Proposed Medi-Hotel

28-32 Somerset Street, Kingswood

Prepared for:

Boston Global

23 July 2021

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Client: Boston Global

Version: Final

Date: 23 July 2021

TTPP Reference: 20227

Quality Record

Version	Date	Prepared by	Approved by	Signature
Final	22/07/2021	PJD	PJD	

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1 Introduction

The Transport Planning Partnership (TTPP) has prepared this transport impact assessment on behalf of Boston Global. It relates to an application to be lodged with Penrith City Council for a proposed medi-hotel development at 28-32 Somerset Street, Kingswood.

A residential development has previously been approved for the site, including a combined entry/exit driveway on Hargrave Street. That development would comprise 54 residential apartments and 184 m^2 of commercial area, with basement car parking for 74 cars, 15 bicycles and a loading area.

The Development Application also includes a combined entry/exit driveway on Hargrave Street. It proposes a 140-key medi-hotel catering for pre- and post-operative patients and their families at the nearby Nepean Hospital, with basement car parking for 63 cars and a loading area.

The remainder of this report is set out as follows:

- Section 2 describes the existing transport environment, including the road network, public transport, pedestrian and cyclist facilities, and the operation of the key intersection.
- Section 3 describes the proposed development.
- Section 4 assesses the impacts of the development, including its parking provision, vehicle trip generation, access and car parking arrangements and loading facilities.
- Section 5 presents the conclusions of this study.

2 Existing Conditions

2.1 Site Location and Land Use

The site is located at 28-32 Somerset Street, Kingswood. This lies within the area covered by the Hospital Precinct controls of the Penrith Development Control Plan 2014, with frontage to both Somerset Street and Hargrave Street.

The site currently contains two detached residential dwellings, each of which have a single width driveway to Somerset Road. The part of the site on the corner of Hargrave Street is unoccupied, with a disused single width vehicular crossing to Somerset Street. A Development Application for a residential development has been approved for the site, including a combined entry/exit driveway on Hargrave Street. That development would comprise 54 residential apartments and 184 m^2 of commercial area, with basement car parking for 74 cars, 15 bicycles and a loading area.

2.2 Road Network

The roads serving the subject site are briefly described below.

Great Western Highway is a State Road that runs in an east-west direction linking the Blue Mountains in the west and the M4 Motorway in the east. Great Western Highway likes approximately 300m north of the subject site, and is generally a 23m wide six lane two-way road with restricted parking lanes provided on both sides of the road. The posted speed limit on the Great Western Highway is 60 kilometres per hour (km/h), and it carries approximately 19,000 vehicles per day. At its intersection with Somerset Street, vehicles are not permitted to turn right into Great Western Highway from Somerset Street.

Somerset Street is a local road under the jurisdiction of Penrith City Council. It runs in a north-south direction adjacent to the western boundary of the site, linking between Great Western Highway in the north and Jamieson Road in the south. Near the subject site, Somerset Street is a 12.2m wide two-lane two-way road with parking on both sides of the street, as shown below in Figure 2.1. The kerbside parking is delineated with painted edgelines and bays are individually linemarked. Parking adjacent to the subject site is limited to four hours, and parking is not permitted over a length of 12m across the driveways of the two existing residential dwellings on the site. The posted speed limit on Somerset Street is 50 km/h and it carries approximately 6,200 vehicles per day.

Figure 2.1: Somerset Street looking North from Hargrave Road

Somerset Street provides vehicular access to the **Nepean Hospital** multi-storey car park, via a western leg at the intersection of Somerset Street with Hargrave Street. Egress from that car park is to Derby Street west of Somerset Street. The car park is open 24 hours per day, seven days per week and is operated by Wilson Parking. A separate vehicular entry/exit for the Nepean hospital is located on the western side of Somerset Street opposite the subject site. This formerly provided access to at-grade parking areas on which a new facility is being constructed, and currently provides limited access to the Oral Health Centre, a child care centre and other facilities within the Nepean Hospital campus.

The intersection of Somerset Street with Hargrave Road and the Nepean Hospital car park entry is controlled with a single lane roundabout, with raised splitter islands on the Somerset Street approaches and a painted splitter island on Hargrave Street. The entry to the car park allows for two inbound traffic lanes from the roundabout. "No Stopping" restrictions apply on the approach and departures from the roundabout on Somerset Street and Hargrave Street.

Hargrave Street is a local road that runs in a west-east direction adjacent to the southern boundary of the site. Hargrave Street is a 7.2 m wide one-lane two-way road with unrestricted parking on both sides of the street, as shown below in Figure 2.2. Parking bays are delineated and the road width permits only one direction of travel between parked cars. If vehicles approach from opposite directions, one must wait at a driveway to allow the other to pass.

Figure 2.2: Hargrave Street looking East from Somerset Street

2.3 Public Transport

The site is located less than 200 m walking distance to bus stops on Derby Street east of Somerset Street. Those bus stops are serviced by Busways Western Sydney routes 774, 775 and 776. These three routes all operate throughout the day between Penrith Station and Mount Druitt Station, as summarised in Table 2.1. Almost all services are operated by wheelchair accessible buses, with low-level floors and space for wheelchairs, prams or strollers.

Table 2.1: Penrith-Mount Druitt Bus Services to/from Derby Street Kingswood

Route	Daily Services from Penrith			Daily Services to Penrith		
	Weekdays	Saturdays	Sundays	Weekdays	Saturdays	Sundays
774 via Nepean Hospital	34	18	15	36	16	15
775 via Erskine Park	33	17	14	36	16	15
776 via St Clair	29 +2 during school holidays only	19	14	31 +2 during school holidays only	16	13
First Bus per Day[A]	5:10am Route 774	5:33am Route 774	7:30am Route 774	5:16am Route 775	7:43am Route 774	8:05am Route 774
Last Bus per Day[A]	11:29pm Route 775	11:38pm Route 776	9:34pm Route 774	00:08am Route 774	11:04pm Route 776	10:25pm Route 774

Notes: first and last services of the day may start or end at St Marys Interchange
[A] First and last bus times at Nepean Hospital bus stop 2747139
Source: timetables effective 6 July 2020, www.transportnsw.info/routes/bus

The site is located approximately 800 m walking distance from Kingwood Station, which serves the T1 City to Emu Plains or Richmond, and T5 Leppington to Richmond train services. Trains operate from Kingswood Station throughout the early morning, daytime and late evening, with an overnight break in services between 1:33am and 3:16am.

Accessibility at Kingswood Station has recently been improved through provision of two lifts and stairs to provide access to each station platform, new accessible pathways through the station precinct, new station entrances on Great Western Highway and the corner of Park Avenue and Richmond Road, and improved amenities such as new ambulant toilet and family accessible toilet. Kingswood Station also has a taxi rank, kiss and ride stopping area, bike lockers, and wheelchair ramp boarding assistance available between 6am and 7pm on weekdays and 8am to 4pm on weekends and public holidays.

2.4 Pedestrian and Cyclist Facilities

Paved footpaths are provided on both sides of Somerset Street and on the northern side of Hargrave Street.

A pedestrian refuge is provided within the splitter island on the northern approach of the roundabout at Somerset Street and Hargrave Street, with pram ramps on each side of Somerset Street. Pram ramps are provided to assist pedestrians at the minor roads along Somerset Street, including the accesses for the Nepean Hospital. There is no specific provision for cyclists along either Somerset Street or Hargrave Street, so cyclists would use those roads.

2.5 Traffic Volumes

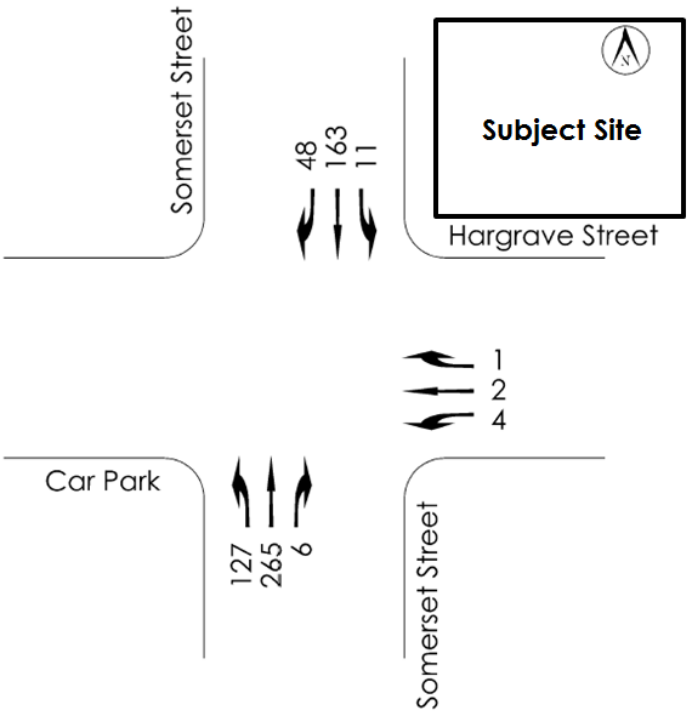
Due to the atypical behaviour and traffic conditions at the time of this assessment, is it considered that no reliance should be placed on the results of traffic surveys conducted at this time, as they would not reflect "normal" operating conditions on the road network. TTPP has therefore referred to the results of historic surveys conducted in November 2015[1].

