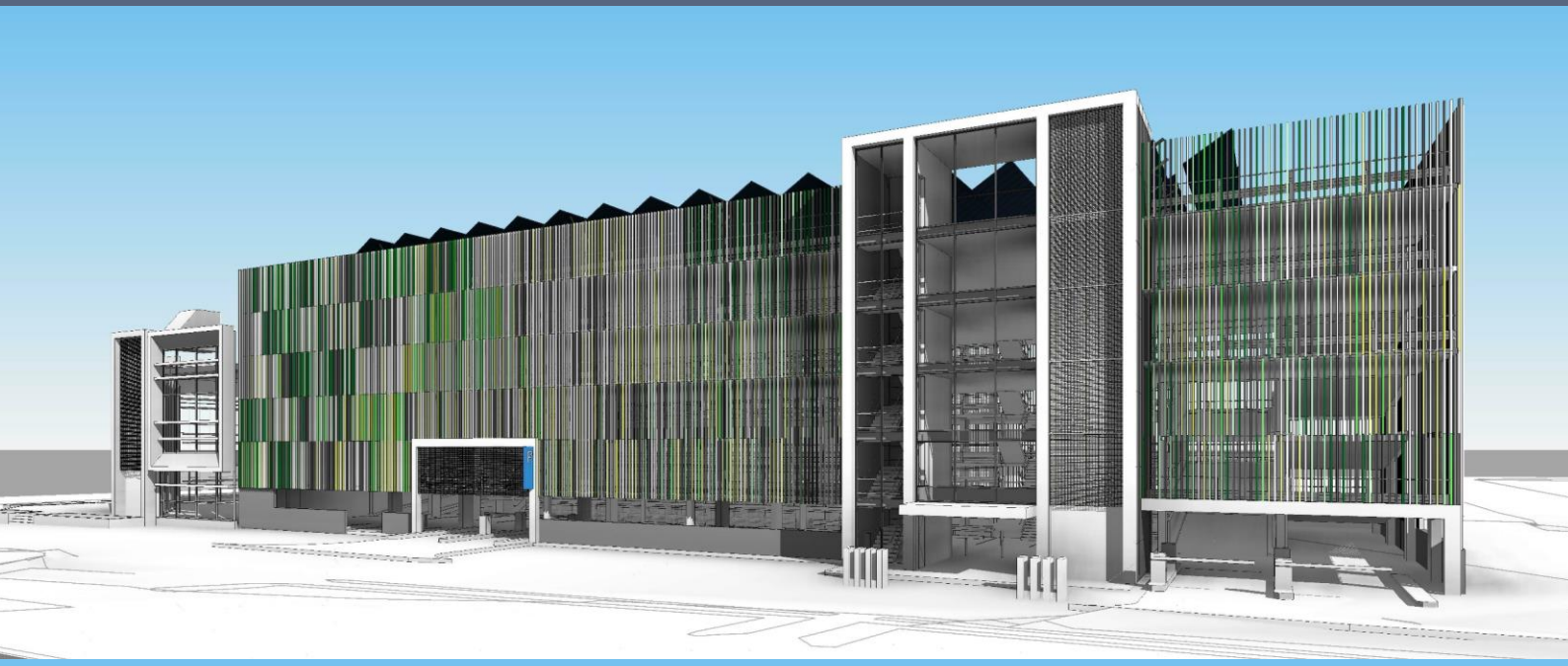
Wagga Wagga Base Hospital Car Park

Development Application
Transport Impact Assessment



Prepared by: GTA Consultants (NSW) Pty Ltd for Health Infrastructure
on 04/11/2020
Reference: N144845
Issue #: B

GTAconsultants

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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	3/11/2020	Final	Mansee Sachdeva Mackenzie Brinums	Karen McNatty	Karen McNatty	Karen McNatty
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EXECUTIVE SUMMARY

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Background

It is understood the Wagga Wagga Base Hospital (WWBH) has undertaken three main stages of development, with over $400 million invested in the Mental Health Building (Stage 1), the Acute Services Building (Stage 2) and the Ambulatory Care Building (Stage 3) which is currently under construction. The Stage 3 building is expected to be completed in early 2021, which will enable the relocation of services from the site into Stage 3 and free up space for additional parking.

A separate Parking Demand Study for the Hospital has been prepared by ptc. which identifies a current and projected shortfall in parking. The existing shortfall is currently being met by surrounding on street parking, however the ptc. parking demand study identifies that the projected parking demand shortfall in the future years of 2026/27 and 2031/32 cannot be fully met by off campus parking supply.

The Project

The WWBH Car Park project includes the construction of a new Multi Storey Car Park (MSCP) and expansion of two existing car parks:

- MSCP on the northern side of the site at the existing CP2/ CP3 location to the south of the proposed UNSW Medical School
    - includes 358 spaces, a net increase of 268 spaces.
- Docker Street car park on the western side of the site
    - includes 158 spaces, a net increase of 114 spaces.
- Yathong Street car park on the southern side of the site
    - includes 74 spaces, a net increase of 59 spaces.

The entry and exit to the MSCP would be separated and accessed directly from Lewis Drive. The entry will be aligned adjacent to the proposed modified exit from CP4 and the drop off area to provide direct access for those users to proceed into the MSCP easily should parking not be available in CP4. The Yathong Street at-grade car park will have an entry from Yathong Street and an exit onto Rawson Lane under a left-out arrangement to also minimise the impact on emergency vehicle access. The Docker Street at-grade car park would provide a separated entry and exit via Docker Street.

At the completion of the WWBH Car Park project, a total of around 944 car parking spaces would be provided across the hospital campus, a net increase of around 441 spaces from the completion of the Stage 3 redevelopment which will assist to address the existing shortfalls and potential increase in parking demand driven by future population growth and service expansions.

A summary of the proposed change in parking supply at the various car park locations around the WWBH campus is provided in Table E.1.

Table E.1: Proposed change in car parking supply

Location	End of Stage 3 (2020) [1]	End of Car Park Project	Net Increase
CP1 (north car park)	154	154	
CP2 (includes UNSW site)	17	358	+268
CP3 (east – under decant facility)	73		
CP4 (forecourt car park)	39	39	
CP5 (near Mental Health)	14	14	
CP6 (at emergency entry)	6	6	
CP7 (Renal)	8	8	
CP8 (Yathong Lodge)	15	74	+59
CP9 (Rawson Lane)	24	24	
CP10 (Dental)	44	158	+114
CP11 (Patient Transfer)	24	24	
CP12 (Peck Lane)	13	13	
CP13 (Under Stage 3)	72	72	
Total	**503**	**944**	**441**

[1] Final car park numbers at end of Stage 3 will be subject to minor adjustments for detailed design of landscaping, services, entries and exits.

The proposed accesses and parking layout are generally consistent with the dimensional requirements as set out in the Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.1:2004, AS/NZS2890.6:2009) and the Health Infrastructure, Hospital Car Park Design Guidelines May 2019.

The review of the car park designs indicate that the proposed car parks are expected to operate satisfactorily. The Docker Street car park configuration, in particular the proposed new access locations on Docker Street, is considered appropriate in minimising any adverse impacts to emergency vehicles access and alleviating traffic on Rawson Lane, a road which is currently constrained in terms of available road width. The proposed new driveways will result in the loss of approximately four 2P on-street parking spaces; however this is considered acceptable as these spaces would likely currently accommodate visitor parking related to the hospital which could be accommodated in the new MSCP.

Parking spaces are designed to be at least 2.6 metres wide by 5.4 metres long which would cater for both staff and visitor parking requirements to meet the Health Infrastructure guidelines. Internal aisle widths are designed to be a minimum of 5.8 metres which meets the minimum requirement under AS/NZS2890.1:2004. Accessible car parks have been designed to the National Construction Code Building Code of Australia 2019 (BCA) standards.

As part of the Stage 3 redevelopment, Lewis Drive adjacent to the MSCP has recently been converted into a formal 10km/h shared zone, giving priority to pedestrians particularly for those travelling between the proposed MSCP and the hospital.

The proposal is not expected to generate an increase in traffic generation for the hospital, however, will cause a minor redistribution of traffic primarily at hospital access points associated with staff and visitors who currently park on surrounding streets now parking on the hospital campus.

Traffic modelling results indicate the project would have a negligible impact on the function of the surrounding road network, with key intersections near the hospital expected to operate satisfactorily in both weekday peak periods in 2031 following planned road upgrades.

While a minor distribution of existing traffic is expected at the hospital access points, the proposed increase in car parking on-site could actually result in a reduction in the number of vehicles travelling through the key surrounding intersections, as the increase in available parking will likely result in less vehicles circulating the hospital trying to find a car park.

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1. INTRODUCTION

01

1.1. Background and Proposal

It is understood the Wagga Wagga Base Hospital (WWBH) has undertaken three main stages of development, with over $400 million invested in the Mental Health Building (Stage 1), the Acute Services Building (Stage 2) and the Ambulatory Care Building (Stage 3) which is currently under construction. The Stage 3 building is expected to be completed in early 2021, which will enable the relocation of services from the site into Stage 3 and free up space for additional parking.

The Wagga Wagga car park project would result in a total parking provision of around 944 car parking spaces on the hospital campus, which represents a net increase of around 441 parking spaces to assist in addressing existing shortfalls and potential increase in parking demand driven by future population growth and service expansions. This project will deliver a new multi-storey carpark and expand two existing on grade car parking areas which will assist in alleviating the demand for on-street parking surrounding the hospital.

GTA has been engaged by Health Infrastructure (HI) to provide a Transport Impact Assessment to support the Development Application for the proposed car parks at the WWBH.

1.2. Purpose of the Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- a detailed review of existing traffic and parking conditions both on-site and surrounding the site
- suitability of the proposed parking in terms of supply (quantum) and layout
- the traffic generating characteristics of the proposed development
- suitability of the proposed access arrangements for the site
- the transport impact of the development proposal on the surrounding road network.

1.3. References

In preparing this report, reference has been made to the following:

- Australian Standard, Parking Facilities, Part 1: Off-Street Car Parking AS 2890.1:2004.
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2018.
- Australian Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS 2890.6:2009
- Sustainable Hospital Car Park Investment Program Volume 3, Hospital Car Park Design Guidelines V1.2, Health Infrastructure, May 2019.
- Wagga Wagga Base Hospital (WWBH) Schematic Development, Traffic Impact Assessment Report, Rev B, prepared by GTA dated 3 October 2018
- Wagga Wagga Base Hospital - Traffic Analysis Final Report – October 2019, prepared by PTC.
- Wagga Wagga Base Hospital – Car Parking Demand Study – June 2018, prepared by PTC.
- architectural plans prepared by Jacobs dated 30 October 2020
- other documents and data as referenced in this report.

2. EXISTING CONDITIONS

02

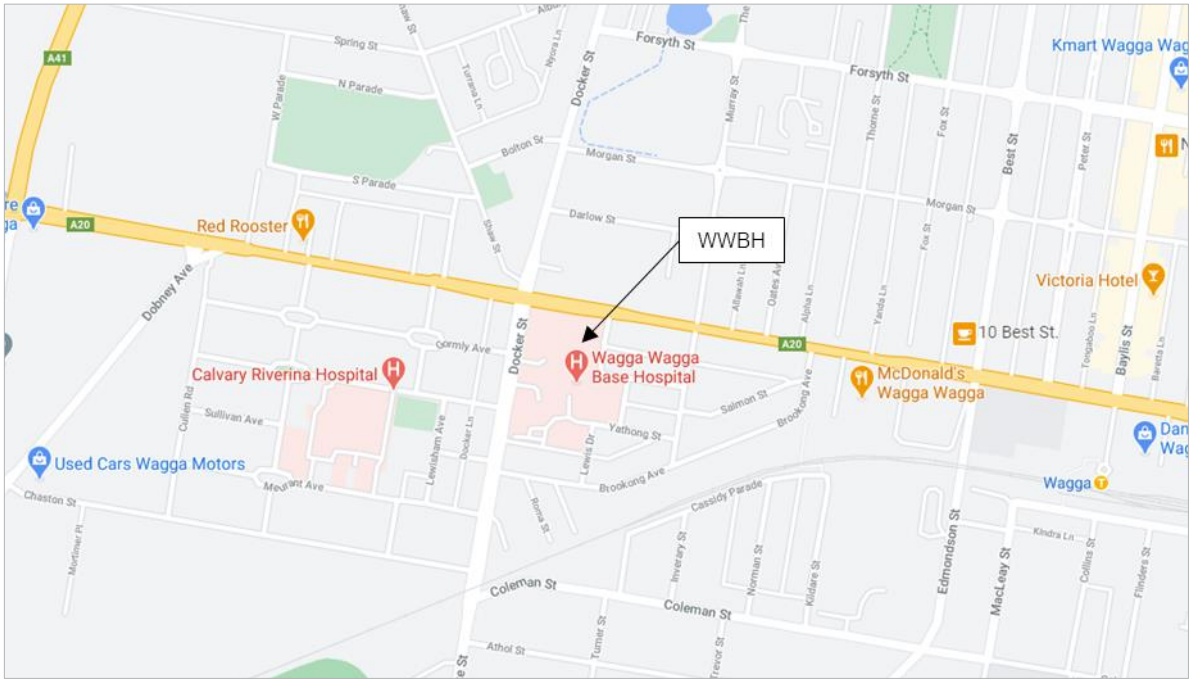
2.1. Overview

The existing WWBH is located at 260-280 Edward Street, Wagga Wagga, NSW 2650. The site occupies the block bounded by Edward Street, Docker Street, Lewis Drive, Peck Street, Yabtree Street, Yathong Street and Rawson Lane, with approximately 200-metre frontages to Edward Street and 260-metre frontages to Docker Street and Lewis Drive.

WWBH is located around one kilometre south west from the Wagga Wagga Town Centre. The surrounding properties predominantly include low to medium density residential uses, infrastructure, public and private recreation uses.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

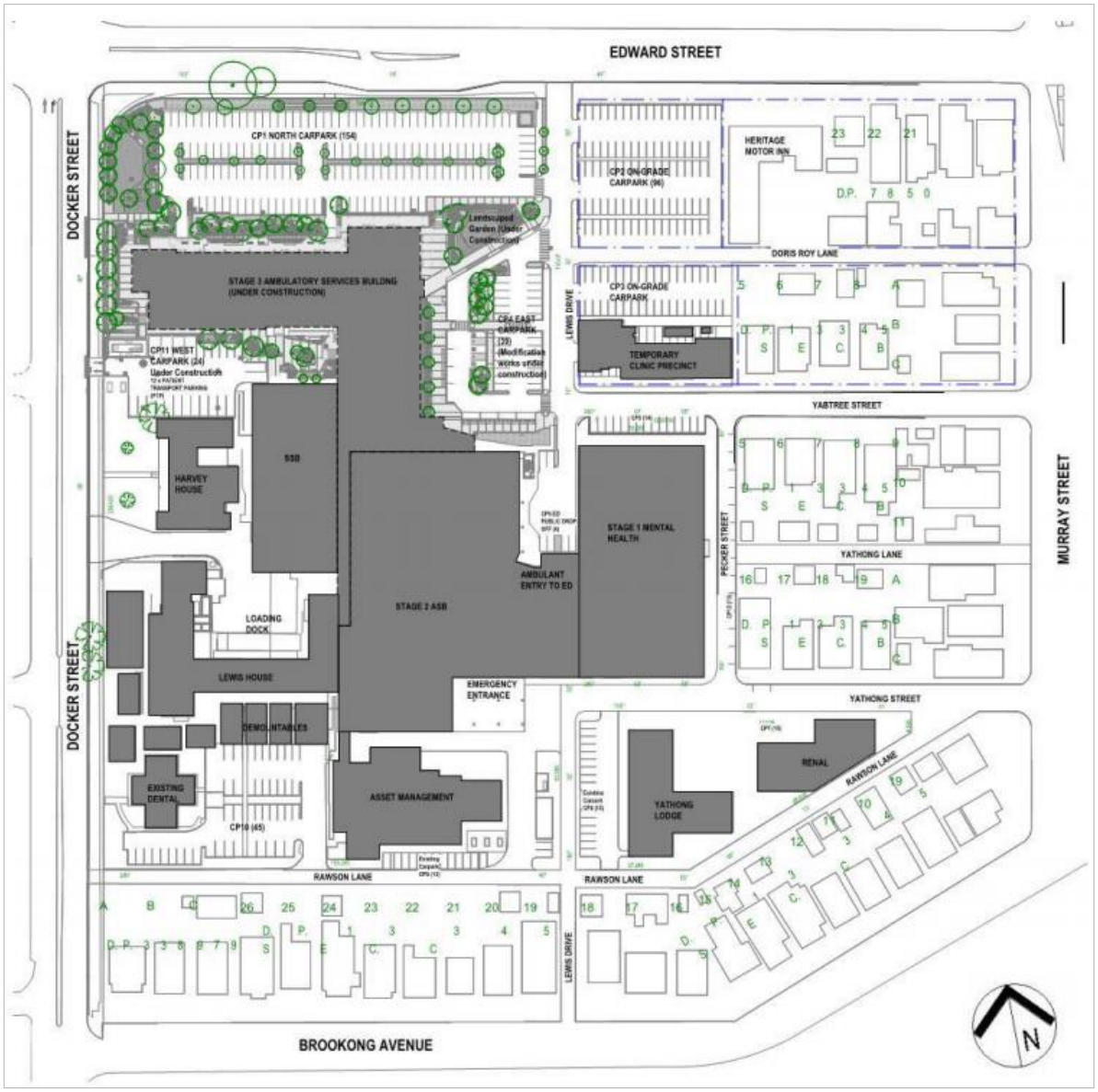
Figure 2.1: Subject site and its environs



Base image source: Google Maps

The existing site plan of the WWBH site is provided in Figure 2.2.

Figure 2.2: Existing WWBH site plan



Source: Jacobs September 2020

2.2. Road Network

2.2.1. Road Hierarchy

Roads are classified according to the functions they perform. The main purpose of defining a road's functional class is to provide a basis for establishing the policies which guide the management of the road according to their intended service or qualities.

In terms of functional road classification, State roads are strategically important as they form the primary network used for the movement of people and goods between regions, and throughout the State. Transport for NSW (TfNSW) is responsible for funding, prioritising and carrying out works on State roads. State roads generally include roads classified as freeways, state highways, and main

roads under the Roads Act 1993, and the regulation to manage the road system is stated in the Australian Road Rules, most recently amended on 19 March 2018.

TfNSW defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

Arterial Roads – Controlled by TfNSW, typically no limit in flow and designed to carry vehicles long distance between regional centres.

Sub-Arterial Roads – Managed by either Council or TfNSW under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).

Collector Roads – Provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.

Local Roads – Provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

2.2.2. Surrounding Road Network

Edward Street

Edward Street functions as an arterial road in an east-west direction on the northern boundary of the site. Edward Street is a two-way road with two lanes in each direction, set within a 15-metre wide carriageway (approximately), with footpaths provided on both sides of the road. Kerbside parking is permitted on both sides of the road near the intersection with Murray Street under both unrestricted and two-hour (2P) time restrictions.

Docker Street

Docker Street functions as a collector road in a north-south direction on the western boundary of the site. Adjacent to the hospital, Docker Street is a two-way road with two traffic lanes and one parking lane in each direction, set within an approximately 15-metre wide carriageway, with footpaths provided on both sides of the road and a posted speed limit of 50 kilometres per hour. Kerbside parking is permitted on both sides of the road under 2P time restrictions.

Murray Street

Murray Street functions as a local street in a north south-direction to the east of the site. Murray Street is a two-way street with one traffic lane in each direction, set within an approximately 15-metre wide carriageway, with footpaths provided on both sides of the road. Unrestricted kerbside parking is permitted on both sides of the road.

Brookong Avenue

Brookong Avenue functions as a collector road in an east-west direction to the south of the site. Brookong Avenue is two-way street with one lane in each direction, set within an approximately 16-metre wide carriageway. A mixture of parallel and angled kerbside parking is permitted on both sides of the road, which is generally unrestricted.

Lewis Drive

Lewis Drive functions as a local street in a north-south direction. Lewis Drive is two-way between Edward Street and Yabtree Street on the western boundary of the proposed MSCP. A separate section

of Lewis Drive also provides ambulance access to the Emergency Department from Brookong Avenue. Lewis Street is sign posted as a 10 kilometre per hour shared zone as outlined in Figure 2.3.

Figure 2.3: 10km/h shared zone on Lewis Drive

Yabtree Street

Yabtree Street functions as a local road and is aligned in an east-west direction. Yabtree Street is a two-way road with one lane in each direction, set within a carriageway of approximately eight metres wide. Parallel kerbside parking is permitted on the south side of the road, east of the connection road to Yathong Street.

Yathong Street

Yathong Street functions as a local road and is aligned in an east-west direction. Yathong Street is a two-way road with one lane in each direction, set within a carriageway of approximately seven metres wide. Unrestricted parallel kerbside parking is permitted on the north side of the road.

Rawson Lane

Rawson Lane functions as a local laneway and is generally aligned in the east-west direction to the south of the hospital. It is a two-way street set within a carriageway of approximately five metres wide. On street parking is not permitted with no parking signs posted along the western side of the street.

2.2.3. Site Access

Access to WWBH is currently provided from all four surrounding roads of Edward Street, Docker Street, Brookong Avenue (emergency vehicle access only) and Murray Street. The main visitor access is from Edward Street via Lewis Drive while the ambulance access is directly from Docker Street, Rawson Lane and Lewis Drive.

The existing main staff parking access is from Lewis Drive via Edward Street and Doris Roy Lane via Murray Street. An additional parking area to the south-west of the hospital is accessible via Rawson

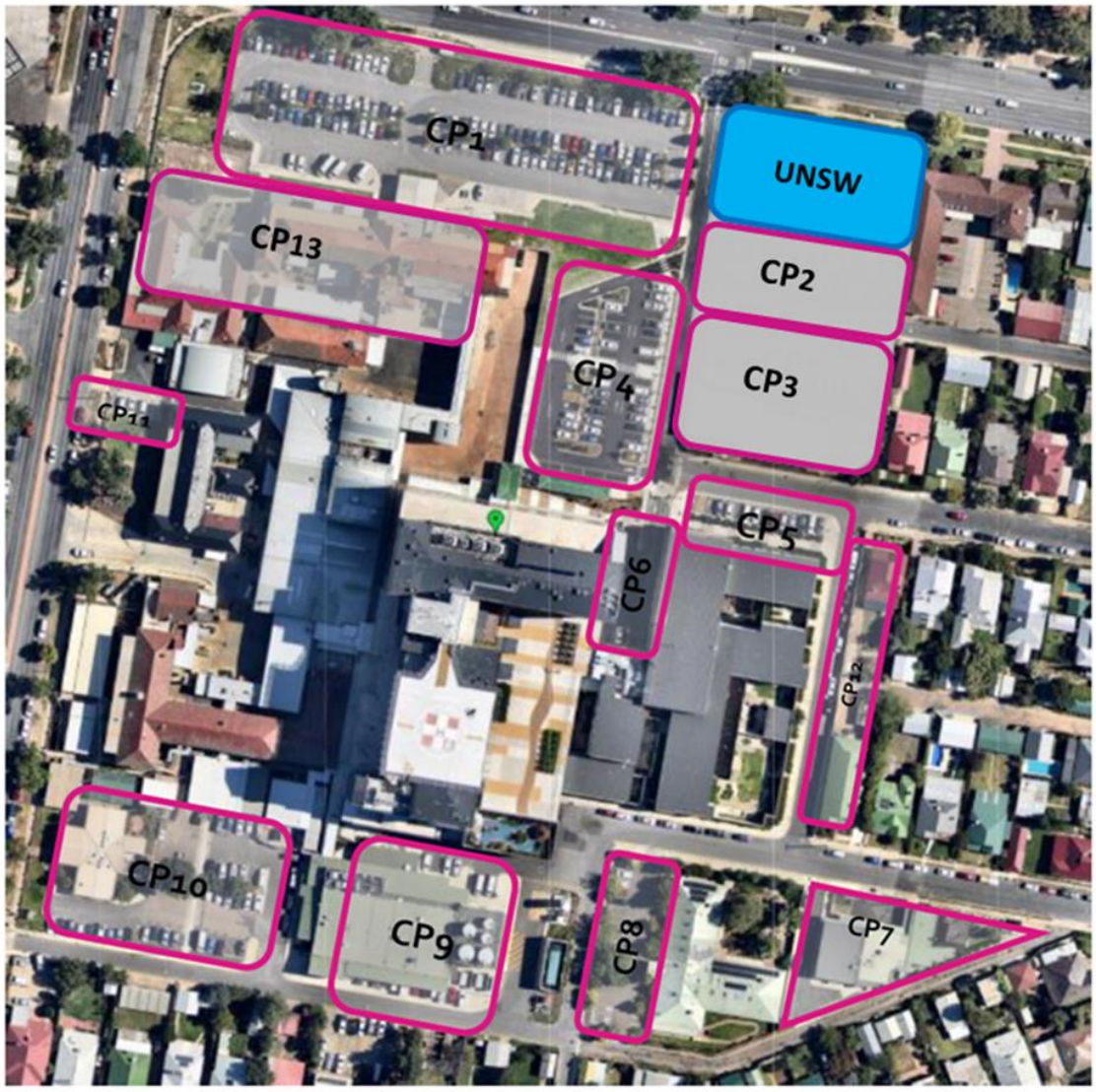
Lane from Docker Street (left in/ left out only), with on-street parking also located along Yabtree Street and Yathong Street accessible via Lewis Drive and Murray Street.

