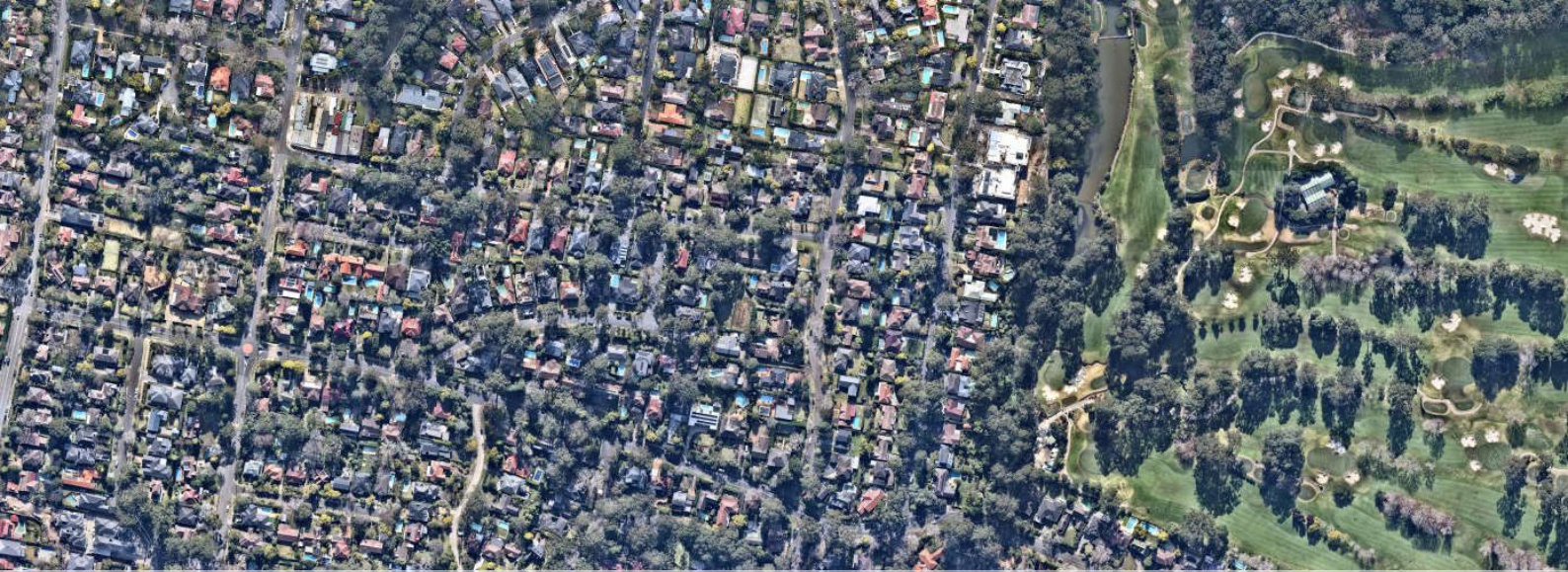




**UPDATED TRAFFIC AND PARKING IMPACT ASSESSMENT OF
THE PROPOSED CHILD CARE CENTRE
AT 4B AND 8 CHARLTON AVENUE, TURRAMURRA**



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

Development Type: Child Care Centre

Site Address: 4B and 8 Charlton Avenue, Turramurra

Prepared for: ArtMade Architects

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1 **INTRODUCTION**

McLaren Traffic Engineering was commissioned by ArtMade Architects to provide an updated traffic and parking impact assessment of the proposed Child Care Centre at 4B and 8 Charlton Avenue, Turramurra, as depicted in **Annexure A**.

A previous version of this Traffic and Parking Impact Assessment (dated 1 November 2024, document reference 240619.01FA) was submitted as part of the eDA0255/25 application. Following the submission of the previous version, comments were received from Ku-ring-gai Council in a letter provided which is dated 26 August 2025. This report has been updated with consideration for these comments, with responses to the comments of Council addressed in **Section 5**.

1.1 Description and Scale of Development

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

- A child care centre accommodating 120 children and 18 staff members as per the following:
 - 20 children between 0-2 years old (staff assigned at 1 per 4 children, or 5 staff);
 - 30 children between 2-3 years old (staff assigned at 1 per 5 children, or 6 staff);
 - 70 children between 3-5 years old (staff assigned at 1 per 10 children, or 7 staff).
- An at-grade undercover parking area with vehicular access via a proposed two-way driveway from Charlton Avenue, accommodating 30 car parking spaces including:
 - 19 parent / visitor car parking spaces including one (1) accessible space;
 - 11 staff 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*. Accordingly, formal referral to Transport for NSW (TfNSW) is unnecessary and the application can be assessed by Ku-Ring-Gai Council officers.

1.3 Site Description

The subject site includes two (2) lots legally identified as Lot 1/DP120024 and Lot 5/DP734952, which are currently zoned *R2 – Low Density Residential* under the *Ku-Ring-Gai Council Local Environmental Plan 2015*. The site has a single frontage to Charlton Avenue to the east.

The site is generally surrounded by low to medium density residential dwellings with Pymble Gold Course located approximately 300m to the east of the site and Pymble Public School located approximately 500m to the south.

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.

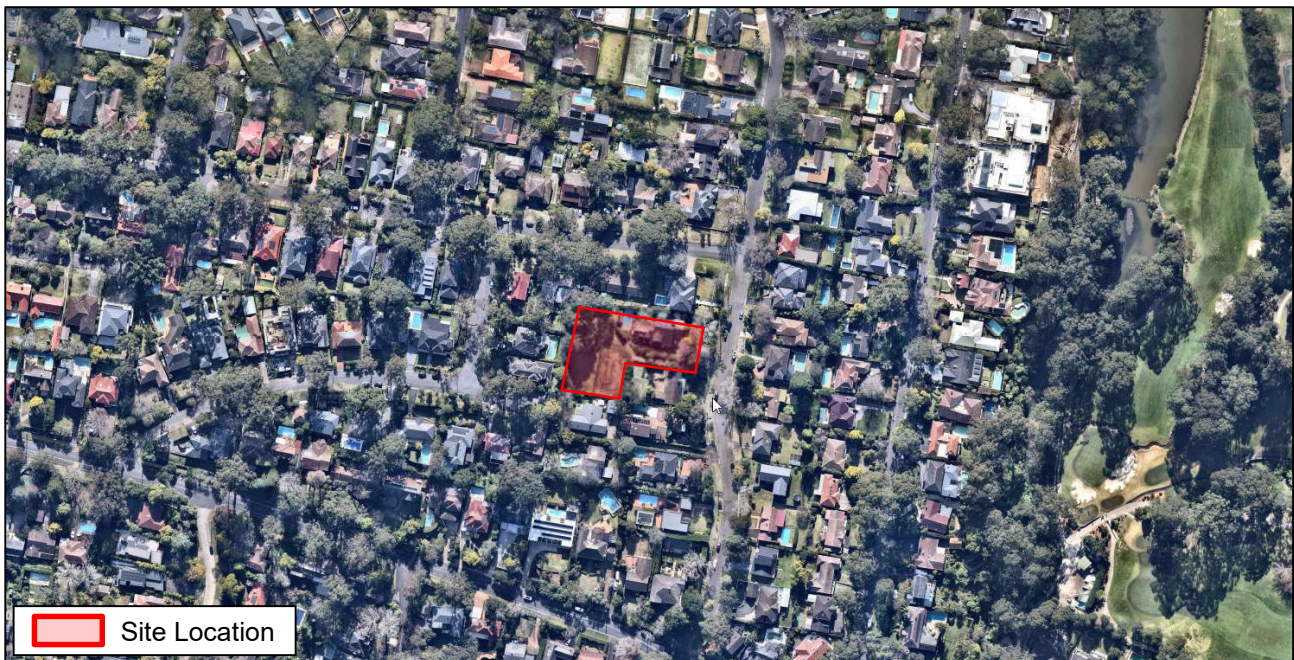


FIGURE 1: SITE CONTEXT – AERIAL PHOTO



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 Charlton Avenue

- Unclassified LOCAL Road;
- Approximately 9m wide carriageway facilitating traffic flow in both directions and kerbside parking;
- No signposted speed limit – Default 50km/h speed limit applies;
- Generally, unrestricted parking permitted along both sides of the road.

2.1.2 Pentecost Avenue

- Unclassified COLLECTOR Road;
- Approximately 10m wide carriageway facilitating one (1) traffic flow lane in each direction and kerbside parking on the northern side of the road;
- Signposted 50km/h speed limit;
- ‘No Parking’ restrictions on the southern side of the road;
- Generally, unrestricted kerbside parking permitted on the northern side of the road.

2.1.3 Princes Street

- Unclassified LOCAL Road;
- Approximately 8m wide carriageway facilitating traffic flow in both directions and kerbside parking;
- No signposted speed limit – Default 50km/h speed limit applies;
- Generally, unrestricted parking permitted along both sides of the road.

2.2 *Existing Traffic Management*

- Priority controlled intersection of Charlton Avenue / Princes Street;
- Priority controlled intersection of Pentecost Avenue / Charlton Street.

2.3 Existing Traffic Environment

Turning movement count traffic surveys were conducted at the intersections of Princes Street / Charlton Avenue and Charlton Avenue / Pentecost Avenue from 7:00am to 9:30am and 2:30pm to 6:00pm on Wednesday 12 October 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 9.1. **Table 1** summarises the resultant intersection performance data, with full SIDRA results reproduced in **Annexure C**.

TABLE 1: EXISTING INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/veh)	Level of Service ⁽³⁾⁽⁴⁾	Control Type	Worst Movement
EXISTING PERFORMANCE						
Charlton Avenue / Princes Street	AM	0.03	2 (Worst: 4.9)	NA (Worst: A)	Give Way	RT from Princes Street
	PM	0.03	1.9 (Worst: 4.8)	NA (Worst: A)		RT from Princes Street
Charlton Avenue / Pentecost Avenue	AM	0.27	0.8 (Worst: 16.1)	NA (Worst: B)	Give Way	RT from Charlton Avenue
	PM	0.32	0.7 (Worst: 15.4)	NA (Worst: B)		RT from Charlton Avenue

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, the relevant intersections are currently performing at a high level of efficiency, with a worst movement Level of Service “A” or “B” conditions in both the AM & PM peak hour periods. The Level of Service “A” and “B” performance is characterised by low approach delays and spare capacity.

3 **PARKING ASSESSMENT**

3.1 **Council Parking Requirement**

Reference is made to the *Ku-ring-gai Development Control Plan 2024 (KDCP 2024) Part 22: General Access and Parking* which designates the following parking rates applicable to the proposed development:

22R.1 Car Parking Rates

Child Care Centres

1 space per 2 staff

1 space per 6 children, of which at least one space is to be accessible for people with a disability.

NOTE: *Bulk of parking should be in a convenient location, allowing safe setdown / pick up and movement of children. Minimum 60% of parking spaces to be allocated to pick-up/drop-off.*

Table 2 presents the parking requirements of the proposal according to LDCP 2008 above car parking rates.

TABLE 2: DCP PARKING RATES

Land Use	Scale	Rate	Spaces Required	Spaces Provided
Child Care Centre	120 Children	1 per 6 children	20	19
	18 Staff	1 per 2 staff	9	11
TOTAL	-	-	29	30

As shown, strict application of the KDCP 2024 requires the provision of **29** car parking spaces, (with **20** for parent use and nine (**9**) for staff use). The proposed plans detail the provision of **30** car parking spaces, exceeding the minimum KDCP 2024 parking requirements by one (1) space.

The proposed provision of **19** visitor pick-up/drop-off spaces of the total **30** spaces represents a 63% proportion of spaces, exceeding the minimum required 60% allocation from the KDCP 2024.

3.2 **Parking for People with Disabilities**

Reference is made to the KDCP 2024 which requires the provision of at least one accessible parking space for people with disabilities in child care centre developments.

Further reference is made to *Section D4D6* of the *Building Code of Australia (BCA)* as part of the *National Construction Code 2022 (NCC)* which categorises a child care centre as a Class 9b building and therefore requires the provision of car parking for people with disabilities at a rate of:

Class 9b *1 space for every 50 carparking spaces or part thereof.*

In accordance with DCP and BCA requirements, one (1) accessible car parking space is to be provided. The proposed car parking layout details the provision of one (1) car parking space designed in accordance with AS2890.6:2022, complying with BCA requirements.

3.3 Bicycle & Motorcycle Parking Requirements

Reference is made to *Part 10: Child Care Centres* of the KDCP 2024 which outlines the following bicycle parking requirements:

The following bicycle parking is to be provided on the site:

- i) 1 space per 10 staff or part thereof*
- ii) Consideration of a bicycle drop-off/pick-up area for parents*

In accordance with the KDCP 2024 requirements, the proposed development requires the provision of two (2) staff bicycle parking spaces. The proposed development provides four (4) bicycle parking spaces, satisfying the KDCP 2024 requirements.

The KDCP 2024 does not require the provision of motorcycle parking. Accordingly, no motorcycle parking facilities have been provided, thus satisfying KDCP 2024 requirements.

3.4 Servicing & Loading

The KDCP 2024 does not specify servicing and loading requirements for childcare centres. It is expected that all deliveries will be undertaken within the proposed car parking area outside peak drop off / pick up times, under a plan of management if necessary. A van (standard B99 design vehicle) or similar can be accommodated within the car parking area utilising vacant visitor spaces. This is common practice for childcare centres and will not noticeably affect the operation of the site. It is reiterated that deliveries and other arrivals of similar nature are low in frequency and can be easily managed.

The proposed development is proposed to have its waste collection undertaken via private collection within the undercover carparking area. The waste will be collected via a collection vehicle of a size up to and including a 6.4m length Small Rigid Vehicle (SRV) in accordance with AS2890.2:2018. The waste collection will be managed such that the waste will be collected outside of operating hours of the child care centre where the visitor car parking spaces within the at-grade car parking area will be vacant. The waste collection area will be within the first spaces accessed from the driveway in close proximity to the waste storage room.

The headroom in proximity of the waste collection area exceeds the minimum 3.5m headroom clearance required for SRV access. However, it is noted that the available headroom further within the undercover parking area reduces below the minimum 3.5m headroom clearance compliant for SRVs, with a minimum clearance of 2.9m further within the site. A headroom striker bar shall be detailed during the detailed design stage following a DA approval to prevent heavy vehicles above 2.9m in height from travelling into restricted headroom areas of the undercover parking.

Swept path testing has been undertaken to assess the ability of the design vehicle to access the site, with results reproduced in **Annexure D**. The results indicate that an SRV can successfully access the at-grade carparking area and exit the site in a forward direction. Therefore, the proposed waste collection operation is considered acceptable.

