

Traffic Impact Assessment Report

Proposed Modifications (S96) to a Warehouse/Industrial Facility
Lot 3, Horsley Drive Business Park, Horsley Park

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1 Introduction

1.1 Study Objectives

Ason Group has been commissioned by Frasers Property Australia to prepare a Traffic Impact Assessment (TIA) report to accompany a S96 Application to modify an approved warehouse/industrial facility (the Proposal) at Lot 3, Horsley Drive Business Park, Horsley Park (the Site). Reference should be made to the State Significant Development Application (SSD 7917) which provides relevant details regarding the current approval for the warehouse/industrial facility. The Proposal generally seeks approval for a single warehouse, with a total gross floor area (GFA) of 26,055m².

This TIA report addresses the relevant traffic, transport and parking implications of the development, including compliance with relevant State and Local Government controls and Australian Standards. In preparing this TIA report, Ason Group has referenced the following key planning documents that are relevant to development at the site:

- Fairfield Development Control Plan 2013 (FDCP2013),
- State Environmental Planning Policy (Western Sydney Employment Area) 2009 (SEPP WSEA),
- *Proposed Warehouse/Industrial Facility, Lot 3, Horsley Drive Business Park, Horsley Drive, Traffic Impact Assessment*, Ason Group, October 2016 (DA Traffic Report).
- *Horsley Drive Business Park Traffic Impact Assessment for a Part 4 Concept Plan Application* by Traffix, May 2012 (Concept Plan Traffic Report),
- *The Horsley Drive Business Park Revised Structure Plan, Traffic Report* by Road Design Solutions, December 2014 (MOD2 Traffic Report), and
- *Proposed Lot 2, Proposed Warehouse/Industrial Facilities, The Horsley Drive Business Park, Traffic Impact Report* by Road Delay Solutions, April 2016 (Lot 2 Traffic Report).

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

- *RMS Guide to Traffic Generating Developments* (RMS Guide),
- RMS Technical Direction TDT 2013/04a, *Guide to Traffic Generating Developments – Updated traffic surveys* (RMS Guide Update),
- Australian Standard 2890.1 (2004): *Off-street car parking* (AS2890.1),
- Australian Standard 2890.2 (2002): *Off-street commercial vehicle facilities* (AS2890.2), and
- Australian Standard 2890.6 (2009): *Off-street parking for people with disabilities* (AS2890.6).

1.2 Report Structure

The remainder of this report is structured as follows:

- Section 2: provides the summary of the planning context associated with the HDBP.
- Section 3: provides a summary of the proposed development.
- Section 4: describes the site, existing road network and accessibility to alternative transport modes.
- Section 5: describes the traffic impacts of the proposed development including projected trip generation.
- Section 6: describes the parking requirements of the proposed development.
- Section 7: describes the access, internal configuration of the proposed car parking and servicing facilities of the development.
- Section 8: provides a conclusion of the key traffic and parking impacts.

2 Planning Context

2.1 Project Approvals

The following development approvals have been considered in the assessment of the Site:

Masterplan Application (SSD 5169): An application was lodged for the Horsley Drive Business Park (HDBP) Masterplan Development and approved by the Department of Planning and Environment (DP&E) in January 2013. The original Masterplan consisted of a 12-lot subdivision (total site area of 216,370m²) with the access road under leasehold agreement. The original Masterplan was approved for 321 vehicles per hour during each peak hour, with access to the HDBP via signalised intersections at Cowpasture Road/Newton Road intersection.

Modification 2 (SSD 5169 MOD2): The first modification to the masterplan (SSD 5169 MOD1) was proposed but later withdrawn. Following this, Modification 2 was lodged and approved in August 2015. Modification 2 sought approval for an amendment to the development scheme, including the reduction in the number of allotments (from 12 to 6 lots), an increase in the total developable site area by 3,471m² (to a total developable area of 204,278m²), and an increase in the total GFA. The MOD2 Traffic Report assessed that the forecasted traffic generation of the MOD2 Masterplan would be 684 vehicles per hour during the morning and afternoon peak periods. Furthermore, the report assessed a revised access arrangement with access to the HDBP provided via a new roundabout controlled intersection at Burilda Close with Cowpasture Road (approximately 130m north of the Cowpasture Road/Newton Road roundabout intersection). With the approval of this application, it is assumed that the traffic impacts of MOD2 was considered acceptable with the proposed and existing infrastructure provisions.

Modification 3 (SSD 5169 MOD3): This was followed by Modification 3 approved in September 2015, which reduced the number of total lots to 5 (by consolidating Lots 5 and 6), with the traffic generation assessment and access arrangement from Modification 2 still being relevant. The modified Masterplan MOD3 is provided in **Figure 1** and demonstrates the proposed lot layout and access provisions to Cowpasture Road.

Lot 5 Project Application (SSD 7078): As a result of the approved MOD3, a SSDA was lodged in August 2015 for the consolidated Lots 5 & 6. This application sought approval for a single warehouse and distribution industrial facility with a total gross floor area of 18,675m². The traffic generation analysis demonstrated an overall reduction in traffic generation for the HDBP Masterplan in comparison to that assessed in the MOD2 application. This reduction in the HDBP Masterplan traffic generation was generally the result of the reduced floor areas relating to this application.

Lot 2 Project Application (SSD 7564): Following the above project application, an SSDA was lodged for Lot 2. This application sought approval for two warehouse and distribution industrial facilities with a total gross floor area of 18,770m². Similar to the above, the traffic generation analysis demonstrated further reductions in overall traffic generation for the HDBP Masterplan.

Lot 3 Project Application (SSD 7917): Subsequently, a SSDA was approved by DP&E in May 2017 for the Site. This application sought approval for 2 warehouse/industrial facilities with a combined warehouse and office floor area of 23,455m² GFA. The proposed warehouse facilities resulted in a reduced gross floor area in comparison to that assumed under the MOD2 application. Based on comparative traffic generation analysis, it was concluded that the impacts of the application were consistent with the findings of the MOD2 traffic report.

