Traffic Impact Assessment

Proposed Expansion and Hotel Development
Cabra Vale Diggers Club, Canley Vale

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1. Introduction

TRAFFIX has been commissioned by Cabra-Vale Diggers Ex-Active Servicemen's Club Limited to undertake a Traffic Impact Assessment (TIA) in support of a Development Application (DA) relating to an expansion of the existing Cabra Vale Diggers on the corner of Railway Parade and Bartley Street, Canley Vale including a hotel development with basement car parking. The development is located within the Fairfield Council LGA and has been assessed under that Council's controls. This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately. The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Documents the existing traffic characteristics of Cabra-Vale Diggers Club
- Section 5: Describes the proposed development
- Section 6: Assesses the parking requirements
- Section 7: Discusses the traffic impacts of the development
- Section 8: Discusses access and internal design aspects
- Section 9: Presents the overall study conclusions.

2. Location and Site

The site is situated at 1 Bartley Street, Canley Vale and lies within the sector bounded by Railway Parade to the east, Bartley Street to the south, Phelps Street to the west and residential properties and Pevensey Street to the north. It is approximately 400 metres south west of Canley Vale railway station and approximately 25 kilometres west of the Sydney CBD.

The site has an irregular configuration and currently accommodates the existing Canley Vale Diggers development with a combined site area of approximately 33,000m^2. It has a northern site boundary of approximately 100 metres to Pevensey Street and 160 metres to neighbouring residential properties, a southern frontage of approximately 180 metres to Bartley Street, a western frontage of approximately 200 metres to Phelps Street and an eastern frontage of approximately 130 metres to Railway Street.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**, which provide an appreciation of the general character of roads and other key attributes in proximity to the site. Reference should also be made to the photographic record in **Appendix A**.

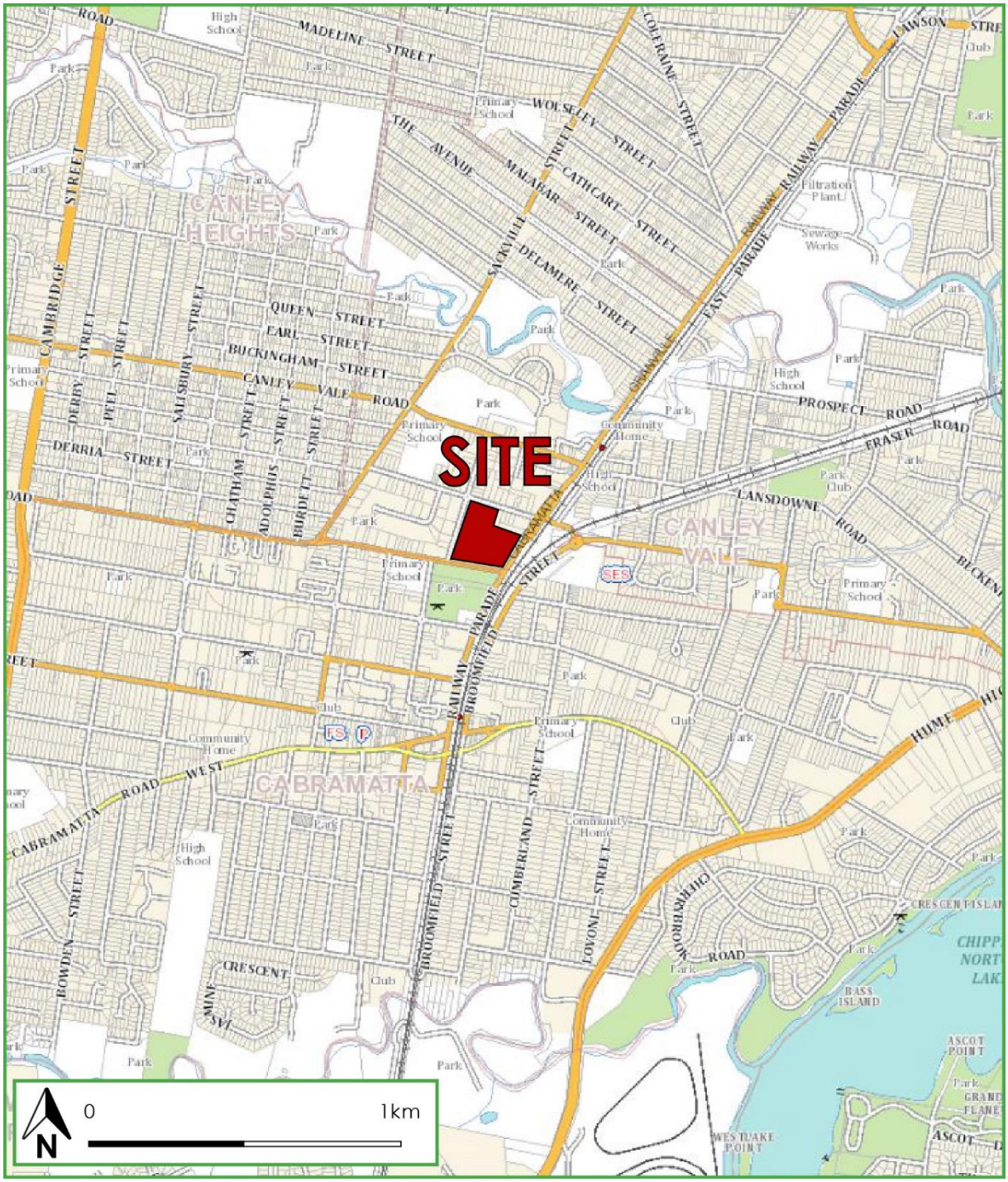


Figure 1: Location Plan

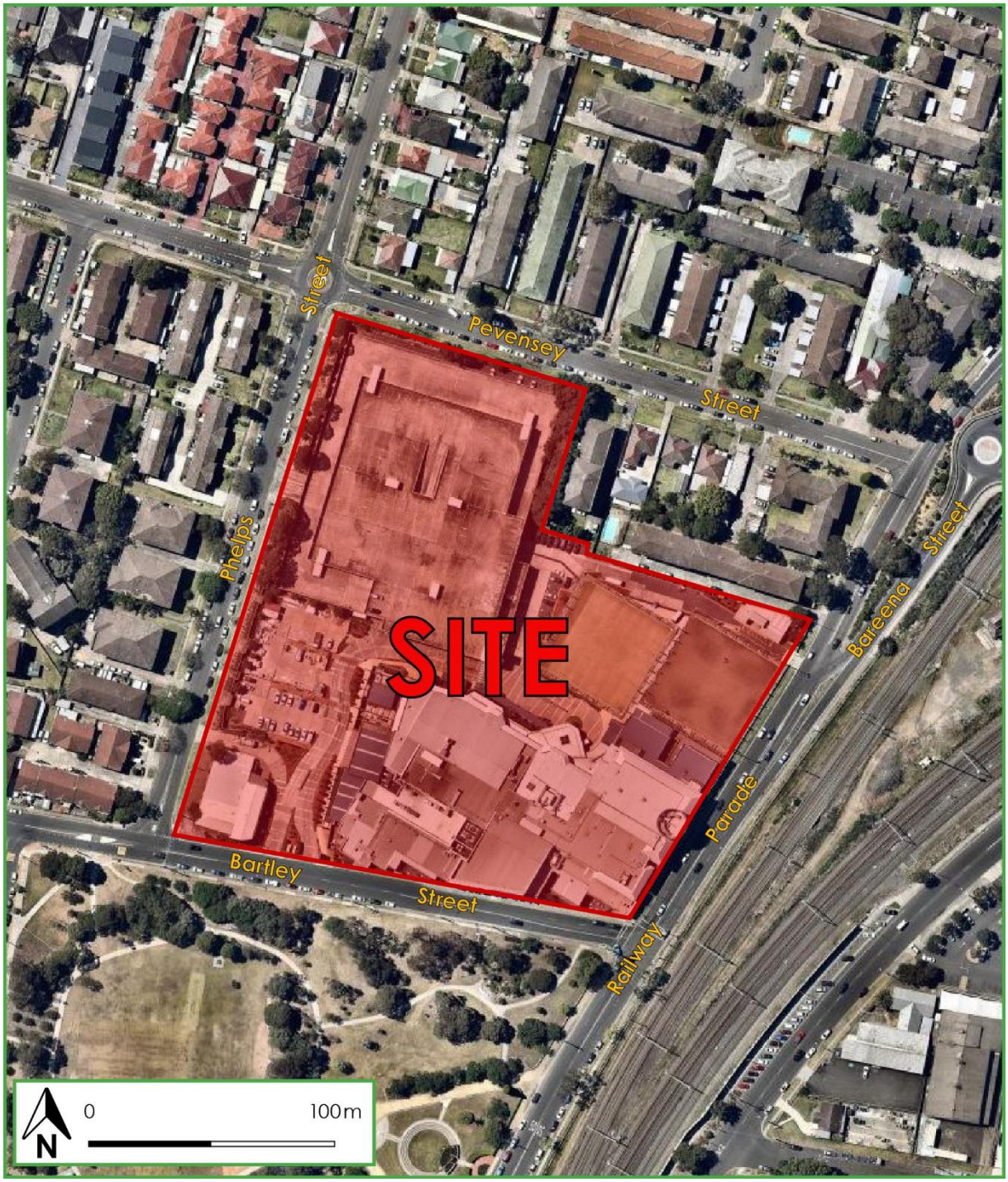


Figure 2: Site Plan

3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- Bartley Street: an unclassified Regional Road (RR 7225) that runs in an east-west direction between Railway Parade in the east and a roundabout intersection with Sackville Street and St Johns Road in the west. Unrestricted parking is available on the southern side of the street directly in front of the club and along both sides of the road west of Park Road. Bartley Street is generally subject to a 50km/h speed zoning in the vicinity of the site and generally carries two lanes of traffic in either direction within an undivided carriageway of width of 13.0 metres and provides access to the site's main entrance.

- Railway Parade: an unclassified regional road (RR 7233) that runs in a north-south direction between Barbara Street, Fairfield in the north and Sussex Street in the south, it is a regional road between Barbara Street in the north and Boundary Lane, Cabramatta. It permits parallel parking along both kerbsides south of Bartley Street but no parking is permitted north of Bartley Street. It is subject to a 50km/h speed zoning and generally carries a single lane of traffic in both directions.

- Phelps Street: a local road that runs in a north-south direction between Bartley Street in the south and Canley Vale Road in the north. It permits parallel parking on both kerbsides and is subject to a 50km/h speed zoning. Phelps Street carries a single lane of traffic in both directions and currently provides access to the site's multi-level car park.

- Pevensey Street: a local road that runs in an east-west direction between Railway Parade in the east and Sackville Street in the west. It permits parallel parking on all approaches and is subject to a 50km/h speed zoning. Pevensey Street carries a single lane of traffic in either direction and provides access to the site.

- Bareena Street: a local road that runs in an east west direction between Vale Street in the east and Railway Parade in the west. It carries one lane of traffic in each direction and has a speed zoning of 50km/h. Between Railway Parade and Broomfield Street kerbside parking is not permitted.

It can be seen from Figure 3 that the site is conveniently located with respect to the arterial and local road systems serving the region. It is therefore able to effectively distribute traffic onto the wider road network, minimising traffic impacts.

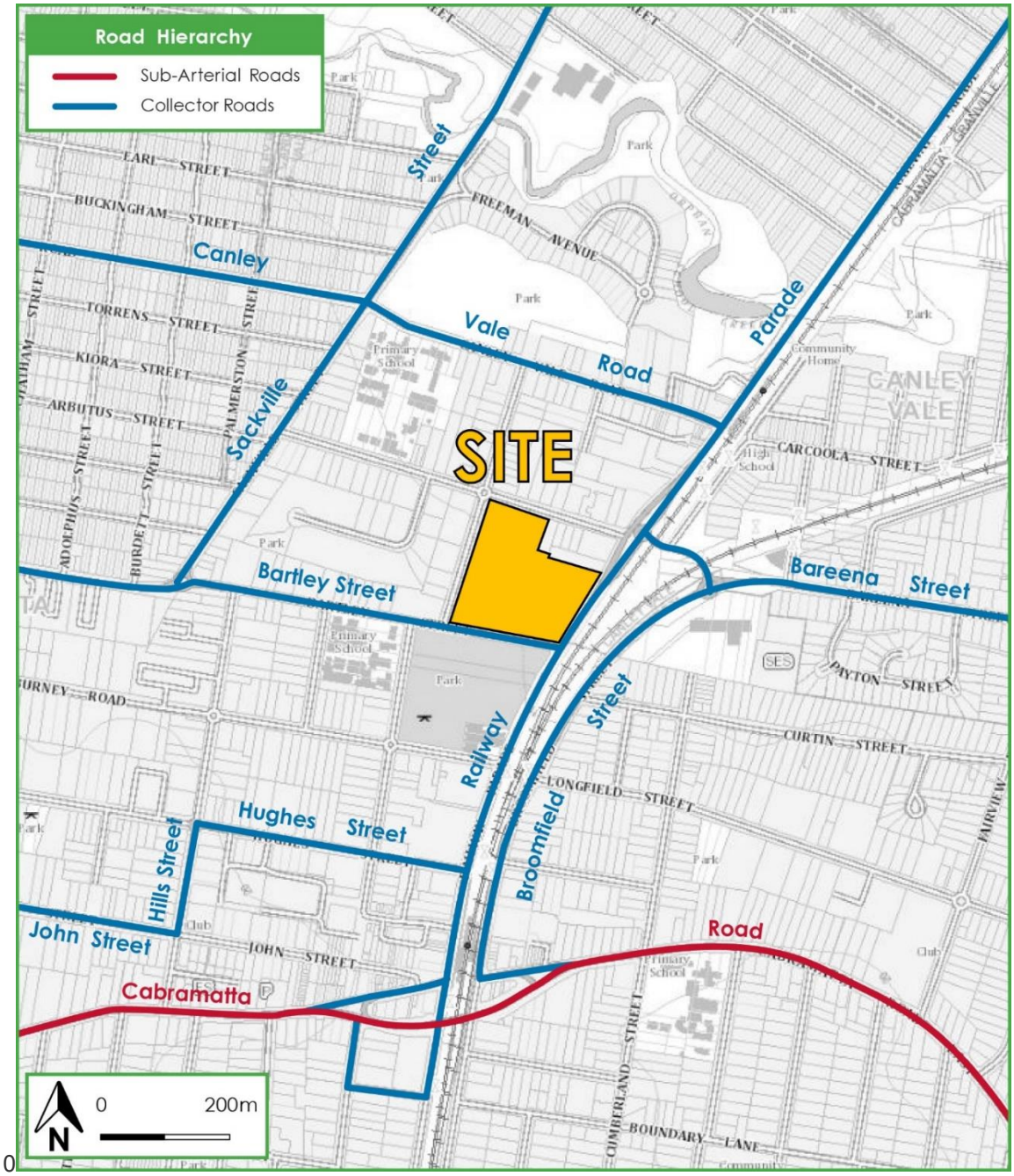


Figure 3: Road Hierarchy

3.2 Key Intersections

The key intersections in the vicinity of the site are shown below and provide an understanding of the existing road geometry and alignment

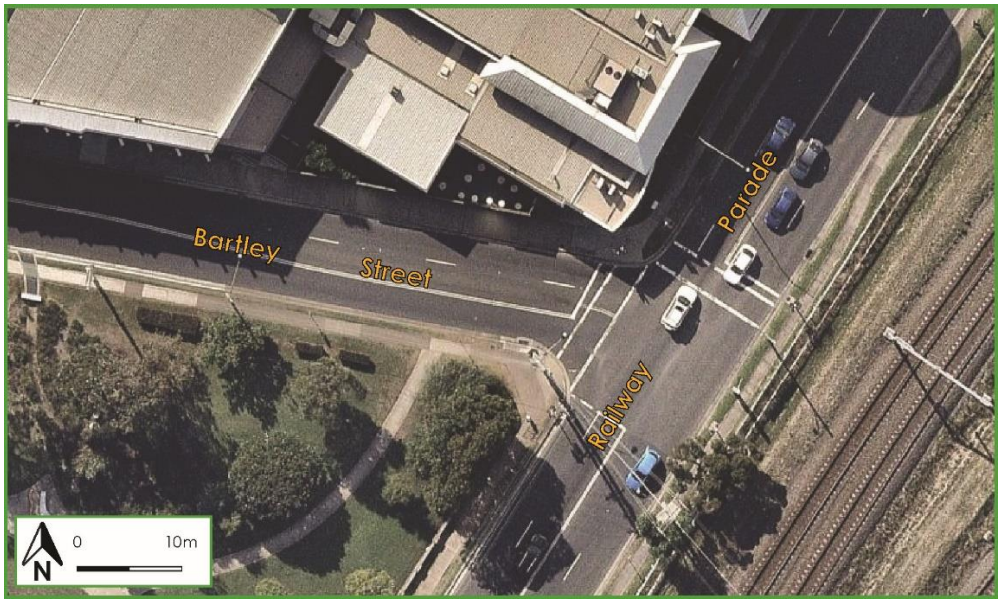


Figure 4: Intersection – Bartley Street / Railway Parade

It can be seen from **Figure 4** that Bartley Street and Railway Parade form a 3-way signal controlled intersection to the south-east of the site. Figure 4 also shows that a signal controlled pedestrian crossing is provided across Bartley Street and the northern approach of Railway Parade.

Figure 5: Intersection – Bartley Street / Phelps Street

It can be seen from **Figure 5** that Bartley Street and Phelps Street form a priority controlled T-junction to the south-west of the site. Figure 5 also shows that pedestrian islands are provided across Phelps Street and the western approach of Bartley Street.

Figure 6: Intersection – Pevensey Street / Phelps Street

It can be seen from **Figure 6** that Phelps Street and Pevensey Street form roundabout intersection to the north-west of the site.

Figure 7: Intersection – Pevensey Street / Railway Parade

It can be seen from **Figure 7** that Pevensey Street and Railway Parade form a priority controlled T-junction to the north-east of the site.

Figure 8: Intersection – Bareena Street / Railway Parade

It can be seen from **Figure 8** that Bareena Street form a priority controlled fork intersection to the east of the site. Vehicles travelling south along Bareena and merge on to Railway Parade continuing south only. Vehicles heading north on Railway Parade can turn right on to Bareena Street but vehicles travelling south cannot turn left onto Bareena Street.

Figure 9: Intersection – Canley Vale Road / Railway Parade

It can be seen from **Figure 9** that Canley Vale Road and Railway Parade form a 3-way signal controlled intersection to the north-east of the site. Figure 8 also shows that a signal controlled pedestrian crossing is provided across all approaches, which primarily serve pedestrians accessing Canley Vale Station.

3.3 Public Transport

The site is well located to take advantage of the numerous public transport services that serve the local area. The existing train and bus services that operate in the locality are shown in **Figure 10**.

Standard transport planning guidelines state that a development is advantageously located to benefit from rail if it is within 800 metres walking distance of a train station. In this regard, the site is approximately 400 metres south west of Canley Vale Station and 600m north of Cabramatta station, which provide services along the T2 Airport, Inner West and South Lines, T3 Bankstown Line and T5 Cumberland Line.

Current transport planning guidelines also state that a development is advantageously located to benefit from bus services if it is within 400 metres walking distance of a bus stop. As **Figure 10** shows, there are bus stops within 400 metres walk of the site, providing access to the 817 bus route that operates in the vicinity of the site between Fairfield and Cabramatta

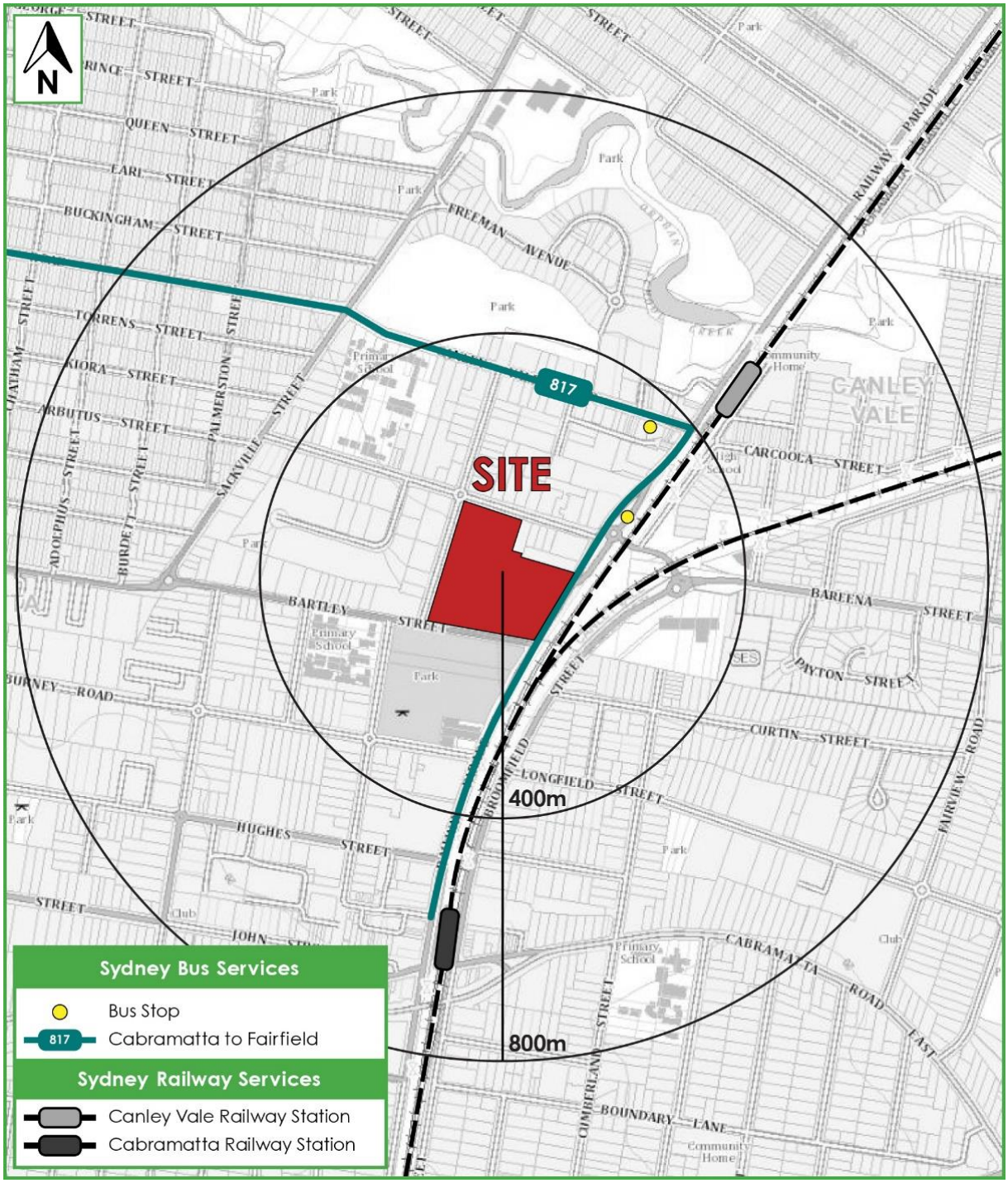


Figure 10: Public Transport

4. Existing Club Characteristics

4.1 Existing Club Details

The existing Cabra Vale Diggers Club consists of a two-storey club building, two (2) bowling greens and a multi-storey car park containing 881 parking spaces. The Club building itself is comprised of various uses, including but not limited to, an auditorium, function rooms, gaming rooms, bistro, licensed areas and offices, with a total Gross Floor Area (GFA) of 14,629m^2.

4.2 Vehicular Access

The main site access is located on Bartley Street and is provided via a separate entry driveway of eight (8) metres width and an exit driveway of five (5) metres width. This access connects to the multi-level car park and a drop off zone at the club's entrance. The access also caters for service vehicles using the on-site loading dock.

Secondary access is provided from Phelps Street with separate entry and exit driveways each of five (5) metres wide, which provide access to the lower ground level of the multi-level car park that is located at the north western end of the site.

A third access is present on Railway Parade, however this is currently not used for public access.

4.3 Existing Site Generation

The RMS *Guide to Traffic Generating Developments* does not provide traffic generation rates for clubs. Rather, it states that assessment is to be based on surveys of the site for extensions to existing Clubs and this is certainly appropriate in the case of the expansion of the existing club. It is noted that typical peak periods for Clubs generally occur on Friday and Saturday evenings, however only the Friday evening peak period will coincide with the typical on-street peak period between 4.00-10.00pm. Accordingly, the Friday evening is considered the most critical for purposes of assessment.

Having regard for the above, traffic surveys were undertaken of the development accesses on a typical Friday evening, being the 9th June 2017. These surveys were undertaken between the hours of 16.00 and 22.00, and demonstrate that the development generates a total of 342 veh/hr (211 in, 131 out), which occurred between the site peak of 7.15-8.15pm. Whilst this peak occurred outside of the typical 4.00-6.00pm on-street peak period, this generation will provide a 'worst case' scenario for purposes of assessment.

4.4 Existing Intersection Performance

For the purposes of assessment of the traffic impacts of this development, surveys were also undertaken of the most critical intersections adjacent to the site during the network peak between 4.00pm and 6.00pm, being:

- Bartley Street / Railway Parade,
- Bartley Street / Phelps Street,
- Phelps Street / Pevensey Street;
- Pevensey Street / Railway Parade;
- Railway Parade / Canley Vale Road; and
- The Bareena Street Roundabout

The results of these surveys, included in **Appendix B**, were analysed using the SIDRA Intersection 7 computer program to determine their performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be

assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below:

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

A summary of the modelled results are provided below in **Table 1**. Reference should also be made to the SIDRA outputs provided in **Appendix C** which provide detailed results for individual lanes and approaches.

