

CoA E132 – Local Roads Plan

Warringah Freeway Upgrade – Portal Precinct

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Document Approval

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Distribution and Authorisation

Document Control

The CPB Downer JV Project Director is responsible for ensuring that this plan is reviewed and approved. The Design Manager is responsible for updating this plan to reflect changes to the project, legal and other requirements, as required.

Amendments

Any revisions or amendments must be approved by the CPB Downer JV Project Director before being distributed/implemented.

Revision Details

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Compliance with CoA Requirements

This Local Roads Plan sets out the minimum client requirements as defined in Table 1, and shows where each requirement has been addressed within this Plan or the wider CPB Contractors Management System (CMS).

Table 1: Compliance with Conditions of Approval E132, E133, E135, E136

Requirement		Reference
E132	Construction Traffic Management	Local roads proposed to be used by heavy vehicles to directly access the construction boundary and ancillary facilities that are not shown in Figure 5-7 to 5-22 inclusive of Appendix F of the EIS must be approved by the Planning Secretary and included in the Traffic, Transport and Access Management CEMP Sub-plan.
E133	Construction Traffic Management	All requests to the Planning Secretary under Condition E132 must include the following:
		(a) a swept path analysis;
		(b) demonstration that the use of local roads by heavy vehicles for the CSSI will not compromise the safety of pedestrians and cyclists or the safety of two-way traffic flow on two-way roadways;
		(c) provide details as to the date of completion of the road dilapidation surveys for the subject local roads;
		(d) measures that will be implemented to avoid where practicable the use of roads past schools, aged care facilities and child care facilities during their peak operation times; and
		(e) written advice from an appropriately qualified professional on the suitability of the proposed heavy vehicle route which takes into consideration items (a), (b), (c), and (d) of this condition.
E135	Construction Traffic Management	The locations of all heavy vehicles used for spoil haulage must be monitored in real-time and the records of monitoring are made available electronically to the Planning Secretary and the EPA upon request for a period of no less than one year following the completion of construction. Note: Refer to Condition A47 in relation to vehicle identification.
E136	Road Dilapidation	Before any local road is used by a heavy vehicle for the purposes of the CSSI, a Road Dilapidation Report must be prepared for the road. A copy of the Road Dilapidation Report must be provided to the relevant council within three weeks of completion of the survey and no later than one month prior to the road being used by heavy vehicles associated with the CSSI.

Abbreviations and definitions

Below is a list of abbreviations and definitions used in this document in addition to the Scope of Works Technical Criteria Glossary of Terms, Warringah Freeway Upgrade, Schedule C1.

Table 2: Abbreviations and definitions

Key Term / Abbreviation	Definition
CPB Downer JV	CPB Contractors Downer EDI Works Joint Venture
CCTV:	Closed Circuit Television system
Contract:	The Deed, Scope of Works & Technical Criteria, and other contractual requirements form the agreement between Leighton Dragados Samsung Joint Venture (CPB DOWNER JV) to design and construct the Tunnel and Civil Works of the WFU Main Works (the Project).
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CGC	Cammeray Golf Course
CoA	Condition of Approval
CSS	Construction Support Site
DPE	Department of Planning and Environment
Document:	Including Manuals, Standards, Plans, Procedures, Inspection & Test Plans, Forms, Instructions and other related management system documents and data in the form of any type of media (hard copy or electronic).
EIS	Western Harbour Tunnel and Warringah Freeway Upgrade Environmental Impact Statement (January 2020)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EB	Eastbound
ESO	Emergency Service Organisation
FAS	Flashing Arrow Signs
FDD	Final Detail Design
GRN	Government Radio Network
Health, Safety & Environment (HSE) Representative:	Nominated site management representative, responsible for establishing, implementing and maintaining the site HSE systems and reporting on the performance of these systems to site management for review and improvement. Referred to as Environmental Management Representative and Site Safety Representative (SSR) within the Contract.
Incident	A localised event, either accidental or deliberate, may result in injury or damage to property that requires a normal response from a support agency.
IoA	Instrument of Approval
IRC	Incident Response Crew
IRP	Incident Response Procedure
ITS	Intelligent Transport Systems
IV	Independent Verifier
LRP	Local Roads Plan
METS	Motorist Emergency Telephone System
NSC	North Sydney Council
NB	Northbound

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NSWFB	New South Wales Fire Brigade
OHS	Occupational Health and Safety.
Project, the	Western Harbour Tunnel and Warringah Freeway Upgrade
REMM	Revised Environmental Management Measures
ROL	Road Occupancy Licence
RtS	Western Harbour Tunnel and Warringah Freeway Upgrade Response to Submissions (September 2020)
RASS	Radar Activated Speed Sign
SCO	Sydney Coordination Office
SEARS	Secretary's Environmental Assessment Requirements
SSI	State Significant Infrastructure
SZA	Speed Zone Authorisation
SB	Southbound
SCATS	Sydney's Coordinated and Adaptive Traffic System
SPA	Sydney Project Alliance (early works contractor)
SOP	Standard Operating Procedure
TCP	Traffic Control Plan
TfNSW	Transport for New South Wales
TTLG	Traffic and Transport Liaison Group
TMC	Transport Management Centre
TMP	Traffic Management Plan
TGS	Traffic Guidance Scheme (formerly Traffic Control Plan)
TTAMP	Traffic, Transport and Access Management Sub-Plan (this document)
TIMP	Traffic Incident Management Plan
TMO	Traffic Control Room
VMS	Variable Message Sign
VMP	Vehicle Movement Plan
VMS	Variable Message Sign
WB	Westbound
WFU	Warringah Freeway Upgrade
WHTBL	Western Harbour Tunnel and Beaches Link

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Part A

1. Structure of this Plan

This Construction Traffic Management - Local Roads Plan forms part of the Project Management System (PMS). It is part of a suite of plans that together outline how the Warringah Freeway Upgrade will be managed to ensure an integrated approach to meeting contract requirements.

In addition to the Construction Traffic Management - Local Roads Plan, other Project Plans that interface with this Construction Traffic Management - Local Roads Plan include:

- Portal Precinct FDDs for temporary construction work designs
- Incident Management Plan for Traffic
- Construction Parking and Access Strategy
- Traffic Management and Safety Plan

This plan has the following structure:

Part A: Introduction (Section 1-3)	This section clearly defines: <ul style="list-style-type: none">▪ Introduction▪ Purpose, locations and scope of works▪ Project requirements and obligations
Part B: Local Roads	This section outlines proposed local roads for approval: <ul style="list-style-type: none">• Egress route• Justification• Volumes• Swept path analysis• Pedestrian, cyclist and traffic flow safety• Dilapidation surveys• Heavy vehicles haulage monitoring and recording
Part C: Appendices	A list of appendices providing additional detail that supports this plan including: <ul style="list-style-type: none">▪ Consultation▪ Heavy Vehicle Egress Route▪ Local Roads Swept Path Diagrams▪ Hazard & Risk Assessment▪ Driver's Code of Conduct

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1.1 Project Overview

Warringah Freeway Upgrade is a critical component to the Western Harbour Tunnel and Beaches Link (WHTBL) Program. It will enable the connection of the new WHTBL motorways into the existing motorway network, ensuring the WHTBL Program delivers its connectivity and safety benefits for public transport, freight and private vehicle customers, while improving the journey experience for existing Warringah Freeway users.

The program of works is designed to boost transport capacity around the Harbour CBD and improve connectivity to and from the Northern Beaches – two areas of importance to Greater Sydney’s future as a liveable, productive and sustainable global city. Once complete, the upgraded corridor will optimise demand across Sydney Harbour Tunnel, Sydney Harbour Bridge and Western Harbour Tunnel, enabling each to perform its intended function.

The Warringah Freeway Upgrade consists of surface road upgrades, structural works and ancillary works of an approximate four-kilometer section of the freeway corridor. The upgrade is focused on the simplification of traffic flows and wayfinding, as well as enabling works for the new WHTBL.

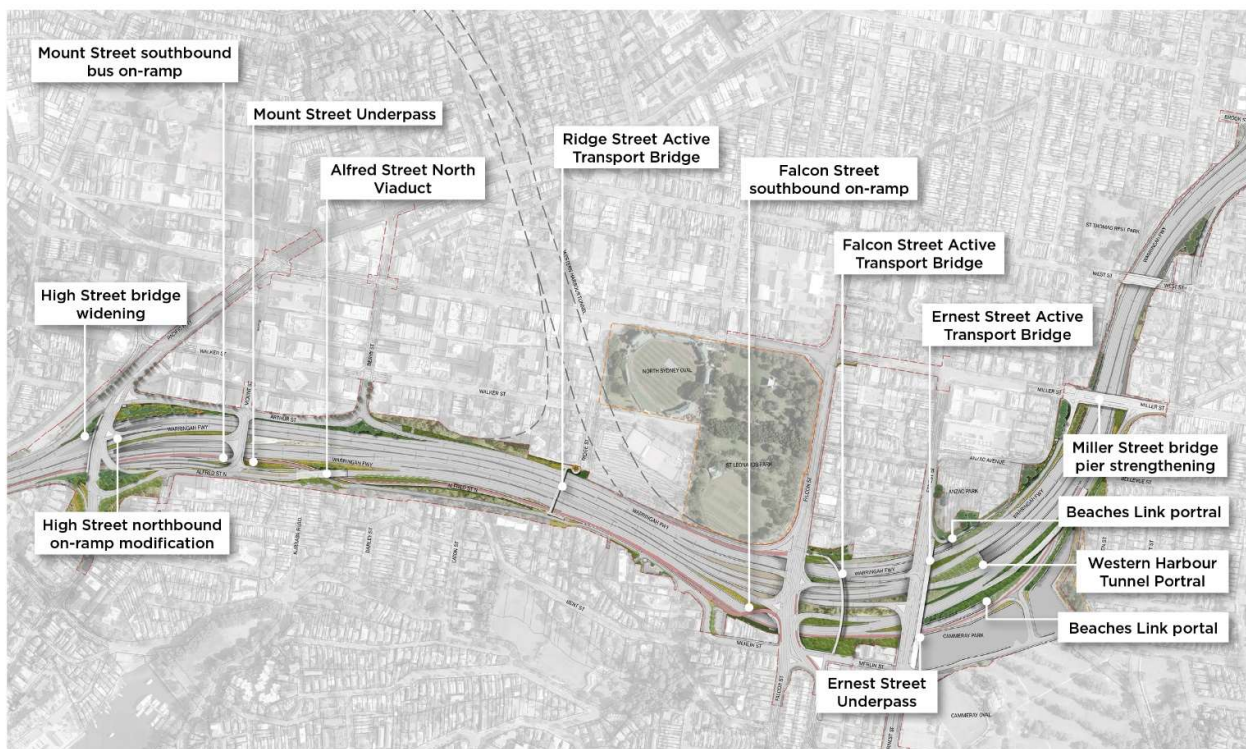


Figure 1: Warringah Freeway Upgrade Project Scope

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1.2 Context and scope

This Local Roads Plan (LRP) will support the delivery program of the Portal Precinct that includes the use of the local roads; Cammeray Ave, Anzac Ave and Rosalind St for the WFU Portal Precinct Stage 1 occupation and later, the planned staging of the WFU Portal Precinct construction work.

This Local Roads Plan has been prepared to address the Minister's Conditions of Approval (CoA) as shown in Table 1 with regards to construction worksite heavy and light vehicle local road access and egress on Cammeray Ave, Anzac Ave and Rosalind St within the Portal Precinct.

This Local Roads Plan (LRP) describes the workability of using the proposed local roads and how CPB Downer proposes to manage potential traffic impacts on Cammeray Ave, Anzac Ave and Rosalind St during the Warringah Freeway Upgrade, Portal Precinct construction work.

Later construction stages of the Project, including operational traffic and transport impacts and operation mitigation measures, may need to be revised within the scope of this LRP, and consequently are not included within the processes contained within this LRP.

1.3 Background

The Western Harbour Tunnel and Warringah Freeway Upgrade EIS (January 2020) assessed potential traffic impacts from the construction of the Western Harbour Tunnel and Warringah Freeway Upgrade.

As part of the EIS development, a detailed construction traffic and transport assessment were prepared to address the Secretary's Environmental Assessment Requirements (SEARS) issued by the Department of Planning, Industry and Environment (DPE). The traffic and transport assessment were included in Chapter 8 Construction Traffic and Transport and Appendix F Traffic and Transport Technical Paper of the EIS. Access and egress to most construction work sites would be via state and regional roads with some exceptions that are unavoidable.

1.4 Project description

Sydney Program Alliance (SPA) has recently completed early works within the Portal Precinct and has hand-over the precinct to CPB Downer Joint Venture (CPBD). CPBD has started preparation work for the WFU Portal Precinct Stage 1 work. The construction work subject to this Local Roads Plan is scheduled to commence in October 2022 and continue with the implementation of the planned staging of the WFU Portal Precinct construction work. In the event that SPA require further use of the roads subject to this approval CPBD will work with the SPA contractor to ensure combined vehicle use of these roads does not exceed the vehicle numbers outlined in Section 4 of this document.

1.4.1 Portal Precinct construction work

The Portal Precinct construction work includes:

- Portal Precinct Stage 1:
 - Trenching and installation of ITS on Cammeray Avenue and within the verge area at the intersection of Ernest St and Cammeray Ave
 - Trenching and installation of ITS within Anzac Reserve and verge area adjacent to Cammeray Ave, Anzac Rd and Rosalind St
 - Restoration of removed kerbs and road pavement.
- Removal of existing noise wall,
- Major construction works associated with the Portal Precinct temporary construction work designs (FDDs) to be subsequently implemented over the duration of the project:

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- Piling,
- Ernest St abutment,
- Green Park drainage work including the installation and recovery of the boring machine,
- Erect new noise wall,
- Roadwork,
- Landscaping.

