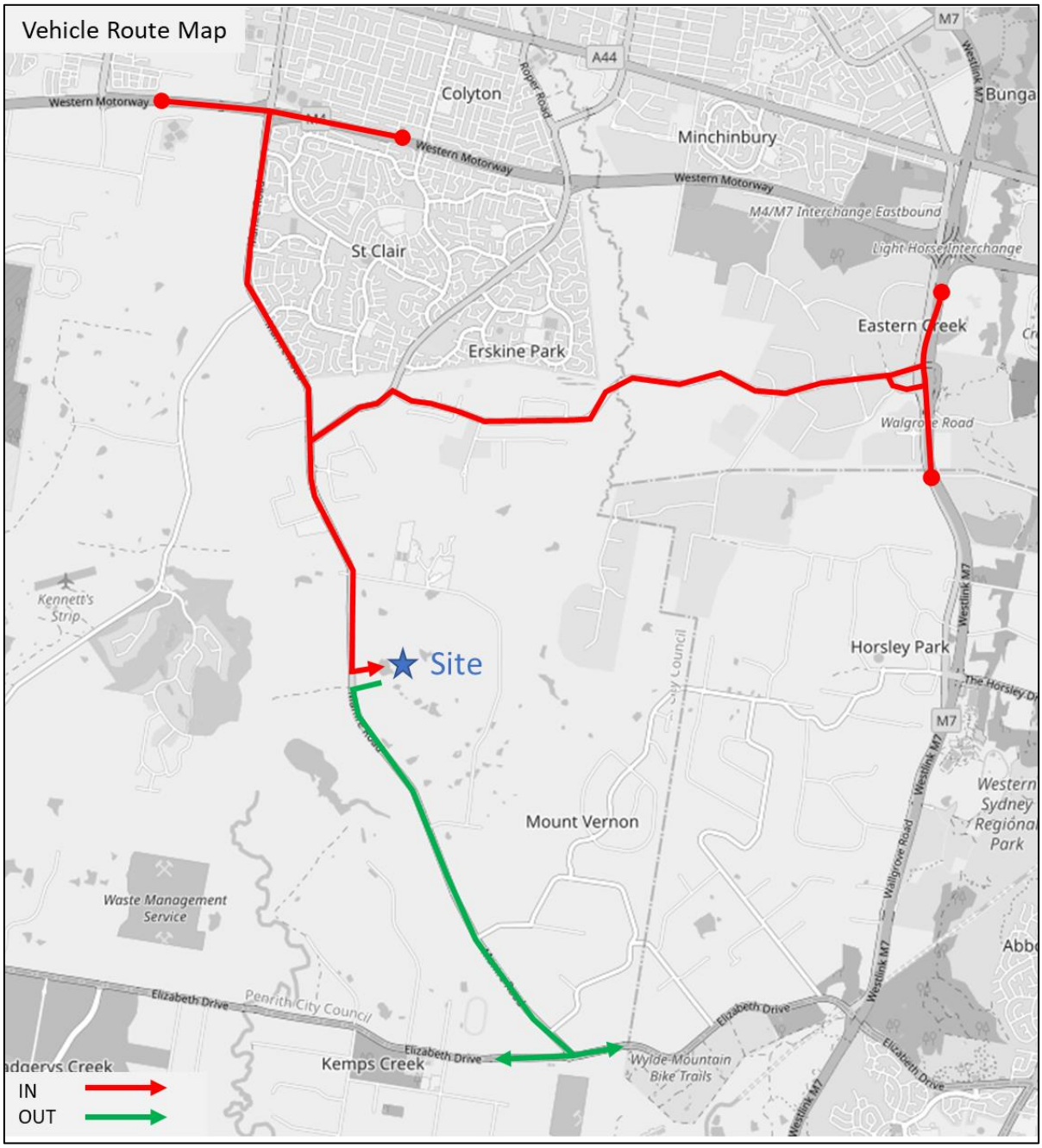


Figure 5: Construction Vehicle Routes

3.5 Fencing Requirements

Security fencing will be erected along the entire boundary of the Site and will be maintained for the duration of the construction works to ensure that unauthorised persons are kept out of the Site. The fencing will either be ATF or 2.4m chain wires.

Site access gates would be provided at the temporary driveway which would remain closed at all times outside of the permitted construction hours.

3.6 Materials Handling

All material loading will be undertaken wholly within the Site, and all construction equipment, materials and waste will similarly be strictly kept within the Site.

While not anticipated, should any materials handling (or other constructed related activity) be required from the public roadway (i.e. Mamre Road) then prior approval shall be sought and obtained from the appropriate authorities.

3.7 Additional Site Management

Although it is not expected, in the event that any Site construction traffic management outside of that described in this CTMP is required, the Project Manager will be required to notify adjacent properties of any temporary traffic restrictions (or the like) at least fourteen (14) days in advance.

3.8 Road Occupancy

The potential exists for future road occupancy requirements to facilitate the construction of the temporary driveway, and then any further upgrades to the intersection of Mamre Road. Road occupancy permits will necessarily be procured prior to starting intersection construction works, while a detailed intersection-specific CTMP would be prepared in consultation with Council and Roads & Maritime to ensure traffic along Mamre Road would continue to operate adequately during any such occupancy period.

3.9 CTMP – Monitoring & Review Process

This CTMP has been prepared referencing the existing Site conditions and information provided by Mirvac. Consultation with Council, Roads and Maritime and neighbouring developments will continue to be undertaken to ensure that the cumulative traffic impacts of construction within the area do not adversely impact the operations of the neighbouring developments or the local road network.

4 Assessment of Traffic & Transport Impacts

4.1 Construction Vehicle Traffic Generation

Table 3 provides a breakdown of potential vehicle movements throughout the proposed works (as provided by Mirvac):

Table 3: Movement Overview

Stage	Demolition	Excavation	General Construction
Worker Numbers (Maximum on-site at any one time)	50 - 100	50 – 200	50 – 400
Truck Frequency (Maximum movements per day)	100 (50 in / 50 out)	600 (300 in / 300 out)	600 (300 in / 300 out)
Peak Hour Heavy Vehicle Movements	50 (25 in / 25 out)	120 (60 in / 60 out)	120 (60 in / 60 out)
Largest Vehicle Size	Truck & Dog	Truck & Dog	Truck & Dog

4.1.1 Light Vehicle Movements

It is anticipated that a peak construction workforce of up to 400 workers on-site at any one time (based on the specific constructions tasks being undertaken). Light vehicle traffic generation would generally be associated with construction staff movements to and from the Site, including Project Managers, trade and general employees.

With respect to the potential impacts of light vehicle traffic, the overwhelming majority of trips would occur in the short workforce arrival and departure periods, being (based on the proposed construction hours) 6:30am – 7:00am and 6:00pm – 6:30pm respectively; as such, these movements would occur outside of the existing (commuter) peak periods in the local network.

4.1.2 Heavy Vehicle Movements

As indicated in **Table 3**, the construction works are estimated to generate a peak demand for up to 600 truck movements per day (300 vehicles arriving / 300 vehicles departing). To provide a conservative assessment of intersection operations, a peak hour truck generation of up to 120 movements (60 vehicles arriving / 60 vehicles departing) has been assigned; on average, it is expected there would be approximately 60 truck movements per hour (30 vehicles arriving / 30 vehicles departing).

For modelling purposes, it is expected that there will be a 50% / 50% arrival and departure profile in the AM peak, and 50% / 50% arrival and departure profile in the PM peak.

4.2 Mamre Road & Site Access Road Geometry

As discussed, all construction vehicles will use the temporary access road to Mamre Road for access to / from the Site, with movements restricted to left in / left out only. This access intersection will design such that arriving vehicles are able to immediate enter the Site so as to remove the potential for queuing back to Mamre Road.

4.3 Mamre Road & Site Access Road Operations

4.3.1 Future Intersection Volumes

For the assessment of the Mamre Road & Site Access Road operations, Mamre Road traffic volumes for a forecast year 2023 have been developed with reference to the Mamre Road Upgrade traffic assessments; these flows represent average annual growth of between 4% and 8% during the peak periods for northbound and southbound through movements.

As discussed previously, a peak of 120 truck trips per hour (60 arrivals and 60 departures) has then been assigned to provide a worst-case assessment. The resulting intersection volumes during the AM and PM peak hours are shown in **Figure 6**.

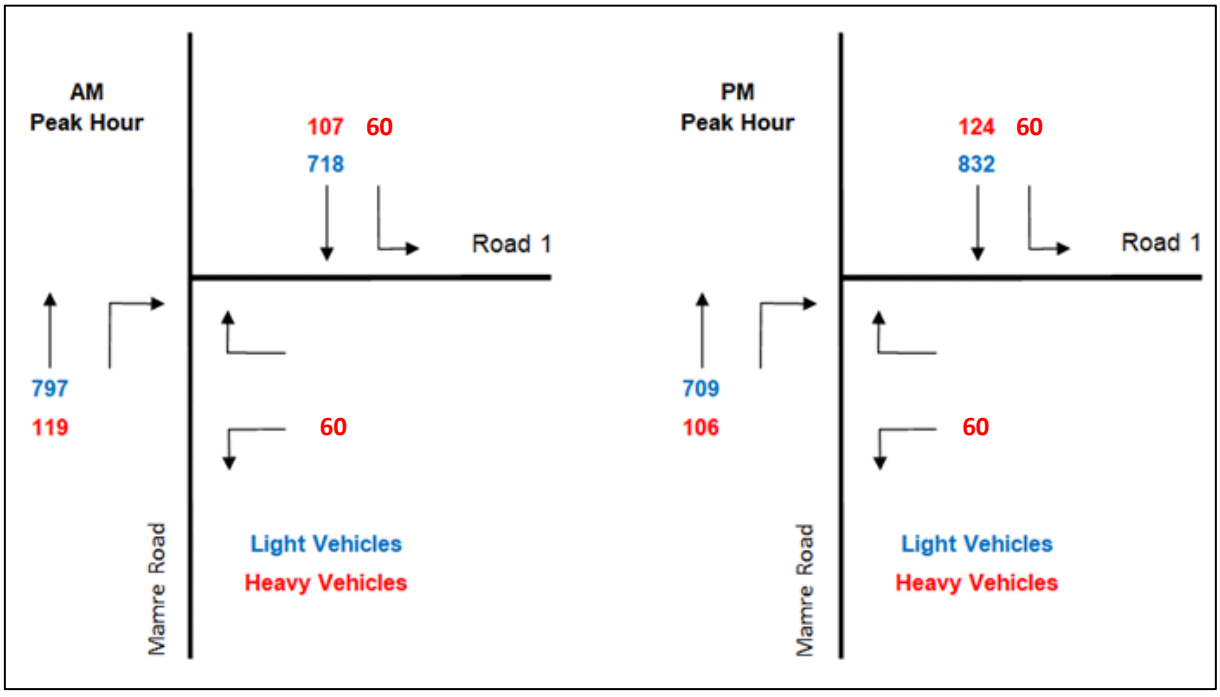


Figure 6: Future Site Intersection Flows

4.3.2 SIDRA Modelling

SIDRA intersection modelling has been undertaken to establish the existing performance of key intersections in the vicinity of the Site so as to provide an appropriate baseline against which the relative impacts of the works can be measured.

In this regard, SIDRA modelling outputs a range of performance measures relevant to this assessment, including:

- *Degree of Saturation (DOS)* – The DOS is used to measure the performance of intersections where a value of 1.0 represents an intersection at theoretical capacity. As the performance of an intersection approaches DOS of 1.0, queue lengths and delays increase rapidly. It is recommended that DOS to be less than 0.9, with satisfactory intersection operation generally achieved with a DOS below 0.8.
- *Average Vehicle Delay (AVD)* – The AVD (or average delay per vehicle in seconds) for intersections also provides a measure of the operational performance and is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.
- *Level of Service (LOS)* – This is a comparative measure that provides an indication of the operating performance, based on AVD.

Table 4 below provides a summary of the RMS LOS criteria.

Table 4: Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

4.3.3 Future Intersection Operation

Further to the above, the results of the SIDRA analysis of future operations are summarised in **Table 5** below.