Table 1: Existing Intersection Performances - PM Peak Hour

Intersection	Period	Control Type	Degree of Saturation	Intersection Delay	Level of Service
Bartley Street and Railway Parade	PM	Signals	0.892	31.9	C
Bartley Street and Phelps Road	PM	Priority	0.242	8.7	A
Phelps Street and Pevensey Street	PM	Roundabout	0.150	7.9	A
Pevensey and Railway Parade	PM	Priority	0.278	13.6	A
Railway Parade and Canley Vale Road	PM	Signals	0.951	38.3	C

It can be seen from **Table 1** that all intersections operate satisfactorily under the existing 'base case' scenario, with moderate delays and Levels of Service ranging from A to C, during the critical Friday PM peak period. Nevertheless, it is stressed that the most relevant use of this analysis is to compare the relative change in the performance parameters as a result of the proposed development. This is discussed further in **Section 6**.

5. Description of Proposed Development

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix D.** In summary, the development for which approval is sought results in an overall increase of 12,048m^2 and comprises the following components:

- The development application contains proposed alterations and additions to the existing club building, which will result in a net increase of 9,041m^2 of club GFA and includes a reconfiguration of the existing on-site uses. This will include expanded gaming area GFA (but not seat numbers), additional bars and restaurants and increased function space including an auditorium and karaoke room.

- The existing bowling greens are proposed to be relocated from the north eastern corner of the site near Railway Parade to the south western corner along Phelps Street and Bartley Street. This is to allow for a 120 room hotel plus ancillary facilities such as a bar, restaurant and pool with a total GFA of 3,007m^2 (including a mezzanine floor in the lobby) to be constructed where the current bowling greens are located. This will also include a basement car park providing an additional 211 car spaces with 40 reserved for hotel guest use. An additional loading dock is proposed on the service road between Railway Parade and Pevensey Street.

- A Porte Cochere is being proposed with access being provided from Railway Parade from two (2) access driveways (separated ingress and egress driveways) for bus and car drop off and pick up for club patrons and hotel guests.

- The proposal includes the removal of the main access on Bartley Street, which will be replaced with an exit driveway for the existing loading dock with the entry relocated to Phelps Street. An additional access to the car parking area will be constructed on Pevensey Street as well as modifications to the existing access on Phelps Street to compensate for the closure of the Bartley Street access. An additional entry is also proposed from Railway Parade for direct access to the basement car park.

The parking and traffic impacts arising from the development are discussed in Sections 5 and 6, respectively.

6. Parking Requirements

6.1 Council Controls

6.1.1 Club and Auxiliary Hotel Components

The Fairfield Citywide DCP (2013), 12.1 Car Parking Rates, states the following regarding licensed clubs:

1 space per 5m² gross leasable area or 1 space per 6 seats (whichever is the greater) of entertainment/recreation area plus 1 space per 5m² gross leasable area of bar/lounge/gaming area, plus a compilation of the requirements for each of the specific activities the club incorporates (eg restaurant, recreation facility, place of public entertainment).

However, the DCP also mandates a traffic and parking report be undertaken, as the DCP recognises the differences between venues. This is common practice for any club which requires the parking requirements to be determined based on surveys and this is especially the case where the development is an expansion. This approach is also consistent with the Roads and Maritime Service's Guide to Traffic Generating Development. A parking demand analysis is provided in section 6.2 of this report.

6.1.2 Hotel

Furthermore, the DCP parking rate for hotels is 1 space per 3 bedrooms, 1 space per 40m^2 of gross leasable office and administration area and 1 per 5m^2 of gross leasable area for bar, lounge, dining/restaurant and function room. The ancillary functions will be shared with the club, and therefore will be incorporated into the overall parking assessment of the club, and therefore the hotel is required to provide 40 spaces for patrons to satisfy council's requirement.

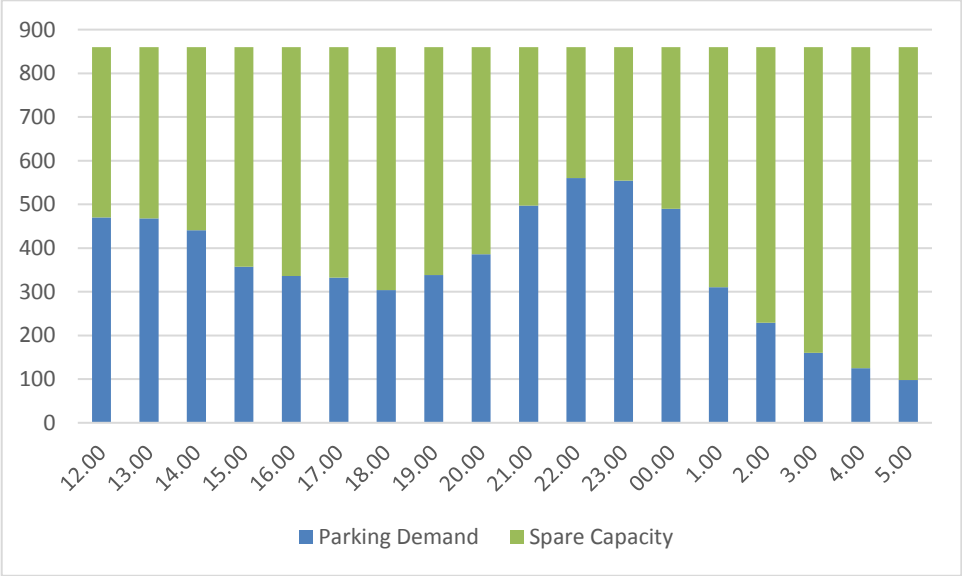
6.2 Parking Demand Survey Analysis

A recent on-site parking survey was undertaken of the existing development on 9 June 2017, which represents a typical peak Friday evening. These surveys were undertaken between the hours of

12.00pm to 5.00am, with a summary of the results illustrated below in **Chart 1**. Reference should also be made to the results of the parking survey, which is provided in **Appendix B** for reference.

The surveys included all 881 spaces on-site in the multi storey car park.

Chart 1: Existing Parking Demand - Friday



It can be seen from **Chart 1** that a peak parking demand for 560 spaces (or 65% of total capacity) occurred at 10:00pm on the Friday night. At this time, there were still a total of 321 unused spaces.

When considering the existing GFA of 14,629m^2, the above Friday demand equates to a parking rate of 1 space / 26.1m^2 GFA, which is within the typical range of large clubs based on other studies. Application of this rate to the proposed expansion of 12,048m^2 GFA (the proposed club and hotel facilities combined area is being used for assessment purposes as members and guests will have access to all of the hotel facilities even if not staying in a hotel room) results in a demand for an additional 462 spaces, and a total peak demand for 1022 parking spaces. However, although the club is expanding in terms of GFA, the number of gaming seats is not increasing in number, and membership is not expected to increase. Therefore, the expected increase in parking demand is not expected to have linear relationship with the increase in GFA. For this reason, it is proposed that a reduction factor of 10% is applied, resulting in a factored overall club parking demand of 919.

6.3 Proposed Parking Provision

As discussed in Section 4, the development proposes an additional 211 parking spaces to be created across two (2) levels of basement car parking in place of the existing bowling greens. Based on the proposed expansion of 12,048m^2 GFA, it would nominally be required to provide an additional 462 parking spaces, plus an additional 40 spaces for the hotel as assessed under the DCP. However, as discussed in section 6.2, the existing car park is underutilised, with a minimum of 321 spaces free during the Friday PM Peak hour. It is therefore proposed that these spaces are applied as a parking credit and used when assessing the parking demand for the full development. Therefore, the parking demand for the development is expected to be for 959 vehicles. In response, a total parking capacity of 1091 is being proposed, which exceeds the expected peak demand. This level of provision is considered supportable for the following reasons:

- It will ensure that normal peak demands are wholly contained within the site including council's hotel parking requirement, protecting the amenity of residential precincts,
- It will enable any 'non-design' peaks such as concerts / functions, NRL Grand Final, Anzac Day etc., to be accommodated. That is, the proposed parking provides more flexibility, and
- The additional parking will facilitate further (incremental) changes to the club to be made over time, as will occur as the club responds to changing circumstances over time.

The proposed car parking provision is therefore considered acceptable.

6.4 Disabled Parking

Council's DCP does not provide a rate for the provision of disabled parking. Notwithstanding this, it is noted that the Disability (Access to Premises – Buildings) Standards 2010 requires disabled parking for Class 9b Buildings to be provided at a rate of 1 space / 50 spaces. Application of this rate to the total parking capacity of 1091 parking spaces that are proposed results in a requirement for a total of 22 disabled spaces.

In response, the development provides a minimum of 22 disabled spaces within the basement car park and therefore fully complies with Disability (Access to Premises – Buildings) Standards 2010. The disabled spaces are designed in accordance with AS 2890.6 (2009), having a minimum width of

2.4 metres, length of 5.4 metres and are situated adjacent to a 2.4 metre wide shared area. Additional disabled spaces may be provided over and above the minimum requirement based on expected demand, however this will be determined by the club at a later date.

6.5 Bicycle Parking

Council's DCP does not provide a rate for the provision of bicycle parking. The site currently provides 10 bicycle parking spaces in the form of Class C bicycle racks. The proposal will increase this bicycle parking provision to 20 bicycle parking spaces, which is in line with the increase of GFA being nearly doubled. The bicycle parking provision is therefore considered acceptable.

6.6 Servicing

6.6.1 Club Servicing Requirements

Council's DCP does not provide a rate for the provision of loading bays and the RMS Guide to Traffic Generating Developments states that "adequate provision should be made on-site for a reasonable number of service / delivery vehicles, depending on the scale of the development". The existing loading bay for the club at the south western end of the site will be retained with a reconfigured access discussed in Section 8.1.4. An additional loading dock will be included with access from the existing service road off Railway Parade to the north east of the site and be shared amongst the hotel and club, which is considered acceptable.

6.6.2 Hotel Servicing Requirements

Council's DCP does not provide a rate for the provision of loading bays and hence, the requirement has been based on the RMS *Guide to Traffic Generating Developments* (RMS Guide) which requires 1 bay / 100 rooms for a tourist hotel. Application of this rate to the 120 hotel rooms, results in a requirement for an additional loading bay. The new loading bay for the hotel at the north eastern end of the site will be accessed from Railway Parade via a shared driveway with the basement car park access and a shared exit driveway on to Pevensey Street and is discussed further in Section 8.1.3. This loading dock will be shared with some of the club's servicing requirements, which is considered acceptable.

6.6.3 Overall Servicing Requirements

In summary, the club has provided two (2) loading bays for use by the club and hotel, which have both been designed to accommodate a 14.5 metre coach. Due to the competing demands of the loading docks for servicing and coach pick up and drop off, it is recommended that a loading dock management plan is prepared to ensure that the most efficient use of the facilities is maintain, and that demand is managed so that access can to the servicing facilities can always be attained. The proposed loading arrangements therefore comply with the requirements of the RMS Guide and are considered acceptable.

Access to the proposed loading bays has been assessed using swept path analysis, which demonstrates satisfactory access. The swept paths are provided in **Appendix E**.

It is also considered noteworthy to mention that the proposed loading areas will provide a significant improvement in terms of safety, compared to the existing arrangements, as one-way circulation will be used for all loading bays to prevent conflicts with other vehicles. Trucks are currently required to traverse the main (car) circulation roadway when accessing the existing loading dock, which raises major safety concerns. Although the additional loading bay will share accesses with the car park they will be one way and the entry is left in only minimising any potential conflicts, therefore the loading bays will be a significant improvement in safety than current arrangements.

6.6.4 Guidelines for Emergency Vehicle Access

Policy No. 4: Guidelines for Emergency Vehicle Access states that access for emergency vehicles with aerial appliances needs to be provided to areas with greater fire risks (e.g. mid-rise building, high rise buildings, heavy industrial areas). Based on this, access to the northern service road leading from Railway Parade to Pevensey Street needs to be able to accommodate a truck with dimensions of 12.4m long, 2.5m wide with a minimum turning radius of 14.6m. It also states that the road needs to be 6m wide to account for the full extension of the trucks stabilisers. As presented in Appendix E, swept path analysis has been undertaken showing satisfactory operation of this service road for a 14.5m coach with a 15m turning circle. The turning movements for uninterrupted flow for this class of emergency service vehicle is satisfactory. There are however areas where the service road is not 6m wide, however referral to the fire consultant is sought for this justification.

6.7 Porte Cochere and Coach Lay By

The Council has no specific requirements for drop off areas for hotels or clubs but the RMS Guide suggests a minimum of two (2) coach spaces are provided. The proposal includes the provision of a Porte Cochere on Railway Parade as the main drop off and pick area for the club and hotel at the main entrance, which will allow for vehicles up to a 14.5 metre long coach to turn in and park in a single dedicated space. The bowling greens will also have a coach lay by for a single 14.5 metre long coach along the one-way service lane with entry from Phelps Street and exit on to Bartley Street, which is also proposed to service the existing loading dock. Therefore the development provides adequate coach parking space. The swept path analysis of these drop off areas are included in **Appendix E.**

6.7.1 Courtesy Bus Service

Cabra Vale Diggers Club provides a courtesy bus for its members. This is a free door to door service for members and their guests, which operates within a 5km radius of the Club and operates every day of the week. The bus service generally runs 7 days a week, with a service running on the hour in a northbound directions, and twice an hour in a southbound direction. The buses will generally use the Porte Cochere to undertake the pick-up / drop-off of passengers, and will utilise the service areas when they are not being used. A loading dock management plan will ensure that the service areas are free when service vehicles require access to the site.

6.7.2 Taxi Operations

Taxis will often be called to the site to pick-up / drop-off passengers. Taxis will utilise the Porte Cochere to service members of the club.

7. Traffic Impacts

7.1 Trip Generation

The existing club generates 342 veh/hr (211 in, 131 out) between 7.15pm and 8.15pm during the Friday evening, as discussed in Section 4.4. Traffic generation rates are not specified in the RMS Guide for this type of development and in any event, such a rate would not be as reliable as a survey based assessment, which is the preferred methodology in the RMS Guideline. Therefore an estimate of the traffic generation rate is produced using the relationship between existing traffic generation and GFA, which equates to 2.34 trips per 100m^2 GFA based on traffic surveys undertaken at the clubs access locations on Bartley Street and Phelps Street.

7.1.1 Club and Hotel Ancillary Facilities

The overall expansion of the club and hotel auxiliary facilities will be by 12,048m^2 GFA. Application of the above rate to the proposed expansion results in a net increase of approximately 282 veh/hr (174 in, 108 out) above the existing surveyed conditions. The distribution of these additional vehicle trips and the impact these trips will have on the performance on intersections in the vicinity of the site, is discussed separately below.

7.1.2 Hotel Rooms

The development falls within the definition of a tourist hotel development under the RMS Guideline, which again does not specify a trip generation rate. For the purpose of this assessment, the RMS rate for a motel has been adopted and slightly adapted. The RMS *Guide to Traffic Generating Developments* considers the PM peak to be the critical period for assessment and provides the following trip rates for motel uses:

- 0.4 per unit for evening peak hour vehicle trips;

It is noted the rates assume 100% occupancy of units. When comparison is drawn between existing similar developments and unit occupancy where data is available, the guide considers rates based on

85% occupancy on the peak day of the week to be appropriate. Application of 85% occupancy to the rate specified above provides a trip rate of 0.34 veh/hr per unit for evening peak hour vehicle trips.

Application of these rates to the proposed hotel component of 120 rooms would result in the following increase in traffic generation, split 70:30 between arrivals and departures in the PM peak:

- 41 trips per hour during the PM peak hour (29 in and 12 out);

7.1.3 Combined Traffic Generation

Having consideration for the above rates, the expected net increase in traffic generation of the proposed development will be 323 veh/hr (204 in, 119 out) above existing conditions. The total trip generation from the full development will therefore be in the region of 665 veh/hr (415 in, 250 out) during the site PM peak hour. These trips will be distributed over the three (3) car park accesses as discussed in the following section.

7.2 Trip Distribution

7.2.1 Existing Traffic Distribution

The existing traffic using the main access on Bartley Street will have to use the other accesses once it is open to service vehicles only. To determine what access would be used the origin and destination had to be determined for arrival and departure traffic, respectively. This will be based on the surveys conducted at the site accesses and surrounding intersections to determine which access will be used. **Figure 11** shows the current trip distribution of the existing accesses during the peak hour which was from the site access surveys, which are attached in **Appendix B**.

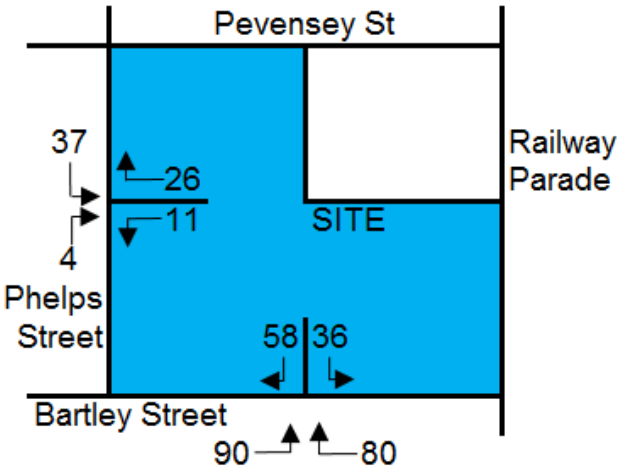


Figure 11: Traffic at existing accesses during the Friday site peak hour

The vehicle trips will need to be redistributed according to their origin/destination, and the location of the available entry/exit points to the site. **Table 2** shows the percentage of vehicles from each origin to enter the site for each of the six possible origins based on the surrounding intersection turning counts, which are attached in **Appendix B**. The percentages are allocated to the closest access based on the direction the vehicles are arriving from their assumed origin.

Table 2: Percentage of arrival traffic assumed to use each proposed access

Existing Access	Origin	Proposed Accesses		
		Phelps Street	Pevensey Street	Railway Parade
Bartley Street (from East)	Railway Parade (North)	-	35%	-
	Bareena Street (East)	35%	-	-
	Railway Parade (South)	-	-	30%
Bartley Street (from West)	Bartley Street (West)	100%	-	-
Phelps Street (from South)	Bartley Street (West)	100%	-	-
Phelps Street (from North)	Pevensey Street (West)	12.5%	12.5%	-
	Phelps Street (North)	30%	30%	-
	Railway Parade (North)	-	15%	-

The departure traffic distribution for each access is shown in **Table 3**. The percentage of traffic for each destination is based on the percentage of vehicles travelling in that direction using the turning counts of the surrounding intersections. Each destination is then assigned an access based on the assumption that each access will be used equally by departing traffic.

Table 3: Percentage of departure traffic assumed to use each proposed access

Existing Access	Destination	Proposed Accesses	
		Phelps Street	Pevensey Street
Bartley Street (to East)	Railway Parade (North)	20%	20%
	Bareena Street (East)	20%	20%
	Railway Parade (South)	10%	10%
Bartley Street (to West)	Bartley Street (West)	50%	50%
Phelps Street (to South)	Bartley Street (West)	50%	50%
Phelps Street (to North)	Pevensey Street (West)	10%	10%
	Phelps Street (North)	25%	25%
	Railway Parade (North)	15%	15%

These distributions will be used to determine the access the future arrival and departure traffic will use for each origin and destination, respectively.

7.2.2 Additional Club Traffic Distribution

The percentage of additional club traffic from each origin and destination is assumed to be in the same proportion as the existing club traffic, which is contained in **Table 4**. It has been advised that 30% of the additional club traffic will be making use of the Porte Cochere and then enter the car park via the Railway Parade access and the remaining traffic will then be assigned an access point for entry and exit based on the percentages presented in **Tables 2 and 3**. Therefore, the club will generate the following traffic at each access during the site peak period:

- 133 trips (79 in, 54 out) at the Phelps Street access,
- 81 trips (28 in, 53 out) at the Pevensey Street access,
- 66 trips (66 in, 0 out) the Railway Parade access; and
- 104 trips (52 in, 52 out) at the Porte Cochere on Railway Parade.

Table 4: Volume of future traffic based on percentage of existing traffic

Origin / Destination	Railway Parade S	Bartley Street	Pevensey Street	Phelps Street	Railway Parade N	Bareena Street
Percentage of Existing Arrival Traffic	11%	45%	4%	10%	16%	13%
Future Arrival Volumes	55	5	13	20	16	14
Percentage of Existing Departure Traffic	5%	53%	6%	14%	11%	11%
Future Departure Volumes	53	6	14	11	11	6

Figures 12, 13 and 14 show the site access and network distributions of the traffic generation for the additional club area.

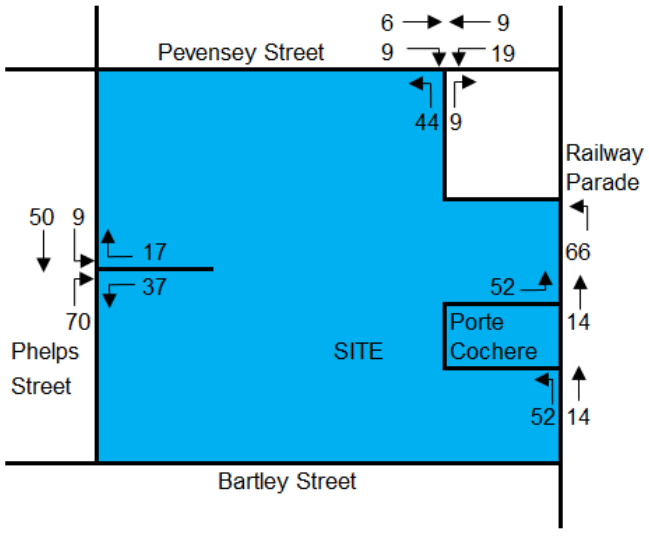


Figure 12: Additional Club traffic at each access during the Friday site peak hour

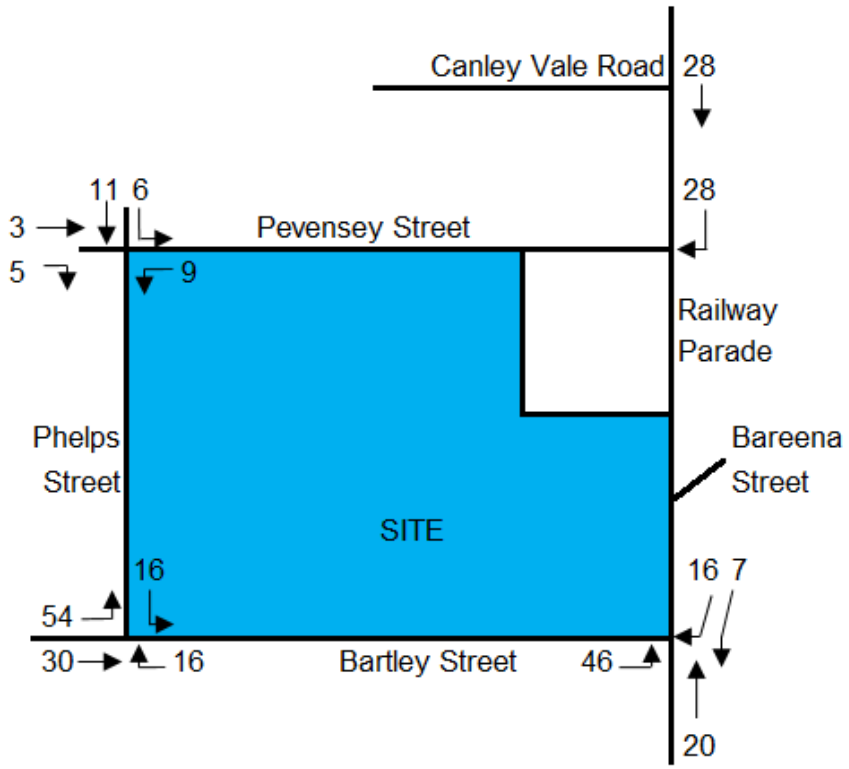


Figure 13: Additional Club arrival traffic around Cabra Vale during the Friday site peak hour

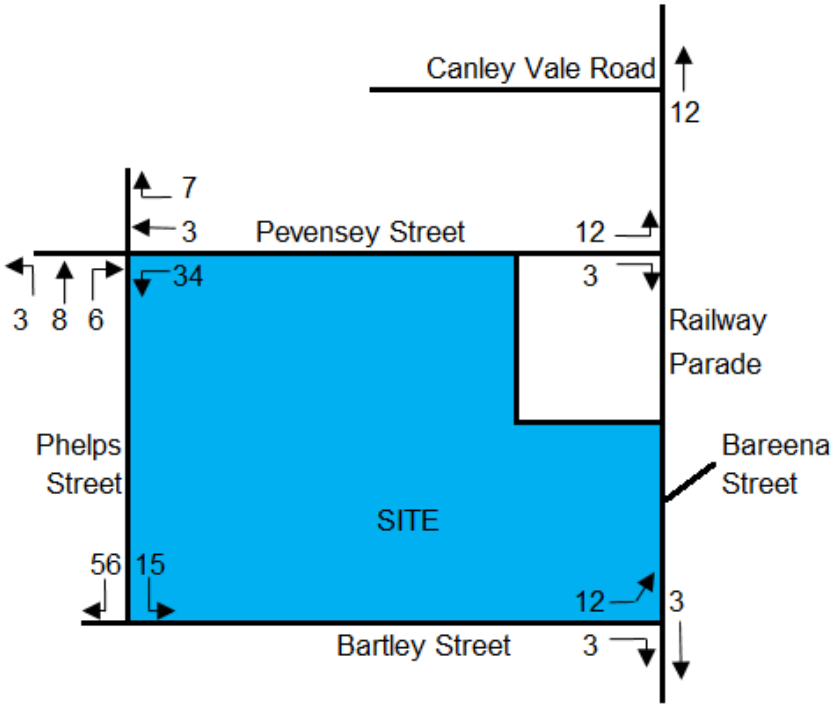


Figure 14: Additional Club departure traffic around Cabra Vale during the Friday site peak hour

7.2.3 Hotel Traffic Distribution

It is assumed that the hotel traffic will arrive and depart using the three arterial roads to and from the site, which are Bartley Street to the west, Railway Parade to the north and south, and Bareena Street to the east. Each origin and destination was assumed to generate 25% of the traffic each. The hotel patrons are assumed to use the Porte Cochere on arrival and once finished leave the Porte Cochere and enter the basement car park via the Railway Parade access. The effect of the vehicles entering the Porte Cochere will have minimal impact on Railway Parade because it is left in left out only. Since all hotel parking is within the basement all vehicles will exit via Pevensey Street. This results in the distribution below also shown in the site access and network distribution diagrams in **Figures 15, 16 and 17** with network distributions.