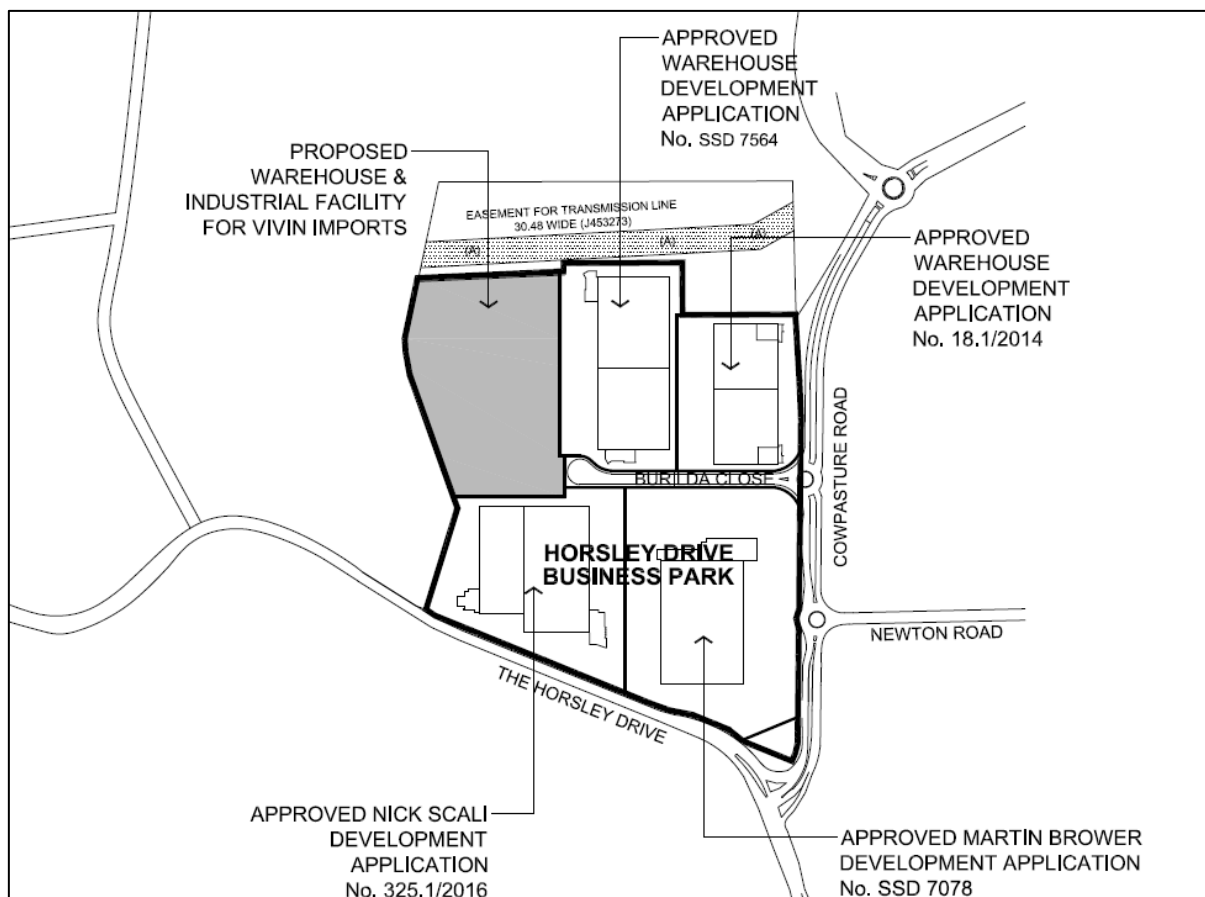


Figure 1: HDBP Modification 3 Masterplan Layout

2.2 Masterplan Intersection Operation

2.2.1 HDBP Masterplan Traffic Generation

The MOD2 proposal (as approved) was supported by the MOD2 Traffic Report, which forecasted a total traffic generation of 684 vehicles an hour during both the morning and evening peak periods. As a consequence of the traffic generation resulting from the MOD2 application, a roundabout controlled intersection with Cowpasture Road was approved to provide access to the site. No other infrastructure upgrades were required as a consequence of the application. The rates adopted in the MOD2 Report are consistent with the RMS Guide, and included:

- 0.5 vehicles per hour per 100m² GFA of warehouse, and
- 2 vehicles per hour per 100m² GFA of office.

A breakdown of the generation, inherent in the MOD2 Traffic Report, is provided in **Table 1**. The analysis outlines the generation of each Lot of the Masterplan and the assumptions that underpinned the MOD2 approval. It is noted that this application relates to the Lot 3 development scenario.

Table 1: HDBP MOD2 Peak Hour Traffic Generation

Lot	Use	GFA (m ²)	Peak Hour Trip Rates (per 100m ² GFA)	Total Peak Hour Traffic Generation (vph)
1	Warehouse Stage 1A	6,085	0.5	30
	Office Stage 1A	600	2.0	12
	Warehouse Stage 1B	6,980	0.5	35
	Office Stage 1B	600	2.0	12
2	Warehouse Stage 2	21,330	0.5	107
	Office Stage 2	800	2.0	16
3	Warehouse Stage 3	24,160	0.5	121
	Office Stage 3	1,000	2.0	20
4	Warehouse Stage 3	20,055	0.5	100
	Office Stage 3	1,000	2.0	20

Lot	Use	GFA (m ²)	Peak Hour Trip Rates (per 100m ² GFA)	Total Peak Hour Traffic Generation (vph)
5	Warehouse Stage 5A	6,255	0.5	31
	Office Stage 5A	800	2.0	16
	Warehouse Stage 5B	6,255	0.5	31
	Office Stage 5B	800	2.0	16
6	Warehouse Stage 6A	8,930	0.5	45
	Office Stage 6A	800	2.0	16
	Warehouse Stage 6B	7,935	0.5	40
	Office Stage 6B	800	2.0	16
Total	-	115,185m²	-	684

It is noted that the above figures are based on the original MOD2 traffic report and not necessarily the final floor areas, as approved.

2.2.2 Trip distribution and Assignment

The MOD2 Traffic Report assumed an inbound/outbound directional split of 85% in and 15% out during the morning peak, with the reverse occurring during the evening peak hour. Of these vehicles, 70% of traffic was assumed to arriving and depart to / from the M7 Motorway (west), and 30% to arrive and depart via the M4 Motorway (north / east). This distribution formed the basis of traffic impact assessment and network operation analysis submitted with the MOD2 assessment and discussed in the following sections.

2.2.3 Network Performance Testing

The following analysis assesses the relevant intersections to/from the Site access and the Horsley Drive using SIDRA modelling. SIDRA modelling outputs a range of performance measures, in particular:

- **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 usual to

attempt to keep DOS to 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 of an intersection 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 2 provides a recommended baseline for assessment as per the RMS Guide. The future intersection operation that resulted from the MOD2 analysis is presented in **Table 3** for the ultimate development scenario of the HDBP.

Table 2: 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.

Table 3: MOD2 Intersection Operation Summary - AM / PM Peak

Intersection	Period	Degree of Saturation (DOS)	Average Vehicle Delay (AVD)	Level of Service (LOS)
Burilda Cl/ Cowpasture Rd Roundabout	AM	0.50	8.6 seconds	A
	PM	0.72	11.2 seconds	A
Cowpasture Rd/ Newton Rd Roundabout	AM	0.53	9.4 seconds	A
	PM	1.06	27.8 seconds	A
The Horsley Dr/ Cowpasture Rd Signalised Intersection	AM	0.89	28.9 seconds	C
	PM	0.94	50.7 seconds	D

The SIDRA results demonstrate that the Burilda Close/Cowpasture Road roundabout and Cowpasture Road/Newton Road roundabout is expected to have a 'good' operating performance with a LOS A expected during both morning and afternoon peak periods. The Horsley Drive/Cowpasture Road signalised intersection is expected to 'operate near capacity' with an acceptable LOS D or better during the morning and afternoon peak periods.

This intersection modelling represents the future operation of the network under the final development scenario approved by the DP&E and RMS and forms the basis of all future assessment including this application.