Table 5: Future Intersection Performance

Intersection	Control Type	Period	Intersection Delay	Level of Service
Mamre Road & Site Access Road	Priority (Left-in & Left-out)	AM	25.0	B
		PM	54.7	D

With reference to **Table 5,** the SIDRA analysis indicates that the peak construction trip generation of the Site can be accommodated at the Mamre Road access intersection. Important, the reported delays primarily relate to vehicles departing the Site, not to Mamre Road [southbound] through movements.

4.4 Future Road Safety

It is noted that there will be an increased number of heavy vehicles along Mamre Road during the construction period. However, the heavy vehicles will be travelling along approved RAV routes which would mitigate road safety impacts along local roads and heavily pedestrianised areas. Traffic control plans at the Site's access will be designed to minimise pedestrian and cyclists impacts along Mamre Road.

4.5 Vehicle Management – Principles

In accordance with TfNSW requirements, all vehicles transporting loose materials would have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the Site.

Further to covering/securing the load to prevent deposits onto the roadway, a Shaker Grid is proposed and installed at the point of vehicle egress to minimise the risk of dirt tracking out onto Mamre Road. The responsibility of the driver to ensure that the Shaker Grid is driven over would be included as part of the Driver Code of conduct; this requirement, and indeed all driver requirements, will be detailed during an induction process for all drivers prior to commencing work at the Site, and will be further detailed in the Driver Code of Conduct, a copy of which included in **Appendix A**.

4.6 Construction Staff Parking

All construction staff and contractors will be required to park wholly within the Site, noting that there will be significant area available (at all times) to meet the peak parking demand.

5 Traffic Control

5.1 Traffic Control

The RMS guide “Traffic Control at Worksites” (TCAW) manual contains standard traffic control plans (TCPs) for a range or work activities. The manual’s objective is to maximise safety by ensuring traffic control at worksites complies with best practice.

The RMS TCAW outlines the requirements for a Vehicle Movement Plan (VMP) for construction works such as proposed; a VMP is a diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream. A VMP should also show travel paths for trucks at key points on routes remote from the work site such as places to turn around, accesses, ramps and side roads.

Regarding construction work on roads with an average daily total (ADT) in excess of 1,500 vehicles, approach speeds of between 60 km/hr and 80 km/hr, with truck movements > 20 veh/shift, and sight distance is less than 2d, (where d equals the posted speed limit and in this instance the sight distance is required to be up to 120 metres), it would be expected for the following to be required by the RMS TCAW:

- A detailed Traffic Control Plan (TCP) with Traffic controllers
- A VMP.
- Warning Signs required during shifts.

With regard to the proposed temporary access road, a site-specific version of TCP 195 (as shown in **Appendix B**) would be implemented for the duration of the works.

5.2 Authorised Traffic Controller

An authorised Traffic Controller(s) is to be present on-site throughout the proposed works. Responsibilities of the Traffic Controller will include:

- The supervision of all construction vehicle movements into and out of site at all times,
- The supervision of all loading and unloading of construction materials during the deliveries in the construction phase of the project, and
- Pedestrian management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur, while maintaining radio communication with construction vehicles at all times.

6 Monitoring and Communication Strategies

6.1 Development of Monitoring Program

The development of a program to monitor the effectiveness of this CTMP shall be established by the Project Manager and should consider scheduled reviews as well as additional reviews should construction characteristics be substantially changed (from those outlined in the Final CTMP). All and any reviews of the CTMP should be documented, with key considerations expected to include:

- Tracking heavy vehicle movements against the estimated heavy vehicle flows during the Stage 1 works.
- The identification of any shortfalls in the CTMP, and the development of revised strategies / action plans to address such issues.
- Ensuring that all TCPs are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" card holders to ensure they remain consistent with the set-up on-site.
- Regular checks to ensure all loads are departing the Site covered as outlined within this CTMP.

6.2 Communications Strategy

A Communications Strategy shall be established by the Project Manager for implementation throughout the construction works; this strategy will outline the most effective communication methods to ensure adequate information within the community and assist the Project Team to ensure the construction works have minimal disruption on the road network. The Communications Strategy will include:

- The erection of appropriate signage providing advanced notice of works and any traffic control measures to be implemented.
- Written notices to surrounding landowners (and tenants) likely to be directly affected by the works, prior to commencement.

Ongoing communication is also required so that all stakeholders are kept up to date of works and potential impacts.

7 Summary

This CTMP has been prepared to ensure appropriate traffic management is undertaken during the proposed industrial development.

Ultimately, this CTMP report has been prepared with regard to the management principles outlined in the RMS Traffic Control at Worksites Manual (2018) and AS1742.3, and per the detailed strategies outlined in the CTMP is recommended for adoption at the Site.

In summary though – and further to a determination that the proposal's construction traffic will not impact the local road network - the following measures are recommended to minimise the potential traffic impacts associated with the proposal:

- Traffic control would be required to manage and regulate construction vehicle traffic movements to and from the Site during construction.
- All vehicles transporting loose materials will have the load covered and/or secured to prevent any items depositing onto the roadway during travel to and from the Site.
- All vehicles are to enter and depart the Site in a forward direction, with reverse movements to occur only within the Site boundary.
- All contractor parking is to be contained wholly within the Site, and.
- Pedestrian and cyclist traffic along the Site frontage will be managed appropriately at all times.

In summary, the CTMP report is proposed in accordance with the RMS TCAW.

Appendix A

Driver Code of Conduct

- Driver Code of Conduct -

Drivers Code of Conduct

Safe Driving Policy for the Lots 54 – 58 Mamre Road, Kemps Creek

Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks and construction on the local and regional road network;
- Minimise conflict with other road users;
- Minimise road traffic noise; and
- Ensure truck drivers use specified routes

Code of Conduct

All vehicle operators accessing the site must:

- Take reasonable care for his or her own personal health and safety.
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons.
- Notify their employer if they are not fit for duty prior to commencing their shift.
- Obey all applicable road rules and laws at all times.
- In the event an emergency vehicle behind your vehicle, pull over and allow the emergency vehicle to pass immediately.
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely restrained, as necessary.
- Drive over cattle grids – located at the Site's access – to vibrate off any loose material attached to construction vehicles.
- Operate their vehicles in a safe and professional manner, with consideration for all other road users.
- Hold a current Australian State or Territory issued driver's licence.
- Notify their employer or operator immediately should the status or conditions of their driver's license change in any way.

- Comply with other applicable workplace policies, including a zero tolerance of driving while under the influence of alcohol and/or illicit drugs.
- Not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device.
- Advise management of any situations in which you know, or think may, present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary.
- Have necessary identification documentation at hand and ready to present to security staff on entry and departure from the site, as necessary, to avoid unnecessary delays to other vehicles.

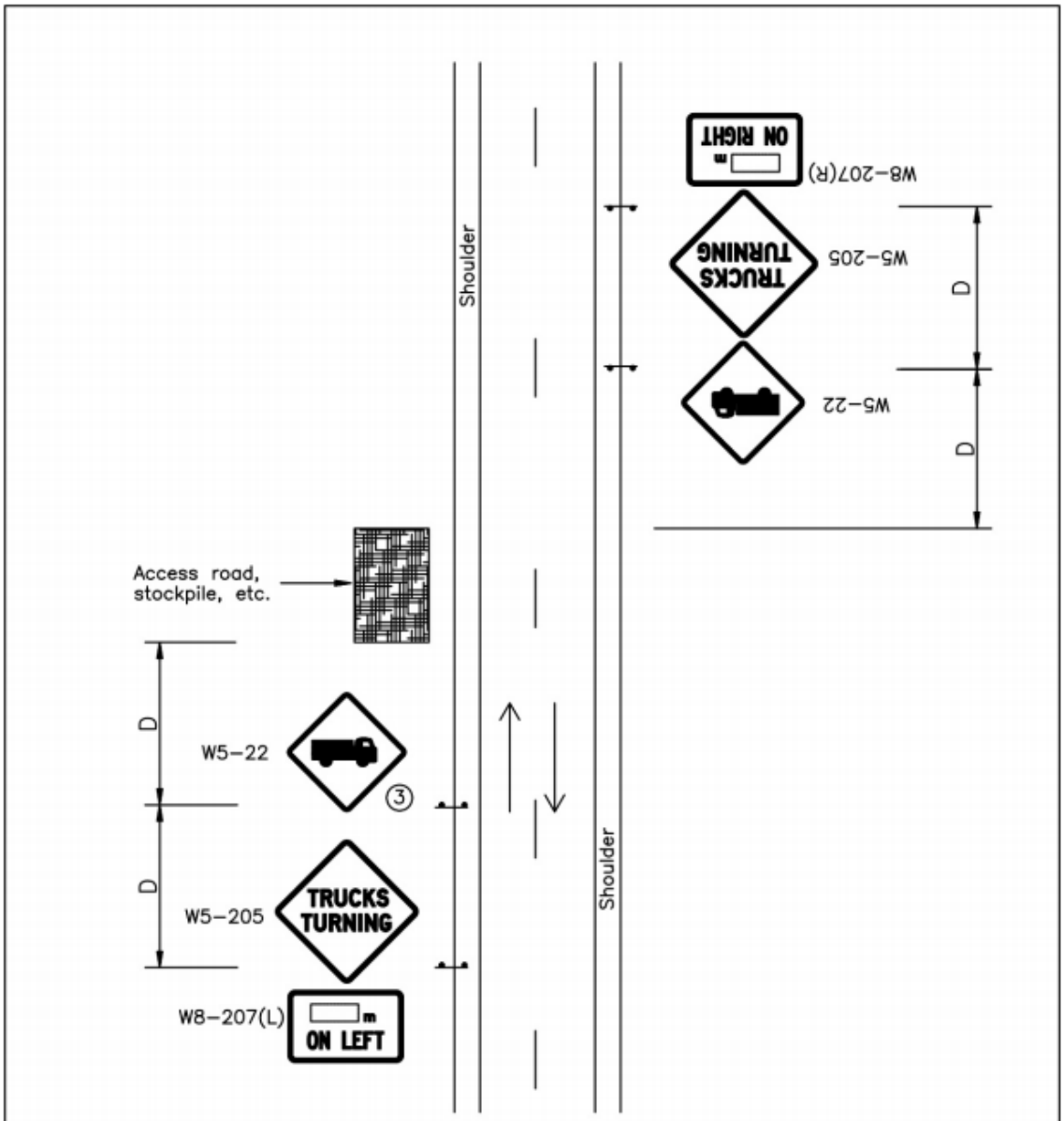
Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers
  - Names and addresses of witnesses
  - Insurers details
- Give the following information to the involved parties:
  - Name, address and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

Appendix B

Traffic Control Plan(s)

TCP 195



NOTE:

① For use where roadside is generally undeveloped, ADT is more than 1,500 vehicles per day, sight distance is restricted and there are more than 20 truck movements per shift.

② See ***Traffic control at work sites,*** Section 7.7, ***Signs for depots, stockpiles, quarries, gravel pits etc.***

③ For short term works use T2–25.

ACCESS TO DEPOT, STOCKPILE, QUARRY, GRAVEL PIT ETC.
ALL ROADS
LONG TERM USE

T000195

Appendix F. Site-Specific Green Travel Plan

Green Travel Plan

Warehouse 6 & 7 – Aspect Industrial Estate

2/04/20242/04/2024
P2455r02

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Project	Warehouse 6 & 7, Aspect Industrial Estate
Client	Mirvac
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Revision History

Revision No.	Date	Details	Author	Approved by
-	13/12/2023	Draft	A. Ji	
I	04/03/2024	Issue	A. Ji	K. Ballurkar
II	02/04/2024	Issue	A. Ji	K. Ballurkar

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APPENDICES

1 Introduction

1.1 Context

Ason Group has been engaged by Mirvac to prepare a site-specific Green Travel Plan (GTP) to support the Development Application for the development at Warehouse 6, Warehouse 7, and an estate café (the Proposal) of the Aspect Industrial Estate (AIE), located on Lots 1, 2 & 5 DP1285305 and Lots 6 & 7 DP1291562, Mamre Road, Kemps Creek (the Site). The Site is located within the Penrith Local Government Area (LGA).