- 12 trips (0 in, 12 out) at the Pevensey Street access.
- 29 trips (29 in, 0 out) at the Railway Parade access; and,
- 58 trips (29 in, 29 out) at the Porte Cochere on Railway Parade.

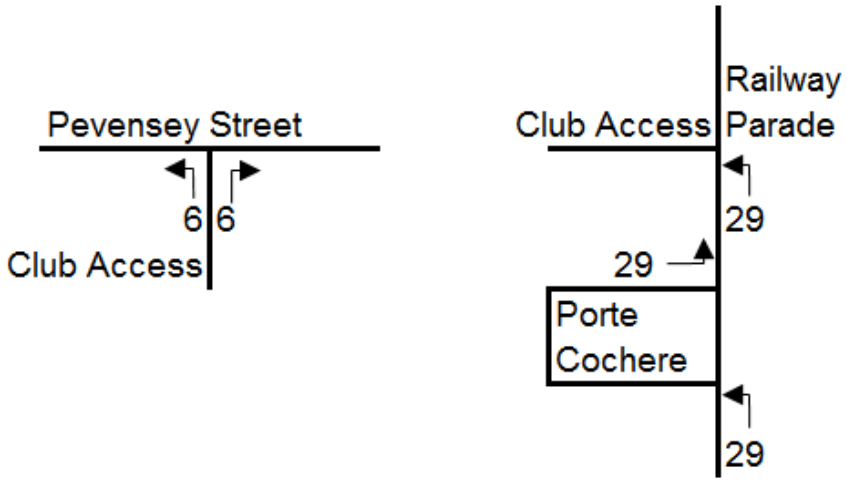


Figure 15: Hotel traffic at each access during the Friday site peak hour

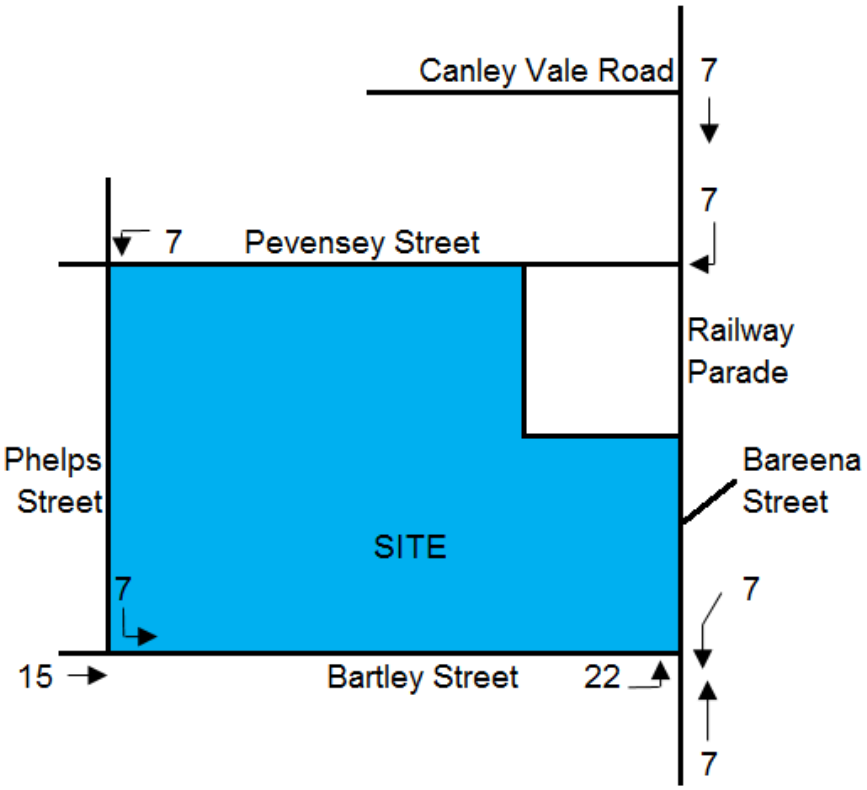


Figure 16: Hotel arrival traffic around Cabra Vale during the Friday site peak hour

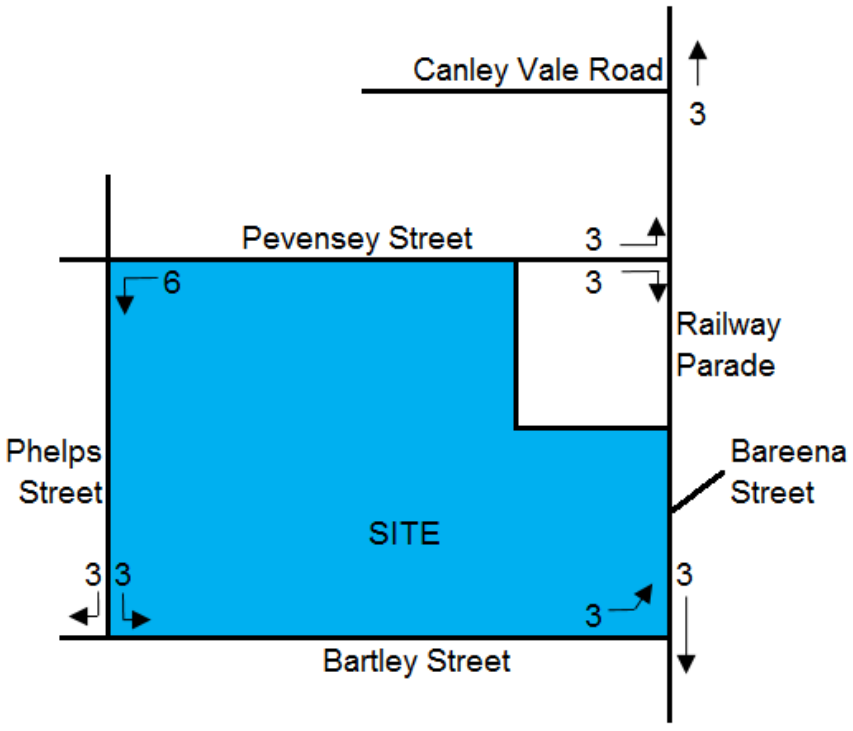


Figure 17: Hotel departure traffic around Cabra Vale during the Friday site peak hour

7.2.4 Combined Traffic Distribution

As such, each access is expected to generate the following additional traffic during the Friday site peak hour:

- 133 trips (79 in, 54 out) at the Phelps Street access,
- 93 trips (28 in, 65 out) at the Pevensey Street access,
- 95 trips (95 in, 0 out) the Railway Parade access; and,
- 162 trips (81 in, 81 out) at the Porte Cochere access.

7.3 Peak Period Intersection Performances

For the purposes of the assessment of traffic impacts of this development, surveys were undertaken of the most critical intersections as stated in Section 4 during the 4.00pm to 6.00pm network peak period with the peak hour determined to be between 4.30pm and 5.30pm. The site peak for the club's traffic generation was observed to be between 7.15pm and 8.15pm, with surveys conducted between 4.00pm and 10.00pm on a typical Friday night.

To account for the difference between the peak periods, the future model of the network traffic was discounted by 15% based on the SCATS data from the intersection of Bartley Street and Railway Parade where total traffic had decreased by 15% between the network peak and the site peak. The additional club and hotel traffic were included to model the effect of the club during the site peak between 7.15pm and 8.15pm, which represented the cumulative 'worst case' scenario of the site and network traffic volumes. The model includes the intersection of Railway Parade and Bareena Street between Bartley and Pevensey Street to improve the accuracy of the model.

A summary of the modelled results are provided in **Table 6** below. Reference should also be made to the SIDRA outputs provided in **Appendix C** which provide detailed results for individual lanes and approaches.

Table 6: Intersection Performance: PM Peak Hour

Intersection Description	Control Type	Model	Degree of Saturation	Intersection Delay	Level of Service
Bartley Street and Railway Parade	Signals	Without Development	0.892	31.9	C
	Signals	With Development	0.886	32.2	C
Bartley Street and Phelps Street	Priority	Without Development	0.242	8.7	A
	Priority	With Development	0.373	11.0	A
Phelps Street and Pevensey Street	Roundabout	Without Development	0.150	7.9	A
	Roundabout	With Development	0.168	8.4	A
Pevensey and Railway Parade	Priority	Without Development	0.278	13.6	A
	Priority	With Development	0.307	14.1	A
Railway Parade and Canley Vale Road	Signals	Without Development	0.951	38.3	C
	Signals	With Development	0.962	38.4	C

It can be seen from **Table 6** that the intersections operate satisfactorily under the existing 'base case' scenario and the future scenario, with a level of service A to C during both peak periods, with minimal increases in the average delay and no changes in the level of service at any of the intersections. The proposed development will have minimal impacts on key intersections analysed above which will continue to operate as presently occurs and with similar delays and queues.

8. Access & Internal Design Aspects

8.1 Access

The development will retain the existing separated access driveway on Phelps Street, which serves the existing multi storey parking facility. The development does however propose changes to the main car park entry / exit driveway on Bartley Street and the service access on Railway Parade as well as provision of an additional entry / exit driveway to serve the existing car park, basement car park and hotel loading dock on Pevensey Street, a separated entry / exit driveway to service the proposed Porte Cochere on Railway Parade and an entry driveway to the existing loading dock and proposed coach drop off area for the bowling greens on Phelps Street.

8.1.1 Car Park Accesses

The proposed car parking arrangements require a minimum of two Category 4 accesses under AS2890.1 (2004), which is a 6.0 – 8.0 metres wide entry and a 6.0 – 8.0 metres exit separated by a median of width 1.0 – 3.0 metres. In response, the development proposes modifying the existing access on Phelps Street to the Category 4 requirement with 6 metre wide entry and exit driveways separated by a 1 metre median. An additional Category 4 access is proposed from Pevensey Street with a 6 metre wide entry and a 6 metre wide exit separated by 9.4 metres which will serve as the primary exit for the basement car park and the hotel loading dock exit as well as an additional entry to the multi storey car park. A 15.5 metre wide entry access from Railway Parade is proposed for direct access to the on-site car parks and the service road leading from Railway Parade to Pevensey Street. This access will be shared with service vehicles using the proposed hotel loading dock, and will be restricted to left in movements only by means of the installation of a median strip on Railway Parade.

All vehicular accesses have been tested using swept path analysis for the largest vehicle, being a B99 vehicle for access to the car parks, and a 14.5m coach for access to the service areas and the port Cochere. The swept path analyses are attached in **Appendix E**

8.1.2 Porte Cochere Access

The proposed Porte Cochere on Railway Parade for club and hotel drop off and pick up only will have a 7.1 metre wide entry and 6.4 metre wide exit. The entry and exit driveways will be limited to left in and left out movements by means of the installation of a median strip on Railway Parade. The largest vehicle to traverse the Porte Cochere is a 14.5 coach and the swept path analysis is attached in **Appendix E**. The swept path analysis also demonstrates a coach is able to park in the dedicated coach bay and exit the Porte Cochere while cars are parked along in the car drop off and pick up area.

8.1.3 Hotel Loading Dock Access

The proposed access to the hotel loading dock will be from Railway Parade via a one way service lane along the north eastern boundary. The access driveway will be shared with light vehicles as it will also service the entry to the basement car park. The entry on Railway Parade will be limited to left in only by means of the installation of a median strip on Railway Parade. The proposed service lane is to be one way and exit will be to Pevensey Street and this will also be shared with light vehicles exiting the basement car park. The accesses and service lanes have been tested with a 14.5 metre coach, which will be the largest vehicle to traverse the lane and loading dock. The swept path analysis is attached in **Appendix E**.

8.1.4 Club Loading Dock Access

The existing loading dock currently accessed via the main access from Bartley Street will be modified as the main access on Bartley Street will be closed. The proposed arrangement is a one way access to the loading dock via an 8.5 metre entry driveway on Phelps Street, south of the existing multi storey car park access, and a 8.6 metre exit driveway on Bartley Street. This arrangement has been tested with swept path analysis attached in **Appendix E**.

8.2 Internal Queuing Analysis

The two (2) car park exits onto Phelps Street and Pevensey Street have been assessed using the distributions from Section 7.2.4 and the traffic surveys to determine the queue lengths at the accesses within the site. SIDRA was used to assess the accesses individually to ensure excessive queue lengths did not occur as a result of the changes to the access arrangements. The modelling found 95% back

of queue lengths of 3.4 metres and 1.4 metres for the Phelps Street and Pevensey Street accesses, respectively, which are considered acceptable.

8.3 Internal Design

The internal basement car park generally complies with the requirements of AS 2890.1 (2004) and the following characteristics are noteworthy:

8.3.1 Parking Modules

- All parking spaces have been designed in accordance with a Class 2 user and are provided with a minimum space length of 5.4m a minimum width of 2.5m and a minimum aisle width of 5.8m.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- Dead-end aisles are provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1.
- All disabled parking spaces are designed in accordance with AS2890.6. Spaces are provided with a clear width of 2.4m and located adjacent to a minimum shared area of 2.4m.

8.3.2 Ramps

- All ramps accessing the basement car park have a maximum gradient of 20% (1 in 5) with transitions of 10% (1 in 10). The ramp to Basement 2 from the multi storey car park is longer than 20 metres and has a maximum gradient of 16.7% (1 in 6).

8.3.3 Clear Head heights

- A minimum clear head height of 2.2m is provided for all areas within the basement car park as required by AS2890.1. A clear head height of 2.5m is provided above all disabled spaces as required by AS2890.6.

8.3.4 Other Considerations

- All columns are required to be located outside of the parking space design envelope shown in Figure 5.2 of AS 2890.1 (2004).

- Appropriate visual splays are to be provided in accordance with the requirements of Figure 3.3 of AS2890.1 at all accesses.

- The internal design complies with the Section 3.4 of AS2890.1 with appropriate queuing areas provided. Furthermore the max gradient of 1:10 for not less than 80% of the queuing length has also been achieved.

- A swept path analysis of all critical movements has been undertaken to confirm geometry and compliance with the relevant standards. The swept path assessment is included in **Appendix E**.

8.3.5 Service Area Design

- The internal design of the service area has been undertaken in accordance with the requirements of AS28090.2 for the maximum length vehicle permissible on-site being a 14.5 Long Rigid Bus.

- A minimum clear head height of 4.5m is provided within the service area

- All ramps have been designed in accordance with Table 3.2 of AS2890.2 with a maximum grade not in excess of 1:6.5 (15.4%) and maximum rate of change of 1:16 (6.25%).

- A minimum bay width of 3.5m is provided for all service bays.

- A swept path analysis has been undertaken as permissible under AS2890.2 and confirms the internal design. The swept path assessment is included in **Appendix E**.

In summary the internal configuration of the basement car park and loading areas have been designed in accordance with the both AS2890.1 and AS2890.2. It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

9. Conclusions

In summary:

- TRAFFIX has been commissioned by Cabra-Vale Diggers Ex-Active Servicemen's Club Limited to undertake a TIA in support of a DA relating to the staged expansion of the club. The works include the following:
  - The club proposes renovations and additions which will result in GFA expansion and reconfiguration of the on-site uses.
  - Relocation of the two existing bowling greens within the site.
  - A 120 room hotel with ancillary facilities including bar, restaurant and pool.
  - A basement car park with 373 spaces for club and hotel use.
- The proposed parking provision of 1091 spaces will satisfy the expected peak demand of the club and the Council's DCP requirement for hotels. The servicing of the club and hotel will be accommodated by two onsite loading docks. The main entrance will have a Porte Cochere for drop off and pick of patrons by vehicles up to a 14.5 metre coach.
- The development will contribute an additional 323 veh/hr during the site peak between 7.15pm and 8.15pm. The effect of this on the local road network was modelled using SIDRA Intersection and the result was minimal increases in delay on the surrounding intersections.
- The proposed car park amendments complies with the requirements of both AS 2890.1 (2004), AS 2890.6 (2009) and AS 2890.2 (2002). Any minor adjustments to ramp swept paths can be altered at construction certificate stage.

It is therefore concluded that the proposed development is supportable on traffic planning grounds and would operate satisfactorily.

Appendix A

Photographic Record

View looking north on Railway Parade towards subject site.

View looking north on Bartley Street at main site access.

View looking west along Bartley Street from the main site access.

View looking east along Bartley Street from main site entrance.

View looking north on Phelps Street towards secondary site access.

View looking south on Phelps Street towards secondary site access.

Appendix B

Survey Results

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Traffix
Job No/Name : 6477 CABRA VALE Diggers Club
Day/Date : Friday 9th June 2017

All Vehicles

	NORTH		EAST		SOUTH		
	Phelps St		*Car Park*		*Phelps St*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615		3	11	9	2		**25**
1615 - 1630		11	13	3	3		**30**
1630 - 1645		9	13	2	4		**28**
1645 - 1700		16	12	7	1		**36**
1700 - 1715		13	10	6	4		**33**
1715 - 1730		7	13	2	3		**25**
1730 - 1745		10	8	4	1		**23**
1745 - 1800		10	12	11	4		**37**
1800 - 1815		9	6	4	4		**23**
1815 - 1830		6	4	4	1		**15**
1830 - 1845		8	6	3	6		**23**
1845 - 1900		12	10	3	1		**26**
1900 - 1915		9	6	2	0		**17**
1915 - 1930		7	13	2	1		**23**
1930 - 1945		14	9	4	1		**28**
1945 - 2000		9	0	1	0		**10**
2000 - 2015		7	4	4	2		**17**
2015 - 2030		7	7	5	2		**21**
2030 - 2045		10	3	3	1		**17**
2045 - 2100		11	2	1	0		**14**
2100 - 2115		4	8	2	0		**14**
2115 - 2130		2	7	4	0		**13**
2130 - 2145		8	4	6	1		**19**
2145 - 2200		2	9	3	1		**15**
Per End	**0**	**204**	**190**	**95**	**43**	**0**	**532**

All Vehicles

	NORTH		EAST		SOUTH		
	Phelps St		*Car Park*		*Phelps St*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615			0	0			**0**
1615 - 1630			0	0			**0**
1630 - 1645			0	0			**0**
1645 - 1700			0	0			**0**
1700 - 1715			0	0			**0**
1715 - 1730			0	0			**0**
1730 - 1745			0	0			**0**
1745 - 1800			0	0			**0**
1800 - 1815			0	0			**0**
1815 - 1830			0	0			**0**
1830 - 1845			0	0			**0**
1845 - 1900			0	0			**0**
1900 - 1915			0	0			**0**
1915 - 1930			0	0			**0**
1930 - 1945			0	0			**0**
1945 - 2000			0	0			**0**
2000 - 2015			1	0			**1**
2015 - 2030			0	0			**0**
2030 - 2045			0	0			**0**
2045 - 2100			0	0			**0**
2100 - 2115			0	0			**0**
2115 - 2130			0	0			**0**
2130 - 2145			0	0			**0**
2145 - 2200			0	0			**0**
Per End	**0**	**0**	**1**	**0**	**0**	**0**	**1**

All Vehicles

	WEST		NORTH		EAST		
	Bartley St		*Car Park*		*Bartley St*		
Time Per	L	T	R	L	T	R	TOT
1600 - 1615	14		9	11		11	**45**
1615 - 1630	8		8	9		9	**34**
1630 - 1645	12		11	11		9	**43**
1645 - 1700	4		10	9		7	**30**
1700 - 1715	8		18	17		10	**53**
1715 - 1730	9		11	7		9	**36**
1730 - 1745	12		9	6		6	**33**
1745 - 1800	18		11	11		13	**53**
1800 - 1815	10		6	5		4	**25**
1815 - 1830	24		17	12		18	**71**
1830 - 1845	16		11	7		11	**45**
1845 - 1900	11		10	9		12	**42**
1900 - 1915	17		4	8		16	**45**
1915 - 1930	29		10	11		23	**73**
1930 - 1945	17		14	11		17	**59**
1945 - 2000	26		14	4		17	**61**
2000 - 2015	18		20	10		23	**71**
2015 - 2030	11		5	7		15	**38**
2030 - 2045	16		11	13		20	**60**
2045 - 2100	23		4	10		18	**55**
2100 - 2115	13		7	5		11	**36**
2115 - 2130	10		13	5		8	**36**
2130 - 2145	15		19	10		5	**49**
2145 - 2200	10		10	8		7	**35**
Per End	**351**	**0**	**262**	**216**	**0**	**299**	**1128**

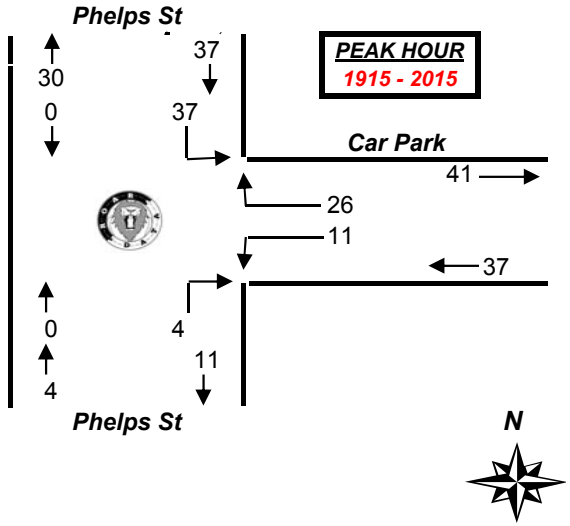
	NORTH		EAST		SOUTH		
	Phelps St		*Car Park*		*Phelps St*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	0	39	49	21	10	0	**119**
1615 - 1715	0	49	48	18	12	0	**127**
1630 - 1730	0	45	48	17	12	0	**122**
1645 - 1745	0	46	43	19	9	0	**117**
1700 - 1800	0	40	43	23	12	0	**118**
1715 - 1815	0	36	39	21	12	0	**108**
1730 - 1830	0	35	30	23	10	0	**98**
1745 - 1845	0	33	28	22	15	0	**98**
1800 - 1900	0	35	26	14	12	0	**87**
1815 - 1915	0	35	26	12	8	0	**81**
1830 - 1930	0	36	35	10	8	0	**89**
1845 - 1945	0	42	38	11	3	0	**94**
1900 - 2000	0	39	28	9	2	0	**78**
1915 - 2015	0	37	26	11	4	0	**78**
1930 - 2030	0	37	20	14	5	0	**76**
1945 - 2045	0	33	14	13	5	0	**65**
2000 - 2100	0	35	16	13	5	0	**69**
2015 - 2115	0	32	20	11	3	0	**66**
2030 - 2130	0	27	20	10	1	0	**58**
2045 - 2145	0	25	21	13	1	0	**60**
2100 - 2200	0	16	28	15	2	0	**61**
PEAK HR		**37**	**26**	**11**	**4**		**78**

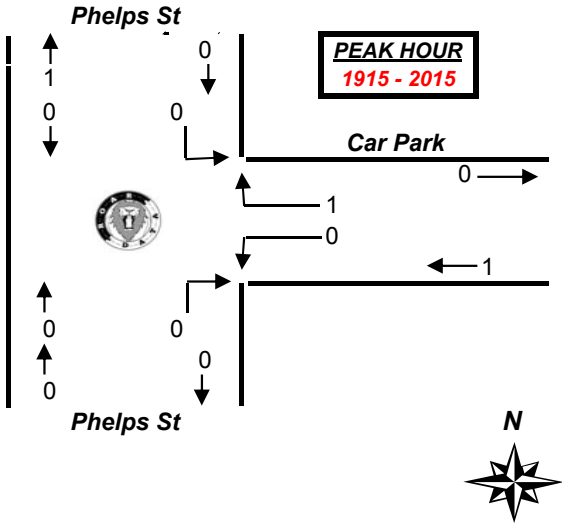
	NORTH		EAST		SOUTH		
	Phelps St		*Car Park*		*Phelps St*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	0	0	0	0	0	0	**0**
1615 - 1715	0	0	0	0	0	0	**0**
1630 - 1730	0	0	0	0	0	0	**0**
1645 - 1745	0	0	0	0	0	0	**0**
1700 - 1800	0	0	0	0	0	0	**0**
1715 - 1815	0	0	0	0	0	0	**0**
1730 - 1830	0	0	0	0	0	0	**0**
1745 - 1845	0	0	0	0	0	0	**0**
1800 - 1900	0	0	0	0	0	0	**0**
1815 - 1915	0	0	0	0	0	0	**0**
1830 - 1930	0	0	0	0	0	0	**0**
1845 - 1945	0	0	0	0	0	0	**0**
1900 - 2000	0	0	0	0	0	0	**0**
1915 - 2015	0	0	1	0	0	0	**1**
1930 - 2030	0	0	1	0	0	0	**1**
1945 - 2045	0	0	1	0	0	0	**1**
2000 - 2100	0	0	1	0	0	0	**1**
2015 - 2115	0	0	0	0	0	0	**0**
2030 - 2130	0	0	0	0	0	0	**0**
2045 - 2145	0	0	0	0	0	0	**0**
2100 - 2200	0	0	0	0	0	0	**0**
PEAK HR			**1**	**0**			**1**