3 Overview of Proposed Development

3.1 The Proposal

The relevant details of the Proposal are described in the Environmental Impact Statement prepared separately. Generally, the Proposal seeks to modify the existing approval to facilitate the construction of a warehouse/industrial facility, consisting of:

- Warehouse/industrial facility with ancillary offices, showroom and car parking.
- Two access driveways (separating light vehicles and heavy vehicles) servicing both warehouse/industrial facility making use of Burilda Close and the recently completed roundabout controlled intersection with Cowpasture Road.

A summary of the approved and proposed development scheme is provided in **Table 4**.

Table 4: Comparison of Approved and Proposed Development Scheme

	Current Approval	Proposed (S96)	Net Change
Total GFA	23,455m ²	26,055m ²	+2,600m ²
Warehouse GFA	22,375m ²	23,260m ²	+885m ²
Office GFA	1,080m ²	805m ²	-275m ²
Warehouse Showroom GFA	0m ²	1,990m ²	+1,990m ²
Car Parking Spaces	159 spaces	133 spaces	-26 spaces

Figure 2 below presents a plan illustrating the proposed development showing the general layout of the warehouse/industrial facility and associated traffic circulation, loading, and parking areas.

3.2 Site Operations

The planned operation for the proposed facility is as follows:

- General warehouse operations with the storage, loading and unloading of goods from the respective loading areas.
- Administration operations within the proposed office space.
- Warehouse showroom areas for display of products to the trade industry/clients. Future clients would arrive to the Site by invitation only with the showroom not open to the public. The number

of visitors/clients visiting at any one time would be managed by site operations. In this regard, the warehouse showroom area is considered to generate demands commensurate with that of the general warehouse operations.

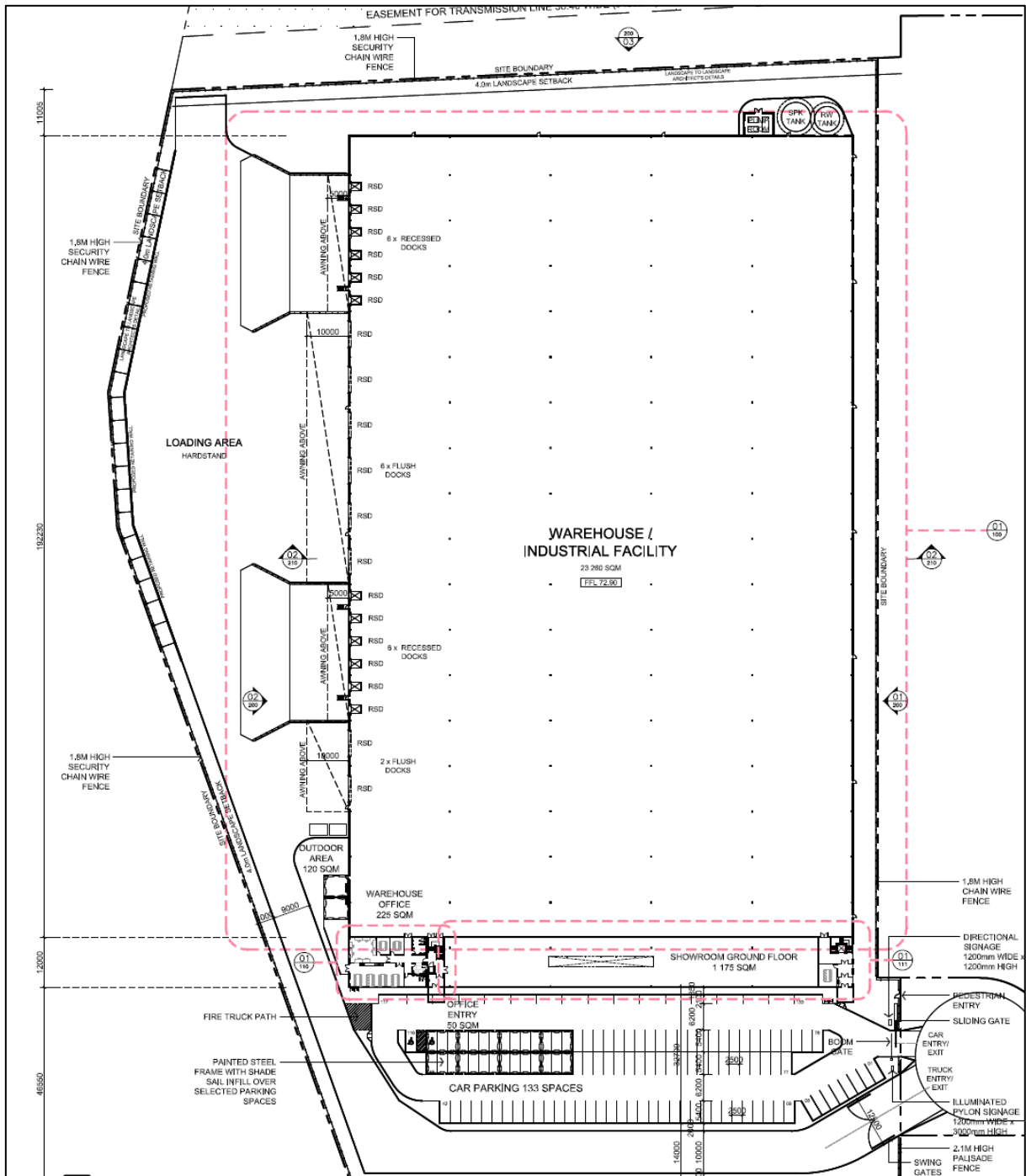


Figure 2: Proposed Development Site Plan

4 Existing Conditions

4.1 Site Overview

The Horsley Drive Business Park (HDBP) comprises of approximately 21.4 hectares of industrial/employment land within the Western Sydney Parkland Trust (WSPT), and the Western Sydney Employment Area (WSEA), and sits on the north-western corner of The Horsley Drive and Cowpasture Road intersection. Access to the HDBP is provided by Burilda Close/Cowpasture Road roundabout.

At a regional level, the Site is located approximately 30km west of Sydney CBD and 12km southwest of Parramatta CBD. It is within the Local Government Authority (LGA) of Fairfield City Council.

Lot 3 is located near the north-western corner of the HDBP, and comprises of a total site area of approximately 43,976m². It is bounded by vacant land to the west and north, as well as Lot 2 to the east and Lot 4 to the south. Direct access to Lot 3 is provided from Burilda Close.

4.2 Road Network

The existing and proposed road hierarchy in the vicinity of HDBP is shown in **Figure 3** and key roads and intersections providing access for HDBP are detailed below.

4.2.1 M7 Motorway

A major arterial road that provides Sydney with key links to the M2, M4 and M5 motorways. It runs in a north-south direction to the west of the site, and runs between M2 to the north and M5 to the south, with the M4 intersecting in between. It carries approximately 70,000vpd within the vicinity of HDBP, with 2 lanes of traffic in each direction.

4.2.2 The Horsley Drive

An RMS State Road (MR 609) that runs in an east-west direction between the Hume Highway in the east and Wallgrove Road to the west. It generally consists of 2 lanes of traffic in each direction and carries approximately 20,000vpd within the vicinity of HDBP.

4.2.3 Wallgrove Road

A classified road (MR 515) that generally runs in a north-south direction. Historically, it carries approximately 31,500vpd, however with the completion of the M7 it has reduced to approximately 20,000vpd.