2.3. Car Parking

2.3.1. Parking Supply

A parking demand study has been prepared by ptc. in 2018. Figure 2.4 provides an understanding of the existing car parking facilities at the completion of Stage 3.

Figure 2.4: Campus Car Parking Facilities at End of Stage 3



Source: ptc. parking demand study dated June 2018

Table 2.1 identifies changes that have occurred since the completion of the Parking Demand Study in 2018 and at the end of Stage 3 as follows:

- the parking provision under the Stage 3 project scope includes a net increase of 132 spaces rather than 71 spaces

- the University of NSW (UNSW) is developing an area on the north eastern corner of the campus which will result in a net loss of around 72 parking spaces.

Table 2.1: WWBH parking reconciliation at the end of Stage 3

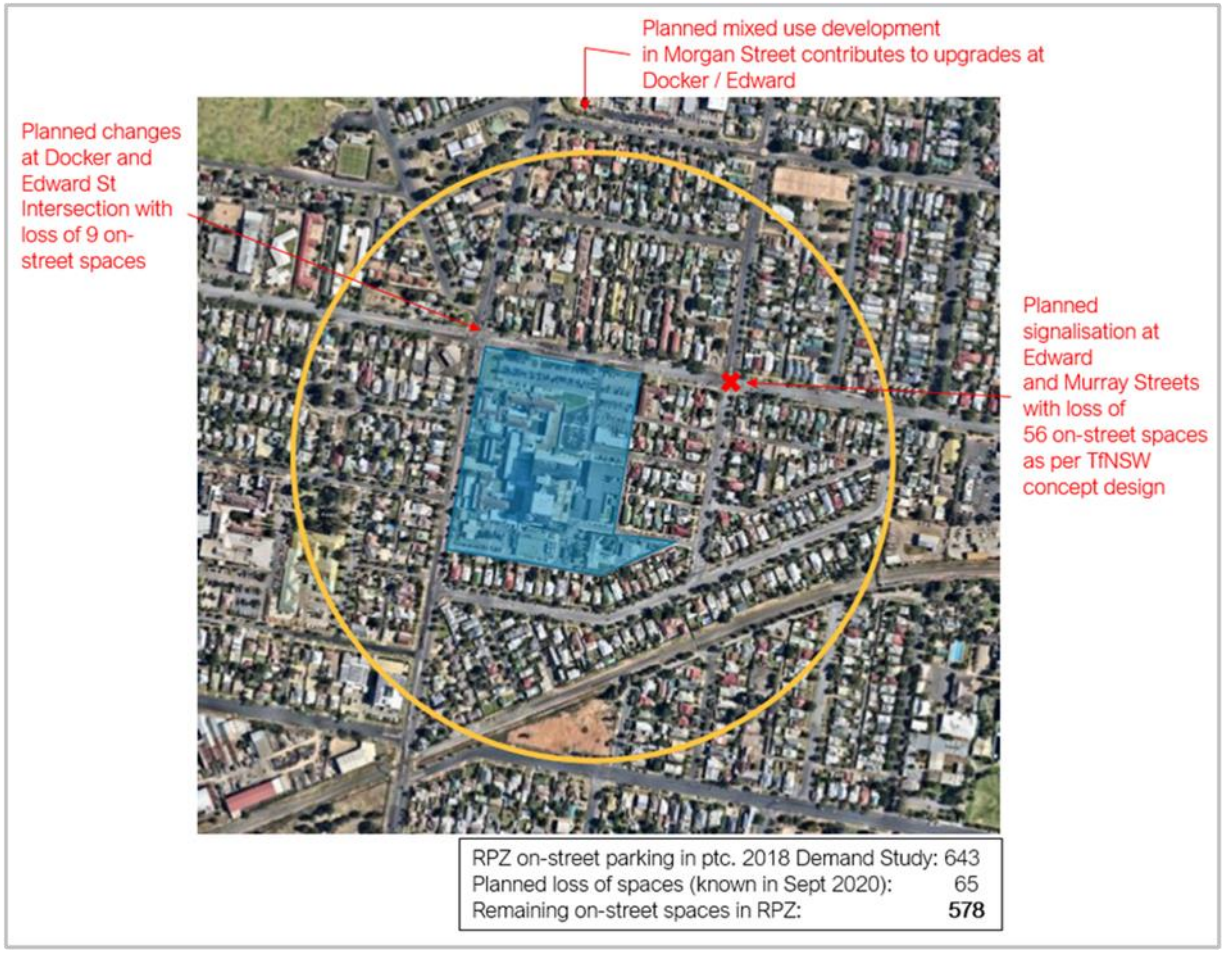
Location	Parking Demand Study – ptc. report 2018	End of Stage 3 (2020) [1]
CP1 (north car park)	136	154
CP2 (includes UNSW site)	89	17
CP3 (east – under decant facility)	31	73
CP4 (forecourt car park)	52	39
CP5 (near Mental Health)	14	14
CP6 (at emergency entry)	6	6
CP7 (Renal)	8	8
CP8 (Yathong Lodge)	15	15
CP9 (Rawson Lane)	24	24
CP10 (Dental)	44	44
CP11 (Patient Transfer)	1	24
CP12 (Peck Lane)	13	13
CP13 (Under Stage 3)	0	72
Total	**433**	**503**

[1] Final car park numbers at end of Stage 3 will be subject to minor adjustments for detailed design of landscaping, services, entries and exits.

2.3.2. Parking Demand

The 2018 ptc. parking demand study identified a current and projected shortfall in parking. The existing shortfall is currently being meet by surrounding on street parking, however the ptc. parking demand study identifies that the projected parking demand shortfall in the future years of 2026/27 and 2031/32 cannot be fully met by off campus parking supply and is reliant on the Relevant Parking Zone (RPZ). The RPZ for the hospital has been measured using a radius of 400 metres approximately from the centre of the hospital campus. This identified on-street parking locations suitable to be utilised by the hospital. At the time of the Parking Demand Study it was identified that there were around 643 on-street spaces within the RPZ, at completion of Stage 3, with the known intersection improvements there is expected to be around 578 spaces within the RPZ as outlined in Figure 2.5.

Figure 2.5: Changes to on-street parking supply in the RPZ



The Parking Demand Study acknowledges the current reliance on on-street parking with the RPZ outlining that based on the existing parking demand around 411 spaces are accommodated on-street and projecting there to be a campus shortfall of around 677 spaces in the future 2031/ 32 scenario.

2.4. Road Network Performance

2.4.1. Site Observations

The following site observations were noted in Section 6.1.1 of the *Wagga Wagga Base Hospital Traffic Analysis Final Report October 2019, by ptc* (ptc. traffic report):

- Regarding the direct access locations to the hospital, a slightly longer delay for the right turn from Sturt Highway into Lewis Drive was observed in the AM peak compared to the PM peak due to a heavier westbound flow. However, vehicles were able to be accommodated fully within the right turning bay and there was no impact on the eastbound through movement on Sturt Highway. This was also not an issue during the PM peak as most of the hospital related traffic was exiting the site.
- Long delays were observed for right turning vehicles from Murray Street to the Sturt Highway and from Brookong Avenue to the Sturt Highway in both the AM and PM peaks. This was due to the

heavy traffic movements along Sturt Highway and both these intersections were being priority controlled.

- In relation to public safety for Sturt Highway (Edward Street)/ Murray Street, whilst there was sufficient space for left and right turn movements to occur simultaneously from Murray Street (south approach), motorists turning left had limited sight distance due to obstructions from awaiting right turning vehicles. Furthermore, vehicles intending to continue straight ahead on Murray Street (north-south movements), crossing Sturt Highway, were generally only aware of vehicular traffic to their left and right and unaware of the number of pedestrians crossing Murray Street on the opposite side.

2.4.2. Existing Intersection Operation

The operation of the key intersections within the study area have been assessed in the ptc. traffic report using SIDRA INTERSECTION[1] (SIDRA), a computer-based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the TfNSW, is vehicle delay. SIDRA determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 2.2 shows the criteria that SIDRA adopts in assessing the level of service.

Table 2.2: SIDRA level of service criteria

Level of service (LOS)	Average delay per vehicle (secs/veh)	Traffic signals, roundabout	Give way & stop sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

A summary of the existing intersection operating conditions from the ptc. traffic report is provided in Table 2.3.

[1] Program used under license from Akcelik & Associates Pty Ltd.

Table 2.3: Existing intersection operating conditions

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Sturt Highway/ Docker Street	AM	0.73	46	160	D
	PM	0.85	51	190	D
Sturt Highway/ Lewis Drive	AM	0.19	6	2	A
	PM	0.30	6	2	A
Sturt Highway/ Murray Street	AM	0.53	31	14	C
	PM	1.10	119	61	F
Murray Street/ Yabtree Street	AM	0.04	5	1	A
	PM	0.03	2	1	A
Docker Street/ Rawson Lane	AM	0.23	5	1	A
	PM	0.18	6	1	A
Murray Street/ Yathong Street	AM	0.04	5	1	A
	PM	0.04	5	1	A
Docker Street/ Brookong Avenue	AM	0.38	10	40	A
	PM	0.40	10	49	A
Murray Street/ Brookong Avenue	AM	0.10	4	1	A
	PM	0.07	4	2	A

Source: ptc. traffic report

The results indicate the majority of intersections near the WWBH site are currently operating below capacity except for Sturt Highway/ Murray Street and Sturt Highway/ Brookong Avenue intersections.

No significant queuing occurs under the existing conditions, except for the intersection of Sturt Highway/ Docker Street. Northbound queues of approximately 160 metres were observed during the AM peak period. A westbound queue of approximately 190 metres was observed in the westbound direction extending back to Lewis Street.

3. DEVELOPMENT

03

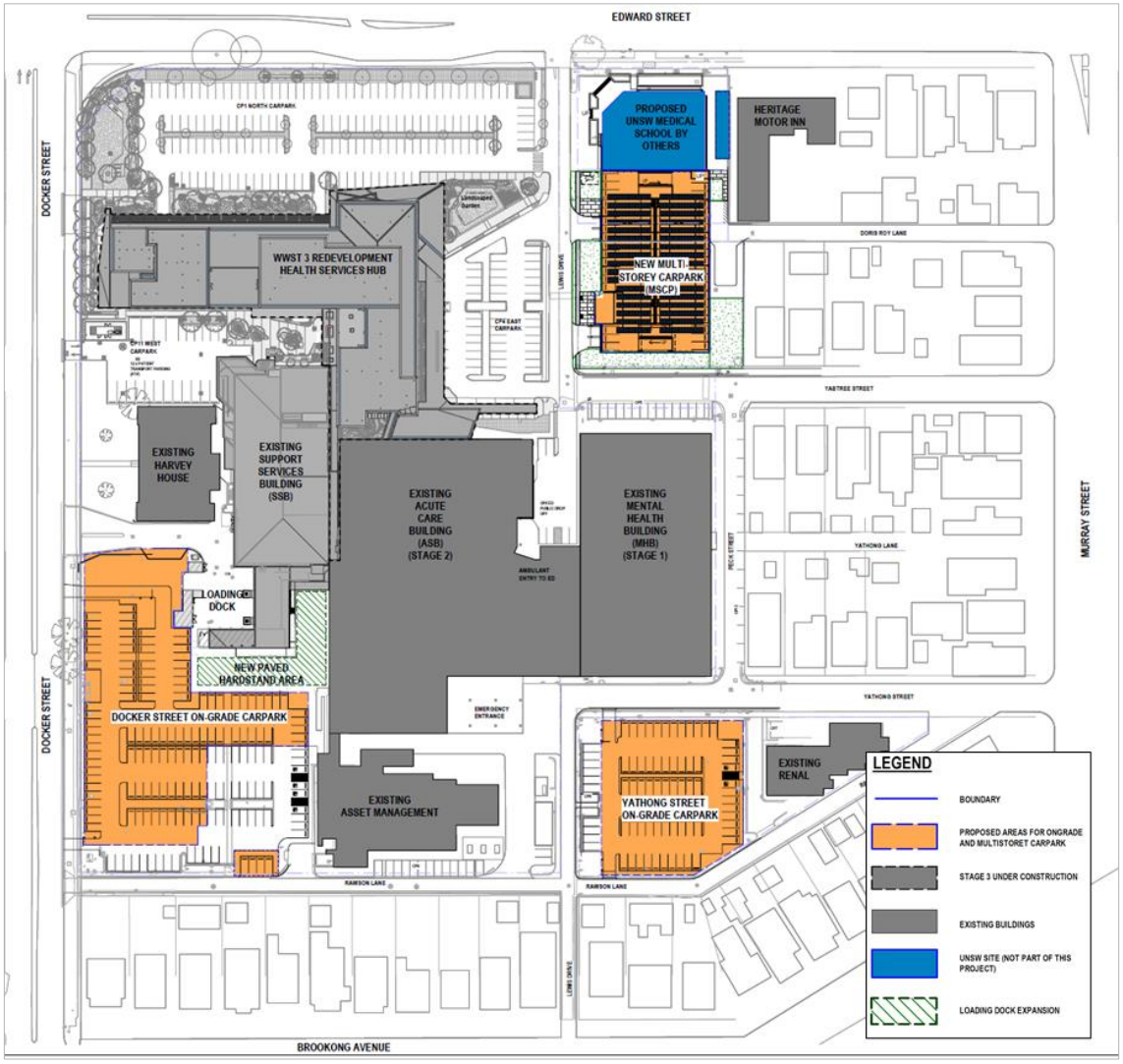
3.1. Overview

The proposal includes the construction of a new Multi Storey Car Park (MSCP) and expansion of two existing car parks as part of the WWBH Car Park project:

- MSCP on the northern side of the site
  - includes 358 spaces, a net increase of 268 spaces.
- Docker Street car park on the western side of the site
  - includes 158 spaces, a net increase of 114 spaces.
- Yathong Street car park on the southern side of the site
  - includes 74 spaces, a net increase of 59 spaces.

The proposed location of these three car parks is presented Figure 3.1.

Figure 3.1: Proposed car park site plan



Source: Jacobs, Drawing Number IA172200-WCP-AR-1220 dated 30 October 2020

The new carparks will increase the total WWBH campus parking supply to around 944 spaces, resulting in a net increase of around 441 parking spaces from the end of the Stage 3 redevelopment. This will assist to address the existing shortfalls and potential increase in parking demand driven by future population growth and service expansions as outlined in Section 0.

A summary of the parking across the campus at the completion of the WWBH Car Park Project is provided in Table 3.1.

Table 3.1: WWBH Car Park Project – parking reconciliation

Location	End of Stage 3 (2020) [1]	End of Car Park Project	Net Increase
CP1 (north car park)	154	154	
CP2 (includes UNSW site)	17	358	+268
CP3 (east – under decant facility)	73		
CP4 (forecourt car park)	39	39	
CP5 (near Mental Health)	14	14	
CP6 (at emergency entry)	6	6	
CP7 (Renal)	8	8	
CP8 (Yathong Lodge)	15	74	+59
CP9 (Rawson Lane)	24	24	
CP10 (Dental)	44	158	+114
CP11 (Patient Transfer)	24	24	
CP12 (Peck Lane)	13	13	
CP13 (Under Stage 3)	72	72	
Total	**503**	**944**	**441**

[1] Final car park numbers at end of Stage 3 will be subject to minor adjustments for detailed design of landscaping, services, entries and exits.

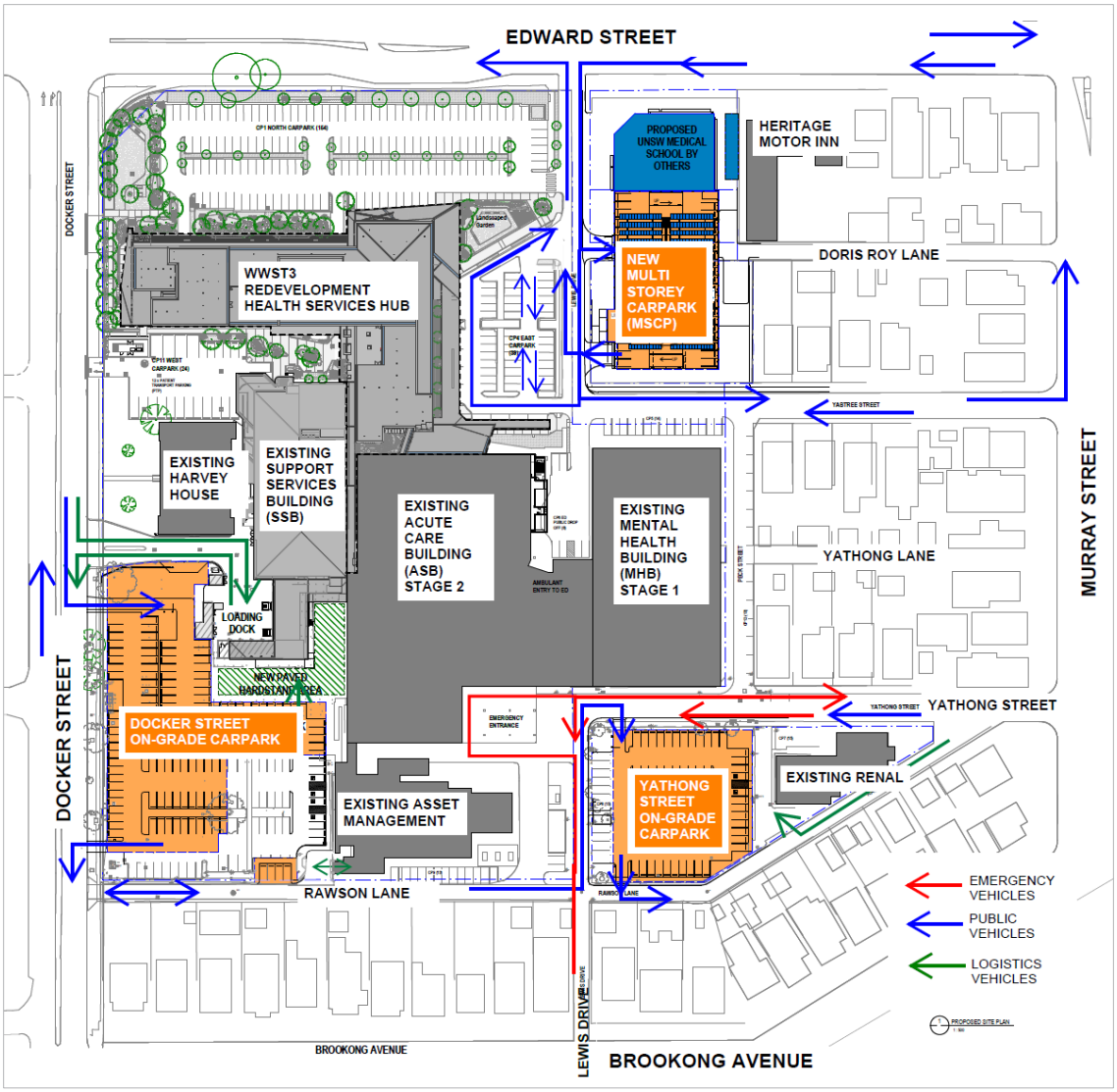
Access to the MSCP will be provided via Lewis Drive, allowing for all movements in and out of the car park.

The Docker Street car park will be accessed via two new separate entry and exit driveways on Docker Street, with entry via the northern access and exit via the southern access. Access to the Docker Street car park will be restricted to left-in/ left-out.

Yathong Street will provide entry to the Yathong Street car park while Rawson Lane will accommodate the exit under a left-out only arrangement, with both located in the same location as the existing accesses to the car park.

A summary of the vehicle access arrangements to the car parks is provided in Figure 3.3.

Figure 3.2: Car park access arrangements



Source: Jacobs October 2020

3.2. Car Parking Requirements

The scope of works as part of this development includes the increase in off-street parking at the WWBH to assist in addressing existing shortfalls as outlined in Section 0 and potential increase in parking demand driven by future population growth and service expansions. As such, the proposed development itself does not generate a parking requirement.

It is noted that the proposed increase in car parking spaces on the hospital campus will also offset the proposed loss of around four on-street parking spaces on Docker Street to accommodate the new proposed Docker Street car park accesses, with these spaces likely to currently be used by hospital visitors. The increased on-site car parking supply will also seek to accommodate staff and visitor parking demand currently occurring in locations on-street that will be removed as a result of proposed access arrangements.

3.3. Accessible Parking

The accessible car parking requirements for different development types are set out in the National Construction Code Building Code of Australia (BCA) 2019. The relevant accessible parking requirements are:

- Hospital (non-outpatient area): One space per 100 parking spaces
- Hospital (outpatient area): One space per 50 parking spaces up to 1,000 parking spaces and one space per 100 parking in excess of 1,000 parking spaces.

Based on adopting the higher outpatient rate the following accessible spaces are required:

- MSCP - 358 parking spaces, requires eight accessible spaces
- Yathong Street car park – 74 parking spaces, requires two accessible spaces
- Docker Street car park – 158 parking spaces, requires four accessible spaces.

This represents a total of 14 accessible spaces, which have been accommodated. Should the Yathong Street and Docker Street car parks be designated as staff parking areas, the non-outpatient rate could be applied resulting in one and two spaces respectively.

3.4. Car Parking Layout Review

The car park layout has been reviewed against the requirements of the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009) and Health Infrastructure's Sustainable Hospital Car Park Investment Program (SHCPIP) Hospital Car Park Design Guidelines.. This assessment included a review of the following:

- bay and aisle width
- adjacent structures
- turnaround facilities
- circulation roads and ramps
- ramp grades
- internal queuing
- parking for persons with disabilities.

A summary of the key considerations relating to traffic and parking in the SHCPIP Hospital Car Park Design Guidelines is provided in Table 3.2.

Table 3.2: Health Infrastructure car parking design guidelines summary

Item	Detail/ recommendation	Comment
Entry and exit points	Car parks up to 600 cars: 2 lanes inbound, 2 to 3 lanes outbound Car parks from 700 to 1,200 cars: 3 lanes inbound, 4 lanes outbound	Recommend 2 lanes inbound and 2 lanes outbound
Pedestrian access	Pedestrian and vehicular movements should be separated	Except for the parking aisles, where pedestrians and vehicles are required to share the same space
Floor to floor height	Designs should incorporate floor to floor heights of 2.7m	
End bays	An 8.1m wide end bay should be added to the long ends of the floor plate.	Blinds aisles shall be extended by 1 metre beyond the edge of the end space.
Ramp widths	Single ramp - 3.4m minimum to 3.7m maximum between kerbs. Two way ramps - 6.3m minimum between kerbs.	Allows either 2 car bays for a single ramp, 3 car bays or 4 small car bays for a two way ramp
Ramp gradients	Up to 20m long - maximum 1:5 gradient Over 20m long - maximum 1:6 gradient.	Maximum gradient of 1:8 is used for a hospital car park. The 1:8 gradient is intended to assist in facilitating pedestrian movement, as well as vehicular movement. Rationale for the 1:8 gradient includes instances where utilisation of ramps may be used for minimum length fire egress routes in the event of an emergency, elimination of grade transitions to the decks which could potentially interfere with circulation, and line of sight (e.g. if crossing a pedestrian path).
Car Park User Class	Parking spaces should be a minimum 2.6m wide and 5.4m long.	The classification for a hospital car park as defined in AS2890.1 is: • Patients (Car Park User Class 3) • Visitors (Car Park User Class 3) • Staff (Car Park User Class 1) All car parks are to be designed to User Class 3 to allow hospitals the flexibility to change the user type as required.
Accessible Parking Spaces	Two accessible parking spaces are formed from 3 standard 2.5m wide car parking spaces	The number of accessible parking spaces should be based on a whole campus approach
Access control	All car spaces on a hospital campus are required to have access control equipment, ICT connection to security and car park operator equipment, common signage and wayfinding, inclusion in operational planning (designation of spaces for particular uses, or for DDA requirements).	Reference: Section 2.4 of SHCPIP Volume 3 v1.2 dated May 2019 The design should include the ability to provide access control infrastructure in the future.

The review of the above elements indicates that the proposed car parks are generally consistent with the abovementioned Australian Standards and Guidelines and are expected to operate satisfactorily.

