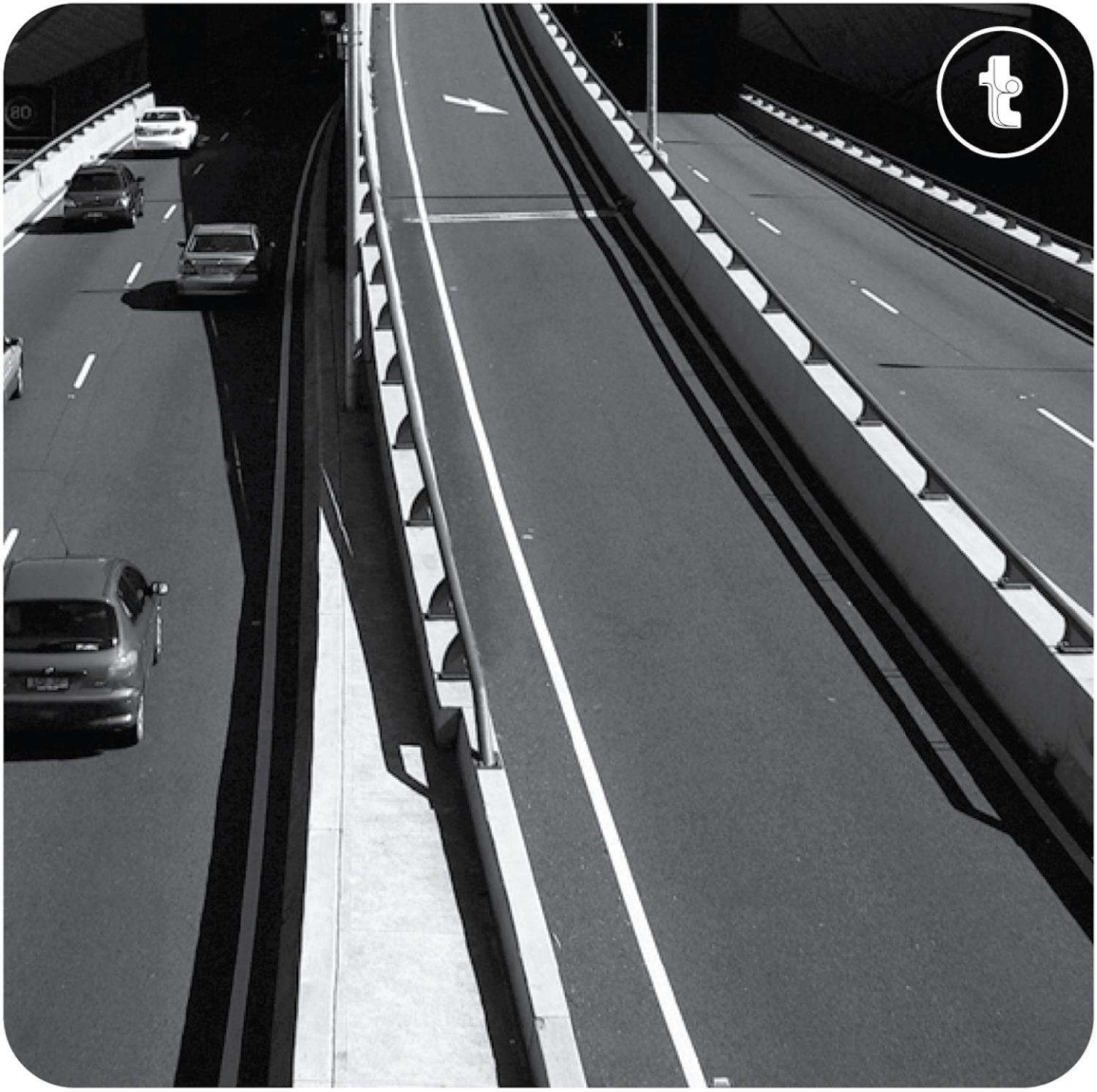


Traffic Impact Assessment

Proposed Residential Development

152-200 and 202-206 Rocky Point Road, Kogarah

Reference: 16.199r04v04 TRAFFIX TIA Report
Date: December 2016

Suite 2.08 Holt Street
Surry Hills NSW 2011
t: +61 2 8324 8700
w: www.traffix.com.au

traffix
traffic & transport planners

Document Verification

Job Number:	16.199
Project:	152-200 and 202-206 Rocky Point Road, Kogarah
Client:	JQZ

Revision	**Date**	**Prepared By**	**Checked By**	**Signed**
v01 - DRAFT	17/11/2016	Hadi Bagheri	Graham Pindar	
v02-DRAFT	08/12/2016	Hadi Bagheri	Simon Arrya	
v03	08/12/2016	Hadi Bagheri	Simon Arrya	
v04	20/12/2016	Hadi Bagheri	Simon Arrya	

Contents

1. Introduction 1

2. Background 2

2.1 Kogarah Precinct 2
2.2 Planning Proposal Approval 2
2.3 RMS Correspondence for New Proposed Signalised Intersection 3
2.4 Voluntary Planning Agreement for a Land Dedication to Child Care Centre 3

3. Location and Site 5

4. Existing Traffic Conditions 8

4.1 Road Network 8
4.2 Key Intersections 10
4.3 Public Transport Services 14
4.4 Pedestrian Infrastructure 15
4.5 Existing Site Traffic Generation 15

5. Description of Proposed Development 16

6. Parking Requirements 17

6.1 Council Controls 17
6.2 Accessible Parking 18
6.3 Bicycle Parking 18
6.4 Motorcycle Parking 18
6.5 Car Wash Bay 19
6.6 Servicing 19
6.7 Dedication of On-street Parking Spaces for the Child Care Centre 20

7. Traffic Impacts 21

7.1 Traffic Generation 21
7.2 Traffic Distribution & Impacts on Key Intersections 22
7.3 Peak Period Intersection Performances 23
7.4 Proposed Layout for the New Signalised Intersection 26
7.5 Residential Development Under Subject DA 26

8. Access & Internal Design Aspects 27

8.1 Access 27
8.2 Internal Design 27

9. Conclusions 30

Appendices

Appendix A: RMS Correspondence
Appendix B: Photographic Record
Appendix C: Reduced Plans
Appendix D: Garbage Truck Specifications
Appendix E: SIDRA Outputs
Appendix F: New Intersection Traffic Signage Plan
Appendix G: 100th Percentile Queue for the Right Turn Entry Movement
Appendix H: Swept Path Analysis

1. Introduction

TRAFFIX has been commissioned by JQZ to undertake a traffic impact assessment in support of a development application related to a residential development at 152-200 and 202-206 Rocky Point Road, Kogarah. This proposal seeks approval for a new residential development which comprises of four blocks of residential flat buildings with access via Production Lane along with twenty (20) townhouses with access vis a new proposed road.

The development is located within the Bayside Council LGA and has been assessed under this Council's controls.

This report documents the findings of our investigations about the anticipated traffic and parking impacts of the proposed development and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately. The proposed development requires referral to the RMS (formerly RTA) under the provisions of SEPP (Infrastructure) 2007.

The report is structured as follows:

- Section 2: Provides an appreciation of the background to the site planning
- Section 3: Describes the site and its location
- Section 4: Documents existing traffic conditions
- Section 5: Describes the proposed development
- Section 6: Assesses the parking requirements
- Section 7: Assesses traffic impacts
- Section 8: Discusses access and internal design aspects
- Section 9: Presents the overall study conclusions

2. Background

2.1 Kogarah Precinct

Kogarah Precinct comprises many old-style industrial developments and low to high density residential developments. Due to the increasing demand in housing, this area of Kogarah is under pressure to provide residential/mixed-use development. The subject site is located on Rocky Point Road and proposes an amalgamation of allotments 152-200 and 202-206 and is subject to a recent planning proposal approval.

2.2 Planning Proposal Approval

A planning proposal has been approved for a mixed-use development on the subject site, with an indicative masterplan prepared by Lippmann Partnership comprising of the following:

- 453 units with basement car parking
- 20,093m^2 non-residential floor space, comprising:
  - 14,286m^2 Office;
  - 4,393m^2 Showroom, and
  - 1,414m^2 warehouse.
- A new access road and signalised intersection onto Rocky Point Road

The above areas and yield mix have been amended slightly under this DA, following meetings with Council and these changes are discussed in Section 5. This development application in any case only relates to the residential component and reflects these discussions, with an increase from 453 units to 513 units and an additional 20 townhouses with enclosed garages.

The non-residential section of the report will be subject to a separate DA and at this time, no significant change in the non-residential yields is expected. Hence, for the purposes of this residential DA, the current (indicative) GFA of these non-residential land uses is assumed to be unchanged for the purposes of modelling traffic impacts.

This residential DA comprises the following:

- 513 units with two and half basement levels of car parking;
- 20 townhouses with enclosed garages;
- A new access road and signalised intersection

Accordingly, while the scope of this traffic impact could be restricted to only residential development under the approved planning proposal, the traffic generation impacts of other land-uses are taken into account to anticipate the worst case modelling scenario as discussed in Section 7.

2.3 RMS Correspondence for New Proposed Signalised Intersection

Reference should be made to the pre-DA meeting held on 13 July 2016 and the RMS letter Ref. SYD16/00784 dated 15 August 2016 concerning this residential DA. This assessment was based on the combined impacts of all uses, including the subject residential DA as well as the future non-residential uses.

The cumulative impacts require a new proposed access road and associated signalised intersection on the eastern side of Rocky Point Road incorporating Weeney Street. The RMS has agreed with initial outcomes of the pre-DA meeting and the current arrangement reflects these discussions and agreements, with the Sidra modelling presented in **Appendix A**. This is discussed further in Section 7.

2.4 Voluntary Planning Agreement for a Land Dedication to Child Care Centre

It is noted that the development application involves a VPA application to accommodate a childcare centre with capacity for 60 children. It has been agreed between the applicant and Bayside Council that a dedicated parcel of land will be allocated at the south eastern corner of the amalgamated site. The traffic generated by this childcare centre will be considered under the non-residential DA/s at a later time, however these impacts have been considered in this report as a net additional traffic loading on the network.

The Applicant has also accepted to provide 11 on-street parking spaces at the cul-de-sac end of Production Lane under this VPA. It is understood that these parking spaces satisfy Control 35 of part 6.1 Child care Centres of RDCP2011, which specifies conditions for the use of the kerb side parking to set down and pick up of children, since the parking spaces meet the following criteria:

a. the new section of Production Lane will have a width of 12 metres at the end of the cul-de-sac, and,

b. there are no parking restrictions and/or traffic controls which prevent the lawful use of the street for parking; and

c. the street is not a classified road and is a local road; and

d. the dedication of the on-street parking for set down and pick up in this case does not extend beyond the side property boundaries of the site, and it does not encroach within 10m of a corner of another street;

As per requirements of control 10, Part 4.6 of RDCP2011, we are required to provide a one-way system within the site for drop-off and pick-ups. In this case, due to Production Lane being a cul-de-sac all drop offs and pick-ups will have to be unidirectional by default. Reference should be made to the Ground Floor plan in Appendix C for Production Lane which indicates that a side walk is provided along the cul-

de-sac. This facility will provide a safe and convenient option for parents and kids to access the child care centre. It is also noteworthy that the parking spaces are outside of property boundary.

3. Location and Site

The subject site is situated at 152-200 and 202-206 Rocky Point Road, Kogarah. It is located 1.7 kilometres south of Kogarah Railway Station and 12.2 kilometres south-west of the Sydney CBD. More specifically, it is bound by Rocky Point Road to the west, industrial buildings to the north, Production lane to the east and a neighbouring residential dwelling to the south. .

The subject residential site is a trapezium in shape. It is located at the south-west corner of Production Avenue and Production Lane. This site currently comprises of an abandoned industrial building with direct access to Rocky Point Road and Production Lane.

The subject residential development has an approximate 171 metres boundary to the north, 145 metres boundary to the west and an eastern frontage of 142 metres to Production Lane. The southern side of the property boundary borders residential developments and has a length of approximately 140 metres.

Vehicular access is currently provided via a number of access driveways onto Rocky Point Road and Production Lane. A total of seven (7) driveways belongs to the subject site with five (5) existing driveways onto Rocky Point Road and two (2) driveways onto Production Lane.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2** which provides more details appreciation of the site, as well as the location of the new proposed road. Reference should also be made to the Photographic Record presented in **Appendix B**, which provides an appreciation of the general character of roads and other key attributes in proximity to site.

Figure 1: Location Plan

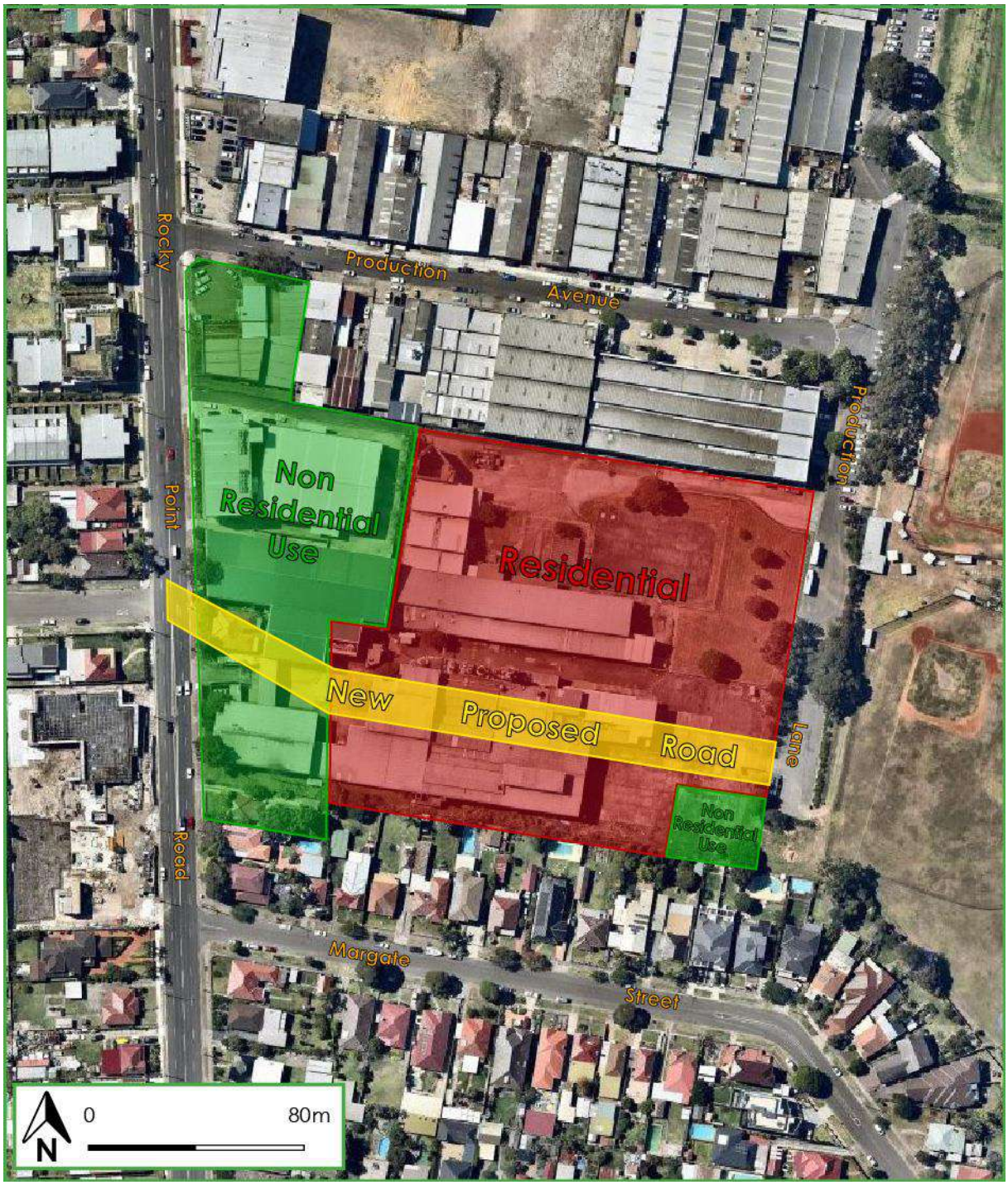


Figure 2: Site Plan

4. Existing Traffic Conditions

4.1 Road Network

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

- Rocky Point Road: an RMS State road (MR 199) that generally traverses in a north-south direction between the Princess Highway in the north and Kingsway in the south. It carries approximately 58,500 vpd in the vicinity of the site and is generally subject to 60km/h speed zoning. Rocky Point Road carries two lanes of traffic in both direction within a divided carriageway of a width of 14 metres.

- Production Avenue: a local road that traverses in an east-west direction between Rocky Point road in the east and Production Lane in the west. It is permitted to park on-street along the northern and southern kerbsides in the proximity of the subject development with no time restriction. It is subject to 50km/h speed zoning. It carries a single lane of traffic in eastbound direction.

- Production Lane: a cul-de-sac road that traverses in a north-south direction from Production Avenue in the north. It generally permits unrestricted parallel parking along the western kerbside and 90-angel parking along the eastern kerbside. Production Lane is subject to 50km/h speed zoning. It carries a single lane of traffic in either direction within undivided carriageway of a width of up to 12 metres.

- Weeney Street: a local road that traverses in an east-west direction between Rocky point Road and in the east and Battye Avenue in the west. It generally permits unrestricted parallel parking along the western kerbside only and is subject to 50km/h speed zoning. It carries a single lane of traffic in either direction within undivided carriageway of a width of 11 metres.

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.

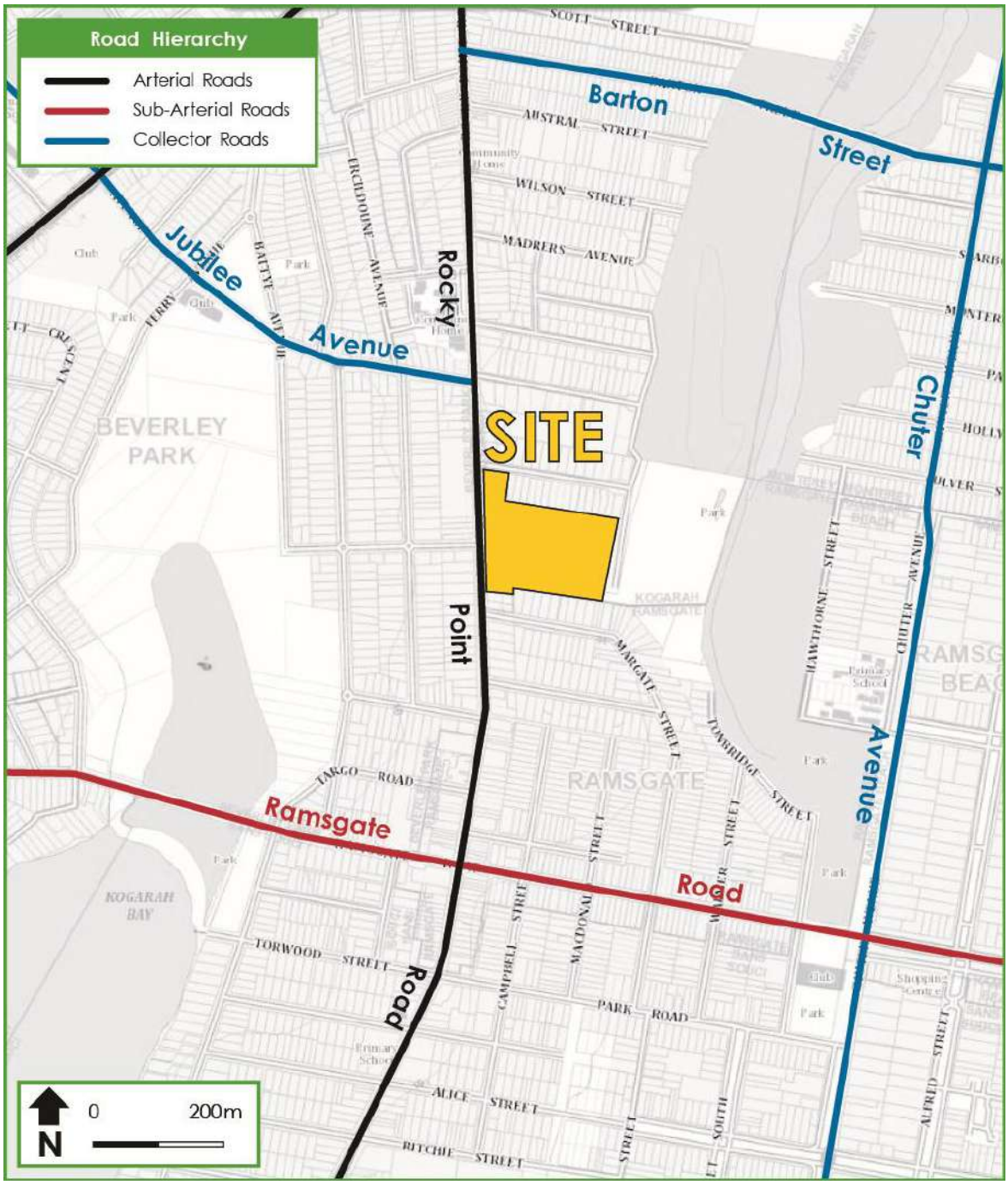


Figure 3: Road Hierarchy

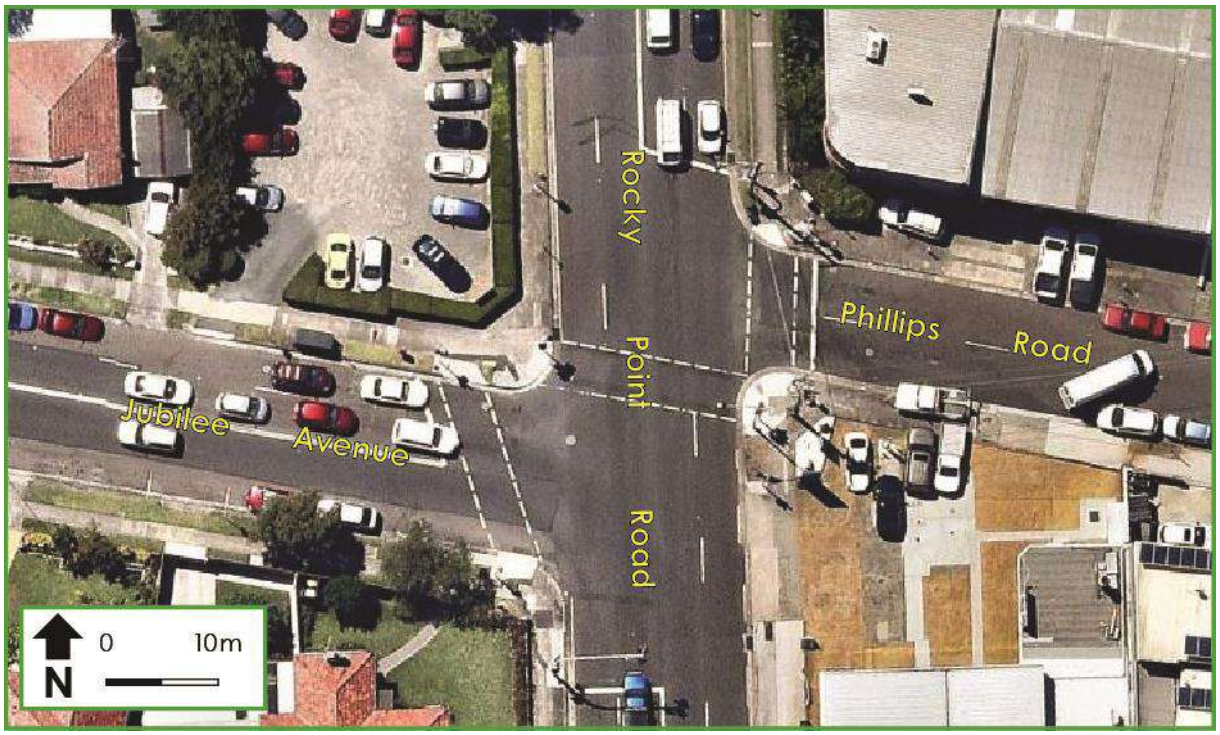
4.2 Key Intersections

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

Source: Near Map

Figure 4: Intersection of Rocky Point Road and Weeny Street

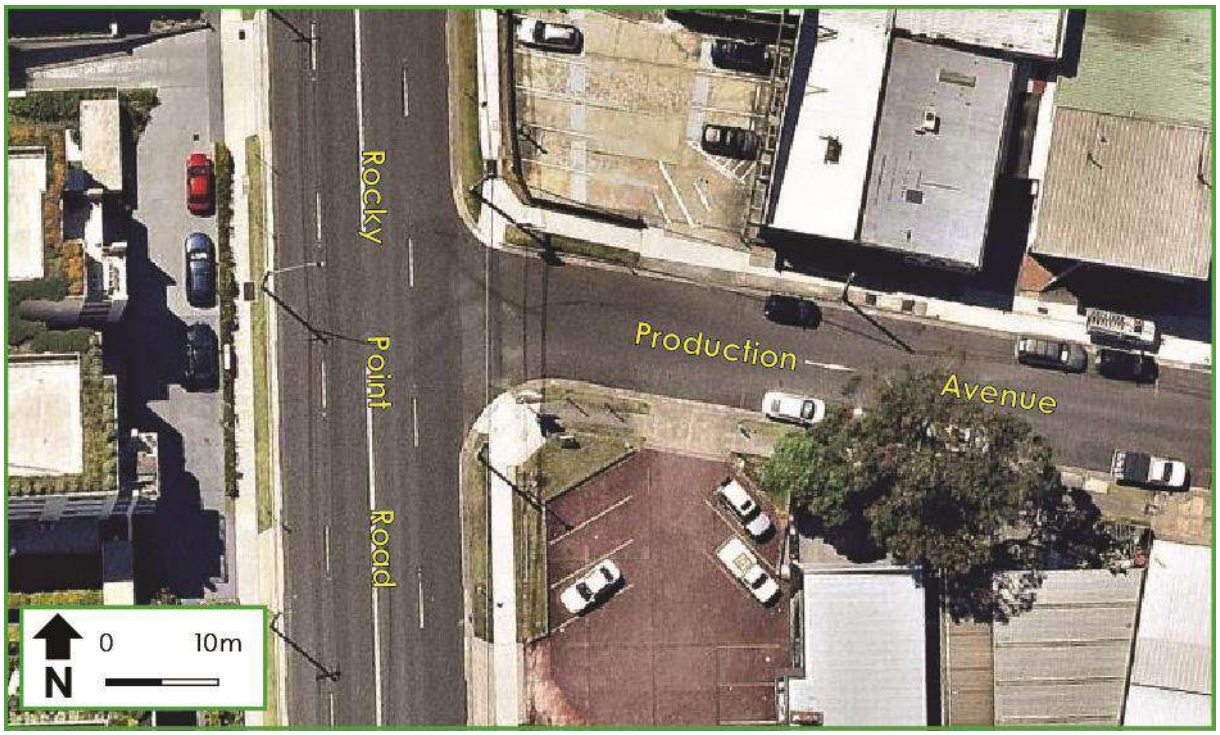
It can be seen from **Figure 4** that the intersection of Rocky Point Road and Weeny Street is a giveaway T-intersection immediately west of the subject development. This intersection accommodates two lanes in both northbound and southbound directions on Rocky Point Road, and a single lane in both the eastbound and westbound directions on Weeny Street.



Source: Near Map

Figure 5: Intersection of Rocky Point Road, Phillips Road and Jubilee Avenue

It can be seen from **Figure 5** that the intersection of Rocky Point Road, Phillips Road and Jubilee Avenue forms a signalised intersection, approximately 140 metres north of the site. Phillip Street is one-way and departure movements are permitted to Rocky Point Road and Jubilee Avenue at this intersection.



Source: Near Map

Figure 6: Intersection of Rocky Point Road and Production Avenue

It is also evident from **Figure 6** that Rocky Point Road and Production Avenue form a give way T-intersection located immediately north of the site. Production Avenue is one-way eastbound at the T-intersection from Rocky Point Road. It is expected that local residents / visitors of the proposed development will utilise this intersection as one of the main points of access.

Source: Near Map

Figure 7: Intersection of Rocky Point Road and Ramsgate Road

It is evident from **Figure 7** that Rocky Point Road and Ramsgate Road forms a signalised intersection, 490 metres south of the site. It is expected that a high proportion of local residents / commuters will use this intersection.

4.3 Public Transport Services

The existing bus services that operate in the locality are shown in **Figure 8.** It is evident that the site benefits from excellent access to bus services since it is situated within 400 metres of four (4) bus stops.

The bus services which operate in the vicinity of the site provide connections to major tour centres including Rockdale, Kogarah, Dolls point loop and Miranda.

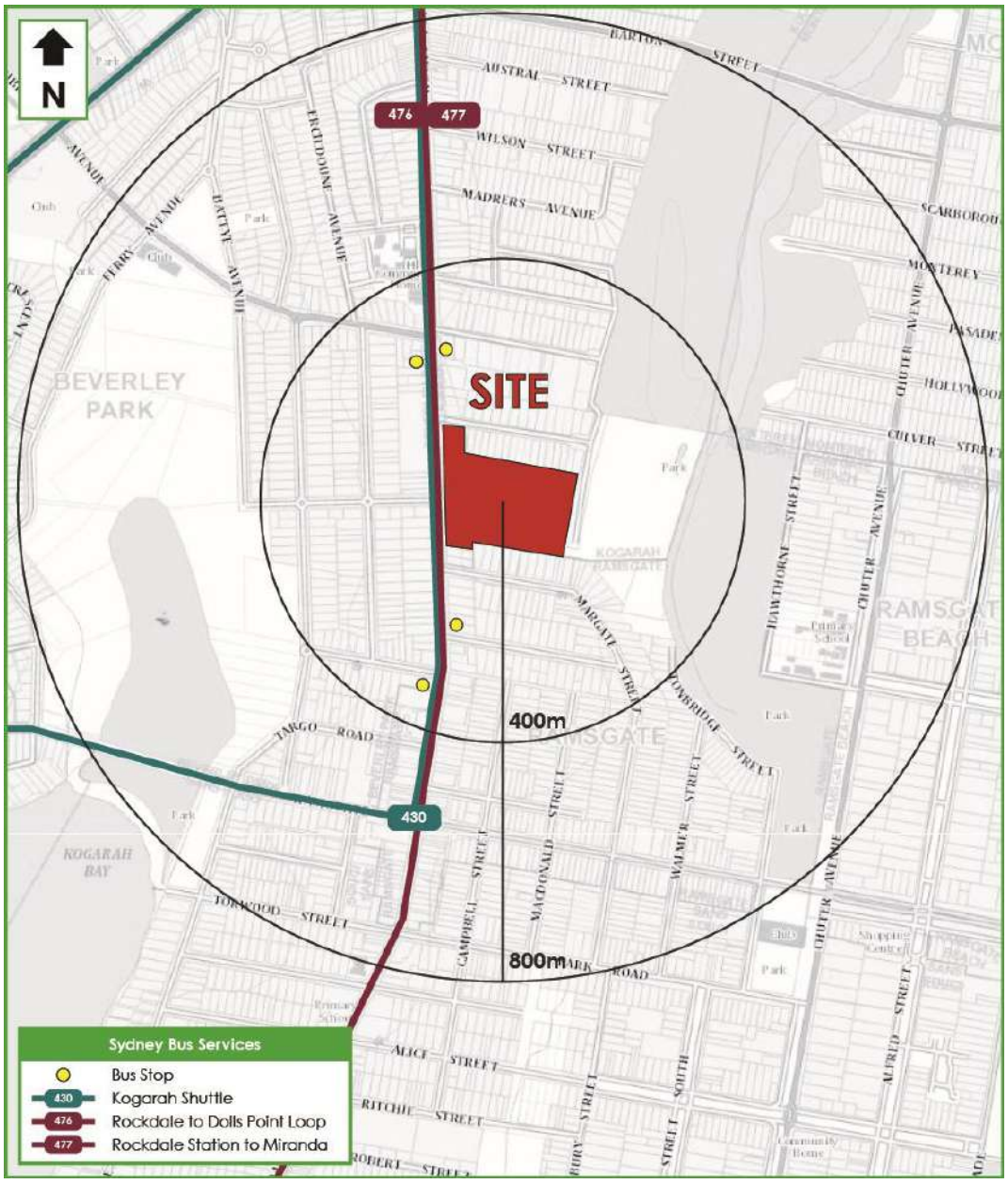


Figure 8: Public Transport Services

4.4 Pedestrian Infrastructure

Pedestrian footpaths are provided along both sides of Rocky point Road and Production Avenue. In addition, it is proposed to incorporate a large central park at the northern side of the new private road. This, with the combination of carefully spaced driveway crossovers, provides pedestrian convenience, including along on both sides of the proposed private road connecting to the new signals. It is noteworthy that the site is within walking distance to numerous surrounding services including:

- Bus public transport services,
- St. George Hospital,
- Ramsgate Road Market
- Rotary Park and Phil baseball field

4.5 Existing Site Traffic Generation

It is estimated that the existing development consists of approximately 33,488m^2 GFA of abandoned industrial buildings and few operating retails with total GFA of 1,250m^2.

Abandoned Industrial Area

In order to obtain a conservative traffic generation model, an abandoned industrial area with zero traffic generation rate has been assumed for this component of the subject site.

Retail

The generation rate associated with the retail tenancies is 4.6 vehicles per 100 m^2 GLFA in the PM peak and 50% of the PM peak assumed for the AM Peak. As such, the mixed-use development is estimated to generate the following trips:

- 29 vehicles per hour (14 in, 14 out) during the AM peak
- 58 vehicles per hour (29 in, 29 out) during the PM peak

Summary

The existing site traffic generation during both the AM and PM peak periods is considered modest in comparison with the proposed overall development on the masterplan site. Hence, these trips have been ignored as discussed in Section 7, ensuring a worst case assessment scenario.