4.2.4 Cowpasture Road

Within the HDBP, it comprises of a RMS State Road (MR 648), a Regional Road and a collector road and carries approximately 29,000vpd. To the south of Cowpasture Road and The Horsley Drive roundabout, Cowpasture Road is a State Road, while to the north of Cowpasture Road and The Horsley Drive signalised intersection it is a collector road. Between the Cowpasture Road and The Horsley Drive roundabout and signalised intersections, Cowpasture Road is a Regional Road. It generally carries 2 lanes of traffic in each direction with the vicinity of HDBP.

4.2.5 Newton Road

A local road that runs in an east-west direction links Victoria Street to the east and Cowpasture Road to the west. It generally comprises of a single lane of undivided traffic in each direction.

4.2.6 Ferrers Road

A Regional Road (RR 7153) that runs in a north-south direction between Brabham Drive in the north to The Horsley Drive in the south. It carries a single lane of traffic in each direction.

4.2.7 Victoria Road

A Regional Road that runs in an east-west direction between Cowpasture Road in the east and Warren Road in the west. It carries 2 lanes of traffic in each direction within a divided carriageway.

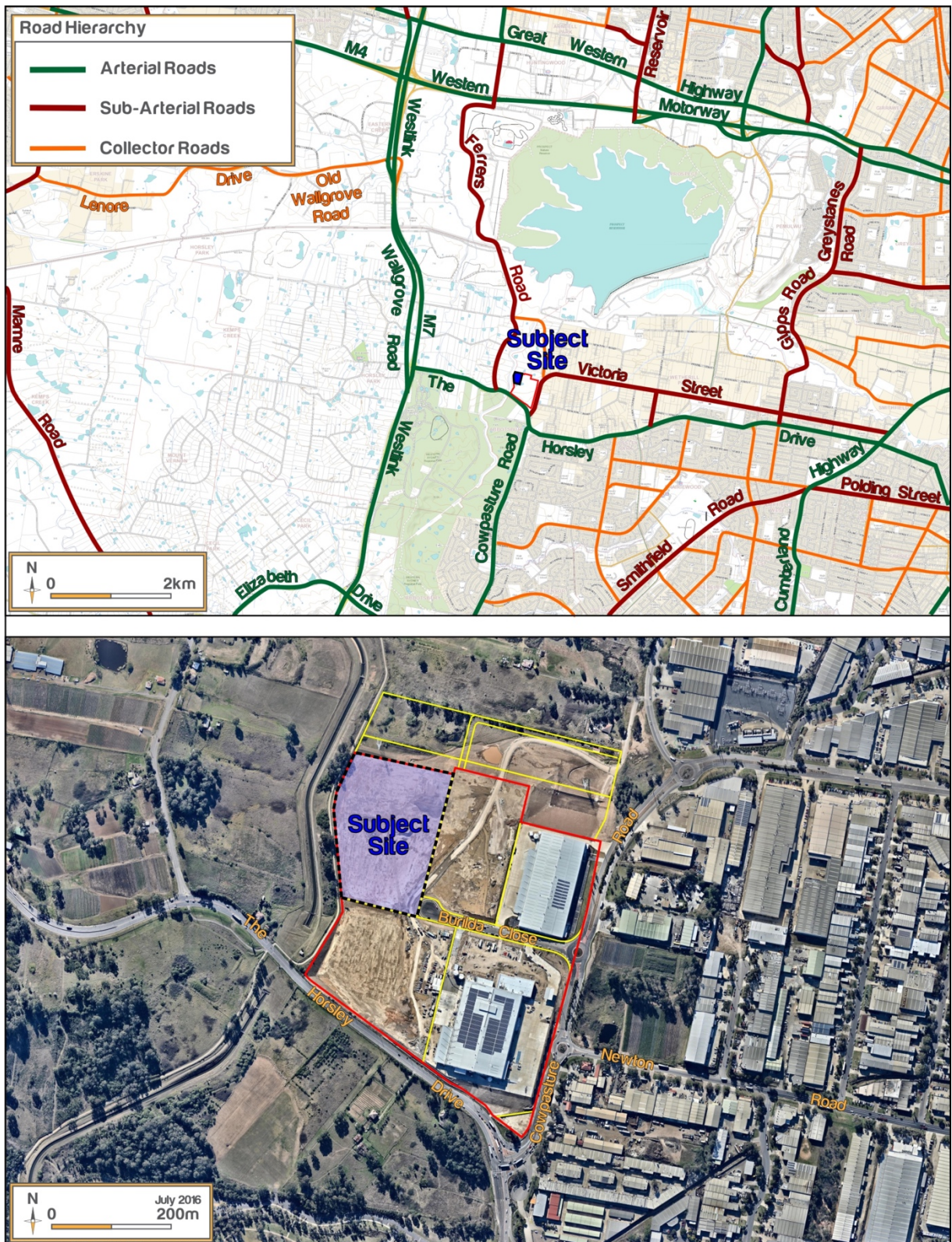


Figure 3: Lot 3 HDBP Location Plan

4.3 Public Transport

The HDBP's proximity to public transport is shown in **Figure 4**, which demonstrates the locations and distances to the bus and rail services surrounding the site. The bus services that travel within the vicinity of the Site include:

- Route 814 – Fairfield to Smithfield
- Route 813 – Bonnyrigg to Fairfield
- Route 835 – UWS to Prairiewood (connecting to St Marys Railway Station)

These services run approximately every 30 minutes during the weekday morning and afternoon peak periods.

4.4 Cycle Paths

The existing cycle network in the vicinity of the Site is also shown in Figure 4. Off road bike paths are provided to the west of the Site providing a north-south connection, with The Horsley drive providing the main east-west connection.

