

**TRAFFIC AND PARKING IMPACT ASSESSMENT OF
THE PROPOSED COMMERCIAL DEVELOPMENT
AT 324 HUME HIGHWAY, BANKSTOWN**



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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

Development Type: Commercial Development

Site Address: 324 Hume Highway, Bankstown

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1 **INTRODUCTION**

McLaren Traffic Engineering was commissioned by FLDC Architects to provide a traffic and parking impact assessment of the proposed Commercial Development at 324 Hume Highway, Bankstown as depicted in **Annexure A**.

1.1 **Description and Scale of Development**

The proposed development has the following characteristics relevant to traffic and parking:

- Three (3) levels of commercial floor space with 2,363m² of gross floor area;
- Three (3) basement parking levels with vehicular access via a proposed two-way driveway from Davis Lane, accommodating **62** car parking spaces.

1.2 **State Environmental Planning Policy (Transport and Infrastructure) 2021**

The proposed development does not qualify as a traffic generating development with relevant size and/or capacity under *Clause 2.122 of the SEPP (Transport and Infrastructure) 2021* although the site driveway is within 90m of a classified road (Rookwood Road) as it generates less than 50 vehicle trips per hour. Accordingly, formal referral to Transport for NSW (TfNSW) is unnecessary, and the application can be assessed by Canterbury-Bankstown Council officers.

However, the proposed development has frontage to classified road (No. 2 – Hume Highway) and therefore qualifies as such with reference to *Clause 2.119 of SEPP (Transport and Infrastructure) 2021*. The development therefore must satisfy that:

(b) the safety, efficiency, and ongoing operation of the classified road will not be adversely affected by the development as a result of:

(i) the design of the vehicular access to the land.

(ii) the emission of smoke or dust from the development

(iii) the nature, volume or frequency of vehicles using the classified road to gain access to the land.

The proposed development will provide vehicle access via the minor road; Davis Lane, which satisfies part of Clause 2.119 of the SEPP. However, the consent authority will need to ensure that the safety, efficiency and ongoing operation of the classified road will not be adversely affected by the development.

1.3 **Site Description**

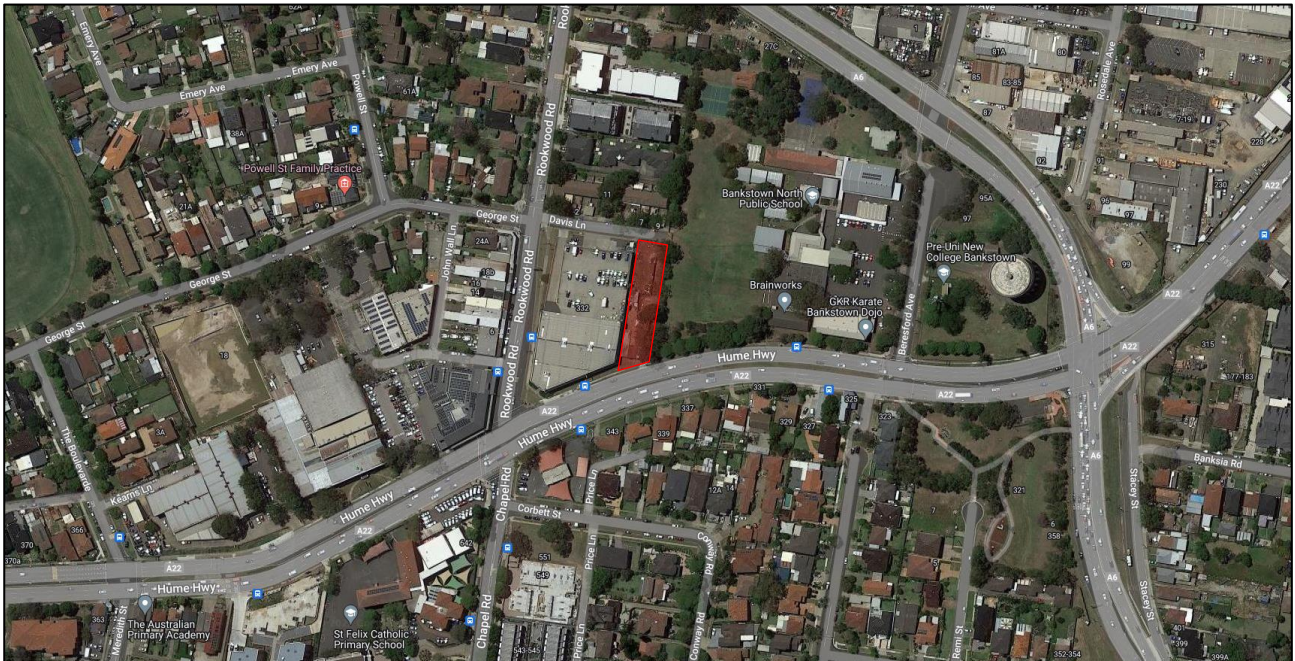
The subject development involves a single lot currently zoned *B6 – Enterprise Corridor* under the Bankstown Local Environment Plan 2015 which is currently occupied by an unoccupied single-storey building. The site has frontages to the Hume Highway to the south and Davis Lane to the north.

The site is surrounded by various development types with Bankstown North Public School to the east of the site, a car wash / medium-density residential housing to the south of the site, a showroom to the west of the site and high-density residential housing to the north of

the site. Several other educational institutions are located within a close proximity of the site with St Felix Catholic Primary School approximately 250m west of the site on the Hume Highway, La Salle Catholic College approximately 300m south of the site on Chapel Road and the Bankstown TAFE campus approximately 700m south of the site on Chapel Road. Furthermore, a pub and variety of commercial / light industrial developments are located along the Hume Highway within 400m walking distance to the west of the site. It is also relevant to note that a large industrial precinct spanning Greenacre and Chullora is within a 400m walking distance to the north-east of the site.

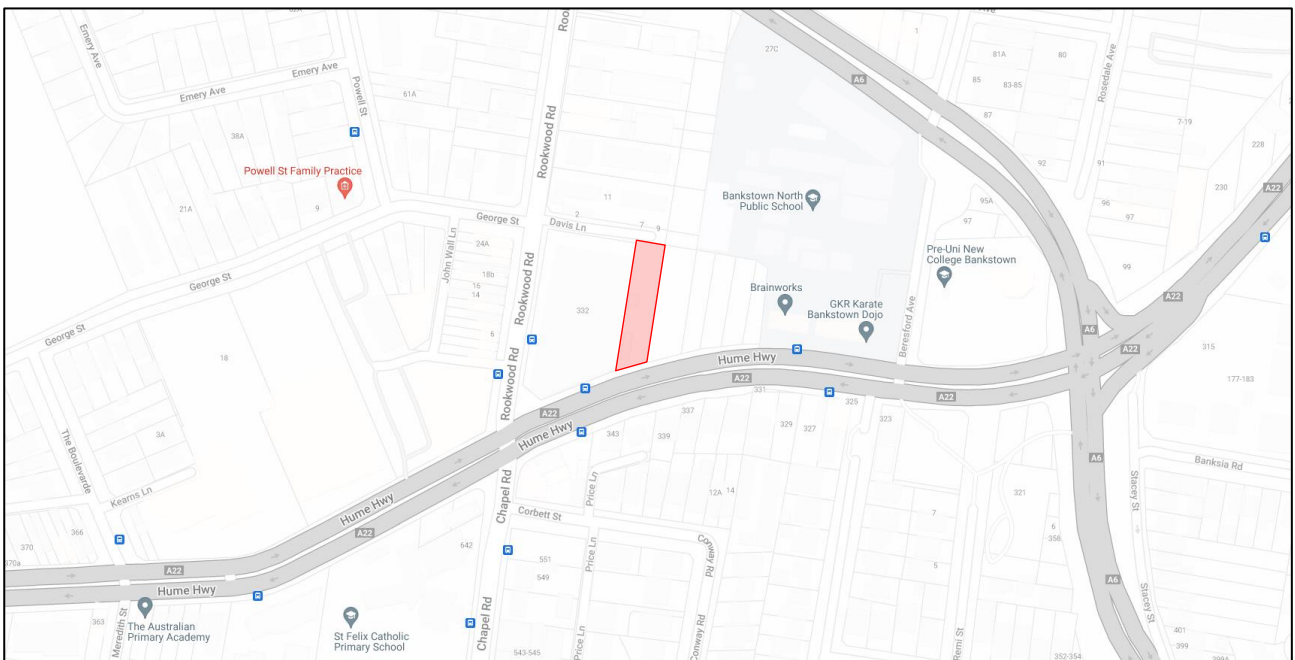
1.4 Site Context

The location of the site is shown on an aerial photo and a street map in **Figure 1** and **Figure 2** respectively.



 Site Location

FIGURE 1: SITE CONTEXT – AERIAL PHOTO



 Site Location

FIGURE 2: SITE CONTEXT – STREET MAP

2 EXISTING TRAFFIC AND PARKING CONDITIONS

2.1 *Road Hierarchy*

The road network servicing the site has characteristics as described in the following sub-sections.

2.1.1 Hume Highway

- TfNSW Classified STATE Road (No. 2);
- Approximately 22m wide carriageway with 1.5m wide central median facilitating three (3) lanes of traffic flow in each direction;
- Signposted 60km/h speed limit:
 - 40km/h School Zone speed limit applies within proximity of the site between 8AM – 9:30AM and 2:30PM – 4PM on school days.
- ‘NO PARKING’ restrictions apply along both sides of the carriageway;
- ‘CLEARWAY’ restrictions apply between 6AM – 10AM Monday to Friday along the eastbound carriageway;
- ‘CLEARWAY’ restrictions apply between 3PM – 7PM Monday to Friday along the westbound carriageway;
- Signposted bus zone along the ceramics showroom frontage to the west of the site.

2.1.2 Davis Lane

- Unclassified LOCAL no-through road;
- Approximately 9m wide carriageway facilitating traffic flow in both directions;
- Default 50km/h speed limit:
 - 40km/h School Zone speed limit applies between 8AM – 9:30AM and 2:30 – 4PM on school days.
- Unrestricted kerbside parking permitted along both sides of the road where available, but would typically only occur along the northern side due to existing driveway locations.

2.1.3 Rockwood Road

- TfNSW Classified STATE Road (No. 190);
- Approximately 12m wide carriageway facilitating one (1) lane of traffic flow and one (1) kerbside parking lane in each direction;
- Signposted 60km/h speed limit:
 - 40km/h School Zone speed limit applies between 8AM – 9:30AM and 2:30 – 4PM on school days.
- Generally unrestricted kerbside parking permitted along residential frontages;

- Generally, time-restricted 1P kerbside parking along shop frontages between 8:30AM – 6PM Monday to Friday and 8AM – 12:30PM Saturday.

2.2 Existing Traffic Management

- Signalised controlled intersection of Hume Highway / Rookwood Road / Chapel Road:
 - “No right turn, buses excepted” and “Give way to pedestrians” signage at the Chapel Road approach;
 - “Give way to pedestrians” signage at the Hume Highway (E) approach;
 - Signalised pedestrian crossings across Rookwood Road and the Hume Highway (east and west legs).
- Signalised controlled intersection of Davis Lane / Rookwood Road / George Street:
 - Davis Lane approach is priority controlled;
 - Signposted “Left turn only” restriction at the Davis Lane approach;
 - Signposted “Left turn only”, “No right turn” restriction at the George Street approach;
 - Signposted “No 3t and over vehicles” restriction at the exit to George Street;
 - Signposted “No right turn” at the Rookwood Road (N) approach;
 - Signalised pedestrian crossings across George Street and Rookwood Road (N).
- Signalised controlled intersection of Rookwood Road / Stacey Street:
 - Priority controlled left turn from Stacey Street approach via slip lane;
 - Pedestrian crossing across the Stacey Street approach slip lane;
 - Signalised pedestrian crossing across Rookwood Road (S) and Stacey Street (E).

2.3 Existing Traffic Environment

Turning movement counts were conducted at the intersection of Hume Highway / Rookwood Road / Chapel Road, Rookwood Road / George Street / Davis Lane and Stacey Street / Rookwood Road from 7:00am to 9:30am and 2:30pm to 6:00pm on Tuesday 21 July 2022 representing a typical operating weekday. The full survey results are shown in **Annexure B** for reference.

2.3.1 Existing Road Performance

The performance of the surrounding intersections under the existing traffic conditions has been assessed using SIDRA INTERSECTION 9.0, **Table 1** summarises the resultant intersection performance data, with full SIDRA results reproduced in **Annexure C**.

The following considerations have been undertaken to ensure a realistic calibrated model:

- Consideration to the TCS Plan for signalised intersections Hume Highway / Rookwood Road / Chapel Road, Rookwood Road / George Street / Davis Lane and Stacey Street / Rookwood Road (**Annexure D**);
- A review of the phase length and cycle times based upon video footage which is reproduced in **Annexure E** for reference:
 - Output cycle and phase lengths fall within observed cycle and phase lengths and generally match the average cycle and phase lengths.
 - The intersection of Stacey Street / Rookwood Road was observed to never run Phase C and hence it has been removed from the existing and future modelling scenarios.
- Signal Coordination Arrival Type (assumption that the corridor is coordinated to optimise through vehicle movements for the Hume Highway and Stacey Street / Rookwood Road);
- Review of queue lengths and SIDRA output where possible to ensure queue length matched observed queue lengths.

TABLE 1: EXISTING INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.0)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/vehicle)	Level of Service ⁽³⁾⁽⁴⁾	Control Type	Worst Movement
EXISTING PERFORMANCE						
Rookwood Road / Stacey Street	AM	0.58	14.8	B	Signals	LT from Rookwood Road (S)
	PM	0.63	12.1	A		RT from Rookwood Road (W)
Rookwood Road / Davis Lane	AM	0.63	12.1	A	Signals	LT from George Street (W)
	PM	0.34	6.4	A		LT from George Street (W)
Chapel Road / Rookwood Road	AM	0.77	37.7	C	Signals	T from Chapel Road (S)
	PM	0.92	44.6	D		T from Chapel Road (S)

Notes:

- (1) The Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
- (2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

- (3) The Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.
- (4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

As shown above the assessed intersections of Rookwood Road / Stacey Street and George Street / Rookwood Road / Davis Lane are operating at Level of Service “A” or “B” condition in both the AM and PM peak hour periods. This indicates a satisfactory operation with minor delays and spare capacity.

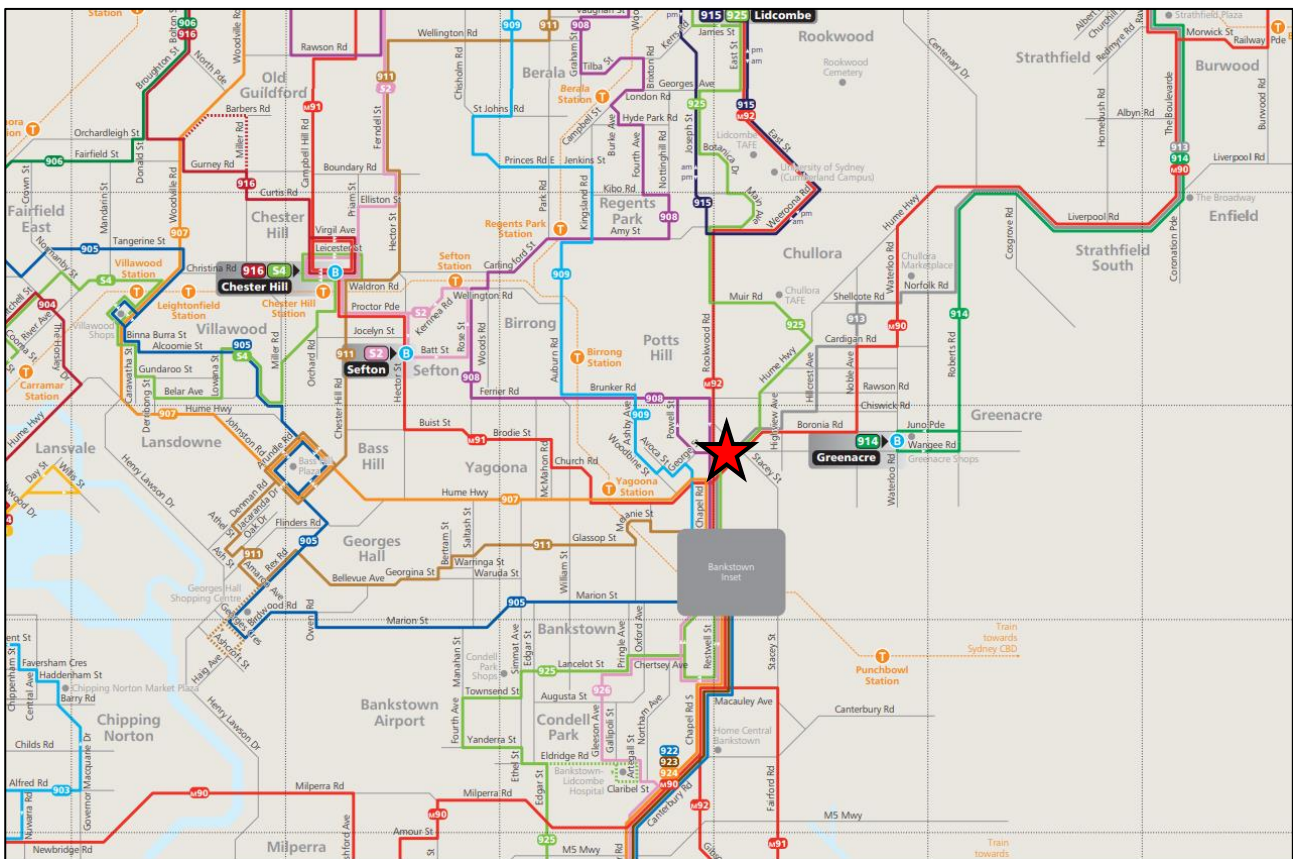
The signalised intersection of Rookwood Road / Hume Highway / Chapel Road is operating at Level of Service “C” condition in the AM peak hour period and Level of Service “D” condition in the PM peak hour period indicating that the operation of the intersection is acceptable and approaching capacity during the PM peak hour period. The degree of saturation of 0.92 relates to the through movement from Chapel Road which is given the lowest order priority and lowest green time of all movements of the intersection.

2.4 Public Transport

The subject site has access to existing bus stop (ID: 2200256) located approximately 35m walking distance to the west of the site on the Hume Highway. The bus stop services existing bus routes 913 (Strathfield to Bankstown), 925 (East Hills to Lidcombe via Bankstown) and M90 (Burwood to Liverpool) provided by Transdev NSW.

The nearest train station to the site is Yagoona Train Station which is located within a 1.3km walking distance to the west of the site, servicing the T2 – Inner West & Leppington Line and T3 – Bankstown Line. This is considered an inaccessible distance and it is relevant to note that Yagoona Station offers no connecting bus service to the site. As such, it is expected that any commuters travelling to the site via train will opt to disembark at Bankstown Station and travel the remainder of the journey via bus.

The location of the site subject to the surrounding public transport network is shown in **Figure 3**.



Site Location

FIGURE 3: PUBLIC TRANSPORT NETWORK MAP

2.5 Future Road and Infrastructure Upgrades

From Canterbury-Bankstown Council Development Application tracker and website, it appears that there are no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject site.

3 PARKING ASSESSMENT

3.1 **Council Parking Requirement**

Reference is made to the *Bankstown Development Control Plan 2015 (BDCP 2015)* which designates the following parking rates applicable to the proposed development:

B5 – Parking

Section 2–Off-Street Parking

Business premises / Office premises

1 car space per 40m² gross floor area of the premises.

In calculating the total number of car parking spaces required for a development, these must be:

- (a) Rounded down if the fraction of the total calculation is less than half (0.5) a space; or*
- (b) Rounded up if the fraction of the total calculation is equal or more than half (0.5) a space.*

Table 2 presents the parking requirements of the proposal according to the above car parking rates.

TABLE 2: DCP PARKING RATES

Land Use	Type	Scale	Rate	Parking Required	Parking Provided
Commercial	Office	2363m ² GFA	1 per 40m ² GFA	59	62
TOTAL	-	2363m²	-	59	62

As shown, strict application of the DCCBDCP 2021 requires the provision of **59** car parking spaces. The proposed plans detail the provision of **62** car parking spaces, exceeding Council's requirements by **3** car parking spaces.