1.4.2 Access and egress to the Portal Precinct work sites

Access and egress to the Portal Precinct Stage 1 and the later stages of the Portal Precinct construction work will be by means of:

Cammeray Ave

- Access via Miller St southbound (State Road), left turn onto Ernest St eastbound (Regional Road) and left-turn into Cammeray Ave (Local Road); or
- Access via Ernest St off-ramp, left-turn onto Ernest St westbound and right-turn into Anzac Ave northbound and right-turn into Cammeray Ave,
- Egress via Cammeray Ave (Local Road, partly within construction boundary); left-turn onto Anzac Ave (Local Road); right-turn onto Ernest St westbound (Regional Road) and left or right-turn on Miller St southbound and northbound (State Road) and continue to Falcon St eastbound or westbound (State Road); or
- Egress via Cammeray Ave (Local Road, partly within construction boundary); left-turn onto Anzac Ave (Local Road); left-turn onto Ernest St eastbound (Regional Road) and right-turn on Ernest St southbound on-ramp (State Road).

Rosalind St and Anzac Ave

- Access via Miller St northbound and southbound (State Road), right or left turn into Rosalind St eastbound (Local Road part EIS approved) and Anzac Ave southbound (Local Road); and
- Egress on Rosalind St eastbound (part Local Road EIS approved), Anzac Ave southbound (Local Road), right-turn onto Ernest St westbound (Regional Road), left or right-turn on Miller St southbound and northbound (State Road) and continue to Falcon St eastbound or westbound (State Road); or
- Egress on Rosalind St eastbound (part Local Road EIS approved), Anzac Ave southbound (Local Road), left-turn onto Ernest St eastbound (Regional Road), right-turn on Ernest St southbound on-ramp (State Road).

TfNSW has issued a Roads Act (1993) Section 159 Notice for Anzac Avenue Reserve, Cammeray Avenue and a Section 175 for Anzac Park, Ernest St and Cammeray Ave in the suburb of Cammeray. CPB Downer will be carrying out consultation with North Sydney Council for Anzac Ave Reserve, Cammeray Ave, Anzac Park, Ernest St, Cammeray Ave, Rosalind St (as shown in Figure 5-17 and 5-20 of Appendix F of the EIS) and Anzac Ave. CPBD is requesting DPE conditional approval to use the local roads including:

- Cammeray Ave between the construction boundary and Anzac Pde,
- Rosalind St (part EIS approved) between Rosalind Street compound (WFU9) access and Anzac Ave; and

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- Anzac Ave between Rosalind St and Ernest St;

The approval is sought to use the local roads for a minimum 24 months period by heavy vehicles as detailed below in this Plan.

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1.5 Purpose of this local roads approval

This document has been prepared to describe the workability of using the proposed local roads and how CPBD Portal Precinct Stage 1 and later Stages will comply with the requirements of CoA E132 and E133. This Document will be lodged to DPE for approval prior to heavy vehicle (HV) use of the local roads that are the subject of this Plan.

In accordance with CoA E133, this Document will:

- Include swept path analyses for local roads that require DPE approval;
- Demonstrate that DPE approval of local roads nominated in this Document will not compromise the safety of pedestrians and cyclists or the safety of two-way traffic flow on two-way roadways;
- Provide details related to the date of the road dilapidation survey that has been conducted for local roads that require DPE approval;
- Detail measures that will be implemented to avoid the use of nominated local roads past schools, aged care facilities and childcare facilities during peak operation times;
- Include advice from an appropriately qualified traffic engineer regarding the suitability of nominated local roads that require DPE approval;

In accordance with CoA A47 and E135 this Document will also:

- Describe the technology system to be used to monitor in real-time the locations of all heavy vehicles used for spoil haulage and keep records of monitoring made available electronically to the Planning Secretary and the EPA upon request for a period of no less than one year following the completion of construction.

1.6 Objectives

The key objective of this Local Roads Plan is to describe the approach to managing traffic impacts of construction heavy and light vehicle usage on the local roads. The key objectives of this Local Roads Plan are to describe and consider the needs of all road users, pedestrians and cyclists and to ensure the safety of both workers and the general public.

To achieve these objectives, CPBDowner will implement appropriate:

- Controls and procedures during construction activities to address potential traffic impacts along the Project corridor; and
- Measures to address the relevant CoA are outlined in Table 1, and the safeguards are detailed in the EIS.

2. Environmental requirements

2.1 Minister's Conditions of Approval

This Local Roads Plan has been prepared to meet the requirements of CoA E132.

The requirements of CoA E132 and E133, and where they are addressed in this Document are shown in Table 1 Compliance with CoA Requirements.

In accordance with CoA E132 and E133, this Local Roads Plan (LRP) will be submitted to the

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Planning Secretary for approval before traveling on the subject local roads. Heavy vehicle use of these roads will not commence until this LRP has been approved by the Planning Secretary.

3. Co-ordination

A briefing session has been held with North Sydney Council to provide an overview of the proposed use of the local roads and to provide a forum for discussion. CPB Downer are consulting with North Sydney Council through the NSC / CPBD Construction 90 Day Lookahead Interface co-ordination meetings.

An existing shared (bicycle and pedestrian) route is located on the northern side of Ernest St between Anzac Ave and Cammeray Ave/Warringah Freeway. As this segment is a designated bicycle route that will be crossed by heavy vehicles, CPB Downer will consult with Bike North and Bicycle NSW regarding the proposed increase in heavy vehicles movements on Ernest St between Anzac Ave and Cammeray Ave.

As required, stakeholder updates (including emergency service and bus operators) will be provided through a range of tools outlined within the TTAMP Section 6 and Appendix A, including meetings (or at a frequency agreed with key stakeholders), community updates, notifications and emails, to ensure all upcoming changes and impacts are communicated in a timely fashion.

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Part B

4. Local roads proposed for approval

4.1 Identification of local roads for approval

Local roads that require Planning Secretary approval under CoA E132 are detailed in Table 3.

Table 3 Local roads requiring Planning Secretary approval under CoA132

Local road	Direction of movement	Description of use during construction	Description of potential impacts
Rosalind St between WFU9 access and Anzac Ave	Eastbound and Westbound	Worksite Access & Egress	Construction vehicle route: 6m to 8.8m SRV/SV, 19m Truck & Trailer and 19m Articulated Vehicle(semi) Period of use: 24 months
Anzac Ave between Rosalind St and Ernest St	Southbound	Worksite Access & Egress (if Cammeray Ave blocked by construction activity)	Construction vehicle route: 6m to 8.8m SRV/SV, 19m Truck & Trailer and 19m Articulated Vehicle(semi) Period of use: 24 months
Anzac Ave between Ernest St and Cammeray Ave	Northbound		
Cammeray Ave between the construction boundary and Anzac Ave	Northbound and Westbound	Worksite Access & Egress work site	Construction vehicle route: 6m to 8.8m SRV/SV, 19m Truck & Trailer and 19m Articulated vehicle (semi) Period of use: 24 months

Figure 2 presents local roads (blue route) requiring DPE approval for use during the Portal Precinct, Warringah Freeway Upgrade works.

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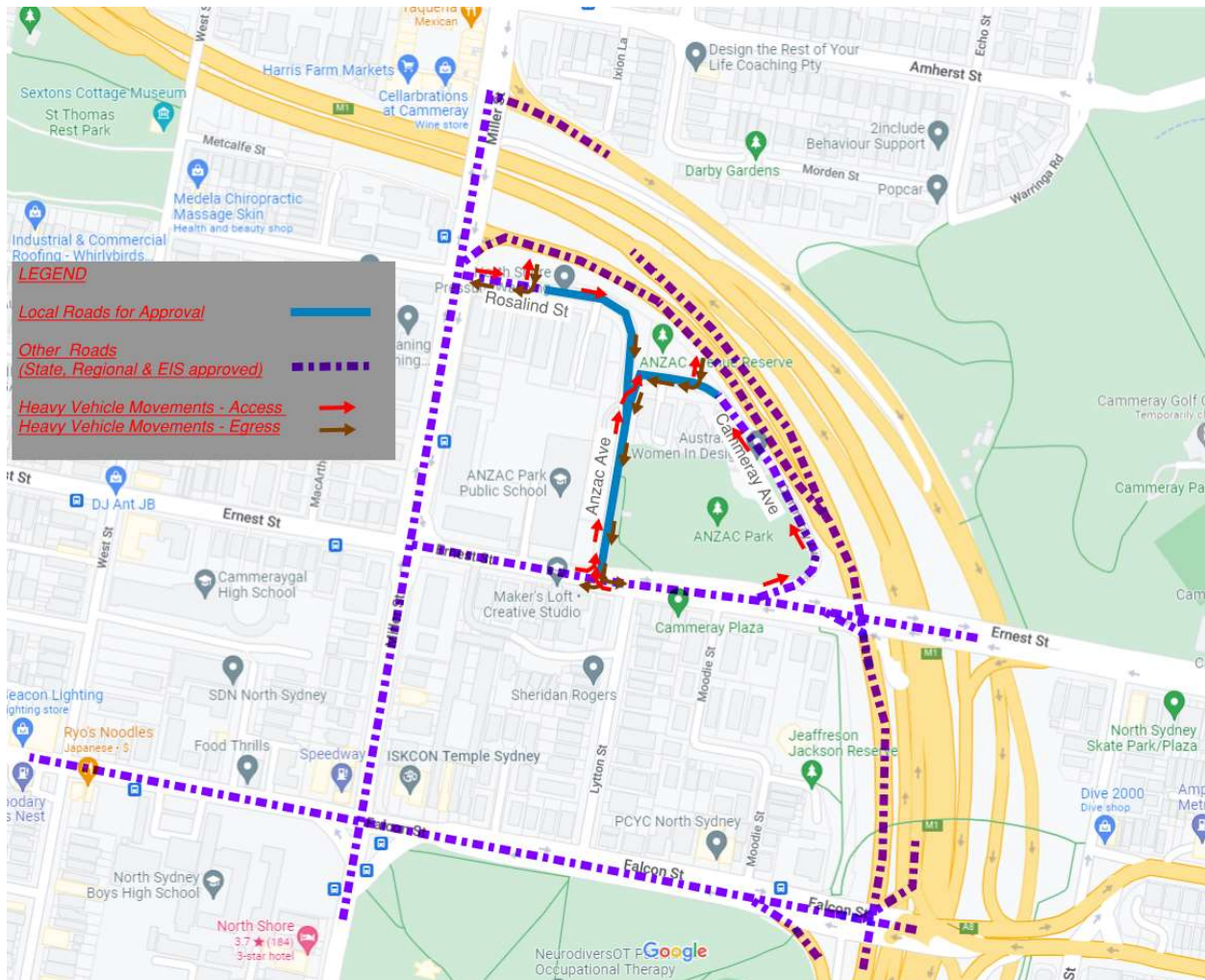


Figure 2 Local roads requiring approval

4.2 Other Roads

Falcon St and Miller St are classified as State Roads and Ernest St as a regional road. There are no signs posted to restrict road and bridge use and, as such general access vehicles have unrestricted access on these roads.

The proposed construction heavy vehicles may include the 6m to 8.8m HRV, 19m Truck and Trailer and the 19m AV are categorized as general access heavy vehicles. Refer to Appendix A5.

Provided these vehicles have current registration appropriate to the vehicle configuration, no specific access restrictions apply, and no additional permits are required to access Falcon St, Miller St, and Ernest St.

4.3 Justification for the use of local roads

Justification for the selection of local roads shown in Figure 2 includes:

- Accommodating access and egress for the Portal Precinct via the Warringah Freeway would require a significant lateral shift of the Miller St on-ramp and northbound outer carriageway east

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into the central Mohawk area to accommodate access. Changes to the Northbound outer carriageway geometrical alignment and rock excavation would be required. This would delay critical path work on the Miller St on-ramp and in the Mohawk area. The terrain within Anzac Ave Reserve along the north-western verge area adjacent to the Miller St off-ramp is a vertical rock face making a level difference and there is insufficient space for construction vehicles to manoeuvre within and around the work area. The project is required to maintain the traffic lanes on the Miller St off ramp at all times and any access created would not meet traffic safety requirements ie sight distances, gate access design, turn paths for Heavy vehicles, and would require significant reversing movements which would pose a significant safety risk.

