ADVERTISED PLAN

Watson Young Architects Pty Ltd
8 Grattan Street
PRAHRAN VIC 3181
Attention: Jack Hesse

24 January 2024
Project #: WGA230679
Doc. WGA230679-LT-TT-0001_B
E: jack.h@watsonyoung.com.au

Dear Jack,

CAROLINE CHISHOLM CATHOLIC COLLEGE VET & STEM BUILDING - TRAFFIC ENGINEERING RFI RESPONSE

1. INTRODUCTION

WGA has been engaged by Watson Young Architects on behalf of the applicant to provide a response to traffic engineering request for further information (RFI) comments received by Maribyrnong City Council (herein referred to as 'Council') dated 24 October 2023 (Council Ref. No. TP400/2023(1)).

The referral comments in question have been issued in relation to the proposed VET & STEM Building at Caroline Chisholm Catholic College (CCCC) (Department of Transport & Planning (DTP) Application No. PA2302517).

2. RESPONSE TO COUNCIL COMMENTS

Council comments are provided in *italics*, with WGA's associated response below.

2.1 Required Information

1. Site access:

a. Clarification on basement car park security measures such as roller door/shutter and how passive surveillance will be achieved;

A boom gate system is proposed to be implemented which will restrict access to the basement car park to staff only during school hours. During school hours the basement will be accessible by staff via a card/fob reader. During after-hours events it is understood that the boom gates will be in an 'up' position allowing access for visitors.

Additionally, a roller door/shutter is proposed for after-hours security measures, set back approximately 22m from the property boundary (bottom of the basement ramp). It is understood that the roller door/shutter will only be in a 'down' position outside of regular staffing hours for typical school operations and after any after-hours events once all visitors have left the car park.

b. *The 'small goods delivery zone' to the south-east of the internal driveway clearly dimensioned, line marked and signposted.*

The 'small goods delivery zone' has been removed from the proposal.

c. *Swept paths of the largest vehicle accessing this space provided to demonstrate safe entry and exit movements;*

WGA has completed a site access swept path assessment of the basement car park to confirm the suitability of the boom gate arrangement attached in Appendix A.

d. *A SIDRA analysis undertaken at the site access/Darnley Street during peak hours and after-hours use noting 145 vehicles exiting the car park in the PM peak for after-hours use;*

WGA has undertaken a SIDRA Intersection traffic modelling analysis of the basement car park access.

As detailed in Section 5.2 of WGA's Traffic Impact Assessment (TIA) report 'WGA230679-RP-TT-0001' (dated 1 September 2023), current volumes are based on traffic surveys undertaken in 2010 and factored up by a 3% compound growth rate (13 years of growth). These volumes are illustrated in Figure 2.1.

