Construction Traffic Management Plan – Five Dock Metro Station East & West Construction Sites

SMWSTCTP AFJ-FDK TF PLN 000001 Revision 15

Sydney Metro West Central Tunnelling Package

DOCUMENT APPROVAL

	Prepared By	Reviewed By	Approved By
Name:	[redacted]		
Position:			
Qualification:			
Date:			

REVISION HISTORY

Rev:	Date:	Pages:	By:	Qualification	Description:
A	01/11/2021	All	[redacted]		For internal review
00	08/11/2021	All			For submission to Sydney Metro
01	16/12/2021	All			For approval to TfNSW
02	20/01/2022	All			For approval to TfNSW
03	29/06/2022	All			For approval to TfNSW
04	04/07/2022	All			For approval to TfNSW
05	17/11/2022	ALL			For Reapproval
06	03/12/2022	ALL			For Approval
07	09/02/2023	ALL			For Approval
08	20/03/2023	ALL			For Approval
09	24/05/2023	ALL			For Approval
10	29/06/2023	ALL			For Approval
11	09/01/2024	ALL			For Approval
12	18/01/2024	ALL			For Approval
13	12/02/2024	ALL			For Approval
14	05/13/2024	ALL			For Approval
15	06/08/2024	ALL			For Approval

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1. INTRODUCTION

1.1 CTMP CHANGE SUMMARY

Throughout the duration of the project, updates to CTMPs may be required. These updates may result in changes to the CTMP to cater for legislation changes, scope of work changes, or for other reasons to maintain the safe and efficient operation of the project. Changes associated with this revision are as detailed below, within Table 1.

TABLE 1: CTMP CHANGE SUMMARY

CTMP Revision	Date of Revision	Summary of changes

15	06/08/2024	This CTMP has been updated to revision 15 to include:
		• The need for trucks to access the western site via a reversing movement, to facilitate;
		  ○ Construction of sidewall lining formwork, for an expected 1 month period between mid late August 2024 and mid-late September 2024. No more then 1-2 truck reversing movements per day would be required for these works.
		  ○ During demobilisation of the eastern site where all construction works at Five Dock would need to be carried out from the western site. This is expected to take place between December 2024 and March 2025 and would require approximately 10 truck reversing movements per day.
		  ○ During the demobilisation of the Five Dock western site, expected to occur between February 2025 and April 2025. Approximately 10 truck reversing movements per day would be required for these works
		• As detailed within Section 5.1.2, short term traffic control will be implemented on Great North Road, to manage public traffic (including pedestrians) during these reversing movements.
		• Reversing movements will be restricted to rigid vehicles only, any larger vehicles such as 19m semies and OSOM loads will only occur at night, in accordance with an approved ROL.

1.2 PROJECT BACKGROUND

The Sydney Metro West Central Tunnelling Package involves the construction of 11 5km of twin tunnel metro line from The Bays Precinct to Sydney Olympic Park, which will be connected with the Sydney Metro City & Southwest and double the rail capacity to/from Sydney CBD.

FIGURE 1: OVERVIEW OF SYDNEY METRO WEST

The Acciona Ferrovial Joint Venture (AFJV) will deliver the Project in partnership with NSW Government and Sydney Metro (SM)

2. PURPOSE AND OBJECTIVES

2.1 PURPOSE

AFJV aims to maintain a safe environment for all road users by effectively maintaining traffic flows during the works and managing construction vehicles to/from the work sites

This Construction Traffic Management Plan (CTMP) has been prepared to meet the following requirements for the Five Dock metro station site as part of the Sydney Metro West Central Tunnelling Package (the Project):

- The Project's General Specifications Section 2.11 and Section 5.1.11.1
- EIS Technical Paper 1 Traffic and Transport Mitigation Measures
- EIS Construction Traffic Management Plan Framework
- Minister for Planning and Public Spaces' Concept and Stage 1 Conditions of Approval (COA) for the State Significant Infrastructure (SSI 10038)

The scope of this CTMP is to detail the long-term traffic changes associated with the construction of Five Dock metro station site. This CTMP and the documents referenced in the CTMP have been prepared in accordance with the relevant standards and guidelines.

AFJV will provide safety measures to a wide range of stakeholders potentially affected by the works including but not limited to motorists, pedestrians, cyclists, public transport users, local residents and property owners, business owners and workers/ staff engaged on the Project.

2 2 OBJECTIVES

The primary objectives and principles of this CTMP are:

- Keeping traffic delays to a minimum
- Minimising disruption to businesses
- Minimising disturbance to the environment
- Ensuring traffic impacts are within the scope permitted by Transport for NSW (TfNSW), SM and City of Canada Bay Council
- Ensure the safety of employees, contractors and road users
- Meet the requirements of the Project brief, project specifications, COA and TfNSW Traffic Control at Work Sites (TCaWS) Manual 2022

3. EXISTING TRAFFIC CONDITIONS

3.1 EXISTING ROAD NETWORK

3.1.1 GREAT NORTH ROAD

Great North Road is a classified state arterial road between Lyons Road and Parramatta Road Great North Road is generally configured with a single traffic lane in both northbound and southbound directions where some sections are separated by a central median. In the immediate vicinity of the site, kerbside parking is permitted for up to 30 minutes along both sides of the road The posted speed limit of Great North Road is 50km/h

3.1.2 FIRST AVENUE

First Avenue is a local road aligned in the east-west direction between Great North Road and Henley Marine Drive. First Avenue is configured with a single 3m to 3.3m wide traffic lane in both directions. Unrestricted kerbside parking is available along both sides of the road with short sections of two hour restricted parking and bus zones along the retail frontages The posted speed limit of First Avenue is 50km/h

3.1.3 SECOND AVENUE

Second Avenue is a local road serving access to residential properties and some local businesses. Second Avenue is a two-way undivided road with a carriageway width of approximately 7 8m Parking is generally provided along both sides of the road with some sections of “No Stopping” to maintain two-way traffic flow. The posted speed limit on Second Avenue is 50km/h.

3 1 4 WATERVIEW STREET

Waterview Street is a local road dissecting through First Avenue and Second Avenue in the north-south alignment. In the near vicinity of the construction site, Waterview Street serves as a direct access to local residents and Waterview Street Car Park Waterview Street has a carriageway width of approximately 9.6m between First Avenue and Second Avenue with unrestricted kerbside parking available along both sides of the road with two-hour restricted short term parking along the frontage of Waterview Street Car Park The default speed limit of Waterview Street is 50km/h

3.1.5 EAST STREET

East Street is a local road which runs north south and is to the west of Great North Road. East Street runs between Lyons Road West (to the north) and ends in a cul-de-sac at the southern end, just south of Henry Street. The default speed limit of East Street is 50km/h.

3.1.6 HENRY STREET

Henry Street is a local road which runs east-west between Great North Road (to the east) and Harris Road (to the west) It serves as a collector type road and lined with predominantly residential properties. The default speed limit of Henry Street is 50km/h.

3.2 EXISTING TRAFFIC VOLUMES

Environmental Impact Statement of Sydney Metro West Stage 1 (Chapter 10 Transport and Traffic) documents the existing traffic volumes around the Five Dock metro station construction site, as shown in Table 2.

TABLE 2: EXISTING TRAFFIC VOLUME (2019)

Road	Location	Direction	AM Peak Traffic Volume (vph)	PM Peak Traffic Volume (vph)
Second Avenue	East of Great North Road	Eastbound	70	90
		Westbound	30	80
Waterview Street	North of First Avenue	Northbound	20	80
		Southbound	20	110
First Avenue	East of Great North Road	Eastbound	290	270
		Westbound	100	160
Great North Road	North of Garfield Street	Northbound	490	570
		Southbound	540	600

Reference: EIS

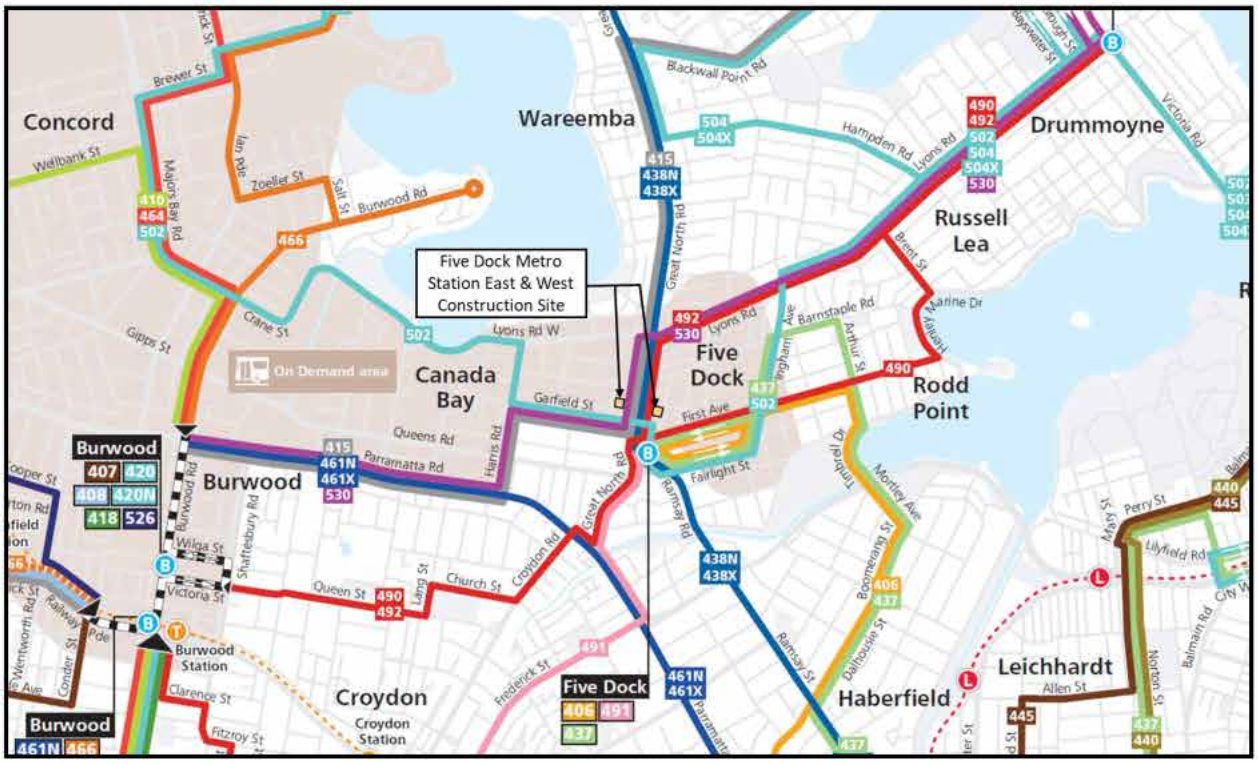
3.3 PUBLIC TRANSPORT NETWORK

The existing bus service network within the vicinity of the Five Dock metro station construction sites is shown in Figure 2 The bus route services travelling in the vicinity of the Five Dock metro station east and west construction sites are detailed in Table 3

TABLE 3: BUS SERVICES AND FREQUENCIES

		Weekday Service Frequencies (No. of services)	
Route No.	Route Description	AM Peak (7:00am–9:00am)	PM Peak (4:00pm–6:00pm)
406	Five Dock to Hurlstone Park	4	4
415	Campsie to Chiswick	4	4
437	Five Dock to City QVB via City West Link	5	8
438X	Abbotsford to City Martin Place (Express Service)	30	12
490	Drummoyne to Hurstville	3	5
491	Hurstville to Five Dock	8	9
492	Drummoyne to Rockdale	3	4
502	Cabarita Wharf to Drummoyne & City Town Hall	7	4
530	Burwood to Chatswood	5	5

FIGURE 2: PUBLIC TRANSPORT NETWORK SURROUNDING FIVE DOCK METRO STATION CONSTRUCTION SITES

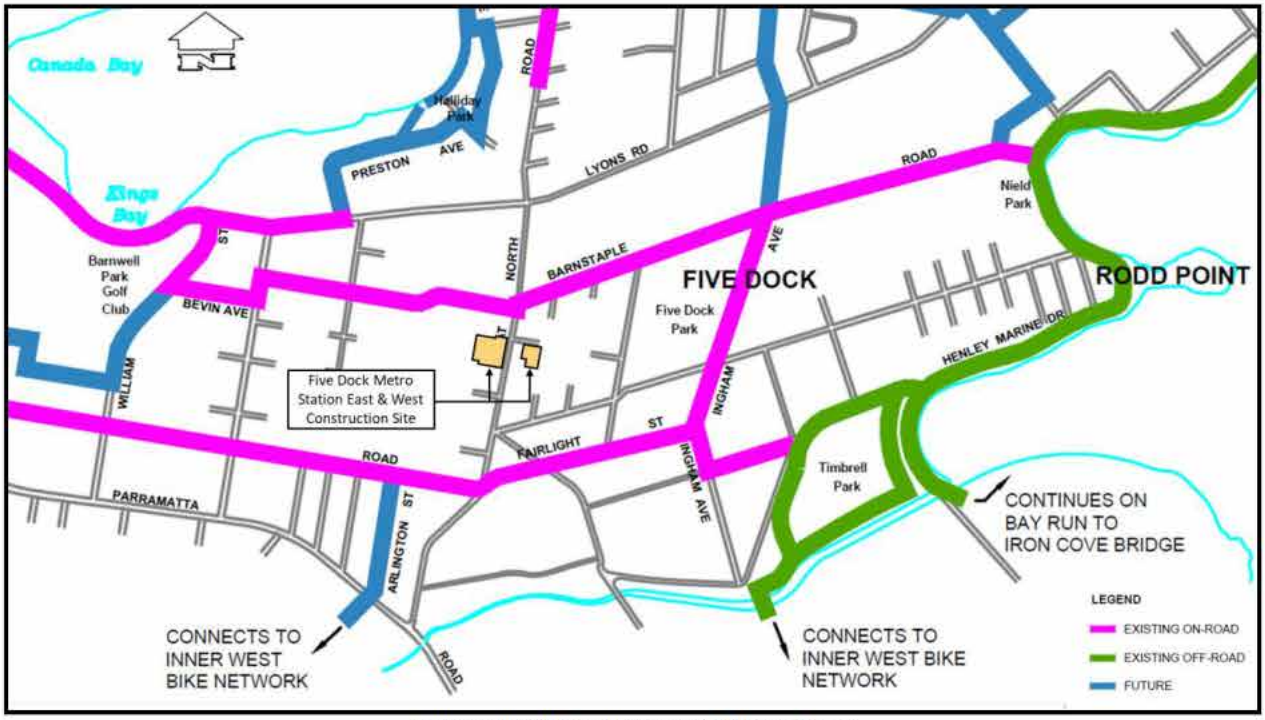


3 4 PEDESTRIAN AND CYCLIST NETWORK

The Five Dock metro station construction sites and surrounds are located within the retail strip along Great North Road. Pedestrian accessibility to this area is very convenient with 1.3m 1.5m wide footpaths provided along both sides of the road and wider pedestrian walkways ranging up to 5m available along both sides of Great North Road. Signalised pedestrian crossings are available on Great North Road for crossing opportunities.

In the immediate vicinity of the site, there are no cycling facilities available on Great North Road The nearest cycle route is on Henry Street and Barnstaple Road. Cyclists are to share these roads with vehicles as indicated by the bicycle pavement markings along the road. Based on City of Canada Bay Council's cycle map (see Figure 3), there are no future cycle links on Great North Road between Halley Street and Queens Road.

FIGURE 3: CYCLE NETWORK SURROUNDING FIVE DOCK METRO STATION CONSTRUCTION SITES



Source: City of Canada Bay Bike Network Map

3 5 ON-STREET PARKING

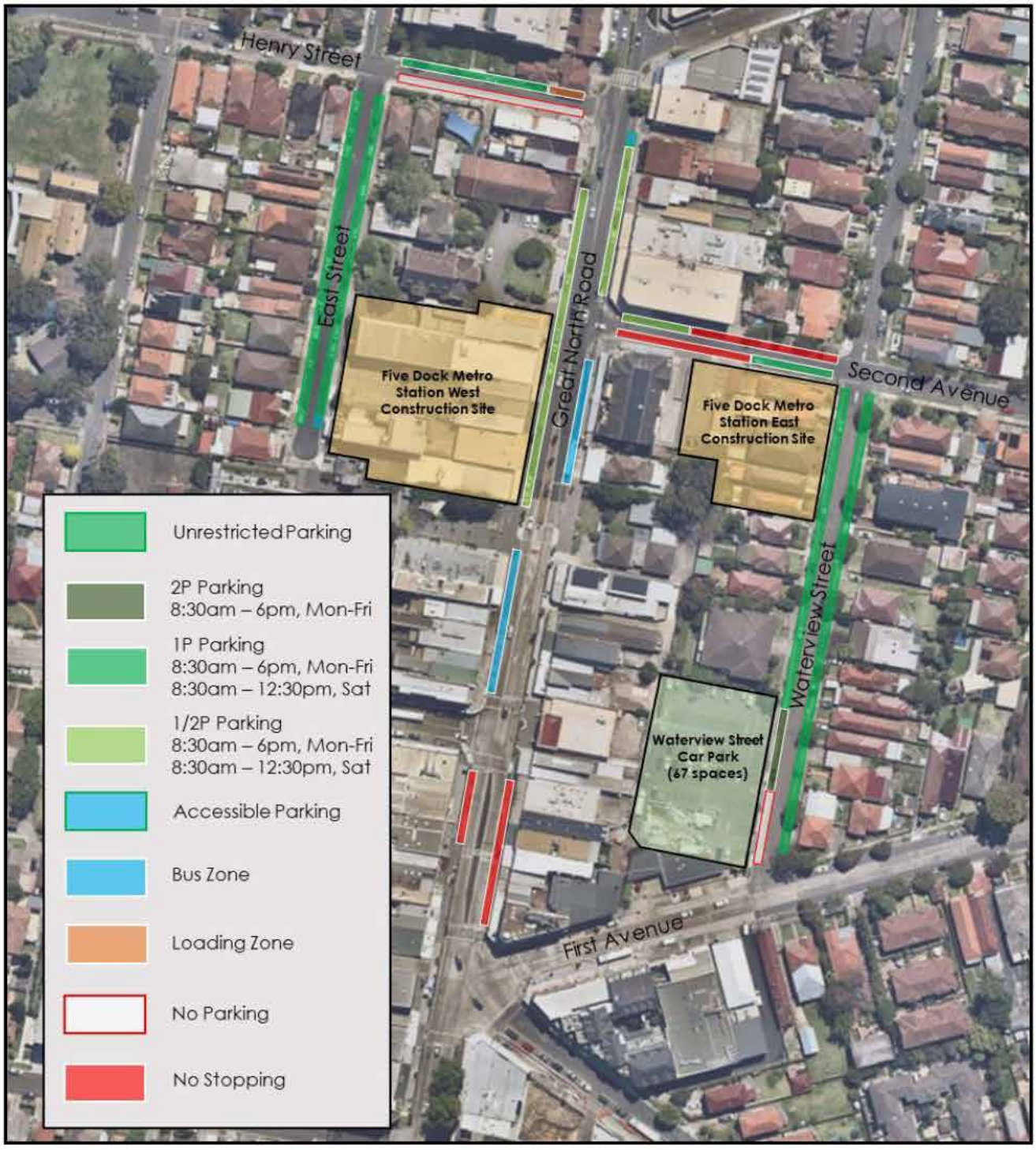
The existing on street parking in the near vicinity of the Five Dock metro station construction sites are shown in Figure 4.

Great North Road between Lyons Road and Queens Road is an all-day short term parking area restricted to 30 minutes. In addition, there are two bus zones along both sides of Great North Road between Second Avenue and Garfield Street Along the Great North Road frontage of the western construction site, there are approximately 10 on-street parking spaces restricted to 30 minutes. Along the East Street frontage of the site, there are three unrestricted parking spaces and one accessible parking space

At the road frontages of the eastern construction site, there are five unrestricted parking spaces on Waterview Street. There are four parking spaces restricted to one hour along the Second Avenue frontage of the site

It is noted that Waterview Street car park is located approximately 60m south of the eastern construction site. Waterview Street car park is a public car park that accommodates 67 vehicles for the local retail shops along Great North Road

FIGURE 4: ON STREET PARKING SURROUNDING FIVE DOCK METRO STATION CONSTRUCTION SITES



4. GENERAL CONSTRUCTION DETAILS

4.1 OVERVIEW OF CONSTRUCTION ACTIVITIES

The following construction activities have been undertaken in order to establish Five Dock metro station east and west construction sites:

- Five Dock metro station east construction site

  Site establishment and Demolition works
  Construction of two driveways on Waterview Street and Second Avenue
  Construction of acoustic shed containing the site
  Establishment of spoil stockpile area.
  Excavation of station shaft
  Installation of site utility and services.
  Installation of site offices and ancillary facilities
  Installation of gantry crane across the station shaft
  - Installation of hoarding along Waterview Street and Second Avenue.

- Five Dock metro station west construction site

  Site establishment and Demolition works
  Construction of two driveways on Great North Road.
  Excavation of station shaft
  - Construction and installation of site utility and services.
  Establishment of spoil stockpile area.
  Installation of site offices and ancillary facilities
  - Installation of hoarding along Great North Road and East Street.

Following initial site establishment works and bulk excavation, various construction activities will take place, including:

- Minor excavation and removal of remaining spoil
- Concrete pours for lining
- Adjustments to the western site to install a turntable for construction vehicles, providing for forward in and out movements, this is further detailed within Section 5 2 7
- Operational support and maintenance activities for tunnelling
- Construction, use of, and dismantling of sidewall lining formwork
- Removal of gantry crane and spoil shed from the east site
- Removal of other site facilities before handover of the site to Sydney Metro's follow-on contractor
- Adjustments to hoarding, signage and various other site features before handover of the site at completion

Indicative Five Dock metro station east and west construction site layouts are provided in Appendix A.

The following roads have been converted to one-way operation to facilitate construction heavy vehicle movements entering and exiting the eastern construction site:

- Waterview Street between First Avenue and Second Avenue has been converted to one-way in the northbound direction.
- Second Avenue between Great North Road and Waterview Street has been converted to one-way in the westbound direction.

Construction activities commenced in January 2022 and are expected to be completed in mid 2025

4 2 CONSTRUCTION WORKING HOURS

The proposed construction activities would be carried out at the following working days and hours:

- Monday to Friday: 7:00am 6:00pm
- Saturday: 8:00am 6:00pm
- Deliveries between 7:00am 10:00pm as per Condition D37 (d)(iii)

Tunnel and other activities exempted under CoA D37 will operate 24 hours a day, 7 days a week (not traffic related)

Works outside of these hours will occur on occasion. These works will only occur following notification to residents, businesses and stakeholders, times will be restricted to approved ROL times only, where applicable

4.3 HAULAGE ROUTES

The designated haulage routes for heavy vehicles are detailed below and shown in Figure 5 and Figure 6 below, a full copy of the Vehicle Movement Plans (VMP) can be found within Appendix C

- Inbound Routes

  East Site Route: Great North Road (northbound), First Avenue and Waterview Street
  West Site Route: Great North Road (northbound)

- Outbound Routes

  East Site Route: Second Avenue and Great North Road (southbound)
  West Site Route: Great North Road (northbound), Lyons Road and Victoria Road

FIGURE 5: CONSTRUCTION HEAVY VEHICLE ROUTES WEST SITE

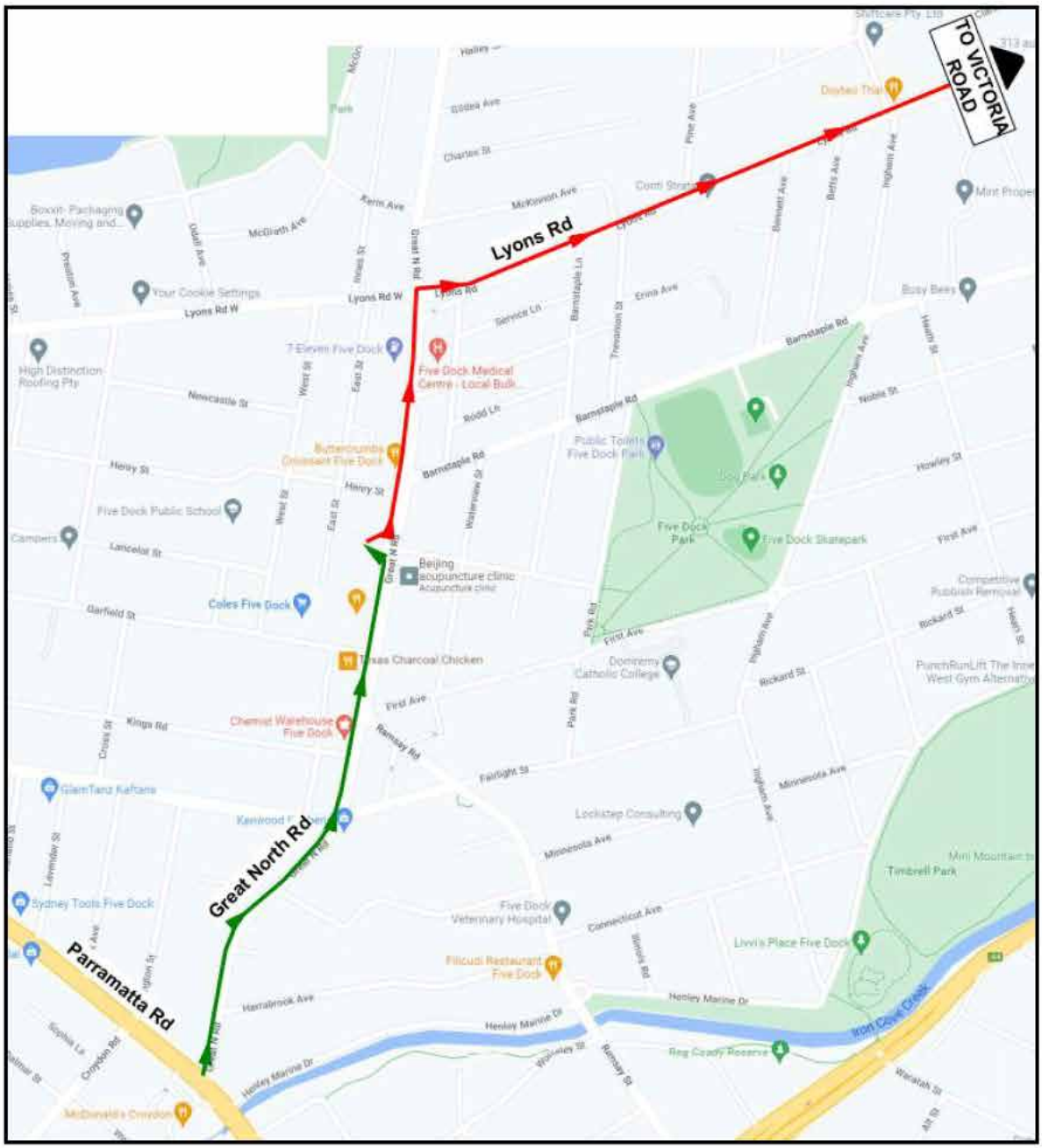
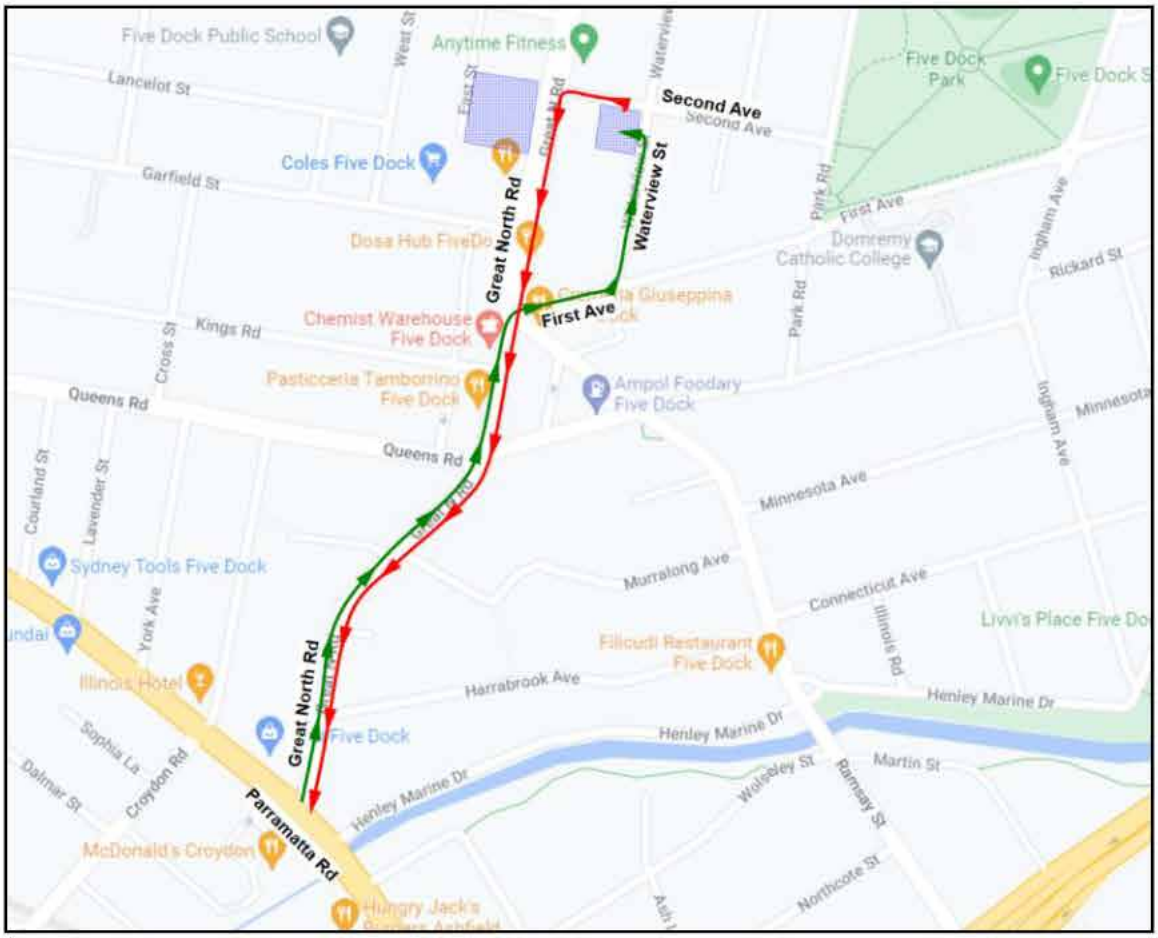


FIGURE 6: CONSTRUCTION HEAVY VEHICLE ROUTES EAST SITE



On occasion, some heavy vehicle movements may need to occur that are not shown within this CTMP, in this instance the vehicles would still be restricted to state roads and the haulage routes defined within this CTMP Variation to these access routes will only be adopted if width, swept path and access constraints exist. These movements will only occur with an approved TGSs and VMP in place, and ROLs and/or council approvals, where required.

The proposed site access gates as shown in Appendix A are detailed in Table 4

TABLE 4: SITE ACCESS AND EGRESS ARRANGEMENTS

Gate Number	Site Access to	Access and Egress Movements	Largest Vehicle Type
Gate FD 01	Loading area of Five Dock metro station west construction site	Great North Road	Heavy rigid vehicles
Gate FD 02	Loading area of Five Dock metro station west construction site	Great North Road	Heavy rigid vehicles
Gate FD 03	Loading area of Five Dock metro station east construction site	Waterview Street	Heavy rigid vehicles
Gate FD 04	Loading area of Five Dock metro station east construction site	Second Avenue	Heavy rigid vehicles

It is proposed that additional haul routes using state and regional routes be included:

- The southbound movement on Great North Road from Lyons Road
- The westbound movement on Lyons Road from Victoria Road to Great North Road
- The southbound movement from Great North Road, onto Parramatta Rd, Wattle Street, Ramsay Street and back onto Northbound Great North Road.
- The Southbound movement from the western site, southbound on Great North Road, to Parramatta Road

These additional haul route options will provide flexibility with 'truck loops' and 'East site to West site' movements, should there be congestion at either of the sites and they cannot enter Marshalling areas in this location are limited, where difficulty arises, it's anticipated trucks will need to 'loop' and come back to the site.

The above detailed 'truck loops' and 'East to West site' movements are intended for irregular use only, and as a last resort. Primary measures to prevent trucks from queuing, will be to stagger truck bookings and use 'Linkedsite' to monitor spoil truck movements, and divert trucks to alternate project sites If or when these additional movements are required; it's anticipated that there will be no more than approximately 1 truck per hour during peak times.

At times truck reversing movements will be required, to facilitate:

- Construction of sidewall lining formwork, for an expected 1 month period between mid late August 2024 and mid-late September 2024. No more then 1-2 truck reversing movements per day would be required for these works.
- During demobilisation of the eastern site where all construction works at Five Dock would need to be carried out from the western site. This is expected to take place between December 2024 and March 2025 and would require approximately 10 truck reversing movements per day
- During the demobilisation of the Five Dock western site, expected to occur between February 2025 and April 2025 Approximately 10 truck reversing movements per day would be required for these works

These reversing movements will be restricted to rigid vehicles only. Anytime where larger OSOM or 19m semies need to reverse into the site, this will occur at night All reversing movements regardless of vehicle size will only take place under traffic control and in accordance with an approved ROL, as further detailed below within section 5.1.2.

5. CONSTRUCTION TRAFFIC AND TRANSPORT MANAGEMENT

5.1 LONG TERM TRAFFIC CHANGES

5.1.1 TRAFFIC STAGING

Traffic staging drawings have been prepared to detail the proposed traffic management measures for the east and west construction sites with the following key features as shown in Figure 7 and a full copy within Appendix B.