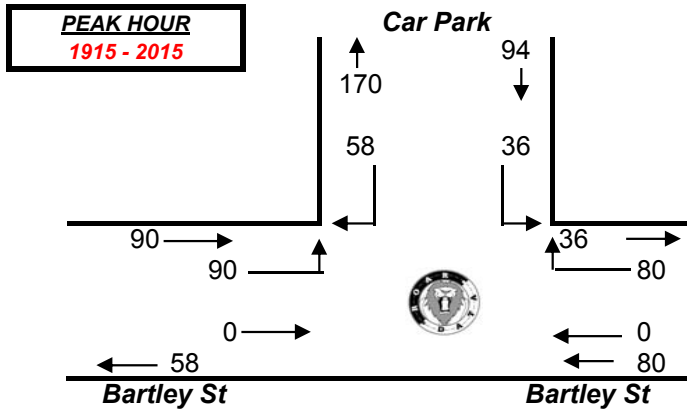
	WEST		NORTH		EAST		
	Bartley St		*Car Park*		*Bartley St*		
Peak Per	L	T	R	L	T	R	TOT
1600 - 1700	38	0	38	40	0	36	**152**
1615 - 1715	32	0	47	46	0	35	**160**
1630 - 1730	33	0	50	44	0	35	**162**
1645 - 1745	33	0	48	39	0	32	**152**
1700 - 1800	47	0	49	41	0	38	**175**
1715 - 1815	49	0	37	29	0	32	**147**
1730 - 1830	64	0	43	34	0	41	**182**
1745 - 1845	68	0	45	35	0	46	**194**
1800 - 1900	61	0	44	33	0	45	**183**
1815 - 1915	68	0	42	36	0	57	**203**
1830 - 1930	73	0	35	35	0	62	**205**
1845 - 1945	74	0	38	39	0	68	**219**
1900 - 2000	89	0	42	34	0	73	**238**
1915 - 2015	90	0	58	36	0	80	**264**
1930 - 2030	72	0	53	32	0	72	**229**
1945 - 2045	71	0	50	34	0	75	**230**
2000 - 2100	68	0	40	40	0	76	**224**
2015 - 2115	63	0	27	35	0	64	**189**
2030 - 2130	62	0	35	33	0	57	**187**
2045 - 2145	61	0	43	30	0	42	**176**
2100 - 2200	48	0	49	28	0	31	**156**
PEAK HR	**90**		**58**	**36**		**80**	**264**

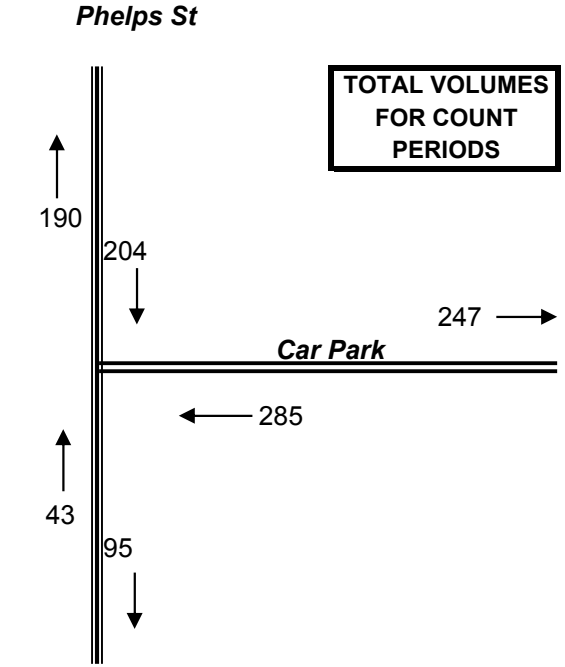
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Mob.0418-239019

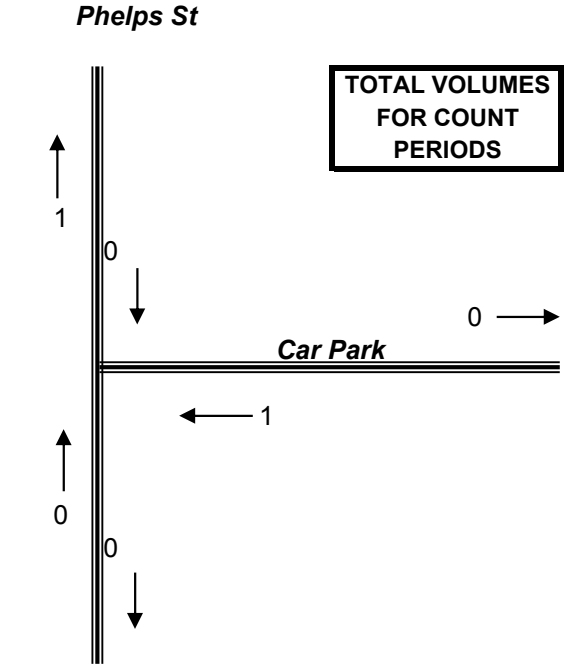
Client : Traffix
Job No/Name : 6477 CABRA VALE Diggers Club
Day/Date : Friday 9th June 2017

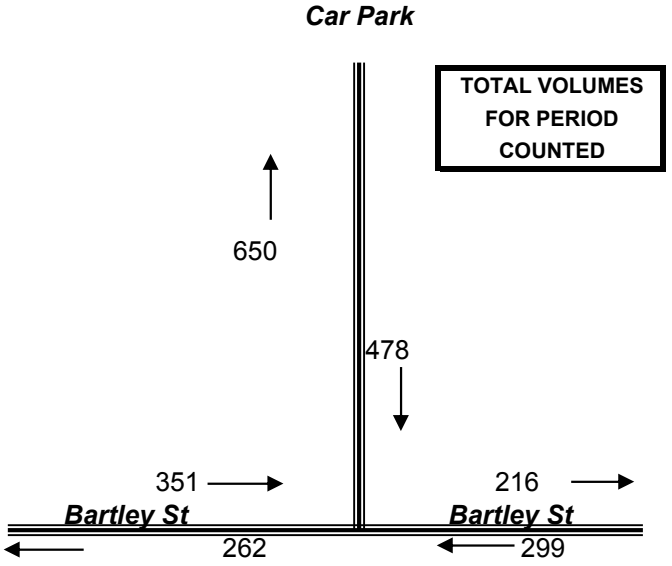












R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Traffix
Job No/Name : 6477 CABRA VALE Diggers Club
Day/Date : Friday 9th June 2017

All Vehicles

	ACCESSES *Combined*		
Time Per	**IN**	**OUT**	**TOT**
1600 - 1615	30	40	**70**
1615 - 1630	31	33	**64**
1630 - 1645	34	37	**71**
1645 - 1700	28	38	**66**
1700 - 1715	35	51	**86**
1715 - 1730	28	33	**61**
1730 - 1745	29	27	**56**
1745 - 1800	45	45	**90**
1800 - 1815	27	21	**48**
1815 - 1830	49	37	**86**
1830 - 1845	41	27	**68**
1845 - 1900	36	32	**68**
1900 - 1915	42	20	**62**
1915 - 1930	60	36	**96**
1930 - 1945	49	38	**87**
1945 - 2000	52	19	**71**
2000 - 2015	50	39	**89**
2015 - 2030	35	24	**59**
2030 - 2045	47	30	**77**
2045 - 2100	52	17	**69**
2100 - 2115	28	22	**50**
2115 - 2130	20	29	**49**
2130 - 2145	29	39	**68**
2145 - 2200	20	30	**50**
Per End	**897**	**764**	**1661**

	ACCESSES *Combined*		
Peak Per	**IN**	**OUT**	**TOT**
1600 - 1700	123	148	**271**
1615 - 1715	128	159	**287**
1630 - 1730	125	159	**284**
1645 - 1745	120	149	**269**
1700 - 1800	137	156	**293**
1715 - 1815	129	126	**255**
1730 - 1830	150	130	**280**
1745 - 1845	162	130	**292**
1800 - 1900	153	117	**270**
1815 - 1915	168	116	**284**
1830 - 1930	179	115	**294**
1845 - 1945	187	126	**313**
1900 - 2000	203	113	**316**
1915 - 2015	211	132	**343**
1930 - 2030	186	120	**306**
1945 - 2045	184	112	**296**
2000 - 2100	184	110	**294**
2015 - 2115	162	93	**255**
2030 - 2130	147	98	**245**
2045 - 2145	129	107	**236**
2100 - 2200	97	120	**217**

PEAK HR	**211**	**132**	**343**

Capacity

CAR PARK Accumulation

At Start	
1600 - 1615	-10
1615 - 1630	-12
1630 - 1645	-15
1645 - 1700	-25
1700 - 1715	-41
1715 - 1730	-46
1730 - 1745	-44
1745 - 1800	-44
1800 - 1815	-38
1815 - 1830	-26
1830 - 1845	-12
1845 - 1900	-8
1900 - 1915	14
1915 - 1930	38
1930 - 1945	49
1945 - 2000	82
2000 - 2015	93
2015 - 2030	104
2030 - 2045	121
2045 - 2100	156
2100 - 2115	162
2115 - 2130	153
2130 - 2145	143
2145 - 2200	133
At Finish	

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Traffix

Job No/Name : 6454 CANLEY VALE Railway Pde

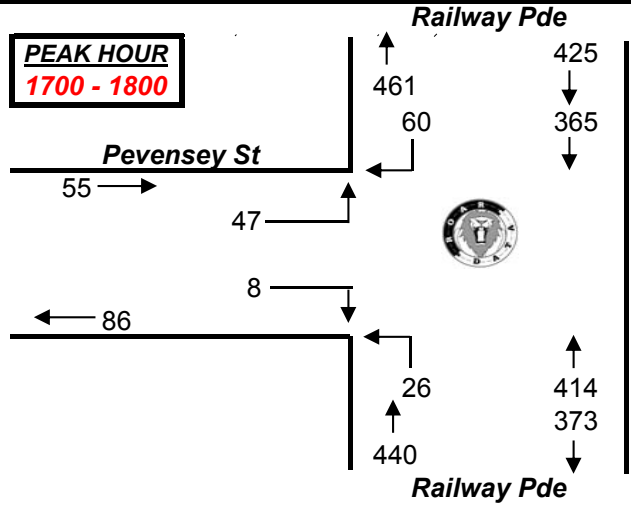
Day/Date : Friday 19th May 2017

All Vehicles

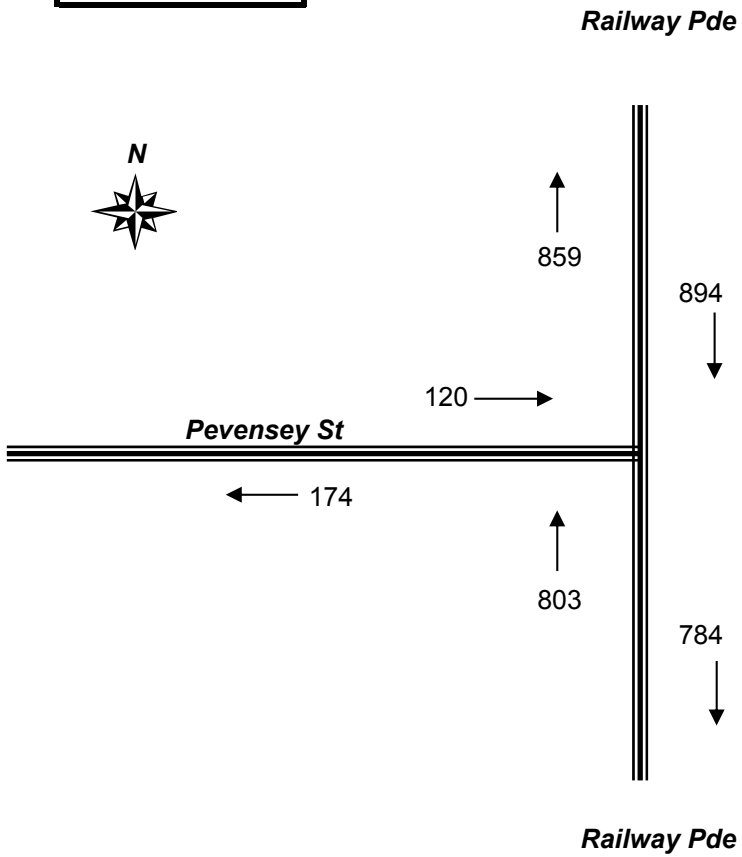
	NORTH Railway		WEST Pevensey		SOUTH Railway		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1615	103	16	15	2	8	79	**223**
1615 - 1630	100	15	14	1	7	68	**205**
1630 - 1645	99	14	20	3	4	90	**230**
1645 - 1700	103	19	10	0	5	102	**239**
1700 - 1715	97	14	12	2	5	91	**221**
1715 - 1730	95	16	7	1	8	101	**228**
1730 - 1745	80	15	14	1	6	110	**226**
1745 - 1800	93	15	14	4	7	112	**245**
Period End	**770**	**124**	**106**	**14**	**50**	**753**	**1817**

	NORTH Railway		WEST Pevensey		SOUTH Railway		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1700	405	64	59	6	24	339	**897**
1615 - 1715	399	62	56	6	21	351	**895**
1630 - 1730	394	63	49	6	22	384	**918**
1645 - 1745	375	64	43	4	24	404	**914**
1700 - 1800	365	60	47	8	26	414	**920**

PEAK HR	**365**	**60**	**47**	**8**	**26**	**414**	**920**



TOTAL VOLUMES FOR COUNT PERIODS



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

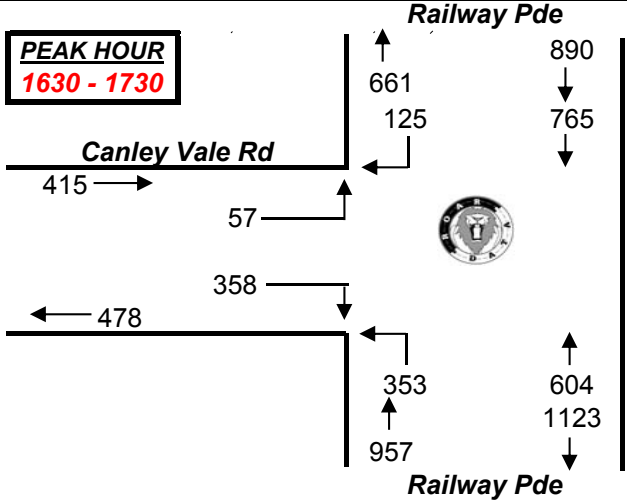
Client	: Traffix
Job No/Name	: 6454 CANLEY VALE Railway Pde
Day/Date	: Friday 19th May 2017

All Vehicles

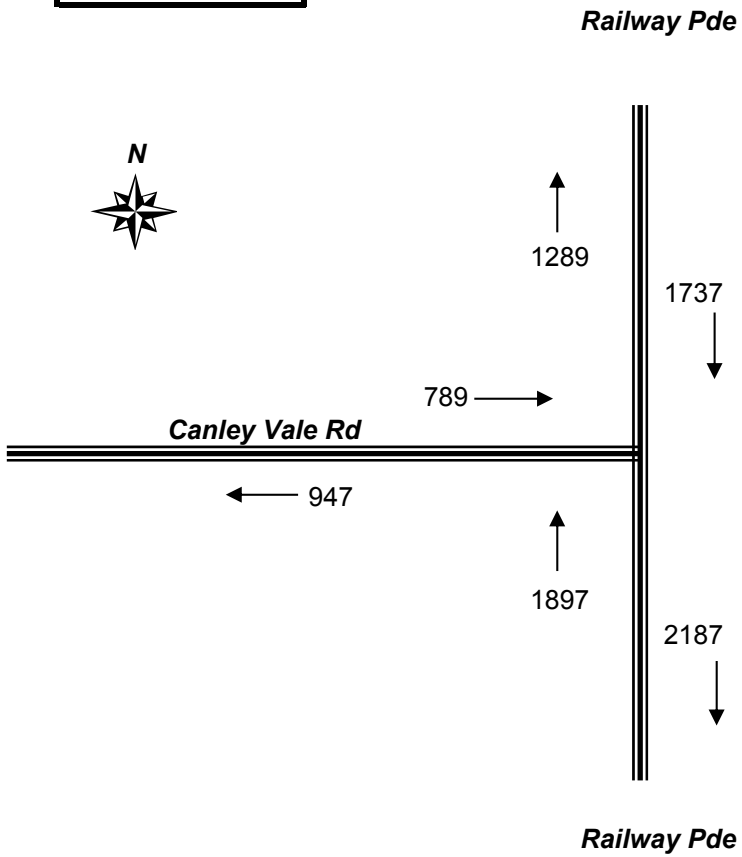
	NORTH		WEST		SOUTH		
	Railway		*Canley Vale*		*Railway*		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1615	213	33	9	79	89	159	**582**
1615 - 1630	193	27	12	94	83	120	**529**
1630 - 1645	200	32	16	93	90	151	**582**
1645 - 1700	176	22	16	99	90	155	**558**
1700 - 1715	200	41	13	79	94	157	**584**
1715 - 1730	189	30	12	87	79	141	**538**
1730 - 1745	164	27	8	79	90	150	**518**
1745 - 1800	161	29	12	81	91	158	**532**
Period End	**1496**	**241**	**98**	**691**	**706**	**1191**	**4423**

	NORTH		WEST		SOUTH		
	Railway		*Canley Vale*		*Railway*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1700	782	114	53	365	352	585	**2251**
1615 - 1715	769	122	57	365	357	583	**2253**
1630 - 1730	765	125	57	358	353	604	**2262**
1645 - 1745	729	120	49	344	353	603	**2198**
1700 - 1800	714	127	45	326	354	606	**2172**

PEAK HR	**765**	**125**	**57**	**358**	**353**	**604**	**2262**



TOTAL VOLUMES FOR COUNT PERIODS



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

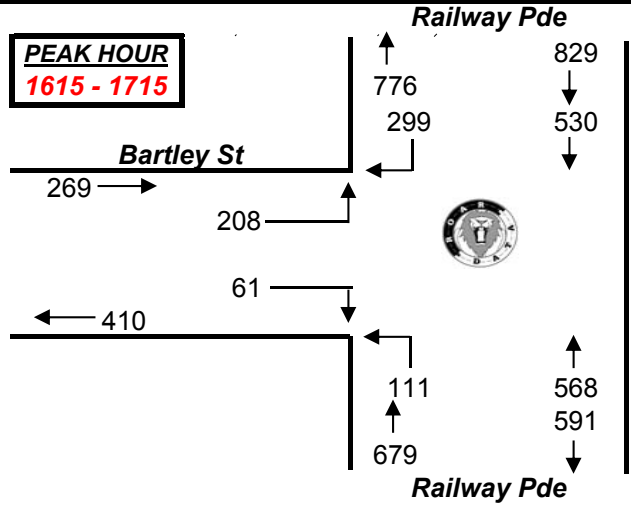
Client	: Traffix
Job No/Name	: 6290 CABRA VALE Diggers Club
Day/Date	: Friday 18th November 2016

All Vehicles

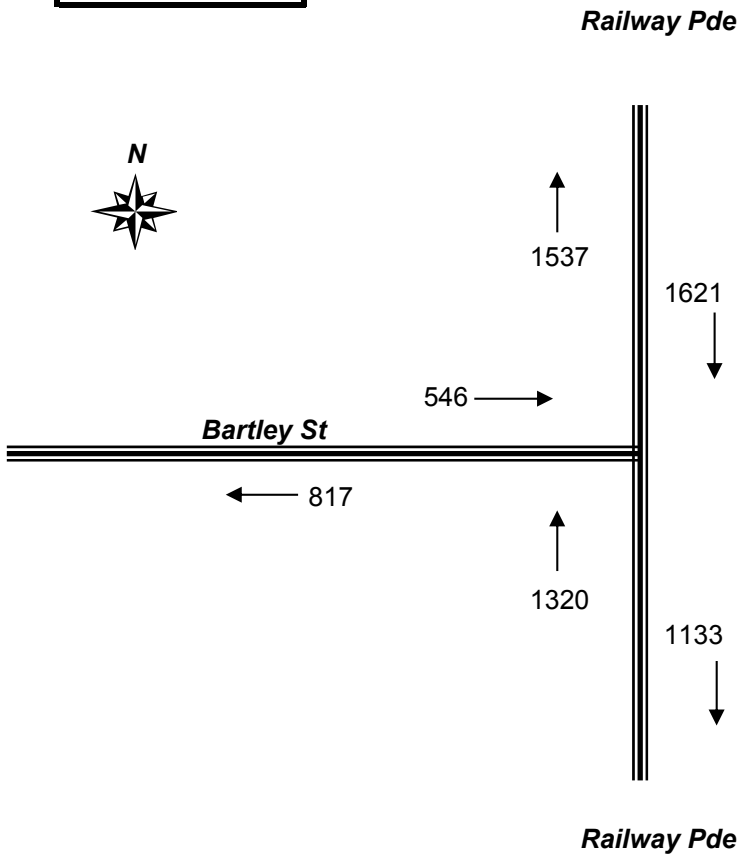
	NORTH		WEST		SOUTH		
	Railway		*Bartley St*		*Railway*		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1615	139	60	39	16	17	132	**403**
1615 - 1630	127	65	52	21	29	135	**429**
1630 - 1645	137	87	53	12	23	137	**449**
1645 - 1700	135	77	41	13	29	142	**437**
1700 - 1715	131	70	62	15	30	154	**462**
1715 - 1730	113	78	56	14	31	115	**407**
1730 - 1745	116	72	65	18	27	159	**457**
1745 - 1800	118	96	61	8	26	134	**443**
Period End	**1016**	**605**	**429**	**117**	**212**	**1108**	**3487**

	NORTH		WEST		SOUTH		
	Railway		*Bartley St*		*Railway*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1700	538	289	185	62	98	546	**1718**
1615 - 1715	530	299	208	61	111	568	**1777**
1630 - 1730	516	312	212	54	113	548	**1755**
1645 - 1745	495	297	224	60	117	570	**1763**
1700 - 1800	478	316	244	55	114	562	**1769**

PEAK HR	**530**	**299**	**208**	**61**	**111**	**568**	**1777**



TOTAL VOLUMES FOR COUNT PERIODS



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Traffix

Job No/Name : 6290 CABRA VALE Diggers Club

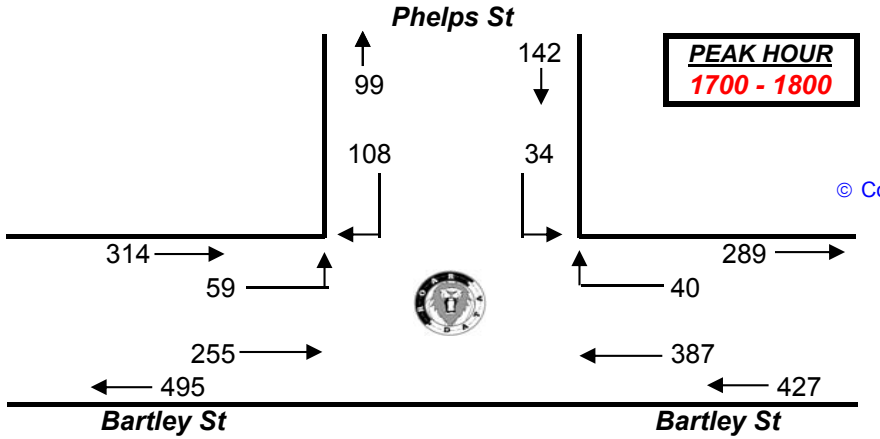
Day/Date : Friday 18th November 2016

All Vehicles

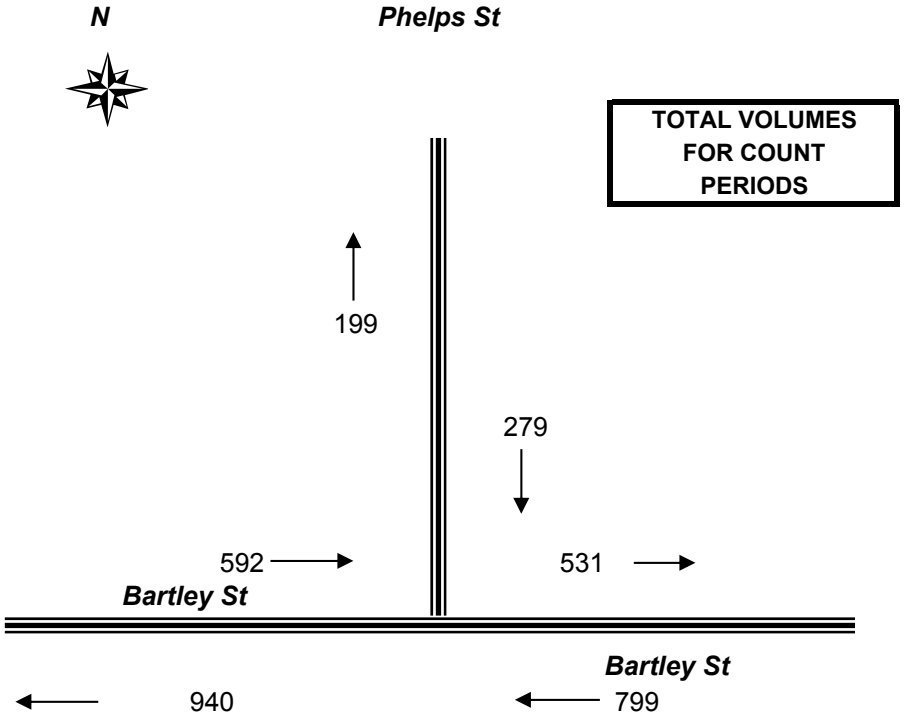
	WEST		NORTH		EAST		
	Bartley St		*Phelps St*		*Bartley St*		
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1600 - 1615	18	46	14	9	69	4	**160**
1615 - 1630	12	60	28	8	91	5	**204**
1630 - 1645	25	52	26	10	92	8	**213**
1645 - 1700	20	45	30	12	95	8	**210**
1700 - 1715	16	65	35	6	86	8	**216**
1715 - 1730	18	61	23	12	104	14	**232**
1730 - 1745	15	64	22	9	84	5	**199**
1745 - 1800	10	65	28	7	113	13	**236**
Period End	**134**	**458**	**206**	**73**	**734**	**65**	**1670**