3.5 Car Park Design & Compliance

The car parking layout as depicted in **Annexure A**, has been assessed to achieve the relevant clauses and objectives of AS2890.1:2004 and AS2890.6:2022 subject to any required changes detailed in **Section 3.6**. Swept path testing has been undertaken and the results are reproduced within **Annexure D** for reference.

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

- 6.0m wide two-way driveway facilitating access to Charlton Avenue;
- Minimum 6.6m wide parking aisles for visitors and 5.8m wide parking aisles for staff;
- Minimum 6.1m wall-to-wall width along ramps;
- Compliant ramp grades not exceeding 25% for private developments and no grade change greater than 12.5%;
 - Maximum proposed grade is 10%.
- Minimum 5.4m long, 2.4m wide spaces for staff;
- Minimum 5.4m long, 2.6m wide spaces for parents / 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;
- 2.0m x 2.5m pedestrian sight triangle clear of obstructions.

Whilst the plans have been assessed to comply with the relevant standards, it is usual and expected that a design certificate be required at the Construction Certificate stage to account for any changes following the development application.

3.6 Required Change

3.6.1 Wheel Stop Offset

In accordance with AS2890.1:2004, a wheel stop needs to be set at an offset from the end of the space of a maximum of 1100mm measured from the point of a wheel's contact with the wheel stop. The wheel stops of the proposed development are detailed at an offset of 1175mm which exceeds the maximum compliant offset. This minor change can be amended during the detailed design which typically occurs at the Construction Certificate stage.

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**

4.1.1 Vehicle Trip Generation

The traffic generation rates for the relevant land uses are provided in the *TfNSW Guide to Transport Impact Assessment Version 1.1* (GTIA). The relevant traffic generation rates are as follows:

5.6.8 Education Facilities

Child care centres (2015)

Long-day care – Vehicle trips/licensed child places

Site AM peak hour 0.81

Site PM peak hour 0.80

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

TABLE 3: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak	Generation Rate	Trips ⁽¹⁾
Long-day care	120 Children	AM	0.81 per child	98 (49 in, 49 out)
		PM	0.8 per child	96 (48 in, 48 out)

Notes:

(1) 50% inbound and 50% outbound assumed for the AM and PM peak periods.

As shown, the expected traffic generation associated with the proposed development is in the order of **98** vehicle trips in the AM peak period (49 in, 49 out) and **96** vehicle trips in the PM peak period (48 in, 48 out).

4.1.2 Requirement for Impact Assessment

Reference is made to *Austrroads Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments Figure 5.1* which states the following regarding peak hour vehicle trips:

Likely impact of development:

Low Impact (<10 Trips): No Detailed Assessment Required

Moderate Impact (10-100 Trips): Traffic Impact Statement Required

High Impact (>100 Trips): Traffic Impact Assessment Required

Accordingly, the proposal is a moderate impact development, and a Traffic Impact Statement is required. However, since the expected peak hour traffic generation is close to the 100 vehicle trip guide, a Traffic Impact Assessment has been undertaken.

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:

- 80% to/from the south via Pentecost Avenue;
 - 50% to/from the west;
 - 30% to/from the east.
- 20% to / from the north via Princes Street.

4.3 Traffic Impact

The traffic generation outlined in **Section 4.1 & 4.2** above has been added to the existing traffic volumes recorded. SIDRA INTERSECTION 9.1 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 9.1)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/veh)	Level of Service ⁽³⁾⁽⁴⁾	Control Type	Worst Movement
EXISTING PERFORMANCE						
Charlton Avenue / Princes Street	AM	0.03	2 (Worst: 4.9)	NA (Worst: A)	Give Way	RT from Princes Street
	PM	0.03	1.9 (Worst: 4.8)	NA (Worst: A)		RT from Princes Street
Charlton Avenue / Pentecost Avenue	AM	0.27	0.8 (Worst: 16.1)	NA (Worst: B)	Give Way	RT from Charlton Avenue
	PM	0.32	0.7 (Worst: 15.4)	NA (Worst: B)		RT from Charlton Avenue
FUTURE (POST-DEVELOPMENT) PERFORMANCE						
Charlton Avenue / Princes Street	AM	0.04	2.5 (Worst: 4.9)	NA (Worst: A)	Give Way	RT from Princes Street
	PM	0.03	2.4 (Worst: 4.8)	NA (Worst: A)		RT from Princes Street
Charlton Avenue / Pentecost Avenue	AM	0.28	1.5 (Worst: 13.3)	NA (Worst: A)	Give Way	RT from Charlton Avenue
	PM	0.33	1.3 (Worst: 13.9)	NA (Worst: A)		RT from Charlton Avenue

Notes: Refer to Table 1.

As shown, the intersections of Charlton Avenue / Princes Street and Charlton Avenue / Pentecost Avenue all retain the same or improve worst movement level of service under future conditions with minimal delays and additional capacity, indicating that there will be no adverse impact on the existing road network as a result of the proposed development.

It is noted that the average delay of the worst turning movement for the intersection of Charlton Avenue / Pentecost Avenue reduces under future conditions in both the AM and PM period, despite only additional traffic being added to the intersection. From review of the assessed models, it is considered that these changes occur due to the existing right turn movement from Charlton Avenue having a high percentage of heavy vehicles in the existing

case, which changes to low percentage following the expected addition of light vehicles associated with child care centre staff / visitors. Accordingly, it is considered that the average delay for light vehicles will not reduce as suggested by the SIDRA modelling, but will instead remain relatively unchanged or increase slightly. In any case, it is considered that there will be no adverse impact on the existing road network as a result of the proposed development.

5 RESPONSE TO KU-RING-GAI COUNCIL LETTER

This section is provided in response to Ku-ring-gai Council's comments regarding application number eDA0255/25 within a letter titled "*Application Status – Initial Assessment Complete*" and dated 26 August 2025. The comments made by Council relevant to traffic and parking are shown below (italicised) with McLaren Traffic Engineering's (MTE) response thereafter.

Vehicle Access and Parking

7. There are 9 visitor car parking spaces provided outside the basement, which does not comply with Control 1 of Part 10.3 of the Ku-ring-gai DCP. The 9 car parking spaces must be located in the basement or removed.

MTE Response: The plans of the proposed development have been updated and are reproduced in **Annexure A** for reference. The nine (9) car parking spaces provided outside the basement have been removed with the proposed scale of the child care centre reduced from a maximum of 140 children at the centre to a maximum of 120 children now proposed for the centre. The proposed 30 car parking spaces complies with the KDCP 2024 minimum requirement of 29 car parking spaces.

8. In light of the non-compliance of the at-grade car parking in the front setback noted above, and the reliance that waste collection places on this space, clarification is required as to the alternative waste collection arrangements.

MTE Response: Waste collection is proposed to be undertaken within the undercover car parking area of the proposed development. via a collection vehicle of a size up to and including a 6.4m length Small Rigid Vehicle (SRV) in accordance with AS2890.2:2018. The waste collection will be managed such that the waste will be collected outside of operating hours of the child care centre where the visitor car parking spaces within the at-grade car parking area will be vacant. Swept path testing has been undertaken to assess the ability of the design vehicle to access the site, with results reproduced in **Annexure D**. The results indicate that an SRV can successfully access the at-grade carparking area and exit the site in a forward direction. Therefore, the proposed waste collection operation is considered acceptable.

9. EV readiness is to be provided for all car parking spaces within the development and depicted on the plans.

MTE Response: This is to be addressed by others. Any EV charging infrastructure shall be provided outside of the vehicular design envelope of the proposed car parking spaces.

10. The 2 bicycle parking devices within the staff car park in the basement are to be provided in accordance with the appropriate security level specified in AS2890.3.

MTE Response: The appropriate security level for staff bicycle parking in accordance with AS2890.3:2015 is a Class B facility. The level requires “a secure structure, protected from the weather, containing bicycle parking devices that allow users to lock the bicycle frame and both wheels” as per Table 1.1 of AS2890.3:2015. The proposed undercover parking area of the proposed development, where the bicycle parking is provided, is secured by a sliding shutter door. Additionally, the proposed devices for the bicycle parking spaces are a standard rail which allow users to lock the bicycle frame and both wheels. Therefore, the proposed bicycle parking spaces are provided with the appropriate security level.

11. Bicycle parking in car park areas are to be on a raised slab (which extends out to the manoeuvring vehicle’s wheel position) or other similar treatment, to protect bicycles and riders from manoeuvring vehicles.

MTE Response: The updated plans (provided in **Annexure A**) detail the proposed bicycle parking spaces to be provided on a raised slab, satisfying this request.

Construction Traffic Management Plan

12. No indicative construction traffic management plan has been submitted (required under Council’s DA Guide). Plan is to show the largest vehicle to be used entering and exiting the site for the demolition, excavation and construction stages, stockpiles and all necessary tree protection fencing. Consultation with the project arborist is recommended.

MTE Response: A Construction Traffic Management Plan (CTMP) is typically detailed after the Development Application stage prior to construction and as part of a consent condition, where a builder would be engaged. An indicative CTMP for the DA stage has been provided in **Section 6**.

It has been advised that a construction plan with stockpiles and tree protection fencing details will not be available prior to a builder being engaged at the post DA stage. However, it has been advised that it is expected that there will be sediment control fencing on the property boundary, no stockpiles within the “SRZ” of trees in the front setback and stockpiles to be located roughly near the building line.

6 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Typically, after the development application stage a detailed Construction Traffic Management Plan is provided at the construction certificate stage prior to construction and as part of a consent condition, to be approved by Council. Once a builder has been engaged, confirmation of the number of staff and construction vehicles can be provided and assessed (if required). Construction vehicular traffic is temporary in nature and is not expected to exceed the operating capacities of nearby intersections or be substantially greater than the assessed operation of the proposed development as detailed within this report.

Generally during construction, staff traffic will arrive to the site around 7:00am and depart the site around 5:00pm (or earlier), Monday to Saturday, with construction deliveries occurring throughout the day. Considering the location and constraint of the site and surrounding environs, it is expected that all staff car parking will utilise the existing on-street kerbside parking on Charlton Avenue and Princes Street, until such time as the undercover car park is available to utilise for car parking by staff. There are various options available for construction vehicles, depending on how the builder is proposing to construct the development. The following options are available for construction vehicle deliveries:

- Access the site via Charlton Avenue (proposed site driveway location or similar);
- Utilise a Works Zone along Charlton Avenue where available subject to approval by Council's Local Traffic Committee.

The site manager is to promote the use of carpooling amongst staff and public transport usage to reduce the construction staff parking demand. It is highly unlikely that heavy construction traffic in conjunction with staff traffic will exceed the assessed 98 peak hour vehicle movements.

Once a builder is engaged, the above potential access methodologies (or similar) of the build will be detailed within a detailed Construction Traffic Management Plan (CTMP), to be approved by Council.

Appropriate Type A & B hoarding will be implemented where required, with pedestrians detoured away from the construction site / construction vehicle access points where considered necessary. All construction vehicles will enter and exit the site in a forward direction. Based upon indicative swept path testing (see **Figure 4**), construction vehicles up to and including a 12.5m length Heavy Rigid Vehicle could be able to enter and exit the site in a forward direction, subject to construction and site details at the post-DA stage.

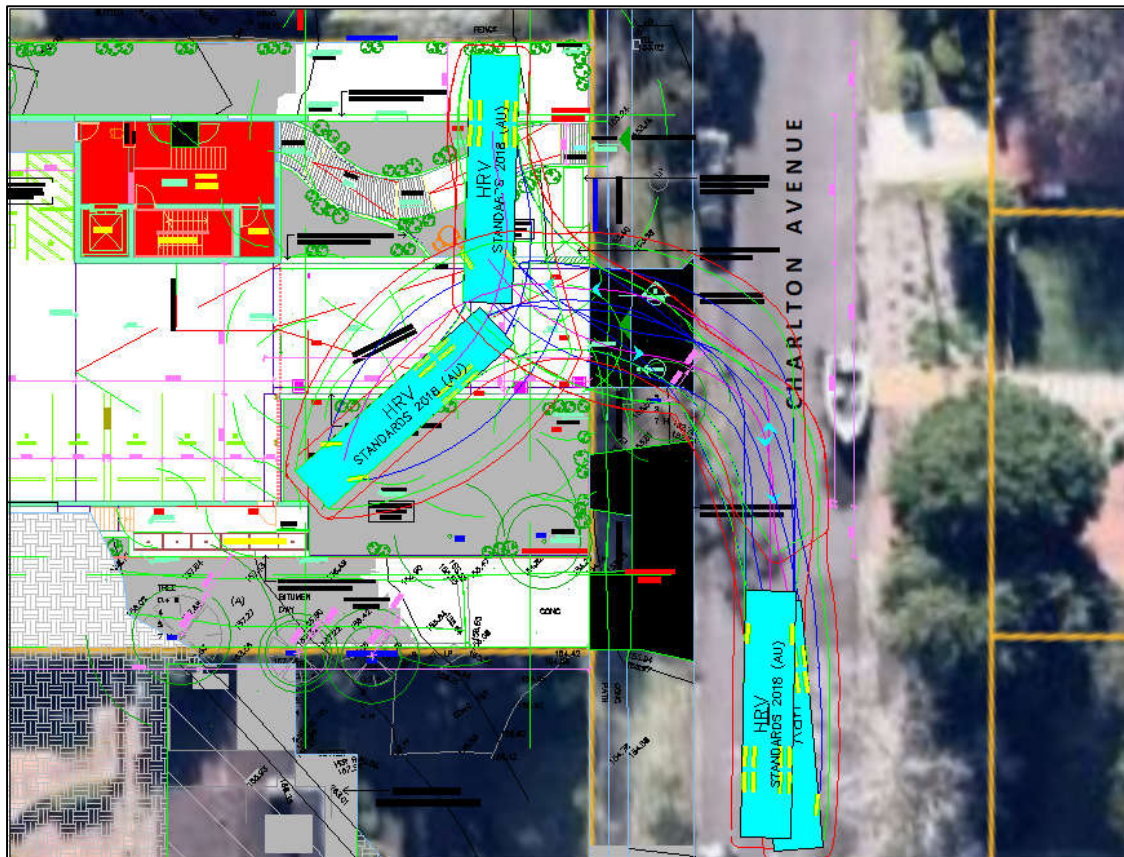


FIGURE 4: INDICATIVE 12.5M LENGTH HRV SWEEP PATH

There will be no impact to existing public transport facilities, namely bus and train facilities. Temporary loss of parking may occur if a Works Zone is mandatory for the construction of the development, but this will be subject to approval by Council's Local Traffic Committee once a detailed Construction Traffic Management has been submitted, as part of the conditions of consent.

In the event that a mobile crane / tower crane is required for the site, it is expected that this will be delivered to the site outside of peak operating hours of the town centre (i.e. after 9:00pm), such that it can be installed from Charlton Avenue. The delivery and approval of any mobile crane / tower crane is subject to a separate application to Council as part of the Construction Traffic Management Plan.

