Gosford RSL Club

APP Corporation Pty Ltd

Traffic Impact Assessment

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SECA solution

Gosford RSL Club - Development Application

Traffic Impact Assessment

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1. Introduction

Background

Seca Solution Pty Ltd has been commissioned by APP Corporation Pty Ltd to prepare a traffic and parking report to support the proposal to Central Coast Council for a redevelopment of the existing Gosford RSL Club at 2-20 Yallambee Avenue, West Gosford. As vehicle movements to and from the site will impact on the state road network, particularly Central Coast Highway, the application will also be reviewed by Roads and Maritime Services (RMS) and their concurrence will be required.

The subject development site is located off Yallambee Avenue, Gosford. It currently has access off Yallambee Avenue only along the western and southern boundaries of the site. There is no access to the Central Coast Highway.

As part of the project, Seca Solution has collected current traffic data at the intersection of Central Coast Highway and Yallambee Avenue during Friday afternoon peak periods. These surveys were completed on Friday 17 November 2017 from 3.00pm to 6.00pm and on Friday 15 December from 4.00pm to 5.30pm.

The development plans for the project have been discussed with the RMS and the RMS indicated that they may require land off the Gosford RSL site for a future upgrade of the signal-controlled intersection of the Central Coast Highway and Yallambee Avenue. Subsequent to these discussion, the RMS have now completed modelling of this intersection to determine the extent of future road upgrades required and have identified that a turn lane is required on the Central Coast Highway for westbound traffic turning left into Yallambee Avenue. The plans for the project have subsequently been amended to allow for this future road upgrade.

Planning Context

In preparing this document, the following guides and publications were used:

- RMS Guide to Traffic Generating Developments, Version 2.2 Dated October 2002;
- RMS Technical Direction Guide to Traffic Generating Developments, Updated Traffic Surveys and Trip Rates August 2013;
- RMS Supplements to the Austroads Guide to Traffic Management and Austroads Guide to Road Design;
- Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis and Part 12: Traffic Impacts of Development;
- Austroads Guide to Road Design series;
- Gosford Development Control Plan 2013; and
- Australian / New Zealand Standard – Parking Facilities Part 1: off-street car parking (AS2890.1:2004);

Proposed Development

The proposal consists of a replacement club facility, to be constructed over three levels, addressing the Central Coast Highway and Yallambee Avenue. The building would comprise a ground floor entry foyer and at grade car parking, with a range of club facilities provided across the first and second levels. The primary entry to the site would be via a covered drop off area, which would connect with Yallambee Avenue via an existing driveway crossing.

The subject site is located at 2-20 Yallambee Avenue, West Gosford as shown in Figure 1 below.

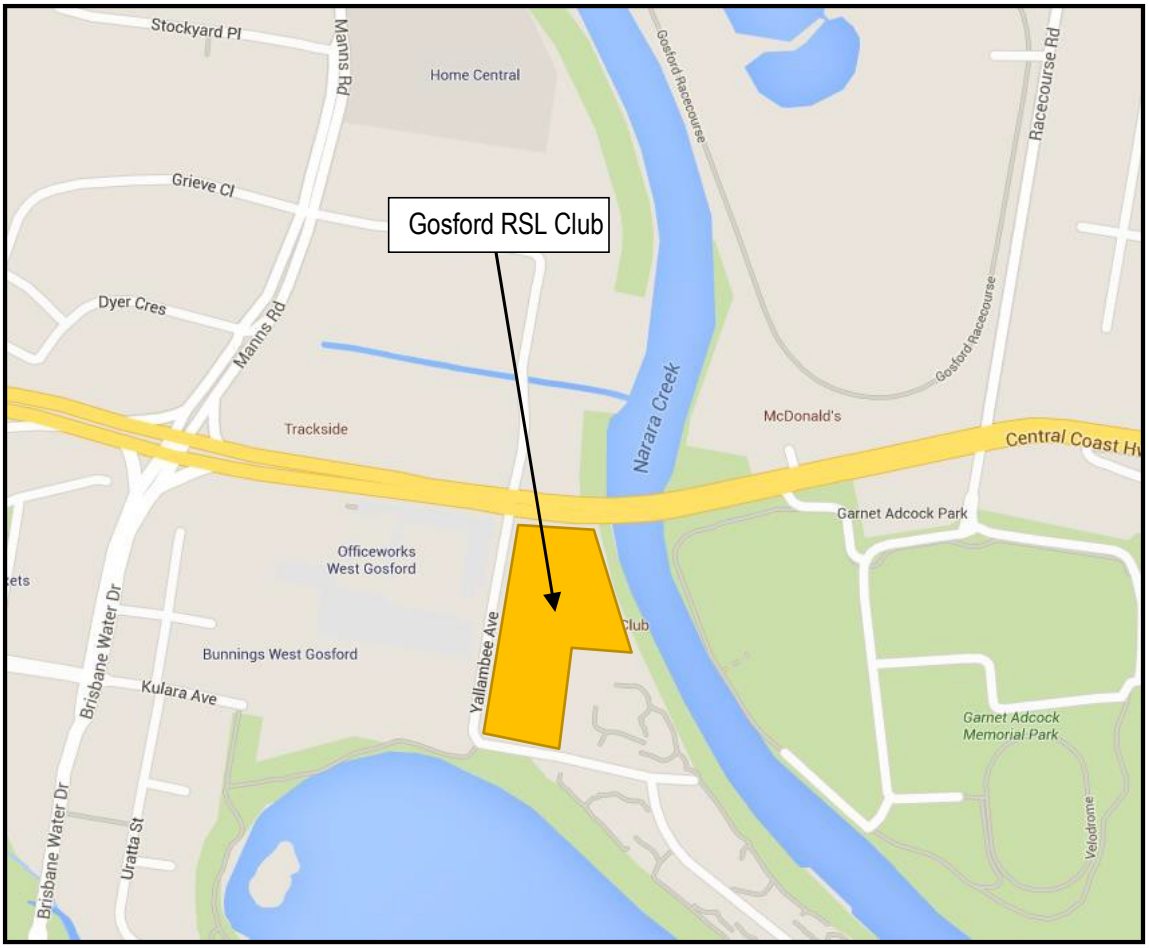

Figure 1-1 – Site location within the context of the local road network

2. Traffic Impact Assessment Summary

The following assessment has been completed in accordance with the requirements of the RMS's Guide to Traffic Generating Developments and Austroads Guidelines. A summary of issues and their comment is as follows:

Item	Comment
Existing Situation	
2.1.1 Site Location and Access	The subject development site is located off Yallambee Avenue, Gosford. It currently has access off Yallambee Avenue only along the western and southern boundaries of the site.
2.2.1 Road Hierarchy	The major road through the locality is the **Central Coast Highway**, which forms part of the state road network linking the locality with the centre of Gosford and beyond to the east and the M1 Motorway to the west. The Central Coast Highway has been recently upgraded by the RMS to improve the capacity at the key intersections at Brisbane Water Drive / Manns Road and at Yallambee Avenue. In the locality of the subject site it provides three lanes of travel in both directions with turn lanes also provided at the key intersections to maximise the capacity of the road network. Footpaths are provided to both sides and the key intersections are controlled by traffic signals, managing vehicle movements as well as catering for pedestrians wishing to cross the highway. The Central Coast Highway operates under the posted speed limit of 70 km/h in this location. Access to the subject site is provided via **Yallambee Avenue** which connects with the Central Coast Highway via a 4-way traffic signal-controlled intersection. Yallambee Avenue provides two lanes of travel southbound for 150 metres to the RSL Club southern carpark access after which they merge into one lane. Northbound, from the Bunnings / Anaconda access to the Central Coast Highway there are three lanes (left turn only, through / right and right turn only).
2.2.2 Roadworks	The road works along the Central Coast Highway in this location were completed in 2015. No further road works are currently planned at this time. Discussion with the RMS on the project has highlighted the future need for a left turn lane for westbound traffic on the Central Coast Highway turning into Yallambee Avenue. The RMS have completed traffic modelling at this intersection and have identified the area of land required for this future road upgrade. No timeframe has been determined for these future works by the RMS.
2.2.3 Traffic Management Works	None noted.
2.2.4 Pedestrian and Cycling Facilities	Footpaths are provided to both sides of the roads in the locality of the site, allowing for good pedestrian connectivity. The key intersections are controlled by traffic signals which allow pedestrians to cross the Central Coast Highway in a safe and efficient manner. Cyclists are able to ride on road as appropriate or on the footpath adjacent to the road pavement.
2.2.5 Public Transport	There is an existing bus service adjacent to the site along the Central Coast Highway, providing access to bus routes 32, 33 and 34. These provide a direct connection to the centre of Gosford and on-going connection to other bus services in the Gosford area as well as the train station.

Item	Comment
	The RSL club also provides transport connections to the local area via a shuttle service, allowing for community transport to and from the RSL club.
2.3 Traffic Flows	The Central Coast Highway carries high traffic volumes, especially during the traditional peak hour periods. As part of the project work Seca Solution collected traffic data at the intersection of Central Coast Highway and Yallambee Avenue during Friday afternoon peak periods. These surveys were completed on Friday 17 November 2017 from 3.00pm to 6.00pm and on Friday 15 December from 4.00pm to 5.30pm. The afternoon peak was determined as being 4.15pm to 5.15pm in this locality.
2.3.1 Daily Traffic Flows	Advice from the RMS Guide to Traffic Generating Developments indicates that peak hour volumes typically represent around 10% of the daily traffic volumes. During the Friday afternoon peak hour the two-way traffic volumes along Central Coast Highway were 4,850 vehicles per hour. Daily volumes along Central Coast Highway could therefore be in the order of 48,000 vehicles per day, reflecting both local demand as well as through traffic in this location. Peak hour volumes along Yallambee Avenue were significantly lower with two-way volumes averaging 900 vehicles per hour. This would give daily flows in the order of 9,000 vehicles per day. The volume of traffic in Yallambee Avenue is generated by the RSL club, Yallambee Lodge Retirement Village, and the commercial developments consisting of Bunnings, Ananconda, Officeworks and Spotlight.
2.3.2 Daily Traffic Flow Distribution	Daily traffic movements are reasonably balanced in both directions. There is a peak demand for traffic heading out of Gosford for commuter trips south to Sydney as well as commuter trips towards the centre of Gosford.
2.3.3 Vehicle Speeds	The posted speed limit along Central Coast Highway is 70km/h and 50km/h in Yallambee Avenue. No speed surveys were completed as part of the study work, however, site observations indicate that traffic speeds are generally within the posted speed limit due to interaction with the various signalised intersections as well as the heavier vehicle flows in the peak periods.
2.3.4 Existing Site Flows	The site is currently occupied by the existing RSL club and generates a moderate volume of traffic. As per normal traffic patterns associated with RSL clubs, the peak traffic volumes occur generally outside of the traditional road network peak periods, with peak demands occurring at lunch time during the week and higher demands in the evenings and weekends generally after 6.00pm when the background traffic movements are much lower. Traffic surveys were conducted at the club on two Friday afternoons / evenings to identify the current trip generation at the site. The surveys were conducted on 19 January and 2 February 2018 from 5.30pm to 7.30pm. On 19 January 216 vehicle trips were recorded during the 2 hour period with 139 trips recorded during the peak period (5.30pm to 6.30pm). On 2 February 282 vehicle trips were recorded in 2 hours with 172 recorded in the peak period (5.30pm to 6.30pm).
2.3.5 Heavy Vehicle Flows	There is a reasonably high demand for heavy vehicle movements in this location, associated with various users along the Central Coast Highway as