- Access from the motorway ramps has been considered but would fail to meet the traffic design requirements and would be considered an unsafe access as the access gate and deceleration area would be insufficient for the signposted speed.
- In addition to the above, throughout the duration of construction activities adjacent to Cammeray Ave, access from the motorway becomes further complicated as the northbound Miller St off ramp is pushed further north from the current alignment to construct the northbound beaches link cut and cover structure. The temporary construction working platforms for piling and concrete works for this structure will be significantly below current road level which will prevent the development of a mainline/freeway construction access with appropriate deceleration lanes.
- The existing noise wall provides noise attenuation from the Freeway and visual amenity to the local residents. Removal of the noise wall to facilitate access has been assessed and is not considered a feasible option given the noise and visual amenity mitigation the wall provides. A replacement noise wall in an offset alternate location would adversely impact on the local road access (insufficient shoulder/ verge in some areas), would also require additional vegetation clearance and would remove public access to the existing green space in Anzac Ave Reserve
- There is insufficient space between Rosalind Street and the Freeway offramp to enable alternate access from the Rosalind St compound (WFU9) to Anzac Reserve and Cammeray Avenue. This option would also require additional tree clearing and disturbance within Anzac Reserve to occur.
- Rosalind St, Anzac Ave and Cammeray Ave in conjunction with Ernest and Miller St are the only alternate access routes other than the Warringah Freeway as described above.
- Rosalind St and Cammeray Ave form the shortest and most accessible route between the Anzac Ave Reserve and Cammeray Ave worksites and the nearest arterial roads (Miller St and Ernest St) for arterial road network access and egress.
- Anzac Ave is the only feasible egress route from Cammeray Ave. The use of Anzac Ave north of Cammeray Ave and Rosalind St instead of Anzac Ave southbound to Ernest St for access to the arterial road network is not possible for the following reasons:
 - The exiting driver observation angle is greater than 110 degrees which creates driver sight distance safety issues, if making the u-turn movement from Cammeray Avenue to Rosalind Street
 - The u-turn movement from Cammeray Avenue to Anzac Ave northbound is not possible for an 8.8m single unit truck (SV) or larger.

The local roads required for the Planning Secretary's approval will be included in a revised and updated TTAMP.

4.4 Proposed volumes of heavy vehicles on local roads

Proposed volumes of heavy vehicles on local roads that are assessed in this Document (shown in Figure 2) are detailed in Table 4.

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Table 4 Proposed total volumes of heavy vehicles on local roads

Local road	Peak vehicle movements per day (one-way movements)	Morning peak vehicle movements (6 am to 10 am one-way movements)	Evening peak vehicle movements (3 pm to 7 pm one-way movements)
	Heavy	Heavy	Heavy
Rosalind St up to Anzac Ave	6 - 6m to 8.8m HRV All one-way	2 - 6m to 8.8m HRV All one-way.	2 - 6m to 8.8m HRV All one-way
Anzac Ave between Rosalind St and Cammeray Ave	6 - 6m to 8.8m HRV All one-way	2 - 6m to 8.8m HRV All one-way	2 - 6m to 8.8m HRV All one-way
Anzac Ave between Cammeray Ave and Ernest St	18- 6m to 8.8m HRV 32 -19m Truck and Trailer 5 - 19m AV 2 – 25t Franna 2 – 250t Terrian Crane All one-way	6 - 6m to 8.8m HRV 10 -19m Truck and Trailer 1 - 19m AV 1 – 25t Franna 1 – 250t Terrian Crane All one-way	6 - 6m to 8.8m HRV 10 -19m Truck and Trailer 1 - 19m AV 1 – 25t Franna 1 – 250t Terrian Crane All one-way
Cammeray Ave between Ernest St and Anzac Ave	12 - 6m to 8.8m HRV 32 -19m Truck and Trailer 5 - 19m AV 2 – 25t Franna 2 – 250t Terrian Crane All one-way	4 - 6m to 8.8m HRV 10 -19m Truck and Trailer 1 - 19m AV 1 – 25t Franna 1 – 250t Terrian Crane All one-way	4 - 6m to 8.8m HRV 10 -19m Truck and Trailer 1 - 19m AV 1 – 25t Franna 1– 250t Terrian Crane All one-way

Daily vehicle volumes consider waste removal, material deliveries, and arrival and departure of construction personnel. The proposed vehicle movements are peak movements and would not be expected to occur continuously over the duration of the works.

Typical light vehicles to be used during construction will be workers' 4WD utes and small trucks less than 4.5t Gross Vehicle Mass-GVM.

Typical heavy vehicles expected to be used during construction would include but are not limited to, 6-8.8m concrete agitator trucks (SRV&SV), 19m Truck & Trailers, 19m Articulated Vehicles (Semi-trailer, 25 tonne Franna crane and 250 tonne Terrain crane).

In the event that SPA (WFO Stage 1 Contractor) require further use of the roads subject to this approval, CPBD will work with the SPA contractor to ensure combined vehicle use of these roads does not exceed the vehicle numbers outlined in Table 4.

Where possible, deliveries will be scheduled outside of peak traffic times and school drop-off and pick-up times. Worker shift patterns will regularly be influenced by road occupancy licences.

4.5 Heavy vehicle volume cumulative impacts

There are seven (7) Project Work Sites in North Sydney and Cammeray in the vicinity of the

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Portal Precinct that have been identified as operational between 2022 and 2024 and include:

- Ridge St east construction support site (WHT9) - Warringah Freeway Upgrade, Ridge St
- Sydney Metro City Victoria Cross North and South over stations, Miller St
- Aqualand High-Rise Mixed-Use Resident Project, McLaren St
- Marist Catholic College North Shore Precinct Project, Miller St
- Monte Sant'Angelo Mercy College Scientia Project, Miller St
- Northern suburbs Ocean Outfall Sewer Tunnel Works with ventilation and emergency evacuation point in West St a parallel local road.
- WFU - Cammeray Golf Course Precinct (WFU8), Ernest St located about 250m east of the Portal precinct

Miller St and Ernest St are roads that would be shared with the Portal Precinct work site access and egress. Light and heavy construction vehicles could potentially use Miller St between the Warringah Freeway and Falcon St and Ernest St between Warringah Freeway and Miller St (regional roads) for access and egress.

These Projects are operating independently and are at different stages of their construction schedules so the potential for peak light and heavy vehicle volumes to coincide on the access and egress roads would be a rare occurrence. The overlap of light and heavy vehicle volumes is more likely to result in a minor increase in construction vehicle traffic volumes on Miller St and Ernest St.

Ernest St and Miller St are regional roads with Clearway and parking restrictions AM and PM that will increase roadway capacity in the direction of peak period traffic flows:

- Westbound 2-lanes are functional on Ernest St when clearway conditions operate from 6 am to 10 am on weekdays; and
- Eastbound 2-lanes are functional on Ernest St under No Stopping conditions
- Southbound 2-lanes are functional on Miller St when clearway conditions operate from 6 am to 10 am; and
- Northbound 2-lanes are functional on Miller St when clearway conditions operate from 3 pm to 7 pm on weekdays.

During the peak periods, these traffic management controls increase the road capacity enabling the mix of the general vehicle traffic and construction vehicle traffic volumes on Miller St and Ernest St, improving the traffic flow conditions on the Cammeray arterial road network.

Outside the peak periods, general vehicle traffic volumes would be less and this reduction in general vehicle traffic volumes will likewise enable the mix of the general vehicle traffic and construction vehicle traffic movements on Miller St and Ernest St, maintaining traffic flow conditions on the Cammeray arterial road network.

Minor cumulative impacts are expected to result from the cumulative construction vehicle movements on Miller St and Ernest St, Cammeray

Where reasonable and feasible construction traffic movements would be minimised during peak periods and CPBD will not schedule deliveries to site during peak traffic times and school drop-off and pick-up times. A Vehicle Movement Plan will be prepared and will detail a restriction on heavy vehicle movements during school zone times where applicable.

Truck marshalling areas will be identified and used where feasible and reasonable, to minimise potential queueing and traffic and access disruptions in the vicinity of Miller St, Ernest St, Cammeray Ave, Rosalind St and Anzac Ave.

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5. Local roads assessment

5.1 Swept path analysis

As required by CoA E133(a), swept paths have been prepared for all local roads requiring DPE approval. Swept path diagrams are provided in Appendix A2 for the following:

- A 6-8.8m-meter single unit truck (HRV),
- A 19m Truck & Trailer
- A 19m Articulated Vehicle (Semi-trailer/crane) which is the maximum size vehicle that will be used on local roads for CPBD works;

The swept paths provided in Appendix A2 are detailed comments provided in Table 5.

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Table 5 Summary of swept path analysis

Local Road	Drawing number in Appendix A2	Can 6-8.8 m SUT, 19m T & T and 19m AV manoeuvre without encroaching on existing kerbs, traffic management/traffic control devices, or on-street parking spaces?	Additional comments
Miller St to Rosalind St/ Ernest St	Drawing #4000050	6-8.8 m Single Unit Truck – yes	N/A
Rosalind St to Anzac Ave & Cammeray Ave to Anzac Ave	Drawing #4000051	8.8 m Single Unit Truck – yes	N/A
Anzac Ave to Ernest St to Cammeray Ave	Drawing #4000052	8.8 m Single Unit Truck – yes	N/A
Miller St to Ernest St	Drawing #4000053	19 m Truck & Trailer – yes	N/A
Ernest St to Cammeray Ave & Cammeray Ave to Anzac Ave	Drawing #4000054	19 m Truck & Trailer – yes	N/A
Anzac Ave & Ernest St & Ernest to Warringah Fwy	Drawing #4000055	19 m Truck & Trailer – yes	N/A
Miller St to Ernest St	Drawing #4000056	19 m Articulated Veh. – yes	N/A
Ernest St to Cammeray Ave & Cammeray Ave to Anzac Ave	Drawing #4000057	19 m Articulated Veh. – yes	N/A
Anzac Ave to Ernest St & Ernest St to Warringah Fwy	Drawing #4000058	19 m Articulated Veh. – yes	N/A

5.2 Encroachment & parking removal for access and egress

Parking removal will be required for the purpose of carrying out construction work on Cammeray Ave and to facilitate construction heavy vehicle turning manoeuvres. Any parking removal will only occur subject to an update and approval of the Construction Parking and Access Strategy (CPAS) in accordance with CoA E140.

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Turning path analysis indicates that the 8.8m HRV, 19m Truck & Trailer and 19m Articulated Vehicle would encroach within the on-street parking spaces at the following locations:

- On Cammeray Ave; and
- On the north-eastern corner of Anzac Ave and Cammeray Ave intersection/junction.

The number of on-street parking spaces and frequency of removal are shown in Table 6

Table 6 Parking removal and frequency of removal for access and egress

Location	Size /Type	Removal Frequency	Number of Parking Spaces
Cammeray Ave	8.8m HRV, 19m T & T and 19m AV	Duration of works 2022 to 2024	26 - car spaces
Cammeray Ave	Worksite access & egress	Duration of works 2022 to 2024	10 - car spaces
Intersection Anzac Ave and Cammeray Ave	8.8m HRV, 19m T & T and 19m AV	Duration of works 2022 to 2024	1 - car space

Parking spaces to be removed are shown in Appendix A2.

The 8.8m HRV, 19m Truck & Trailer and 19m Articulated Vehicle would access Rosalind Ave and Cammeray Ave and egress Anzac Ave regularly for the purpose of site mobilisation/implementation, during construction and de-mobilisation. Therefore, temporary removal of parking 24hrs per day, 7 days per week for access and egress over the duration of the construction work is unavoidable.

The swept path analysis also indicated that construction vehicles access is restricted to the 6.4m SUT(SRV) or the 8.8 m SUT(SV) at the following locations:

- The left-turn from Ernest St into Miller St southbound vehicle size is restricted to the 8.8m SV;
- The left-turn from Miller St (southbound) into Rosalind St is restricted to the 8.8m SV; and
- The right-turn from Miller St (northbound) into Rosalind St is restricted to the 6.4m SRV.

At the intersection of Cammeray Ave and Anzac Ave the u-turn movements at Cammeray Avenue and Anzac Ave intersection are not possible for 6m single unit truck(SRV) or larger.

The 8.8m HRV, 19m Truck & Trailer and 19m Articulated Vehicle can access and egress Cammeray Ave, Rosalind St and Anzac Ave in a forward direction.

As a result of these swept path restrictions the large 19m Truck & Trailer and 19m Articulated Vehicle will need to access the Portal Precinct via Cammeray Ave and exit via Anzac Ave southbound. Cammeray Avenue will be closed from Ernest Street for piling works from Q4 2022 until Q2 2023 (approximately 7 months) and again from Q3 2023 until Q2 2024 (approximately 12 months) and construction vehicle access will be required northbound on Anzac Ave which will be managed where practicable outside School Zone times 8-9:30 am and 2:30-4 pm school days. The 6-8.8m SUT (SRV and SV) would access and egress Rosalind Ave eastbound and westbound, Cammeray Ave northbound, Anzac Ave southbound and Anzac Ave (northbound when required).

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5.3 Key Hazards and Risks Assessment

As required by CoA E133(b), a pedestrian, cyclist and two-way traffic flow safety risk assessment has been undertaken to demonstrate that the use of local roads by heavy vehicles will not compromise pedestrian, cyclist and two-way traffic flow safety.

Existing potential hazards to pedestrians, cyclists and two-way traffic were identified during site inspections. These were assessed against a risk matrix. The risks of these potential hazards were then reassessed, taking into consideration the use of local roads by heavy vehicles.

The methodology of identifying hazards and assessing their level of risk is similar to that undertaken for road safety audits. The risk assessment system is the easiest means of identifying the level of risk associated with any given hazard. The risk assessment system is outlined in Appendix A3.

The pedestrian, cyclist, one-way traffic flow and two-way traffic flow safety risk assessment is detailed in Table 8 below. Potential hazards to pedestrians, cyclists and vehicles were identified with respect to traveling on, crossing and manoeuvring on the Cammeray Ave, Anzac Ave and Rosalind St access and egress route. There are no existing designated cycle routes on Cammeray Ave, Anzac Ave and Rosalind St. There is a shared (bicycle & pedestrian) east-west route that crosses the intersection of Cammeray Ave and Ernest St.

The results of the safety risk assessment demonstrate that the use of local roads by heavy vehicles will not have an impact on pedestrians, cyclists and two-way traffic flow safety as indicated by the revised level of risk being the same as the existing level of risk for all identified potential hazards.