Furthermore, it is important to note that this GTP has been prepared to address the following requirement within the Mamre Road Precinct DCP 2021, Section 3.4.1, Control 1:

- *"Development applications shall be accompanied by a Traffic and Transport Report. The Traffic and Transport Report shall include a Green Travel Plan and Travel Access Guide"*

The Site is located to the east of Mamre Road and lies within the Mamre Road Precinct (MRP). The Department of Planning and Environment (DPE) rezoned the MRP, in June 2020. As such, the Site is primarily zoned IN1 General Industrial.

The MRP Structure Plan was finalised in June 2020, followed by the release and finalisation of the MRP Development Control Plan (Mamre Road DCP) on 19 November 2021.

The land which forms the MRP is largely made up of rural residential properties, as well as small scale agricultural industry businesses, at present. Consequently, the Site itself is therefore not well connected by travel modes other than the private vehicle. However, the Mamre Road DCP outlines a number of objectives to ensure that, as the MRP develops, an integrated public and active transport network also develops to service future development such as the subject Site.

The purpose of this document is therefore to complement the intent the of the DCP, by outlining the overarching requirements for a future Sustainable / Green Travel Plan package for the Site. This GTP will inform the future Plan, expected to be implemented as part of a Condition of Consent relating to any detailed development approval.

1.2 Background

MRP forms one of the initial precincts of the broader Western Sydney Aerotropolis. However, as the land is incorporated into the controls of the State Environmental Planning Policy (Industry and Employment) 2021, it is not covered by the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 or the background policy which establishes the strategic direction for the Aerotropolis.

Nevertheless, the background studies provide some context with regards to travel demand management, specifically the following report:

- AECOM *Western Sydney Aerotropolis Transport Planning and Modelling Stage 2 Report*, October 2020 (AECOM Report).

The AECOM Report is one of the technical reports which supported the delivery of the Aerotropolis Precinct Plan. One of the key "enablers" detailed in the AECOM Report includes *the implementation of transport*

policies and strategies which foster a mode shift to sustainable transport and recommends the inclusion of Travel Plans for new development applications within the future Aerotropolis Development Control Plan.

As detailed in the AECOM report, Travel Plans should include the following:

- Baseline travel data on the existing modal share;
- Targets;
- Action plan to achieve targets;
- Commitment to on-going review of the Travel Plan; and
- A monitoring and review strategy.

Of particular relevance to this GTP are the mode share targets set by the AECOM Report for each of the Aerotropolis precincts with the most comparable precinct to the MRP being the Badgerys Creek and Agribusiness Precincts. Of the 5 Aerotropolis Precincts covered, Badgerys Creek and Agribusiness have the lowest sustainable mode share targets (by 2056) of 20% Active and Public Transport including 18% for Public Transport (the Badgerys Creek Precinct is shown by **Figure 1**).

This reflects the planned land uses, which are anticipated to support warehousing and logistic uses, as noted by the AECOM Report. Notably, the Agribusiness precinct will not be served by rail, but a number of bus services. These targets are long-term, with an intent to be ambitious but achievable based on the policy framework, actions, initiatives, infrastructure and services defined through the precinct planning process. On this basis, the targets of the Badgerys Creek Precinct have informed the targets for this GTP.

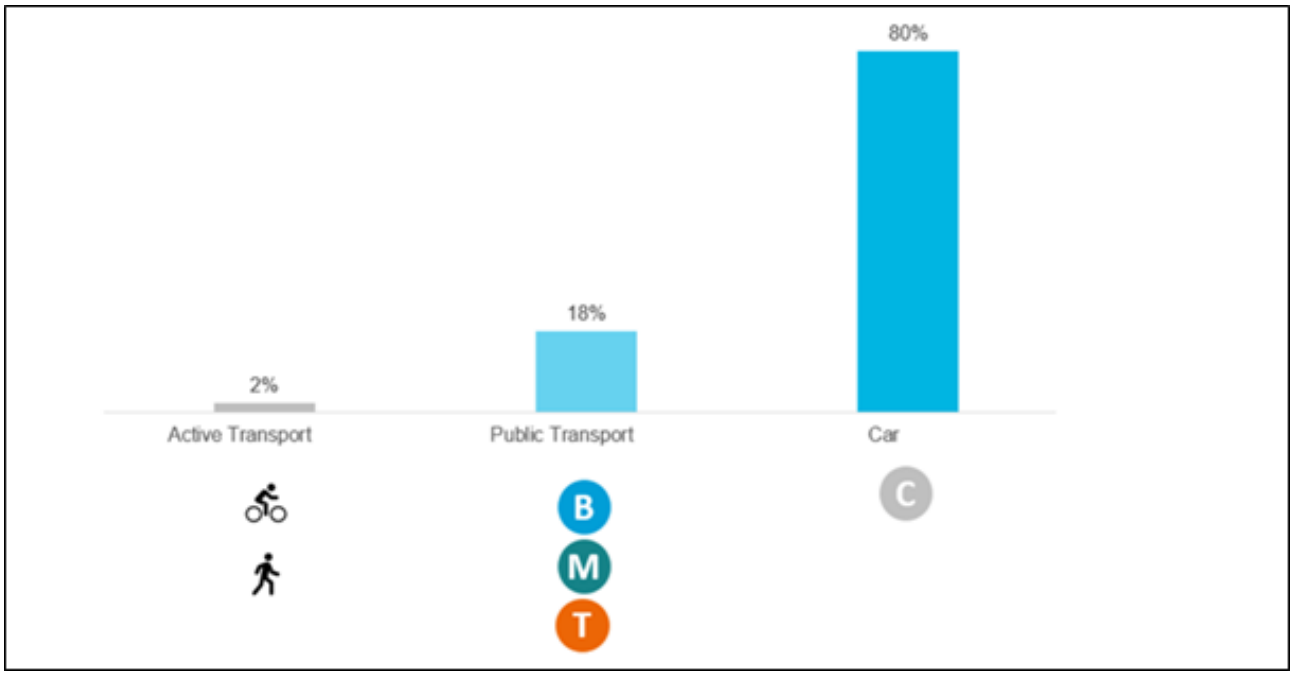


Figure 1: 2056 Badgerys Creek Mode Share Targets (Source: AECOM Report)

1.3 Goals

This GTP has specifically been prepared to achieve the following key goals:

1. Identify objectives and modes share targets (i.e., Site and land use specific, measurable and achievable timeframes for implementation) to define the direction and purpose of the future Plan;
2. Suggest specific tools and actions to help achieve the objectives and mode share targets;
3. Suggest measures to promote and support the implementation of the plan, including financial and human resource requirements, roles and responsibilities for relevant employees involved in the implementation of the future Plan; and
4. Suggest a methodology and monitoring/review program to measure the effectiveness of the objectives and mode share targets of the future GTP, including the frequency of monitoring and the requirement for travel surveys to identify travel behaviours at appropriate times.

1.4 Objectives

Underpinning this GTP comprises a package of measures which could be adopted and designed to address the specific travel needs of the Site. In this regard, the overall intention is to encourage and facilitate the use of alternative and sustainable modes of transport and to reduce single-occupancy car travel for journeys to and from the Site.

The primary objectives of the GTP will be to:

- Reduce the environmental footprint of the Site;
- Set future staff travel mode share targets;
- Improve access, amenity, convenience, and safety of sustainable transport modes to/from the Site;
- Promote the use of 'active transport' modes such as walking and cycling, particularly for short-medium distance journeys;
- Reduce reliance on the use of private vehicles for all journeys; and
- Encourage a healthier, happier and more active & public transport use culture.

2 Site Audit

2.1 Introduction

An audit of the Site is required to determine the existing facilities in the area and review existing transport choices. This section will need to be updated prior to implementation of any site-specific Plan, and at appropriate times, as the MRP develops. The audit should consider the following:

- Site conditions;
- Public transport services in the area, including proximity to the Site, frequency of services and accessibility;
- Bicycle and pedestrian facilities, including accessibility, connectivity and safety; and
- Mode-split data for the Site and local area.

2.2 Development Site

2.2.1 Location & Description

The Proposal is located within Aspect Industrial Estate (AIE), located on Lots 1, 2 & 5 DP1285305 and Lots 6 & 7 DP1291562, Mamre Road, Kemps Creek. The AIE has an area of approximately 56.3 hectares (ha) and approximately 950m of direct frontage to Mamre Road. It has a proposed intersection providing vehicular access via Mamre Road to the M4 Motorway and Great Western Highway to the north and the Elizabeth Drive to the south.

The Site is located approximately 4km north-west of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13km south-east of the Penrith CBD and 40km west of the Sydney CBD. Its sub-regional context is shown in **Figure 2** as well as the broader MR Precinct Structure Plan area in which the Site lies.

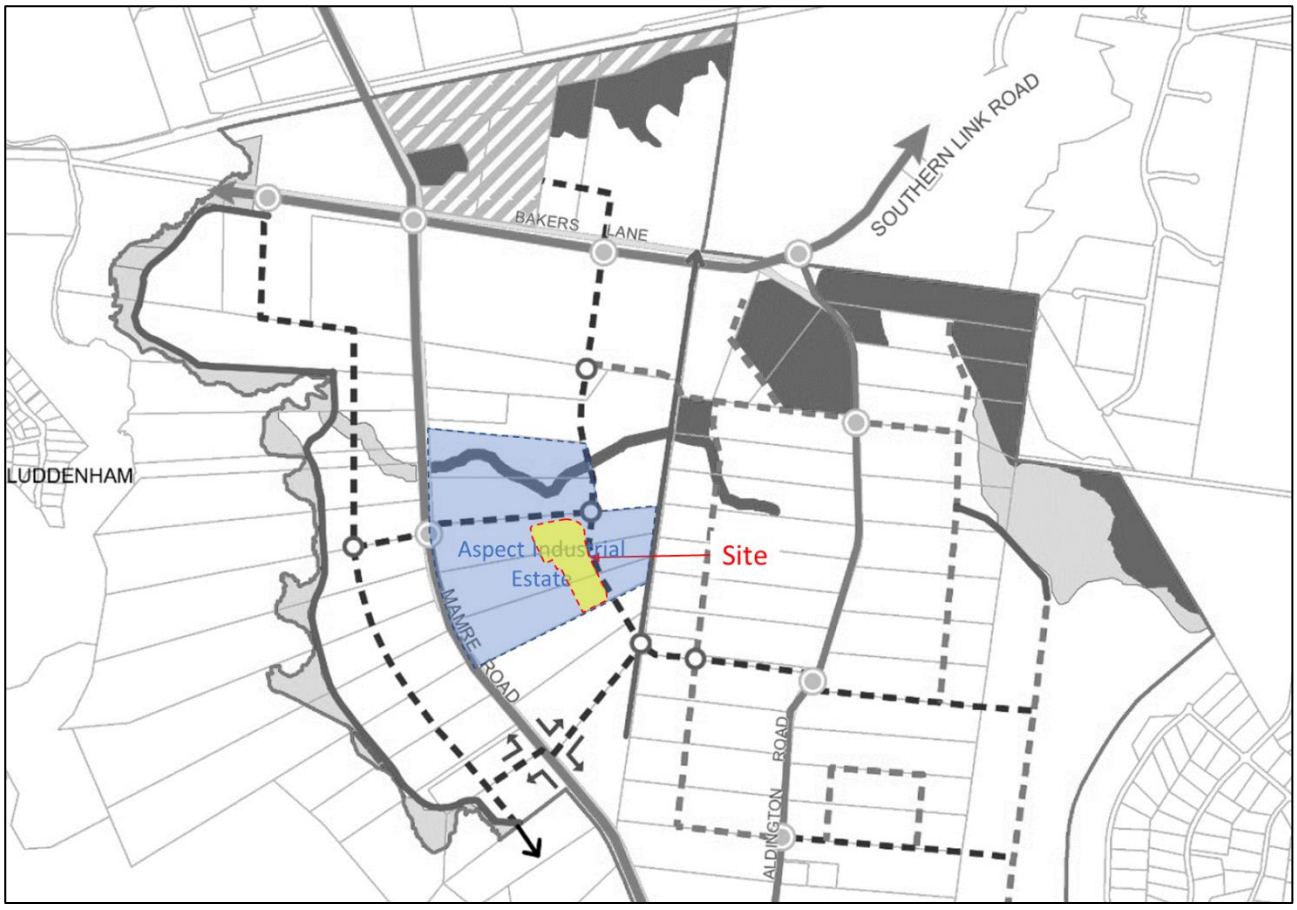


Figure 2: Site Location

2.2.2 Proposed Development

As part of the stage development of AIE, Mirvac is seeking approval for a new DA for the staged development of Warehouse 6, Warehouse 7 and an estate café. The development has been prepared in accordance with the approved concept development as well as the approved Stage 1, site preparation works and pad levels (SSD-10448).