5. Description of Proposed Development

A detailed description of the proposed development for the whole site area is provided in the Statement of Environmental Effects. In summary, this application for which approval is now sought comprises of the following components:

- Demolition of all existing industrial structures;
- The construction of residential development as listed below:

Type	Number of Units	Block	Number of Parking Levels
Residential Flat Buildings			
1 bedroom	109	B, C, D, E, BC, CD, DE	B1 (Lower and Upper), B2(Lower and Upper), Basement Mezzanine
2 bedroom	360		
3 bedroom	44		
TOTAL UNITS	513		
Townhouses	20		1

- The provision of other Council requirements which are:
  - 10 dedicated car wash bays shared with visitor spaces,
  - 48 motorcycle spaces,
  - 63 bicycle spaces.

- The provision of new signalised intersection which connects Rocky Point Road and Weeney Street to Production Lane. This new intersection will result in the construction of new privately owned by the strata road between the intersection and Production Lane.

- The provision of two loading bays suitable for the council garbage truck size plus another loading bay for SRV truck.

The parking and traffic impacts arising from the development are discussed in Sections 6 6and 7. Reference should be made to the plans submitted separately to Council which are presented at a reduced scale in **Appendix C**.

6. Parking Requirements

6.1 Council Controls

Part 4 of the General Principles for Development, *Rockdale City Council DCP 2011* requires parking for different developments to be determined at the *minimum* rates as shown in Table 1 below.

Table 1: Council Parking Rates and Provision

Type		No. Units / dwellings	Council Parking Rates	No. Spaces Required	Spaces Provided
Consolidated Parking Area for Residential Flat Building (Blocks B to E)					
Residential	1 bedroom	109	1.0 spaces per unit	557	557
	2 bedroom	360	1.0 space per unit		
	3 bedroom	44	2.0 space per unit		
Visitor		513	0.2 spaces per unit	103	103
			Total	660	660
Town Houses/Multi-Dwelling House					
Residential		20	2 space per 3BD dwellings	40	40
Visitor		20	1 space per 5 dwelling	4	4*
			Total	44	44

- A total of 25 on-street spaces are provided on the new proposed road. four (4) spaces allocated to the town house visitor parking specifically.

It should be noted that the parking requirements have been rounded up to the nearest whole number in accordance with the Rockdale City Council DCP 2011.

It can be seen from **Table 1** that the development is required to provide a minimum of 44 spaces for townhouses under Part 4 of *the Rockdale City Council DCP 2011*. In response, the development proposes a total of 40 spaces on-site for residents plus 4 parking spaces on-street for visitors. Therefore, it satisfies the minimum car parking requirements of Rockdale City Council DCP 2011.

It also can be seen from **Table 1** that the development is required to provide a minimum of 660 spaces for the residential flat developments under Part 4 of *the Rockdale City Council DCP 2011*. In response, the development proposes a total of 660 spaces comprising 557 resident spaces and 103 visitor spaces, therefore satisfying the minimum car parking requirements of Rockdale City Council DCP 2011. The provision of 21 visitor parking spaces on-street is considered acceptable.

6.2 Accessible Parking

According to the *Rockdale Technical Specification-Traffic, Parking and Access,* the number of off-street car parking spaces to be provided for people with disabilities in residential developments is determined by the requirements for adaptable housing which are specified in the DCP.

In response, the development proposes that a total of 54 adaptable units and a total of 54 adaptable parking spaces be provided. In addition, a total of 2 disabled spaces are provided for visitors in the basement parking area. Reference should be made to the access consultant report for any further information regarding the accessible and adaptable unit numbers and dimensions.

6.3 Bicycle Parking

Part 4 of the *Rockdale City Council DCP 2011* requires bicycle parking to be provided in accordance with the minimum parking rates AS outlined in the **Table 2** below.

Table 2: Council Bicycle Parking Rates and Provision

Type	No. Units	Council Parking Rates	Minimum Requirements	Spaces Provided
Residential	513	0.1 spaces per unit	52	63

** According to the DCP requirements, 15% to be accessible by visitors*

It can be seen from **Table 2** that the development is required to provide a *minimum* of 52 bicycle spaces under the *Rockdale City Council DCP 2011*. In response, the development proposes a total of 63 bicycle spaces and is therefore generally consistent with the minimum requirement under the *Rockdale City Council DCP 2011*. The proposed bicycle parking provision is therefore considered acceptable. All bicycle parking will be provided in accordance with the requirements of AS 2890.3 (2015).

6.4 Motorcycle Parking

Clause C23 of the *Rockdale City Council DCP 2011* requires motorcycle parking to be provided at the rate of 1 motorcycle space per 15 units as per **Table 3**. In response, the development proposes a total of 48 motorcycle spaces and therefore satisfies the minimum requirement of the *Rockdale City Council DCP 2011.* These spaces are provided in accordance with AS 2890.1 (2004), being 1.2 metres wide and 2.5 metres long.

Table 3: Motorcycle Parking Rates and Provision

Type	No. Units / Area / car spaces	Council Parking Rates	Min. No Spaces Required	Spaces Provided
Residential	513	1 space per 15 units	35	48

6.5 Car Wash Bay

Part 4.6-clause 20 of the *Rockdale City Council DCP 2011* requires at least one visitor car parking space to be equipped with car wash facilities which has a cold water tap and is connected to the sewer system. In response, the development proposes 10 dedicated car wash bays on Basement Level 1 and 2 shared with visitor car parking spaces and therefore satisfies the minimum requirement of the *Rockdale City Council DCP 2011.*

6.6 Servicing

The *Rockdale Technical Specification-Traffic, parking and Access* identified a specific servicing rate for residential as follow:

Table 4: Service vehicle Rates and Provision

Type	No. Units / Area / Children or Staff	Council Parking Rates				
		VAN	SRV	MRV	LRV	AV
Residents	513	2	2	2	1	0

As can be seen from **Table 4**, the development nominally requires a total of 7 loading bays under the requirements of the DCP. This requirement would include the provision of a Council garbage truck associated with the residential flat buildings. The DCP also stipulates that vehicle access for waste collection should provide for a 9.6m Council garbage truck and a small rigid vehicle (SRV), with a minimum of 3.9m head height clearance. Reference should also be made to the Council Garbage Truck Specification presented in **Appendix D**.

In response to the above requirements, the development will provide a total of three (3) servicing bays which comprises of two (2) dedicated loading bays for a council garbage truck and one (1) SRV truck. There are also ten (10) visitor parking spaces that are capable of being used for a van (B99) car and small deliveries.

It is understood that on-street waste collection system has been proposed for townhouses at the southern side of the site.

6.7 Dedication of On-street Parking Spaces for the Child Care Centre

It is understood that based on the VPA agreed between the applicant and council, eleven (11) on-street parking spaces on Production Lane are to be provided for the Child Care Centre. These parking spaces are required to be designated as dedicated spaces for the Child Care Centre.

In response, eleven (11) parking spaces are proposed at the end of Production Lane and will be signposted with time and user restrictions.

7. Traffic Impacts

7.1 Traffic Generation

It should be noted that this development application forms part of the original approved planning proposal. In order to assess a worst case traffic impact scenario, the most up to date indicative number of approved or negotiated land-use components are taken into account for the non-residential uses; as well as the specific residential yields now proposed. A conceptual plan and indicative GFA of the future land-use have been prepared by PTW Architectures and comprises the following:

Residential

This land use falls within the definition of high density residential development as per the RMS Guide. According to the RMS Guidelines, the range for traffic generation in high density residential flat buildings varies from 0.07 to 0.32 trips / dwelling during the AM (7:00-9:00) and from 0.06 to 0.41 trips / dwelling PM (4:00-6:00) peak period.

To maintain a conservative assessment, TRAFFIX has adopted a Trip Generation Rate of 0.3 for both the AM and PM peak periods for the residential component of the proposed development. This rate is higher than 0.19 trips / dwelling during the AM peak and 0.15 trips / dwelling during the PM peak. The application of this conservative rate to the 513 apartments, results in numbers shown in Table 5.

Townhouses

Townhouses fall within the definition of low density residential development under the RMS Technical Direction (TDT 2013/04a). Based on the RMS TD 2013/04a, the rate of 0.99 per dwellings is adopted for houses within the Sydney urban area. The report adopted a peak hour trip rate of 1 trip per dwelling. Application of this rate to the 20 townhouses, results in numbers shown in Table 5.

Commercial

The 'RMS guide to Traffic Generating Developments' predicts a trip generation rates of 1.6 vehicles per 100m^2 GFA for the AM peak and 1.2 vehicles per 100m^2 GFA for the PM peak. Application of the above rate onto 20,000m^2 indicative GFA results in numbers shown in Table 5.

Childcare Centre

The 'RMS guide to Traffic Generating Developments' adopts a trip generation rate of 0.8 vehicles per child for the AM peak and 0.7 vehicles per child for the PM peak. Application of the above rate to the childcare centre with 60 children is shown in Table 5.

Total Development Generation

Table 5 summaries these results and takes no account of the existing site generation discussed Section 3. Hence, this is a worst case scenario for assessment purposes.

Table 5: Future Traffic Generation Summary

Land Use	No. unit / Area (GLFA) / Child	Block Location	Trip Rate	Trip Generation		
				Total	In	Out
Residential Flat Building (units)						
AM peak	513	B, C, D, E, BC, CD, DE	0.3	154	31	123
PM peak			0.3	154	123	31
Townhouse						
AM peak	20	-	1	20	4	16
PM peak			1	20	16	4
Commercial (m^2)						
AM peak	20,000 m^2	A1 to A4	1.6	320	256	64
PM peak			1.2	240	48	192
Childcare Centre						
AM peak	60 children	-	0.8	48	24	24
PM peak			0.7	42	21	21
Totals			**AM**	**542**	**315**	**227**
			PM	**456**	**208**	**248**

In summary, the future traffic generation is assumed to be as follows:

- 542 morning peak hour trips 315 inbound 227 outbound;
- 456 evening peak hour trips 208 inbound 248 outbound.

7.2 Traffic Distribution & Impacts on Key Intersections

In order to estimate the expected distribution of traffic from the subject development, the journey to work data supplied by the NSW Government Bureau of Transport Statistics has been considered. The surveys were undertaken for residents who drive to their destination of work and workers who travel to these Travel Zones as their work destination from/to Travel Zones TZ2739, 2741, 2740 and 2748. This indicated the following distribution separated by the land-use:

Commercial (Both Peaks)

- 41% North
- 33% South
- 25% West
- 1% East

Residential Distribution (Both Peaks)

- 56% North
- 12% South
- 18% West
- 14% East

Childcare Centre Distribution (Based on Catchment)

- 70% North and 30% south during the AM Peak
- 34% North and 66% south during the PM

It should be noted that distribution percentage and route for Block A1-A2 is different from residential flat building or Block A3-A4 and townhouses. However, the purpose of this modelling is to assess the efficiency of the new proposed intersection of Rocky Point Road/Weeney Street and the new proposed road. Therefore, the traffic generated by the residential section is loaded to this new intersection to assess a worst case.

7.3 Peak Period Intersection Performances

For the purpose the assessment of traffic impacts for this development, traffic count surveys were undertaken at the most critical intersections immediately surrounding the site as identified in Section 4.2 and include:

- The intersection of Rocky Point Road/Phillips Road/Jubilee Avenue
- The intersection of Rocky Point Road/Production Avenue
- The intersection of Rocky Point Road/Ramsgate Road
- The proposed new intersection of Rocky Point Road/ Weeney Street/ Ramsgate Road.

These were undertaken on a typical weekday between the 7-9AM and 4-6PM network peak periods on Monday 10th May 2016, the results of these surveys can be viewed in **Appendix F**.

The results of these surveys were analysed using the SIDRA 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. Since both queue length and delay increase rapidly as DOS approaches 1, it is normal to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, which occur at many major intersections throughout the metropolitan area during peak periods. For intersections controlled by roundabouts 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:

Table 6: Intersection Performance Indicators

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.

In order to undertake a comparison between the existing ‘base case’ and the ‘proposed’ traffic scenarios the cumulative traffic generation predicted in Section 7.2 has been distributed onto the key intersections. This distribution is in accordance with distribution patterns identified in the traffic surveys and Journey

to Work Data. It should be noted that the intersection of Weeney Street/Rocky Point Road has been modelled and submitted by Traffix on 12th August 2016 to assess the potential traffic generation impact by the planning proposal. The modelling has been expanded to include three other intersections. Traffic generation of residential development have also been adopted to the change in terms of the unit numbers. A summary of the modelled results are provided below. Reference should also be made to the SIDRA outputs provided in **Appendix D** which provide detailed results for individual lanes and approaches.

Table 7: Intersection Performance – Existing and Future

Intersection Description	Control Type	Model	Period	Degree of Saturation	Intersection Delay	Level of Service
Rocky Point Road / Philips Road (Paired in the Sidra Network Model)	Signals	Existing	AM	0.876	10.1	A
			PM	0.927	12.6	A
		Future	AM	0.390	4.6	A
			PM	0.945	9.3	A
Rocky Point Road / Jubilee Road (Paired in the Sidra Network Model)	Signals	Existing	AM	0.864	20.5	B
			PM	0.903	11.4	A
		Future	AM	1.100	35.4	C
			PM	0.894	10.1	A
Rocky Point Road / Production Avenue	T-intersection	Existing	AM	0.923	26.9	B
			PM	0.388	30.1	C
		Future	AM	0.981	29.8	C
			PM	0.451	40.9	C
Rocky Point Road / Weeney Street	T-intersection	Existing	AM	0.243	62.3	E
			PM	0.291	36.4	C
	Signalised with New Proposed Road	Future	AM	0.888	25.1	B
			PM	0.875	11.9	A
Rocky Point Road / Ramsgate Road	Signals	Existing	AM	0.935	35.7	C
			PM	0.901	42.1	C
		Future	AM	1.030	36.2	C
			PM	0.958	39.2	C

It can be seen from Table 7 that the intersections immediately adjacent to site, being Rocky Point Road / Jubilee Avenue / Philip Road, Rocky Point Road / Production Avenue, Rocky Point Road / Ramsgate Road and Rocky Point Road / Weeney Street / (New Proposed Street) operate well with acceptable delays and spare capacity under the existing 'base case' scenario and the 'proposed' scenario in both the AM and the PM peak periods. These intersections maintain a good level of service with spare capacity resulting in a negligible change to the overall results for degree of saturation and intersection delay.

7.4 Proposed Layout for the New Signalised Intersection

The traffic impact analysis is based on inputs prepared by AT&L and Road Delay Solutions, with the following parameters:

- A 35 metre right turn bay for northbound traffic on Rocky Point Road into the proposed access road.
- A 'No right turn' restriction for southbound traffic on Rocky Point Road into Weeney Street, which is considered acceptable based on the very low right turn volume as shown by the Matrix survey results, which are included in **Appendix G**.

Furthermore, it can be seen that the intersection of Rocky Point Road/Weeney Street and the new proposed road to the west of site has improved the level of service of 'E' in the AM and 'B' PM peak period to LOS 'A' during both the AM and PM periods.

Hence, traffic relating to the subject site causes a minimal impact on the overall operation of the Rocky Point Road and surrounding intersections, subject to the installation of signals as proposed. Therefore, on this basis the cumulative impact of the proposed residential development plus the assumed future non-residential development on the wider network are considered acceptable.

In response to the RMS letter provided in **Appendix A**, the model has been run with the 100 percentile queue for the right turn bay at the intersection of Weeney Street and Rocky Point Road and New proposed Road.

7.5 Residential Development Under Subject DA

It is emphasised that in relation to the residential use that is the subject of this development application, the expected traffic generation is essentially unchanged (only slightly higher) that the assessment for this use that was undertaken at Planning Proposal stage.

The residential uses are predicted to generate only 174 veh/hr during both peak periods, which represents only 32% to 38% of the generation as assessed in this report for the overall site during the AM and PM peaks respectively. In addition, the net increase would reduce further if the existing site generation were taken into account. This specific stage of development is therefore readily supportable. The cumulative impact undertaken above can also be revisited when subsequent development applications are submitted.

8. Access & Internal Design Aspects

8.1 Access

The residential flat building nominally requires a Category 3 Driveway under AS 2890.1 (2004), being a separated entry driveway of width 6.0 and exit driveway of 4.0 to 5.5 metres incorporating a separating median of width 1 to 3 metres. Given that the car park is predominantly residential, and therefore will generate less traffic than say a retail car park, it is considered appropriate that a relaxation of the Category 3 Driveway requirements be applied, so that the driveway width can be reduced. This would result in a more appropriate design and improve pedestrian amenity, as well as improving safety by minimising the distance pedestrians are required to travel when crossing the driveway.

Therefore, the development proposes an entry width of 3.45 metres separated by 2.1 metres central median and an exit width of 3.6 metres, which are separated by a central median of width 1.5 metres, for a pedestrian refuge. This arrangement is considered to satisfy the intent of the Category 3 Driveway requirements of AS 2890.1 (2004) and is considered acceptable. This arrangement has also been assessed using swept path analysis with the use of a 9.6 metre council's waste collection vehicle, the largest service vehicle to be accommodated on-site (see **Appendix D**). These swept paths are provided in **Appendix E** and confirm that satisfactory access can be achieved, and that all vehicles will be able to enter and exit the site in a forward direction.

In addition to the above, vehicular access to the dwelling houses is provided from the new proposed private road. This access is required a Category 1 Driveway under AS 2890.1 (2004), providing a minimum combined entry/exit width of 3.0 to 5.5 metres. This arrangement has also been assessed using swept path analysis with the use of B99 vehicle as the design vehicle. These swept paths are also provided in **Appendix E** and confirm that satisfactory access can be achieved, and that all residents will be able to enter and exit the site in a forward direction.

Access control to the residential levels on the mezzanine and basement levels will be provided via remote controlled boom gates, installed at the end of the entrance ramp on the first basement level. These access and management arrangements are considered acceptable and will ensure that the development operates safely and efficiently.

8.2 Internal Design

The internal basement car parking arrangements comply with the requirements of both AS 2890.1 (2004) and AS 2890.6 (2009) and the following characteristics are noteworthy:

Parking Modules

- All resident and residential visitor parking spaces are required as User Class 1A spaces to have a minimum space length of 5.4m, a minimum width of 2.4m and a minimum aisle width of 5.8m.
- All adaptable (resident) car parking spaces have been designed in accordance with the Council's DCP requirements to have a minimum width of 3.8 metres and length of 5.4 metres.
- All disabled parking spaces are designed in accordance with AS 2890.6 (2009). Spaces are provided with a clear width of 2.4m and located adjacent to a minimum shared area of 2.4m.
- 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 AS 2890.1 (2004).

Ramps

- The queue length of 24 metres is required to accommodate the 98th percentile of queue. The Ground Floor to Basement Level 1 vehicular ramp has a maximum gradient of 10% (1 in 10) with satisfactory transitions that comply with AS 2890.2 (2002) and provide required queuing length before the roller shutter.
- The ramp between level B1 and level B2 has been tested by Swept Path Assessment in accordance with the requirements of AS 2890.2 (2002) for the ground clearance and this demonstrates satisfactory operation. Therefore, it is considered acceptable.
- The vehicular ramp has a gradient of 5% (1 in 20) for the first 6m inside the property boundary and vehicular control points, in accordance with Clause 3.3 of AS 2890.1 (2004).

Clear Head heights

- A minimum clear head height of 2.2m is provided for all areas within the basement car park as required by AS 2890.1 (2004).
- An additional clear head height of 3.93m is provided above all areas to be traversed by the waste collection / removalist truck.
- A clear head height of 2.5m is provided above all disabled spaces and shared areas, as required by AS 2890.6 (2009).

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 AS 2890.1 (2004) at the vehicular access.
- A swept path analysis of all critical movements has been undertaken to confirm geometry and compliance with the relevant standards.

Service Area Design

- The internal design of the service area has been undertaken in accordance with the requirements of AS 28090.2 (2002) for the maximum length vehicle permissible on-site being a 9.6 metre garbage vehicle.
- A minimum bay width of 4.0 metres is provided for all service bays and circulation area.
- A swept path analysis has been undertaken as permissible under AS 2890.2 (2002) and confirms the internal design. The swept path assessment is included in **Appendix E**.

In summary, the internal basement car parking has been designed in accordance with the both AS 2890.1 (2004), AS 2890.2 (2002) and AS 2890.6 (2009). 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:

- The total trip generation for proposed residential development is expected to be 174 trips/hour (35 in, 139 out) and 174 trips/hour (139 in, 35 out) during the weekday AM and PM peaks periods respectively. These impacts are moderate overall and similar to the traffic generation associated with the residential component under the approved Planning proposal.
- Nevertheless, the opportunity has been taken to revise the previous modelling to take account of the subject DA (with slightly increased yields) as well as the non-residential uses and the proposed Child Care Centre to be provided under the VPA. This assessment has also ignored the existing site generation, resulting in a worst case scenario.
- The impact of the above generation on the road network has been assessed using SIDRA Network and all intersections examined operate satisfactorily, with generally minor or moderate changes to average delays and degree of saturation; and with no change to existing levels of service during either peak period.
- The assessment confirms that the proposed traffic signals at the intersection of Rocky Point Road/Weeney Street/new private road will improve operations as well as safety generally, while providing pedestrian crossing opportunities, including to public transport.
- The proposed residential development that is the subject of this development application requires a minimum of 704 spaces comprising of 557 resident spaces, 107 visitor spaces and 40 enclosed garages, under the Part 4 of Rockdale City Council DCP 2011. In response, the development proposes a total of 704 spaces comprising of 557 resident spaces, 107 visitor spaces and 40 enclosed garages for townhouses. Therefore, this satisfies the requirements of Part 4 of the Rockdale City Council DCP 2011. It is noted that the new proposed road will accommodate 25 of the visitor spaces comprising of 4 visitor parking spaces for townhouse and 21 visitor parking spaces for residential buildings. This new road will also connect Production Lane to Rocky Point Road.
- The residential flat building will provide an entry width of 3.45 metres separated by 2.1 metres central median and an exit width of 3.6 onto Production Lane, to serve the basement car parking. These arrangements are suitable to the requirements of AS 2890.1 (2004) and the access will operate safely and efficiently.
- The development provides three (3) dedicated servicing bays with two (2) bays designed for use by vehicles up to the Council's garbage vehicle.

- The proposed access and internal parking arrangements comply with the relevant requirements of AS 2890.1 (2004), AS 2890.2 (2002), AS 2890.3 (2015) and AS 2890.6 (2009). 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 can be dealt with prior to the release of a Construction Certificate.

This traffic impact assessment therefore demonstrates that the subject application is supportable on traffic planning grounds and will operate satisfactorily.

Appendix A

RMS Correspondence

Transport
Roads & Maritime
Services

15 August 2016

Our Reference: SYD16/00784

Development Manager
JQZ Pty Ltd
PO Box 686
Burwood NSW 1805

PRE-DA FOR CONSTRUCTION OF RESIDENTIAL APPARTMENTS
152-206 ROCKY POINT ROAD, KOGARAH

Dear Mr Hung,

I refer to the meeting on 13 July 2016 between Roads and Maritime Services, JQZ and consultants (Traffix & AT&L) to discuss the comments provided by Roads and Maritime in an email dated 7 July 2016 concerning the proposed signalised intersection on Rocky Point Road at the new access road (opposite Weeney Street) as depicted in the submitted concept road design plans (SKC01 & SKC02 Issue 4 dated 1 June 2016).

Consistent with the agreed outcomes from the meeting on 13 July 2016, Roads and Maritime provides the following advice to assist in your preparation and lodgement of a development application to Council:

1. As you would be aware, road design best practice is for side road approaches to signalised intersections being angled at 90 degrees to deter high entry and exit speeds. However, Roads and Maritime will give considered to the proposed alignment (as depicted on concept drawing SKC01 Issue 4 dated 1 June 2016) of the access road approach to the signalised intersection, subject to the submission of an independent road safety audit undertaken by a qualified auditor. Any remedial measures identified by the road safety audit shall be at full cost to the developer.

2. Roads and Maritime notes that the length of the right turn storage bay on the south approach to the proposed signalised intersection is restricted to the frontage of the subject development site and cannot be extended due to site constraints (i.e. impact on neighbouring properties).

3. It is noted that parking is currently permitted in the kerbside lanes of Rocky Point Road outside of clearway operation in peak periods (6-10am for Northbound and 3-7pm for Southbound). Concern is raised that in the event that vehicles queue out of the proposed right turn storage bay on the south approach to the signalised intersection, vehicles legally parked (under existing regulatory signposting) in the kerbside lane on the northbound carriageway will block all northbound movements on Rocky Point Road. This event would likely result in traffic congestion and longer travel times for northbound motorists on Rocky Point Road.

To ensure this worst case scenario is adequately addressed and mitigated (to the satisfaction of Roads and Maritime), the applicant shall prepare an appropriate regulatory signposting plan for this section of Rocky Point Road that is supported by detailed traffic analysis (including traffic modelling). This regulatory signposting plan shall include parking prohibition in the northbound carriageway of Rocky Point Road that is extended (in a southern direction) for the full length of the 100th percentile queue for the right turn entry movements into the proposed access road.

Regulatory signposting parking restrictions will also have to be implemented on other legs of the intersection to accommodate traffic demand at this intersection during peak periods and shall be supported by traffic analysis (including modelling).

In addition to the above, it should be noted that Roads and Maritime requires the applicant consultant any resident and/or business impacted by the proposed parking restrictions (including the proposed right turn prohibition into Weeney Street) and a copy of this consultation and feedback be provided to Roads and Maritime. In this regard, it is recommended that the regulatory signposting plan be submitted with the development application.

4. The SIDRA models shall be updated to take into account a signal cycle of 120 seconds and no filtered right turns for the right turn entry movements into the proposed access road from the south approach to the intersection. However, the side road approaches will operate as filtered right turn movements.

   The updated SIDRA models shall be submitted to RMS for review and once calibrated correctly can be used to develop the abovementioned regulatory signposting plan.

5. Roads and Maritime concurrence may provide advice to Rockdale Council to take ownership of the proposed new road for ease of law enforcement and maintenance access.

6. To mitigate the traffic impact of the proposed development on the operation of Rocky Point Road, Roads and Maritime's preference is for a deceleration lane to be provided for left turn entry movements. However, due to site constraints (new building located at 168 Rocky Point Road), the requirement for the developer to construct a deceleration lane will be waived in this particular instance.

7. All costs associated with the development are to be at no cost to Roads and Maritime.

In addition to the above, Roads and Maritime provides the following preliminary road design advice on the submitted concept plans (SKC01 & SKC02 Issue 4 dated 1 June 2016) of the proposed signalised intersection on Rocky Point Road:

- Detailed design may need to incorporate a median strip along new road at the intersection, median should be 1.0m wide at the nose and extend for a minimum of 10m.
- Minimum lane widths should be 3.2m for kerbside lanes, 3.0m for the through lanes and 3.0m for the right turn lane.
- The proposed line marking doesn't tie in with the existing line marking on the southern end.
- Can proposed signal posts/mast arms be installed and not clash with existing utilities, especially on the south western corner of Weeney Street as a mast arm will need to be used here as there is no median in Rocky Point Road.
- The two existing kerb ramps in Weeney Street are not to Roads and Maritime standards and will need to be replaced to the correct standard.
- It should be noted that the installation of kerb ramps on the north western and south western corners of Weeney Street might be difficult to construct due to drainage and Telstra pits being located on these corners of the intersection.
- Width of flow at the proposed kerb ramps should not exceed 0.5m for a 1 in 10 year storm event.

- The proposed median on the northern side of the intersection appears to encroach into the northbound through lane in Rocky Point Road.
- Clarification is required on the proposed radii being used for the development in the right turn lane. The alignment of the proposed right turn lane on the Rocky Point Road south approach to the intersection is to be suitable for the design speed of Rocky Point Road.
- Turn paths supplied only show 8.8m and 12.5m single unit trucks. It should be noted that should 12.5 metre single unit trucks be the design vehicle for the intersection, Roads and Maritime will request Council impose a consent condition prohibiting vehicles longer than 12.5 metres in length undertaking any turning movements at the proposed intersection.

It is emphasised that the comments provided above are informal and of a Pre-DA nature, they are not to be interpreted as binding upon Roads and Maritime and may change following formal assessment of a submitted development application from the appropriate consent authority.

Please refer further enquiries to Ravi Ravendra on telephone 8849 2540 or via email development.sydney@rms.nsw.gov.au.

Yours sincerely

Angela Malloch
A/Manager Land Use Assessment
Network and Safety

Appendix B

Photographic Record

View looking toward the subject site from Production Lane.

View looking south on Rocky Point Road.

View looking north-west corner of the subject site from Production Avenue.

View looking south on Production Lane.