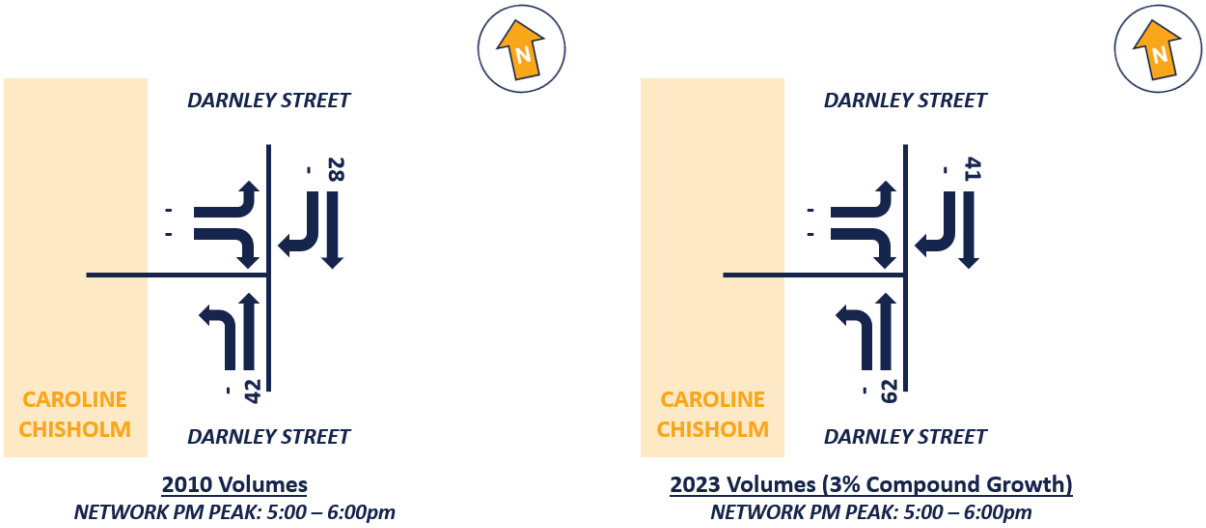

Figure 2.1: 2010 & 2023 Road Network Assessment Volumes

For a conservative assessment, and as detailed in the TIA report, during the PM network peak hour 145 new inbound or outbound vehicle movements may occur (separately) via the Darnley Street basement car park site access associated with after-hours events.

The distribution of these inbound and outbound vehicles is assumed to be proportional to the existing Darnley Street movements, and therefore the post-development volumes to be assessed are illustrated in Figure 2.2.

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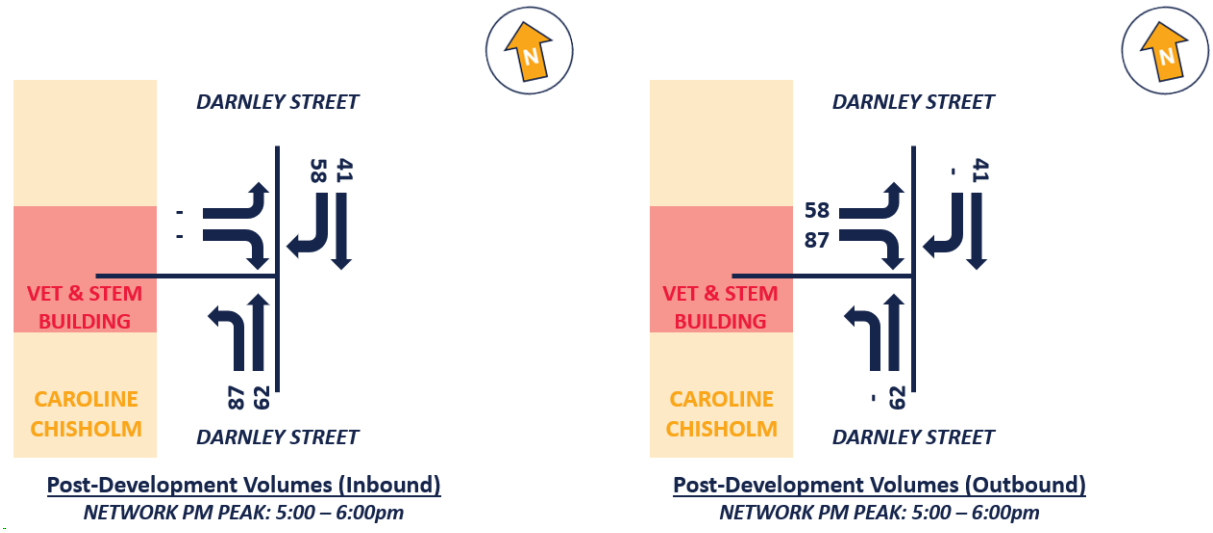

Figure 2.2: Post-Development Assessment Volumes

The traffic modelling assessment of the volumes detailed has been undertaken using SIDRA Intersection (Version 9.1) software. This software package provides information about the capacity of intersections in terms of a range of parameters, the most important of which are described as follows:

- **Degree of Saturation (DOS)** is the ratio of the volume of traffic observed making a particular movement compared to the maximum capacity for that movement. An intersection movement with a DOS value of less than 1.000 is seen to be operating within theoretical capacity. It is considered acceptable for some critical movements in an intersection to operate in the range of 0.9 to 1.0 during the high peak periods, reflecting actual conditions in a significant portion of suburban signalised intersections.
- **95th Percentile (%ile) Queue** represents the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour.
- **Average Delay** is the delay time, in seconds, which can be expected over all vehicles making a particular movement in the peak hour.