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Table 7 Pedestrian, cyclist and two-way traffic flow safety risk assessment

Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Ernest St & Cammeray Ave (left-turn NB)	There is the potential for conflict between <i>pedestrians or cyclists crossing Cammeray Ave and vehicles</i> doing the left-turn from Ernest St into Cammeray Ave.	Improbable	Serious	Medium	<ul style="list-style-type: none"> Single one-way traffic lane to cross reducing exposure to vehicle movements. An existing low number of pedestrians and cyclists. Conventional footway area for pedestrians to stand while waiting to cross the roadway. The existing 50 km/h posted speed limit Inter-visibility between road users. Driver induction process to include safety awareness in relation to all road users 	Improbable	Serious	Medium
Cammeray Ave (Through)	There is the potential for conflict between <i>pedestrians, cyclists and vehicles or vehicle exiting/entering driveways and</i>	Improbable	Serious	Medium	<ul style="list-style-type: none"> Verge area/footway space separates pedestrians/cyclists from vehicles Infrequent pedestrian and cyclist movements Existing low numbers of 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
	<i>vehicles traveling on Cammeray Ave</i>				pedestrians <ul style="list-style-type: none"> Existing 50 km/h posted speed limit and 40km/hr during school zone times Intervisibility between road users. Driver induction process to include safety awareness in relation to all road users 			
Cammeray Ave work site entry and exit	There is a potential conflict between vehicles entering and exiting the worksite and vehicles traveling on Cammeray Ave.	Improbable	Serious	Medium	<ul style="list-style-type: none"> 40 km/h ROAD WORK zone signposted and advance advisory and warning signs to be installed Mutual-visibility for the low-speed environment between drivers exiting/entering and drivers traveling on Cammeray Ave 7.5m wide traffic lane on Cammeray Ave westbound adjacent to the entry/exit provides clearance between a vehicle exiting and a through vehicle. Infrequent cyclist movements 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Cammeray Ave & Anzac Ave junction (left-turn SB)	There is the potential for <i>on-road cyclist and vehicle rear end and through from right conflict</i> when vehicles turn left and then merge right onto Anzac Ave or side swipe conflict with vehicles unparking on Anzac Ave.	Improbable	Serious	Medium	<ul style="list-style-type: none"> Existing low numbers of cyclists Signage to warn cyclists (and other vehicles) of the presence of heavy vehicles Existing 50 km/h posted speed limit and 40km/hr during school zone time Approach sight distance between southbound driver on Anzac Ave Cammeray Ave vehicle merging at the junction. Mutual-visibility for the low-speed environment between drivers entering/exiting the Anzac Ave and Cammeray Ave junction. Speed hump & delineation on Anzac Ave on approach to the junction with Cammeray Ave separates and reduces through vehicle's speed on Anzac Ave southbound. Driver induction process to include safety awareness in relation to all road users 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
Cammeray Ave & Anzac Ave junction (right turn EB)	There is the potential for <i>vehicle rear end and on-road cyclist and vehicle through from right conflict when turning right</i> at Cammeray Ave and Anzac Ave as they cross the same road space				<ul style="list-style-type: none"> Existing low numbers of cyclists Existing low volume of traffic Signage to warn cyclists (and other vehicles) of the presence of heavy vehicles Approach sight distance between southbound and northbound driver on Anzac Ave turning right to merge into Cammeray Ave. Speed hump & delineation on Anzac Ave on approach to the junction with Cammeray Ave separates vehicle movements and reduces through vehicle's speed on Anzac Ave southbound. Mutual-visibility for the low-speed environment between drivers entering/exiting the Anzac Ave and Cammeray Ave junction. Construction vehicle movements northbound to and from Anzac Ave and Cammeray Ave junction to be 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
					managed under TGS/ROL . <ul style="list-style-type: none"> Driver induction process to include safety awareness in relation to all road users 			
Anzac Ave (through southbound & northbound)	There is the potential for conflict between <i>pedestrians, cyclists and vehicles or vehicle exiting/entering driveways or unparking and vehicles traveling</i> on Anzac Ave.	Improbable	Serious	Medium	<ul style="list-style-type: none"> Existing low numbers of cyclists Existing low numbers of pedestrians (outside of school hours) Existing 50 km/h posted speed limit and 40km/hr during school zone time Approach sight distance between a southbound driver on Anzac Ave and cyclist/ vehicle exiting Cammeray Ave southbound A series of closely spaced speed humps & complementary delineation on Anzac Ave formalises a controlled low-speed environment of 25km/hr to 40km/hr The pedestrian crossing mid-block provides the location and opportunity for pedestrians to cross the roadway 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
					<p>securely.</p> <ul style="list-style-type: none"> Roadway delineation separation lines define traffic lanes and separate northbound and southbound movements Heavy vehicles will not be permitted to travel to or from the Cammeray Avenue worksite via Anzac Avenue during school zone times on school days (8 am to 9.30 am and 2.30 pm to 4 pm) Driver induction process to include safety awareness in relation to all road users 			
Anzac Ave & Ernest St (right-turn & left-turn)	There is the potential for <i>vehicle-vehicle/ vehicle-cyclist</i> conflicts and <i>vehicle-pedestrian on-road crossing</i> conflicts as they share the same road space.	Improbable	Serious	Medium	<ul style="list-style-type: none"> Existing low numbers of cyclists Existing low numbers of pedestrians (outside of school hours) Existing 50 km/h posted speed limit and 40km/hr during school zone time Heavy vehicles will not be permitted to travel to or from the Cammeray Avenue worksite via Anzac Avenue during school zone times on 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
					<p>school days (8 am to 9.30 am and 2.30 pm to 4 pm)</p> <ul style="list-style-type: none"> Swept path analysis shows heavy vehicles undertaking turning manoeuvres would not encroach on footpaths when turning left or right to/from Anzac Ave and Ernest Street. Heavy vehicles.>8.8m undertaking turning manoeuvres left or right into to be managed under TGS/ROL . Approach sight distance between driver/cyclist traveling eastbound or westbound on Ernest St and driver exiting Anzac Ave(i.e. aware of the intersection and its conditions) Safe intersection sight distance on Ernest St, approaches to Anzac Ave There is mutual visibility between a driver exiting Anzac Ave and pedestrians crossing on Anzac Ave at its intersection with Ernest St. Aust Road Rules require exiting drivers to give way to entering drivers and drivers traveling on 			

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
					Ernest St. <ul style="list-style-type: none"> An existing low number of vehicle movements inbound and outbound on Anzac Ave outside of school hours Driver induction process to include safety awareness in relation to all road users. 			
Miller St & Rosalind St (left-turn EB)	There is the potential for <i>on-road cyclist</i> and <i>vehicle conflicts with vehicles exiting and entering</i> as cross paths and <i>vehicle-pedestrian on-road crossing the conflicts</i> as they share the same road space	Improbable	Serious	Medium	<ul style="list-style-type: none"> An existing low number of cyclist and vehicle movements inbound and outbound on Rosalind St Due to the presence of the CSS, there is signage to warn cyclists (and other vehicles) of the presence of heavy vehicles. Approach Sight distance between driver/cyclist traveling northbound or southbound on Miller St and driver exiting Rosalind St(i.e. aware of the intersection and its conditions) Safe intersection sight distance on Miller St, approaches to Rosalind St There is intervisibility between a driver exiting Rosalind St and pedestrians crossing on Rosalind St 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
					<p>at its intersection with Miller St.</p> <ul style="list-style-type: none"> There is a pedestrian refuge on Rosalind St at its intersection with Miller St that separate vehicle and pedestrian movements and allows pedestrians to cross in stages Aust Road Rules require exiting drivers to give way to entering drivers and drivers traveling on Miller St. Driver induction process to include safety awareness in relation to all road users. 			
Rosalind St & Anzac Ave junction (curve)	There is the potential for conflict between <i>pedestrians</i> crossing and vehicles <i>traveling in opposing directions</i>	Improbable	Serious	Medium	<ul style="list-style-type: none"> Existing low numbers of pedestrians and vehicle movements Existing 50 km/h posted speed limit and 40km/hr during school zone time Road carriageway centreline is delineated to provide two-way traffic flow Swept path of vehicles contained within traffic lanes. Guardrail discourages pedestrian to cross the road Wide sealed footway for pedestrian to walk along, on the inside of the curve 	Improbable	Serious	Medium

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Location	Description of existing hazard	Existing conditions			Use of local roads by heavy vehicles			
		Crash frequency	Crash severity	Level of risk	Mitigating factors	Revised crash frequency	Revised crash severity	Revised level of risk
					<ul style="list-style-type: none"> • Mutual visibility between road users through the curve. • Driver induction process to include safety awareness in relation to all road users 			

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5.3.1 Explanation of Key Hazards and Risk Areas Assessment

Table 7 evaluates the hazards and risks along Cammeray Ave, Anzac Ave and Rosalind St. The evaluation carries out a crash risk assessment comparison for pedestrians, cyclists and vehicles potential conflicts **without** the 6.4m SRV, 8.8m SV, 19m Truck & Trailer and 19m Articulated Vehicle and **with** .4m SRV, 8.8m SV, 19m Truck & Trailer and 19m Articulated Vehicle. Due to the nature of the urban road environment pedestrians, cyclists and vehicles without or with SRV/SV/19m Truck & Trailer and 19m Articulated Vehicle would use, occupy and travel on Cammeray Ave, Anzac Ave and Rosalind St in the same way and in accordance with the road regulations. The swept path analysis confirms that SRV/SV/19m Truck & Trailer and 19m Articulated Vehicle at key locations can travel on Cammeray Ave, Anzac Ave with the removal of some parking spaces on Cammeray Ave and selected removal on Anzac Ave.

The swept path analysis confirms that:

- At the intersection of Miller St and Rosalind St, the 6.4m SRV is the largest construction vehicle that can turn right from Miller St into Rosalind St.
- At the intersection of Miller St and Rosalind St, the 8.8m is the largest construction vehicle that can turn left from Miller St into Rosalind St.
- At the intersection of Miller St and Ernest, the 8.8m is the largest construction vehicle that can turn left from Ernest St into Miller St. As a result, the 19m Truck & Trailer and 19m Articulated Vehicle will exit by the turn left at the intersection of Ernest St and Anzac Ave and then turn right onto the Ernest St southbound on-ramp to access the arterial (State) road network. Or right-turn from Anzac Ave and right-turn from Ernest St into Miller St northbound.

While there will be no change to the road traffic management and traffic controls there will be a change to the parking management. One (1) space is to be removed on Anzac Ave at the intersection of Anzac Ave and Cammeray Ave. Thirty (36) spaces are to be removed on Cammeray Ave. Regulatory No Stopping is to be installed. For the 'with' SRV/SV/T&T/AV scenario, the assessment identifies the mitigation factors that ensure the prevailing conditions with the introduction of heavy vehicles is workable and the likely level of risk is the same for 'without' SRV/SV/T&T/AV and 'with' SRV/SV/T&T/AV use of the local road.

A summary of the risk assessment and mitigation strategies/approach to ensure the proposal will not compromise the safety of pedestrians and cyclists or the safety of two-way traffic flow on one-way or two-way roadways (CoA E133(b)) is as follows:

- The existing road management arrangements that permit two-way traffic flow on the two-way local roads will be supplemented with TGS controls to manage access and egress of heavy vehicles and general traffic movements as required.
- The pedestrian footways and pedestrian crossing arrangement on Anzac Ave maintain pedestrian road safety and/or allocate right of way.
- The formation of the roadway supports the safety of cyclists in the two-way road, two-way traffic flow. Heavy vehicles will be subject to the existing speed limit of 40km/hr, control devices and road rules.
- Construction vehicle movements are one-way on Cammeray Ave, Rosalind St and Anzac Ave inbound and outbound. Occasionally Cammeray Avenue will be closed to northbound traffic due to construction work activity and construction vehicle access will be required northbound on Anzac Ave which will be managed outside School Zone times 8-9:30 am and 2:30-4 pm school days.

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- On Anzac Ave and Rosalind St, the traffic lane widths in each direction and the centre of road line marking permit oncoming vehicles like the SRV/ SV/T&T/AV to pass other vehicles, therefore, maintaining two-way traffic flow on the two-way on Rosalind St and Anzac Ave.
- As required, TGS/ROL will be implemented to ensure continuity of traffic flow on Cammeray Ave (one-way) and Rosalind St & Anzac Ave (two-way) traffic lanes remain workable.
- Road users retain, and heavy vehicle drivers can use the road environment features and the visual cues to safely travel on the one-way and two-way in the traffic flow.
- CPBD has developed a Driver's Code of Conduct for the Early Establishment works (refer to Appendix A4) that define driver speed behaviour.
- The pavement condition assessment indicated no serious pavement degradation and that the pavement was in a functional state. With the addition of heavy vehicles, traffic flows remain light. SRV/ SV/T&T/AV movements will be regular. Cammeray Ave, Anzac Ave and Rosalind St are not subject to any load limit restrictions. The additional traffic loading may contribute to some minor localised pavement damage that CPBD will rectify in a timely manner.

In addition, measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during peak times for operation (CoA E133(d)) are:

- While the choice of heavy vehicle routes adjacent to Anzac Ave Public School is unavoidable, construction vehicles will mostly use the opposite side of Anzac Ave.
- The route passes by a school, which also functions as a childcare facility. The project will consult with this sensitive receiver to confirm peak times of operation and periods when they are more sensitive to heavy vehicle traffic, e.g. during school drop-off and pick-up times. The project will avoid using heavy vehicle routes past receivers during these periods where practicable.