3.2 **Parking for People with Disabilities**

Reference is made to the *Bankstown Development Control Plan 2015* which does not outline any provisions for parking for people with disabilities. As such, reference is made to the *Draft Consolidated Canterbury Bankstown Development Control Plan 2021* which states the following regarding accessible parking provision relevant to the proposed development:

3.2 Parking

Accessible off-street parking rates

- 2.6** *Accessible parking is required to be designed and constructed in accordance with the following rates:*

Commercial and industrial premises (BCA Classes 5-8) where development contains 10 or more spaces

1 accessible parking space per 50 parking spaces for staff;

1 accessible parking space for visitors per 50 parking spaces where a car park has less than 500 spaces;

1 additional accessible parking space per 100 parking spaces above 500 spaces for visitors.

The proposed development provides **62** car parking spaces and as such the DCP requires the provision of two (**2**) accessible parking spaces. The proposed car parking layout incorporates four (**4**) parking spaces for people with disabilities resulting in compliance with Council's requirements.

3.3 Bicycle Parking Requirements

Reference is made to the *Bankstown Development Control Plan 2015* which does not outline any provisions for bicycle parking. As such, reference is made to the *Draft Consolidated Canterbury Bankstown Development Control Plan 2021* which outlines the following requirements for the provision of bicycle parking facilities:

Office / Business Premises

Staff: 1 space per 300m² gross floor area.

Visitors: 1 space per 500m² gross floor area over 1,000m².

Applying the above rates, results in a total bicycle parking requirement of **13** bicycle spaces (**8** for staff and **5** for visitors). The plans provide ten (**10**) bicycle parking spaces, resulting in a shortfall of three (**3**) bicycle spaces from Council's parking requirements. It is recommended that the additional three (3) bicycle spaces required be conditioned as there is ample area within the basement to provide the required bicycle spaces.

3.4 Motorcycle Parking Requirements

Reference is made to the *Bankstown Development Control Plan 2015* which does not outline any provisions for motorcycle parking. Further reference is made to the *Draft Consolidated Canterbury Bankstown Development Control Plan 2021* which does not outline any motorcycle parking requirements for a commercial development either. As such nil (**0**) motorcycle parking spaces are proposed, complying with DCP requirements.

3.5 Servicing & Loading

Reference is made to the *Bankstown Development Control Plan 2015* which outlines the following requirements with respect to servicing and waste collection for commercial developments:

B5 – Parking

Section 5 – Other Considerations

Loading and unloading facilities

5.3 *Where rear lane access is not available and the commercial/retail gross floor area of a building is greater than 500m², Council requires:*

- (a) at least one off-street parking space for delivery/service vehicles; and*
- (b) additional off-street parking spaces or a loading dock depending on the size, number, and frequency of delivery/service vehicles likely to visit the premises.*

3.14 *The design of loading docks must:*

- (a) be separate from parking circulation or exit lanes to ensure safe pedestrian movement and uninterrupted flow of other vehicles in the circulation roadways;*
- (b) allow vehicles to enter and leave the site in a safe manner; and*
- (c) have minimum dimensions of 4 metres by 7 metres per space.*

B13 – Waste Management and Minimisation

Section 5 – Commercial Development

3.7 *An on-site collection point is to be nominated for development. The location of the collection point must allow collection vehicles to enter and exit the site in a forward direction and allow all vehicle movements to comply with AS 2890.2. The location of the collection point must ensure waste servicing does not impact on any access points, internal roads and car parking areas*

Waste collection is proposed to be conducted off-street by a private waste collection vehicle outside of peak hours. The largest service vehicle that can be accommodated on site for servicing / waste collection purposes is a 6.4m long Small Rigid Vehicle (SRV). Loading and unloading operations are to be conducted in Basement Level 1 with service vehicle access to be facilitated via forward entry / exit from Davis Lane.

SRVs servicing the site are expected to load / unload within the dedicated loading zone on Basement 1. This is to occur outside of peak periods, under a plan of management if necessary and is considered to be an acceptable arrangement since the majority of car park users are expected to be office staff which corresponds with a low parking turnover. As such, SRV movements within the basement are unlikely to interrupt the circulation of other vehicles. The swept paths reproduced in **Annexure F** demonstrate that an SRV can

successfully service the site in 3 manoeuvres with the SRV to reverse into the loading zone and exit via forward manoeuvre.

3.6 Car Park Design & Compliance

The car parking layout as depicted in **Annexure A**, has been assessed against the relevant clauses and objectives of AS2890.1:2004, AS2890.2:2002 and AS2890.6:2009. Swept path testing has been undertaken and the results are reproduced within **Annexure F** for reference.

The proposed car parking and vehicular access design achieves the following:

- Minimum 6.0m wide two-way driveway between kerbs facilitating access to Davis Lane;
- Minimum 5.8m wide parking aisles;
- Ramp grades not exceeding 20% for public developments;
- Minimum 5.4m long, 2.4m wide spaces for staff;
- Minimum 5.4m long, 2.6m wide spaces for visitors;
- Minimum 5.4m long, 2.4m wide accessible spaces with adjacent associated 5.4m long, 2.4m wide shared space;
- Minimum headroom of 2.2m for general circulation and 2.5m headroom clearance provided over accessible and adaptable parking areas.

The access ramp into the basement has been assessed against the Clauses 3.3.3.1, Clause 3.3.3.3, 3.3.4.1 and 3.3.4.3 within AS2890.2:2018, which permit exceedance of maximum ramp grades in Clause 3.3.3.2 of AS2890.2:2018 and permit variations to the maximum change of grades in Clause 3.3.4.2 in AS2890.2:2018. Accordingly, the undercarriage clearance testing has been provided in **Annexure F** for reference which demonstrates the required 50mm clearance to the ramp. Hence, the adoption of a maximum of 20% ramp grade for a Small Rigid Vehicle will not present any issues, nor will scraping occur.

Whilst the plans have been assessed to be compliance with the relevant Australian Standards, it is usual and expected that a detailed design certificate will be required prior to construction to account for any design changes throughout the development application process and construction certificate process. It is expected that Council will condition this requirement accordingly.

4 TRAFFIC ASSESSMENT

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections.

4.1 *Traffic Generation*

Traffic generation rates for the relevant land uses are provided in the *RTA Guide to Traffic Generating Developments (2002)* and recent supplements as adopted by Transport for NSW (TfNSW) and are as follows:

3.5 *Office and commercial.*

Evening peak hour vehicle trips = 2 per 100m² gross floor area.

The resulting AM and PM peak hourly traffic generation is summarised in **Table 3**.

TABLE 3: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak	Generation Rate	Trips ⁽¹⁾
Office	2,363m ² GFA	AM	2 per 100m ²	47 (42 in, 5 out)
		PM		47 (5 in, 42 out)

Notes:

(1) Assumed a split of 90% inbound and 10% outbound in the AM peak and vice versa in the PM.

As shown, the expected traffic generation associated with the proposed development is in the order of **47** vehicle trips in the AM peak period (42 in, 5 out) and **47** vehicle trips in the PM peak period (5 in, 42 out).

4.2 Traffic Assignment

The road network, traffic surveys and locations of residential areas surrounding the site have been assessed and the following traffic assignment has been assumed for all traffic to and from the site:

- To the site:
 - 50% from Stacey Street / Rookwood Road:
 - 25% right into Rookwood;
 - 25% left into Rookwood.
 - 50% from Hume Highway / Rookwood Road / Chapel Road:
 - 20% via a left turn into Rookwood Road;
 - 20% via a right turn into Rookwood Road;
 - 10% via a through from Chapel Road.
- From the site:
 - 20% via a right turn onto Hume Highway;
 - 10% via a through movement onto Chapel Road;
 - 70% via a left turn onto Hume Highway.

4.3 Traffic Impact

The traffic generation outlined in **Section 4.1 & 0** above has been added to the existing traffic volumes recorded. SIDRA INTERSECTION 9.0 was used to assess the intersections performance. The purpose of this assessment is to compare the existing intersection operations to the future scenario under the increased traffic load. The results of this assessment are shown in **Table 4**.

TABLE 4: INTERSECTION PERFORMANCE (SIDRA INTERSECTION 9.0)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/vehicle)	Level of Service ⁽³⁾	Control Type	Worst Movement
EXISTING PERFORMANCE						
Rookwood Road / Stacey Street	AM	0.58	14.8	B	Signals	LT from Rookwood Road (S)
	PM	0.63	12.1	A		RT from Rookwood Road (W)
Rookwood Road / Davis Lane	AM	0.63	12.1	A	Signals	LT from George Street (W)
	PM	0.34	6.4	A		LT from George Street (W)
Chapel Road / Rookwood Road	AM	0.77	37.7	C	Signals	T from Chapel Road (S)
	PM	0.92	44.6	D		T from Chapel Road (S)
FUTURE (POST-DEVELOPMENT) PERFORMANCE						
Rookwood Road / Stacey Street	AM	0.58	14.8	B	Signals	LT from Rookwood Road (S)
	PM	0.63	12.1	A		RT from Rookwood Road (W)
Rookwood Road / Davis Lane	AM	0.57	11.8	A	Signals	LT from George Street (W)
	PM	0.36	6.3	A		LT from George Street (W)
Chapel Road / Rookwood Road	AM	0.78	37.8	C	Signals	T from Chapel Road (S)
	PM	0.92	44.9	D		T from Chapel Road (S)

NOTES: Refer to Table 1.

As shown, the assessed intersections all retain their existing Level of Service, with minimal increases in average delay and degree of saturation. This indicates that the proposed development will have minimal impact on the surrounding road network in terms of traffic flow efficiency.

In regard to Clause 2.119 of the SEPP (Transport and Infrastructure) 2021 and the above results, the proposed development has minimal impact upon the traffic flow efficiency of the classified roads Rookwood Road, Hume Highway and Stacey Street.

5 CONCLUSION

In view of the foregoing, the subject Commercial Development proposal at 324 Hume Highway, Bankstown (as depicted in **Annexure A**) is fully supportable in terms of its traffic and parking impacts. The following outcomes of this traffic impact assessment are relevant to note:

- The proposal includes the provision of **62** car parking spaces within a proposed carpark, exceeding the relevant controls applicable to the development, including Bankstown Development Control Plan 2015 requirements.
- Council's DCP does not require the provision of bicycle spaces, but as a guide with reference to the Draft Consolidated Canterbury Bankstown DCP 2021, the site would require the provision of **13** bicycle spaces. The proposed plans provide ten (**10**) bicycle parking spaces. It is recommended that a condition of consent be imposed to require the additional three (3) bicycle spaces as there is sufficient room on-site to provide the facility. Whilst bicycle parking is not required, the provision of bicycle parking facilities is encouraged.
- The parking areas of the site have been assessed against the relevant sections of AS2890.1:2004, AS2890.2:2018 and AS2890.6:2009 and it has been found to satisfy the objectives of each standard. Swept path testing has been undertaken and is reproduced within **Annexure F**.
- Swept path test results demonstrate that the site may accommodate vehicles up to a 6.4m long Small Rigid Vehicle (SRV) for servicing and waste collection purposes, however, the ramp will need to be altered so that ramp grades do not exceed 15.4% and a 3.5m vertical height clearance will be required to facilitate SRV access.
- The traffic generation of the proposed development has been estimated to be some **47** trips in the AM peak period (42 in, 5 out) and **42** trips in the PM peak period (5 in, 45 out). The impacts of the traffic generation have been modelled using SIDRA INTERSECTION 9.0, indicating that there will be no detrimental impact to the performance of the intersections as a result of the generated traffic.



**ANNEXURE A: PROPOSED PLANS
(4 SHEETS)**

Area Analysis:

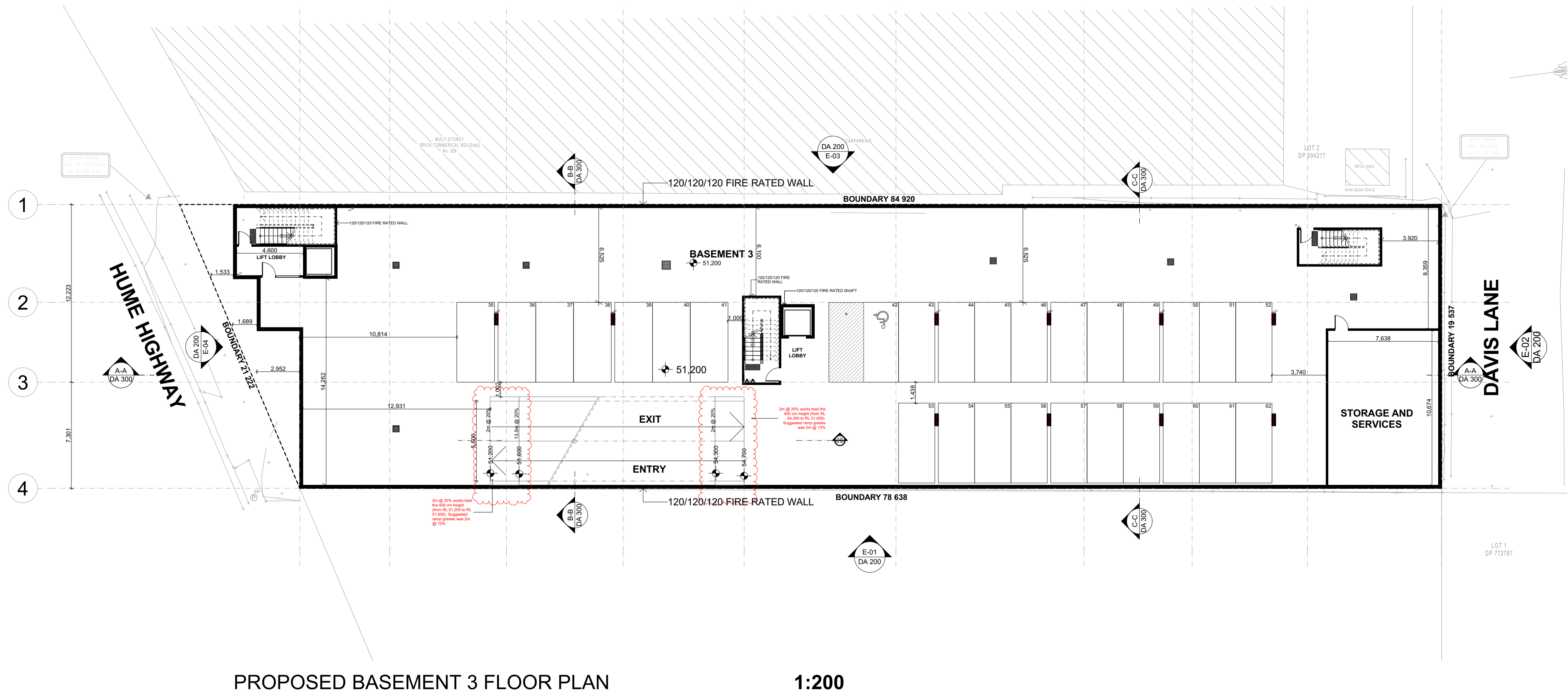
Proposed New Childcare
324 HUME HIGHWAY, BANKSTOWN
Site Area = 1614.7 m²
Lot 2 in D.P. 192505
Calculations - External Walls excluded in calc.


PROPOSED CALCULATIONS

GROUND FLOOR AREA = 615.51 m²
LEVEL 1 FLOOR AREA = 887.90 m²
LEVEL 2 FLOOR AREA = 1 125.89 m²

TOTAL AREA = 2629.3 m²
PROPOSED FSR = 1.6:1
ALLOWABLE FSR = 2:1

PROPOSED DEEP SOIL = 184.7 m² - 11%



NORTH:				General Notes			
 N				The Builder shall check all dimensions and levels on site prior to construction. Notify any errors, discrepancies or omissions to the architect. Drawings shall not be used for construction purposes until issued for construction. Do not scale drawings. All boundaries and contours subject to survey.			
				CLIENT :			
				#Client Company			
				#Client Full Address			
				#Client City , #Client Postcode			
Rev	Description			P #Client Phone Number F #Client Fax E #Client E-mail			
				Date			
	G	DA TRAFFIC COMMENTS		21.11.2022	KC		
	F	DA TRAFFIC COMMENTS		16.11.2022	KC		
	F	FIRE ENGINEERING COMMENTS		06.11.2022	KC		
	D	DA RPI CLIENT MODIFICATION - ADDITIONAL BASEMENT LEVELS		02.11.2022	KC		
	K	RPI & ACCESS COMMENTS		07.10.2022	KC		
	D	DA CONSULTANTS COORDINATION		26.09.2022	KC		
	D	DA SUBMISSION		04.08.2022	KC		

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PROPOSED BASEMENT 2 FLOOR PLAN

1:200

1:200

[illegible]

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TOTAL AREA =	2629.3 m ²
PROPOSED FSR =	1.6:1
ALLOWABLE FSR =	2:1

PROPOSED BASEMENT 1 FLOOR PLAN

1:200

[illegible]

Area Analysis:

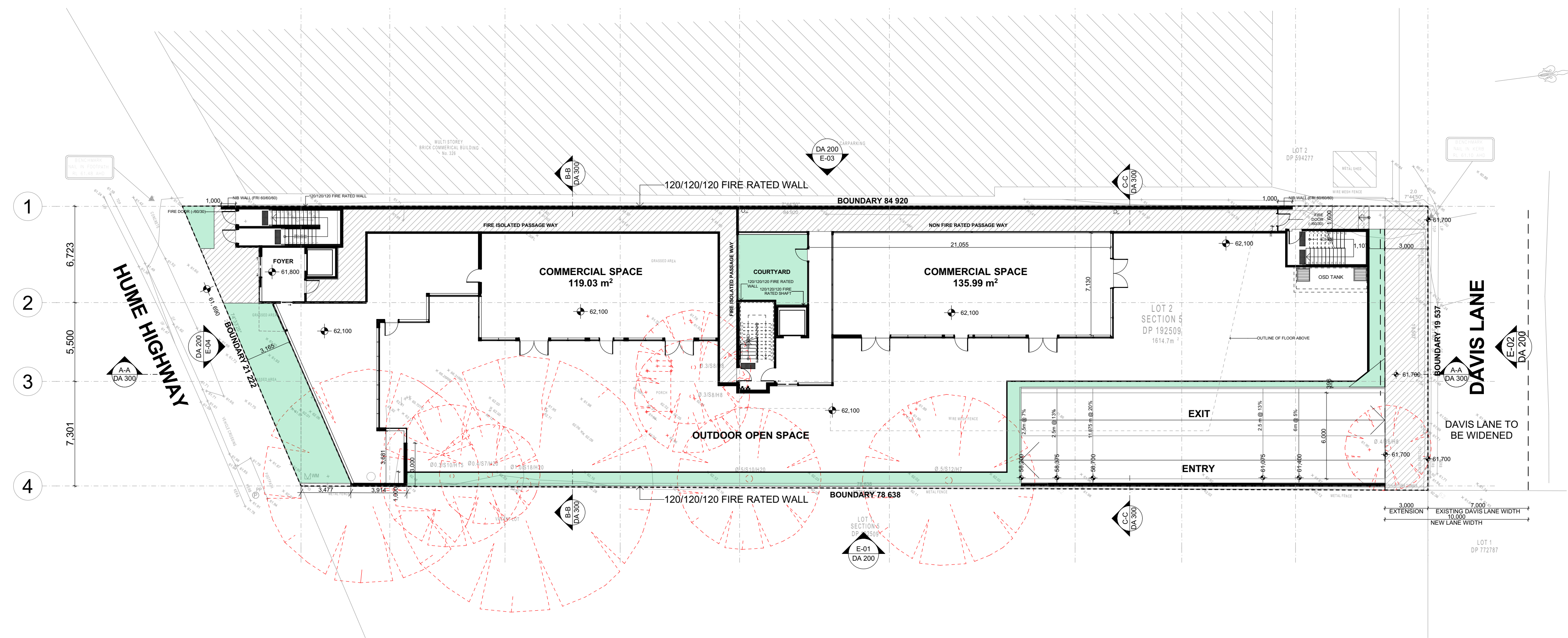
Proposed New Childcare
324 HUME HIGHWAY, BANKSTOWN
Site Area = 1614.7 m²
Lot 2 in D.P. 192505
Calculations - External Walls excluded in calc.