- Waterview Street between Waterview Street car park and Second Avenue converted to one-way traffic flow in the northbound direction, while the existing two-way operation remains south of the car park access
- Second Avenue between Great North Road and Waterview Street is to be converted to one-way traffic flow in the westbound direction
- A half road closure on the southern leg of the Waterview Street and Second Avenue intersection to physically restrict traffic from entering Waterview Street in the southbound direction
- Appropriate signage installed to inform motorists of the one way conversion of Waterview Street and Second Avenue, including One Way, No Entry, No Left Turn and No Right Turn signs.
- Appropriate signage on approach to the site, including Truck warning signs and distance plates
- Pedestrian management at the site access gates.
- Speed reduction on Great North Road, to be installed to increase public safety.

The Traffic Staging plan has also been adjusted to include four stages, these stages are as follows:

- Stage 1 Done and no longer applicable,
- Stage 2 Current (installed) From late March 2024, the reinstatement if three parking spaces on the western side of Great North Road,
- Stage 3 From December 2024, removal of the three parking spaces reinstalled during stage 2 to facilitate demobilisation activities,
- Stage 4 - From April 2025 post demobilisation, the reinstatement of the three parking spaces removed during stage 3.

Dates of the traffic stages listed above may change due to unforeseen circumstances such as weather and construction program changes. Community updates and updates during TTLG meetings will be provided as works progress.

The one-way northbound traffic flow on Waterview Street will avoid conflicts between AFJV heavy vehicles and any oncoming vehicles while maintaining on-street parking along both sides of the road

The one-way westbound traffic flow on Second Avenue will maximise the available space to accommodate AFJV heavy vehicles exiting the construction site and the left turn movement onto Great North Road

FIGURE 7: OVERVIEW OF LONG TERM TRAFFIC STAGING

5.1.2 TRAFFIC GUIDANCE SCHEMES (TGS)

At times construction vehicle revering movements will be required, from Great North Road into the western site. During these times, TGSs: AFJVCTP TGS-0815 & AFJVCTP TGS 0562 will be installed to manage these movements safely. These reversing movement are restricted to ridged vehicles only during daytime hours Any larger vehicles including 19m semies will only occur at night under traffic control and in accordance with an approved ROL. A full copy of the TGS is provided within Appendix G of this CTMP with a copy of the pedestrian management plans within Appendix E.

It's noted that traffic control on Great North Road requires a Road Occupancy Licence (ROL) and will not be installed without an approved ROL in place.

At various times during construction activities, a number of TGSs not displayed within this CTMP may be required It's intended that these TGSs would be created as 'sub plans' to this CTMP, and would only occur in accordance with approved ROLs and/or council approval where required.

5 1 3 LOCAL AREA WORKS AND HANDOVER

On completion, the site will be handed to Sydney Metro's nominated follow-on contractor, with the inclusion of the signs and Line Marking arrangements outlined in the Local Area Works design package (design approved outside of this CTMP)

This will generally see any temporary signs associated directly with works installed by AFJV, to be removed if not included in the local area works designs, any other variations in parking restrictions, kerbs and driveways will be installed and handed over as completed works This will be completed within consultation with CJP, Council, Sydney Metro and other relevant stake holders

5.2 ADDITIONAL TRAFFIC CONTROLS & MITIGATIONS

Primarily during 2022 and early 2023, a high level of public non-conformance was identified This includes; public not following traffic control instructions, not following basic road rules, and not adhering to regulatory and warning signage. For this reason, numerous additional safety measures have been considered This section of the CTMP explains the safety concerns and controls that have been installed to date

5.2.4 SAFETY CONSERNS

Shortly after the start of construction activities in early 2022, it was noted that an unusually large unwillingness from the public to follow regulatory and warning signs, or follow Traffic Controller instructions. This included:

- Vehicles not complying with regulatory and warning signage.
- Pedestrians not complying with regulatory and warning signage and crossing the road at uncontrolled locations
- Pedestrians crossing the road adjacent to site driveways, further increasing risk
- Drivers not complying with traffic control instructions

5.2.5 CONTROL MEASURES IMPLEMENTED

A number of adjustments and additional control measures have been adopted to date, including:

- Speed reduction to 40km/h on Great North Road
- Additional regulatory signs, line marking, and traffic management devices installed.
- CCTV installed for a period of time to help identify safety issues and how best to manage them
- Public non-conformance reported to the police
- Police engaged under a 'user pay' agreement to attended site for 6hr shifts at various times and dates (during construction hours) across a month. This was intended to create a public perception that 'police could be there at any time'
- Additional traffic controllers on site at strategic locations, during working hours.
- An additional traffic controller at both site access gates at the west site on Great North Road This will be in place during all working hours and times when bulk haulage operations are taking place.
- Additional custom pedestrian signage and gates to be installed at each side of both driveways on Great North Road.
- During reversing movements, truck and dogs, 19m Semies or OSOM loads will not be permitted at the western site, the reversing of trucks will be restricted to rigid vehicles only. Where larger trucks can not be avoided these movements would occur at night only
- During reversing movements, Traffic Control positioned along Great North Road to control traffic via 'intermittent traffic stops'
- Provision to reduce reversing movements at the western site as further detailed below within Section 5 2 7
- A footpath closure on Second Avenue and Waterview Street as further detailed below within Section 5 7 1

Following installation of the previous revisions of this CTMP, the above listed control measures have been regularly inspected and audited. These inspections have found a significant improvement to safety with no further concerns being identified.

Inspections and auditing will continue throughout the use of this Revision of the CTMP, any deficiencies identified will be actioned accordingly.

5.2.6 CONTROL MEASURES CONSIDERED (NOT ADOPTED)

The option of installing an additional level pedestrian crossing, North of Second Avenue, to facilitate east/west pedestrian crossings was investigated. Intent of the pedestrian crossing would be to facilitate the closure of the western footpath on Great North Road This crossing was not installed for two primary reasons as listed below:

- Local residents and businesses expressed concern with; removal of parking spaces that would be required to install the additional pedestrian crossing.
- The possibility of increasing risk to pedestrians, by introducing a new pedestrian crossing that vehicles may fail to stop at (three pedestrian crossings within a 160m distance) This was considered a concern primarily due to the high level of public non-conformance in the area.

The option of implementing daily footpath closures, without the level pedestrian crossing described above This measure was not adopted due to the following primary reasons:

- The associated impact to local businesses and residents
- Concern this could result in further public non-conformance increasing the overall risk of negative public pedestrian and vehicle interactions.

5 2 7 WESTERN SITE TURNTABLE INSTALLATION

Following completion of bulk excavation activities, AFJV has investigated an opportunity to install a bridge. This bridge would span across the station box of the western site to allow heavy vehicles to perform a forward in and forward out movement

Upon assessing installation of the bridge, it was determined not the most appropriate control measure to provide for forward in and forward out movements. This is primarily due to:

- The significant night works required and temporary traffic management requirements during installation.
- A significant quantity of high risk cranage works required
- Potential delays to other works during installation.
- The bridge providing no significant benefit when compared to installing a turntable.

It was determined that installing a turntable would be more appropriate.

Installing a turntable reduces the need for reversing movements as the primary method of entry to site. Construction vehicles will be permitted forward entry into Gate 1, once inside the site the vehicle can turnaround before exiting in a forward direction Gate 2 will no longer be used to facilitate general site entry and exit movements of heavy vehicles with exception to construction of sidewall lining formwork and during the demobilisation of the east and west sites.

Installation of the turntable was completed in late February 2024.

5 2 8 PEDESTRIAN VOLUMES

To better understand pedestrian movements in the area, manual pedestrian counts were conducted. Counts were conducted across one week between 10th October and 15th October 2022 These counts took place on the western footpath of Great North Road, and counted all pedestrians traveling in a north and southerly direction, that would be affected by closing the footpath, or at risk if leaving the footpath open during haulage operations

A summary of pedestrian counts can be found below within Table 5 and a full copy of the data within Appendix F.

TABLE 5: PEDESTRIAN COUNTS - GREAT NORTH ROAD WESTERN FOOTPATH

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
	10/10/2022		11/10/2022		12/10/2022		13/10/2022		14/10/2022		15/10/2022	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Daily total	413	425	410	423	364	430	505	437	496	501	530	509

5.3 CONSTRUCTION TRAFFIC VOLUMES

Following installation of the western site's turntable (in February 2024), construction activities generate the following heavy vehicle movements per day during the peak construction activities:

- 548 heavy vehicle movements at both construction sites, mainly consisting of 10 wheeler rigid trucks (12.5m long).
- 272 light vehicle movements at both construction site

A workforce of up to 124 construction staff and contractors will be required on both sites at any one time. Given that there is no on site parking available in both sites, there will be minimal light vehicle movements in and out of the east and west construction sites

A comparison of the proposed construction traffic volumes within the EIS is provided below within Table 6, for the peak construction activities. An hourly breakdown of the expected movements is provided below within Table 7

TABLE 6: DAILY CONSTRUCTION TRAFFIC GENERATION DURING PEAK ACTIVITIES

		Peak Daily Traffic Volume		AM Peak Hour Traffic Volume		PM Peak Hour Traffic Volume	
Construction Site	**Trip Type**	**EIS**	**AFJV**	**EIS**	**AFJV**	**EIS**	**AFJV**
East	Light vehicle	164	164	18	18	12	12
	Heavy vehicle	192	240	8	20	8	20
West	Light vehicle	108	108	14	14	12	12
	Heavy vehicle	230	230	8	8	8	8
	Total	**694**	**820**	**48**	**80**	**40**	**72**

TABLE 7: SUMMARY OF PEAK HOURLY HEAVY VEHICLE MOVEMENTS

Site:	Expected hourly heavy vehicle volumes						
East Site	**0700-0800**	**0800-0900**	**0900-1000**	**At all other times of site operation**	**1600-1700**	**1700-1800**	**total**
	20	20	20	Site movements as required, not exceeding daily total.	20	20	**240**
West Site	**0700-0800**	**0800-0900**	**0900-1000**	**At all other times of site operation**	**1600-1700**	**1700-1800**	**total**
	8	8	8	Site movements as required, not exceeding daily total.	8	8	**230**

Despite the permitted construction vehicle volumes listed above, further restrictions exist for reversing movements. These restrictions include:

- No more then 1 2 reversing movements per day during construction of the sidewall lining formwork.
- No more then 10 reversing movements per day during both demobilisation of the eastern site, and demobilisation of the western site

Linkedsite (previously Virtual Superintendent) is a GPS truck monitoring system and will be used to control spoil truck movements on the project The system is capable to redirect trucks and notify drivers when the site is full

With the implementation of a combination of bookings, live monitoring and live adjustment, AFJV can control truck movements to be in line with those listed within this CTMP

5 4 TRAFFIC IMPACTS

5.4.9 ONE WAY CONVERSION

Both Waterview Street and Second Avenue are local roads with low traffic volumes as shown in Table 2 The one-way conversion on Waterview Street would result in the likely traffic diversion as follows:

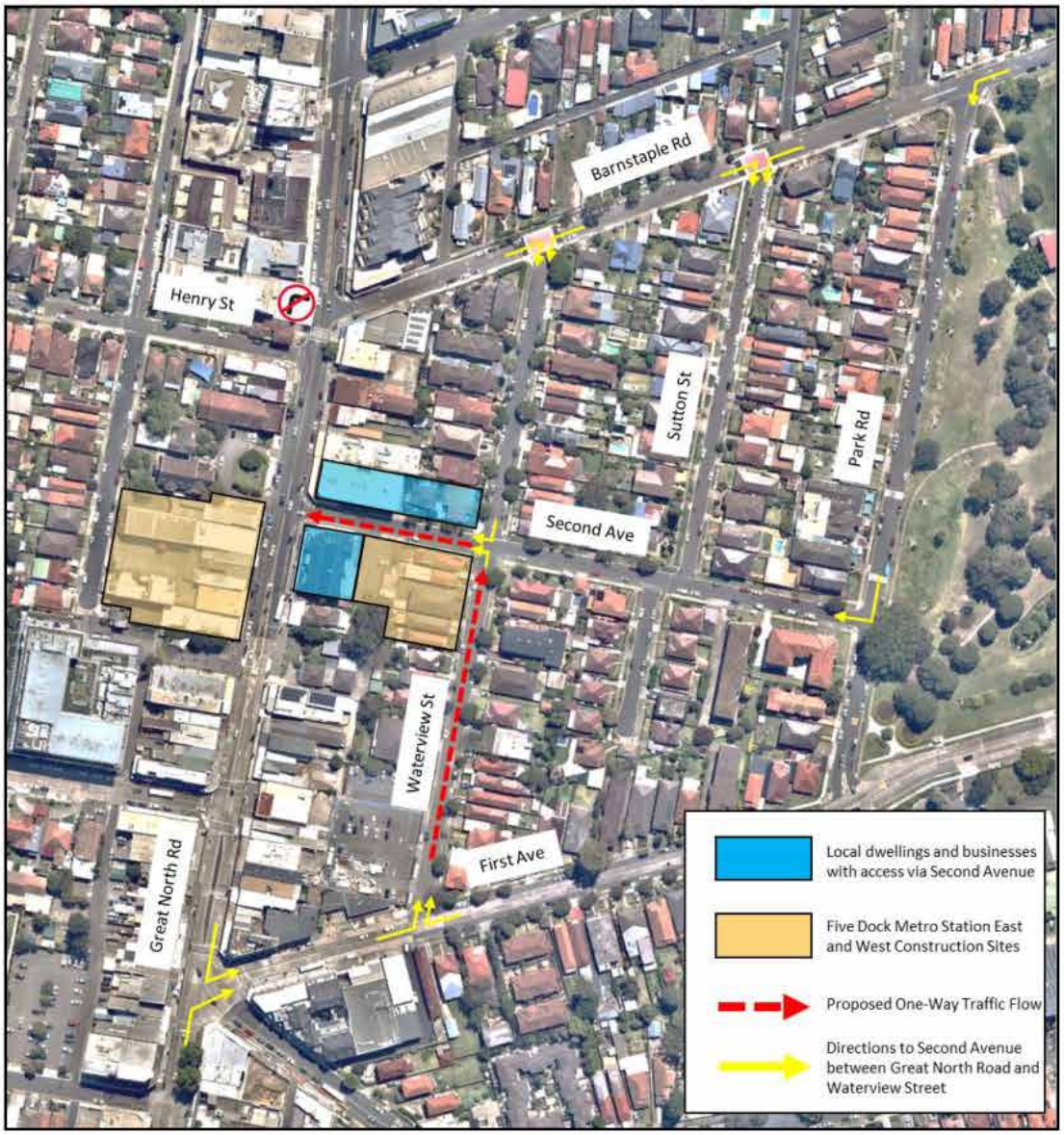
- Southbound through traffic heading towards First Avenue would be diverted to Second Avenue and Great North Road instead.
- Southbound traffic heading towards Waterview Street car park would be diverted to Great North Road (or Park Road) and First Avenue before going back to Waterview Street and turn left into the car park.

This would affect the existing Waterview Street southbound traffic involving 20 vph and 110 vph in the AM and PM peak hours respectively to be diverted to the alternative routes. On average, these traffic volumes are equivalent to one vehicle every three minutes in the AM peak, and approximately two vehicles per minute in the PM peak hour The low level of traffic increase which would be dispersed on the alternative routes is not expected to impose any adverse traffic impact.

The one-way conversion on Second Avenue would prevent traffic entering Second Avenue directly from Great North Road Traffic going to the affected section of Second Avenue would be diverted to First Avenue, Waterview Street and turn left onto Second Avenue.

This would affect the existing Second Avenue eastbound traffic involving 70 vph and 90 vph in the AM and PM peak hours respectively to be diverted to the alternative route On average, these traffic volumes are equivalent to one vehicle every 1.2 minutes in the AM peak, and approximately one vehicle every 1 5 minute in the PM peak hour The low level of traffic increase on the alternative route is not expected to impose any adverse traffic impact.

FIGURE 8: LOCAL TRAFFIC ACCESS ROUTES



Where required, traffic modelling will be undertaken to assess the performance of the surrounding intersections to determine whether any mitigation measures will be required

5.5 ON-STREET PARKING

5 5 1 DURING CONSTRUCTION

On street parking along the site frontages of Waterview Street, Second Avenue and Great North Road will be removed. The removal of on-street parking is to mitigate traffic conflict between AFJV heavy vehicles and the passing traffic while accommodating the heavy vehicle turning movements in and out of the construction sites and construction areas

It is anticipated that a total of 22 on street parking spaces will be removed on Great North Road, Waterview Street and Second Avenue. A breakdown of the parking removal is shown as follows:

- 6 on-street parking spaces on Waterview Street
- 4 on-street parking spaces on Second Avenue
- 12 on-street parking spaces on Great North Road.

No Stopping signs will be installed to indicate the parking restrictions along the frontages

Given the existing parking demand in the affected road section is mostly generated by the existing residential premises that will be demolished, no parking displacement is proposed as the parking demand associated with the adjacent properties will be reduced during construction period

In addition, occasionally on-street parking will need to be occupied for localised construction activities, utilities works, asphalt and line marking works in a variety of locations not yet determined These will be coned off in advance of the works being completed and reinstated on completion These impacts will be minimised as much as practically possible.

5.5.2 PARKING REINSTATEMENT

Removal of parking along the western side of Great North Road has been essential in facilitating safe working areas and movement of construction vehicles to date. Now that a majority of the utility, driveway construction and bulk excavation works have been completed, an opportunity was identified for the reinstatement of three timed parking spaces on the western side of Great North Road.

As further detailed within Section 5 1 1 of this CTMP and the traffic staging plan provided within Appendix B, three parking spaces was reinstated The spaces are restricted to 30 minute parking and would be temporarily removed again during demobilisation works, before then being reinstated.

5.6 WORKFORCE PARKING

From the end of February 2024, up to four worker parking spaces will be provided within the western construction site with exception to times when reversing movements are required. This includes, during sidewall lining formwork construction and demobilisation activities It is anticipated that there will be a total of 124 AFJV workers and staff on site at any one time during peak construction activities.

Refer to the Construction Parking and Access Strategy (CPAS), for full details of worker parking.

5 7 PEDESTRIAN AND CYCLISTS

Traffic controllers will be stationed at the site access gates on Great North Road to assist and manage heavy vehicle and pedestrian movements.

In addition, traffic controllers will utilise moveable pedestrian gates at the vehicle crossover points to manage pedestrian movements while AFJV heavy vehicles are entering and exiting the construction sites.

“Be Truck Aware” decals will be installed on the footpaths at the site driveways A Road Safety Audit will be conducted post site implementation to review pedestrian safety.

If at any time a footpath cannot remain open, it will only be closed in accordance with an approved TGS, ROL and/or Council approval, where applicable

A concern has been noted at the intersection of Great North Road and Second Avenue

- Regular non-compliant pedestrian movements around the Five Dock site
- Addition of having heavy vehicles traveling out of Second Avenue that the public may not typically expect.

Truck drivers would generally be looking North and focusing on entering Great North Road, a driver may not notice a pedestrian stepping in front of the truck from the South In addition to toolbox talks, footpath decals, and regular inspections and monitoring, a Traffic Controller will be positioned at the South of the intersection at all times when bulk excavation works are taking place from the East site The speed of Great North Road will also be reduced to a 40km/h roadwork speed zone

Any incidents involving heavy vehicles and public interactions, or 'At Risk' observations will form part of regular monitoring of haul routes. Issues identified will be recorded, investigated and any improvements, implemented within consultation with relevant stakeholders.

5 7 1 FOOTPATH CLOSURE ON WATERVIEW STREET AND SECOND AVENUE

To increase safety by reducing possible interaction of pedestrians and construction vehicles at the eastern site, a footpath closure was installed on Waterview Street and Second Avenue in accordance with council permits

While this CTMP was updated to Revision 14 to include this footpath closure for transparency, it's noted that approval of this footpath closure will continue being handled as per the CoCB permit process The CoCB permit process will also capture items related to use of the footpath area that may at times be used to facilitate construction activities and storage of material.

5.8 PUBLIC TRANSPORT

The proposed construction activities will not impact any existing local bus route services along Great North Road and First Avenue

5.9 ACCESS TO LOCAL PROPERTIES, BUSINESSES AND UTILITIES

Access to all neighbouring properties, businesses and Waterview Street car park in the vicinity of the Five Dock metro station construction sites will be maintained at all times unless agreed with property owner.

Access to all utilities will be maintained during construction unless agreed with the relevant utility owner, landowner or occupier unless agreed with the utility owner

Local residents and businesses will be notified via letter box drops and door knock notifications of the proposed traffic changes at least two weeks prior to the works

In addition, variable message signs (VMS) were installed on 10 December 2021 to advise of the Second Avenue car park closure in January 2022. Additional VMS were installed in early 2022 to advise of proposed one-way traffic flow conversions

5.10 SPECIAL EVENTS

A review of City of Canada Bay Council's website for special events near the subject site shows that there are currently no scheduled special events which will be impacted by the proposed construction works

It is noted that Council's Ferragosto Street Festival is set to return in August 2024. The Ferragosto is the largest annual event held by Council which showcases Italian culture and cuisine on Great North Road The Ferragosto is an all day event typically held on a Sunday which will be outside of construction working hours of the Project.

AFJV will continue to monitor Council's event calendar for any upcoming events that may be impacted by the proposed construction activities. AFJV will further discuss with Council of the impacted special events where necessary.

5 11 INSPECTIONS

On site inspection and monitoring of this CTMP will be undertaken regularly and in accordance with the Overarching Construction Traffic Management Plan.

All long-term traffic management arrangements will be inspected post Implementation Any minor issues identified during the inspection will be recorded and rectified immediately More significant issues will be recorded for rectification.

Where traffic control deficiencies are identified through inspections, this CTMP and associated TGS will be amended, as required, by the Traffic Manager.

All identified issues and status of rectification will be documented.

5 12 ROAD SAFETY AUDIT

When required, a road safety audit will be conducted by a suitably qualified and independent auditor with Level 3 certification and another auditor with Level 2 or higher certification.

Where road safety deficiencies are identified through the audit, the relevant design/implementation will be amended to address the deficiencies, where required. A Road Safety Audit report will be made available.

Refer to Appendix D for the road safety audit report for the proposed traffic staging plan

5.13 WORKFORCE AND STAFF TRAINING

5.13.1 SITE INDUCTION

All AFJV workers and staff employed on Five Dock metro station east and west construction sites (including sub-contractors) will be required to undergo a site induction

The induction will include information of the construction site access routes for site staff and construction vehicles, on site parking locations, WH&S, driver protocols and emergency procedures.

All personnel employed with the Project will perform their duties in accordance with the requirements of this CTMP.

5.13.2 DRIVER TRAINING

Heavy vehicle drivers shall be made fully aware of the traffic management arrangements within and surrounding the site. All drivers will be informed of all site access gates and the access requirements including specific heavy vehicle driver training to ensure the following:

- Appropriate procedures for accessing the site
- Drivers shall adhere to the nominated site access routes
- Drivers are to be cautious to other road users (pedestrians and cyclists) travelling past the sites
- Drivers shall be aware of the speed restrictions along the site access routes, and
- No queuing and truck marshalling is to be wholly contained within the site.

Vehicle movement plans (VMP) will be provided to suppliers, trucking companies, spoil trucks as part of the contract and induction Non frequent drivers of large vehicles will be required to call to site prior to approach and will be directed to use the prescribe route to approach site. Once non frequent delivery vehicles enter site, it will be guided by foreman or traffic control to their required location

5.14 OVERFLOW QUEUEING AND EMERGENCY MANAGEMENT

In the event of any significant queueing of trucks or in the event of a site emergency, trucks will be diverted to alternative sites during any queuing events to await further instruction, such as The Bays, Burwood North, North Strathfield, or Sydney Olympic Park

Heavy vehicle bookings are to be sufficiently staggered where possible.

Marshalling at spoil sites will be implemented where possible to spread out the returning spoil trucks This will minimise the likelihood of queueing around the Five Dock construction sites

The ‘Loop’ option and ‘East to West site’ options are only intended for irregular use if the above controls have been insufficient in preventing queuing. These options should be limited to approximately 1 heavy vehicle per hour, during peak times.

6. COMPLIANCE MANAGEMENT

6.1 ROLES AND RESPONSIBILITIES

The AFJV project team's organisational structure and key roles and responsibilities for managing traffic and transport relating to the construction activities and construction personnel are summarised in Table 8.

TABLE 8: AFJV ROLES AND RESPONSIBILITIES

Roles	Responsibilities
Project Wide Construction Manager [redacted]	▪ Reports to the Project Director as part of the Project Management Team. ▪ Accountable for the overall construction delivery of the Surface Works. ▪ Directs the Traffic Manager and ensures work is prioritised to ensure safety of all road users, the community and construction personnel.
Traffic Manager [redacted]	▪ Reports to the Project Wide Construction Manager. ▪ Leads the traffic management team. ▪ Implements the CTMP and ensure it is followed. ▪ Ensures risk assessments are done. ▪ Reviews Construction Traffic Management Plans (CTMPs)/ Traffic Guidance Schemes (TGSs or formerly known as Traffic Control Plans)/ Road Occupancy Licence (ROLs) prior to submission to the stakeholders. ▪ Ensures that sub-contractors meet the requirements of the CTMP. ▪ Defines the requirements for traffic management and ensures that they are satisfied through spot checks and audits.
Traffic Coordinator [redacted]	▪ Reports to the Traffic Manager. ▪ Develops CTMP/ TGS/ ROL submission. ▪ Ensures that long-term layouts are implemented in accordance with the CTMP/ TGS/ ROL, are safe and are maintained appropriately.
Traffic Foreman [redacted]	▪ Reports to the Traffic Manager. ▪ Ensure that the CTMP/ TGS/ ROL is implemented on site. ▪ Ensure traffic controllers have the necessary competencies to perform their tasks. ▪ Responsible for safety checks and inspections to ensure that the road is maintained in accordance with the CTMP.

6.2 TRAFFIC AND TRANSPORT LIAISON GROUP

AFJV Traffic Manager will present at the monthly Traffic and Transport Liaison Group (TTLG) meetings for the Project. The TTLG will primarily include representatives from:

- Sydney Metro Delivery Office
- Transport for NSW (TfNSW)
- Customer Journey Management (formerly known as TMC)
- Customer Journey Planning (formerly known as SCO)
- NSW Police
- City of Canada Bay Council
- Representative of any other authority or road user group affected by the Project.

The AFJV Traffic Manager is a member of the TTLG and will act as the authorised representative for the Project in matters related to traffic and transport. The AFJV Traffic Manager provides the following information and related updates to the TTLG:

- Construction site operations and activities
- Traffic operations, including changes in local road network
- Community concerns and comments or feedback
- Issues relating to pedestrians and cyclists or mobility impaired road users.

6.3 COMMUNICATIONS TO LOCAL RESIDENTS AND BUSINESSES

Consultation with residents started in late November 2021 with an online meeting with residents/owners of 110 Great North Road. Notification outlining all the proposed traffic and parking changes around Five Dock is being distributed to community within 500m of the Five Dock site on 15 December. Nearby businesses/residents of Second Avenue are also be doorknocked throughout December. So far, concerns raised included workers parking in local streets of Five Dock and inconvenience associated with the proposal to make a section of Second Avenue to one-way . AFJV explained that offsite park and ride arrangement for workforce and staff will be implemented. AFJV also clearly outlined the safety reasons for proposing the one-way change for a section of Second Avenue.

VMS boards were installed on 10 December 2021 to advice of Second Avenue carpark closure in January 2022. VMS will be installed to advice of the one-way conversion two weeks prior to the switch and remain in place for an additional 2 weeks afterward. To further communicate and assist in the familiarisation of the new configuration traffic controllers were positioned at the following locations daily for one week to ensure no vehicles enter the one-way arrangements in the wrong direction.

- Great North Road and Second Avenue
- Second Avenue and Waterview Street
- Waterview Street and carpark Access (where Waterview becomes one-way).

Community consultation and updates will continue, for the duration of the project.

6.4 KEY SITE CONTACTS

Key site contact details are listed in Table 9.

TABLE 9: KEY SITE CONTACT DETAILS

Name	Role	Contract Details
[redacted]		

Name	Role	Contract Details
[redacted]		

7. CONCLUSION

This CTMP has been prepared to document the proposed construction activities and operations at Five Dock metro station east and west construction sites for the construction period between January 2022 and approximately late 2024 The CTMP details measures to mitigate the identified traffic and transport impacts that would occur.

Based on the findings of the CTMP, it is concluded that:

- The construction activities and operations at Five Dock metro station construction site will generate the following traffic movements per day during the peak days:

  Eastern construction site
  - 164 light vehicle movements at the east construction site
  - 240 heavy vehicle movements at the east construction site (12.5m long HRV)

  Western construction site
  - 108 light vehicle movements at the east construction site
  - 308 heavy vehicle movements at the west construction site (12.5m long HRV)
- The daily and peak hour construction traffic generation would be an increase to the EIS for the east site and consistent with the EIS for the west site.
- AFJV has reassessed the current reversing method of entry into the western site. The assessment has identified that Installation of a turntable at the western station box will reduce reversing movements by facilitating forward in and out movements for the majority of construction vehicles, this occurred as further detailed within Section 5.2.7.
- While installation of a turntable at the western site has resulted in a significant reduction in truck reversing movements. It's noted that some truck reversing movements will still be required, primarily during:
  - Construction of sidewall lining formwork, for an expected 1-month period between mid-late August 2024 and mid-late September 2024.
  - During demobilisation of the eastern site where all construction works at Five Dock would need to be carried out from the western site This is expected to take place between December 2024 and March 2025.
  - During the demobilisation of the Five Dock western site, expected to occur between February 2025 and April 2025.
- The one-way conversion will result in diversion of Waterview Street southbound traffic and Second Avenue eastbound around the surrounding roads The one-way conversion will improve manoeuvring space for construction heavy vehicles travelling in and out of the sites, but travel distance for general traffic will increase slightly due to traffic detour to alternative routes.
- Removal of up to 22 on street parking spaces at specific locations Given the existing parking demand in the affected road section is mostly generated by the existing residential premises that will be demolished, no parking displacement is proposed as the parking demand associated with the adjacent properties will be reduced during construction period
- Moveable pedestrian gates to be used at the construction site driveways to manage pedestrian movements while AFJV heavy vehicles are entering and exiting the construction site.
- Additional traffic controllers will be located at each construction site driveway on Great North road, during truck reversing movements.
- The proposed construction activities will not impact existing local bus route services along Great North Road and First Avenue

- AFJV will conduct regular inspections and monitor the traffic management measures detailed in this CTMP. Any deficiencies identified will be recorded and rectified accordingly.