Item	Comment
	well as access to the wider area of Gosford and the Central Coast. Heavy vehicles account for 2% of the traffic volumes on Central Coast Highway. Heavy vehicles on Yallambee Avenue are much lower at less than 1% of total volumes and associated primarily with deliveries to the local facilities e.g. Bunnings Store as well as some deliveries to the subject site.
2.3.6 Current Road Network Operation	The traffic surveys conducted for this assessment indicate that the current road network in the vicinity of the site is operating at a LoS C with some delays occurring during the traditional peak periods, associated with high levels of commuter movement along the Central Coast Highway. Outside of the peak hour periods the road network operates reasonably well with acceptable delays and congestion.
2.4 Traffic Safety and Accident History	The road network in this location has been significantly upgraded over the last 2 years and as such, the historic crash data is not considered valid for the upgraded road network. Major upgrade works along the Central Coast Highway were completed in 2015 including the Manns Road / Brisbane Water Drive intersection and extending east to Yallambee Avenue. Consequently, crash data prior to the completion of these works is not considered valid for the current project. The upgraded length of the road in this location has been designed and constructed in accordance with RMS requirements and as such, will comply with current design standards. It provides a high standard of road design that will minimise the safety concerns in this area and have a positive impact upon crash rates in this location. With key intersections controlled by traffic signals, accidents will be reduced and pedestrians can safely cross at these traffic signals. A review of crash data since the end of 2015 shows that there were 7 crashes recorded at or near the Yallambee Avenue intersection. The details of these crashes are: • 5 were rear-end or same direction crashes (the predominant crash type at signalised intersections); • One crash involved opposing turning movements; • One involved a vehicle emerging from a driveway 50 metres east of Yallambee Ave; • Most crashes occurred mid to late afternoon in fine weather; • There were no fatalities. Crash Data is provided at **Appendix B.**
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	No parking is permitted along the Central Coast Highway. There is limited on-street parking permitted along Yallambee Avenue with 9 parallel parking spaces provided along the western side south of the southern Bunnings access and 3-4 on the eastern side. Parking is permitted on the southern leg of Yallambee Avenue east of the site access.
2.5.2 Off-street Parking Provision	The Gosford RSL Club currently provides 258 spaces within its off-street parking area. Bunnings provides around 400 spaces and the Anaconda / Officeworks / Spotlight complex provides 190 spaces.

Item	Comment
2.5.3 Parking Demand and Utilisation	There is high demand for off-street parking in the locality, which is provided within the site footprints of the local attractions e.g. Bunnings / Anaconda / Officeworks and the subject site. This parking demand is highly used, especially at the weekend when the Bunnings store is operating at its busiest period and the RSL has high patronage demands. Yallambee Avenue east of the site also carries high demands for on-street parking associated with the adjacent aged care facility.
2.5.4 Set down or pick up areas	No designated set down areas in the locality of the subject site. The RSL Club provides a Porte Cochere along the building frontage that allows for drop off and pick up of patrons including taxi and shuttle bus services
2.6 Public Transport	
2.6.1 Rail Station Locations	The nearest railway station is located in the centre of Gosford, approximately 2.5 kms from the subject site, which is connected to the site via a regular bus route. Gosford station is serviced by the Central Coast Newcastle lines and provides a high frequency of train services that connect through to Sydney to the south and Newcastle to the north
2.6.2 Bus Stops and Associated Facilities	There is a bus stop and shelter located to the west of Yallambee Avenue on the Central Coast Highway providing access to the Busways bus routes. There is a corresponding bus stop and shelter located opposite the site on the Central Coast Highway which is connected to the site via the pedestrian crossing phase at the traffic signal-controlled intersection of the Central Coast Highway.
2.6.3 Pedestrians	There are pedestrian footpaths along both sides of the roads in the locality of the site that allow for good connectivity to the local specialist shops and facilities. The traffic signals at the intersection of the Central Coast Highway and Yallambee Avenue allow for pedestrians to cross over the highway in a safe manner.
2.7 Other Proposed Developments	There are limited developments occurring in the immediate locality of the subject site. It can be seen that the general area around the subject site is fully developed allowing for limited additional development. The development of the Bunnings store opposite the site on Yallambee Avenue has been a recent development that has had a significant impact upon the local road network and required road upgrades on Yallambee Avenue which has improved the connection to the Central Coast Highway at this location.
3 The Development	
3.1.1 Nature of Development	The proposal consists of a replacement club facility, to be constructed over three levels, addressing the Central Coast Highway and Yallambee Avenue. The building would comprise a ground floor entry foyer and at grade car parking, with a range of club facilities provided across the first and second levels. The primary entry to the site would be via a covered drop-off area, which would connect with Yallambee Avenue via an existing driveway crossing.
3.1.2 Access and Circulation Requirements	The primary entry to the site from Yallambee Avenue will be via a new driveway crossing 10 metres south of the existing entry / exit driveway. The proposed development will provide a Porte Cochere along the building frontage that allows for drop off and pick up of patrons including by taxi. A drop off area adjacent to the Porte Cochere has been provided for shuttle bus services.

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	The proposal also includes undercroft parking on the ground level and a new car park to be constructed on the site of the existing club building. The layout of both carparks allows for all vehicles to circulate freely and exit the site in a forward direction via the existing access driveway for the southern carpark.
3.2 Access	
3.2.1 Driveway Location	A new entry driveway will be provided 10 metres south of the existing northern entry / exit driveway. The existing southern driveways will be retained as part of the development.
3.2.2 Sight Distances	The existing driveways on the western boundary (and the new entry driveway) are located on a straight section of Yallambee Avenue and allow for good visibility in both directions. Drivers exiting the site are able to observe the operation of the traffic signals on the Central Coast Highway and to the southern end of Yallambee Avenue. For the posted speed limit of 50 km/h the sight distance requirements for the driveway is 75 metres desirable and 65 metres minimum. This distance is exceeded for both of the driveways on the western boundary. For the access on the southern boundary, the sight distance to the right for exiting drivers is reduced due to the 90 degree bend, but this bend reduces vehicle speeds to less than 30 km/h and as such, visibility is acceptable.
3.2.3 Service Vehicle Access	Service vehicles (deliveries and waste collection) will enter via the new access off Yallambee Avenue and proceed along the internal access road to the eastern side of the building where the loading dock will be located. The loading dock will provide for both deliveries and waste collection. Service vehicles will be able to reverse on site into the loading dock then exit in a forward direction, circulate around the perimeter of the adjacent carpark and exit via the existing southern driveway onto Yallambee Avenue. The swept paths of a 10.8 metre waste collection vehicle and a 12.5 metre single unit truck are provided at **Appendix C.** Access shall also be available to the loading dock whilst the existing building is still in place.
3.2.4 Queuing at entrance to site	The existing site access works well with minimal delays and queues for vehicles entering and exiting the site. The proposed internal arrangements will not impact on the safe and efficient operation of the site access. The peak activities associated with the RSL club typically occur outside of the traditional peak hours on the road network and as such there are very limited delays for traffic entering or exiting the site. The proposed internal circulation arrangements will increase the efficiency of traffic movements through the site by moving the exit location to the existing southern driveway where exiting vehicles will not be blocked by vehicles queuing back from the Central Coast Highway intersection.
3.2.5 Comparison with existing site access	A new entry driveway will be provided 10 metres south of the existing northern entry / exit driveway. The existing southern driveways will be retained as part of the development.
3.2.6 Access to Public Transport	The site is within easy access of the existing bus stops to both sides of the Central Coast Highway, with connection across the highway via the existing traffic signals. The club also runs a courtesy bus for patrons within the general locality of the site.

Item	Comment
3.3 Circulation	
3.3.1 Pattern of circulation	All vehicles will be able to enter and safely circulate within the site and exit the site in a forward direction. A one-way traffic movement with separate entry and exit points to Yallambee Avenue will be provided to access and exit the site.
3.3.2 Road width	Double lane (6m aisle) width will be provided for ease of service vehicle movement and Fire Services 'ring road' access.
3.3.3 Internal Bus Movements	The site currently caters for the mini bus that enters and exits the site. There will be no change to this operation. A drop-off area for the mini bus will be provided adjacent to the porte-cochere.
3.3.4 Service Area Layout	A new service / loading dock will be provided on the eastern side of the new building that will provide for deliveries, waste collection and servicing. Waste collection and delivery vehicles will be able to reverse into the loading dock and exit in a forward direction.
3.4 Parking	
3.4.1 Proposed Supply	Parking for the site shall be provided across an at grade car park as well as 48 spaces at ground level under the new building. The construction of a carpark on the site of the existing club, once demolished, will provide parking that is conveniently located for patrons close to the new club building. The future total overall parking provision is 350 bays inclusive of 4 accessible parking bays. The 48 spaces under the new building will consist of two accessible parking spaces and 8 reserved spaces – 7 Directors and CEO (the same as currently provided) with the remaining spaces for patron use. The impact on parking during the construction and demolition periods is addressed later in this report in Section *4.4.3 Impact of Construction Traffic.*
3.4.2 Authority Parking	The Gosford DCP requires parking for registered clubs at the rate of: • 1 space per 10 m^2 of gross floor area up to 5000m^2 (including outside seating areas); and • 1 space per 20m^2 of gross floor area over 5000m^2 (including outside seating areas)
3.4.3 Parking Layout	The car park layout shall be designed and constructed in accordance with AS2890 and Council requirements. User Class: 3 Parking bay width: 2.6 metres Parking bay length: 5.4 metres Aisle width: 5.8 metres
3.4.4 Parking Demand	The existing club has a GFA of 4,690m^2 and the current on-site parking supply of 258 spaces reflects a parking rate closer to the latter of these two