This application seeks approval for detailed design of the Site. A detailed description of each tenancy is provided below.

Warehouse 6 (Lot 6):

- Construction of a single building comprising Warehouse 6A and 6B to a height of 13.7m including:
  - Warehouse 6A: 4,212m^2 of warehouse area and 500m^2 of office space.
  - Warehouse 6B: 4,212m^2 of warehouse area and 500m^2 of office space.
- Construction of two heavy vehicle crossings and two car park crossings to Access Road 3.
- Construction of hardstand area to the north-east of the warehouse for truck manoeuvring.
- On site services and infrastructure.
- Grading and civil works, including a retaining wall.

- Landscaping along site frontages and within car park area.
- Parking for 70 cars across two carparking areas at the north-west and south-east sides of the warehouse building.
- Use of Warehouse 6A and 6B for the purpose of a Warehouse & Distribution Centre use 24 hours a day, 7 days a week.

Warehouse 7 and Café (Lot 7):

- Construction of a single building comprising Warehouse 7 to a height of 13.7m, including:
  - 14,358m^2 of ambient warehouse area, including 2,100m^2 of internal loading area.
  - 750m^2 of office space.
  - 100m^2 of dock office.
- Construction of a 112m^2 Café building at the north-west corner of Lot 7 to a height of 2.8m.
- Construction of one heavy vehicle crossing and one car park crossing to Access Road 3 for access to Warehouse 7. Construction of one car park crossing to Access Road 4 for dedicated access to the proposed café.
- On site services and infrastructure.
- Grading and civil works, including retaining walls.
- Landscaping along site frontages and within car park area.
- Parking for 82 cars across:
  - 62 parking spaces at the carpark area to the north-east of the warehouse building in support of the proposed Warehouse 7 operations.
  - 20 parking spaces at the carpark area to the north-west of the warehouse building in support of the estate café.
- Use of Warehouse 7 for the purposes of a Warehouse & Distribution Centre use 24 hours a day, 7 days a week. Use of Café as a Food and Drink Premises.

A reduced copy of Site plan, prepared by SBA Architects, is presented in **Figure 3** and **Figure 4**.

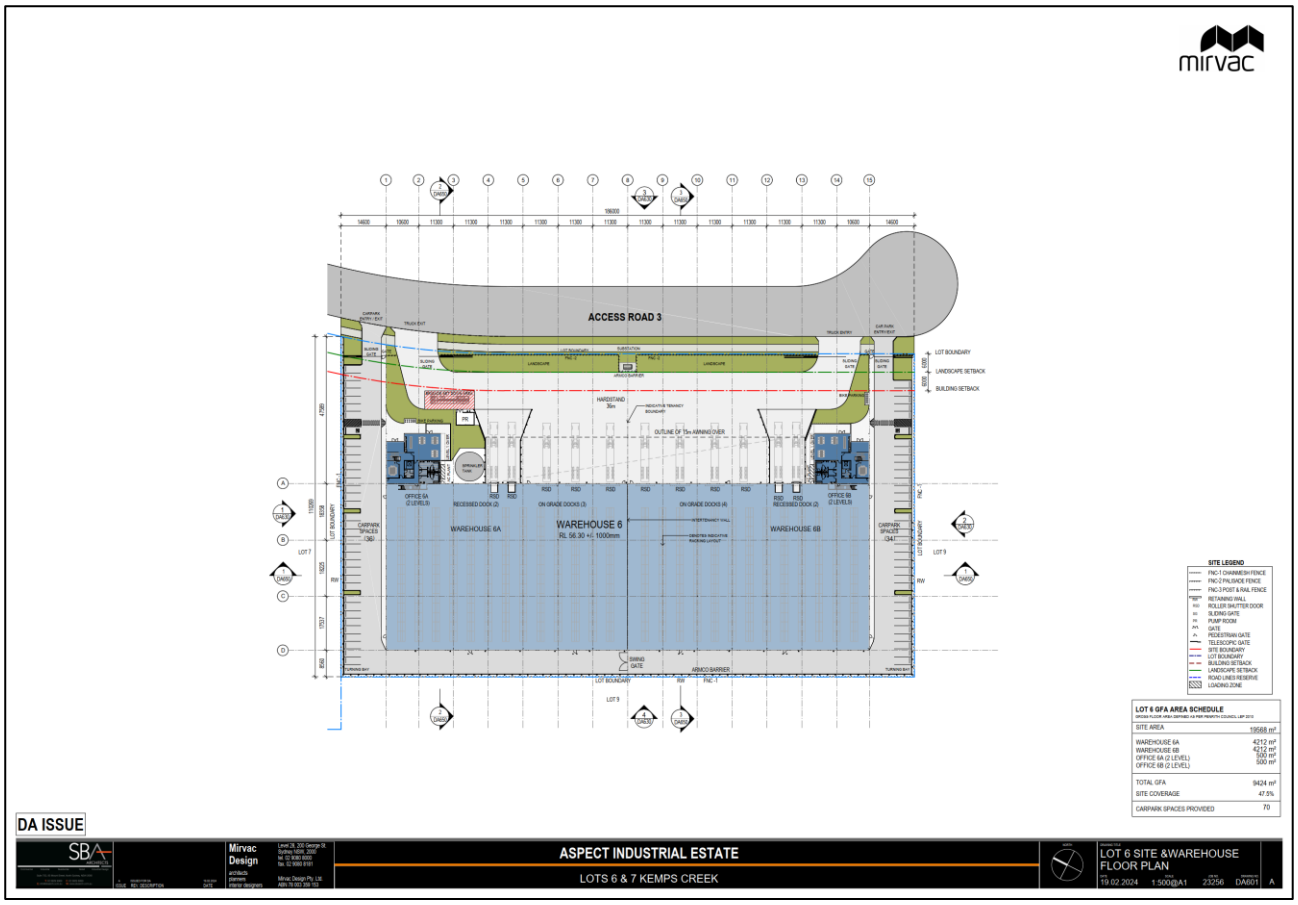


Figure 3: Proposed Warehouse 6 Site Plan

Figure 4: Proposed Warehouse 7 & Estate Cafe Site Plan

2.3 Public & Active Transport Opportunities

2.3.1 Existing Bus Services

The Site is limited with the current public transport service, as shown in **Figure 5**. Notwithstanding, the public and active transport opportunities have been identified in the following sections, noting that there are a number of projects and plans which relate to the strategic development of the MRP and Broader Western Sydney Employment Area (BWSEA).

One of these projects is the Mamre Road Upgrade, which will see Mamre Road upgraded between the M4 Motorway and Kerrs Road (south of the Site and north of Elizabeth Drive). The upgrade specifically provides new bus stops along its entire route, with bus jump lanes at intersections also included in the strategic design.

This section will need to be updated prior to the finalisation of any future Sustainable Travel Plans (STPs) and as part of the review process, when the wider area develops.

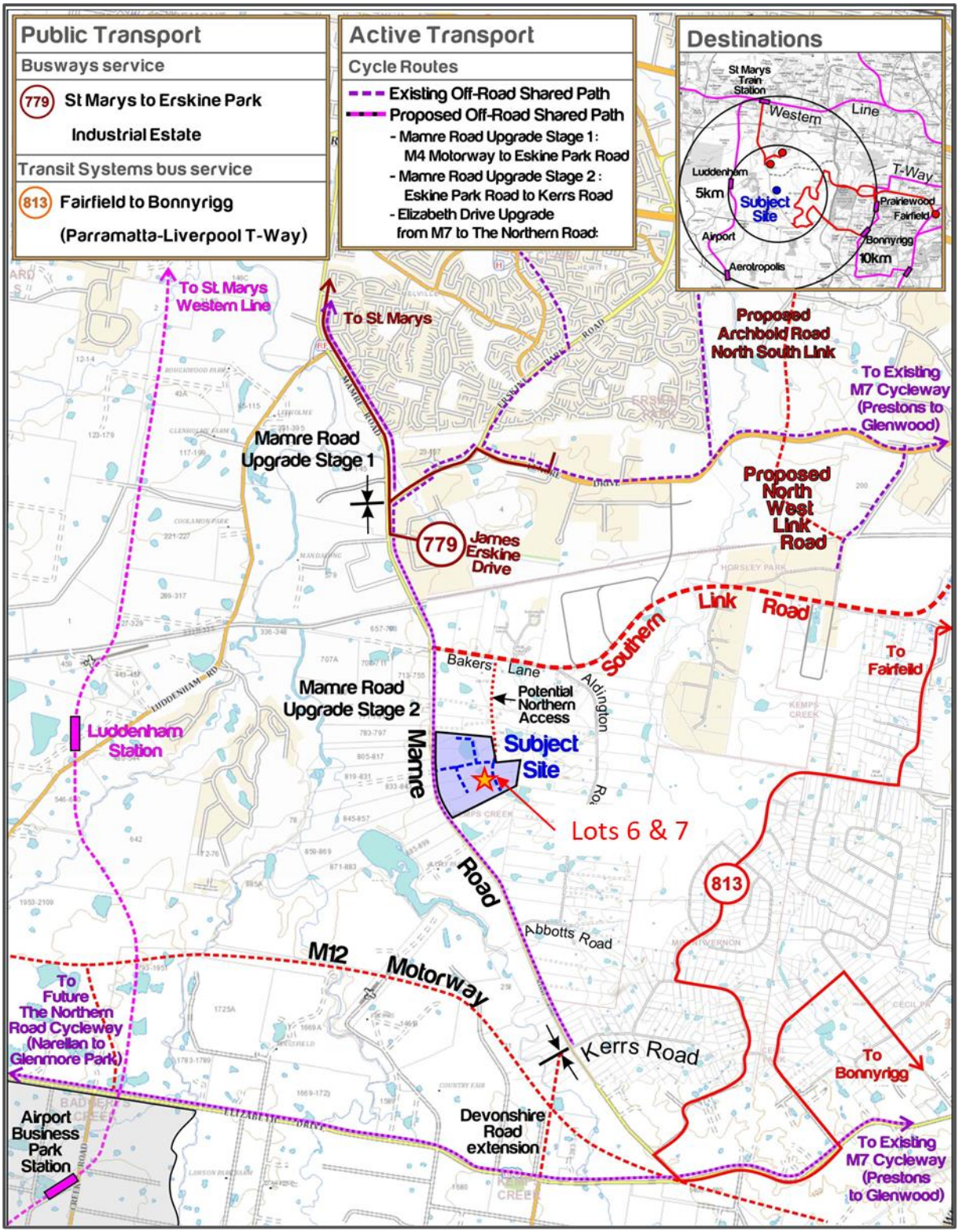


Figure 5: Public & Active Transport Network

2.3.2 Bus Services

The planning of bus services in Sydney is governed by the NSW Service Planning Guidelines, which aim 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 noted that the establishment of public transport services as early as possible in the development stages of the MRP 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 will 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.

While the internal MRP road network has yet to be finalised, it is clear from the intent of the objectives contained within the Mamre Road DCP that a connected bus network will be provided. As per the Mamre Road DCP, as all internal roads will accommodate heavy vehicles, they should also be capable of accommodating bus services (although no allowance has been provided at this time). Therefore, there are significant opportunities to provide sub-regional services along Mamre Road, as well as services within the internal MRP road network to maximise the number of sites that lie within 400m of a viable bus service.