APPENDIX A - CONSTRUCTION SITE LAYOUT AND VEHICLE TURN PATHS

EAST STREET

GREAT NORTH R

SECOND AVENUE

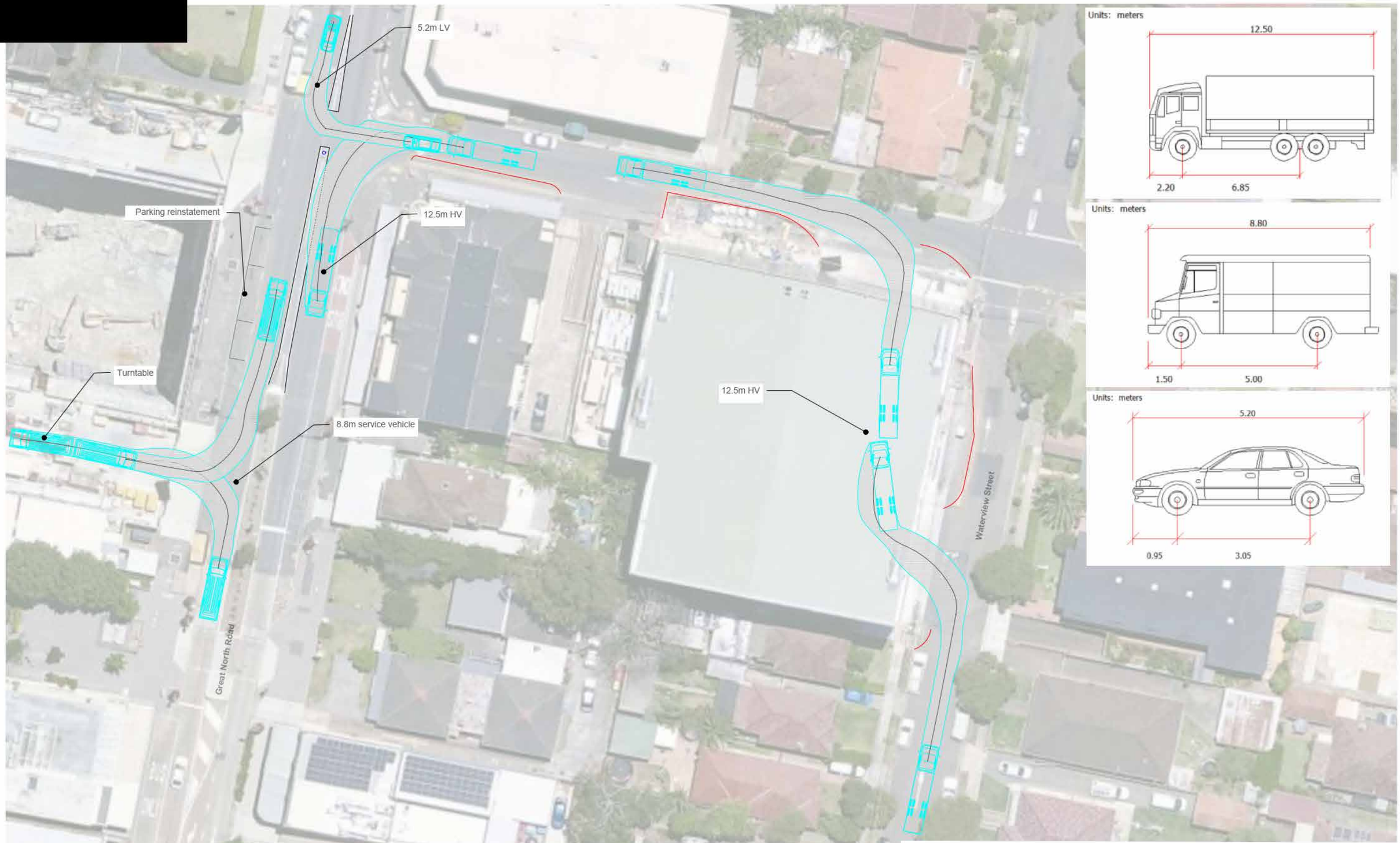
WATERVI

ROAD

	Fencing location
	B Class Hoarding
	Acoustic Shed
	Heavy vehicles gate
	Controlled areas
	B Class Hoarding

FOR REVIEW AND COMMENT

[redacted]



NOTES:

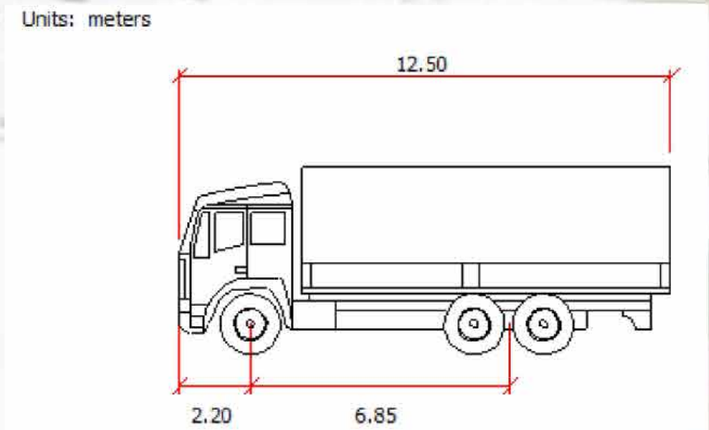
1

ORIGINAL DRAWING IN COLOUR

[redacted]

[redacted]

Movement under traffic control only
(intermittent traffic stops)



12.5m rigid

Second Avenue

Great North Road

NOTES:

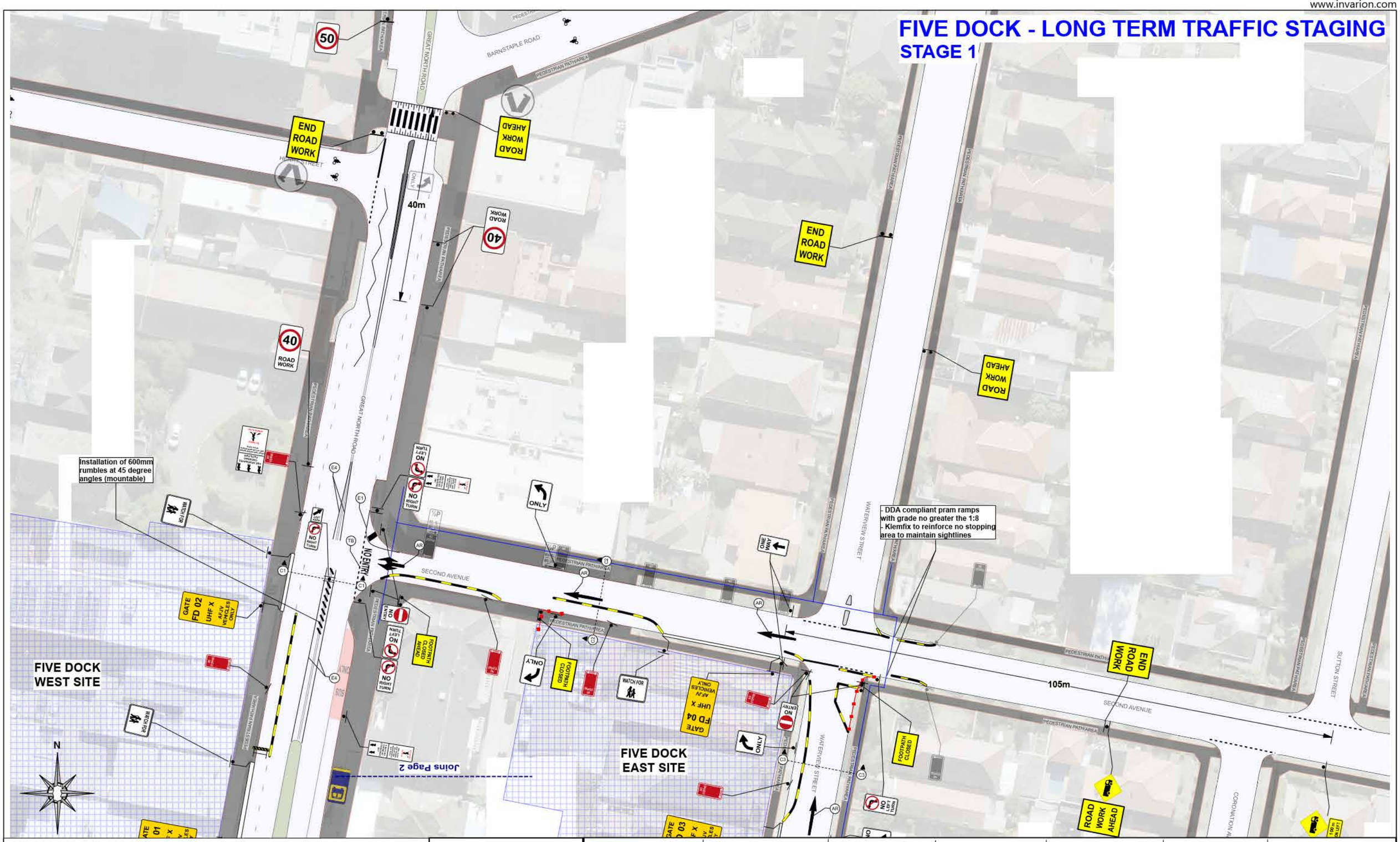
ORIGINAL DRAWING IN COLOUR

[redacted]

APPENDIX B - TRAFFIC STAGING DRAWINGS

FIVE DOCK - LONG TERM TRAFFIC STAGING

STAGE 1



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

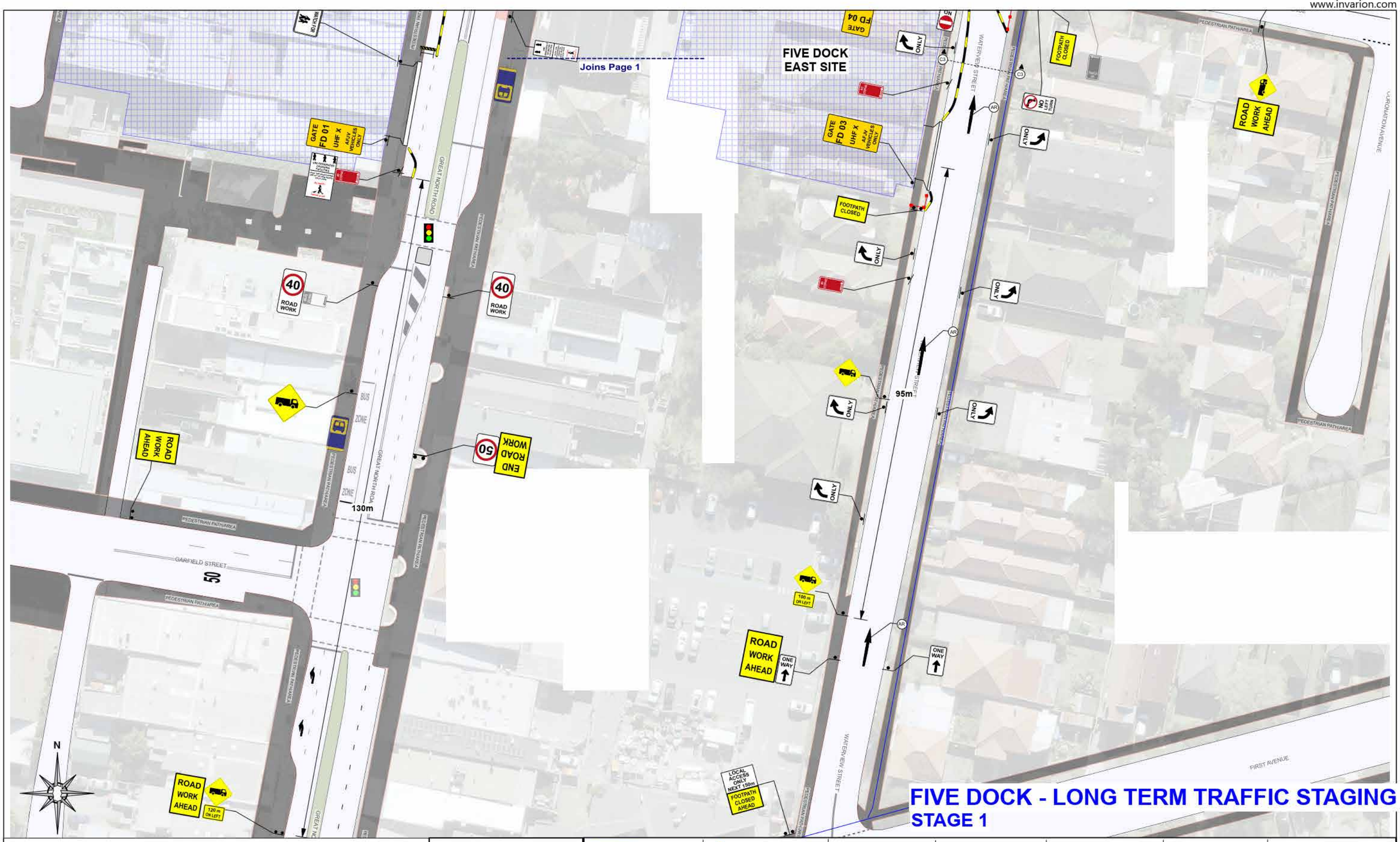
Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

Date: 14/03/2023 **Location:** Five Dock - Long Term

REV: 10

Comments:

- THIS IS A SHORT TERM TGS, NOT TO SCALE
- THE CONTRACTOR SHALL ENSURE ALL ROL AND SZA REQUIRMENTS ARE SATISFIED DURING IMPLEMENTATION OF THIS TGS
- ANY EXISTING SIGNAGE THAT CONFLIICTS WITH THIS TGS MUST BE COVERED AT THE START OF SHIFT AND UNCOVERED AT THE END OF SHIFT
- ANY CHANGES REQUIRED, SPEAK TO THE SITE FOREMAN AND THEN MODIFY THIS PLAN IF NECESSARY. ANY CHANGES TO THIS PLAN SHALL BE MARKED ON THIS TGS & SIGNED OFF BY A PWZTMP HOLDER.
- A LANE WIDTH OF 3.5m (MINIMUM) IS TO BE MAINTAINED AT ALL TIMES UNLESS NOTED OTHERWISE
- SHOULDER WIDTH / EDGE CLEARANCE TO TRAFFIC CONES OF 0.5m IS TO BE PROVIDED AT ALL TIMES UNLESS NOTED OTHERWISE
- ALL SIGNAGE TO BE 'B' SIZE UNLESS NOTED OTHERWISE
- SIGNS TO BE POSITIONED IN ACCORDANCE WITH THE TCAWS MANUAL 2022 Issue 6.1
- DIMENSION 'D' IS DETERMINED IN ACCORDANCE WITH THE TCAWS MANUAL 2022 Issue 6.1
- BOLLARDS AND TRAFFIC CONES ARE TO BE INSTALLED IN ACCORDANCE WITH THE 2022 Issue 6.1
- TAPER LENGTHS ARE TO BE IN ACCORDANCE WITH THE TCAWS MANUAL 2022 Issue 6.1
- THE SITE MUST COMPLY WITH THE TCAWS MANUAL 2022 Issue 6.1 AND A.S. 1742.3
- REGULATORY SPEED / ROADWORK SIGNS TO BE REPEATED EVERY 400m UNLESS NOTED OTHERWISE



FIVE DOCK - LONG TERM TRAFFIC STAGING
STAGE 1

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

afJV

Date: 14/03/2023 **Location:** Five Dock - Long Term

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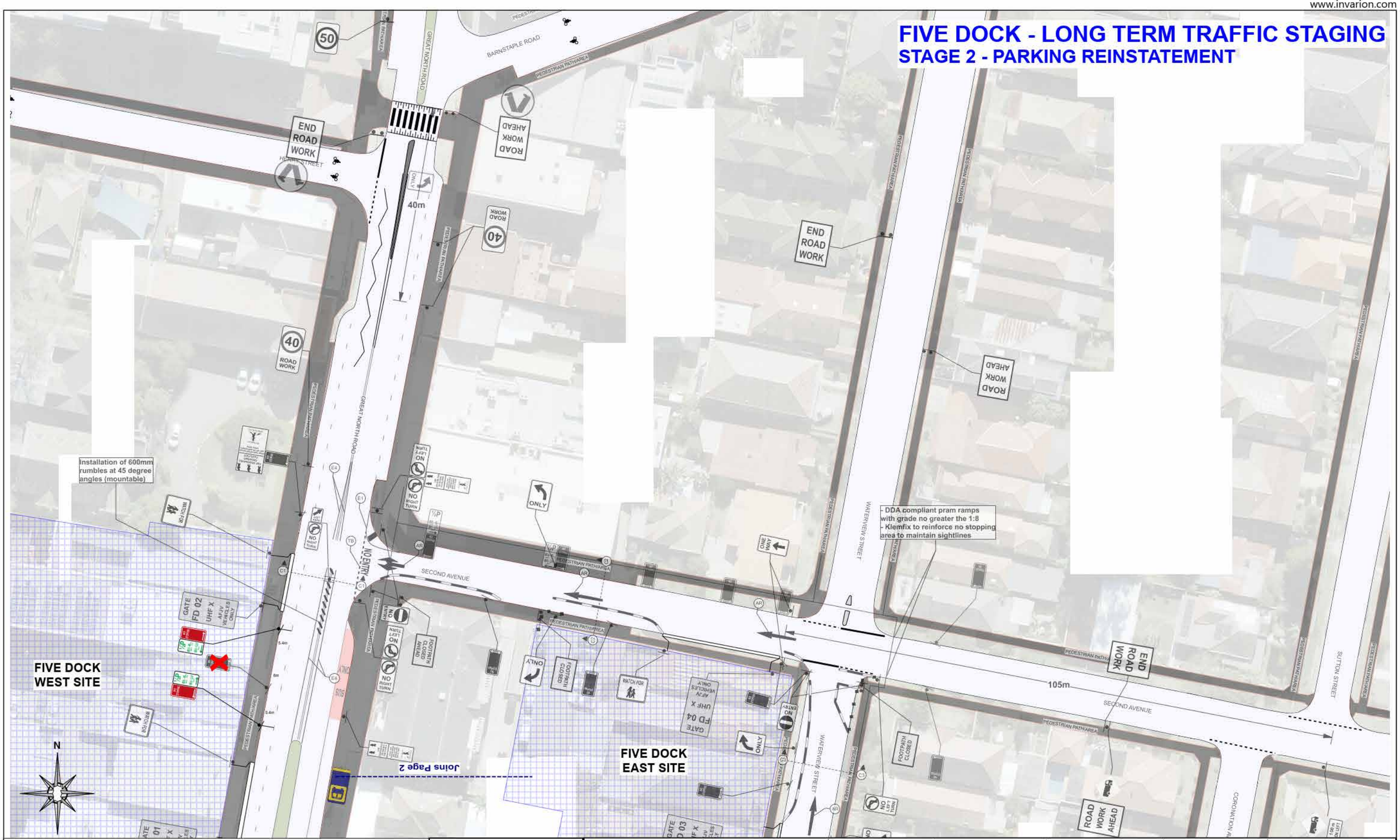
FIVE DOCK - LONG TERM TRAFFIC STAGING
STAGE 2 - PARKING REINSTATEMENT



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

Date: 14/03/2023 **Location:** Five Dock - Long Term

Comments:

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FIVE DOCK - LONG TERM TRAFFIC STAGING
STAGE 2 - PARKING REINSTATEMENT

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

afJV

Date: 14/03/2023 **Location:** Five Dock - Long Term

Comments:

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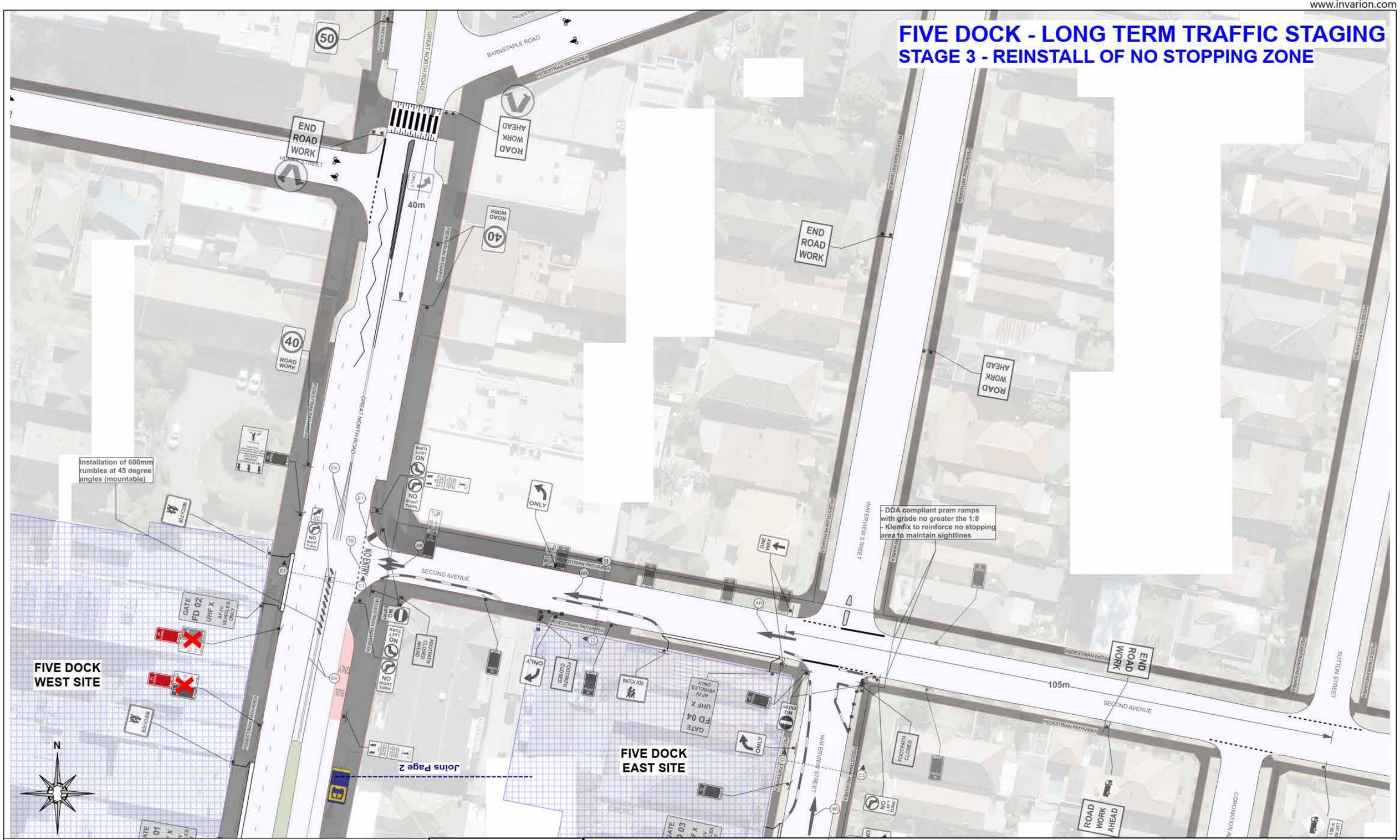
FIVE DOCK - LONG TERM TRAFFIC STAGING

STAGE 3 - REINSTALL OF NO STOPPING ZONE



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

afJV

Date: 14/03/2023 **Location:** Five Dock - Long Term

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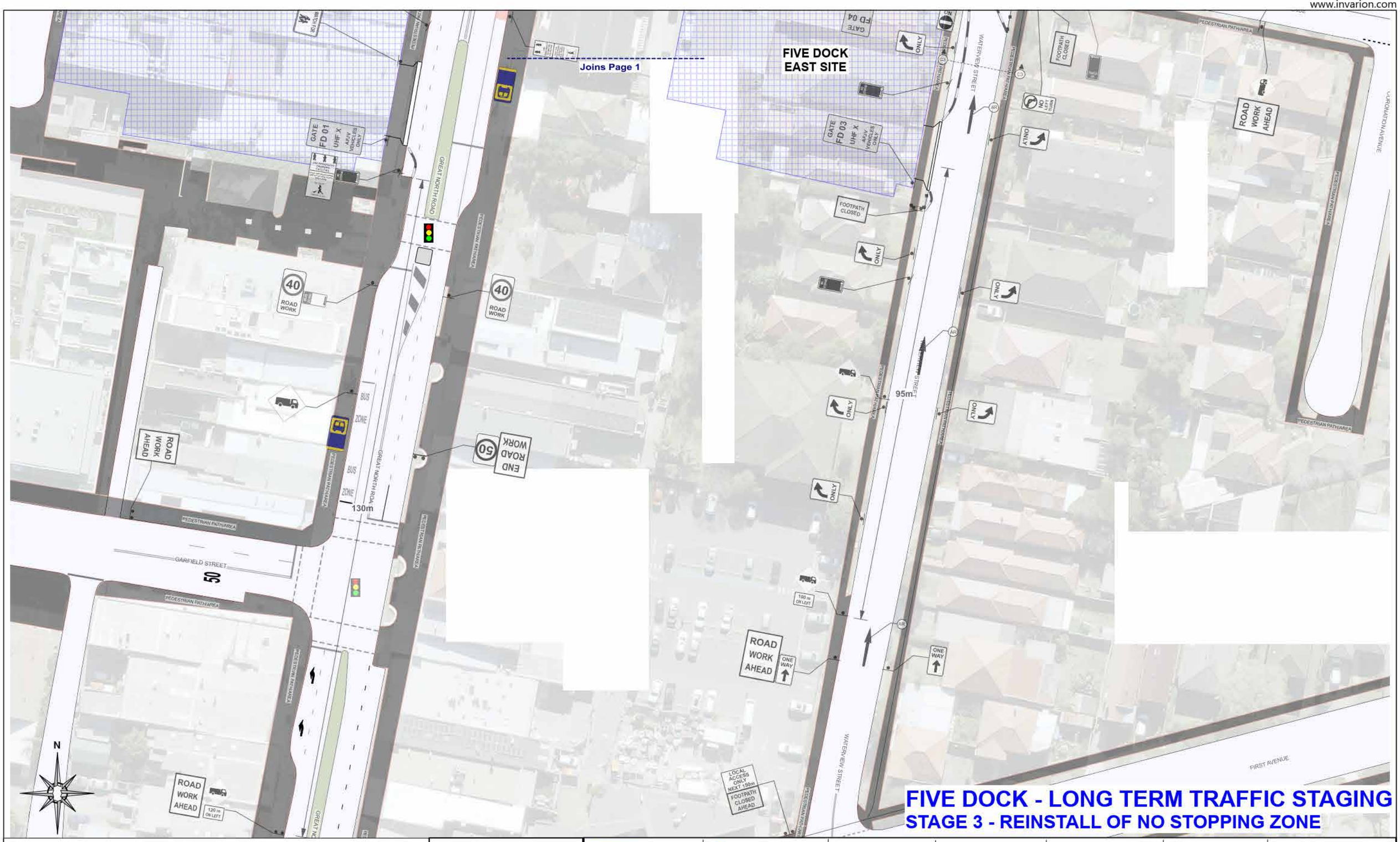

FIVE DOCK - LONG TERM TRAFFIC STAGING
STAGE 3 - REINSTALL OF NO STOPPING ZONE

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone	Traffic Controller	Traffic Cones	Pedestrian Route	Sign (2 posts)	Signalised intersection	Temporary Kerb

afJV

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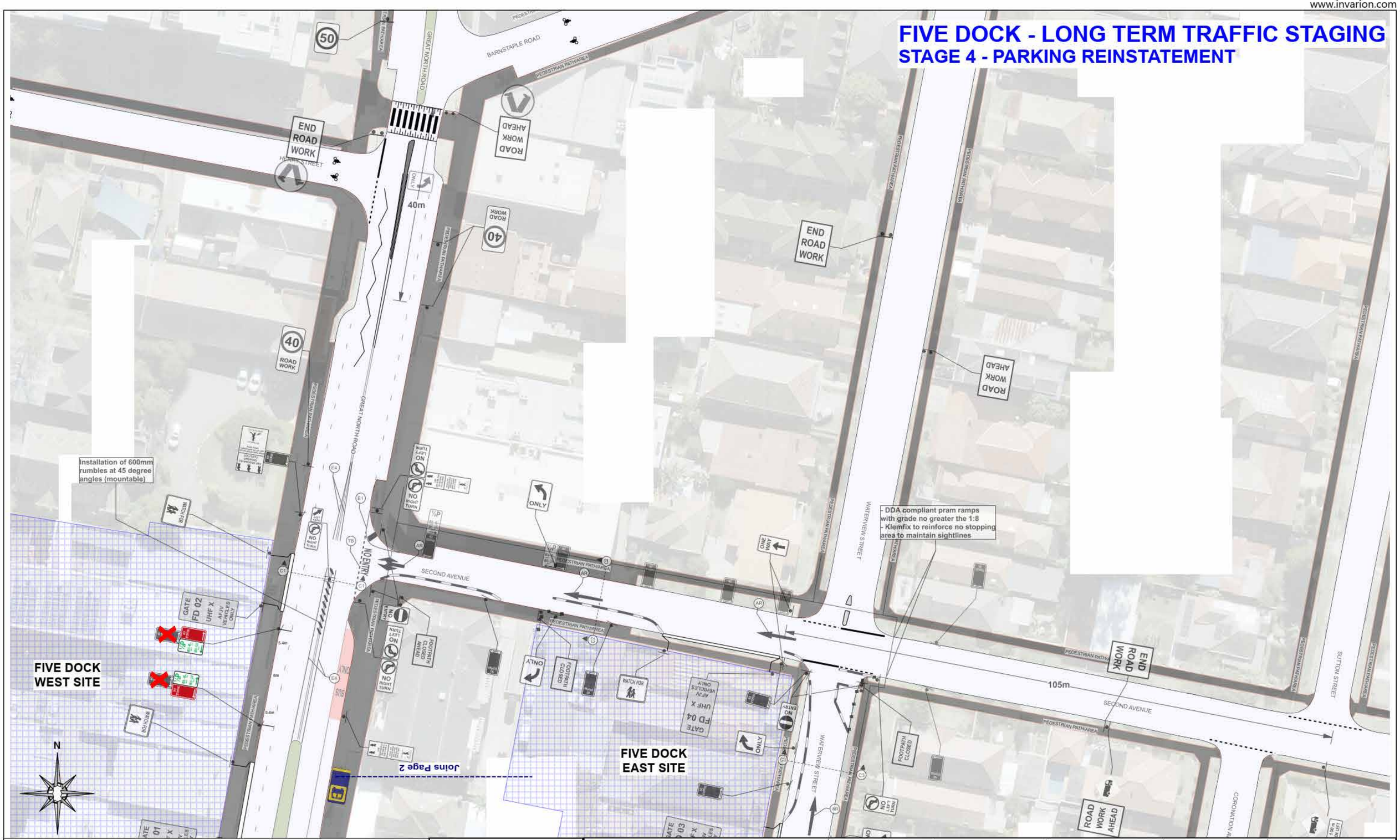
FIVE DOCK - LONG TERM TRAFFIC STAGING
STAGE 4 - PARKING REINSTATEMENT



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

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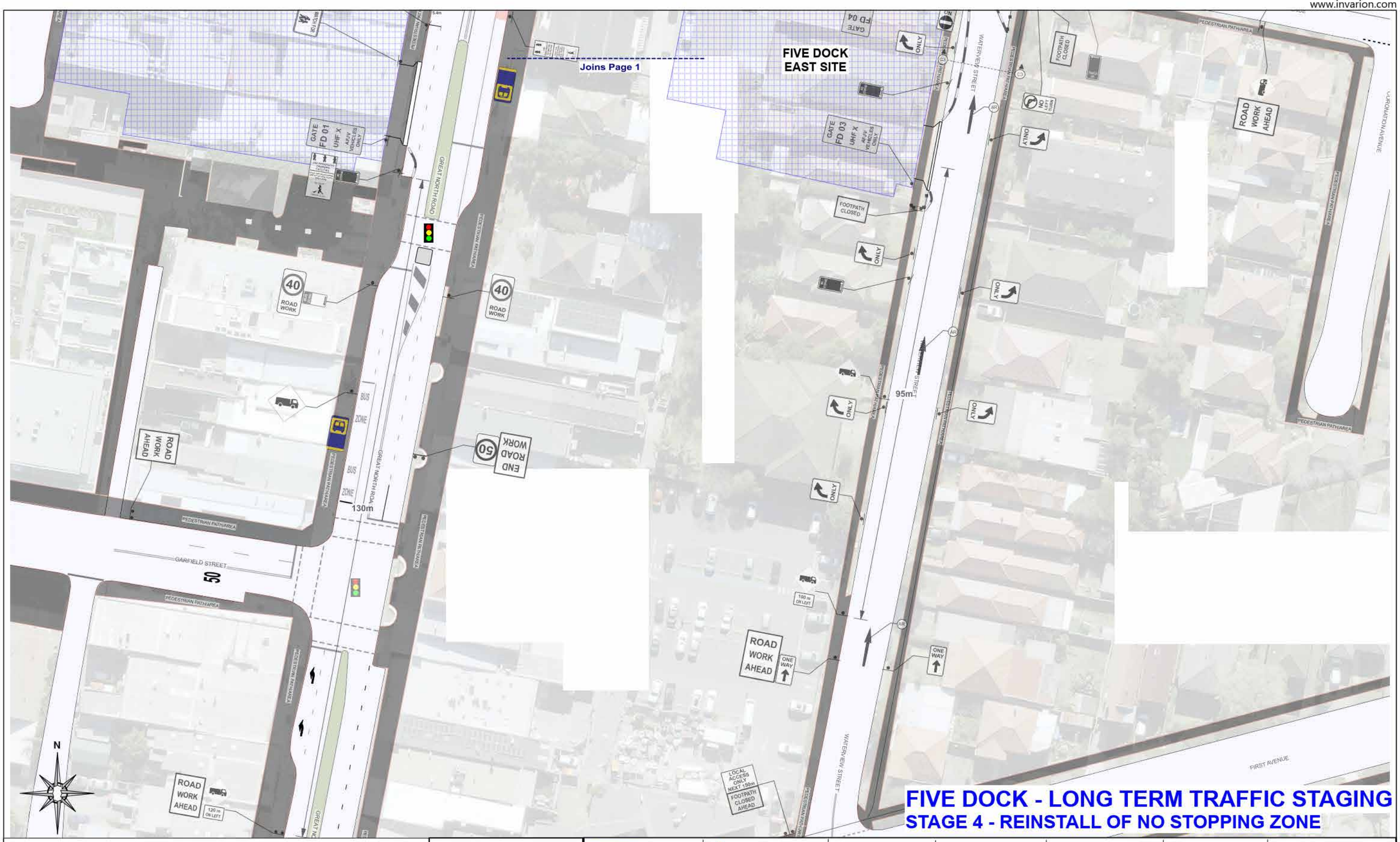

FIVE DOCK - LONG TERM TRAFFIC STAGING
STAGE 4 - REINSTALL OF NO STOPPING ZONE

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

afJV

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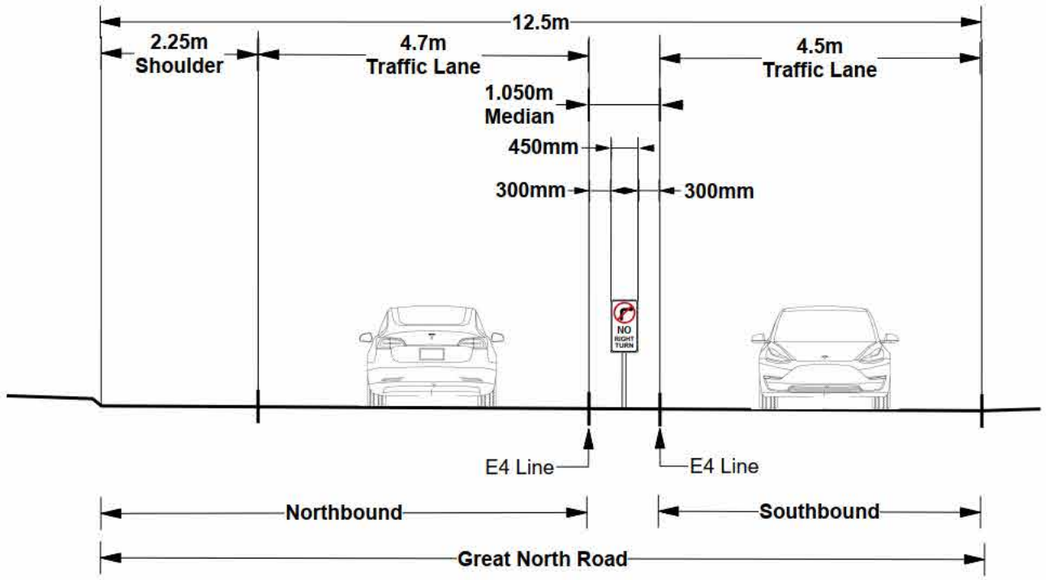
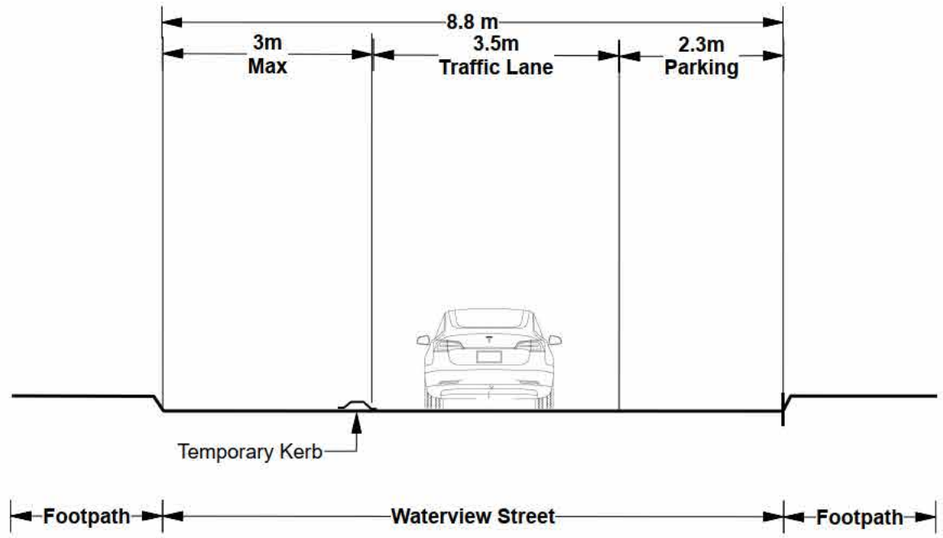
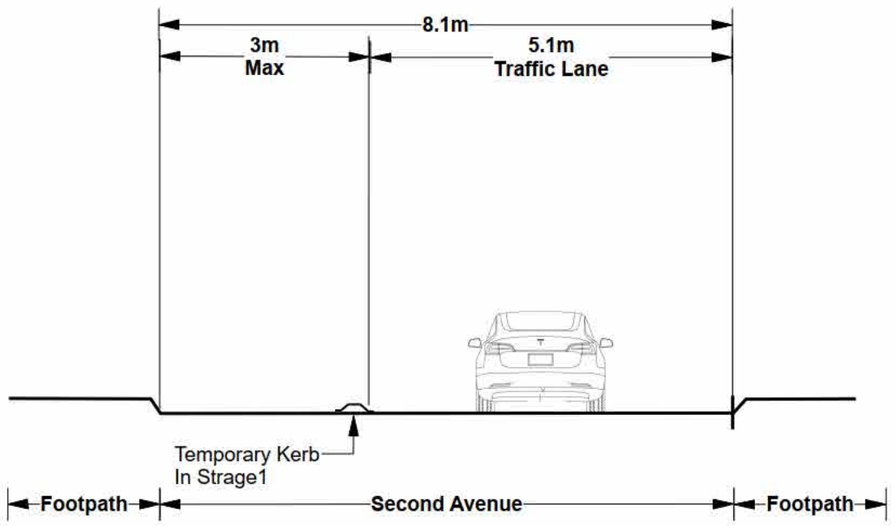
Cross Section 1 (C1)