Appendix C

Reduced Plans

01_TOWNHOUSE ELEVATION_SOUTH SIDE VIEW

02_TOWNHOUSE ELEVATION_NORTH SIDE VIEW

03_PRODUCTION LANE ELEVATION

04_SOUTH ELEVATION

ABSA Association of Building Sustainability Assessors

Class 2 Building Multi-Unit

Validation Number	1010456752
Validation Date	08/12/2016
Assessor Name	Amir Girgis
Assessor Number	20579
Assessor Signature	

Simulated under BASIX Thermal Comfort Protocol

BASIX® Building Sustainability Index

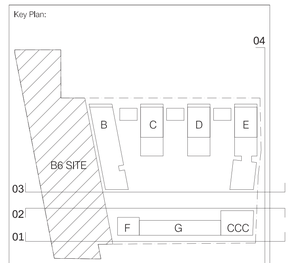
5.5 Average star rating

NATIONWIDE HOUSE ENERGY RATING SCHEME www.nathers.gov.au

Certificate no.: 0001068980
Assessor Name: Amir Girgis
Accreditation no.: 20579
Certificate date: 19 December 2016
Dwelling Address:
152-200 and 202-206 Rocky F
Kogarah, NSW
2217

www.nathers.gov.au

Key Plan:



COORD. SYSTEM MGA

GENERAL ABBREVIATIONS

Rooms:

1BED - 1 Bedroom Apartment
2BED - 2 Bedroom Apartment
3BED - 3 Bedroom Apartment
A Adaptable Apartment
S Silver Level Liveable Apartment
Terrace
Balcony/Terrace
Deck (Non-accessible)
Skylight
Skylight Above
L.O.R. - Lift Overrun

Services:

COM. - Communications Cupboard
ELEC. - Electrical Cupboard
H - Hydraulics
FE - Fire Extinguisher
FS - Fire Stair
G - Garbage Chute/Garbage Bin
R - Recycle Bin
CP/EX - Carpark Exhaust
HW - Hot Water
CW - Cold Water

Parking:

R - Resident Parking
V - Visitor Parking
Dis - Disable Parking
M - Motor Bike Parking

No:	Amendment	Date
01	PRELIMINARY ISSUE FOR COORDINATION	2016.10.21
02	PRELIMINARY ISSUE FOR COORDINATION	2016.11.11
03	ISSUE FOR COORDINATION	2016.12.06
04	DA SUBMISSION	2016.12.09

Client:
JQZ
Commercial 3,
1 Belmore Street Burwood
NSW, 2134
T +612 9378 1000
F +612 9745 2666

PTW Architects
Level 13, 9 Castlereagh St
Sydney NSW Australia 2000
T +612 9232 5877
F +612 9221 4139

NSW Nominated Architects
S Parsons Architect No.6098
D Jones Architect No. 4778
A Parker ArchitectNo.6578
A Rossi Architect No. 5057

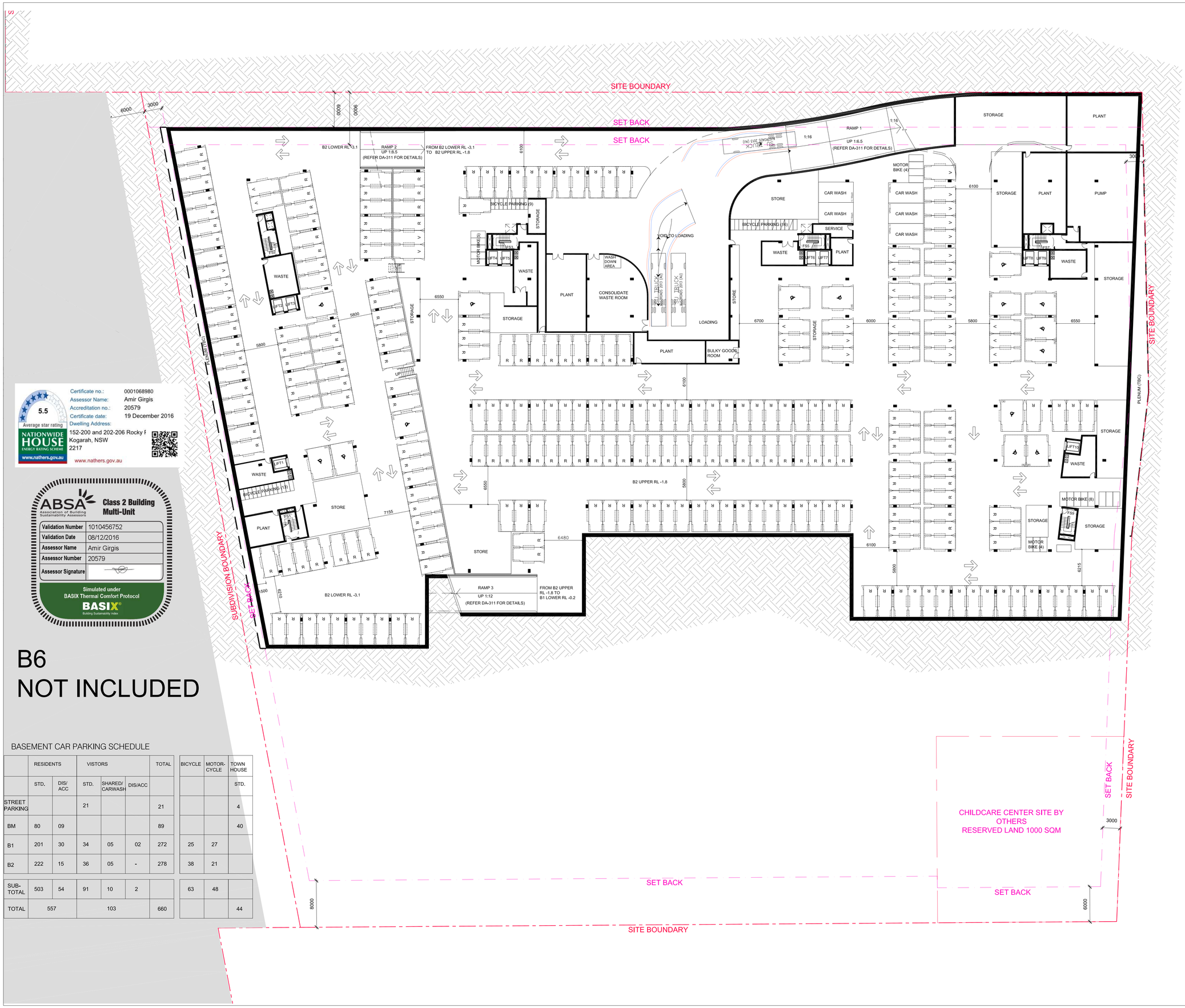
Project:
152-200 and 202-206 Rocky Point Road Kogarah

Title:
NOTIFICATION PLAN

Scale:	Date:	Job No:
NTS @A1	10/21/16	PA012984

Dwg No: DA-004
Revision: 4

Status:
DEVELOPMENT APPLICATION



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Assessor Name	Amir Girgis
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Assessor Signature	

Simulated under BASIX Thermal Comfort Protocol
BASIX® Building Sustainability Index

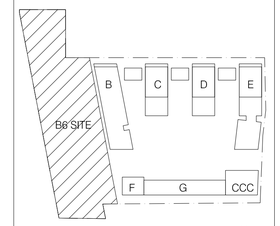
B6
NOT INCLUDED

BASEMENT CAR PARKING SCHEDULE

	RESIDENTS		VISTORS			TOTAL
	STD.	DIS/ ACC	STD.	SHARED/ CARWASH	DIS/ACC	
STREET PARKING			21			21
BM	80	09				89
B1	201	30	34	05	02	272
B2	222	15	36	05	-	278
SUB-TOTAL	503	54	91	10	2	
TOTAL	557		103			660

BICYCLE	MOTOR-CYCLE	TOWN HOUSE
		STD.
		4
		40
25	27	
38	21	
63	48	
		44

Key Plan:



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Client:
JQZ

Commercial 3,
1 Belmore Street Burwood
NSW, 2134

T +612 9378 1000
F +612 9745 2666

PTW Architects

Level 13, 9 Castlereagh St
Sydney NSW Australia 2000

T +612 9232 5877
F +612 9221 4139

NSW Nominated Architects
S Parsons Architect No.6098
D Jones Architect No. 4778
A Parker ArchitectNo.6578
A Rossi Architect No. 5057

Project:
152-200 and 202-206 Rocky Point Road Kogarah

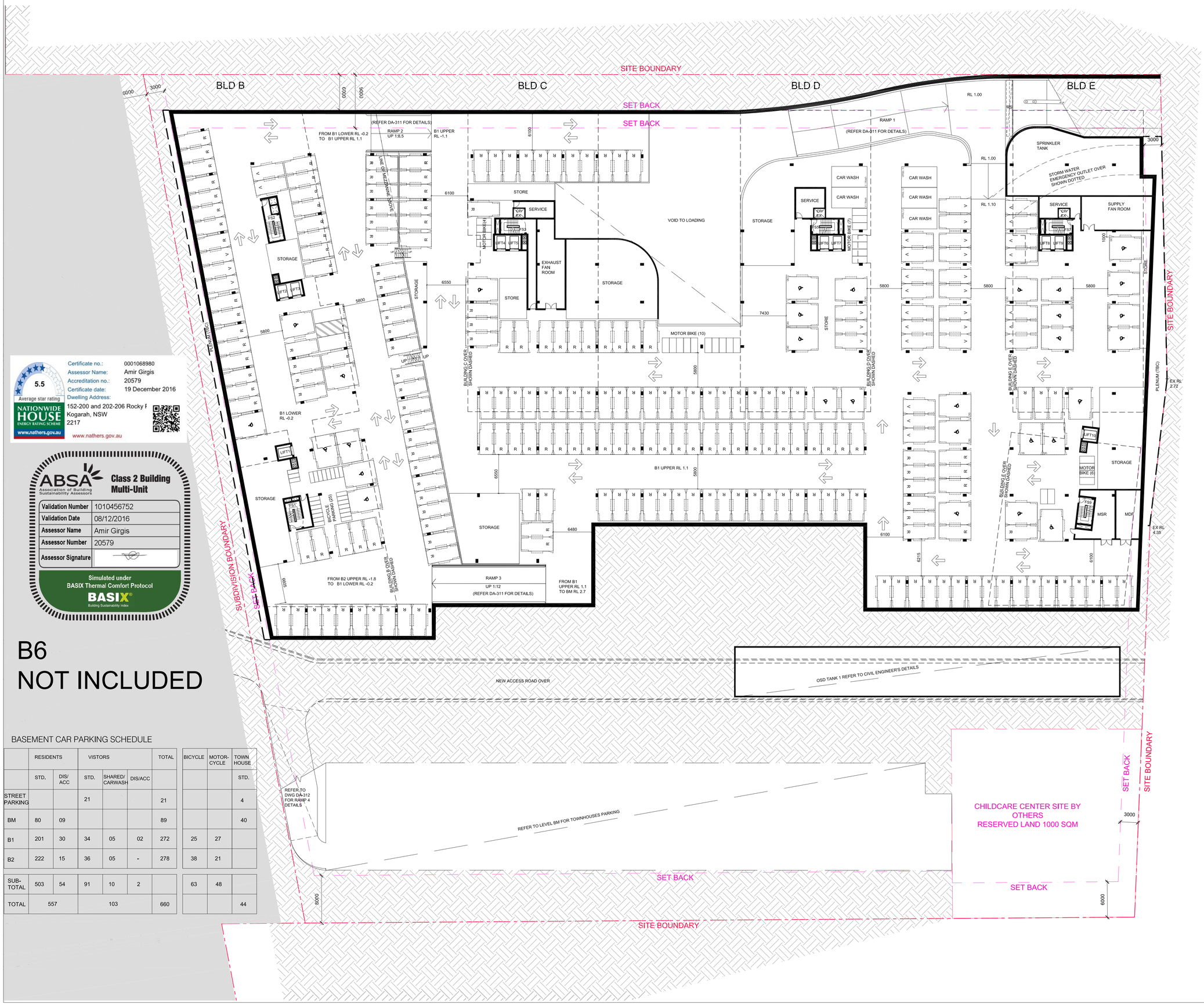
Title:
BASEMENT B2 FLOOR PLAN

0 3 6 9 12 15 24m

Scale:	Date:	Job No:
1:300 @A1	10/21/16	PA012984

Dwg No: DA-100
Revision: 4

Status:
DEVELOPMENT APPLICATION



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Multi-Unit

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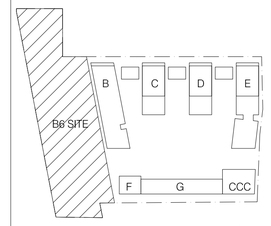
Simulated under
BASIX Thermal Comfort Protocol
BASIX® Building Sustainability Index

B6
NOT INCLUDED

BASEMENT CAR PARKING SCHEDULE

	RESIDENTS		VISTORS			TOTAL	BICYCLE	MOTOR-CYCLE	TOWN HOUSE
	STD.	DIS/ ACC	STD.	SHARED/ CARWASH	DIS/ACC				STD.
STREET PARKING			21			21			4
BM	80	09				89			40
B1	201	30	34	05	02	272	25	27	
B2	222	15	36	05	-	278	38	21	
SUB-TOTAL	503	54	91	10	2		63	48	
TOTAL	557		103			660			44

Key Plan:



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Client:
JQZ

Commercial 3,
1 Belmore Street Burwood
NSW, 2134

T +612 9378 1000
F +612 9745 2666

PTW Architects

PTW

Level 13, 9 Castlereagh St
Sydney NSW Australia 2000

T +612 9232 5877
F +612 9221 4139

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S Parsons Architect No.6098
D Jones Architect No. 4778
A Parker ArchitectNo.6578
A Rossi Architect No. 5057

Project:
152-200 and 202-206 Rocky Point Road Kogarah

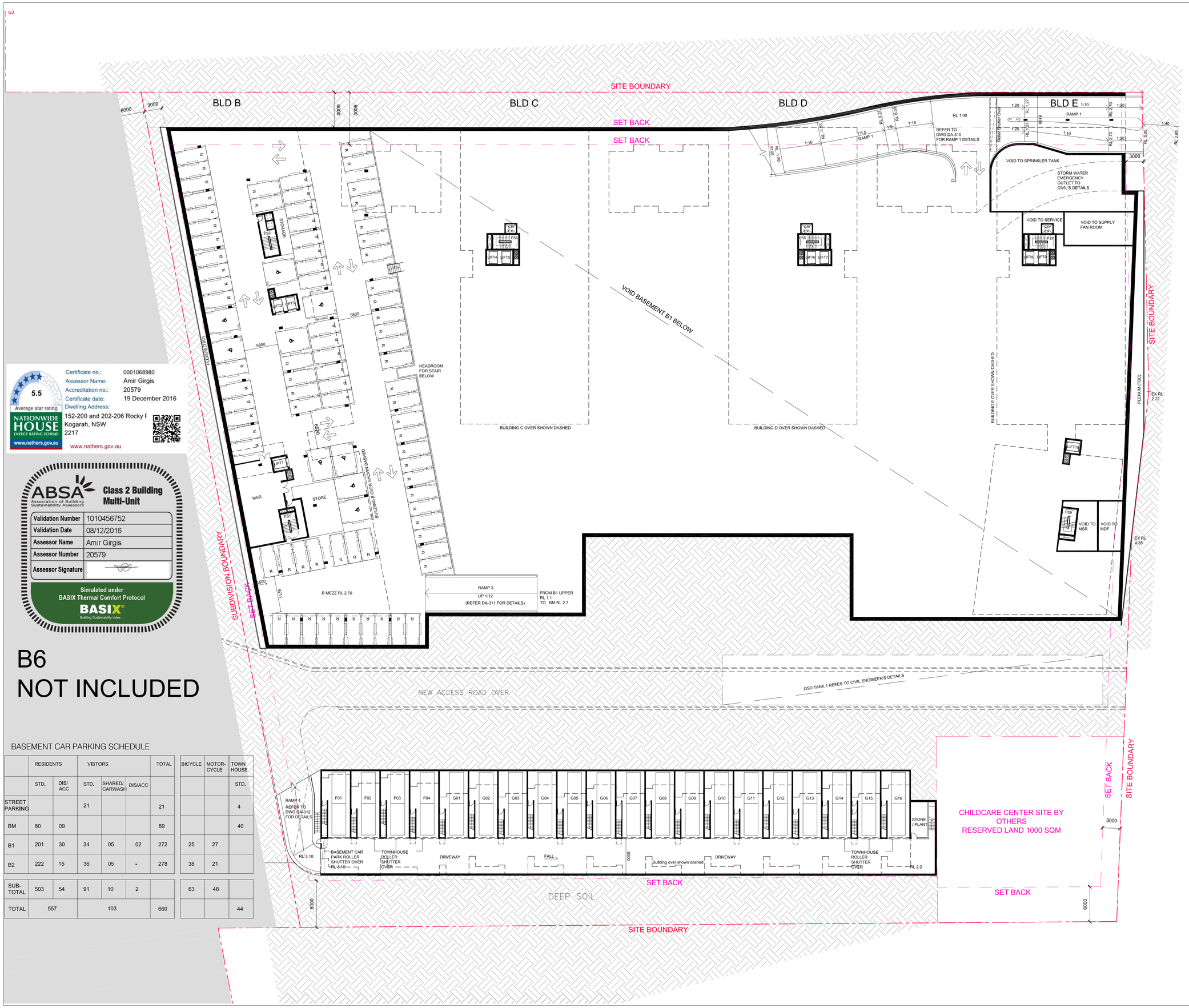
Title:
BASEMENT B1 FLOOR PLAN

0 | 3 | 6 | 9 | 12 | 15 | 24m

Scale:	Date:	Job No:
1:300 @A1	10/21/16	PA012984

Dwg No:	Revision:
DA-101	4

Status:
DEVELOPMENT APPLICATION



Certificate no.: 0001068980
Assessor Name: Amir Girgis
Accreditation no.: 20579
Certificate date: 19 December 2016
Dwelling Address:
152-200 and 202-206 Rocky F
Kogarah, NSW
2217

5.5
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

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ABSA Association of Building Sustainability Assessors
Class 2 Building Multi-Unit

Validation Number	1010456752
Validation Date	08/12/2016
Assessor Name	Amir Girgis
Assessor Number	20579
Assessor Signature	

Simulated under
BASIX Thermal Comfort Protocol
BASIX®
Building Sustainability Index

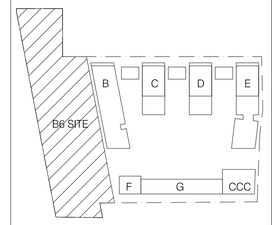
B6
NOT INCLUDED

BASEMENT CAR PARKING SCHEDULE

	RESIDENTS		VISTORS			TOTAL
	STD.	DIS/ ACC	STD.	SHARED/ CARWASH	DIS/ACC	
STREET PARKING			21			21
BM	80	09				89
B1	201	30	34	05	02	272
B2	222	15	36	05	-	278
SUB-TOTAL	503	54	91	10	2	
TOTAL	557		103			660

BICYCLE	MOTOR-CYCLE	TOWN HOUSE
		STD.
		4
		40
25	27	
38	21	
63	48	
		44

Key Plan:



COORD. SYSTEM MGA

GENERAL ABBREVIATIONS

Rooms:

1BED - 1 Bedroom Apartment
2BED - 2 Bedroom Apartment
3BED - 3 Bedroom Apartment
[A] Adaptable Apartment
[S] Sliver Level Liveable Apartment
Terrace
Balcony/Terrace
Deck (Non-accessible)
Skylight
Skylight Above
L.O.R. - Lift Overrun

Services:

COM. - Communications Cupboard
ELEC. - Electrical Cupboard
H - Hydraulics
FE - Fire Extinguisher
FS - Fire Stair
G - Garbage Chute/Garbage Bin
R - Recycle Bin
CP/EX - Carpark Exhaust
HW - Hot Water
CW - Cold Water

Parking:

R - Resident Parking
V - Visitor Parking
Dis - Disable Parking
M - Motor Bike Parking

No:	Amendment	Date
01	PRELIMINARY ISSUE FOR COORDINATION	2016.10.21
02	PRELIMINARY ISSUE FOR COORDINATION	2016.11.11
03	ISSUE FOR COORDINATION	2016.12.06
04	DA SUBMISSION	2016.12.09

Client:
JQZ

Commercial 3,
1 Belmore Street Burwood
NSW, 2134

T +612 9378 1000
F +612 9745 2666

PTW Architects

PTW

Level 13, 9 Castlereagh St
Sydney NSW Australia 2000

T +612 9232 5877
F +612 9221 4139

NSW Nominated Architects
S Parsons Architect No.6266
D Jones Architect No. 4778
A Parker Architect No.6570
A Rossi Architect No. 5057

Project:
152-200 and 202-206 Rocky Point Road Kogarah

Title:
BASEMENT BM FLOOR PLAN

0 | 3 | 6 | 9 | 12 | 15 | 24m

Scale:	Date:	Job No:
1:300 @A1	10/21/16	PA012984

Dwg No: DA-102
Revision: 4

Status:
DEVELOPMENT APPLICATION

Certificate no.: 0001068980
Assessor Name: Amir Girgis
Accreditation no.: 20579
Certificate date: 19 December 2016
Dwelling Address: 152-200 and 202-206 Rocky F Kogarah, NSW 2217

5.5 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

ABSA Association of Building Sustainability Assessors
Class 2 Building Multi-Unit

Validation Number	1010456752
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Assessor Name	Amir Girgis
Assessor Number	20579
Assessor Signature	

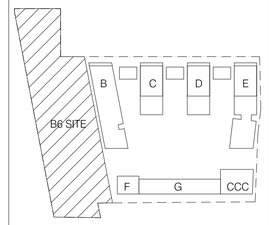
Simulated under BASIX Thermal Comfort Protocol
BASIX® Building Sustainability Index

B6
NOT INCLUDED

BASEMENT CAR PARKING SCHEDULE

	RESIDENTS		VISTORS			TOTAL	BICYCLE	MOTOR-CYCLE	TOWN HOUSE
	STD.	DIS/ ACC	STD.	SHARED/ CARWASH	DIS/ACC				STD.
STREET PARKING			21			21			4
BM	80	09				89			40
B1	201	30	34	05	02	272	25	27	
B2	222	15	36	05	-	278	38	21	
SUB-TOTAL	503	54	91	10	2		63	48	
TOTAL	557		103			660			44

Key Plan:



COORD. SYSTEM MGA

GENERAL ABBREVIATIONS

Rooms:

1BED - 1 Bedroom Apartment
2BED - 2 Bedroom Apartment
3BED - 3 Bedroom Apartment
A - Adaptable Apartment
S - Sliver Level Liveable Apartment
Terrace
Balcony/Terrace
Deck (Non-accessible)
Skylight
Skylight Above
L.O.R. - Lift Overrun

Services:

COM. - Communications Cupboard
ELEC. - Electrical Cupboard
H - Hydraulics
FE - Fire Extinguisher
FS - Fire Stair
G - Garbage Chute/Garbage Bin
R - Recycle Bin
CP/EX - Carpark Exhaust
HW - Hot Water
CW - Cold Water

Parking:

R - Resident Parking
V - Visitor Parking
Dis - Disable Parking
M - Motor Bike Parking

No:	Amendment	Date
01	PRELIMINARY ISSUE FOR COORDINATION	2016.10.21
02	PRELIMINARY ISSUE FOR COORDINATION	2016.11.11
03	ISSUE FOR COORDINATION	2016.12.06
04	DA SUBMISSION	2016.12.09

Client:
JQZ

Commercial 3,
1 Belmore Street Burwood
NSW, 2134
T +612 9378 1000
F +612 9745 2666

PTW Architects
PTW

Level 13, 9 Castlereagh St
Sydney NSW Australia 2000
T +612 9232 5877
F +612 9221 4139

NSW Nominated Architects
S Parsons Architect No.6098
D Jones Architect No. 4778
A Parker Architect No.6578
A Rossi Architect No. 5057

Project:
152-200 and 202-206 Rocky Point Road Kogarah

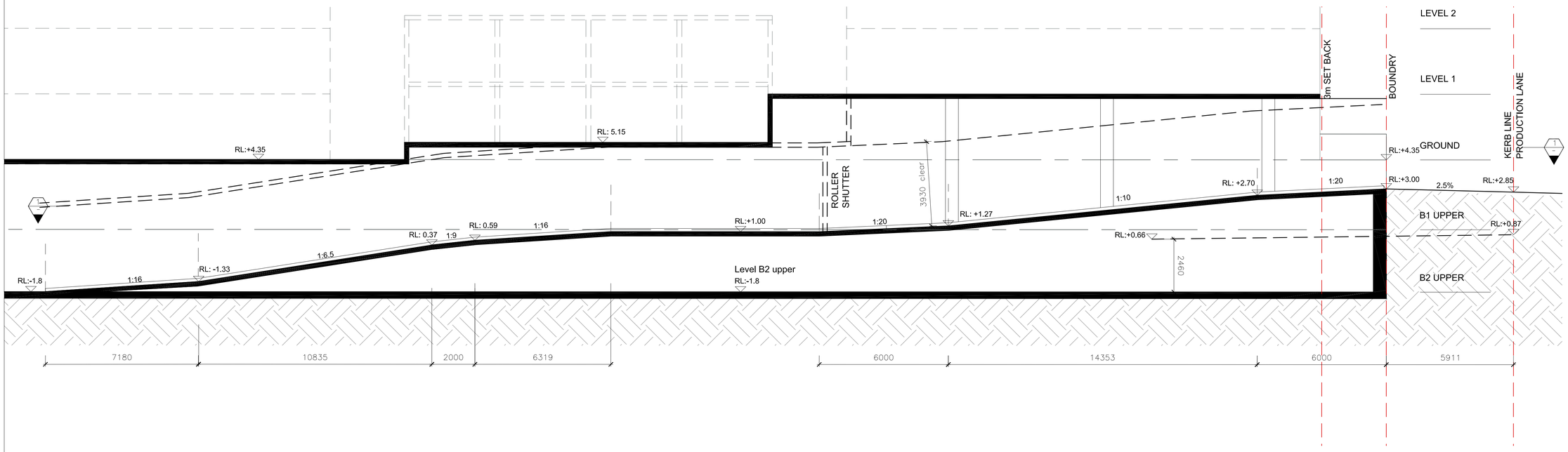
Title:
LEVEL GROUND FLOOR PLAN

0 | 3 | 6 | 9 | 12 | 15 | 24m

Scale:	Date:	Job No:
1:300 @A1	10/21/16	PA012984

Dwg No: DA-110
Revision: 4

Status: DEVELOPMENT APPLICATION



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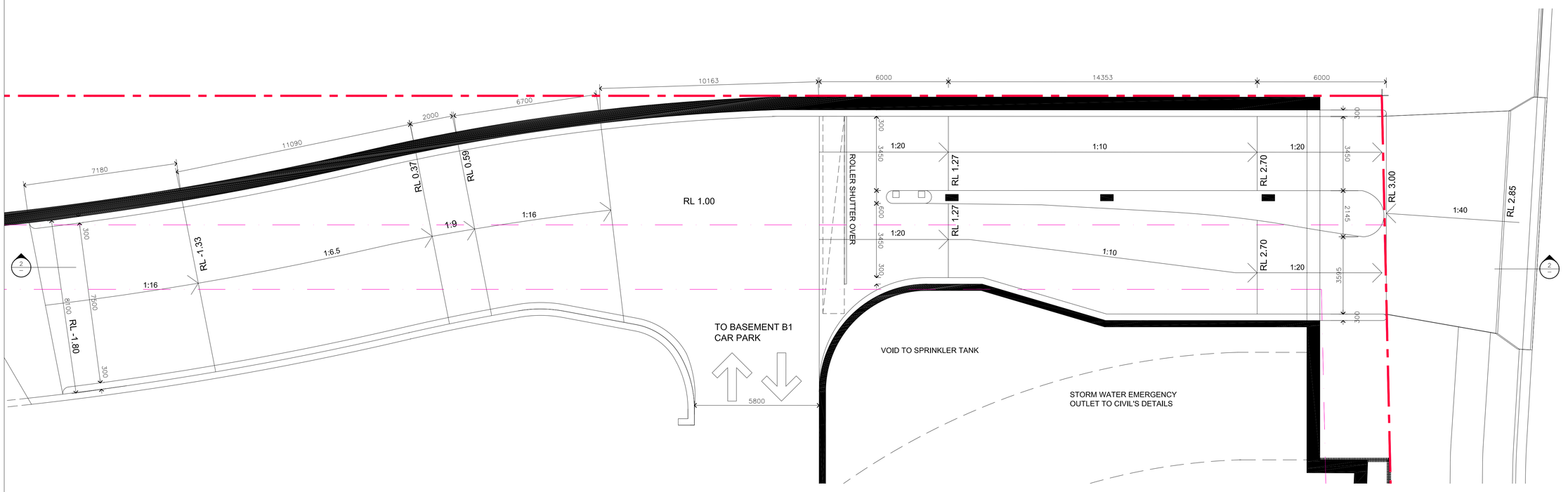

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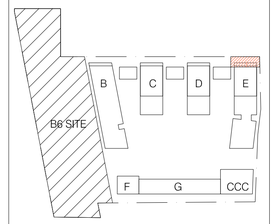

COORD. SYSTEM MGA

GENERAL ABBREVIATIONS

Rooms:

1BED - 1 Bedroom Apartment
2BED - 2 Bedroom Apartment
3BED - 3 Bedroom Apartment
A Adaptable Apartment
S Sliver Level Liveable Apartment
Terrace
Balcony/Terrace
Deck (Non-accessible)
Skylight
Skylight Above
L.O.R. - Lift Overrun

Services:

COM. - Communications Cupboard
ELEC. - Electrical Cupboard
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FE - Fire Extinguisher
FS - Fire Stair
G - Garbage Chute/Garbage Bin
R - Recycle Bin
CP/EX - Carpark Exhaust
HW - Hot Water
CW - Cold Water

Parking:

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V - Visitor Parking
Dis - Disable Parking
M - Motor Bike Parking

No:	Amendment	Date
01	PRELIMINARY ISSUE FOR COORDINATION	2016.10.21
02	PRELIMINARY ISSUE FOR COORDINATION	2016.11.11
03	ISSUE FOR COORDINATION	2016.12.06
04	DA SUBMISSION	2016.12.09

Client:
JQZ

Commercial 3,
1 Belmore Street Burwood
NSW, 2134

T +612 9378 1000
F +612 9745 2666

PTW Architects

Level 13, 9 Castlereagh St
Sydney NSW Australia 2000

T +612 9232 5877
F +612 9221 4139

NSW Nominated Architects
S Parsons Architect No.6098
D Jones Architect No. 4778
A Parker Architect No.6378
A Rossi Architect No. 5057

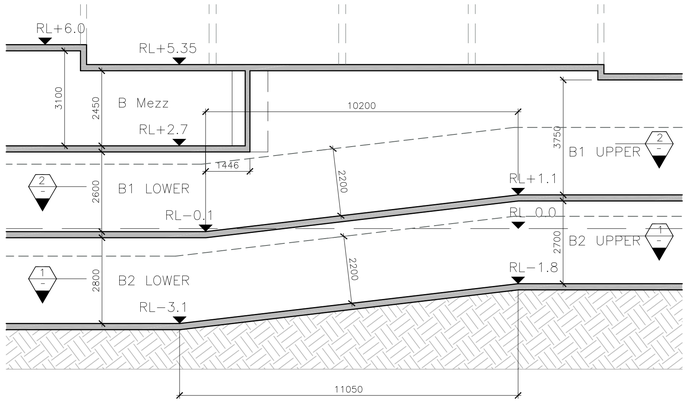
Project:
152-200 and 202-206 Rocky Point Road Kogarah

Title:
DRIVEWAY PROFILE RAMP 1 - MAIN ENTRY

Scale:	Date:	Job No:
1:100 @A1	10/21/16	PA012984

Dwg No: DA-310
Revision: 4

Status: DEVELOPMENT APPLICATION



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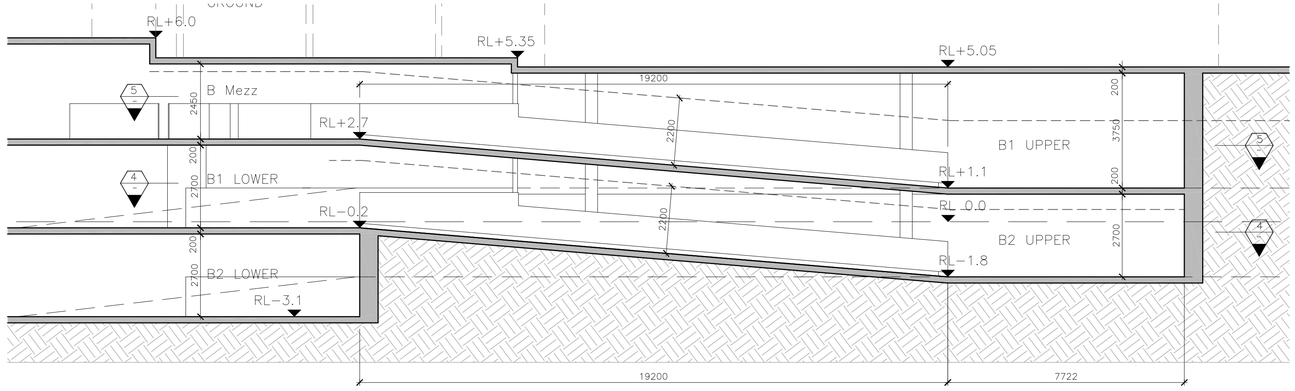

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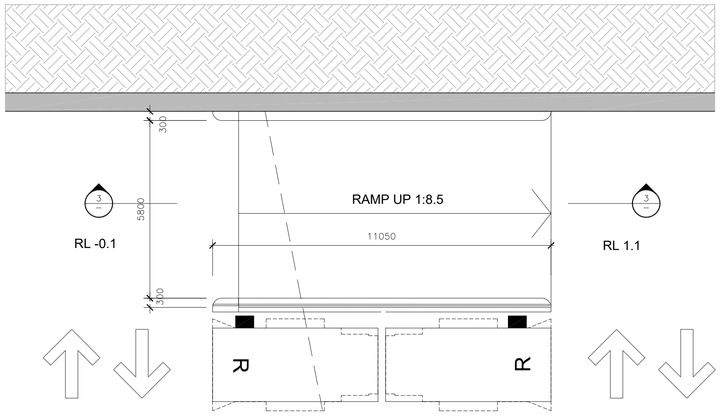
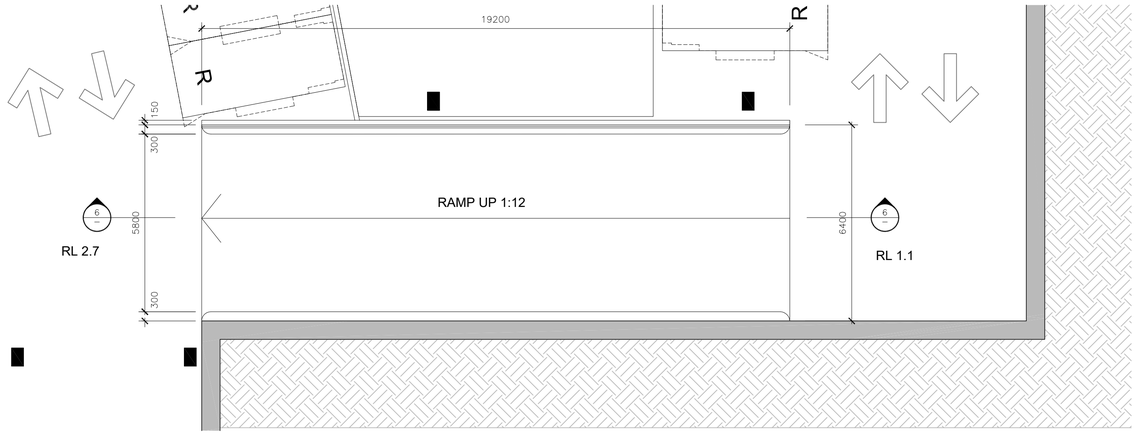
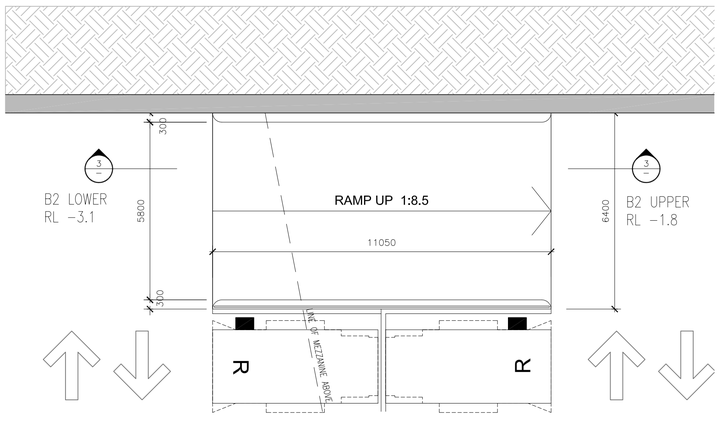


2 RAMP 2 PLAN - (B1 LOWER TO B1 UPPER)
1:100



5 RAMP 3 PLAN - (B1 UPPER TO B MEZZANINE)
1:100



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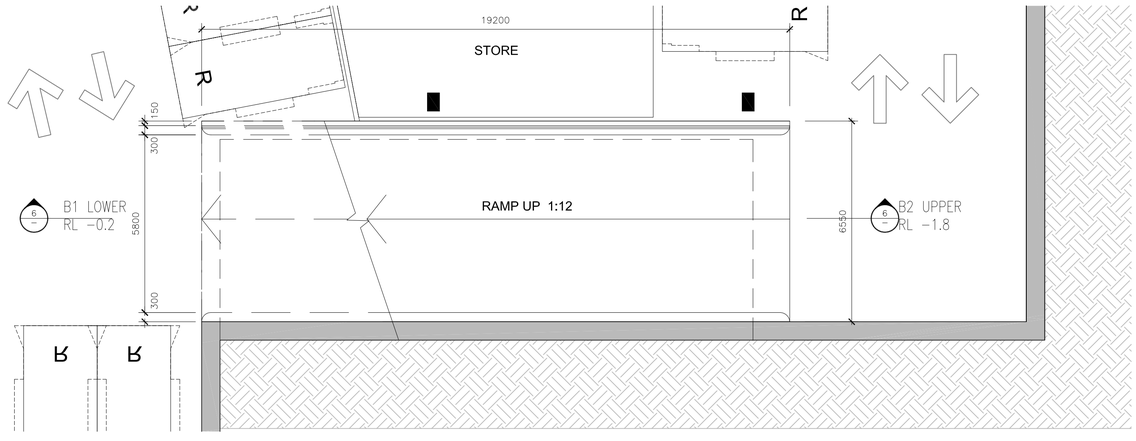
1:100