PROPOSED CALCULATIONS

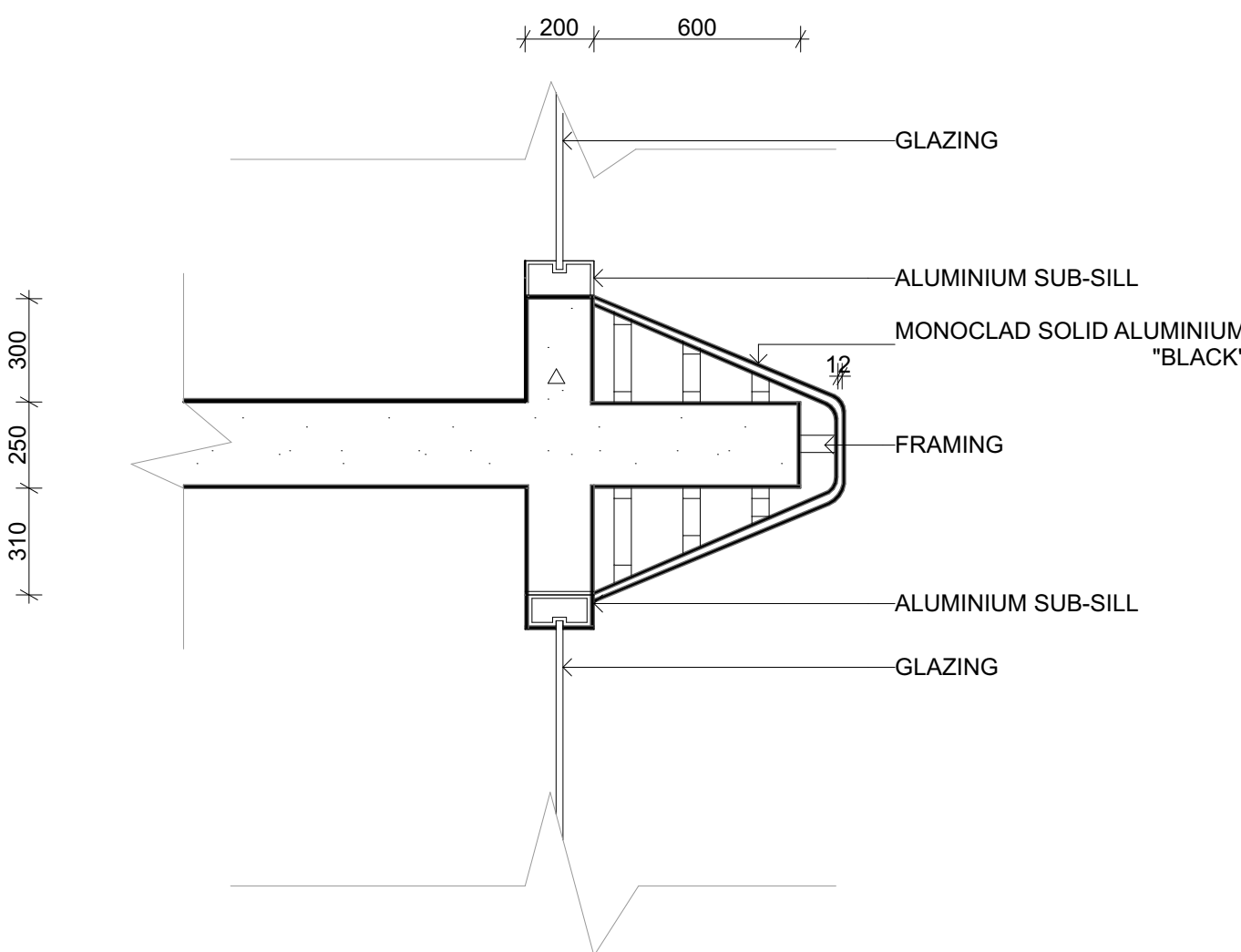
GROUND FLOOR AREA = 615.51 m²
LEVEL 1 FLOOR AREA = 887.90 m²
LEVEL 2 FLOOR AREA = 1 125.89 m²

TOTAL AREA = 2629.3 m²
PROPOSED FSR = 1.61
ALLOWABLE FSR = 2.1

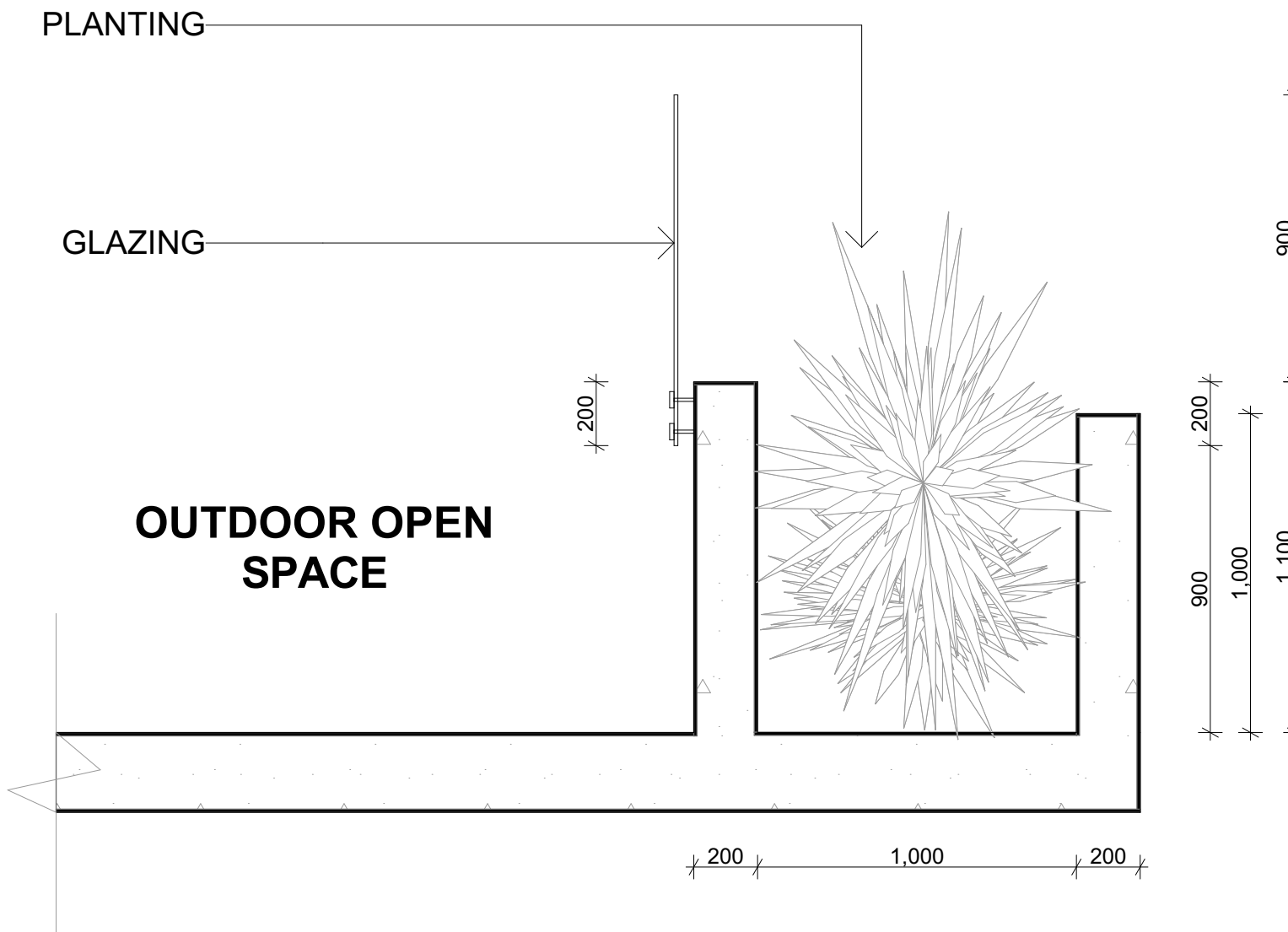
PROPOSED DEEP SOIL = 184.7 m² - 11%



PROPOSED GROUND FLOOR PLAN 1:200



D-01 FACADE SLAB AND JUNCTION DETAIL 1:20



D-02 PLANTER BOX DETAIL 1:20

NORTH:				General Notes	
				The Builder shall check all dimensions and levels on site prior to construction. Notify any errors, discrepancies or omissions to the architect. Drawings shall not be used for construction purposes until issued for construction. Do not scale drawings. All boundaries and contours subject to survey.	
Rev	Description	Date	Check		
G	DA TRAFFIC COMMENTS	21.11.2022	KC		
F	DA TRAFFIC COMMENTS	16.11.2022	KC		
E	FIRE ENGINEERING COMMENTS	09.11.2022	KC		
D	DA RFI CLIENT MODIFICATION - ADDITIONAL BASEMENT LEVELS	02.11.2022	KC		
C	PCA & ACCESS COMMENTS	07.10.2022	KC		
B	DA CONSULTANTS COORDINATION	26.09.2022	KC		
A	DA SUBMISSION	04.08.2022	KC		

CLIENT :
#Client Company
#Client Full Address
#Client City, #Client Postcode
P #Client Phone Number | F #Client Fax | E #Client E-mail

PROJECT NAME :
COMMERCIAL BUILDING

SITE :
324 HUME HIGHWAY, BANKSTOWN

DRAWING TITLE :

GROUND FLOOR PLAN

Project No: P2203BAN

Scale: 1:100 @ A1
1:200 @ A3
Start Date: 20.06.2022
Plot Date: xx
Drawn By: K.C
Checked By: R.T
Status: DA
Drawing No: DA 104
Rev: G

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FLDC ARCHITECTS
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**ANNEXURE B: TRAFFIC SURVEY DATA
(3 SHEETS)**

Intersection of Davis Ln and Rookwood Rd, Bankstown

GPS: 33.950106, 151.036246

Date: Tue 21/09/22
Weather: Fine
Suburban: Bankstown
Customer: McLaren

North: Rookwood Rd
East: Davis Ln
South: Rookwood Rd
West: George St

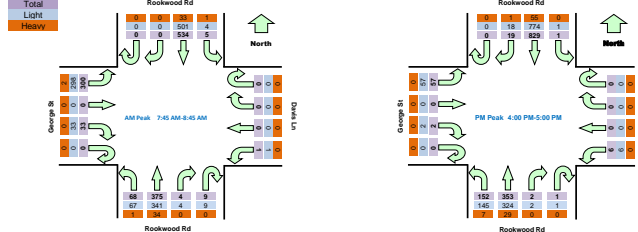
Survey Period: AM: 7:00 AM-9:30 AM
PM: 2:30 PM-5:00 PM
Traffic Peak: AM: 7:45 AM-8:45 AM
PM: 4:00 PM-5:00 PM

All Vehicles		North Approach Rookwood Rd				East Approach Davis Ln				South Approach Rookwood Rd				West Approach George St				Hourly Total	
Period Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	0	100	0	0	0	0	0	1	0	104	13	0	0	0	22	1085	
7:15	7:30	0	0	76	0	0	0	0	0	0	0	125	9	0	0	0	45	1169	
7:30	7:45	0	0	102	0	0	0	0	3	1	1	114	12	0	2	0	39	1233	
7:45	8:00	0	0	134	0	0	0	0	0	0	1	114	6	0	4	0	57	1329	Peak
8:00	8:15	0	0	123	3	0	0	0	1	2	0	102	17	0	6	0	70	1316	
8:15	8:30	0	0	146	1	0	0	0	0	6	0	83	20	0	12	0	71	1256	
8:30	8:45	0	0	131	1	0	0	0	0	1	3	96	25	0	11	0	102	1159	
8:45	9:00	0	0	138	1	0	0	0	1	4	1	74	31	0	8	0	45		
9:00	9:15	0	2	120	0	0	0	1	1	3	2	75	26	0	1	0	33		
9:15	9:30	0	2	111	1	0	0	0	1	2	1	75	10	0	0	0	19		
14:30	14:45	0	4	144	1	0	0	0	2	4	1	77	43	0	0	0	13	1181	
14:45	15:00	0	1	135	1	0	0	0	1	1	1	51	22	0	2	0	19	1232	
15:00	15:15	0	1	157	2	0	0	1	2	5	0	73	37	0	4	0	16	1312	
15:15	15:30	0	3	203	0	0	0	0	0	0	0	92	33	0	0	0	29	1389	
15:30	15:45	0	3	214	1	0	0	0	3	1	0	72	40	0	0	0	6	1388	
15:45	16:00	0	6	181	1	0	0	0	1	1	2	82	30	0	0	0	10	1390	
16:00	16:15	0	6	194	1	0	0	0	2	0	0	111	48	0	0	0	13	1425	Peak
16:15	16:30	0	9	207	0	0	0	0	2	1	0	86	36	0	1	0	17	1355	
16:30	16:45	0	2	203	0	0	0	0	3	0	1	87	33	0	1	0	12	1342	
16:45	17:00	0	2	225	0	0	0	0	2	0	1	69	35	0	0	0	15	1317	
17:00	17:15	0	1	162	0	0	0	0	1	1	3	79	39	0	2	0	17	1265	
17:15	17:30	0	2	204	0	0	0	0	0	1	0	96	28	0	0	0	15		
17:30	17:45	0	2	165	0	0	0	0	1	4	2	88	44	0	0	0	11		
17:45	18:00	0	3	161	1	0	0	0	1	3	0	98	22	0	1	0	7		

Peak Time		North Approach Rookwood Rd				East Approach Davis Ln				South Approach Rookwood Rd				West Approach George St				Peak total	
Period Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
7:45	8:45	0	0	534	5	0	0	0	1	9	4	312	68	0	33	0	300	1329	
16:00	17:00	0	19	829	1	0	0	0	9	1	2	353	152	0	2	0	57	1425	

Note: Site sketch is for illustrative traffic flows. Direction is indicative only. drawing is not to scale and not an exact streets configuration.

Graphic



Light Vehicles		North Approach Rookwood Rd				East Approach Davis Ln				South Approach Rookwood Rd				West Approach George St					
Period Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
7:00	7:15	0	0	88	0	0	0	0	0	1	0	89	12	0	0	0	21		
7:15	7:30	0	0	68	0	0	0	0	0	0	0	116	8	0	0	0	43		
7:30	7:45	0	0	91	0	0	0	0	3	1	1	107	11	0	2	0	38		
7:45	8:00	0	0	127	0	0	0	0	0	0	1	107	6	0	4	0	57		
8:00	8:15	0	0	114	3	0	0	0	1	2	0	94	17	0	6	0	70		
8:15	8:30	0	0	136	1	0	0	0	0	6	0	58	20	0	12	0	71		
8:30	8:45	0	0	124	0	0	0	0	0	1	3	82	24	0	11	0	100		
8:45	9:00	0	0	125	1	0	0	0	1	4	1	65	30	0	8	0	44		
9:00	9:15	0	2	109	0	0	0	1	0	3	2	65	25	0	1	0	31		
9:15	9:30	0	2	103	1	0	0	0	1	2	1	69	10	0	0	0	19		
14:30	14:45	0	4	130	0	0	0	0	1	4	1	72	41	0	0	0	13		
14:45	15:00	0	1	122	1	0	0	0	1	1	1	45	21	0	2	0	19		
15:00	15:15	0	1	145	2	0	0	1	2	5	0	69	37	0	4	0	16		
15:15	15:30	0	3	189	0	0	0	0	0	0	0	83	31	0	0	0	27		
15:30	15:45	0	3	200	1	0	0	0	3	1	0	66	39	0	0	0	6		
15:45	16:00	0	6	168	1	0	0	0	1	1	2	79	30	0	0	0	10		
16:00	16:15	0	6	174	1	0	0	0	2	0	0	101	47	0	0	0	13		
16:15	16:30	0	8	194	0	0	0	0	2	1	0	77	34	0	1	0	17		
16:30	16:45	0	2	190	0	0	0	0	3	0	1	83	32	0	1	0	12		
16:45	17:00	0	2	216	0	0	0	0	2	0	1	63	32	0	0	0	15		
17:00	17:15	0	1	157	0	0	0	0	1	1	3	77	36	0	2	0	17		
17:15	17:30	0	2	196	0	0	0	0	0	1	0	92	27	0	0	0	15		
17:30	17:45	0	2	161	0	0	0	0	1	4	2	84	43	0	0	0	11		
17:45	18:00	0	3	159	1	0	0	0	1	2	0	94	21	0	1	0	7		

Peak Time		North Approach Rookwood Rd				East Approach Davis Ln				South Approach Rookwood Rd				West Approach George St				Peak total	
Period Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
7:45	8:45	0	0	501	4	0	0	0	1	9	4	341	67	0	33	0	298	1258	
16:00	17:00	0	18	774	1	0	0	0	9	1	2	324	145	0	2	0	57	1333	

Heavy Vehicles		North Approach Rookwood Rd				East Approach Davis Ln				South Approach Rookwood Rd				West Approach George St			
Time	Period	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
7:00	7:15	0	0	12	0	0	0	0	0	0	0	15	1	0	0	0	1
7:15	7:30	0	0	8	0	0	0	0	0	0	0	9	1	0	0	0	2
7:30	7:45	0	0	11	0	0	0	0	0	0	0	7	1	0	0	0	0
7:45	8:00	0	0	7	0	0	0	0	0	0	0	7	0	0	0	0	0
8:00	8:15	0	0	9	0	0	0	0	0	0	0	8	0	0	0	0	0
8:15	8:30	0	0	10	0	0	0	0	0	0	0	5	0	0	0	0	0
8:30	8:45	0	0	7	1	0	0	0	0	0	0	14	1	0	0	0	2
8:45	9:00	0	0	13	0	0	0	0	0	0	0	9	1	0	0	0	1
9:00	9:15	0	0	11	0	0	0	0	0	1	0	10	1	0	0	0	2
9:15	9:30	0	0	8	0	0	0	0	0	0	0	6	0	0	0	0	0
14:30	14:45	0	0	14	1	0	0	0	0	1	0	5	2	0	0	0	0
14:45	15:00	0	0	13	0	0	0	0	0	0	0	6	1	0	0	0	0
15:00	15:15	0	0	12	0	0	0	0	0	0	0	4	0	0	0	0	0
15:15	15:30	0	0	14	0	0	0	0	0	0	0	9	2	0	0	0	2
15:30	15:45	0	0	14	0	0	0	0	0	0	0	6	1	0	0	0	0
15:45	16:00	0	0	13	0	0	0	0	0	0	0	3	0	0	0	0	0
16:00	16:15	0	0	20	0	0	0	0	0	0	0	10	1	0	0	0	0
16:15	16:30	0	1	13	0	0	0	0	0	0	0	9	2	0	0	0	0
16:30	16:45	0	0	13	0	0	0	0	0	0	0	4	1	0	0	0	0
16:45	17:00	0	0	9	0	0	0	0	0	0	0	6	3	0	0	0	0
17:00	17:15	0	0	5	0	0	0	0	0	0	0	2	3	0	0	0	0
17:15	17:30	0	0	8	0	0	0	0	0	0	0	4	1	0	0	0	0
17:30	17:45	0	0	4	0	0	0	0	0	0	0	4	1	0	0	0	0
17:45	18:00	0	0	2	0	0	0	0	0	0	1	4	1	0	0	0	0

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

Intersection of Hume Hwy and Rookwood Rd, Bankstown

GPS: 33.906627, 151.09546
 Date: Tue 27/09/22
 Weather: Fine
 Suburban: Bankstown
 Customer: McLaren

North: Rookwood Rd
 East: Hume Hwy
 South: Chapel Rd
 West: Hume Hwy

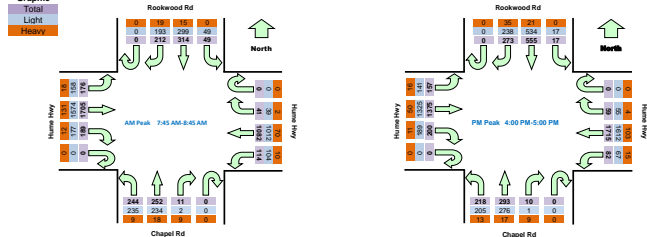
Survey Period: AM: 7:00 AM-9:30 AM
 PM: 2:30 PM-5:00 PM
 Traffic Peak: AM: 7:45 AM-8:45 AM
 PM: 4:00 PM-5:00 PM