It is expected that site amenities will be located wholly within the site, with all persons entering the site required to report to the site office and be inducted into the site prior to entering the construction site as per standard Work Health and Safety requirements.

The haulage route for construction vehicles will be assessed within the detailed Construction Traffic Management Plan, but construction vehicle access will likely be via Charlton Avenue, Pentecost Avenue and then Mona Vale Road which is the nearest arterial and TfNSW State Classified road (No. 162).

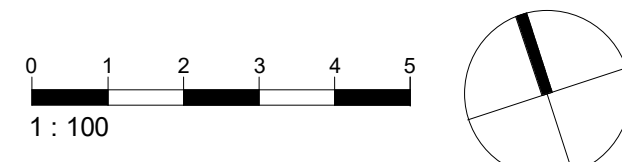
7 CONCLUSION

In view of the foregoing, the subject Child Care Centre proposal at 4B and 8 Charlton Avenue, Turrumurra (as depicted in **Annexure A**) is fully supportable in terms of its traffic and parking impacts. The following outcomes of this traffic and parking impact assessment are relevant to note:

- a) The proposal includes the provision of **30** car parking spaces within a proposed carpark, comprised of **19** for parent / visitor use and **11** for staff use, satisfying the minimum total requirement of **29** spaces of the KDCP 2024 requirements.
- b) The KDCP 2024 requires the provision of two (2) staff bicycle parking spaces. Four (**4**) bicycle parking spaces have been provided in plans, complying with the KDCP 2024 requirements.
- c) The KDCP 2024 does not require the provision of motorcycle parking. Nil (0) motorcycle parking facilities have been provided, satisfying KDCP 2024 requirements.
- d) The waste will be collected within the at-grade parking area via a collection vehicle of a size up to and including a 6.4m length Small Rigid Vehicle (SRV) in accordance with *AS2890.2:2018*. The waste collection will be managed such that the waste will be collected outside of operating hours of the child care centre where the visitor car parking spaces within the undercover car parking area will be vacant. Swept path testing has been undertaken with results provided in **Annexure D** which indicates that SRVs can successfully access the site. A headroom striker bar shall be detailed during the detailed design stage following a DA approval to prevent heavy vehicles above 2.9m in height from travelling into restricted headroom areas of the undercover parking.
- e) The parking areas of the site have been assessed against the relevant sections of *AS2890.1:2004*, *AS2890.2:2018* and *AS2890.6:2022* and have been found to satisfy the objectives of each standard subject to any required changes outlined in **Section 3.6**. Swept path testing has been undertaken and the results are reproduced within **Annexure D**.
- f) The traffic generation of the proposed development has been estimated to be some **98** trips in the AM peak period (49 in, 49 out) and **96** trips in the PM peak period (48 in, 48 out). The impacts of the traffic generation have been modelled using SIDRA INTERSECTION 9.1, indicating that there will be no adverse impact to the performance of the intersections as a result of the generated traffic.



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



GENERAL NOTES

- ALL EXISTING BUILDING ELEMENTS TO BE CHECKED ON SITE U.N.O
- DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U. N.O
- REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
- REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
- KITCHEN AREA TO BE ACCORDANCE WITH NSW AS4674, FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.

ABBREVIATIONS

ENG.	- ENGINEER
ESL	- EXISTING SLAB LEVEL
EXT	- EXTERIOR
FFL	- FINISH FLOOR LEVEL
F.	- FIXED
FSL	- FINISH SURFACE LEVEL
GL	- GROUND LINE
GLZ	- GLAZING
EX.GL	- EXISTING GROUND LINE
REQ.	- REQUIREMENTS
	- PROPOSED LEVEL
	- EXISTING LEVEL
	- SPOT LEVEL (PLAN)
	- SPOT LEVEL (ELEVATION)

LANDSCAPE LEGEND

-
-  EXISTING TREE / TREE TO BE RETAINED
 TREE TO BE REMOVED
 NEW TREE
 LANDSCAPING / BUFFER
 INDICATIVE EXTENT OF BIO-DIVERSITY AREA
 TURF / ARTIFICIAL TURF
 EXTERNAL FLOOR FINISH
 --- LINE OF STRUCTURAL ROOT ZONE (SRZ)
 --- LINE OF TREE EXCLUSION ZONE (TEZ)
 --- LINE OF TREE PROTECTION ZONE (TPZ)
 NOTE: REFER TO ARBORIST REPORT FOR FURTHER DETAILS

B	12.09.25	ISSUED FOR D.A. - COUNCIL #F1
A	30.08.24	ISSUED FOR DEVELOPMENT APPLICATION
ISSUE	DATE	DESCRIPTION
ASSOCIATED CONSULTANTS		
PLANNER		AVENUE TOWN PLANNING
ACCESS		ERIGNO
ACOUSTIC		DAN DESIGN
ARBOREST		CPS
LANDSCAPE		CPS
STORMWATER		NY CIVIL ENGINEERING
WASTE		DICKENS SOLUTIONS
TRAFFIC		MCLEAREN TRAFFIC ENGINEERING

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CHILD CARE CENTRE

2074

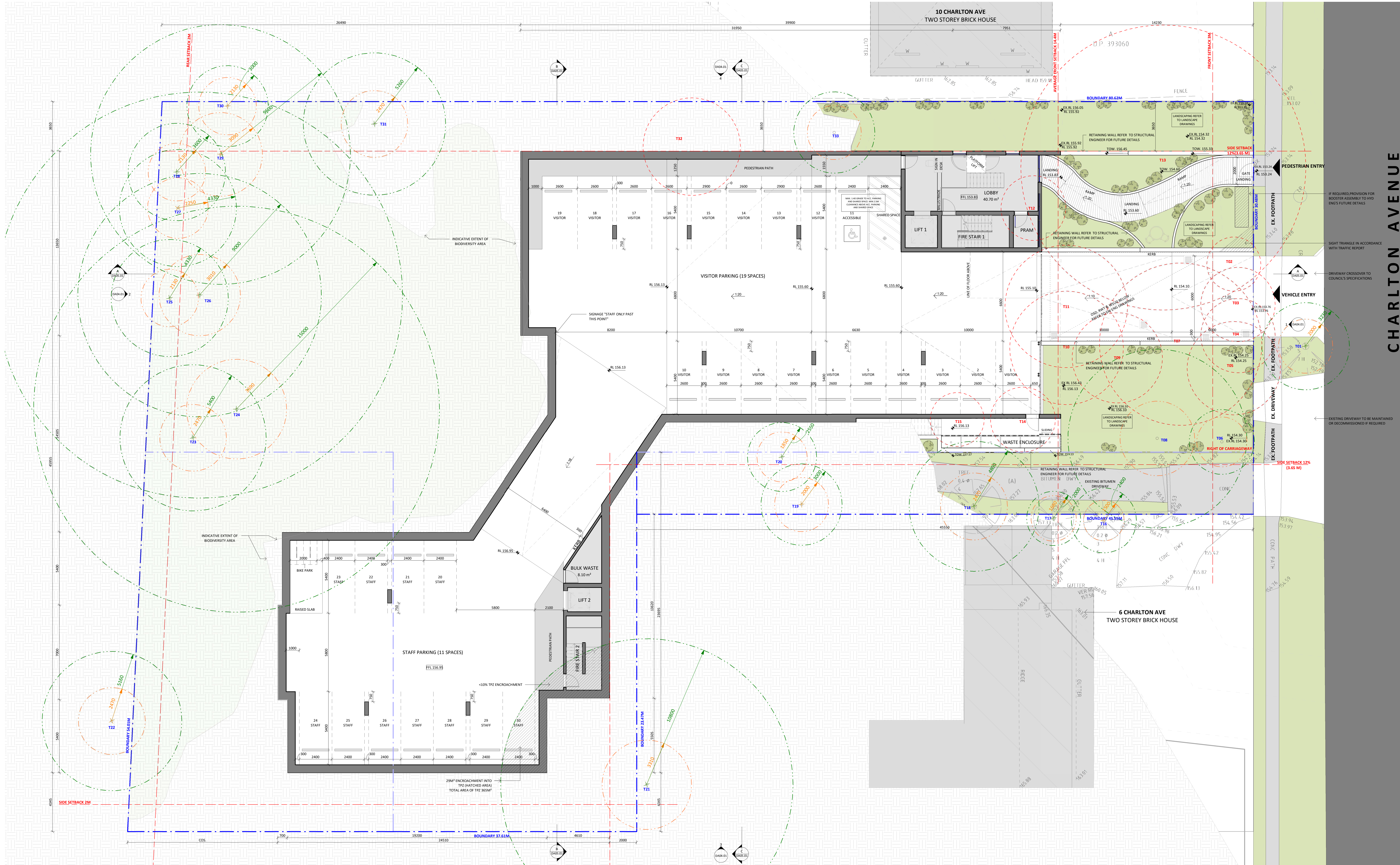
SHEET NAME

ISSUED FOR DEVELOPMENT APPLICATION

Project number	Sheet No.	Issue	Phase
24738	DA02.01	B	DA

Sheet Size	Scale	L.G.A.
A0	As Indicated	KU-RING-GAI

NOT FOR CONSTRUCTION



GENERAL NOTES

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- DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U.N.O
- REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
- REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
- KITCHEN AREA TO BE ACCORDANCE WITH NSW AS/NZS FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.

ABBREVIATIONS

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ESL	- EXISTING SLAB LEVEL
EXT	- EXTERIOR
F.FL	- FINISH FLOOR LEVEL
F.	- FIXED
P.SL	- FINISH SURFACE LEVEL
GL	- GROUND LINE
GLZ	- GLAZING
EX-GL	- EXISTING GROUND LINE
REQ.	- REQUIREMENTS
XXXX	- PROPOSED LEVEL
XXXX	- EXISTING LEVEL
XXXX	- SPOT LEVEL (PLAN)
XXXX	- SPOT LEVEL (ELEVATION)

LANDSCAPE LEGEND

- EXISTING TREE / TREE TO BE RETAINED
 - TREE TO BE REMOVED
 - NEW TREE
 - LANDSCAPING / BUFFER
 - INDICATIVE EXTENT OF BIODIVERSITY AREA
 - TURF / ARTIFICIAL TURF
 - EXTERNAL FLOOR FINISH
 - LINE OF STRUCTURAL ROOT ZONE (SRZ)
 - LINE OF TREE EXCLUSION ZONE (TEZ)
 - LINE OF TREE PROTECTION ZONE (TPZ)
- NOTE: REFER TO DEMONSTRATION REPORT FOR FURTHER DETAILS

B	12.09.25	ISSUED FOR DA - COUNCIL REF
A	30.08.24	ISSUED FOR DEVELOPMENT APPLICATION
DATE		DESCRIPTION
ASSOCIATED CONSULTANTS		
PLANNER	AVENUE TOWN PLANNING	
ACCESS	ERSON	
ACOUSTIC	DAY DESIGN	
ARCHITECT	CPS	
LANDSCAPE	CPS	
STORMWATER	BY CIVIL ENGINEERING	
WASTE	DRINKING SOLUTION	
TRAFFIC	MULLEN TRAFFIC ENGINEERING	

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ARCHITECT
Armada
Architects

1518/201 High St, Surry Hills NSW 2010
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PROJECT
WAKEFIELD INTERNATIONAL
BUSINESS SCHOOL

PROJECT ADDRESS
4B & 8 CHARLTON AVE, TURRAMURRA
2074

SHEET NAME
LOWER GROUND FLOOR PLAN

ISSUED FOR DEVELOPMENT APPLICATION

Project number: 24738
Sheet No: DA03.01
Issue: B
Date: 12.09.25

Sheet Size: A0
Scale: As indicated
L.G.A.: KU-RING-GAI

Drawn By: KG
Checked By: BR/AS
Date: 12.09.25

NOT FOR CONSTRUCTION

PARKING SCHEDULE (1 PER 2 STAFF & 1 PER 6 CHURN DCP RATES)			
PARKING		NO. SPACES	
ACCESSIBLE		1	
STAFF		11	
VISITOR		18	
TOTAL		30	

INDOOR PLAYROOM SCHEDULE			
ROOM	AGE	NO. CHILDREN	UNENCUMBERED AREA
PLAYROOM 1	AGE 2-3	30	67.5 m ²
PLAYROOM 2	AGE 2-3	30	67.5 m ²
PLAYROOM 3	AGE 3-5	20	65 m ²
PLAYROOM 4	AGE 3-5	20	65 m ²
PLAYROOM 5	AGE 3-5	20	65 m ²
PLAYROOM 6	AGE 3-5	20	65 m ²
PLAYROOM 7	AGE 3-5	20	65 m ²
TOTAL		120	390 m ²

INTERNAL STORAGE SCHEDULE			
NAME	NO. CHILDREN	REQ. VOL.	VOL.
INT ST 1	30	4.00 m ³	7.40 m ³
INT ST 2	20	4.00 m ³	5.00 m ³
INT ST 3	20	4.00 m ³	4.30 m ³
INT ST 4	20	4.00 m ³	4.30 m ³
INT ST 5	10	2.00 m ³	2.00 m ³
INT ST 6	20	4.00 m ³	4.30 m ³
INT ST 7	20	4.00 m ³	4.30 m ³
TOTAL	120	24.00 m ³	35.70 m ³

OUTDOOR PLAY AREA SCHEDULE			
AREA	AGE	NO. CHILDREN	UNENCUMBERED AREA
OUTDOOR PLAY AREA 1	AGE 0-3	35	245 m ²
OUTDOOR PLAY AREA 2	AGE 0-3	35	245 m ²
OUTDOOR PLAY AREA 3	AGE 3-5	20	140 m ²
OUTDOOR PLAY AREA 4	AGE 3-5	30	210 m ²
OUTDOOR PLAY AREA 5	AGE 3-5	10	70 m ²
OUTDOOR PLAY AREA 6	AGE 3-5	10	70 m ²
TOTAL		120	930.55 m ²

EXTERNAL STORAGE SCHEDULE			
NAME	NO. CHILDREN	REQ. VOL.	VOL.
EXT ST 1	50	3.00 m ³	3.80 m ³
EXT ST 2	20	4.00 m ³	6.20 m ³
EXT ST 3	50	15.00 m ³	16.70 m ³
EXT ST 4	40	12.00 m ³	28.75 m ³
TOTAL	120	34.00 m ³	55.45 m ³



GENERAL NOTES

- ALL EXISTING BUILDING ELEMENTS TO BE CHECKED ON SITE U.N.O.
- DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U.N.O.
- REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
- REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
- KITCHEN AREA TO BE ACCORDANCE WITH NSW AS/NZS FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.