Austroads Guide to Traffic Management Part 3: Transport Study & Analysis Methods classifies target DOS for operating conditions of signalised, unsignalised or roundabout intersection as shown in Table 2.1.

Table 2.1: Classification of Intersection Operating Conditions – Degree of Saturation

DEGREE OF SATURATION (DOS)			CLASSIFICATION
SIGNALS	ROUNDABOUT	SIGN CONTROL	
<0.600	<0.600	<0.600	**Excellent**
0.600-0.699	0.600-0.699	0.600-0.699	**Very Good**
0.700-0.899	0.700-0.849	0.700-0.799	**Good**
0.900-0.949	0.850-0.949	0.800-0.899	**Acceptable**
0.950-1.000	0.950-1.000	0.900-1.000	**Poor**
>1.000	>1.000	>1.000	**Very Poor**

The results of the SIDRA Intersection modelling for the post-development volumes and distributions are provided in Table 2.2.

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Table 2.2: Summary of SIDRA Modelling Results – Post-Development (PM Peak & After Hours)

APPROACH	NETWORK PM PEAK HOUR (INBOUND)			NETWORK PM PEAK HOUR (OUTBOUND)		
	DOS	AVG. DELAY (SECONDS)	95TH %ILE QUEUE (METRES)	DOS	AVG. DELAY (SECONDS)	95TH %ILE QUEUE (METRES)
Darnley Street & Proposed Site Access						
Darnley Street (S)	0.08	8	0	0.03	0	0
Darnley Street (N)	0.06	7	2	0.02	0	0
Proposed Access (W)	0.00	0	0	0.12	0	3

The intersection modelling shows that each post-development scenario is expected to operate under "excellent" conditions. As such, it is expected that the road network will operate satisfactorily post-development.

2.2 Preliminary Comments

2. Internal car park:

- *a. Two-way pavements markings should be installed within the car park;*
- *b. Parking spaces should be numbered for ease of reference;*
- *c. Wheel stops should be provided for all parking spaces fronting walls and for central spaces north of Stage 1.1 to restrict front overhang and encroachment into northern spaces;*
- *d. A 5kph speed limit should be mounted on columns at appropriate locations, and speed humps to be provided at regular intervals, to improve internal traffic operation and ensure pedestrian safety is not compromised.*
- *e. Convex mirrors should be installed at the corners to improve internal traffic operation.*
- *f. Adequate internal lighting is to be provided and clearly indicated on the plan;*
- *g. Minimum of 45 spaces to be allocated to staff and clearly line marked and signposted.*

The architectural plans prepared by Watson Young have been updated to address the preliminary comments by Council as follows:

a. Two-way pavement markings have been included within the main car park aisles.

b. The car park is expected to be utilised on a first-in, first-served basis for staff only during typical school hours and therefore numbering of parking spaces is not considered necessary.

c. Wheel stops have been provided at appropriate locations to protect critical infrastructure or parking spaces located adjacent at right-angles. It is noted that wheel stops are not required in car parking areas and can be installed at the discretion of the car park operator. Wheel stops are not recommended throughout the car park as they can be a tripping hazard and can become a maintenance issue.

d. A 5km/h speed limit sign is proposed at the facility entrance to ensure drivers are aware of the intended operating speed. In relation to speed humps, Clause 2.3.3 of AS2890.1 for off-street car parking specifies that speed humps are recommended where parking aisles exceed 100m in length to control vehicle speeds. As the maximum straight length of car parking does not exceed 100m, the inclusion of speed humps within the car park is not considered appropriate, and it is expected that vehicle speeds will be controlled by nature of the car park design.

e. Convex mirrors are recommended where sight lines to oncoming vehicular traffic cannot be provided. The proposed car park does not provide any obstructions outside of those typical of any basement car parking arrangement (structural columns and stationary vehicles). As such, due to the typical nature of the car park design, convex mirrors are not considered appropriate as drivers will have adequate sightlines to any oncoming vehicles throughout the car park.

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f. Not applicable to traffic engineering.

g. The car park is restricted to staff only during school hours, including boom gate access control and therefore the allocation of staff car parking is not required.