An automatic tube count survey recorded all vehicles entering and exiting Hargrave Street over seven days between Friday 20 November 2015 and Thursday 26 November 2015 inclusive. That survey found that Hargrave Street carried a maximum of 44 vehicles per hour, with that peak occurring between 3:00 pm and 4:00 pm.

An intersection turning movement survey at the intersection of Hargrave Street and Somerset Street conducted on Thursday 26 November 2015 found that the morning peak hour occurred between 7:45 am and 8:45 am. The peak hour turning movements are presented in Figure 2.3.

[1] TTPP (2016), *28-32 Somerset Street, Kingswood Transport Impact Assessment.*

Figure 2.3: Peak Hour Vehicle Turning Movements at Hargrave Street and Somerset Street



It is expected that some growth in traffic would have occurred since 2015, however due to the current atypical traffic conditions due to ongoing COVID-19 behavioural changes and construction activity on the western side of Somerset Street, a fresh survey of the traffic volumes in 2021 would not represent ongoing normal traffic conditions. To account for growth in traffic at the intersection from 2015 to 2021, and future growth to 2031, a growth rate of 2% per annum has been applied to the surveyed volumes from 2015, which is considered to be a conservatively high estimate of 2021 and 2031 conditions.

2.6 Intersection Operation

The operating characteristics of the surveyed intersection have been assessed using SIDRA INTERSECTION 9, an analysis program which determines characteristics of intersection operating conditions including the degree of saturation, average delays, and levels of service. The degree of saturation, or x-value, is the ratio of the arrival rate of vehicles to the capacity. The average delay, expressed in seconds per vehicle, is measured over all movements at signalised intersections, and over the movement with the highest average delay at roundabout and priority intersections. Average vehicle delay is the commonly used measure of intersection performance defined by TfNSW. Table 2.2 shows the criteria adopted by TfNSW for assessing the level of service.

Table 2.2: Intersection 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

Note: Average delay per vehicle is measured as seconds per vehicle (seconds per vehicle).

The intersection of Somerset Street and Hargrave Street is under roundabout control, thus the reported average delay is for the movement with the highest average delay per vehicle. Table 2.3 presents a summary of the peak hour operating characteristics of the surveyed intersection. Detailed results, including vehicle queues per movement are presented in Appendix A.

Table 2.3: AM Peak Hour Operating Conditions Somerset Street and Hargrave Street

Intersection	Degree of Saturation	Average Delay Worst Movement (seconds per vehicle)	Level of Service
Surveyed 2015	0.31	7.7	A
Estimated 2021	0.35	7.9	A
Estimated 2031	0.43	8.2	A

3 Proposed Development

The proposed development includes demolition of two on-site detached residential dwellings and construction of a 140-key medi-hotel catering for pre- and post-operative patients and their families. The medi-hotel would be constructed over six storeys with reception, lounge area and back of house facilities on the ground floor, and therapy gym/spa, yoga/wellness and food and beverage facilities on the sixth floor.

Basement car parking for 63 cars is proposed, with loading facilities proposed within the basement car park. Subject to Council approval, kerbside space on Somerset Street is proposed to replace existing driveway crossings, to allow taxis or other vehicles to set down and drop off passengers.

Vehicular access to and from the basement car park is proposed via a new two-way driveway to Hargrave Street. The access driveway will provide for all vehicles accessing the site, including for servicing and garbage collection purposes.

4 Impact Assessment

4.1 Car Parking Provision

4.1.1 Penrith Development Control Plan

The development lies within the Hospital Precinct defined in Penrith City Council's Development Control Plan 2014 (the DCP). The DCP generally requires that the controls set out in the *Transport, Access and Parking* section apply within the Hospital Precinct. The *Transport, Access and Parking* section of the DCP indicates on-site car parking provision rates for a number of development types, however does not contain any specific requirement for medi-hotels, serviced apartments or bed and breakfast accommodation.

With regard to casual accommodation, the DCP includes rates for "hotel or motel accommodation" but does not distinguish between the two types of development when applying its parking requirements. For both development types, the DCP requires one space per unit plus one space per manager plus one space per six employees. Motels (derived from "motor hotels") generally cater for people travelling by car, and are not necessarily located in close proximity to public transport. They cater for travellers who stay overnight before continuing a car-based journey. Visitors to motels typically have an expectation that on-site car parking will be available for each and every accommodation room. This is not the case for a tourist hotel at which guests travel by public transport or taxi, nor for a medi-hotel, in which guests are associated with the adjacent medical facilities at Nepean Hospital and also travel by taxi rather than driving a private car.

The difference between the DCP parking rates for "motel and hotel accommodation" from that of other types of casual accommodation has previously been acknowledged by Penrith City Council's approval of serviced apartments developments with car parking provided below the DCP rate for motels and hotels, including:

- 50 serviced apartments at 10-12 Hargrave Street with 37 car parking spaces (DA17/0490)
- 108 serviced apartments with 35 car parking spaces including stacked spaces at Quest Apartments, North Thornton (DA16/0357).

Approval of these lower rates demonstrates that Council has previously acknowledged that a parking rate applicable to a motel is not required for other types of casual accommodation. Similarly, application of the DCP rate for motel and hotel developments is not considered to reflect the likely future demands of the proposed development due to the inherent nature of a medi-hotel being different from that of a traditional motel or hotel as defined in the Penrith LEP.

The DCP indicates that "*in the absence of specific requirements relevant to particular developments, the parking requirements in the RTA's "Guide to Traffic Generating Developments" (as updated) and Australian Standard AS 2890.1 and 2 - 2004 should be*

referred to as a guide. In the absence of all data, the applicant should revert to the use of first principles."

In accordance with the DCP, TTPP has therefore referred to the RTA guide and Australian Standard AS2890.1 for further guidance, described in the following sections.

4.1.2 RTA Guide Parking Requirements

As required by the DCP, in the absence of specific requirements relevant to the medi-hotel development, TTPP has referred to the RTA's *Guide to Traffic Generating Developments* (the RTA guide). Neither the RTA guide nor its update TDT2013/04a include specific rates for medi-hotel developments.

With respect to casual accommodation, the RTA guide differentiates between the travel and parking demand characteristics of motels and tourist hotels:

Motels – the RTA guide defines a motel as "a building or buildings (other than a hotel, boarding house or residential flat building) used substantially for overnight accommodation of travellers and their vehicles, whether or not the building or buildings is also used to provide meals to those travellers or the general public." It recommends that motels provide one space per unit plus one space per two employees, based on analysis of surveys of motels conducted over 40 years ago[2]. As described in Section 4.1.1, the travel and client characteristics of a traditional motel development are inherently different from those of a medi-hotel.

Hotels – the RTA guide contains no current research data on tourist hotels, however indicates that based on modal averages from surveys conducted in the Sydney CBD, it suggests that the parking rate for tourist hotels be one space for five rooms for 5-star international hotels and one space per four bedrooms in 3-star and 4-star hotels. Those surveys also demonstrated a need to provide taxi pick-up and drop off facilities, with a demand of one taxi trip per hour per 10 hotel rooms. Tourist accommodation facilities in the CBD typically cater for a range of travellers, many of whom travel by public transport or taxis, rather than by private car. The parking demand of tourist hotels is therefore lower per room than that of motels, and considered to be more consistent with those of a medi-hotel, at which guests travel by public transport or taxis, rather than by private vehicles.

Applying the RTA guide hotel rates, a 140-room 5-star hotel would require 28 car parking spaces and a 3-star or 4-star hotel would require 35 car parking spaces. Additional space would also be required for taxi pick-up and drop off activities.

[2] Traffic Authority of New South Wales (1979), *Land Use Traffic Generation – Data and Analysis 6 – Motels.*

4.1.3 Australian Standard 2890.1

In accordance with the DCP, TTPP has referred to the Australian Standard AS2890.1 for further guidance regarding parking provision. Australian Standard AS2890.1 does not specify rates for provision of parking as suggested by the DCP, and has therefore not been considered further in this assessment.

4.1.4 Medi-Hotel Parking Requirements in Similar Locations

In response to the absence of specific requirements for medi-hotel parking in both the DCP and RTA guide, TTPP has made reference to parking requirements at similar medi-hotel developments located within wider health precincts. Examples of these are described below.