ABBREVIATIONS

- | | |
|-------|--------------------------|
| ENG. | - ENGINEER |
| ESL | - EXISTING SLAB LEVEL |
| EXT | - EXTERIOR |
| F.FL | - FINISH FLOOR LEVEL |
| F. | - FIXED |
| P.SL | - FINISH SURFACE LEVEL |
| GL | - GROUND LINE |
| GLZ | - GLAZING |
| EX-GL | - EXISTING GROUND LINE |
| REQ. | - REQUIREMENTS |
| XXXX | - PROPOSED LEVEL |
| XXXX | - EXISTING LEVEL |
| XXXX | - SPOT LEVEL (PLAN) |
| XXXX | - SPOT LEVEL (ELEVATION) |

LANDSCAPE LEGEND

- EXISTING TREE / TREE TO BE RETAINED
 - TREE TO BE REMOVED
 - NEW TREE
 - LANDSCAPING / BUFFER
 - INDICATIVE EXTENT OF BIODIVERSITY AREA
 - TURF / ARTIFICIAL TURF
 - EXTERNAL FLOOR FINISH
 - LINE OF STRUCTURAL ROOT ZONE (SRZ)
 - LINE OF TREE EXCLUSION ZONE (TEZ)
 - LINE OF TREE PROTECTION ZONE (TPZ)
- NOTE: REFER TO ARBORIST REPORT FOR FURTHER DETAILS

B	12.09.25	ISSUED FOR DA - COUNCIL REF
A	30.08.24	ISSUED FOR DEVELOPMENT APPLICATION
DATE		DESCRIPTION
ASSOCIATED CONSULTANTS		
PLANNER	AVENUE TOWN PLANNING	
ACCESS	ERRODA	
ACOUSTIC	DAY DESIGN	
ARBOREST	CPS	
LANDSCAPE	CPS	
STORMWATER	MY CIVIL ENGINEERING	
WASTE	DRINKING SOLUTIONS	
TRAFFIC	MULLEN TRAFFIC ENGINEERING	

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PROJECT
CHILDCARE CENTRE

PROJECT ADDRESS
4B & 8 CHARLTON AVE, TURRAMURRA
2074

SHEET NAME
GROUND FLOOR PLAN

ISSUED FOR DEVELOPMENT APPLICATION
Project number Sheet No. Issue Phase
24738 DA03.02 B DA

Sheet Size Scale L.G.A.
A0 As indicated KU-RING-GAI
Drawn By Checked By Date
KG BR/AS 12.09.25

NOT FOR CONSTRUCTION

- FENCE LEGEND
- 1.2M BOUNDARY FENCE (REFER TO D3)
 - 1.39M HT ACOUSTIC BARRIER ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D2)
 - 1.8M HIGH ACOUSTIC BARRIER ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D3)
 - 1.8M HIGH ACOUSTIC BARRIER ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D2)
 - 1.8M HIGH ACOUSTIC BARRIER (ON RETAINING WALL) ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D3)
 - 1.8M HIGH ACOUSTIC BARRIER ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D2)
 - 1.8M BOUNDARY FENCE (REFER TO D3)
 - 2.1M HIGH ACOUSTIC BARRIER ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D2)
 - 2.1M HIGH ACOUSTIC BARRIER (ON RETAINING WALL) ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D3)
 - 2.3M HIGH ACOUSTIC BARRIER ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D2)
 - 2.4M HIGH ACOUSTIC BARRIER (ON RETAINING WALL) ABOVE GROUND LEVEL OF OUTDOOR PLAY AREA (REFER TO D3)

NOTE:
ALL ACOUSTIC BARRIERS IN ACCORDANCE WITH ACOUSTIC REPORT.
REFER TO SHEET DA03.03 FOR FENCE DETAILS.

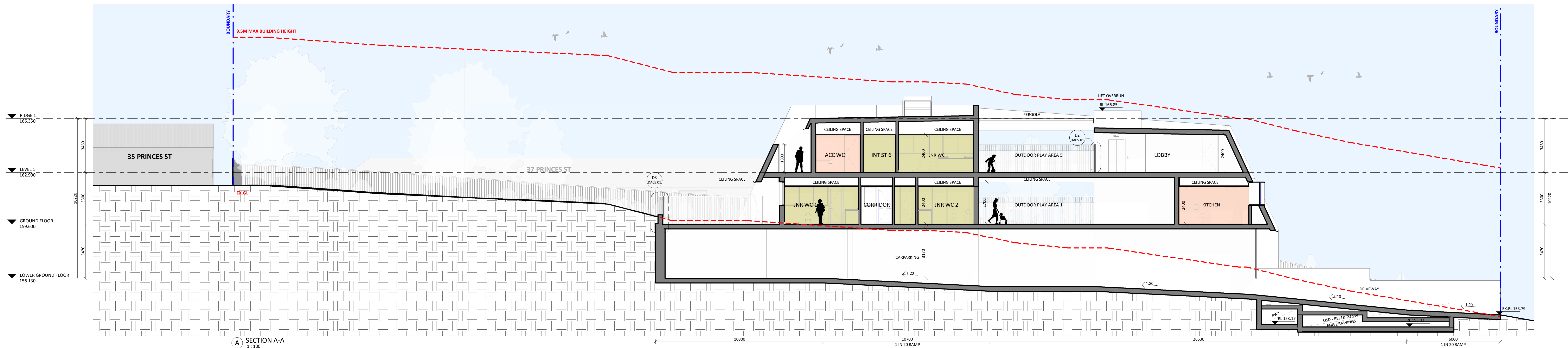
PARKING SCHEDULE (1 PER 2 STAFF & 1 PER 6 CHILDRN DCP RATES)			
ACCESSIBLE		NO. SPACES	
STAFF		11	
VISITOR		18	
TOTAL		30	

INDOOR PLAYROOM SCHEDULE					
ROOM	AGE	NO. CHILDRN	NO. STAFF	UNENCLUMBERED REQ. AREA	UNENCLUMBERED AREA
PLAYROOM 1	AGE 2-3	30	6	97.5 m ²	99.55 m ²
PLAYROOM 2	AGE 0-2	30	5	65 m ²	66.95 m ²
PLAYROOM 3	AGE 3-5	20	2	65 m ²	66.65 m ²
PLAYROOM 4	AGE 3-5	20	2	65 m ²	67.35 m ²
PLAYROOM 5	AGE 3-5	10	1	32.5 m ²	40.55 m ²
PLAYROOM 6	AGE 3-5	20	2	65 m ²	66.65 m ²
TOTAL		120	18	390 m ²	410.65 m ²

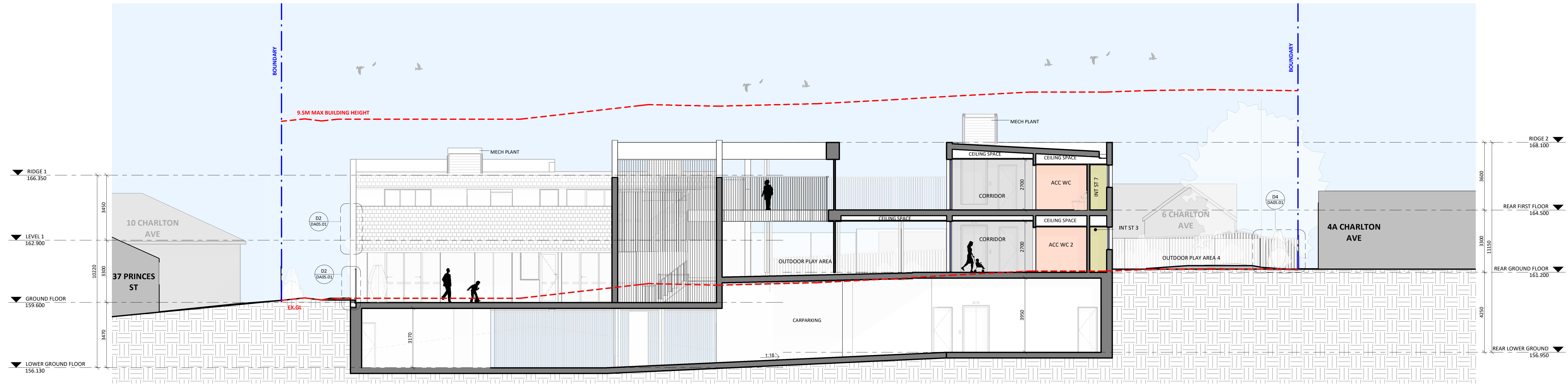
INTERNAL STORAGE SCHEDULE					
NAME	NO. CHILDRN	REQ. VOL.	VOL.		
INT ST 1	30	6.00 m ³	7.40 m ³		
INT ST 2	20	4.00 m ³	5.00 m ³		
INT ST 3	20	4.00 m ³	4.30 m ³		
INT ST 4	20	4.00 m ³	4.00 m ³		
INT ST 5	10	2.00 m ³	5.00 m ³		
INT ST 6	20	4.00 m ³	4.15 m ³		
TOTAL		120	24.00 m ³	35.70 m ³	

OUTDOOR PLAY AREA SCHEDULE					
AREA	AGE	NO. CHILDRN	REQ. AREA	UNENCLUMBERED AREA	
OUTDOOR PLAY AREA 1	AGE 0-3	35	245 m ²	247.60 m ²	
OUTDOOR PLAY AREA 2	AGE 0-3	15	100 m ²	102.00 m ²	
OUTDOOR PLAY AREA 3	AGE 3-5	20	140 m ²	146.40 m ²	
OUTDOOR PLAY AREA 4	AGE 3-5	30	210 m ²	212.10 m ²	
OUTDOOR PLAY AREA 5	AGE 3-5	10	70 m ²	108.70 m ²	
OUTDOOR PLAY AREA 6	AGE 3-5	10	70 m ²	66.80 m ²	
TOTAL		120	840 m ²	933.55 m ²	

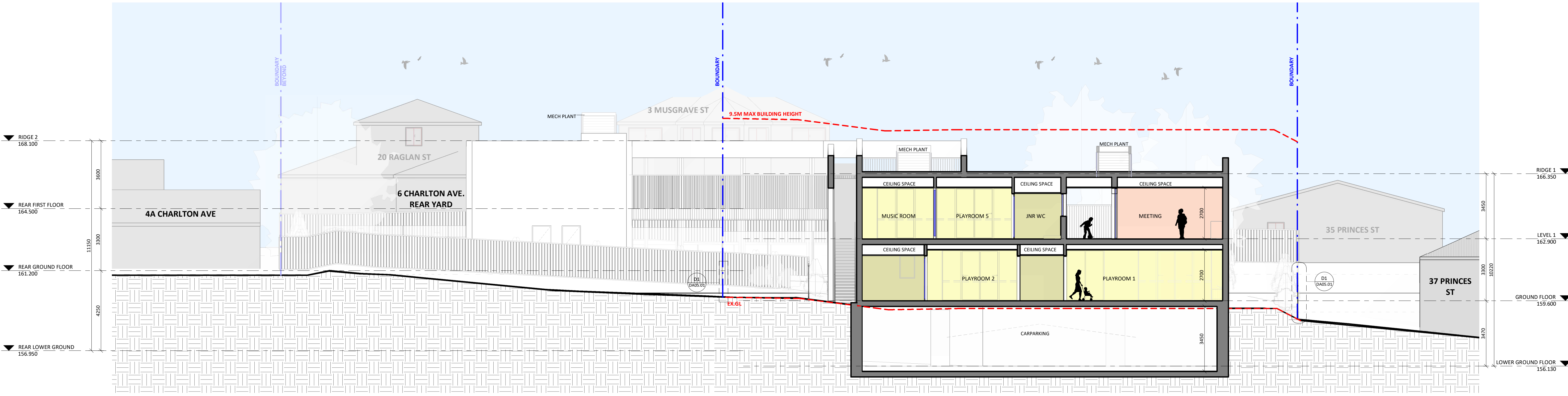
EXTERNAL STORAGE SCHEDULE					
NAME	NO. CHILDRN	REQ. VOL.	VOL.		
EXT ST 1	50	3.00 m ³	3.80 m ³		
EXT ST 2	20	6.00 m ³	6.20 m ³		
EXT ST 3	50	15.00 m ³	16.70 m ³		
EXT ST 4	40	12.00 m ³	28.75 m ³		
TOTAL		120	36.00 m ³	55.45 m ³	



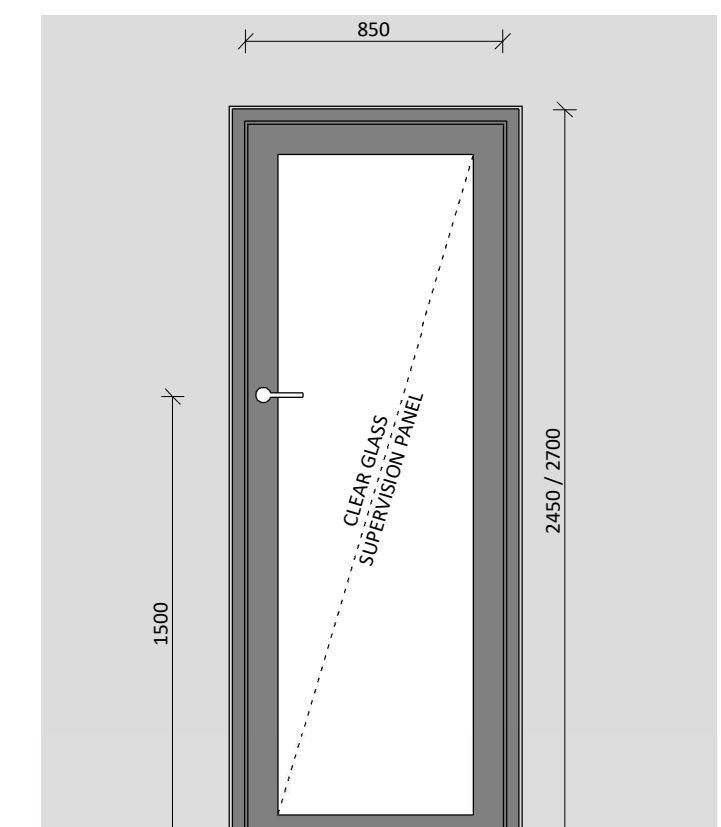
A SECTION A-A
1: 100



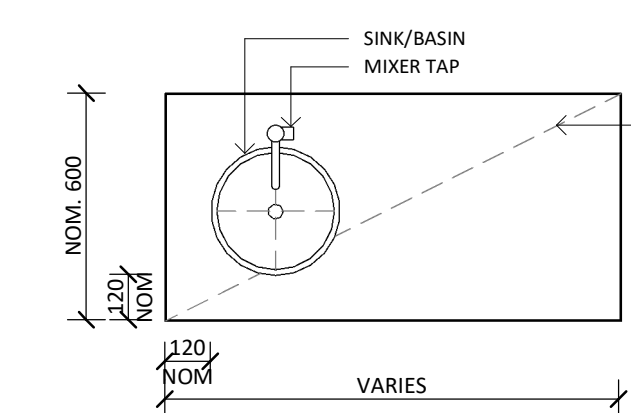
B SECTION B-B
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C SECTION C-C
1: 100