4 RAMP 3 PLAN - (B2 UPPER TO B1 LOWER)
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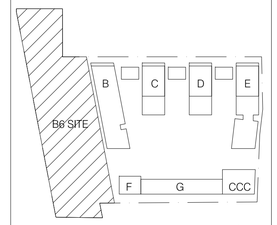

COORD. SYSTEM MGA

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No:	Amendment	Date
01	PRELIMINARY ISSUE FOR COORDINATION	2016.10.21
02	PRELIMINARY ISSUE FOR COORDINATION	2016.11.11
03	ISSUE FOR COORDINATION	2016.12.06
04	DA SUBMISSION	2016.12.09

Client:
JQZ

Commercial 3,
1 Belmore Street Burwood
NSW, 2134

T +612 9378 1000
F +612 9745 2666

PTW Architects

PTW

Level 13, 9 Castlereagh St
Sydney NSW Australia 2000

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S Parsons Architect No.6098
D Jones Architect No. 4778
A Parker Architect No.6579
A Rossi Architect No. 5057

Project:
152-200 and 202-206 Rocky Point Road Kogarah

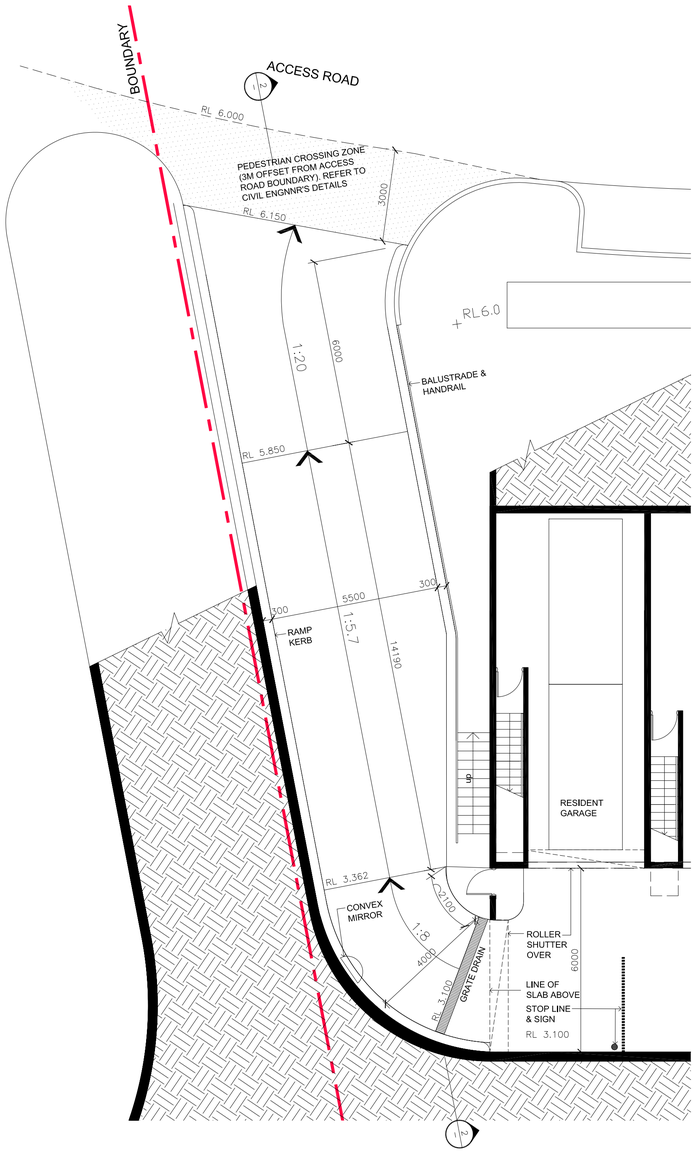
Title:
DRIVEWAY PROFILE RAMP 2 & 3

Scale:	Date:	Job No:
1:100 @A1	10/21/16	PA012984

Dwg No: DA-311

Revision: 4

Status: DEVELOPMENT APPLICATION



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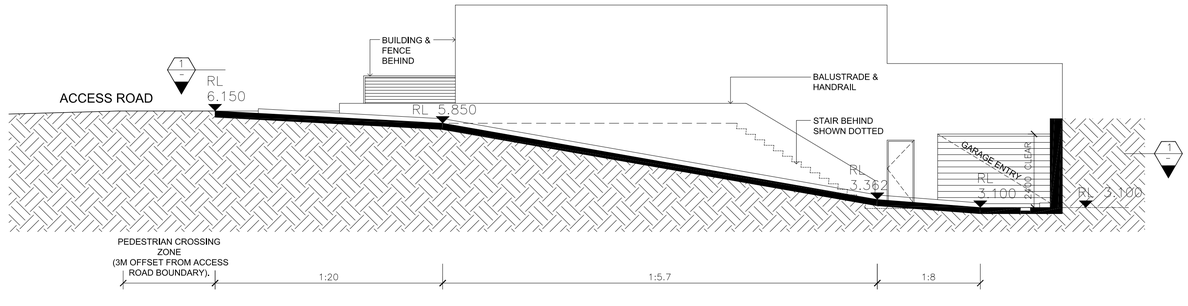

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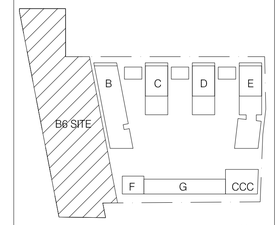

COORD. SYSTEM MGA

GENERAL ABBREVIATIONS

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03	ISSUE FOR COORDINATION	2016.12.06
04	DA SUBMISSION	2016.12.09

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JQZ

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1 Belmore Street Burwood
NSW, 2134

T +612 9378 1000
F +612 9745 2666

PTW Architects

PTW

Level 13, 9 Castlereagh St
Sydney NSW Australia 2000

T +612 9232 5877
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NSW Nominated Architects
S Parsons Architect No.6098
D Jones Architect No. 4778
A Parker ArchitectNo.6578
A Rossi Architect No. 5057

Project:
152-200 and 202-206 Rocky Point Road Kogarah

Title:
DRIVEWAY PROFILE RAMP 4 - TOWNHOUSE ENTRY

Scale:	Date:	Job No:
1:100 @A1	10/21/16	PA012984

Dwg No:	Revision:
DA-312	4

Status:
DEVELOPMENT APPLICATION

Appendix D

Garbage Truck Specification

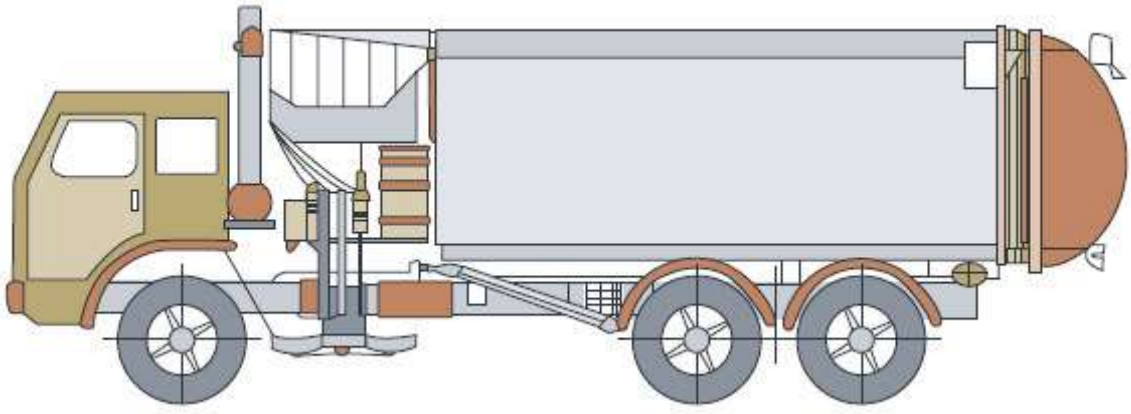
Appendix D: Garbage Truck Dimensions for Residential Waste Collection

This page includes information regarding the dimensions of garbage trucks that are typically used for the collection of residential waste. Developments that require Council garbage trucks to enter the site for the collection of residential waste must be designed to accommodate on-site truck movement.

Requirements regarding vehicle turning circles and driveway width/gradient are contained in Australian Standard 2890.2 2002/Planning Facilities — off street commercial vehicles.

It is recommended that an applicant speak with Council's Waste Services Coordinator in regards to the design of development proposals that involve garbage trucks entering the site. Services will not be provided where there are undue risks.

Typical Council Garbage Truck used for Domestic Waste Collection	
Length overall	9.64m
Front overhang	1.51m
Wheelbase	5.20m
Rear overhang	2.93m
Turning circle kerb to kerb	17.86m
Turning circle wall to wall	20.56m
Front of vehicle to collection arm	3.8m
Maximum reach of side arm	3.0m
Travel height	3.63m
Clearance height for loading	3.9m



Source of diagram: *Better Practice Guide for Waste Management in Multi-Unit Dwellings, DECCW 2008.*

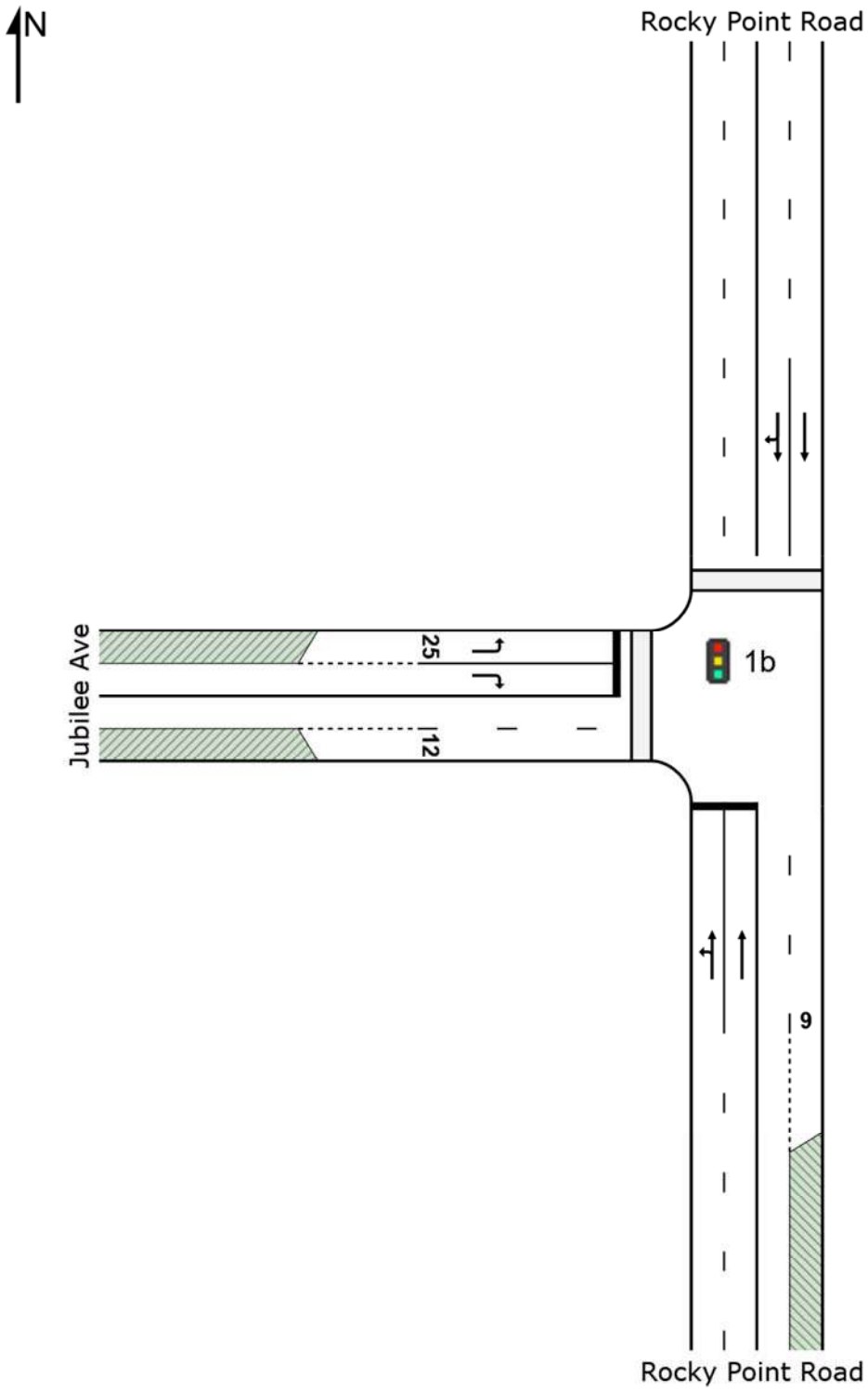
Appendix E

SIDRA Output

SITE LAYOUT

Site: 1b [AM EX - Rocky Point Rd x Jubilee Ave]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: AM
Scenario: Existing Situation
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 1b [AM EX - Rocky Point Rd x Jubilee Ave]

Network: 1 [AM EX]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: AM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Rocky Point Road x Jubilee Ave x Phillips Road]

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: Rocky Point Road													
1	L2	204	0.5	204	0.5	0.849	24.3	LOS B	27.6	197.5	0.67	0.70	29.6
2	T1	1376	3.1	1376	3.1	0.849	21.5	LOS B	27.6	197.5	0.77	0.78	16.3
Approach		1580	2.8	1580	2.8	0.849	21.9	LOS B	27.6	197.5	0.76	0.77	18.6
North: Rocky Point Road													
8	T1	642	8.5	642	8.5	0.320	0.0	LOS A	0.0	0.0	0.00	0.05	52.0
9	R2	66	4.8	66	4.8	0.320	2.1	LOS A	0.0	0.0	0.00	0.06	50.8
Approach		708	8.2	708	8.2	0.320	0.2	LOS A	0.0	0.0	0.00	0.05	51.4
West: Jubilee Ave													
10	L2	106	2.0	106	2.0	0.774	70.4	LOS E	6.7	47.6	1.00	0.87	9.9
12	R2	134	3.1	134	3.1	0.864	72.6	LOS F	8.7	62.3	1.00	0.95	9.7
Approach		240	2.6	240	2.6	0.864	71.6	LOS F	8.7	62.3	1.00	0.92	9.8
All Vehicles		2528	4.3	2528	4.3	0.864	20.5	LOS B	27.6	197.5	0.57	0.58	17.1

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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

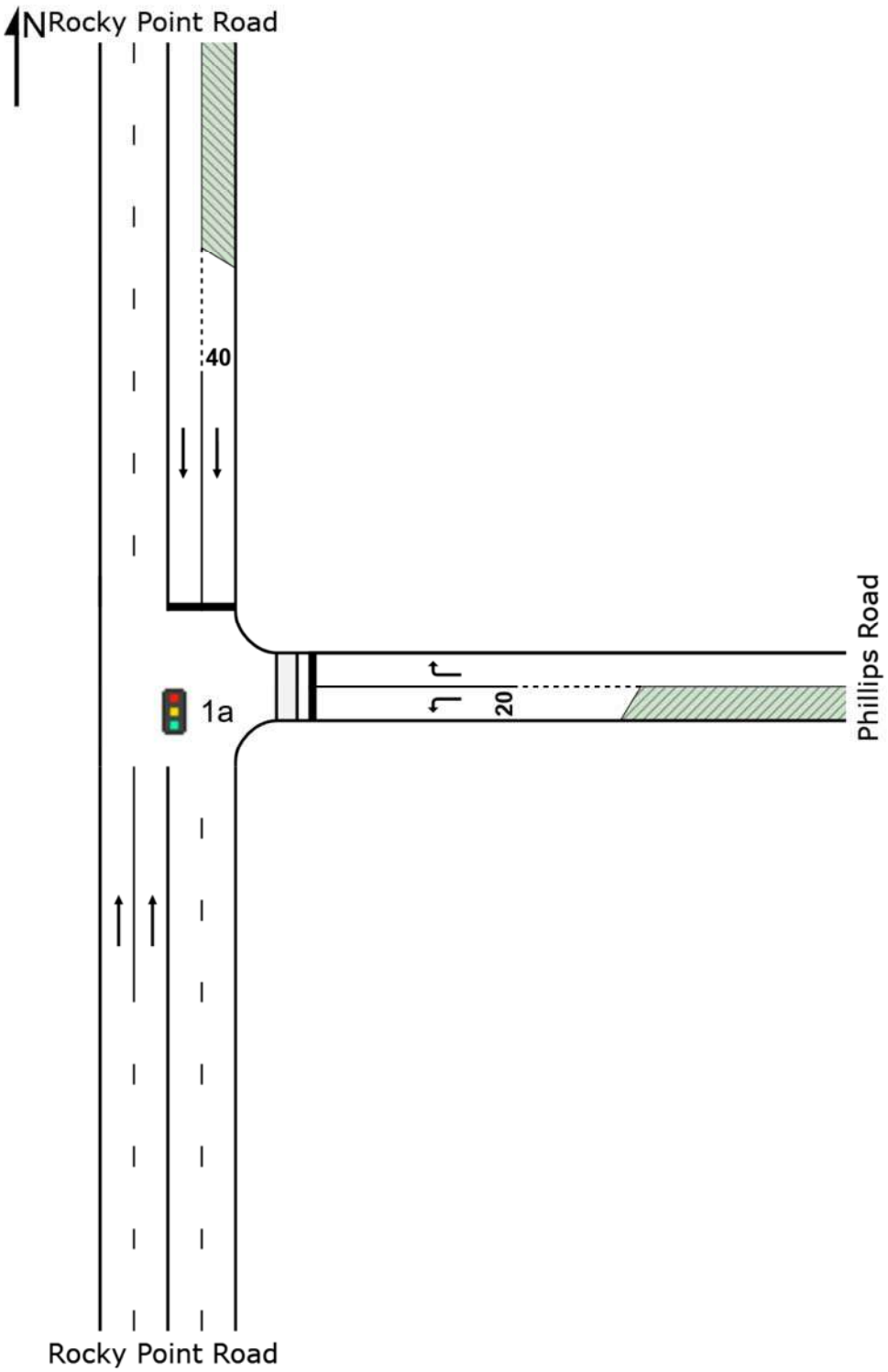
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	11.7	LOS B	0.1	0.1	0.44	0.44
All Pedestrians		105	33.0	LOS D			0.70	0.70

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.

SITE LAYOUT

Site: 1a [AM EX - Rocky Point Rd x Phillips Rd]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: AM
Scenario: Existing Situation
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 1a [AM EX - Rocky Point Rd x Phillips Rd]

Network: 1 [AM EX]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: AM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Rocky Point Road x Jubilee Ave x Phillips Road]

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: Rocky Point Road													
2	T1	1482	3.1	1482	3.1	0.388	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1482	3.1	1482	3.1	0.388	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
East: Phillips Road													
4	L2	134	3.1	134	3.1	0.876	73.2	LOS F	8.7	62.5	1.00	0.96	11.7
6	R2	106	2.0	106	2.0	0.654	62.9	LOS E	6.2	44.1	0.99	0.81	25.9
Approach		240	2.6	240	2.6	0.876	68.6	LOS E	8.7	62.5	1.00	0.90	18.8
North: Rocky Point Road													
8	T1	669	8.0	669	8.0	0.293	11.3	LOS A	9.0	67.2	0.50	0.44	44.5
Approach		669	8.0	669	8.0	0.293	11.3	LOS A	9.0	67.2	0.50	0.44	44.5
All Vehicles		2392	4.4	2392	4.4	0.876	10.1	LOS A	9.0	67.2	0.24	0.21	45.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

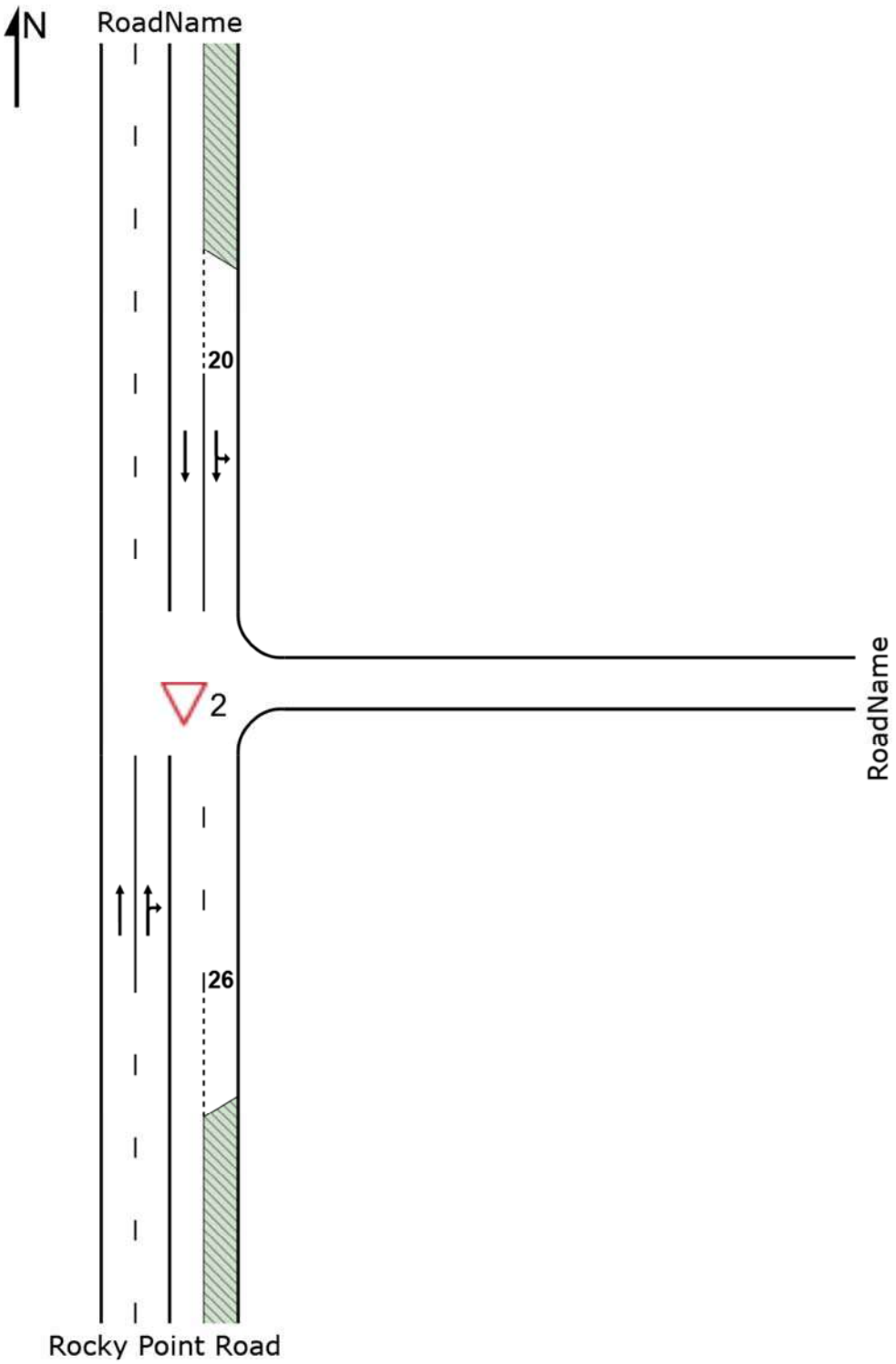
Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue Pedestrian	Distance	Prop. Queued	Effective Stop Rate
		ped/h	sec		ped	m		per ped
P2	East Full Crossing	53	9.6	LOS A	0.1	0.1	0.40	0.40
All Pedestrians		53	9.6	LOS A			0.40	0.40

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.

SITE LAYOUT

Site: 2 [AM EX - Rocky Point Road x Production Avenue]

T-intersection:Rocky Point Road x Production Avenue
Period: AM
Scenario: Exisitng Situation
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2 [AM EX - Rocky Point Road x Production Avenue]

Network: 1 [AM EX]

T-intersection:Rocky Point Road x Production Avenue
Period: AM
Scenario: Exisitng Situation
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

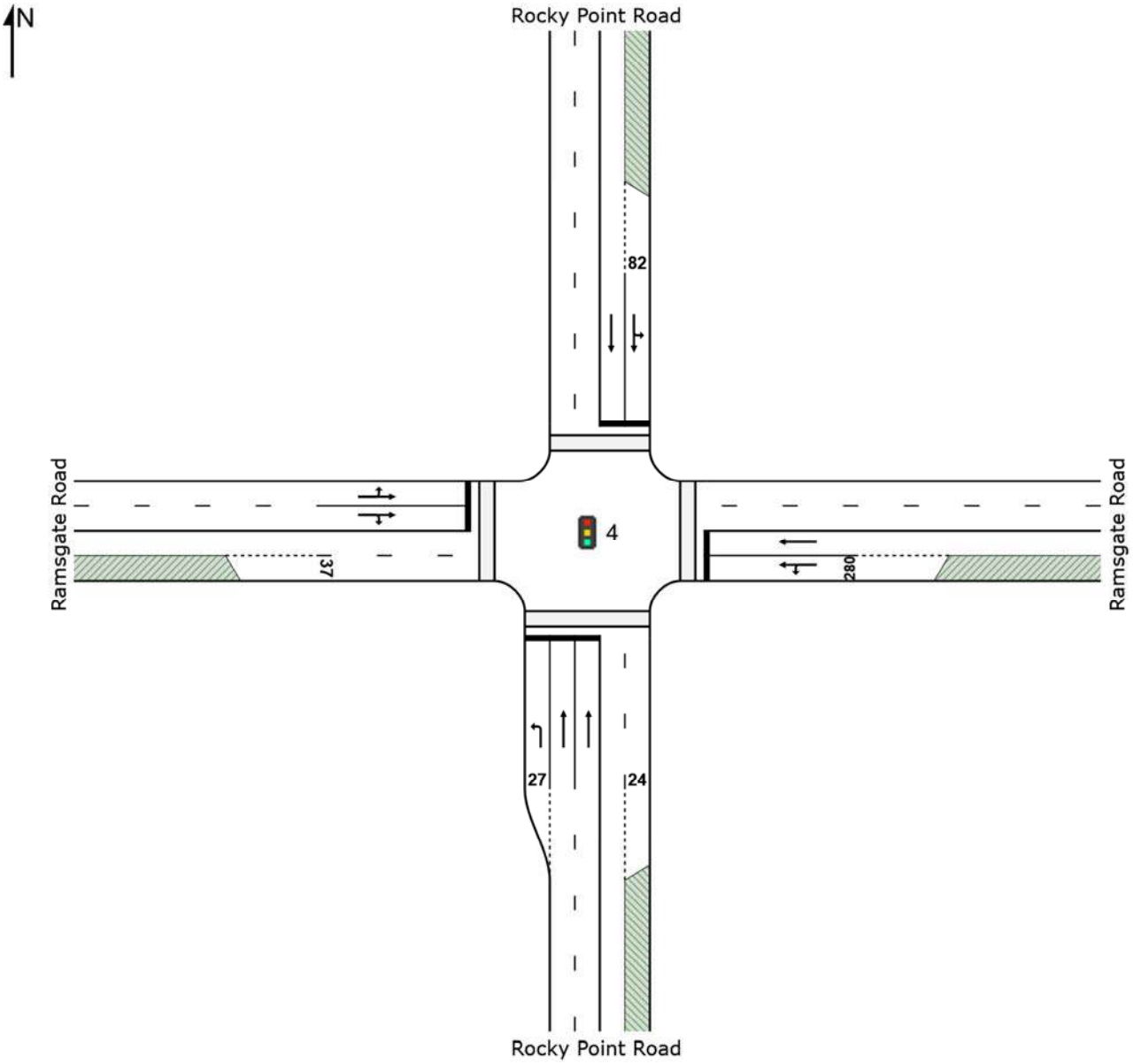
Mov ID	OD Mov	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Rocky Point Road													
2	T1	1568	2.8	1568	2.8	0.923	4.2	LOS A	17.4	125.1	0.13	0.03	38.1
3	R2	45	4.7	45	4.7	0.923	26.9	LOS B	17.4	125.1	0.30	0.06	38.7
Approach		1614	2.8	1614	2.8	0.923	4.8	NA	17.4	125.1	0.14	0.03	38.2
North: RoadName													
7	L2	62	0.0	62	0.0	0.109	5.5	LOS A	0.0	0.0	0.00	0.24	46.8
8	T1	717	91.6	717	91.6	0.511	0.0	LOS A	0.0	0.0	0.00	0.03	55.3
Approach		779	84.3	779	84.3	0.511	0.5	NA	0.0	0.0	0.00	0.05	53.3
All Vehicles		2393	29.3	2393	29.3	0.923	3.4	NA	17.4	125.1	0.09	0.03	42.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

SITE LAYOUT

Site: 4 [AM EX - Rocky Point Road x Ramsgate Road]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: AM
Scenario: Existing Situation
Signals - Fixed Time Isolated



Organisation: TRAFFIX PTY LTD | Created: Tuesday, 13 December 2016 9:57:15 AM
Project: T:\Synergy\Projects\16\16.199\Modelling\16.199s02v07_1 TRAFFIX Network Model.sip7

MOVEMENT SUMMARY

Site: 4 [AM EX - Rocky Point Road x Ramsgate Road]

Network: 1 [AM EX]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: AM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

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: Rocky Point Road													
1	L2	360	5.3	360	5.3	0.394	11.9	LOS A	7.3	53.5	0.38	0.69	45.0
2	T1	1557	2.8	1557	2.8	0.899	37.1	LOS C	56.0	401.3	0.88	0.92	23.3
Approach		1917	3.2	1917	3.2	0.899	32.3	LOS C	56.0	401.3	0.78	0.87	27.1
East: Ramsgate Road													
4	L2	27	7.7	27	7.7	0.269	52.3	LOS D	4.5	32.5	0.91	0.73	27.5
5	T1	386	3.5	386	3.5	0.935	68.8	LOS E	23.4	169.0	0.99	1.06	21.5
Approach		414	3.8	414	3.8	0.935	67.8	LOS E	23.4	169.0	0.98	1.04	21.8
North: Rocky Point Road													
7	L2	33	9.7	33	9.7	0.132	20.0	LOS B	3.6	27.3	0.52	0.50	44.5
8	T1	659	8.0	659	8.0	0.577	18.5	LOS B	21.4	160.1	0.68	0.62	44.8
Approach		692	8.1	692	8.1	0.577	18.6	LOS B	21.4	160.1	0.68	0.61	44.8
West: Ramsgate Road													
10	L2	46	13.6	46	13.6	0.514	38.2	LOS C	15.5	114.3	0.84	0.74	22.2
11	T1	293	4.7	293	4.7	0.514	32.5	LOS C	15.5	114.3	0.84	0.74	32.3
12	R2	213	8.4	213	8.4	0.751	63.5	LOS E	12.0	89.7	1.00	1.02	23.5
Approach		552	6.9	552	6.9	0.751	44.9	LOS D	15.5	114.3	0.90	0.85	27.4
All Vehicles		3574	4.8	3574	4.8	0.935	35.7	LOS C	56.0	401.3	0.80	0.84	29.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

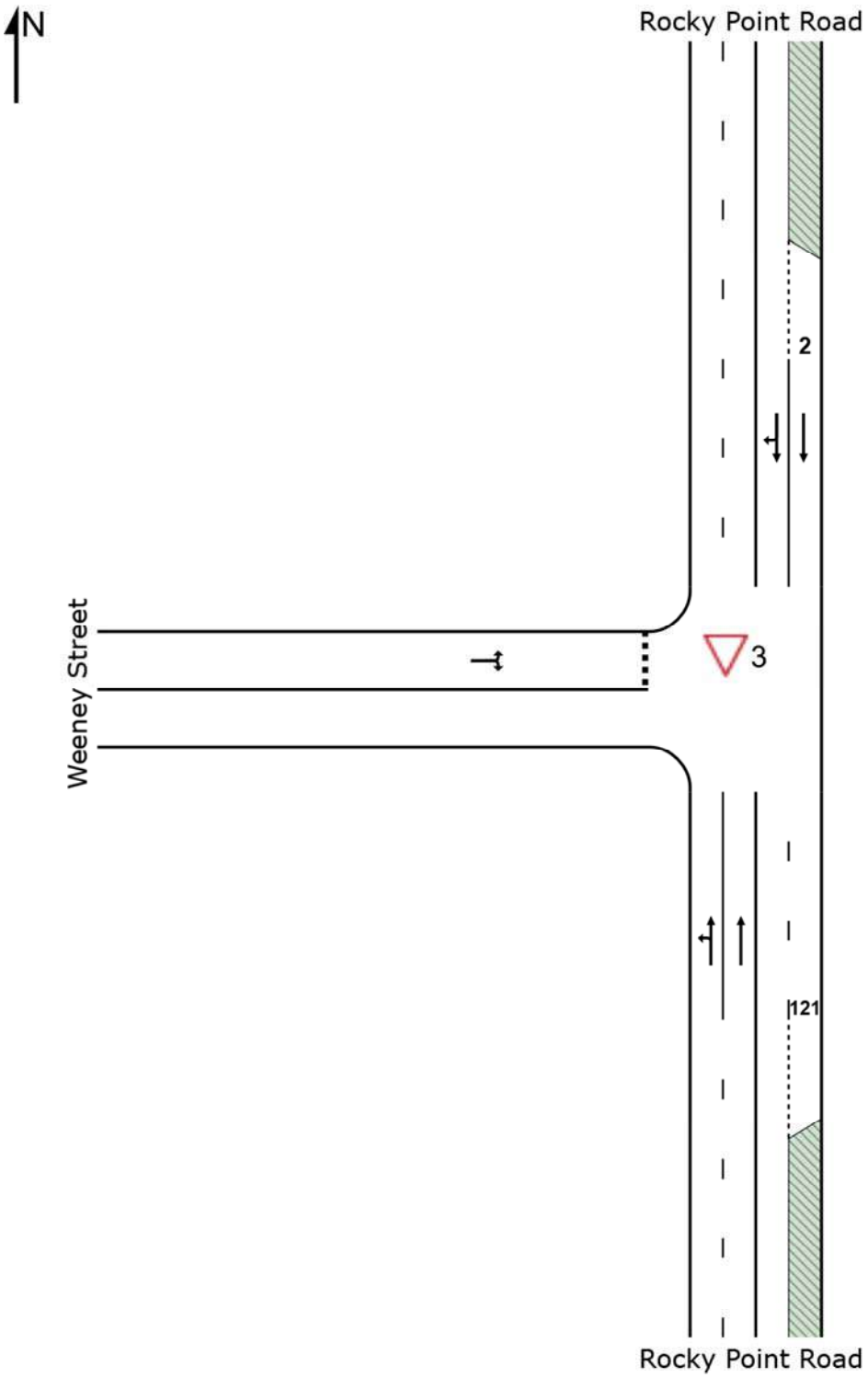
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	51.5	LOS E	0.2	0.2	0.93	0.93
P2	East Full Crossing	53	17.6	LOS B	0.1	0.1	0.54	0.54
P3	North Full Crossing	53	48.7	LOS E	0.2	0.2	0.90	0.90
P4	West Full Crossing	53	17.6	LOS B	0.1	0.1	0.54	0.54
All Pedestrians		211	33.9	LOS D			0.73	0.73

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.