The St Leonards Health and Education Precinct in Sydney combines clinical care, research facilities, a medi-hotel and key worker housing. The St Leonards Precinct is similar to Kingswood, in that it is well serviced by public transport, on-street parking is limited and/or time-controlled, and parking is in demand throughout the day as a result of both hospital and surrounding developments. With regard to assessing car parking demand, all accommodation within that Precinct is considered as typical hospital land use, requiring one parking space per three beds for visitors, plus one space per registered practitioner and one space per two other employees[3]. A 140-room accommodation facility with no registered practitioner in the St Leonards Health and Education Precinct would require 47 car parking spaces plus one space per two (non-practitioner) employees.

Similar to the Nepean Hospital Precinct, Landcom's Murdoch Health and Knowledge Precinct will comprise a range of complementary uses to the surrounding hospital and education institutions including allied health, residential, office, retail and short-stay accommodation. A 60-room medi-hotel is proposed as part of the first stage of that development, which is adjacent to the Fiona Stanley Hospital and St John of God Murdoch, two of Western Australia's biggest hospitals. For hotel accommodation within that precinct, the planning policy[4] permits a maximum of one space per three bedrooms with a minimum of 25% of the total permitted parking supply to be designated as public parking. This includes parking for both employees and visitors. A 140-room accommodation facility in the Murdoch Health and Knowledge Precinct would be permitted a maximum of 47 car parking spaces, of which 12 spaces would be designated as public parking.

The MediStay medi-hotel development on Hogben Street at Kogarah is adjacent to St George Private Hospital and close to St George Public Hospital, and provides no on-site car parking for the visitors or employees of its apartments. Visitors to that hotel who require car parking are directed to use nearby public parking or street parking.

[3] GTA Consultants (2017), *Tower B: Hospital, Accommodation and Ancillary Uses 12 Frederick Street, St Leonards.*
[4] *City of Melville Local Planning Policy 4.4 Murdoch Health and Knowledge Precinct,* November 2016.

4.1.5 Proposed Medi-Hotel Operator Experience

In response to the absence of specific requirements for medi-hotel parking in both the DCP and RTA guide, TTPP has also consulted with the intended operator of the medi-hotel regarding their experience with similar developments. The intended operator of the medi-hotel anticipates that the demand would be met by the provision of one space for every four accommodation rooms, plus three spaces for the use of executive staff. This is comparable to that recommended in the RTA guide for a 3-star or 4-star tourist hotel, and is equivalent to a requirement for 38 parking spaces for the proposed 140-room development.

4.1.6 Ancillary Facilities

It is noted that the hotel is proposed to include some ancillary components, such as the therapy gym/spa, yoga/wellness and food and beverage facilities on the sixth floor, and small bar and lounge area on the ground floor. These facilities are proposed primarily for the use of hotel guests, and those located on the sixth floor are not expected to be freely accessible to the general public.

The bar and lounge area on the ground floor are proposed as break-out areas for the use of guests staying within the facility, however as they are located on the ground floor adjacent to the reception and entry areas, there is some potential for those areas to be visited by people who are not guests of the hotel.

Under Penrith DCP, as standalone facilities in a pub or registered club, car parking would be required at a rate of 1 space per 4m^2 for a bar area, and a rate of 1 space per 6m^2 for a lounge area. Applying these rates to the proposed 74m^2 bar and 137m^2 lounge areas yields a requirement for 41 car parking spaces.

The significant majority of people using the ground floor bar and lounge areas are however expected to be guests of the medi-hotel. Given the development's location and the scale of the proposed ancillary facilities, it is expected that non-guests attending those facilities would principally be local users, such as staff or visitors to the adjacent hospital. Those people would not typically generate additional demand for parking at the hotel, having already parked their car (if required) elsewhere, with the visit to the bar or lounge area being a walking journey to and from the hospital and associated facilities.

As a robust assessment of the potential additional parking demand generated by non-guest patrons in the proposed bar and lounge area, it has been assumed that:

- half of patrons are NOT guests of the medi-hotel; and
- half of the non-guest patrons drive a car and park at the hotel.

On this basis, the parking demand for the bar and lounge area would be approximately one-quarter of a standalone pub or registered club development, thus the additional parking

demand above that of the medi-hotel accommodation facilities alone would be in the order of 11 car parking spaces.

4.1.7 Adequacy of Proposed Parking Provision

By way of summary, Table 4.1 presents a comparison of the parking requirements for a 140-room medi-hotel facility based on the requirements and provisions described above.

Table 4.1: Comparison of Parking Requirements

	Basis of Requirement	Spaces Required
140-Room Accommodation		
Penrith DCP	Motels and hotels	140 spaces
RTA Guide	3-star and 4-star Tourist Hotel	35 spaces
RTA Guide	5-star Tourist Hotel	28 spaces
St Leonards Health Precinct	All accommodation	47 spaces + 1 space per 2 employees
Murdoch Health and Knowledge Precinct	Hotel accommodation	47 spaces maximum
Hogben Street Kogarah	Medi-hotel	Nil
Operator's Experience	Medi-hotel	38 spaces
Ancillary Bar and Lounge Area		
Penrith DCP	50% external patronage 50% external patrons car driver	11 spaces

The proposed provision of parking for the proposed 140-room medi-hotel and ancillary facilities exceeds that required for a similar-sized facility located within the St Leonards Health Precinct or Murdoch Health Precinct, exceeds the demand expected for a similar-sized facility based on the RTA guide rates for 3-star, 4-star and 5-star hotels, and exceeds the demand anticipated by the operator. Additional parking demands generated by the publicly-accessible ancillary facilities would be accommodated within the proposed provision of 63 spaces.

It is therefore considered that the proposed parking supply will satisfactorily accommodate the demand generated by the hotel accommodation and publicly-accessible ancillary facilities.

4.1.8 Taxi Facilities

The aforementioned RTA guide also refers to the City of Sydney's requirements for service vehicles, suggesting that hotels provide space for taxis to stand. The suggested rate is one space per 100 bedrooms or part thereof, equivalent to one to two taxi spaces for a 140-room development. The code indicates these may be provided within a service area or make use of visitor parking spaces. It is also reasonable to provide for taxi (or other set down and pick up activity) on-street by application of appropriate "Taxi Zone" or "No Parking" signage.

Allocation of two car-lengths on the Somerset Street frontage of the subject site to "No Parking" to permit taxi and other set down/pick up activity would satisfy this expected peak demand, and not have any net effect on the availability of longer-stay parking along that frontage, as parking is currently not permitted across an equivalent length due to the two driveways of the existing residential dwellings on the site. Those driveways and the redundant driveway to the undeveloped site would be removed with construction of the proposed development, making the equivalent of three additional parking spaces available on Somerset Street. Provision of a dedicated area for set down and pick up activity on Somerset Street is preferable to provision of a porte cochere, noting that while the DCP permits these for hotel or medical facility developments, it further notes that they may have adverse impacts on urban design, streetscape and pedestrian amenity and are not preferred.

It is therefore recommended that, subject to Council approval, the equivalent of two parking spaces on Somerset Street be signposted as "No Parking" to facilitate set down and pick up activity by taxis and private vehicles. Such allocation would also allow other road users to set down or pick up passengers at this location, and so would also serve the wider hospital precinct. The existing pedestrian refuge at the Hargrave Street roundabout would facilitate safe pedestrian access between the proposed set down zone and the Nepean Hospital.

4.2 Sustainable Transport Considerations

The existing pedestrian and cyclist facilities serving the site provide suitable access to and from the site for those users.

The DCP requires that bicycle parking should be provided in accordance with the suggested bicycle parking provision rates for different land use types contained in *Planning Guidelines for Walking and Cycling* (NSW Government, 2004). That document does not include a rate for medi-hotels, however by way of comparison, suggests that:

- motels, tourist hotels and serviced apartments provide bicycle parking for staff at a rate of 3% to 5% of the number of rooms, and bicycle parking for customers/visitors at the same rate; and
- convalescent homes provide bicycle parking for staff at a rate of 3% to 5% of the number of staff, and bicycle parking for customers/visitors at a rate of 5% to 10% of the number of staff. The proposed hotel operator has indicated that the medi-hotel would employ approximately 30 staff full time, although due to rostering and shift arrangements, not all of those staff would be present at one time.

Applying the tourist hotel and serviced apartments rates to the 140 room medi-hotel suggests that a tourist hotel of the size proposed should provide between eight and 14 bicycle spaces, being four to seven spaces for staff and four to seven spaces for customers/visitors. It can reasonably be expected that the demand for visitor bicycle parking at a medi-hotel would be below that of a tourist hotel, as many of the patrons would recovering from surgery and/or have impaired mobility. Applying the convalescent home rate based on the total staff expected at the proposed development suggests a requirement for between three and five

bicycle spaces for a facility of the size proposed, being one to two bicycle spaces for staff and two to three bicycle spaces for visitors.