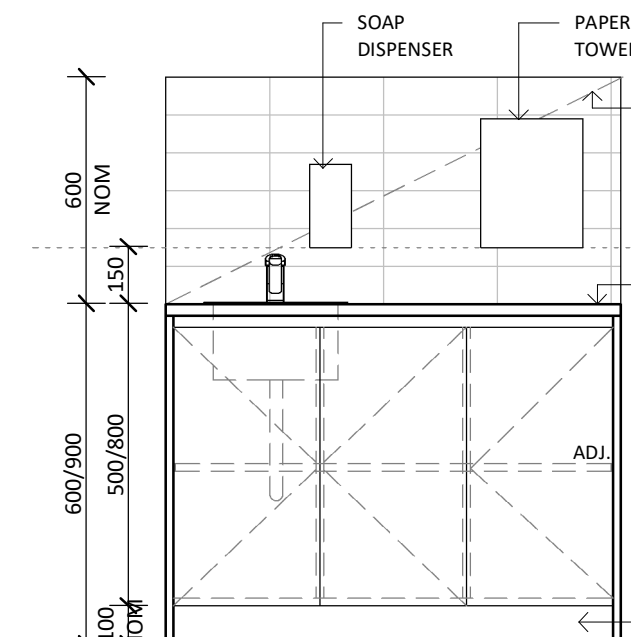
TYP GLASS DOORS TO COT ROOMS, JNR WC



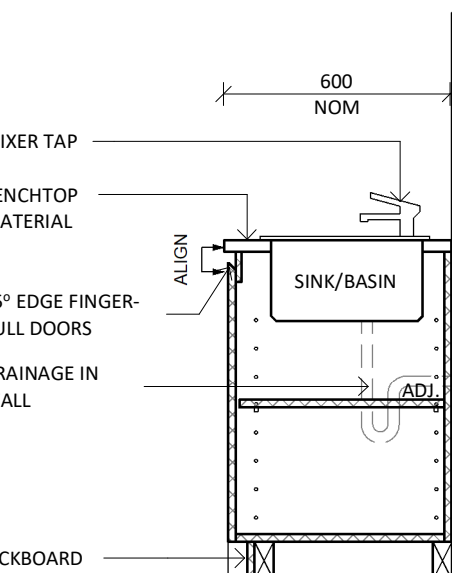
TYPICAL CRAFT SINK - PLAN



TYPICAL CRAFT SINK - SECTION



TYPICAL CRAFT SINK - ELEVATION



TYPICAL CRAFT SINK - SECTION

ISSUE	DATE	ISSUED FOR DEVELOPMENT APPLICATION	DESCRIPTION
A	30.08.24	ISSUED FOR DEVELOPMENT APPLICATION	
ASSOCIATED CONSULTANTS			
PLANNER	AVENUE TOWN PLANNING		
ACCESS	ERGOA		
ACOUSTIC	DAY DESIGN		
LANDSCAPE	EPS		
STORMWATER	BY CIVIL ENGINEERING		
WASTE	EXCISING SOLUTIONS		
TRAFFIC	MULHENS TRAFFIC ENGINEERING		

NOTES

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- 2. All work to conform to relevant Australian Standards & Codes as applicable.
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ARCHITECT
Armada Architects

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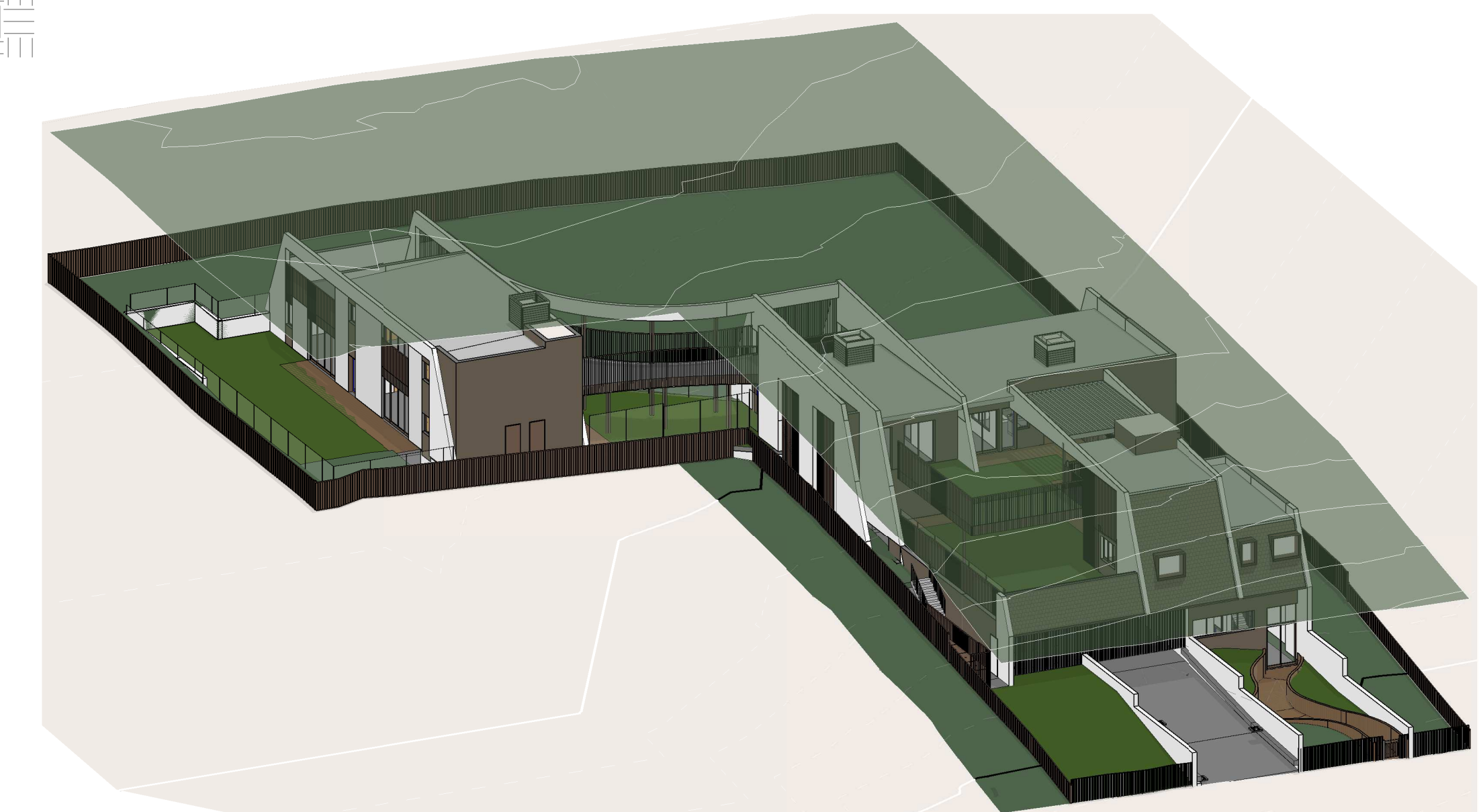
PROJECT
CHILDCARE CENTRE

PROJECT ADDRESS
4B & 8 CHARLTON AVE, TURRAMURRA
2074

SHEET NAME
SECTIONS & TYP DETAILS

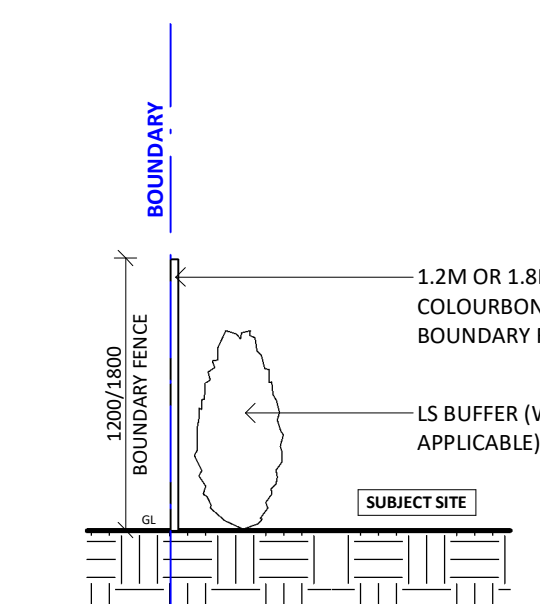
ISSUED FOR DEVELOPMENT APPLICATION	Project number	Sheet No.	Issue	Phase
24738	DA05.01	B	DA	

Sheet Size	Scale	L.G.A.
A0	As indicated	KU-RING-GAI
Drawn By	Checked By	Date
KG	BR/AS	12.09.25

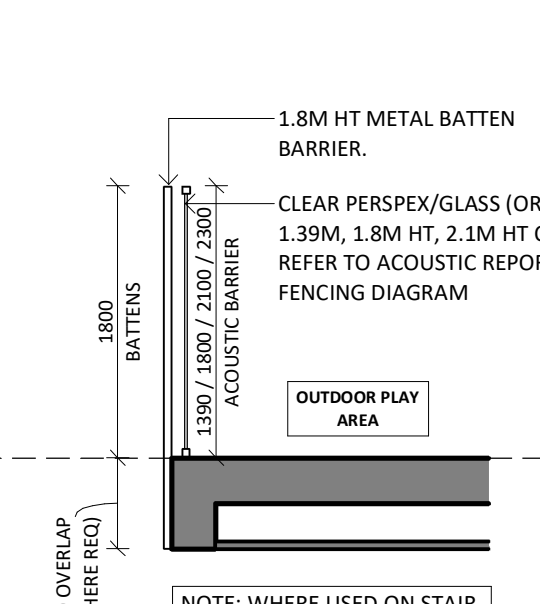


9.5M HEIGHT DIAGRAM

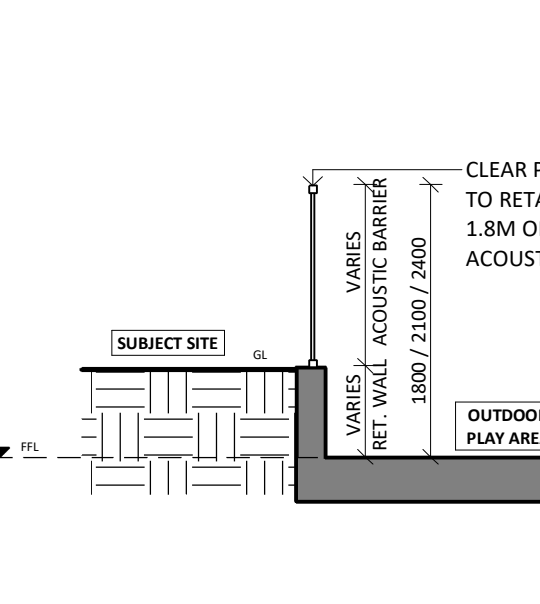
NOT FOR CONSTRUCTION



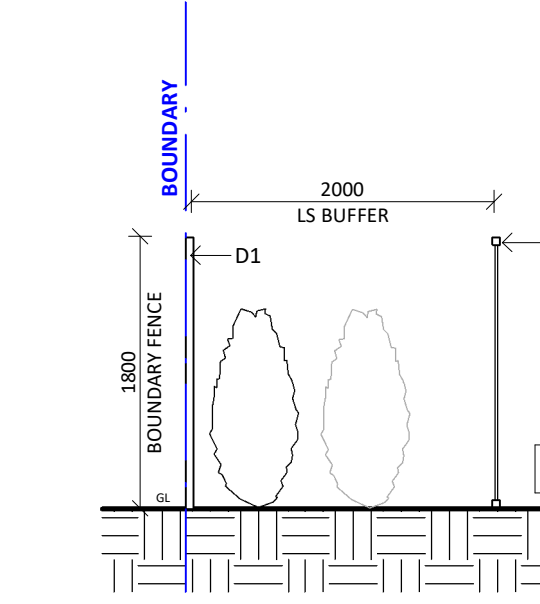
D1 TYP BOUNDARY FENCE 1
1: 50



D2 TYP ACOUSTIC BARRIER 1
1: 50



D3 TYP ACOUSTIC BARRIER 2
1: 50



D4 TYP ACOUSTIC FENCE 4
1: 50



**ANNEXURE B: TRAFFIC SURVEY DATA
(2 SHEETS)**

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Princes St and Charlton Ave, Turrumurra

GPS -33.728528, 151.146449

Date:	Wed 12/10/22
Weather:	Fine
Suburban:	Turrumurra
Customer:	McLaren

North:	Charlton Ave
East:	N/A
South:	Charlton Ave
West:	Princes St

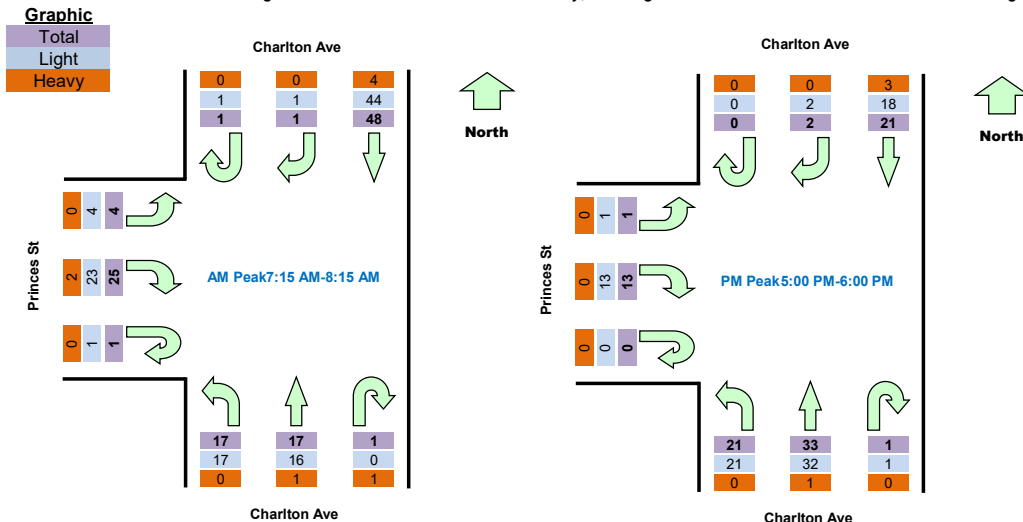
Survey Period	AM: 7:00 AM-9:30 AM
	PM: 2:30 PM-6:00 PM
Traffic Peak	AM: 7:15 AM-8:15 AM
	PM: 5:00 PM-6:00 PM