Noting that TfNSW Guidelines state that bus services influence the travel mode choices of sites within 400m (approximately 5 minutes' walk) of a bus stop, access to bus services will be a key factor in influencing travel behaviour.

Key bus routes identified in the BWSEA Structure Plan are shown in **Figure 6**. It is acknowledged that these routes will require updates following finalisation of the MRP and network planning for the Aerotropolis Precincts.

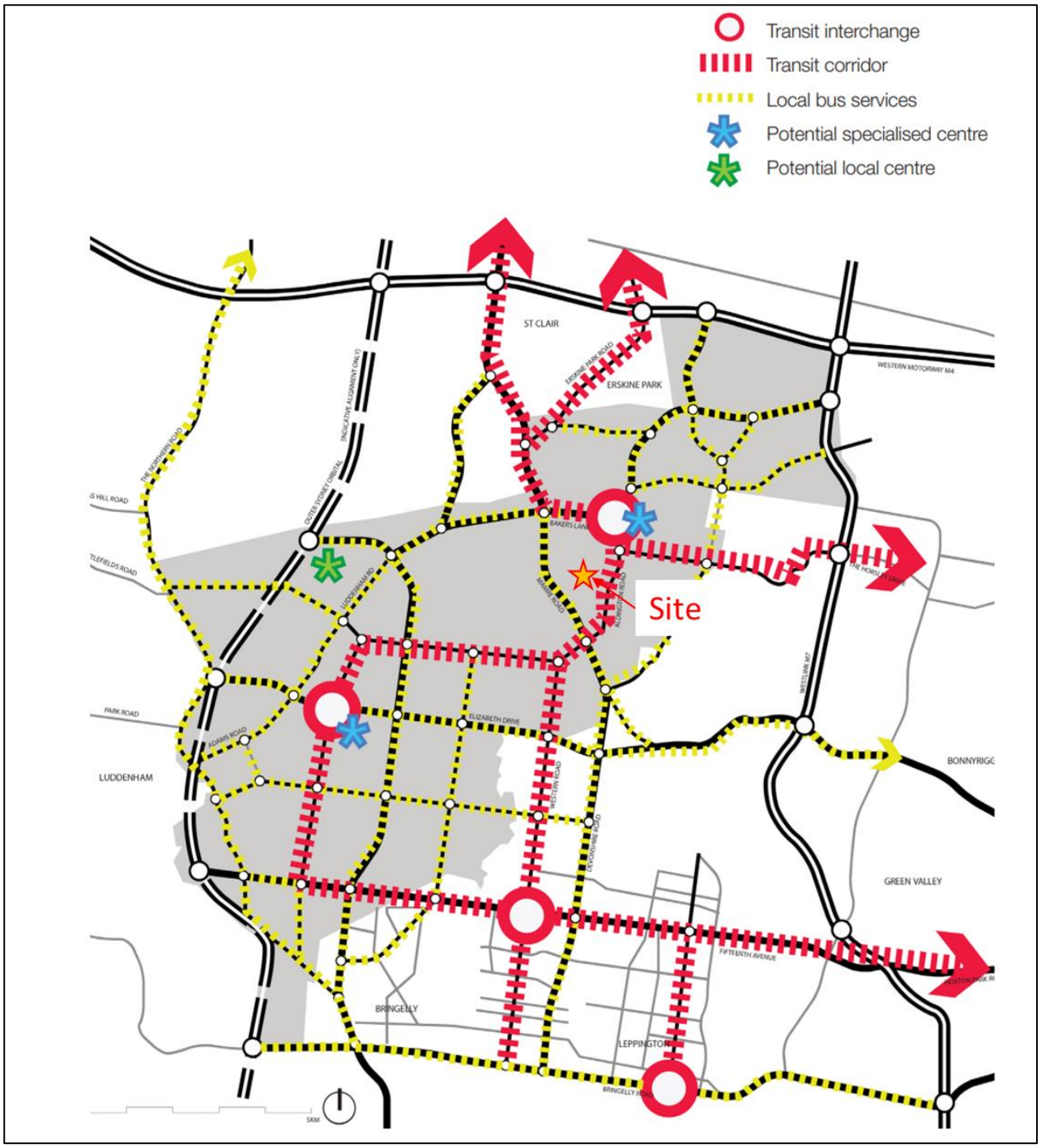


Figure 6: BWSEA Public Transport Structure (Source: BWSEA Structure Plan)

2.3.3 Train Services – Metro Western Sydney Airport

The closest train station to the Site is approximately 10 kilometres away. However, the Metro Western Sydney Airport will provide 23 kilometres of new railway to link residential areas with job hubs and the rest of Sydney's public transport network.

The alignment of the Metro is shown below in **Figure 7**. While the closest station to the Site will likely be Luddenham Station, located approximately 4km (as the crow flies) to the west of the Site, it will undoubtedly

improve public transport accessibility to the wider area along with the future bus services. This provides an opportunity for bus services to combine with the Metro to improve connectivity to/from the residential areas to the Site.

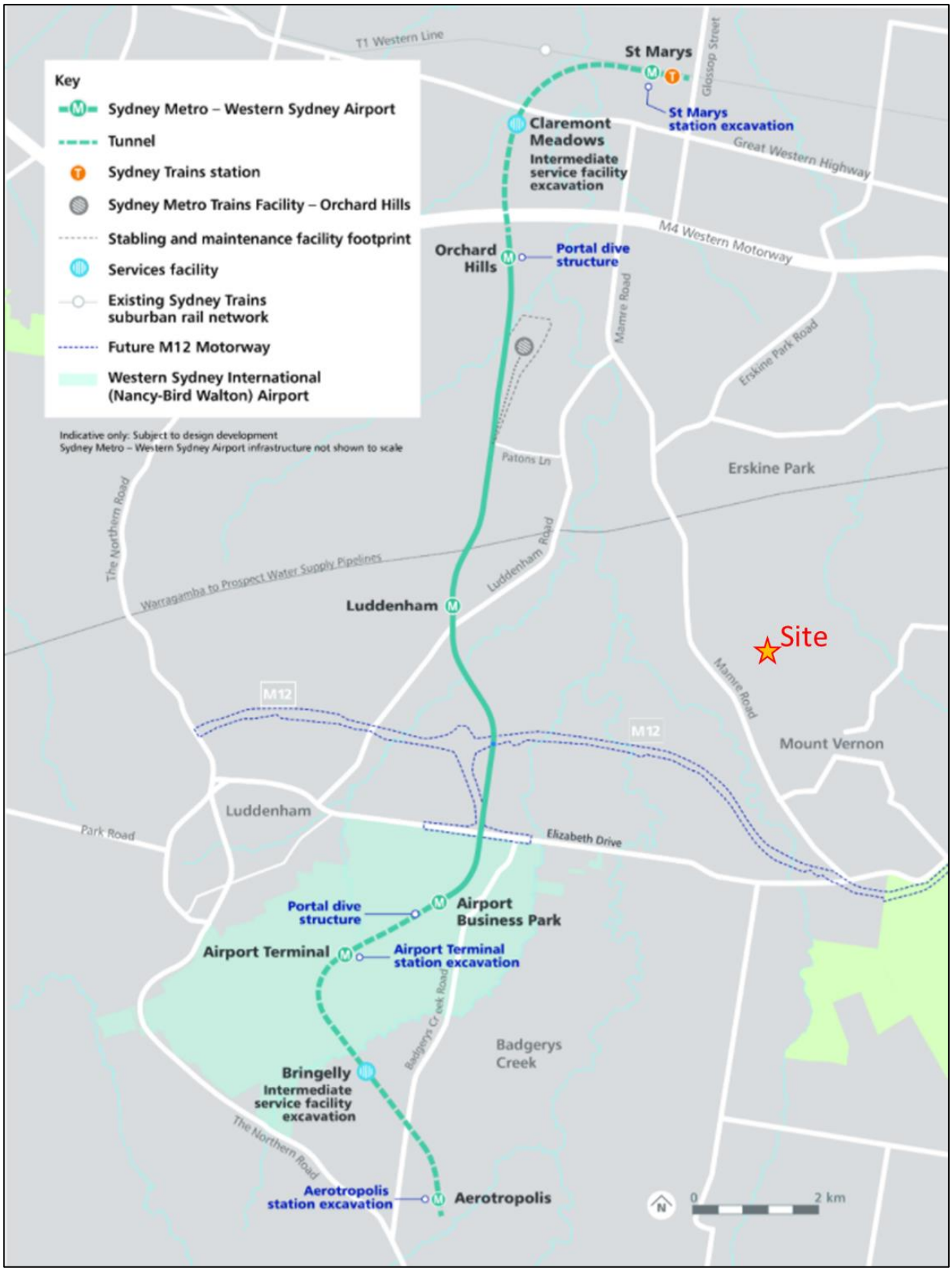


Figure 7: Metro Western Sydney Airport Alignment (Source: Sydney Metro)

2.3.4 Bicycle Network

At present, shared pedestrian and bicycle paths are generally provided along Erskine Park Road and sections of Mamre Road to the north of the Site, but there is little cycling (or pedestrian) infrastructure (at present) around the Site itself.

The BWSEA Structure Plan provides a detailed outline of future active transport objectives and strategies, acknowledging that the provision of such will be essential to encourage the use of active transport from the outset. In this regard, the BWSEA provides the following key objectives:

- ⇨ *Provide quality pedestrian and cycling environments around transit corridors and facilities.*
- ⇨ *Understand the key walking and cycling needs in the region and the need for the separation of pedestrians and cyclists from motor vehicle traffic.*
- ⇨ *Recognise that all trips involve walking at either the beginning or end of the journey, resulting in the need for connections between parking and public transport areas and destinations.*
- ⇨ *Recognise that walking and cycling paths can form key routes between destinations.*
- ⇨ *Understand that walking and cycling trips perform a variety of functions, not only travel from an origin to a destination, but such trips are also undertaken for recreation and/or health benefits, which can be influenced by the amenity of the route.*

Key active transport routes identified in the BWSEA Structure Plan are shown overleaf in **Figure 8**, noting again that the Mamre Road Upgrade project would provide shared paths along at least one side of the road for its entire length, once complete.

Figure 8: BWSEA Cycle Routes (Source: BWSEA Structure Plan)

2.3.5 Pedestrian Connectivity

Due to the current largely undeveloped nature of the land immediately surrounding the Site, pedestrian infrastructure is currently non-existent. Key pedestrian desire lines in the vicinity of the Site would be triggered by connections to future public transport infrastructure, noting the nature of the area is largely industrial and therefore does not have key destinations and attractions for people to walk to.

The Mamre Road DCP provides planning controls for future development in the MRP including building design controls, the road network and parking requirements. The road network outlined within the Mamre Road DCP is shown by **Figure 9**, which provides context to the configuration of MRP roads and confirms a north-south connection through the Site as a collector industrial road.