3. Site access:

a. A review of the MRV swept paths entering the site indicates that the outside clearance appears to encroach into the southern gross verge of the crossover and northern fence/gate and, when exiting, the outside clearance appears to encroach into the north and southern fence/gate and northern grass verge of the crossover, which cannot be considered acceptable from a safety and operational perspective. All swept paths must be clear of obstructions.

b. Convex mirror should be installed within the property boundary to provide for clear pedestrian and vehicle movements;

c. A 5kph speed limit sign must be installed at the entrance of the basement car park to improve internal traffic operation;

d. A signboard indicating the effective height clearance should be installed at the first point of entry into the basement;

e. Should the proposed include a roller shutter to the basement carpark, it is recommended that the roller door be setback from property boundary by 6m to safely accommodate waiting vehicles.

f. It is recommended that traffic controllers be present on site for after-school activities or when the majority of the 145 car parking spaces are expected to be in use. This will improve internal traffic operation and ensure the safety of pedestrians and road users. These operations should be formalised via an operational management plan (or similar).

g. The proposed vehicle crossover widening on Darnley Street is close to an existing speed hump, presenting implications from a safety and operational perspective. This should be avoided via the relocation of the crossover or the speed hump.

The architectural plans prepared by Watson Young have been updated to address the preliminary comments by Council as follows:

a. The Medium Rigid Vehicle (MRV) swept path assessment has been updated to show a short corrective manoeuvre on egress which may be required for access during school hours. This is considered safe and appropriate as there is no pedestrian access afforded in this area and is limited to commercial vehicle movements. Clearance lines are shown to avoid all vertical obstructions.

b. Sight lines have been provided at the property boundary on egress from the basement car park in line with Figure 3.3 of AS2890.1, and therefore there is no requirement to provide a convex mirror.

c. A 5km/h speed limit sign is proposed at the facility entrance.

d. A height clearance sign board is proposed at the facility entrance.

e. The shutter door/roller is proposed to be located at the base of the ramp, with the boom gate infrastructure acting as the control point to the basement car park. The entry boom gate is situated so that it allows for 6m of queueing space for a vehicle using the card/fob reader.

f. Car parking arrangements are suitable for ease of use and accessibility. It is expected that vehicles will be able to enter, circulate and exit the site in a typical manner reflective of standard car parking conditions. It is therefore not considered necessary for the school to provide traffic controllers to control traffic at any point. Should the school wish to do so, the car park can be monitored for full occupancy, at which point a ‘car park full’ sign can be placed at the entry to the car park to prevent any unwarranted circulating vehicles.

g. The existing speed hump is located close to the widened crossover, however the crossover is clear of the existing speed hump and therefore it is expected that the speed hump and widened crossover will operate in line with existing arrangements, with no implications from a safety or operational perspective. From an engineering perspective, there is no anticipated impact regarding the tie-in of the vehicle crossover to the existing kerb line and speed hump.

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3. SUMMARY & CONCULSIONS

Based on the preceding assessment, WGA considers the revised architectural plans and operation of the proposed car park to be acceptable and appropriate.

On the above basis, we do not believe there to be any traffic engineering grounds that should otherwise prohibit the issue of a Planning Permit.

Should you have any queries relating to this matter please contact our office.

Yours sincerely,

James Aloi
Senior Traffic Engineer
WALLBRIDGE GILBERT AZTEC

Appendix A Swept Path Assessments

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APPENDIX A
SWEPT PATH ASSESSMENTS