All Vehicles

Time		North Approach Charlton Av			South Approach Charlton Av			West Approach Princes St			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
7:00	7:15	1	1	6	0	7	2	0	5	0	113	
7:15	7:30	1	0	5	0	4	4	1	6	0	115	Peak
7:30	7:45	0	1	25	0	4	7	0	6	1	110	
7:45	8:00	0	0	10	1	5	3	0	5	2	95	
8:00	8:15	0	0	8	0	4	3	0	8	1	92	
8:15	8:30	0	1	6	1	2	1	0	5	0	84	
8:30	8:45	0	2	9	1	5	6	0	5	1	85	
8:45	9:00	0	0	6	1	5	5	0	5	1		
9:00	9:15	0	0	6	0	2	2	0	6	0		
9:15	9:30	0	0	5	1	4	0	0	7	0		
14:30	14:45	0	0	5	1	5	6	0	4	0	68	
14:45	15:00	0	0	2	0	6	6	0	4	0	74	
15:00	15:15	0	0	1	0	4	2	0	1	0	77	
15:15	15:30	0	0	4	0	8	4	0	5	0	87	
15:30	15:45	0	0	6	2	8	3	0	8	0	85	
15:45	16:00	0	0	2	0	3	8	0	7	1	75	
16:00	16:15	0	1	4	0	4	6	0	3	0	73	
16:15	16:30	0	0	4	1	7	3	0	4	0	72	
16:30	16:45	0	0	5	0	7	2	0	3	0	72	
16:45	17:00	0	0	2	0	5	7	0	5	0	80	
17:00	17:15	0	0	3	0	6	4	0	4	0	92	Peak
17:15	17:30	0	0	10	1	1	5	0	2	0		
17:30	17:45	0	1	5	0	12	4	0	2	1		
17:45	18:00	0	1	3	0	14	8	0	5	0		

Peak Time		North Approach Charlton Av			South Approach Charlton Av			West Approach Princes St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
7:15	8:15	1	1	48	1	17	17	1	25	4	115
17:00	18:00	0	2	21	1	33	21	0	13	1	92

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



TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Pentecost Ave and Charlton Ave, Turrumbidgee

GPS -33.730578, 151.145946

Date:	Wed 12/10/22
Weather:	Fine
Suburban:	Turrumbidgee
Customer:	McLaren

North:	Charlton Ave
East:	Pentecost Ave
South:	N/A
West:	Pentecost Ave

Survey Period	AM: 7:00 AM-9:30 AM
	PM: 2:30 PM-6:00 PM
Traffic Peak	AM: 7:45 AM-8:45 AM
	PM: 3:00 PM-4:00 PM

All Vehicles

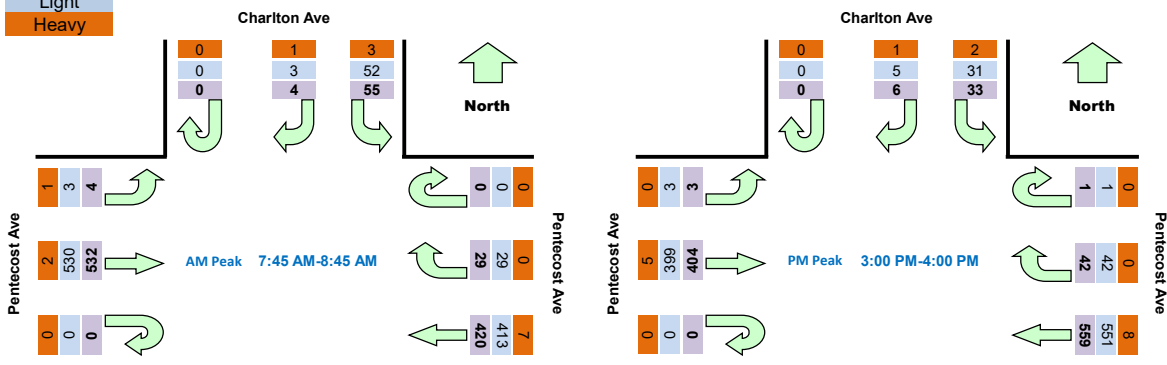
Time		North Approach Charlton Ave			East Approach Pentecost Av			West Approach Pentecost Av			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	0	12	0	7	39	0	50	2	741	
7:15	7:30	0	1	10	0	6	50	0	89	2	917	
7:30	7:45	0	3	32	0	10	69	0	98	0	1004	
7:45	8:00	0	1	14	0	8	120	0	116	2	1044	Peak
8:00	8:15	0	1	16	0	8	109	0	151	1	1026	
8:15	8:30	0	1	11	0	3	101	0	129	0	929	
8:30	8:45	0	1	14	0	10	90	0	136	1	806	
8:45	9:00	0	0	13	0	10	76	0	144	0		
9:00	9:15	0	2	12	0	4	63	0	106	2		
9:15	9:30	0	0	14	0	4	46	0	57	1		
14:30	14:45	0	2	9	0	10	111	0	58	1	900	
14:45	15:00	0	0	7	0	11	111	0	72	1	995	
15:00	15:15	0	1	2	0	7	114	0	108	0	1048	Peak
15:15	15:30	0	1	9	0	12	141	0	111	1	1040	
15:30	15:45	0	2	13	1	13	168	0	89	0	995	
15:45	16:00	0	2	9	0	10	136	0	96	2	923	
16:00	16:15	0	0	5	0	8	125	0	84	2	924	
16:15	16:30	0	0	9	0	12	160	0	47	2	920	
16:30	16:45	0	0	7	0	9	138	0	60	0	943	
16:45	17:00	0	0	8	1	11	160	0	75	1	991	
17:00	17:15	0	0	7	0	10	147	0	56	0	996	
17:15	17:30	0	2	12	0	7	155	0	76	1		
17:30	17:45	0	0	8	0	15	170	0	67	2		
17:45	18:00	0	0	8	0	22	161	0	70	0		

Peak Time		North Approach Charlton Ave			East Approach Pentecost Av			West Approach Pentecost Av			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
7:45	8:45	0	4	55	0	29	420	0	532	4	1044
15:00	16:00	0	6	33	1	42	559	0	404	3	1048

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

Graphic

Total
Light
Heavy





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

MOVEMENT SUMMARY

Site: 101 [Princes Street / Charlton Avenue - EX AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Princes Street / Charlton Avenue
Existing Conditions
AM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Charlton Avenue (S)															
1	L2	All MCs	18	0.0	18	0.0	0.018	4.6	LOS A	0.0	0.0	0.00	0.27	0.00	47.3
2	T1	All MCs	18	5.9	18	5.9	0.018	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	48.4
Approach			36	2.9	36	2.9	0.018	2.3	NA	0.0	0.0	0.00	0.27	0.00	47.8
North: Charlton Avenue (N)															
8	T1	All MCs	51	8.3	51	8.3	0.027	0.0	LOS A	0.0	0.0	0.01	0.01	0.01	49.9
9	R2	All MCs	1	0.0	1	0.0	0.027	4.6	LOS A	0.0	0.0	0.01	0.01	0.01	48.5
Approach			52	8.2	52	8.2	0.027	0.1	NA	0.0	0.0	0.01	0.01	0.01	49.9
West: Princes Street (W)															
10	L2	All MCs	4	0.0	4	0.0	0.025	4.6	LOS A	0.1	0.6	0.13	0.52	0.13	45.7
12	R2	All MCs	26	8.0	26	8.0	0.025	4.9	LOS A	0.1	0.6	0.13	0.52	0.13	45.4
Approach			31	6.9	31	6.9	0.025	4.9	LOS A	0.1	0.6	0.13	0.52	0.13	45.5
All Vehicles			118	6.3	118	6.3	0.027	2.0	NA	0.1	0.6	0.03	0.22	0.03	48.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Princes Street / Charlton Avenue - FU AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Princes Street / Charlton Avenue
Future Conditions
AM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h	%	veh/h	%	v/c	sec							km/h
South: Charlton Avenue (S)															
1	L2	All MCs	31	0.0	31	0.0	0.025	4.6	LOS A	0.0	0.0	0.00	0.34	0.00	46.9
2	T1	All MCs	18	5.9	18	5.9	0.025	0.0	LOS A	0.0	0.0	0.00	0.34	0.00	48.1
Approach			48	2.2	48	2.2	0.025	2.9	NA	0.0	0.0	0.00	0.34	0.00	47.3
North: Charlton Avenue (N)															
8	T1	All MCs	51	8.3	51	8.3	0.027	0.0	LOS A	0.0	0.0	0.01	0.01	0.01	49.9
9	R2	All MCs	1	0.0	1	0.0	0.027	4.6	LOS A	0.0	0.0	0.01	0.01	0.01	48.5
Approach			52	8.2	52	8.2	0.027	0.1	NA	0.0	0.0	0.01	0.01	0.01	49.9
West: Princes Street (W)															
10	L2	All MCs	4	0.0	4	0.0	0.036	4.6	LOS A	0.1	0.9	0.14	0.52	0.14	45.7
12	R2	All MCs	39	5.4	39	5.4	0.036	4.9	LOS A	0.1	0.9	0.14	0.52	0.14	45.4
Approach			43	4.9	43	4.9	0.036	4.9	LOS A	0.1	0.9	0.14	0.52	0.14	45.5
All Vehicles			143	5.1	143	5.1	0.036	2.5	NA	0.1	0.9	0.04	0.28	0.04	47.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Princes Street / Charlton Avenue - EX PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Princes Street / Charlton Avenue
Existing Conditions
PM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Charlton Avenue (S)															
1	L2	All MCs	22	0.0	22	0.0	0.029	4.6	LOS A	0.0	0.0	0.00	0.21	0.00	47.6
2	T1	All MCs	35	3.0	35	3.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	48.8
Approach			57	1.9	57	1.9	0.029	1.8	NA	0.0	0.0	0.00	0.21	0.00	48.3
North: Charlton Avenue (N)															
8	T1	All MCs	22	14.3	22	14.3	0.013	0.0	LOS A	0.0	0.1	0.03	0.05	0.03	49.6
9	R2	All MCs	2	0.0	2	0.0	0.013	4.6	LOS A	0.0	0.1	0.03	0.05	0.03	48.2
Approach			24	13.0	24	13.0	0.013	0.4	NA	0.0	0.1	0.03	0.05	0.03	49.5
West: Princes Street (W)															
10	L2	All MCs	1	0.0	1	0.0	0.012	4.7	LOS A	0.0	0.3	0.13	0.52	0.13	45.7
12	R2	All MCs	14	0.0	14	0.0	0.012	4.8	LOS A	0.0	0.3	0.13	0.52	0.13	45.5
Approach			15	0.0	15	0.0	0.012	4.8	LOS A	0.0	0.3	0.13	0.52	0.13	45.5
All Vehicles			96	4.4	96	4.4	0.029	1.9	NA	0.0	0.3	0.03	0.22	0.03	48.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Princes Street / Charlton Avenue - FU PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Princes Street / Charlton Avenue
Future Conditions
PM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
South: Charlton Avenue (S)															
1	L2	All MCs	33	0.0	33	0.0	0.034	4.6	LOS A	0.0	0.0	0.00	0.26	0.00	47.3
2	T1	All MCs	35	3.0	35	3.0	0.034	0.0	LOS A	0.0	0.0	0.00	0.26	0.00	48.5
Approach			67	1.6	67	1.6	0.034	2.2	NA	0.0	0.0	0.00	0.26	0.00	47.9
North: Charlton Avenue (N)															
8	T1	All MCs	22	14.3	22	14.3	0.013	0.0	LOS A	0.0	0.1	0.03	0.05	0.03	49.6
9	R2	All MCs	2	0.0	2	0.0	0.013	4.7	LOS A	0.0	0.1	0.03	0.05	0.03	48.2
Approach			24	13.0	24	13.0	0.013	0.4	NA	0.0	0.1	0.03	0.05	0.03	49.5
West: Princes Street (W)															
10	L2	All MCs	1	0.0	1	0.0	0.021	4.7	LOS A	0.1	0.5	0.14	0.52	0.14	45.6
12	R2	All MCs	24	0.0	24	0.0	0.021	4.8	LOS A	0.1	0.5	0.14	0.52	0.14	45.5
Approach			25	0.0	25	0.0	0.021	4.8	LOS A	0.1	0.5	0.14	0.52	0.14	45.5
All Vehicles			117	3.6	117	3.6	0.034	2.4	NA	0.1	0.5	0.04	0.27	0.04	47.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Charlton Avenue / Pentecost Avenue - EX AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Charlton Avenue / Pentecost Avenue
Existing Conditions
AM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
East: Pentecost Avenue (E)															
5	T1	All MCs	442	1.7	442	1.7	0.242	0.3	LOS A	0.4	2.6	0.11	0.12	0.11	49.5
6	R2	All MCs	31	0.0	31	0.0	0.242	7.3	LOS A	0.4	2.6	0.11	0.12	0.11	48.2
Approach			473	1.6	473	1.6	0.242	0.8	NA	0.4	2.6	0.11	0.12	0.11	49.4
North: Charlton Avenue (N)															
7	L2	All MCs	58	5.5	58	5.5	0.081	7.2	LOS A	0.3	2.1	0.54	0.72	0.54	44.1
9	R2	All MCs	4	25.0	4	25.0	0.081	16.1	LOS B	0.3	2.1	0.54	0.72	0.54	43.9
Approach			62	6.8	62	6.8	0.081	7.8	LOS A	0.3	2.1	0.54	0.72	0.54	44.1
West: Pentecost Avenue (W)															
10	L2	All MCs	4	25.0	4	25.0	0.267	4.9	LOS A	0.0	0.0	0.00	0.00	0.00	48.3
11	T1	All MCs	560	0.4	560	0.4	0.267	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			564	0.6	564	0.6	0.267	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles			1099	1.3	1099	1.3	0.267	0.8	NA	0.4	2.6	0.08	0.10	0.08	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Charlton Avenue / Pentecost Avenue - FU AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Charlton Avenue / Pentecost Avenue
Future Conditions
AM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
East: Pentecost Avenue (E)															
5	T1	All MCs	442	1.7	442	1.7	0.262	0.6	LOS A	0.6	4.3	0.17	0.19	0.17	49.1
6	R2	All MCs	48	0.0	48	0.0	0.262	7.6	LOS A	0.6	4.3	0.17	0.19	0.17	47.9
Approach			491	1.5	491	1.5	0.262	1.3	NA	0.6	4.3	0.17	0.19	0.17	49.0
North: Charlton Avenue (N)															
7	L2	All MCs	76	4.2	76	4.2	0.177	7.3	LOS A	0.6	4.4	0.60	0.80	0.60	43.4
9	R2	All MCs	34	3.1	34	3.1	0.177	13.3	LOS A	0.6	4.4	0.60	0.80	0.60	43.5
Approach			109	3.8	109	3.8	0.177	9.1	LOS A	0.6	4.4	0.60	0.80	0.60	43.4
West: Pentecost Avenue (W)															
10	L2	All MCs	34	3.1	34	3.1	0.282	4.7	LOS A	0.0	0.0	0.00	0.03	0.00	48.4
11	T1	All MCs	560	0.4	560	0.4	0.282	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	49.7
Approach			594	0.5	594	0.5	0.282	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.6
All Vehicles			1194	1.2	1194	1.2	0.282	1.5	NA	0.6	4.4	0.12	0.17	0.12	48.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Charlton Avenue / Pentecost Avenue - EX PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Charlton Avenue / Pentecost Avenue
Existing Conditions
PM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
East: Pentecost Avenue (E)															
5	T1	All MCs	588	1.4	588	1.4	0.318	0.3	LOS A	0.5	3.4	0.10	0.11	0.10	49.5
6	R2	All MCs	44	0.0	44	0.0	0.318	6.6	LOS A	0.5	3.4	0.10	0.11	0.10	48.3
Approach			633	1.3	633	1.3	0.318	0.7	NA	0.5	3.4	0.10	0.11	0.10	49.4
North: Charlton Avenue (N)															
7	L2	All MCs	35	6.1	35	6.1	0.055	6.3	LOS A	0.2	1.4	0.51	0.66	0.51	44.2
9	R2	All MCs	6	16.7	6	16.7	0.055	15.4	LOS B	0.2	1.4	0.51	0.66	0.51	44.0
Approach			41	7.7	41	7.7	0.055	7.7	LOS A	0.2	1.4	0.51	0.66	0.51	44.2
West: Pentecost Avenue (W)															
10	L2	All MCs	3	0.0	3	0.0	0.204	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	48.7
11	T1	All MCs	425	1.2	425	1.2	0.204	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			428	1.2	428	1.2	0.204	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles			1102	1.5	1102	1.5	0.318	0.7	NA	0.5	3.4	0.08	0.09	0.08	49.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Charlton Avenue / Pentecost Avenue - FU PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Charlton Avenue / Pentecost Avenue
Future Conditions
PM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h	%	veh/h	%	v/c	sec							km/h
East: Pentecost Avenue (E)															
5	T1	All MCs	588	1.4	588	1.4	0.334	0.4	LOS A	0.7	4.7	0.14	0.16	0.14	49.3
6	R2	All MCs	60	0.0	60	0.0	0.334	6.8	LOS A	0.7	4.7	0.14	0.16	0.14	48.1
Approach			648	1.3	648	1.3	0.334	1.0	NA	0.7	4.7	0.14	0.16	0.14	49.2
North: Charlton Avenue (N)															
7	L2	All MCs	51	4.2	51	4.2	0.143	6.3	LOS A	0.5	3.5	0.59	0.76	0.59	43.3
9	R2	All MCs	33	3.2	33	3.2	0.143	13.9	LOS A	0.5	3.5	0.59	0.76	0.59	43.4
Approach			83	3.8	83	3.8	0.143	9.3	LOS A	0.5	3.5	0.59	0.76	0.59	43.3
West: Pentecost Avenue (W)															
10	L2	All MCs	29	0.0	29	0.0	0.217	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	48.5
11	T1	All MCs	425	1.2	425	1.2	0.217	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach			455	1.2	455	1.2	0.217	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.6
All Vehicles			1186	1.4	1186	1.4	0.334	1.3	NA	0.7	4.7	0.12	0.15	0.12	48.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