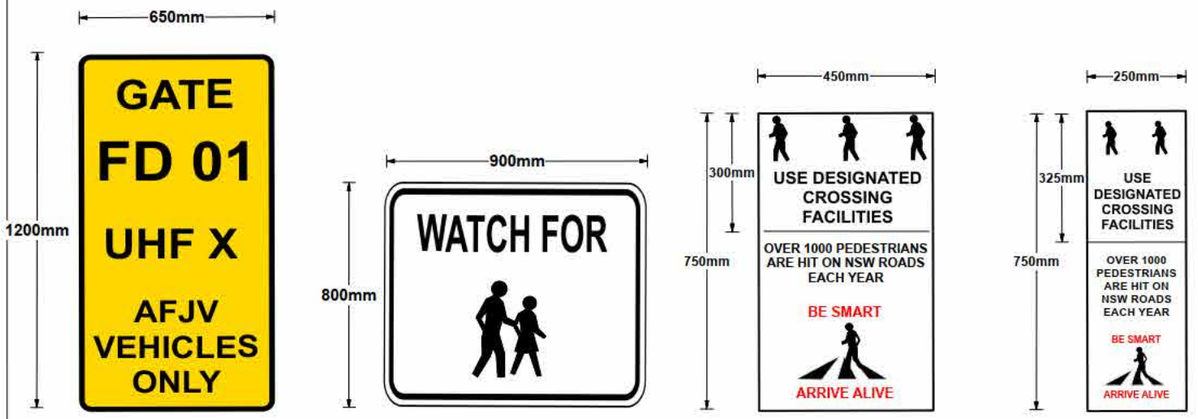
Cross Section 3 (C3)



Cross Section 2 (C2)



Custom Sign Detail



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

afJV

Date: 14/03/2023 **Location:** Five Dock - Long Term

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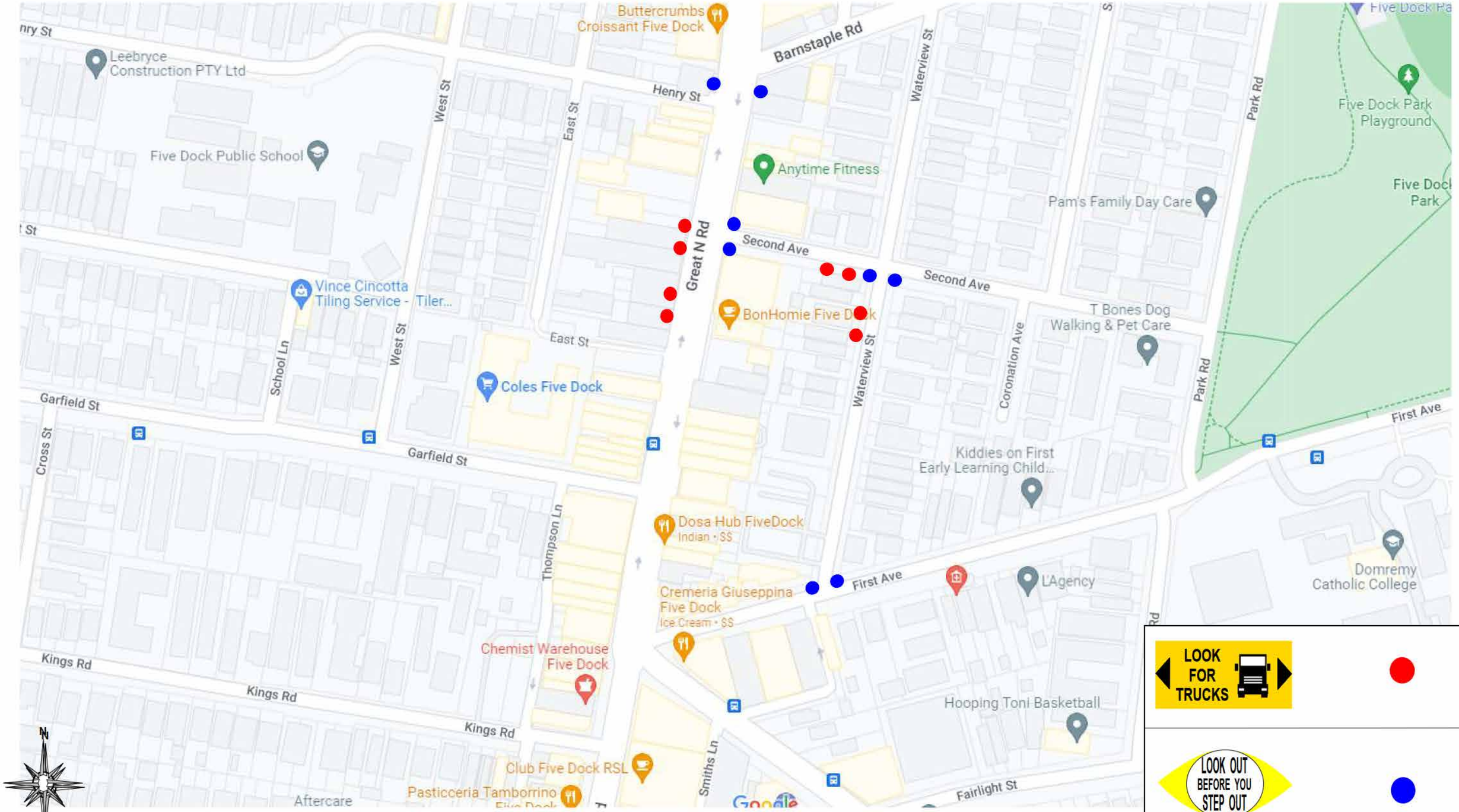
Footpath pavement decals



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

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TGS Number: AFJVCTP-TGS-0455

Traffic Guidance Scheme - Options & Risk Assessment

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Location Details

Road: Multiple - Five Dock Suburb: Five Dock Side Street: Various

Direction (N) (E) (S) (W) Speed of road: 50 km/h Speed of Side Streets: 50 km/h

Options Assessment

Method selected: Around (Past) Through

Reason for selection: **Traffic can pass while maintaining sufficient worker/traffic offset.**

Risk Assessment

Section 1 - Does the TGS Involve Detours of traffic? YES (NO) (If answered no proceed to section 2)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
1.1 Are detour routes suitable for all vehicle classes being detoured?	☐	☐		
1.2 Is access to local residence and business maintained	☐	☐		
1.3 Are detour signs located at decision points, to clearly guide motorists through the detour?	☐	☐		
1.4 Can roads and intersections used as detour routes, accommodate the additional traffic volumes?	☐	☐		
1.5 Is the same level of safety maintained for turn movements? e.g. Traffic using signalized intersections being sent through a detour route that involves turn movements at non-signalized intersections.	☐	☐		

Section 2 - Does the TGS involve Stop/Slow arrangements? YES (NO) (If answered no proceed to section 3)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
2.1 Are escape routes clearly defined on the TGS, clear and safe to use?	☐	☐	*	
2.2 Is a PTCD used in place of a manual Traffic Controller where existing speed is greater then 45km/h?	☐	☐		
2.3 Is the operating speed of the road 60km/h or less where Traffic Control or PTCD are in use?	☐	☐		
2.4 Are x4 traffic cones placed on the edge or center line, approaching the traffic controller or PTCD?	☐	☐		
2.5 Is prepare to stop and Traffic Control or PTCD symbolic signs installed?	☐	☐		
2.6 Do Traffic Control and PTCD positions have adequate lighting during low light conditions	☐	☐		
2.7 Does sight distance of at least 1.5D exist on approach to Traffic Control or PTCD	☐	☐		

Section 3 - General	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
3.1 Does the TGS define minimum clearances required of workers to live traffic, are distances compliant?	☐	☐	NA	
3.2 Are worker symbolic signs to be placed in advance of areas where workers will be visible to traffic?	☐	☐	NA	
3.3 Are all signs placed at correct distances? i.e. D for multiple signs, 2D for single sign above 60km/h	☐	X	Some sign distances adjusted due to, side streets, Driveways, trees, overhead conflicts and underground utilities. Risk of motorists not seeing signs with enough time to react	L
3.4 Are taper lengths compliant and not placed in areas with poor sight distance?	☐	☐	NA	
3.5 Are lane status signs placed in advance of a lane merge?	☐	☐	NA	
3.6 Are the correct tapers being used? i.e. merge taper, traffic control taper, lateral shift taper.	☐	☐	NA	
3.7 Does the TGS clearly define transition zones between tapers on multilane roads, are they compliant?	☐	☐	NA	
3.8 Does the TGS clearly define Buffer areas, are they compliant and at least 30m in length?	☐	☐	NA	
3.9 Does the TGS clearly define site access and egress for work vehicles, is impact to traffic, managed?	X	☐		
3.10 Does the TGS clearly define pedestrian routes, are the routes suitable for all pedestrians?	X	☐		
3.11 Does the TGS consider Cyclists, can Cyclists transverse the site safely?	X	☐		

Section 4 - Do the works involve excavations YES (NO) (If answered no proceed to section 5)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
4.1 Are excavations to be less then 200mm in depth?	☐	☐	*	
4.2 Are excavations to be less then 500mm in depth?	☐	☐		

Section 5 - Other Hazards & Risks			
	5.1	Increased risk of pedestrian interface by reinstating parking	H
	5.2	Increased risk of nose to tail type incidents when vehicles attempt to park in the reinstated parking	M
	5.3		
	5.4		

Risk Management

Any Risks Identified identified during the above Risk Assessment must be assessed, with control measures listed below. Control measures must meet the WHS Risk Management Hierarchy of controls framework.

Item	Control Measures	Remaining Risk Rating
3.3	Regular monitoring of effectiveness, place signs as close to D as able	L
5.1	Only install 3 spaces, speed reduction to 40km/h, minimal works to be performed from western site	L
5.2	Speed reduction to 40km/h, middle space to be 8m in length, as per AS standard to provide easier entry to parking space	L

Risk evaluation Matrix

Risk ratings: Very high - VH; High - H; Medium - M; Low - L

Likelihood		Consequence: Insignificant C6	Minor C5	Moderate C4	Major C3	Severe C2	Catastrophic C1
Almost certain	L1	M	H	H	VH	VH	VH
Very likely	L2	M	M	H	H	VH	VH
Likely	L3	L	M	M	H	H	VH
Unlikely	L4	L	L	M	M	H	H
Very unlikely	L5	L	L	L	M	M	H
Almost unprecedented	L6	L	L	L	L	M	M

Refer to TCAWS Table 3-4 for descriptions of Likelihood and Consequence measures

TGS Designer: Name [redacted]

TGS Approved by: Name

One up Manager: Name

APPENDIX C - VEHICLE MOVMENT PLANS

VEHICLE MOVEMENT PLAN

Traffic Control 'Gate Keeper' must be in place any time these driveways are being used by heavy vehicles.
x2 Traffic Controllers are required during reversing movements.
The primary duty of the Traffic Controller is to maintain safe pedestrian & vehicle interface.
Refer to the PMP for further details.

Northbound permitted ONLY

do NOT attempt to head southbound during or after exiting the southern driveway.

Refer to relevant VMP for West site access & egress.

FIVE DOCK WEST SITE

Revers movement into site

ONLY PERMITTED UNDER TRAFFIC STOPS, REFER TO RELAVENT TGS FOR DETAILS OF TRAFFIC SETUP

FIVE DOCK EAST SITE

EAST STREET
GREAT NORTH ROAD
SECOND AVENUE
WATERVIEW STREET
PEDESTRIAN PATHWAY
BUS STOP
NO RIGHT TURN
ONE WAY

Date: 06/08/2024 **Location:** Five Dock - Western Site

Comments:
- Drivers must be briefed on this VMP
- Gatekeeper/s must be in position when gates are in use and the VMP requires it.
- Drivers must adhere to Gatekeepers directions
- Vehicles entering and exiting site must:
  1. Activate roof mounted beacons on approach
  2. radio intention via UHF
  3. Indicate intensions
  4. Turn into/out of site
  5. Exit with caution, ensuring the safety of pedestrian and other road users
  6. Disable roof mounted beacons after egress and speed has reached normal traffic flow.
  7. follow all road rules and speed limits.
- Use only approved haul routes

afJV

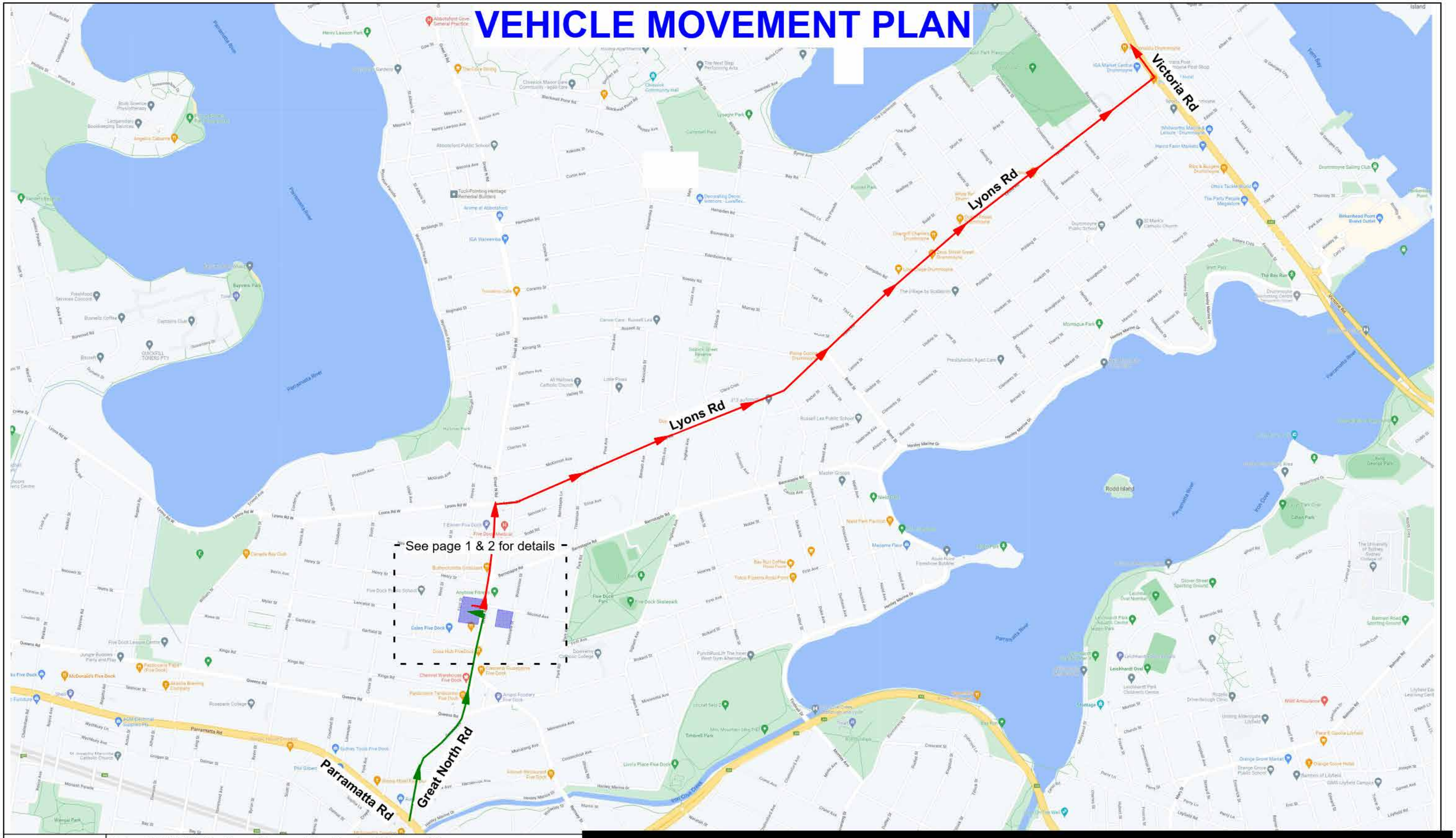
PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone	Signalised intersection
Access	Special movement
Egress	

N

VEHICLE MOVEMENT PLAN



Date: 06/08/2024 **Location:** Five Dock - Western Site

Comments:

- Drivers must be briefed on this VMP
- Gatekeeper/s must be in position when gates are in use and the VMP requires it.
- Drivers must adhere to Gatekeepers directions
- Vehicles entering and exiting site must:
  1. Activate roof mounted beacons on approach
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  4. Turn into/out of site
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afJV

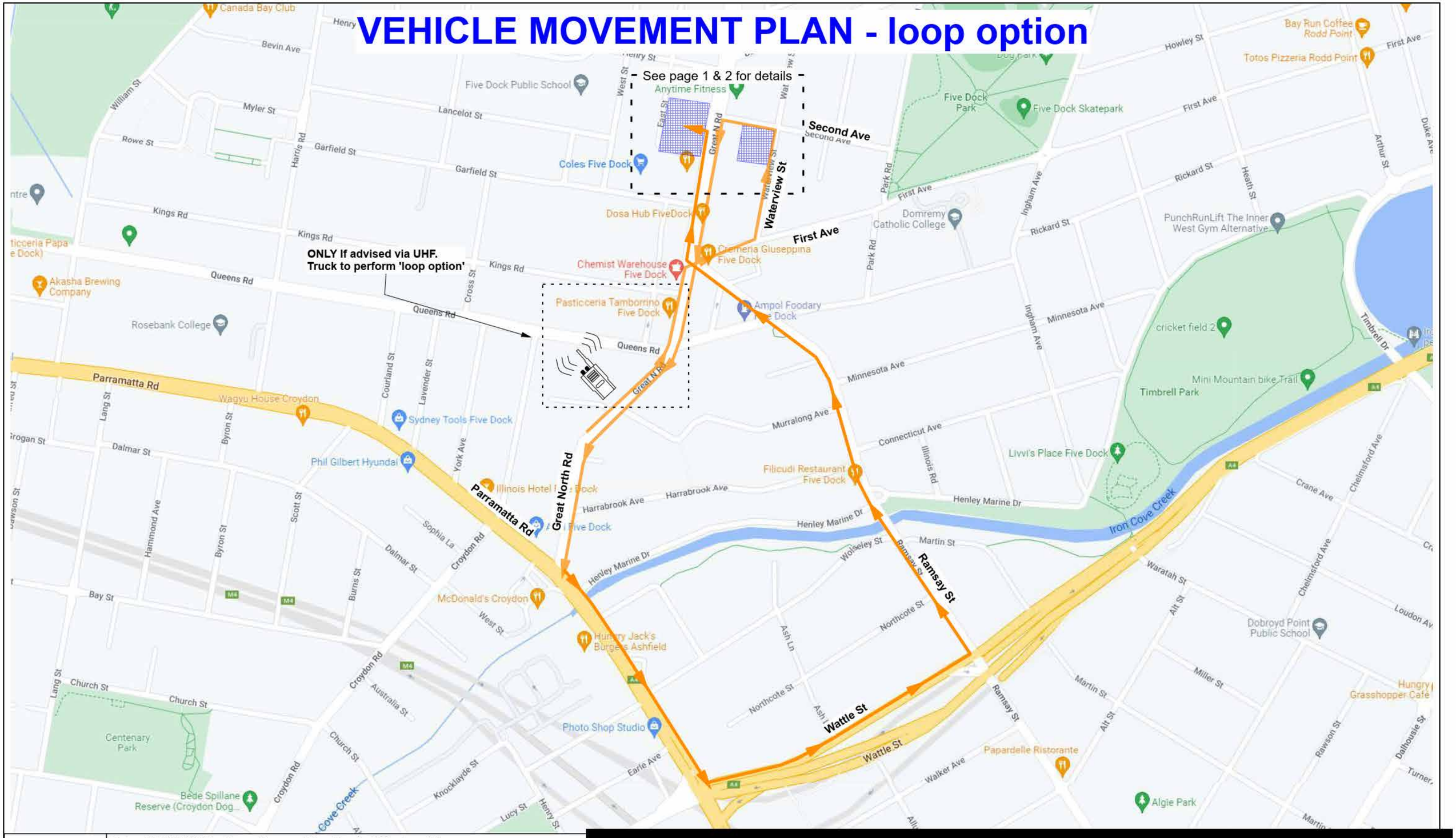
PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone	Signalised intersection
Access	Special movement
Egress	

N

VEHICLE MOVEMENT PLAN - loop option



Date: 06/08/2024 **Location:** Five Dock - Western Site

Comments:

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- Vehicles entering and exiting site must:
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- Use only approved haul routes

afJV

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone	Signalised intersection
Access	Special movement
Egress	

N

VEHICLE MOVEMENT PLAN

UHF:

WATCH OUT FOR PEDESTRIANS

FIVE DOCK WEST SITE

FIVE DOCK EAST SITE

GATE FD-04

GATE FD-03

Refer to relevant VMP for West Site access & egress.

Traffic Control 'Gate Keeper' must be in place Any time these driveways are being used by heavy vehicles.
The Primary duty of the Traffic Controller is to maintain safe Pedestrian & vehicle interface.

MAX VEHICLE LENGTH TO USE THIS VMP IS 12.5M

Date: 12/01/2023 **Location:** Five Dock Station - Eastern Site

Comments:

- Drivers must be briefed on this VMP
- Gatekeeper/s must be in position when gates are in use and the VMP requires it.
- Drivers must adhere to Gatekeepers directions
- Vehicles entering and exiting site must:
  1. Activate roof mounted beacons on approach
  2. radio intention via UHF
  3. Indicate intensions
  4. Turn into/out of site
  5. Exit with caution, ensuring the safety of pedestrian and other road users
  6. Disable roof mounted beacons after egress and speed has reached normal traffic flow
  7. follow all road rules and speed limits.
- Use only approved haul routes

afJV

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

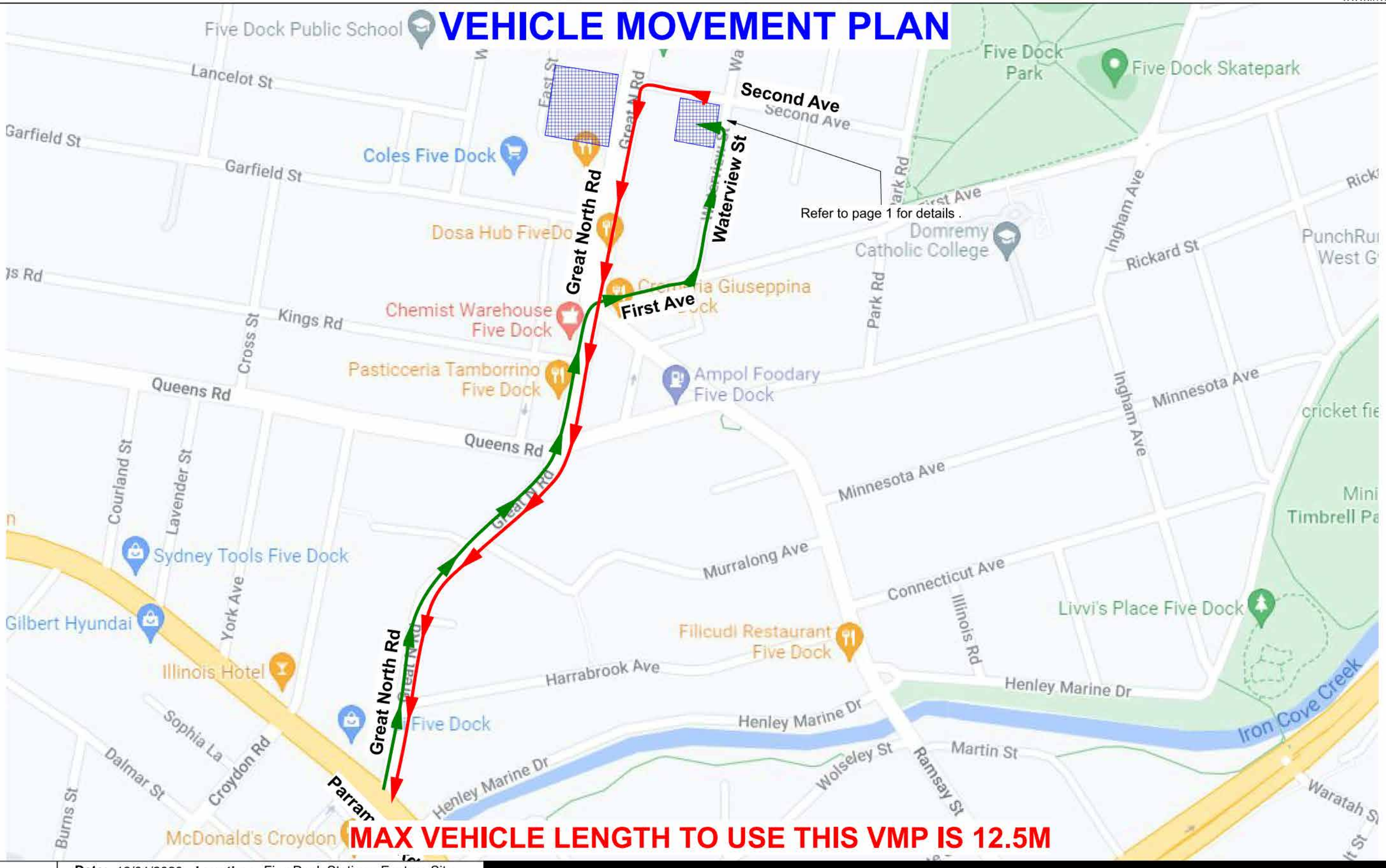
REV - 00

LEGEND

- Station Site Boundary
- Signalised Intersection
- Access
- Loop Option
- Egress

N

VEHICLE MOVEMENT PLAN



MAX VEHICLE LENGTH TO USE THIS VMP IS 12.5M

Date: 12/01/2023 **Location:** Five Dock Station - Eastern Site

Comments:

- Drivers must be briefed on this VMP
- Gatekeeper/s must be in position when gates are in use and the VMP requires it.
- Drivers must adhere to Gatekeepers directions
- Vehicles entering and exiting site must:
  1. Activate roof mounted beacons on approach
  2. radio intention via UHF
  3. Indicate intensions
  4. Turn into/out of site
  5. Exit with caution, ensuring the safety of pedestrian and other road users
  6. Disable roof mounted beacons after egress and speed has reached normal traffic flow.
  7. follow all road rules and speed limits.
- Use only approved haul routes

afJV

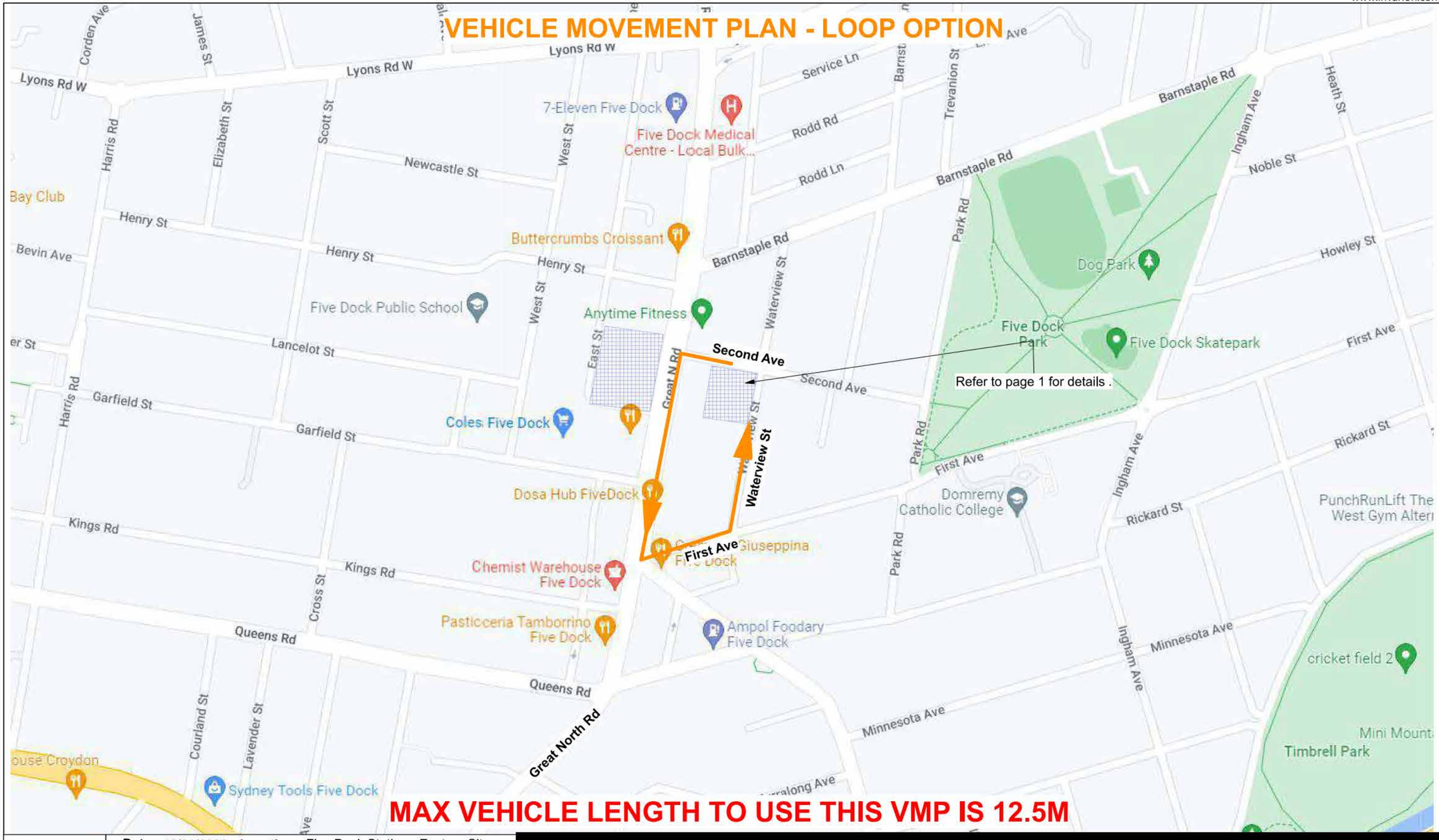
PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone	Signalised intersection
Access	Restricted/other movement
Egress	

N

VEHICLE MOVEMENT PLAN - LOOP OPTION



MAX VEHICLE LENGTH TO USE THIS VMP IS 12.5M

Date: 12/01/2023 **Location:** Five Dock Station - Eastern Site

Comments:

- Drivers must be briefed on this VMP
- Gatekeeper/s must be in position when gates are in use and the VMP requires it.
- Drivers must adhere to Gatekeepers directions
- Vehicles entering and exiting site must:
  1. Activate roof mounted beacons on approach
  2. radio intention via UHF
  3. Indicate intensions
  4. Turn into/out of site
  5. Exit with caution, ensuring the safety of pedestrian and other road users
  6. Disable roof mounted beacons after egress and speed has reached normal traffic flow.
  7. follow all road rules and speed limits.
- Use only approved haul routes

afJV

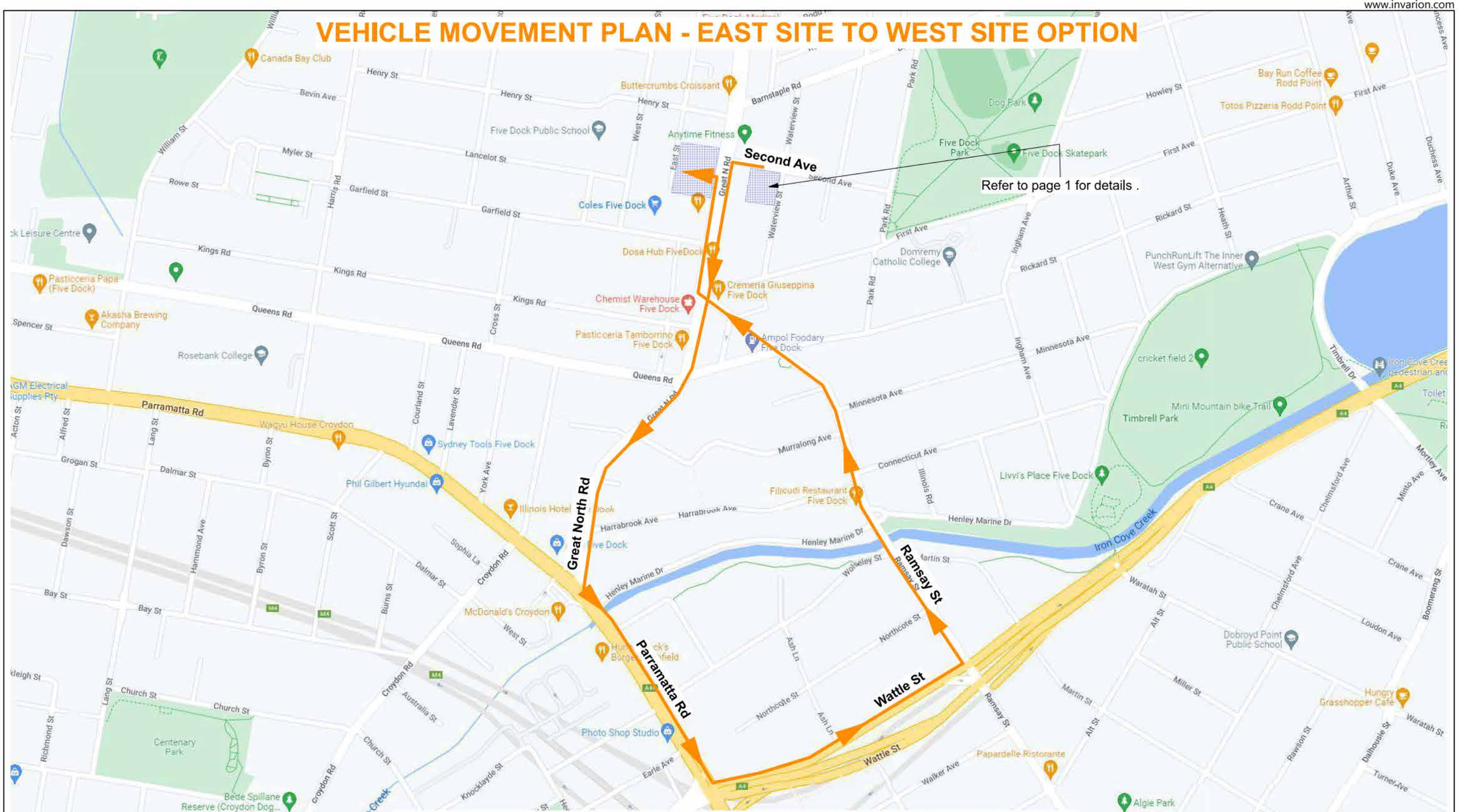
PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Station Site Boundary	Signalised Intersection
Access	Loop Option
Egress	

N

VEHICLE MOVEMENT PLAN - EAST SITE TO WEST SITE OPTION



MAX VEHICLE LENGTH TO USE THIS VMP IS 12.5M

Date: 12/01/2023 **Location:** Five Dock Station - Eastern Site

Comments:

- Drivers must be briefed on this VMP
- Gatekeeper/s must be in position when gates are in use and the VMP requires it.
- Drivers must adhere to Gatekeepers directions
- Vehicles entering and exiting site must:
  1. Activate roof mounted beacons on approach
  2. radio intention via UHF
  3. Indicate intensions
  4. Turn into/out of site
  5. Exit with caution, ensuring the safety of pedestrian and other road users
  6. Disable roof mounted beacons after egress and speed has reached normal traffic flow.
  7. follow all road rules and speed limits.
- Use only approved haul routes

afJV

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Station Site Boundary	Signalised Intersection
Access	Loop Option
Egress	

N

APPENDIX D - ROAD SAFETY AUDITS

PRECONSTRUCTION - DESKTOP ROAD SAFETY AUDIT

ACCIONA/FERROVIAL JOINT VENTURE (AFJV)
CENTRAL TUNNELLING PROJECT – FIVE DOCK SITE

CIVLINK CONSULTING

[redacted]

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   1.4 Audit Team 6

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Document Control

[redacted]

[redacted]

Executive Summary

Audited Project:	[redacted]
Audit for:	
Email Address:	
Clients Contact:	
Auditors:	
Audit Type:	
Commencement Meeting:	
Site Visit:	
Completion Meeting:	
Previous Audit:	

This Roadworks Road Safety Audit reviewed the proposed long-term TGS at Five Dock associated with the Central Tunnelling Project as part of the Sydney Metro West Project. The audit checked that the long-term temporary arrangement is suitable for the intended purpose and so conducive to a safe road environment for all types of road users.