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	rates. In addition, parking surveys conducted in 2015 and in recent weeks on a Friday evening indicate that the existing parking supply is operating at no more than 80% capacity with up to 58 vacant spaces recorded at 7.30pm on Friday 2 February 2018. Council has previously approved an application by Gosford RSL Club for a development proposal to increase the club to 6,030m^2 GFA and required 252 parking spaces, inclusive of the Motel operations on site. The current application is seeking approval for an additional 770m^2 over this prior approval to a total of 6,800 m^2. This is above the 5000m^2 threshold and therefore the 1:20 ratio would apply to the additional GFA. On this basis an additional 39 spaces are required to serve the additional GFA. This means a total of 291 spaces are required to serve the development as a whole. The proposed parking supply of 350 bays is therefore appropriate to meet this parking demand for 291 spaces.
3.4.5 Service Vehicle Parking	The proposed servicing area is located on the eastern side of the new building outside of the main car park area and should operate in a safe manner with minimal interaction with other vehicles.
3.4.6 Pedestrian and Bicycle Facilities	The club provides cycle parking stands on site which cater for the current demands. Pedestrian access in and around the site will be retained and enhanced as part of the project works. The existing paths through the car park and along the frontage of the building allow for ease of pedestrian access to the building.
4 Traffic Assessment	
4.1 Traffic Generation	The existing RSL club has been operating on the site for many years and the traffic patterns associated with the club typically occur outside of the normal peak period times. Peak traffic demands for the club generally occur during lunch time Monday to Friday with Friday and Saturday evenings being the peak trading times for the club. There is also a high demand on a Saturday and Sunday lunch time. The traffic surveys conducted in January and February 2018 recorded that the club currently generates up to 172 vehicle trips per hour. Based on the current GFA of 4,690m^2 this equates to a peak hour trip generation rate of 4 trips per 100m^2 GFA. Based on the proposed changes to the floor area and cross use of facilities it is considered that the trip generation rate will remain the same for the proposed development. Based on a total GFA of 6,800 m^2 the proposed development will generate 272 peak hour trips or an additional 100 trips above the existing situation. The RSL club generates very low traffic movements during the traditional morning peak periods and those occurring in the afternoon peak period are typically trips that are diverting as part of commuting trips.
4.1.1 Daily and Seasonal Factors	The RSL has a consistent demand throughout the year on a Friday and Saturday, with seasonal sporting activities creating additional demands

Item	Comment
	throughout the year. There are peak demands over the Christmas / New Year Periods as well as other specific dates e.g. ANZAC Day etc.
4.1.2 Pedestrian Movements	External pedestrian movements to and from the site are relatively low. The site is well connected to the existing pedestrian footpaths adjacent to the site on both Yallambee Avenue and the Central Coast Highway.
4.2 Traffic Distribution and Assignments	
4.2.1 Origin / destinations assignment	All traffic accesses the wider road network via the traffic signal-controlled intersection of Yallambee Avenue and the Central Coast Highway. Based upon the location of the site and the traffic surveys conducted, typically around 50% of the traffic associated with the site will originate from the east, requiring a left turn into Yallambee Avenue and a right turn out onto the Central Coast Highway. These movements are controlled by the traffic signals at this intersection. Traffic associated with the site during the Friday afternoon peak (4-5.15pm) would typically be equally split inbound and outbound whilst the peak demand associated with the club typically occurs later than the road peak period.
4.3 Impact on Road Safety	The proposed works will have a minimal impact upon road safety. There are no changes to the existing road network, which provides a high design standard. The movements in and out of the site are controlled onto the broader road network via the signal-controlled intersection of Yallambee Avenue and the Central Coast Highway, which allows for safe vehicle movements. The development works will generate a minimal increase in traffic movements, and with the vast majority of these occurring outside of the traditional peak periods this will reduce any safety concerns, as the traffic flows along the Central Coast Highway during the peak demand periods associated with the RSL club are relatively low.
4.4 Impact of Generated Traffic	
4.4.1 Impact on Daily Traffic Flows	The overall impact upon daily traffic flows in the locality will be low as the proposed works will not generate a significant increase in the number of patrons but rather provide upgraded and ancillary facilities e.g. child play area for patrons using the club. The existing traffic flows along the Central Coast Highway are in the order of 48,000 vehicles per day and it is considered that the additional flows associated with the proposed works will increase these by less than 1% per day.
4.4.2 Peak Hour Impacts on Intersections	The key intersection that could be impacted upon by the proposed development is the signal-controlled intersection of the Central Coast Highway and Yallambee Avenue. This intersection has been upgraded as part of the upgrade of the Central Coast Highway and has also taken into account the traffic movements generated by the Bunnings store opposite the subject site. The current operation of the intersection has been modelled using Sidra based on the Friday afternoon traffic surveys conducted as part of this assessment. The results indicate that the intersection is currently operating at LoS D but has sufficient spare capacity to cater for the additional 100 peak hour trips that will be generated by the proposed development.

Item	Comment
	The RSL club generates minimal traffic movements during the traditional morning peak period and will therefore have no impact upon the operation of this intersection. Similarly, Monday through to Thursday it is considered that the RSL club will generate lower numbers of patron movements and therefore will have a minimal impact upon this intersection. During the Friday afternoon / evening peak period it has been estimated that the new development will generate an additional 100 trips through the Yallambee Avenue intersection. These additional trips have been added to the Sidra model and the results indicate that they will not have any impact on the operational performance of the intersection with the LoS remaining at D. It is further considered that a large number of the trips to the RSL club on a Friday afternoon could be workers driving home and diverting into the club and are not therefore additional trips on the road network. The busiest periods for the RSL club are a Friday and Saturday evening and at these times the traffic flows along the Central Coast Highway are much lower than during the traditional peak periods and as such, it is considered that the additional traffic associated with this DA will have a minimal and acceptable impact upon the operation of this intersection. Overall it is considered that the additional traffic movement associated with the proposed extension to the current RSL club will have a minimal impact upon the operation of the key intersection of Yallambee Avenue and the Central Coast Highway.
4.4.3 Impact of Construction Traffic	The works associated with the development will all be contained within the site and as such will have minimal impact upon the operation of the local road network. The impacts would be associated with construction staff arrivals and departures and delivery of materials. It is considered that with a construction management plan developed and implemented in consultation with Council that the temporary impacts associated with the construction on the site can be managed to reduce the impacts on the adjacent road network, especially during the critical peak periods. This shall also address the management of construction staff parking. The site is constrained, and consideration will need to be given to the location of plant on and adjacent to the site as well as access for deliveries etc. This can be detailed during the detailed design stage of the project. It is considered that all works can be completed within the site with no external impacts. During construction of the new development it is acknowledged that on-site parking will be reduced by 71 spaces due to the loss of the carpark at the front of the site. However, the parking surveys conducted at the site indicate that the existing carpark has at least 58 vacant spaces during periods of peak demand resulting in a shortfall of 13 spaces. It is recognised that during the construction period patron numbers may not be as high as present however should there be a shortfall one option is to utilise a portion of the carpark at the Ashwood Motel located nearby on the northern side of the Central Coast Highway which is owned by Gosford RSL. The Ashwood Motel

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	is within easy walking distance of the club or patrons could be offered transport using the club's shuttle bus service. Post construction the new development will be providing 50 parking spaces on the ground level under the new club facility which will largely compensate for the loss of 71 existing spaces. Ultimately, once the new development is completed it is intended to demolish the existing club which will provide space for the provision of the additional parking spaces required for the development.
4.4.4 Other Developments	There are minimal other development occurring within the locality of the site and the proposed development on the subject site will have a minimal impact on other sites in the location.
4.5 Public Transport	
4.5.1 Options for improving services	Limited options. Site is not a major generator / attractor for public transport. The current bus services in the vicinity of the site are reasonably good. There is adequate capacity on these services to cater for any additional patronage.
4.5.2 Pedestrian Access to Bus Stops	Pedestrian links are provided to the bus stop via the existing network of footpaths to both sides of the Central Coast Highway in the locality of the site.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	No improvements required. A new entry driveway will be constructed 10 metres south of the existing northern entry / exit driveway which it shall replace. All other existing access driveways will be retained. These provide safe and convenient access points to the site and allow for vehicles to enter and exit the site in a forward direction.
4.6.2 Improvements to External Road Network	None required as no direct consequence of this development.
4.6.3 Improvements to Pedestrian Facilities	No upgrades required to existing footpaths in the vicinity of the site. The site provides direct access to the footpaths along the site frontages.
4.6.4 Effect of Recommended Works on Adjacent Developments	No impact as no external works recommended as a direct consequence of this project.
4.6.5 Effect of Recommended Works on Public Transport Services	Nil
4.6.6 Provision of LATM Measures	None required
4.6.7 Funding	None required