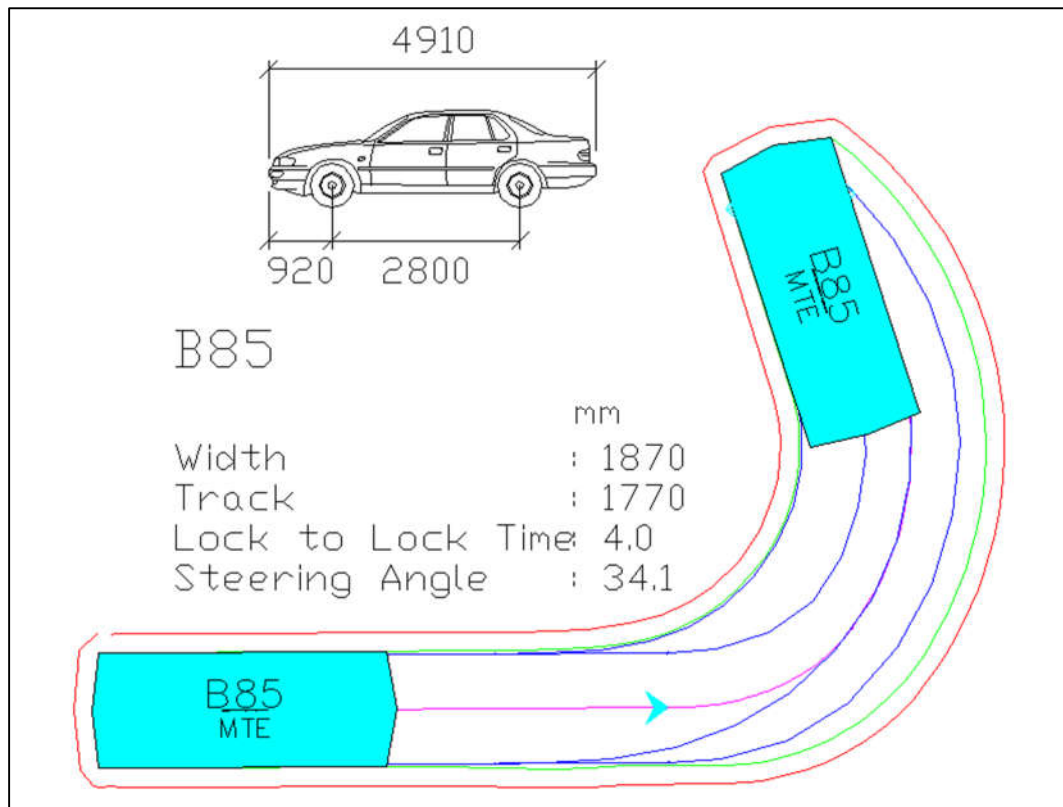
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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

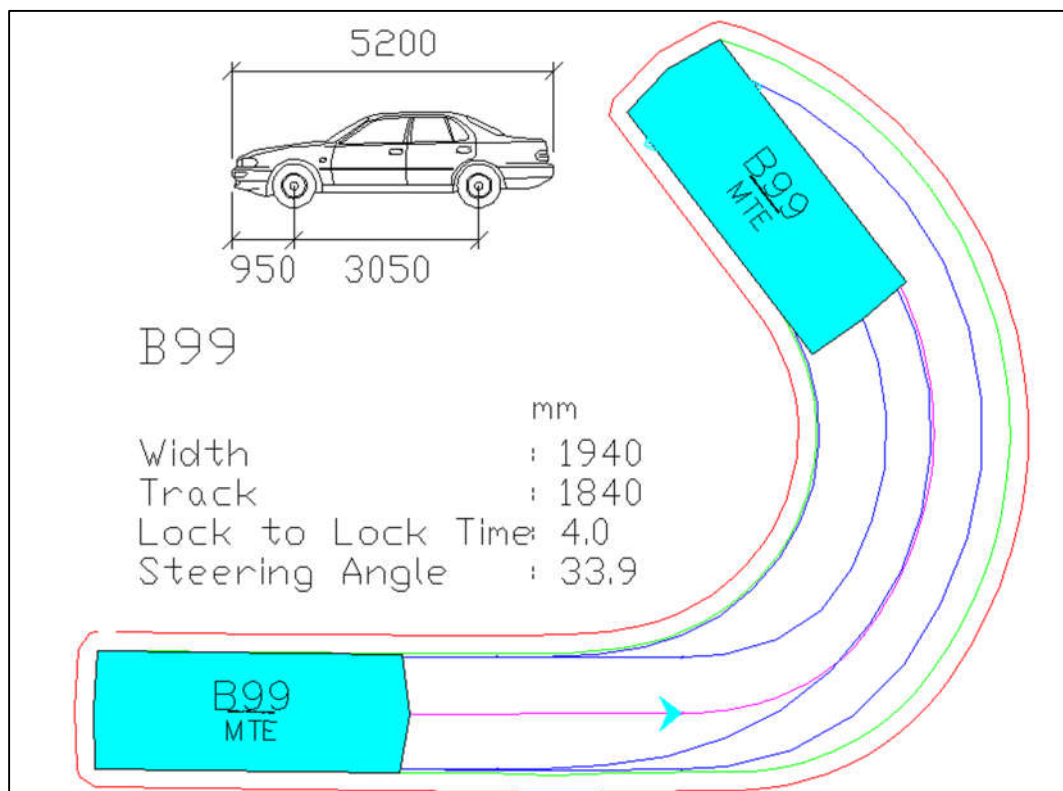
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



**ANNEXURE D: SWEEP PATH TESTING
(6 SHEETS)**

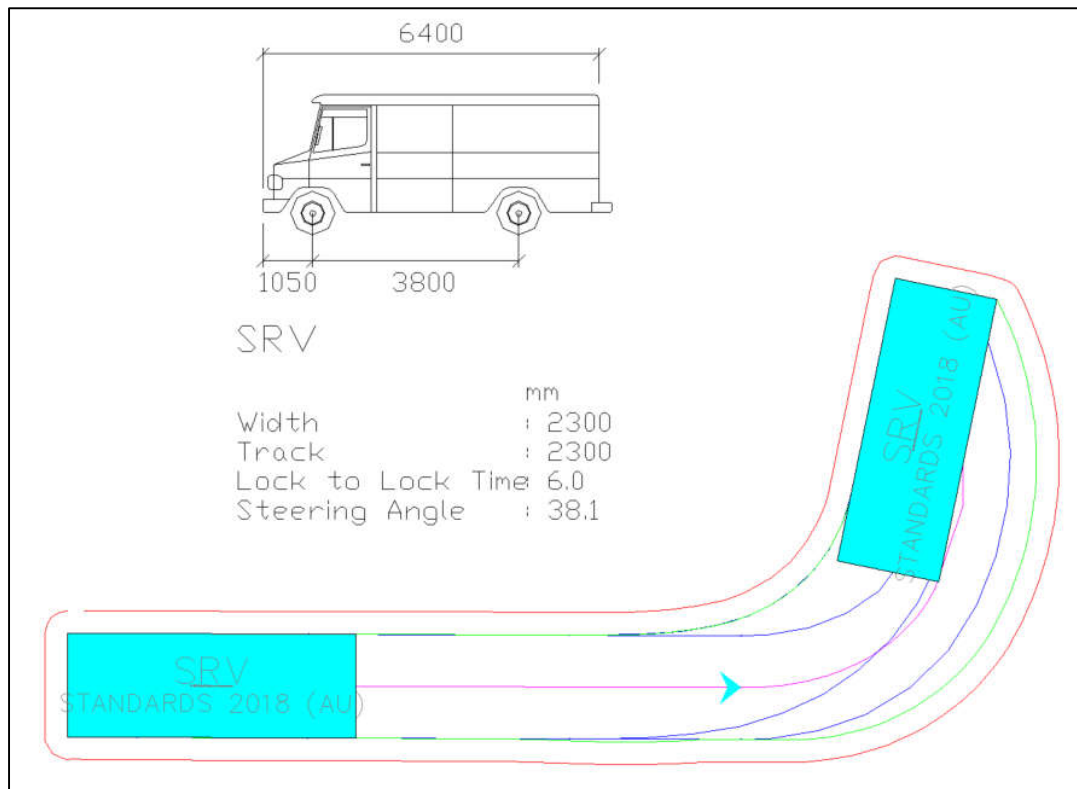


AUSTRALIAN STANDARD 85TH PERCENTILE SIZE VEHICLE (B85)



AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

Blue – Tyre Path
 Green – Vehicle Body
 Red – 300mm Clearance

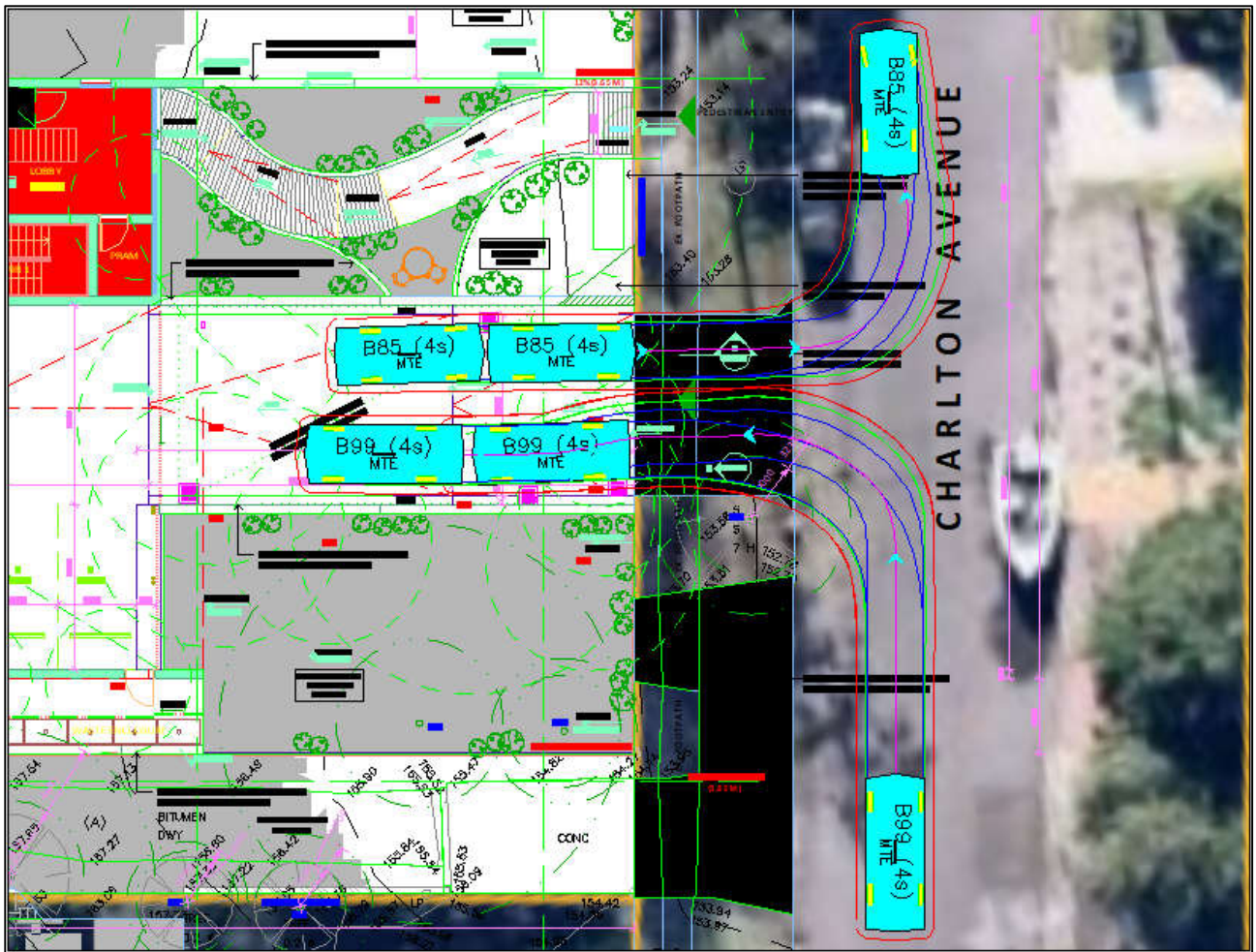


AUSTRALIAN STANDARD SMALL RIGID VEHICLE (SRV)