This report documents the identified audit findings dated 1st of March 2024.

The road safety audit identified some possible deficiencies, each of which have been listed in Section 4 - Audit Findings.

1. Introduction

1.1 Purpose of Audit

This report presents findings of a Preconstruction Desktop Road Safety Audit of the proposed long-term traffic strategies. The audit has reviewed the site at both day and night time driving conditions. An inspection on foot was also conducted on the accessible paths and crossings adjacent the site.

The audit is conducted to verify the manifestation of the documentation and planning for works within road related areas, and within the specified area affected by the project works The audit scrutinizes the 'safe system' approach to road design and the traffic management planning, targeting roadside hazards including (but not limited to) signage and pavement marking, pedestrian & cyclists' facilities, delineation, sight distances, intersection controls and safety barriers.

The site being audited covers the area affected by the Sydney Metro Central Tunnelling project construction area shown in the red circle on the plan below, in Figure 1;

Figure 1: Site Location

[Source: Google Maps]

1.2 Audit Objectives

The objective of this road safety audit was to identify relevant road safety deficiencies on site which, if addressed, would improve safety for road users

The other objectives of this Desktop Road Safety Audit were to:

- Check the compatibility between the traffic management's safety features and the functional classification of the roads.
- Identify any feature's that can, either now or with time, create a traffic safety issue.
- identify additional design's features at the site that pose a safety hazard or risk to any of the road users
- Determine the extent of the deficiencies in the design, considering all road user groups

1.3 Procedures and reference material

The procedures used are those in the Austroads Guide to Road Safety Part 6: Road Safety Audit (2022) and RMS Guidelines for Road Safety Audit Practices 2011.

Technical reference documents for Traffic Guidance Schemes is the Traffic Control at Worksites Manual (TCAWS) Version 6.1, 2022.

1.4 Audit Team

This Audit Team consisted of:

[redacted]

2. Road Safety Audit Program

2.1 Commencement Meeting

[redacted]

2.2 Completion meeting

Project representatives are to advise of the need for a Completion meeting.

2.3 Responding to the audit report

The responsibility for the design and implementation of this project rests with the client's project management team, not with the auditors. The project manager is under no obligation to accept the audit findings. Also, it is not the role of the auditor to agree or to approve the project manager's responses to the audit. Rather, the audit provides the opportunity to highlight potential road safety problems and have them formally considered by the project manager or design manager in conjunction with all other project considerations.

2.4 Corrective action response

The road safety audit is a formal process. The road safety audit report is by no means the end of the audit process. The audit report documents the audit teams' identified concerns made to improve the safety of the roads. This report must be responded to by the client with a written response to each audit finding.

2.5 Disclaimer

The findings and opinions in the report are based on the examination of the construction site area outlined in the audit brief. The audit report may not cover all hazards at the time of the audit. The

auditors have endeavoured to identify features of the arrangement that could be modified or removed in order to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as safe The problems identified have been noted in this report and should be considered for improving road safety Where corrective actions are not taken, this should be reported in writing, providing the reason for the decision. Readers are urged to seek specific advice on matters and not to rely solely on this report. While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that everyone relying on it does so at their own risk without any liability to the Auditors

3. Risk Assessment Approach

This audit identified and rated risks per the Austroads recommendation using the assessment process below Potential safety hazards were identified and categorised based on the frequency of occurrence and severity (consequence of crash). A preliminary risk rating for each identified issue has been assigned in Section 4 which were determined via a subjective judgement by the Auditor guided by the Austroads "*Guide to Road Safety, Part 6: Road Safety Audit*"

Austroads' provides an indication of the level of risk and what response may be appropriate refer to the tables below.

3.1 Likelihood

	Description
Almost Certain	Occurrence once per quarter
Likely	Occurrence once per quarter to once per year
Possible	Occurrence once per year to once every three years
Unlikely	Occurrence once every three years to once every seven years
Rare	Occurrence less than once every seven years

3 2 Severity

	Description
Insignificant	Property damage
Minor	Minor first aid
Moderate	Major first aid and/or presents to hospital (not admitted)
Serious	Admitted to hospital
Fatal	At scene or within 30 days of the crash

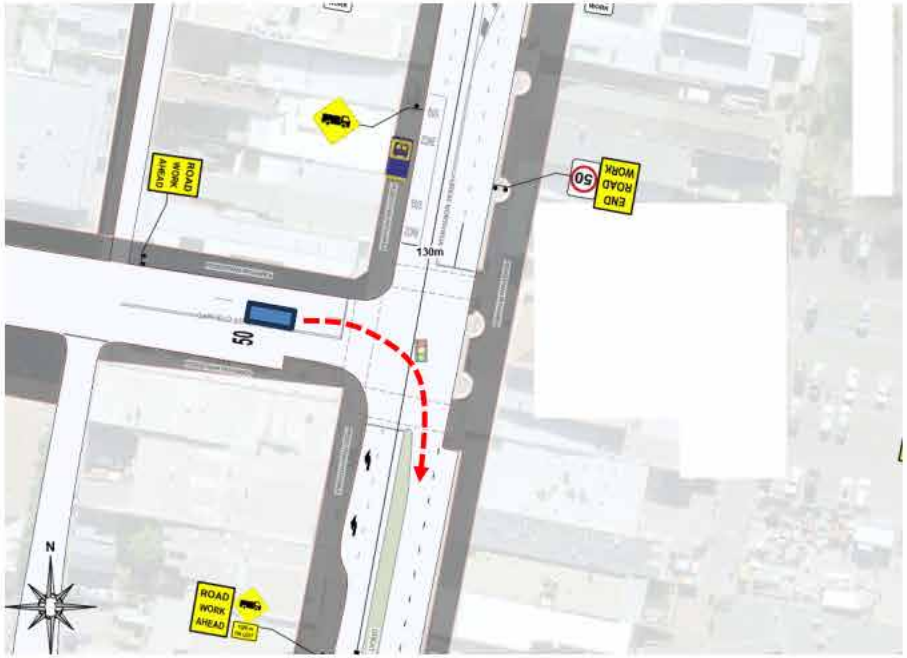
3 3 Risk Rating

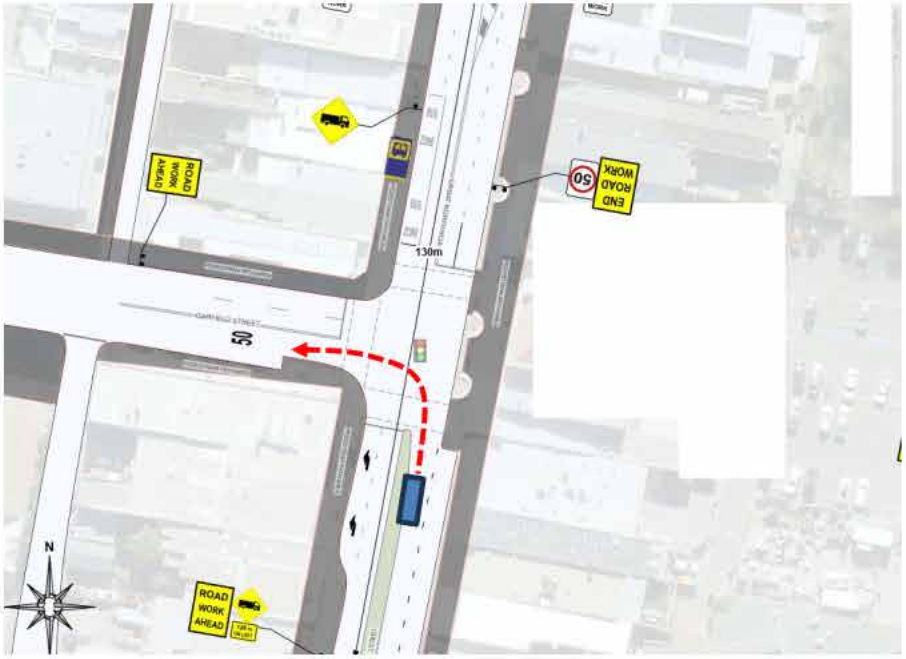
		Severity				
		Insignificant	**Minor**	**Moderate**	**Serious**	**Fatal**
Likelihood	**Almost Certain**	**Medium**	**High**	**High**	**Extreme**	**Extreme**
	Likely	**Medium**	**Medium**	**High**	**Extreme**	**Extreme**
	Possible	**Low**	**Medium**	**High**	**High**	**Extreme**
	Unlikely	**Negligible**	**Low**	**Medium**	**High**	**Extreme**
	Rare	**Negligible**	**Negligible**	**Low**	**Medium**	**High**

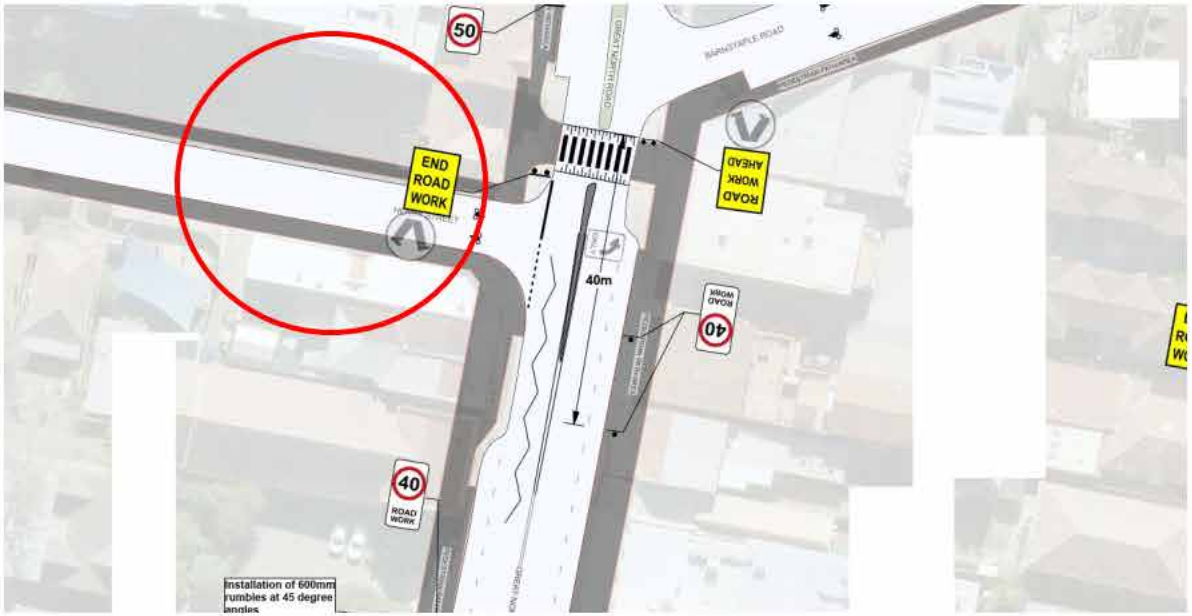
3.4 Treatment

Risk	Suggested treatment approach
Negligible	No action required
Low	Should be corrected or the risk reduced if the treatment cost is low
Medium	Should be corrected or the risk significantly reduced, if the treatment cost is moderate but not high
High	Should be corrected or the risk significantly reduced, even if the treatment cost is high
Extreme	Must be corrected regardless of cost

4. Audit Findings

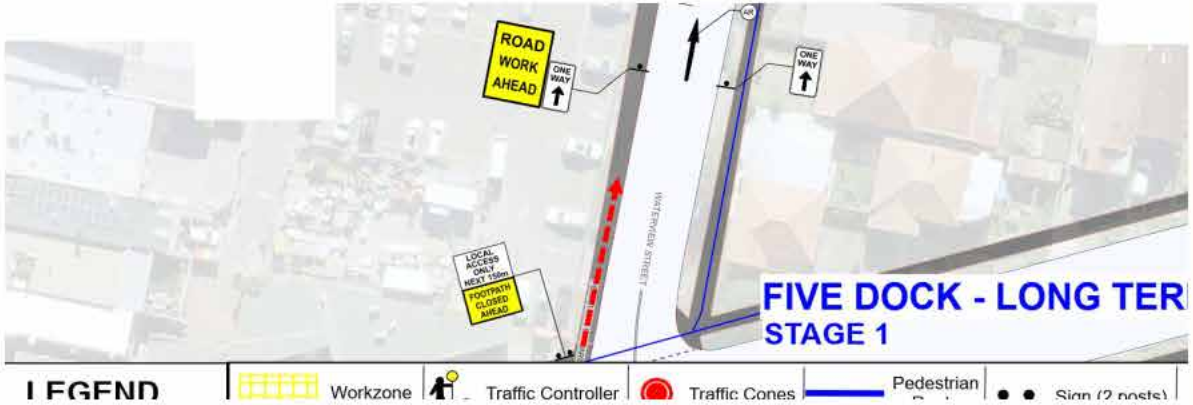
No.	Drawing No.	Description of Deficiency / Observation	Risk level
1	Stage 1 - AFJVCTP-TGS-00455 (page 2 of 11)	The audit team observed that right turning motorists travelling EB on Garfield St on approach to Gt North Road will no pass an “END ROAD WORK” sign on departure of the site. As such, motorists may percieve that they are still within the vicinity of the work area which may increase the risk of motorist confusion. Furthermore, credibility may be decreased, motorists non-compliance and motorists confusion may be increased. Consequently, the risk of an incident occurring may be increased. 	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**

2	Stage 1 - AFJVCTP-TGS-00455 (page 1 of 11)	Similar to finding #1, NB motorists on Great North Road turning left into Garfield Street do not seem to pass an "END ROAD WORK" sign which may have the same effect as explained in finding #1. 	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**

3	Stage 1 - AFJVCTP-TGS-00455 (page 1 of 11)	There appears to be an absence of site gate way signage within Henry Street. Consequently, motorists approaching or departing the site at Henry Street may not percieve the work zone which may increase motorists confusion (similar to findings #1 & #2) which may increase the risk of an incident occuring. 	**Likelihood – Rare** **Severity – Moderate** **Risk Rating – Low**

4	Stage 1 - AFJVCTP-TGS-00455 (page 2 of 11)	Likelihood – Unlikely Severity – Serious Risk Rating – High

The audit team observed that the footpath on the NB side of Waterview St is closed from the intersection with First Ave. As the work area is over 100m away from the footpath closure, Pedestrians may be inclined to walk up the footpath on the NB side of Waterview Street. This may be more prevalent as no physical barricade is proposed here.

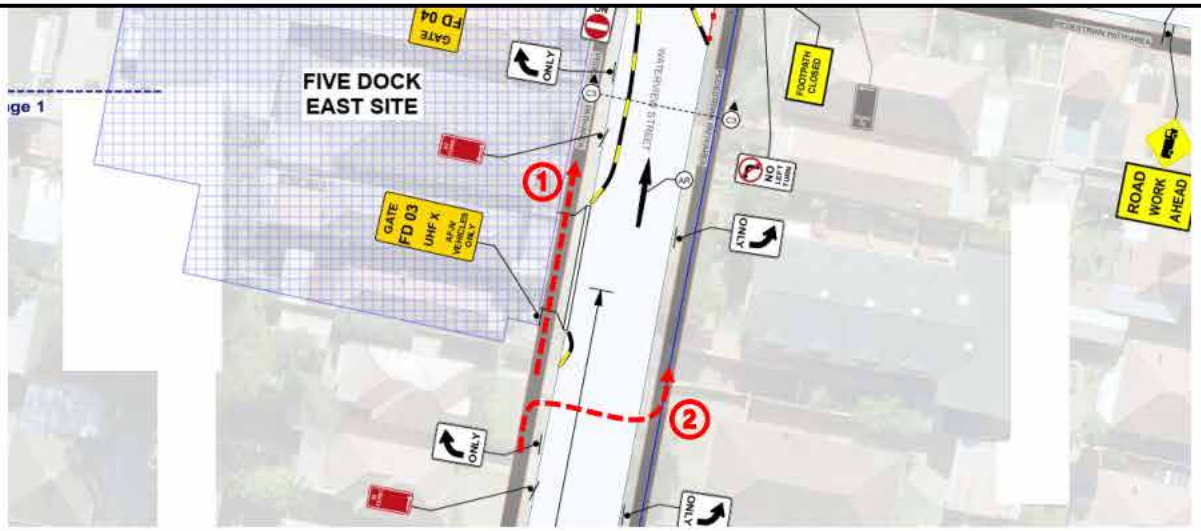


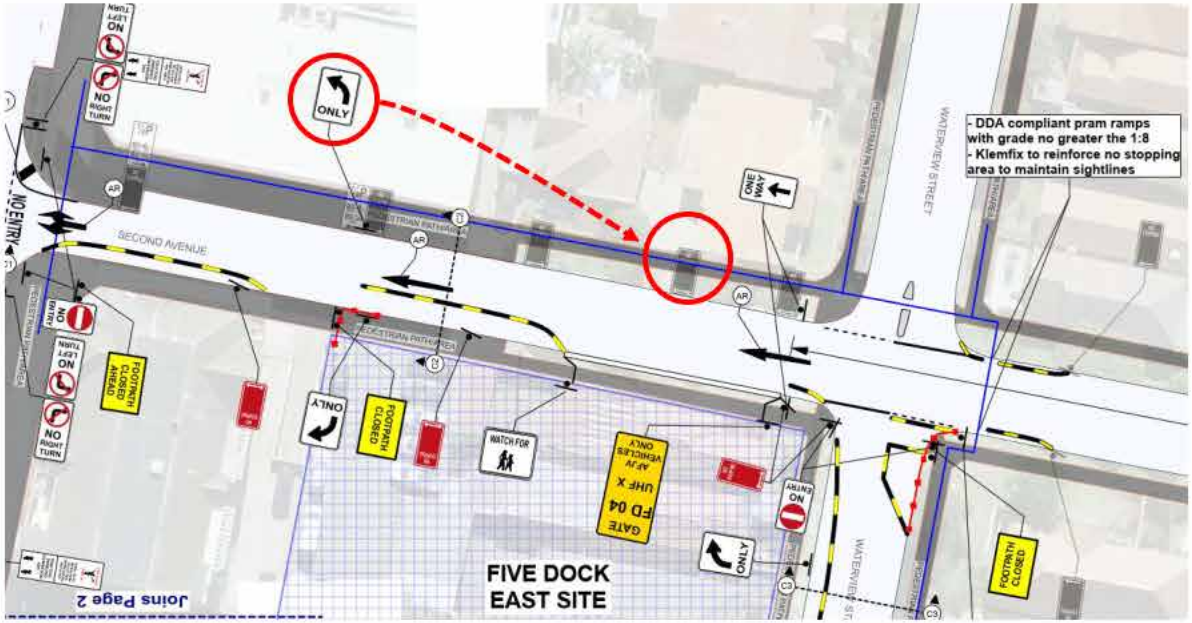
If pedestrians do walk north to the AFJV work area, they will either:

1. walk into the closed footpath area at Waterview St / Second Ave
2. have to cross at an informal crossing location prior to the work area at Waterview St / Second Ave

Both results will likley increase the risk exposure to pedestrians walking on the NB side of Waterview Street toward the proposed work area. See below depiction of each of the scenarios stated above.

4 continued


FIVE DOCK
EAST SITE
GATE FD 04
ONLY
FOOTPATH CLOSED
ROAD WORK AHEAD
GATE FD 03
UHF X
ONLY
1
2

5	Stage 1 - AFJVCTP-TGS-00455 (page 1 of 11)	It was observed that a left turn only sign has not been proposed to face the access / egress point on Second Avenue for the Five Dock East Site. The audit team is not aware if this is intentional but concluded that it should be mentioned in the RSA report. 	To Note Only

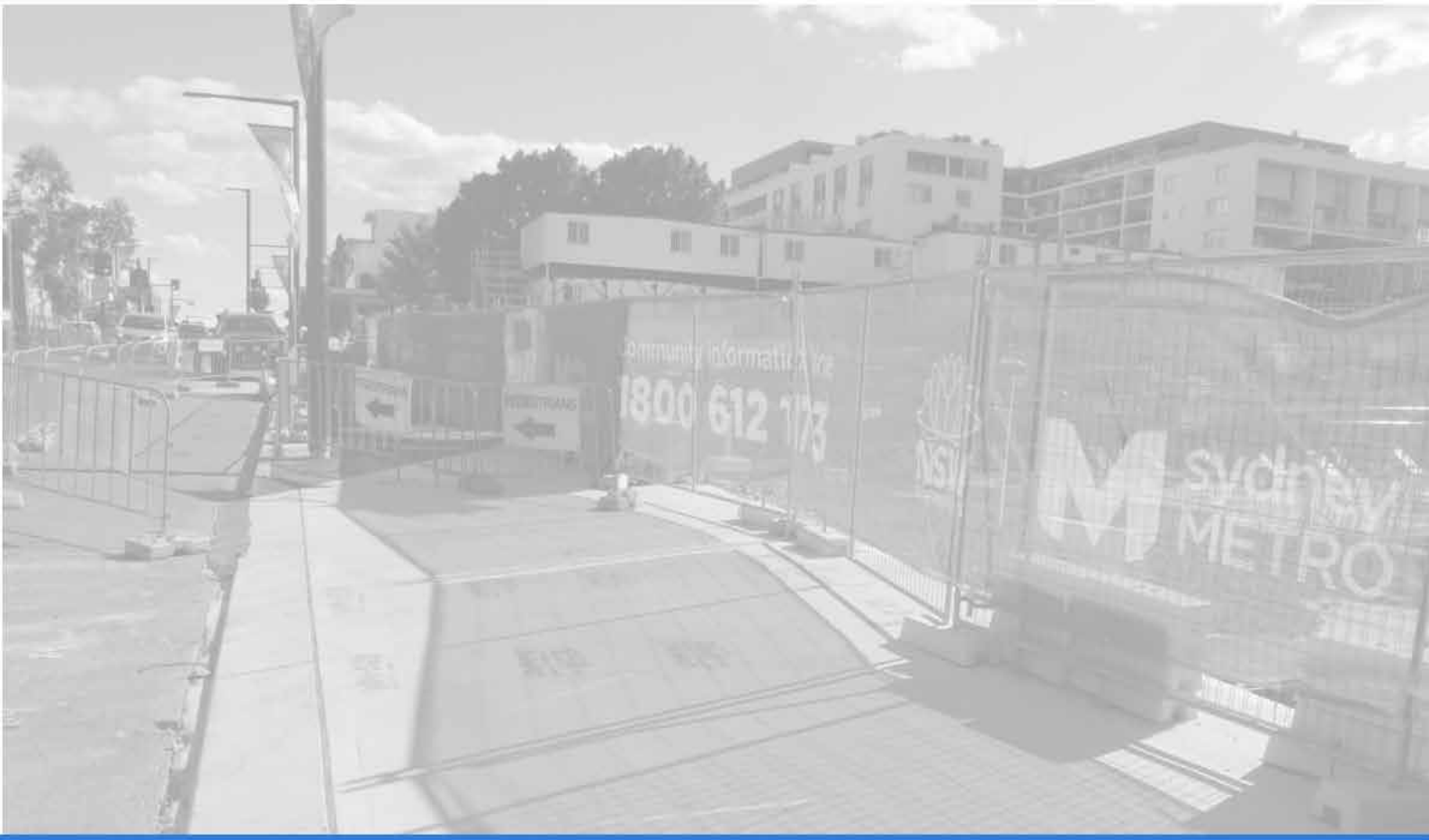
5. Conclusion

The report outlines where potential deficiencies have been identified for consideration by the project manager, designer and/or engineer.

The findings and opinions in the report are based on the examination of the site areas outlined in the audit brief as part of the Central Tunnelling Project at Five Dock. The Auditors have endeavoured to identify features of the design that could be modified or removed to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as safe. While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that anyone relying on it does so at their own risk without any liability to the Auditors.

ACCIONA FERROVIAL JV
Project: Central Tunnelling Project - Five Dock
Issued Date: 01/03/2024

Item	Location	Comment	Client's Response/Action for Resolution
1	Stage 1 - AFJVCTP-TGS-00455 (page 2 of 11)	The audit team observed that right turning motorists travelling EB on Garfield St on approach to Gt North Road will no pass an "END ROAD WORK" sign on departure of the site. As such, motorists may percieve that they are still within the vicinity of the work area which may increase the risk of motorist confusion. Furthermore, credibility may be decreased, motorists non-compliance and motorists confusion may be increased. Consequently, the risk of an incident occurring may be increased.	Noted, all roadwork signage has been specifically placed in locations that allow, the available location of these signs is limited due to multiple overhead (shop front awnings, trees, etc), below ground (utilities) and footpath width conflicts. This does mean x2 side streets do not pass an end roadwork sign.
2	Stage 1 - AFJVCTP-TGS-00455 (page 1 of 11)	Similar to finding #1, NB motorists on Great North Road turning left into Garfield Street do not seem to pass an "END ROAD WORK" sign which may have the same effect as explained in finding #1.	As noted in item 1
3	Stage 1 - AFJVCTP-TGS-00455 (page 1 of 11)	There appears to be an absence of site gate way signage within Henry Street. Consequently, motorists approaching or departing the site at Henry Street may not percieve the work zone which may increase motorists confusion (similar to findings #1 & #2) which may increase the risk of an incident occuring.	As noted in item 1
4	Stage 1 - AFJVCTP-TGS-00455 (page 2 of 11)	The audit team observed that the footpath on the NB side of Waterview St is closed from the intersection with First Ave. As the work area is over 100m away from the footpath closure, Pedestrians may be inclined to walk up the footpath on the NB side of Waterview Street. This may be more prevalent as no physical barricade is proposed here. If pedestrians do walk north to the AFJV work area, they will either: 1.walk into the closed footpath area at Waterview St / Second Ave 2.have to cross at an informal crossing location prior to the work area at Waterview St / Second Ave Both results will likley increase the risk exposure to pedestrians walking on the NB side of Waterview Street toward the proposed work area. See below depiction of each of the scenarios stated above.	Noted, this was a draftng error and has now been rectified. Footpath closed signage and fencing is to be installed.
5	Stage 1 - AFJVCTP-TGS-00455 (page 1 of 11)	It was observed that a left turn only sign has not been proposed to face the access / egress point on Second Avenue for the Five Dock East Site. The audit team is not aware if this is intentional but concluded that it should be mentioned in the RSA report.	The location of this sign is intentional. The sign is intended for traffic exiting the carpark of the apartment building. No 'left only' sign is proposed adjacent to the site egress due to the nearby line marking, and the construction traffic coming from the driveway is guided by a gate-keeper/traffic-controller



Five Dock – Revised Long Term Design
Detailed Design Road Safety Audit

Prepared for:

Acciona Ferrovial Joint Venture

29 May 2023

The Transport Planning Partnership

Five Dock – Revised Long Term Design
Detailed Design Road Safety Audit

Client: Acciona Ferrovial Joint Venture

Version: V02

Date: 29 May 2023

TTPP Reference: 21319

Quality Record

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APPENDICES

A. TGS PLANS

1 Road Safety Audit Summary

Audited project:	[redacted]
Client:	
Project manager:	
Email address:	
Telephone:	
Audit Team:	
Audit type:	
Commencement meeting:	
Audit date:	
Completion meeting:	

2 Introduction

2.1 Background

This report has been prepared on behalf of Acciona Ferrovial Joint Venture (AFJV) for the traffic management plans as part of the Sydney Metro West construction.

This audit addresses the updated long-term traffic staging plan (TGS 0455 and TGS0147) and pedestrian management plan (TGS0562) to be implemented at Five Dock construction east and west sites on Great North Road, Waterview Street and Second Avenue.

2.2 Audit Objective

The objective of this audit was to identify and report on aspects of the design that may result in unnecessary or unreasonable hazards for all road users.

2.3 Procedures and Reference Material

The procedures used are described in the following guidelines:

- Transport for NSW's 2011 Guidelines for Road Safety Audit Practices
- Austroads Guide to Road Safety 2022: Part 6 Road Safety Audits

Following information was supplied and referenced prior to undertaking Road safety Audit:

Table 2.1: Information Supplied

Documentation	Date	Document Reference
Traffic Guidance Scheme Plan	06 April 2023	AFJVCTP-TGS-0147
Five Dock – Long Term traffic Staging	14 March 2023	AFJVCTP-TGS-0455
Pedestrian Management Plan	20 March 2023	AFJVCTP-TGS-0562

2.4 Audit Team

The RSA was carried out by the following team:

[redacted]

3 Road Safety Audit Program

3.1 Commencement Meeting

A formal meeting was not held.

3.2 Site and Field Audit

A site inspection was undertaken on 14 December 2022 in day and night conditions for the area covered in the scope of this audit There was light rain during the site inspection, but visibility was good The site visit was recorded through photographs and video dashcam recordings There have been no significant changes to the road environment since this site inspection

Previous day and night site inspections were also undertaken on:

- 19 April 2022
- 10 May 2022

3.3 Completion Meeting

Not required.

4 Road Safety Audit Findings

4.1 Introduction

Table 4.1 provides specific details of the road safety deficiencies and a risk rating as extreme, high, medium, low, or negligible. The risk ratings have been based on the risk matrix presented in Table 4.1, which has been adopted from the latest Austroads Guide to Road Safety: Road Safety Audit (2022).