	WEST		NORTH		EAST		
	Bartley St		*Phelps St*		*Bartley St*		
Peak Per	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1600 - 1700	75	203	98	39	347	25	**787**
1615 - 1715	73	222	119	36	364	29	**843**
1630 - 1730	79	223	114	40	377	38	**871**
1645 - 1745	69	235	110	39	369	35	**857**
1700 - 1800	59	255	108	34	387	40	**883**

PEAK HR	**59**	**255**	**108**	**34**	**387**	**40**	**883**



PEAK HOUR
1700 - 1800



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Traffix

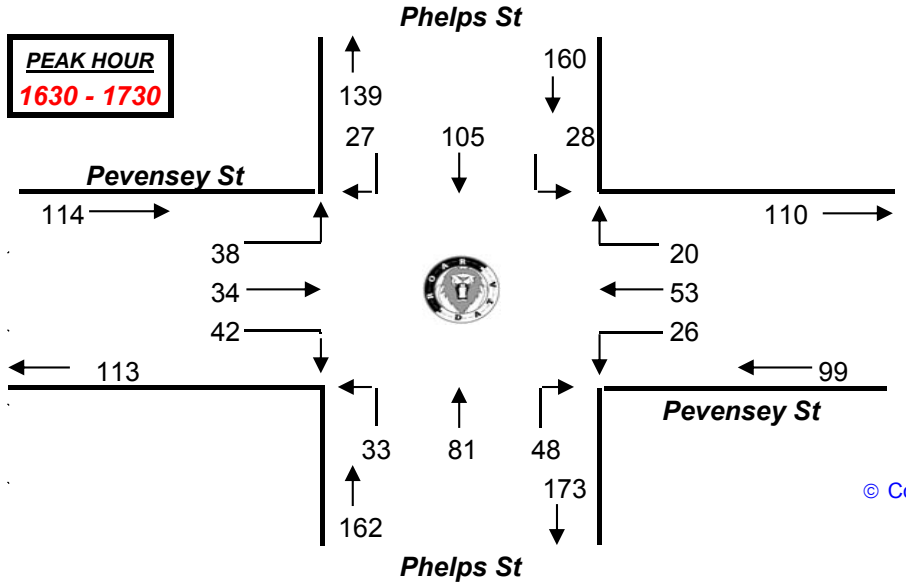
Job No/Name : 6290 CABRA VALE Diggers Club

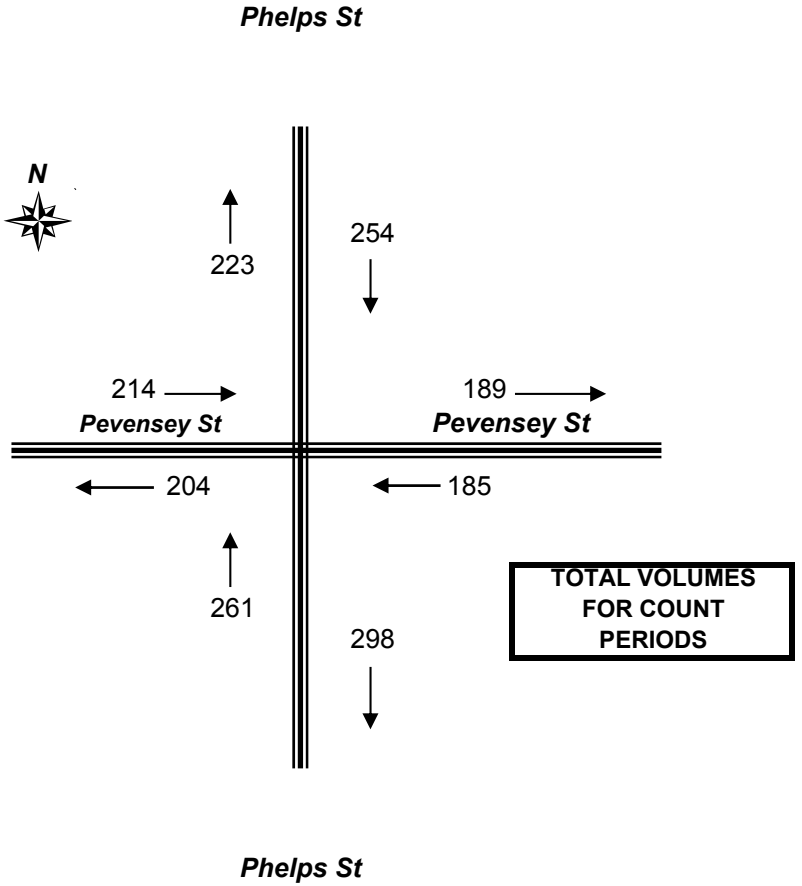
Day/Date : Friday 18th November 2016

All Vehicles

Time Per	NORTH Phelps St L	T	R	WEST Pevensey St L	T	R	SOUTH Phelps St L	T	R	EAST Pevensey St L	T	R	TOT
1600 - 1615	6	14	3	8	8	7	8	16	5	4	13	3	**95**
1615 - 1630	2	20	1	6	15	8	4	12	4	6	14	7	**99**
1630 - 1645	7	19	7	8	14	17	9	18	13	6	8	3	**129**
1645 - 1700	7	27	7	6	6	8	7	18	10	5	9	7	**117**
1700 - 1715	7	32	11	12	1	5	7	16	12	8	17	5	**133**
1715 - 1730	7	27	2	12	13	12	10	29	13	7	19	5	**156**
1730 - 1745	2	10	6	4	7	7	7	12	5	7	11	2	**80**
1745 - 1800	2	22	6	6	15	9	11	7	8	11	7	1	**105**
Period End	**40**	**171**	**43**	**62**	**79**	**73**	**63**	**128**	**70**	**54**	**98**	**33**	**914**

Peak Time	NORTH Phelps St L	T	R	WEST Pevensey St L	T	R	SOUTH Phelps St L	T	R	EAST Pevensey St L	T	R	TOT
1600 - 1700	22	80	18	28	43	40	28	64	32	21	44	20	**440**
1615 - 1715	23	98	26	32	36	38	27	64	39	25	48	22	**478**
1630 - 1730	28	105	27	38	34	42	33	81	48	26	53	20	**535**
1645 - 1745	23	96	26	34	27	32	31	75	40	27	56	19	**486**
1700 - 1800	18	91	25	34	36	33	35	64	38	33	54	13	**474**
PEAK HOUR	**28**	**105**	**27**	**38**	**34**	**42**	**33**	**81**	**48**	**26**	**53**	**20**	**535**





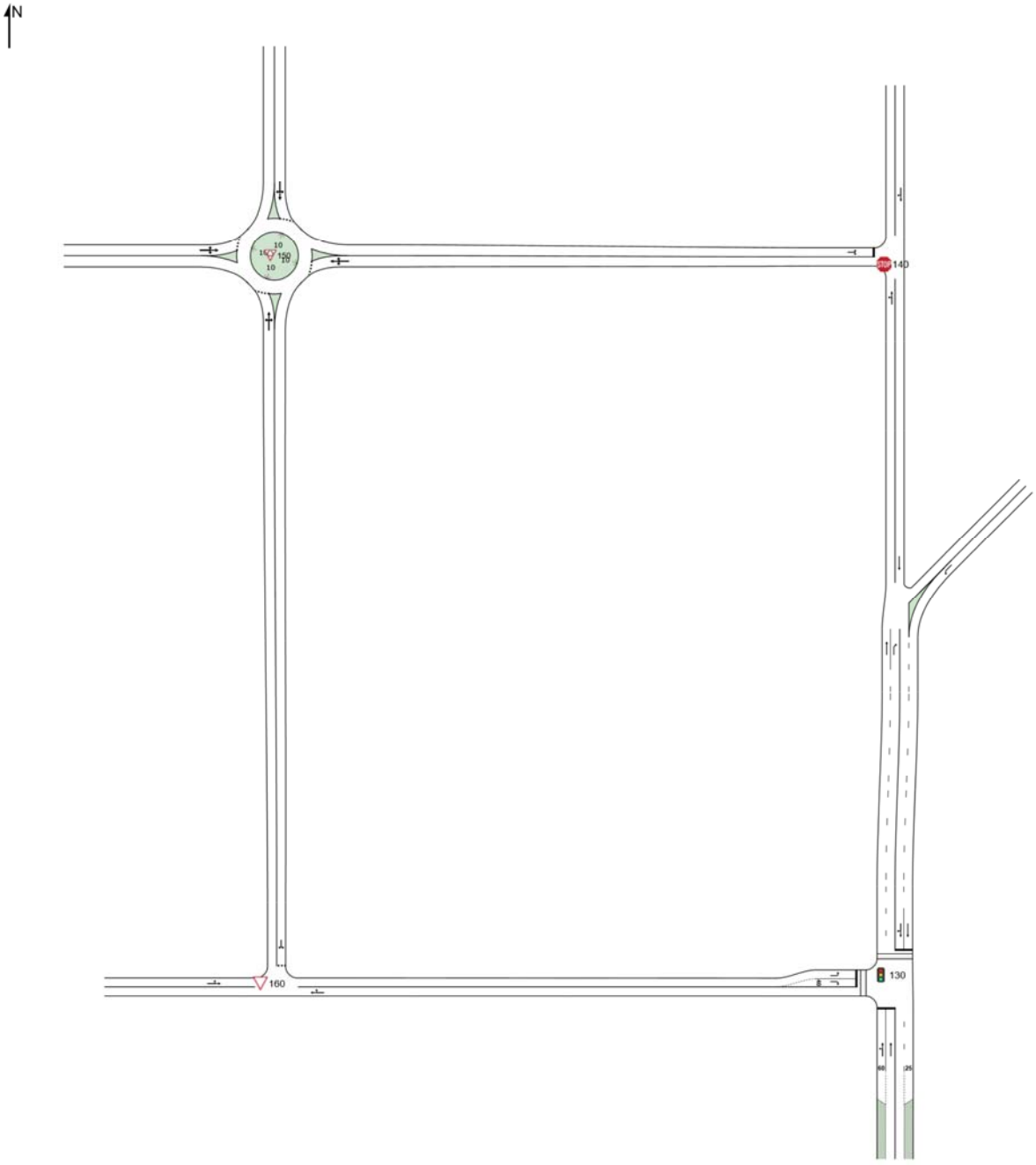
Appendix C

SIDRA Outputs

NETWORK LAYOUT

Network: N101 [Cabra Vale Diggers Netwrok EX PM]

Existing Network

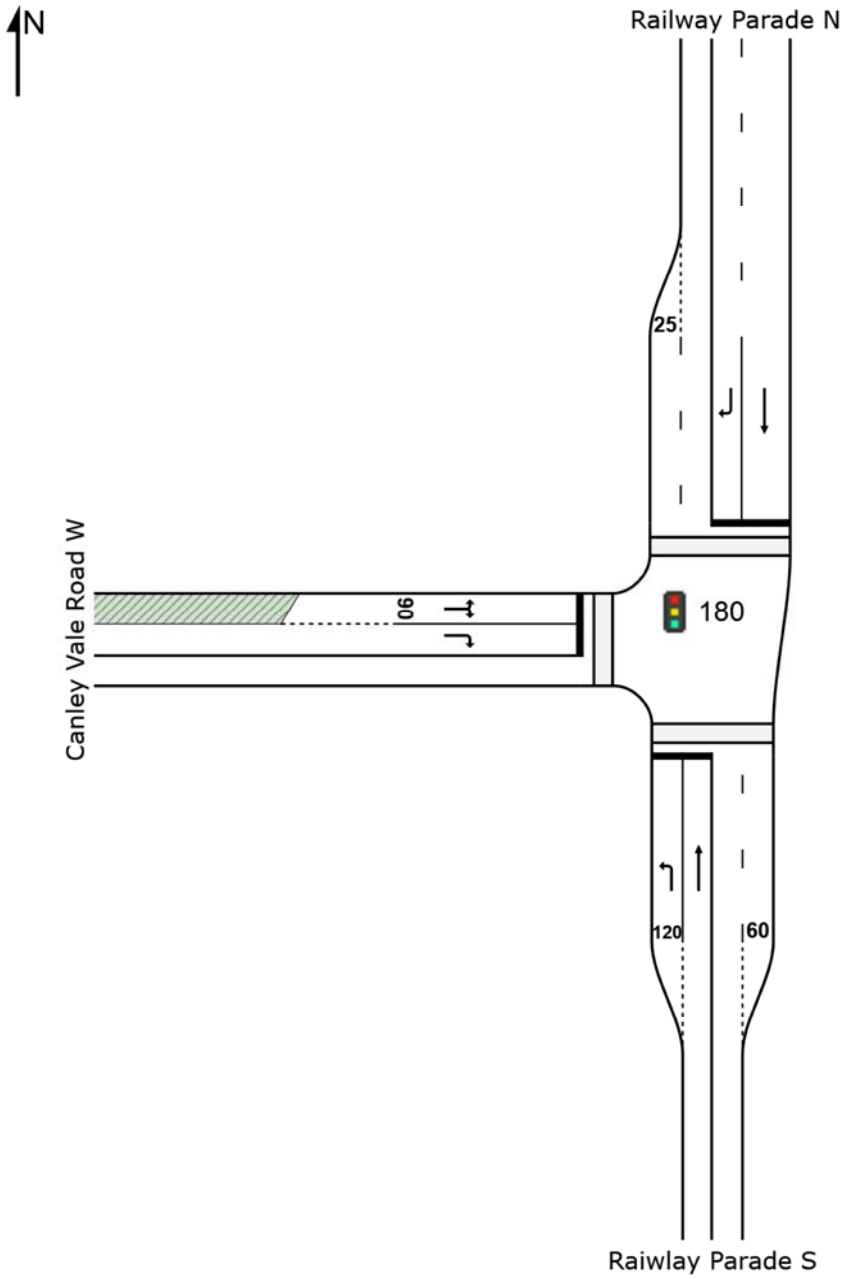


SITES IN NETWORK	
Site ID	**Site Name**
130	130.Bartley Railway EX PM
160	160.Bartley Phelps EX PM
150	150.Phelps Pevensey EX PM
140	140.Railway Pevensey EX PM
135	135.Midblock Weaving Bartley St - Pevensey St

SITE LAYOUT

Site: 180 [180.Canley Vale Rd Railway Pde EX PM]

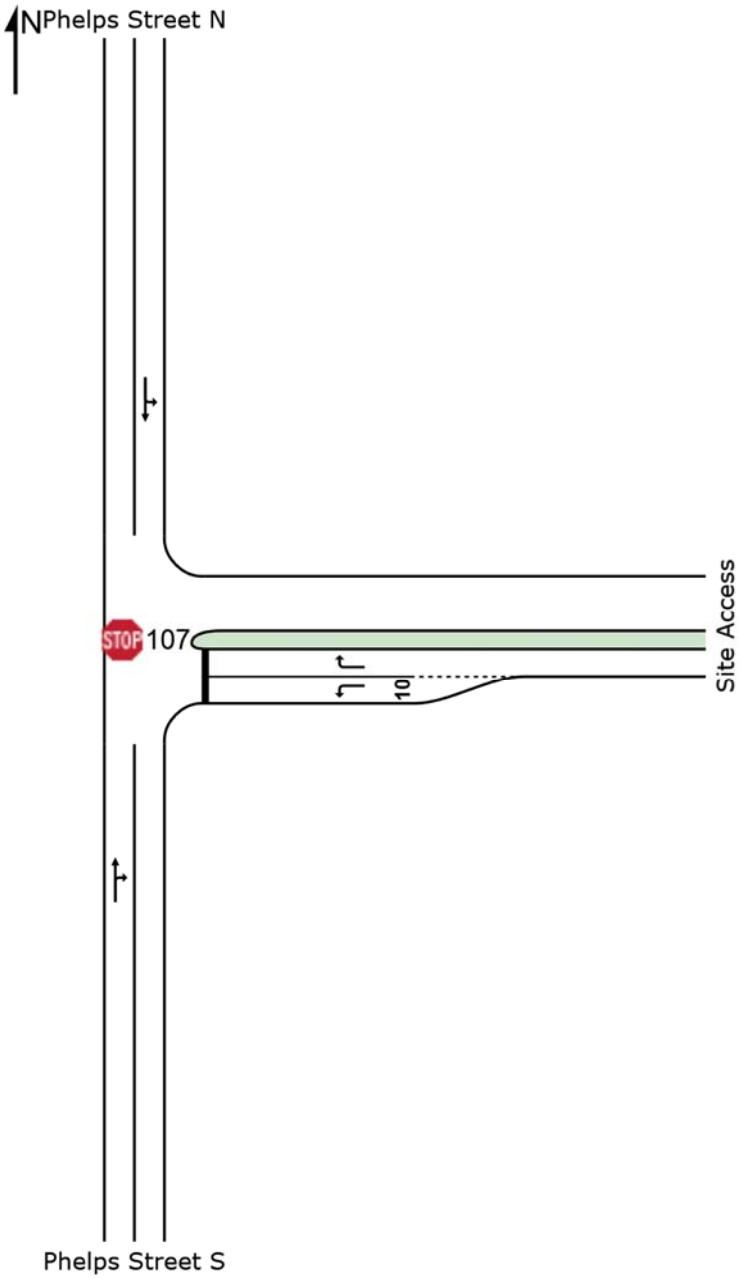
Interesection: Canley Vale Road and Raiwlay Parade
Scenario: Existing PM 4.30 - 6.30
Signals - Fixed Time Isolated



SITE LAYOUT

Site: 107 [Phelps / Site Access EX + FU PM]

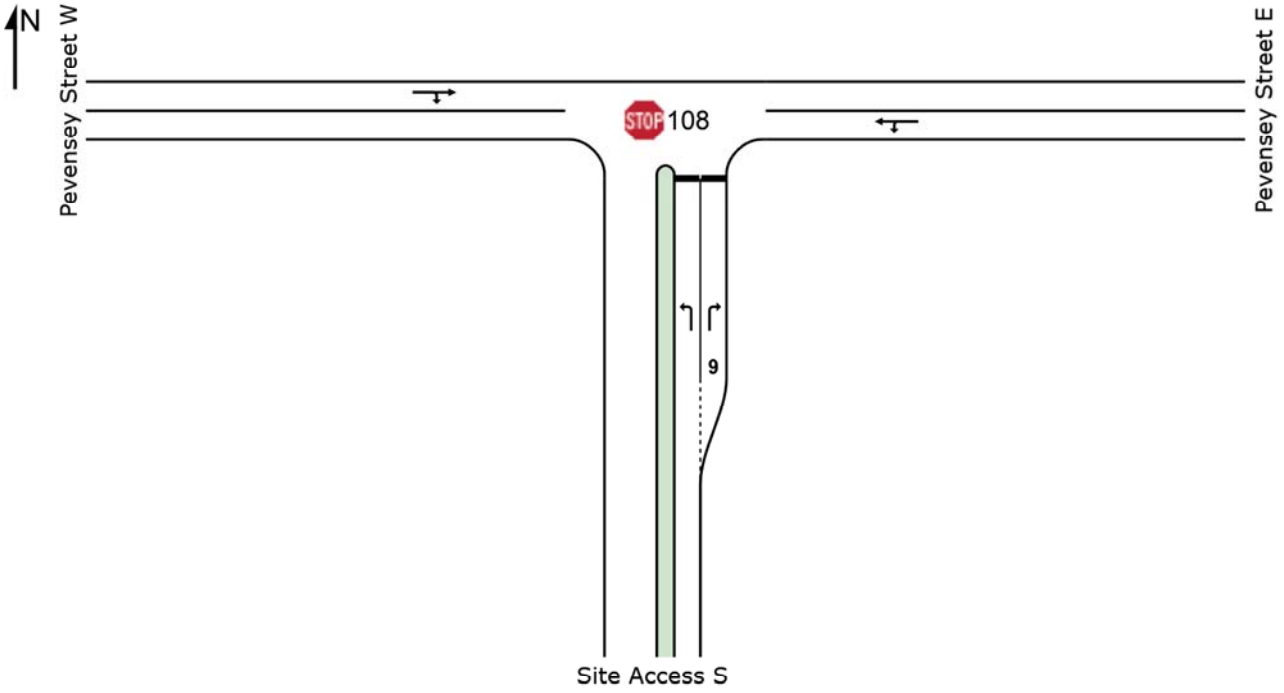
Intersection: Phelps Street and Site Access
Scenario: Existing + Future PM 7.15 - 8.15
Stop (Two-Way)



SITE LAYOUT

Site: 108 [Pevensey / Site Access EX + FU PM]

Intersection: Pevensey Street and Site Access
Scenario: Existing + Future PM 7.15 - 8.15
Stop (Two-Way)



Organisation: TRAFFIX PTY LTD | Created: Friday, 30 June 2017 10:45:26 AM
Project: \\192.168.3.1\tdata\Synergy\Projects\16\16.365\Modelling\16.365m01v4 TRAFFIX Cabra Vale Diggers Existing Network Model & Future Network Model.sip7

MOVEMENT SUMMARY

Site: 180 [180.Canley Vale Rd Railway Pde EX PM]

Interesection: Canley Vale Road and Raiwlay Parade
Scenario: Existing PM 4.30 - 6.30
Signals - Fixed Time Isolated Cycle Time = 95 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand 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 per veh	Average Speed km/h
South: Raiwlay Parade S											
1	L2	372	5.0	0.402	15.3	LOS B	8.8	63.9	0.65	0.74	39.4
2	T1	636	5.0	0.951	58.6	LOS E	39.8	290.5	1.00	1.23	35.2
Approach		1007	5.0	0.951	42.7	LOS D	39.8	290.5	0.87	1.05	36.0
North: Railway Parade N											
8	T1	805	5.0	0.792	22.2	LOS B	31.5	229.7	0.90	0.83	43.1
9	R2	132	5.0	0.623	49.0	LOS D	5.9	43.3	0.99	0.88	38.5
Approach		937	5.0	0.792	25.9	LOS B	31.5	229.7	0.91	0.84	42.3
West: Canley Vale Road W											
10	L2	60	5.0	0.326	33.3	LOS C	3.5	25.7	0.89	0.82	41.5
12	R2	377	5.0	0.922	58.2	LOS E	18.1	132.4	0.98	1.01	25.1
Approach		437	5.0	0.922	54.8	LOS D	18.1	132.4	0.97	0.99	28.6
All Vehicles		2381	5.0	0.951	38.3	LOS C	39.8	290.5	0.90	0.95	37.5

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.
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	41.8	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	10.5	LOS B	0.1	0.1	0.65	0.65
All Pedestrians		158	31.4	LOS D			0.84	0.84

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

MOVEMENT SUMMARY

Site: 280 [280.Canley Vale Rd Railway Pde EX + FU PM]

Interesection: Canley Vale Road and Raiwlay Parade
Scenario: Exisitng and Future PM 7.15 - 8.15
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand 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 per veh	Average Speed km/h
South: Raiwlay Parade S											
1	L2	372	5.0	0.368	14.8	LOS B	9.2	67.0	0.59	0.72	39.7
2	T1	651	4.9	0.918	49.9	LOS D	40.1	292.5	0.98	1.08	36.9
Approach		1022	4.9	0.918	37.1	LOS C	40.1	292.5	0.83	0.95	37.5
North: Railway Parade N											
8	T1	840	4.8	0.761	21.2	LOS B	34.9	254.2	0.85	0.78	43.7
9	R2	132	5.0	0.572	50.4	LOS D	6.8	49.6	0.99	0.85	38.3
Approach		972	4.8	0.761	25.2	LOS B	34.9	254.2	0.87	0.79	42.7
West: Canley Vale Road W											
10	L2	60	5.0	0.341	41.0	LOS C	4.3	31.3	0.90	0.84	40.0
12	R2	377	5.0	0.962	75.5	LOS F	22.6	164.7	0.98	1.05	21.9
Approach		437	5.0	0.962	70.8	LOS F	22.6	164.7	0.97	1.02	25.5
All Vehicles		2431	4.9	0.962	38.4	LOS C	40.1	292.5	0.87	0.90	37.7

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.
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	10.0	LOS B	0.1	0.1	0.59	0.59
All Pedestrians		158	36.2	LOS D			0.83	0.83

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

MOVEMENT SUMMARY

Site: 240 [240.Railway Pevensey EX + FU PM]

Network: N201 [Cabra Vale Diggers Netwrok EX +FU PM]

Intersection: Railway Parade and Pevensey Street
Scenario: Existing and Future PM .15 - 8.15
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Railway Parade S													
1	L2	23	5.0	23	5.0	0.227	4.6	LOS A	0.0	0.0	0.00	0.03	47.9
2	T1	404	5.0	404	5.0	0.227	0.0	LOS A	0.0	0.0	0.00	0.03	49.4
Approach		427	5.0	427	5.0	0.227	0.3	NA	0.0	0.0	0.00	0.03	49.4
North: Railway Parade N													
8	T1	415	5.0	415	5.0	0.307	0.9	LOS A	1.1	7.8	0.22	0.13	44.9
9	R2	101	3.3	101	3.3	0.307	7.0	LOS A	1.1	7.8	0.22	0.13	44.9
Approach		516	4.7	516	4.7	0.307	2.1	NA	1.1	7.8	0.22	0.13	44.9
West: Pevensey Street W													
10	L2	66	3.9	66	3.9	0.101	9.8	LOS A	0.4	2.9	0.49	0.91	39.5
12	R2	13	2.5	13	2.5	0.101	14.1	LOS A	0.4	2.9	0.49	0.91	33.5
Approach		79	3.7	79	3.7	0.101	10.5	LOS A	0.4	2.9	0.49	0.91	38.8
All Vehicles		1022	4.7	1022	4.7	0.307	2.0	NA	1.1	7.8	0.15	0.15	45.9

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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.8 %
Number of Iterations: 10 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 260 [260.Bartley Phelps EX + FU PM]

Network: N201 [Cabra Vale Diggers Netwrok EX +FU PM]