3. Conclusion

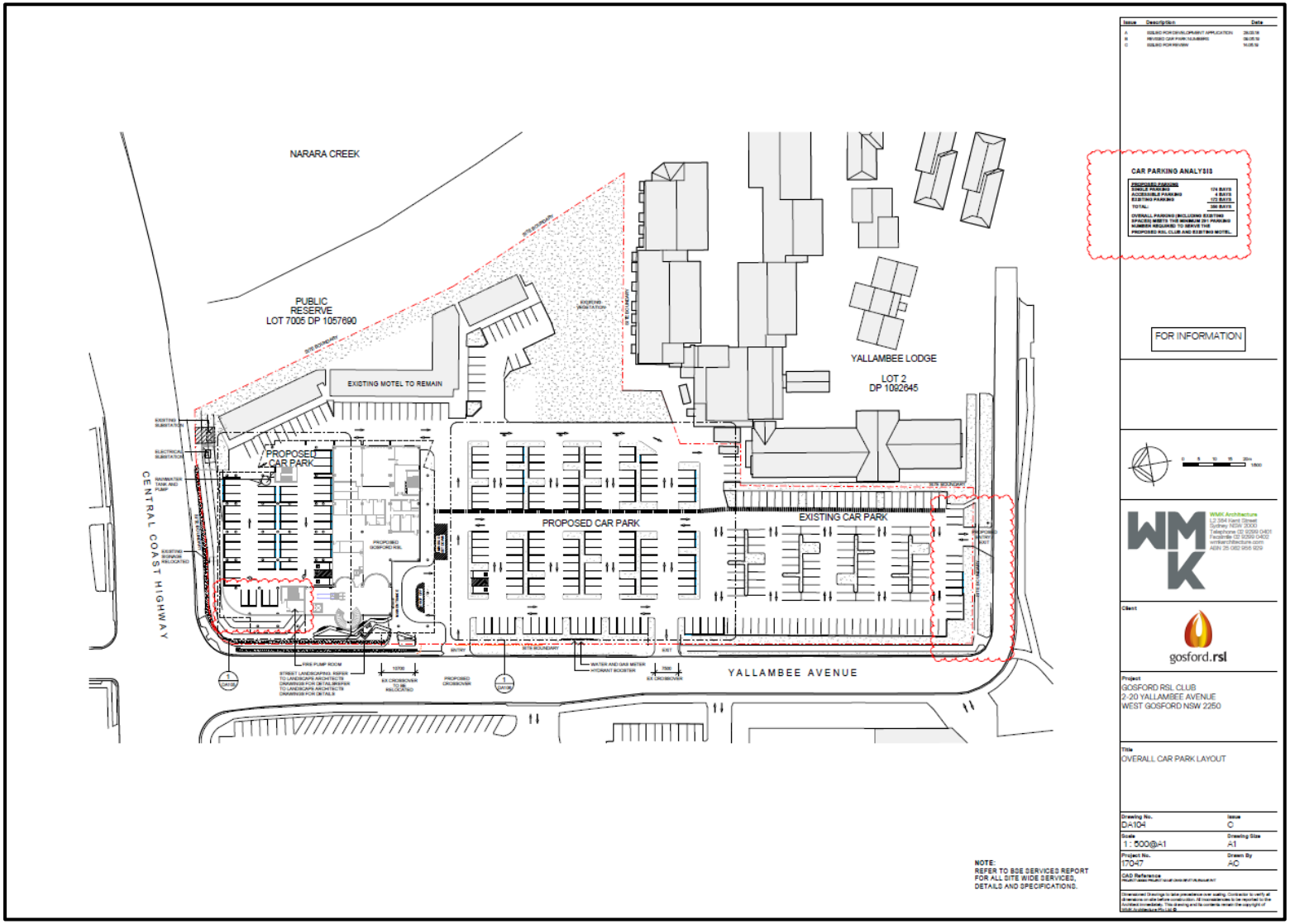
From the site work undertaken and the review of the development proposal and associated plans against the requirements of the RMS Guide to Traffic Generating Developments and Austroads Guide to Traffic Management, it is considered that the proposed development application should have no objections raised on traffic, access and parking grounds. The additional traffic movements generated by the development will have a minimal and manageable impact on the surrounding road network and site access can operate with minimal delay or congestion. It is considered that the development is consistent with the requirements of the Development Control Plan in relation to traffic, parking and access.

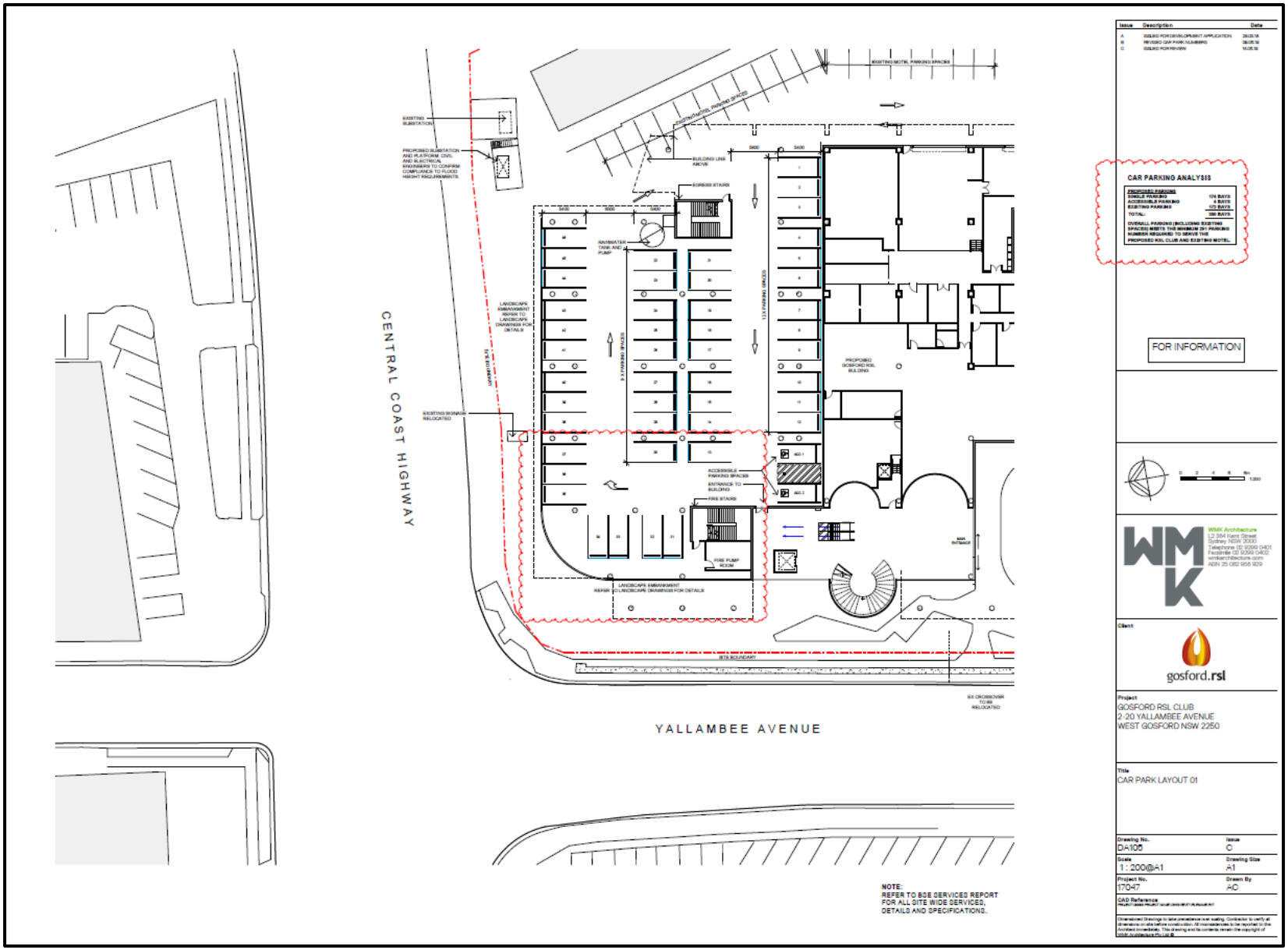
Discussion with the RMS has highlighted the requirement for a future left turn lane on the Central Coast Highway for westbound traffic turning into Yallambee Avenue and the design of the building has allowed for this future road upgrade by the RMS.

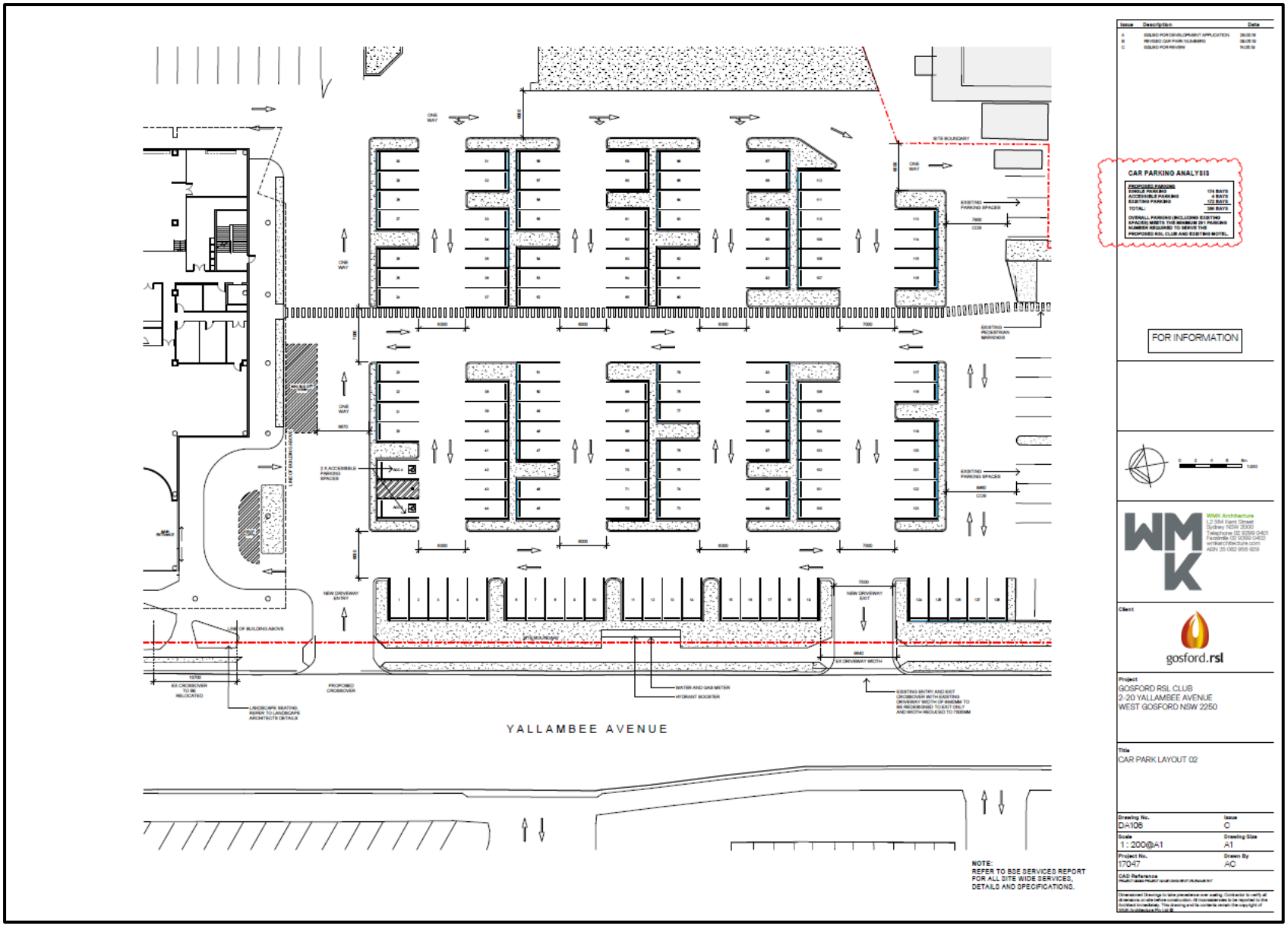
A total parking demand of 291 spaces has been determined to provide for the additional GFA proposed over that previously approved for the club. This parking shall be contained within the site through the provision of under croft parking under the new building and additional parking at grade once the development, including demolition of the existing building, has been completed. The total future parking provision on site is 350 spaces.

Access and servicing for the site has been assessed to ensure that vehicles, including waste, can enter and exit the site in a forward direction.