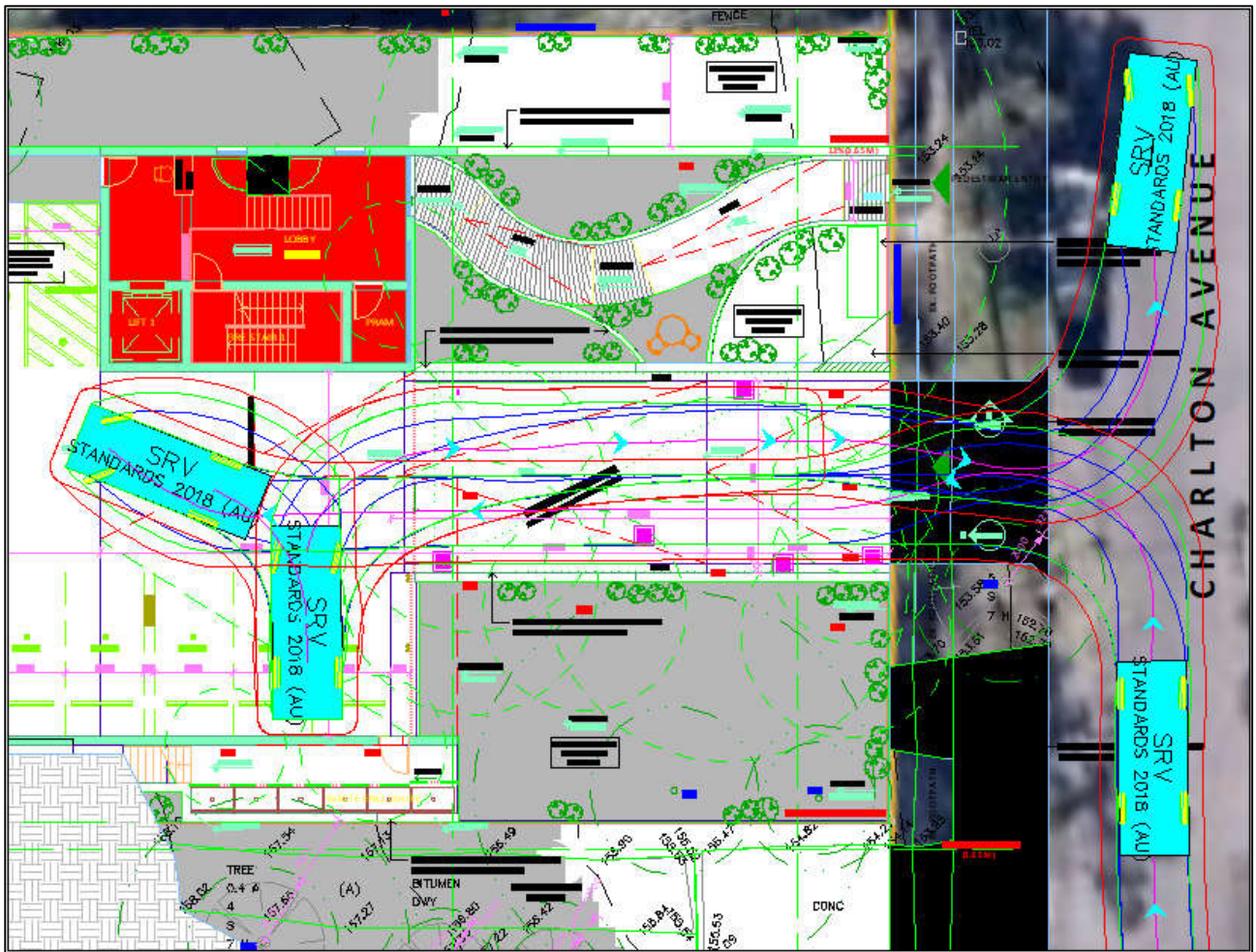
Blue – Tyre Path

Green – Vehicle Body

Red – 500mm Clearance

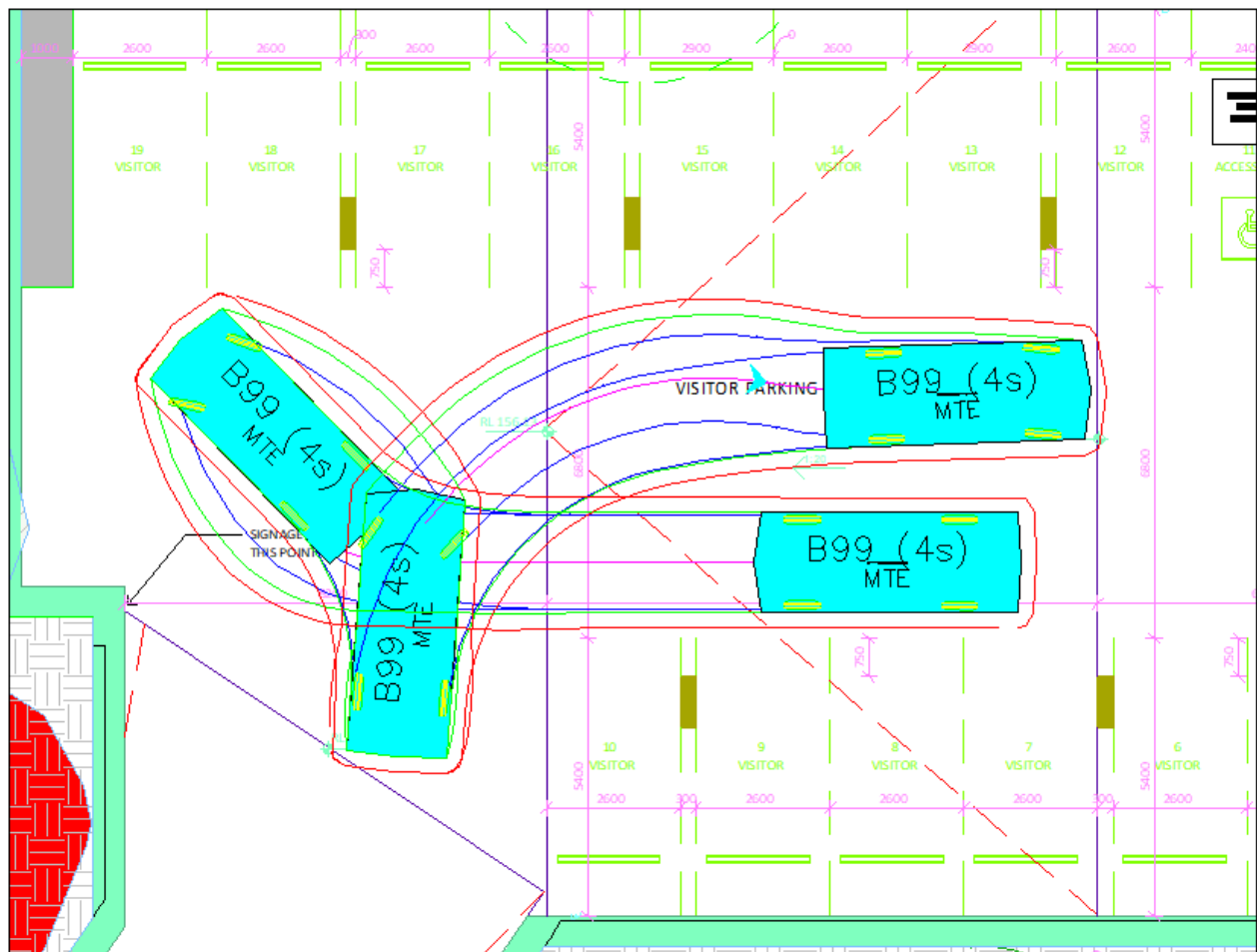


B85 / B99 TWO-WAY PASSING ALONG RAMPS AND AT THE VEHICLE CROSSOVER
Successful

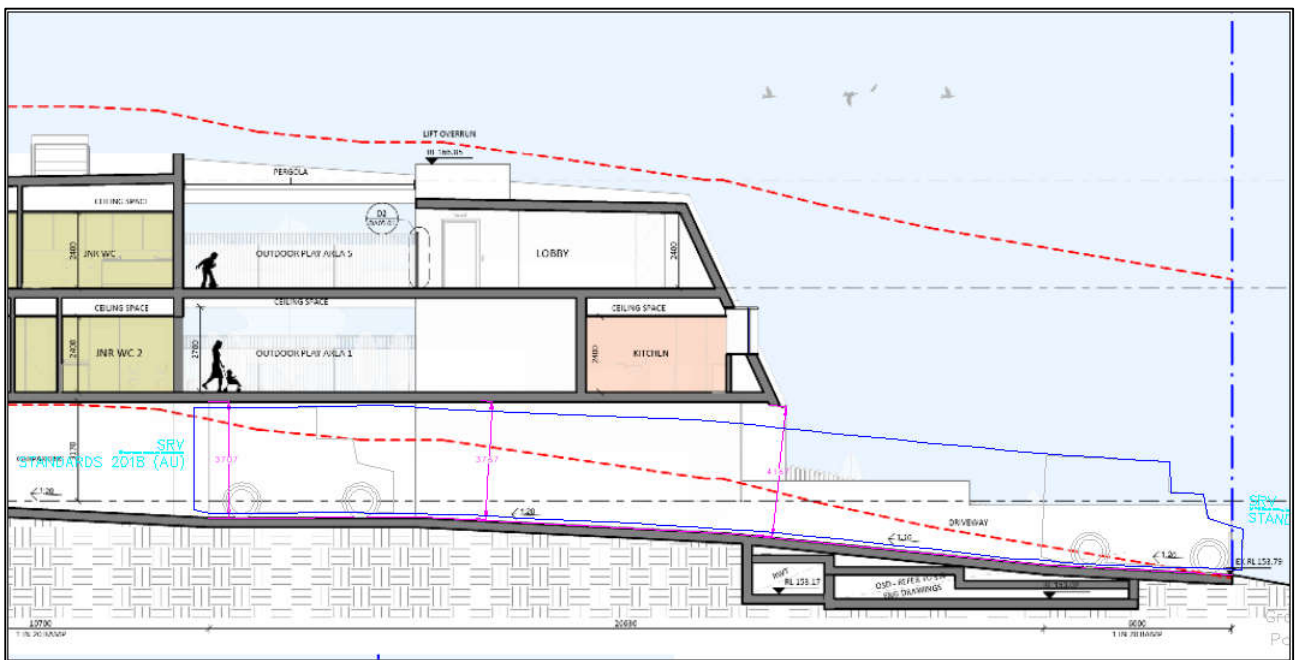
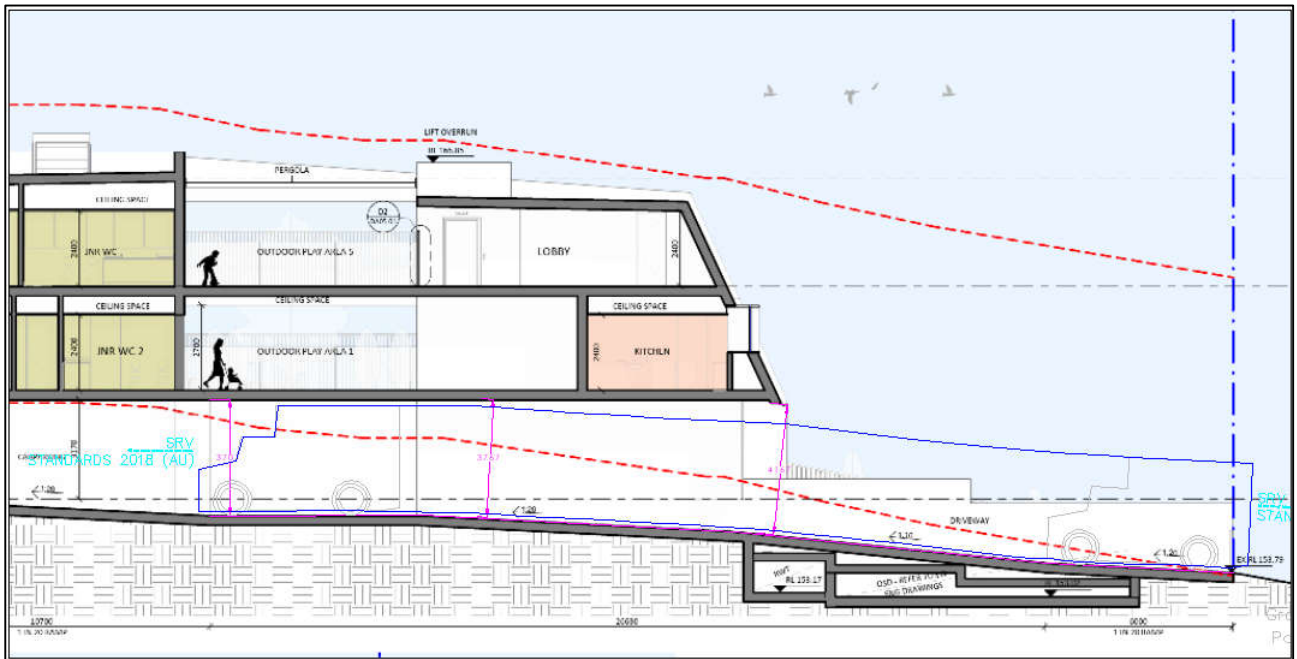


SRV ACCESSING UNDERCOVER PARKING MODULE

Successful – 2 manoeuvres REVERSE IN, 1 manoeuvre FORWARD OUT



B99 TURNING AT THE END OF THE VISITOR PARKING AISLE
Successful



SRV VERTICAL CLEARANCE TEST INSIDE THE SITE

Entry and Exit Successful

Note: The available headroom further within the undercover parking area (towards the left of the above images) reduces below the minimum 3.5m headroom clearance compliant for SRVs in accordance with AS2890.2:2018. A headroom striker bar shall be detailed during the detailed design stage following a DA approval to prevent heavy vehicles from travelling further into the parking area