SITE LAYOUT

Site: 3 [AM EX - Rocky Point Road x Weeney Street]

T-intersection: Rocky Point Road x Weeney Street
Period: AM
Scenario: Existing Situation
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 3 [AM EX - Rocky Point Road x Weeney Street]

Network: 1 [AM EX]

T-intersection: Rocky Point Road x Weeney Street
Period: AM
Scenario: Existing Situation
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

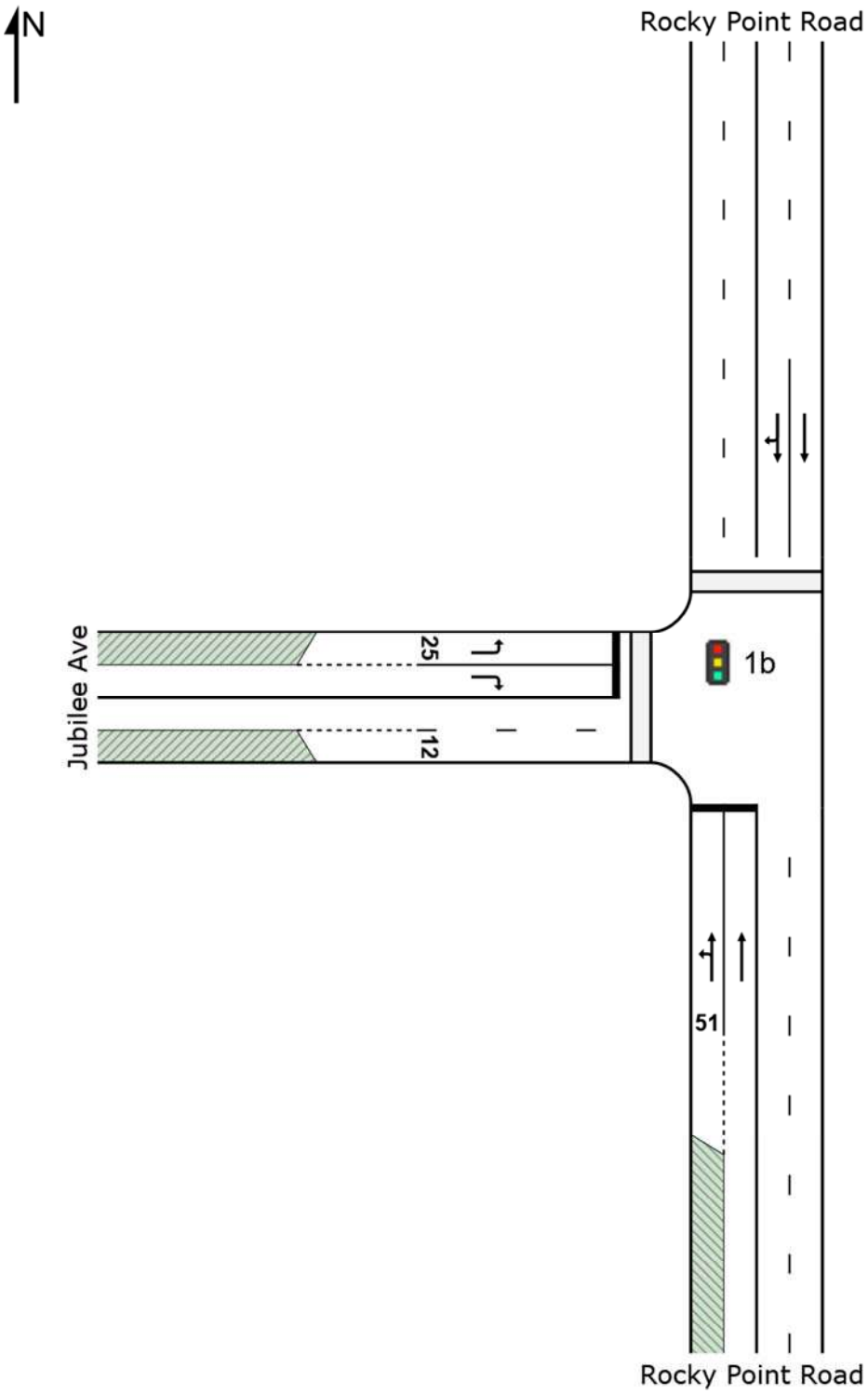
Mov ID	OD Mov	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Rocky Point Road													
1	L2	57	5.6	57	5.6	0.448	5.7	LOS A	0.0	0.0	0.00	0.04	56.5
2	T1	1613	2.8	1613	2.8	0.448	0.1	LOS A	0.0	0.0	0.00	0.02	59.5
Approach		1669	2.9	1669	2.9	0.448	0.3	NA	0.0	0.0	0.00	0.02	59.4
North: Rocky Point Road													
8	T1	703	8.1	703	8.1	0.543	1.2	LOS A	0.6	4.3	0.03	0.00	51.9
9	R2	4	0.0	4	0.0	0.543	37.6	LOS C	0.6	4.3	0.45	0.07	12.8
Approach		707	8.0	707	8.0	0.543	1.4	NA	0.6	4.3	0.03	0.01	50.3
West: Weeney Street													
10	L2	13	0.0	13	0.0	0.243	17.6	LOS B	0.7	4.6	0.92	0.98	6.3
12	R2	3	0.0	3	0.0	0.243	241.2	LOS F	0.7	4.6	0.92	0.98	6.3
Approach		16	0.0	16	0.0	0.243	62.3	LOS E	0.7	4.6	0.92	0.98	6.3
All Vehicles		2393	4.4	2393	4.4	0.543	1.0	NA	0.7	4.6	0.02	0.02	57.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

SITE LAYOUT

Site: 1b [PM EX - Rocky Point Rd x Jubilee Ave]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 1b [PM EX - Rocky Point Rd x Jubilee Ave]

Network: 2 [PM EX]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Intersection of Rocky Point Road x Jubliee Avenue x Phillips Road]

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: Rocky Point Road													
1	L2	123	2.6	123	2.6	0.396	15.2	LOS B	9.7	69.6	0.47	0.52	36.7
2	T1	629	2.7	629	2.7	0.396	10.2	LOS A	9.9	71.1	0.49	0.48	25.8
Approach		753	2.7	753	2.7	0.396	11.0	LOS A	9.9	71.1	0.49	0.48	28.7
North: Rocky Point Road													
8	T1	1343	2.4	1343	2.4	0.387	0.0	LOS A	0.0	0.0	0.00	0.04	53.0
9	R2	135	3.1	135	3.1	0.387	2.1	LOS A	0.0	0.0	0.00	0.10	51.0
Approach		1478	2.5	1478	2.5	0.387	0.2	LOS A	0.0	0.0	0.00	0.05	51.9
West: Jubilee Ave													
10	L2	81	1.3	81	1.3	0.352	58.7	LOS E	4.5	31.6	0.96	0.77	11.5
12	R2	211	0.5	211	0.5	0.903	73.9	LOS F	14.1	99.2	1.00	0.99	9.5
Approach		292	0.7	292	0.7	0.903	69.6	LOS E	14.1	99.2	0.99	0.93	10.0
All Vehicles		2522	2.3	2522	2.3	0.903	11.4	LOS A	14.1	99.2	0.26	0.28	20.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

Movement Performance - Pedestrians

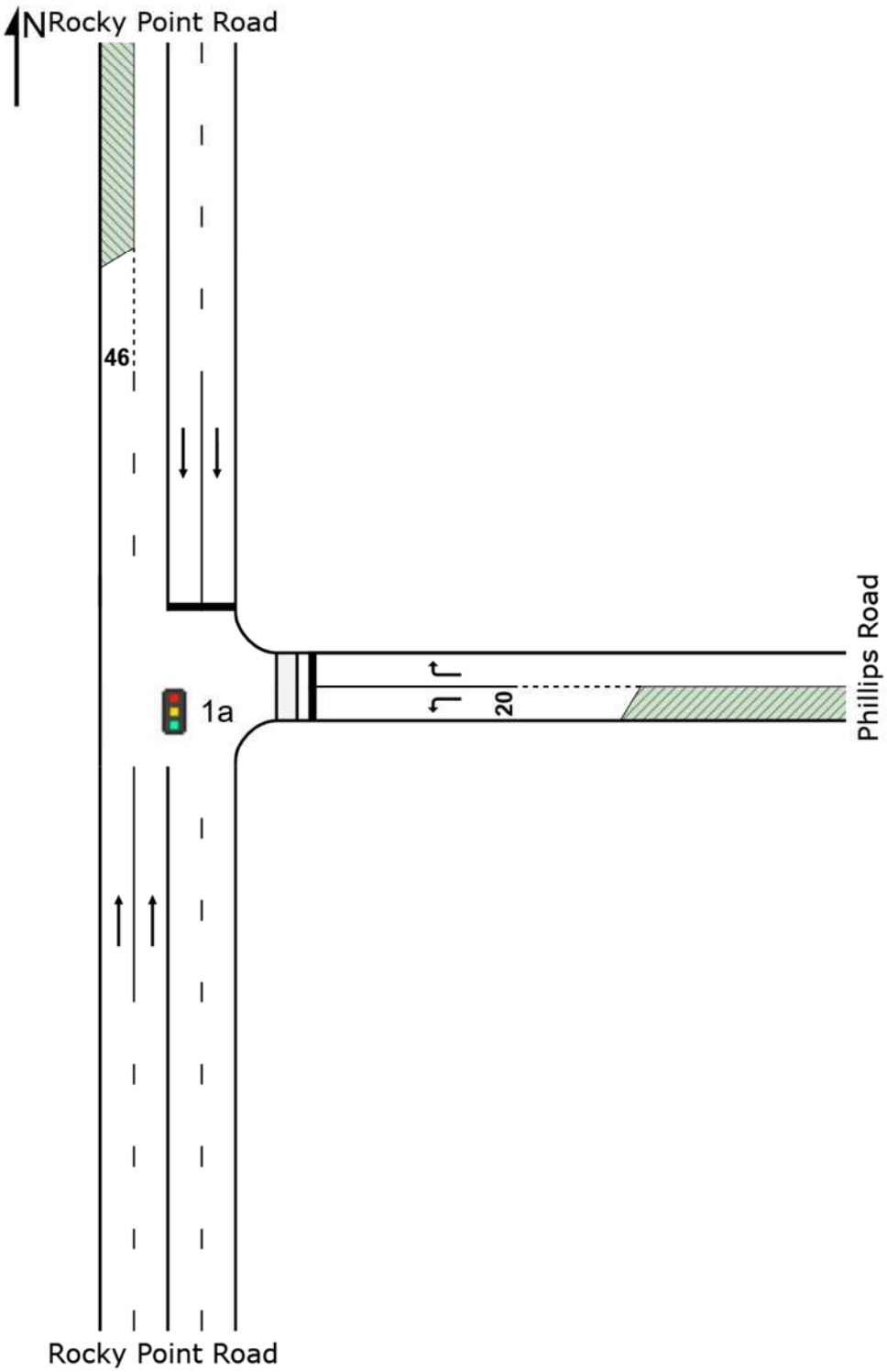
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	53	52.4	LOS E	0.2	0.2	0.94	0.94
P4	West Full Crossing	53	11.3	LOS B	0.1	0.1	0.43	0.43
All Pedestrians		105	31.8	LOS D			0.68	0.68

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.

SITE LAYOUT

Site: 1a [PM EX - Rocky Point Rd x Phillips Rd]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 1a [PM EX - Rocky Point Rd x Phillips Rd]

Network: 2 [PM EX]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Intersection of Rocky Point Road x Jubliee Avenue x Phillips Road]

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: Rocky Point Road													
2	T1	629	2.7	629	2.7	0.256	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		629	2.7	629	2.7	0.256	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
East: Phillips Road													
4	L2	85	1.2	85	1.2	0.927	83.4	LOS F	6.0	42.1	1.00	1.00	10.5
6	R2	43	0.0	43	0.0	0.465	69.6	LOS E	2.6	18.5	1.00	0.73	24.5
Approach		128	0.8	128	0.8	0.927	78.7	LOS F	6.0	42.1	1.00	0.91	15.8
North: Rocky Point Road													
8	T1	1386	2.6	1386	2.6	0.556	12.2	LOS A	21.8	156.2	0.59	0.54	43.7
Approach		1386	2.6	1386	2.6	0.556	12.2	LOS A	21.8	156.2	0.59	0.54	43.7
All Vehicles		2144	2.5	2144	2.5	0.927	12.6	LOS A	21.8	156.2	0.44	0.40	43.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

Movement Performance - Pedestrians

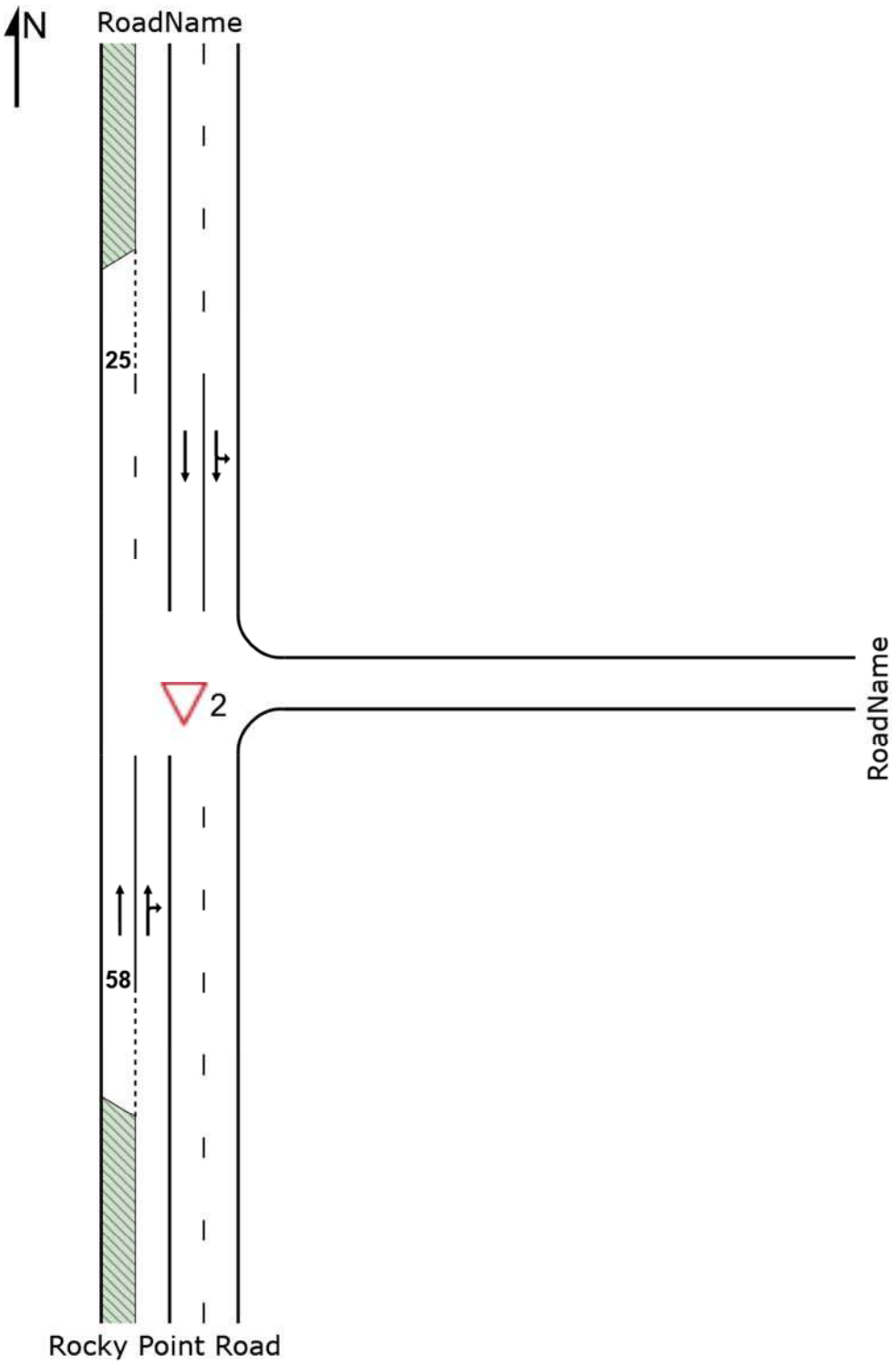
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	9.2	LOS A	0.1	0.1	0.39	0.39
All Pedestrians		53	9.2	LOS A			0.39	0.39

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.

SITE LAYOUT

Site: 2 [PM EX - Rocky Point Road x Production Avenue]

T-intersection:Rocky Point Road x Production Avenue
Period: PM
Scenario: Exisitng Situation
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2 [PM EX - Rocky Point Road x Production Avenue]

Network: 2 [PM EX]

T-intersection:Rocky Point Road x Production Avenue
Period: PM
Scenario: Exisitng Situation
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

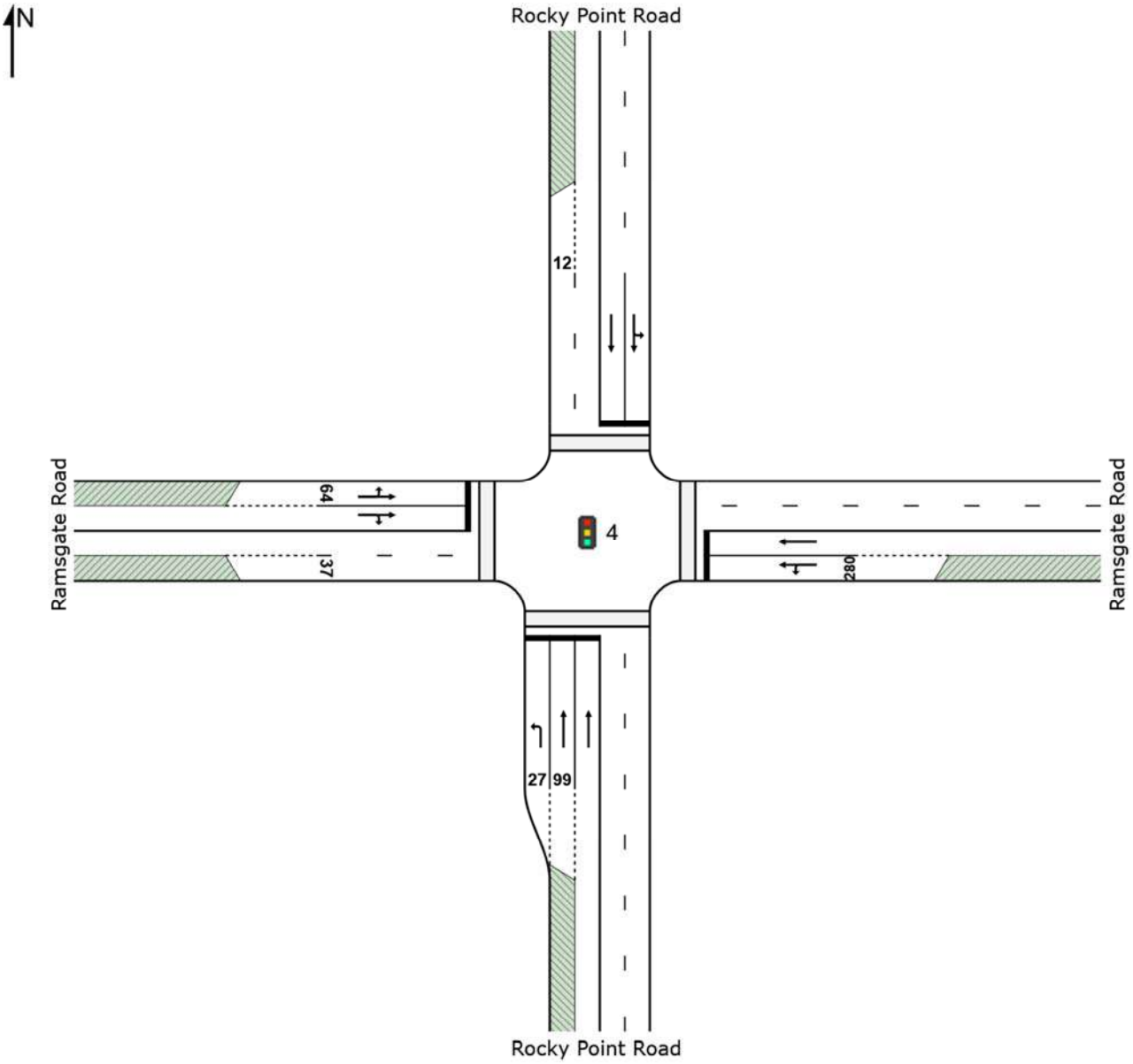
Mov ID	OD Mov	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Rocky Point Road													
2	T1	755	2.6	755	2.6	0.388	2.8	LOS A	2.0	14.1	0.16	0.02	42.2
3	R2	18	0.0	18	0.0	0.388	30.1	LOS C	2.0	14.1	0.20	0.02	47.1
Approach		773	2.6	773	2.6	0.388	3.4	NA	2.0	14.1	0.16	0.02	42.5
North: RoadName													
7	L2	51	2.1	51	2.1	0.407	5.6	LOS A	0.0	0.0	0.00	0.04	54.3
8	T1	1512	2.2	1512	2.2	0.407	0.0	LOS A	0.0	0.0	0.00	0.02	58.6
Approach		1562	2.2	1562	2.2	0.407	0.2	NA	0.0	0.0	0.00	0.02	58.2
All Vehicles		2335	2.3	2335	2.3	0.407	1.3	NA	2.0	14.1	0.05	0.02	51.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

SITE LAYOUT

Site: 4 [PM EX - Rocky Point Road x Ramsgate Road]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 4 [PM EX - Rocky Point Road x Ramsgate Road]

Network: 2 [PM EX]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

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: Rocky Point Road													
1	L2	317	2.0	317	2.0	0.324	17.8	LOS B	8.8	62.6	0.52	0.73	40.8
2	T1	736	2.6	736	2.6	0.833	35.8	LOS C	33.4	238.8	0.90	0.84	23.8
Approach		1053	2.4	1053	2.4	0.833	30.4	LOS C	33.4	238.8	0.78	0.81	29.0
East: Ramsgate Road													
4	L2	46	0.0	46	0.0	0.259	40.4	LOS C	6.4	45.2	0.81	0.70	31.6
5	T1	621	1.0	621	1.0	0.901	53.4	LOS D	34.7	244.8	0.97	1.00	25.1
Approach		667	0.9	667	0.9	0.901	52.5	LOS D	34.7	244.8	0.96	0.98	25.5
North: Rocky Point Road													
7	L2	48	2.2	48	2.2	0.897	53.8	LOS D	43.7	311.8	1.00	1.03	30.4
8	T1	1325	2.2	1325	2.2	0.897	48.2	LOS D	44.0	314.2	1.00	1.03	32.0
Approach		1374	2.2	1374	2.2	0.897	48.4	LOS D	44.0	314.2	1.00	1.03	31.9
West: Ramsgate Road													
10	L2	29	0.0	29	0.0	0.366	25.0	LOS B	12.1	88.1	0.65	0.59	29.7
11	T1	313	5.4	313	5.4	0.366	19.5	LOS B	12.1	88.1	0.65	0.59	39.5
12	R2	258	2.4	258	2.4	0.739	59.7	LOS E	13.9	99.5	1.00	1.03	24.4
Approach		600	3.9	600	3.9	0.739	37.0	LOS C	13.9	99.5	0.80	0.78	30.5
All Vehicles		3694	2.3	3694	2.3	0.901	42.1	LOS C	44.0	314.2	0.90	0.92	29.9

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.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

Movement Performance - Pedestrians

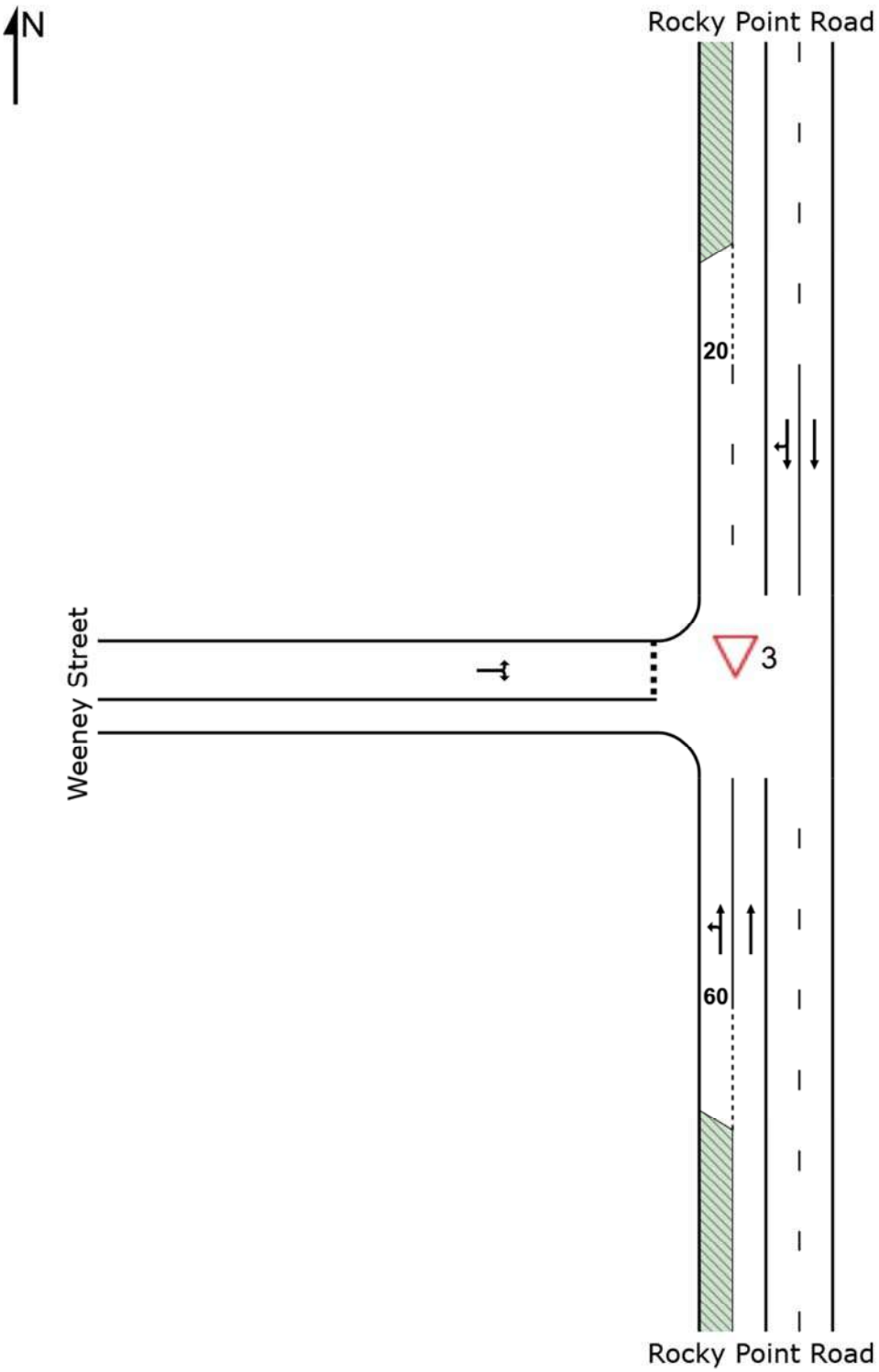
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	39.3	LOS D	0.1	0.1	0.81	0.81
P2	East Full Crossing	53	28.1	LOS C	0.1	0.1	0.68	0.68
P3	North Full Crossing	53	36.9	LOS D	0.1	0.1	0.79	0.79
P4	West Full Crossing	53	28.1	LOS C	0.1	0.1	0.68	0.68
All Pedestrians		211	33.1	LOS D			0.74	0.74

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.