Appendix A Site Plans






YALLAMBEE AVENUE
CAR PARKING ANALYSIS
FOR INFORMATION
NOTE:
REFER TO SGE SERVICES REPORT
FOR ALL SITE WIDE SERVICES,
DETAILS AND SPECIFICATIONS.
WMK Architecture
gosford.rsl
GOSFORD RSL CLUB
2-20 YALLAMBEE AVENUE
WEST GOSFORD NSW 2250
CAR PARK LAYOUT 02
DA108
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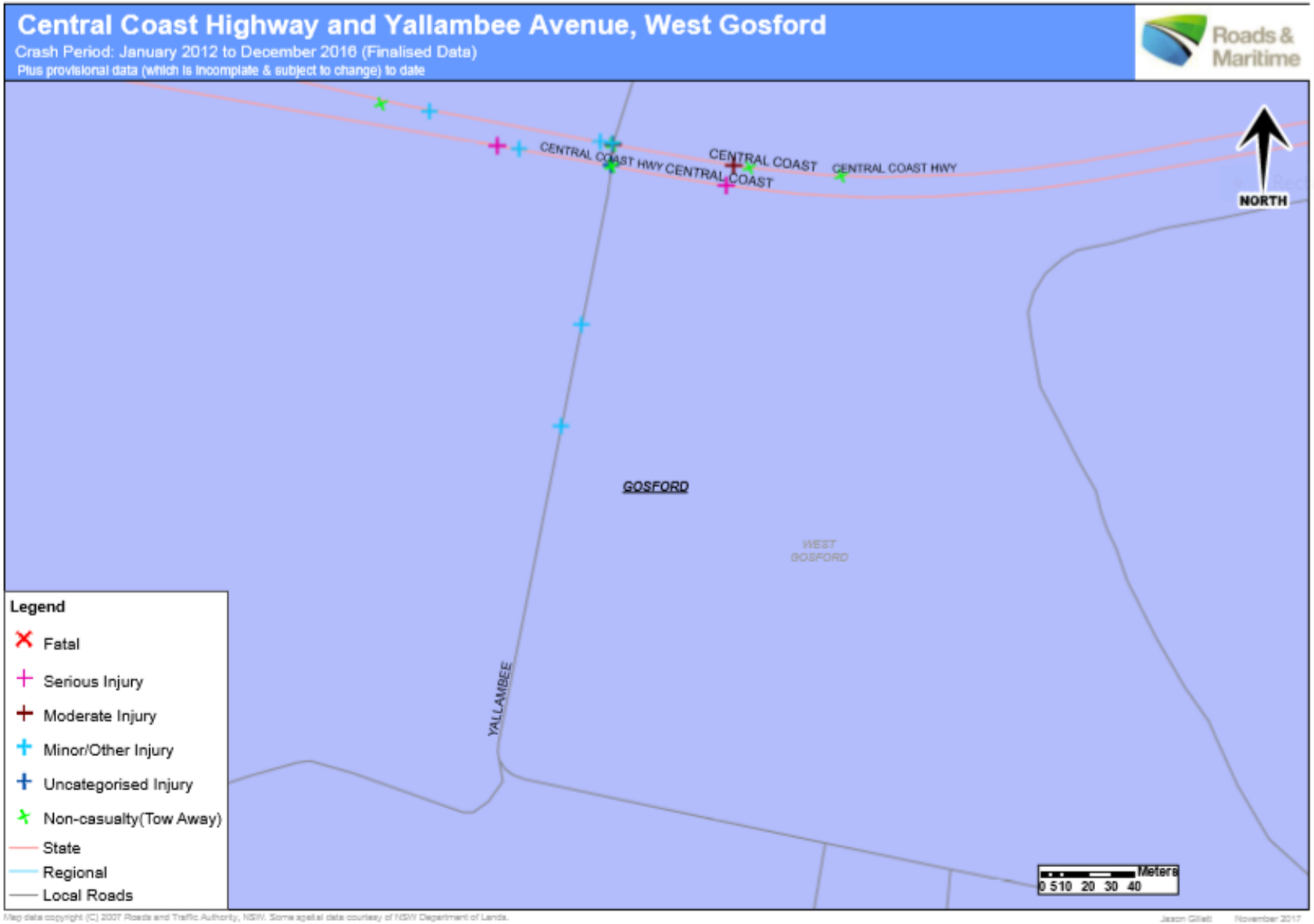
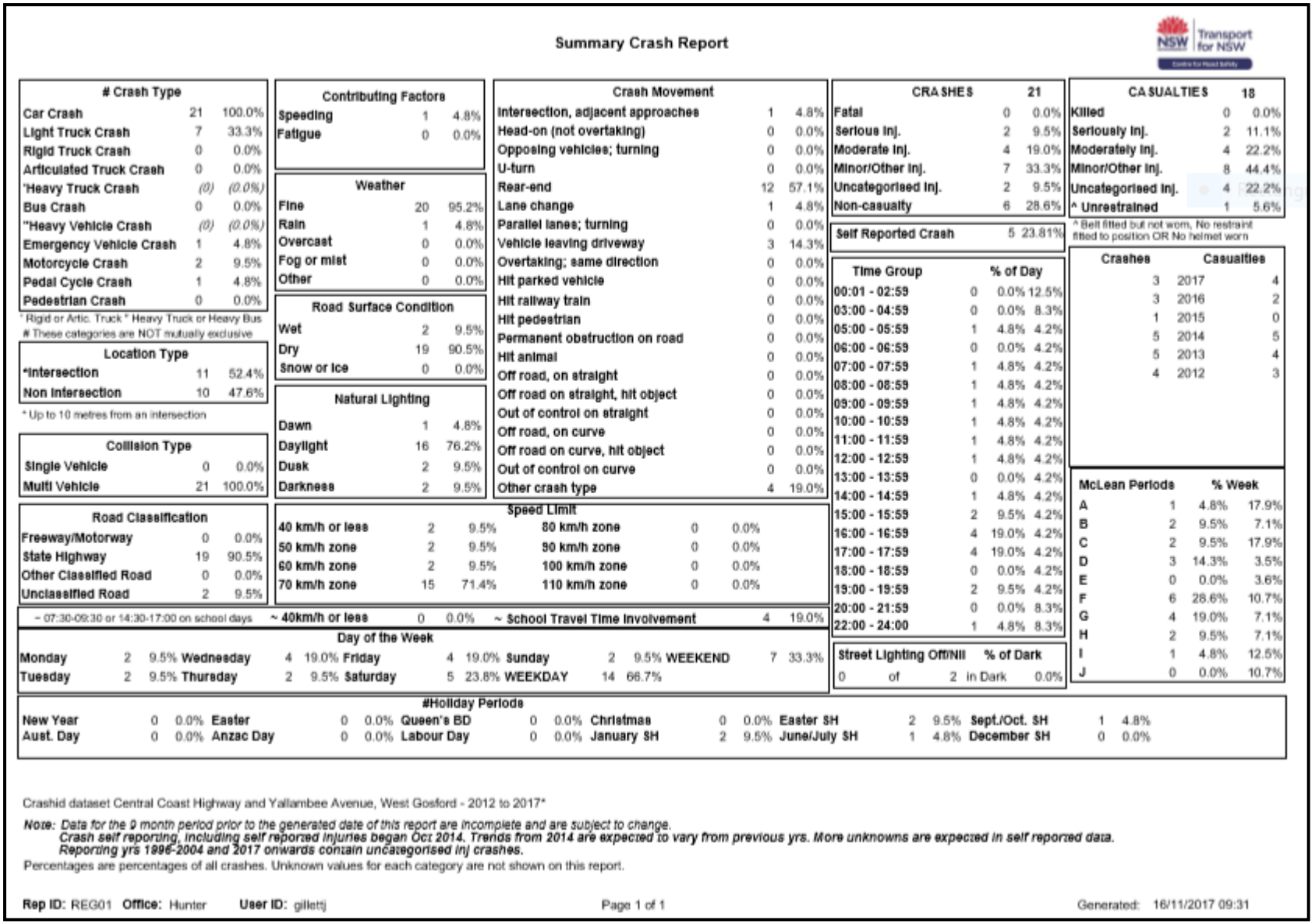
1:200@A1
A1
17047
AC

Appendix B Crash Data





Summary Crash Report

Transport for NSW

# Crash Type		
Car Crash	21	100.0%
Light Truck Crash	7	33.3%
Rigid Truck Crash	0	0.0%
Articulated Truck Crash	0	0.0%
*Heavy Truck Crash	(0)	(0.0%)
Bus Crash	0	0.0%
"Heavy Vehicle Crash	(0)	(0.0%)
Emergency Vehicle Crash	1	4.8%
Motorcycle Crash	2	9.5%
Pedal Cycle Crash	1	4.8%
Pedestrian Crash	0	0.0%

* Rigid or Artic. Truck " Heavy Truck or Heavy Bus
# These categories are NOT mutually exclusive

Location Type		
#Intersection	11	52.4%
Non Intersection	10	47.6%

Up to 10 metres from an intersection

Collision Type		
Single Vehicle	0	0.0%
Multi Vehicle	21	100.0%

Road Classification		
Freeway/Motorway	0	0.0%
State Highway	19	90.5%
Other Classified Road	0	0.0%
Unclassified Road	2	9.5%

Contributing Factors		
Speeding	1	4.8%
Fatigue	0	0.0%

Weather		
Fine	20	95.2%
Rain	1	4.8%
Overcast	0	0.0%
Fog or mist	0	0.0%
Other	0	0.0%

Road Surface Condition		
Wet	2	9.5%
Dry	19	90.5%
Snow or Ice	0	0.0%

Natural Lighting		
Dawn	1	4.8%
Daylight	16	76.2%
Dusk	2	9.5%
Darkness	2	9.5%

Crash Movement		
Intersection, adjacent approaches	1	4.8%
Head-on (not overtaking)	0	0.0%
Opposing vehicles; turning	0	0.0%
U-turn	0	0.0%
Rear-end	12	57.1%
Lane change	1	4.8%
Parallel lanes; turning	0	0.0%
Vehicle leaving driveway	3	14.3%
Overtaking; same direction	0	0.0%
Hit parked vehicle	0	0.0%
Hit railway train	0	0.0%
Hit pedestrian	0	0.0%
Permanent obstruction on road	0	0.0%
Hit animal	0	0.0%
Off road, on straight	0	0.0%
Off road on straight, hit object	0	0.0%
Out of control on straight	0	0.0%
Off road, on curve	0	0.0%
Off road on curve, hit object	0	0.0%
Out of control on curve	0	0.0%
Other crash type	4	19.0%

Speed Limit				
40 km/h or less	2	9.5%	80 km/h zone	0 0.0%
50 km/h zone	2	9.5%	90 km/h zone	0 0.0%
60 km/h zone	2	9.5%	100 km/h zone	0 0.0%
70 km/h zone	15	71.4%	110 km/h zone	0 0.0%