Intersection: Bartley Street and Phelps Street
Scenario: Existing and Futre PM 7.15 - 8.15
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
East: Bartley Street E													
5	T1	397	5.0	397	5.0	0.260	0.5	LOS A	0.5	4.0	0.14	0.08	46.8
6	R2	57	3.5	57	3.5	0.260	6.8	LOS A	0.5	4.0	0.14	0.08	46.2
Approach		454	4.8	454	4.8	0.260	1.3	NA	0.5	4.0	0.14	0.08	46.7
North: Phelps Street													
7	L2	80	2.6	80	2.6	0.373	6.8	LOS A	1.8	12.7	0.54	0.82	32.6
9	R2	179	3.4	179	3.4	0.373	11.0	LOS A	1.8	12.7	0.54	0.82	29.6
Approach		259	3.1	259	3.1	0.373	9.7	LOS A	1.8	12.7	0.54	0.82	30.4
West: Bartley Street W													
10	L2	141	2.9	141	2.9	0.222	3.5	LOS A	0.0	0.0	0.00	0.20	39.0
11	T1	275	4.3	275	4.3	0.222	0.1	LOS A	0.0	0.0	0.00	0.20	39.0
Approach		416	3.8	416	3.8	0.222	1.2	NA	0.0	0.0	0.00	0.20	39.0
All Vehicles		1128	4.1	1128	4.1	0.373	3.2	NA	1.8	12.7	0.18	0.29	38.9

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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.8 %
Number of Iterations: 10 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 250 [250.Phelps Pevensey EX + FU PM]

Network: N201 [Cabra Vale Diggers Netwrok EX +FU PM]

Intersection: Phelps Street and Pevensey Street
Scenario: Existing and Future PM 7.15 - 8.15
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Phrelps Street S													
1	L2	38	4.6	38	4.6	0.163	4.6	LOS A	0.9	6.5	0.31	0.53	38.3
2	T1	93	4.6	93	4.6	0.163	4.5	LOS A	0.9	6.5	0.31	0.53	42.8
3	R2	57	4.4	57	4.4	0.163	7.6	LOS A	0.9	6.5	0.31	0.53	37.2
Approach		187	4.6	187	4.6	0.163	5.5	LOS A	0.9	6.5	0.31	0.53	40.7
East: Pevensey Street E													
4	L2	75	1.8	75	1.8	0.154	5.3	LOS A	0.8	5.9	0.40	0.57	38.7
5	T1	59	4.7	59	4.7	0.154	5.3	LOS A	0.8	5.9	0.40	0.57	41.2
6	R2	28	3.7	28	3.7	0.154	8.4	LOS A	0.8	5.9	0.40	0.57	43.6
Approach		162	3.2	162	3.2	0.154	5.9	LOS A	0.8	5.9	0.40	0.57	40.8
North: Phelps Street N													
7	L2	36	4.1	36	4.1	0.168	4.8	LOS A	0.9	6.5	0.35	0.52	37.5
8	T1	121	4.6	121	4.6	0.168	4.7	LOS A	0.9	6.5	0.35	0.52	37.5
9	R2	28	5.0	28	5.0	0.168	7.8	LOS A	0.9	6.5	0.35	0.52	31.5
Approach		185	4.5	185	4.5	0.168	5.2	LOS A	0.9	6.5	0.35	0.52	36.2
West: Pevensey Street W													
10	L2	40	5.0	40	5.0	0.121	4.9	LOS A	0.6	4.5	0.37	0.57	37.5
11	T1	39	4.6	39	4.6	0.121	4.8	LOS A	0.6	4.5	0.37	0.57	26.7
12	R2	49	4.5	49	4.5	0.121	7.9	LOS A	0.6	4.5	0.37	0.57	26.7
Approach		128	4.7	128	4.7	0.121	6.0	LOS A	0.6	4.5	0.37	0.57	32.1
All Vehicles		663	4.2	663	4.2	0.168	5.6	LOS A	0.9	6.5	0.36	0.54	38.3

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.
Roundabout Capacity Model: SIDRA Standard.
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.8 %
Number of Iterations: 10 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 230 [230.Bartley Railway EX + FU PM]

Network: N201 [Cabra Vale Diggers Netwrok EX +FU PM]

Intersection: Bartley Street and Railway Parade
Scenario: Existing and Future PM 7.15 - 815
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Railway Parade S													
1	L2	119	5.0	119	5.0	0.886	56.0	LOS D	20.9	152.0	1.00	1.06	17.2
2	T1	603	4.8	603	4.8	0.886	51.4	LOS D	20.9	152.0	1.00	1.08	17.4
Approach		722	4.8	722	4.8	0.886	52.1	LOS D	20.9	152.0	1.00	1.07	17.3
North: Railway Parade N													
8	T1	555	4.9	555	4.9	0.774	15.9	LOS B	20.8	151.7	0.66	0.70	33.9
9	R2	345	4.8	345	4.8	0.774	28.5	LOS C	20.8	151.7	0.89	0.99	13.1
Approach		900	4.8	900	4.8	0.774	20.7	LOS B	20.8	151.7	0.75	0.81	27.8
West: Bartley Street													
10	L2	298	3.7	298	3.7	0.350	15.9	LOS B	6.8	49.2	0.67	0.75	24.7
12	R2	60	4.7	60	4.7	0.212	44.9	LOS D	2.6	19.0	0.91	0.75	23.7
Approach		358	3.9	358	3.9	0.350	20.7	LOS B	6.8	49.2	0.71	0.75	24.4
All Vehicles		1980	4.7	1980	4.7	0.886	32.2	LOS C	20.9	152.0	0.83	0.90	22.1

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.
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.8 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	35.4	LOS D	0.1	0.1	0.84	0.84
All Pedestrians		105	39.8	LOS D			0.89	0.89

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

MOVEMENT SUMMARY

Site: 107 [Phelps / Site Access EX + FU PM]

Intersection: Phelps Street and Site Access
Scenario: Existing + Future PM 7.15 - 8.15
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand 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 per veh	Average Speed km/h
South: Phelps Street S											
2	T1	171	5.0	0.308	1.1	LOS A	1.8	12.6	0.43	0.41	43.2
3	R2	302	0.0	0.308	6.8	LOS A	1.8	12.6	0.43	0.41	37.1
Approach		473	1.8	0.308	4.7	NA	1.8	12.6	0.43	0.41	39.2
East: Site Access											
4	L2	134	0.0	0.119	7.3	LOS A	0.5	3.4	0.36	0.88	36.2
6	R2	32	0.0	0.064	11.2	LOS A	0.2	1.4	0.59	1.00	23.4
Approach		165	0.0	0.119	8.1	LOS A	0.5	3.4	0.40	0.90	33.8
North: Phelps Street N											
7	L2	27	0.0	0.142	4.7	LOS A	0.0	0.0	0.00	0.06	24.8
8	T1	242	3.8	0.142	0.0	LOS A	0.0	0.0	0.00	0.06	57.9
Approach		269	3.4	0.142	0.5	NA	0.0	0.0	0.00	0.06	53.4
All Vehicles		907	1.9	0.308	4.1	NA	1.8	12.6	0.30	0.40	41.5

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.
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.

MOVEMENT SUMMARY

Site: 108 [Pevensey / Site Access EX + FU PM]

Intersection: Pevensey Street and Site Access
Scenario: Existing + Future PM 7.15 - 8.15
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand 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 per veh	Average Speed km/h
South: Site Access S											
1	L2	65	0.0	0.050	8.4	LOS A	0.2	1.4	0.21	0.88	46.6
3	R2	31	0.0	0.035	9.3	LOS A	0.1	0.8	0.34	0.88	47.2
Approach		96	0.0	0.050	8.7	LOS A	0.2	1.4	0.25	0.88	46.8
East: Pevensey Street E											
4	L2	58	0.0	0.084	5.5	LOS A	0.0	0.0	0.00	0.22	54.6
5	T1	100	4.7	0.084	0.0	LOS A	0.0	0.0	0.00	0.22	52.2
Approach		158	3.0	0.084	2.0	NA	0.0	0.0	0.00	0.22	53.6
West: Pevensey Street W											
11	T1	122	4.7	0.082	0.1	LOS A	0.2	1.3	0.11	0.10	54.2
12	R2	26	0.0	0.082	6.0	LOS A	0.2	1.3	0.11	0.10	55.1
Approach		148	3.9	0.082	1.2	NA	0.2	1.3	0.11	0.10	54.5
All Vehicles		402	2.6	0.084	3.3	NA	0.2	1.4	0.10	0.33	51.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
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.

Appendix D

Reduced Plans

DEVELOPMENT APPLICATION

PROPOSED HOTEL, RESTAURANT, FOYER, BOWLING CLUB, GREENS, AND UPGRADE TO EXISTING CABRA VALE DIGGERS CLUB

1 BARTLEY STREET, CANLEY VALE, NSW 2166

1 **SITE LOCATION PLAN**
NOT TO SCALE

Sheet List		
No	DRAWING TITLE	Current Revision
DA0000	COVER SHEET & SITE LOCATION PLAN	D
DA0001	PROPOSED SITE ANALYSIS AND SITE PLAN	B
DA0002	SHADOW DIAGRAMS - WINTER	B
DA0003	SHADOW DIAGRAMS - SUMMER	B
DA0004	NOTIFICATION PLANS-1	
DA0005	NOTIFICATION PLANS-2	
DA0006	NOTIFICATION PLANS-3	
DA0011	STAGING DIAGRAM - BASEMENT 1 & 2	C
DA0012	STAGING DIAGRAM - GROUND FLOOR & LEVEL 1	B
DA0013	STAGING DIAGRAM - HOTEL LEVELS	B
DA1000	EXISTING / DEMOLITION OVERALL GROUND FLOOR PLAN	E
DA1001	EXISTING / DEMOLITION OVERALL LEVEL-1 PLAN	E
DA1100	PROPOSED OVERALL BASEMENT 2 FLOOR PLAN	J
DA1101	PROPOSED OVERALL BASEMENT 1 FLOOR PLAN	I
DA1102	PROPOSED OVERALL GROUND FLOOR PLAN	M
DA1103	PROPOSED OVERALL LEVEL 1 PLAN	G
DA1104	PROPOSED OVERALL LEVEL 2 PLAN	H
DA1105	PROPOSED OVERALL LEVELS 3-5 TYPICAL HOTEL PLAN	E
DA1106	PROPOSED OVERALL LEVEL 6 HOTEL PLAN	E
DA1107	PROPOSED OVERALL LEVEL 7 HOTEL PLAN	E
DA1108	PROPOSED OVERALL LEVEL-8 HOTEL ROOF PLAN	E
DA2100	PROPOSED ELEVATIONS SHEET-1	B
DA2101	PROPOSED ELEVATIONS SHEET-2	C
DA2102	PROPOSED ELEVATIONS - SHEET 3	A
DA2200	COLOURED ELEVATIONS SHEET -1	
DA2201	COLOURED ELEVATIONS SHEET - 2	
DA3000	PROPOSED SECTIONS SHEET-1	E
DA3001	PROPOSED SECTIONS SHEET-2	C
DA5000	EXISTING AREA PLANS	D
DA5001	EXISTING & PROPOSED AREA PLANS	E
DA5002	PROPOSED HOTEL AREA PLANS	B
DA9001	ARTIST'S IMPRESSION - SHEET 1	A
DA9002	ARTIST'S IMPRESSION - SHEET 2	A

ISSUE	DATE	DESCRIPTION
A	05-07-2017	ISSUED FOR CO-ORDINATION
B	13-07-2017	70% ISSUED FOR REVIEW
C	01-08-2017	95% DEVELOPMENT APPLICATION ISSUE
D	03-08-2017	GENERAL UPDATES

DEVELOPMENT APPLICATION

CLIENT:
CABRA-VALE DIGGERS

PROJECT MANAGER :
CONSTRUCTION CONSULTANTS.PM

PROJECT:
CABRA-VALE DIGGERS
CLUB EXTENSION & HOTEL
1 BARTLEY STREET, CANLEY VALE, NSW 2166
LOT NO. 51 DP NO. 1120245

ARCHITECT:
ALTIS architecture
p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:
COVER SHEET & SITE LOCATION PLAN

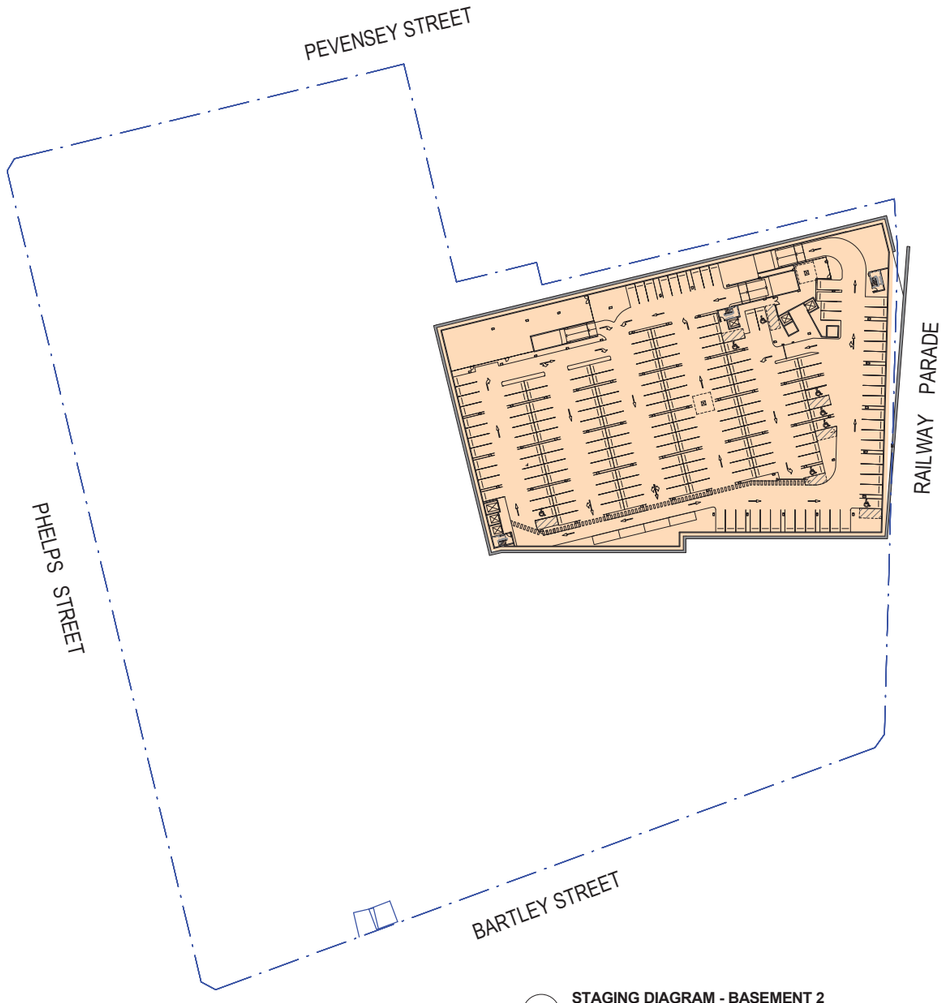
NOTES:
Nominated architect: Rolfe Latimer : 5535

Use only figured dimensions.
All discrepancies to be referred to Altis Architecture Pty Ltd prior to construction.
Ensure compliance with the Building Code of Australia and all relevant Australian Standards and Authority requirements.

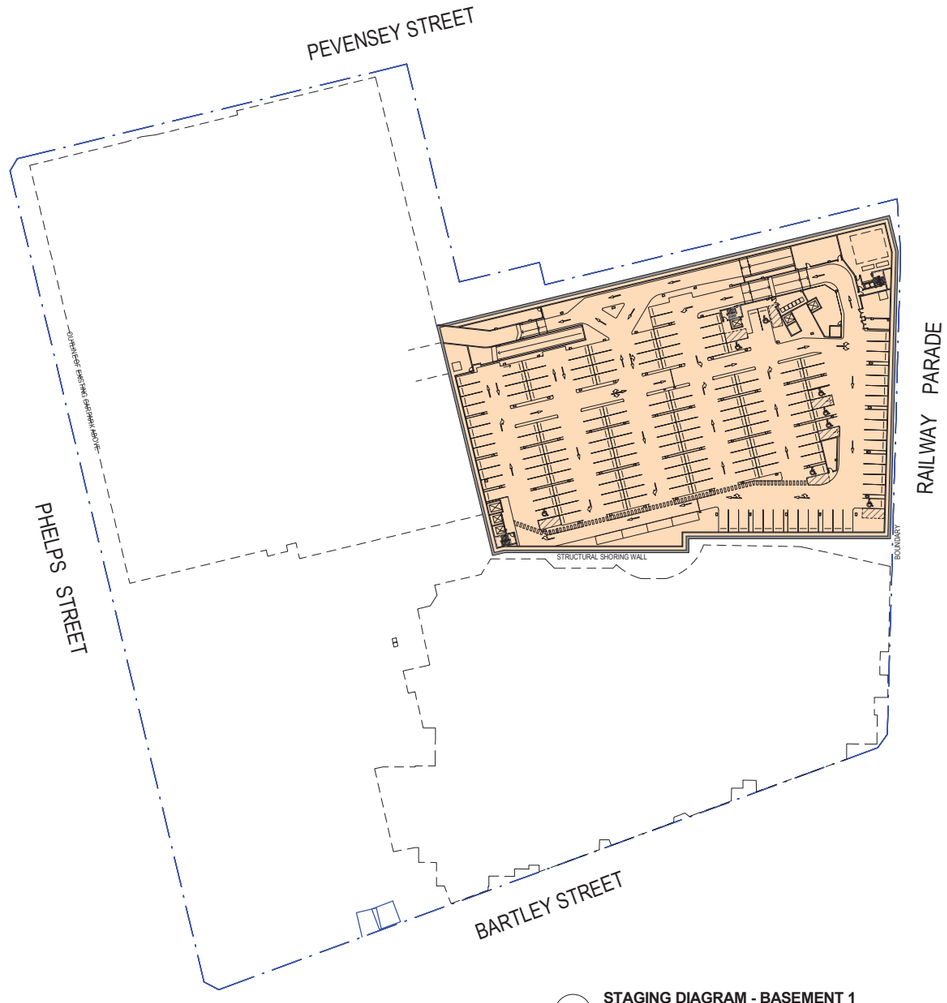
NORTH:

SCALE: 1 : 2000 @ A1
DATE: 16/06/2017
DRAWN BY: TK
CHECKED BY: VC
PROJECT NO: 2294.09
DRAWING NO: DA0000
ISSUE: D
CAD FILE:

3/08/2017 9:46:11 AM



1 **STAGING DIAGRAM - BASEMENT 2**
Scale:1 : 750



2 **STAGING DIAGRAM - BASEMENT 1**
Scale:1 : 750

ISSUE	DATE	DESCRIPTION
A	17-07-2017	ISSUED FOR INFORMATION
B	01-08-2017	95% DEVELOPMENT APPLICATION ISSUE
C	03-08-2017	GENERAL UPDATES

STAGE 1
STAGE 2
STAGE 3
STAGE 4

DEVELOPMENT APPLICATION

CLIENT:
CABRA-VALE DIGGERS

PROJECT MANAGER :
CONSTRUCTION CONSULTANTS.PM

PROJECT:
CABRA-VALE DIGGERS
CLUB EXTENSION & HOTEL

1 BARTLEY STREET, CANLEY VALE, NSW 2166
LOT NO. 51 DP NO. 1120245

ARCHITECT:
ALTIS architecture

p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:
STAGING DIAGRAM - BASEMENT 1 & 2

NOTES:
Nominated architect: Rolfe Latimer : 5535

Use only figured dimensions.

All discrepancies to be referred to Altis Architecture Pty Ltd prior to construction.

Ensure compliance with the Building Code of Australia and all relevant Australian Standards and Authority requirements.

NORTH:

SCALE: 1 : 750 @ A1
DATE: 16/06/2017
DRAWN BY: VC
CHECKED BY: TM
PROJECT NO: 2294.09
DRAWING NO: DA0011
ISSUE: C
CAD FILE:

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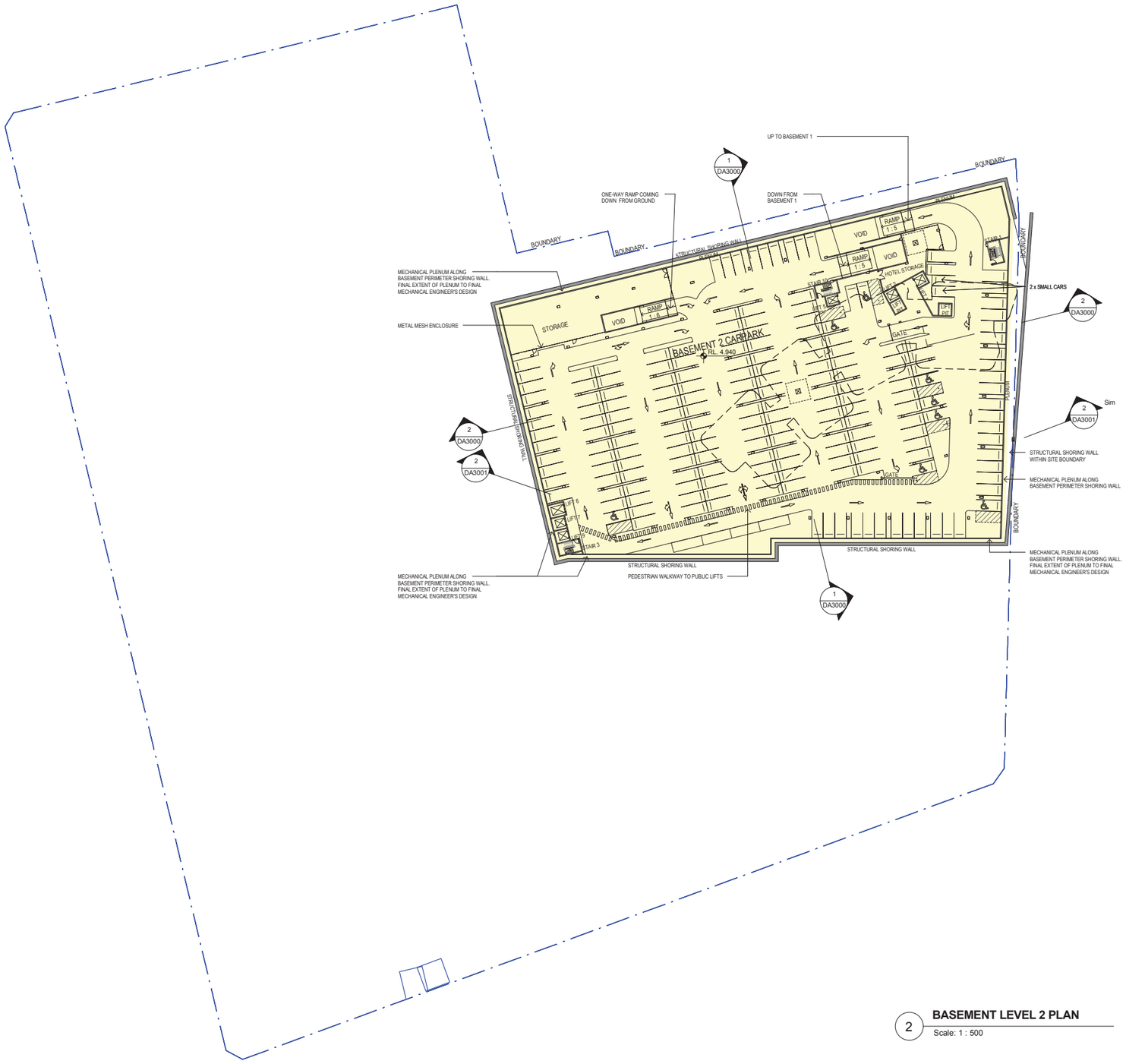


2 **BASEMENT LEVEL 2 PLAN**

Scale: 1 : 500

ISSUE	DATE	DESCRIPTION
A	19-05-2017	PRELIMINARY ISSUE
B	21-06-2017	ISSUED FOR INFORMATION
C	03-07-2017	ISSUED FOR REVIEW
D	05-07-2017	ISSUED FOR CO-ORDINATION
E	13-07-2017	70% ISSUED FOR REVIEW
F	19-07-2017	ISSUED FOR INFORMATION
G	31-07-2017	BASEMENT 3 ADDED
H	01-08-2017	TRAFFIC ENGINEER ASSESSMENT / CO-ORDINATION
I	01-08-2017	95% DEVELOPMENT APPLICATION ISSUE
J	03-08-2017	GENERAL UPDATES

DEVELOPMENT APPLICATION

CLIENT:

CABRA-VALE DIGGERS

PROJECT MANAGER :

CONSTRUCTION CONSULTANTS.PM

PROJECT:

CABRA-VALE DIGGERS
CLUB EXTENSION & HOTEL

1 BARTLEY STREET, CANLEY VALE, NSW 2166
LOT NO. 51 DP NO. 1120245

ARCHITECT:

ALTIS architecture

p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:

PROPOSED OVERALL BASEMENT 2 FLOOR PLAN

NOTES:

Nominated architect: Rolfe Latimer : 5535

Use only figured dimensions.

All discrepancies to be referred to Altis Architecture Pty Ltd prior to construction.

Ensure compliance with the Building Code of Australia and all relevant Australian Standards and Authority requirements.