SITE LAYOUT

Site: 3 [PM EX - Rocky Point Road x Weeney Street]

T-intersection: Rocky Point Road x Weeney Street
Period: PM
Scenario: Existing Situation
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 3 [PM EX - Rocky Point Road x Weeney Street]

Network: 2 [PM EX]

T-intersection: Rocky Point Road x Weeney Street
Period: PM
Scenario: Existing Situation
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

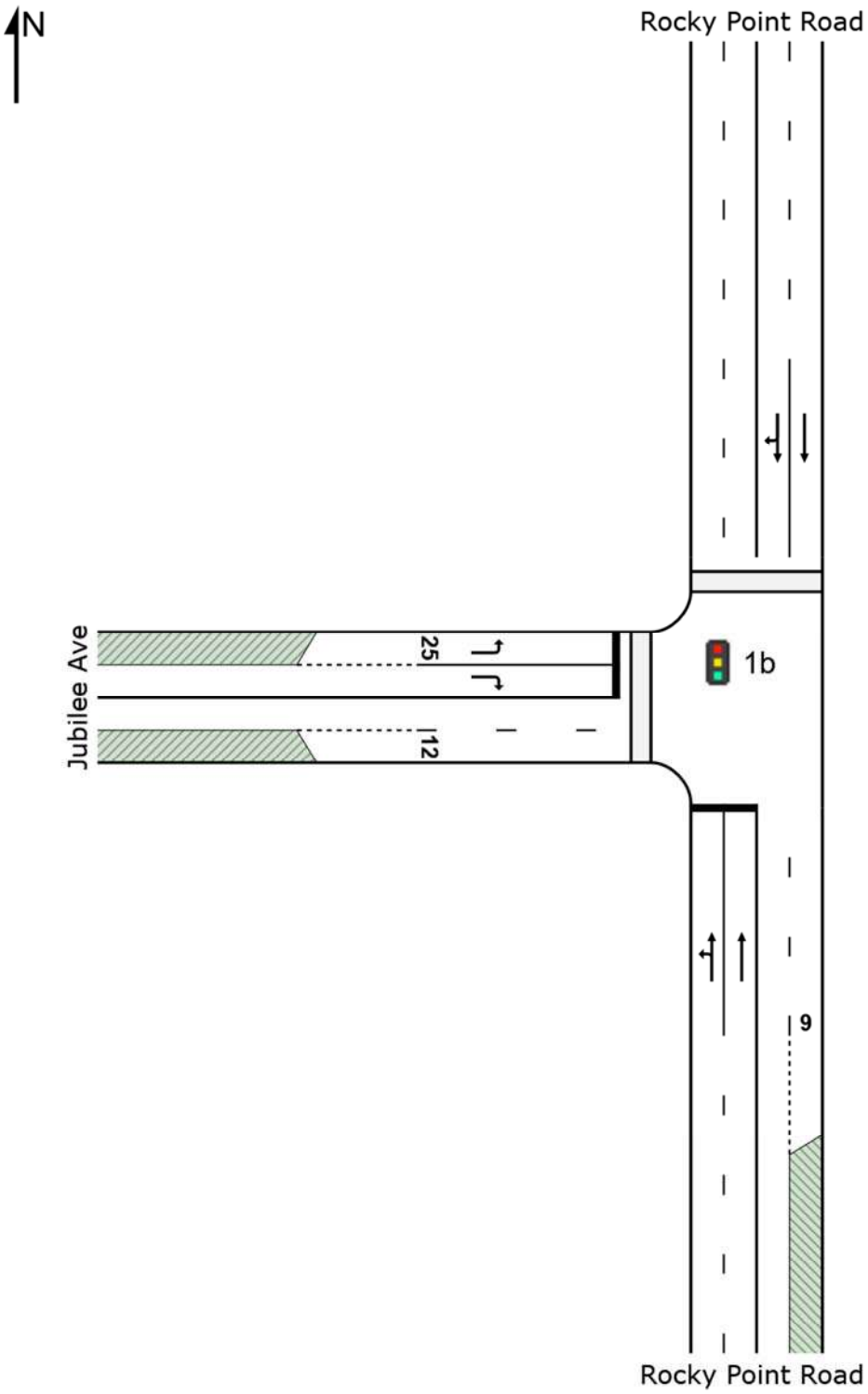
Mov ID	OD Mov	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Rocky Point Road													
1	L2	19	5.6	19	5.6	0.069	5.6	LOS A	0.0	0.0	0.00	0.09	56.0
2	T1	756	2.6	756	2.6	0.336	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		775	2.7	775	2.7	0.336	0.2	NA	0.0	0.0	0.00	0.01	59.6
North: Rocky Point Road													
8	T1	1476	2.2	1476	2.2	0.399	0.3	LOS A	0.7	4.7	0.04	0.01	57.1
9	R2	18	0.0	18	0.0	0.399	13.6	LOS A	0.7	4.7	0.08	0.02	50.7
Approach		1494	2.2	1494	2.2	0.399	0.4	NA	0.7	4.7	0.04	0.01	56.9
West: Weeney Street													
10	L2	25	0.0	25	0.0	0.291	6.0	LOS A	0.8	5.4	0.65	0.59	9.9
12	R2	5	0.0	5	0.0	0.291	182.7	LOS F	0.8	5.4	0.65	0.59	9.9
Approach		31	0.0	31	0.0	0.291	36.4	LOS C	0.8	5.4	0.65	0.59	9.9
All Vehicles		2299	2.3	2299	2.3	0.399	0.8	NA	0.8	5.4	0.03	0.02	57.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

SITE LAYOUT

Site: 1b [AM FU - Rocky Point Rd x Jubilee Ave - Copy]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: AM
Scenario: Future
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 1b [AM FU - Rocky Point Rd x Jubilee Ave - Copy]

Network: N101 [AM FU - Residential DA+Childcare +Commercial]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: AM
Scenario: Future
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Intersection of Rocky Point Road x Jubilee Ave X Phillips Road]

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: Rocky Point Road													
1	L2	241	0.4	241	0.4	0.898	31.4	LOS C	27.7	197.5	0.64	0.75	25.3
2	T1	1492	2.9	1492	2.9	0.898	29.1	LOS C	27.7	197.5	0.79	0.86	13.0
Approach		1733	2.6	1733	2.6	0.898	29.4	LOS C	27.7	197.5	0.77	0.84	15.2
North: Rocky Point Road													
8	T1	625	8.8	625	8.8	0.313	0.0	LOS A	0.0	0.0	0.00	0.05	51.8
9	R2	66	4.8	66	4.8	0.313	2.1	LOS A	0.0	0.0	0.00	0.06	50.8
Approach		692	8.4	692	8.4	0.313	0.2	LOS A	0.0	0.0	0.00	0.05	51.3
West: Jubilee Ave													
10	L2	106	2.0	106	2.0	0.581	63.5	LOS E	6.2	44.2	1.00	0.79	10.8
12	R2	205	2.1	205	2.1	1.100	190.8	LOS F	22.6	160.7	1.00	1.31	4.1
Approach		312	2.0	312	2.0	1.100	147.4	LOS F	22.6	160.7	1.00	1.13	5.2
All Vehicles		2736	4.0	2736	4.0	1.100	35.4	LOS C	27.7	197.5	0.60	0.68	11.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

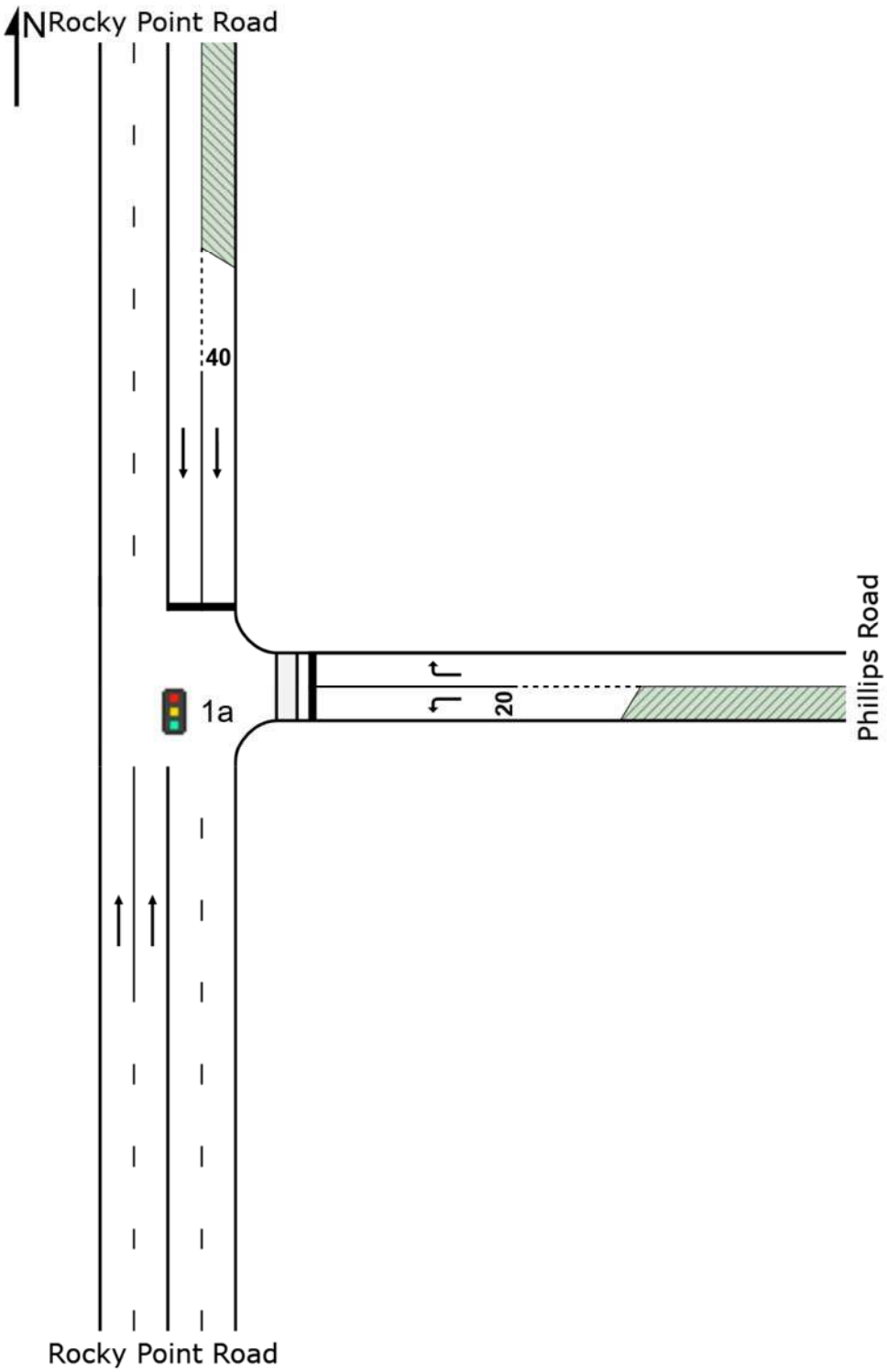
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	10.0	LOS B	0.1	0.1	0.41	0.41
All Pedestrians		105	32.1	LOS D			0.68	0.68

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.

SITE LAYOUT

Site: 1a [AM FU - Rocky Point Rd x Phillips Rd - Copy]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: AM
Scenario: Future
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 1a [AM FU - Rocky Point Rd x Phillips Rd - Copy]

Network: N101 [AM FU - Residential DA+Childcare +Commercial]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: AM
Scenario: Future
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Intersection of Rocky Point Road x Jubilee Ave X Phillips Road]

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: Rocky Point Road													
2	T1	1492	2.9	1492	2.9	0.390	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1492	2.9	1492	2.9	0.390	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
East: Phillips Road													
4	L2	33	9.7	33	9.7	0.376	69.6	LOS E	2.0	15.1	1.00	0.72	12.2
6	R2	32	6.7	32	6.7	0.356	69.3	LOS E	1.9	14.2	1.00	0.72	24.5
Approach		64	8.2	64	8.2	0.376	69.4	LOS E	2.0	15.1	1.00	0.72	19.3
North: Rocky Point Road													
8	T1	746	7.1	746	7.1	0.296	8.3	LOS A	8.7	64.4	0.44	0.38	47.8
Approach		746	7.1	746	7.1	0.296	8.3	LOS A	8.7	64.4	0.44	0.38	47.8
All Vehicles		2302	4.4	2302	4.4	0.390	4.6	LOS A	8.7	64.4	0.17	0.14	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

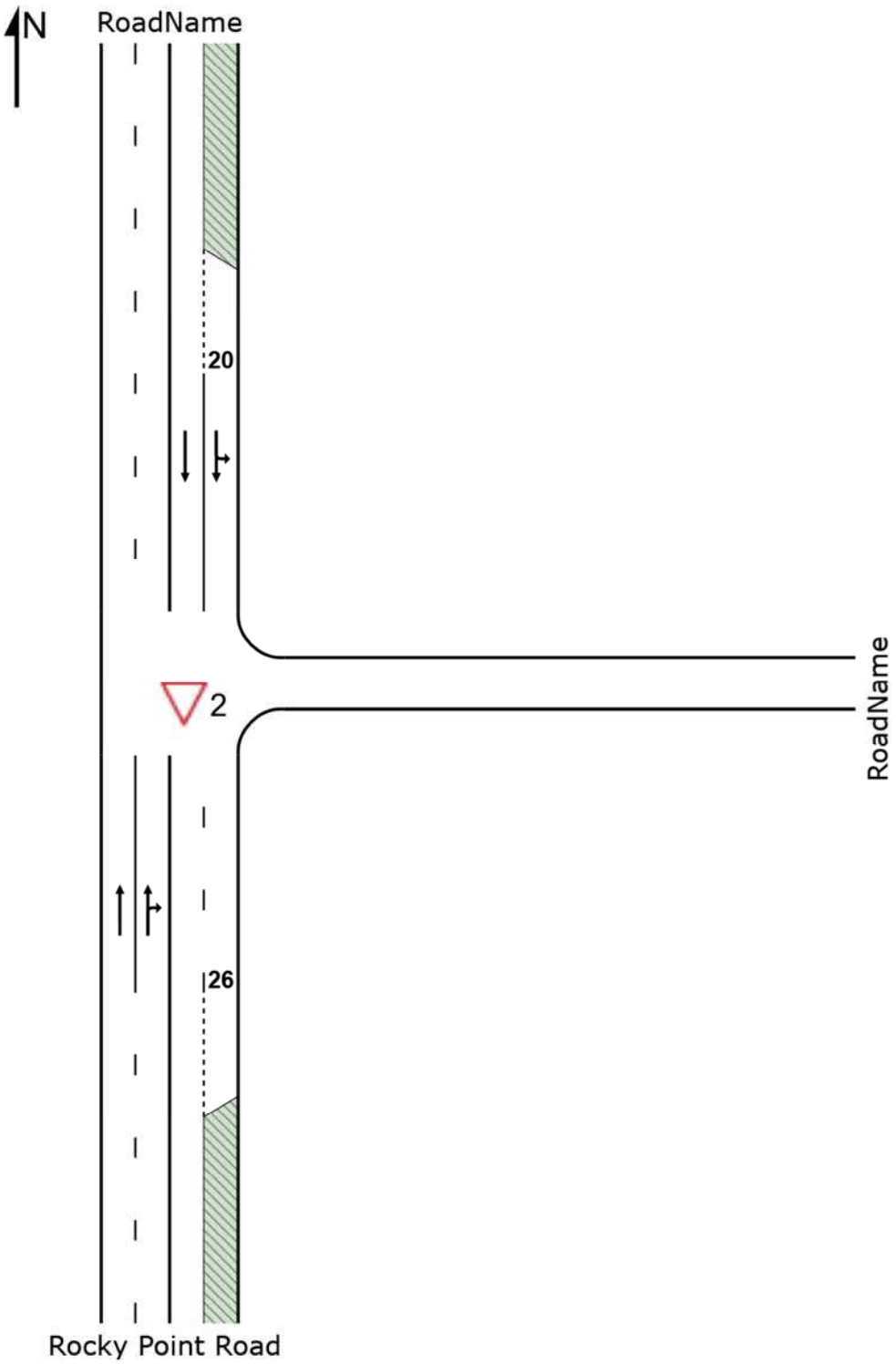
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	8.1	LOS A	0.1	0.1	0.37	0.37
All Pedestrians		53	8.1	LOS A			0.37	0.37

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.

SITE LAYOUT

Site: 2 [AM FU - Rocky Point Road x Production Avenue - Copy]

T-intersection:Rocky Point Road x Production Avenue
Period: AM
Scenario: Future
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2 [AM FU - Rocky Point Road x Production Avenue - Copy]

Network: N101 [AM FU - Residential DA+Childcare +Commercial]

T-intersection:Rocky Point Road x Production Avenue
Period: AM
Scenario: Future
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
South: Rocky Point Road													
2	T1	1721	2.5	1721	2.5	0.981	6.8	LOS A	35.2	251.8	0.11	0.03	31.8
3	R2	45	4.7	45	4.7	0.981	29.8	LOS C	35.2	251.8	0.24	0.06	34.8
Approach		1766	2.6	1766	2.6	0.981	7.3	NA	35.2	251.8	0.11	0.03	32.0
North: RoadName													
7	L2	185	0.0	180	0.0	0.097	5.5	LOS A	0.0	0.0	0.00	0.58	45.9
8	T1	788	7.6	775	7.7	0.417	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		974	6.2	955 N1	6.2	0.417	1.1	NA	0.0	0.0	0.00	0.11	53.2
All Vehicles		2740	3.8	2721 N1	3.9	0.981	5.1	NA	35.2	251.8	0.07	0.06	38.2

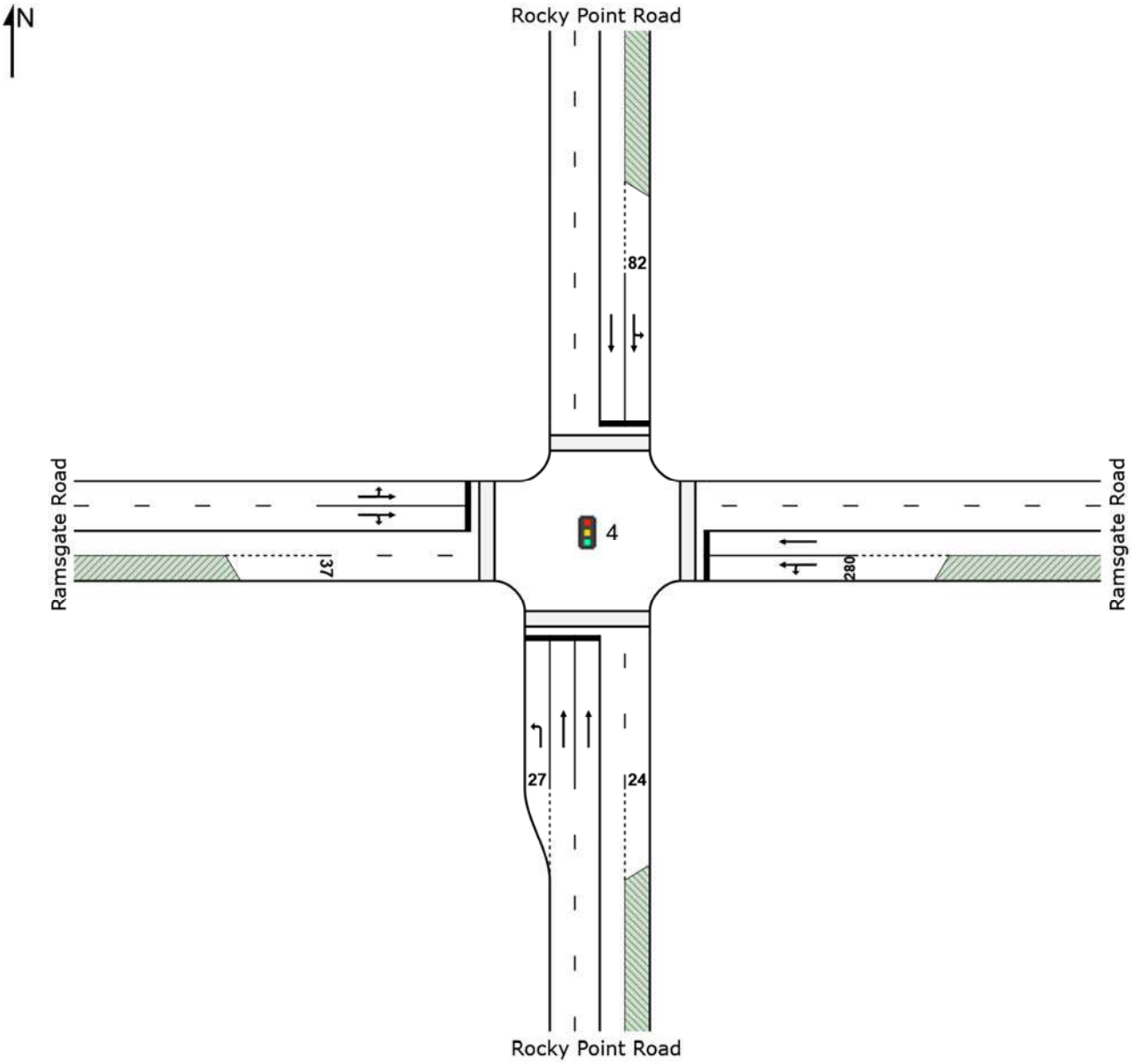
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

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

SITE LAYOUT

Site: 4 [AM FU - Rocky Point Road x Ramsgate Road - Copy]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: AM
Scenario: Future
Signals - Fixed Time Isolated



Organisation: TRAFFIX PTY LTD | Created: Tuesday, 13 December 2016 9:48:01 AM
Project: T:\Synergy\Projects\16\16.199\Modelling\16.199s02v07_1 TRAFFIX Network Model.sip7

MOVEMENT SUMMARY

Site: 4 [AM FU - Rocky Point Road x Ramsgate Road - Copy]

Network: N101 [AM FU - Residential DA+Childcare +Commercial]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: AM
Scenario: Future
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

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: Rocky Point Road													
1	L2	360	5.3	360	5.3	0.350	11.2	LOS A	6.9	50.3	0.36	0.68	45.6
2	T1	1657	2.6	1657	2.6	0.893	32.7	LOS C	56.6	405.0	0.85	0.88	25.1
Approach		2017	3.1	2017	3.1	0.893	28.9	LOS C	56.6	405.0	0.76	0.84	28.7
East: Ramsgate Road													
4	L2	27	7.7	27	7.7	0.296	54.4	LOS D	4.5	33.2	0.93	0.74	26.9
5	T1	386	3.5	386	3.5	1.030	106.8	LOS F	29.8	215.3	0.99	1.25	15.9
Approach		414	3.8	414	3.8	1.030	103.4	LOS F	29.8	215.3	0.98	1.22	16.4
North: Rocky Point Road													
7	L2	33	9.7	32	9.8	0.127	11.5	LOS A	1.5	11.2	0.21	0.29	50.7
8	T1	705	7.5	695	7.5	0.557	7.9	LOS A	11.4	84.6	0.34	0.32	52.3
Approach		738	7.6	727[N1]	7.6	0.557	8.0	LOS A	11.4	84.6	0.33	0.32	52.3
West: Ramsgate Road													
10	L2	46	13.6	46	13.6	0.567	41.7	LOS C	16.4	120.7	0.88	0.77	20.8
11	T1	293	4.7	293	4.7	0.567	36.0	LOS C	16.4	120.7	0.88	0.77	30.7
12	R2	213	8.4	213	8.4	0.837	69.5	LOS E	12.7	95.4	1.00	1.08	22.2
Approach		552	6.9	552	6.9	0.837	49.4	LOS D	16.4	120.7	0.93	0.89	26.0
All Vehicles		3720	4.6	3709[N1]	4.6	1.030	36.2	LOS C	56.6	405.0	0.73	0.79	29.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

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

Movement Performance - Pedestrians

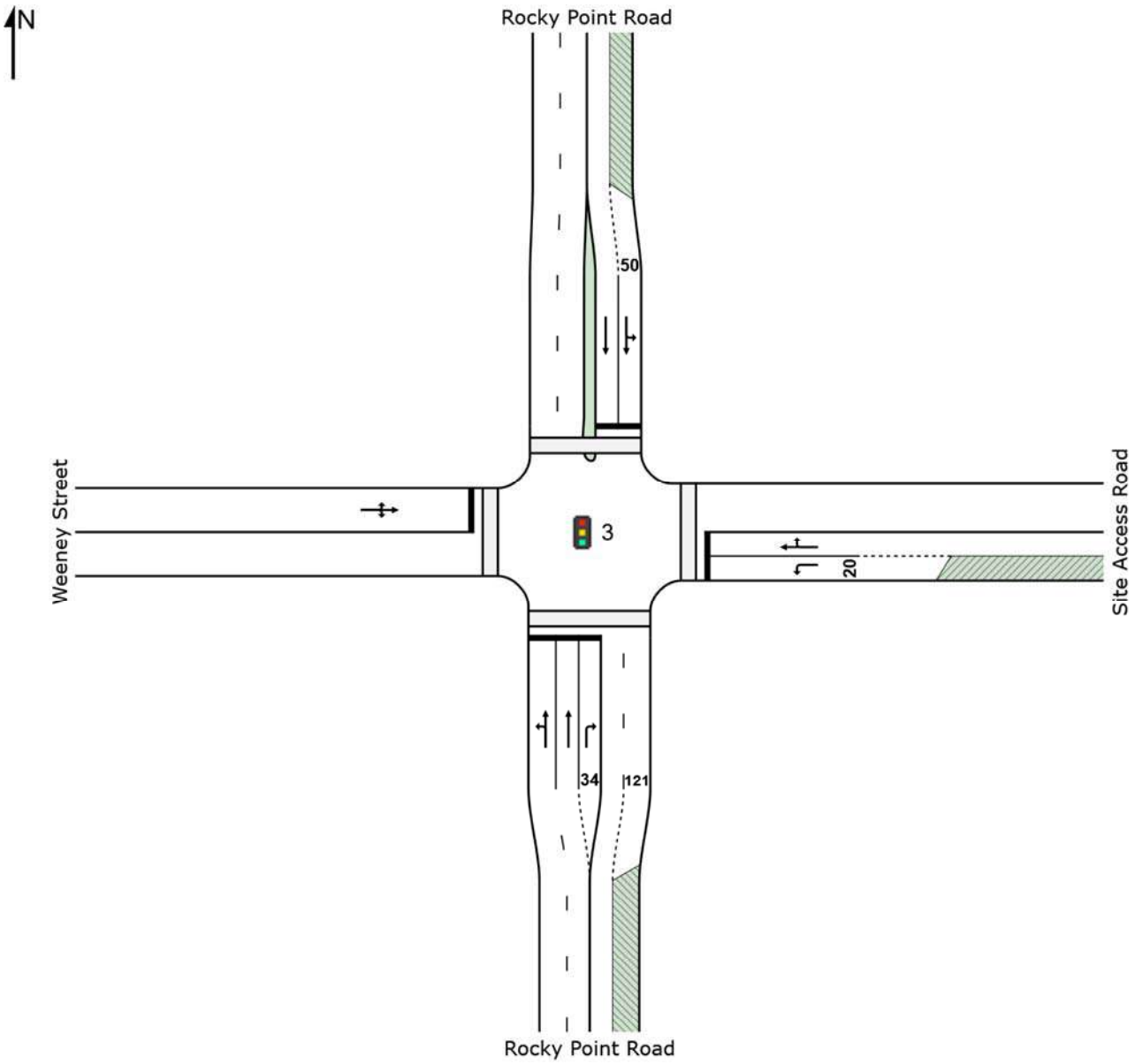
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	53.3	LOS E	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	15.5	LOS B	0.1	0.1	0.51	0.51
P3	North Full Crossing	53	50.5	LOS E	0.2	0.2	0.92	0.92
P4	West Full Crossing	53	15.5	LOS B	0.1	0.1	0.51	0.51
All Pedestrians		211	33.7	LOS D			0.72	0.72

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.

SITE LAYOUT

Site: 3 [AM FU - Rocky Point Rd x Weeney St x Site Access Rd_w/out RT Filter - Copy]

Intersection: Rocky Point Rd x Weeney St x Site Access Rd
Period: AM
Scenario: FU without Left Turn Deceleration Lane
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 3 [AM FU - Rocky Point Rd x Weeney St x Site Access Rd_w/out RT Filter - Copy]

Network: N101 [AM FU - Residential DA+Childcare +Commercial]

Intersection: Rocky Point Rd x Weeney St x Site Access Rd
Period: AM
Scenario: FU without Left Turn Deceleration Lane
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

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: Rocky Point Road													
1	L2	57	5.6	57	5.6	0.814	26.4	LOS B	49.4	354.5	0.92	0.86	37.5
2	T1	1613	2.8	1613	2.8	0.814	21.6	LOS B	49.4	354.5	0.90	0.85	36.0
3	R2	100	0.0	100	0.0	0.508	57.4	LOS E	5.5	38.4	0.95	0.77	25.7
Approach		1769	2.7	1769	2.7	0.814	23.8	LOS B	49.4	354.5	0.90	0.85	35.0
East: Site Access Road													
4	L2	46	0.0	46	0.0	0.067	30.0	LOS C	1.7	12.0	0.67	0.69	17.6
5	T1	22	0.0	22	0.0	0.888	68.8	LOS E	12.2	85.7	1.00	1.07	12.4
6	R2	153	0.0	153	0.0	0.888	73.4	LOS F	12.2	85.7	1.00	1.07	9.2
Approach		221	0.0	221	0.0	0.888	63.8	LOS E	12.2	85.7	0.93	0.99	10.6
North: Rocky Point Road													
7	L2	72	0.0	69	0.0	0.335	20.0	LOS B	8.0	59.3	0.47	0.48	31.5
8	T1	703	8.1	692	8.2	0.507	15.3	LOS B	12.7	95.1	0.51	0.47	20.9
Approach		775	7.3	761 N1	7.4	0.507	15.8	LOS B	12.7	95.1	0.51	0.47	22.4
West: Weeney Street													
10	L2	13	0.0	13	0.0	0.131	45.4	LOS D	2.5	17.4	0.84	0.67	8.7
11	T1	37	0.0	37	0.0	0.131	40.8	LOS C	2.5	17.4	0.84	0.67	18.1
12	R2	3	0.0	3	0.0	0.131	45.3	LOS D	2.5	17.4	0.84	0.67	8.7
Approach		53	0.0	53	0.0	0.131	42.2	LOS C	2.5	17.4	0.84	0.67	15.8
All Vehicles		2818	3.7	2805 N1	3.8	0.888	25.1	LOS B	49.4	354.5	0.80	0.75	29.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

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

Movement Performance - Pedestrians

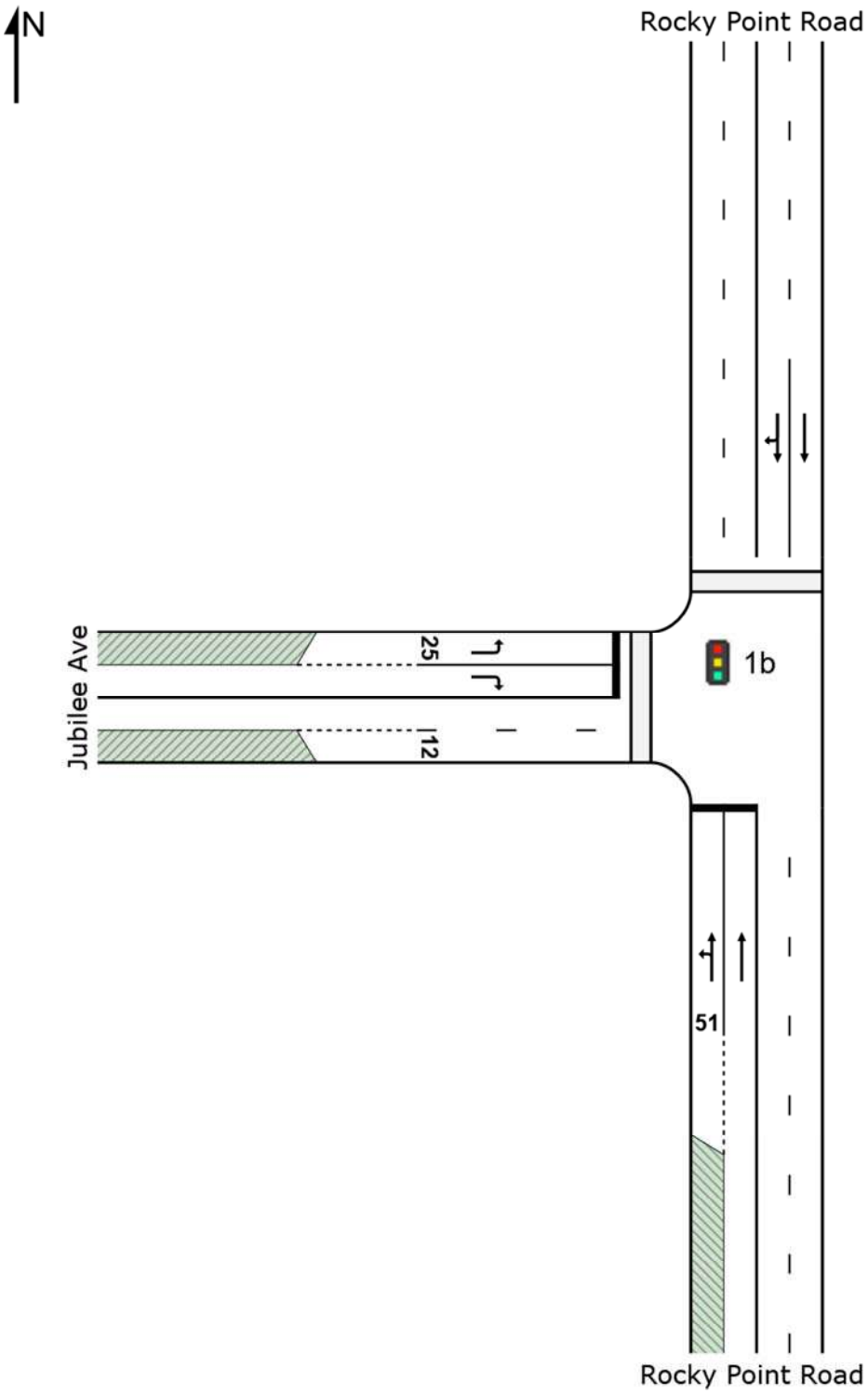
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	46.9	LOS E	0.2	0.2	0.89	0.89
P2	East Full Crossing	53	18.7	LOS B	0.1	0.1	0.56	0.56
P3	North Full Crossing	53	46.0	LOS E	0.2	0.2	0.88	0.88
P4	West Full Crossing	53	18.2	LOS B	0.1	0.1	0.55	0.55
All Pedestrians		211	32.5	LOS D			0.72	0.72

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.