~ 07:30-09:30 or 14:30-17:00 on school days ~ 40km/h or less 0 0.0% ~ School Travel Time Involvement 4 19.0%

Day of the Week												
Monday	2	9.5%	Wednesday	4	19.0%	Friday	4	19.0%	Sunday	2	9.5%	WEEKEND 7 33.3%
Tuesday	2	9.5%	Thursday	2	9.5%	Saturday	5	23.8%	WEEKDAY	14	66.7%	

#Holiday Periods												
New Year	0	0.0%	Easter	0	0.0%	Queen's BD	0	0.0%	Christmas	0	0.0%	Easter SH 2 9.5% Sept./Oct. SH 1 4.8%
Aust. Day	0	0.0%	Anzac Day	0	0.0%	Labour Day	0	0.0%	January SH	2	9.5%	June/July SH 1 4.8% December SH 0 0.0%

CRASHES	21	
Fatal	0	0.0%
Serious Inj.	2	9.5%
Moderate Inj.	4	19.0%
Minor/Other Inj.	7	33.3%
Uncategorised Inj.	2	9.5%
Non-casualty	6	28.6%

Self Reported Crash 5 23.81%

Time Group		% of Day	
00:01 - 02:59	0	0.0%	12.5%
03:00 - 04:59	0	0.0%	8.3%
05:00 - 05:59	1	4.8%	4.2%
06:00 - 06:59	0	0.0%	4.2%
07:00 - 07:59	1	4.8%	4.2%
08:00 - 08:59	1	4.8%	4.2%
09:00 - 09:59	1	4.8%	4.2%
10:00 - 10:59	1	4.8%	4.2%
11:00 - 11:59	1	4.8%	4.2%
12:00 - 12:59	1	4.8%	4.2%
13:00 - 13:59	0	0.0%	4.2%
14:00 - 14:59	1	4.8%	4.2%
15:00 - 15:59	2	9.5%	4.2%
16:00 - 16:59	4	19.0%	4.2%
17:00 - 17:59	4	19.0%	4.2%
18:00 - 18:59	0	0.0%	4.2%
19:00 - 19:59	2	9.5%	4.2%
20:00 - 21:59	0	0.0%	8.3%
22:00 - 24:00	1	4.8%	8.3%

Street Lighting Off/Nil	% of Dark
0 of 2 in Dark	0.0%

CASUALTIES	18	
Killed	0	0.0%
Seriously Inj.	2	11.1%
Moderately Inj.	4	22.2%
Minor/Other Inj.	8	44.4%
Uncategorised Inj.	4	22.2%
^ Unrestrained	1	5.6%

^ Belt fitted but not worn, No restraint fitted to position OR No helmet worn

Crashes		Casualties
3	2017	4
3	2016	2
1	2015	0
5	2014	5
5	2013	4
4	2012	3

McLean Periods		% Week	
A	1	4.8%	17.9%
B	2	9.5%	7.1%
C	2	9.5%	17.9%
D	3	14.3%	3.5%
E	0	0.0%	3.6%
F	6	28.6%	10.7%
G	4	19.0%	7.1%
H	2	9.5%	7.1%
I	1	4.8%	12.5%
J	0	0.0%	10.7%

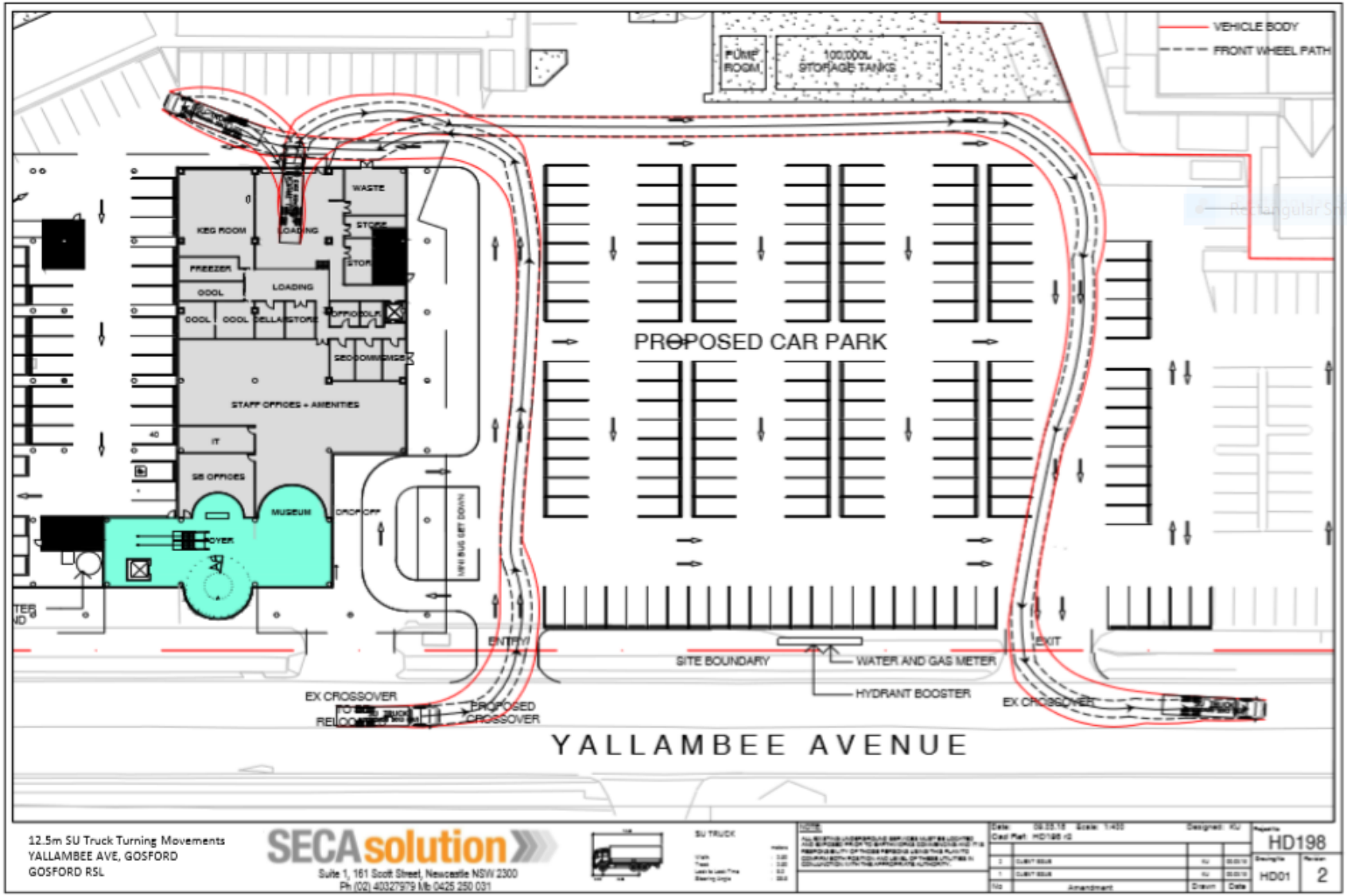
Crashid dataset Central Coast Highway and Yallambee Avenue, West Gosford - 2012 to 2017*

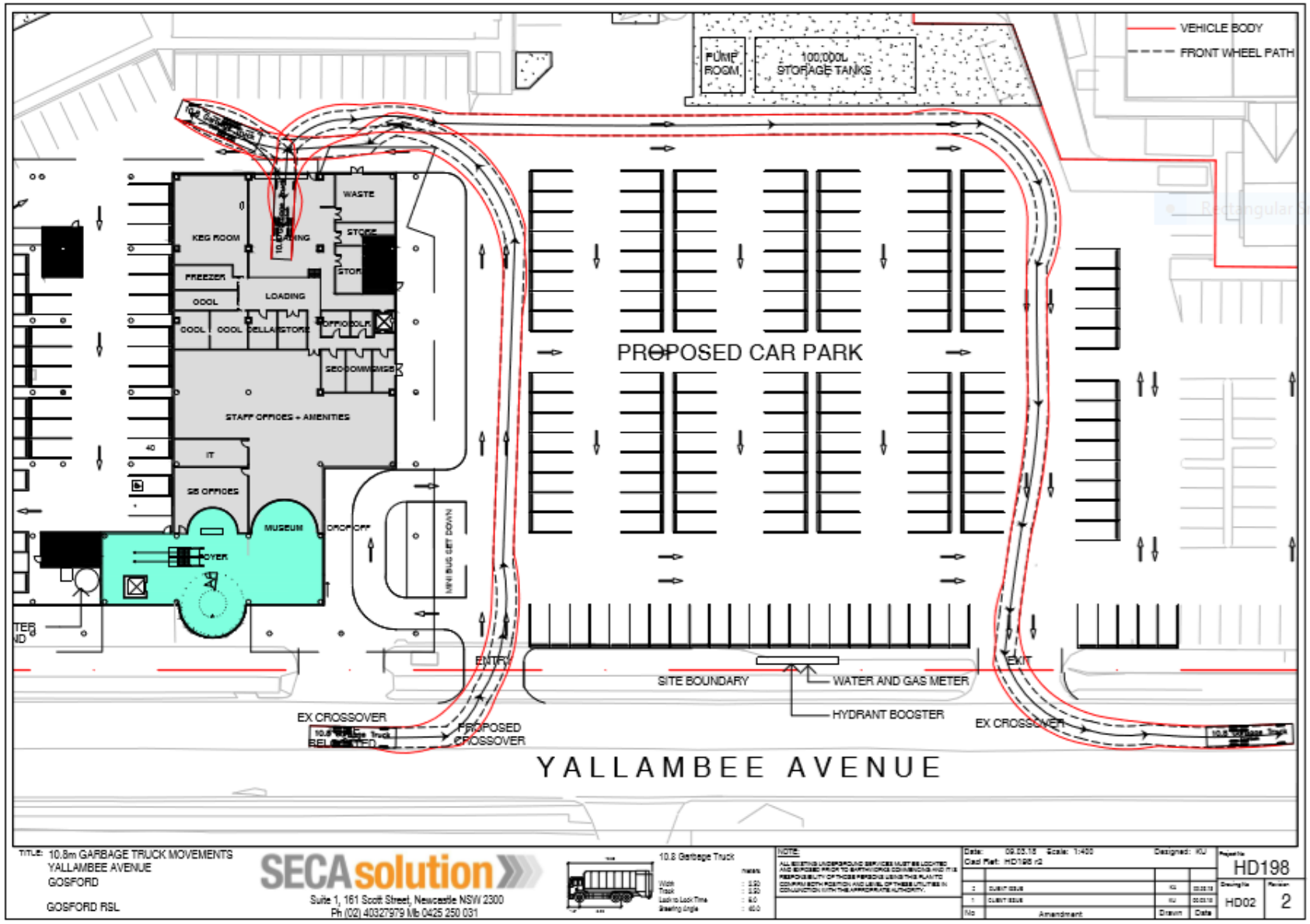
Note: Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.
Crash self reporting, including self reported injuries began Oct 2014. Trends from 2014 are expected to vary from previous yrs. More unknowns are expected in self reported data.
Reporting yrs 1996-2004 and 2017 onwards contain uncategorised inj crashes.