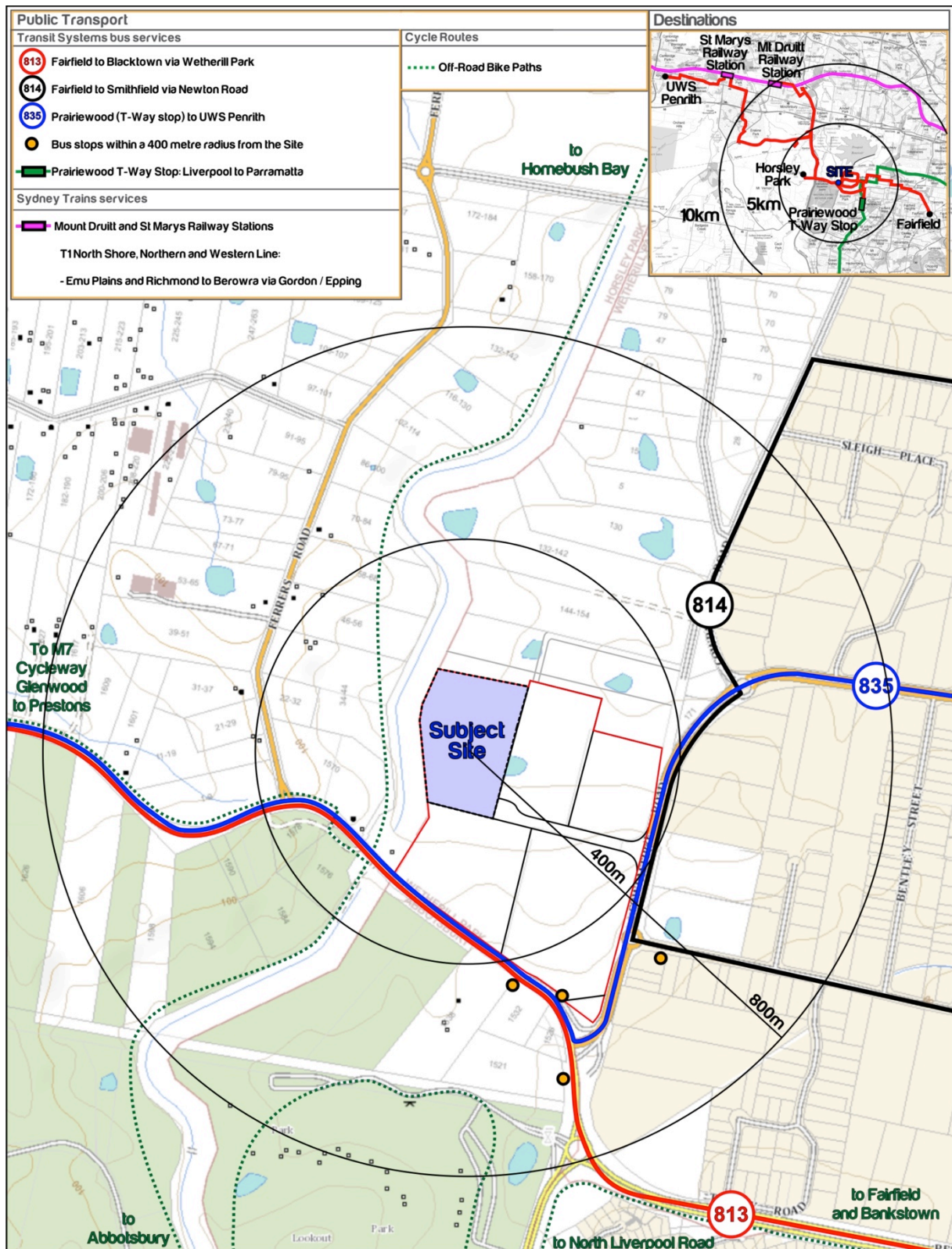


Figure 4: Public Transport and Cycle Network

4.5 Mode Share

The Journey to Work (JTW) data, provided by the Bureau of Transport Statistics (BTS) of employee mode share for Travel Zone (TZ) 3480, is shown in **Figure 5**. The data indicates that approximately 92% of employees travel to work via private car with minimal usage of non-vehicle alternatives.

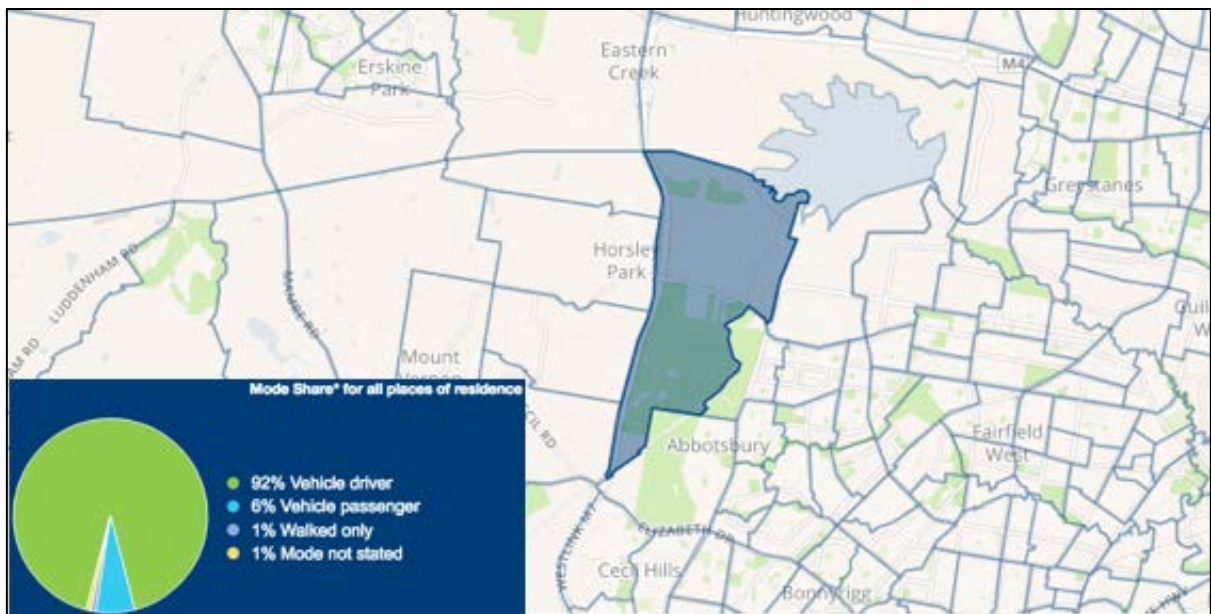


Figure 5: Journey to Work – Employee Mode Share

5 Traffic Impacts

5.1 Lot 3 Traffic Generation

Application of the traffic generation rates adopted within the MOD2 Traffic Report, as summarised in Section 2.2.1, to the proposed uses under this application results in the following peak hour and daily traffic movements shown in **Table 5**. This table also includes the traffic generation resulting from the approved development for comparison with that now proposed.

Table 5: Lot 3 Traffic Generation Summary – Proposed and Approved

Land Use	Proposed			Approved		
	Area (m ²)	Peak Hour Generation (vph)	Daily Generation (vpd)	Area (m ²)	Peak Hour Generation (vph)	Daily Generation (vpd)
General Warehouse	23,260	116	930	22,375	112	895
Warehouse Showroom	1,990	10	80	n/a	-	-
Office	805	16	81	1,080	22	108
Total	26,055	142	1,091	23,455	134	1,003

Based on the above, it can be seen that the application of the relevant traffic generation rates to the Proposal results in a forecast traffic generation of 142 vehicles per hour during the peak periods.

In comparison to the approved development, the latest Proposal would result in an increase of 8 vehicles during the peak period. This is a minimal increase and equates to a single additional vehicle movement every 7-8 minutes. Furthermore, this traffic should be considered within the wider context of the overall traffic generation for the HDBP Masterplan having regard for the approved project applications.

As discussed in Section 2, the MOD2 Masterplan was approved on the basis of a future traffic generation of approximately 684 vehicles per hour during peak periods. This generation underpinned the proposed access arrangements and network upgrades, including the now constructed roundabout controlled intersection of Cowpasture Road with Burilda Close.