All Vehicles																							
Time		North Approach Rookwood Rd					East Approach Hume Hwy					South Approach Chapel Rd					West Approach Hume Hwy					Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak				
7:00	7:15	0	41	50	5	0	6	260	12	0	2	44	26	0	21	422	65	4115					
7:15	7:30	0	35	43	1	0	6	247	16	0	1	56	17	0	16	487	73	4343					
7:30	7:45	0	40	54	8	0	7	275	15	0	3	58	30	0	22	445	61	4352					
7:45	8:00	0	56	72	5	0	4	296	25	0	2	65	51	0	40	474	55	4389	Peak				
8:00	8:15	0	50	71	13	0	7	312	23	0	3	70	61	0	52	470	50	4339					
8:15	8:30	0	50	94	14	0	11	226	21	0	2	56	77	0	54	381	21	4162					
8:30	8:45	0	56	77	17	0	19	248	45	0	4	61	55	0	43	380	50	4074					
8:45	9:00	0	49	76	23	0	24	275	52	0	3	59	54	0	53	399	28						
9:00	9:15	0	48	76	5	0	18	276	47	0	0	28	30	0	59	364	54						
9:15	9:30	0	41	66	6	0	7	271	34	0	3	35	32	0	33	345	46						
14:30	14:45	0	70	81	8	0	15	315	21	0	1	74	40	0	31	281	39	4087					
14:45	15:00	0	52	86	8	0	13	375	24	0	3	39	36	0	36	296	28	4160					
15:00	15:15	0	60	94	16	0	15	274	33	0	3	71	85	0	48	264	31	4259					
15:15	15:30	0	56	138	4	0	25	346	40	0	2	62	45	0	42	327	34	4509					
15:30	15:45	0	80	133	4	0	15	313	23	0	2	66	55	0	44	284	30	4649					
15:45	16:00	0	73	112	4	0	13	379	21	0	2	77	62	0	46	280	26	4884					
16:00	16:15	0	71	116	3	0	17	456	14	0	3	87	56	0	39	329	53	4954	Peak				
16:15	16:30	0	74	145	4	0	15	422	25	0	3	74	59	0	63	342	35	4910					
16:30	16:45	0	81	143	4	0	12	469	25	0	2	76	49	0	41	362	40	4874					
16:45	17:00	0	67	151	6	0	15	368	18	0	2	56	54	0	57	342	29	4839					
17:00	17:15	0	71	88	6	0	15	389	23	0	3	81	73	0	52	367	32	4902					
17:15	17:30	0	75	127	2	0	12	373	20	0	2	72	63	0	54	387	38						
17:30	17:45	0	65	105	4	0	11	410	17	0	2	79	63	0	41	410	42						
17:45	18:00	0	81	85	5	0	12	442	23	0	3	73	43	0	53	373	35						

Peak Time		North Approach Rookwood Rd				East Approach Hume Hwy				South Approach Chapel Rd				West Approach Hume Hwy				Peak total	
Period	Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Peak
7:45	8:45	0	212	314	49	0	41	1082	114	0	11	252	244	0	189	1105	176	4389	
16:00	17:00	0	275	555	17	0	59	1715	82	0	10	293	218	0	200	1375	157	4954	

Note: Site sketch is for illustrative traffic flows. Direction is indicative only. Drawing is not to scale and not an exact streets configuration.

Graphic



Light Vehicles		North Approach Rookwood Rd				East Approach Hume Hwy				South Approach Chapel Rd				West Approach Hume Hwy				Peak total	
Period	Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Peak
7:00	7:15	0	37	43	5	0	6	237	10	0	0	42	22	0	16	389	51		
7:15	7:30	0	32	39	1	0	6	225	13	0	0	54	15	0	14	444	65		
7:30	7:45	0	34	50	8	0	7	255	13	0	0	55	26	0	19	412	57		
7:45	8:00	0	48	72	5	0	4	274	22	0	0	62	48	0	38	449	50		
8:00	8:15	0	45	65	13	0	7	289	20	0	0	65	59	0	49	426	46		
8:15	8:30	0	44	89	14	0	10	216	20	0	1	54	75	0	51	354	19		
8:30	8:45	0	53	73	17	0	18	233	42	0	1	53	53	0	39	345	43		
8:45	9:00	0	40	72	23	0	24	257	50	0	0	55	51	0	52	352	22		
9:00	9:15	0	43	70	5	0	18	254	48	0	0	26	27	0	56	333	46		
9:15	9:30	0	37	63	5	0	7	249	30	0	0	32	30	0	30	307	43		
14:30	14:45	0	59	76	8	0	13	295	21	0	0	71	40	0	27	266	37		
14:45	15:00	0	40	85	7	0	12	343	22	0	1	36	35	0	34	273	24		
15:00	15:15	0	53	90	16	0	15	246	31	0	1	68	81	0	46	244	29		
15:15	15:30	0	46	134	4	0	24	316	38	0	0	59	44	0	39	303	27		
15:30	15:45	0	73	126	4	0	15	284	20	0	0	64	53	0	40	259	26		
15:45	16:00	0	65	108	4	0	13	355	20	0	0	75	59	0	41	263	25		
16:00	16:15	0	57	111	3	0	17	432	10	0	0	82	54	0	36	310	47		
16:15	16:30	0	64	141	4	0	14	397	20	0	1	69	54	0	59	332	30		
16:30	16:45	0	54	137	4	0	10	447	22	0	0	73	46	0	39	351	39		
16:45	17:00	0	63	145	6	0	14	336	15	0	0	52	51	0	55	332	25		
17:00	17:15	0	70	84	6	0	15	373	21	0	0	78	71	0	48	353	31		
17:15	17:30	0	69	125	2	0	12	353	17	0	0	69	62	0	50	382	35		
17:30	17:45	0	64	101	4	0	10	400	16	0	1	77	60	0	39	401	40		
17:45	18:00	0	80	84	4	0	12	423	20	0	0	69	41	0	52	360	33		

Peak Time		North Approach Rookwood Rd				East Approach Hume Hwy				South Approach Chapel Rd				West Approach Hume Hwy				Peak total	
Period	Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Peak
7:45	8:45	0	193	299	49	0	39	1012	104	0	2	234	235	0	177	1574	158	4076	
16:00	17:00	0	238	534	17	0	55	1612	67	0	1	276	205	0	188	1325	141	4660	

Heavy Vehicles		North Approach Rookwood Rd						East Approach Hume Hwy						South Approach Chapel Rd						West Approach Hume Hwy					
Period	Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L							
7:00	7:15	0	4	7	0	0	0	23	2	0	2	2	4	0	5	33	14								
7:15	7:30	0	3	4	0	0	0	22	3	0	1	2	2	0	2	43	8								
7:30	7:45	0	6	4	0	0	0	20	2	0	3	3	4	0	3	33	4								
7:45	8:00	0	8	0	0	0	0	22	3	0	2	3	3	0	2	25	5								
8:00	8:15	0	2	6	0	0	0	23	3	0	3	5	2	0	3	44	4								
8:15	8:30	0	6	5	0	0	1	10	1	0	1	2	2	0	3	27	2								
8:30	8:45	0	3	4	0	0	1	15	3	0	3	6	2	0	4	35	7								
8:45	9:00	0	9	4	0	0	0	18	2	0	3	4	3	0	1	47	6								
9:00	9:15	0	5	6	0	0	0	22	1	0	0	2	3	0	3	31	8								
9:15	9:30	0	4	3	1	0	0	22	4	0	3	3	2	0	3	38	3								
14:30	14:45	0	11	5	0	0	2	20	0	0	1	3	0	0	4	15	2								
14:45	15:00	0	12	1	1	0	1	32	2	0	2	3	1	0	2	23	4								
15:00	15:15	0	7	4	0	0	0	28	2	0	2	3	4	0	2	20	2								
15:15	15:30	0	10	4	0	0	1	30	2	0	2	3	1	0	3	24	7								
15:30	15:45	0	7	7	0	0	0	29	3	0	2	2	2	0	4	25	4								
15:45	16:00	0	8	4	0	0	0	24	1	0	2	2	3	0	5	17	1								
16:00	16:15	0	14	5	0	0	0	24	4	0	3	5	2	0	3	19	6								
16:15	16:30	0	10	4	0	0	1	25	5	0	2	5	5	0	4	10	5								
16:30	16:45	0	7	6	0	0	2	22	3	0	2	3	3	0	2	11	1								
16:45	17:00	0	4	6	0	0	1	32	3	0	4	4	3	0	2	10	4								
17:00	17:15	0	1	4	0	0	0	16	2	0	3	3	2	0	4	14	1								
17:15	17:30	0	6	2	0	0	0	20	3	0	2	3	1	0	4	5	3								
17:30	17:45	0	1	4	0	0	1	10	1	0	1	2	3	0	2	9	2								
17:45	18:00	0	1	1	1	0	0	19	3	0	3	4	2	0	1	13	2								

Intersection of Rookwood Rd and Stacey St, Bankstown

GPS -31.92978, 151.03641

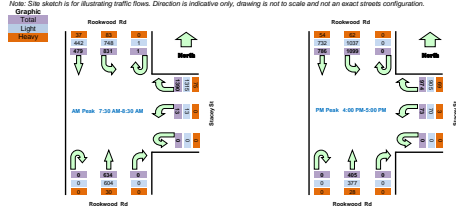
Date:	1 Feb 2020
Weather:	FW
Suburban:	Bankstown
Customer:	McLellan
North:	Rookwood Rd
East:	Stacey St
South:	Rookwood Rd
West:	N/A

Survey Period:	AM: 7:00 AM-9:30 AM
PM:	2:30 PM-5:00 PM
Traffic Peak:	PM: 4:00 PM-5:00 PM

All Vehicles												
Time		North Approach Rookwood Rd			East Approach Stacey St			South Approach Rookwood Rd			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
7:00	7:15	0	97	213	0	307	1	0	0	123	3223	
7:15	7:30	0	79	174	0	322	2	0	0	177	3333	
7:30	7:45	0	93	215	0	306	3	0	0	152	3348	
7:45	8:00	0	122	195	0	377	0	0	0	154	3371	Peak
8:00	8:15	0	117	207	0	349	3	0	0	175	3224	
8:15	8:30	0	147	210	0	308	1	0	0	143	3007	
8:30	8:45	0	120	213	0	307	5	0	0	188	2933	
8:45	9:00	0	128	232	0	290	4	0	0	117		
9:00	9:15	0	123	188	0	285	2	0	0	109		
9:15	9:30	0	100	194	0	242	6	0	0	91		
14:30	14:45	0	141	310	0	217	10	0	0	90	3084	
14:45	15:00	1	124	252	0	250	9	0	0	74	3152	
15:00	15:15	0	153	253	0	222	15	0	0	94	3179	
15:15	15:30	0	202	274	0	264	13	0	0	116	3302	
15:30	15:45	0	190	264	0	291	17	0	0	74	3281	
15:45	16:00	1	160	221	0	233	26	0	0	94	3247	
16:00	16:15	0	182	284	0	290	27	0	0	117	3337	Peak
16:15	16:30	0	203	269	0	205	15	0	0	108	3300	
16:30	16:45	0	196	278	0	258	19	0	0	101	3333	
16:45	17:00	0	205	268	0	261	12	0	0	81	3250	
17:00	17:15	1	146	263	0	303	16	0	0	94	3211	
17:15	17:30	0	209	267	0	247	12	0	0	109		
17:30	17:45	0	157	285	0	226	8	0	0	93		
17:45	18:00	0	164	266	0	250	7	0	0	101		

Peak Time		North Approach Rookwood Rd			East Approach Stacey St			South Approach Rookwood Rd			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
7:30	8:30	0	798	1059	0	974	73	0	0	455	3337
16:00	17:00	0			0			0			

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



Light Vehicles												
Time		North Approach Rookwood Rd			East Approach Stacey St			South Approach Rookwood Rd			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
7:00	7:15	0	85	186	0	282	1	0	0	107		
7:15	7:30	0	71	152	0	298	1	0	0	167		
7:30	7:45	1	83	190	0	379	3	0	0	144		
7:45	8:00	0	115	176	0	305	6	0	0	157		
8:00	8:15	0	109	189	0	330	3	0	0	168		
8:15	8:30	0	138	191	0	281	1	0	0	129		
8:30	8:45	0	113	189	0	380	5	0	0	173		
8:45	9:00	0	117	198	0	270	3	0	0	107		
9:00	9:15	0	113	169	0	239	1	0	0	96		
9:15	9:30	0	95	173	0	218	6	0	0	84		
14:30	14:45	0	127	280	0	195	9	0	0	85		
14:45	15:00	0	112	224	0	215	7	0	0	107		
15:00	15:15	0	141	232	0	205	15	0	0	90		
15:15	15:30	0	189	252	0	239	13	0	0	104		
15:30	15:45	0	178	243	0	264	16	0	0	88		
15:45	16:00	1	151	199	0	215	24	0	0	90		
16:00	16:15	0	181	275	0	233	26	0	0	108		
16:15	16:30	0	189	247	0	180	14	0	0	95		
16:30	16:45	0	194	265	0	243	19	0	0	97		
16:45	17:00	0	197	253	0	238	11	0	0	76		
17:00	17:15	1	143	252	0	290	14	0	0	91		
17:15	17:30	0	193	258	0	229	11	0	0	101		
17:30	17:45	0	154	275	0	215	8	0	0	90		
17:45	18:00	0	162	256	0	243	7	0	0	96		

Peak Time		North Approach Rookwood Rd			East Approach Stacey St			South Approach Rookwood Rd			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
7:30	8:30	1	442	748	0	1335	13	0	0	604	3123
16:00	17:00	0	732	1037	0	955	70	0	0	377	3121

Heavy Vehicles												
Time		North Approach Rookwood Rd			East Approach Stacey St			South Approach Rookwood Rd			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
7:00	7:15	0	12	27	0	26	0	0	0	16		
7:15	7:30	0	8	22	0	24	1	0	0	10		
7:30	7:45	0	10	25	0	17	0	0	0	8		
7:45	8:00	0	7	21	0	22	0	0	0	7		
8:00	8:15	0	5	18	0	19	0	0	0	5		
8:15	8:30	0	11	16	0	17	0	0	0	6		
8:30	8:45	0	7	24	0	27	0	0	0	15		
8:45	9:00	0	11	34	0	20	1	0	0	10		
9:00	9:15	0	10	26	0	26	1	0	0	13		
9:15	9:30	0	7	21	0	24	0	0	0	7		
14:30	14:45	0	14	30	0	22	1	0	0	5		
14:45	15:00	1	12	26	0	26	2	0	0	4		
15:00	15:15	0	12	21	0	17	0	0	0	4		
15:15	15:30	0	13	22	0	25	0	0	0	12		
15:30	15:45	0	12	21	0	27	1	0	0	6		
15:45	16:00	0	12	22	0	19	1	0	0	4		
16:00	16:15	0	21	9	0	17	1	0	0	9		
16:15	16:30	0	13	22	0	15	1	0	0	10		
16:30	16:45	0	12	13	0	15	0	0	0	4		
16:45	17:00	0	8	18	0	22	1	0	0	5		
17:00	17:15	0	3	11	0	13	2	0	0	3		
17:15	17:30	0	7	9	0	18	1	0	0	4		
17:30	17:45	0	3	10	0	11	0	0	0	3		
17:45	18:00	0	2	10	0	7	0	0	0	5		

Peak Time		North Approach Rookwood Rd			East Approach Stacey St			South Approach Rookwood Rd			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
7:30	8:30	0	37	83	0	75	0	0	0	30	225
16:00	17:00	0	94	62	0	68	3	0	0	28	215



**ANNEXURE C: SIDRA RESULTS
(12 SHEETS)**

MOVEMENT SUMMARY

 Site: 1 [(ExAM) Rookwood Road / Stacey Street (Site Folder: AM Base Case)]

 Network: N101 [AM Peak Period Base Case (Network Folder: General)]

Existing AM Peak Period

Rookwood Road / Stacey Street

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	705	5.5	705	5.5	* 0.576	26.3	LOS B	6.2	45.2	0.87	0.82	0.87	37.7
Approach		705	5.5	705	5.5	0.576	26.3	LOS B	6.2	45.2	0.87	0.82	0.87	37.7
East: Stacey Street (E)														
4	L2	16	0.0	16	0.0	0.570	21.7	LOS B	5.2	38.4	0.75	0.67	0.75	44.4
5	T1	1369	6.5	1369	6.5	* 0.570	14.2	LOS A	7.8	57.4	0.76	0.67	0.76	55.0
Approach		1385	6.5	1385	6.5	0.570	14.3	LOS A	7.8	57.4	0.76	0.67	0.76	54.9
West: Rookwood Road (W)														
11	T1	873	9.9	873	9.9	0.287	0.1	LOS A	0.1	1.0	0.03	0.02	0.03	69.8
12	R2	533	6.7	533	6.7	0.438	25.1	LOS B	3.9	28.5	0.72	0.78	0.72	36.1
Approach		1405	8.7	1405	8.7	0.438	9.6	LOS A	3.9	28.5	0.29	0.31	0.29	57.2
All Vehicles		3496	7.2	3496	7.2	0.576	14.8	LOS B	7.8	57.4	0.59	0.56	0.59	51.7

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Rookwood Road (S)											
P1	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	194.9	215.2	1.10
All Pedestrians		53	29.3	LOS C	0.1	0.1	0.92	0.92	194.9	215.2	1.10


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: 2 [(ExAM) Rookwood Road / George Street / Davis Lane
(Site Folder: AM Base Case)]

 Network: N101 [AM Peak
Period Base Case (Network
Folder: General)]

Existing AM Peak Period

Rookwood Road / George Street / Davis Lane

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	72	1.5	72	1.5	0.109	9.2	LOS A	0.6	4.3	0.49	0.58	0.49	43.6
2	T1	395	9.1	395	9.1	0.416	8.9	LOS A	3.6	27.0	0.67	0.60	0.67	27.6
3	R2	4	0.0	4	0.0	* 0.416	14.8	LOS B	3.6	27.0	0.69	0.60	0.69	31.6
Approach		471	7.8	471	7.8	0.416	9.0	LOS A	3.6	27.0	0.65	0.59	0.65	33.3
East: Davis Lane (E)														
4	L2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
Approach		1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
North: Rookwood Road (N)														
7	L2	4	25.0	4	25.0	0.315	14.5	LOS B	2.6	19.4	0.65	0.55	0.65	37.5
8	T1	562	6.2	562	6.2	0.315	8.7	LOS A	2.6	19.5	0.65	0.55	0.65	37.0
Approach		566	6.3	566	6.3	0.315	8.8	LOS A	2.6	19.5	0.65	0.55	0.65	37.0
West: George Street (W)														
10	L2	351	0.6	351	0.6	* 0.632	21.9	LOS B	4.8	33.6	0.92	0.83	0.94	31.5
Approach		351	0.6	351	0.6	0.632	21.9	LOS B	4.8	33.6	0.92	0.83	0.94	31.5
All Vehicles		1388	5.4	1388	5.4	0.632	12.1	LOS A	4.8	33.6	0.72	0.64	0.72	33.6

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
North: Rookwood Road (N)											
P3	Full	53	19.4	LOS B	0.1	0.1	0.88	0.88	184.9	215.2	1.16
West: George Street (W)											
P4	Full	53	9.6	LOS A	0.0	0.0	0.62	0.62	170.1	208.6	1.23
All Pedestrians		105	14.5	LOS B	0.1	0.1	0.75	0.75	177.5	211.9	1.19

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 [(ExAM) Rookwood Road / Hume Highway / Chapel Road (Site Folder: AM Base Case)]

 Network: N101 [AM Peak Period Base Case (Network Folder: General)]