The development proposes 16 bicycle racks, being eight visitor bicycle racks located on the ground level, and eight staff bicycle racks located in the basement car parking areas. This provision exceeds the requirements of the abovementioned guidelines for a tourist hotel or a convalescent home, and is considered to be satisfactory. The layout of the racks is generally compliant with AS2890.3, and it is recommended that adequate lighting be provided for the visitor bicycle parking areas. It would be appropriate to provide weather protection for the visitor bicycle spaces.

4.3 Traffic Generation

To determine the potential generation of additional vehicle trips as a result of the proposed development, TTPP has referred to the aforementioned RTA guide. That guide provides an evening peak hour trip generation rate applicable to motel accommodation of 0.4 vehicle trips per unit per hour. As discussed above, motels primarily cater for car-based travellers who usually require only overnight accommodation, and the RTA rate assumes a development in which one car parking space is provided for each accommodation unit, i.e., is equivalent to 0.4 vehicle trips per parking space per hour.

As the proposed medi-hotel development would cater for patients and visitors associated with the adjoining Nepean Hospital, who may require accommodation for several days or week, and so would cater for the needs of people requiring accommodation within easy walking distance of the hospital precinct, the proposed medi-hotel is expected to generate significantly fewer vehicle trips than a similar sized motel.

Assuming up to 11 car parking spaces are used by visitors to the ancillary facilities during peak hours (refer to Section 4.1.6), and three spaces are allocated to executive staff, the hotel accommodation guests would use up to 49 car parking spaces. Application of the above motel traffic generation rates to those 49 car parking spaces used by accommodation guests in the medi-hotel development proposal yields a traffic generation potential of approximately 20 vehicle trips per hour during the PM peak hour.

The three car parking spaces allocated to executive staff would be expected to generate up to three vehicle trips during the peak hours. The 11 spaces anticipated to be used by non-guest visitors to the ancillary facilities would be expected to generate up to 11 vehicle trips during the peak hours.

A medi-hotel would be expected to generate demand for taxi trips, with the aforementioned surveys of CBD tourist hotels generating a peak demand for one taxi trip per hour per 10 hotel rooms. On this basis, the 140 room medi-hotel may be expected to generate up to 14 trips in the peak hours by taxis. Given the nature of the development, some of these passenger set down and pick up trips are expected to be by private vehicles and uber vehicles rather than taxis. As described above the allocation of two spaces for such activity on Somerset Street

would cater for the demand, and would not reduce the available number of spaces. These trips are therefore expected to occur to and from the kerbside of Somerset Street rather than into or out of the driveway on Hargrave Street.

The existing two residential dwellings on the site would reasonably be expected to be currently generating two vehicle trips per hour during the peak hours. With the proposed medi-hotel development, these trips would be removed from the road network.

The proposed medi-hotel is therefore estimated to result in a net increase of 46 vehicle trips on the surrounding road network during the peak hours as follows:

- 34 additional vehicle trips to and from the Hargrave Street driveway;
- 14 additional vehicle trips to and from the eastern kerb of Somerset Street; and
- 2 fewer vehicle trips to and from the existing Somerset Street driveways.

The directional distribution of the development-generated traffic would be largely influenced by the connectivity of the surrounding road network, with all traffic generated by the development expected to access the site via Somerset Street. It is assumed that half of the trips would approach/depart to/from the north and half to/from the south on Somerset Street. During the morning peak hour, approximately 80 percent of the trips to/from the basement are assumed to be outbound and 20 percent inbound. The reverse directional distribution would occur during the evening peak hour. Trips to/from the set down/pick up area on Somerset Street would be 50 percent arrivals and 50 percent departures throughout the day and night.

4.4 Future Intersection Operation

The additional traffic on the road has been allocated to the road network, and its impact on the operation of the intersection of Hargrave Street with Somerset Road assessed using SIDRA INTERSECTION 9. The results of that analysis are summarised in Table 4.2, and results presented in Appendix A.

Table 4.2: Somerset St and Hargrave St AM Peak Hour Intersection Operating Conditions

Year	Degree of Saturation	Average Delay Worst Movement (seconds per vehicle)	Level of Service
No Development			
2021	0.35	7.9	A
2031	0.43	8.2	A
With Development			
2021	0.37	8.0	A
2031	0.45	8.3	A

The results demonstrate that with the additional traffic expected to be generated by the proposed development, the intersection of Hargrave Street with Somerset Street would continue to operate at a good level of service, with short delays and spare capacity.

It is understood that Somerset Street is used by the NSW Ambulance service during emergency transport. The SIDRA results (Appendix A) demonstrate that at the intersection with Hargrave Street, the development traffic would increase the average delay to northbound and southbound vehicles along Somerset Street (i.e. including ambulances) by 0.1 seconds per vehicle, which is negligible in the context of overall travel times on the road network.

4.5 Vehicular Access and Car Parking Design

Consistent with the DCP, only one vehicle access point is proposed for the development, is from the minor road frontage, and located separately from the building entry point for pedestrians. As required by the DCP, the proposed vehicular access and car parking layouts have been reviewed with regard to compliance with AS2890.1. The layout of the basement parking complies with the requirements of the Australian Standard with regard to the dimensions of parking bays and aisles, with additional clearances provided to walls and columns. Adequate headroom is proposed in accordance with AS2890.1, and ramp grades and widths are compliant. All vehicles would be able to enter and exit the car park in a forward direction.

The vehicle crossing has been designed to comply with Council's Engineering Construction Specification for Civil Works, with a crest 300 mm above the top of kerb level, and grade transitions proposed to avoid vehicles scraping in accordance with AS2890.1 and AS2890.2.

The DCP requires that parking for people with a disability should be in accordance with the Access to Premises Standard, the Building Code of Australia and AS2890. Six parking spaces for people with a disability are proposed, the design of which comply with the requirements of AS2890.6. Based on the Building Code of Australia, this development would require that

one space for every 100 spaces or part thereof be accessible, thus the proposed provision of six spaces exceeds the requirement and is satisfactory.

The driveway access for the proposed development would require the removal of one car parking space from the northern side of Hargrave Street. This is consistent with the impacts of the approved residential development on the site. This would be offset by the additional three spaces being made available on Somerset Street with the removal of the redundant driveways on Somerset Street.

4.6 Loading Facilities

The proposed medi-hotel is expected to be serviced by commercial vehicles for deliveries and waste collection. A loading bay is proposed on Level 1 of the basement, and the manoeuvring area has been designed to accommodate the swept path and headroom requirements of 6.4m long small rigid vehicles (SRV) in accordance with AS2890.2. The swept path of the SRV entering and exiting the loading area and headroom clearance accessing the loading area are presented in Appendix B.

The layout permits these vehicles to load/unload while clear of the circulation path of other vehicles, and to enter and exit in a forward direction as required by the DCP. The provision of access for 6.4m long SRVs is consistent with that approved at the aforementioned serviced apartments development at 10-12 Hargrave Street (DA17/0490).

To assist the driver of a vehicle entering and exiting the loading area to observe vehicles approaching up the adjacent ramp, it is recommended that convex mirrors be installed. Alternatively, a flashing light or similar may be installed to alert the approaching car driver of a vehicle manoeuvring into or out of the loading area.

5 Conclusions

This assessment has found that the proposed development of a 140-room medi-hotel at 28-32 Somerset Street Kingswood would have acceptable impacts on the operation of the surrounding road network. Based on comparison with requirements for similar developments in health precincts, the proposed provision of 63 car parking spaces is expected to accommodate the demand generated by the proposed medi-hotel accommodation and publicly-accessible ancillary facilities. The layout of the proposed car parking and loading dock meets the general requirements of the Australian Standards 2890.1 and 2890.2. It is recommended that:

- adequate lighting be provided for the proposed bicycle parking spaces; and
- convex mirrors (and/or other management measures) be installed to assist sight lines between the drivers of service vehicles and cars approaching on the adjacent ramp.