Further details are provided in the following sections.

5.4 CoA E133(b) Demonstrated Safety on Local Roads

A closer examination of the road user's use of the road environment with SRV/ SV/T&T/AV shows that the 'with construction vehicles' will not compromise the safety of pedestrians, cyclists or the safety of two-way traffic flow on two-way roads.

5.4.1 Pedestrians

There will be no changes to the existing pedestrian road management arrangements on Cammeray Ave, Anzac Ave and Rosalind St. Pedestrians will continue to use the existing footways, verge and designated crossing points.

The vulnerability of pedestrians in the road space and allocated right of way is managed by speed humps, zebra pedestrian crossing on Anzac Ave, and the parallel formalised footways on contemporary road layout. The roadway horizontal and vertical alignments afford inter-visibility between drivers and pedestrians and allow pedestrians to negotiate to cross the roadway and reduce pedestrian exposure by separating their crossing movements from the vehicle through movements by finding suitable gaps in the traffic flow. The road layout on Cammeray Ave, Anzac Ave and Rosalind St provide the means to cross the roadway safely with security and minimal delay.

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With the addition of heavy vehicles, traffic flows remain light. With construction vehicles, pedestrians will continue to use the existing footways and designated crossing points without noticeable material change to their exposure to the one-way and two-way traffic flow.

5.4.2 Cyclists

On Cammeray Ave, Anzac Ave and Rosalind St there are no formalised on-road cyclist facilities. Cyclists will continue to use the roadway in the same way that they have in the past. In accordance with the Australian Roads Rules Division 2, Rule 15 a bicycle is classified as a vehicle, and cyclists and vehicles have an equal right-of-way on the road and share the road space.

- On-road cyclists share the single traffic lane on Cammeray Ave and the traffic lane in each direction on Anzac Ave and Rosalind St with the general traffic and SRV/SV/T&T/AV, and on approach and departure at the intersecting roads of Miller St & Rosalind St Anzac Ave & Ernest St; and
- A designated shared path (pedestrian & cyclists) crosses the intersection of Cammeray Ave and Ernest St. The horizontal and vertical alignment provides inter-visibility between drivers and cyclists. This situation allows cyclists to negotiate to cross the roadway by finding suitable gaps in the traffic flow thereby reducing their exposure to vehicle movements. Cyclists with heavy vehicle movements have the means to cross the roadway safely with security.

The formation of the roadway supports the safety of cyclists in the one-way and two-way road traffic flow.

5.4.3 Safety of two-way traffic flow on two-way roadways

5.4.3.1 Road User Lane widths

There are no changes to the Cammeray Ave, Anzac Ave and Rosalind St traffic lanes however, there will be changes to parking arrangements on Cammeray Ave as a result of the footprint of the construction work and on Anzac Ave roads due to heavy vehicle turning movement encroachment. On Rosalind St, the removal of 3 car parking spaces along the frontage to Rosalind St CSS entry/exit gate has been approved.

Rosalind St and Anzac Ave are undivided local roads that provide for through two-way traffic flow with a traffic lane in each direction and minimum width for on-street parking, except on the curve at the junction of Rosalind St and Anzac Ave where the road narrows where there is no on-street parking. Cammeray Ave is an undivided road that provides for through one-way traffic flow with a traffic lane and minimum width for on-street parking.

A comparison between Austroads standard lane widths and Rosalind St, Anzac Ave and Cammeray Ave road user lane widths shown in Table 9 indicates that the road user lane widths are consistent with the Austroads standards and are greater than the minimum standard. The traffic lane widths on Rosalind St, Anzac Ave and the centre of road BB-line delineation of the road carriageway permit oncoming vehicles like the heavy vehicle to pass other vehicles, therefore, maintaining two-way traffic flow. On Cammeray Ave (northbound) and (westbound) the traffic lane width permits the travel of the SRV/SV/HRV/T&T/AV in the one-way traffic flow.

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Table 8 Widths of two-way roadway elements

Road User Lane	Austrroads	Rosalind St (Miller to Anzac)	Anzac Ave St (Anzac to Ernest)	Cammeray Ave Ernest to Reserve	Cammeray Ave Adjacent Anzac Ave Reserve
	Standard Width Range				
Traffic Lane	2.8- 3.7m	4.3m & 3.4m on the curve	3.6m & 3.4 m on the curve	3.1m & 4.6m on the entry curve	6.4m
Parking Lane	2.0-2.3m	2.0m	2.0m	2.0m	90 degree

5.4.3.2 Safe Urban Two-way Road Environment.

A site inspection and review of the Rosalind St, Anzac Ave and Cammeray Ave road environment (i.e. road carriageway, vertical and horizontal road geometry, traffic volumes, parking and shared lane widths, medians, inter-visibility, intersection controls, formed footways, pedestrian crossing locations, local area traffic management, road delineation, road and wayfinding signage and street lighting) indicate that the road environment features are consistent with a functionally safe urban road environment. The existing conditions on Rosalind St, Anzac Ave and Cammeray Ave mean road users retain, and the heavy vehicle drivers can use the road environment features and the visual cues to safely negotiate the one - way and two-way traffic flow on the road carriageways.

5.4.3.3 Travel Speed

The speed at which a vehicle may be driven on roads is restricted to ensure the safety of motorists, cyclists and pedestrians. For urban local roads like Rosalind St and Anzac Ave and Cammeray Ave the speed limit is 50km/hr and on Anzac Ave regulated by speed humps to 25km/hr and as defined by posted regulatory signs, pavement markings, and/or by the road regulations.

Heavy vehicles will be subject to the existing speed management conditions. The heavy vehicles due to their variable load, speed and acceleration characteristics on downhill or uphill one-way and two-way local road segments will travel at or below the posted limit of 40km/hr during am and pm school zone times, 25km/hr on Anzac Ave between Cammeray Rd and Ernest St and 50km/hr at other times and locations in the precinct. CPBD has developed a Driver's Code of Conduct for the Early Establishment works (refer to Appendix A4) that define driver speed behaviour. This Code of Conduct will be included in the site mobilisation induction, reiterated at shift toolbox sessions and will also be provided to all sub-contractors and delivery drivers.

5.4.3.4 Road Pavement

Rosalind St, Anzac Ave and Cammeray Avenue are North Sydney Council roads and TfNSW is responsible for the road dilapidation survey and report. A site inspection and visual assessment of the pavement's condition state (e.g. surface distress like rutting and cracking) as outlined in Austrroads was undertaken. The site inspection indicated no serious pavement degradation and that the pavement was in a functional state. Rosalind St and Anzac Ave and Cammeray Ave are not subject to any sign-posted load limit restrictions. With the addition of heavy vehicles will be repetitive and traffic flows remain light. The additional traffic loading may contribute to some minor localised pavement damage that CPBD will repair and restore in a timely manner.

Repair and restore

In accordance with CoA E137, if damage to roads occurs as a result of the construction site works, CPBD will either (at the relevant road authority's discretion):

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- Compensate the relevant road authority for the damage so caused; or
- Rectify the damage to restore the road to at least the condition it was in pre-works as identified in the road dilapidation reports.

CPBD will obtain the necessary approvals and concurrence of the relevant road authority, prior to conducting any works on the road or the road reserve.

A Road Occupancy Licence (ROL) will be obtained for work which:

- Slows, stop, or otherwise delays or affects the normal flow of traffic
- Diverts traffic from its normal course along the road, including lane closures and detours
- Occupies any portion of the road-related area, including the footpath that is normally available for vehicular, pedestrian, or bicycle movement.

The ROL will be obtained prior to the commencement of any works on or near a State road except in the case of an emergency, or when directed by Police or Emergency services. ROL applications will be submitted in accordance with Road Occupancy Licensing Guidelines to the Traffic Management Centre (TMC).

5.5 CoA E133(d) Use of Roads Past Sensitive Landuses

Figure 3 shows the roads providing access and egress and the location of sensitive land uses in nearby the Portal Precinct.

There is one (1) School; Anzac Park Public School which provides:

- Before school care: 7:30 am – 9 am (Monday – Friday)
- After-school care: 3 pm – 6 pm (Monday – Friday)
- Vacation care: 7:30 am – 6 pm (during school holidays only)

There are no Aged Care facilities.

Miller St is a north-south two-way (State road), Ernest St is an east-west two-way (Regional road) and Rosalind St, Anzac Ave and Cammeray Ave are connecting local roads that provide access and egress for the Portal Precinct. The use of Rosalind St, Anzac Ave and Cammeray Ave for access past the local school and the child care facilities are unavoidable. It is expected that the use of the local roads will have a minor impact on sensitive land uses with the proposed precautions put in place.

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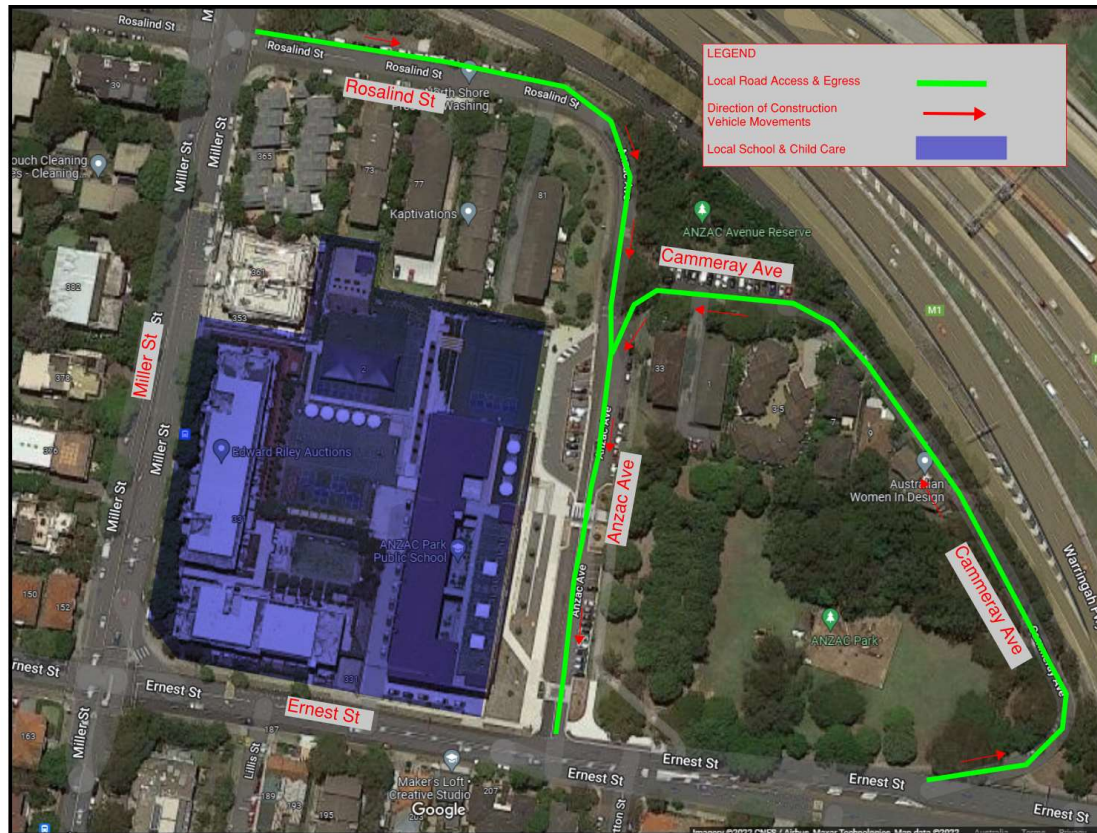


Figure 3 Roads & sensitive land uses Portal Precinct

Measures that will be implemented to manage heavy vehicle use of roads past the local school during peak times are:

- The preferred heavy vehicle routes have been selected to travel on the eastern side of Anzac Ave which avoids passing on the nearside traffic lane along the frontage to the Anzac Park Public School and its child care facilities. However, when Cammeray Avenue is closed from Ernest Street due to construction work activity, construction vehicle access will be required northbound on Anzac Ave which will be managed where practicable outside School Zone times 8-9:30 am and 2:30-4 pm school days; and
- CPBD will consult with the Anzac Park Public School to confirm peak times of operation and periods when they are more sensitive to heavy vehicle traffic, e.g. during school drop-off and pick-up times and School Zone times. The project will avoid using the roadway past Anzac Park Public School during these periods where practicable and will determine alternate or additional measures through consultation with the School throughout construction;
An additional crossing supervisor/traffic controller will be positioned at the zebra crossing on Anzac Avenue. This person will assist the existing school crossing supervisor to manage the movement of pedestrians across Anzac Avenue and monitor the behaviour of truck drivers and truck movements from 7am to 6 pm on school days; and
- As a behavioural deterrent, monitor spoil truck movements in real-time by Virtual Superintendent (Refer to Section 7). Truck drivers will be subject to disciplinary action as outlined in the Drivers Code of Conduct.

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6. Details of road dilapidation surveys undertaken

As required by CoA E133(c), road dilapidation surveys will be undertaken on the local roads requiring DPE approval. Rosalind St, Anzac Ave and Cammeray Avenue are North Sydney Council roads and TfNSW is responsible for the road dilapidation survey and report. The dilapidation survey has been completed. CPBD has advised TfNSW that a dilapidation report is required to be submitted to North Sydney Council. The Road Dilapidation Report in accordance with E136 is to be provided to North Sydney Council for information within three weeks of completion of the survey and no later than one month prior to the roads being used by heavy vehicles.