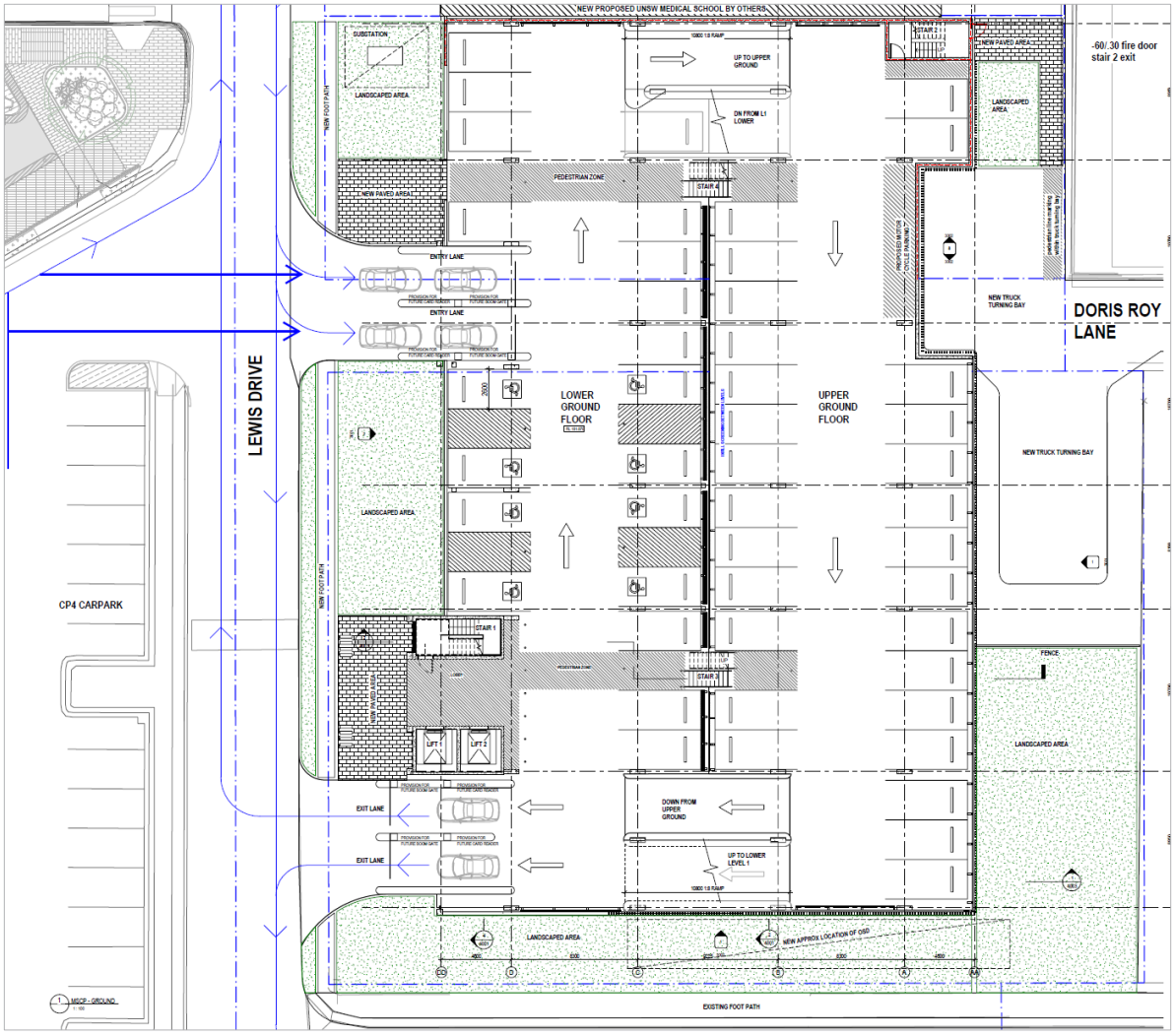
Parking spaces are designed to be at least 2.6 metres wide by 5.4 metres long which would cater for both staff and visitor parking requirements to meet the Health Infrastructure guidelines. Internal aisle widths are designed to be a minimum of 5.8 metres which meets the minimum requirement under AS/NZS2890.1:2004.

Further detail of the review of the various design elements in relation to traffic is outlined further below in this section, while a compliance review and vehicle swept path assessment for the various areas are provided in Appendix A.

3.4.1. Multi Storey Car Park

A six level MSCP including 358 parking spaces (additional 268 spaces including eight accessible spaces) is proposed at the existing CP2/CP3 location to the south of the proposed UNSW Medical School. The entry and exit to the MSCP would be separated and accessed directly from Lewis Drive. The entry is aligned adjacent to the exit from CP4 and the drop off area to provide direct access for those users to proceed into the MSCP easily should parking not be available in CP4. The proposed site layout for MSCP is presented in Figure 3.3.

Figure 3.3: Proposed MSCP ground floor plan



Source: Jacobs, Drawing Number IA172200-WCP-AR-1300 dated 30 October 2020

As part of the project, the access to the northern end of CP4 will be widened to be aligned with the entry to the MSCP to allow vehicles to enter the MSCP after leaving the pick-up and drop-off area. The exit from the MSCP has also been located as far south as possible on Lewis Drive to maximise the offset from the CP4 exit and the entry to the MSCP. Two entry lanes and two exit lanes are provided to the MSCP in accordance with SHCPIP Hospital Car Park Design Guidelines. Allowance has been made for future provision of boom gates. This includes three metre entry and exit lanes with a 300-500mm central median for boom gate infrastructure.

Eight accessible spaces have been provided and associated shared areas are 2.6 metres wide so that they can be converted to standard spaces if required. Additional 300mm space is also be provided between parking spaces and high structures (i.e. walls).

In providing a queuing assessment for the MSCP should boom gates be installed at the access in the future, a parking turnover rate of 0.54 trips per car space for the MSCP in the critical morning peak hour has been adopted based on GTA's recent experience for public car parks at other hospitals. This rate would result in a 95th percentile queue of two vehicles for two boom gates (one vehicle per lane). The plans indicate a setback from Lewis Drive which could accommodate up to four vehicles (two in each lane). It is noted that this is a conservative assessment for understanding the likely queuing for a worst-case scenario, with the ptc. traffic report anticipating traffic generation associated with car parking at WWBH likely to be closer to 0.4 trips per hour.

Floor to floor heights within the MSCP are 2.7 metres in line with the SHCPIP Car Park Design Guidelines, while a minimum 2.2 metre height clearance will be maintained for vehicle to overhead services, and 2.5 metres height clearance above accessible spaces and adjacent shared areas to ensure compliance with AS/NZS2890.1:2004.

As part of the Stage 3 redevelopment, Lewis Drive has been permanently converted to a 10 kilometre per hour shared zone. This provides improved connectivity between the MSCP and the hospital, as drivers must give way to pedestrians at all times in shared zones as per NSW Road Rule 83.

The design review for the car park is provided in Appendix A.

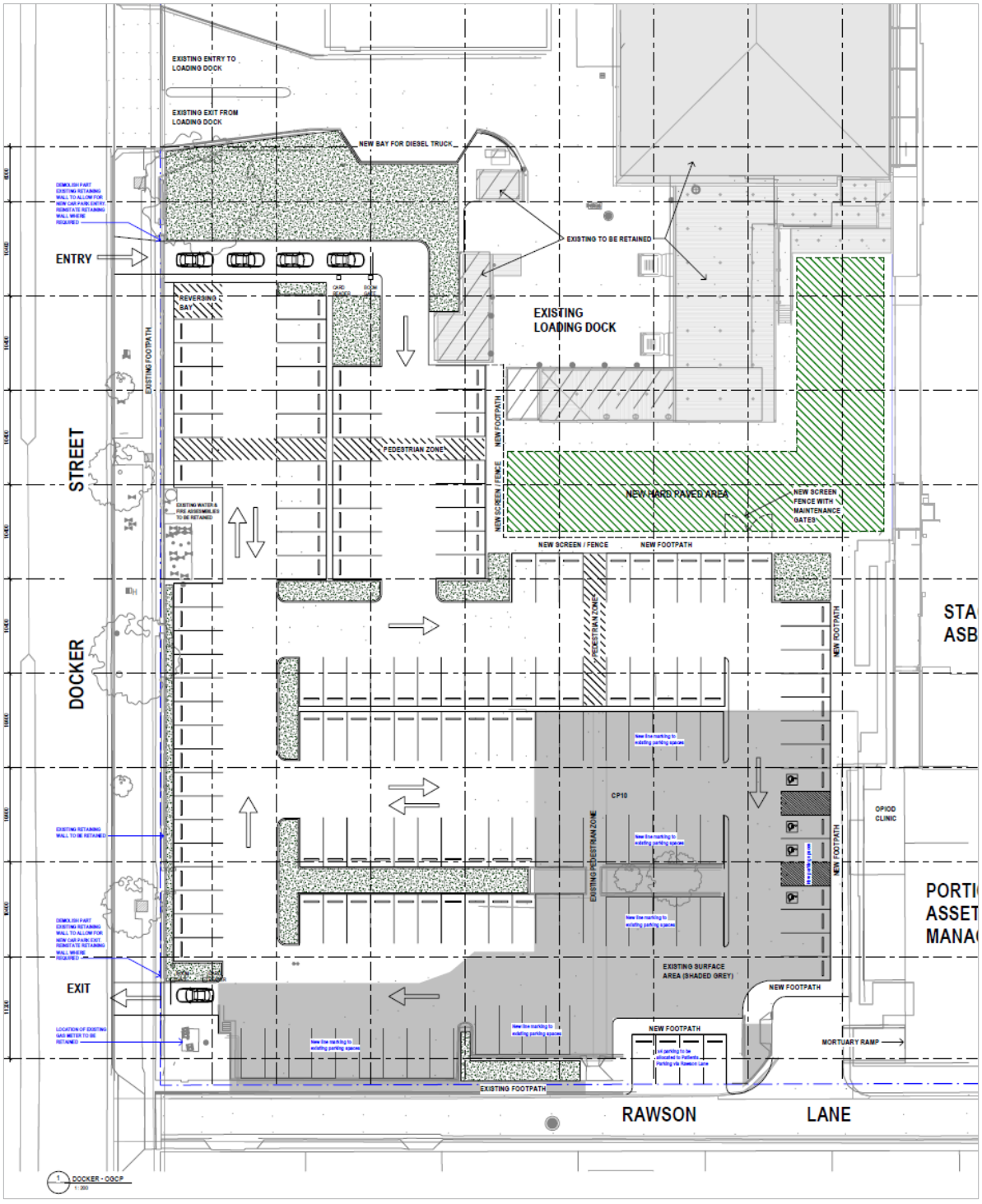
3.4.2. Doris Roy Lane – Waste Vehicle Access

With the construction of the MSCP, a section of Doris Roy Lane will be closed and the laneway terminated on the eastern side of the MSCP. A review of waste vehicle turning requirements has been undertaken to ensure Council waste collection vehicles can turn around at the end of Doris Roy Lane. The review is provided in Appendix A.

3.4.3. Docker Street Car Park

The existing CP10 is proposed to be upgraded to include a 158 space (additional 114 spaces) at-grade car park with access via Docker Street. This car park will likely be allocated to staff only. The proposed car park layout is presented in Figure 3.4.

Figure 3.4: Proposed Docker Street car park site plan



Source: Jacobs, Drawing Number IA172200-WCP-AR-13G1 dated 16 October 2020

The access arrangement is proposed to provide separated entry and exit directly to/ from Docker Street, while the existing access to CP10 via Rawson Lane will be removed. Access to the mortuary via Rawson Lane near the existing access to CP10 will be maintained. The modifications to the access arrangement to CP10 are proposed for the following reasons:

- Rawson Lane currently has existing geometry constraints, with the carriageway currently only being around five metres wide to accommodate two-way traffic flow.
- There is limited opportunity to widen Rawson Lane, as this would impact the available footpath width on the northern side of the road and reduce pedestrian amenity.
- Converting Rawson Lane to one-way would adversely impact existing emergency vehicle access arrangements.
- If the current access arrangement is retained, the proposed increase in car parking supply in this location would increase the number of vehicles accessing Rawson Lane which would impact on emergency vehicle access and response times.

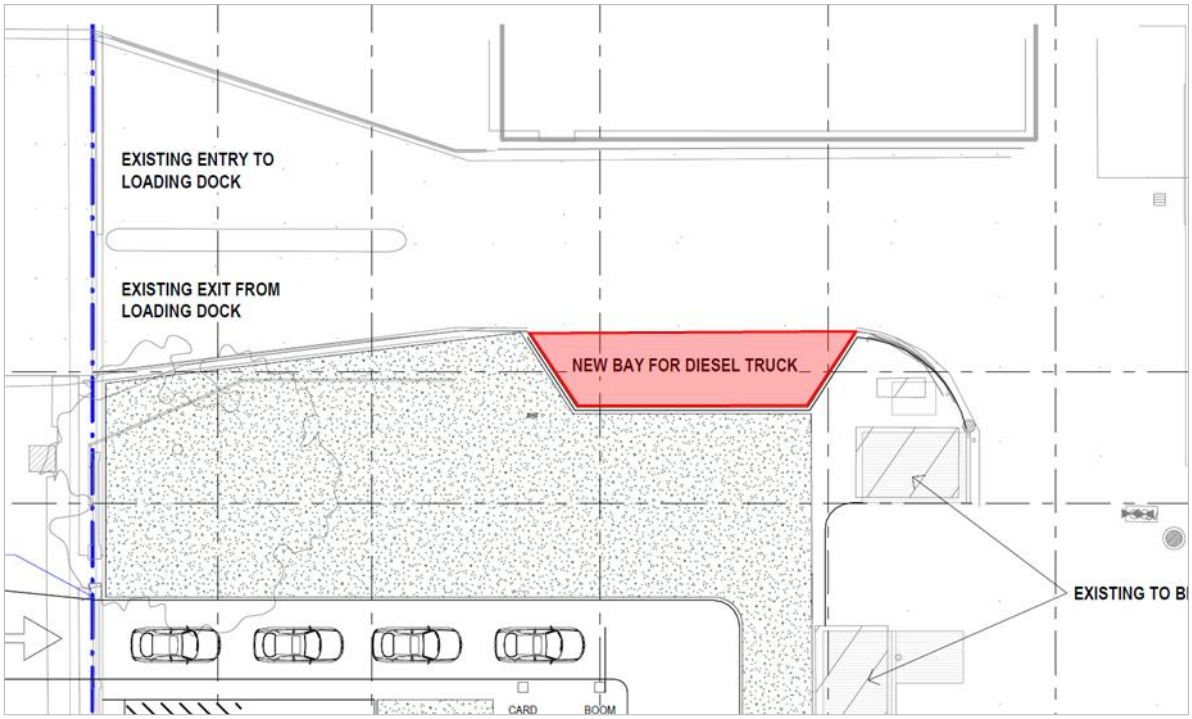
Considering the above, two new driveways are proposed along Docker Street to provide separate entry and exit points to the car park. The new driveway locations are expected to result in the loss of around four on-street parking spaces on Docker Street. These spaces currently have 2P parking restrictions and would likely primarily accommodate visitor parking demand for the hospital. As such, the loss of these four spaces would therefore be offset by the increased visitor parking supply being provided in the proposed MSCP.

Should this car park be allocated as a staff only car park them boom gates would be provided and therefore the allowance in the design for boom gates has been included. On the basis this could potentially be a staff car park a higher parking turnover rate of 0.65 trips per car space in the critical morning peak hour (staff arrival) and allowing for a condensed arrival rate for staff vehicles has been applied. This would likely result in a 95th percentile queue of two to four vehicles for one boom gate. A review of the proposed Docker Street car park layout indicates capacity for up to four vehicles and therefore it is not anticipated that queues would extend to Docker Street. As mentioned previously, this assessment is considered conservative for understanding the likely queuing for a worst-case scenario, with the ptc. traffic report anticipating traffic generation associated with car parking at WWBH likely to be closer to 0.4 trips per hour.

The proposed redeveloped will retain the existing access to the mortuary. A swept path assessment has been prepared and included in Appendix A to ensure the appropriate design vehicle is still accommodated within the proposed arrangement.

As part of the proposal, it is also proposed to provide a hard stand area to the south of the existing loading dock access between the loading dock access and the proposed Docker Street car park, to provide an area for diesel refilling vehicles to refill the tank without obstructing the loading dock access as shown in Figure 3.5.

Figure 3.5: Proposed diesel refilling hardstand area

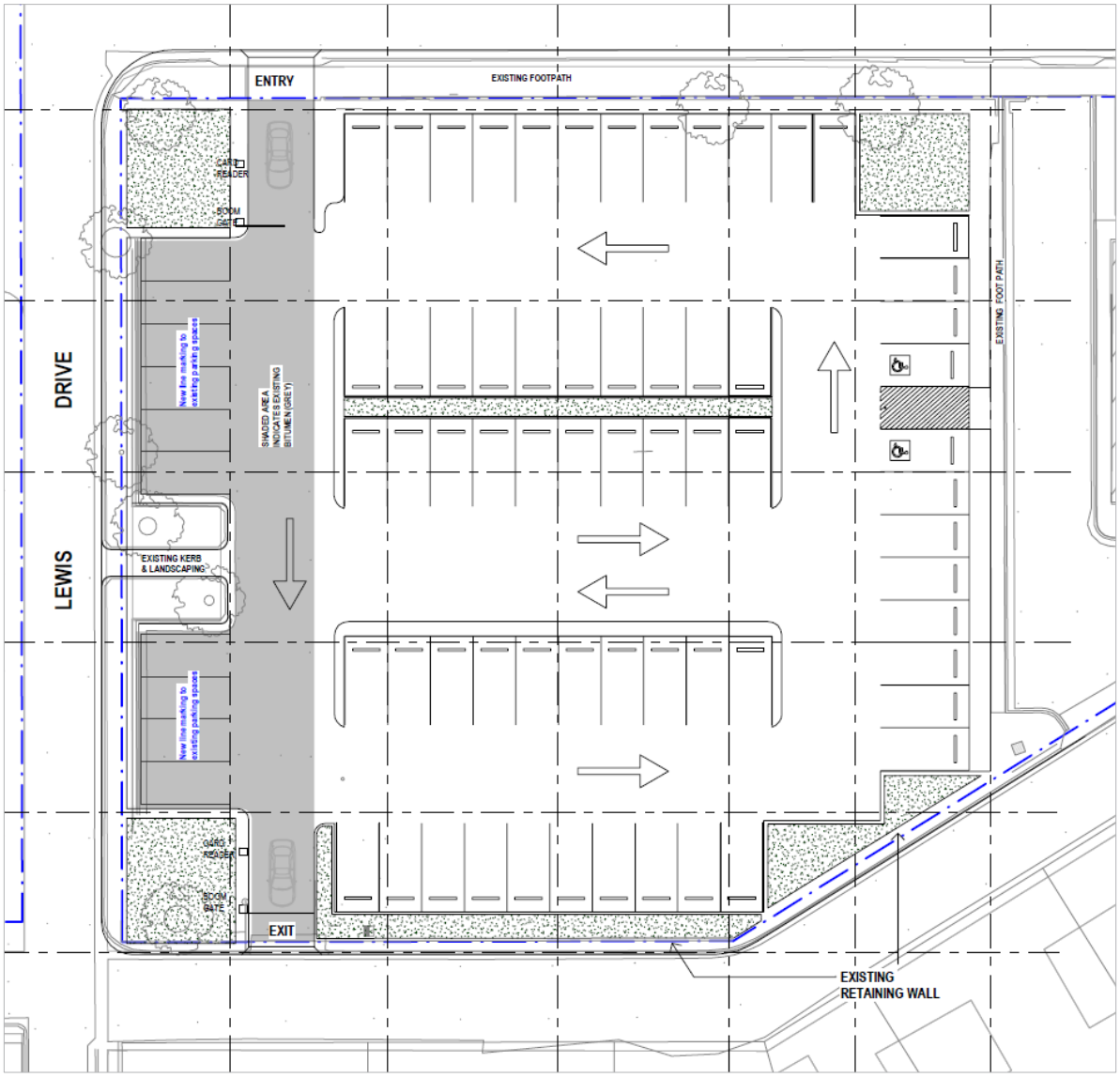


Source: Jacobs, Drawing Number IA172200-WCP-AR-13G1 dated 30 October 2020

3.4.4. Yathong Street Car Park

The existing CP8 is proposed to be upgraded to provide a 74 space (additional 59 spaces including two accessible spaces) at-grade car park with entry via Yathong Street and exit onto Rawson Lane. The Yathong Street entry will allow for left and right turns in, while the Rawson Lane exit will only allow for left-out movements to minimise traffic movements near the emergency vehicle access route at Lewis Drive. The left out only restriction from the car park is considered appropriate as it would provide an improved environment around the emergency vehicle route to the west of the car park. The left out restriction is anticipated to only impact a small portion of vehicles exiting the car park. This primarily includes those departing to the south who currently travel west on Rawson Lane and turn left onto Docker Street who will now have to travel east on Rawson Lane, turn right onto Murray Street, right onto Brookong Street and left onto Docker Street. It is also anticipated that the Yathong Street car park would be used for staff shift workers and therefore would have a low turnover, therefore reducing the impact to residents along Rawson Lane. The proposed car park layout is provided in Figure 3.6.

Figure 3.6: Proposed Yathong Street car park site plan

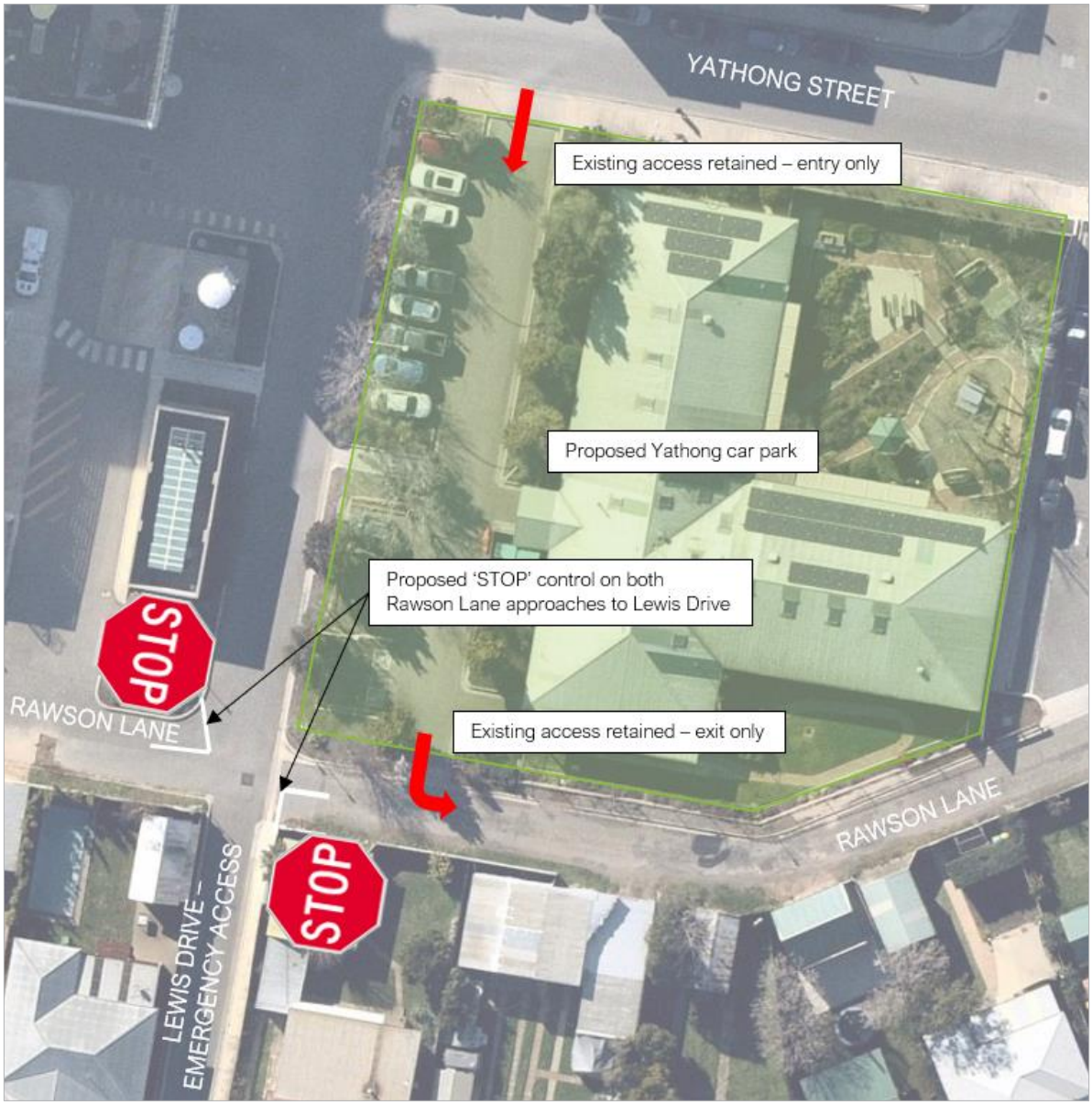


Source: Jacobs, Drawing Number IA172200-WCP-AR-13G2 dated 30 October 2020

The following has been considered in the preparation of the Yathong Street car park layout:

- The design allows for potential boom gate infrastructure in the future.
- There is potential for a 95th percentile queue of up to one vehicle on entry to the car park based on the provision of a boom gate at the single lane entry.
- Traffic management improvements further to the left-out only restriction from the Yathong Street car park are recommended at the intersection of Rawson Lane and Lewis Drive to ensure ambulance access has priority as shown in Figure 3.7.

Figure 3.7: Rawson Lane/ Lewis Drive traffic improvements



Base image source: Nearmap

The car park design review is provided in Appendix A.

4. TRAFFIC IMPACT ASSESSMENT

04

4.1. Future Site Traffic Generation

As mentioned previously, the ptc. traffic report included a SIDRA analysis for the surrounding intersections, which included assessment of the Stage 3 redevelopment in a 2031 future design year.