Appendix A

SIDRA Intersection Outputs

MOVEMENT SUMMARY

Site: [2015-AM Hargrave Somerset (Site Folder: 20227)]

Hargrave Street and Somerset Street
Surveyed November 2015
7:45am to 8:45am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Somerset St (S)														
1	L2	127	2.0	134	2.0	0.311	4.4	LOS A	1.9	13.4	0.21	0.46	0.21	21.3
2	T1	265	2.0	279	2.0	0.311	4.1	LOS A	1.9	13.4	0.21	0.46	0.21	11.3
3	R2	6	2.0	6	2.0	0.311	6.9	LOS A	1.9	13.4	0.21	0.46	0.21	44.3
Approach		398	2.0	419	2.0	0.311	4.2	LOS A	1.9	13.4	0.21	0.46	0.21	17.2
East: Hargrave St (E)														
4	L2	4	2.0	4	2.0	0.007	5.2	LOS A	0.0	0.2	0.37	0.52	0.37	42.7
5	T1	2	2.0	2	2.0	0.007	5.8	LOS A	0.0	0.2	0.37	0.52	0.37	27.4
6	R2	1	2.0	1	2.0	0.007	7.7	LOS A	0.0	0.2	0.37	0.52	0.37	41.3
Approach		7	2.0	7	2.0	0.007	5.8	LOS A	0.0	0.2	0.37	0.52	0.37	34.6
North: Somerset St (N)														
7	L2	11	2.0	12	2.0	0.151	2.6	LOS A	0.8	5.9	0.05	0.47	0.05	45.0
8	T1	163	2.0	172	2.0	0.151	2.4	LOS A	0.8	5.9	0.05	0.47	0.05	36.3
9	R2	48	2.0	51	2.0	0.151	5.0	LOS A	0.8	5.9	0.05	0.47	0.05	21.4
Approach		222	2.0	234	2.0	0.151	3.0	LOS A	0.8	5.9	0.05	0.47	0.05	27.4
All Vehicles		627	2.0	660	2.0	0.311	3.8	LOS A	1.9	13.4	0.16	0.47	0.16	19.8

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

Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Licence: NETWORK / 1PC | Processed: Monday, 10 August 2020 11:20:22 AM
Project: C:\Users\penny.dalton\OneDrive - THE TRANSPORT PLANNING PARTNERSHIP PTY LTD\20227 28-32 Somerset St, Kingswood - Hotel\07 Modelling Files\20227_210702_Somerset Street.sip9

MOVEMENT SUMMARY

Site: [2021-AM Hargrave Somerset (Site Folder: 20227)]

Hargrave Street and Somerset Street
Estimated 2021 at 2% pa growth over 2015
7:45am to 8:45am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Somerset St (S)														
1	L2	143	2.0	151	2.0	0.352	4.5	LOS A	2.2	16.0	0.24	0.46	0.24	21.3
2	T1	298	2.0	314	2.0	0.352	4.1	LOS A	2.2	16.0	0.24	0.46	0.24	11.3
3	R2	7	2.0	7	2.0	0.352	7.0	LOS A	2.2	16.0	0.24	0.46	0.24	44.2
Approach		448	2.0	472	2.0	0.352	4.3	LOS A	2.2	16.0	0.24	0.46	0.24	17.2
East: Hargrave St (E)														
4	L2	5	2.0	5	2.0	0.008	5.4	LOS A	0.0	0.3	0.39	0.53	0.39	42.7
5	T1	2	2.0	2	2.0	0.008	6.0	LOS A	0.0	0.3	0.39	0.53	0.39	27.4
6	R2	1	2.0	1	2.0	0.008	7.9	LOS A	0.0	0.3	0.39	0.53	0.39	41.3
Approach		8	2.0	8	2.0	0.008	5.9	LOS A	0.0	0.3	0.39	0.53	0.39	35.3
North: Somerset St (N)														
7	L2	12	2.0	13	2.0	0.170	2.6	LOS A	1.0	6.8	0.06	0.47	0.06	45.0
8	T1	184	2.0	194	2.0	0.170	2.4	LOS A	1.0	6.8	0.06	0.47	0.06	36.3
9	R2	54	2.0	57	2.0	0.170	5.0	LOS A	1.0	6.8	0.06	0.47	0.06	21.4
Approach		250	2.0	263	2.0	0.170	3.0	LOS A	1.0	6.8	0.06	0.47	0.06	27.3
All Vehicles		706	2.0	743	2.0	0.352	3.8	LOS A	2.2	16.0	0.18	0.47	0.18	19.8

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

MOVEMENT SUMMARY

Site: [2031-AM Hargrave Somerset (Site Folder: 20227)]

Hargrave Street and Somerset Street
Estimated 2031 at 2% pa growth over 2015
7:45am to 8:45am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Somerset St (S)														
1	L2	174	2.0	183	2.0	0.434	4.6	LOS A	3.1	21.9	0.29	0.47	0.29	21.3
2	T1	363	2.0	382	2.0	0.434	4.3	LOS A	3.1	21.9	0.29	0.47	0.29	11.2
3	R2	9	2.0	9	2.0	0.434	7.2	LOS A	3.1	21.9	0.29	0.47	0.29	44.0
Approach		546	2.0	575	2.0	0.434	4.4	LOS A	3.1	21.9	0.29	0.47	0.29	17.1
East: Hargrave St (E)														
4	L2	6	2.0	6	2.0	0.010	5.7	LOS A	0.0	0.3	0.43	0.54	0.43	42.6
5	T1	2	2.0	2	2.0	0.010	6.3	LOS A	0.0	0.3	0.43	0.54	0.43	27.4
6	R2	1	2.0	1	2.0	0.010	8.2	LOS A	0.0	0.3	0.43	0.54	0.43	41.2
Approach		9	2.0	9	2.0	0.010	6.1	LOS A	0.0	0.3	0.43	0.54	0.43	35.9
North: Somerset St (N)														
7	L2	15	2.0	16	2.0	0.209	2.6	LOS A	1.2	8.8	0.07	0.47	0.07	44.9
8	T1	224	2.0	236	2.0	0.209	2.4	LOS A	1.2	8.8	0.07	0.47	0.07	36.2
9	R2	66	2.0	69	2.0	0.209	5.0	LOS A	1.2	8.8	0.07	0.47	0.07	21.4
Approach		305	2.0	321	2.0	0.209	3.0	LOS A	1.2	8.8	0.07	0.47	0.07	27.3
All Vehicles		860	2.0	905	2.0	0.434	3.9	LOS A	3.1	21.9	0.22	0.47	0.22	19.7

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

MOVEMENT SUMMARY

Site: [2021-AM Dev Hargrave Somerset (Site Folder: 20227)]

Hargrave Street and Somerset Street
Estimated 2021 at 2% pa growth over 2015 plus development
7:45am to 8:45am
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Somerset St (S)														
1	L2	143	2.0	151	2.0	0.371	4.6	LOS A	2.4	17.3	0.29	0.48	0.29	21.3
2	T1	302	2.0	318	2.0	0.371	4.3	LOS A	2.4	17.3	0.29	0.48	0.29	11.2
3	R2	10	2.0	11	2.0	0.371	7.2	LOS A	2.4	17.3	0.29	0.48	0.29	44.0
Approach		455	2.0	479	2.0	0.371	4.5	LOS A	2.4	17.3	0.29	0.48	0.29	17.2
East: Hargrave St (E)														
4	L2	19	2.0	20	2.0	0.038	5.5	LOS A	0.2	1.3	0.40	0.59	0.40	42.2
5	T1	2	2.0	2	2.0	0.038	6.1	LOS A	0.2	1.3	0.40	0.59	0.40	27.3
6	R2	15	2.0	16	2.0	0.038	8.0	LOS A	0.2	1.3	0.40	0.59	0.40	40.8
Approach		36	2.0	38	2.0	0.038	6.6	LOS A	0.2	1.3	0.40	0.59	0.40	39.6
North: Somerset St (N)														
7	L2	15	2.0	16	2.0	0.181	2.6	LOS A	1.0	7.4	0.08	0.47	0.08	44.9
8	T1	187	2.0	197	2.0	0.181	2.4	LOS A	1.0	7.4	0.08	0.47	0.08	36.1
9	R2	54	2.0	57	2.0	0.181	5.0	LOS A	1.0	7.4	0.08	0.47	0.08	21.4
9u	U	4	2.0	4	2.0	0.181	6.7	LOS A	1.0	7.4	0.08	0.47	0.08	8.2
Approach		260	2.0	274	2.0	0.181	3.1	LOS A	1.0	7.4	0.08	0.47	0.08	27.3
All Vehicles		751	2.0	791	2.0	0.371	4.1	LOS A	2.4	17.3	0.22	0.48	0.22	20.7

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

MOVEMENT SUMMARY

Site: [2031-AM Dev Hargrave Somerset (Site Folder: 20227)]

Hargrave Street and Somerset Street
Estimated 2031 at 2% pa growth over 2015 plus development
7:45am to 8:45am
Site Category: (None)
Roundabout