Existing AM Peak Period

Rookwood Road / Hume Highway / Chapel Road

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 153 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Chapel Road (S)														
1	L2	257	3.7	257	3.7	0.443	31.7	LOS C	6.1	44.3	0.84	0.81	0.84	34.8
2	T1	265	7.1	265	7.1	* 0.751	65.1	LOS E	11.8	87.5	1.00	0.88	1.05	19.6
Approach		522	5.4	522	5.4	0.751	48.7	LOS D	11.8	87.5	0.92	0.84	0.94	26.3
East: Hume Highway (E)														
4	L2	120	8.8	120	8.8	0.632	48.7	LOS D	14.4	106.8	0.83	0.78	0.83	30.5
5	T1	1139	6.5	1139	6.5	0.632	42.0	LOS C	14.4	106.8	0.81	0.75	0.81	26.0
6	R2	43	4.9	43	4.9	0.312	44.6	LOS D	1.2	8.9	0.94	0.74	0.94	16.7
Approach		1302	6.6	1302	6.6	0.632	42.7	LOS D	14.4	106.8	0.82	0.76	0.82	26.3
North: Rookwood Road (N)														
7	L2	52	0.0	52	0.0	0.138	32.4	LOS C	2.3	16.6	0.52	0.56	0.52	25.7
8	T1	331	4.8	331	4.8	0.374	31.0	LOS C	7.4	54.0	0.62	0.55	0.62	33.2
9	R2	223	9.0	223	9.0	0.617	44.3	LOS D	6.9	52.1	0.91	0.81	0.91	19.8
Approach		605	5.9	605	5.9	0.617	36.0	LOS C	7.4	54.0	0.72	0.65	0.72	27.7
West: Hume Highway (W)														
10	L2	185	10.2	185	10.2	* 0.772	38.2	LOS C	22.2	167.0	0.82	0.80	0.82	19.6
11	T1	1795	7.7	1795	7.7	0.772	31.3	LOS C	22.2	167.0	0.80	0.77	0.80	30.6
12	R2	199	6.3	199	6.3	* 0.638	37.8	LOS C	5.1	37.3	0.86	0.84	0.86	33.0
Approach		2179	7.8	2179	7.8	0.772	32.5	LOS C	22.2	167.0	0.81	0.78	0.81	30.1
All Vehicles		4608	6.9	4608	6.9	0.772	37.7	LOS C	22.2	167.0	0.81	0.76	0.81	28.1

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Chapel Road (S)											
P1	Full	53	70.8	LOS F	0.2	0.2	0.96	0.96	236.3	215.2	0.91
North: Rookwood Road (N)											
P3	Full	53	70.8	LOS F	0.2	0.2	0.96	0.96	238.8	218.5	0.91
West: Hume Highway (W)											
P4	Full	53	70.8	LOS F	0.2	0.2	0.96	0.96	245.5	227.1	0.93

MOVEMENT SUMMARY

 Site: 1 [(ExPM) Rookwood Road / Stacey Street (Site Folder: PM Base Case)]

 Network: N101 [PM Peak Period Base Case (Network Folder: General)]

Existing PM Peak Period

Rookwood Road / Stacey Street

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 59 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	426	6.9	426	6.9	0.323	20.1	LOS B	2.7	20.3	0.75	0.77	0.75	41.1
Approach		426	6.9	426	6.9	0.323	20.1	LOS B	2.7	20.3	0.75	0.77	0.75	41.1
East: Stacey Street (E)														
4	L2	77	4.1	77	4.1	0.494	20.3	LOS B	3.7	27.1	0.73	0.70	0.73	44.6
5	T1	1025	7.1	1025	7.1	* 0.494	13.6	LOS A	5.1	37.9	0.76	0.68	0.76	55.3
Approach		1102	6.9	1102	6.9	0.494	14.1	LOS A	5.1	37.9	0.76	0.68	0.76	54.8
West: Rookwood Road (W)														
11	T1	1157	5.6	1157	5.6	0.386	0.1	LOS A	0.2	1.2	0.03	0.02	0.03	69.8
12	R2	827	6.9	827	6.9	* 0.627	22.0	LOS B	5.5	40.6	0.78	0.81	0.78	38.4
Approach		1984	6.2	1984	6.2	0.627	9.2	LOS A	5.5	40.6	0.34	0.35	0.34	57.3
All Vehicles		3513	6.5	3513	6.5	0.627	12.1	LOS A	5.5	40.6	0.53	0.50	0.53	54.1

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Rookwood Road (S)											
P1	Full	53	23.9	LOS C	0.1	0.1	0.90	0.90	189.4	215.2	1.14
All Pedestrians		53	23.9	LOS C	0.1	0.1	0.90	0.90	189.4	215.2	1.14

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: 2 [(ExPM) Rookwood Road / George Street / Davis Lane
(Site Folder: PM Base Case)]

 Network: N101 [PM Peak
Period Base Case (Network
Folder: General)]

Existing PM Peak Period

Rookwood Road / George Street / Davis Lane

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	160	4.6	160	4.6	* 0.101	6.1	LOS A	0.4	3.0	0.14	0.61	0.14	44.8
2	T1	372	8.2	372	8.2	0.265	3.8	LOS A	3.4	25.7	0.31	0.27	0.31	40.4
3	R2	2	0.0	2	0.0	0.265	9.3	LOS A	3.4	25.7	0.31	0.27	0.31	41.1
Approach		534	7.1	534	7.1	0.265	4.5	LOS A	3.4	25.7	0.26	0.37	0.26	43.3
East: Davis Lane (E)														
4	L2	9	0.0	9	0.0	0.005	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
Approach		9	0.0	9	0.0	0.005	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
North: Rookwood Road (N)														
7	L2	1	0.0	1	0.0	0.342	9.6	LOS A	4.9	36.3	0.33	0.30	0.33	46.0
8	T1	873	6.6	873	6.6	* 0.342	4.1	LOS A	4.9	36.3	0.33	0.30	0.33	46.5
Approach		874	6.6	874	6.6	0.342	4.1	LOS A	4.9	36.3	0.33	0.30	0.33	46.5
West: George Street (W)														
10	L2	62	0.0	62	0.0	0.307	55.0	LOS D	1.9	13.6	0.96	0.75	0.96	20.2
Approach		62	0.0	62	0.0	0.307	55.0	LOS D	1.9	13.6	0.96	0.75	0.96	20.2
All Vehicles		1479	6.5	1479	6.5	0.342	6.4	LOS A	4.9	36.3	0.33	0.35	0.33	40.9

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Rookwood Road (N)											
P3	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	214.8	215.2	1.00
West: George Street (W)											
P4	Full	53	4.1	LOS A	0.0	0.0	0.27	0.27	164.6	208.6	1.27
All Pedestrians		105	26.7	LOS C	0.2	0.2	0.61	0.61	189.7	211.9	1.12

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 [(ExPM) Rookwood Road / Hume Highway / Chapel Road (Site Folder: PM Base Case)]

 Network: N101 [PM Peak Period Base Case (Network Folder: General)]

Existing PM Peak Period

Rookwood Road / Hume Highway / Chapel Road

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 151 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Chapel Road (S)														
1	L2	229	6.0	229	6.0	* 0.452	53.3	LOS D	7.4	54.5	0.87	0.89	0.87	27.2
2	T1	308	5.8	308	5.8	0.918	83.1	LOS F	16.0	117.6	1.00	1.06	1.30	16.5
Approach		538	5.9	538	5.9	0.918	70.4	LOS E	16.0	117.6	0.94	0.99	1.11	20.7
East: Hume Highway (E)														
4	L2	86	18.3	86	18.3	* 0.882	55.6	LOS D	27.3	203.9	0.96	0.94	1.04	28.5
5	T1	1805	6.0	1805	6.0	0.882	48.9	LOS D	27.7	203.8	0.95	0.92	1.02	23.7
6	R2	62	6.8	62	6.8	0.298	34.8	LOS C	1.5	11.3	0.84	0.75	0.84	20.0
Approach		1954	6.6	1954	6.6	0.882	48.8	LOS D	27.7	203.9	0.94	0.92	1.02	23.9
North: Rookwood Road (N)														
7	L2	18	0.0	18	0.0	0.265	35.4	LOS C	4.8	34.5	0.59	0.52	0.59	25.5
8	T1	584	3.8	584	3.8	* 0.720	33.8	LOS C	12.4	89.7	0.69	0.60	0.69	32.0
9	R2	287	12.8	287	12.8	0.870	61.0	LOS E	11.4	88.7	1.00	0.93	1.16	15.8
Approach		889	6.6	889	6.6	0.870	42.6	LOS D	12.4	89.7	0.79	0.71	0.84	26.0
West: Hume Highway (W)														
10	L2	165	10.2	165	10.2	0.643	37.6	LOS C	16.3	119.5	0.75	0.75	0.75	19.8
11	T1	1447	3.6	1447	3.6	0.643	30.8	LOS C	16.3	119.5	0.72	0.71	0.72	30.8
12	R2	211	5.5	211	5.5	* 0.842	49.4	LOS D	6.1	44.6	1.00	0.92	1.21	29.0
Approach		1823	4.4	1823	4.4	0.842	33.6	LOS C	16.3	119.5	0.76	0.73	0.78	29.7
All Vehicles		5204	5.8	5204	5.8	0.918	44.6	LOS D	27.7	203.9	0.85	0.83	0.91	25.5

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
South: Chapel Road (S)											
P1	Full	53	69.8	LOS F	0.2	0.2	0.96	0.96	235.3	215.2	0.91
North: Rookwood Road (N)											
P3	Full	53	69.8	LOS F	0.2	0.2	0.96	0.96	237.8	218.5	0.92
West: Hume Highway (W)											
P4	Full	53	69.8	LOS F	0.2	0.2	0.96	0.96	244.5	227.1	0.93

MOVEMENT SUMMARY

 Site: 1 [(FUAM) Rookwood Road / Stacey Street (Site Folder: AM Future Case)]

 Network: N101 [AM Peak Period Post Development (Network Folder: General)]

Future AM Peak Period

Rookwood Road / Stacey Street

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	705	5.5	705	5.5	* 0.576	26.3	LOS B	6.2	45.2	0.87	0.82	0.87	37.7
Approach		705	5.5	705	5.5	0.576	26.3	LOS B	6.2	45.2	0.87	0.82	0.87	37.7
East: Stacey Street (E)														
4	L2	25	0.0	25	0.0	0.571	21.4	LOS B	5.3	38.7	0.75	0.68	0.75	44.5
5	T1	1369	6.5	1369	6.5	* 0.571	14.1	LOS A	7.8	57.6	0.76	0.67	0.76	55.0
Approach		1395	6.4	1395	6.4	0.571	14.3	LOS A	7.8	57.6	0.76	0.67	0.76	54.9
West: Rookwood Road (W)														
11	T1	873	9.9	873	9.9	0.287	0.1	LOS A	0.1	1.0	0.03	0.02	0.03	69.8
12	R2	542	6.6	542	6.6	0.446	25.1	LOS B	3.9	29.1	0.72	0.78	0.72	36.1
Approach		1415	8.6	1415	8.6	0.446	9.7	LOS A	3.9	29.1	0.30	0.31	0.30	57.0
All Vehicles		3515	7.1	3515	7.1	0.576	14.8	LOS B	7.8	57.6	0.60	0.56	0.60	51.6

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Rookwood Road (S)											
P1	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	194.9	215.2	1.10
All Pedestrians		53	29.3	LOS C	0.1	0.1	0.92	0.92	194.9	215.2	1.10

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: 2 [(FuAM) Rookwood Road / George Street / Davis Lane
(Site Folder: AM Future Case)]

 Network: N101 [AM Peak
Period Post Development
(Network Folder: General)]

Future AM Peak Period

Rookwood Rd / Davis Lane / George Street

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	72	1.5	72	1.5	0.119	9.3	LOS A	0.6	4.6	0.50	0.57	0.50	43.8
2	T1	395	9.1	395	9.1	0.455	9.0	LOS A	3.8	28.5	0.69	0.62	0.69	27.0
3	R2	22	0.0	22	0.0	* 0.455	15.0	LOS B	3.8	28.5	0.71	0.62	0.71	30.9
Approach		488	7.5	488	7.5	0.455	9.3	LOS A	3.8	28.5	0.66	0.61	0.66	32.8
East: Davis Lane (E)														
4	L2	5	0.0	5	0.0	0.003	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
Approach		5	0.0	5	0.0	0.003	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
North: Rookwood Road (N)														
7	L2	23	4.5	23	4.5	0.326	14.4	LOS A	2.7	20.1	0.65	0.57	0.65	37.9
8	T1	562	6.2	562	6.2	0.326	8.8	LOS A	2.7	20.2	0.65	0.56	0.65	36.7
Approach		585	6.1	585	6.1	0.326	9.0	LOS A	2.7	20.2	0.65	0.56	0.65	36.7
West: George Street (W)														
10	L2	316	0.7	316	0.7	* 0.569	21.2	LOS B	4.2	29.2	0.90	0.81	0.90	31.9
Approach		316	0.7	316	0.7	0.569	21.2	LOS B	4.2	29.2	0.90	0.81	0.90	31.9
All Vehicles		1395	5.4	1395	5.4	0.569	11.8	LOS A	4.2	29.2	0.71	0.64	0.71	33.6

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Rookwood Road (N)											
P3	Full	53	19.4	LOS B	0.1	0.1	0.88	0.88	184.9	215.2	1.16
West: George Street (W)											
P4	Full	53	9.6	LOS A	0.0	0.0	0.62	0.62	170.1	208.6	1.23
All Pedestrians		105	14.5	LOS B	0.1	0.1	0.75	0.75	177.5	211.9	1.19

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 [(FuAM) Rookwood Road / Hume Highway / Chapel Road (Site Folder: AM Future Case)]

 Network: N101 [AM Peak Period Post Development (Network Folder: General)]

Future AM Peak Period

Rookwood Road / Hume Highway / Chapel Road

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 153 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Chapel Road (S)														
1	L2	257	3.7	257	3.7	0.443	31.7	LOS C	6.1	44.3	0.84	0.81	0.84	34.8
2	T1	269	7.0	269	7.0	* 0.762	65.7	LOS E	12.1	89.5	1.00	0.89	1.06	19.5
Approach		526	5.4	526	5.4	0.762	49.1	LOS D	12.1	89.5	0.92	0.85	0.95	26.1
East: Hume Highway (E)														
4	L2	120	8.8	120	8.8	0.632	48.7	LOS D	14.4	106.8	0.83	0.78	0.83	30.5
5	T1	1139	6.5	1139	6.5	0.632	42.0	LOS C	14.4	106.8	0.81	0.75	0.81	26.0
6	R2	51	4.2	51	4.2	0.364	44.9	LOS D	1.4	10.5	0.95	0.75	0.95	16.6
Approach		1309	6.6	1309	6.6	0.632	42.7	LOS D	14.4	106.8	0.82	0.76	0.82	26.2
North: Rookwood Road (N)														
7	L2	55	0.0	55	0.0	0.139	31.6	LOS C	2.3	16.5	0.52	0.57	0.52	26.0
8	T1	332	4.8	332	4.8	0.378	30.9	LOS C	7.5	54.7	0.62	0.55	0.62	33.2
9	R2	224	8.9	224	8.9	0.623	44.3	LOS D	6.9	52.3	0.91	0.81	0.91	19.8
Approach		611	5.9	611	5.9	0.623	35.9	LOS C	7.5	54.7	0.72	0.65	0.72	27.7
West: Hume Highway (W)														
10	L2	193	9.8	193	9.8	* 0.775	38.3	LOS C	22.4	168.2	0.83	0.80	0.83	19.5
11	T1	1795	7.7	1795	7.7	0.775	31.4	LOS C	22.4	168.2	0.80	0.77	0.80	30.5
12	R2	199	6.3	199	6.3	* 0.638	37.8	LOS C	5.1	37.3	0.86	0.84	0.86	33.0
Approach		2186	7.8	2186	7.8	0.775	32.6	LOS C	22.4	168.2	0.81	0.78	0.81	30.1
All Vehicles		4633	6.9	4633	6.9	0.775	37.8	LOS C	22.4	168.2	0.81	0.76	0.81	28.0

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
South: Chapel Road (S)											
P1	Full	53	70.8	LOS F	0.2	0.2	0.96	0.96	236.3	215.2	0.91
North: Rookwood Road (N)											
P3	Full	53	70.8	LOS F	0.2	0.2	0.96	0.96	238.8	218.5	0.91
West: Hume Highway (W)											
P4	Full	53	70.8	LOS F	0.2	0.2	0.96	0.96	245.5	227.1	0.93

MOVEMENT SUMMARY

 Site: 1 [(FuPM) Rookwood Road / Stacey Street (Site Folder: PM Future Case)]

 Network: N101 [PM Peak Period Post Development (Network Folder: General)]

Future PM Peak Period

Rookwood Road / Stacey Street

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 59 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	426	6.9	426	6.9	0.323	20.1	LOS B	2.7	20.3	0.75	0.77	0.75	41.1
Approach		426	6.9	426	6.9	0.323	20.1	LOS B	2.7	20.3	0.75	0.77	0.75	41.1
East: Stacey Street (E)														
4	L2	75	4.2	75	4.2	0.494	20.4	LOS B	3.7	27.1	0.73	0.70	0.73	44.6
5	T1	1025	7.1	1025	7.1	* 0.494	13.6	LOS A	5.1	37.9	0.76	0.68	0.76	55.3
Approach		1100	6.9	1100	6.9	0.494	14.1	LOS A	5.1	37.9	0.76	0.68	0.76	54.8
West: Rookwood Road (W)														
11	T1	1157	5.6	1157	5.6	0.386	0.1	LOS A	0.2	1.2	0.03	0.02	0.03	69.8
12	R2	828	6.9	828	6.9	* 0.627	22.0	LOS B	5.5	40.6	0.78	0.81	0.78	38.4
Approach		1985	6.2	1985	6.2	0.627	9.2	LOS A	5.5	40.6	0.35	0.35	0.35	57.3
All Vehicles		3512	6.5	3512	6.5	0.627	12.1	LOS A	5.5	40.6	0.53	0.50	0.53	54.1

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Rookwood Road (S)											
P1	Full	53	23.9	LOS C	0.1	0.1	0.90	0.90	189.4	215.2	1.14
All Pedestrians		53	23.9	LOS C	0.1	0.1	0.90	0.90	189.4	215.2	1.14

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: 2 [(FuPM) Rookwood Road / George Street / Davis Lane
(Site Folder: PM Future Case)]

 Network: N101 [PM Peak
Period Post Development
(Network Folder: General)]

Future PM Peak Period

Rookwood Road / George Street / Davis Lane

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rookwood Road (S)														
1	L2	160	4.6	160	4.6	* 0.101	6.1	LOS A	0.4	3.0	0.14	0.61	0.14	44.8
2	T1	372	8.2	372	8.2	0.271	3.8	LOS A	3.5	26.0	0.31	0.28	0.31	40.2
3	R2	4	0.0	4	0.0	0.271	9.3	LOS A	3.5	26.0	0.31	0.28	0.31	41.0
Approach		536	7.1	536	7.1	0.271	4.5	LOS A	3.5	26.0	0.26	0.38	0.26	43.2
East: Davis Lane (E)														
4	L2	44	0.0	44	0.0	0.024	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
Approach		44	0.0	44	0.0	0.024	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	30.1
North: Rookwood Road (N)														
7	L2	3	0.0	3	0.0	0.355	9.7	LOS A	5.2	38.2	0.34	0.31	0.34	45.8
8	T1	873	6.6	873	6.6	* 0.355	4.1	LOS A	5.2	38.2	0.34	0.30	0.34	46.3
Approach		876	6.6	876	6.6	0.355	4.2	LOS A	5.2	38.2	0.34	0.30	0.34	46.3
West: George Street (W)														
10	L2	60	0.0	60	0.0	0.296	54.9	LOS D	1.9	13.2	0.96	0.75	0.96	20.2
Approach		60	0.0	60	0.0	0.296	54.9	LOS D	1.9	13.2	0.96	0.75	0.96	20.2
All Vehicles		1516	6.3	1516	6.3	0.355	6.3	LOS A	5.2	38.2	0.32	0.35	0.32	40.8

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
North: Rookwood Road (N)											
P3	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	214.8	215.2	1.00
West: George Street (W)											
P4	Full	53	4.1	LOS A	0.0	0.0	0.27	0.27	164.6	208.6	1.27
All Pedestrians		105	26.7	LOS C	0.2	0.2	0.61	0.61	189.7	211.9	1.12

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 [(ExPM) Rookwood Road / Hume Highway / Chapel Road (Site Folder: PM Future Case)]

 Network: N101 [PM Peak Period Post Development (Network Folder: General)]