The following assumptions were made by ptc. for the SIDRA assessment post development 2031 traffic conditions:

- two per cent linear annual traffic growth, back of house/delivery traffic and cumulative traffic volumes have been included
- the net increase of 100 car parking spaces in the Hospital campus as part of Stage 3 development.

Subsequent to the ptc. traffic report being prepared, an additional 32 parking spaces were added as part of the Stage 3 redevelopment which were not assessed as part of the SIDRA assessment. The ptc. traffic report estimated the traffic associated with the Stage 3 redevelopment based on a rate of 0.4 trips per car parking space in the AM and PM peak hours. As such, the additional 32 parking spaces that were provided for the Stage 3 redevelopment further to that assessed in the ptc. traffic report are expected to generate an additional 13 vehicle trips in both the AM and PM peak hours.

The proposed development as part of this application itself is not expected to result in an increase in traffic generation for the site further to the Stage 3 redevelopment, but rather seek to accommodate some of the parking demand that currently occurs on-street as a result of existing shortfalls in parking on-site. That said, there is expected to be some redistribution of existing traffic associated with staff and visitors who currently park on surrounding streets now parking on the hospital campus. Considering the net increase of 441 car parking spaces and the traffic generation rate of 0.4 trips per parking space, it is anticipated that around 176 existing trips on the surrounding road network would be diverted to the site access points that provide connection to the proposed MSCP, Docker Street car park and Yathong Street car park.

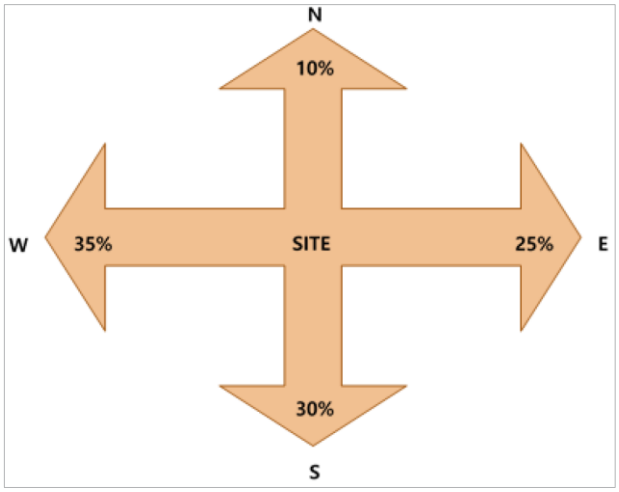
4.2. Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development would be influenced by a number of factors, including the:

- configuration of the arterial road network in the immediate vicinity of the site
- existing operation of intersections providing access between the local and arterial road network
- distribution of households near the site
- likely distribution of employee's residences in relation to the site
- configuration of access points to the site.

Having consideration to the above, for the purposes of estimating vehicle movements, the directional distributions shown in Figure 4.1 have been applied to the anticipated increase of 13 vehicle trips in the AM and PM peak hours further to what was modelled in the ptc. traffic report. This distribution is consistent with that presented in the ptc. traffic report and agreed between HI, Savills, WWCC and TfNSW (formerly Roads and Maritime Services) in the Traffic and Transport Consultation Committee (TTCC) for the Stage 3 redevelopment in 2019.

Figure 4.1: Assumed traffic distributions



In addition, the directional split of traffic (i.e. the ratio between the inbound and outbound traffic movements) of 80 per cent inbound and 20 per cent outbound in the AM peak hour and 30 per cent inbound and 70 per cent outbound in the PM peak hour has been assumed, consistent with the ptc. traffic report.

Further to the above, a redistribution of existing traffic has also been assessed at the Sturt Highway/ Lewis Drive, Docker Street/ Rawson Lane, Murray Street/ Yabtree and Murray Street/ Yathong Street intersections. This redistribution of existing traffic considers the above assumptions regarding directional distribution and split, as well as the proposed proportional increase in car parking supply in the various locations on the hospital campus. Specifically, the MSCP is expected to accommodate 61 per cent of the redistibuted traffic, the Docker Street car park is expected to accommodate 26 per cent of the redistibuted traffic and the Yathong Street car park is expected to accommodate the remaining 13 per cent of redistributed traffic.

It is noted that this redistribution of existing traffic is largely expected to occur at the intersections providing connection to these car parks. Any redistribution of existing traffic at other surrounding intersections further afield is expected to be minor and within daily fluctutations of turning movements at these intersections.

The anticipated redistribution of existing traffic at the Sturt Highway/ Lewis Drive, Docker Street/ Rawson Lane, Murray Street/ Yabtree and Murray Street/ Yathong Street intersections is shown indicatively in Figure 4.2 and Figure 4.3.

Figure 4.2: Anticipated redistribution of existing AM peak hour traffic at site access points

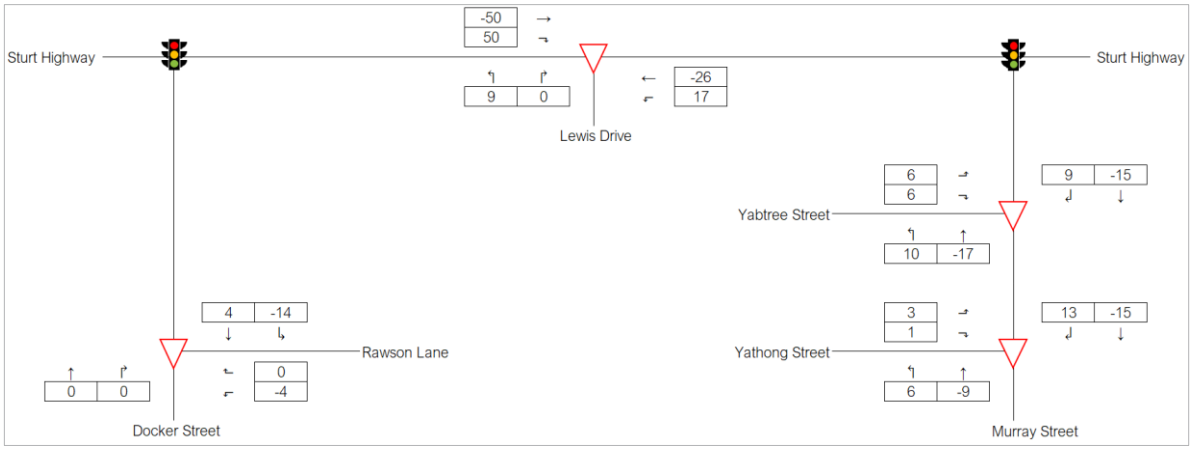
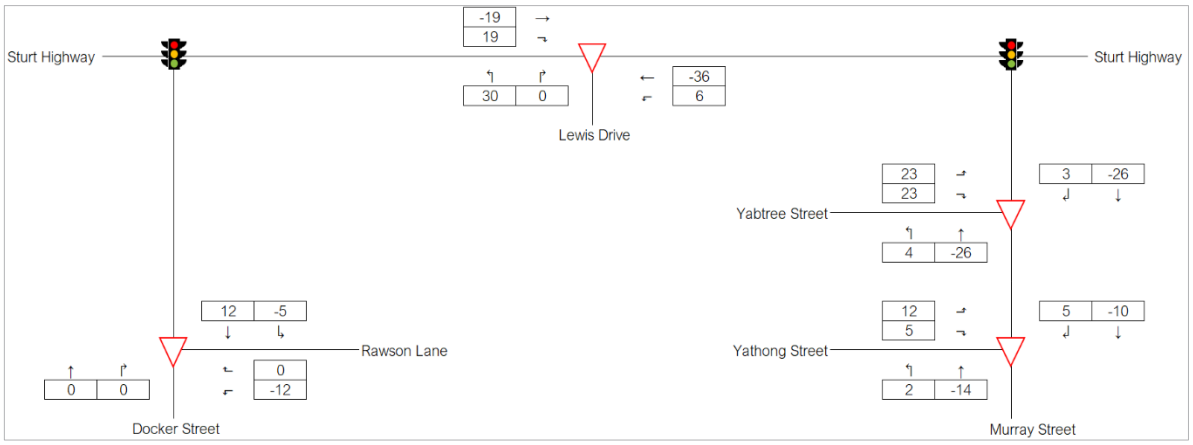


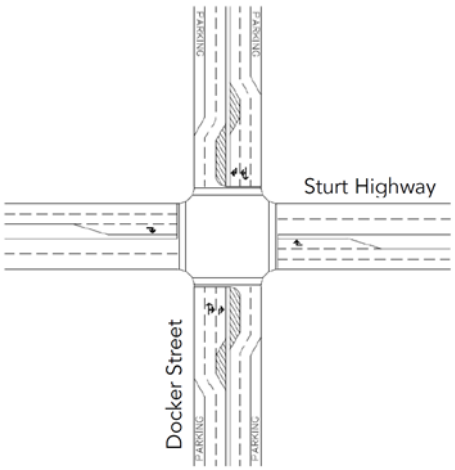
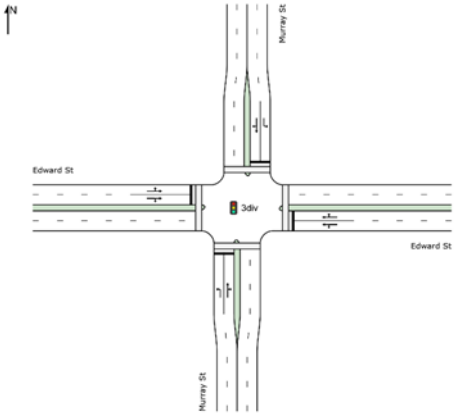
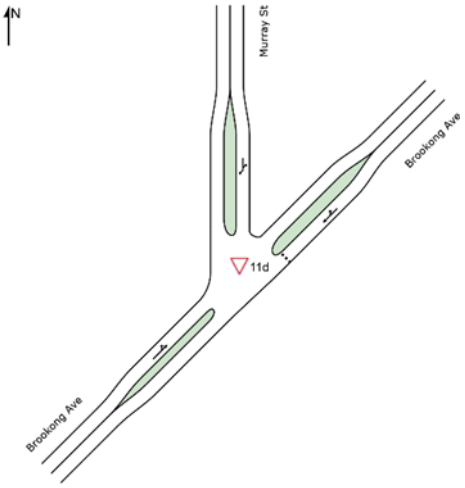
Figure 4.3: Anticipated redistribution of existing PM peak hour traffic at site access points

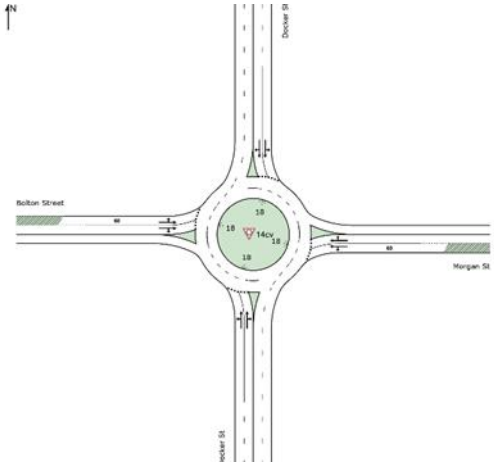


4.3. Mitigating Measures and Intersection Works

As outlined in the ptc. traffic report, some surrounding intersections are expected to operate at/ over capacity in 2031 with the proposed background growth of two per cent per annum and therefore require upgrades to increase capacity as outlined in Table 4.1.

Table 4.1: Proposed intersection improvements

Intersection and proposed works	Proposed layout
Sturt Highway (Edward Street)/ Docker Street - increased capacity through converting lane configurations to accommodate the critical movements	
Sturt Highway (Edward Street)/ Murray Street - upgrade to a signalised intersection	
Murray Street/ Brookong Avenue - the rearranged traffic priority from the Brookong Avenue East to Murray Street North	

Intersection and proposed works	Proposed layout
Docker Street/ Morgan Street/ Bolton Street -upgraded to dual lane roundabout	

4.4. Traffic Impact

The ptc. traffic report mentions that with the addition of the WWBH Stage 3 Redevelopment traffic on the 2031 background traffic activity, it is expected to have minimal impact on the road network. The upgraded intersections are expected to operate at a level of service C or better in both peak periods with the Stage 3 traffic. The report also acknowledges that it is unlikely that the signalisation of Sturt Highway (Edward Street)/ Murray Street will have any negative impacts on the adjoining signalised intersections. A summary of the anticipated 2031 intersection operation of the key intersections surrounding the hospital following the proposed road upgrades as referenced from the ptc. traffic report is provided in Table 4.2.

Table 4.2: 2031 intersection operating conditions with Stage 3 development (100 parking spaces)

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Sturt Highway/ Docker Street	AM	0.89	37	150	C
	PM	1.07	39	132	C
Sturt Highway/ Lewis Drive	AM	0.24	6	3	A
	PM	0.29	7	4	A
Sturt Highway/ Murray Street	AM	0.54	14	92	A
	PM	0.67	17	122	B
Murray Street/ Yabtree Street	AM	0.13	6	1	A
	PM	0.12	6	1	A
Docker Street/ Rawson Lane	AM	0.32	6	1	A
	PM	0.44	7	1	A
Murray Street/ Yathong Street	AM	0.13	6	1	A
	PM	0.12	6	1	A

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Docker Street/ Brookong Avenue	AM	0.73	12	70	A
	PM	0.74	14	95	A
Murray Street/ Brookong Avenue	AM	0.21	4	3	A
	PM	0.17	4	3	A

Source: ptc. traffic report dated October 2019

The 2031 SIDRA model has been updated to assess the incremental increase in traffic generated by the additional 32 parking spaces provided as part of the Stage 3 redevelopment, as well as the anticipated redistribution of existing traffic on the surrounding road network as a result of the WWBH Car Park project. A summary of the intersection operation of the key intersections surrounding the hospital is provided in Table 4.3.

Table 4.3: 2031 intersection operating conditions with Stage 3 development (132 parking spaces) and redistributed traffic resulting from the WWBH Car Park project

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Sturt Highway/ Docker Street	AM	0.90	37	150	C
	PM	1.08	39	132	C
Sturt Highway/ Lewis Drive	AM	0.21	10	5	A
	PM	0.13	12	3	A
Sturt Highway/ Murray Street	AM	0.54	14	92	A
	PM	0.68	17	122	B
Murray Street/ Yabtree Street	AM	0.04	6	1	A
	PM	0.08	6	2	A
Docker Street/ Rawson Lane	AM	0.03	6	1	A
	PM	0.08	7	1	A
Murray Street/ Yathong Street	AM	0.03	6	1	A
	PM	0.04	6	1	A
Docker Street/ Brookong Avenue	AM	0.73	12	72	A
	PM	0.74	14	95	A
Murray Street/ Brookong Avenue	AM	0.08	5	3	A
	PM	0.09	7	2	A

A comparison between Table 4.2 and Table 4.3 indicates the average delay and 95th percentile queues at the surrounding intersections are generally expected to remain the same when considering the redistribution of existing traffic resulting from the WWBH Car Park project. The largest increase in average delay occurs at the Sturt Highway/ Lewis Drive intersection which is around four to five seconds and is considered minor, noting that the intersection is still expected to operate at a level of

service A overall. In fact, the level of service at all key intersections outlined above is expected to be maintained as per the SIDRA modelling results included in the ptc. traffic report.

5. CONCLUSION

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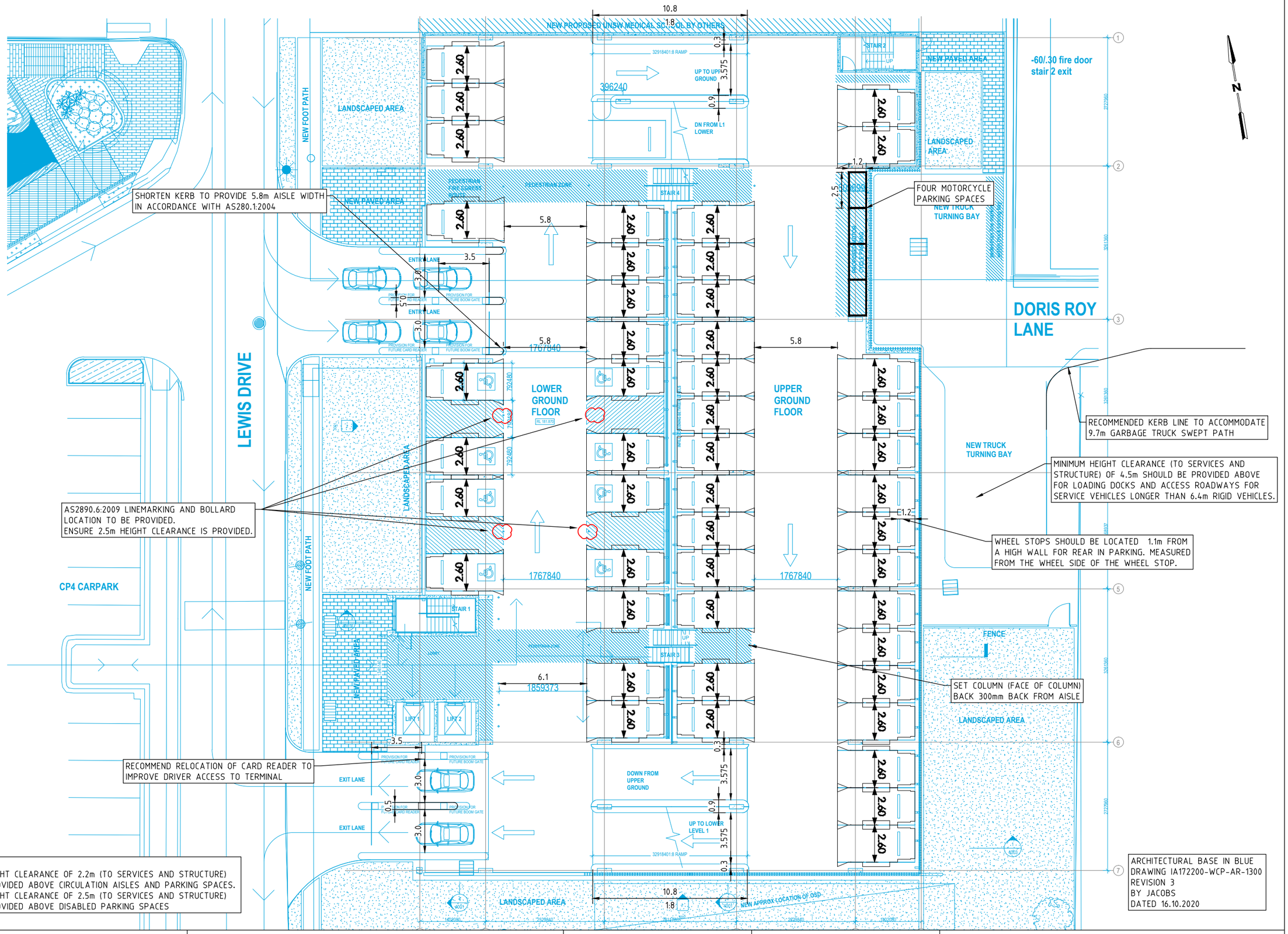
CONCLUSION

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. A Parking Demand Study for the Hospital prepared in 2018 identified that the projected parking demand shortfall in the future years of 2026/27 and 2031/32 cannot be fully met by off campus parking supply.
2. To assist in alleviating the projected parking demand the WWBH car parking project includes the following:
    - a proposed MSCP at the northern end of the site
    - redeveloped Docker Street on-grade car park at the south-western end of the site
    - redeveloped Yathong Street on-grade car park at the south-eastern end of the site.
3. The proposed MSCP includes 358 parking spaces (additional 268 spaces), Docker Street car park will provide for a total of 158 parking spaces (additional 114 spaces), with the Yathong Street car park providing for a total of 74 parking spaces (additional 59 spaces), resulting in a net increase of 441 spaces across the hospital campus.
4. At the completion of the WWBH Car Park project, a total of 944 car parking spaces will be provided across the hospital campus, a net increase of around 441 spaces from the completion of the Stage 3 redevelopment which will assist to address the existing shortfalls and potential increase in parking demand driven by future population growth and service expansions.
5. The proposed accesses and parking layout is generally consistent with the dimensional requirements as set out in the Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.1:2004, AS/NZS2890.6:2009) and the Health Infrastructure, Hospital Car Park Design Guidelines V1.2.
6. As part of the Stage 3 redevelopment, Lewis Drive adjacent to the MSCP has recently been converted into a formal 10km/h shared zone, giving priority to pedestrians particularly for those travelling between the proposed MSCP and the hospital.
7. A total of 11 accessible spaces are required in accordance with the BCA which is met by the provision of eight accessible spaces in the MSCP, two accessible spaces in the Yathong Street car park and the existing four accessible spaces in the Docker Street car park.
8. The proposal is not expected to generate an increase in traffic generation for the hospital, however, will cause a minor redistribution of traffic primarily at hospital access points associated with staff and visitors who currently park on surrounding streets now parking on the hospital campus.
9. Traffic modelling results indicate the project will have a negligible impact on the function of the surrounding road network, with key intersections near the hospital expected to operate satisfactorily in both weekday peak periods in 2031 following planned road upgrades.
10. While a minor distribution of existing traffic is expected at the hospital access points, the proposed increase in car parking on-site could actually result in a reduction in the number of vehicles travelling through the key surrounding intersections, as the increase in available parking will likely result in less vehicles circulating the hospital trying to find a car park.

A.DESIGN REVIEW

A



NOTES:
- A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
- A MINIMUM HEIGHT CLEARANCE OF 2.5m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE DISABLED PARKING SPACES

GTA consultants
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Brisbane	07 3113 5000
Adelaide	08 8334 3600
Perth	08 6169 1000

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

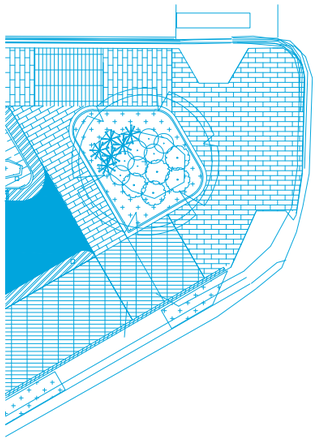
DESIGNED	R.ZHANG
DESIGN CHECK	H.OBERMAIER
APPROVED BY	K.McNATTY
DATE ISSUED	19 OCTOBER 2020
CAD FILE NO.	N144845-01-P7.DWG

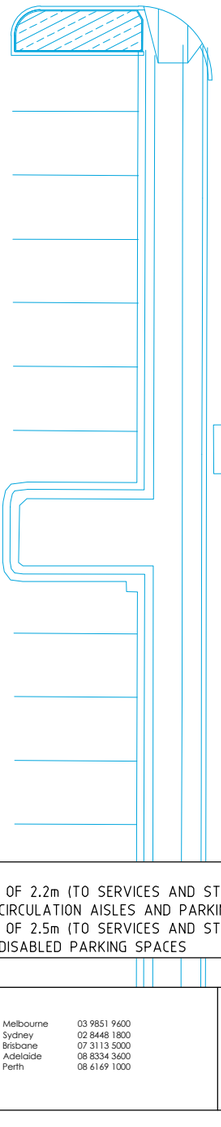
SCALE A3 0 1.25 2.5 5 1:250

WAGGA WAGGA HOSPITAL

MULTI-STOREY CAR PARK - GROUND LEVEL CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-01 SHEET 01 OF 19 ISSUE P7





NEW PROPOSED UNSW MEDICAL SCHOOL BY OTHERS

10.8
1.8

UP TO UPPER LEVEL 1
32918401:8 RAMP
DOWN TO UPPER GROUND
0.3
3.575
0.9
3.575
0.3
2727960

STAIR 2
LIFT 3
LIFT 4
1.2
2.5
FOUR MOTORCYCLE PARKING SPACES
MOTORCYCLE PARKING

2.60

1765.8
5.8

LOWER LEVEL 1
UPPER LEVEL 1
INFILL OPENING BETWEEN LEVELS

3261360

STAIR 1
LIFT 1
LIFT 2
1850373
6.10

DOWN FROM UPPER LEVEL 1
UP TO LOWER LEVEL 2

E1.2
WHEEL STOPS SHOULD BE LOCATED 1.1m FROM A HIGH WALL FOR REAR IN PARKING. MEASURED FROM THE WHEEL SIDE OF THE WHEEL STOP.