Vehicle Movement Performance

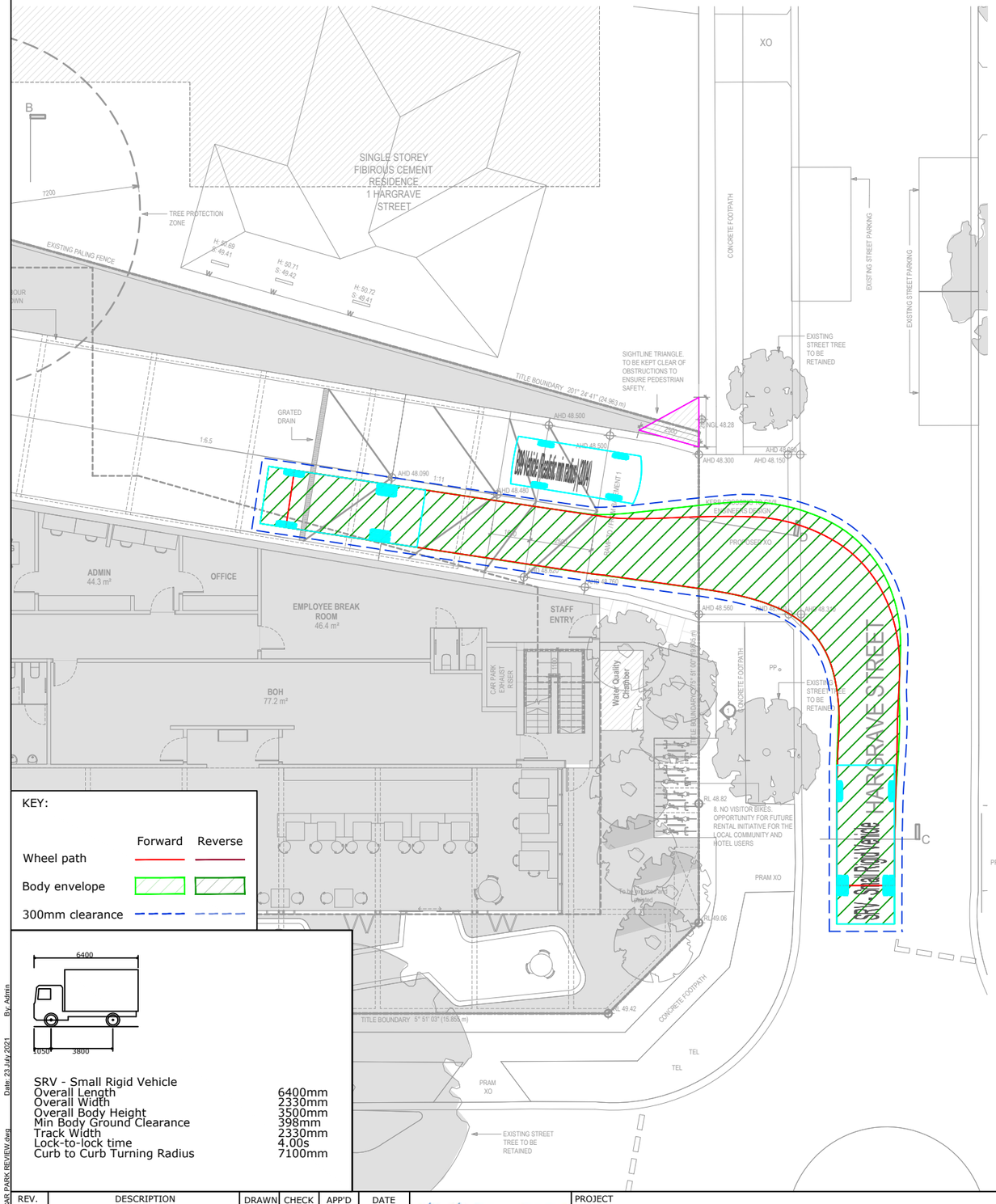
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Somerset St (S)														
1	L2	174	2.0	183	2.0	0.455	4.8	LOS A	3.3	23.5	0.34	0.49	0.34	21.2
2	T1	367	2.0	386	2.0	0.455	4.4	LOS A	3.3	23.5	0.34	0.49	0.34	11.2
3	R2	12	2.0	13	2.0	0.455	7.3	LOS A	3.3	23.5	0.34	0.49	0.34	43.8
Approach		553	2.0	582	2.0	0.455	4.6	LOS A	3.3	23.5	0.34	0.49	0.34	17.2
East: Hargrave St (E)														
4	L2	20	2.0	21	2.0	0.041	5.8	LOS A	0.2	1.4	0.44	0.61	0.44	42.0
5	T1	2	2.0	2	2.0	0.041	6.4	LOS A	0.2	1.4	0.44	0.61	0.44	27.3
6	R2	15	2.0	16	2.0	0.041	8.3	LOS A	0.2	1.4	0.44	0.61	0.44	40.6
Approach		37	2.0	39	2.0	0.041	6.9	LOS A	0.2	1.4	0.44	0.61	0.44	39.5
North: Somerset St (N)														
7	L2	18	2.0	19	2.0	0.220	2.6	LOS A	1.3	9.5	0.09	0.47	0.09	44.9
8	T1	227	2.0	239	2.0	0.220	2.5	LOS A	1.3	9.5	0.09	0.47	0.09	36.0
9	R2	66	2.0	69	2.0	0.220	5.1	LOS A	1.3	9.5	0.09	0.47	0.09	21.4
9u	U	4	2.0	4	2.0	0.220	6.7	LOS A	1.3	9.5	0.09	0.47	0.09	8.1
Approach		315	2.0	332	2.0	0.220	3.1	LOS A	1.3	9.5	0.09	0.47	0.09	27.2
All Vehicles		905	2.0	953	2.0	0.455	4.2	LOS A	3.3	23.5	0.26	0.49	0.26	20.4

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

Appendix B

SRV Swept Path and Headroom

SRV ENTERING & B99 EXITING



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		

SRV - Small Rigid Vehicle	
Overall Length	6400mm
Overall Width	2330mm
Overall Body Height	3500mm
Min Body Ground Clearance	398mm
Track Width	2330mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7100mm