Subsequently, two project applications have been lodged since the proposed modification which has resulted in reduced floor areas compared to that assessed under within the MOD2 Traffic Report. In this regard, **Table 6** provides a summary of the overall HDBP Masterplan peak hour traffic generation having regard for the approved project applications:

Table 6: Revised HDBP Masterplan Traffic Generation

Lot	Use	GFA (m ²)	Peak Hour Trip Rates (per 100m ² GFA)	Total Peak Hour Traffic Generation (vph)
1	Warehouse 1	6,960	0.5	35
	Office 1	600	2.0	12
	Warehouse 2	6,087	0.5	30
	Office 2	600	2.0	12
2	Warehouse 1	8,355	0.5	42
	Office 1	550	2.0	11
	Warehouse 2	9,315	0.5	47
	Office 2	550	2.0	11
3	General Warehouse	23,260	0.5	116
	Warehouse Showroom	1,990	0.5	10
	Office	805	2.0	16
4	Warehouse	20,055	0.5	100
	Office	1,000	2.0	20
5	Warehouse	15,427	0.5	77
	Dock Office	116	2.0	2
	Office	3,132	2.0	63
Total	-	-	-	604

As shown in the table above, the latest HDBP Masterplan is forecasted to generate 604 vehicles per hour during the peak periods. This is less than the 684 vehicles per hour assessed under the MOD2 Traffic Report. Therefore, the traffic impacts of the Proposal would result is no additional delays within the road network than that assessed under the MOD2 Traffic Report.

5.2 Future Intersection Operation

Notwithstanding the above, the key intersections in the vicinity will operate with the Level of Service and delays as prescribed below under the full development of the HDBP:

Table 7: Intersection Operation - Full Development of HDBP

Intersection	Period	Degree of Saturation (DOS)	Average Vehicle Delay (AVD)	Level of Service (LOS)
Burilda Close/Cowpasture Road Roundabout	AM	0.50	8.6 seconds	A
	PM	0.72	11.2 seconds	A
Cowpasture Road/ Newton Road Roundabout	AM	0.53	9.4 seconds	A
	PM	1.06	27.8 seconds	A
The Horsley Drive/Cowpasture Road Signalised Intersection	AM	0.89	28.9 seconds	C
	PM	0.94	50.7 seconds	D

5.3 Construction Traffic Impacts

A detailed construction traffic management plan (CTMP) for the Site has been prepared, and is expected to be lodged as a separate application. In summary, the construction activities are expected to result in traffic movements less than those prescribed in Section 5.1 and as such the key intersections in the vicinity of the site are expected to operate similar to that which will occur under full development of the HDBP. Other key aspects of the CTMP include:

- The construction activities are expected to occur over five stages with a peak traffic volume of 350 daily traffic movements including approximately 200 heavy vehicle movements.
- Most construction vehicles are expected to access the site via either the M7 Motorway - The Horsley Drive and Cowpasture Road route or via Smithfield Road to the M4.
- All contractor parking can be provided on-site with no reliance on off-street parking
- No road closures are expected as a consequence of the construction activities.

The construction of the proposed development is therefore expected to have no major impact on the operation of the road network or on the availability of off-street parking.

6 Parking Requirements

6.1 Proposed Parking Provisions

The proposed parking provision for the development has been assessed having regard for the parking rates adopted within DA Traffic Report, similar to that applied to the currently approved development. The applicable rates are as follows:

- 1 space per 200m² of warehouse GFA
- 1 space per 200m² of office GFA

The application of these rates to the areas proposed as part of this application is summarised in **Table 7**.

Table 7: Parking Requirements

Land Use	Area (m ²)	Parking Rate	Parking Requirement	Parking Provided
Warehouse	23,260	1 space per 200m ²	116	
Warehouse Showroom	1,990	1 space per 200m ²	4	133
Office	805	1 space per 200m ²	4	
Total	26,055	-	124	133

The application proposes a total of 133 parking spaces, which exceeds the minimum requirement of 124 spaces. Therefore, the proposed parking provision would suitably accommodate the parking demands generated by the Proposal with no reliance on on-street parking.

6.2 Accessible Parking

FCDP2013 refers to the BCA 2004 in determining the number of disabled parking space required for specific developments. In this regard, the BCA 2004 has a requirement of 1 space for every 100 parking spaces (Class 5 building), resulting in a requirement of 2 spaces. The Proposal would therefore seek to provide 2 accessible parking spaces to satisfy the requirements under BCA 2004.

6.3 Bicycle Parking

Although there are no specific bicycle parking rates applicable to the Proposal, bicycle parking would be provided to meet the demands generated by future employees. Bicycle parking would be provided through allocated secure lockers for employees.

7 Access and Internal Design Aspects

The site access, internal circulation and car parking arrangements have been developed with consideration of the requirements of Council's DCP and relevant Australian Standards (i.e. AS2890.1, AS2890.2 and AS2890.6). The following characteristics are noteworthy with regard to the design of the site access driveway, loading docks and on-grade car park.

7.1 Site Access

As shown in the site plan access to the Site is proposed via the following 2 vehicle crossings on Burilda Close:

- Southern vehicle crossing providing two-way access for heavy vehicles
- Northern vehicle crossing providing two-way access for light vehicles.

The driveway is approximately 275 metres west of the Cowpasture Road roundabout with Burilda Close, which is considered to be more than adequate for acceptable operation.

The proposed driveway for light vehicles is approximately 6 metres in width at the site boundary, which meets requirements for a Category 2 driveway under the provisions of AS2890.1.

Furthermore, the proposed shared heavy vehicle driveway configuration is adequate to accommodate entry and exit manoeuvres of the largest vehicle anticipated to access the Site, being a 26m B-double. Swept path analysis is included in **Appendix A** demonstrating that the necessary manoeuvres can be accommodated at the proposed site access driveway.

Ancillary movements include Fire and Rescue NSW (F&RNSW) having access and egress to the northern vehicle crossing. This movement provides access to and from the side and back of the facility. For the purpose of this assessment, a heavy rigid vehicle was used in place of a F&RNSW vehicle as the HRV has a greater restraint placed on it compared to the F&RNSW vehicle.

7.2 Car Park Design

The design of the car park has been developed with consideration of the requirement of Section 6A.3.5 – Vehicular Access Design of the Fairfield Council DCP, as well as the relevant Australian Standards, as outlined in the following:

- Parking spaces are 2.5m wide, which meets the requirements stipulated in AS2890.1 for User Class 1 car parking areas.

- Parking spaces are 5.4m long as required in AS2890.1 for User Class 1 car parking areas.
- The parking aisles are 6.2m in width, exceeding the requirement stipulated in AS2890.1 for User Class 1 car parking areas.
- All spaces located adjacent to obstructions greater than 150mm in height are to be provided with an additional width of 300mm. This includes any landscaping that exceeds 150mm.
- All accessible parking spaces are designed in accordance with AS2890.6. Spaces are provided with a clear width of 2.4m and located adjacent to a minimum shared area of 2.4m.

7.3 Commercial Facilities

As discussed previously, the largest vehicle anticipated to access the Site is a 26m B-double. Accordingly, a swept path analysis has been performed for a 26m B-double to verify the design widths of the driveway and internal manoeuvring area. It has been noted by the developer that the northern flush docks will be utilised by single articulated vehicles only (Semi—trailers), while the southern flush docks will be utilised by small rigid vehicles only. The results of this analysis, which are presented in **Appendix A**, reveal that the necessary manoeuvres would be able to be accommodated by the proposed design.