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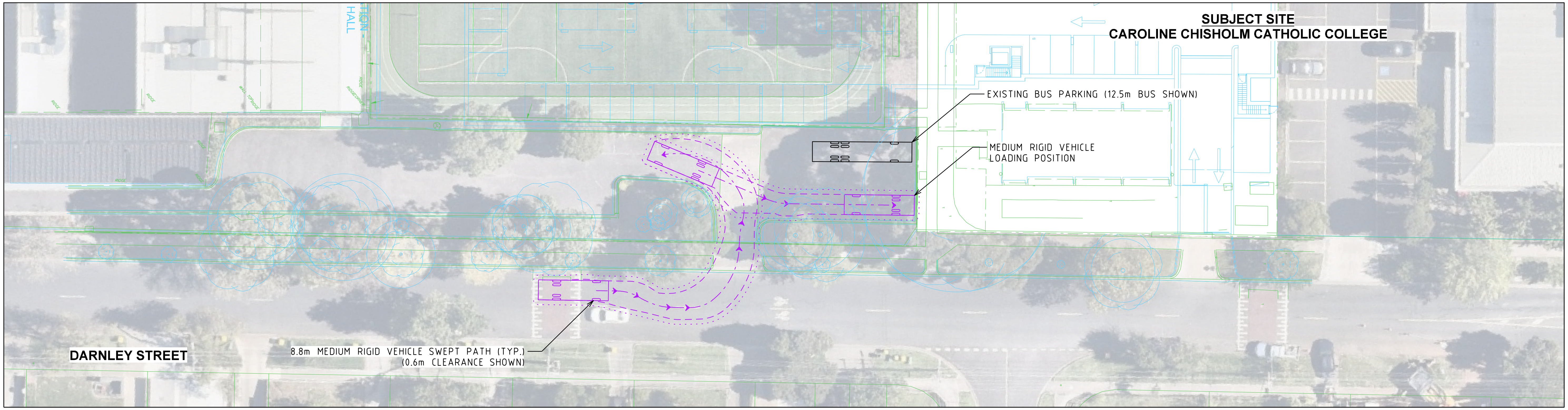
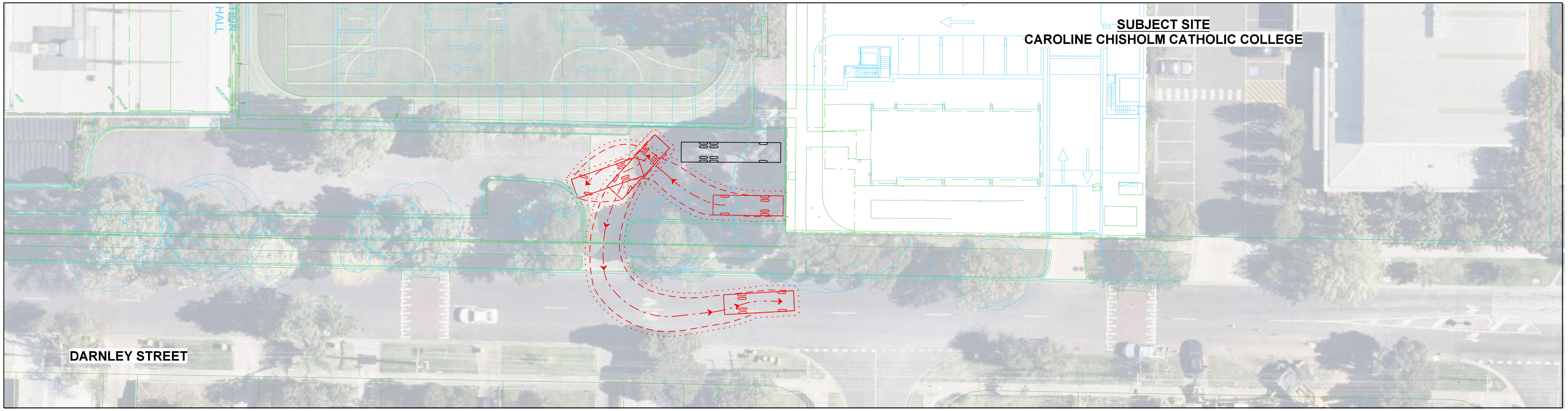
INGRESS MOVEMENT



EGRESS MOVEMENT



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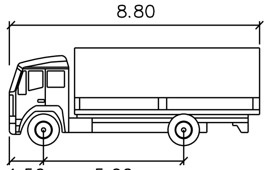

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REV.	DATE	DESCRIPTION	DRAFT	ENG.	CHKD
A	30.08.2023	ISSUED FOR INFORMATION	J.R	J.R	E.K
B	24.01.2024	COUNCIL RFI	E.D	E.D	E.K

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CAROLINE CHISHOLM CATHOLIC COLLEGE
MARIBYRNONG CITY COUNCIL
SWEPT PATH ANALYSIS
MEDIUM RIGID VEHICLE - ACCESS MANOEUVRES ©