Future PM Peak Period

Rookwood Road / Hume Highway / Chapel Road

Job No. 220364

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 151 seconds (Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Chapel Road (S)														
1	L2	229	6.0	229	6.0	* 0.452	53.3	LOS D	7.4	54.5	0.87	0.89	0.87	27.2
2	T1	309	5.8	309	5.8	0.921	83.8	LOS F	16.1	118.6	1.00	1.07	1.30	16.4
Approach		539	5.9	539	5.9	0.921	70.8	LOS F	16.1	118.6	0.95	0.99	1.12	20.6
East: Hume Highway (E)														
4	L2	86	18.3	86	18.3	* 0.882	55.7	LOS D	27.3	204.0	0.96	0.94	1.04	28.5
5	T1	1805	6.0	1805	6.0	0.882	49.0	LOS D	27.7	204.0	0.95	0.92	1.02	23.7
6	R2	63	6.7	63	6.7	0.303	34.9	LOS C	1.6	11.5	0.84	0.75	0.84	20.0
Approach		1955	6.6	1955	6.6	0.882	48.8	LOS D	27.7	204.0	0.94	0.92	1.02	23.9
North: Rookwood Road (N)														
7	L2	43	0.0	43	0.0	0.277	35.6	LOS C	5.1	36.3	0.60	0.55	0.60	25.1
8	T1	588	3.8	588	3.8	* 0.753	34.3	LOS C	13.3	96.0	0.71	0.63	0.71	31.7
9	R2	295	12.5	295	12.5	0.892	64.3	LOS E	12.2	94.2	1.00	0.94	1.19	15.3
Approach		926	6.4	926	6.4	0.892	43.9	LOS D	13.3	96.0	0.79	0.72	0.86	25.4
West: Hume Highway (W)														
10	L2	166	10.1	166	10.1	0.644	37.6	LOS C	16.3	119.7	0.75	0.75	0.75	19.8
11	T1	1447	3.6	1447	3.6	0.644	30.8	LOS C	16.3	119.7	0.72	0.71	0.72	30.8
12	R2	211	5.5	211	5.5	* 0.842	49.4	LOS D	6.1	44.6	1.00	0.92	1.21	29.0
Approach		1824	4.4	1824	4.4	0.842	33.6	LOS C	16.3	119.7	0.76	0.73	0.78	29.7
All Vehicles		5244	5.7	5244	5.7	0.921	44.9	LOS D	27.7	204.0	0.85	0.83	0.92	25.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

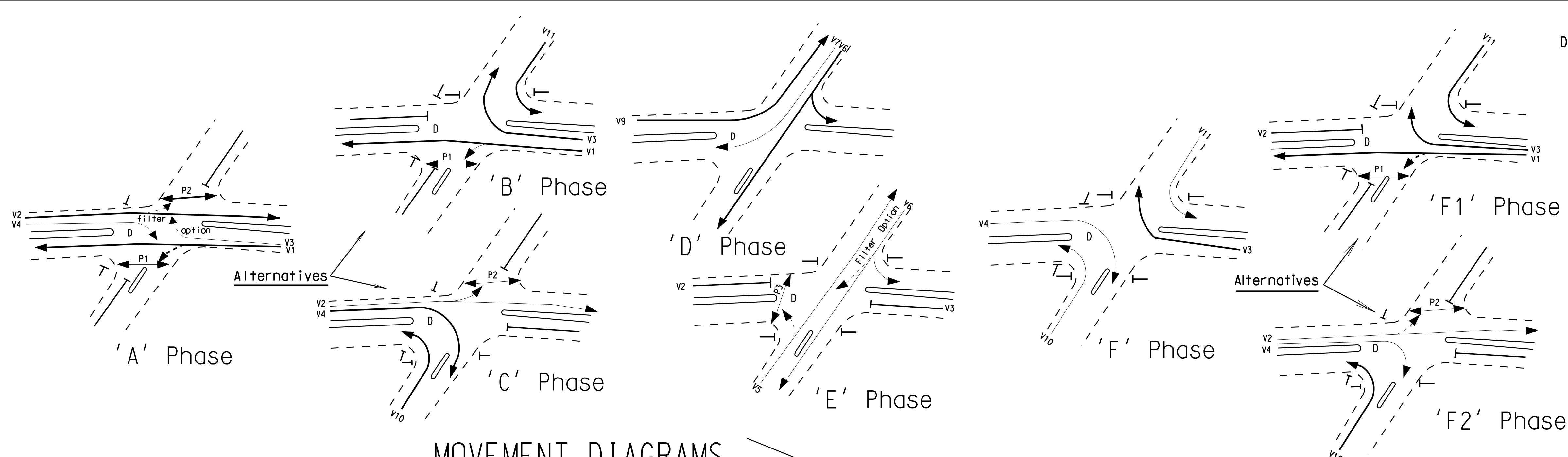
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
South: Chapel Road (S)											
P1	Full	53	69.8	LOS F	0.2	0.2	0.96	0.96	235.3	215.2	0.91
North: Rookwood Road (N)											
P3	Full	53	69.8	LOS F	0.2	0.2	0.96	0.96	237.8	218.5	0.92
West: Hume Highway (W)											
P4	Full	53	69.8	LOS F	0.2	0.2	0.96	0.96	244.5	227.1	0.93



**ANNEXURE D: TCS PLANS
(3 SHEETS)**



MOVEMENT DIAGRAMS

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE DURING WHICH GREEN DISPLAYED								OVERLAPS PERMITTED	OVERLAP CONDITIONS	DURATION OF. L.T.R.A..
	A	B	C	D	E	F	F1	F2			
V1	X	X					X		F1/A/B B/A A/F1	#P1 NOT RUNNING	
V2	X		X					X	F2/A/B C/A A/F2*	#P2 NOT RUNNING	
V3		X				X	X		F/F1 B/F		ARROW TIME EXT. BY P.B. POST 8
V4			X			X		X	F/F2 C/F		ARROW TIME EXTENDED BY P.B.POST4
V5					X						
V6				X	X						
V7				X							ARROW TIME EXTENDED BY P.B.POST6
V8											ARROW TIME EXTENDED BY P.B.POST4
V9				X							ARROW TIME EXTENDED BY P.B.POST8
V10			X			X		X	CD/XC/F F/F2	#P3 NOT DEMANDED	ARROW TIME EXTENDED BY P.B.POST6
V11		X				X	X		B/D B/F F/F1		
P1	X	X					X		F1/A/B		
P2	X		X					X	F2/A/C		
P3					X						

Under SCATS Mode:

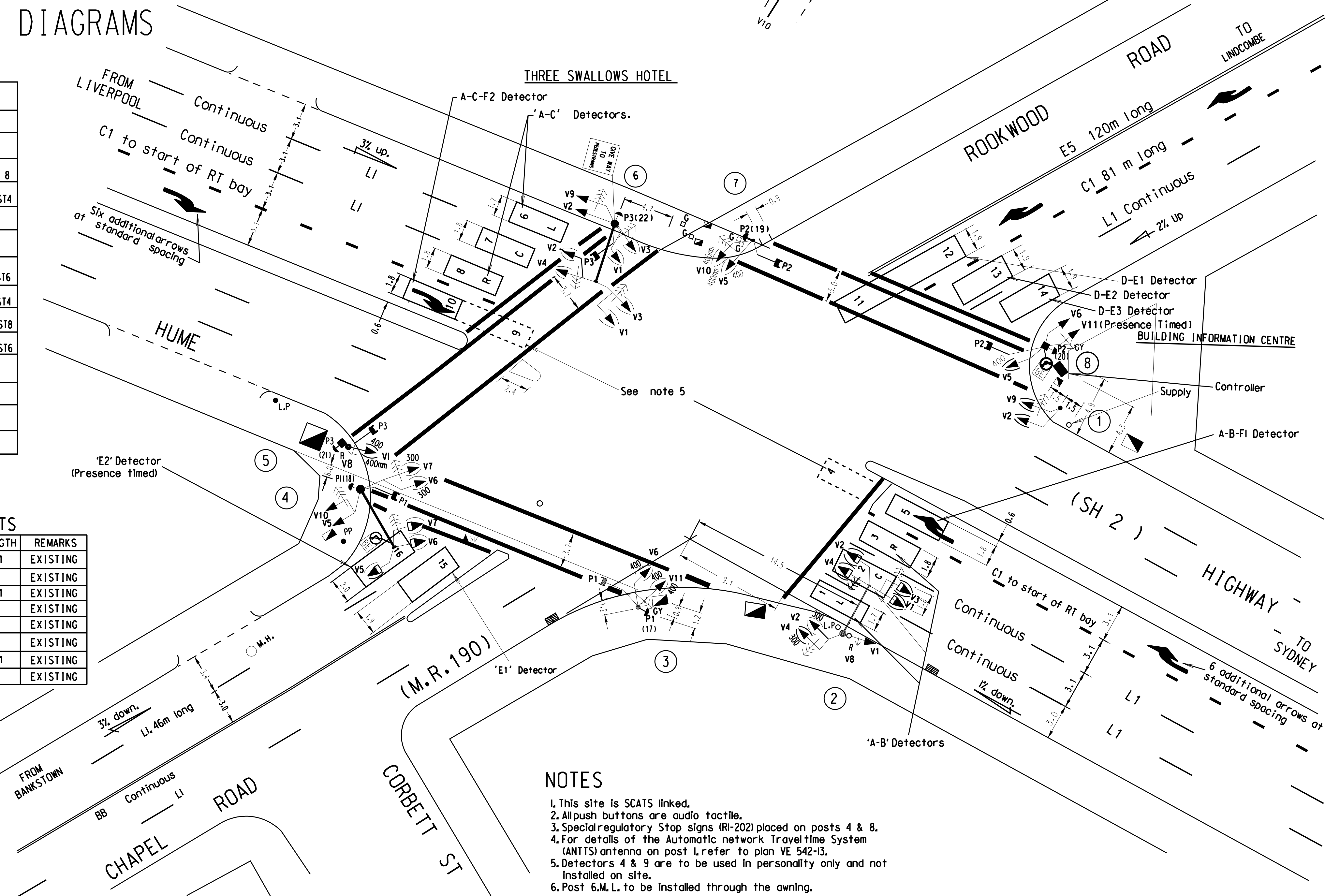
1. XSF, Bit 3 pulse to allow V7 filtering in E Phase.

DETECTOR SPECIFICATION

Detector		Specifications				
D-E1 Depart. & Approach	FN	D(PR)				
	SG/PS	E				
	DS	XSF3				
D-E1 Approach	FN	D(L),E(E)	D(L)	E(E1)		D(E1)
	SG/PS	$\overline{D/E}$	\overline{E}	E		D
	DS	XSF3	XSF3	XSF3 .D-E1(PR).D.(NEXT)		-
D-E2	FN	D(L)	D(E2)	E(E2)		
	SG/PS	$\overline{D/E}$	D	E		
	DS	-	E(NEXT)	D(NEXT)		
D-E3	FN	D (PR)	D(E3)	E(E3)		
	SG/PS	$\overline{D/E}$	D	E		
	DS	-	E(NEXT)	D(NEXT)		

POSTS

POST	TYPE	LENGTH	REMARKS
1	2	4.1	EXISTING
2	5L	—	EXISTING
3	2	4.1	EXISTING
4	5L	—	EXISTING
5	6	—	EXISTING
6	5L	—	EXISTING
7	2	4.1	EXISTING
8	6	—	EXISTING



NOTES

1. This site is SCATS linked.
2. All push buttons are audio tactile.
3. Special regulatory Stop signs (RI-202) placed on posts 4 & 8.
4. For details of the Automatic network Traveltime System (ANTTS) antenna on post 1, refer to plan VE 542-13.
5. Detectors 4 & 9 are to be used in personality only and not installed on site.
6. Post 6.M.L. to be installed through the awning.

0190.026.W.3509

DRAWN BY CADD
DO NOT AMEND MANUALLY

DETECTOR SPECIFICATION

Detector	Specifications			
	FN	A(L)	A(E 1)	
	SG/PS	A	A	
A	DS	—	—	
A-B	FN	A(L)	A(E3)	B(E3)
	SG/PS	A/B	A	B
	DS	—	B(NEXT)	A(NEXT)
B1	FN	B(L)	B(CL)	B(E1)
	SG/PS	B/C	C	B
B2	FN	B(L)	B(CL)	B(E2)
	SG/PS	B/C	C	B
A P.B.	FN	A(PB)	B(L)	
	SG/PS	A(WALK)	A.A(WALK)	
C P.B.	FN	C(PB)	A(L)	
	SG/PS	C(WALK)	C.C(WALK)	

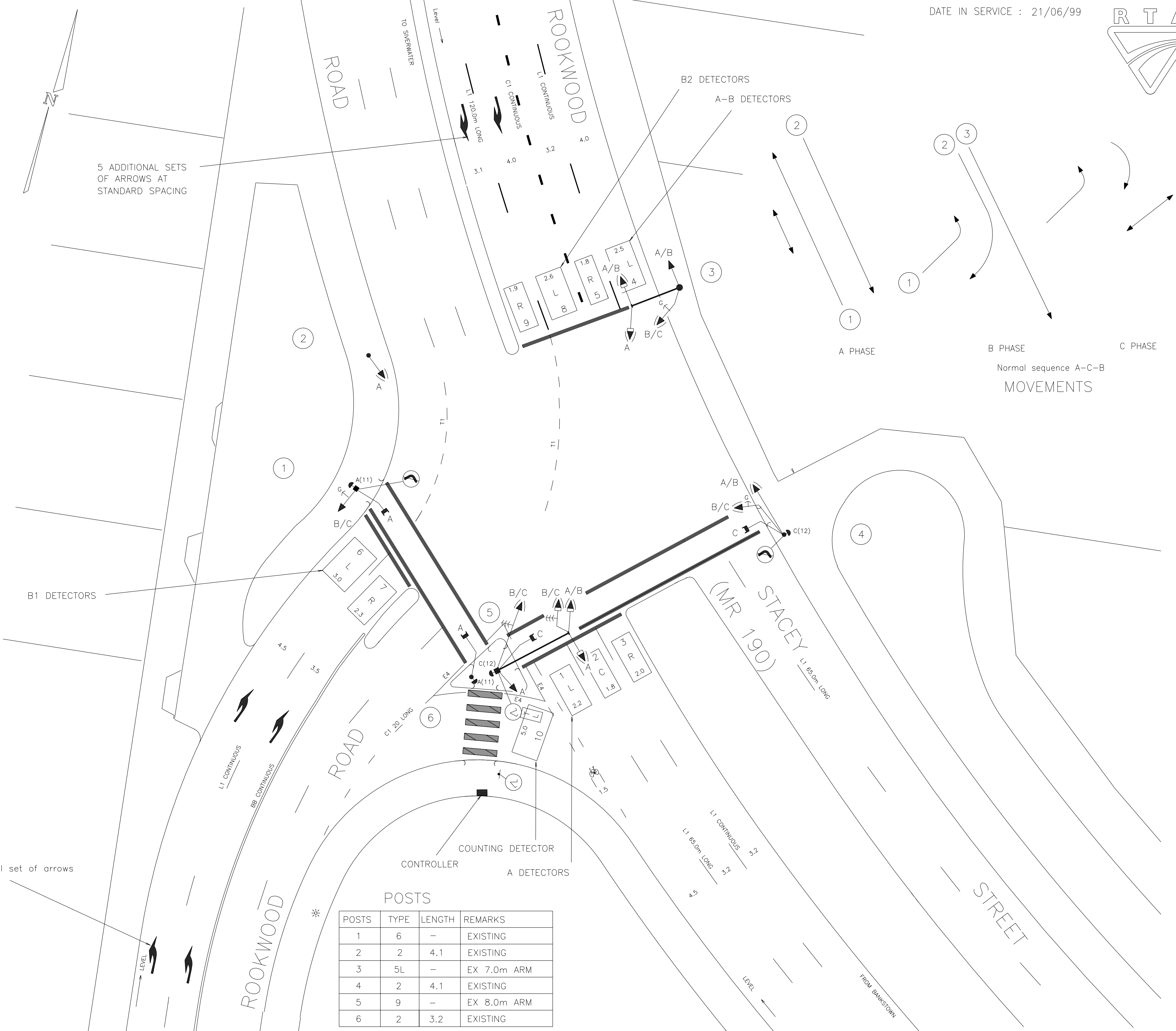
NOTES

1. This site is SCATS linked.
2. Special regulatory Stop Sign (R1-202) placed on Post 1.
3. All push buttons are Audio-tactile

SPECIAL SIGNAL GROUP
DISPLAY SEQUENCE

SIGNAL GROUP	TABLE TYPE	REMARKS
A/B	3	—
B/C(RT)	2	Non filtering.
B/C(LT)	11	—

1 additional set of arrows



POSTS			
POSTS	TYPE	LENGTH	REMARKS
1	6	—	EXISTING
2	2	4.1	EXISTING
3	5L	—	EX 7.0m ARM
4	2	4.1	EXISTING
5	9	—	EX 8.0m ARM
6	2	3.2	EXISTING

A ORIGINAL ISSUE

B Issue - WAE
New site WAE
AWK ENG 11/99

HYDRANT	<input type="checkbox"/>	SYMBOLS/ABBS.	VD003-6
STOP VALVE	<input type="checkbox"/>	STD. POSIT	VD001-5
GAS VALVE	<input type="checkbox"/>	DET. SCHED. EXP.	VD018-10
SEWER MANHOLE	<input type="checkbox"/>	PRES. DETECT	VC005-17
TELECOM PIT	<input type="checkbox"/>	SSG DIS. SEQ.	VD018-8
ELECT. LIGHT POLE	<input type="checkbox"/>		
POWER POLE	<input type="checkbox"/>		
STAY POLE	<input type="checkbox"/>		
TELEPHONE BOX	<input type="checkbox"/>	SURVEYOR : MAUNSELL P/L	
TELECOM PILLAR	<input type="checkbox"/>	DATE : 1998	

U.B.D. Ref: MAP252 A10	I.S.G. E: 303 261
CO-ORDS N: 1 246 836	
DESIGNED	CHECKED
R.N. SITE CHECKED	
R.N. RECOMMENDED	

APPROVED

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES

NAME ROSS NETTLE

POSITION DIRECTOR

DATE 9.9.98

THIS DRAWING IS RECOMMENDED FOR ACCEPTANCE

NETWORK OPERATIONS TEAM LEADER

DATE 15.9.99

ACCEPTED

DATE 15.9.99

Roads & Traffic Authority, N.S.W.