Percentages are percentages of all crashes. Unknown values for each category are not shown on this report.

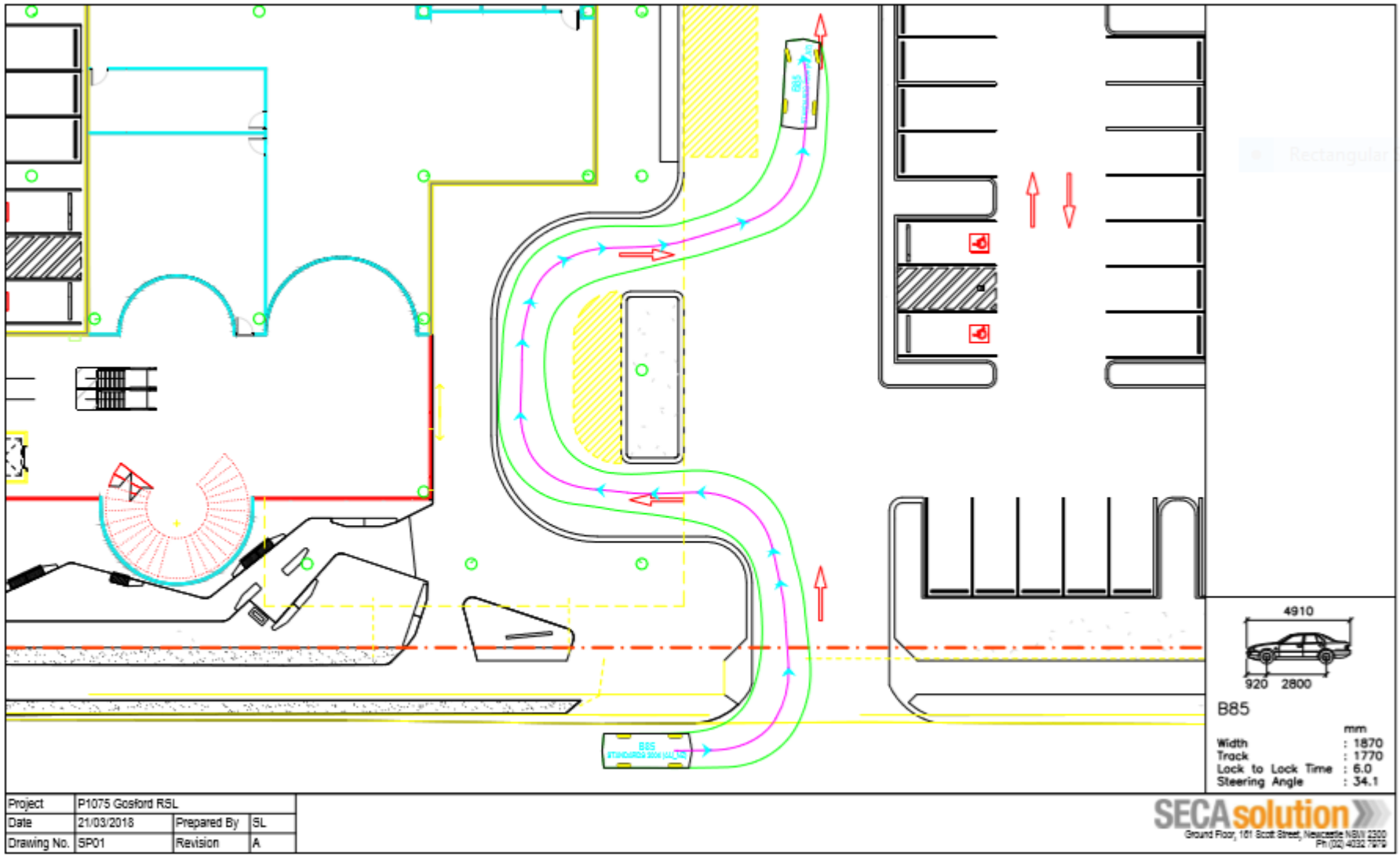
Rep ID: REG01 **Office:** Hunter **User ID:** gillettj Page 1 of 1 Generated: 16/11/2017 09:31

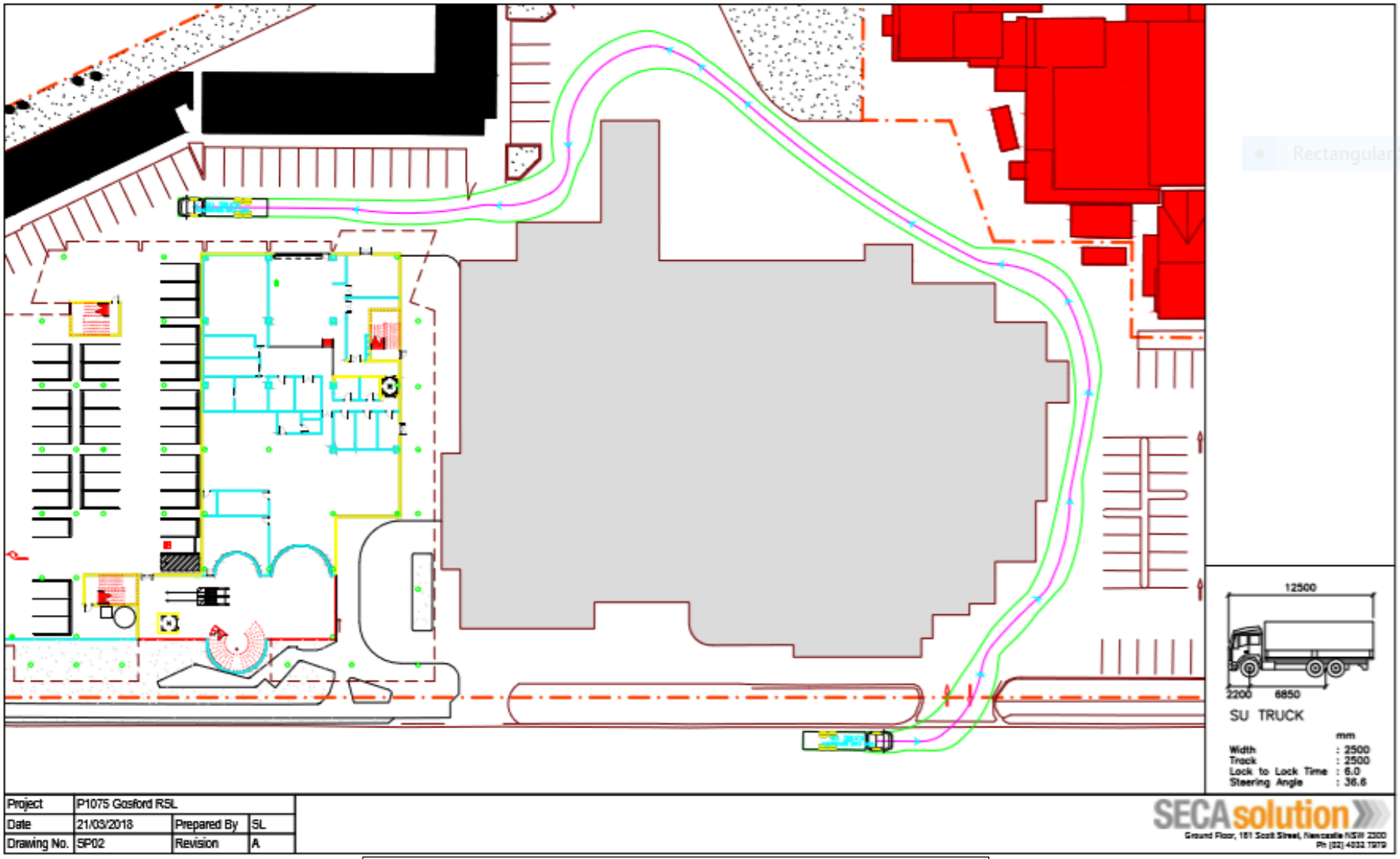
Appendix C Swept Path Analysis




VEHICLE BODY
FRONT WHEEL PATH
PUMP ROOM
100,000L STORAGE TANKS
PROPOSED CAR PARK
KEG ROOM
WASTE
STORE
FREEZER
LOADING
COOL
COOL
COOL
CELLAR STORE
OFFICE
SECOMMERCE
STAFF OFFICES + AMENITIES
IT
SS OFFICES
MUSEUM
FOYER
DROP OFF
MINI BUS SET DOWN
ENTRY
EXIT
SITE BOUNDARY
WATER AND GAS METER
HYDRANT BOOSTER
EX CROSSOVER
PROPOSED CROSSOVER
EX CROSSOVER
YALLAMBEE AVENUE
TITLE: 10.8m GARBAGE TRUCK MOVEMENTS
YALLAMBEE AVENUE
GOSFORD
GOSFORD RSL
SECAsolution
Suite 1, 161 Scott Street, Newcastle NSW 2300
Ph (02) 40327979 Mb 0425 250 031
10.8 Garbage Truck
NOTE:
Date: 09.03.18 Scale: 1:400 Designed: KU
Cad Ref: HD198 r2
HD198
HD02
2
No
Amendment
Drawn
Date