NORTH:

SCALE: 1 : 500 @ A1

DATE: 16/06/2017

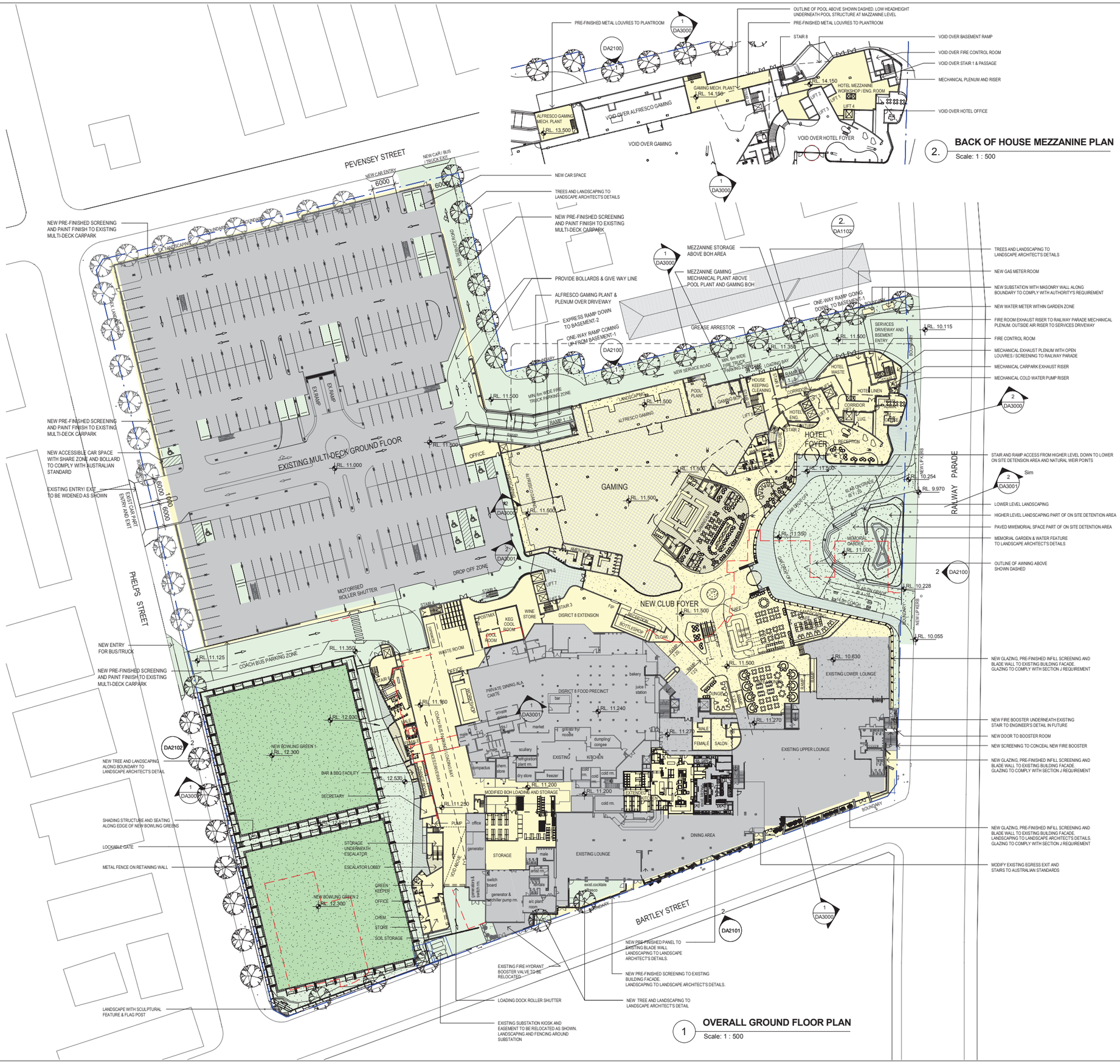
DRAWN BY:	CHECKED BY:	PROJECT NO:
TK	VC	2294.09

CAD FILE:

DRAWING NO: DA1100

ISSUE: J

3/08/2017 9:46:42 AM



2. BACK OF HOUSE MEZZANINE PLAN

Scale: 1 : 500

1 OVERALL GROUND FLOOR PLAN

Scale: 1 : 500

ISSUE	DATE	DESCRIPTION
A	17-05-2017	PRELIMINARY ISSUE
B	19-05-2017	PRELIMINARY ISSUE
C	21-06-2017	ISSUED FOR INFORMATION
D	03-07-2017	ISSUED FOR REVIEW
E	05-07-2017	ISSUED FOR CO-ORDINATION
F	11-07-2017	ISSUED FOR CO-ORDINATION
G	13-07-2017	70% ISSUED FOR REVIEW
H	19-07-2017	ISSUED FOR INFORMATION
I	24-07-2017	ISSUED FOR INFORMATION
J	26-07-2017	ISSUE FOR MECHANICAL CO-ORDINATION
K	01-08-2017	TRAFFIC ENGINEER ASSESSMENT / CO-ORDINATION
L	01-08-2017	95% DEVELOPMENT APPLICATION ISSUE
M	03-08-2017	GENERAL UPDATES

CAR PARKING SCHEDULE

EXISTING TOTAL CAR PARKING NUMBER	881
EX. MULTI-DECK LEVEL 2	196
EX. MULTI-DECK LEVEL 1	281
MODIFIED MULTI-DECK GROUND FLOOR	246
NEW BASEMENT 1	173
NEW BASEMENT 2	195
PROPOSED TOTAL CAR PARKING NUMBER	**1091**

OUTLINE OF EXISTING BUILDINGS

EXISTING SITE BOUNDARY

NEW BUILDING WORKS FOR DA APPROVAL

SITE WORKS AND ALL LANDSCAPING INDICATIVELY SHOWN FOR REFERENCE ONLY

PROPOSED WALLS

EXISTING WALL / STRUCTURE TO REMAIN

NO WORKS TO EXISTING CLUB

PROPOSED BOWLING GREEN AREAS

ALL FURNITURE LAYOUT FOR REFERENCE ONLY

DEVELOPMENT APPLICATION

CLIENT:

CABRA-VALE DIGGERS

PROJECT MANAGER :

CONSTRUCTION CONSULTANTS.PM

PROJECT:

CABRA-VALE DIGGERS
CLUB EXTENSION & HOTEL

1 BARTLEY STREET, CANLEY VALE, NSW 2166
LOT NO. 51 DP NO. 1120245

ARCHITECT:

ALTIS architecture
p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:

PROPOSED OVERALL GROUND FLOOR PLAN

NOTES:

Nominated architect: Rolfe Latimer : 5535

Use only figured dimensions.

All discrepancies to be referred to Altis Architecture Pty Ltd prior to construction.

Ensure compliance with the Building Code of Australia and all relevant Australian Standards and Authority requirements.

NORTH:

SCALE: 1 : 500 @ A1

DATE: 16/06/2017

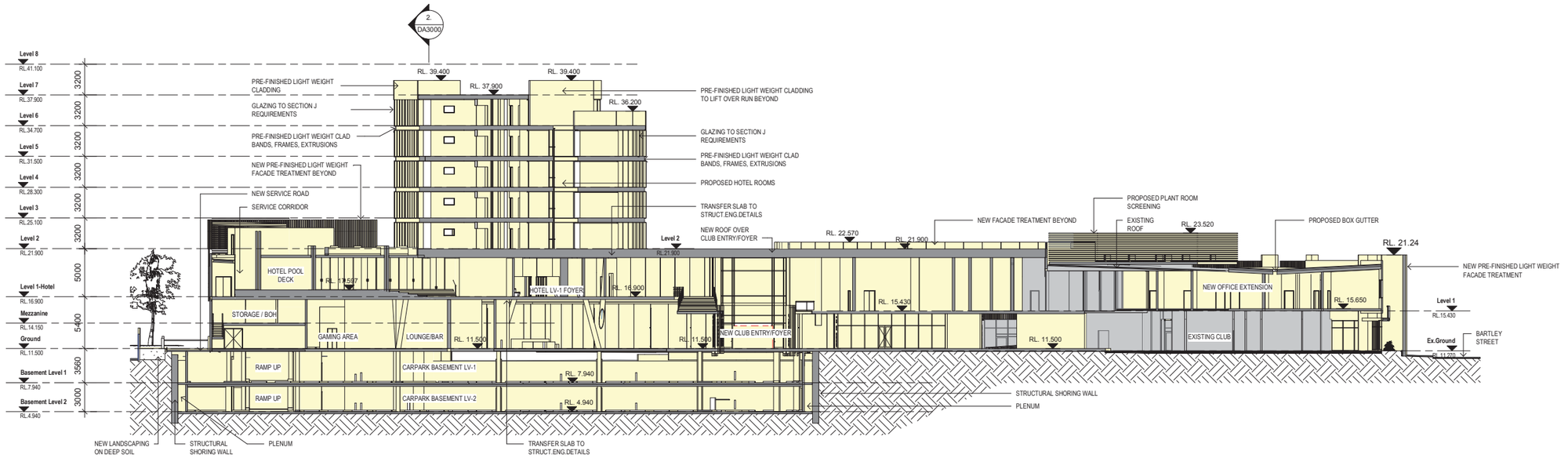
DRAWN BY:	CHECKED BY:	PROJECT NO:
TK	TM	2294.09

CAD FILE:

DRAWING NO: DA1102

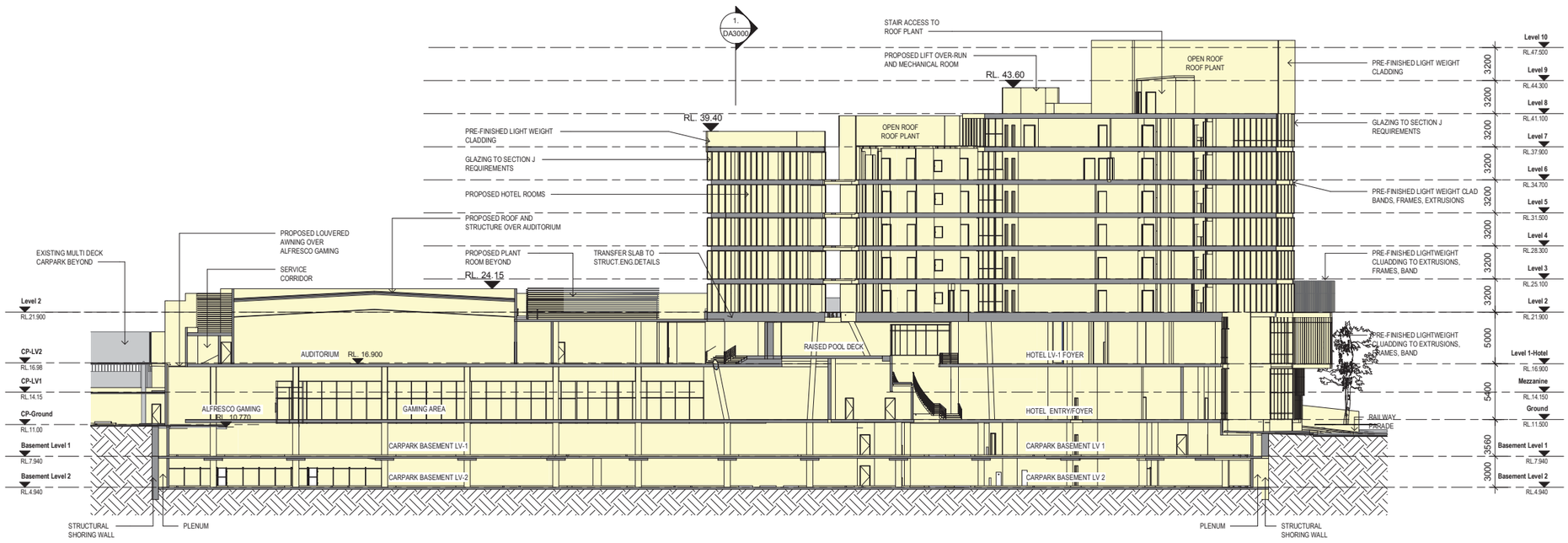
ISSUE: M

3/08/2017 9:57:12 AM



1 DA1100 **SECTION-1**

Scale:1 : 250



2 DA1100 **SECTION-2**

Scale:1 : 250

ISSUE	DATE	DESCRIPTION
A	19-05-2017	PRELIMINARY ISSUE
B	05-07-2017	ISSUED FOR CO-ORDINATION
C	13-07-2017	70% ISSUED FOR REVIEW
D	01-08-2017	95% DEVELOPMENT APPLICATION ISSUE
E	03-08-2017	GENERAL UPDATES

DEVELOPMENT APPLICATION

CLIENT:

CABRA-VALE DIGGERS

PROJECT MANAGER :

CONSTRUCTION CONSULTANTS.PM

PROJECT:

CABRA-VALE DIGGERS
CLUB EXTENSION & HOTEL

1 BARTLEY STREET, CANLEY VALE, NSW 2166
LOT NO. 51 DP NO. 1120245

ARCHITECT:

ALTIS architecture
p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:

PROPOSED SECTIONS
SHEET-1

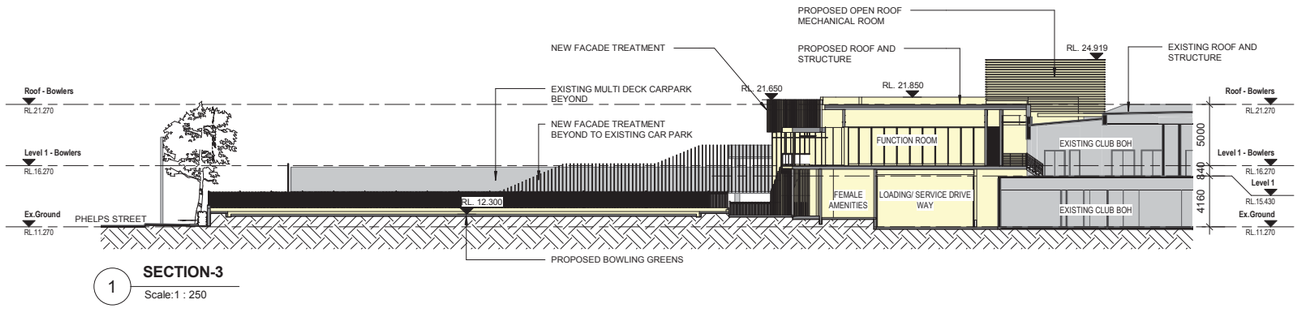
NOTES:
Nominated architect: Rolfe Latimer : 5535

Use only figured dimensions.
All discrepancies to be referred to Altis Architecture Pty Ltd prior to construction.
Ensure compliance with the Building Code of Australia and all relevant Australian Standards and Authority requirements.

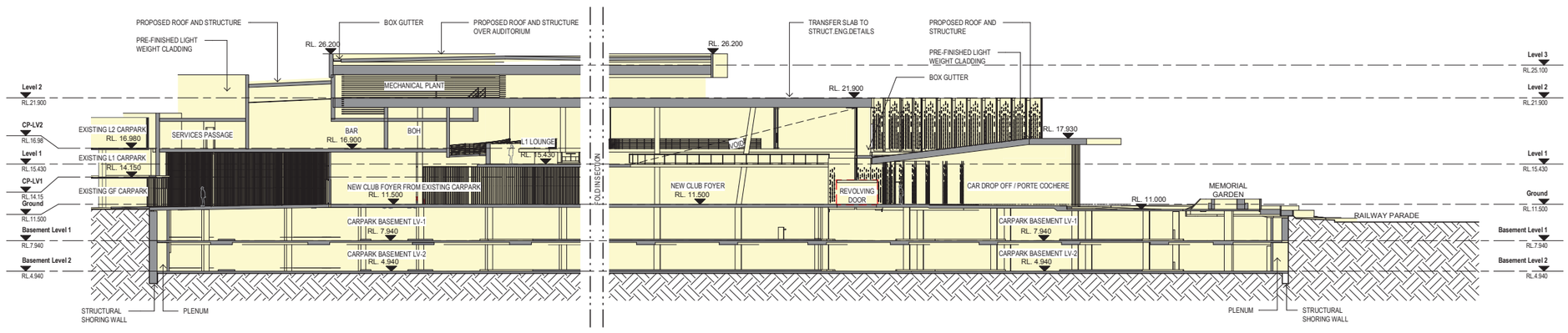
NORTH:

SCALE: 1 : 250 @ A1
DATE: 16/06/2017
DRAWN BY: TK
CHECKED BY: VC
PROJECT NO: 2294.09
CAD FILE:
DRAWING NO: DA3000
ISSUE: E

3/08/2017 9:51:00 AM



1 **SECTION-3**
Scale:1 : 250



2 **SECTION-4**
Scale:1 : 250

ISSUE	DATE	DESCRIPTION
A	13-07-2017	70% ISSUED FOR REVIEW
B	01-08-2017	95% DEVELOPMENT APPLICATION ISSUE
C	03-08-2017	GENERAL UPDATES

DEVELOPMENT APPLICATION

CLIENT:
CABRA-VALE DIGGERS

PROJECT MANAGER :
CONSTRUCTION CONSULTANTS.PM

PROJECT:
CABRA-VALE DIGGERS
CLUB EXTENSION & HOTEL

1 BARTLEY STREET, CANLEY VALE, NSW 2166
LOT NO. 51 DP NO. 1120245

ARCHITECT:
ALTIS architecture
p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:
PROPOSED SECTIONS SHEET-2

NOTES:
Nominated architect: Rolfe Latimer : 5535

Use only figured dimensions.
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Ensure compliance with the Building Code of Australia and all relevant Australian Standards and Authority requirements.

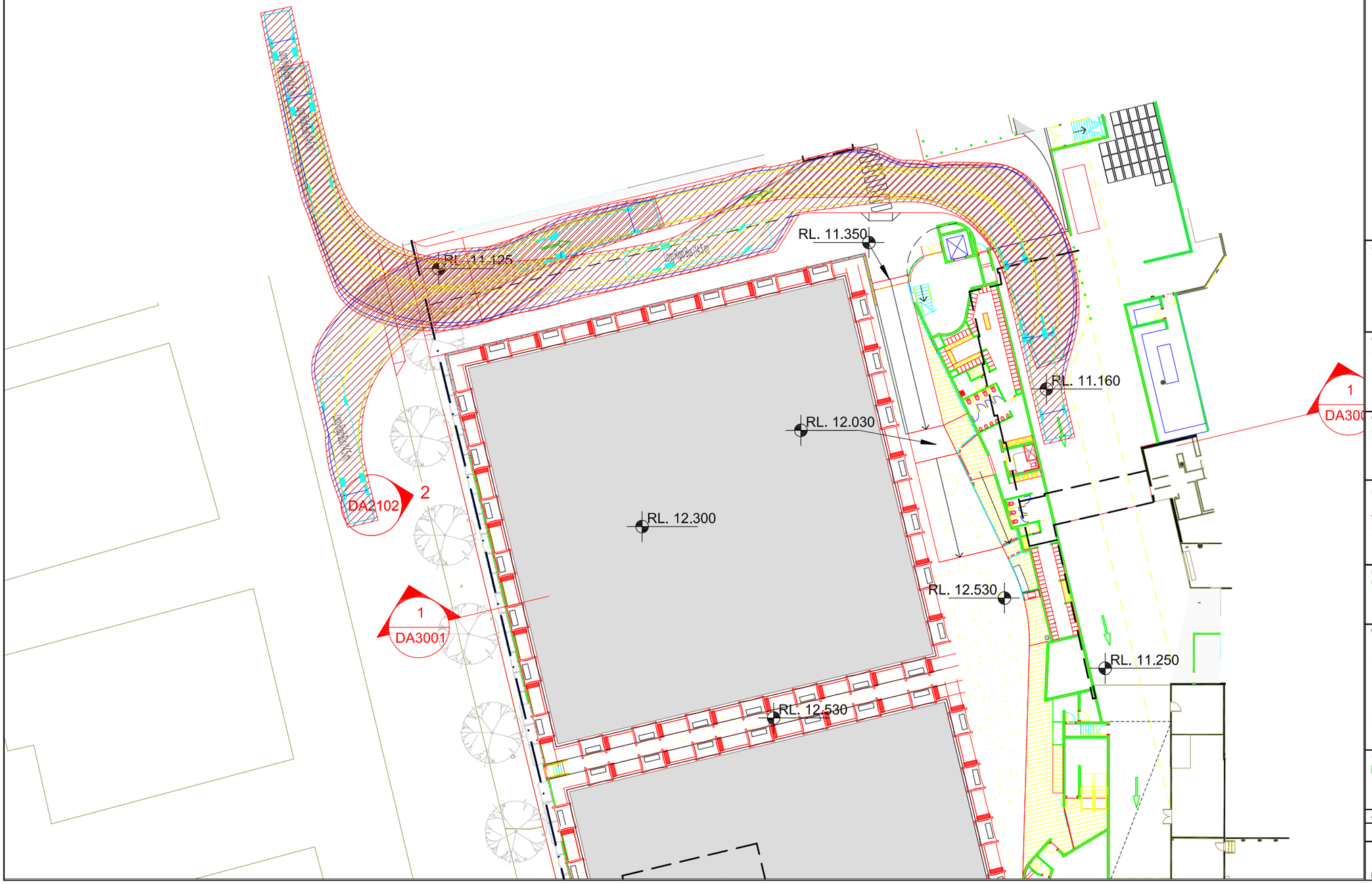
NORTH:

SCALE: 1 : 250 @ A1
DATE: 16/06/2017
DRAWN BY: TK
CHECKED BY: VC
PROJECT NO: 2294.09
DRAWING NO: DA3001
ISSUE: C
CAD FILE:

3/08/2017 9:52:20 AM

Appendix E

Swept Path Analysis



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
Altis Architects

client
Cabra Vale Ex-Servicemens Club

scale
1:400 @ A3
0m 4 8 12 16

project
Cabra Vale Diggers

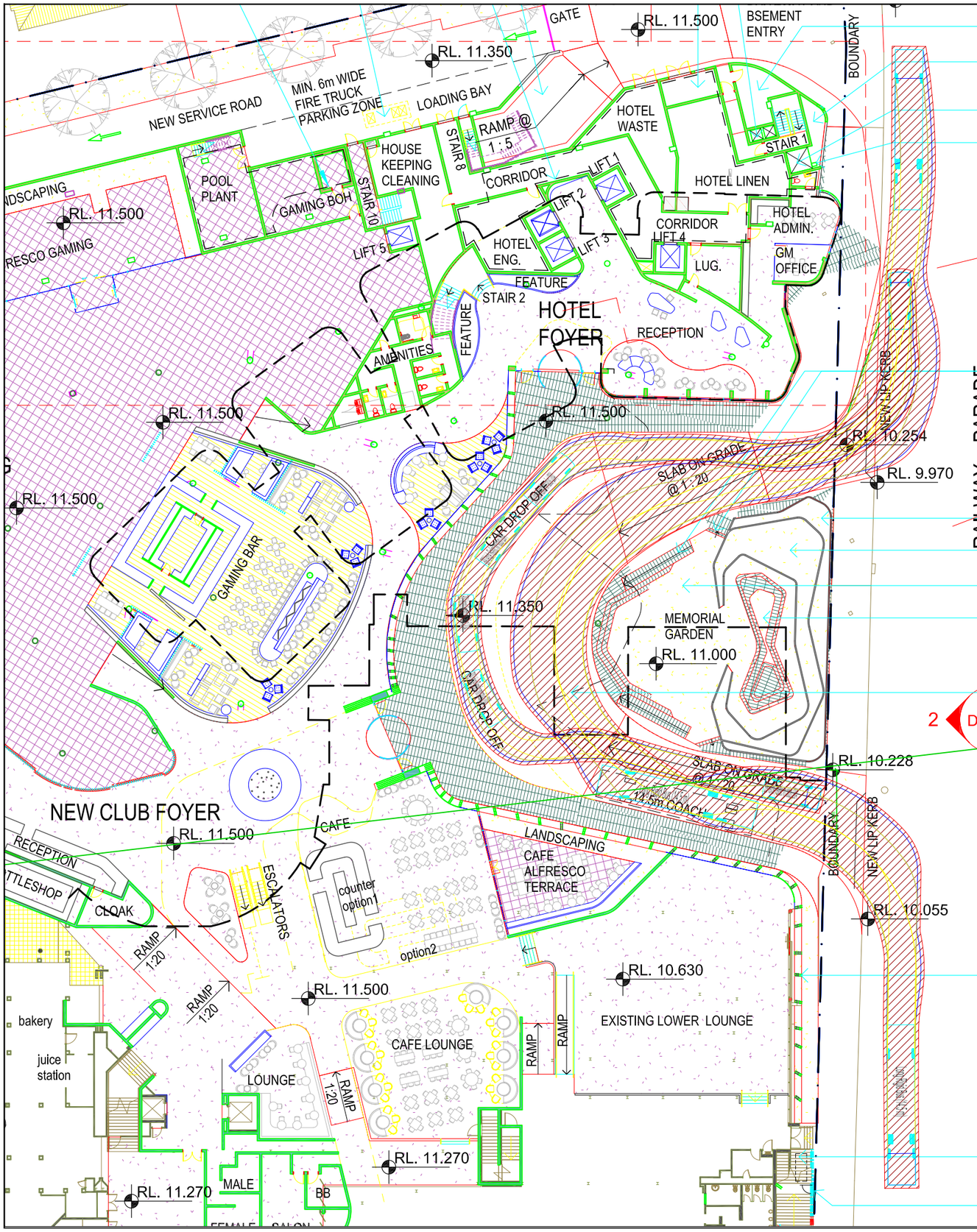
drawing prepared by
TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

traffix
traffic & transport planners

drawing title
Phelps Street Loading Access

drawn:	checked:	date:
HD	MM	4-Aug-17

project no.	drawing phase.	drawing no.	rev
16.365	-	TX.01	A



FIRE CONTROL ROOM

MECHANICAL EXHAUST PLENUM WITH OPEN LOUVRES / SCREENING TO RAILWAY PARADE

MECHANICAL CARPARK EXHAUST RISER

MECHANICAL COLD WATER PUMP RISER

STAIR AND RAMP ACCESS FROM HIGHER LEVEL DOWN TO LOWER ON SITE DETENSION AREA AND NATURAL WEIR POINTS

LOWER LEVEL LANDSCAPING

HIGHER LEVEL LANDSCAPING PART OF ON SITE DETENTION AREA

PAVED MWEMORIAL SPACE PART OF ON SITE DETENTION AREA

MEMORIAL GARDEN & WATER FEATURE TO LANDSCAPE ARCHITECT'S DETAILS

OUTLINE OF AWNING ABOVE SHOWN DASHED

NEW GLAZING, PRE-FINISHED INFILL SCREENING AND BLADE WALL TO EXISTING BUILDING FACADE. GLAZING TO COMPLY WITH SECTION J REQUIREMENT