SRV EXITING & B99 ENTERING

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	PD	PD	23/07/21

ttpp transport planning

PROJECT

28-32 SOMERSET STREET, KINGSWOOD

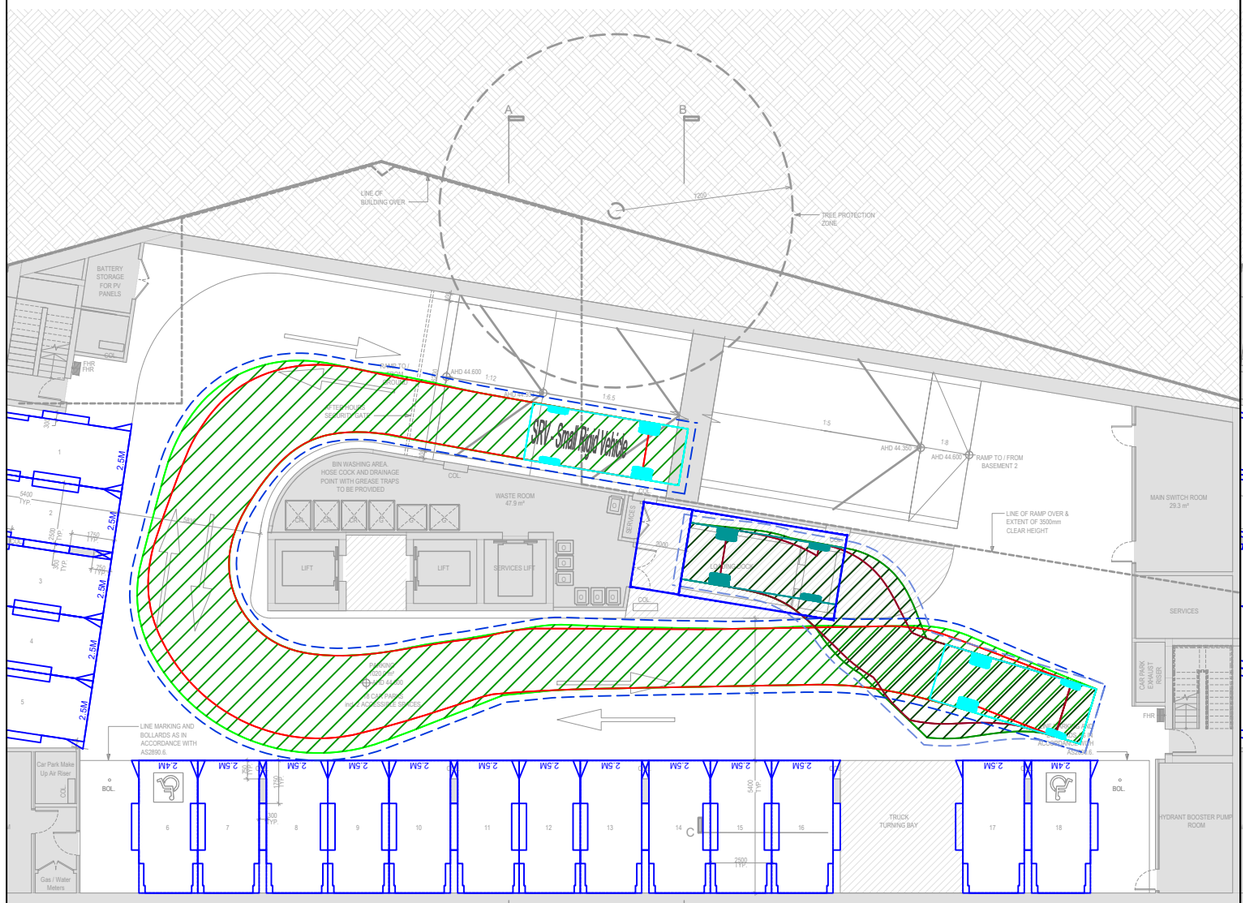
TITLE

SWEPT PATH ANALYSIS - GROUND LEVEL
AS2890.2 6.4m SMALL RIGID VEHICLE

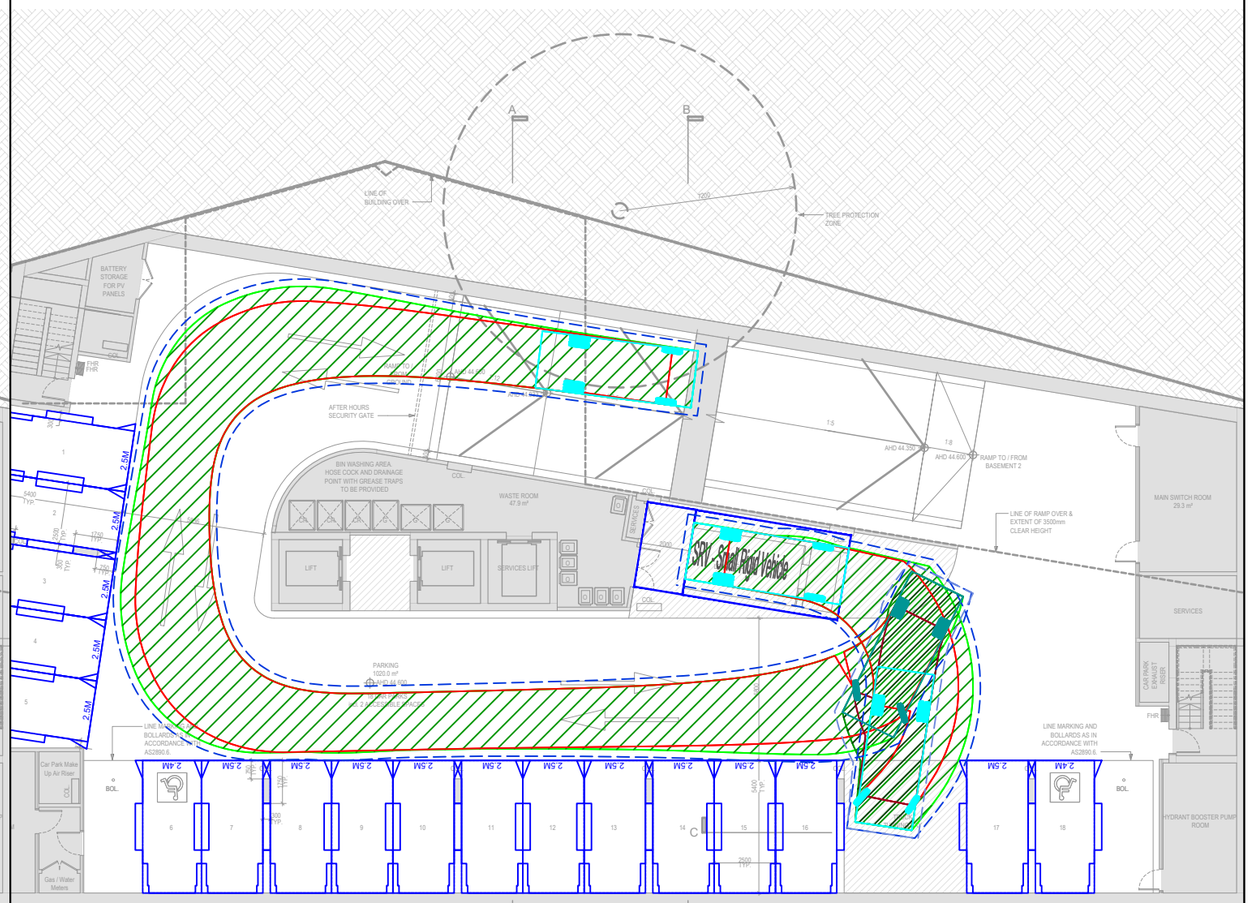
DWG No.	20227CAD013 FIGURE 5
DATE STAMP	23 JULY 2021
PROJECT No.	20227
SCALE	1:200 @A3
REV.	A

Filename: 20227CAD013-210723-CAR PARK REVIEW.dwg
Date: 23 July 2021
By: Admin

VEHICLE ENTERING

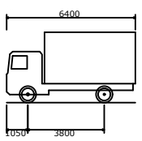


VEHICLE EXITING



KEY:

	Forward	Reverse
Wheel path		
Body envelope		
300mm clearance		



SRV - Small Rigid Vehicle

Overall Length	6400mm
Overall Width	2330mm
Overall Body Height	3500mm
Min Body Ground Clearance	398mm
Track Width	2330mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7100mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	PD	PD	23/07/21

ttpp transport planning

PROJECT

28-32 SOMERSET STREET, KINGSWOOD

TITLE

SWEPT PATH ANALYSIS - BASEMENT LEVEL 1 - LOADING DOCK
AS2890.2 6.4m SMALL RIGID VEHICLE

DWG No. 20227CAD013 FIGURE 7

DATE STAMP 23 JULY 2021

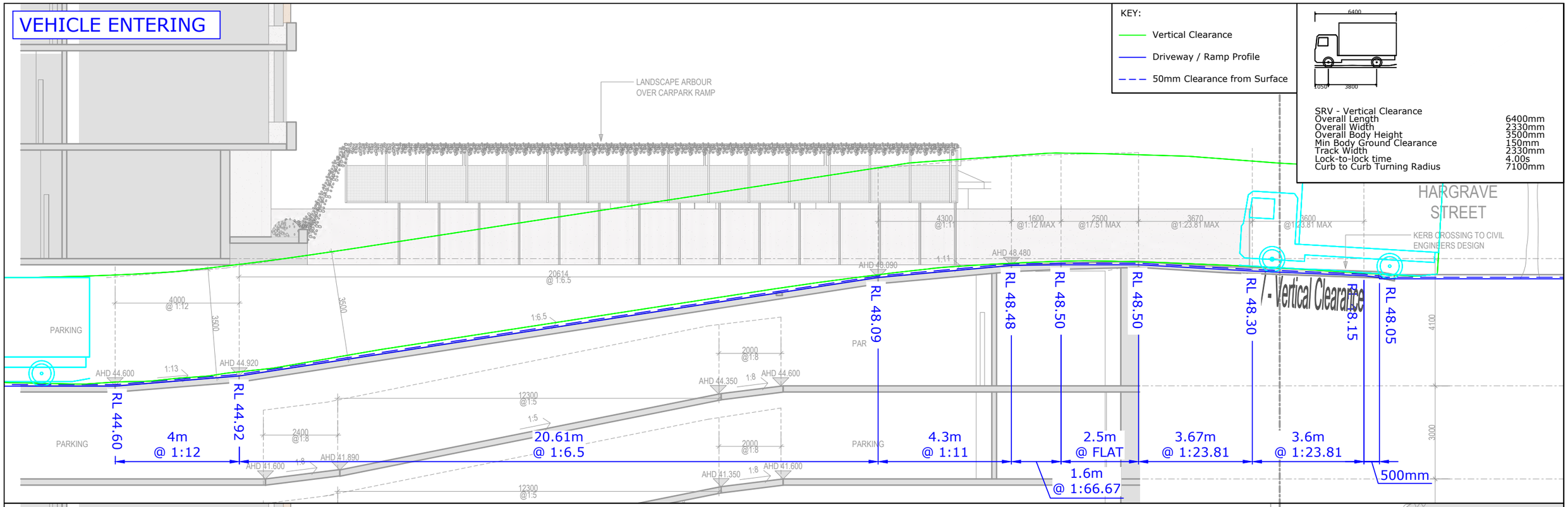
PROJECT No.	SCALE	REV.
20227	1:250 @A3	A