7. Heavy vehicles haulage monitoring and recording

For the purposes of keeping track of the locations of all heavy vehicles used for spoil haulage, CPBD will employ Virtual Superintendent a cloud-based reporting software used for construction.

The Virtual Superintendent collects data from on-machine devices, a mobile app or sensors which integrate with other software applications, and tracks and gives a detailed view of heavy vehicle movements. The software functions will identify vehicles, monitor them in real-time their location and record heavy vehicle spoil haulage movements on the road network.

The geospatial database allows the information to be stored electronically and made available electronically to the Planning Secretary and the EPA upon request.

8. Mitigation measures

To mitigate any potential impacts:

- All short-term temporary removal of parking on Anzac Ave and Cammeray Ave and construction vehicle access and egress movements to and from the Portal precinct construction worksite will be carried out under an approved TGS/ROL;
- Long-term removal of parking on Anzac Ave and Cammeray Ave and construction vehicle access and egress movements to and from the Portal precinct construction worksite will be carried out under TMP
- All light and heavy vehicles accessing the Portal Precinct via Cammeray Ave will be required to travel northbound on Cammeray Ave and then egress eastbound to the intersection of Anzac Ave and Cammeray Ave, and then southbound on Anzac Ave to the intersection of Ernest St and Anzac Ave which will be included in the vehicle movement plan for the Portal Precinct construction worksite;
- Occasionally Cammeray Avenue will be closed to northbound traffic due to construction work activity and construction vehicle access will be required northbound on Anzac Ave which will be managed outside School Zone times 8-9:30 am and 2:30-4 pm school days;

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- All light and heavy vehicles accessing the Portal Precinct via Rosalind St will be required to travel eastbound on Rosalind Ave and then egress southbound on Anzac Ave to the intersection of Ernest St and Anzac Ave which will be included in the vehicle movement plan for the Portal Precinct construction worksite.
- Light and heavy vehicles accessing and egressing the Rosalind St construction support site will be required to travel on Rosalind St east and west between Miller St and the Rosalind St CSS gate.
- To safely manage the heavy vehicle movements past Anzac Avenue Public School, the following monitoring and deterrent measures will be instigated:
 - i. Heavy vehicles will not be permitted to travel to or from the Cammeray Avenue worksite via Anzac Avenue during school zone times on school days (8 am to 9.30 am and 2.30 pm to 4 pm);
 - ii. Deploy a crossing superintended/traffic controller to assist the existing school crossing supervisor from 7 am to 6 pm on school days
 - iii. As a behavioural deterrent, monitor truck movements in real-time by Virtual Superintendent. Truck drivers will be subject to disciplinary action as outlined in the Drivers Code of Conduct.
- Due to the existing road traffic control features at the intersection of Rosalind St and Miller St, right-turn and left-turn inbound access restrictions apply.
 - By the right-turn from Miller St (northbound) into Rosalind St (eastbound) the maximum size vehicle that can turn right into Rosalind St is the 6.4-meter single unit truck (SRV);
 - By the left-turn from Miller St (southbound) into Rosalind St (eastbound) the maximum size vehicle that can turn left into Rosalind St is the 8.8-meter single unit truck (SV).
- Due to the existing road traffic control features at the intersection of Ernest St and Miller St, the maximum size vehicle that can left-turn from Ernest St (westbound) into Miller St is the 8.8-meter single unit truck (SV). As a result, heavy vehicles; 19m Truck & Trailer, 19m Articulated Vehicle and large crane will exit by the turn left at the intersection of Ernest St and Anzac Ave and then turn right onto the via the Ernest St southbound on-ramp to access the arterial (State) road network.
- Vehicle movement plans showing approved routes and vehicle sizes to and from the Portal Precinct will be issued to all subcontractors as part of contract documentation upon engagement. Signage will also be installed along approved routes to guide heavy vehicle drivers;
- Signage will be installed on Rosalind St, Anzac Ave, Cammeray Ave, Ernest St between Ernest and the Warringah Freeway, and Miller St between Ernest St and the Warringah Freeway to warn cyclists (and motorists) of the presence of heavy vehicles.
- Implementation of a Driver's Code of Conduct (refer to Appendix A4)
- The driver induction process will include safety awareness in relation to all road users (including pedestrians and cyclists) and the strict requirement to obey all road rules and to travel only on approved roads.
- Community consultation will be undertaken via fact sheets showing the Portal Precinct construction worksite heavy vehicle routes and temporary removal of on-street parking on

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Cammeray Ave and Anzac Ave as well as community and stakeholder updates, notifications and emails, to ensure all upcoming changes and impacts are communicated in a timely fashion to the community and stakeholders.

- Coordination meetings between CPBD, TfNSW, Transport Management Centre and Customer Journey Planning – Operations will occur on a regular basis throughout the delivery of the CSSI. Key issues for discussion at the coordination meetings will include road occupancy licences and any other transport network changes or impacts resulting from construction of the CSSI
- Continuous review and improvement will be undertaken. This CoA E132 local roads approval document will be reviewed and updated as required:
 - Following reportable environmental incidents;
 - Upon identification of new 'significant' risks, including risks identified during risk register updates;
 - When non-compliances are identified;
 - When the root cause of incident or non-conformance is identified as part of the investigation;
 - In response to significant project change (including modifications to the CSSI);
 - Within one month of any of the above occurrences;
 - As part of a continuous improvement process; and
 - The effect of changes in standards and legislation.
- Regular monitoring of mitigation measures for compliance and effectiveness will be undertaken (refer to Section 5.1.4 of the TTMP). Further detail on regular inspections is detailed in Section 8.1 below.

8.1 Inspections

In accordance with Section 6.3 of the TTAMP CPBD will undertake regular inspections to ensure the safety of all traffic movements, as well as the wellbeing of pedestrians, cyclists, drivers and property through and surrounding all worksites. The responsibility and frequency of inspections are stipulated in section 6.1 of the TfNSW Traffic Control at Worksites Manual.

These regular inspections will also verify the on-street parking commitments established by the 'Driver Code of Conduct'.

Three main types of inspections and records will occur:

- Inspections of short-term (single shift) traffic controls during the shift
- Regular daytime inspections of long-term traffic controls after implementation
- Regular night-time inspections of long-term traffic controls after implementation.

Pre-opening inspections will be carried out by the Traffic Manager before the start of each new temporary roadwork site or major modification.

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Any signage or devices identified during the checks or audits requiring attention will either be rectified at the time or advised to the Traffic Manager during that shift for follow-up and corrective action.

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Part C

Appendices

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Appendix A1 Advice regarding the suitability of local roads as proposed heavy vehicle routes

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MEMORANDUM

CPB Downer WFU Portal Precinct

Memo Title	Suitability of proposed heavy vehicle routes on local roads
Recipient	CPBDowner
Prepared by	Denis Fung
Revision	A
Date	26 September 2022

I. Introduction

This memo provides advice on the suitability of proposed heavy vehicle routes for the Portal Precinct construction worksite that includes:

- Portal Precinct Stage 1 occupation of the Cammeray Ave for trenching and installation of ITS on Cammeray Avenue and within the verge area at the intersection of Ernest St and Cammeray Ave
- Portal Precinct Stage 1 occupation of the Anzac Ave and Rosalind St for trenching and installation of ITS within Anzac Reserve and verge area adjacent Cammeray Ave, Anzac Rd and Rosalind St; and then
- Later, the planned staging of the construction work (removal of exiting noise wall, piling, Ernest St abutment, Green Park drainage work including the installation and recovery of the boring machine, erect new noise wall, roadwork, landscaping) associated with the Portal Precinct temporary construction work designs (FDDs) to be subsequently implemented over the duration of the project.

In accordance with the NSW Minister for Planning and Public Space's Conditions of Approval (CoA) E133(e), the advice is based on Revision A of this CoA E132 – Local Roads Approval (Warringah Freeway Portal Precinct) document that describes the access and egress movements of the 6.4m SRV, 8.8m HRV, 19m Truck and Trailer and 19m Articulated Vehicle construction vehicles on local roads and the selected removal of on-street parking on Cammeray Ave and Anzac Ave under the Portal Precinct Site Specific TMP including:

- On Cammeray Ave between Ernest St and Anzac Ave Reserve twenty-six (26) on-street car parking spaces and adjacent Anzac Reserve, ten (10) - 90-degree angle parking spaces
- On Anzac Ave at the intersection of Anzac Ave and Cammeray Ave corner one (1) car parking space on the north-eastern corner.

II. Assessment

The following local roads were assessed for their suitability as proposed heavy vehicle routes:

- Cammeray Ave between Ernest St and Anzac Pde;
- Rosalind St (part EIS approved) eastbound between Miller St and Anzac Ave;
- Anzac Ave southbound between Rosalind St and Ernest St;
- Anzac Ave northbound between Ernest St and Cammeray Ave.

Items that were considered in the assessment include:

- CoA E133: All requests to the Planning Secretary under Condition E132 must include the following:
 - CoA E133(a): include a swept path analysis
 - CoA E133(b): demonstration that the use of local roads by heavy vehicles for the CSSI will not compromise the safety of pedestrians and cyclists or the safety of two-way traffic flow on two-way roadways

MEMORANDUM

CPB Downer WFU Portal Precinct

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- CoA E133(c): provide details as to the date of completion of the road dilapidation surveys for the subject local roads
- CoA E133(d): measures that will be implemented to avoid where practicable the use of roads past schools, aged care facilities and child care facilities during their peak operation times.

Taking into account CoA E133(a), CoA E133(b), CoA E133(c) and CoA E133(d), it is considered that all local roads that were assessed are suitable as proposed heavy vehicle routes.

III. Formal statement

This assessment has been undertaken by Denis Fung, who is an appropriately qualified professional from the Downer Group

Denis Fung is a Traffic manager and traffic and transport engineer with over 20 years of experience. He has a broad range of skills that enable him to analyse complex problems and develop innovative solutions. He has demonstrated these skills in major projects involving public transport planning, traffic engineering, traffic and transport management, traffic impact assessments, road user safety and road safety auditing. He has traffic and transport technical lead for projects including Sydney Metro, WestConnex Stage 3A, and The Northern Road 3 upgrade.

This assessment has been undertaken for the sole purpose of providing advice on the suitability of proposed heavy vehicle routes for the Portal Precinct construction worksite in accordance with the NSW Minister for Planning and Public Space's Conditions of Approval (CoA) E133(e). including

- Portal Precinct Portal Precinct Stage 1 occupation of the Cammeray Ave for trenching and installation of ITS on Cammeray Avenue and within the verge area at the intersection of Ernest St and Cammeray Ave
- Portal Precinct Portal Precinct Stage 1 occupation of the Anzac Ave and Rosalind St for trenching and installation of ITS within Anzac Reserve and verge area adjacent Cammeray Ave, Anzac Rd and Rosalind St; and then
- Later, the planned staging of the construction work (removal of exiting noise wall, piling, Ernest St abutment, Green Park drainage work including the installation and recovery of the boring machine, erect new noise wall, roadwork, landscaping) associated with the Portal Precinct temporary construction work designs (FDDs) to be subsequently implemented over the duration of the project.