SITE LAYOUT

Site: 1b [PM FU - Rocky Point Rd x Jubilee Ave - Copy]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Coordinated



MOVEMENT SUMMARY

Site: 1b [PM FU - Rocky Point Rd x Jubilee Ave - Copy]

Network: 2 [PM FU - Residential DA+Childcare +Commercial]

Signalised Intersection: Rocky Point Rd x Jubilee Ave
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Intersection of Rocky Point Road x Jubliee Avenue x Phillips Road]

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: Rocky Point Road													
1	L2	155	2.0	155	2.0	0.486	11.5	LOS A	6.5	46.0	0.26	0.38	41.1
2	T1	738	2.3	738	2.3	0.486	6.3	LOS A	7.0	50.0	0.29	0.32	32.2
Approach		893	2.2	893	2.2	0.486	7.2	LOS A	7.0	50.0	0.28	0.33	34.8
North: Rocky Point Road													
8	T1	1466	2.2	1466	2.2	0.419	0.0	LOS A	0.0	0.0	0.00	0.04	53.4
9	R2	135	3.1	135	3.1	0.419	2.1	LOS A	0.0	0.0	0.00	0.09	51.1
Approach		1601	2.3	1601	2.3	0.419	0.2	LOS A	0.0	0.0	0.00	0.04	52.2
West: Jubilee Ave													
10	L2	81	1.3	81	1.3	0.294	55.3	LOS D	4.3	30.4	0.93	0.77	12.1
12	R2	244	0.4	244	0.4	0.894	70.7	LOS F	16.1	113.1	1.00	0.98	9.9
Approach		325	0.6	325	0.6	0.894	66.9	LOS E	16.1	113.1	0.98	0.92	10.4
All Vehicles		2819	2.1	2819	2.1	0.894	10.1	LOS A	16.1	113.1	0.20	0.24	22.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

Movement Performance - Pedestrians

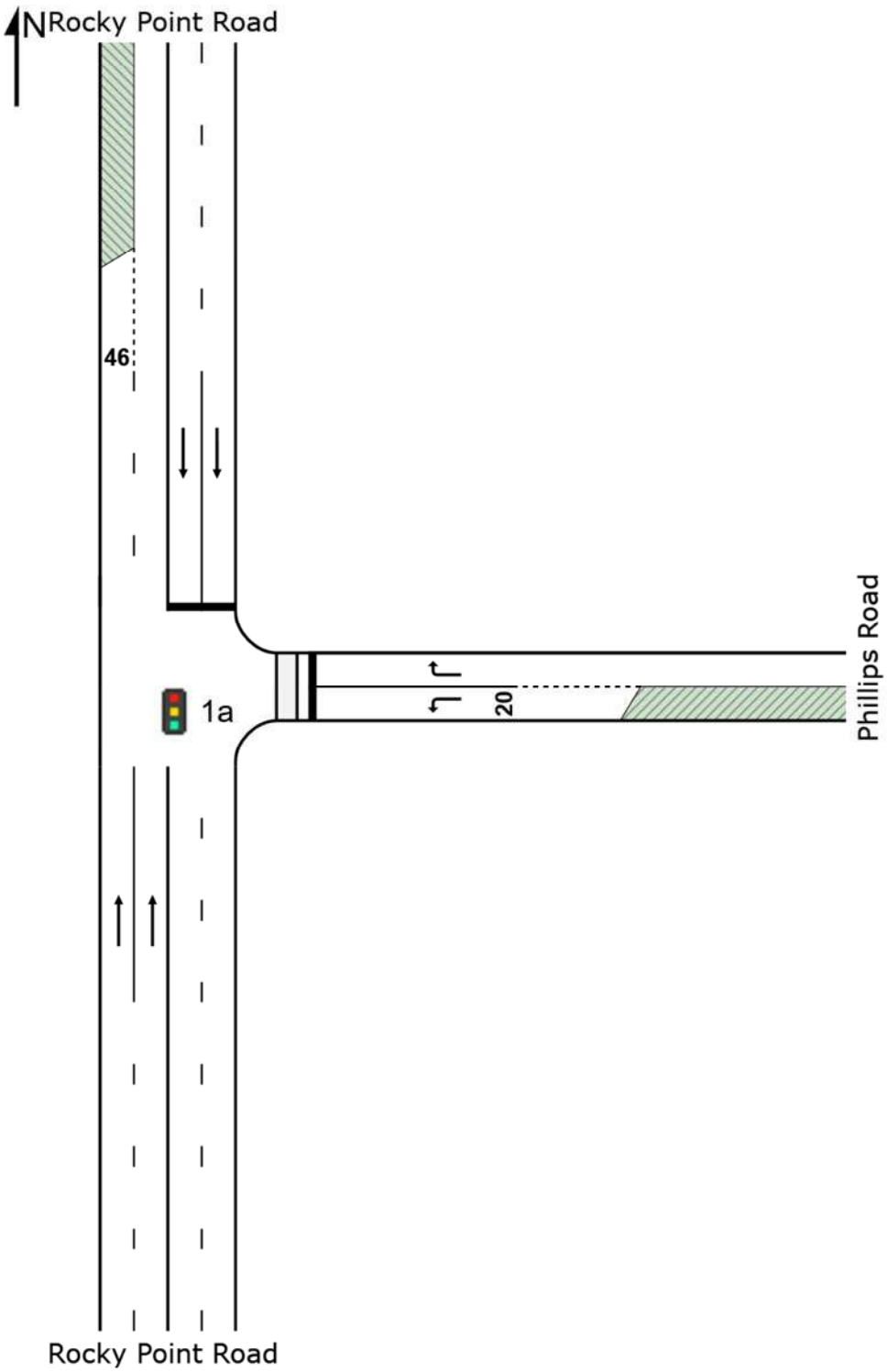
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	53	49.6	LOS E	0.2	0.2	0.91	0.91
P4	West Full Crossing	53	12.6	LOS B	0.1	0.1	0.46	0.46
All Pedestrians		105	31.1	LOS D			0.68	0.68

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.

SITE LAYOUT

Site: 1a [PM FU - Rocky Point Rd x Phillips Rd - Copy]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: PM
Scenario: Future
Signals - Fixed Time Coordinated



MOVEMENT SUMMARY

Site: 1a [PM FU - Rocky Point Rd x Phillips Rd - Copy]

Network: 2 [PM FU - Residential DA+Childcare +Commercial]

Signalised Intersection: Rocky Point Rd x Phillips Rd
Period: PM
Scenario: Future
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)
Common Control Group: CCG1 [Intersection of Rocky Point Road x Jubliee Avenue x Phillips Road]

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: Rocky Point Road													
2	T1	738	2.3	738	2.3	0.299	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		738	2.3	738	2.3	0.299	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
East: Phillips Road													
4	L2	86	1.2	86	1.2	0.945	86.7	LOS F	6.2	43.6	1.00	1.02	10.2
6	R2	49	0.0	49	0.0	0.533	70.0	LOS E	3.0	21.3	1.00	0.75	24.4
Approach		136	0.8	136	0.8	0.945	80.6	LOS F	6.2	43.6	1.00	0.92	15.9
North: Rocky Point Road													
8	T1	1499	2.4	1499	2.4	0.624	7.5	LOS A	15.0	107.1	0.38	0.35	48.8
Approach		1499	2.4	1499	2.4	0.624	7.5	LOS A	15.0	107.1	0.38	0.35	48.8
All Vehicles		2373	2.3	2373	2.3	0.945	9.3	LOS A	15.0	107.1	0.30	0.27	46.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

Movement Performance - Pedestrians

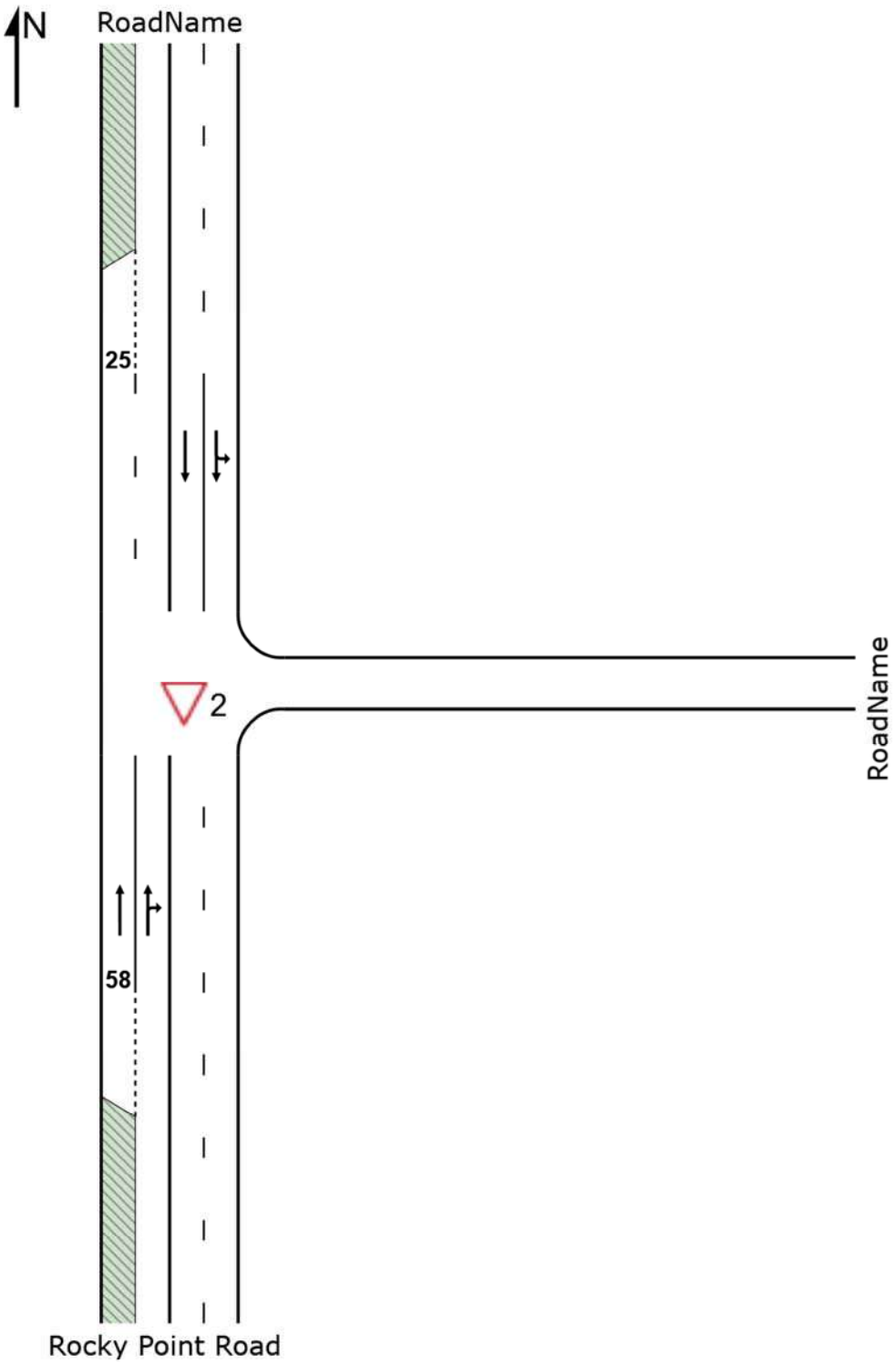
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	10.4	LOS B	0.1	0.1	0.42	0.42
All Pedestrians		53	10.4	LOS B			0.42	0.42

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.

SITE LAYOUT

Site: 2 [PM FU - Rocky Point Road x Production Avenue - Copy]

T-intersection:Rocky Point Road x Production Avenue
Period: PM
Scenario: Exisitng Situation
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2 [PM FU - Rocky Point Road x Production Avenue - Copy]

Network: 2 [PM FU - Residential DA+Childcare +Commercial]

T-intersection:Rocky Point Road x Production Avenue
Period: PM
Scenario: Exisitng Situation
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

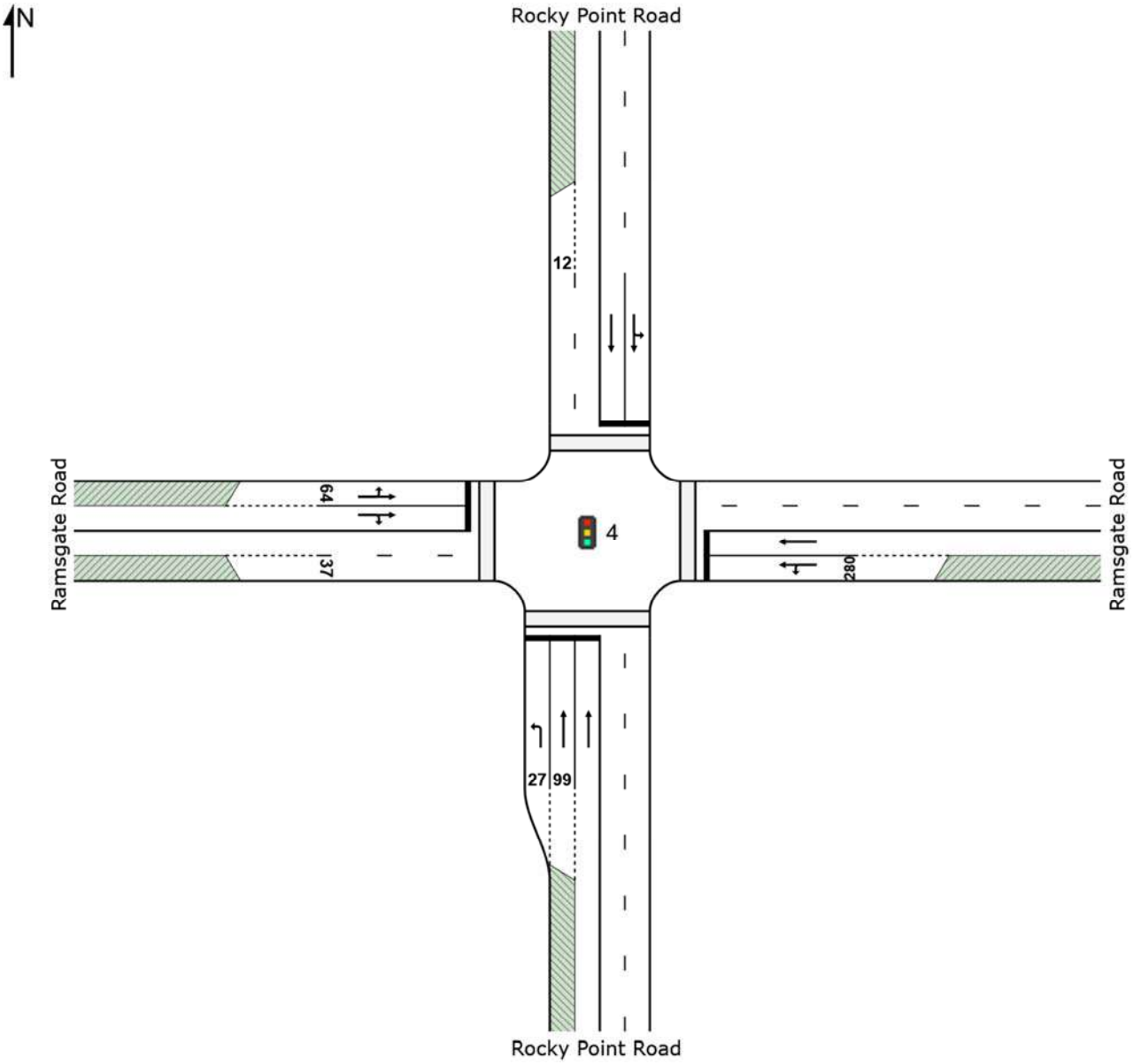
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Rocky Point Road													
2	T1	895	2.2	895	2.2	0.451	3.5	LOS A	2.7	19.1	0.15	0.01	39.9
3	R2	15	0.0	15	0.0	0.451	40.9	LOS C	2.7	19.1	0.19	0.01	45.8
Approach		909	2.2	909	2.2	0.451	4.1	NA	2.7	19.1	0.15	0.01	40.2
North: RoadName													
7	L2	153	0.7	153	0.7	0.446	5.6	LOS A	0.0	0.0	0.00	0.11	53.4
8	T1	1556	2.1	1556	2.1	0.446	0.0	LOS A	0.0	0.0	0.00	0.05	56.6
Approach		1708	2.0	1708	2.0	0.446	0.5	NA	0.0	0.0	0.00	0.05	55.9
All Vehicles		2618	2.1	2618	2.1	0.451	1.8	NA	2.7	19.1	0.05	0.04	49.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

SITE LAYOUT

Site: 4 [PM FU - Rocky Point Road x Ramsgate Road - Copy]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Coordinated



MOVEMENT SUMMARY

Site: 4 [PM FU - Rocky Point Road x Ramsgate Road - Copy]

Network: 2 [PM FU - Residential DA+Childcare +Commercial]

Signalised Intersection: Rocky Point Road x Ramsgate Road
Period: PM
Scenario: Existing Situation
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

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: Rocky Point Road													
1	L2	317	2.0	317	2.0	0.281	11.6	LOS A	4.2	29.9	0.25	0.65	45.5
2	T1	784	2.4	784	2.4	0.831	28.7	LOS C	31.4	224.1	0.79	0.73	27.0
Approach		1101	2.3	1101	2.3	0.831	23.8	LOS B	31.4	224.1	0.63	0.71	32.5
East: Ramsgate Road													
4	L2	46	0.0	46	0.0	0.275	42.2	LOS C	6.6	46.4	0.83	0.71	30.9
5	T1	623	1.0	623	1.0	0.958	68.3	LOS E	39.9	282.1	0.97	1.11	21.6
Approach		669	0.9	669	0.9	0.958	66.5	LOS E	39.9	282.1	0.96	1.09	22.1
North: Rocky Point Road													
7	L2	48	2.2	48	2.2	0.891	43.4	LOS D	41.6	296.4	0.95	0.94	33.8
8	T1	1403	2.1	1403	2.1	0.891	37.8	LOS C	41.9	298.4	0.95	0.94	35.5
Approach		1452	2.1	1452	2.1	0.891	38.0	LOS C	41.9	298.4	0.95	0.94	35.5
West: Ramsgate Road													
10	L2	29	0.0	29	0.0	0.385	27.0	LOS B	12.7	92.6	0.69	0.61	28.2
11	T1	313	5.4	313	5.4	0.385	21.5	LOS B	12.7	92.6	0.69	0.61	38.2
12	R2	258	2.4	258	2.4	0.796	64.2	LOS E	14.5	103.7	1.00	1.06	23.4
Approach		600	3.9	600	3.9	0.796	40.1	LOS C	14.5	103.7	0.82	0.80	29.4
All Vehicles		3822	2.2	3822	2.2	0.958	39.2	LOS C	41.9	298.4	0.84	0.88	31.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (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
P1	South Full Crossing	53	40.9	LOS E	0.1	0.1	0.83	0.83
P2	East Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66
P3	North Full Crossing	53	38.5	LOS D	0.1	0.1	0.80	0.80
P4	West Full Crossing	53	26.1	LOS C	0.1	0.1	0.66	0.66
All Pedestrians		211	32.9	LOS D			0.74	0.74

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: 3 [PM FU - Rocky Point Rd x Weeney St x Site Access Rd_w/out RT Filter - Copy]

Network: 2 [PM FU - Residential DA+Childcare +Commercial]

Intersection: Rocky Point Rd x Weeney St x Site Access Rd
Period: PM
Scenario: FU without Left Turn Deceleration Lane
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

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: Rocky Point Road													
1	L2	19	5.6	19	5.6	0.098	6.0	LOS A	0.2	1.3	0.02	0.10	55.2
2	T1	756	2.6	756	2.6	0.454	0.5	LOS A	1.3	9.4	0.04	0.05	58.8
3	R2	48	0.0	48	0.0	0.533	70.2	LOS E	3.0	20.7	1.00	0.75	23.0
Approach		823	2.6	823	2.6	0.533	4.8	LOS A	3.0	20.7	0.09	0.09	52.2
East: Site Access Road													
4	L2	78	0.0	78	0.0	0.163	41.5	LOS C	3.5	24.6	0.81	0.74	14.1
5	T1	28	0.0	28	0.0	0.875	66.1	LOS E	11.1	77.6	1.00	1.02	12.8
6	R2	140	0.0	140	0.0	0.875	70.6	LOS F	11.1	77.6	1.00	1.02	9.5
Approach		246	0.0	246	0.0	0.875	60.9	LOS E	11.1	77.6	0.94	0.93	11.0
North: Rocky Point Road													
7	L2	62	0.0	62	0.0	0.638	11.9	LOS A	14.1	100.4	0.35	0.35	40.6
8	T1	1482	2.2	1482	2.2	0.638	6.4	LOS A	14.2	101.2	0.35	0.33	33.7
Approach		1544	2.1	1544	2.1	0.638	6.6	LOS A	14.2	101.2	0.35	0.33	34.2
West: Weeney Street													
10	L2	25	0.0	25	0.0	0.177	53.1	LOS D	2.6	18.3	0.91	0.72	7.3
11	T1	20	0.0	20	0.0	0.177	48.5	LOS D	2.6	18.3	0.91	0.72	15.9
12	R2	5	0.0	5	0.0	0.177	53.1	LOS D	2.6	18.3	0.91	0.72	7.3
Approach		51	0.0	51	0.0	0.177	51.3	LOS D	2.6	18.3	0.91	0.72	11.2
All Vehicles		2664	2.0	2664	2.0	0.875	11.9	LOS A	14.2	101.2	0.33	0.32	34.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (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
P1	South Full Crossing	53	53.3	LOS E	0.2	0.2	0.94	0.94
P2	East Full Crossing	53	11.7	LOS B	0.1	0.1	0.44	0.44
P3	North Full Crossing	53	52.4	LOS E	0.2	0.2	0.94	0.94
P4	West Full Crossing	53	11.3	LOS B	0.1	0.1	0.43	0.43
All Pedestrians		211	32.2	LOS D			0.69	0.69

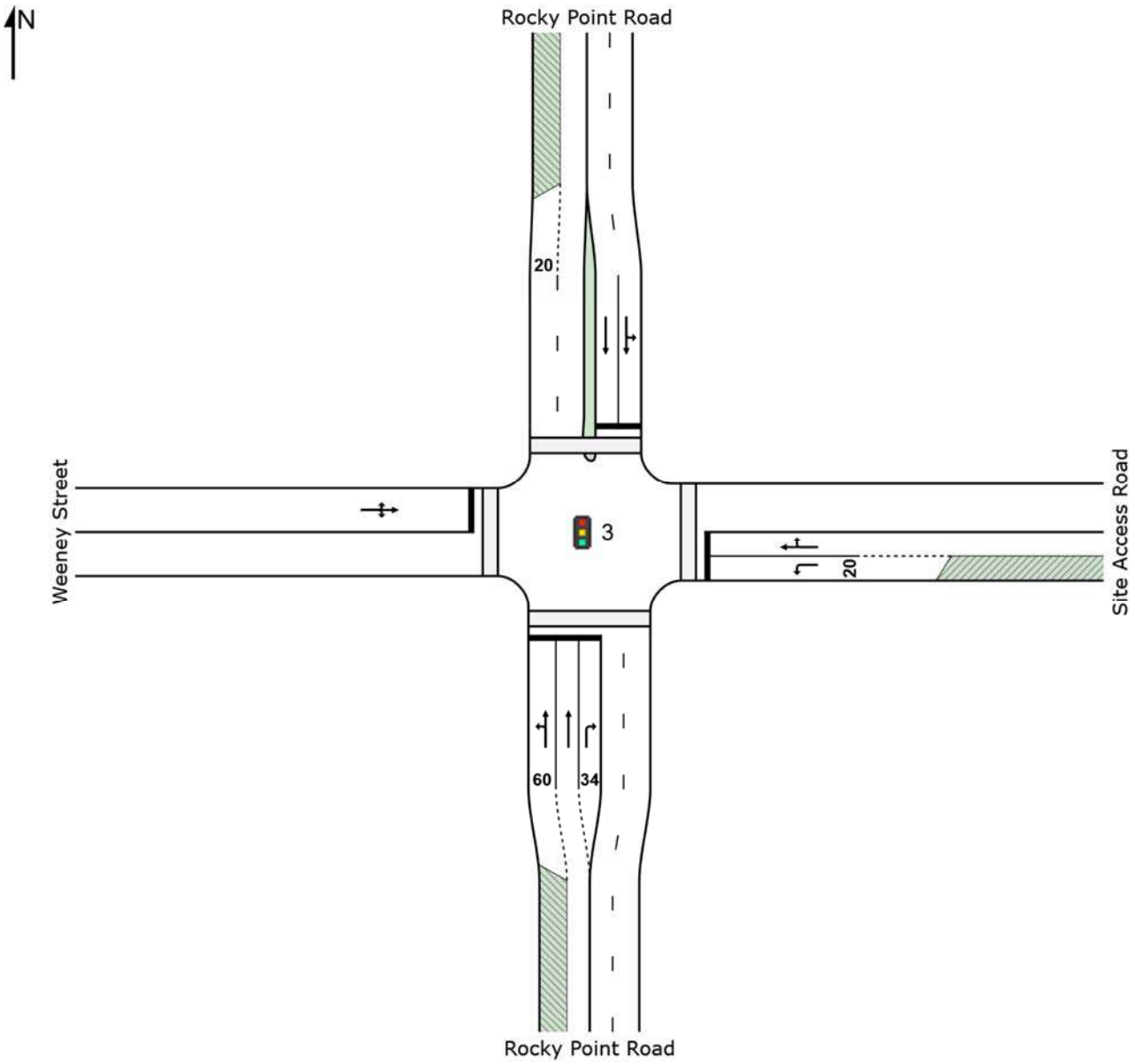
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

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.

SITE LAYOUT

Site: 3 [PM FU - Rocky Point Rd x Weeney St x Site Access Rd_w/out RT Filter - Copy]

Intersection: Rocky Point Rd x Weeney St x Site Access Rd
Period: PM
Scenario: FU without Left Turn Deceleration Lane
Signals - Fixed Time Coordinated



Appendix F

Intersection Signage Plan

PRODUCTION AVENUE
PRODUCTION AVENUE
ROCKY POINT ROAD
PRODUCTION LANE
WORKS ON-HOLD PENDING
CONFIRMATION FROM RCC
SUBJECT TO RMS
APPROVAL
REF: STD16/00784
'STAGE 2'
PART OF THIS
APPROVAL
STREET NAME
G5-1
NO STOPPING
R5-400 R
R5-400 L
WEENEY STREET
BB - 30m
BB - 50m
BB - 33m
BB - 15m
PCW
'STAGE 1'
ACCESS ROAD
GIVE WAY
R1-2
PROPOSED PROPERTY BOUNDARY / STAGING BOUNDARY
'STAGE 2'
NOT PART OF THIS
APPROVAL
FUTURE CHILD
R5-40 L
R5-40 R
R5-40 A
EXISTING
BUS ZONE
CLEARWAY
6AM - 10AM MON-FRI
PRODUCTION LANE
PAVEMENT MARKING LEGEND
LONGITUDINAL LINES
EDGE LINES
E1
E2
E3
E4
E5
E6 LINE APPLIED TO INCLINE FACE OF MEDIAN KERB
TURN LINES
T1
SEPARATION LINES
S1
S2
S3
BARRIER LINES
BB
BS
LANE LINES
L1
L2
L3
L4
CONTINUITY LINES
C1
PARKING RESTRICTION LINES
C2
C3
TRANSVERSE LINES
GIVEWAY LINE
TB
STOP LINE
TF
PEDESTRIAN LINES
TF PCW
NOTES:
1. ALL SIGNAGE TO BE IN ACCORDANCE WITH THE AUSTRALIAN STANDARD AS 1742.
2. ALL PAVEMENT MARKING TO BE IN ACCORDANCE WITH THE RMS DELINEATION MANUAL.
3. TRANSITION LINEMARKING TO SUIT EXISTING WHERE REQUIRED.
4. RELOCATE/ REMOVE EXISTING SIGNS AS REQUIRED.
5. REMOVE ALL REDUNDANT PAVEMENT MARKING AS REQUIRED.
6. PROVIDE ADEQUATE APPROACH WARNING SIGNS DURING AND AFTER CONSTRUCTION.
7. ALL LINEMARKING TO BE WHITE IN COLOUR
8. NOMINATE PAVEMENT MARKING TYPE.

Issue	Description	Date
A	ISSUED FOR DA	24-11-16

Bar Scales: 0 10 20 30 40 50m — 1 : 500 @ A1 1 : 1000 @ A3

Client: JQZ

Scales	1:500	Drawn	GJ
		Designed	GJ
Grid	MGA	Checked	PW
Height Datum	AHD	Approved	

Project: PHASE 1
152-206
ROCKY POINT ROAD
KOGARAH

Title: SIGNAGE AND LINEMARKING PLAN

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL — NOT TO BE USED FOR CONSTRUCTION — A1

Drawing No.	Project No.	Issue
DAC035	16-381	A

100mm on Original

Date Plotted: 9 Dec 2016 - 05:16PM File Name: F:\16-380 152-206 Rocky Point Rd\Drgs\Civil\Final\DA\DAC035.dwg

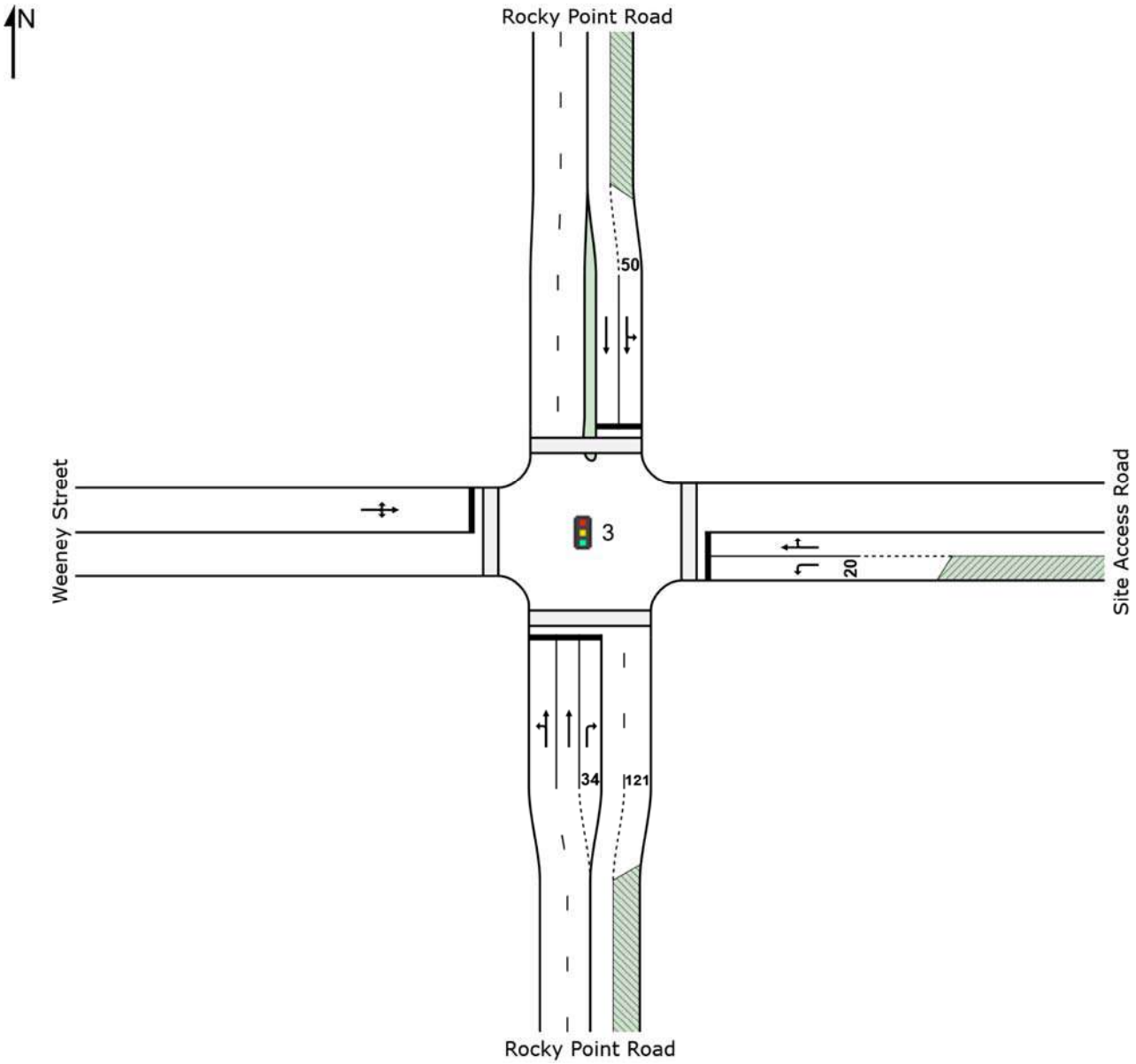
Appendix G

100th Percentile Queue for the Right Turn Entry Movement

SITE LAYOUT

Site: 3 [AM FU - Rocky Point Rd x Weeney St x Site Access Rd_w/out RT Filter - Copy - Copy]

Intersection: Rocky Point Rd x Weeney St x Site Access Rd
Period: AM
Scenario: FU without Left Turn Deceleration Lane
Signals - Fixed Time Isolated



Organisation: TRAFFIX PTY LTD | Created: Tuesday, 13 December 2016 10:02:00 AM
Project: T:\Synergy\Projects\16\16.199\Modelling\16.199s02v07_1 TRAFFIX Network Model.sip7

LANE SUMMARY

Site: 3 [AM FU - Rocky Point Rd x Weeney St x Site Access Rd_w/out RT Filter - Copy - Copy]

Network: N101 [100th perecnt Queue]

Intersection: Rocky Point Rd x Weeney St x Site Access Rd
Period: AM
Scenario: FU without Left Turn Deceleration Lane
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	100% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Rocky Point Road															
Lane 1	1022	3.0	1022	3.0	1255	0.814	100	21.1	LOS B	52.2	374.8	Full	528	-5.0 N3	0.0
Lane 2	648	2.8	648	2.8	796 1	0.814	100	22.9	LOS B	34.0	244.0	Full	528	-32.8 N3	0.0
Lane 3	100	0.0	100	0.0	197	0.508	100	57.4	LOS E	5.8	40.6	Short	34	0.0	NA
Approach	1769	2.7	1769	2.7		0.814		23.8	LOS B	52.2	374.8				
East: Site Access Road															
Lane 1	46	0.0	46	0.0	693	0.067	100	30.0	LOS C	1.8	12.6	Short (P)	20	0.0	NA
Lane 2	175	0.0	175	0.0	197 1	0.888	100	72.8	LOS F	12.9	90.6	Full	210	-29.9 N3	0.0
Approach	221	0.0	221	0.0		0.888		63.8	LOS E	12.9	90.6				
North: Rocky Point Road															
Lane 1	322	6.3	316	6.4	946	0.335	66 6	15.7	LOS B	8.5	62.7	Short (P)	50	0.0	NA
Lane 2	453	8.1	445	8.2	877 1	0.507	100	15.8	LOS B	13.4	100.6	Full	125	0.0	0.0
Approach	775	7.3	761 N1	7.4		0.507		15.8	LOS B	13.4	100.6				
West: Weeney Street															
Lane 1	53	0.0	53	0.0	401	0.131	100	42.2	LOS C	2.6	18.4	Full	105	-6.1 N3	0.0
Approach	53	0.0	53	0.0		0.131		42.2	LOS C	2.6	18.4				
Intersection	2818	3.7	2805 N1	3.8		0.888		25.1	LOS B	52.2	374.8				

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.5 %
Number of Iterations: 10 (maximum specified: 10)

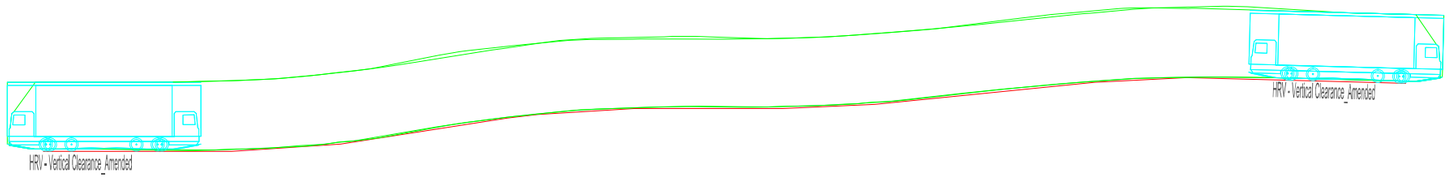
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N3 Capacity Adjustment due to downstream lane blockage determined by the program.