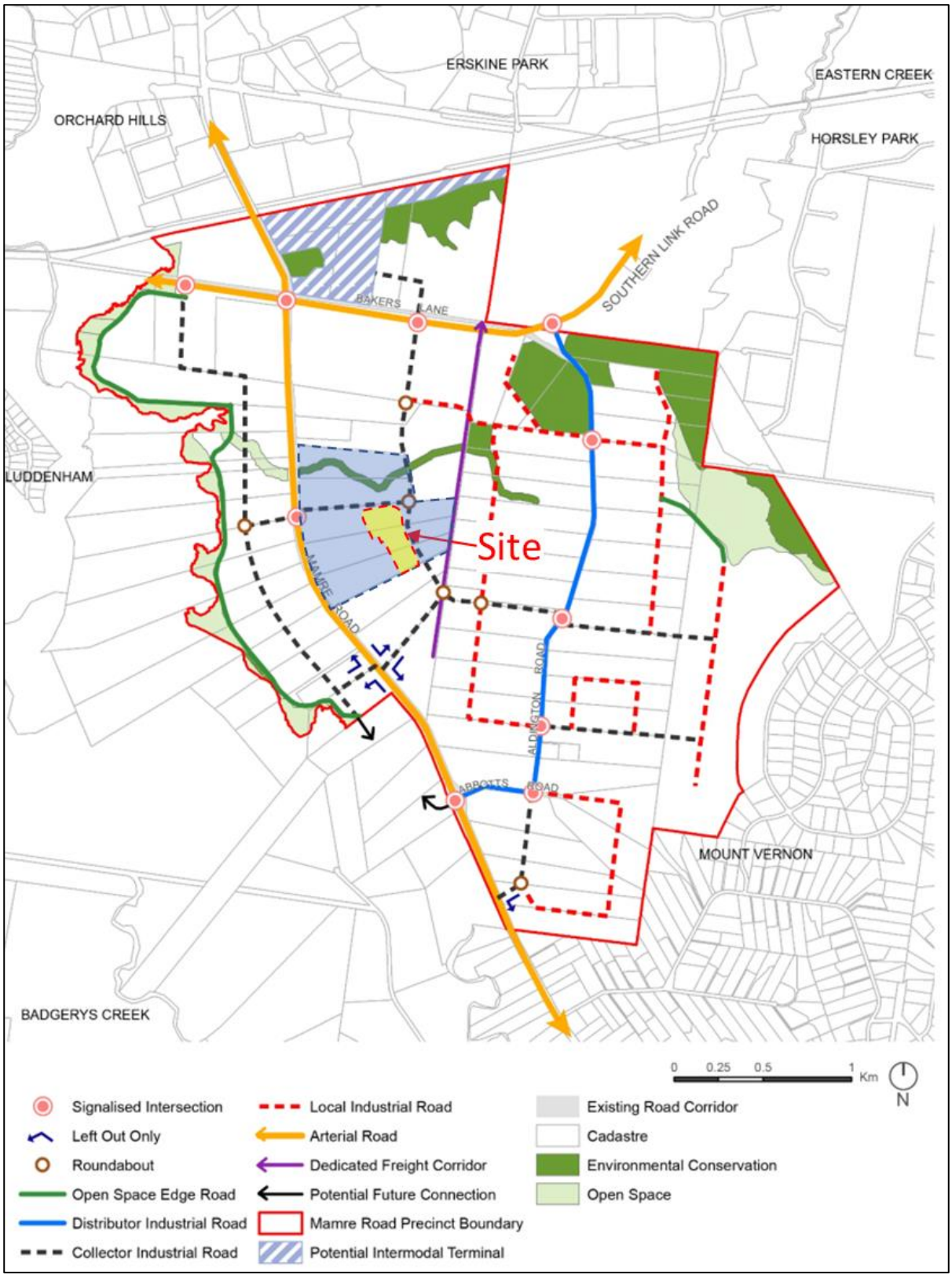


Figure 9: Indicative Road Network and Access Plan (Source: Mamre Road DCP 2021)

The requirements for the Industrial Local Road typology, as per the Mamre Road DCP, is shown within **Figure 10**. As shown, the road is to be provided with shared cycle and pedestrian pathways on both sides.

Furthermore, it is noted that the upgraded Mamre Road will include shared cycle and pedestrian pathways along its length.

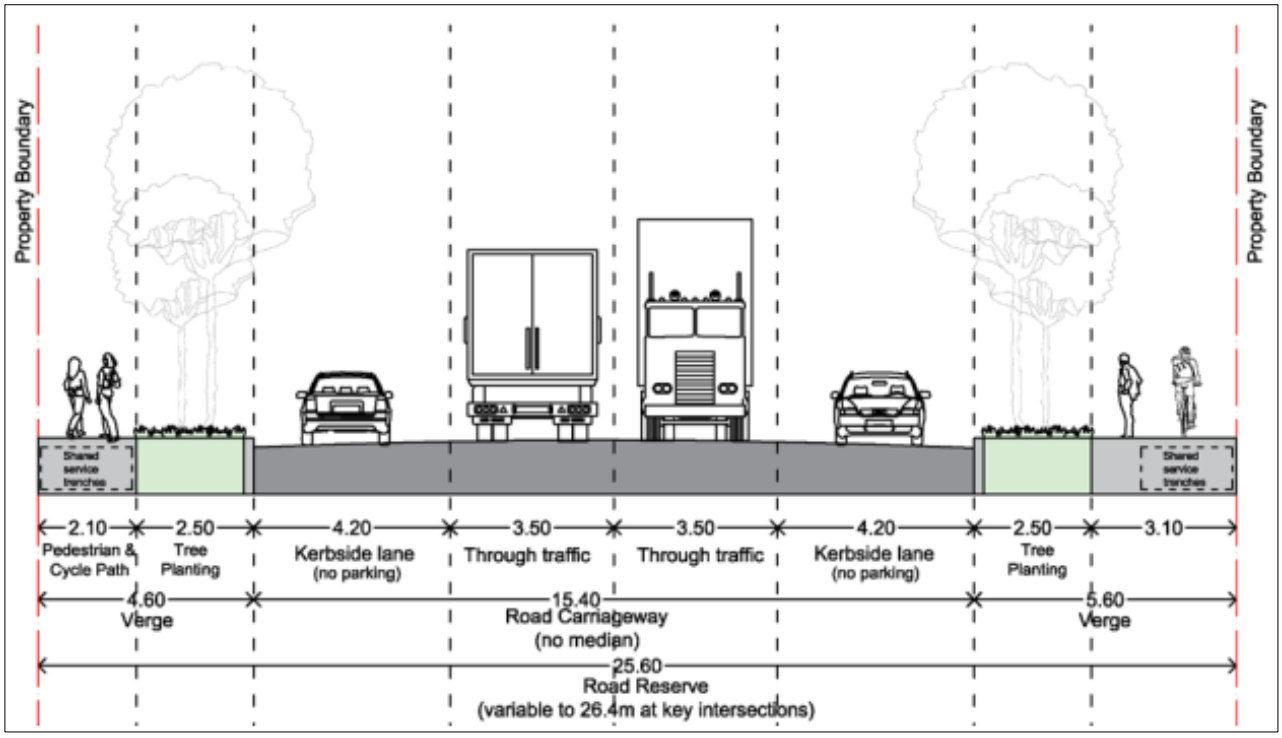


Figure 10: Mamre Road DCP Typical Industrial Local Road (Source: Mamre Road DCP 2021)

2.4 On Demand Services

2.4.1 Car Share

Car sharing has emerged as a cost effective, flexible alternative to private vehicle ownership. Provision of car share in the area could facilitate intermittent work trips that need to be made so that staff can commute by other modes.

As a future industrial area, it is not anticipated that car shares such would be particularly successful, particularly in the early stages of development. Nonetheless, given the benefits to reducing the need for a private vehicle, it will be worth considering its appropriateness as the area develops.

Prior to the commencement of car share providers, it is suggested to consider schemes such as provision of car share priority parking spaces, to actively encourage car sharing amongst staff.

2.5 Existing Travel Patterns

2.5.1 Journey to Work Data Analysis

Journey-to-Work (JTW) data from the Australian Bureau of Statistics (ABS) 2021 Census and specifically aggregated Destination Zones (DZ) have been referenced to understand the baseline travel characteristics of the Site. This data informs the initial targets and should be refined and updated as part of the monitoring process.

A summary of key travel modes for those travelling to the locality for work have been reviewed with regard for the surrounding Destination Zone 115184210, within the Horsley Park – Kemps Creek statistical area. The travel modes are presented in **Figure 11**.

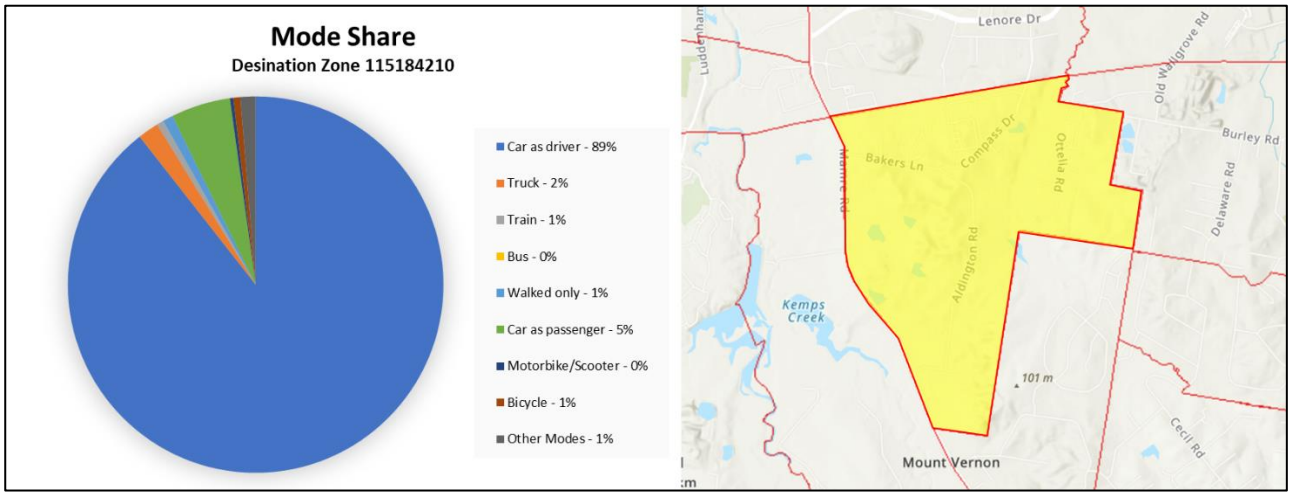


Figure 11: Travel Mode Share

It is evident that the private vehicle (car) is the overwhelming preferred mode of choice for commuters travelling to work in in the area. The data indicates that 94% travel to work by car with 89% as the driver and 5% as passenger i.e. car-pooling.

This is reflective of the current nature of the area, which accommodates rural residential properties and agricultural businesses only. However, noting the future land use of the Site as industrial in nature, it is expected that the JTW data accurately reflects the current trends for travel to places of work at industrial sites.

The TfNSW (formerly Roads and Maritime Services) Guide to Traffic Generating Developments Updated Traffic Surveys, August 2013, provides details in relation to the principal mode of travel used by staff at the Erskine Park and Eastern Creek warehouses surveyed by TfNSW. These surveys indicate that 90% of all workers would travel via private vehicles, with 8% travelling as passengers. Therefore, the existing census data is reflective of existing travel of industrial development.

3 Development, Scope & Implementation of the Plan

3.1 Introduction

This section sets out in broad terms how the GTP will be developed and the scope of the GTP.

3.2 Responsibility

The responsibility for the future Travel Plan will lie with Site management and should form part of organisational policies. Future GTPs should include a statement on company policy in relation to travel and should be endorsed by senior management.

3.3 Future GTP Scope

The future GTP should address the following types of travel generated by the development:

- Commuter journeys by staff;
- Visitor journeys;
- Business travel; and
- Site related deliveries from contractors.

The future GTPs are expected to have the most effect on commuter journeys by staff. While the operator will aim to encourage sustainable travel by visitors, ultimately staff travel is easier to influence.

The aim is to develop practical measures that are effective in reducing car use for all journeys to the Site.

3.4 Implementation

A Travel Plan Coordinator (TPC) should be appointed to act as the primary point of contact for enquiries relating to the progress of the future Plans. It is recommended that a consistent TPC be appointed for the Site so as to achieve a coordinated approach. However, as the individual sites will be responsible for implementing their own GTPs, this will be at the discretion of Site management. The TPC will manage all aspects of the GTP, including the co-ordination and joint working practices between those on-site.

The TPC will promote participation in and commitment to the future GTP from future tenant and will work in partnership with all stakeholders to deliver the strategies and actions.

The TPC should be appointed before the Site becomes occupied, or within 1 month of the Site becoming occupied. Contact details for the TPC should be provided in the implemented Plan.

The main duties of the TPC are envisaged to be:

- Overseeing final development and implementation of the GTP;
- Internal liaison to promote awareness of the GTP amongst businesses and staff;
- Liaison with outside bodies, such as Penrith City Council (Council) and local bus operators, as required regarding the operation of the GTP;
- Providing updated travel information to staff and visitors, as necessary; and
- Monitoring, reviewing and (if necessary) updating the GTP.