Denis Fung
Traffic Manager

25.09.2022

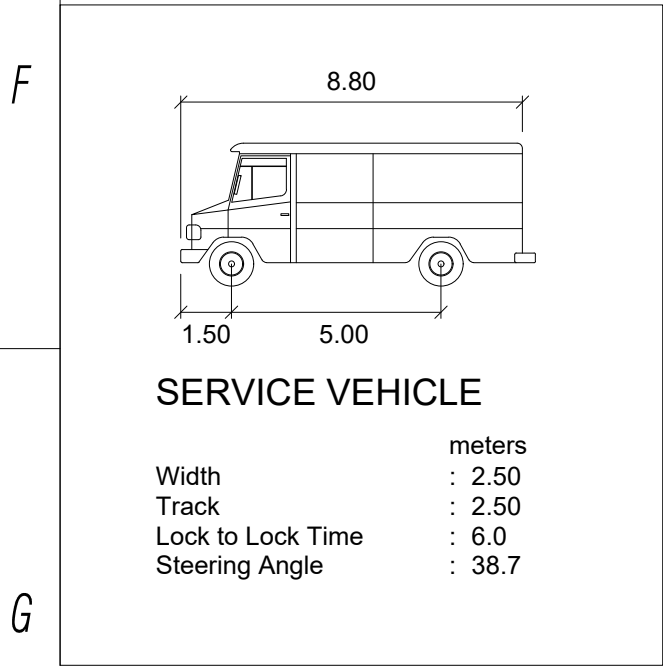
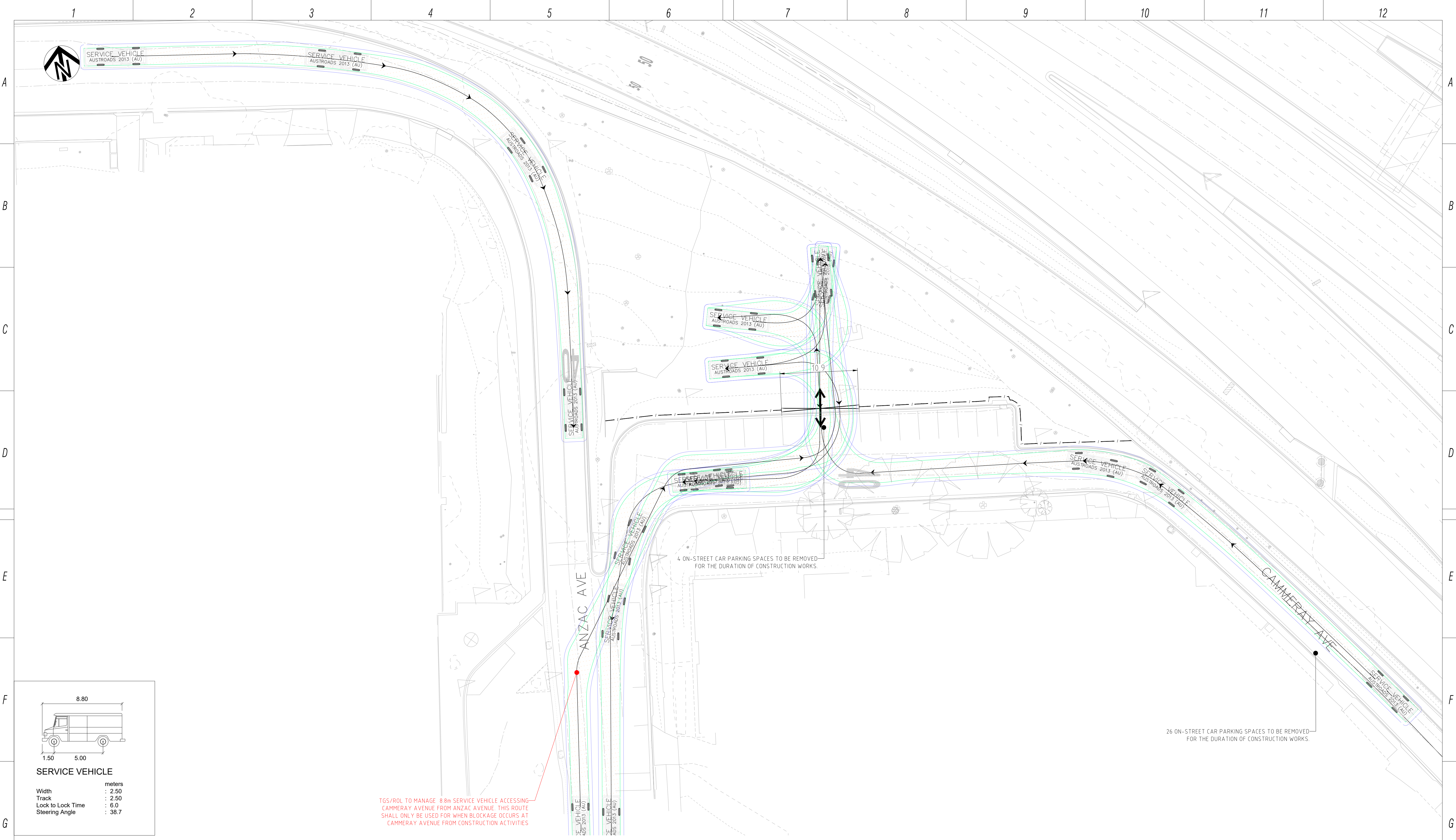
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Appendix A2 Swept path diagrams

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MILLER STREET TO ROSALIND / ERNEST STREET				SWEPT PATH ASSESSMENTS				DRAWN				GRETCHEN PANIEL				07.09.2022				FILE No.			
STATUS:				DESIGNED				PAUL DAVIDSON				07.09.2022				SHEET: 1 OF 9				A1			
DRG No.				DRG CHECK				GRETCHEN PANIEL				07.09.2022				STATUS:				©			
APPROVED				DESIGN CHECK				DENIS FUNG				07.09.2022				DRG No.				WFUINF-CPBDJV-TR-DRG-4000050			
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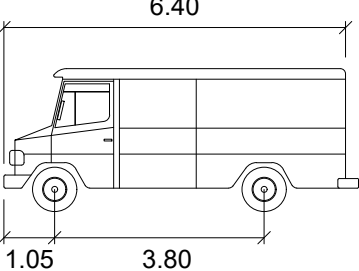
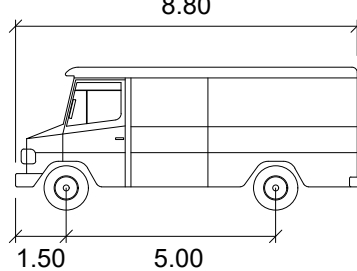
TGS/ROL TO MANAGE 8.8m SERVICE VEHICLE ACCESSING CAMMERAY AVENUE FROM ANZAC AVENUE. THIS ROUTE SHALL ONLY BE USED FOR WHEN BLOCKAGE OCCURS AT CAMMERAY AVENUE FROM CONSTRUCTION ACTIVITIES

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										<p>DESIGN CHECK: DENIS FUNG 07.09.2022</p>																												
										<p>APPROVED: IAN VEINOT 07.09.2022</p>																												



	
SRV	SERVICE VEHICLE
Width : 2.30	Width : 2.50
Track : 2.30	Track : 2.50
Lock to Lock Time : 6.0	Lock to Lock Time : 6.0
Steering Angle : 38.0	Steering Angle : 38.7


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WARRINGAH FREEWAY UPGRADE

ANZAC AVE TO ERNEST STREET /
ERNEST STREET TO CAMMERAY AVE
SWEEP PATH ASSESSMENTS

FILE No.	SHEET: 3 OF 9	A1
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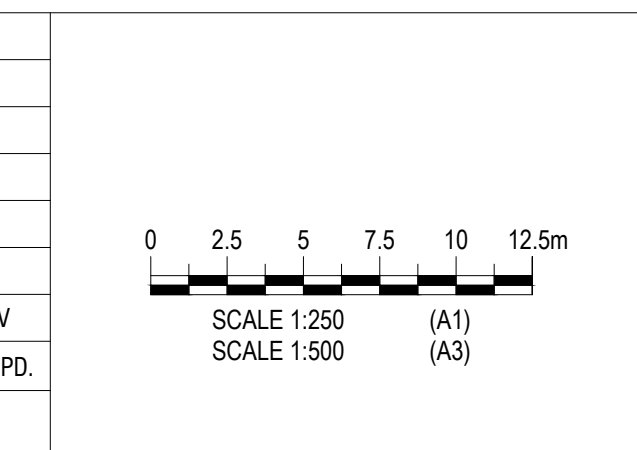
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WARRINGAH FREEWAY UPGRADE

ANZAC AVE TO ERNEST STREET / ERNEST STREET TO WARRINGAH FREEWAY

SWEPT PATH ASSESSMENTS

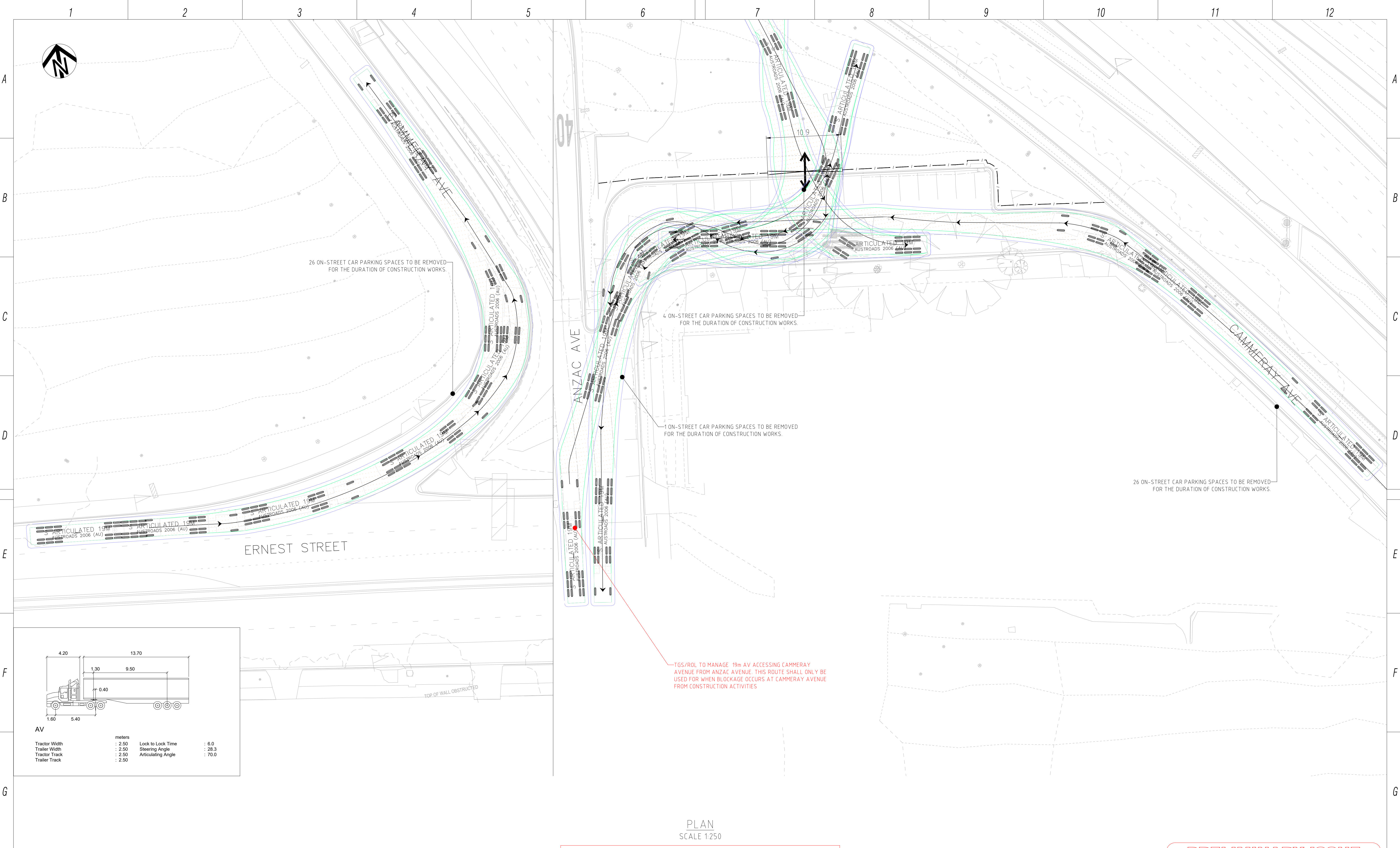
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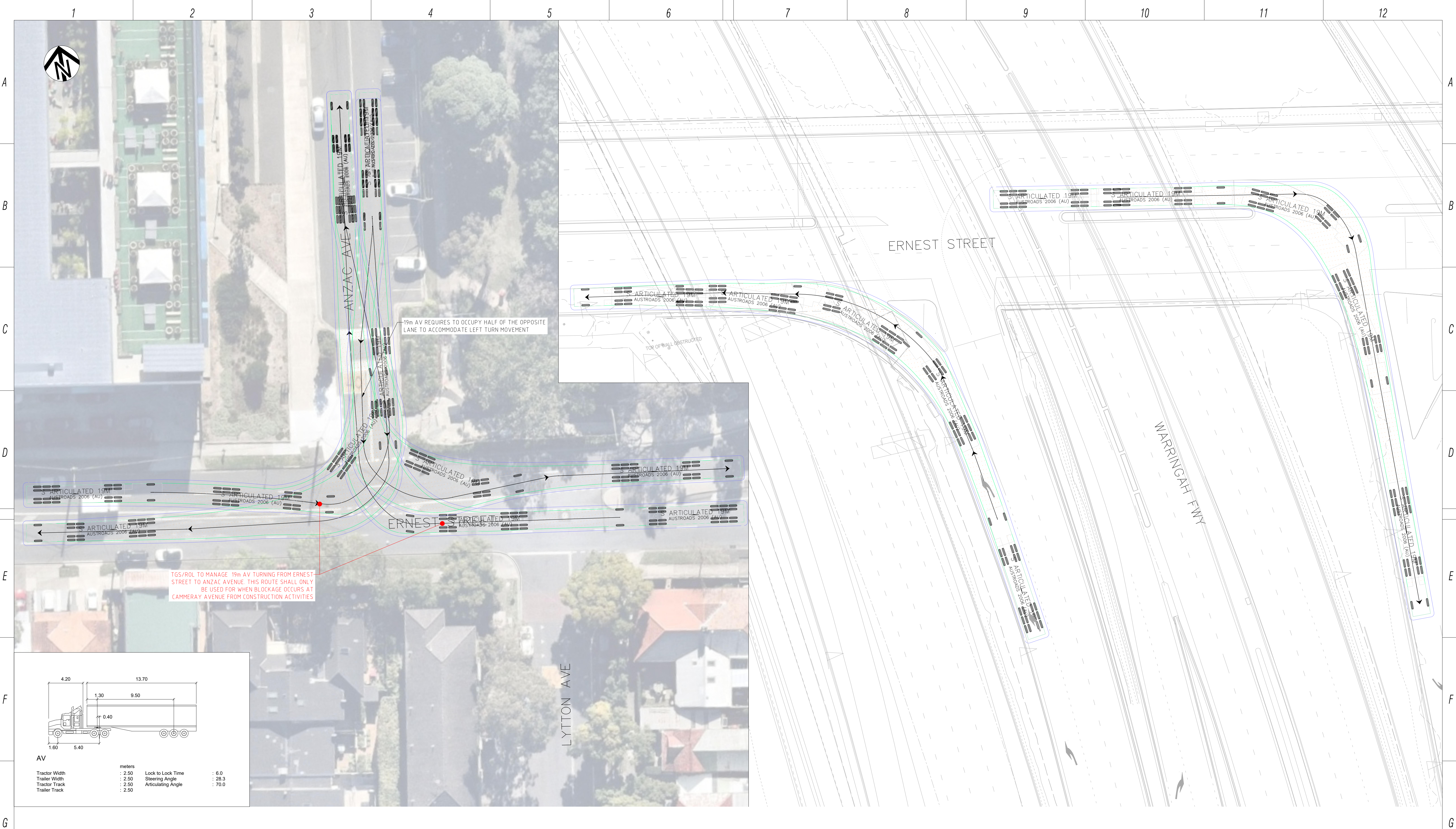
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WARRINGAH FREEWAY UPGRADE

ERNEST STREET TO CAMMERAY AVE / CAMMERAY AVE TO ANZAC AVE

SWEPT PATH ASSESSMENTS

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WARRINGAH FREEWAY UPGRADE

ANZAC AVE TO ERNEST STREET /
ERNEST STREET TO WARRINGAH FREEWAY
SWEEP PATH ASSESSMENTS

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APPROVED	IAN VEINOT	07.09.2022

Appendix A3 The risk assessment system

Each identified hazard has been recorded and assessed in accordance with the Austroads *Guide to Road Safety Part 6: Managing Road Safety Audits* (Edition 1.0), 2019. The guide recommends a risk matrix be used to determine the level of risk associated with each hazard. This risk matrix is described below.