Table 4.1: Risk Matrix

			Severity				
			Insignificant	Minor	Moderate	Serious	Fatal
			Property damage	Minor first aid	Major first aid and/or presents to hospital (not admitted)	Admitted to hospital	Death within 30 days of the crash
Likelihood (includes exposure)	Almost Certain	One per quarter	Medium	High	High	Extreme (FSI)	Extreme (FSI)
	Likely	Quarter to 1 year	Medium	Medium	High	Extreme (FSI)	Extreme (FSI)
	Possible	1 to 3 years	Low	Medium	High	High (FSI)	Extreme (FSI)
	Unlikely	3 to 7 years	Negligible	Low	Medium	High (FSI)	Extreme (FSI)
	Rare	7 years+	Negligible	Negligible	Low	Medium (FSI)	High (FSI)

The terms in Table 4.1 are described below.

Likelihood:

- Almost certain occurrence once per quarter
- Likely occurrence once per quarter to once per year
- Possible occurrence once per year to once every three years
- Unlikely occurrence once every three years to once every seven years
- Rare occurrence less than once every seven years.

Severity:

- Insignificant property damage
- Minor minor first aid
- Moderate major first aid and/or presents to hospital (not admitted)
- Serious admitted to hospital
- Fatal at scene or within 30 days of the crash.

Priority:

- Negligible no action required
- Low should be corrected or the risk reduced if the treatment cost is low
- Medium should be corrected or the risk significantly reduced, if the treatment cost is moderate, but not high
- High should be corrected or the risk significantly reduced, even if the treatment cost is high
- Extreme must be corrected regardless of cost.

4.2 Responding to the Audit Report

As set out in the road safety audit guidelines, the responsibility for the road rests with the project manager, not with the auditor The project manager is under no obligation to accept the audit findings Neither is it the role of the auditor to agree to or approve the project manager's responses to the audit

The audit provides the opportunity to highlight potential road safety problems and have them formally considered by the project manager in conjunction with all other project considerations

4.3 Road Safety Audit Findings

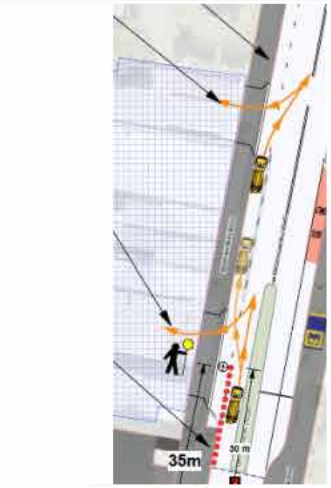
The audit findings are documented in Table 4.2 which provides:

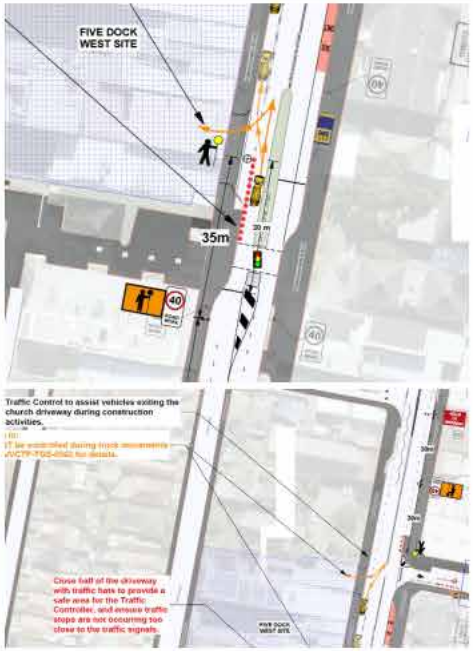
- specific details of the road safety issues identified during the audit
- a risk level rating for each of the road safety audit findings.

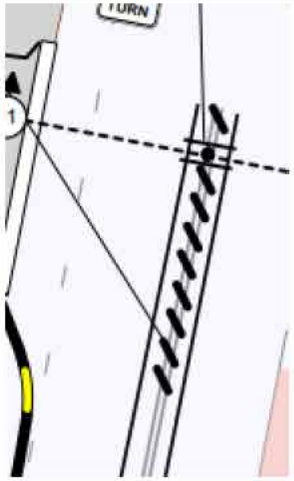
It should be acknowledged that positive attributes of the audited road section have not been discussed. Deficiencies that do not cause a safety problem are also not listed.

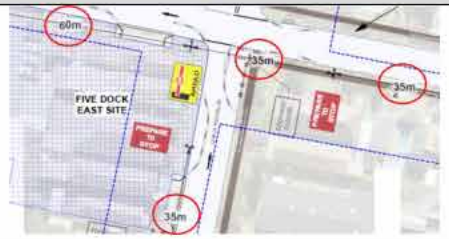
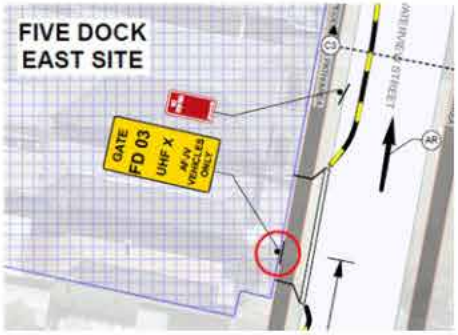
In-line with TfNSW's best practice recommendations have not been included in the road safety audit findings.

Table 4.2: Road Safety Audit Findings

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
1.	Garfield Street, Henry Street, Waterview Street	**TGS 0147** - A "Road Work on Side Road" sign in TGS plan is missing on Garfield Street, Henry Street and Waterview Street. Motorists on Garfield St, Henry Street and Waterview Street may not be aware of the road works on Great North Road prior to turning onto Great North Road which could result in confusion and erratic driver behaviour.		Rare	Moderate	Low	
2.	West Site	**TGS 0147** - The plan indicates trucks reversing into the West Site. Reverse movements of a truck into a construction site is considered unsafe, especially under the existing site conditions where a high number of vehicular and pedestrian movements are present in the area. It is uncertain what additional measures will be in place to control the risk associated with reversing truck movements, except the presence of traffic controllers to control pedestrians and traffic on Great North Road. Any misjudgement in reversing trucks could potentially result in a crash with medium to severe injury. It is noted a traffic controller is not shown at the north site access point although text says a traffic controller will assist vehicles.		Possible	Moderate	High	

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
3.	West Site	**TGS0147** Traffic in the northbound direction may queue across the signalised pedestrian crossing. Vehicles queued across the crossing may restrict visibility between pedestrians and oncoming motorists.		Unlikely	Moderate	Medium	
4.	East Site	**TGS 0562** - A pedestrian management plan has only been provided for the West site. It is uncertain what measures are in place for the East Site in terms of pedestrian management. Failing to implement proper measures at the East Site could potentially expose pedestrians to the construction hazards while walking across the frontage of the East Site access.		Possible	Minor	Medium	

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
5.	Great North Road south of Second Avenue	**TGA 0455** - The Long Term Traffic Staging plan indicates '600mm rumbles' in the median. These raised bars in the median may create a trip hazard for pedestrians crossing the road at this location. There is a risk of a pedestrian tripping on the rumble bars while crossing the road. The likelihood is considered to be rare as it is not a marked crossing and there are controlled crossings within 100m either side of this location. The chances of someone crossing at this location and tripping are low. However, falls may result in the need for first aid or presentation to hospital. Noted that these bars have already been installed on site.		Rare	Moderate	Low	
6.	General	**TGS 0147** – Distance between the construction zone signs shown on the plan appear to be incorrect and not in accordance with Traffic Control at Work Sites Technical Manual.		-	-	Note only	

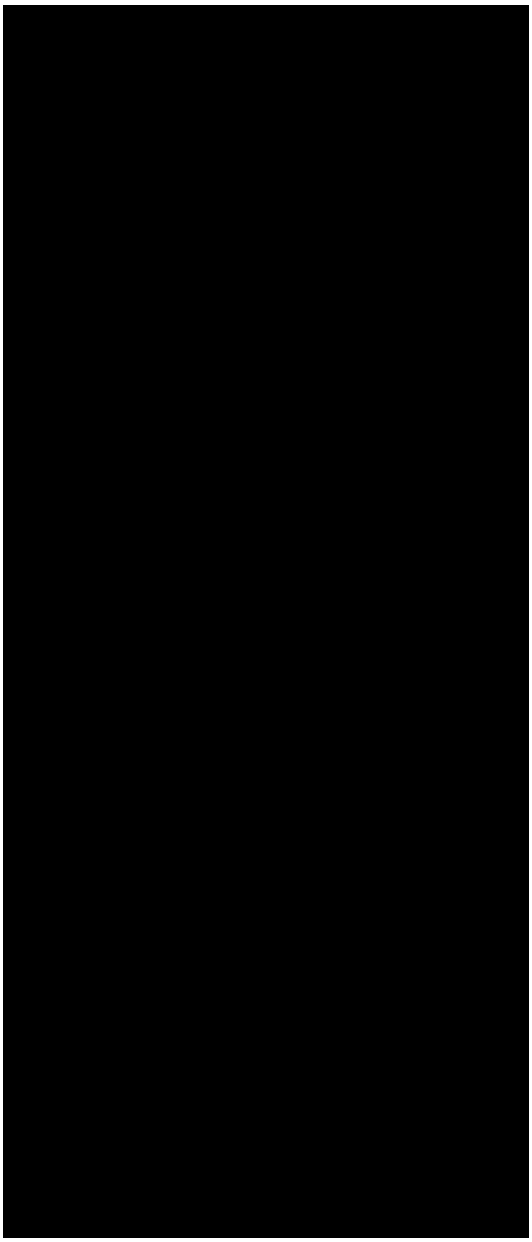
Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
							
7.	General	**TGS 0455** - 'Roadwork Ahead' signs are typically placed as a standalone sign at a distance or dimension (D) prior to the second sign (i.e., Trucks symbolic sign in this instance). It is noted that similar sign has been place as standalone sign at other locations. The D value is the speed limit in the preceding zone to determine the position of signs and devices etc.		-	-	Note only	
8.	Waterview Street, Gate FD 03	**TGS 0455** - The construction gate signpost has been installed incorrectly within the driveway and can potentially obstruct ingress and egress movement of construction vehicles.		-	-	Note only	

5 Concluding Statement

The findings and opinions in the report are based on the examination of the specific road and environs and might not address all concerns existing at the time of the audit.

The auditors have endeavoured to identify features of the road that could be modified in order to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as absolutely safe.

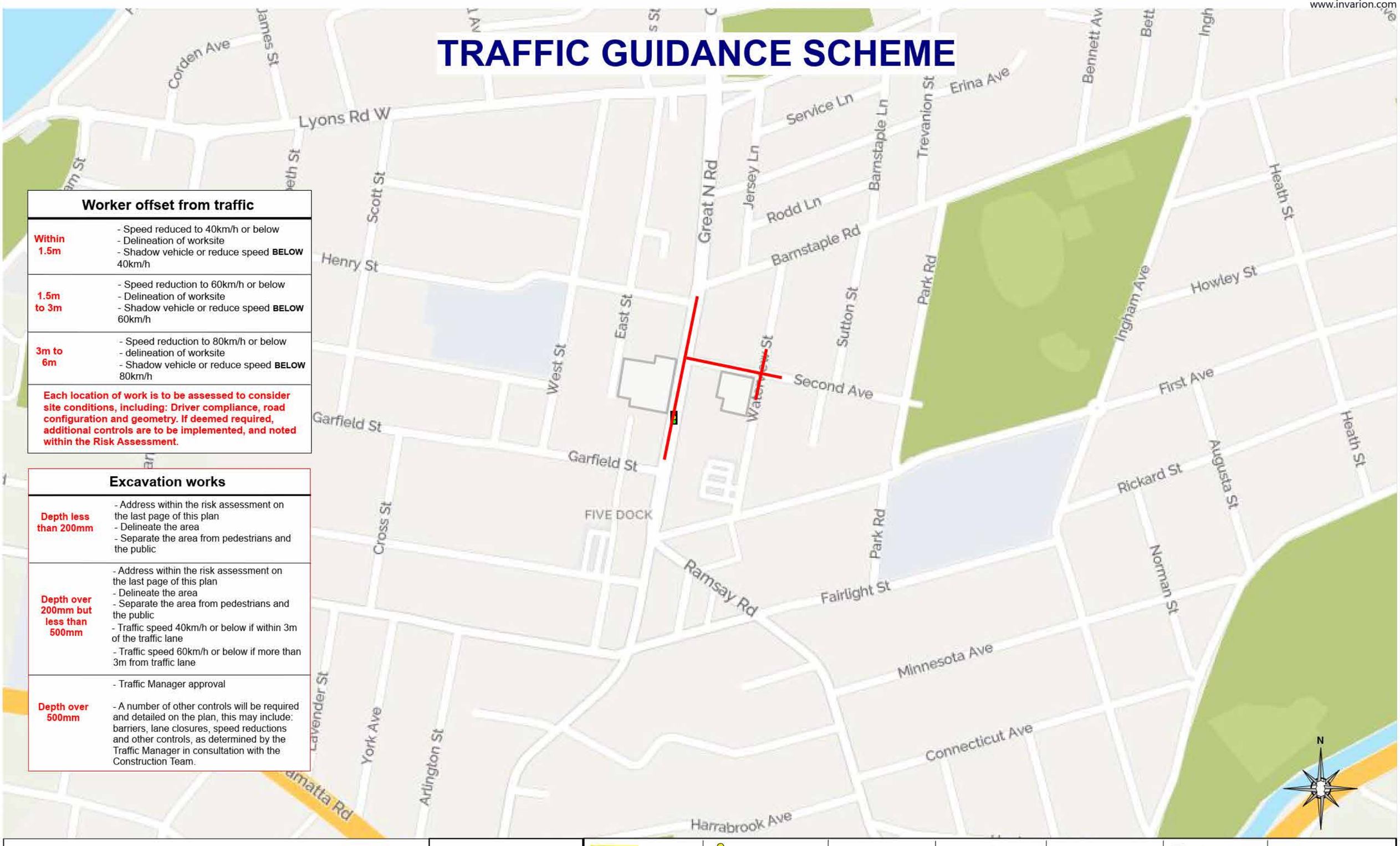
While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that anyone relying on it does so at their own risk without any liability to the Auditors.



Appendix A

TGS Plans

TRAFFIC GUIDANCE SCHEME



Worker offset from traffic	
Within 1.5m	- Speed reduced to 40km/h or below - Delineation of worksite - Shadow vehicle or reduce speed **BELOW** 40km/h
1.5m to 3m	- Speed reduction to 60km/h or below - Delineation of worksite - Shadow vehicle or reduce speed **BELOW** 60km/h
3m to 6m	- Speed reduction to 80km/h or below - delineation of worksite - Shadow vehicle or reduce speed **BELOW** 80km/h
Each location of work is to be assessed to consider site conditions, including: Driver compliance, road configuration and geometry. If deemed required, additional controls are to be implemented, and noted within the Risk Assessment.	

Excavation works	
Depth less than 200mm	- Address within the risk assessment on the last page of this plan - Delineate the area - Separate the area from pedestrians and the public
Depth over 200mm but less than 500mm	- Address within the risk assessment on the last page of this plan - Delineate the area - Separate the area from pedestrians and the public - Traffic speed 40km/h or below if within 3m of the traffic lane - Traffic speed 60km/h or below if more than 3m from traffic lane
Depth over 500mm	- Traffic Manager approval - A number of other controls will be required and detailed on the plan, this may include: barriers, lane closures, speed reductions and other controls, as determined by the Traffic Manager in consultation with the Construction Team.

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

Date: 06/04/2023 **Location:** Five Dock Station - East & West Sites

REV - 02

Comments:

- THIS IS A SHORT TERM TGS, NOT TO SCALE
- THE CONTRACTOR SHALL ENSURE ALL ROL AND SZA REQUIRMENTS ARE SATISFIED DURING IMPLEMENTATION OF THIS TGS
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Traffic Control to assist vehicles exiting the church driveway during construction activities.

Trucks reversing in:
Pedestrians MUST be controlled during truck movements refer to PMP: AFJVCTP-TGS-0562 for details.

Close half of the driveway with traffic hats to provide a safe area for the Traffic Controller, and ensure traffic stops are not occurring too close to the traffic signals.

Traffic setup on Second Ave & Waterview St ONLY required if TGS 0379 is NOT installed.

FIVE DOCK WEST SITE

FIVE DOCK EAST SITE

END ROAD WORK

END ROADWORK

ROADWORK AHEAD

PREPARE TO STOP

PREPARE TO STOP AHEAD

FOOTPATH CLOSED

FOOTPATH CLOSED

40m

30m

30m

35m

60m

35m

35m

35m

40m

N

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

afJV

Date: 06/04/2023 **Location:** Five Dock Station - East & West Sites

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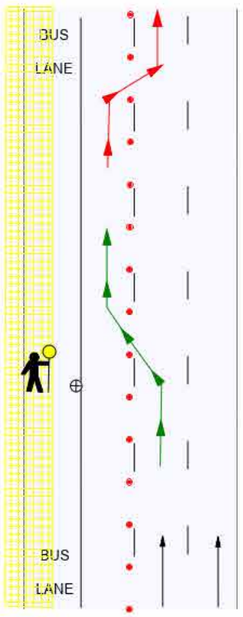
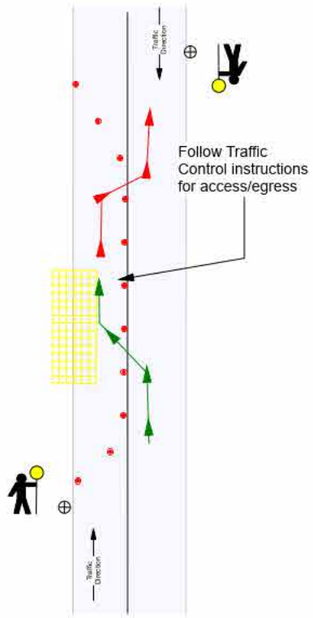
Site Access & Egress, generic examples

MULTI LANE ROAD



SIGNLE LANE ROAD



Access:

1. Any vehicles entering site, must be fitted with at-least x1 flashing/rotating beacon and a working UHF radio.
2. Vehicle entering site is to activate the beacon and announce intent via use of UHF radio min 100m in advance of the access location.
3. Vehicle entering site must activate the indicator (blinker).
4. Vehicle entering site is to steadily reduce speed (no sudden breaking) before entering site.

Traffic Control are ensure access point has been determined at prestart, and is controlled to ensure safe movements.

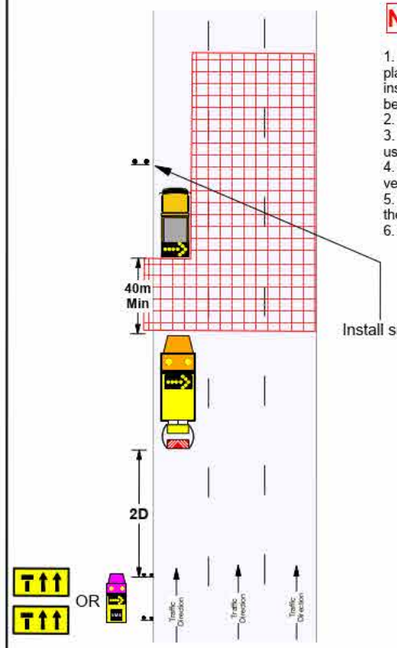
Egress:

1. Any vehicles exiting site, must be fitted with at-least x1 flashing/rotating beacon and a working UHF radio.
2. Vehicle exiting site is to ensure the beacon has been activated and announce intent via use of UHF radio, prior to attempting egress.
3. Vehicle exiting site must activate the indicator (blinker).
4. Vehicle exiting site is to Give-Way to public traffic and only exit site, when a clear gap exists AND Traffic Control has advised 'safe to do so'.
5. Vehicle exiting site is to ensure the beacon has been deactivated, AFTER exiting site and the vehicle speed has increased to match the speed limit.

Traffic Control are ensure Egress point has been determined at prestart, and is controlled to ensure safe movements.

Traffic Control site setup, generic examples

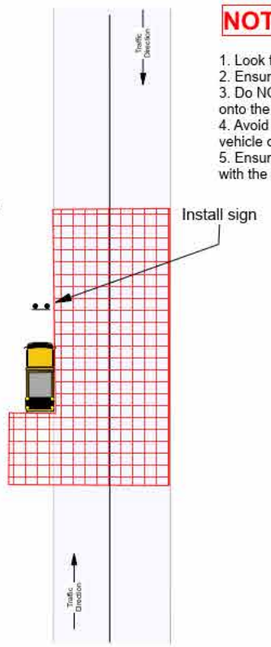
MULTI LANE ROAD 60km/h or below



NOTES:

1. Ensure advance warning VMS vehicle is in place, or x2 static lane status signs have been installed, in advance of the area where the TMA will be stopping.
2. Ensure vehicle mounted warning devices are on
3. Ensure vehicle mounted arrow boards are on and used.
4. Avoid entering areas behind the traffic control vehicle or on the road (as shown in red).
5. Ensure you have read, understand and comply with the Safe Work Method Statement.
6. D = speed limit in meters

SIGNLE LANE ROAD 60km/h or below



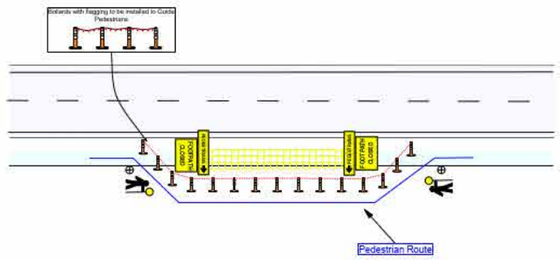
NOTES:

1. Look for a safe location to pull over
2. Ensure vehicle mounted warning devices are on
3. Do NOT use the arrow board to direct vehicles onto the incorrect side of the road.
4. Avoid entering areas behind the traffic control vehicle or on the road (as shown in red).
5. Ensure you have read, understand and comply with the Safe Work Method Statement.

Pedestrian management, generic examples

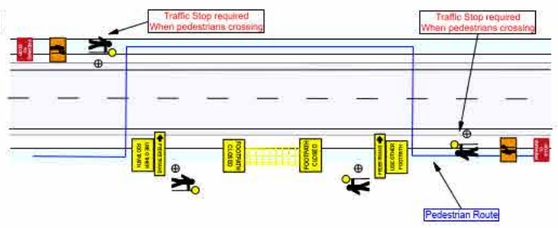
Option 1: Divert Pedestrians around the worksite

- THIS IS NOT A TRAFFIC CONTROL PLAN this is a Pedestrian Management plan only, refer to a Traffic Control Plan for setup on roadway.
- Bollards and flagging to be used to guide pedestrians.
- Traffic Controllers to guide pedestrians around the worksite
- Pedestrian diversion area MUST be clear, level, easily traversable for all pedestrians and free from any hazards



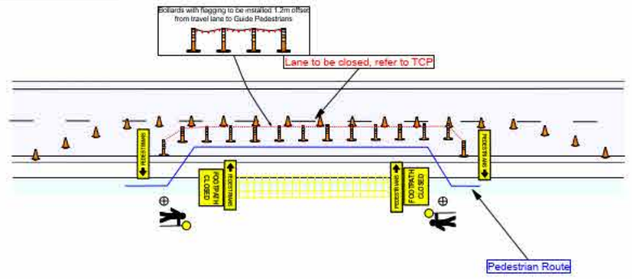
Option 2: Divert Pedestrians onto the adjacent footpath

- THIS IS NOT A TRAFFIC CONTROL PLAN this is a Pedestrian Management plan only, refer to a Traffic Control Plan for setup on roadway.
- Traffic Controllers to Stop traffic in accordance with an approved Traffic Control Plan when pedestrians cross the road.
- Traffic Controllers to guide pedestrians.
- Pedestrian diversion area MUST be clear, level, easily traversable for all pedestrians and free from any hazards



Option 3: Divert Pedestrians around the worksite using the roadway

- THIS IS NOT A TRAFFIC CONTROL PLAN this is a Pedestrian Management plan only, refer to a Traffic Control Plan for setup on roadway.
- Bollards and flagging to be used to guide Pedestrians, Bollards and flagging to be offset Minimum of 1.5m from the travel lane.
- Traffic speed to be reduced to 40km/h
- Traffic Controllers to guide pedestrians around the worksite
- Pedestrians diversion area MUST be clear, level, easily traversable for all pedestrians and free from any hazards
- Traffic Lane or Shoulder to be closed in accordance with an approved Traffic Control Plan.



IMPORTANT:

1. For Shared Paths - minimum 3m width must be maintained.
2. For Footpaths - minimum 1.5m width must be maintained.
3. If the existing width of a Shared Path or Footpath is less then 3m or 1.5m respectively, the existing width must be maintained.
4. When the above is not possible, changes to Paths must be detailed on the TGS.

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

afJV

Date: 06/04/2023 **Location:** Five Dock Station - East & West Sites

Comments:

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TGS Number: AFJVCTP-TGS-0147

Traffic Guidance Scheme - Options & Risk Assessment

afJV

Location Details

Road: Great North Rd / Waterview St Suburb: Five Dock Side Street: Second Ave

Direction (N) (E) (S) (W) Speed of road: 50 / 50 km/h Speed of Side Streets: 50 km/h

Options Assessment

Method selected: Around (Past) Through

Reason for selection: **Traffic can pass while maintaining sufficient worker/traffic offset.**

Risk Assessment

Section 1 - Does the TGS Involve Detours of traffic? YES (NO) (If answered no proceed to section 2)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
1.1 Are detour routes suitable for all vehicle classes being detoured?	☐	☐		
1.2 Is access to local residence and business maintained	☐	☐		
1.3 Are detour signs located at decision points, to clearly guide motorists through the detour?	☐	☐		
1.4 Can roads and intersections used as detour routes, accommodate the additional traffic volumes?	☐	☐		
1.5 Is the same level of safety maintained for turn movements? e.g. Traffic using signalized intersections being sent through a detour route that involves turn movements at non-signalized intersections.	☐	☐		

Section 2 - Does the TGS involve Stop/Slow arrangements? (YES) NO (If answered no proceed to section 3)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
2.1 Are escape routes clearly defined on the TGS, clear and safe to use?	X	☐		
2.2 Is a PTCD used in place of a manual Traffic Controller where existing speed is greater then 45km/h?	☐	X	* Risk of TC being struck by vehicle (see notes below for further detail)	M
2.3 Is the operating speed of the road 60km/h or less where Traffic Control or PTCD are in use?	X	☐		
2.4 Are x4 traffic cones placed on the edge or center line, approaching the traffic controller or PTCD?	X	☐		
2.5 Is prepare to stop and Traffic Control or PTCD symbolic signs installed?	X	☐		
2.6 Do Traffic Control and PTCD positions have adequate lighting during low light conditions	X	☐		
2.7 Does sight distance of at least 1.5D exist on approach to Traffic Control or PTCD	X	☐		

Section 3 - General	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
3.1 Does the TGS define minimum clearances required of workers to live traffic, are distances compliant?	X	☐		
3.2 Are worker symbolic signs to be placed in advance of areas where workers will be visible to traffic?	X	☐		
3.3 Are all signs placed at correct distances? i.e. D for multiple signs, 2D for single sign above 60km/h	☐	X	Risk of vehicle driving past stop point and driving into reversing truck.	M
3.4 Are taper lengths compliant and not placed in areas with poor sight distance?	☐	☐	NA	
3.5 Are lane status signs placed in advance of a lane merge?	☐	☐	NA	
3.6 Are the correct tapers being used? i.e. merge taper, traffic control taper, lateral shift taper.	☐	☐	NA	
3.7 Does the TGS clearly define transition zones between tapers on multilane roads, are they compliant?	☐	☐	NA	
3.8 Does the TGS clearly define Buffer areas, are they compliant and at least 30m in length?	☐	X	Risk of vehicle driving through workzone.	M
3.9 Does the TGS clearly define site access and egress for work vehicles, is impact to traffic, managed?	X	☐		
3.10 Does the TGS clearly define pedestrian routes, are the routes suitable for all pedestrians?	X	☐		
3.11 Does the TGS consider Cyclists, can Cyclists transverse the site safely?	X	☐		

Section 4 - Do the works involve excavations (YES) NO (If answered no proceed to section 5)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
4.1 Are excavations to be less then 200mm in depth?	☐	☐		
4.2 Are excavations to be less then 500mm in depth?	☐	☐	*	

Section 5 - Other Hazards & Risks		
	5.1	**Notes on item 2.2:**
	5.2	**Boom gates not used due to insufficient gaps in traffic for this to occur safely.**
	5.3	**Lowering the boom without a sufficient gap in traffic may result in:**
	5.4	**Sudden breaking increasing risk of nose to tail type accidents**
		Vehicle colliding with the boom gate

Risk Management

Any risks identified during the above Risk Assessment must be assessed, with control measures listed below. Control measures must meet the WHS Risk Management Hierarchy of Controls framework.

Item	Control Measures	Remaining Risk Rating
3.3 & 3.8	**Reduced speed to 40km/h (long term TGS). Additional delineation leading up to PTCD and/or TC for additional advanced warning. Road configuration should also naturally slow traffic.**	L
2.2	Reduced speed to 40km/h (long term TGS), additional 40 repeater signs, TC not to stand in travel path when stopping traffic, traffic hats to be installed on approac to stop point	L

Risk evaluation Matrix

Risk ratings: Very high - VH; High - H; Medium - M; Low - L

Likelihood		Consequence: Insignificant C6	Minor C5	Moderate C4	Major C3	Severe C2	Catastrophic C1
Almost certain	L1	M	H	H	VH	VH	VH
Very likely	L2	M	M	H	H	VH	VH
Likely	L3	L	M	M	H	H	VH
Unlikely	L4	L	L	M	M	H	H
Very unlikely	L5	L	L	L	M	M	H
Almost unprecedented	L6	L	L	L	L	M	M

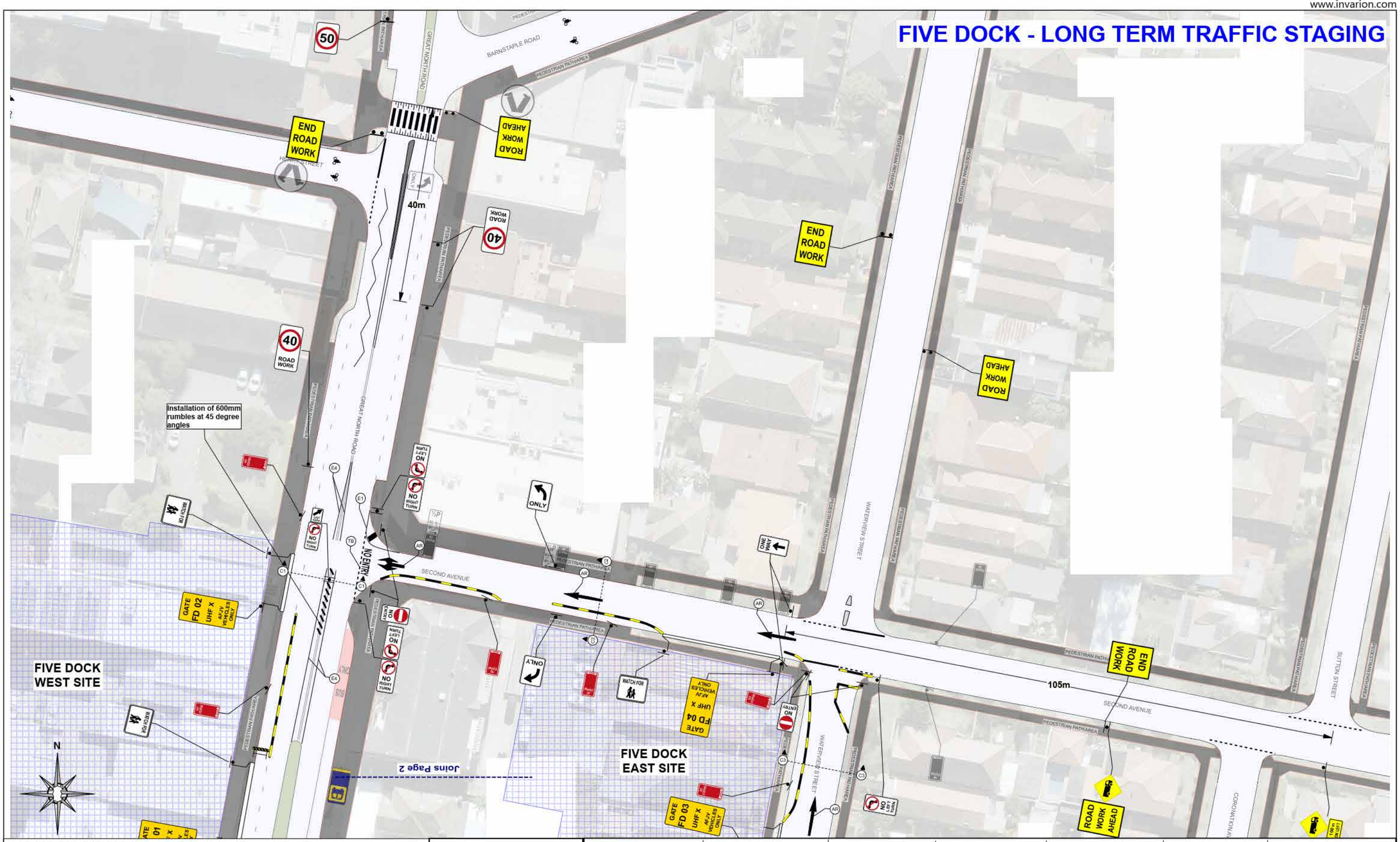
Refer to TCAWS Table 3-4 for descriptions of Likelihood and Consequence measures

TGS Designer: Name [redacted]

TGS Approved by: Name

One up Manager: Name

FIVE DOCK - LONG TERM TRAFFIC STAGING



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

Date: 14/03/2023 **Location:** Five Dock - Long Term **Author name:** [redacted]