3.5 Consultation

It is essential that any parties that may play a part in the future of GTPs have the opportunity to discuss further actions and solutions with one another. This would enable equitable input and feedback as well maximising their overall efficacy. For this reason, a coordinated approach to GTPs should be implemented (subject to individual tenant participation) to assist in the consultation with the relevant parties, which could include the following:

- Council Traffic & Transport Department and Traffic Committee;
- Local Bus Operators; and
- TfNSW.

Other organisations may be added to this list as the Plans evolve.

3.6 Travel Mode Targets

3.6.1 Introduction

Based on the existing travel mode splits identified in **Section 2.5**, the Site and the surrounding areas are considered to have a low dependency on public and active transport. This is reflective of the current nature of the area.

However, noting the future land use of the Site as industrial in nature, it is expected that the JTW data accurately reflects the current trends for travel to places of work at industrial sites. The RMS Guide to Traffic Generating Developments – Updated Traffic Surveys itself provides details in relation to the principal mode of travel used by staff at the Erskine Park and Eastern Creek warehouses surveyed by TfNSW. These surveys indicate that 90% of all workers would travel via private vehicles with 8% travelling as passengers.

This section therefore sets out the targets for the reduction in car journeys associated with the Site, with consideration to the future land use in the area. Targets are the means of measuring the achievement of the objectives. They need to be clear, directly linked to the objectives, monitored and reviewed.

Questionnaire surveys will be conducted in the future that will form the updated travel mode baseline to further develop site-specific targets. The first surveys will be undertaken shortly after occupation. These surveys will be repeated at a suitable time to assess the effectiveness of the implemented GTP; the targets are to be reviewed to align with the most up-to-date information.

The implemented GTPs are to be in place for the lifetime of the development. The initial timeframe in which targets need to be monitored and reviewed will be reviewed every 1-2 years, for a minimum of 5 years.

3.6.2 Mode Share Targets

It is essential that mode share targets be achievable with consideration for the public transport, walking and cycling opportunities available within proximity to the Site. Targets should also be factoring in what future transport options could reasonably be used to access the Site, and also the nature of the development itself.

As per **Section 1.2**, the AECOM Report provides a mode share target for public & active transport of 20% and by car of 80% by 2056 for the nearby Badgerys Creek Precinct. Sites within the MRP should ideally reflect a similar target.

Further, it should be recognised that during the earlier stages in development of the MRP, it would be anticipated that change in travel behaviour will be slower than in other areas, while the public and active transport networks are still being integrated.

The targets should therefore be revisited and updated after the opening of the relevant development as part of the monitoring process. The preliminary targets are nominated in **Table 1**, which represents a 5-year target to coincide with the minimum 5 years of monitoring and review.

TABLE 1: PRELIMINARY 2026 MODE SHARE TARGETS

Travel Mode	Existing Mode Share of Employees	Proposed Targets	Relative Change
Car as driver	89%	86%	-3%
Car as passenger	5%	6%	1%
Truck	2%	2%	0%
Train	1%	1%	0%
Bus	0%	1%	1%
Walked only	1%	1%	0%
Motorbike/Scooter	0%	1%	1%
Bicycle	1%	1%	0%
Other Modes	1%	1%	0%

4 Measures and Action Strategies

4.1 Measures

Below is a range of measures that need to be implemented if the objectives of this GTP are not met. It is critical to note that these are suggested measures and are not necessarily likely to be applicable in the early stages of development in the MRP.

This section needs to be reviewed and confirmed prior to implementation of any future Plan.

- An introduction to the GTP for all staff, setting out its purpose and objectives.
- Provision of public transport travel information for staff, customers and visitors.
- Encouragement of car sharing, both amongst staff on site and in the wider context.
- Provision of car share spaces (future potential measure) and / or provision of a business “pool car” while public car share operators are limited in the area.
- Assisted cycle purchase schemes.
- Interest free loans to assist with cycle purchase, cycle equipment purchase etc.
- A transport section on the company website with links to local bus operator sites, to ensure that travel information is always up to date.
- The provision of transport information for visitors to the Site.

4.2 Strategies

Seven (7) main strategies are identified, and the actions required for each are detailed in **Table 2**. The table details specific actions that could be implemented as part of a future site-specific GTP and the party responsible for implementing each action.

These actions must be reviewed at regular intervals to ensure that the mode split targets are being met. By that principle, this document is classed as a live document and subject to regular review. It is important to note, that the actions should not be taken as mandatory but rather potential options that should be investigated and implemented by all future inhabitants of the development.

TABLE 2: PROPOSED FSTP ACTION STRATEGIES

STRATEGY	HOW IT WORKS	IMPLEMENTATION	RESOURCES / RESPONSIBILITY	TIMELINE	FUNDING
1 Travel Planning and Demand Management					
1.1 Green Travel Plans	• Develop a STP to provide information for Travel Access Guide (TAG). Refer to **Appendix A**. • Management of STPs. • Promotion of STPs.	Provide information resources and implement a range of additional initiatives to reward and encourage those who travel actively to help develop a healthy, active culture and meet travel targets. Continued support of the person/organisation in charge of managing the STP. This would happen with the appointment of a TPC. • Undertake a STP event annually. • Promote the following initiatives via bulletins, web pages, social media: - Travel Survey Results; and - Progress and update of STP. Retain a current copy of the TAG to be relevant, useable, and accessible. TAG should be displayed in communal areas.	Building Manager to be responsible for overall implementation of final STP and providing annual reporting on STP outcomes to Council. Tenant to develop Company specific travel plan based on final STP prior to the commencement of a new lease/sale of property. Company/Staff/Visitors shall be responsible for ongoing implementation of Company assigned actions and participation in annual monitoring and reporting process to Council	Upon completion of the development and ongoing annual STP events	Developer (Mirvac) / Future tenant
1.2 Travel Information Points	• Establish locations such as travel information points where staff and visitors and others can access travel information via interactive platforms. • Promotion of STPs • Provision of travel and transport information options	Establish locations such as travel information points where staff, visitors and others can access travel information via interactive platforms. These can be similar to wayfinding kiosks provided at public transport stations, shopping centres etc. Information could include walking and cycling routes, bicycle parking, public transport availability, routes, real-time timetables and shared vehicles.	Future tenant	Subject to employer preference.	Developer (Mirvac) / Future tenant

STRATEGY	HOW IT WORKS	IMPLEMENTATION	RESOURCES / RESPONSIBILITY	TIMELINE	FUNDING
1.3 Flexible Working Hours	Allow employees the flexibility to commute outside peak periods to reduce overall congestion and travel time.	Manage staff rosters where possible.	Future tenant	Subject to employer preference. Action to be considered by employers / visitors as part of an employer specific STP to be developed and forwarded to Council prior to building occupation.	Future tenant
1.4 Teleworking	Provide the option to work remotely (where possible) to reduce the number of vehicles travelling to the development and encourage teleconferencing rather than travelling to meetings.	Manage staff rosters and develop work-from-home policies and procedures, where possible.	Future tenant	Subject to employer preference. Action to be considered by employers / visitors	Future tenant
2 Promoting Public Transport					
2.1 Opal Card Loan Schemes / Subsidising Schemes for Public Transport Travel through Pre-paid Credit Cards	Company may consider subsidising staff public transport travel. Alternatively, staff can pay for their own Opal Cards / pre-paid travel card through their salary, spreading the cost over the year to make it more affordable.	Subject to owner / User negotiations and incentives.	Future tenant / TPC	Subject to employer. Can be implemented at building occupation	Developer (Mirvac) / Future tenant
2.2 Maximise Bus Service Frequency	Meet or exceed Transport NSW bus planning guidelines.	Decrease headway where possible, especially during peak periods. Report back to Transport for NSW on perception of bus service adequacy	TfNSW	Developer to hold on-going discussions with TfNSW after each annual review of STP and report on relevant findings	TfNSW
2.3 Provide Bus Stops with Shelter Facilities	Ensuring provision of bus stops suitable for waiting areas for commuters, the majority of which would likely be workers associated with the development.	Propose or recommend improvements to the proposed / implemented bus stops along Mamre Road to TfNSW.	TfNSW	Subject to discretion of TfNSW. Advisable to be prior to the opening of the development	TfNSW
2.4 Public Transport for Work Travel	The company and the TPC can promote public transport as one of the main preferences for work travel. This should be supported by all users	Subject to owner / User negotiations and incentives.	TPC	Subject to employer. Can be implemented at building occupation	Developer (Mirvac) / Future tenant

STRATEGY	HOW IT WORKS	IMPLEMENTATION	RESOURCES / RESPONSIBILITY	TIMELINE	FUNDING
	and visitors to development having access to Opal Cards.				
2.5 Lobby for Precinct Wide Shuttle Service	Shuttle service initiative that would transport staff to / from the MRP to the Railway Station.	Provision of bus shuttle service running between the development and either nearby homes or proposed Luddenham Station. Tenant / Business Owner on the Site would arrange for a bus shuttle service that would travel between the development / Site and the homes / Station at a dedicated time / interval. Persons signing onto the program or service would be accountable for turning up at the appropriate times so as to not delay the service. This should be promoted as part of the STP and on communal locations such as main website or notice boards.	TPC to lobby Estate Manager / Owner	Ongoing in the workplace. Updates can be made to organisation as appropriate	Estate Owner / Manager
3 Promoting Carpooling					
3.1 Open Car Sharing	Where anyone in a defined geographical area can join a ride sharing scheme. This involves no input from the employer and should be on the onus of staff to schedule.	This can usually be accomplished by having notice boards in business premises which are a good place for employees to find colleagues looking to share journeys. Utilise car share spaces provided and actively promote on site to staff and visitors.	Staff / Future tenant	Ongoing in the workplace	Fuel costs can be arranged and split equitably by those involved
3.2 Closed Car Sharing	The company / department sets up an in-house car-matching scheme	The company / department sets up an in-house car-matching scheme and gets staff to participate. A points system can be setup to encourage friendly competition between staff and overall reduce carbon footprint from single car usage. Utilise car share spaces provided and actively promote on Site to staff and visitors. Reward regular car sharers by	Future tenant, TPC	Ongoing in the workplace. Updates can be made to organisation as appropriate	Future tenant

STRATEGY	HOW IT WORKS	IMPLEMENTATION	RESOURCES / RESPONSIBILITY	TIMELINE	FUNDING
		providing gifts such as free car washes.			
3.3 Third-party Car Sharing Program	Companies such as Liftshare are an online service that facilitates journey sharing between individual users, as well as providing separate services for businesses, organisations and events.	They allow users to search for and post details online of journeys; by car, bike, taxi or walking, for which they wish to find someone else with which to share the journey with. Users can search for people who have entered similar journeys and contact them, wait to be contacted by someone searching for a journey of their own.	Staff – encouraged by TPC	Ongoing in the workplace	Staff
3.4 Carpool Week	Arrange for a dedicated carpool campaign week to promote the benefits of carpooling.	One week of the year where a carpool theme is emphasised around the workplace including promotion such as a launch event. Intention is to show that carpooling is a real alternative to travel to work. Provide prize incentive as part of competition to promote raise awareness.	Future tenant	One week per calendar year	Future tenant
4 Promoting Cycling					
4.1 Create a Bicycle Users Group (BUG)	BUGs are local groups of like-minded bike riders who get together generally for social riding in their area. For the purposes of the workplace, this can be adapted as a way of creating as social and healthy aspect of travelling to work. As a minimum, the establishment of the BUGs should be promoted as Precinct wide initiative.	The BUGs can set up amongst employees and arranged with the help of TPC. An online group such as an email thread, Teams Chat group would be the main channel where participants can communicate and organise rides, suggest areas for improvement. A designated leader would be appointed and ideally affiliated with Bicycle NSW who would manage queries and support in enabling a comfortable riding experience for all wishing to partake.	Future tenant, TPC	Ongoing in the workplace	Future tenant