Estimated crash frequency: the probable frequency of an incident occurring as a direct result of the hazard was determined using the scale displayed in Table 9.

Table 9 Estimated crash frequency

Frequency	Description
Frequent	Once or more per week
Probable	Once or more per year (but less than once a week)
Occasional	Once every five or ten years
Improbable	Less often than once every ten years

Estimated crash severity: the likely severity of the incident which occurred as a direct result of the hazard was determined using the scale displayed in Table 10.

Table 10 Estimated crash severity

Severity	Description	Examples
Catastrophic	Likely multiple deaths	<ul style="list-style-type: none"> High-speed, multi-vehicle crash on the freeway Car runs into a crowded bus stop Bus and petrol tanker collide The collapse of a bridge or tunnel
Serious	Likely death or serious injury	<ul style="list-style-type: none"> High or medium-speed vehicle/vehicle collision High or medium-speed collision with a fixed roadside object Pedestrian or cyclist struck by a car
Minor	Likely minor injury	<ul style="list-style-type: none"> Some low-speed vehicle collisions Cyclists fall from a bicycle at low speed Left-turn rear-end crash in a slip lane

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Severity	Description	Examples
Limited	Likely trivial injury or property damage only	<ul style="list-style-type: none"> Some low-speed vehicle collisions A pedestrian walks into an object (no head injury) Car reverses into a post

Deemed level of risk: the risk matrix displayed in Table 11 was used to assess the level of risk for each hazard. The risk matrix uses the frequency / severity determined above to determine the likely level of risk for each hazard.

Table 11 Deemed level of risk

		Frequency			
		Frequent	Probable	Occasional	Improbable
Severity	Catastrophic	Intolerable	Intolerable	Intolerable	High
	Serious	Intolerable	Intolerable	High	Medium
	Minor	Intolerable	High	Medium	Low
	Limited	High	Medium	Low	Low

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Appendix A4 Driver Code of Conduct

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DRIVER CODE OF CONDUCT

This Driver Code of Conduct applies to all CPBDowner personnel and any other person undertaking work for the CPBDowner, whether they are a direct employee of CPBDowner or employed by another organisation providing a service or product to CPBDowner.

All drivers must:

- Drive courteously.
- Obey all road rules, including posted speed limits and other traffic signage within work sites and site compounds.
- Take extreme care when driving past other vehicles traveling in the opposite direction on local roads including, Rosalind St, Anzac Avenue and Cammeray Road and at the intersection of Anzac Ave and Ernest St and Ernest St and Cammeray Ave, and on Miller St southbound and Ernest Street eastbound.
- Report any incidents or near misses to your supervisor immediately.
- Hold a current and valid driving licence for the class of vehicle that you operate. Additionally, you must always carry your current driver licence with you while you are on duty. If your licence is cancelled or suspended, you must let your supervisor know immediately.
- Maintain and operate your vehicle in accordance with the vehicle manufacturer's recommended standards (refer to the vehicle manufacturer's handbook and service schedule).
- Not use engine brakes in residential areas.
- Try to avoid reversing whenever possible. If you cannot avoid it, use extreme caution.
- Ensure your vehicle is fitted with audible reversing alarms.
- Always follow posted signs as they provide vital clues to road conditions and characteristics.
- Always be aware of the following:
 - Reduce your speed in wet conditions
 - Drive cautiously in fog or heavy rain
 - Descend hills at signposted heavy vehicle speeds, or in the lowest gear to suit the conditions
 - Observe road work speed limits
 - Do not exceed the posted speed limit
 - Do not drive at speed past schools, school buses, playgrounds, shopping areas etc.
- Follow Vehicle Movement Plans that specify approved routes to and from work sites and site compounds. Only roads that are shown on the Vehicle Movement Plans may be used. The use of roads that are not shown on the Vehicle Movement Plans is strictly prohibited.
- Follow directions provided by a CPBDowner Traffic Manager.
- Park within work sites and site compounds where possible. Parking on public roads is to be avoided and where existing on-street parking spaces have been removed to facilitate the swept path of vehicles. Where this is not possible, contact your CPBDowner contact to seek alternative

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arrangements.

- This Driver Code of Conduct is applicable 24 hours per day, seven days per week. Failure to comply with this Driver Code of Conduct will lead to either the issue of a non-conformance notice or disciplinary action if the offender is an employee of CPBDowner. If the offending person is employed by another organisation providing a service or product to CPBDowner, then a suspension or cancellation of a service contract or arrangement with that organisation may be considered.

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Appendix A5 Heavy vehicle routes according to vehicle size

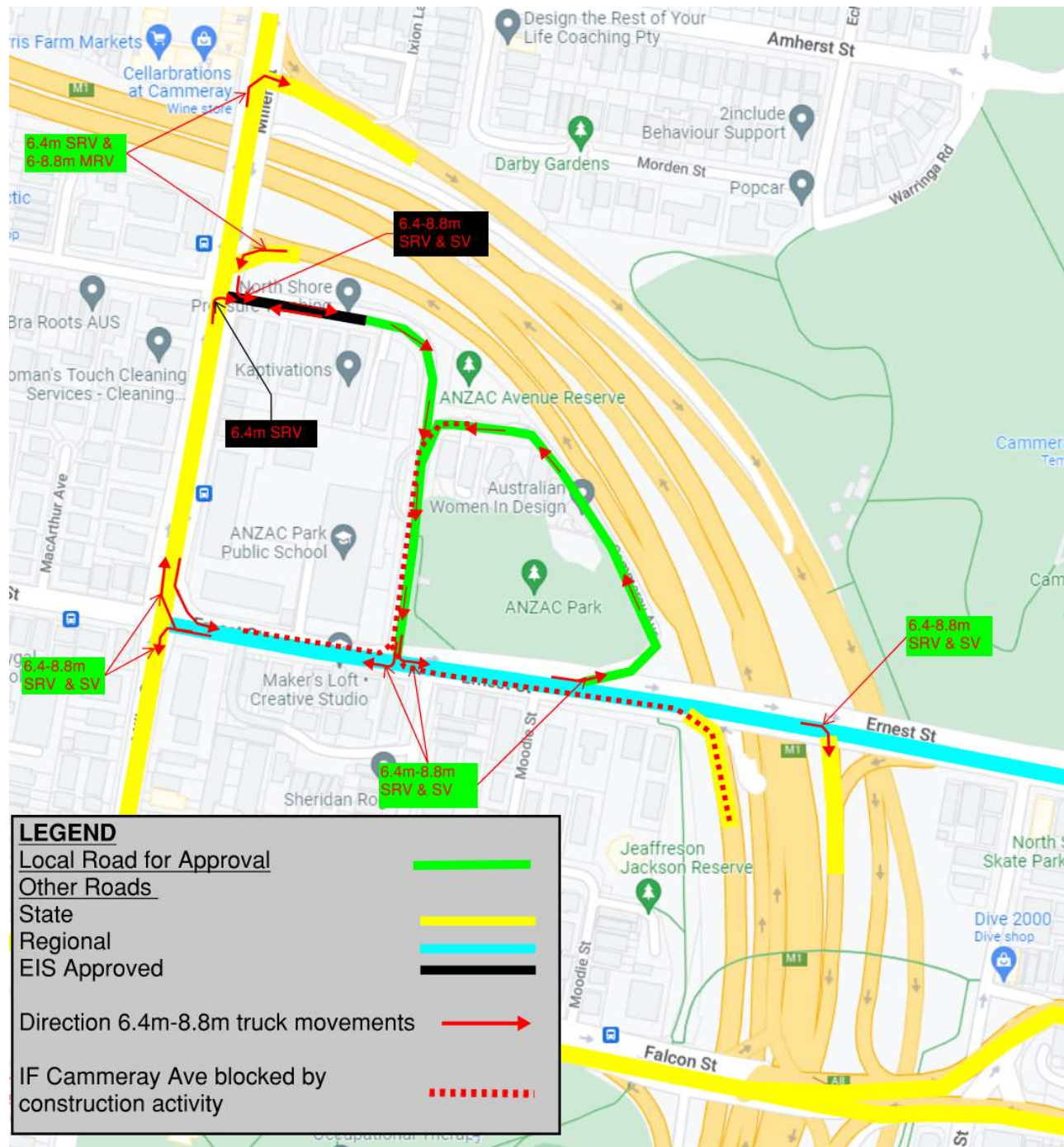


Figure 4 Heavy Vehicle routes 6.4m - 8.8m Single Unit Truck

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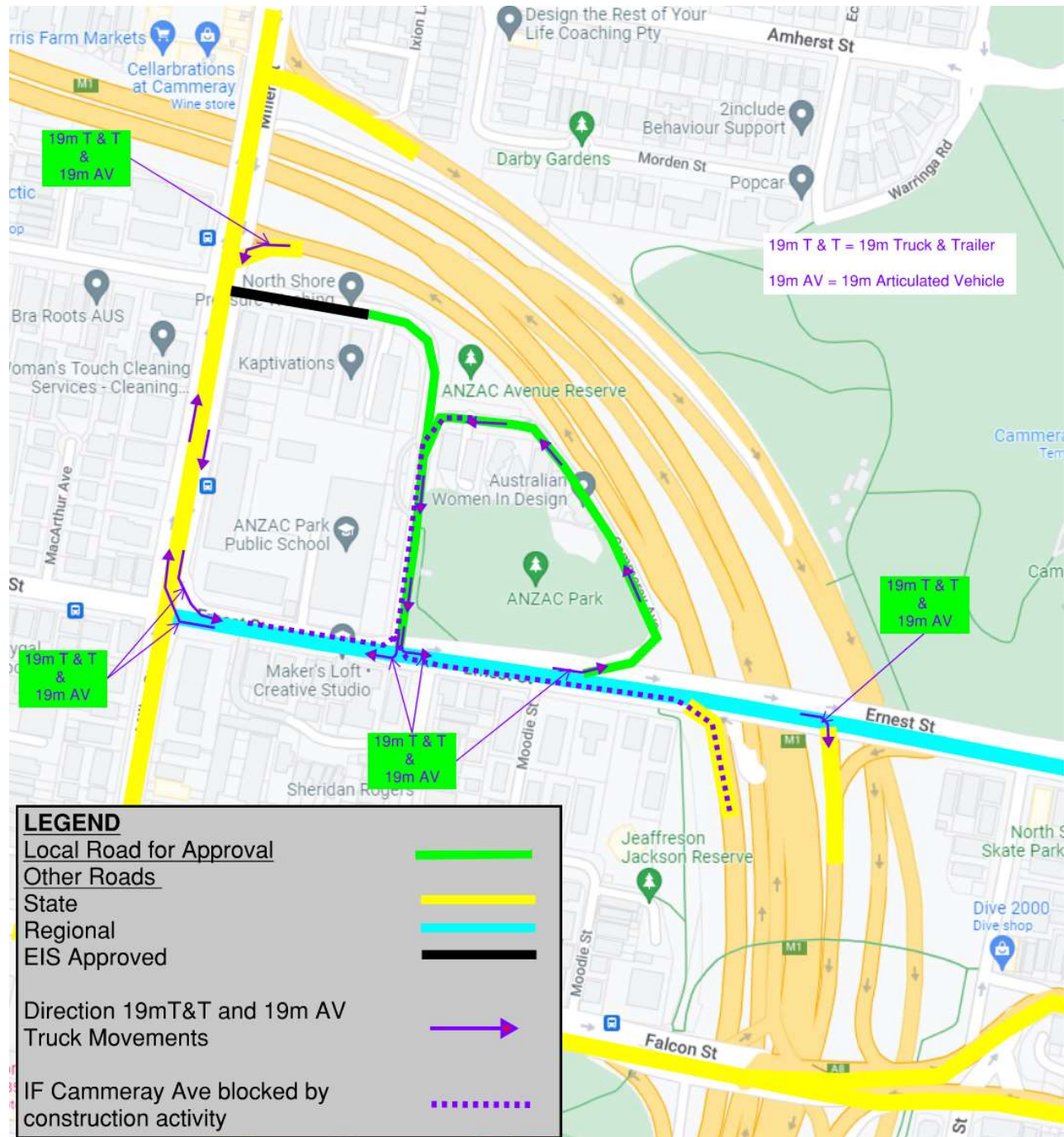


Figure 5 heavy vehicle 19m Truck & Trailer and 19m Articulated Vehicle(Sem/crane)

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