CITY OF BANKSTOWN

TRAFFIC SIGNALS AT THE INTERSECTION OF (MR 190) STACEY STREET AND ROOKWOOD ROAD

BANKSTOWN

DESIGN LAYOUT

TCS No 3509

DESIGN OFFICE PARRAMATTA - SYDNEY TECHNICAL SERVICES

CADD DRAWING FILE: WV3509_1B.dgn

SCALE 5 0 (1:200) 5 10

FILE 026.TS.361

REGN. 0190.026.VV.3509

SHEET 1

ISSUE B

SUPERSEDES SHEET/ISSUE 1A

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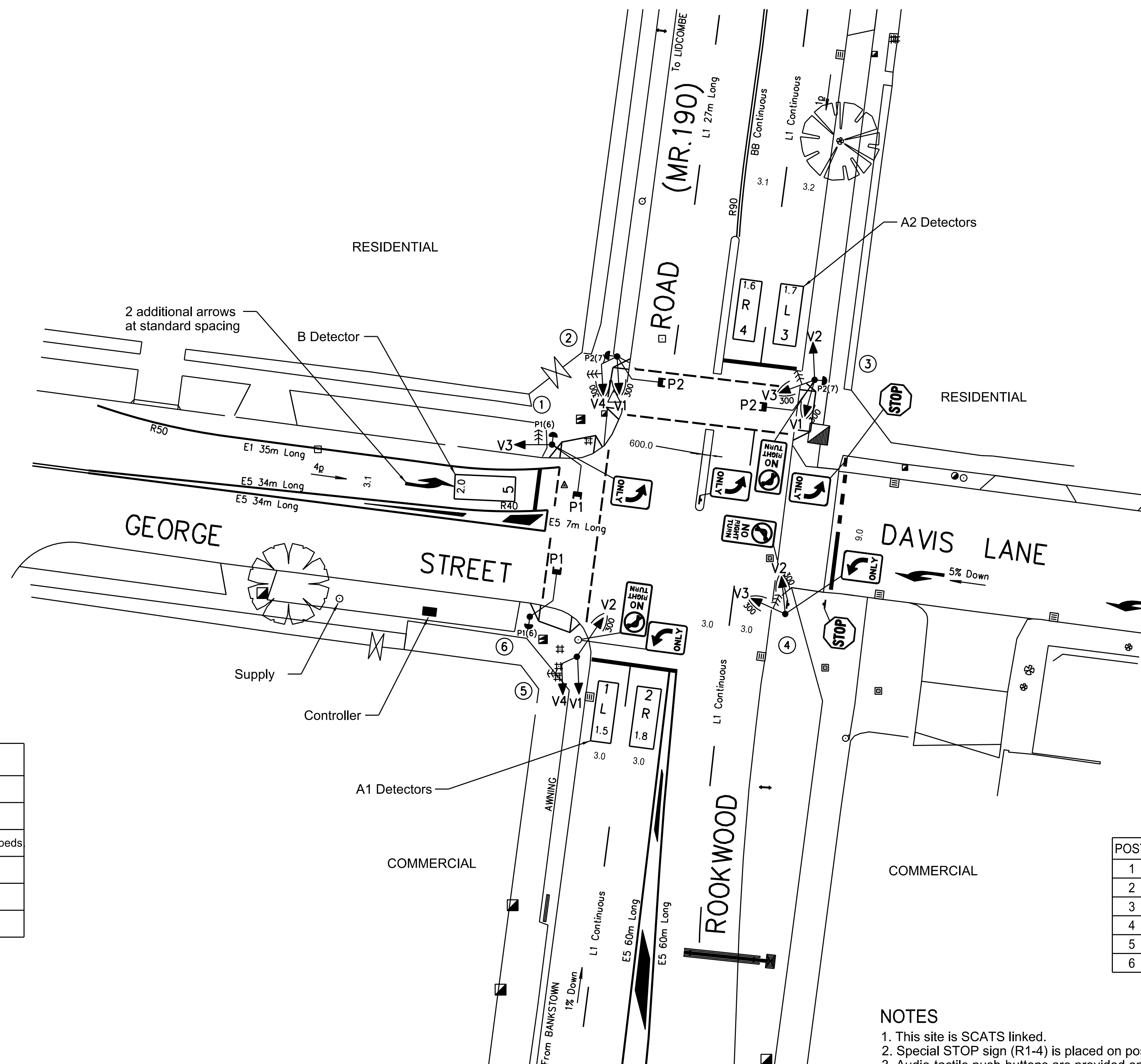
DRAWN BY CADD
DO NOT AMEND MANUALLY



Transport
Roads & Maritime
Services

MOVEMENTS

SIGNAL GROUP	PHASES WHEN GREEN		STANDARD TABLE	REMARKS
	A	B		
V1	X		1	
V2	X		1	
V3		X	72	Timed protection for Walk and Clearance for 'P2' pedestrians.
V4		X	21	Timed R.A. protection for 'P1' pedestrians.
P1	X		2	
P2		X	1	



POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	EXISTING
2	2	4.1	1.0	EXISTING
3	2	4.1	1.0	EXISTING
4	2	4.1	1.0	EXISTING
5	2	4.1	1.0	EXISTING
6	2	4.1	1.0	EXISTING

NOTES

1. This site is SCATS linked.
2. Special STOP sign (R1-4) is placed on post 1.
3. Audio-tactile push-buttons are provided on posts 1, 2, 3 and 6.
4. Trees on approaches to the intersection are to be regularly inspected and trimmed by council to minimise obstruction to lanterns.
5. If a future marked foot crossing is provided across the southern leg of Rookwood Road, Davis Lane will require traffic signal control.











<p>B ISSUE JI SH455 04/05/10</p> <p>Removed; Median Island Rockwood Rd., associated signposting & notes. Amended: 'A Phase' Movement Diagram, 'V2' details Signal Group/Phase Chart.</p>	<p>TB 07/05/10</p>
<p>C ISSUE JI SH472 22/11/10</p> <p>Added; Median Rockwood Rd. Amended; Pavement Markings & Detector Location GEORGE ST. POST CHART NOTES.</p>	<p>26/11/10</p>

D ISSUE JISH482 9/31/11
Recommended: Phasing to 2 phases.
 Add 3 speed left turn arrow lantern for V3
 to posts 1, 3, and 4.
 Change post chart to show post 6
 has a length of 4.1m.
 Altered position of post 5 and adjacent
 stop line to suit onsite conditions.
 Change Signals Chart to suit 2 phase
 site and add RA protection to V3 lane.
 K.K. 21/3/2011


ISSUE - WAE 15/9/10
Controller recoated 5m to the west to suit
built onsite conditions
CNU 8/6/2011

W.A.E.
RECOMMENDED SIGNAL GROUP PHASE CHART.
JJ KD 11/8/2014

--

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT		SYMBOLS/ABBS.	V0003-6
STOP VALVE		STD POSIT	V0001-5
GAS VALVE		DET SCHED EXP	V0018-10
SEWER MANHOLE		PRES. DETECT	V0005-17
TELECOM PIT		SSG DIS. SEQ.	V0018-8
ELECT LIGHT POLE		CABLE INSTALL	SHEET 2
POWER POLE		CABLE CHART	SHEET 3
STAY POLE			
TELEPHONE BOX		SURVEYOR: W. CHO	
TELECOM DIAL PAD		DATE: 06/06/2009	

U.B.D. Ref.	Map 252 A11
I.S.G. E:	303 255
CO-ORDS N:	1 246 890
DESIGNED	J. BAIRSTOW
CHECKED	A. JEDNIUK
J. BAIRSTOW / A. JEDNIUK	
SITE CHECKED	
K. IRONSIDE	
RECOMMENDED	

DESIGN APPROVAL	
	
POSITION	SENIOR DESIGNER
DATE	13.1.2010
DESIGN PREPARED BY ROAD DESIGN ENGINEERING ENGINEERING OPERATIONS BRANCH ENGINEERING OPERATIONS BRANCH	

RTA ACCEPTANCE

RECOMMENDED

ANETWORK OPERATIONS

POSITION LEADER

DATE 14/1/2010

ACCEPTED

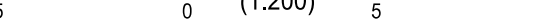
POSITION RN Mgr

DATE 14/1/2010

	R
	B
	ROO
	DESIGN LAYOUT

ROADS AND MARITIME SERVICES
BANKSTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
ROOKWOOD ROAD (MR.190) AND
GEORGE STREET
YAGOONA

TCS No. 4276

EXISTING <input checked="" type="checkbox"/>		PROPOSED <input type="checkbox"/>	
OBJECTIVE REG: DS2014/004662			
SCALE 			ISSUE
FILE 26 TS 377		SUPersedES SHEET/ISSUE	1/E
REGN. 0190.026.VV.4276			SHEET 1



**ANNEXURE E: CYCLE AND PHASE REVIEW
(2 SHEETS)**

Rockwood & George Street / Davis Lane

AM Peak

Phase	Min	Max	Average	Occurrences
A	14	42	27	100%
B	15	35	21	100%
C				0%

Cycle Time	30	67	48
------------	----	----	----

PM Peak

Phase	Min	Max	Average	Occurrences
A	3	151	93	100%
B	15	38	20	100%
C				0%

Cycle Time	41	167	113
------------	----	-----	-----

Rockwood Road / Hume Highway / Chapel Road

AM Peak

Phase	Min	Max	Average	Occurrences
A	47	78	61	100%
C	8	32	18	83%
D	29	33	31	100%
E	31	39	35	100%
F	14	17	16	67%

Cycle Time	128	170	152
------------	-----	-----	-----

PM Peak

Phase	Min	Max	Average	Occurrences
A	51	78	65	100%
C	5	11	8	67%
D	28	34	31	100%
E	29	37	33	100%
F	12	26	19	83%

Cycle Time	137	165	153
-------------------	-----	-----	-----

Rockwood Road / Stacey Street

AM Peak

Phase	Min	Max	Average	Occurrences
A	17	72	42	100%
B	14	39	26	100%
C				0%

Cycle Time	31	109	68
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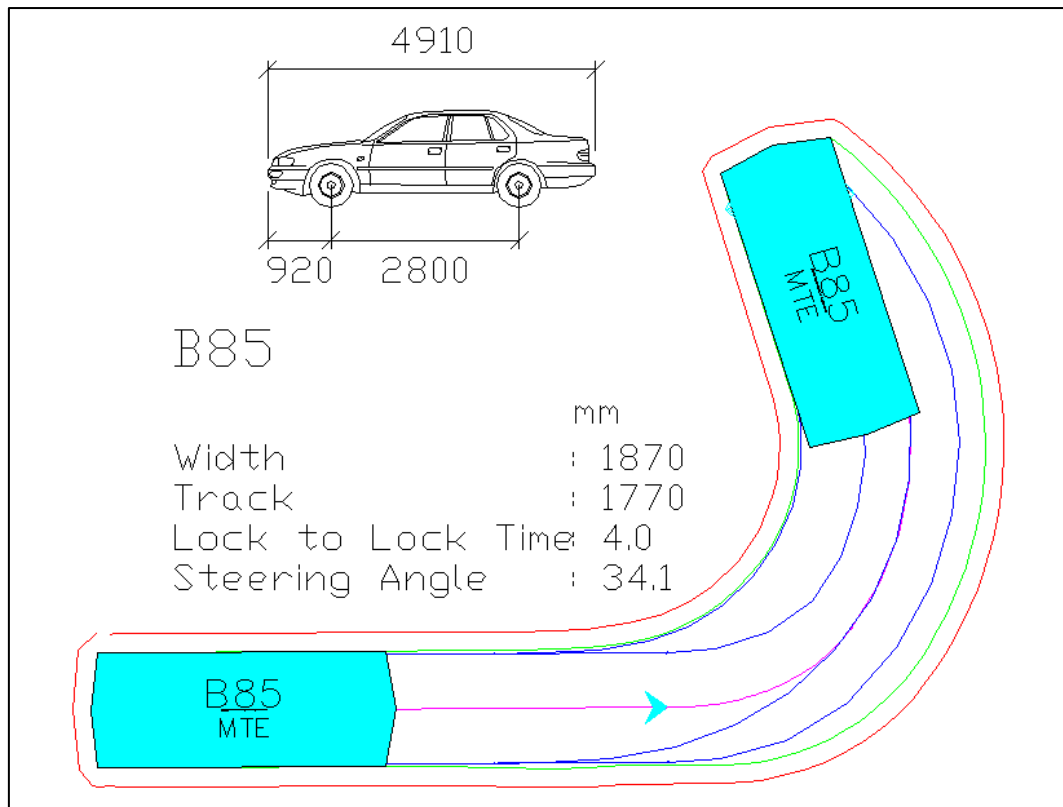
PM Peak

Phase	Min	Max	Average	Occurrences
A	17	60	31	100%
B	15	46	28	100%
C				0%

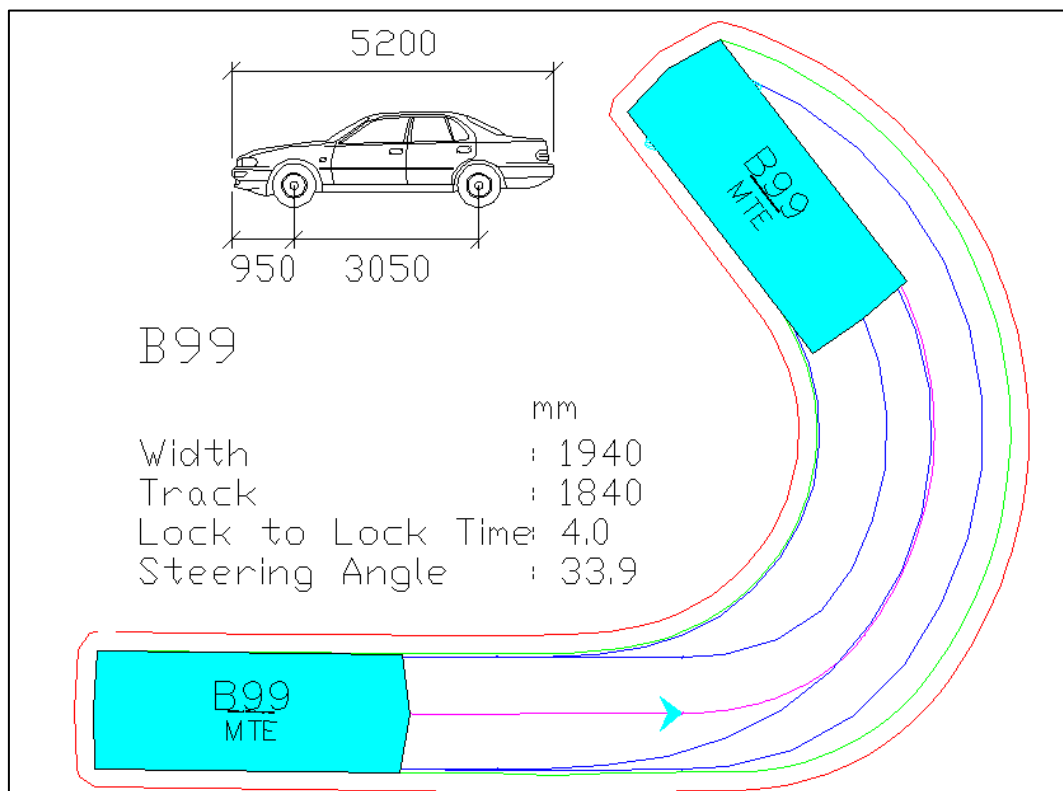
Cycle Time	36	92	59
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**ANNEXURE F: SWEPT PATH TESTING
(7 SHEETS)**



AUSTRALIAN STANDARD 85TH PERCENTILE SIZE VEHICLE (B85)



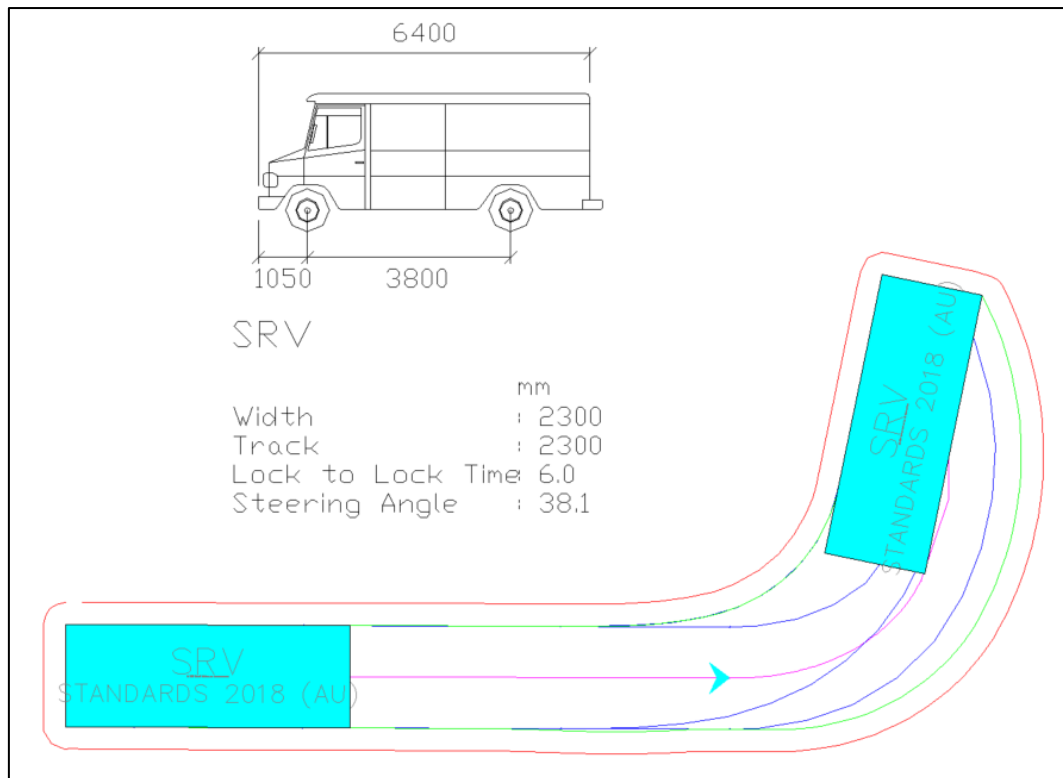
AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

Blue – Tyre Path

Green – Vehicle Body

Red – 300mm Clearance

Tested @ 5-km/h internally; 10-km/h on public roads.

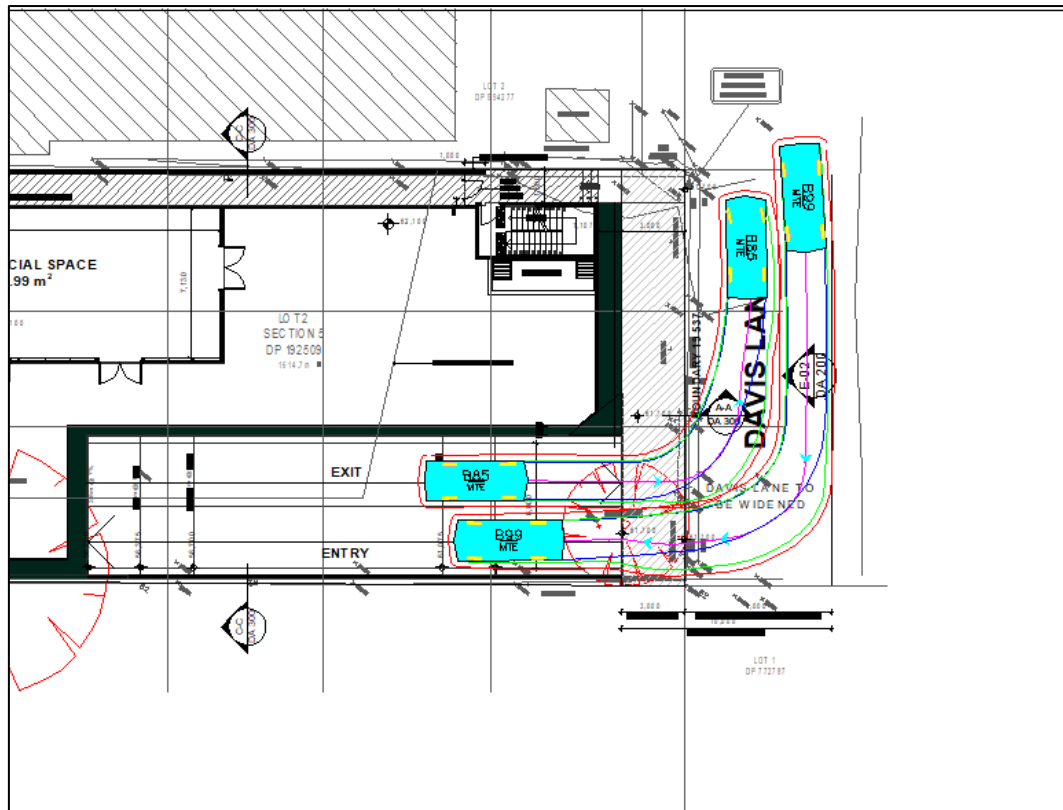


AUSTRALIAN STANDARD SMALL RIGID VEHICLE (SRV)