STRATEGY	HOW IT WORKS	IMPLEMENTATION	RESOURCES / RESPONSIBILITY	TIMELINE	FUNDING
		BUG would be made aware of the recent upgrades to cycling infrastructure in the area.			
4.2 Providing & Maintaining End of Trip Facilities	Providing facilities such as showers, change rooms, lockers. For the initial stages of development, it is recommended to provide facilities compliant with the relevant controls, and as the Site develops further, they should be reviewed as part of the STP monitoring process to meet any increase in demand.	Bicycle parking spaces will be provided for residents and staff. Access to other facilities such as showers will also be made. Developer to provide bicycle parking spaces in the parking area together with male and female lockers, male and female showers and an accessible shower as per Building Plans. Accordingly, the following bicycle rates should be considered under the Mamre Road DCP: • Office Bicycle Parking requirement: 1 space per 600m^2 GFA (over 1,200m^2 GFA); and • Warehouse Bicycle Parking requirement: 1 space per 1,000m^2 GFA (over 2,000m^2 GFA).	Developer / Estate &/or Future tenant	To be provided at completion of development	Developer / Estate &/or Future tenant
4.3 Promote Bicycle Initiatives	Promotion of bicycle initiatives – NSW bicycle week, Ride to Work etc.	Promote and encourage cycling in the precinct and should actively participate in recognised NSW government bicycle initiatives such as bicycle week and cycle to workday.	TPC	To be promoted annually	Developer / Estate &/or Future tenant
4.4 Advertise Bicycle Routes	Promotion of bike lanes through the TAG.	Prepare Site specific maps with guidance on the most optimal way of travelling to/from the Site by bicycle	TPC	To be promoted and provided at communal areas such as key information kiosks within facility	Future tenant
5 Promoting Walking					

STRATEGY	HOW IT WORKS	IMPLEMENTATION	RESOURCES / RESPONSIBILITY	TIMELINE	FUNDING
5.1 Providing End of Journey Facilities	Provision of sufficient end of trip facilities such as showers, change rooms, lockers etc to maximise pedestrian activity throughout the Site and the wider precinct.	Provide pedestrian facilities and amenities in close proximity in the Site and at the bus stops. Developers to provide male and female lockers, male and female showers and an accessible shower as per Building Plans.	Developer	To be provided at completion of development	Developer / Estate &/or Future tenant
5.2 Walking Routes	Incentivise travelling by foot by highlighting possible routes particularly those to nearest bus stops	Prepare Site specific maps highlighting pedestrian desire lines and optimal routes to provide guidance to pedestrians to key public transport and car sharing locations.	Future tenant, TPC	To be promoted and provided at communal areas such as key information kiosks within facility	Developer / Estate &/or Future tenant
5.3 Promote Walking Initiatives	Promotion of walking initiatives: walk to game / training day, pedometers / step challenge / gamification of walking / reward programs based on steps to elevate pedestrian activity throughout the Site and to / from public transport points.	Promote and encourage walking in the Site and should actively participate in recognised NSW government initiatives such as walk to workday and pedometer / step challenges. Friendly challenge competitions can be organised to incentivise and encourage increased walking activity amongst users and visitors to the facilities.	Future tenant, TPC	To be implemented monthly or as appropriate throughout the calendar year.	Developer / Estate &/or Future tenant
6 Restraining Parking					
6.1 Limited Parking Allocation On Site	Over-provision of parking spaces will inherently encourage travel by car. By restricting parking supply, you can discourage non-essential car use.	Consideration to reducing the number of car parking spaces either in actual terms or managing access via permit parking, paid parking or needs based parking policies, is one of the most direct and effective ways of reducing car use.	Lot Management	To be consider during the operation of the development; as public and active transport connections improve, Lot management can consider restricting parking availability.	Developer / Estate &/or Future tenant
7 Influencing Travel Behaviour					

STRATEGY	HOW IT WORKS	IMPLEMENTATION	RESOURCES / RESPONSIBILITY	TIMELINE	FUNDING
7.1 Provision of Sustainable Travel Packs to Employees and Visitors	Introduces employees and visitors alike to the STP and provides information on walking and cycling routes, and travel by bus & train, timetables, and access routes. This would include a TAG.	To be distributed to staff, visitors, and neighbouring properties. Contact details as to who is responsible for the STP will also be provided. This would include a TAG.	Future tenant, TPC	Travel Packs to be provided upon occupancy of building to employees.	Developer / Estate &/or Future tenant

4.3 Communications Strategy

4.3.1 Welcome Packs

New staff shall be provided with a 'welcome pack' as part of the on-site induction process which includes a GTP Pamphlet and other information in relation to sustainable transport choices. This pack shall include a copy of the GTP and a Travel Access guide (TAG) as provided in **Appendix A**. Furthermore, general information regarding the health and social benefits of active transport and advice on where to seek further information shall also be provided. It is recommended that an electric copy of the welcome pack be created and made available to staff.

4.3.2 Accurate Transport Information

In addition to these 'welcome packs', a copy of the TAG (as shown in **Appendix A**) shall be clearly displayed in communal areas of the Site including (but not limited to):

- The staff lunch room;
- Lift lobby area and entrances to buildings; and
- Any marketing material associated with the Site, such as websites and newsletters.

5 Monitoring Strategy

5.1 Plan Maintenance

This Plan shall be subject to ongoing reviews and will be updated accordingly. Regular reviews will be undertaken by the TPC. As a minimum, a review of the GTP would occur every 1-2 years.

The key considerations when reviewing or monitoring the GTP are as follows:

Update baseline conditions to reflect any changes to the transport environment in the vicinity of the Site such as changes to bus services, new cycle routes, etc. Furthermore, it is also important to:

- Track progress against target travel mode targets;
- Identify any shortfalls and develop an updated action plan to address issues; and
- Ensure travel modes targets are updated (if necessary) to ensure they are realistic and remain ambitious.

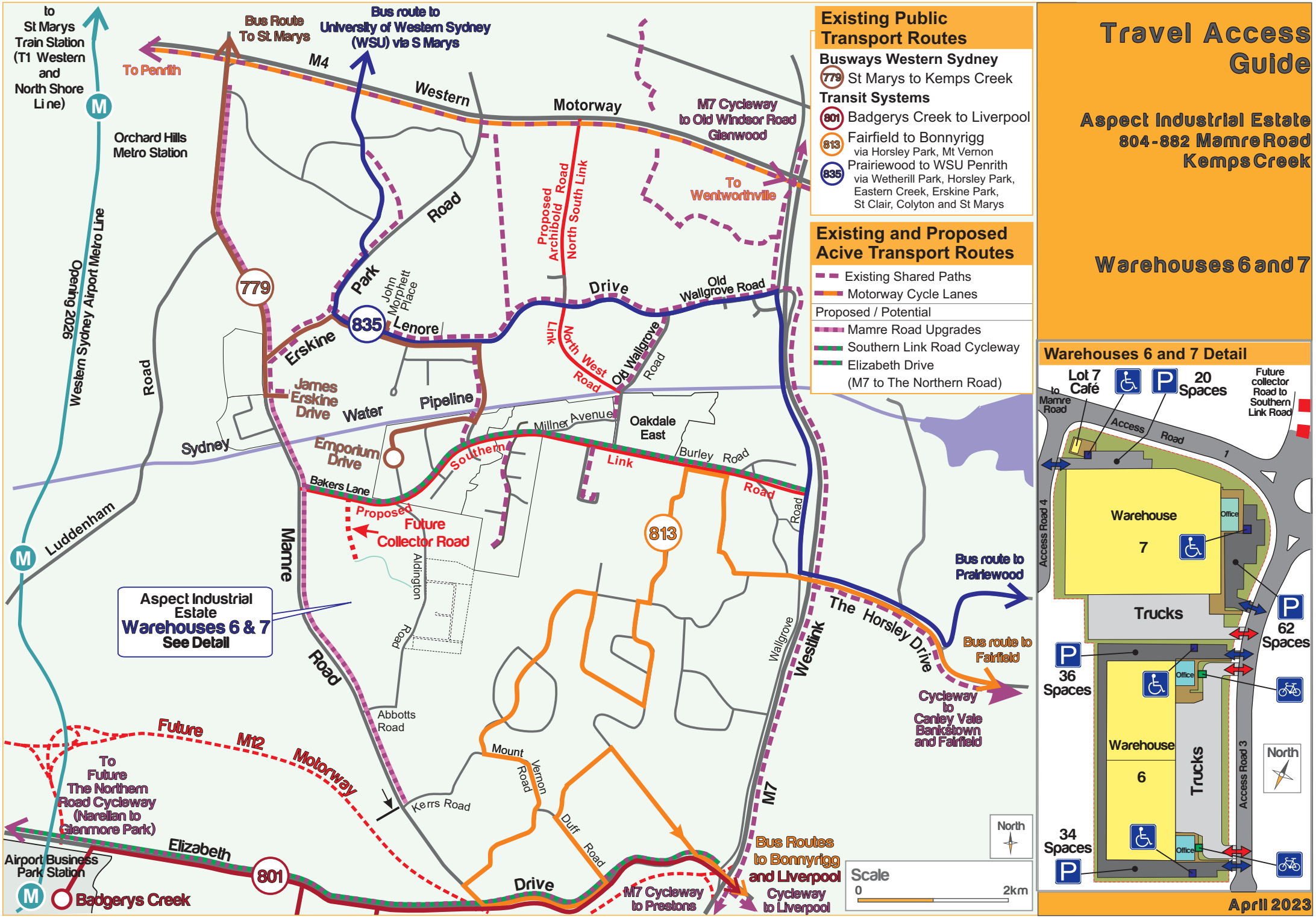
5.2 Monitoring

To record the overall success, as well as the effectiveness of the individual measures, monitoring and reviewing the GTP is to be conducted at regular intervals. The TPC will act as the primary point of contact for all enquiries relating to the GTP's progress.

The GTP will be monitored around every 1-2 years, with the first survey being carried out shortly after the first occupation of the Site. Travel mode surveys would determine the proportion of persons travelling to/from the Site by each transport mode. This will be in the form of annual travel mode questionnaire surveys to be completed by all persons attending the Site, as far as practicable. A sample of a typical travel mode questionnaire form is included in **Appendix B**.

If targets are not met at the end of the initial period of monitoring, the GTP will be reviewed, new measures introduced and would be reassessed at the next monitoring stage.

Appendix A. Travel Access Guide



Existing Public Transport Routes

Busways Western Sydney

- 779 St Marys to Kemps Creek

Transit Systems

- 801 Badgerys Creek to Liverpool
- 813 Fairfield to Bonnyrigg via Horsley Park, Mt Vernon
- 835 Prairiewood to WSU Penrith via Wetherill Park, Horsley Park, Eastern Creek, Erskine Park, St Clair, Colyton and St Marys

Existing and Proposed Acive Transport Routes

- Existing Shared Paths
- Motorway Cycle Lanes

Proposed / Potential

- Mamre Road Upgrades
- Southern Link Road Cycleway
- Elizabeth Drive (M7 to The Northern Road)

Travel Access Guide

Aspect Industrial Estate
804-882 Mamre Road Kemps Creek

Warehouses 6 and 7

Warehouses 6 and 7 Detail

April 2023

Appendix B. Sample Questionnaire

Instructions for Surveyor(s)

1. The Survey Form (over page) should be completed by EVERY PERSON attending the site on a particular day.
2. This survey should be completed SEPARATELY for EACH TRIP undertaken

Travel Mode Questionnaire Survey Form

Date: **Approximate Time:**

Q1. Are you one of the following?

☐ Warehouse staff

☐ Office staff

☐ Courier / office delivery

☐ Casual contractor

☐ Company driver / sub-contractor

☐ Other (Please specify)……

Q2. How did you travel to / from the site today?

☐ Walked only.

☐ Bicycle only

☐ Train

☐ Bus

☐ Taxi

☐ Car share vehicle

☐ Motorcycle / scooter

☐ Car (as passenger)

☐ Car (as driver)

☐ Other (Please specify)……

Q3. If you drove to the site, where did you park?

☐ Not applicable – did not drive.

☐ On-site car park

☐ On-site within truck hardstand

☐ Other (Please specify)……

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