SET COLUMN (FACE OF COLUMN) BACK 300mm BACK FROM AISLE

18937

ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-1301
REVISION 3
BY JACOBS
DATED 16.10.2020

NOTES:
- A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
- A MINIMUM HEIGHT CLEARANCE OF 2.5m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE DISABLED PARKING SPACES

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DESIGNED R.ZHANG	DESIGN CHECK H.OBERMAIER
APPROVED BY K.McNATTY	DATE ISSUED 19 OCTOBER 2020
SCALE A3 0 1.25 2.5 5 1:250	CAD FILE NO. N144845-01-P7.DWG

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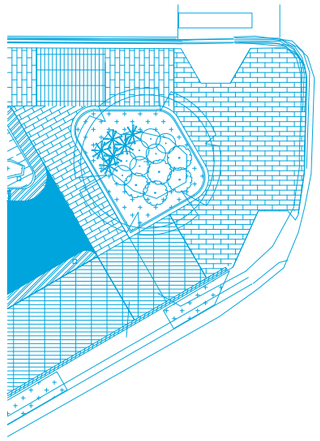
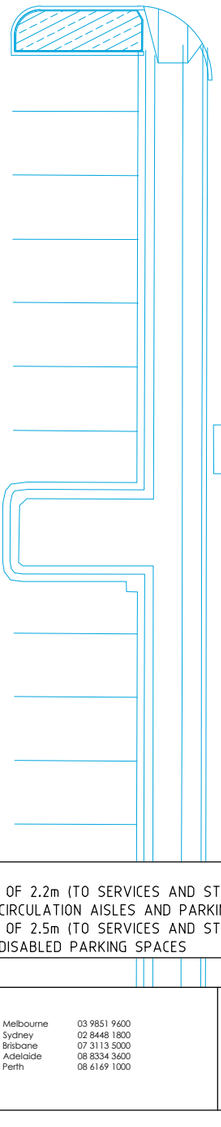
MULTI-STOREY CAR PARK - LEVEL 01
CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-02 SHEET 02 OF 19 ISSUE P7





NEW PROPOSED UNSW MEDICAL SCHOOL BY OTHERS

10.8
1.8

10800
1:8 RAMP

UP TO UPPER LEVEL 2

DOWN TO UPPER LEVEL 1

DOWN FROM UPPER LEVEL 2

UP TO LOWER LEVEL 3

0.3
3.575
0.9
3.575
0.3

2.60

5.8
5800

LOWER LEVEL 2

UPPER LEVEL 2

6100
6.10

E1.2

WHEEL STOPS SHOULD BE LOCATED 1.1m FROM A HIGH WALL FOR REAR IN PARKING, MEASURED FROM THE WHEEL SIDE OF THE WHEEL STOP.

SET COLUMN (FACE OF COLUMN) BACK 300mm BACK FROM AISLE

ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-1302
REVISION 3
BY JACOBS
DATED 16.10.2020

8950
10700
10700
8950
1100

1 2 3 4 5 6

N

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CAD FILE NO. N144845-01-P7.DWG

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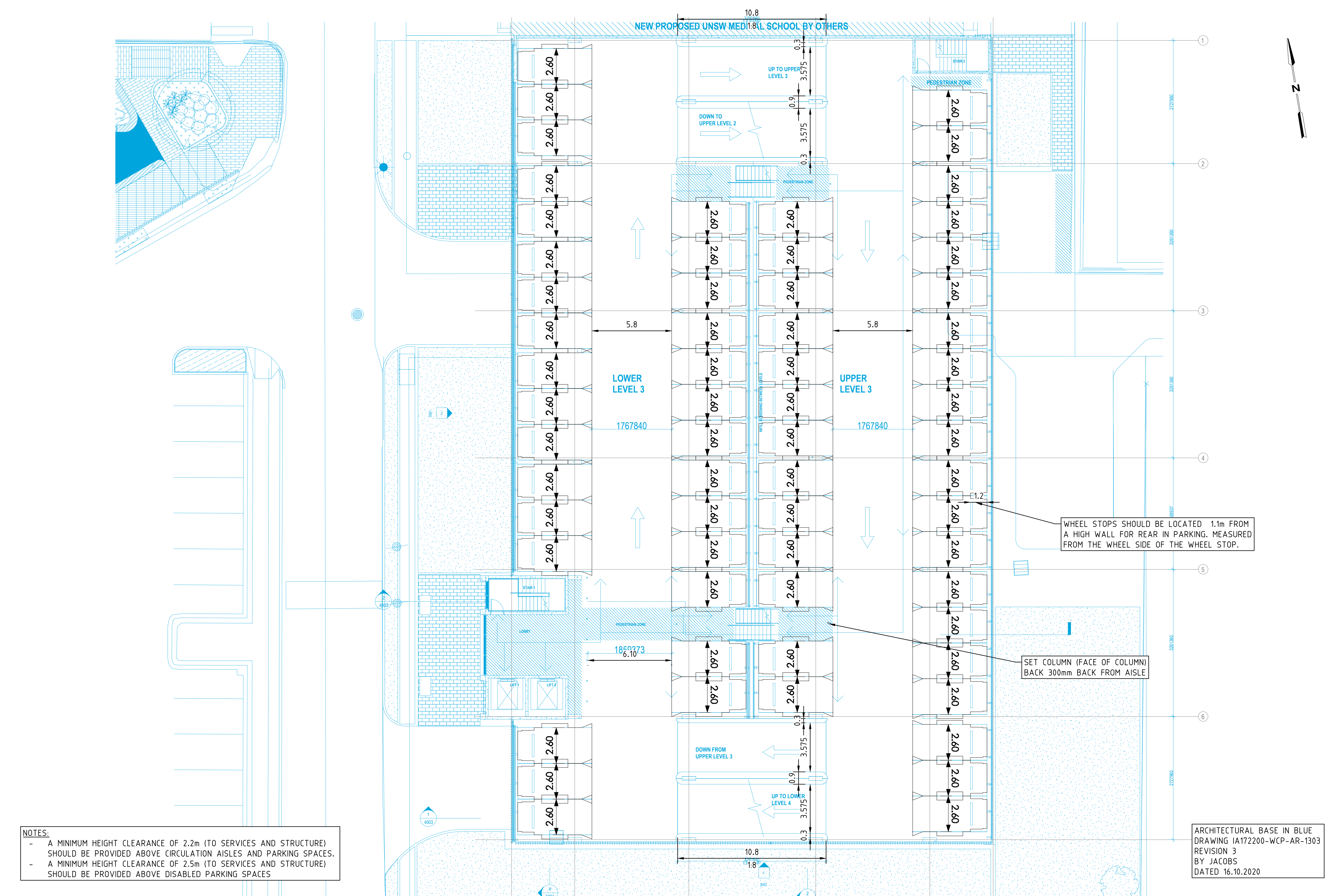
MULTI-STOREY CAR PARK - LEVEL 02
CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-03 SHEET 03 OF 19 ISSUE P7



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SCALE A3 1:250
CAD FILE NO. N144845-01-P7.DWG

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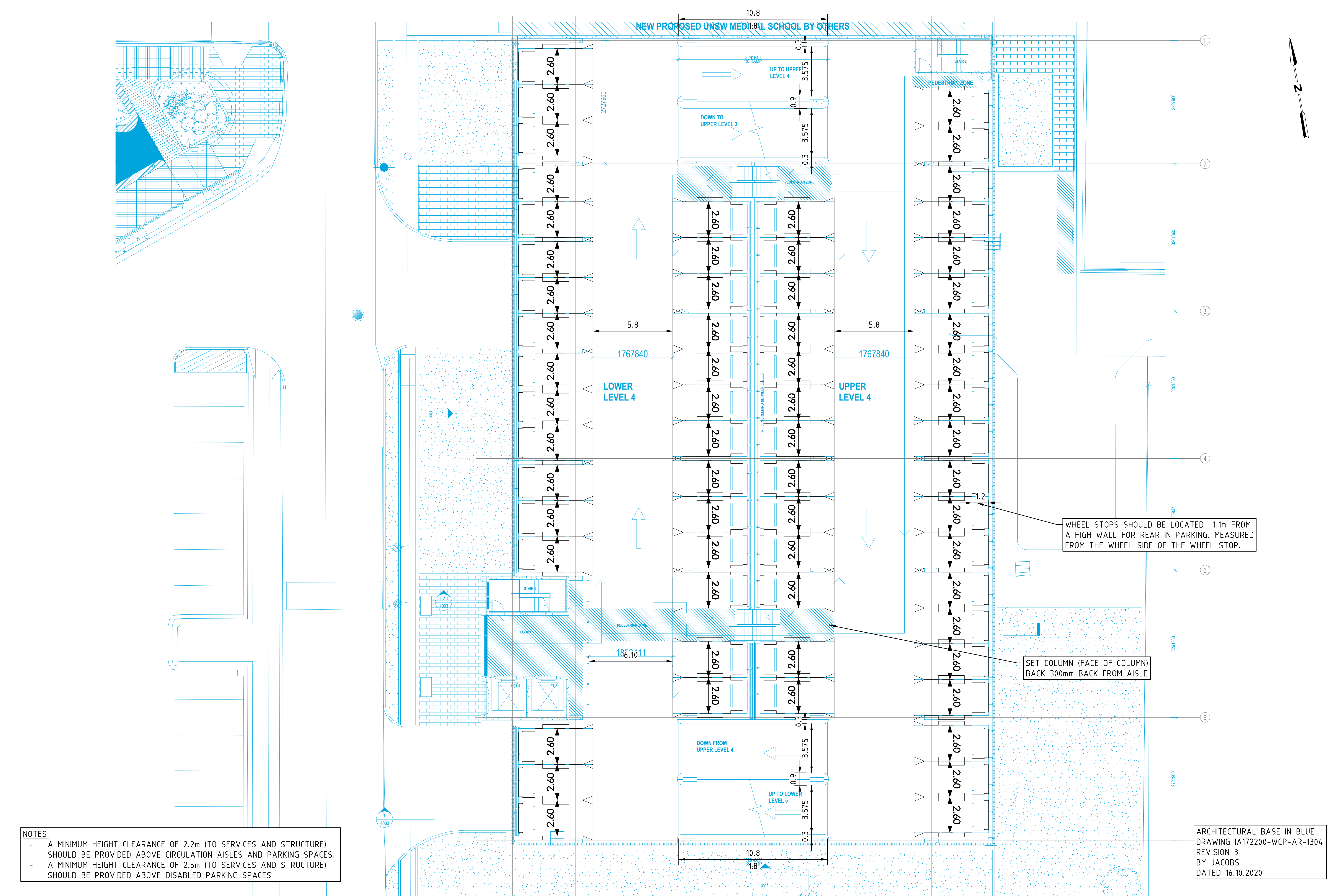
MULTI-STOREY CAR PARK - LEVEL 03
CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-04 SHEET 04 OF 19 ISSUE P7



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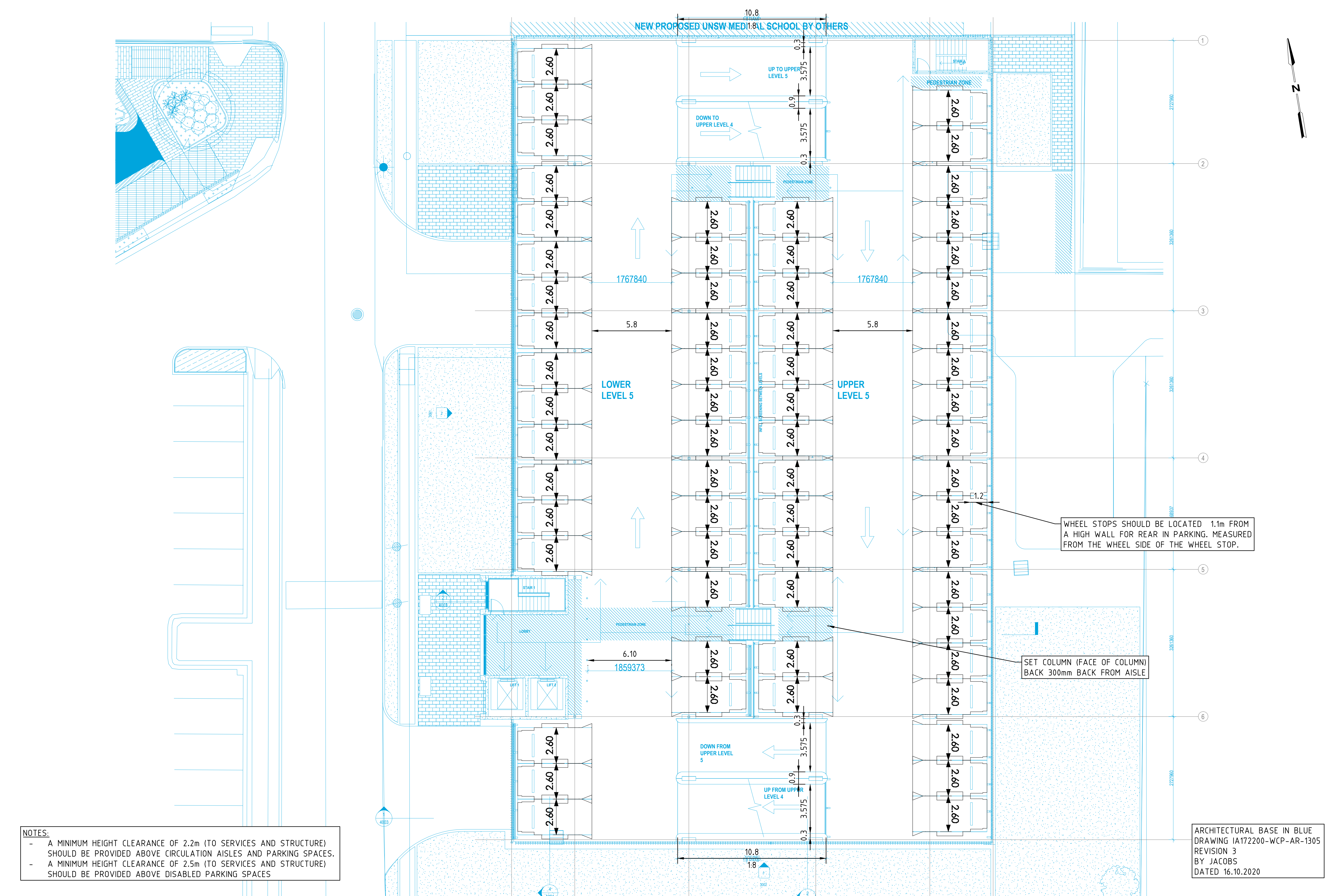
APPROVED BY K.McNATTY	DATE ISSUED 19 OCTOBER 2020	CAD FILE NO. N144845-01-P7.DWG	MULTI-STOREY CAR PARK - LEVEL 04 CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-05 SHEET 05 OF 19 ISSUE P7



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ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-1305
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BY JACOBS
DATED 16.10.2020

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CAD FILE NO. N144845-01-P7.DWG

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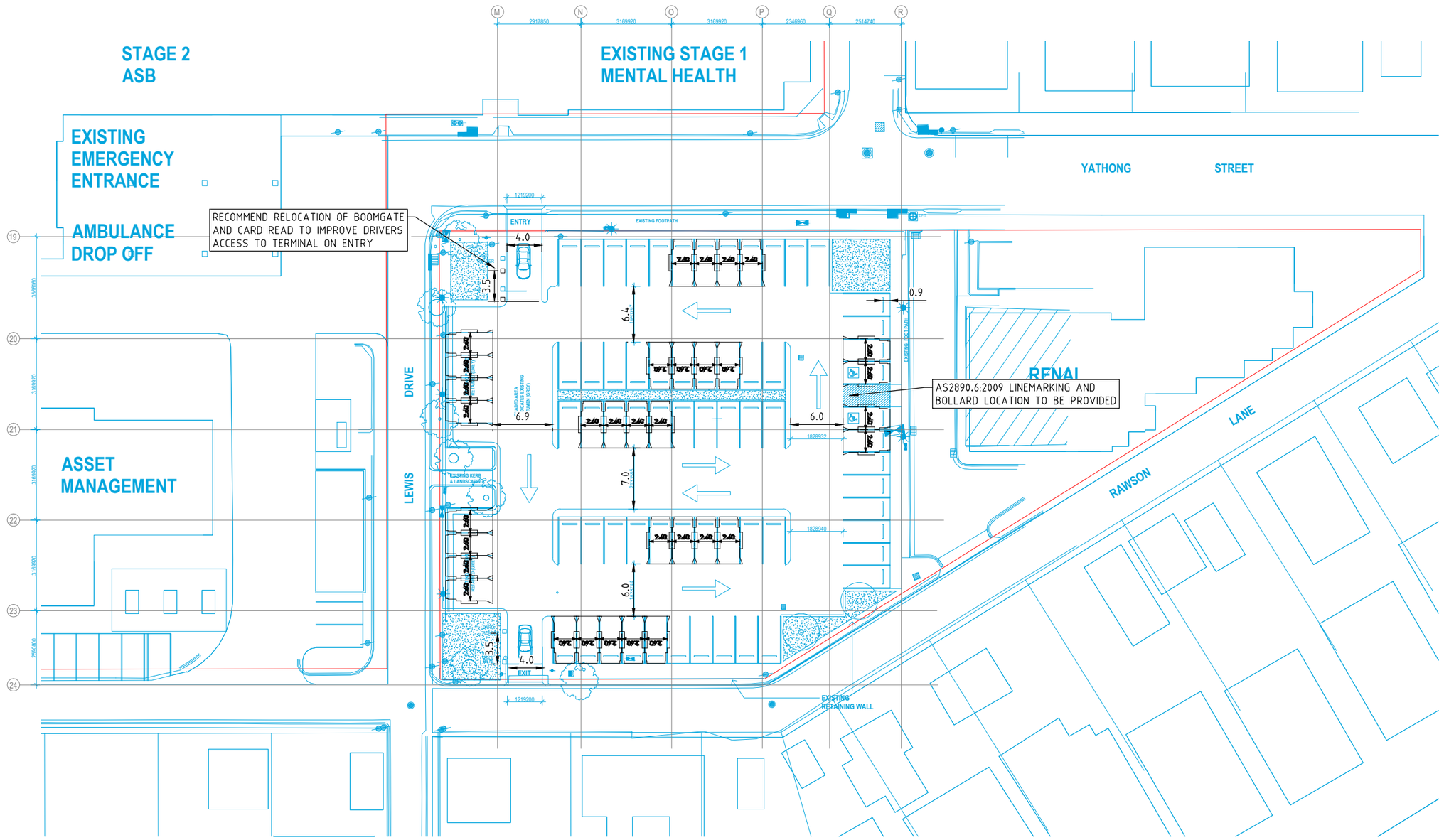
MULTI-STOREY CAR PARK - LEVEL 05 CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-06 SHEET 06 OF 19 ISSUE P7



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APPROVED BY	K.McNATTY
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CAD FILE NO.	N144845-01-P7.DWG
SCALE	A3 0 2.5 5 10 1:500

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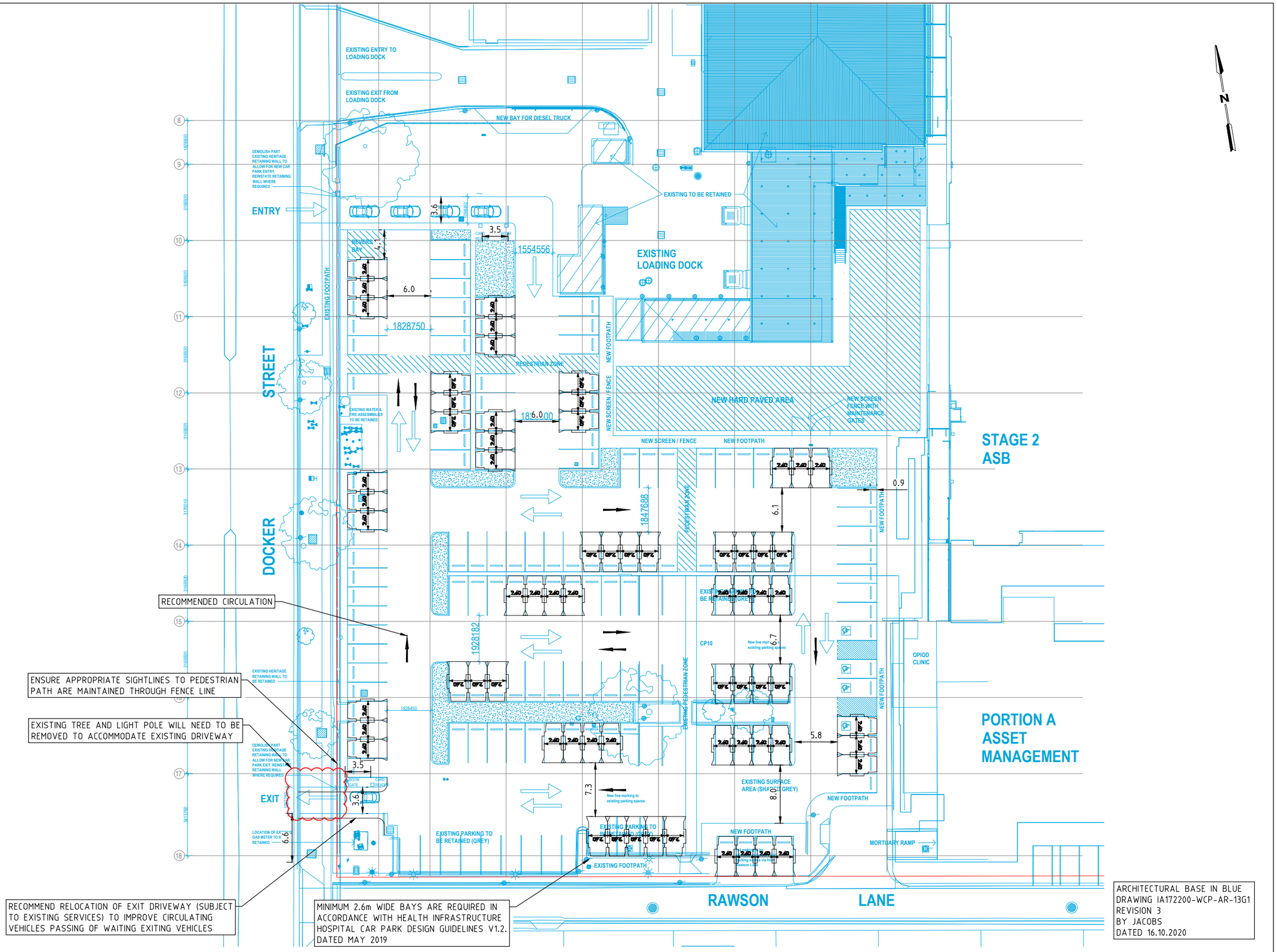
YATHONG CAR PARK
CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-07 SHEET 07 OF 19 ISSUE P7



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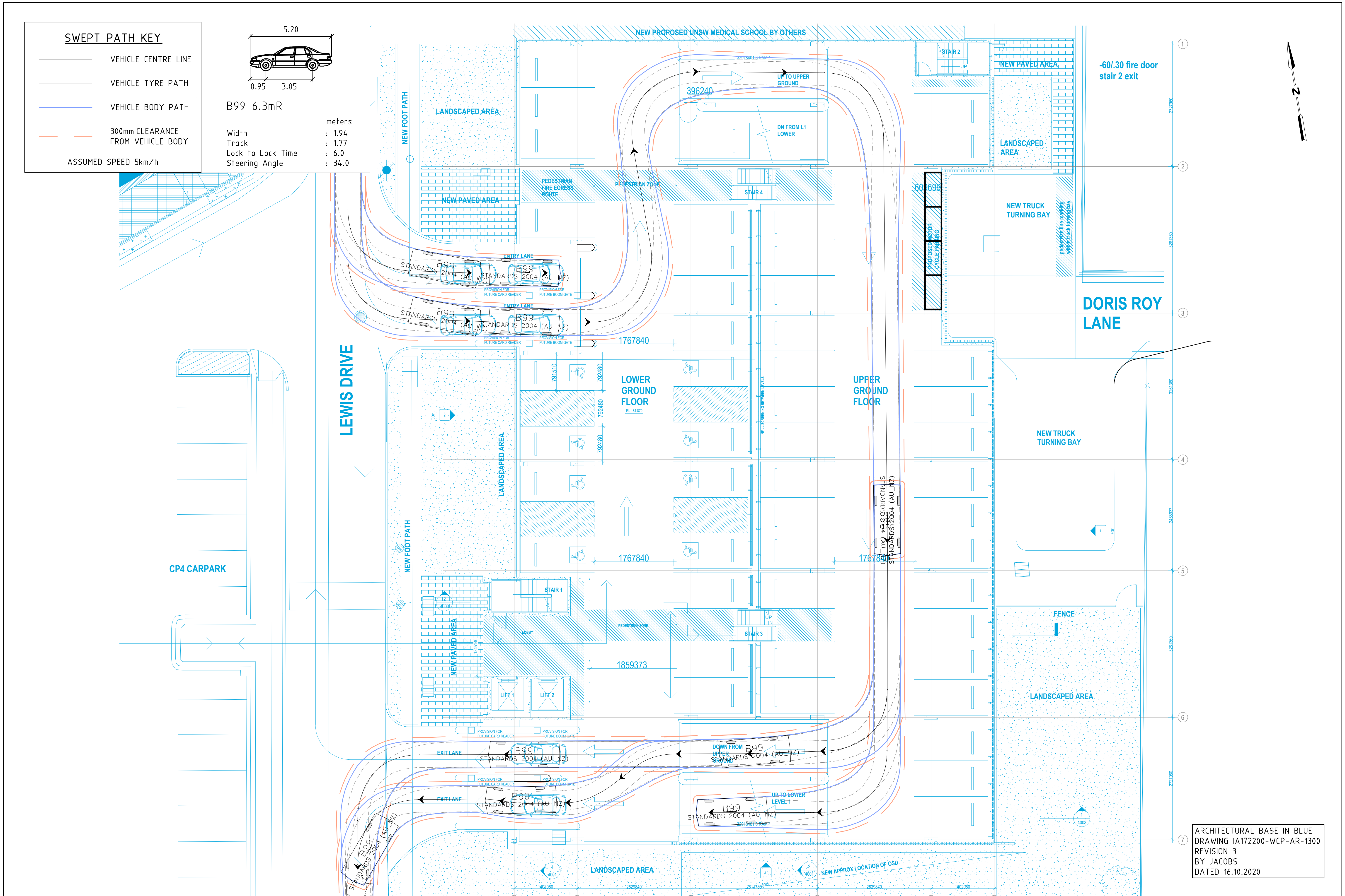
DOCKER CAR PARK
CAR PARK COMPLIANCE REVIEW