NEW FIRE BOOSTER UNDERNEATH EXISTING STAIR TO ENGINEER'S DETAIL IN FUTURE

NEW DOOR TO BOOSTER ROOM

Notes

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TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
Altis Architects

client
Cabra Vale Ex-Servicemens Club

scale
1:400 @ A3
0m 4 8 12 16

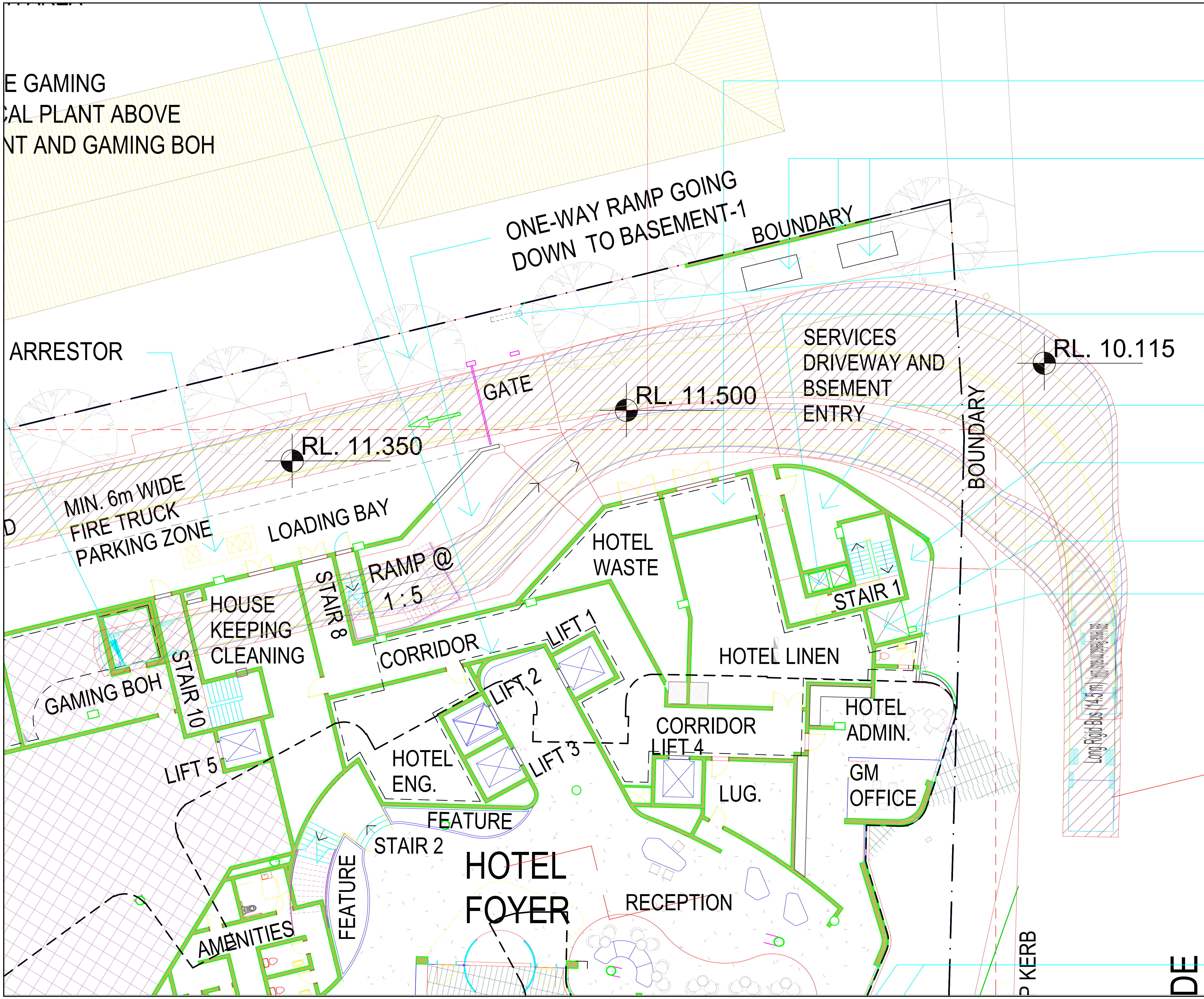
project
Cabra Vale Diggers

drawing prepared by
TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Porte Cochere

drawn:	checked:	date:
HD	MM	4-Aug-17

project no.	drawing phase.	drawing no.	rev
16.365	-	TX.02	A



Notes

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TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:
- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
Altis Architects

client
Cabra Vale Ex-Servicemens Club

scale
1:200 @ A3
0m 2 4 6 8

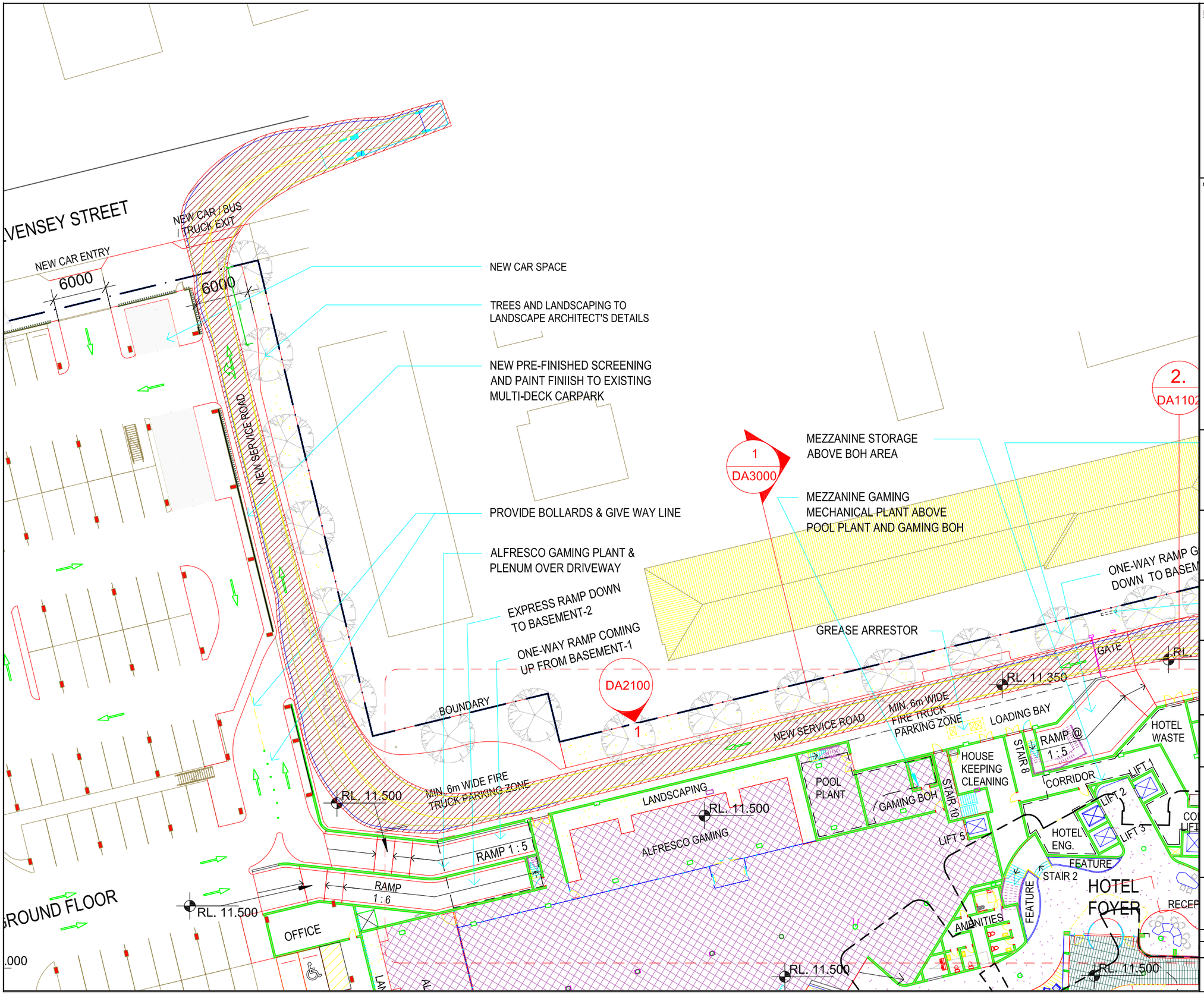
project
Cabra Vale Diggers

drawing prepared by
TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Railway Parade Service Road and Basement Access

drawn: HD	checked: MM	date: 4-Aug-17

16.365	-	TX.03	A
project no.	drawing phase.	drawing no.	rev



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
Altis Architects

client
Cabra Vale Ex-Servicemens Club

scale
1:400 @ A3
0m 4 8 12 16

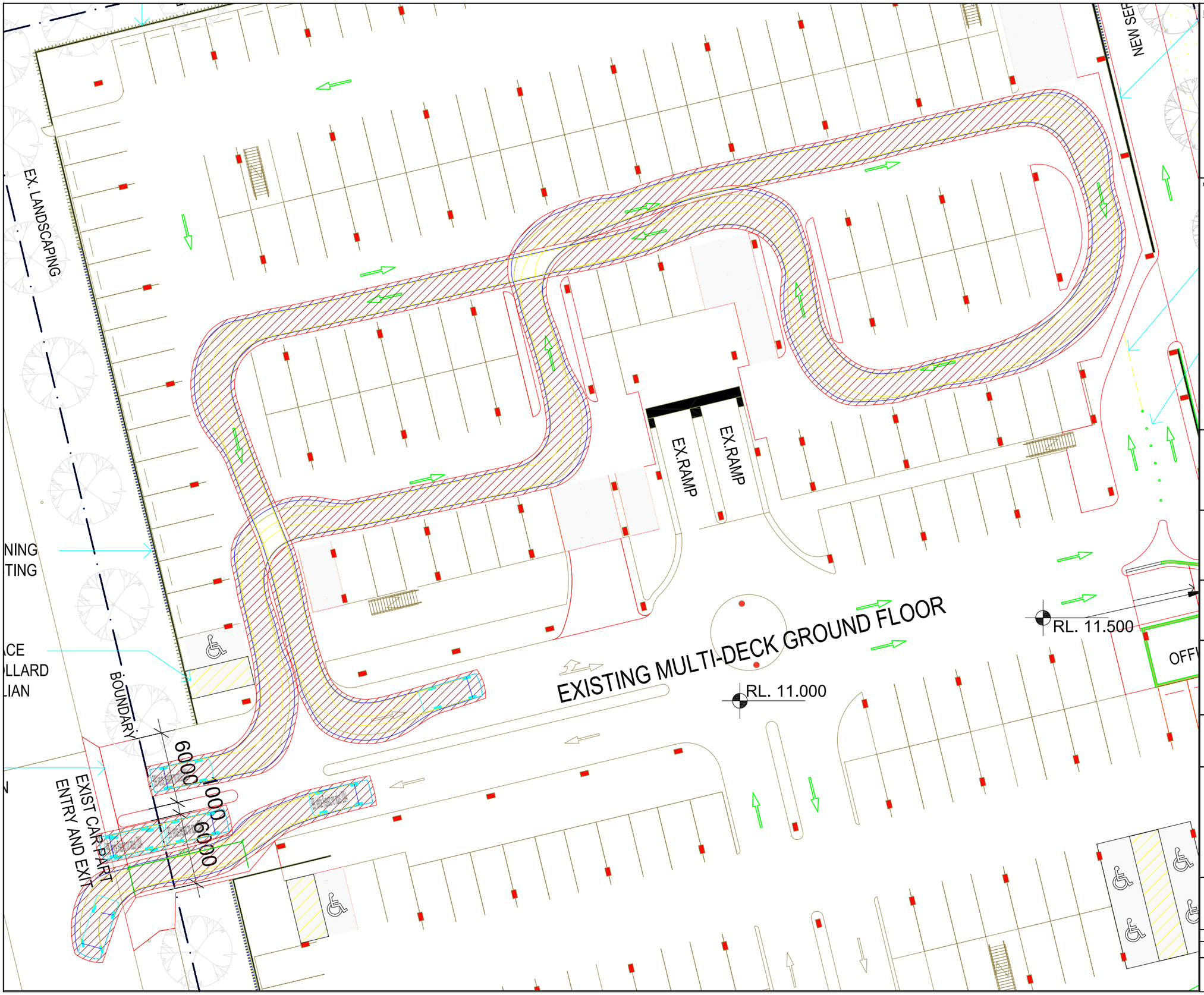
project
Cabra Vale Diggers

drawing prepared by
TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Railway Parade Service Road

drawn:	checked:	date:
HD	MM	4-Aug-17

project no.	drawing phase.	drawing no.	rev
16.365	-	TX.04	A



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
Altis Architects

client
Cabra Vale Ex-Servicemens Club

scale
1:100 @ A3
0m 1 2 3 4

project
Cabra Vale Diggers

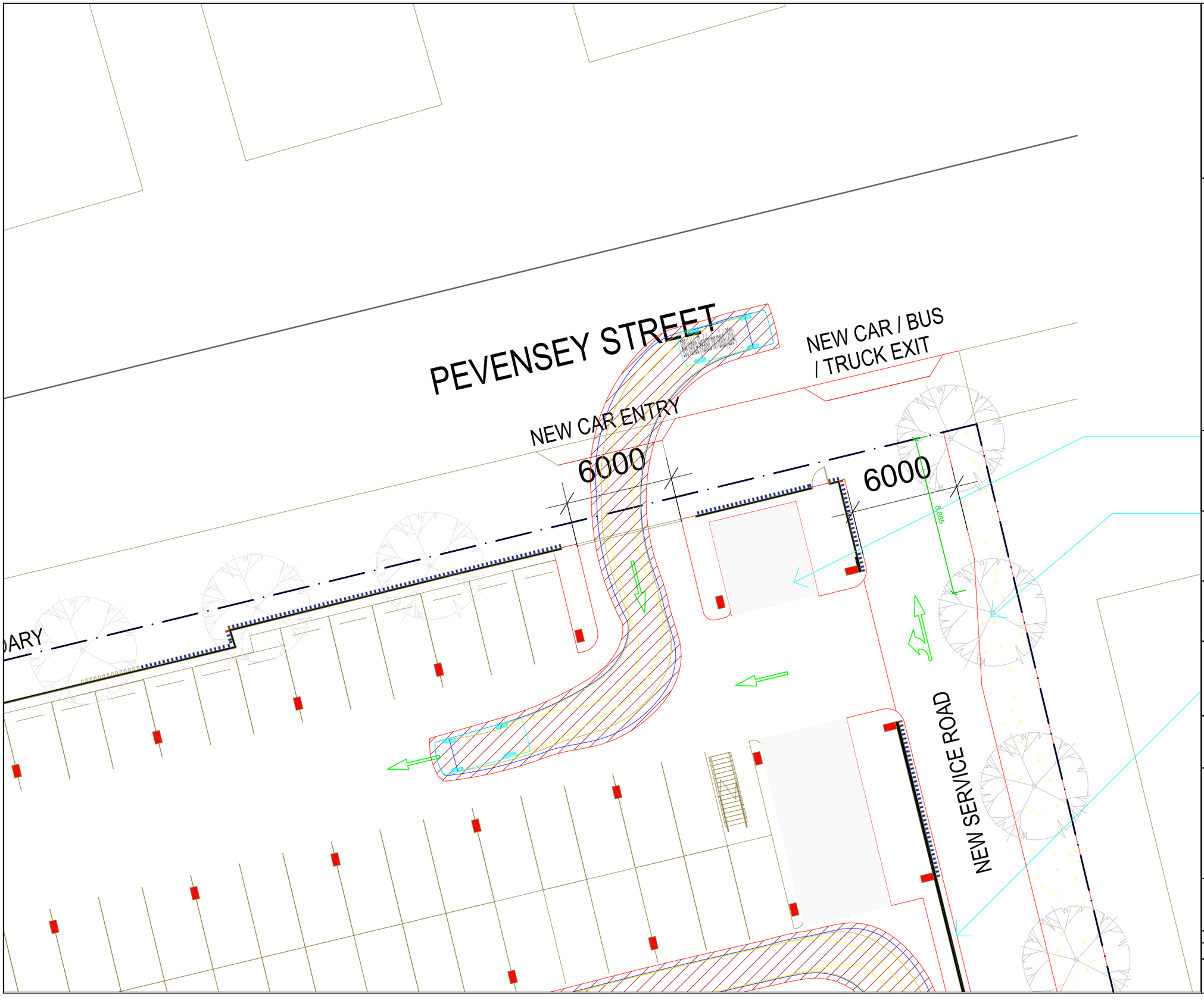
drawing prepared by

TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Ground Level Car Park (Existing)

drawn:	checked:	date:
HD	MM	4-Aug-17

project no.	drawing phase.	drawing no.	rev
16.365	-	TX.05	A



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
Altis Architects

client
Cabra Vale Ex-Servicemens Club

scale
1:200 @ A3
0m 2 4 6 8

project
Cabra Vale Diggers

drawing prepared by

TRAFFIX
traffic and transport planners

Suite 2.08, 50 Holt Street
Surry Hills NSW 2010

PO Box 1124
Strawberry Hills NSW 2012

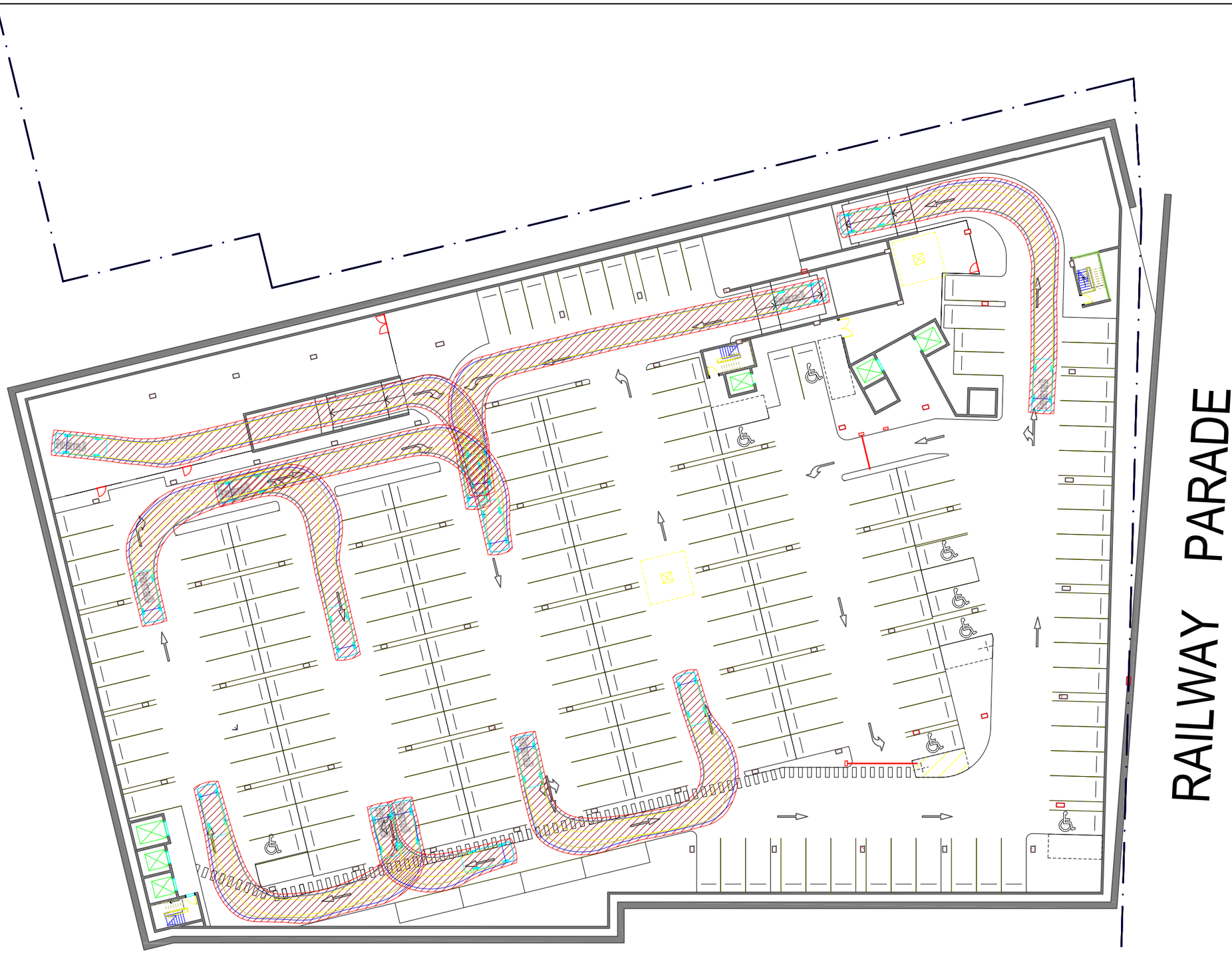
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

traffix
traffic & transport planners

drawing title
Ground Level Car Park (Existing)

drawn:	checked:	date:
HD	MM	4-Aug-17

project no.	drawing phase.	drawing no.	rev
16.365	-	TX.06	A



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
Altis Architects

client
Cabra Vale Ex-Servicemens Club

scale
1:400 @ A3
0m 4 8 12 16

project
Cabra Vale Diggers

drawing prepared by
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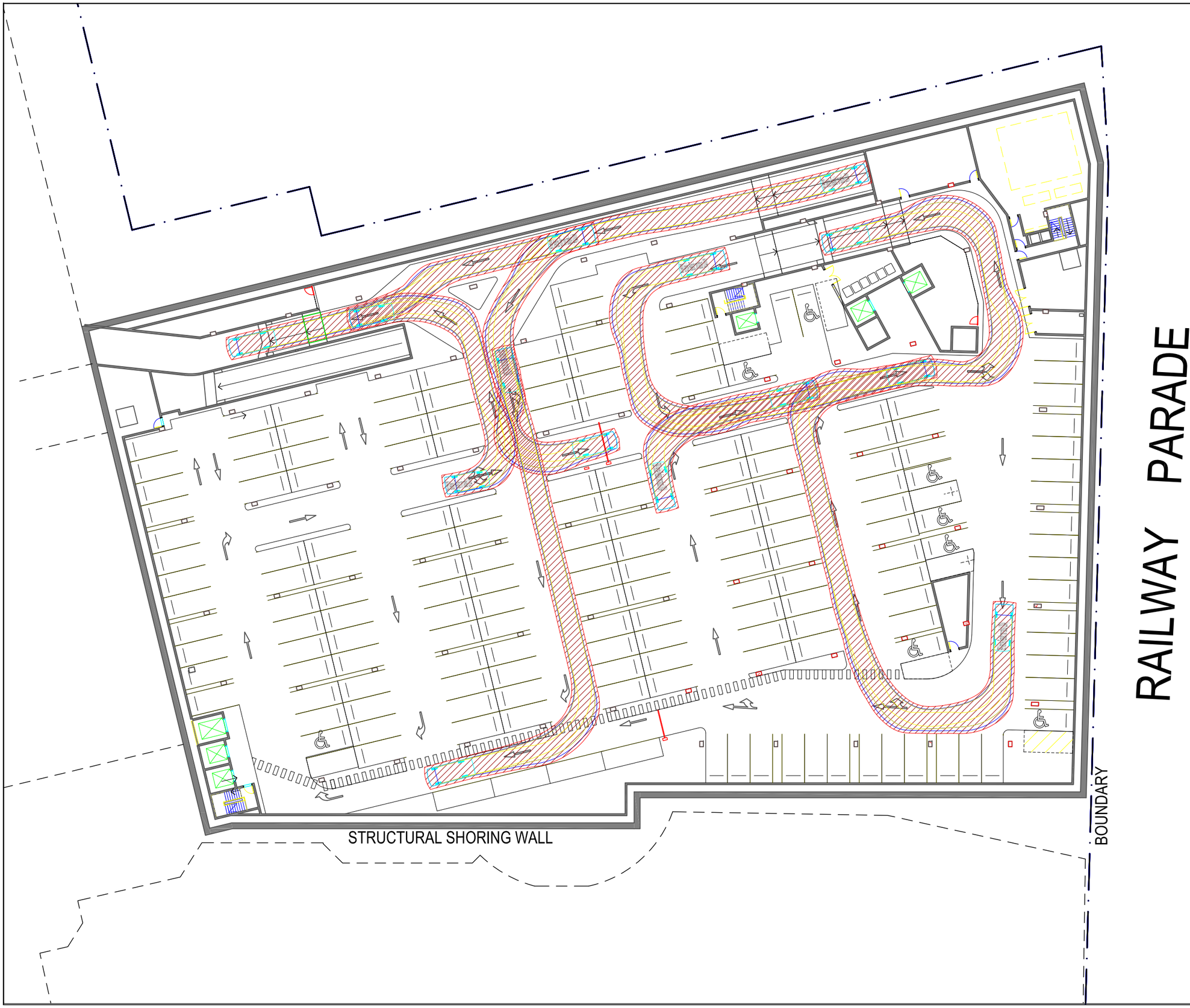
drawing title
Basement Level 1

drawn:	checked:	date:
HD	MM	4-Aug-17

project no.	drawing phase.	drawing no.	rev
16.365	-	TX.07	A



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no.	revision note	by.	date

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architect
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drawing title
Basement Level 2

drawn:	checked:	date:
HD	MM	4-Aug-17

project no.	drawing phase.	drawing no.	rev
16.365	-	TX.08	A