Filename: 20227CAD013-210723-CAR PARK REVIEW.dwg Date: 23 July 2021 By: Admin

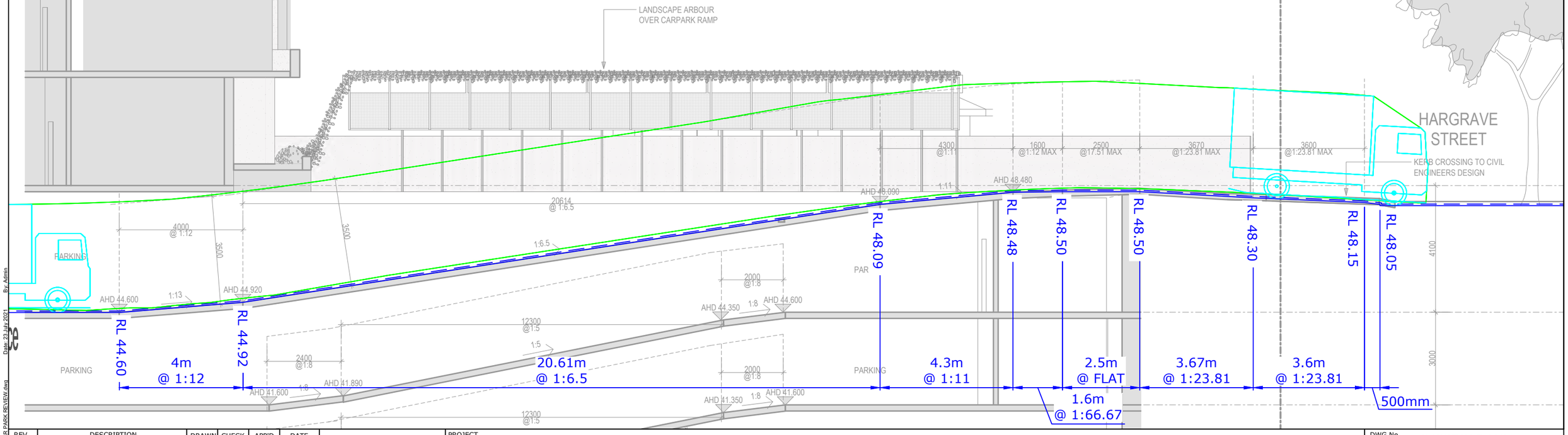
VEHICLE ENTERING

KEY:
- Vertical Clearance
- Driveway / Ramp Profile
- 50mm Clearance from Surface

SRV - Vertical Clearance	
Overall Length	6400mm
Overall Width	2330mm
Overall Body Height	3500mm
Min Body Ground Clearance	150mm
Track Width	2330mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7100mm



VEHICLE EXITING



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	PD	PD	23/07/21

ttpp transport planning

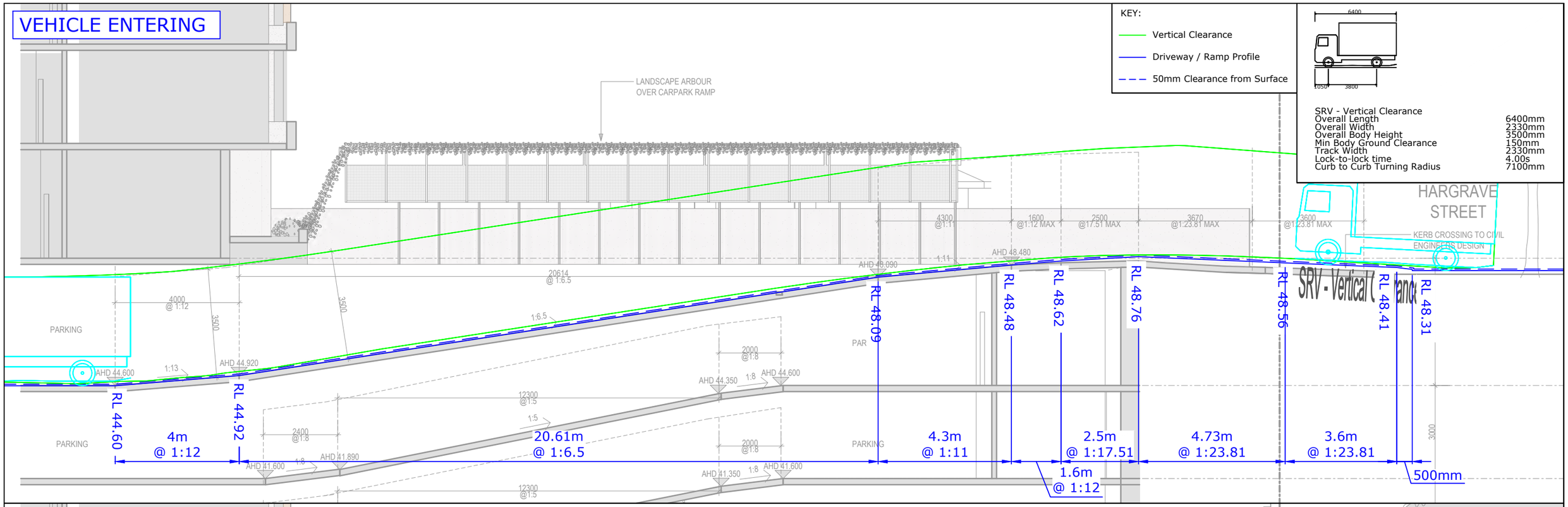
PROJECT: 28-32 SOMERSET STREET, KINGSWOOD

TITLE: GROUND & VERTICAL CLEARANCE ASSESSMENT - GROUND TO BASEMENT 1 - RIGHT HAND SIDE - PROPOSED
AS2890.2 6.2m SMALL RIGID VEHICLE

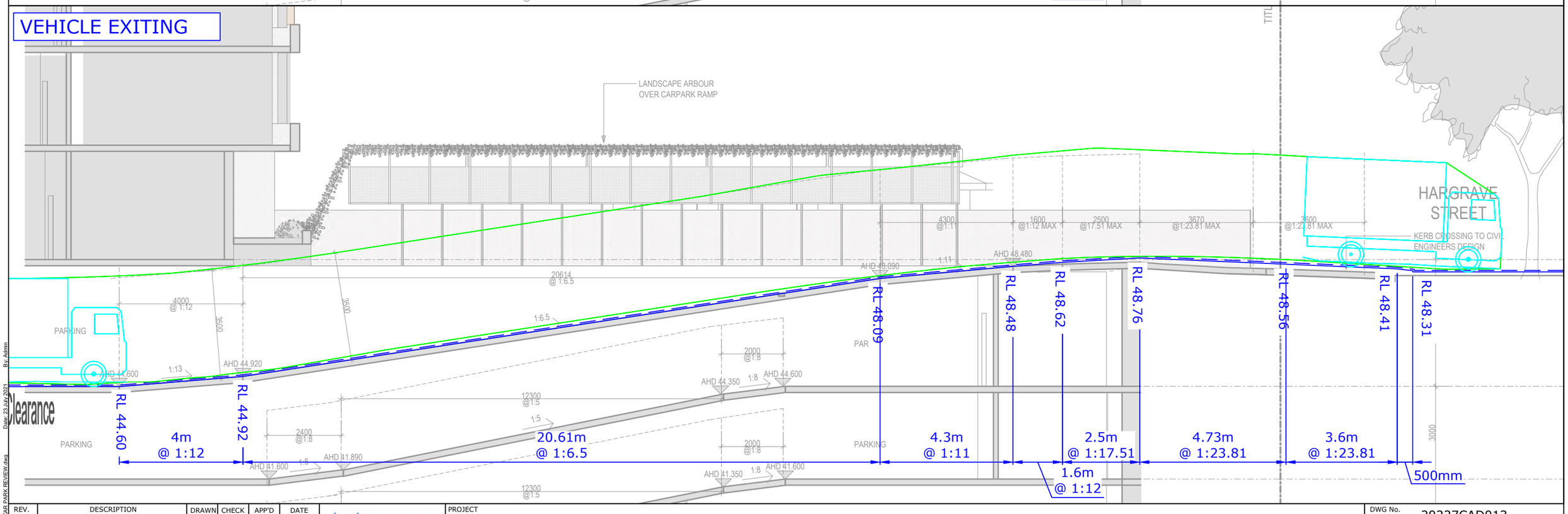
DWG No.	20227CAD013 FIGURE 11
DATE STAMP	23 JULY 2021
PROJECT No.	20227
SCALE	1:125 @A3
REV.	A

By: Admin
Date: 23 July 2021
Filename: 20227CAD013-210723-CAR PARK REVIEW.dwg

VEHICLE ENTERING



VEHICLE EXITING



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	PD	PD	23/07/21

ttpp transport planning

PROJECT

28-32 SOMERSET STREET, KINGSWOOD

TITLE

GROUND & VERTICAL CLEARANCE ASSESSMENT - GROUND TO BASEMENT 1 - LEFT HAND SIDE - PROPOSED
AS2890.2 6.2m SMALL RIGID VEHICLE

DWG No.	20227CAD013 FIGURE 12
DATE STAMP	23 JULY 2021
PROJECT No.	20227
SCALE	1:125 @A3
REV.	A

By: Admin
Date: 23 July 2021
Filename: 20227CAD013-210723-CAR PARK REVIEW.dwg

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