REV: 06

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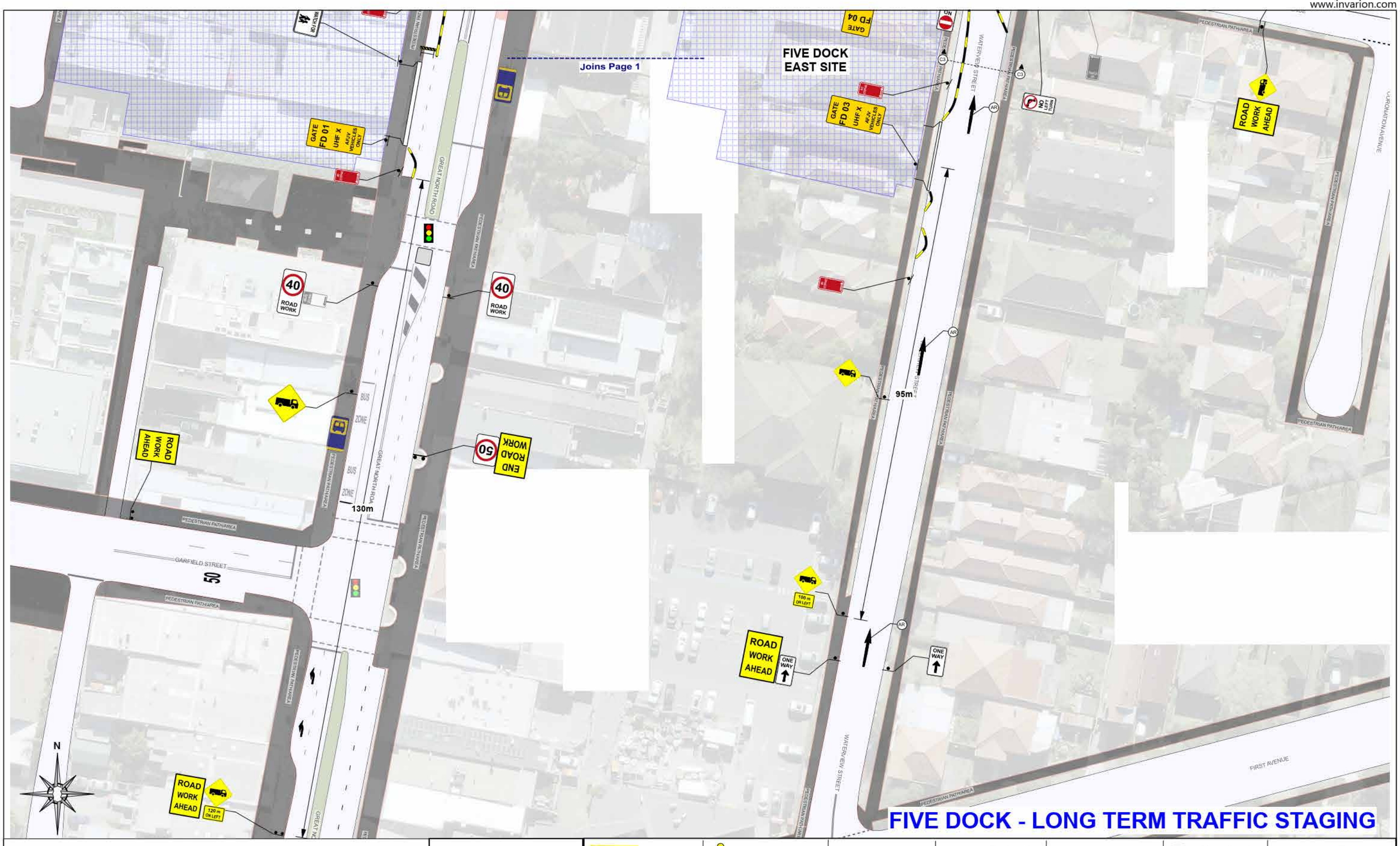

FIVE DOCK - LONG TERM TRAFFIC STAGING

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

Date: 14/03/2023 **Location:** Five Dock - Long Term **Author name:** [redacted]

REV: 06

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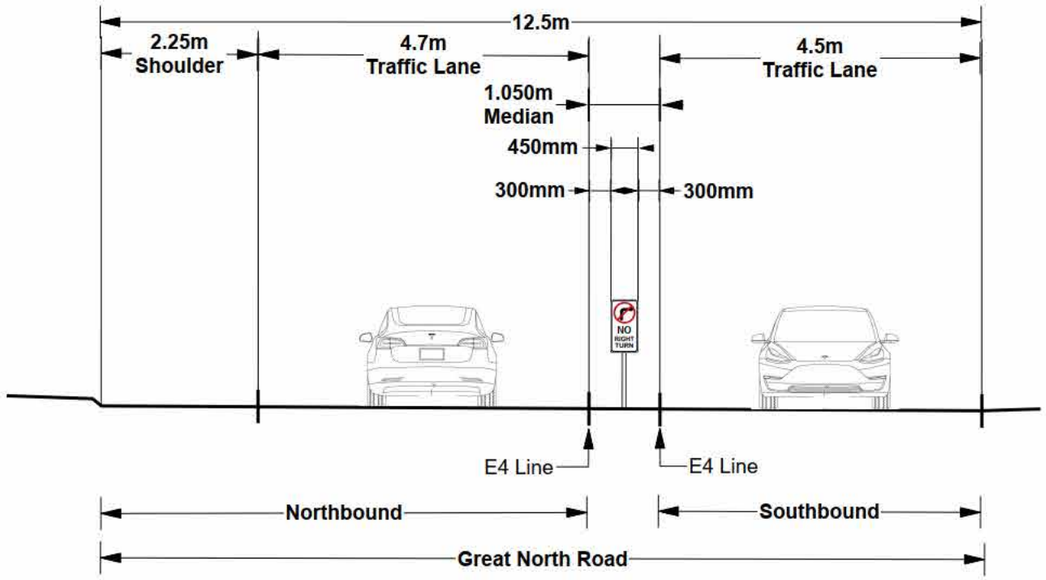
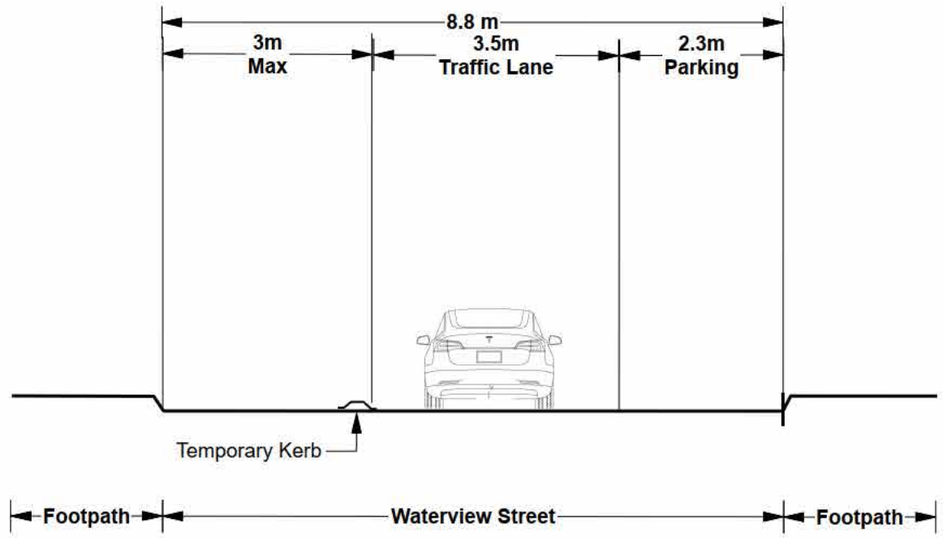
- DIMENSION 'D' IS DETERMINED IN ACCORDANCE WITH THE TCAWS MANUAL 2022 Issue 6.1
- BOLLARDS AND TRAFFIC CONES ARE TO BE INSTALLED IN ACCORDANCE WITH THE 2022 Issue 6.1
- TAPER LENGTHS ARE TO BE IN ACCORDANCE WITH THE TCAWS MANUAL 2022 Issue 6.1
- THE SITE MUST COMPLY WITH THE TCAWS MANUAL 2022 Issue 6.1 AND A.S. 1742.3
- REGULATORY SPEED / ROADWORK SIGNS TO BE REPEATED EVERY 400m UNLESS NOTED OTHERWISE

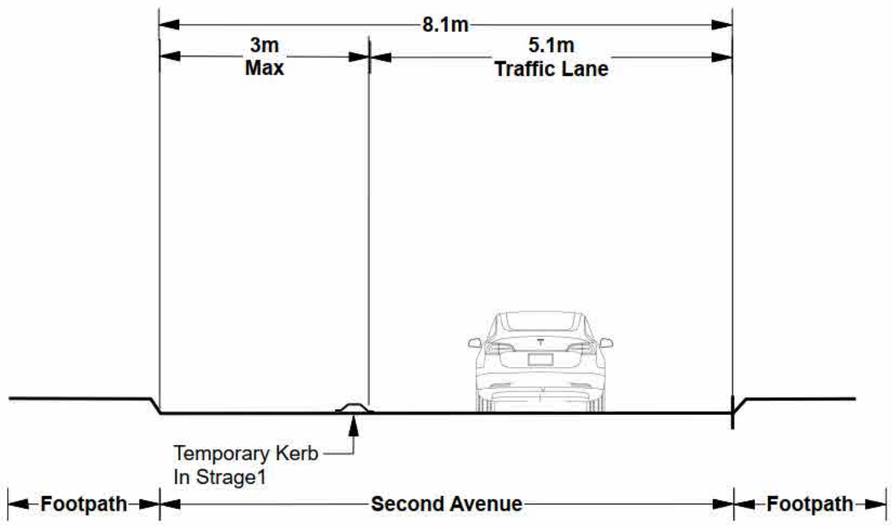
Cross Section 1 (C1)



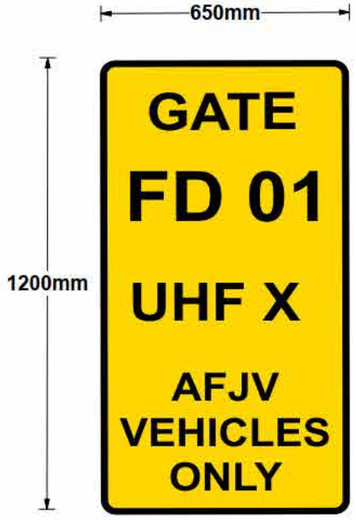
Cross Section 3 (C3)



Cross Section 2 (C2)



Custom Sign Detail



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

Date: 14/03/2023 **Location:** Five Dock - Long Term **Author name:** [redacted]

Comments:

- THIS IS A SHORT TERM TGS, NOT TO SCALE
- THE CONTRACTOR SHALL ENSURE ALL ROL AND SZA REQUIRMENTS ARE SATISFIED DURING IMPLEMENTATION OF THIS TGS
- ANY EXISTING SIGNAGE THAT CONFLIICTS WITH THIS TGS MUST BE COVERED AT THE START OF SHIFT AND UNCOVERED AT THE END OF SHIFT
- ANY CHANGES REQUIRED, SPEAK TO THE SITE FOREMAN AND THEN MODIFY THIS PLAN IF NECESSARY. ANY CHANGES TO THIS PLAN SHALL BE MARKED ON THIS TGS & SIGNED OFF BY A PWZTMP HOLDER.
- A LANE WIDTH OF 3.5m (MINIMUM) IS TO BE MAINTAINED AT ALL TIMES UNLESS NOTED OTHERWISE
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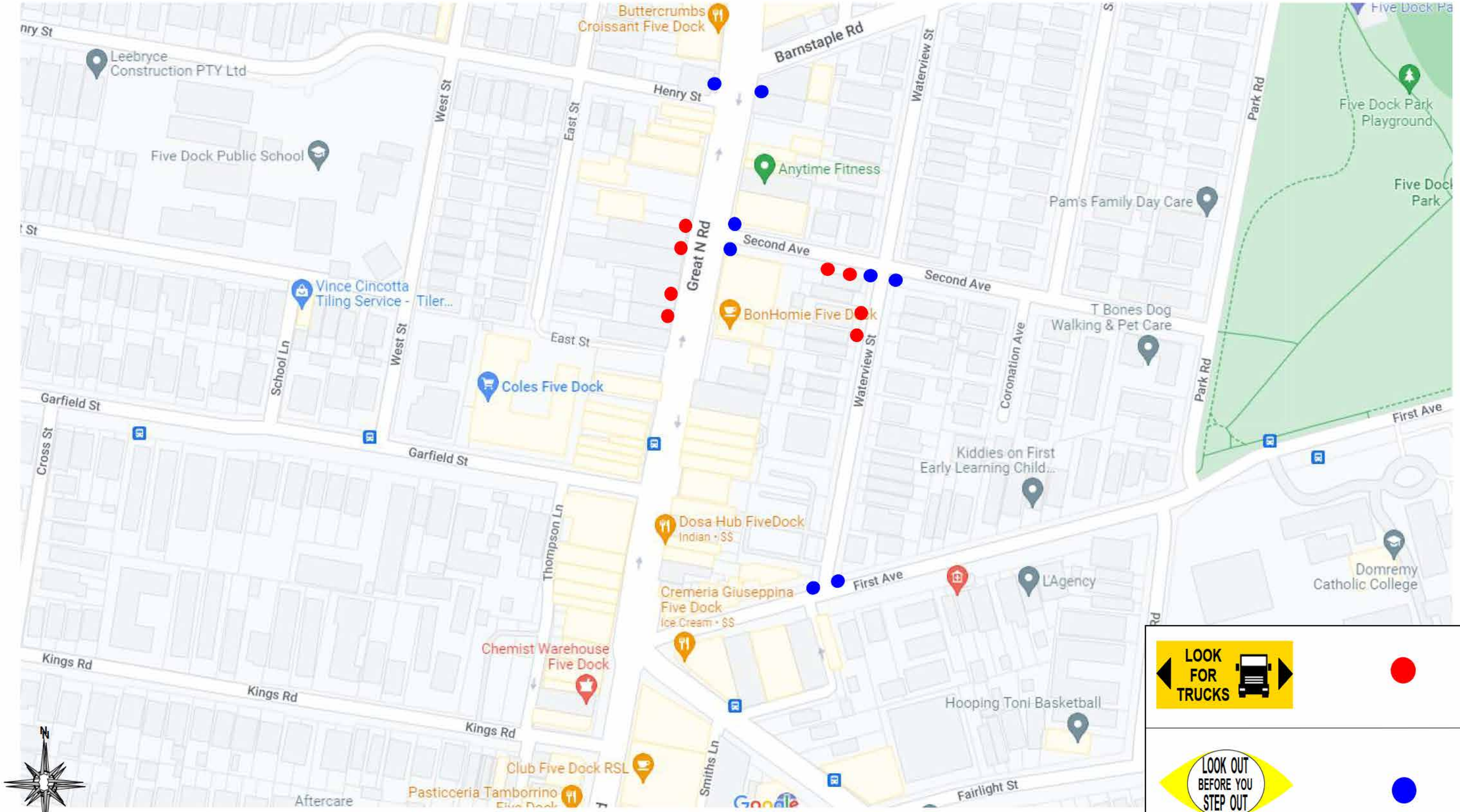
Footpath pavement decals



PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Temporary Kerb

afJV

Date: 14/03/2023 **Location:** Five Dock - Long Term **Author name:** [redacted]

Comments:

- THIS IS A SHORT TERM TGS, NOT TO SCALE
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- THE SITE MUST COMPLY WITH THE TCAWS MANUAL 2022 Issue 6.1 AND A.S. 1742.3
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TGS Number: AFJVCTP-TGS-0455

Traffic Guidance Scheme - Options & Risk Assessment

afJV

Location Details

Road: Multiple - Five Dock Suburb: Five Dock Side Street: Various

Direction: (N) (E) (S) (W) Speed of road: 50 km/h Speed of Side Streets: 50 km/h

Options Assessment

Method selected: Around (Past) Through

Reason for selection: **Traffic can pass while maintaining sufficient worker/traffic offset.**

Risk Assessment

Section 1 - Does the TGS Involve Detours of traffic? YES (NO) (If answered no proceed to section 2)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
1.1 Are detour routes suitable for all vehicle classes being detoured?	☐	☐		
1.2 Is access to local residence and business maintained	☐	☐		
1.3 Are detour signs located at decision points, to clearly guide motorists through the detour?	☐	☐		
1.4 Can roads and intersections used as detour routes, accommodate the additional traffic volumes?	☐	☐		
1.5 Is the same level of safety maintained for turn movements? e.g. Traffic using signalized intersections being sent through a detour route that involves turn movements at non-signalized intersections.	☐	☐		

Section 2 - Does the TGS involve Stop/Slow arrangements? YES (NO) (If answered no proceed to section 3)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
2.1 Are escape routes clearly defined on the TGS, clear and safe to use?	☐	☐		
2.2 Is a PTCD used in place of a manual Traffic Controller where existing speed is greater then 45km/h?	☐	☐	*	
2.3 Is the operating speed of the road 60km/h or less where Traffic Control or PTCD are in use?	☐	☐		
2.4 Are x4 traffic cones placed on the edge or center line, approaching the traffic controller or PTCD?	☐	☐		
2.5 Is prepare to stop and Traffic Control or PTCD symbolic signs installed?	☐	☐		
2.6 Do Traffic Control and PTCD positions have adequate lighting during low light conditions	☐	☐		
2.7 Does sight distance of at least 1.5D exist on approach to Traffic Control or PTCD	☐	☐		

Section 3 - General	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
3.1 Does the TGS define minimum clearances required of workers to live traffic, are distances compliant?	☐	☐	NA	
3.2 Are worker symbolic signs to be placed in advance of areas where workers will be visible to traffic?	☐	☐	NA	
3.3 Are all signs placed at correct distances? i.e. D for multiple signs, 2D for single sign above 60km/h	☐	X	Some sign distances adjusted due to, side streets, Driveways, trees and underground utilities.	L
3.4 Are taper lengths compliant and not placed in areas with poor sight distance?	☐	☐	NA	
3.5 Are lane status signs placed in advance of a lane merge?	☐	☐	NA	
3.6 Are the correct tapers being used? i.e. merge taper, traffic control taper, lateral shift taper.	☐	☐	NA	
3.7 Does the TGS clearly define transition zones between tapers on multilane roads, are they compliant?	☐	☐	NA	
3.8 Does the TGS clearly define Buffer areas, are they compliant and at least 30m in length?	☐	☐	NA	
3.9 Does the TGS clearly define site access and egress for work vehicles, is impact to traffic, managed?	X	☐		
3.10 Does the TGS clearly define pedestrian routes, are the routes suitable for all pedestrians?	X	☐		
3.11 Does the TGS consider Cyclists, can Cyclists transverse the site safely?	X	☐		

Section 4 - Do the works involve excavations YES (NO) (If answered no proceed to section 5)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
4.1 Are excavations to be less then 200mm in depth?	☐	☐		
4.2 Are excavations to be less then 500mm in depth?	☐	☐	*	

Section 5 - Other Hazards & Risks			
	5.1		
	5.2		
	5.3		
	5.4		

Risk Management

Any Risks Identified identified during the above Risk Assessment must be assessed, with control measures listed below. Control measures must meet the WHS Risk Management Hierarchy of controls framework.

Item	Control Measures	Remaining Risk Rating
3.3	Regular monitoring of effectiveness, place signs as close to D as able	L

Risk evaluation Matrix

Risk ratings: Very high - VH; High - H; Medium - M; Low - L

Likelihood		Consequence: Insignificant C6	Minor C5	Moderate C4	Major C3	Severe C2	Catastrophic C1
Almost certain	L1	M	H	H	VH	VH	VH
Very likely	L2	M	M	H	H	VH	VH
Likely	L3	L	M	M	H	H	VH
Unlikely	L4	L	L	M	M	H	H
Very unlikely	L5	L	L	L	M	M	H
Almost unprecedented	L6	L	L	L	L	M	M

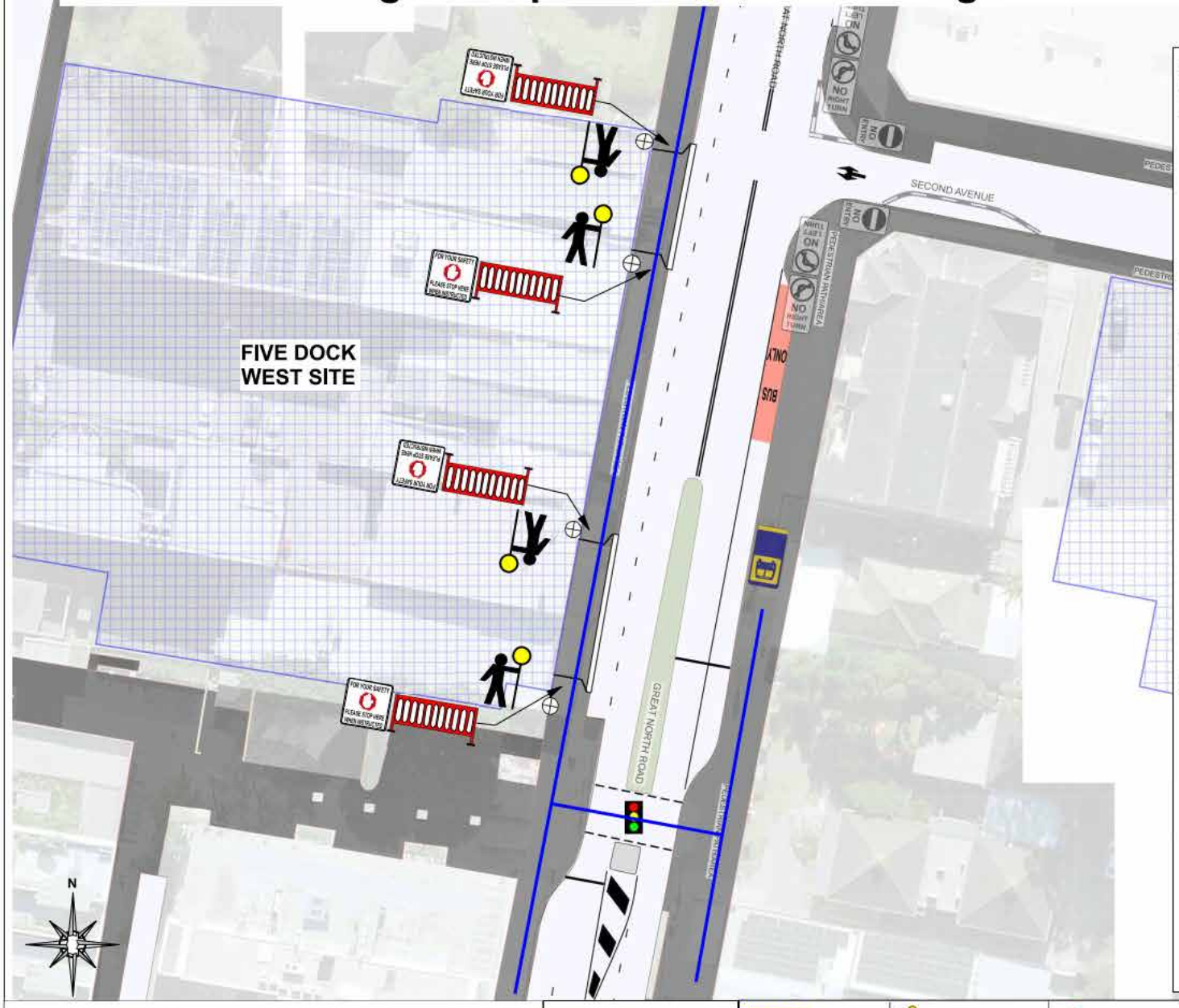
Refer to TCAWS Table 3-4 for descriptions of Likelihood and Consequence measures

TGS Designer: Name [redacted]

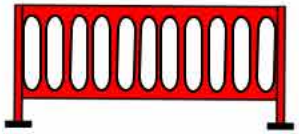
TGS Approved by: Name

One up Manager: Name

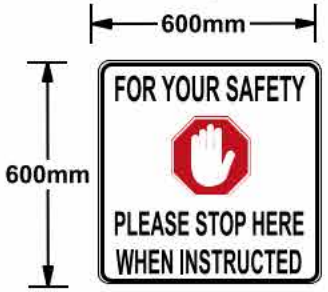
Pedestrian management plan - to be used during bulk haulage activities at the west site



Retractable pedestrian fence - Traffic Control gate keeper to extend fence across footpath when a truck is entering or exiting a driveway



Custom sign detail - sign to be place on non-road side of the footpath next to each pedestrian gate



WORK INSTRUCTIONS:

- Pedestrians are to be given priority.
- Pedestrians are only to be stopped if a gap in pedestrian flows can not be achieved, or the truck takes longer the enter or exit the site then expected.
Pedestrian gates must be opened once the truck has cleared the footpath (do NOT leave them across the footpath).
- Signs must be packed up at the end of each shift.

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

Date: 20/03/2023 **Location:** Great North Road - Five Dock **Author name:** [redacted]

Comments:

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TGS Number: AFJVCTP-TGS-0562

Traffic Guidance Scheme - Options & Risk Assessment

afJV

Location Details

Road: Great North Road Suburb: Five Dock Side Street: NA

Direction: (N) E (S) W Speed of road: 50 km/h Speed of Side Streets: 50 km/h

Options Assessment

Method selected: Around (Past) Through

Reason for selection: **Traffic can pass while maintaining sufficient worker/traffic offset.**

Risk Assessment

Section 1 - Does the TGS Involve Detours of traffic? YES (NO) (If answered no proceed to section 2)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
1.1 Are detour routes suitable for all vehicle classes being detoured?	☐	☐		
1.2 Is access to local residence and business maintained	☐	☐		
1.3 Are detour signs located at decision points, to clearly guide motorists through the detour?	☐	☐		
1.4 Can roads and intersections used as detour routes, accommodate the additional traffic volumes?	☐	☐		
1.5 Is the same level of safety maintained for turn movements? e.g. Traffic using signalized intersections being sent through a detour route that involves turn movements at non-signalized intersections.	☐	☐		

Section 2 - Does the TGS involve Stop/Slow arrangements? YES (NO) (If answered no proceed to section 3)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
2.1 Are escape routes clearly defined on the TGS, clear and safe to use?	☐	☐		
2.2 Is a PTCD used in place of a manual Traffic Controller where existing speed is greater then 45km/h?	☐	☐	*	
2.3 Is the operating speed of the road 60km/h or less where Traffic Control or PTCD are in use?	☐	☐		
2.4 Are x4 traffic cones placed on the edge or center line, approaching the traffic controller or PTCD?	☐	☐		
2.5 Is prepare to stop and Traffic Control or PTCD symbolic signs installed?	☐	☐		
2.6 Do Traffic Control and PTCD positions have adequate lighting during low light conditions	☐	☐		
2.7 Does sight distance of at least 1.5D exist on approach to Traffic Control or PTCD	☐	☐		

Section 3 - General

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
3.1 Does the TGS define minimum clearances required of workers to live traffic, are distances compliant?	☐	☐	NA	
3.2 Are worker symbolic signs to be placed in advance of areas where workers will be visible to traffic?	☐	☐	NA	
3.3 Are all signs placed at correct distances? i.e. D for multiple signs, 2D for single sign above 60km/h	☐	☐	NA	
3.4 Are taper lengths compliant and not placed in areas with poor sight distance?	☐	☐	NA	
3.5 Are lane status signs placed in advance of a lane merge?	☐	☐	NA	
3.6 Are the correct tapers being used? i.e. merge taper, traffic control taper, lateral shift taper.	☐	☐	NA	
3.7 Does the TGS clearly define transition zones between tapers on multilane roads, are they compliant?	☐	☐	NA	
3.8 Does the TGS clearly define Buffer areas, are they compliant and at least 30m in length?	☐	☐	NA	
3.9 Does the TGS clearly define site access and egress for work vehicles, is impact to traffic, managed?	X	☐		
3.10 Does the TGS clearly define pedestrian routes, are the routes suitable for all pedestrians?	X	☐		
3.11 Does the TGS consider Cyclists, can Cyclists transverse the site safely?	X	☐		

Section 4 - Do the works involve excavations YES (NO) (If answered no proceed to section 5)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
4.1 Are excavations to be less then 200mm in depth?	☐	☐		
4.2 Are excavations to be less then 500mm in depth?	☐	☐	*	

Section 5 - Other Hazards & Risks

		Enter Risk Rating
5.1	Pedestrian attempts to cross the road - struck by public vehicle	H
5.2	Pedestrian attempts to cross the driveway when a truck is accessing or egressing site - struck by truck	VH
5.3		
5.4		

Risk Management

Any Risks Identified identified during the above Risk Assessment must be assessed, with control measures listed below. Control measures must meet the WHS Risk Management Hierarchy of controls framework.

Item	Control Measures	Remaining Risk Rating
5.1	x2 traffic controllers at each gate, to instruct and guide pedestrians, retractable pedestrian gates must be left open when trucks are not entering or exiting site, speed reduction to 40km/h, custom signage advising pedestrian where to stop.	L
5.2	x2 traffic controllers at each gate, to instruct and guide pedestrians, retractable pedestrian gates must extend across the footpath when trucks are entering or exiting site, custom signage advising pedestrian where to stop, truck warning decals on footpaths, truck drivers toolboxed.	L

Risk evaluation Matrix

Risk ratings: Very high - VH; High - H; Medium - M; Low - L

Likelihood		Consequence C6	C5	C4	C3	C2	C1
Almost certain	L1	M	H	H	VH	VH	VH
Very likely	L2	M	M	H	H	VH	VH
Likely	L3	L	M	M	H	H	VH
Unlikely	L4	L	L	M	M	H	H
Very unlikely	L5	L	L	L	M	M	H
Almost unprecedented	L6	L	L	L	L	M	M

Refer to TCAWS Table 3-4 for descriptions of Likelihood and Consequence measures

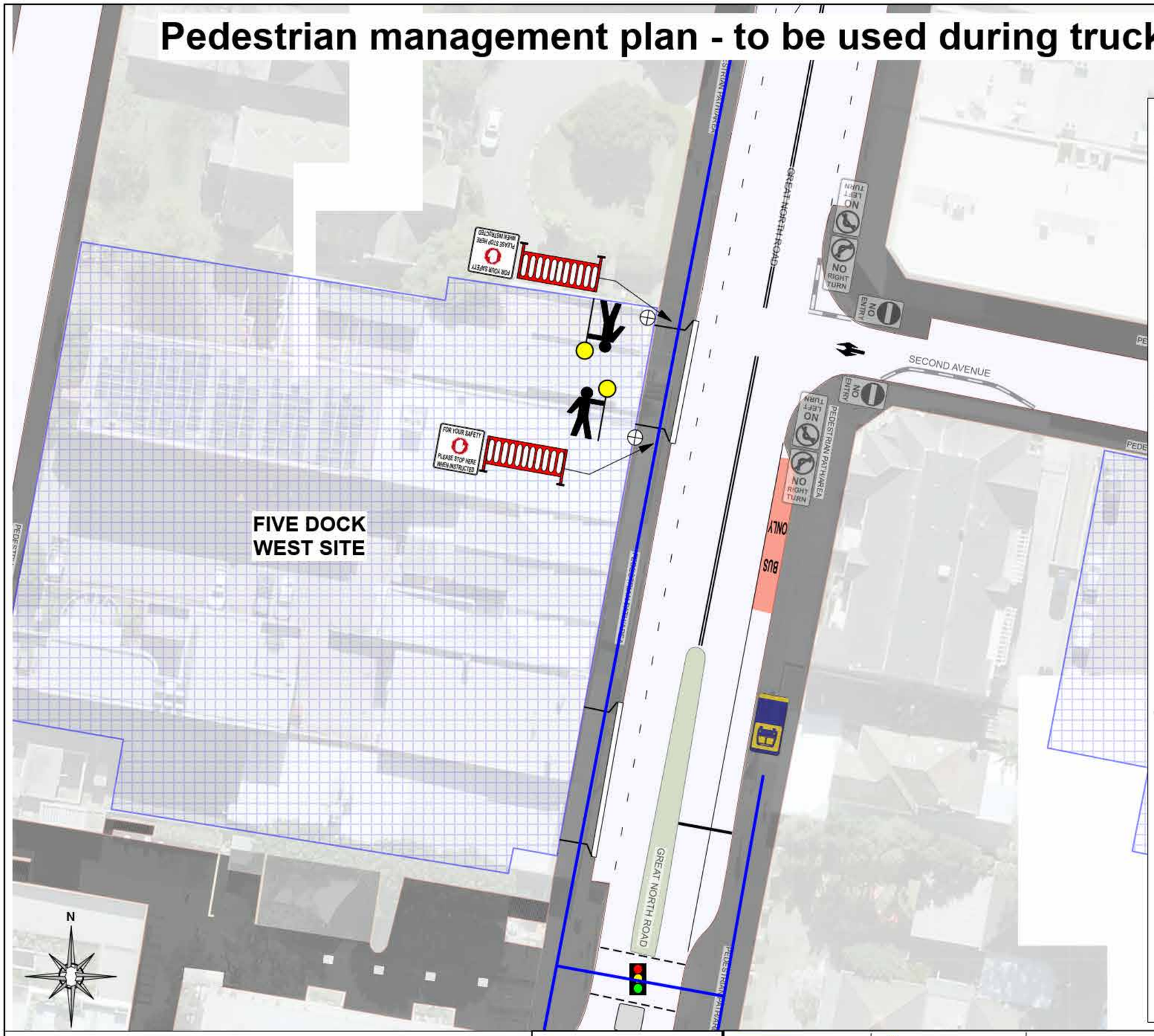
TGS Designer: [redacted]

TGS Approved by:

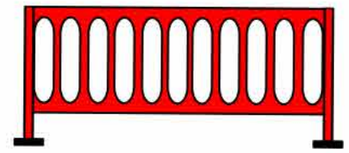
One up Manager:

APPENDIX E - PEDESTRIAN MANAGEMENT PLAN

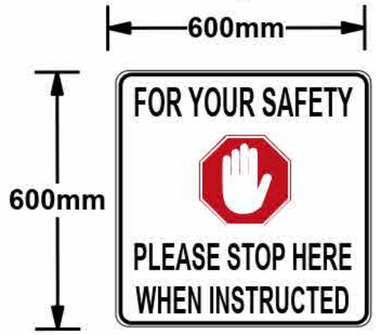
Pedestrian management plan - to be used during truck reversing movements



Retractable pedestrian fence - Traffic Control gate keeper to extend fence across footpath when a truck is entering or exiting a driveway



Custom sign detail - sign to be place on non-road side of the footpath next to each pedestrian gate



WORK INSTRUCTIONS:

- Pedestrians are to be given priority.
- Pedestrians are only to be stopped if a gap in pedestrian flows can not be achieved, or the truck takes longer the enter or exit the site then expected.
Pedestrian gates must be opened once the truck has cleared the footpath (do NOT leave them across the footpath).
- Signs must be packed up at the end of each shift.