DOCUMENT NUMBER

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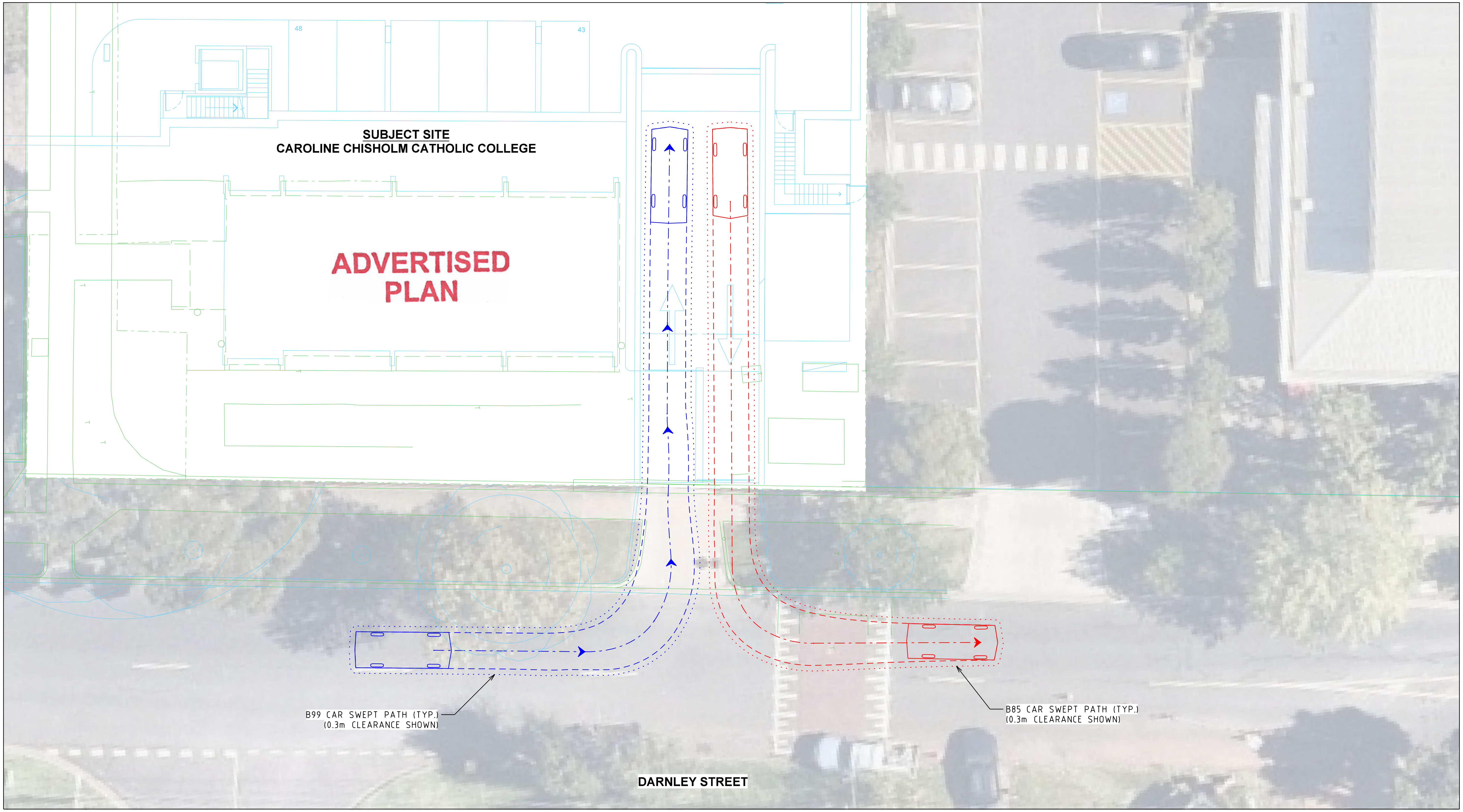

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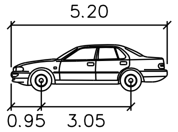

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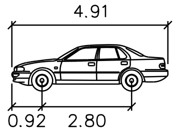

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A	24.01.2024	ISSUED FOR INFORMATION	E.D	E.D	E.K

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Design	Drawn	Job Number	Sheet No.	Rev.
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