7.4 Design Summary

The internal configuration of the Site – including light and heavy vehicular access, car parking and servicing areas – has been designed generally in accordance with the requirements of Council's DCP and the relevant Australian Standards (AS2890.1, AS2890.2 and AS2890.6).

8 Conclusions

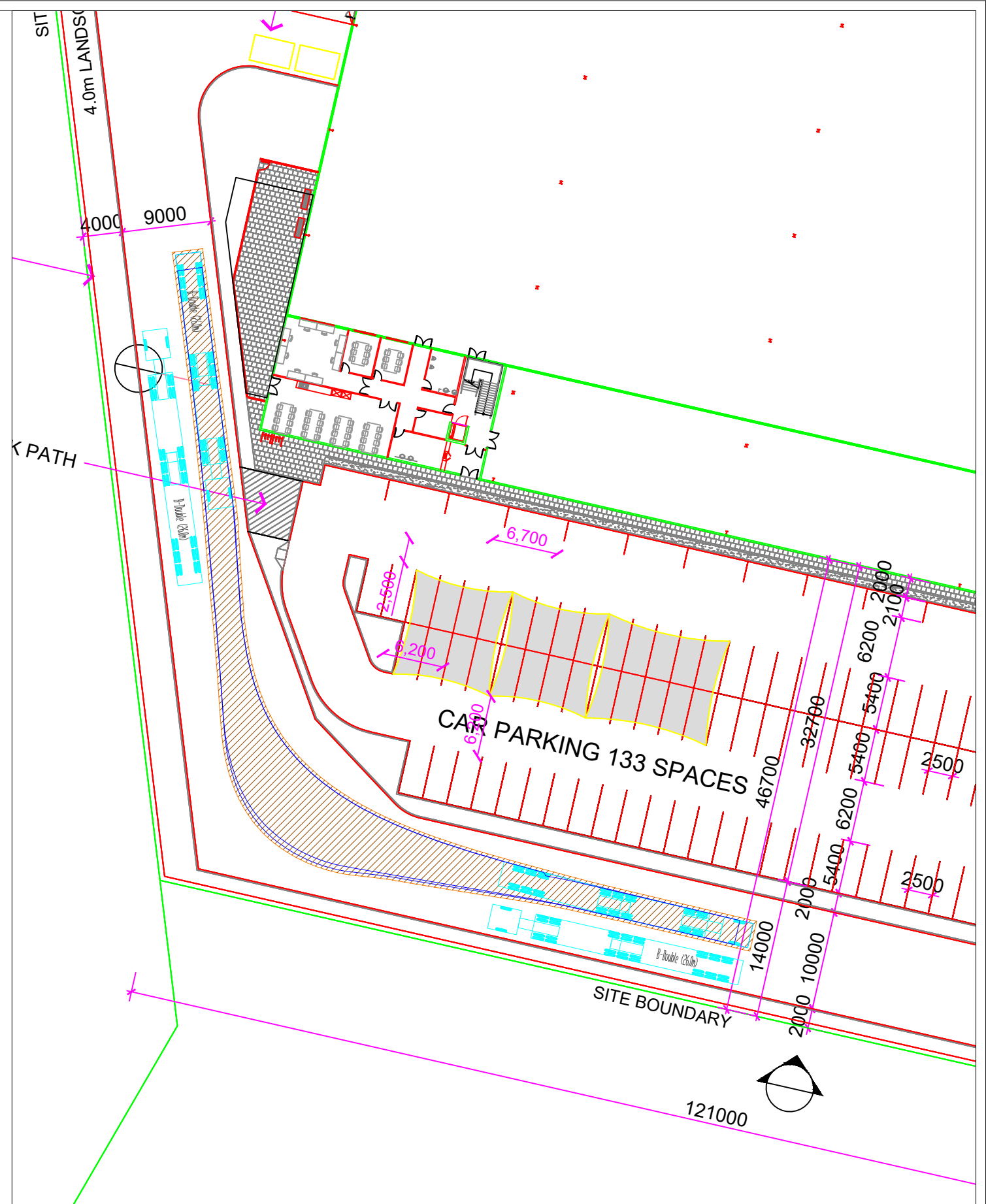
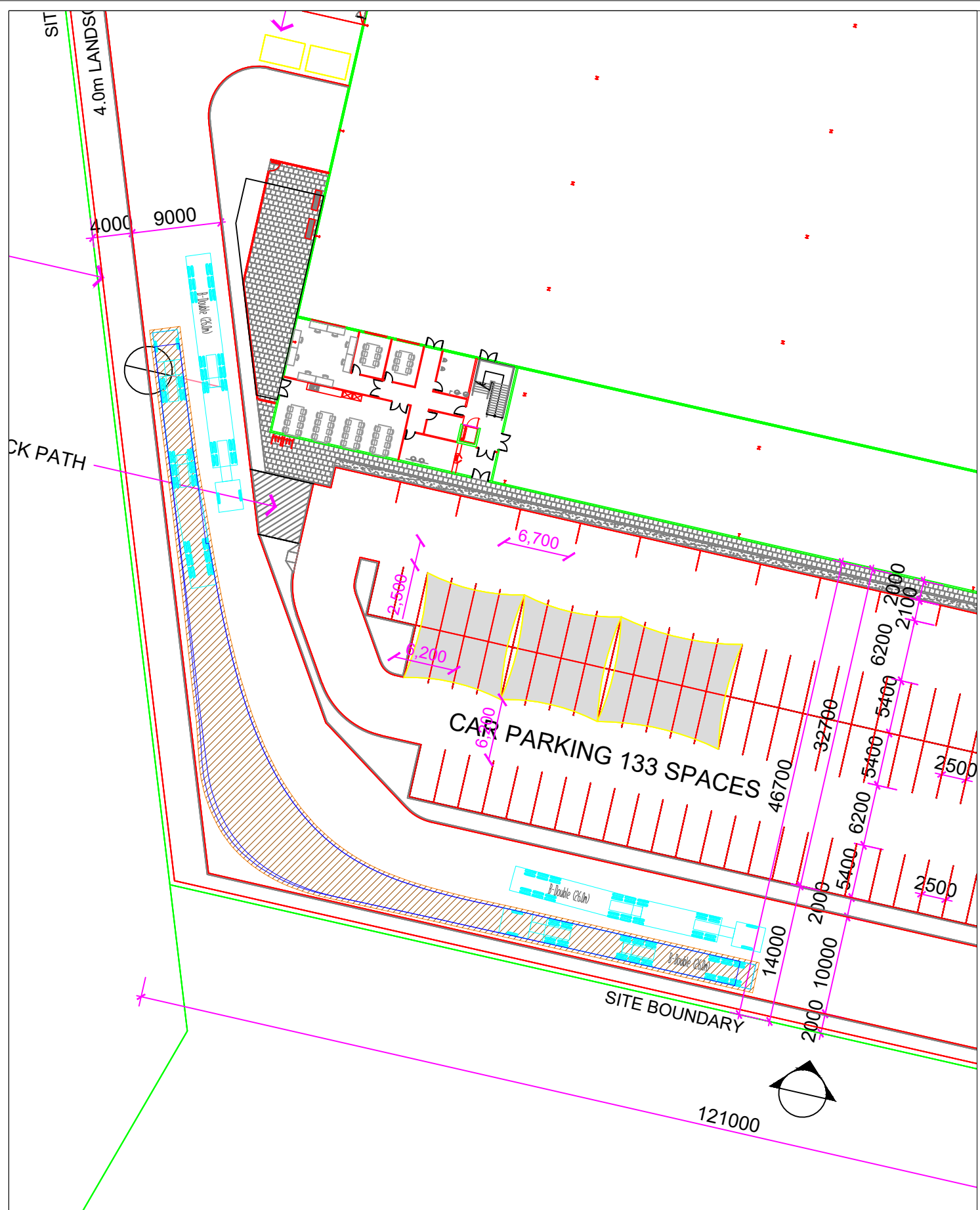
The key findings of this Traffic Impact Assessment can be summarised as follows:

- Approval is sought for a warehouse/industrial facility with a gross floor area of 26,055m², consisting of 23,260m² of warehouse GFA, 1,990m² of warehouse showroom GFA and 805m² of office GFA.
- The Proposal is expected to generate 142 vehicles per hour during the morning and afternoon peak hour, and approximately 1,091 vehicles per day based on the RMS Guide traffic generation rates.
- The proposed traffic generation of the site is consistent with that assumed for the overall MOD2 Masterplan as assessed within the MOD2 Traffic Report. In this regard, the MOD2 Traffic Report adopted an overall masterplan traffic generation of 684 veh/hr. Having regard for the latest approved project applications (Lot 2 and Lot 5) (which resulted in reduced traffic) and the Proposal, the overall HDBP Masterplan would generate 604 veh/hr. This is less than that adopted within the MOD2 Traffic Report. As such, no further infrastructure upgrades are required other than that currently being delivered as part of the MOD2 Masterplan.
- The Proposal requires a total of 124 parking spaces. Accordingly, the proposed allocation of 133 spaces would adequately accommodate the future parking demands generated by the Proposal.
- Site access, internal circulation and car parking arrangements have been developed with consideration of the requirements of Council's DCP and relevant Australian Standards (i.e. AS2890.1, AS2890.2 and AS2890.6). The access arrangements have been developed to permit entry and exit movements in a forward direction, separate commercial (heavy) vehicle and passenger vehicle traffic, and minimise pedestrian crossing distances.

It is therefore concluded that the proposed modifications to the approved development at Lot 3, The Horsley Drive Business Park, Horsley Drive is supportable on traffic planning grounds.

Appendix A

Swept Path Analysis



Revision notes:		
Rev:	Date:	Notes:

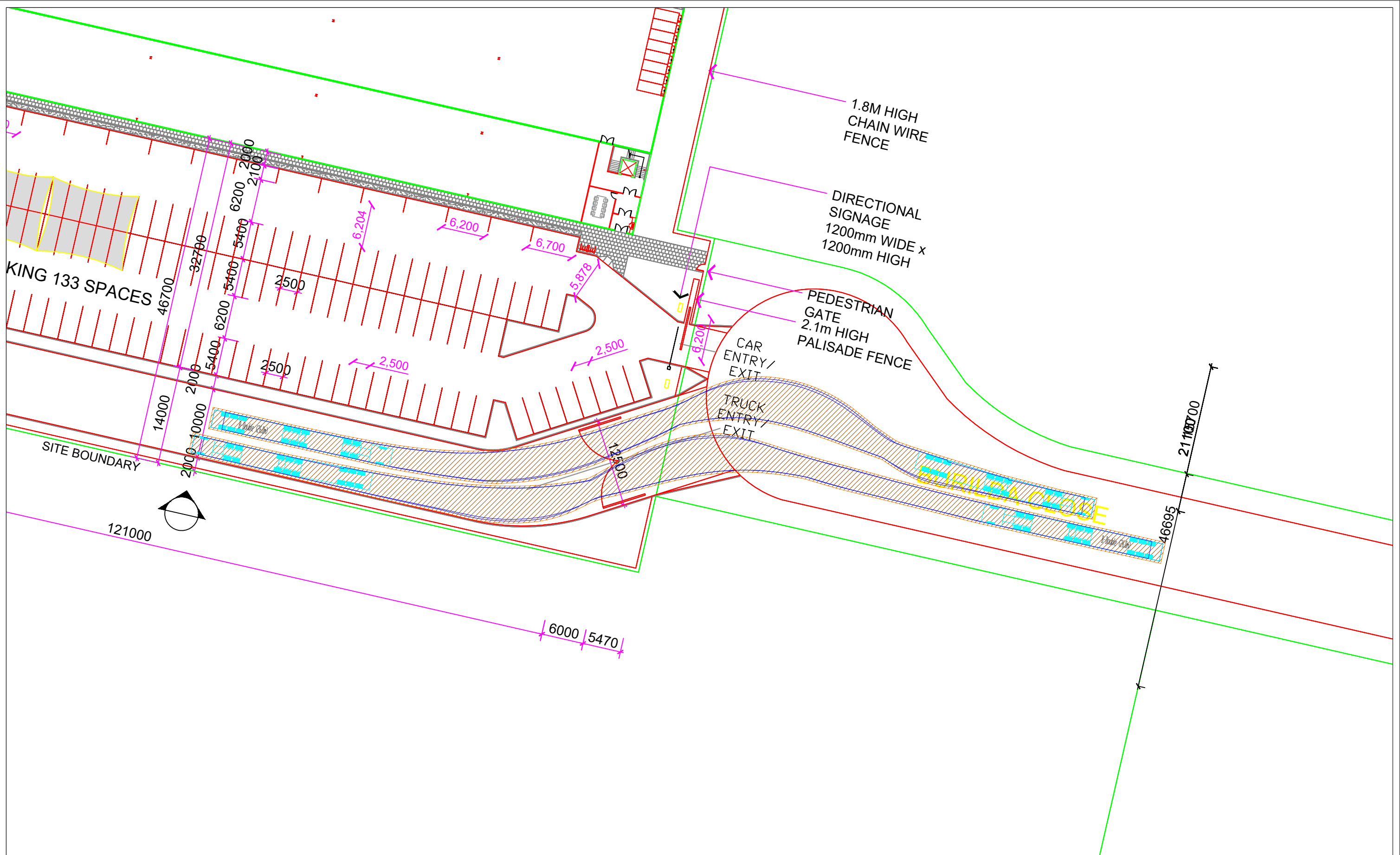
Drawn By: KH	Client: Fraser's Property Australia
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Project: 0315 Lot 3, Horsley Drive Business Park, Horsley Park	Drawing Title: Heavy Vehicle Circulation Inbound (left) - Outbound (right)
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Date: 8-May-17	Scale @ A3: 1:500
Drawing Number: AG.02	

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Revision notes:			Drawn By:		Project:		Date:		 Suite 1202, Level 12, 220 George Street Sydney NSW 2000 info@asongroup.com.au	
Rev:	Date:	Notes:	KH		0315 Lot 3, Horsley Drive Business Park, Horsley Park		8-May-17			
			Client:		Drawing Title:		Scale @ A3:			
			Fraser's Property Australia		Heavy Vehicle Circulation Site Access Driveway		1:500			
							Drawing Number:			
							AG.03			