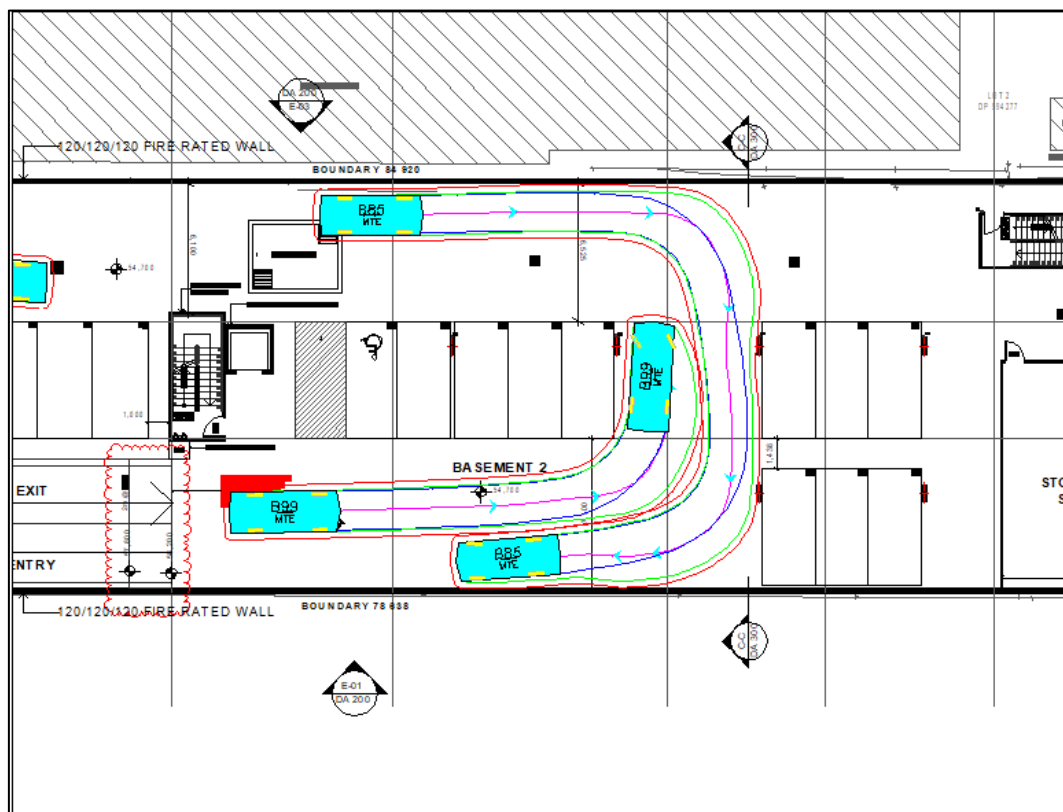
Blue – Tyre Path

Green – Vehicle Body

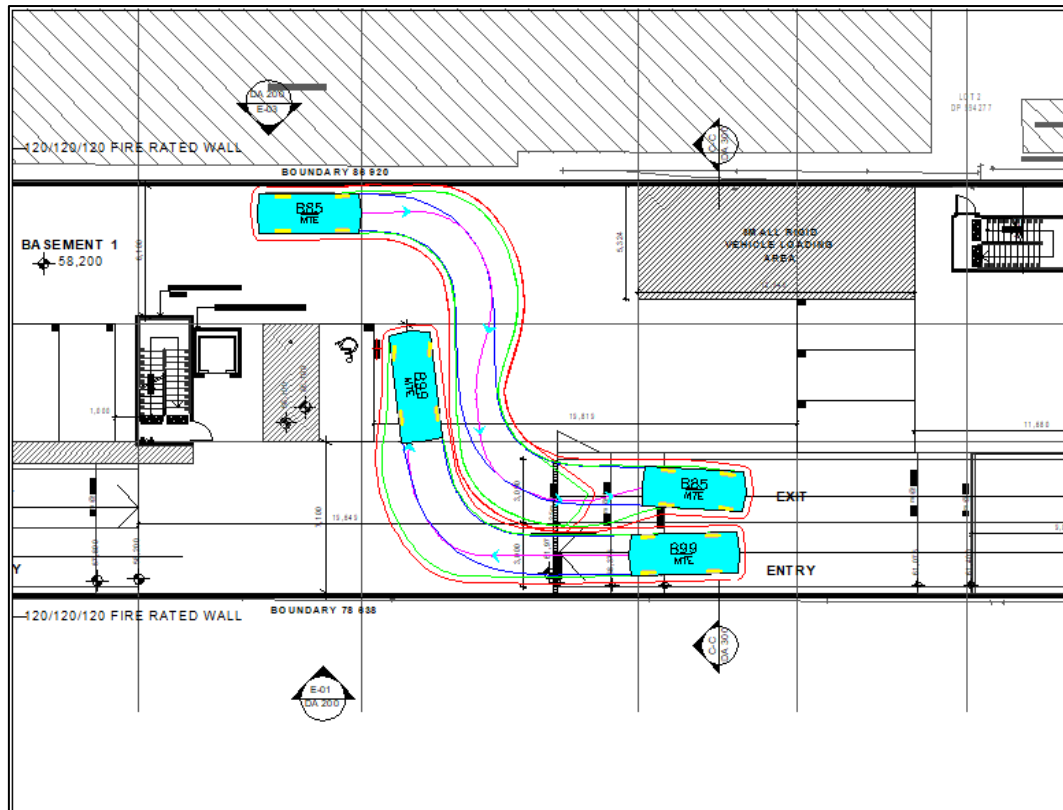
Red – 500mm Clearance



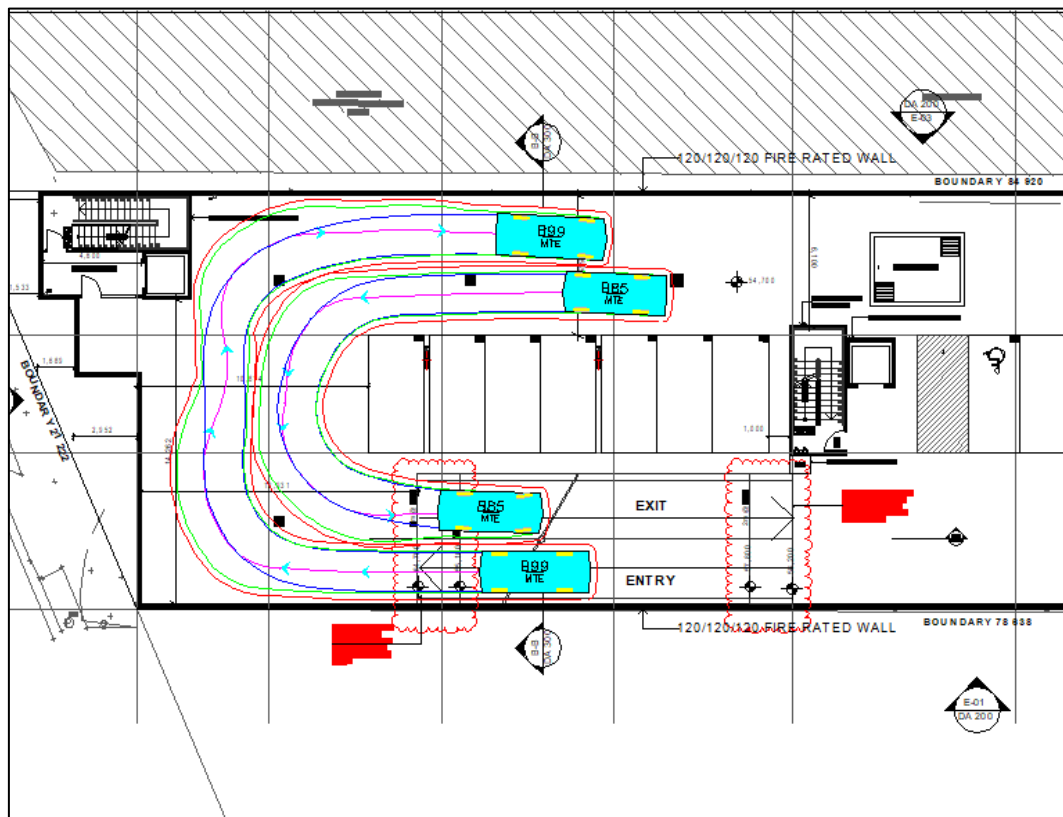
TWO-WAY PASSING OF A B85 / B99 OVER VEHICLE CROSSOVER
Successful



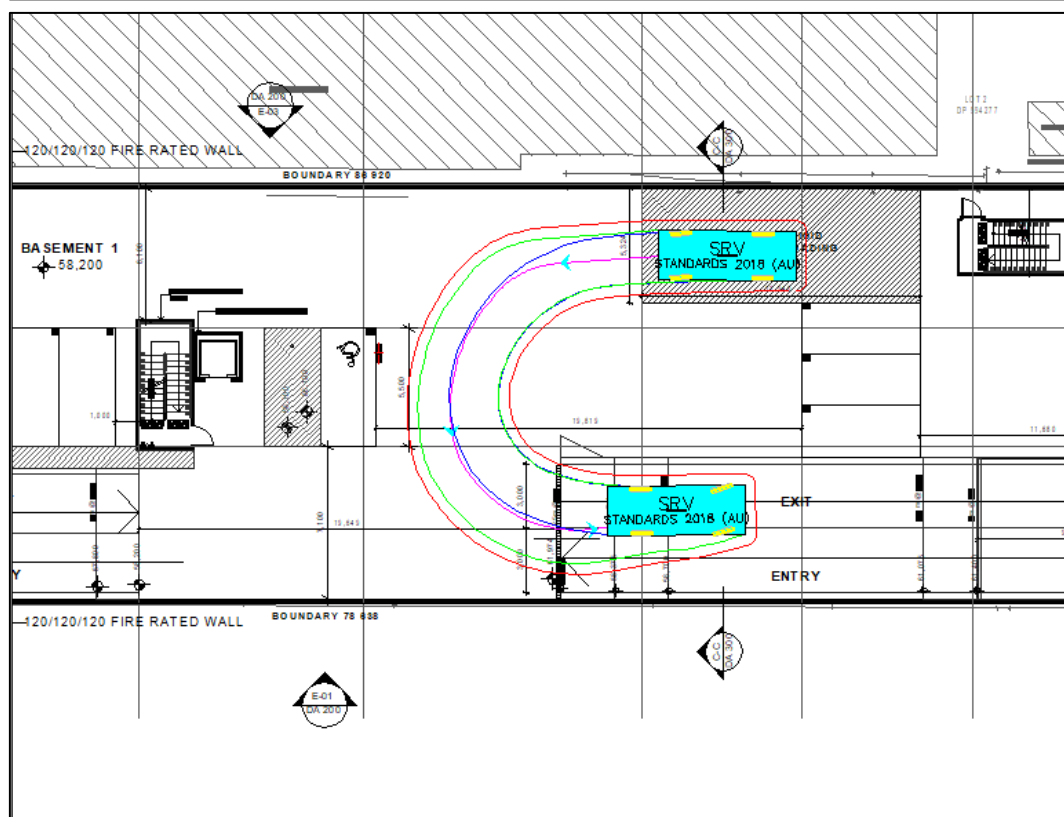
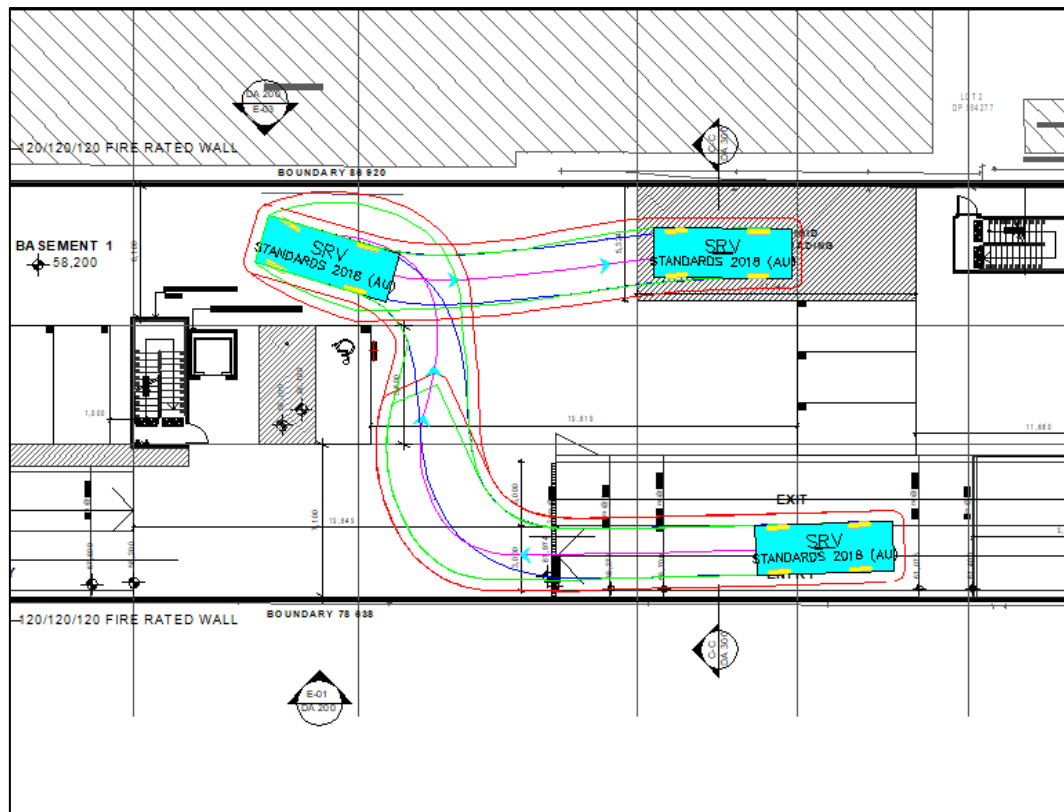
TWO-WAY PASSING OF B85 / B99 AROUND THE CORNER WITHIN BASEMENT 2
Successful



TWO-WAY PASSING OF B85 / B99 WITHIN BASEMENT 1
Successful

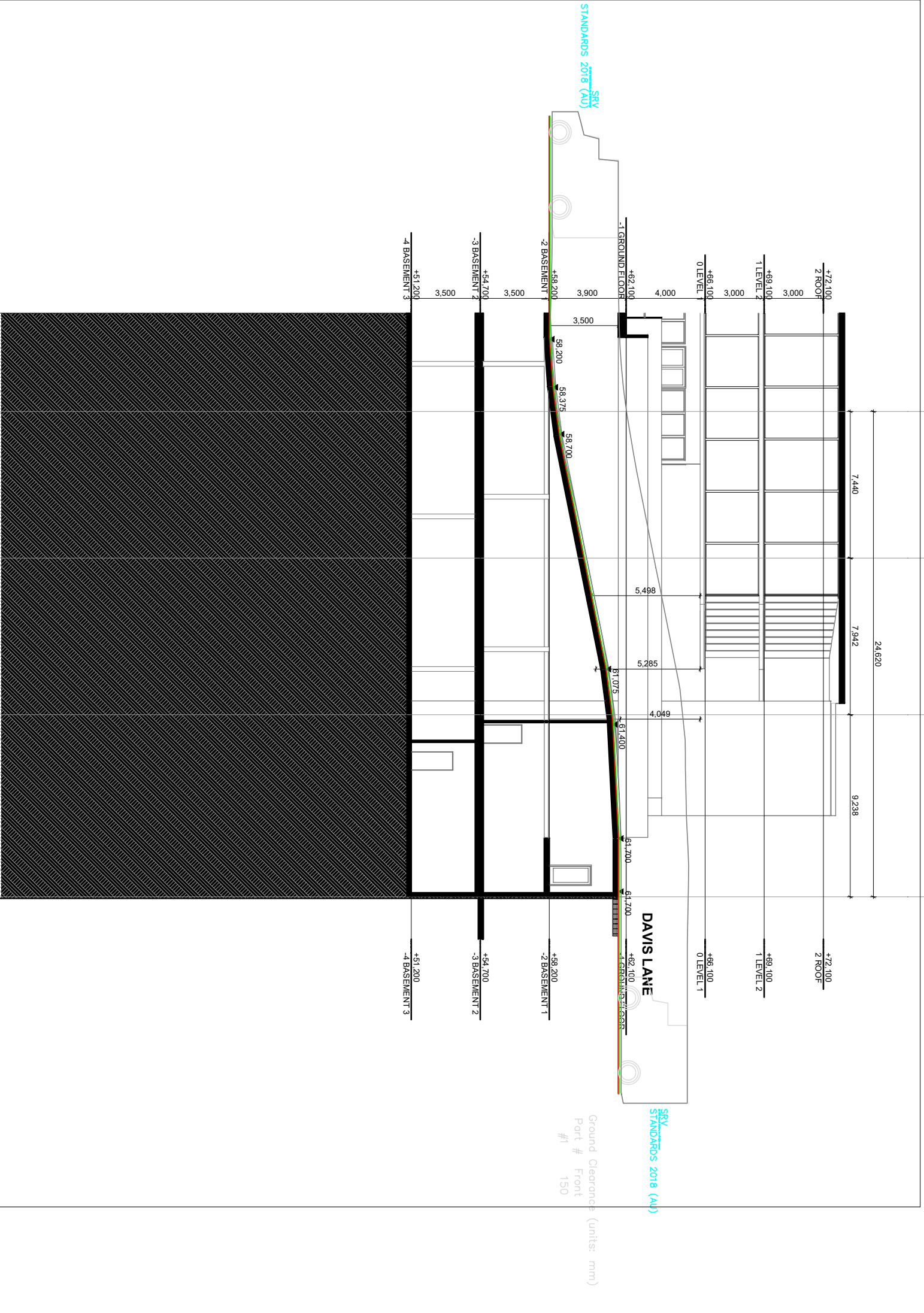


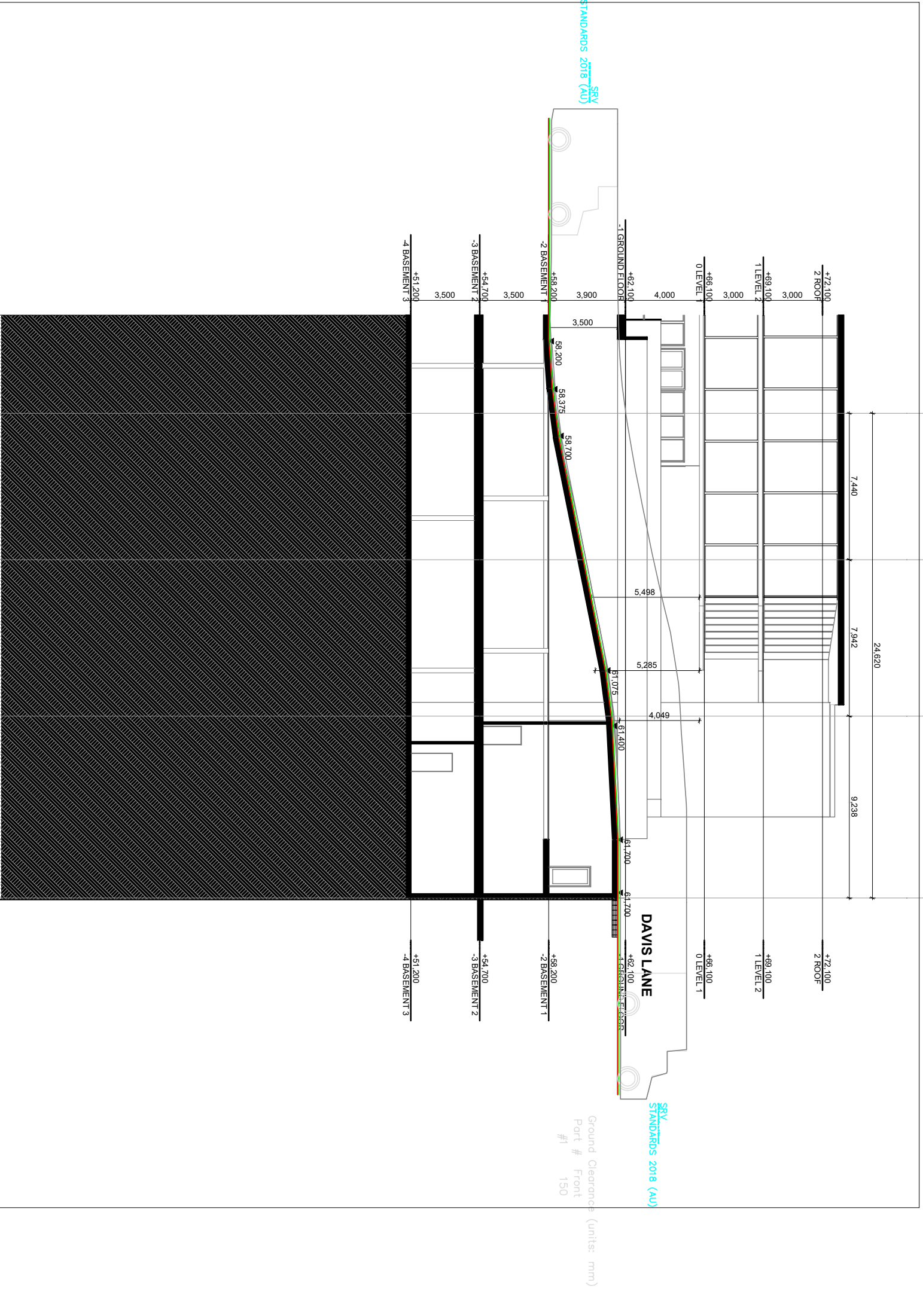
TWO-WAY PASSING OF B85 / B99 AROUND THE CORNER WITHIN BASEMENT 2 &
3
Successful



SRV ENTRY / EXIT FROM LOADING ZONE

Successful – 2 manoeuvres REVERSE IN, 1 manoeuvre FORWARD OUT





Ground Clearance (units: mm)

Part # Front

#1 150