DRAWING NO. N144845-01-08 SHEET 08 OF 19 ISSUE P7



SWEPT PATH KEY
VEHICLE CENTRE LINE
VEHICLE TYRE PATH
VEHICLE BODY PATH
300mm CLEARANCE FROM VEHICLE BODY
ASSUMED SPEED 5km/h
5.20
0.95
3.05
B99 6.3mR
meters
Width : 1.94
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.0
NEW PROPOSED UNSW MEDICAL SCHOOL BY OTHERS
NEW PAVED AREA
-60/.30 fire door stair 2 exit
LANDSCAPED AREA
NEW FOOT PATH
UP TO UPPER GROUND
DN FROM L1 LOWER
STAIR 2
PEDESTRIAN FIRE EGRESS ROUTE
PEDESTRIAN ZONE
STAIR 4
NEW TRUCK TURNING BAY
PROPOSED MOTOR CYCLE PARKING
ENTRY LANE
B99
STANDARDS 2004 (AU_NZ)
DORIS ROY LANE
LEWIS DRIVE
1767840
LOWER GROUND FLOOR
UPPER GROUND FLOOR
CP4 CARPARK
STAIR 1
STAIR 3
LIFT 1
LIFT 2
1859373
FENCE
EXIT LANE
DOWN FROM UPPER GROUND
UP TO LOWER LEVEL 1
NEW APPROX LOCATION OF OSD
ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-1300
REVISION 3
BY JACOBS
DATED 16.10.2020

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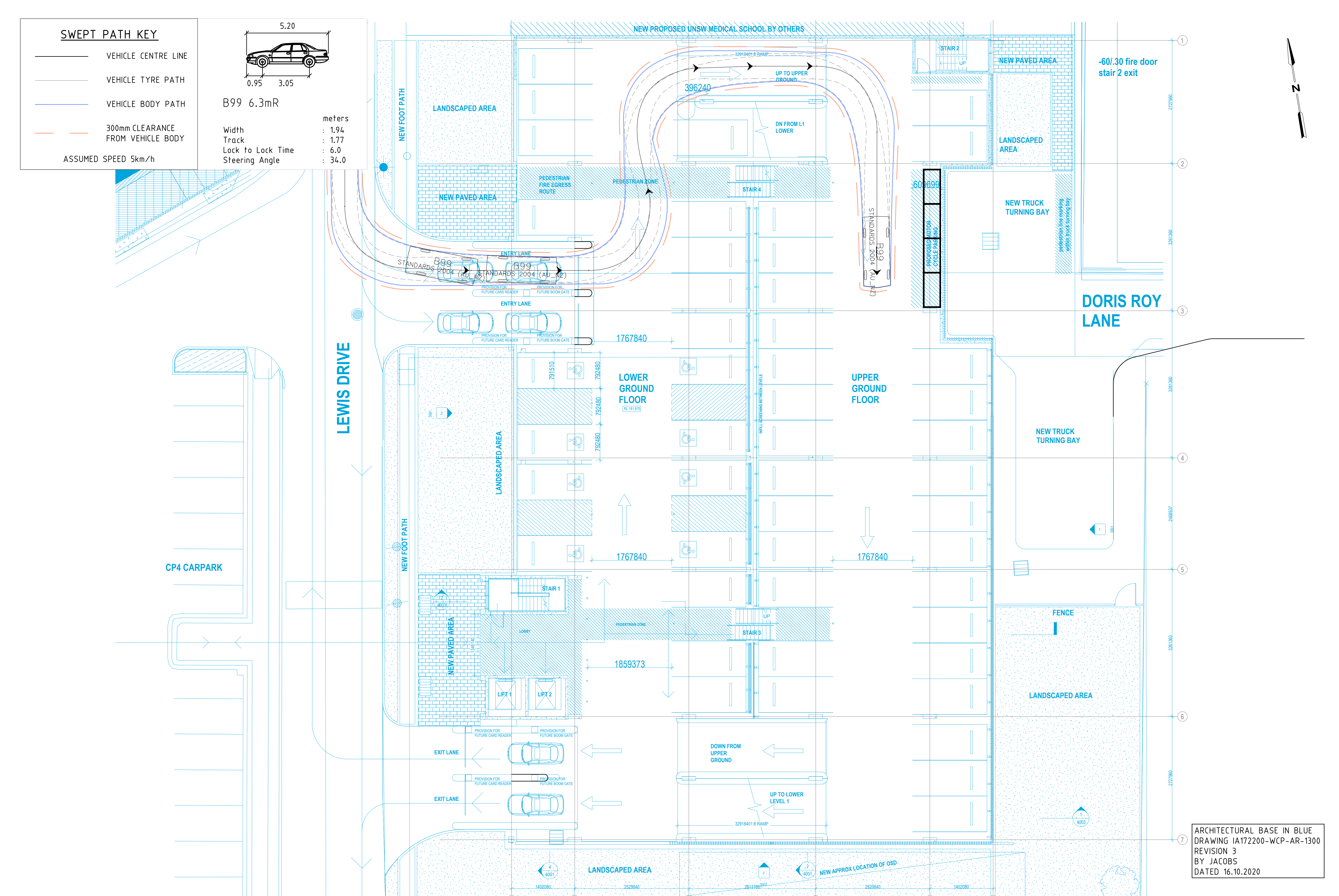
MULTI-STOREY CAR PARK - GROUND LEVEL SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-09 SHEET 09 OF 19 ISSUE P7



SWEPT PATH KEY
VEHICLE CENTRE LINE
VEHICLE TYRE PATH
VEHICLE BODY PATH
300mm CLEARANCE FROM VEHICLE BODY
ASSUMED SPEED 5km/h
5.20
0.95
3.05
B99 6.3mR
meters
Width : 1.94
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.0
NEW PROPOSED UNSW MEDICAL SCHOOL BY OTHERS
NEW PAVED AREA
-60/.30 fire door stair 2 exit
LANDSCAPED AREA
NEW FOOT PATH
UP TO UPPER GROUND
DN FROM L1 LOWER
PEDESTRIAN FIRE EGRESS ROUTE
PEDESTRIAN ZONE
STAIR 4
STAIR 2
NEW TRUCK TURNING BAY
PROPOSED MOTOR CYCLE PARKING
ENTRY LANE
DORIS ROY LANE
LEWIS DRIVE
LOWER GROUND FLOOR
UPPER GROUND FLOOR
CP4 CARPARK
STAIR 1
STAIR 3
LIFT 1
LIFT 2
FENCE
EXIT LANE
DOWN FROM UPPER GROUND
UP TO LOWER LEVEL 1
NEW APPROX LOCATION OF OSD
ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-1300
REVISION 3
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CAD FILE NO. N144845-01-P7.DWG

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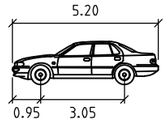
MULTI-STOREY CAR PARK - GROUND LEVEL SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-10 SHEET 10 OF 19 ISSUE P7

SWEPT PATH KEY

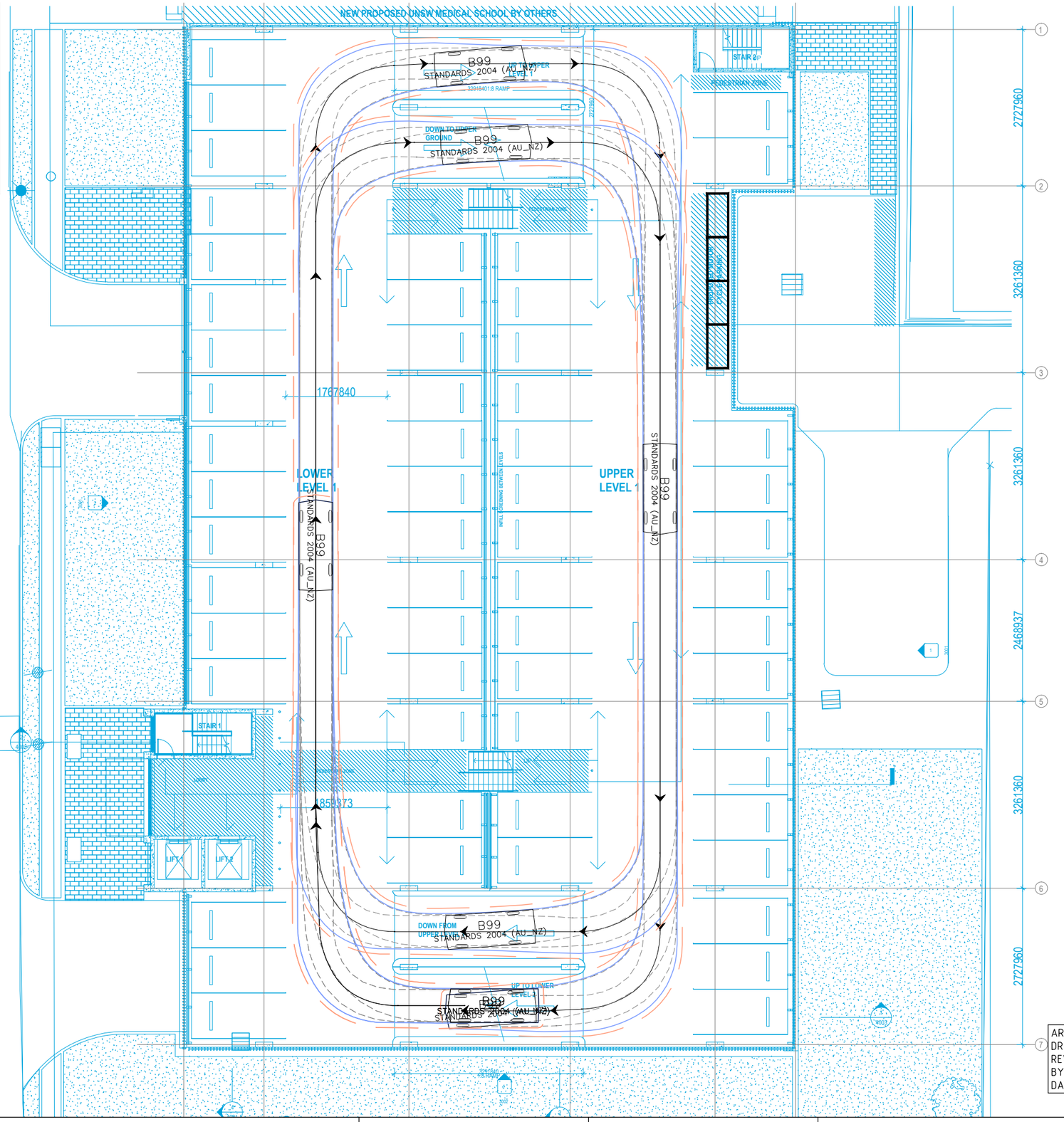
- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h



B99 6.3mR

	meters
Width	: 1.94
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



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REVISION 3
BY JACOBS
DATED 16.10.2020

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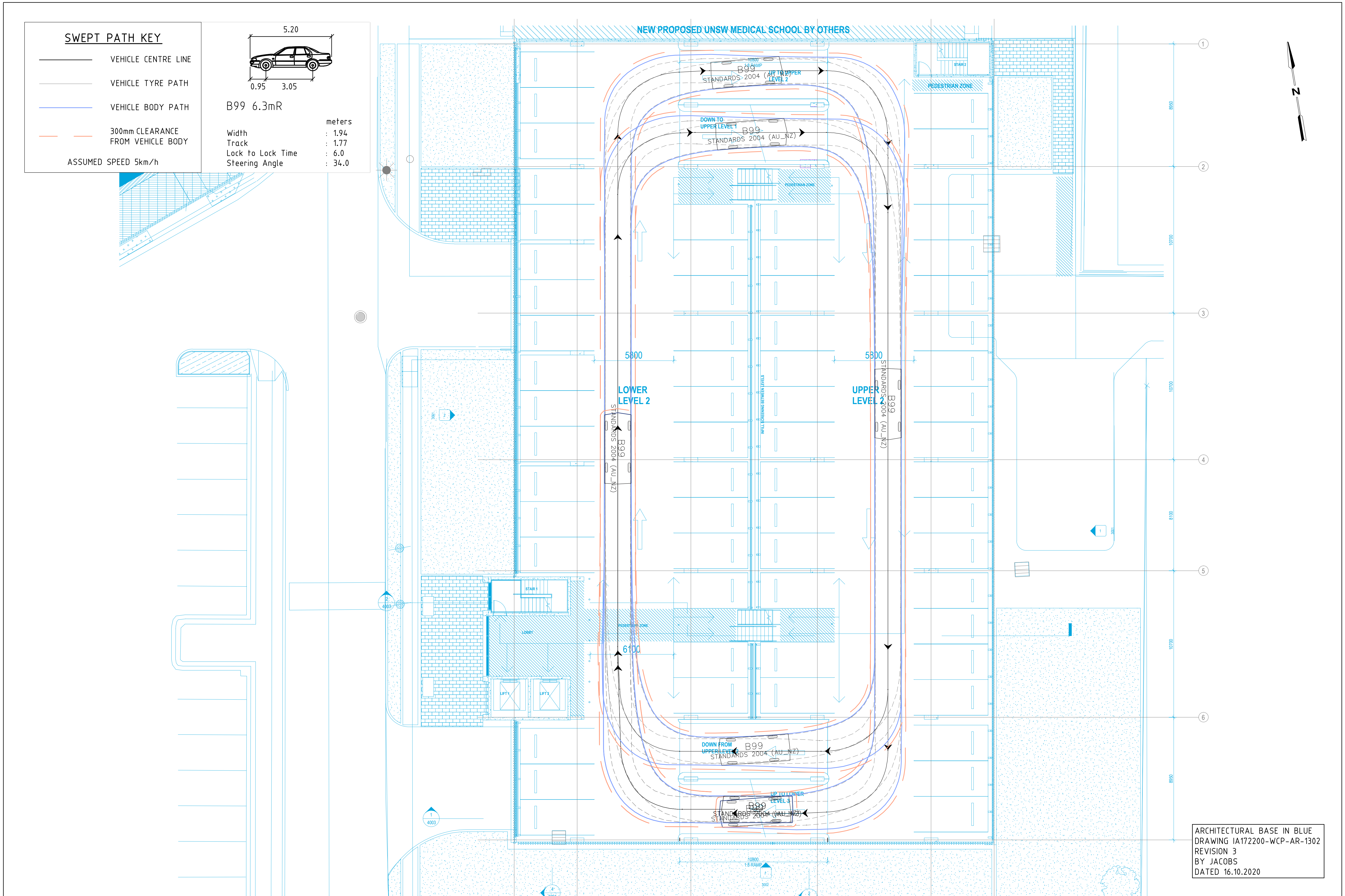
MULTI-STOREY CAR PARK - LEVEL 01
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-11 SHEET 11 OF 19 ISSUE P7



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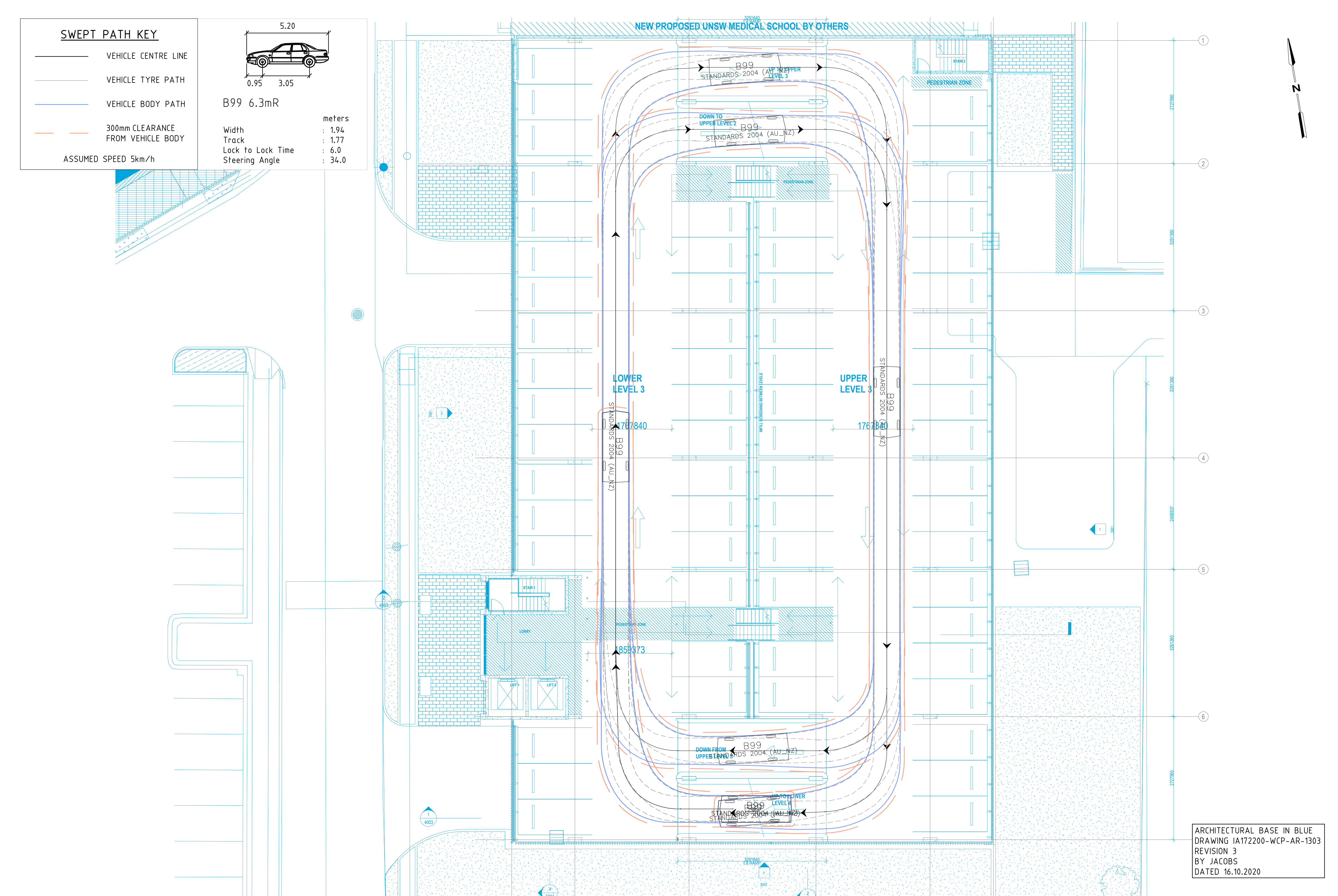
MULTI-STOREY CAR PARK - LEVEL 02
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-12 SHEET 12 OF 19 ISSUE P7



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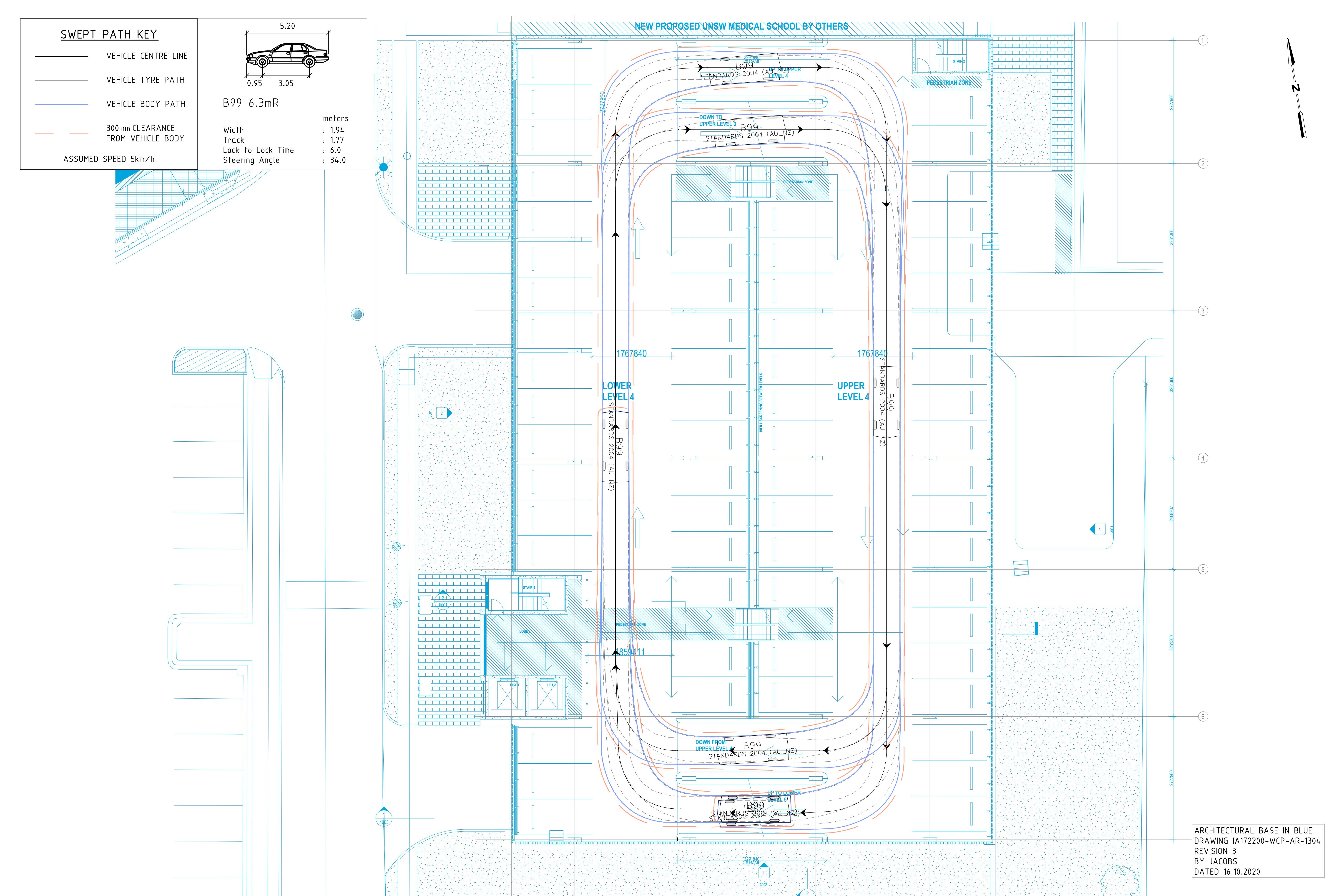
MULTI-STOREY CAR PARK - LEVEL 03
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-13 SHEET 13 OF 19 ISSUE P7



\\GTA.COM.AU\PROJECTFILES\PROJECTFILESSYD\N14400-14499\N144845 WAGGA WAGGA BASE HOSPITAL CAR PARK\CAD\N144845-01-P7.DWG PLOTTED BY RAYMOND ZHANG ON 19/10/2020 AT 19:18

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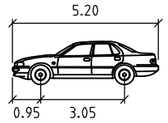
MULTI-STOREY CAR PARK - LEVEL 04
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-14 SHEET 14 OF 19 ISSUE P7