Standard Car through Porte-Cochere



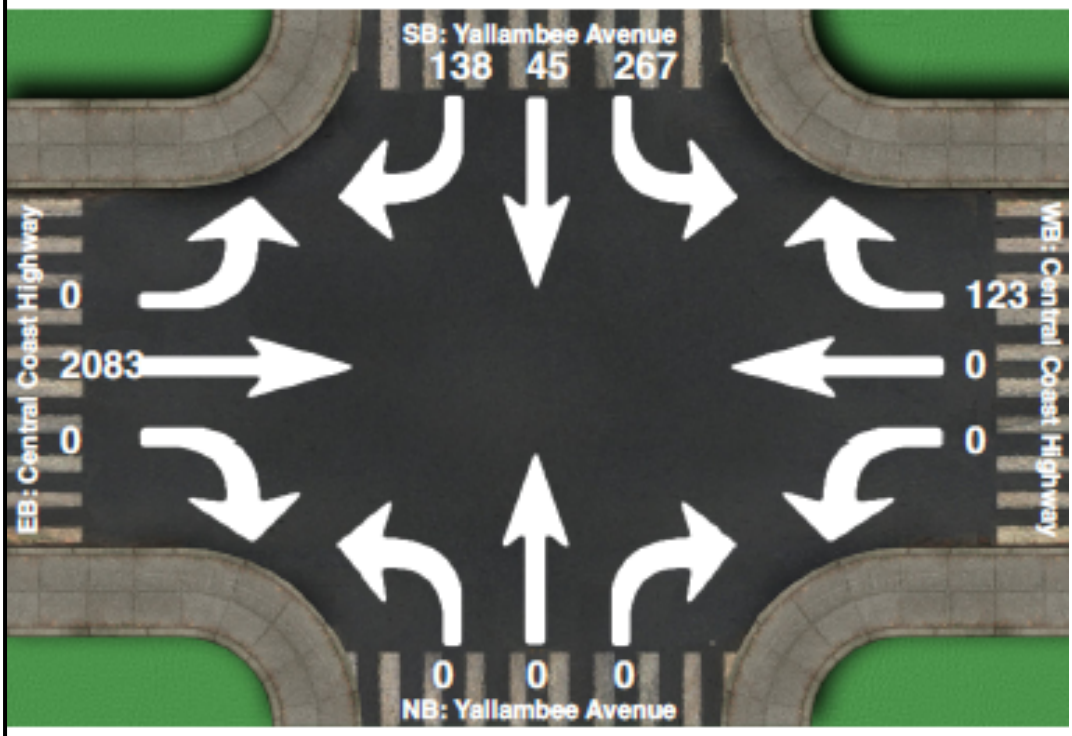


Single Unit Truck access during demolition of existing club building]

Appendix D Traffic Surveys

Intersection Peak Hour

Location: Yallambee Avenue at Central Coast Highway, West Gosford
GPS Coordinates:
Date: 2017-11-17
Day of week: Friday
Weather:
Analyst: TN



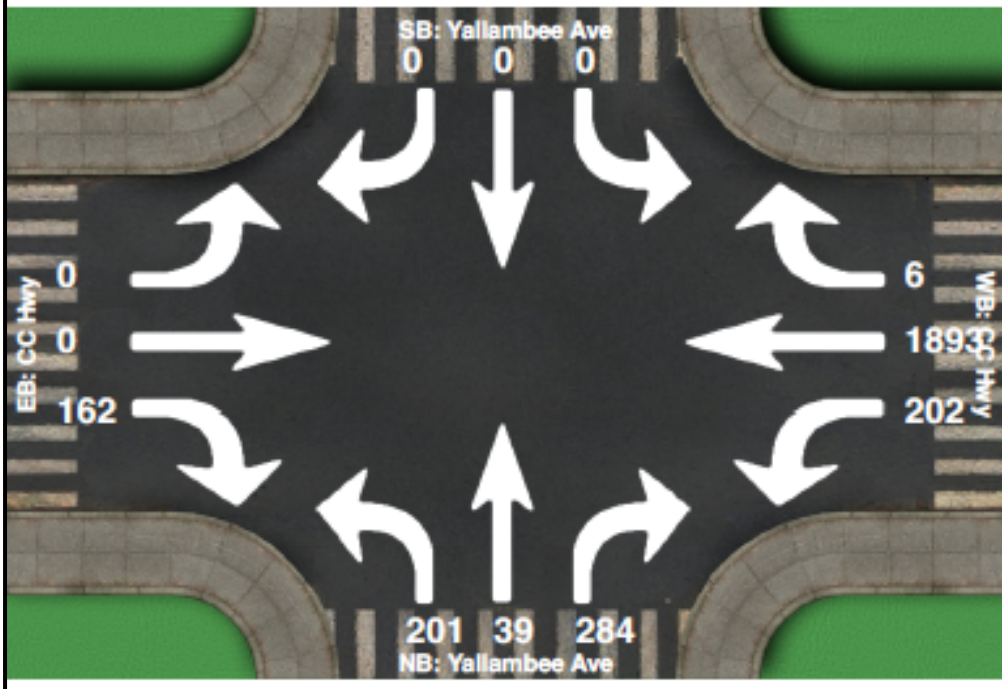
Intersection Peak Hour

16:15 - 17:15

	SouthBound			WestBound			NorthBound			EastBound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	267	45	138	0	0	123	0	0	0	0	2083	0	2656
Factor	0.93	0.62	0.95	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.96	0.00	0.98
Approach Factor	0.95			0.81			0.00			0.96			

Intersection Peak Hour

Location: Yallambee Ave at CC Hwy, West Gosford
GPS Coordinates: Lat=-33.404433, Lon=151.343261
Date: 2017-12-15
Day of week: Friday
Weather: Fine
Analyst: Rob



Intersection Peak Hour

16:00 - 17:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	202	1893	6	201	39	284	0	0	162	2787
Factor	0.00	0.00	0.00	0.90	0.91	0.25	0.93	0.89	0.76	0.00	0.00	0.75	0.92
Approach Factor	0.00			0.91			0.88			0.75			

Appendix E Sidra Reports

Criteria for interpreting results of SIDRA

1-Level of Service (LoS)

LoS	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Good	Good
B	Good, with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but requires accident study
D	Operating near capacity	Near capacity and requires accident study
E	At capacity, excessive delay: roundabout requires other control method	At capacity, requires other control mode
F	Unsatisfactory, requires other control mode or additional capacity	Unsatisfactory, requires other control mode

2-Average Vehicle Delay (AVD)

The AVD is a measure of operational performance of an intersection relating to its LoS. The average delay should be taken as a guide only for an average intersection. Longer delays may be tolerated at some intersections where delays are expected by motorists (e.g. those in inner city areas or major arterial roads).

LoS	Average Delay / Vehicle (secs)	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Less than 15	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	28 to 42	Satisfactory	Satisfactory but accident study required
D	42 to 56	Operating near capacity	Near capacity, accident study required
E	56 to 70	At capacity, excessive delays: roundabout requires other control mode	At capacity; requires other control mode
F	Exceeding 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode

3-Degree of Saturation (D/S)

The D/S of an intersection is usually taken as the highest ratio of traffic volumes on an approach to an intersection compared with the theoretical capacity, and is a measure of the utilisation of available green time. For intersections controlled by traffic signals, both queues and delays increase rapidly as DS approaches 1.0. An intersection operates satisfactorily when its D/S is kept below 0.75. When D/S exceeds 0.9, queues are expected.

MOVEMENT SUMMARY

Site: 101 [Central Coast Hwy / Yallambee Ave PM Peak 2017]

Central Coast Hwy / Yallambee Ave PM 2017
Signals - Fixed Time Coordinated Cycle Time = 145 seconds (Optimum Cycle Time - Minimum Delay)

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: Yallambee Ave											
1	L2	201	3.0	0.558	57.0	LOS E	12.6	90.3	0.93	0.82	24.4
2	T1	39	0.0	1.029	166.0	LOS F	20.5	144.0	1.00	1.49	14.0
3	R2	284	0.4	1.029	171.8	LOS F	20.5	144.0	1.00	1.46	11.7
Approach		524	1.3	1.029	127.3	LOS F	20.5	144.0	0.97	1.22	14.8
East: Central Coast Hwy											
4	L2	202	1.5	0.932	39.0	LOS C	40.9	291.4	0.87	0.92	32.1
5	T1	1893	2.4	0.932	29.0	LOS C	50.7	362.4	0.82	0.85	36.4
6	R2	123	2.4	0.907	82.6	LOS F	9.7	69.2	1.00	0.93	21.8
Approach		2218	2.3	0.932	32.8	LOS C	50.7	362.4	0.84	0.86	34.3
North: Riverside Dr											
7	L2	267	1.1	1.051	188.2	LOS F	33.8	238.9	1.00	1.58	10.4
8	T1	45	2.2	0.912	83.5	LOS F	14.9	105.8	0.99	1.14	20.8
9	R2	138	1.4	0.912	86.7	LOS F	14.9	105.8	0.99	1.14	19.7
Approach		450	1.3	1.051	146.6	LOS F	33.8	238.9	0.99	1.40	13.0
West: Central Coast Hwy											
11	T1	2083	2.0	0.851	16.7	LOS B	33.5	238.7	0.68	0.64	45.9
12	R2	162	0.6	0.551	70.6	LOS F	5.8	40.9	0.96	0.78	22.4
Approach		2245	1.9	0.851	20.6	LOS B	33.5	238.7	0.70	0.65	42.2
All Vehicles		5437	2.0	1.051	46.3	LOS D	50.7	362.4	0.81	0.85	27.7

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 SUMMARY

Site: 101 [Central Coast Hwy / Yallambee Ave PM Peak 2017 + Development]

Central Coast Hwy / Yallambee Ave PM 2017 + Development
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand 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	%	v/c	sec		veh	m		per veh	km/h
South: Yallambee Ave											
1	L2	210	2.9	0.579	55.4	LOS D	12.8	91.6	0.94	0.82	24.8
2	T1	43	0.0	1.089	250.7	LOS F	28.6	200.3	1.00	1.78	10.2
3	R2	311	0.3	1.089	256.3	LOS F	28.6	200.3	1.00	1.74	8.4
Approach		564	1.2	1.089	181.0	LOS F	28.6	200.3	0.98	1.40	11.3
East: Central Coast Hwy											
4	L2	227	1.3	0.904	30.7	LOS C	33.8	240.4	0.78	0.84	35.6
5	T1	1893	2.4	0.904	21.4	LOS B	42.0	299.8	0.79	0.79	41.5
6	R2	123	2.4	0.939	86.0	LOS F	9.8	69.9	1.00	0.97	21.2
Approach		2243	2.3	0.939	25.9	LOS B	42.0	299.8	0.80	0.80	38.2
North: Riverside Dr											
7	L2	267	1.1	1.130	308.7	LOS F	44.8	316.8	1.00	1.97	7.3
8	T1	50	2.0	0.992	126.3	LOS F	19.0	134.8	1.00	1.45	16.4
9	R2	138	1.4	0.992	129.5	LOS F	19.0	134.8	1.00	1.45	15.4
Approach		455	1.3	1.130	234.3	LOS F	44.8	316.8	1.00	1.76	9.4
West: Central Coast Hwy											
11	T1	2083	2.0	0.816	13.3	LOS A	27.4	195.1	0.63	0.58	49.4
12	R2	182	0.5	0.639	70.2	LOS E	6.5	45.7	0.98	0.80	22.4
Approach		2265	1.9	0.816	17.8	LOS B	27.4	195.1	0.66	0.59	44.5
All Vehicles		5527	1.9	1.130	55.6	LOS D	44.8	316.8	0.77	0.86	24.9

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.