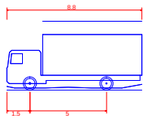
Appendix H

Swept Path Analysis

HRV - Vertical Clearance_Amended

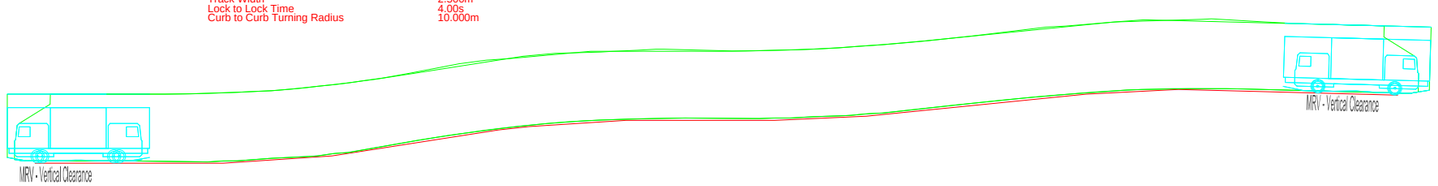
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.500m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock to Lock Time	6.00s
Curb to Curb Turning Radius	12.500m





MRV - Vertical Clearance

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.500m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock to Lock Time	4.00s
Curb to Curb Turning Radius	10.000m



Notes

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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

PTW Architects

client

JQZ

scale

1:400 @ A3

0m 4 8 12 16

project

152-200 and 202-206 Rocky Point Road
Kogarah

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

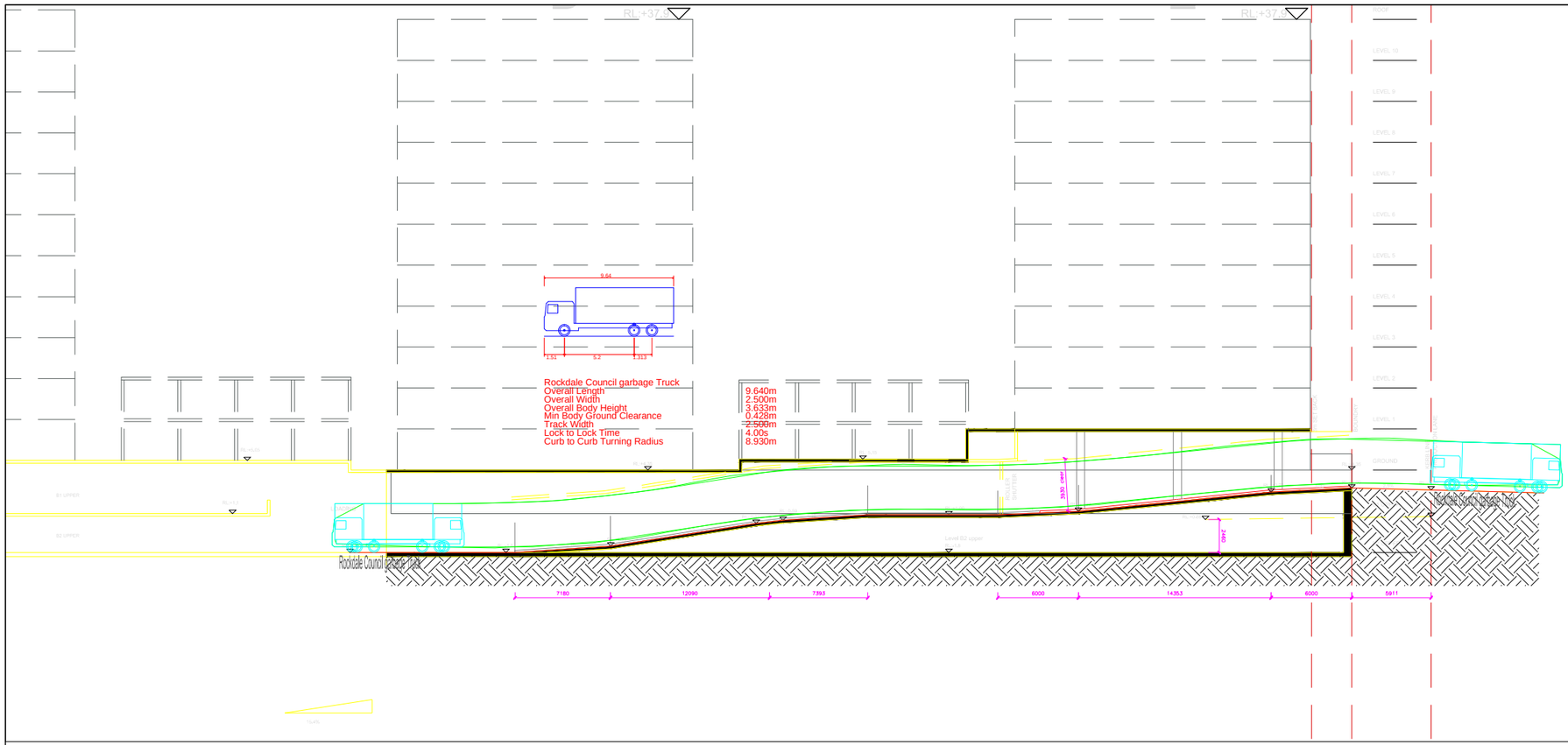
traffix
traffic & transport planners

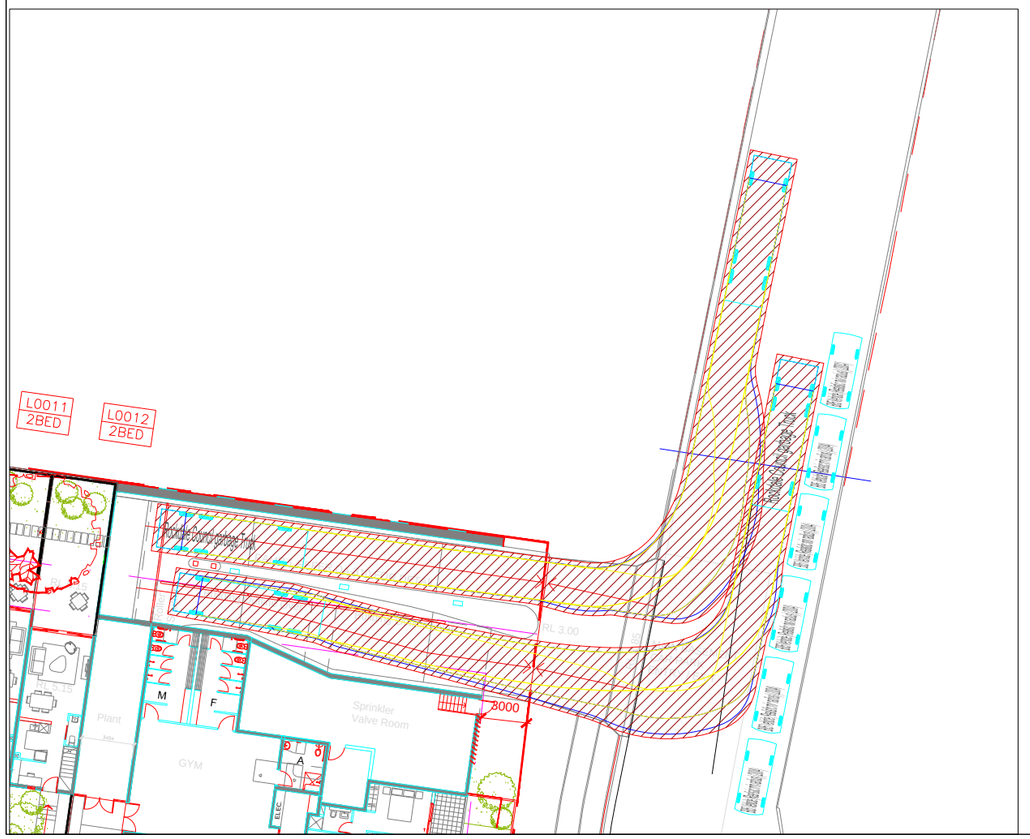
drawing title

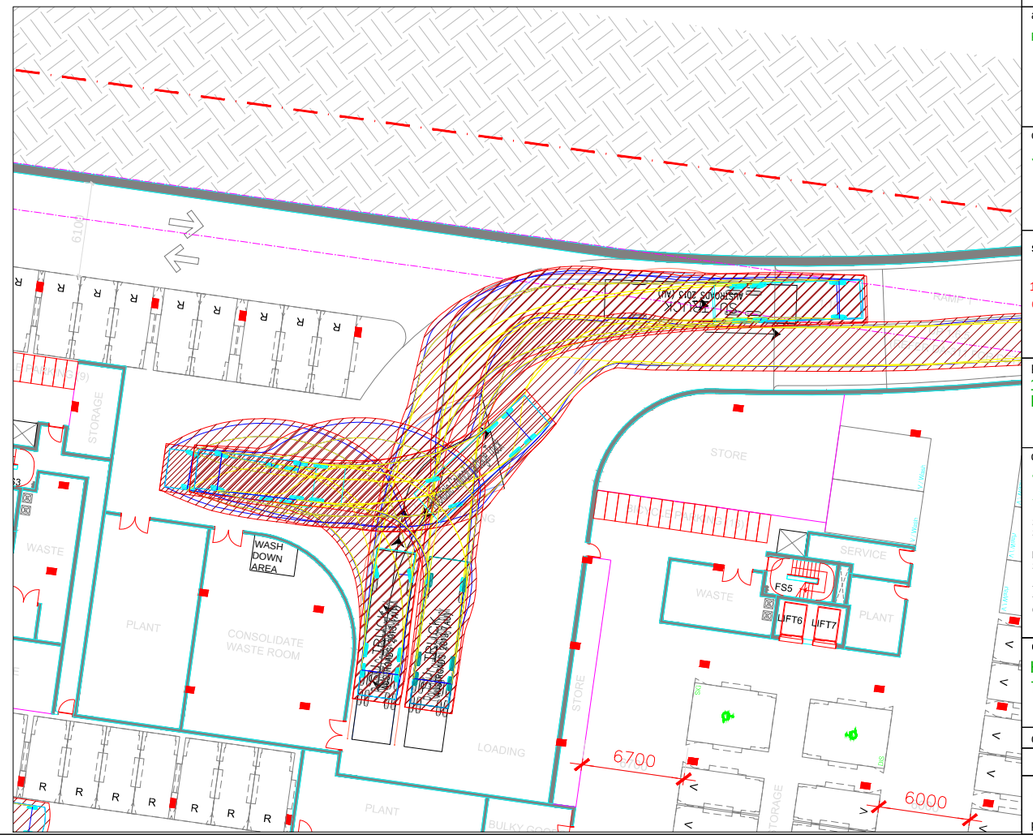
Ground and Vertical Clearance Test for HRV and MRV

drawn:	checked:	date:
HB	GP	20-Dec-16

project no.	drawing phase.	drawing no.	rev
16.199	DA	TX.01	3







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- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect

PTW Architects

client

JQZ

scale

1:400 @ A3

0m 4 8 12 16

project

152-200 and 202-206 Rocky Point Road
Kogarah

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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

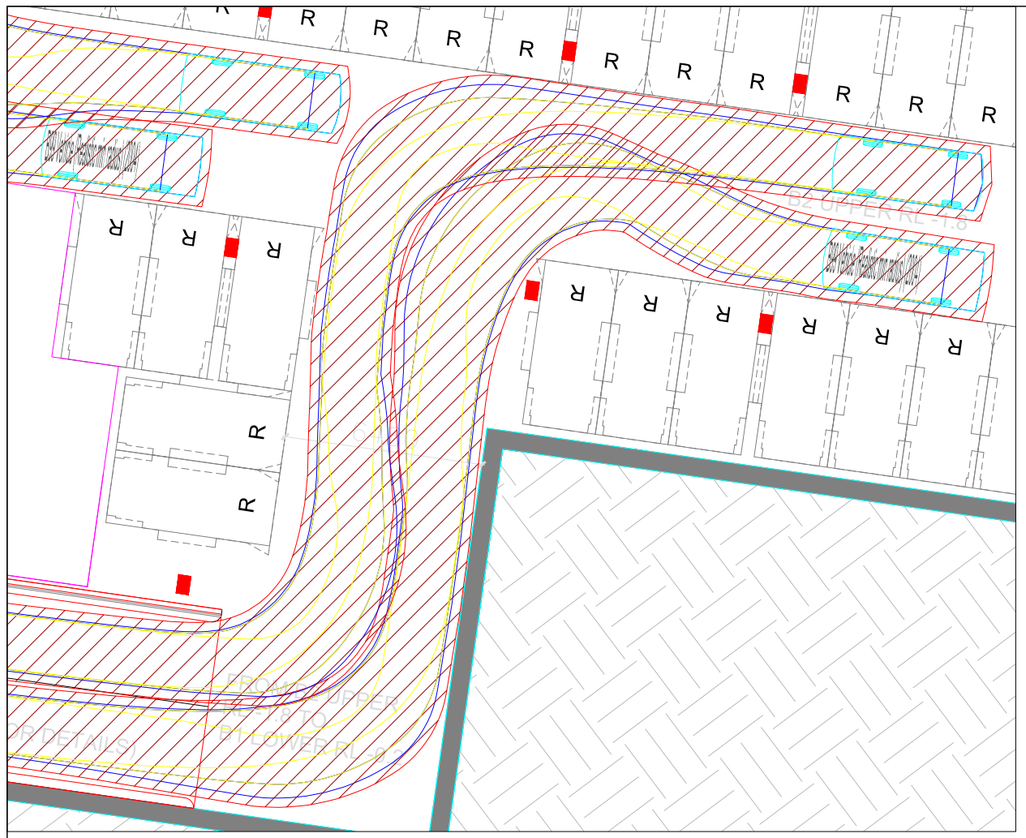
traffix
traffic & transport planners

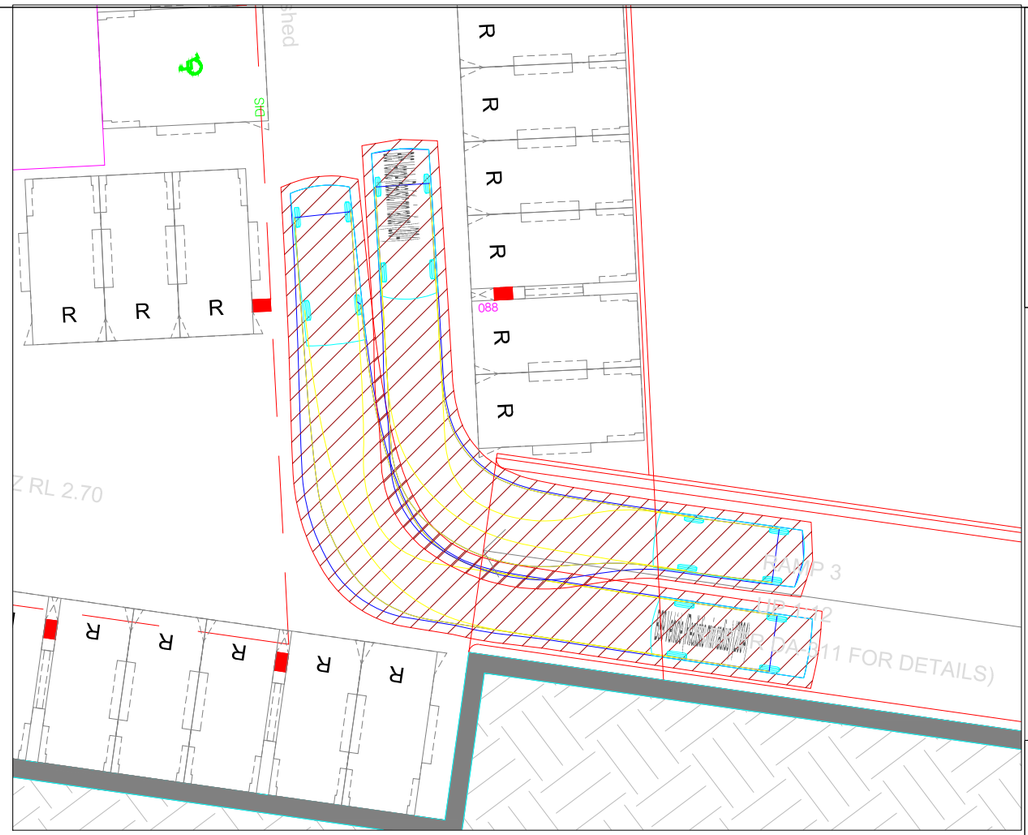
drawing title

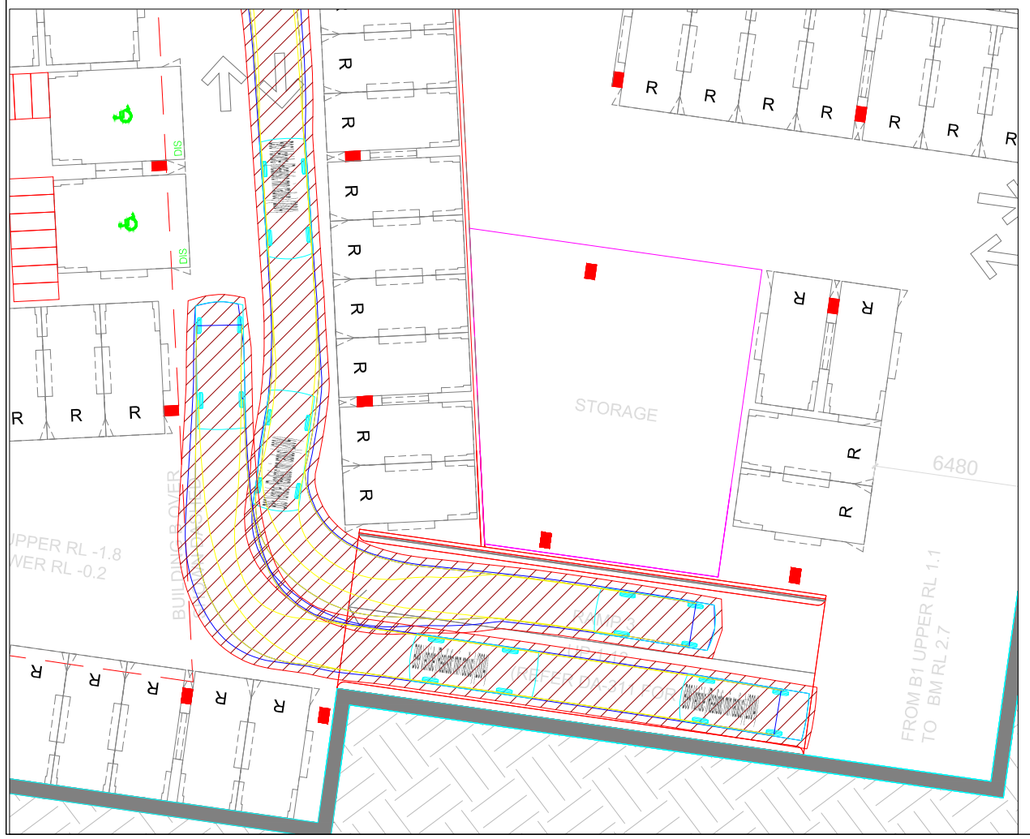
Head Height Clearance Test for Council Garbage Truck

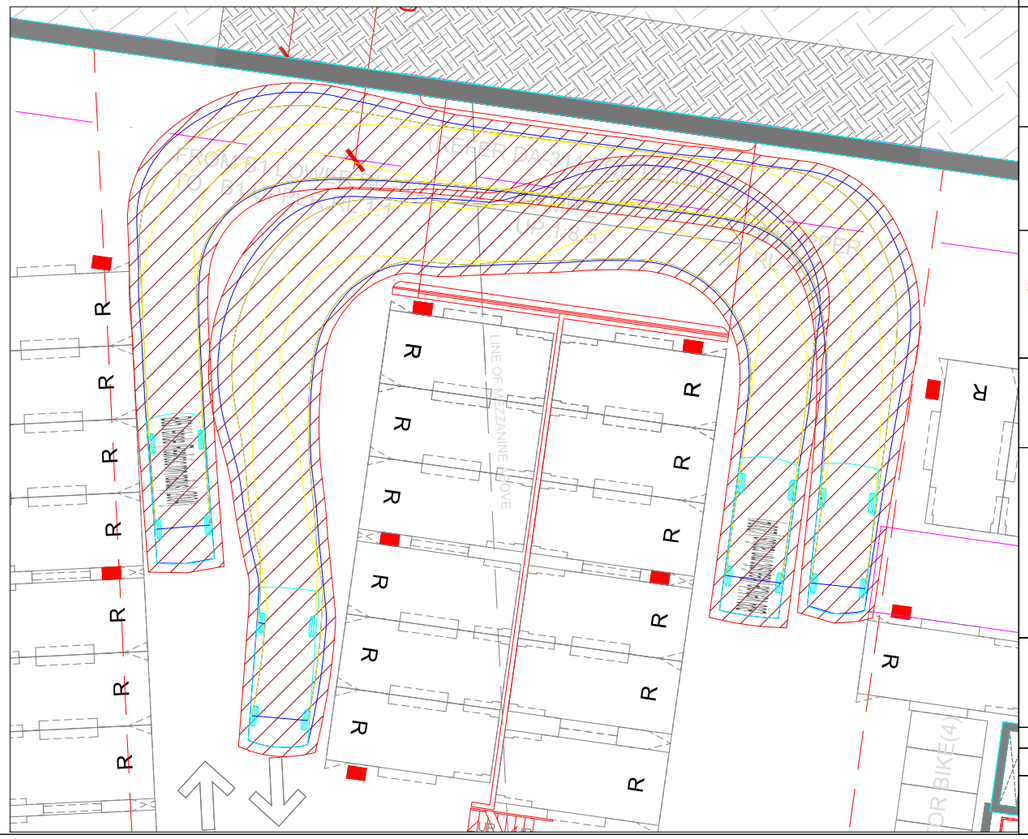
drawn:	checked:	date:
HB	GP	20-Dec-16

project no.	drawing phase.	drawing no.	rev
16.199	DA	TX.02	3









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no.	revision note	by.	date

Swept Path Legend:

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

architect
PTW Architects

client
JQZ

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

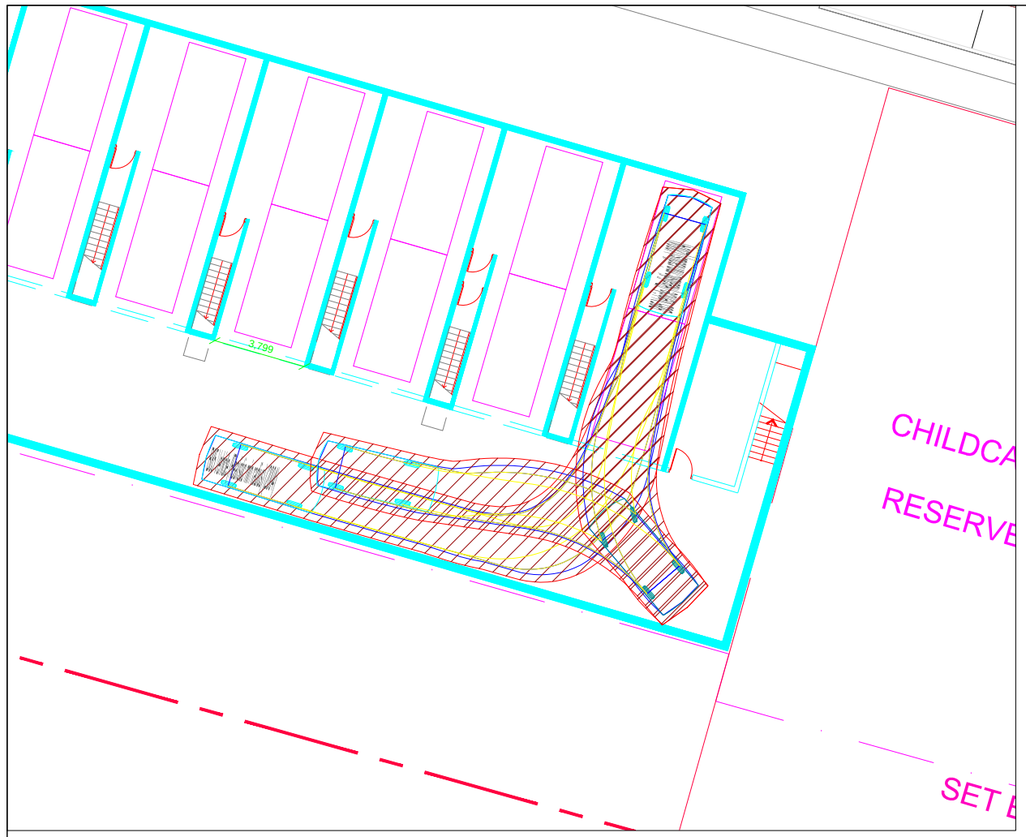
project
152-200 and 202-206 Rocky Point Road
Kogarah

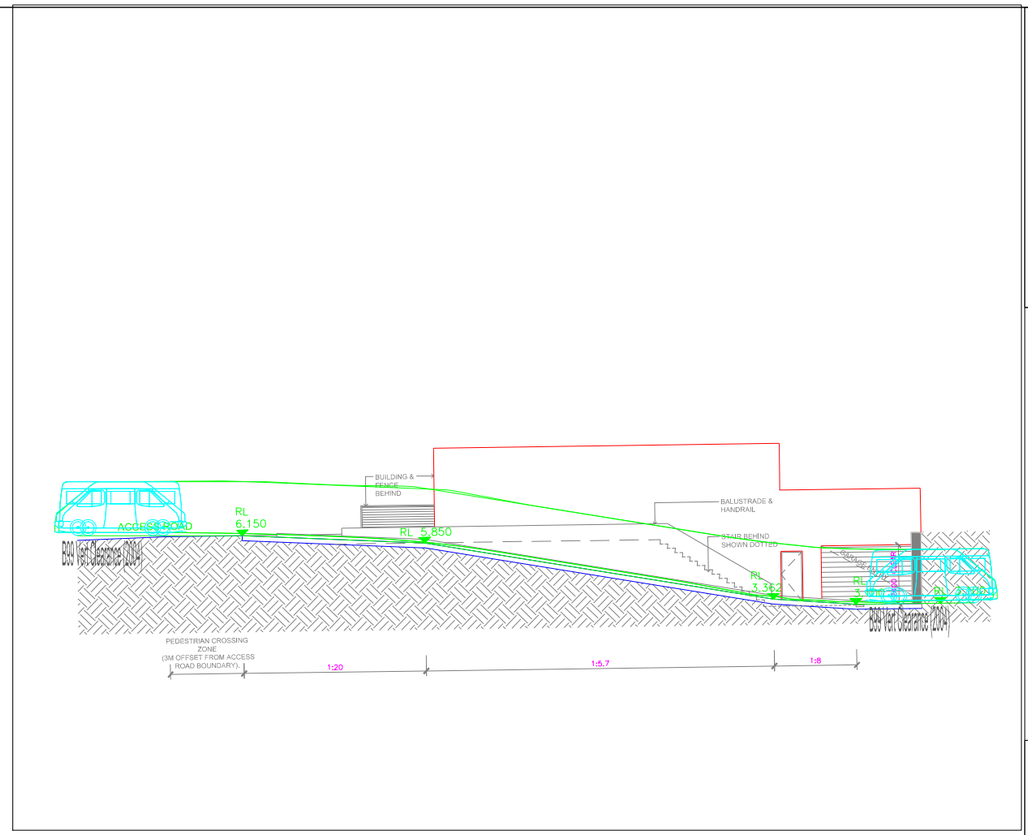
drawing prepared by
TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

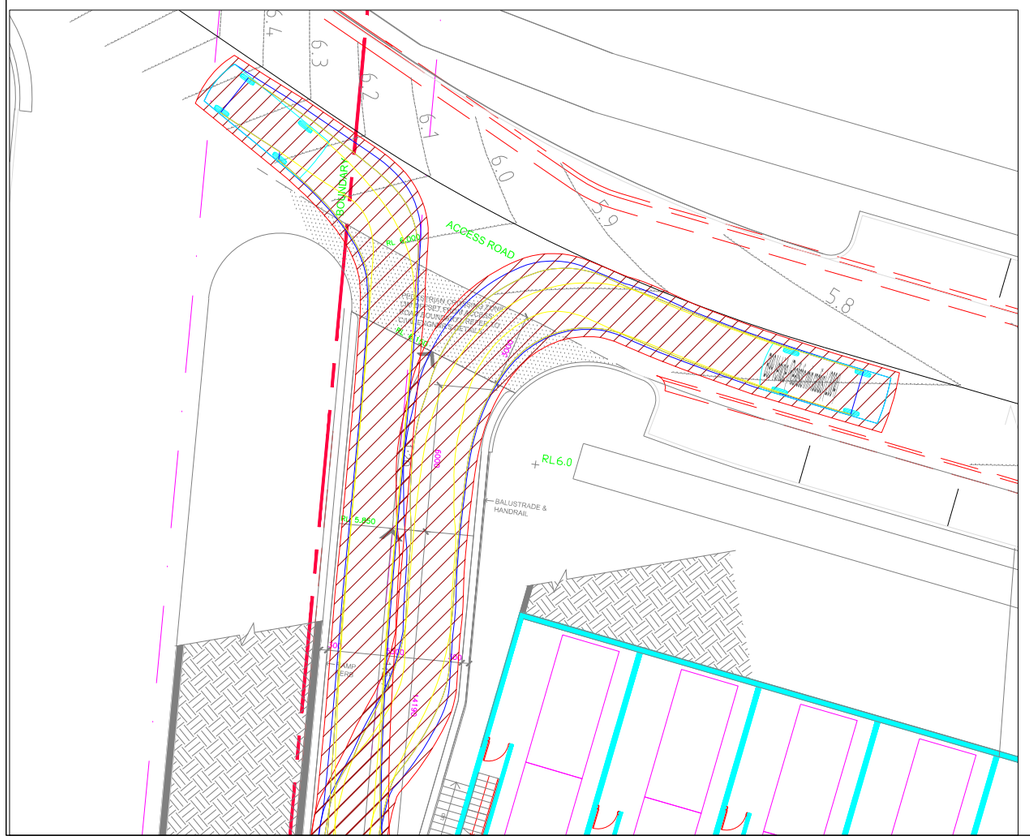
drawing title
Swept Path Assessments for Residential Flat Buildings

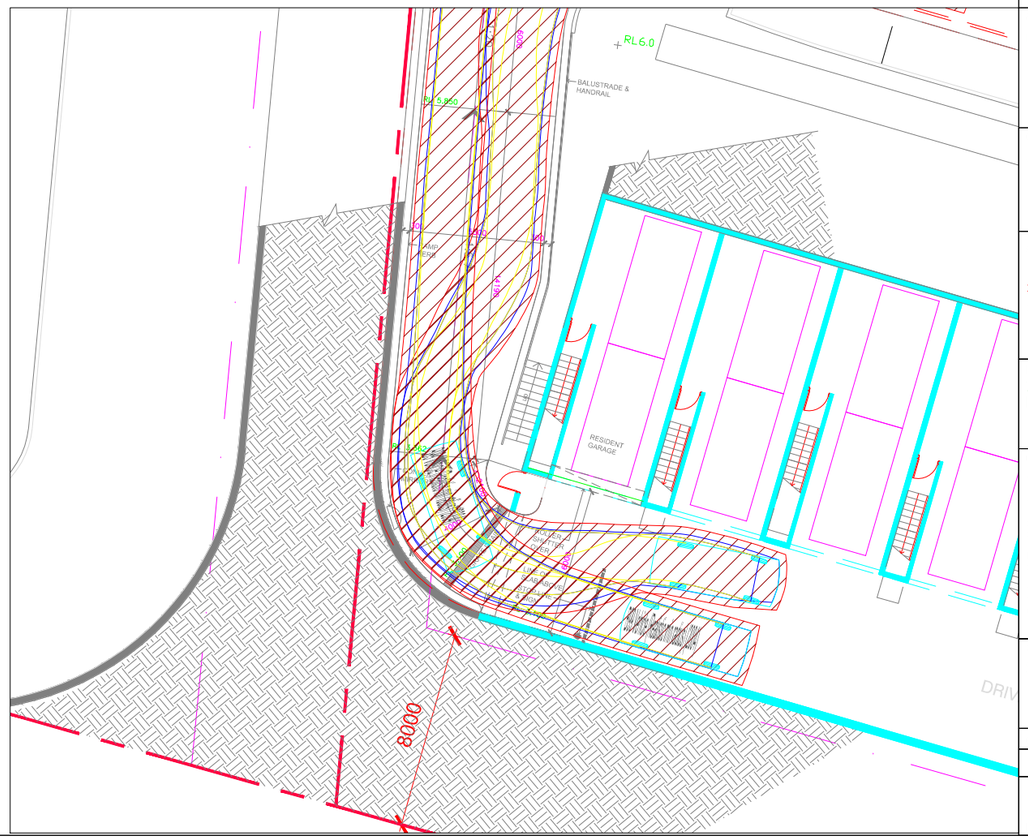
drawn:	checked:	date:
HB	GP	20-Dec-16

project no.	drawing phase.	drawing no.	rev
16.199	DA	TX.03	3









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

architect
PTW Architects

client
JQZ

scale
1:250 @ A3
0m 2 4 6 8

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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
Swept Path Assessments for Town Houses

drawn:	checked:	date:
HB	GP	20-Dec-16

project no.	drawing phase.	drawing no.	rev
16.199	DA	TX.04	3