SWEPT PATH KEY

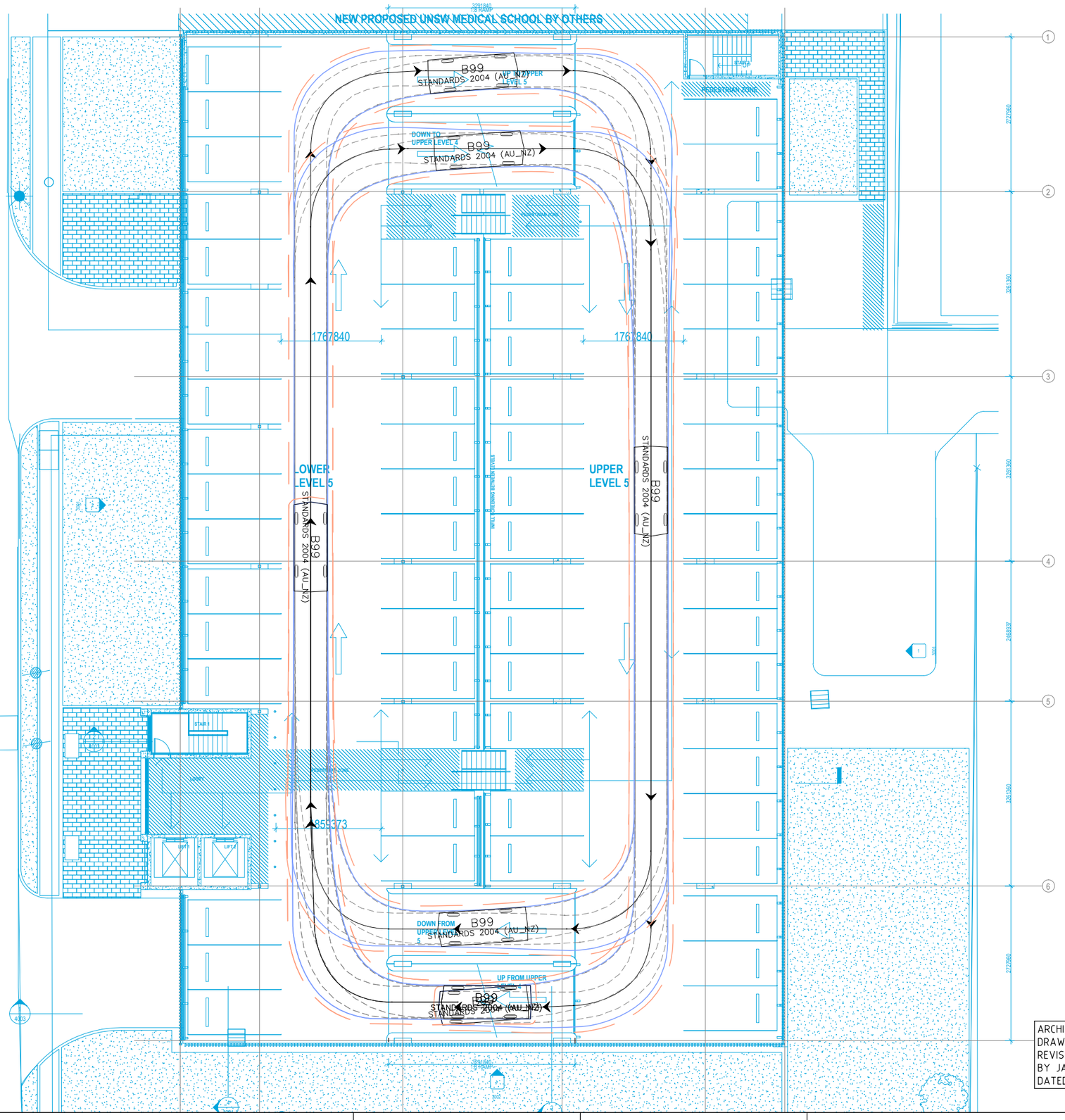
- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h



B99 6.3mR

		meters
Width	:	1.94
Track	:	1.77
Lock to Lock Time	:	6.0
Steering Angle	:	34.0



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DRAWING IA172200-WCP-AR-1305
REVISION 3
BY JACOBS
DATED 16.10.2020

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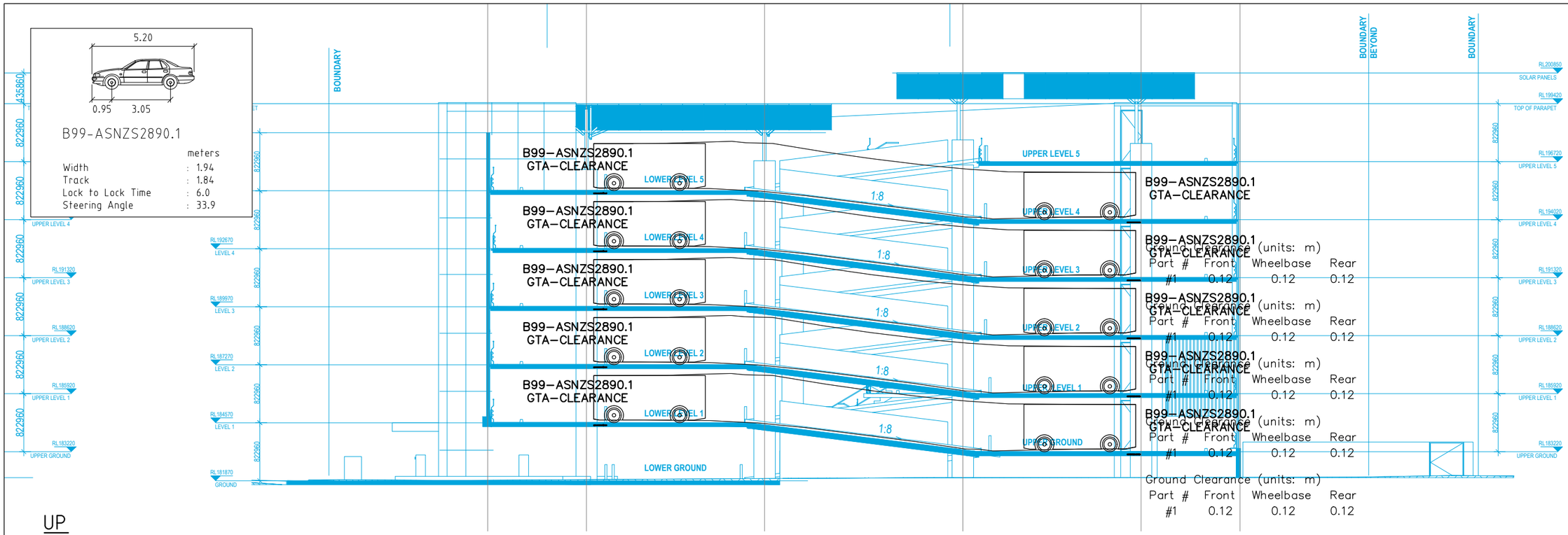
MULTI-STOREY CAR PARK - LEVEL 05
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-15 SHEET 15 OF 19 ISSUE P7



UP

DOWN

ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-4003
REVISION 2
BY JACOBS
DATED 16.10.2020

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PRELIMINARY PLAN
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WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

DESIGNED R.ZHANG
DESIGN CHECK H.OBERMAIER
APPROVED BY K.McNATTY
DATE ISSUED 19 OCTOBER 2020
SCALE A3 0 1.25 2.5 5 1:250
CAD FILE NO. N144845-01-P7.DWG

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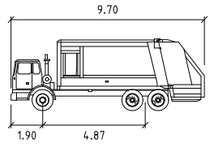
MULTI-STOREY CAR PARK - GROUND LEVEL TO LEVEL 05 VERTICAL CLEARANCE ASSESSMENT

DRAWING NO. N144845-01-16 SHEET 16 OF 19 ISSUE P7

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h

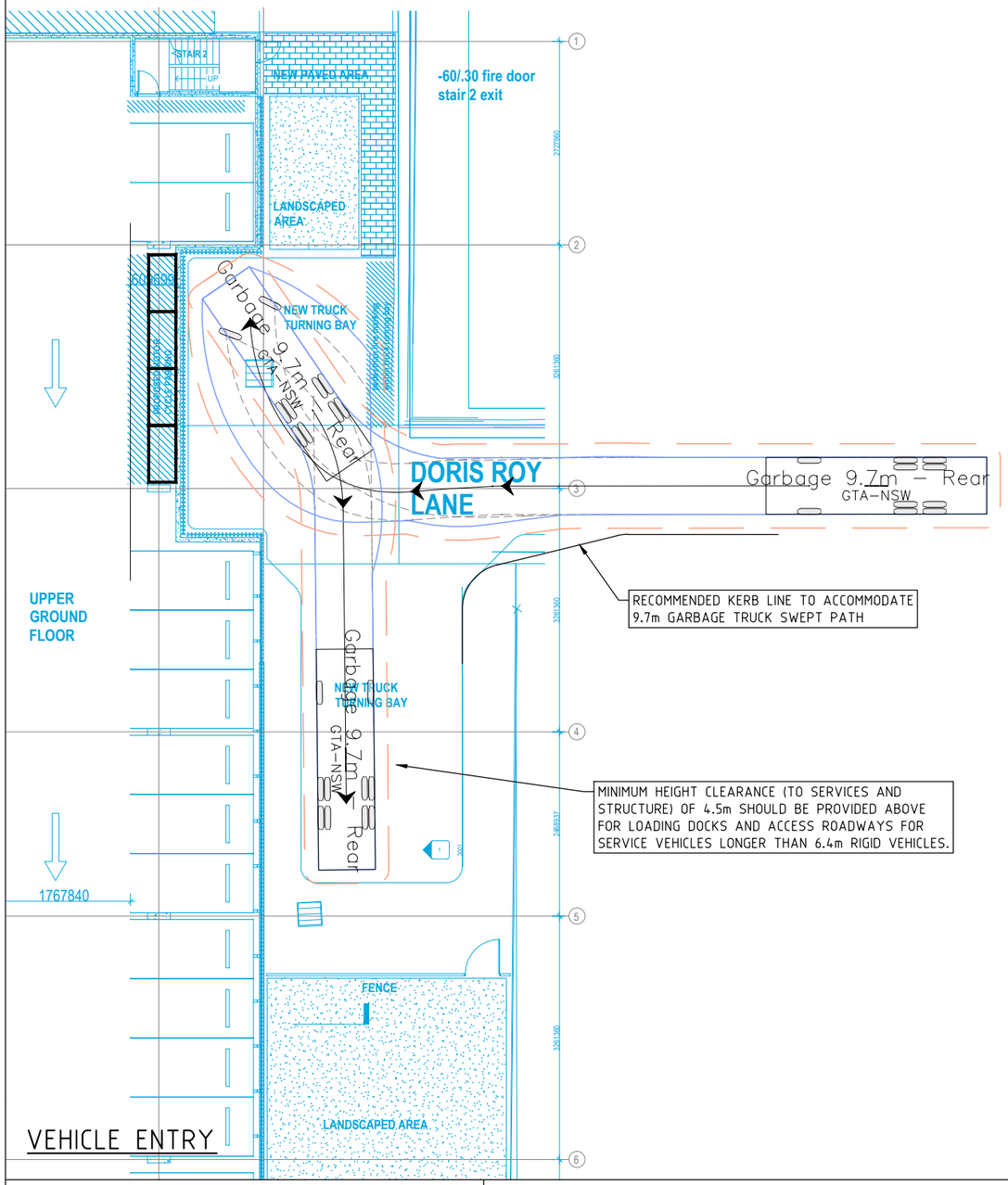


Garbage 9.7m - Rear

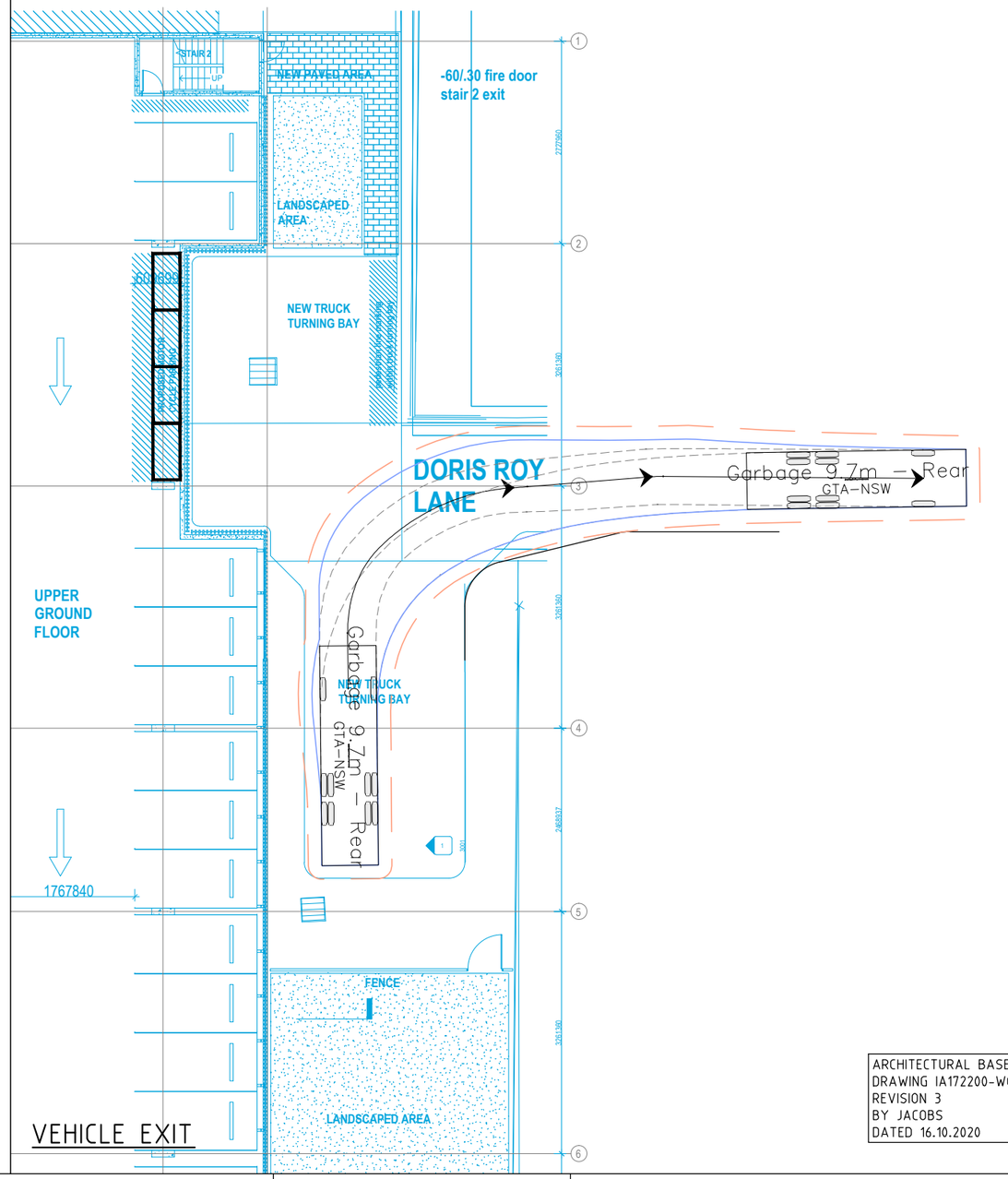
	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 32.2

LEGEND

- FIRE RATED WALL (REFER TO BCA FOR RATING REQUIREMENTS)
- BOUNDARY
- LANDSCAPING (REFER LANDSCAPE DESIGN FOR EXTENT)
- EXISTING AREA



VEHICLE ENTRY



VEHICLE EXIT

ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-1300
REVISION 3
BY JACOBS
DATED 16.10.2020

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DESIGNED	R.ZHANG
DESIGN CHECK	H.OBERMAIER
APPROVED BY	K.McNATTY
DATE ISSUED	19 OCTOBER 2020
CAD FILE NO.	N144845-01-P7.DWG

SCALE A3 0 1.25 2.5 5 1:250

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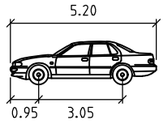
MULTI-STOREY CAR PARK - LOADING AREA
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-17 SHEET 17 OF 19 ISSUE P7

SWEPT PATH KEY

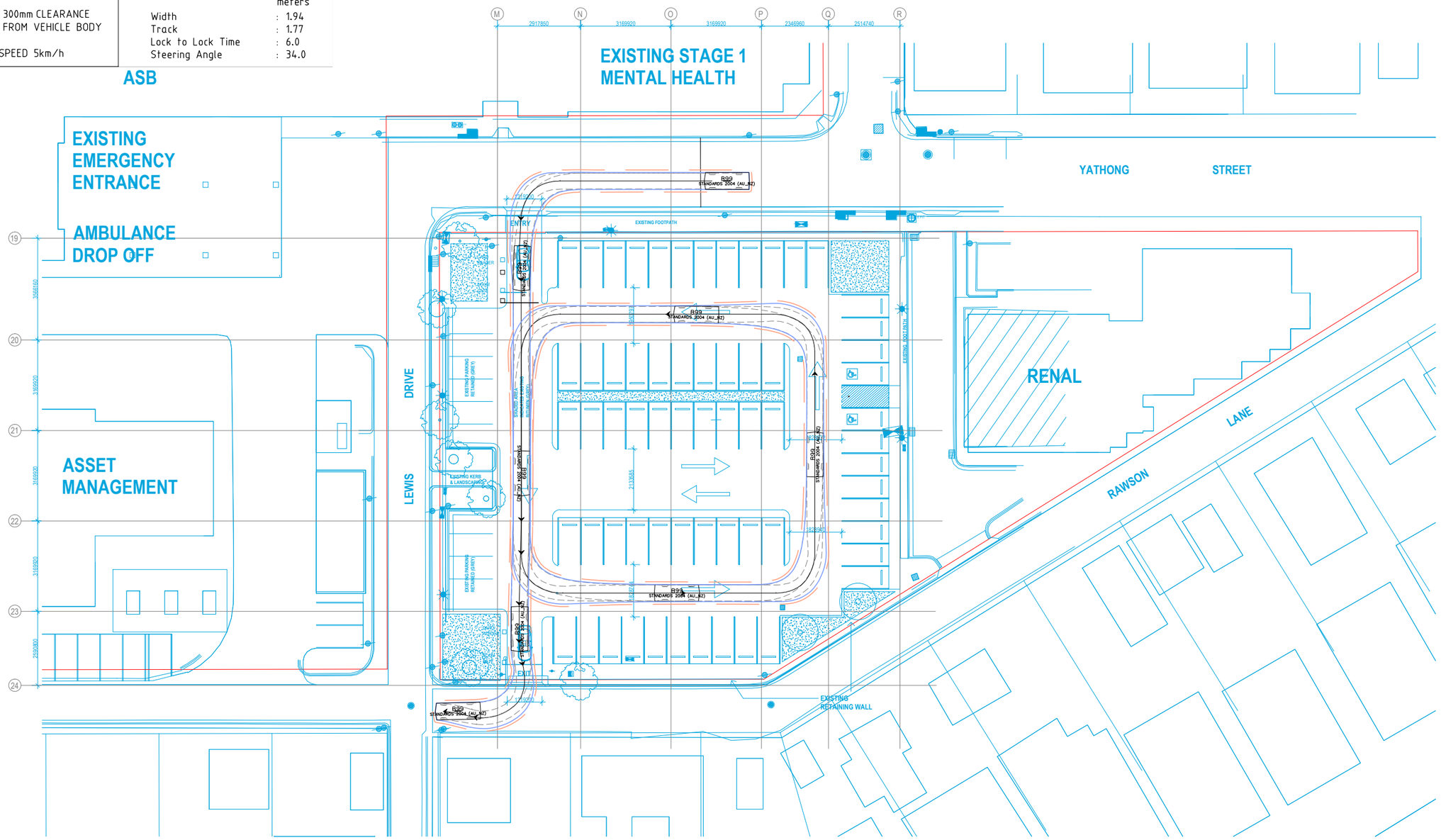
- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h



B99 6.3mR

		meters
Width	:	1.94
Track	:	1.77
Lock to Lock Time	:	6.0
Steering Angle	:	34.0



ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-13G2
REVISION 2
BY JACOBS
DATED 16.10.2020

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DESIGNED	R.ZHANG
DESIGN CHECK	H.OBERMAIER
APPROVED BY	K.McNATTY
DATE ISSUED	19 OCTOBER 2020
CAD FILE NO.	N144845-01-P7.DWG

SCALE A3 0 2.5 5 10 1:500

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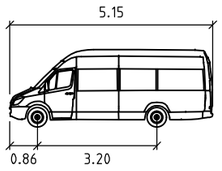
YATHONG CAR PARK
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-18 SHEET 18 OF 19 ISSUE P7

SWEPT PATH KEY

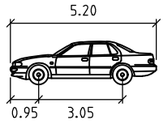
- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h



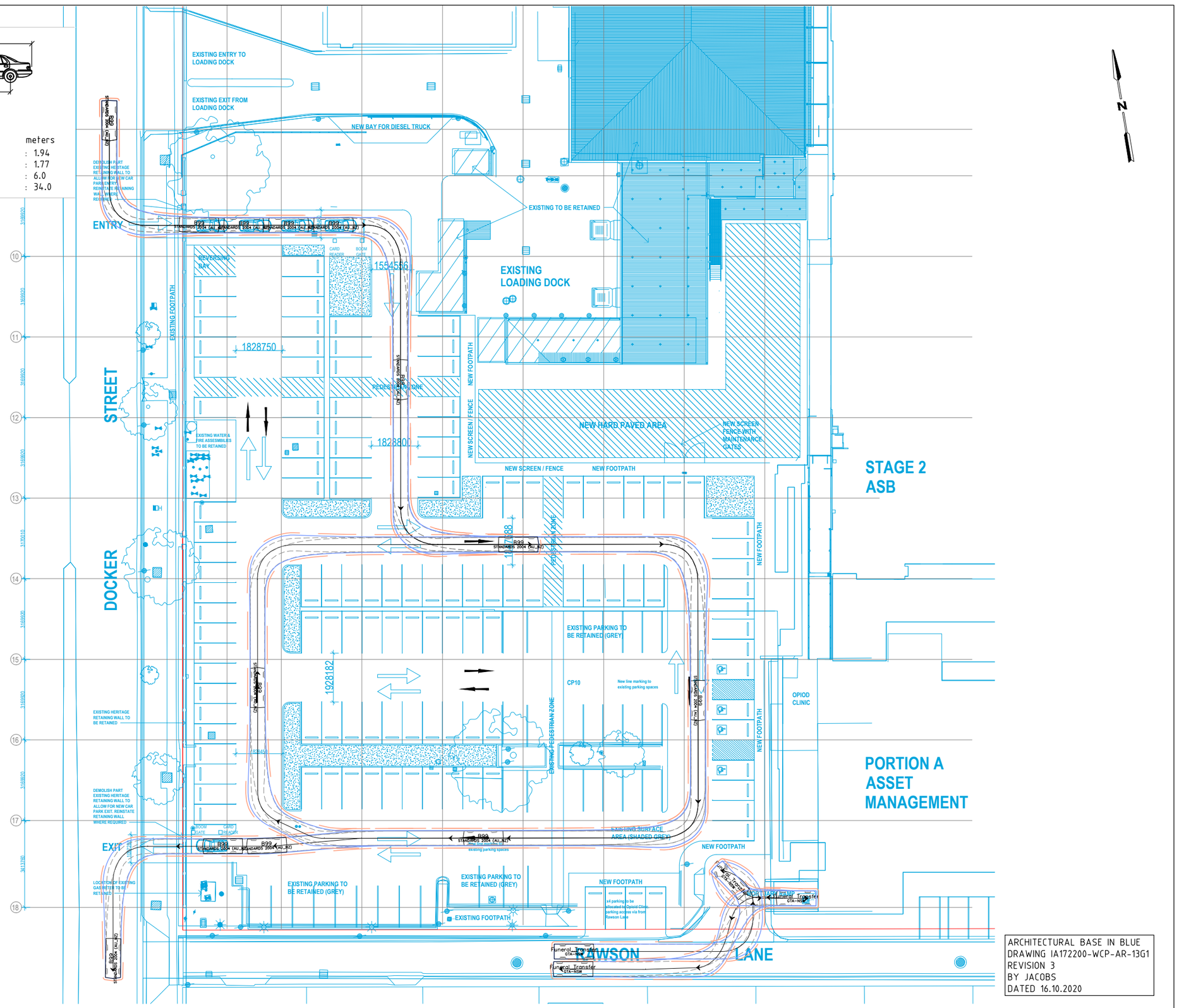
Funeral Transfer

	meters
Width	: 1.92
Track	: 1.90
Lock to Lock Time	: 6.0
Steering Angle	: 37.8



B99 6.3mR

	meters
Width	: 1.94
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



ARCHITECTURAL BASE IN BLUE
DRAWING IA172200-WCP-AR-13G1
REVISION 3
BY JACOBS
DATED 16.10.2020

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DESIGNED	R.ZHANG
DESIGN CHECK	H.OBERMAIER
APPROVED BY	K.McNATTY
DATE ISSUED	19 OCTOBER 2020
SCALE	A3 — 0 2.5 5 10 — 1:500
CAD FILE NO.	N144845-01-P7.DWG

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DOCKER CAR PARK
SWEPT PATH ASSESSMENT

DRAWING NO. N144845-01-19 SHEET 19 OF 19 ISSUE P7

B.SIDRA RESULTS

B

USER REPORT FOR NETWORK SITE

Project: 190902 - Future Proposed 2031 AM Peak (Road Upgrades)-Redist Exist **Template: Movement Summary**

Site: 1c [1c. Sturt Hwy / Docker Street - 2031 Proposed AM Peak] **Network: 1 [2031 Proposed AM Peak Network]**

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: VV0581 - Future
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F*, F1*, F2*
Output Phase Sequence: A, D, E
(* Variable Phase)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Docker St														
1	L2	64	0.0	64	0.0	0.896	43.6	LOS D	19.4	136.5	1.00	1.15	1.40	29.7
2	T1	867	0.4	867	0.4	0.896	38.9	LOS C	19.6	137.4	1.00	1.15	1.40	14.4
3	R2	209	3.6	209	3.6	0.424	27.8	LOS B	6.0	43.4	0.87	0.79	0.87	18.1
Approach		1140	1.0	1140	1.0	0.896	37.1	LOS C	19.6	137.4	0.98	1.08	1.30	16.3
East: Edward St														
4	L2	129	7.5	129	7.5	0.640	35.6	LOS C	11.2	84.7	1.00	0.85	1.00	14.3
5	T1	556	10.1	556	10.1	0.640	30.5	LOS C	11.9	90.8	1.00	0.85	1.00	33.7
6	R2	44	5.1	44	5.1	0.396	44.9	LOS D	1.6	12.0	1.00	0.73	1.00	11.0
Approach		729	9.3	729	9.3	0.640	32.3	LOS C	11.9	90.8	1.00	0.85	1.00	30.3
North: Docker St														
7	L2	68	0.0	68	0.0	0.814	40.5	LOS C	9.6	67.9	1.00	0.99	1.28	12.9
8	T1	440	1.1	440	1.1	0.814	35.8	LOS C	10.1	71.4	1.00	0.99	1.28	13.1
9	R2	275	0.5	275	0.5	0.814	40.4	LOS C	10.1	71.4	1.00	0.97	1.28	28.9
Approach		783	0.8	783	0.8	0.814	37.8	LOS C	10.1	71.4	1.00	0.98	1.28	20.7
West: Edward St														
10	L2	273	2.7	273	2.7	0.884	42.7	LOS D	18.9	137.5	1.00	1.07	1.36	26.0
11	T1	680	7.5	680	7.5	0.884	36.6	LOS C	20.2	150.4	1.00	1.09	1.35	27.2
12	R2	140	2.9	140	2.9	0.895	51.9	LOS D	6.0	43.1	1.00	1.06	1.70	22.5
Approach		1093	5.7	1093	5.7	0.895	40.1	LOS C	20.2	150.4	1.00	1.08	1.40	26.2
All Vehicles		3745	3.9	3745	3.9	0.896	37.2	LOS C	20.2	150.4	0.99	1.02	1.27	23.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 2c [2c. Sturt Hwy / Lewis Drive - 2031 Proposed AM Peak]

Network: 1 [2031 Proposed AM Peak Network]

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lewis Dr														
1	L2	59	0.0	59	0.0	0.059	6.0	LOS A	0.2	1.7	0.38	0.57	0.38	42.9
Approach		59	0.0	59	0.0	0.059	6.0	LOS A	0.2	1.7	0.38	0.57	0.38	42.9
East: Edward Street														
4	L2	85	0.0	85	0.0	0.215	5.5	LOS A	0.0	0.0	0.00	0.13	0.00	55.7
5	T1	691	13.3	691	13.3	0.215	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	56.6
Approach		776	11.8	776	11.8	0.215	0.6	NA	0.0	0.0	0.00	0.07	0.00	56.3
West: Edward Street														
11	T1	818	8.5	818	8.5	0.223	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	141	0.9	141	0.9	0.211	10.0	LOS A	0.7	5.2	0.59	0.83	0.59	42.0
Approach		959	7.4	959	7.4	0.223	1.5	NA	0.7	5.2	0.09	0.12	0.09	50.9
All Vehicles		1793	9.1	1793	9.1	0.223	1.3	NA	0.7	5.2	0.06	0.11	0.06	52.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 3cv [3c. Sturt Hwy / Murray Street - 2031 Proposed AM Peak - Conversion]

Network: 1 [2031 Proposed AM Peak Network]

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Site 3
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, D1*, D2*
Output Phase Sequence: A, B
(* Variable Phase)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Murray St														
1	L2	89	9.3	89	9.3	0.198	26.7	LOS B	2.4	18.4	0.82	0.74	0.82	8.5
2	T1	189	0.0	189	0.0	0.449	24.2	LOS B	6.1	43.0	0.89	0.74	0.89	9.1
3	R2	18	6.9	18	6.9	0.449	28.5	LOS C	6.1	43.0	0.89	0.74	0.89	9.1
Approach		296	3.2	296	3.2	0.449	25.2	LOS B	6.1	43.0	0.87	0.74	0.87	8.9
East: Edward St														
4	L2	14	0.0	14	0.0	0.544	15.6	LOS B	12.2	91.8	0.67	0.60	0.67	27.4
5	T1	754	9.3	754	9.3	0.544	10.7	LOS A	12.2	91.8	0.68	0.62	0.68	25.8
6	R2	104	3.6	104	3.6	0.544	18.3	LOS B	7.1	53.0	0.72	0.69	0.72	22.2
Approach		872	8.4	872	8.4	0.544	11.7	LOS A	12.2	91.8	0.69	0.63	0.69	25.4
North: Murray St														
7	L2	131	0.9	131	0.9	0.396	27.5	LOS B	3.7	25.8	0.84	0.75	0.84	16.4
8	T1	95	0.0	95	0.0	0.542	25.7	LOS B	4.4	30.8	0.90	0.74	0.90	16.4
9	R2	51	0.0	51	0.0	0.542	30.3	LOS C	4.4	30.8	0.90	0.74	0.90	16.4
Approach		277	0.4	277	0.4	0.542	27.4	LOS B	4.4	30.8	0.87	0.75	0.87	16.4
West: Edward St														
10	L2	90	1.4	90	1.4	0.434	12.0	LOS A	6.0	44.5	0.41	0.43	0.41	34.3
11	T1	797	8.2	797	8.2	0.434	7.9	LOS A	8.0	60.2	0.50	0.47	0.50	32.6
12	R2	7	16.7	7	16.7	0.434	15.0	LOS B	8.0	60.2	0.57	0.51	0.57	31.2
Approach		895	7.6	895	7.6	0.434	8.4	LOS A	8.0	60.2	0.49	0.47	0.49	32.7
All Vehicles		2339	6.5	2339	6.5	0.544	14.0	LOS A	12.2	91.8	0.66	0.60	0.66	23.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 7c [7c. Murray Street / Yabtree Street - 2031 Proposed AM Peak]

Network: 1 [2031 Proposed AM Peak Network]

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Murray St														
1	L2	29	0.0	29	0.0	0.128	4.6	LOS A	0.0	0.0	0.00	0.06	0.00	48.6
2	T1	214	3.9	214	3.9	0.128	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	46.7
Approach		243	3.4	243	3.4	0.128	0.5	NA	0.0	0.0	0.00	0.06	0.00	47.5
North: Murray St														
8	T1	111	1.1	111	1.1	0.070	0.2	LOS A	0.1	0.9	0.11	0.08	0.11	41.2
9	R2	18	0.0	18	0.0	0.070	4.7	LOS A	0.1	0.9	0.11	0.08	0.11	47.2
Approach		129	1.0	129	1.0	0.070	0.8	NA	0.1	0.9	0.11	0.08	0.11	44.6
West: Yabtree St														
10	L2	26	4.8	26	4.8	0.041	5.3	LOS A	0.1	1.0	0.32	0.56	0.32	43.2
12	R2	19	0.0	19	0.0	0.041	6.0	LOS A	0.1	1.0	0.32	0.56	0.32	43.2
Approach		45	2.7	45	2.7	0.041	5.6	LOS A	0.1	1.0	0.32	0.56	0.32	43.2
All Vehicles		416	2.6	416	2.6	0.128	1.2	NA	0.1	1.0	0.07	0.12	0.07	45.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 8c [8c. Docker Street / Rawson Lane - 2031 Proposed AM Peak]

Network: 1 [2031 Proposed AM Peak Network]

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: RoadName														
2	T1	1229	2.2	1229	2.2	0.320	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		1229	2.2	1229	2.2	0.320	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
East: Rawson Ln														
4	L2	23	10.7	23	10.7	0.025	6.0	LOS A	0.1	0.7	0.36	0.56	0.36	43.0
Approach		23	10.7	23	10.7	0.025	6.0	LOS A	0.1	0.7	0.36	0.56	0.36	43.0
North: Docker St														
7	L2	13	0.0	13	0.0	0.157	4.3	LOS A	0.0	0.0	0.00	0.02	0.00	48.9
8	T1	575	6.1	575	6.1	0.157	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.0
Approach		588	5.9	588	5.9	0.157	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.0
All Vehicles		1840	3.5	1840	3.5	0.320	0.1	NA	0.1	0.7	0.00	0.01	0.00	49.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 9c [9c. Murray Street / Yathong Street - 2031 Proposed AM Peak]

Network: 1 [2031 Proposed AM Peak Network]

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Murray St														
1	L2	26	9.6	26	9.6	0.131	3.9	LOS A	0.0	0.0	0.00	0.06	0.00	48.4
2	T1	221	3.7	221	3.7	0.131	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	46.0
Approach		247	4.3	247	4.3	0.131	0.4	NA	0.0	0.0	0.00	0.06	0.00	47.2
North: Murray St														
8	T1	118	1.1	118	1.1	0.076	0.2	LOS A	0.1	1.1	0.12	0.08	0.12	43.5
9	R2	20	0.0	20	0.0	0.076	5.4	LOS A	0.1	1.1	0.12	0.08	0.12	47.2
Approach		138	0.9	138	0.9	0.076	1.0	NA	0.1	1.1	0.12	0.08	0.12	45.2
West: Yathong St														
10	L2	30	0.0	30	0.0	0.034	5.2	LOS A	0.1	0.9	0.31	0.55	0.31	43.2
12	R2	11	0.0	11	0.0	0.034	6.0	LOS A	0.1	0.9	0.31	0.55	0.31	43.2
Approach		41	0.0	41	0.0	0.034	5.5	LOS A	0.1	0.9	0.31	0.55	0.31	43.2
All Vehicles		426	2.8	426	2.8	0.131	1.1	NA	0.1	1.1	0.07	0.11	0.07	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 10c [10c. Docker Street / Brookong Avenue - 2031 Proposed AM Peak]

Network: 1 [2031 Proposed AM Peak Network]

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Docker St														
2	T1	1207	2.4	1207	2.4	0.576	6.4	LOS A	10.0	71.6	0.63	0.56	0.63	34.8
3	R2	321	1.7	321	1.7	0.499	16.4	LOS B	5.5	39.1	0.83	0.82	0.93	23.7
Approach		1528	2.2	1528	2.2	0.576	8.5	LOS A	10.0	71.6	0.67	0.61	0.69	31.7
East: Brookong Ave														
4	L2	210	3.5	210	3.5	0.215	11.1	LOS A	2.7	19.4	0.55	0.70	0.55	35.2
6	R2	27	0.0	27	0.0	0.105	25.9	LOS B	0.6	4.3	0.90	0.70	0.90	25.1
Approach		237	3.1	237	3.1	0.215	12.8	LOS A	2.7	19.4	0.59	0.70	0.59	33.7
North: Docker St														
7	L2	28	33.8	28	33.8	0.725	26.3	LOS B	7.4	54.8	0.97	0.91	1.13	9.6
8	T1	569	4.7	569	4.7	0.725	22.1	LOS B	7.6	55.5	0.98	0.91	1.14	9.6
Approach		597	6.0	597	6.0	0.725	22.3	LOS B	7.6	55.5	0.98	0.91	1.14	9.6
All Vehicles		2362	3.3	2362	3.3	0.725	12.4	LOS A	10.0	71.6	0.74	0.70	0.80	26.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 11c [11c. Murray Street / Brookong Avenue - 2031 Proposed AM Peak]

Network: 1 [2031 Proposed AM Peak Network]

2031 Proposed AM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Brookong Ave														
25	T1	61	0.0	61	0.0	0.060	3.6	LOS A	0.2	1.5	0.22	0.49	0.22	43.7
26b	R3	7	0.0	7	0.0	0.060	7.4	LOS A	0.2	1.5	0.22	0.49	0.22	43.7
Approach		68	0.0	68	0.0	0.060	4.0	LOS A	0.2	1.5	0.22	0.49	0.22	43.7
North: Murray St														
7b	L3	15	0.0	15	0.0	0.081	5.2	LOS A	0.4	3.0	0.24	0.49	0.24	25.4
9a	R1	113	1.1	113	1.1	0.081	3.7	LOS A	0.4	3.0	0.24	0.49	0.24	25.4
Approach		128	1.0	128	1.0	0.081	3.9	NA	0.4	3.0	0.24	0.49	0.24	25.4
SouthWest: Brookong Ave														
30a	L1	276	3.4	276	3.4	0.211	4.5	LOS A	0.0	0.0	0.00	0.38	0.00	44.7
31	T1	121	3.5	121	3.5	0.211	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	44.7
Approach		396	3.5	396	3.5	0.211	3.1	NA	0.0	0.0	0.00	0.38	0.00	44.7
All Vehicles		593	2.5	593	2.5	0.211	3.4	NA	0.4	3.0	0.08	0.42	0.08	43.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

USER REPORT FOR NETWORK SITE

Project: 190902 - Future Proposed 2031 PM Peak (Road Upgrades)-Redist Exist

Template: Movement Summary

Site: 1d [1d. Sturt Hwy / Docker Street - 2031 Proposed PM Peak]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: VV0581 - Future
Reference Phase: Phase A
Input Phase Sequence: A, D, E, F*, F1*, F2*
Output Phase Sequence: A, D, E
(* Variable Phase)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Docker St														
1	L2	58	2.1	58	2.1	0.884	44.1	LOS D	14.6	103.1	1.00	1.11	1.41	29.5
2	T1	665	0.7	665	0.7	0.884	39.4	LOS C	15.0	105.8	1.00	1.11	1.41	14.2
3	R2	254	2.4	254	2.4	0.651	33.1	LOS C	8.4	59.8	0.97	0.84	1.01	16.1
Approach		978	1.3	978	1.3	0.884	38.0	LOS C	15.0	105.8	0.99	1.04	1.30	16.1
East: Edward St														
4	L2	147	5.8	147	5.8	0.828	39.6	LOS C	16.9	125.3	1.00	0.94	1.11	13.2
5	T1	799	7.6	799	7.6	0.828	34.9	LOS C	17.7	132.1	1.00	0.94	1.11	31.8
6	R2	87	5.4	87	5.4	0.563	43.5	LOS D	3.2	23.6	1.00	0.80	1.03	11.3
Approach		1034	7.2	1034	7.2	0.828	36.3	LOS C	17.7	132.1	1.00	0.93	1.10	28.7
North: Docker St														
7	L2	46	0.0	46	0.0	0.886	44.2	LOS D	14.8	104.2	1.00	1.12	1.42	12.1
8	T1	650	0.9	650	0.9	0.886	39.6	LOS C	15.0	106.1	1.00	1.12	1.42	12.2
9	R2	378	1.6	378	1.6	0.886	44.5	LOS D	15.0	106.1	1.00	1.06	1.43	27.6
Approach		1074	1.1	1074	1.1	0.886	41.5	LOS C	15.0	106.1	1.00	1.10	1.42	19.5
West: Edward St														
10	L2	181	2.7	181	2.7	0.692	29.5	LOS C	12.1	88.0	0.93	0.85	0.97	32.3
11	T1	610	6.7	610	6.7	0.692	23.8	LOS B	12.7	94.0	0.93	0.83	0.97	33.4
12	R2	129	4.1	129	4.1	1.079	127.8	LOS F	9.6	69.8	1.00	1.40	2.86	11.5
Approach		920	5.6	920	5.6	1.079	39.5	LOS C	12.7	94.0	0.94	0.92	1.23	26.3
All Vehicles		4006	3.7	4006	3.7	1.079	38.9	LOS C	17.7	132.1	0.98	1.00	1.27	23.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 2d [2d. Sturt Hwy / Lewis Drive - 2031 Proposed PM Peak]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lewis Dr														
1	L2	144	0.0	144	0.0	0.164	7.0	LOS A	0.7	5.0	0.49	0.66	0.49	42.1
Approach		144	0.0	144	0.0	0.164	7.0	LOS A	0.7	5.0	0.49	0.66	0.49	42.1
East: Edward Street														
4	L2	72	0.0	72	0.0	0.277	5.5	LOS A	0.0	0.0	0.00	0.08	0.00	56.4
5	T1	962	7.1	962	7.1	0.277	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	57.7
Approach		1034	6.6	1034	6.6	0.277	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.4
West: Edward Street														
11	T1	860	7.4	860	7.4	0.232	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	71	0.0	71	0.0	0.134	11.7	LOS A	0.4	3.0	0.67	0.86	0.67	40.8
Approach		930	6.8	930	6.8	0.232	0.9	NA	0.4	3.0	0.05	0.07	0.05	53.6
All Vehicles		2108	6.2	2108	6.2	0.277	1.1	NA	0.7	5.0	0.06	0.09	0.06	52.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 3dv [3d. Sturt Hwy / Murray Street - 2031 Proposed PM Peak - Conversion]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Signals - Fixed Time Coordinated Cycle Time = 70 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Site 3
Reference Phase: Phase A
Input Phase Sequence: A, B, C1*, C2*, D1*, D2*
Output Phase Sequence: A, B
(* Variable Phase)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Murray St														
1	L2	107	6.5	107	6.5	0.192	23.4	LOS B	2.7	20.0	0.77	0.73	0.77	9.4
2	T1	187	0.0	187	0.0	0.495	23.8	LOS B	6.8	47.9	0.89	0.75	0.89	9.1
3	R2	44	0.0	44	0.0	0.495	28.1	LOS B	6.8	47.9	0.89	0.75	0.89	9.1
Approach		339	2.1	339	2.1	0.495	24.2	LOS B	6.8	47.9	0.85	0.75	0.85	9.2
East: Edward St														
4	L2	27	0.0	27	0.0	0.672	19.2	LOS B	16.4	121.7	0.80	0.72	0.80	22.9
5	T1	982	7.0	982	7.0	0.672	14.7	LOS B	16.4	121.7	0.81	0.74	0.82	21.6
6	R2	77	0.0	77	0.0	0.672	22.0	LOS B	12.1	89.0	0.84	0.76	0.84	19.8
Approach		1086	6.3	1086	6.3	0.672	15.3	LOS B	16.4	121.7	0.82	0.74	0.82	21.5
North: Murray St														
7	L2	99	2.5	99	2.5	0.172	23.5	LOS B	2.5	17.7	0.76	0.73	0.76	18.1
8	T1	64	0.0	64	0.0	0.676	29.9	LOS C	6.9	48.6	0.97	0.87	1.07	14.3
9	R2	140	0.0	140	0.0	0.676	34.5	LOS C	6.9	48.6	0.97	0.87	1.07	14.3
Approach		302	0.8	302	0.8	0.676	29.9	LOS C	6.9	48.6	0.90	0.82	0.97	15.4
West: Edward St														
10	L2	61	2.0	61	2.0	0.468	14.2	LOS A	7.1	51.8	0.49	0.47	0.49	31.0
11	T1	779	6.1	779	6.1	0.468	10.8	LOS A	9.2	67.3	0.60	0.55	0.60	28.4
12	R2	12	0.0	12	0.0	0.468	18.4	LOS B	9.2	67.3	0.71	0.62	0.71	26.2
Approach		853	5.7	853	5.7	0.468	11.1	LOS A	9.2	67.3	0.59	0.54	0.59	28.6
All Vehicles		2579	4.9	2579	4.9	0.676	16.8	LOS B	16.4	121.7	0.76	0.68	0.77	20.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 7d [7d. Murray Street / Yabtree Street - 2031 Proposed PM Peak]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Murray St														
1	L2	12	0.0	12	0.0	0.111	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.9
2	T1	199	3.5	199	3.4	0.111	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.3
Approach		212	3.3	212	3.2	0.111	0.3	NA	0.0	0.0	0.00	0.03	0.00	48.4
North: Murray St														
8	T1	74	0.0	74	0.0	0.044	0.1	LOS A	0.1	0.4	0.08	0.06	0.08	43.4
9	R2	8	0.0	8	0.0	0.044	4.5	LOS A	0.1	0.4	0.08	0.06	0.08	47.5
Approach		82	0.0	82	0.0	0.044	0.6	NA	0.1	0.4	0.08	0.06	0.08	45.4
West: Yabtree St														
10	L2	51	0.0	51	0.0	0.081	5.2	LOS A	0.3	2.1	0.30	0.57	0.30	43.3
12	R2	44	0.0	44	0.0	0.081	5.7	LOS A	0.3	2.1	0.30	0.57	0.30	43.3
Approach		94	0.0	94	0.0	0.081	5.4	LOS A	0.3	2.1	0.30	0.57	0.30	43.3
All Vehicles		389	1.8	388[N1]	1.8	0.111	1.6	NA	0.3	2.1	0.09	0.17	0.09	45.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 8d [8d. Docker Street / Rawson Lane - 2031 Proposed PM Peak]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: RoadName														
2	T1	979	1.1	979	1.1	0.253	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		979	1.1	979	1.1	0.253	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
East: Rawson Ln														
4	L2	34	0.0	34	0.0	0.077	6.8	LOS A	0.1	1.0	0.45	0.66	0.45	42.3
Approach		34	0.0	34	0.0	0.077	6.8	LOS A	0.1	1.0	0.45	0.66	0.45	42.3
North: Docker St														
7	L2	5	0.0	5	0.0	0.442	4.3	LOS A	0.0	0.0	0.00	0.01	0.00	48.9
8	T1	909	2.7	900	2.7	0.442	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.6
Approach		914	2.7	905[N1]	2.7	0.442	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.6
All Vehicles		1927	1.9	1918[N1]	1.9	0.442	0.1	NA	0.1	1.0	0.01	0.01	0.01	48.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 9d [9d. Murray Street / Yathong Street - 2031 Proposed PM Peak]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Murray St														
1	L2	13	0.0	13	0.0	0.114	3.9	LOS A	0.0	0.0	0.00	0.03	0.00	48.8
2	T1	205	3.4	205	3.4	0.114	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	47.4
Approach		218	3.2	218	3.2	0.114	0.2	NA	0.0	0.0	0.00	0.03	0.00	47.9
North: Murray St														
8	T1	111	0.0	110	0.0	0.066	0.1	LOS A	0.1	0.7	0.08	0.06	0.08	45.1
9	R2	14	0.0	14	0.0	0.066	5.3	LOS A	0.1	0.7	0.08	0.06	0.08	47.5
Approach		124	0.0	124	0.0	0.066	0.7	NA	0.1	0.7	0.08	0.06	0.08	46.1
West: Yathong St														
10	L2	32	0.0	32	0.0	0.039	5.2	LOS A	0.1	1.0	0.30	0.55	0.30	43.3
12	R2	15	0.0	15	0.0	0.039	5.8	LOS A	0.1	1.0	0.30	0.55	0.30	43.3
Approach		47	0.0	47	0.0	0.039	5.4	LOS A	0.1	1.0	0.30	0.55	0.30	43.3
All Vehicles		389	1.8	389	1.8	0.114	1.0	NA	0.1	1.0	0.06	0.10	0.06	45.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 10d [10d. Docker Street / Brookong Avenue - 2031 Proposed PM Peak]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Docker St														
2	T1	976	1.1	976	1.1	0.388	5.3	LOS A	6.7	47.2	0.50	0.44	0.50	36.7
3	R2	291	1.0	291	1.0	0.518	20.7	LOS B	6.5	46.1	0.87	0.85	1.00	20.8
Approach		1266	1.1	1266	1.1	0.518	8.8	LOS A	6.7	47.2	0.59	0.54	0.62	31.2
East: Brookong Ave														
4	L2	177	0.0	177	0.0	0.205	14.8	LOS B	3.1	21.6	0.62	0.71	0.62	32.0
6	R2	27	0.0	27	0.0	0.126	31.6	LOS C	0.8	5.3	0.93	0.70	0.93	22.6
Approach		205	0.0	205	0.0	0.205	17.0	LOS B	3.1	21.6	0.66	0.71	0.66	30.4
North: Docker St														
7	L2	26	27.3	25	27.0	0.740	25.4	LOS B	13.1	94.1	0.94	0.88	1.03	9.9
8	T1	927	1.9	919	1.9	0.740	21.2	LOS B	13.3	94.9	0.94	0.88	1.03	9.9
Approach		953	2.6	944[N1]	2.6	0.740	21.3	LOS B	13.3	94.9	0.94	0.88	1.03	9.9
All Vehicles		2424	1.6	2415[N1]	1.6	0.740	14.4	LOS A	13.3	94.9	0.73	0.69	0.78	22.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 11d [11d. Murray Street / Brookong Avenue - 2031 Proposed PM Peak]

Network: 1 [2031 Proposed PM Peak Network]

2031 Proposed PM Peak
[Future Base 2031 + Hospital development traffic]
Site Category: 2031 Proposed PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Brookong Ave														
25	T1	98	0.0	98	0.0	0.092	3.7	LOS A	0.3	2.4	0.24	0.49	0.24	43.6
26b	R3	7	0.0	7	0.0	0.092	7.1	LOS A	0.3	2.4	0.24	0.49	0.24	43.6
Approach		105	0.0	105	0.0	0.092	4.0	LOS A	0.3	2.4	0.24	0.49	0.24	43.6
North: Murray St														
7b	L3	9	0.0	9	0.0	0.087	5.0	LOS A	0.5	3.3	0.18	0.48	0.18	26.0
9a	R1	137	0.0	137	0.0	0.087	3.6	LOS A	0.5	3.3	0.18	0.48	0.18	26.0
Approach		145	0.0	145	0.0	0.087	3.7	NA	0.5	3.3	0.18	0.48	0.18	26.0
SouthWest: Brookong Ave														
30a	L1	236	3.0	236	2.9	0.166	4.5	LOS A	0.0	0.0	0.00	0.42	0.00	44.2
31	T1	75	4.0	75	3.9	0.166	0.0	LOS A	0.0	0.0	0.00	0.42	0.00	44.2
Approach		311	3.2	311	3.2	0.166	3.4	NA	0.0	0.0	0.00	0.42	0.00	44.2
All Vehicles		562	1.8	562	1.8	0.166	3.6	NA	0.5	3.3	0.09	0.45	0.09	42.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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