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

Date: 20/03/2023 **Location:** Great North Road - Five Dock **Author name:**

Comments:

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- REGULATORY SPEED / ROADWORK SIGNS TO BE REPEATED EVERY 400m UNLESS NOTED OTHERWISE

afJV

Rev01

TGS Number: AFJVCTP-TGS-0562

Traffic Guidance Scheme - Options & Risk Assessment

afJV

Location Details

Road: Great North Road Suburb: Five Dock Side Street: NA

Direction: (N) E (S) W Speed of road: 50 km/h Speed of Side Streets: 50 km/h

Options Assessment

Method selected: Around (Past) Through

Reason for selection: **Traffic can pass while maintaining sufficient worker/traffic offset.**

Risk Assessment

Section 1 - Does the TGS Involve Detours of traffic? YES (NO) (If answered no proceed to section 2)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
1.1 Are detour routes suitable for all vehicle classes being detoured?	☐	☐		
1.2 Is access to local residence and business maintained	☐	☐		
1.3 Are detour signs located at decision points, to clearly guide motorists through the detour?	☐	☐		
1.4 Can roads and intersections used as detour routes, accommodate the additional traffic volumes?	☐	☐		
1.5 Is the same level of safety maintained for turn movements? e.g. Traffic using signalized intersections being sent through a detour route that involves turn movements at non-signalized intersections.	☐	☐		

Section 2 - Does the TGS involve Stop/Slow arrangements? YES (NO) (If answered no proceed to section 3)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
2.1 Are escape routes clearly defined on the TGS, clear and safe to use?	☐	☐	*	
2.2 Is a PTCD used in place of a manual Traffic Controller where existing speed is greater then 45km/h?	☐	☐		
2.3 Is the operating speed of the road 60km/h or less where Traffic Control or PTCD are in use?	☐	☐		
2.4 Are x4 traffic cones placed on the edge or center line, approaching the traffic controller or PTCD?	☐	☐		
2.5 Is prepare to stop and Traffic Control or PTCD symbolic signs installed?	☐	☐		
2.6 Do Traffic Control and PTCD positions have adequate lighting during low light conditions	☐	☐		
2.7 Does sight distance of at least 1.5D exist on approach to Traffic Control or PTCD	☐	☐		

Section 3 - General	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
3.1 Does the TGS define minimum clearances required of workers to live traffic, are distances compliant?	☐	☐	NA	
3.2 Are worker symbolic signs to be placed in advance of areas where workers will be visible to traffic?	☐	☐	NA	
3.3 Are all signs placed at correct distances? i.e. D for multiple signs, 2D for single sign above 60km/h	☐	☐	NA	
3.4 Are taper lengths compliant and not placed in areas with poor sight distance?	☐	☐	NA	
3.5 Are lane status signs placed in advance of a lane merge?	☐	☐	NA	
3.6 Are the correct tapers being used? i.e. merge taper, traffic control taper, lateral shift taper.	☐	☐	NA	
3.7 Does the TGS clearly define transition zones between tapers on multilane roads, are they compliant?	☐	☐	NA	
3.8 Does the TGS clearly define Buffer areas, are they compliant and at least 30m in length?	☐	☐	NA	
3.9 Does the TGS clearly define site access and egress for work vehicles, is impact to traffic, managed?	X	☐		
3.10 Does the TGS clearly define pedestrian routes, are the routes suitable for all pedestrians?	X	☐		
3.11 Does the TGS consider Cyclists, can Cyclists transverse the site safely?	X	☐		

Section 4 - Do the works involve excavations YES (NO) (If answered no proceed to section 5)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
4.1 Are excavations to be less then 200mm in depth?	☐	☐	*	
4.2 Are excavations to be less then 500mm in depth?	☐	☐		

Section 5 - Other Hazards & Risks			Enter Risk Rating
	5.1	Pedestrian attempts to cross the road - struck by public vehicle	H
	5.2	Pedestrian attempts to cross the driveway when a truck is accessing or egressing site - struck by truck	VH
	5.3		
	5.4		

Risk Management

Any Risks Identified identified during the above Risk Assessment must be assessed, with control measures listed below. Control measures must meet the WHS Risk Management Hierarchy of controls framework.

Item	Control Measures	Remaining Risk Rating
5.1	x2 traffic controllers, to instruct and guide pedestrians, retractable pedestrian gates must be left open when trucks are not entering or exiting site, speed reduction to 40km/h, custom signage advising pedestrian where to stop.	L
5.2	x2 traffic controllers, to instruct and guide pedestrians, retractable pedestrian gates must extend across the footpath when trucks are entering or exiting site, custom signage advising pedestrian where to stop, truck warning decals on footpaths, truck drivers toolboxed.	L

Risk evaluation Matrix

Risk ratings: Very high - VH; High - H; Medium - M; Low - L

Likelihood		Consequence: Insignificant C6	Minor C5	Moderate C4	Major C3	Severe C2	Catastrophic C1
Almost certain	L1	M	H	H	VH	VH	VH
Very likely	L2	M	M	H	H	VH	VH
Likely	L3	L	M	M	H	H	VH
Unlikely	L4	L	L	M	M	H	H
Very unlikely	L5	L	L	L	M	M	H
Almost unprecedented	L6	L	L	L	L	M	M

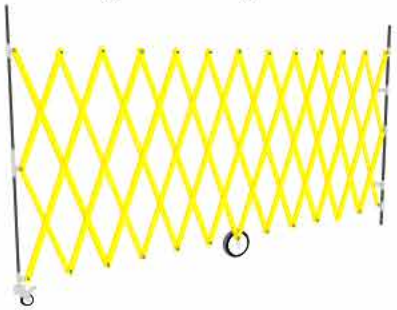
Refer to TCAWS Table 3-4 for descriptions of Likelihood and Consequence measures

TGS Designer: Name [redacted]

TGS Approved by: Name [redacted]

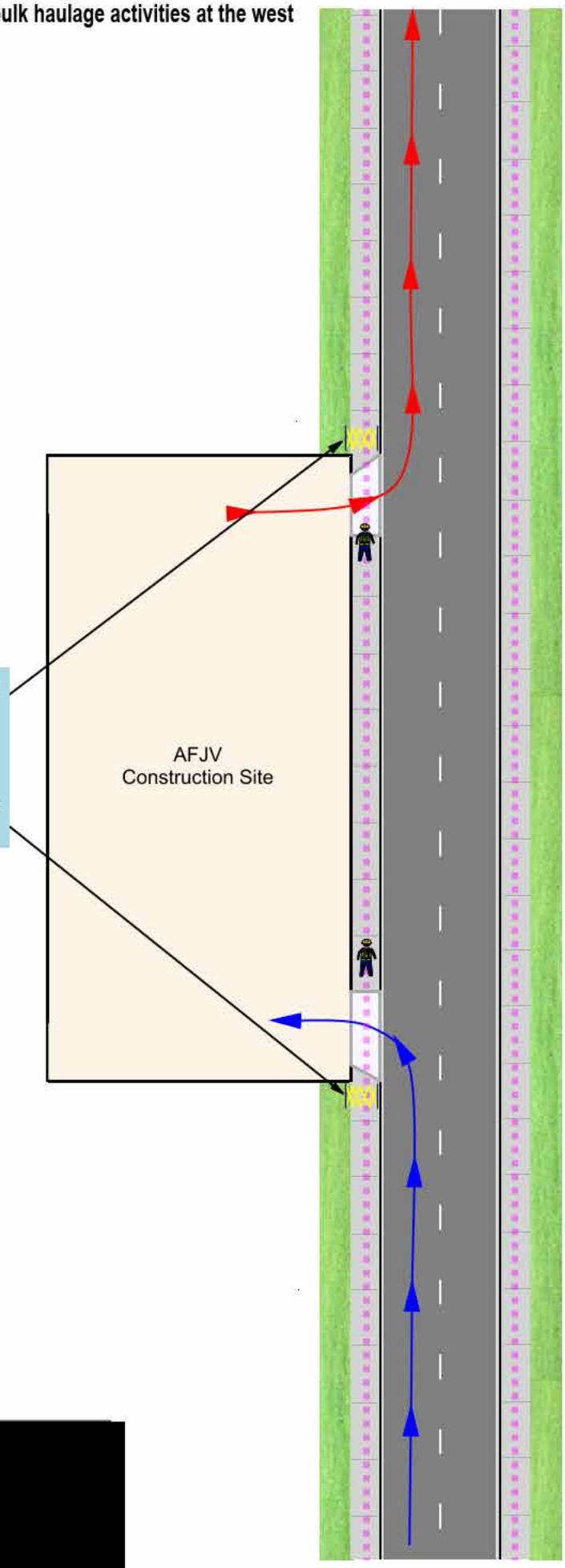
One up Manager: Name [redacted]

Pedestrian management plan - to be used outside of bulk haulage activities at the west site, and during bulk haulage at the east site



Example of Retractable Gate

When vehicles make contact on UHF in advance to their approach of the entrance/exit driveways, Gatekeepers must temporarily hold pedestrian movements by extending the retractable-gate at one side of the driveway and hold pedestrians on the other side of the driveway before approving the vehicles to approach. Once vehicle enters/exits the driveway, Gatekeepers are to pull back the gate to resume footpath movements.



Legend

- Gatekeeper
- T8-1 PEDESTRIANS WATCH YOUR STEP
- T2-25 TRUCKS
- Truck Route - Inbound
- Truck Route - Outbound
- Pedestrian Route
- Retractable Gate
- Retractable Gate (Large Scaled)

[redacted]

APPENDIX F – PEDESTRIAN COUNTS

Great North Road Pedestrians (western footpath)

Day		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
Date		10/10/2022		11/10/2022		12/10/2022		13/10/2022		14/10/2022		15/10/2022	
Direction		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Time	0600 0630	5	8	1	4	6	0	4	3	1	3	1	1
	0630 0700	1	6	1	4	3	2	3	4	5	1	5	6
	0700-0730	4	8	6	9	7	4	5	9	11	10	12	10
	0730 0800	3	10	15	13	5	7	7	5	12	13	16	11
	0800-0830	5	11	16	18	10	10	15	15	11	14	17	19
	0830 0900	17	30	11	13	28	20	13	6	14	11	28	20
	0900 0930	17	32	14	13	14	25	16	14	18	32	51	52
	0930-1000	5	23	14	17	20	13	14	11	28	16	41	65
	1000 1030	23	17	19	18	9	25	19	25	27	20	63	53
	1030-1100	31	19	10	23	17	21	21	22	18	21	56	62
	1100 1130	19	16	22	18	21	32	21	18	18	30	47	49
	1130 1200	16	29	12	19	15	17	20	20	31	27	57	43
	1200-1230	15	21	25	12	22	27	34	39	26	30	51	41
	1230 1300	34	22	29	21	18	24	32	35	31	37	32	28
	1300-1330	22	26	30	20	25	26	43	23	37	41	28	40
	1330 1400	17	14	20	25	23	27	28	27	15	30	25	9
	1400 1430	26	12	10	16	15	24	13	8	25	20		
	1430-1500	23	19	16	14	8	16	25	27	28	28		
	1500 1530	21	18	26	25	18	13	27	26	20	20		
	1530-1600	41	19	20	18	28	19	43	23	41	30		
	1600 1630	22	19	35	30	17	22	45	21	20	18		
	1630 1700	16	14	27	24	13	13	30	18	24	21		
	1700-1730	24	16	25	29	14	33	16	24	13	15		
	1730-1800	6	16	6	20	8	10	11	14	22	13		
Daily total		413	425	410	423	364	430	505	437	496	501	530	509

APPENDIX G – TRAFFIC GUIDANCE SCHEME (TGS)

TRAFFIC GUIDANCE SCHEME

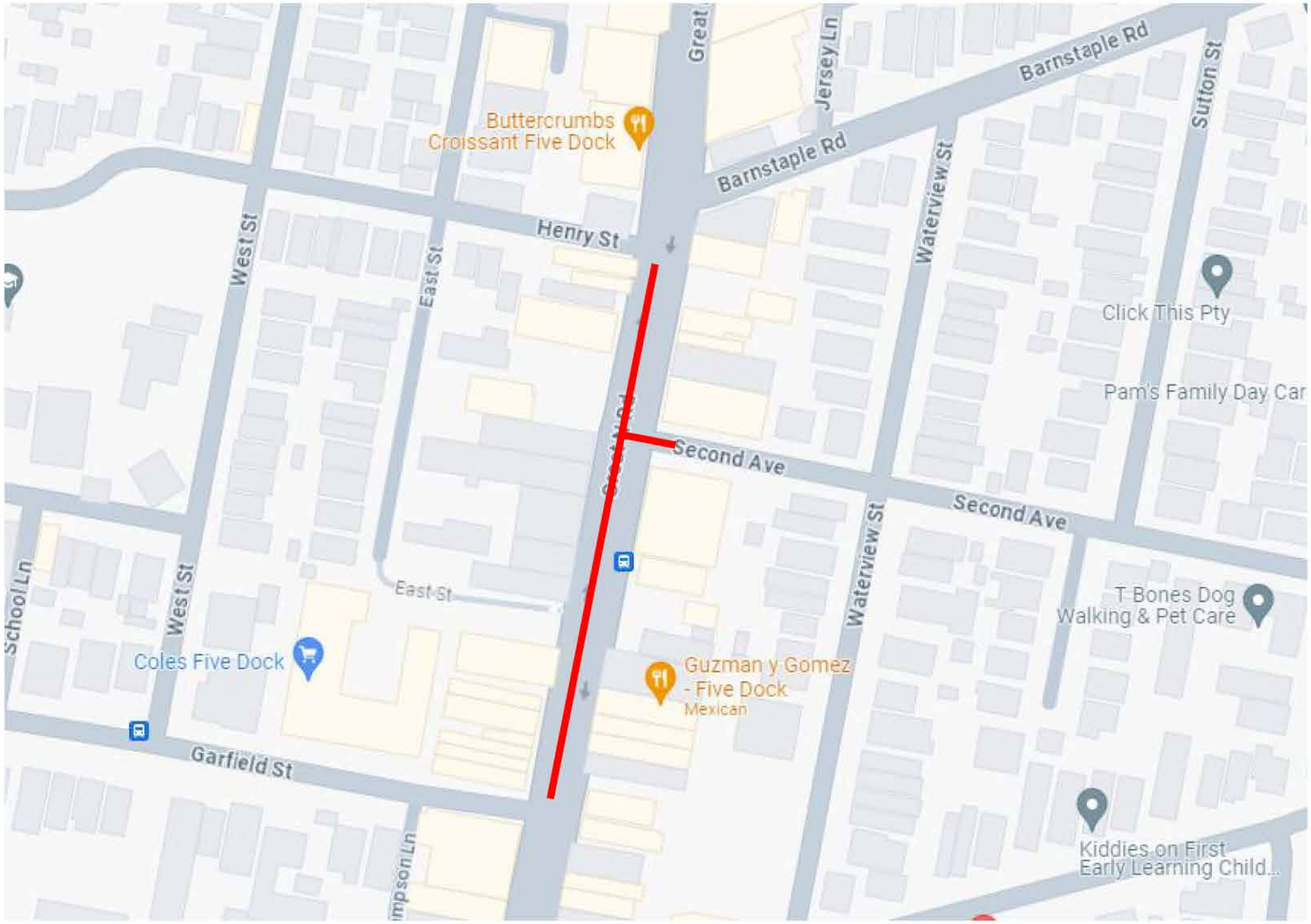
Worker offset from traffic

Within 1.5m	- Speed reduced to 40km/h or below - Delineation of worksite - Shadow vehicle or reduce speed **BELOW** 40km/h
1.5m to 3m	- Speed reduction to 60km/h or below - Delineation of worksite - Shadow vehicle or reduce speed **BELOW** 60km/h
3m to 6m	- Speed reduction to 80km/h or below - delineation of worksite - Shadow vehicle or reduce speed **BELOW** 80km/h

Each location of work is to be assessed to consider site conditions, including: Driver compliance, road configuration and geometry. If deemed required, additional controls are to be implemented, and noted within the Risk Assessment.

Excavation works

Depth less than 200mm	- Address within the risk assessment on the last page of this plan - Delineate the area - Separate the area from pedestrians and the public
Depth over 200mm but less than 500mm	- Address within the risk assessment on the last page of this plan - Delineate the area - Separate the area from pedestrians and the public - Traffic speed 40km/h or below if within 3m of the traffic lane - Traffic speed 60km/h or below if more than 3m from traffic lane
Depth over 500mm	- Traffic Manager approval - A number of other controls will be required and detailed on the plan, this may include: barriers, lane closures, speed reductions and other controls, as determined by the Traffic Manager in consultation with the Construction Team.



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PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

Date: 01/08/2024 **Location:** Great North Rd, Five Dock **Author name:** [redacted]

Comments:

- THIS IS A SHORT TERM TGS, NOT TO SCALE
- THE CONTRACTOR SHALL ENSURE ALL ROL AND SZA REQUIRMENTS ARE SATISFIED DURING IMPLEMENTATION OF THIS TGS
- ANY EXISTING SIGNAGE THAT CONFLIICTS WITH THIS TGS MUST BE COVERED AT THE START OF SHIFT AND UNCOVERED AT THE END OF SHIFT
- ANY CHANGES REQUIRED, SPEAK TO THE SITE FOREMAN AND THEN MODIFY THIS PLAN IF NECESSARY. ANY CHANGES TO THIS PLAN SHALL BE MARKED ON THIS TGS & SIGNED OFF BY A PWZTMP HOLDER.
- A LANE WIDTH OF 3.5m (MINIMUM) IS TO BE MAINTAINED AT ALL TIMES UNLESS NOTED OTHERWISE
- SHOULDER WIDTH / EDGE CLEARANCE TO TRAFFIC CONES OF 0.5m IS TO BE PROVIDED AT ALL TIMES UNLESS NOTED OTHERWISE
- ALL SIGNAGE TO BE 'B' SIZE UNLESS NOTED OTHERWISE
- SIGNS TO BE POSITIONED IN ACCORDANCE WITH THE TCAWS MANUAL 2022 Issue 6.1
- DIMENSION 'D' IS DETERMINED IN ACCORDANCE WITH THE TCAWS MANUAL 2022 Issue 6.1
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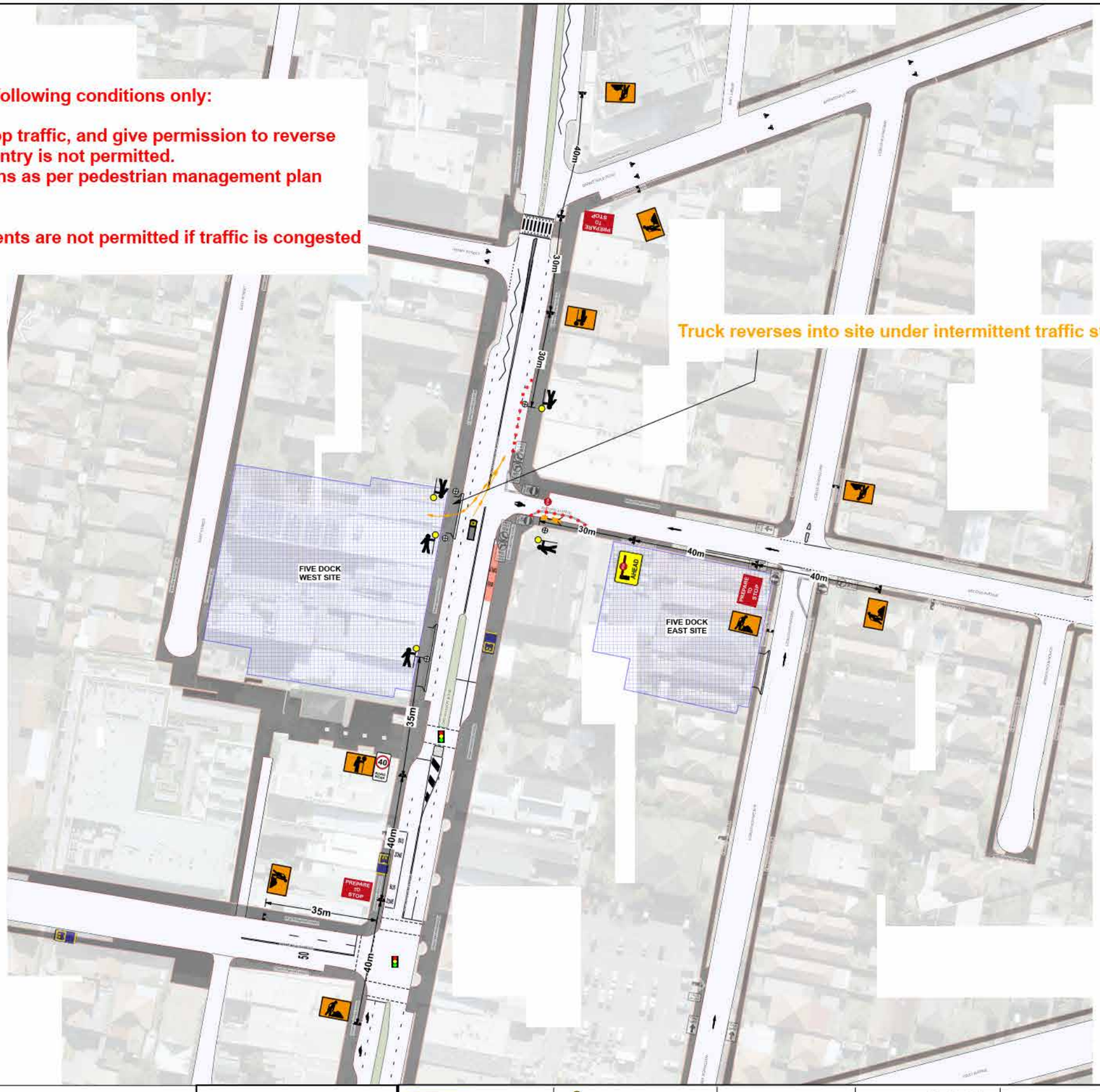
- THE SITE MUST COMPLY WITH THE TCAWS MANUAL 2022 Issue 6.1 AND A.S. 1742.3
- REGULATORY SPEED / ROADWORK SIGNS TO BE REPEATED EVERY 400m UNLESS NOTED OTHERWISE

REV - 01

afJV

Truck to reverse into site, under the following conditions only:
*** Rigid vehicles only (no semies)**
*** Traffic Control must be in place, stop traffic, and give permission to reverse into site. If permission is not given, entry is not permitted.**
*** Traffic control to manage pedestrians as per pedestrian management plan AFJVCTP-TGS-0562**
*** Buses are to be given priority**
*** Traffic stops and reversing movements are not permitted if traffic is congested**



N

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

afJV

Date: 01/08/2024 **Location:** Great North Rd, Five Dock **Author name:** [redacted]

Comments:
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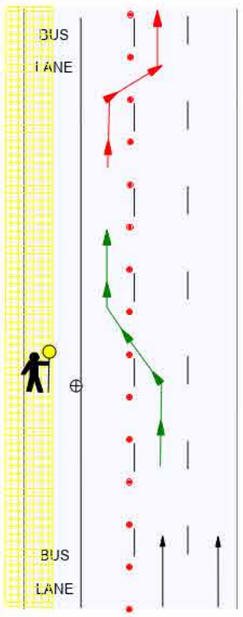
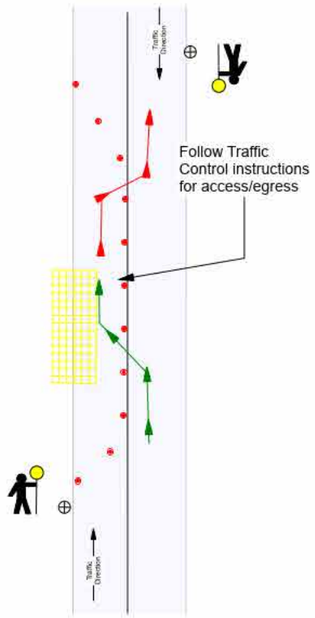
Site Access & Egress, generic examples

MULTI LANE ROAD



SIGNLE LANE ROAD



Access:

1. Any vehicles entering site, must be fitted with at-least x1 flashing/rotating beacon and a working UHF radio.
2. Vehicle entering site is to activate the beacon and announce intent via use of UHF radio min 100m in advance of the access location.
3. Vehicle entering site must activate the indicator (blinker).
4. Vehicle entering site is to steadily reduce speed (no sudden breaking) before entering site.

Traffic Control are ensure access point has been determined at prestart, and is controlled to ensure safe movements.

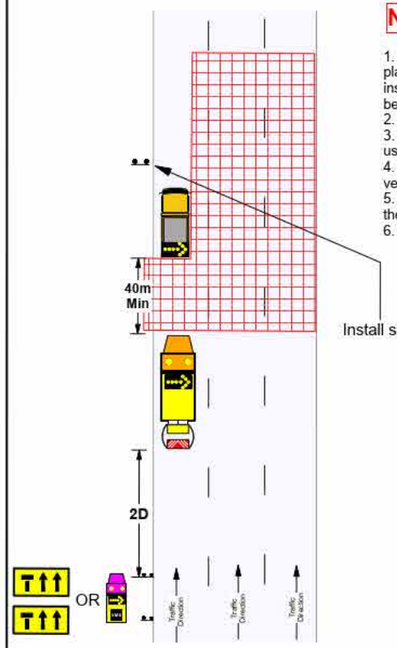
Egress:

1. Any vehicles exiting site, must be fitted with at-least x1 flashing/rotating beacon and a working UHF radio.
2. Vehicle exiting site is to ensure the beacon has been activated and announce intent via use of UHF radio, prior to attempting egress.
3. Vehicle exiting site must activate the indicator (blinker).
4. Vehicle exiting site is to Give-Way to public traffic and only exit site, when a clear gap exists AND Traffic Control has advised 'safe to do so'.
5. Vehicle exiting site is to ensure the beacon has been deactivated, AFTER exiting site and the vehicle speed has increased to match the speed limit.

Traffic Control are ensure Egress point has been determined at prestart, and is controlled to ensure safe movements.

Traffic Control site setup, generic examples

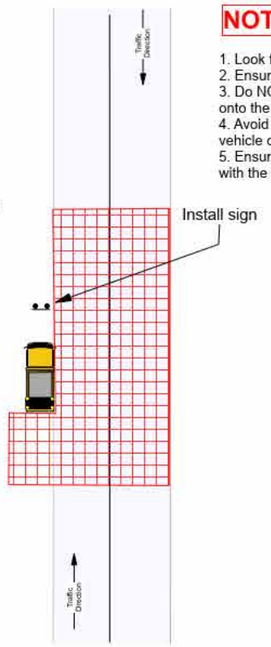
MULTI LANE ROAD 60km/h or below



NOTES:

1. Ensure advance warning VMS vehicle is in place, or x2 static lane status signs have been installed, in advance of the area where the TMA will be stopping.
2. Ensure vehicle mounted warning devices are on
3. Ensure vehicle mounted arrow boards are on and used.
4. Avoid entering areas behind the traffic control vehicle or on the road (as shown in red).
5. Ensure you have read, understand and comply with the Safe Work Method Statement.
6. D = speed limit in meters

SIGNLE LANE ROAD 60km/h or below



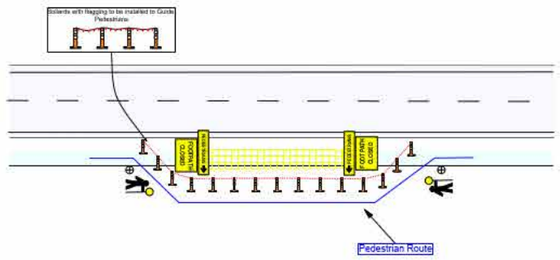
NOTES:

1. Look for a safe location to pull over
2. Ensure vehicle mounted warning devices are on
3. Do NOT use the arrow board to direct vehicles onto the incorrect side of the road.
4. Avoid entering areas behind the traffic control vehicle or on the road (as shown in red).
5. Ensure you have read, understand and comply with the Safe Work Method Statement.

Pedestrian management, generic examples

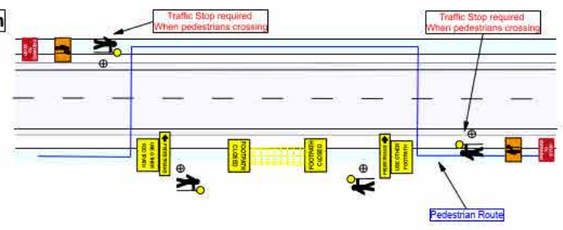
Option 1: Divert Pedestrians around the worksite

- THIS IS NOT A TRAFFIC CONTROL PLAN this is a Pedestrian Management plan only, refer to a Traffic Control Plan for setup on roadway.
- Bollards and flagging to be used to guide pedestrians.
- Traffic Controllers to guide pedestrians around the worksite
- Pedestrian diversion area MUST be clear, level, easily traversable for all pedestrians and free from any hazards



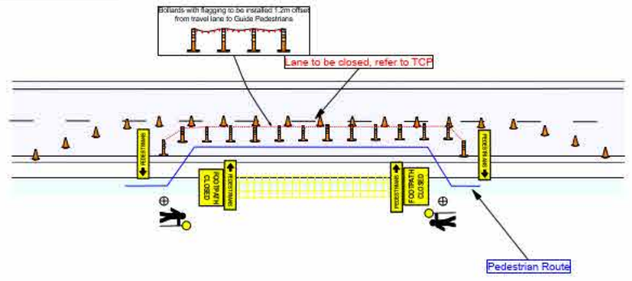
Option 2: Divert Pedestrians onto the adjacent footpath

- THIS IS NOT A TRAFFIC CONTROL PLAN this is a Pedestrian Management plan only, refer to a Traffic Control Plan for setup on roadway.
- Traffic Controllers to Stop traffic in accordance with an approved Traffic Control Plan when pedestrians cross the road.
- Traffic Controllers to guide pedestrians.
- Pedestrian diversion area MUST be clear, level, easily traversable for all pedestrians and free from any hazards



Option 3: Divert Pedestrians around the worksite using the roadway

- THIS IS NOT A TRAFFIC CONTROL PLAN this is a Pedestrian Management plan only, refer to a Traffic Control Plan for setup on roadway.
- Bollards and flagging to be used to guide Pedestrians, Bollards and flagging to be offset Minimum of 1.5m from the travel lane.
- Traffic speed to be reduced to 40km/h
- Traffic Controllers to guide pedestrians around the worksite
- Pedestrians diversion area MUST be clear, level, easily traversable for all pedestrians and free from any hazards
- Traffic Lane or Shoulder to be closed in accordance with an approved Traffic Control Plan.



IMPORTANT:

1. For Shared Paths - minimum 3m width must be maintained.
2. For Footpaths - minimum 1.5m width must be maintained.
3. If the existing width of a Shared Path or Footpath is less then 3m or 1.5m respectively, the existing width must be maintained.
4. When the above is not possible, changes to Paths must be detailed on the TGS.

PROJECT: SYDNEY METRO WEST - CENTRAL TUNNEL PACKAGE

LEGEND

Workzone | Traffic Controller | Traffic Cones | Pedestrian Route | Sign (2 posts) | Signalised intersection | Arrow-board location

afJV

Date: 01/08/2024 **Location:** Great North Rd, Five Dock **Author name:** [redacted]

Comments:

- THIS IS A SHORT TERM TGS, NOT TO SCALE
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TGS Number: AFJVCTP-TGS-0815 REV 01

Traffic Guidance Scheme - Options & Risk Assessment

afJV

Location Details

Road Great North Rd Suburb Five Dock Side Street Second Ave

Direction (N) E (S) (W) Speed of road 40 km/h Speed of Side Streets 40 km/h

Options Assessment

Method selected Around (Past) Through

Reason for selection **Traffic and Pedesrtains can pass while maintaining sufficient worker/traffic offset.**

Risk Assessment

Section 1 - Does the TGS Involve Detours of traffic? YES (NO) (If answered no proceed to section 2)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
1.1 Are detour routes suitable for all vehicle classes being detoured?	☐	☐		
1.2 Is access to local residence and business maintained	☐	☐		
1.3 Are detour signs located at decision points, to clearly guide motorists through the detour?	☐	☐		
1.4 Can roads and intersections used as detour routes, accommodate the additional traffic volumes?	☐	☐		
1.5 Is the same level of safety maintained for turn movements? e.g. Traffic using signalized intersections being sent through a detour route that involves turn movements at non-signalized intersections.	☐	☐		

Section 2 - Does the TGS involve Stop/Slow arrangements? (YES) NO (If answered no proceed to section 3)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
2.1 Are escape routes clearly defined on the TGS, clear and safe to use?	X	☐		
2.2 Is a PTCD used in place of a manual Traffic Controller where existing speed is greater then 45km/h?	☐	☐	*Risk of TC being struck by vehicle (see notes below for further details	M
2.3 Is the operating speed of the road 60km/h or less where Traffic Control or PTCD are in use?	X	☐		
2.4 Are x4 traffic cones placed on the edge or center line, approaching the traffic controller or PTCD?	X	☐		
2.5 Is prepare to stop and Traffic Control or PTCD symbolic signs installed?	X	☐		
2.6 Do Traffic Control and PTCD positions have adequate lighting during low light conditions	X	☐		
2.7 Does sight distance of at least 1.5D exist on approach to Traffic Control or PTCD	X	☐		

Section 3 - General	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
3.1 Does the TGS define minimum clearances required of workers to live traffic, are distances compliant?	X	☐		
3.2 Are worker symbolic signs to be placed in advance of areas where workers will be visible to traffic?	X	☐		
3.3 Are all signs placed at correct distances? i.e. D for multiple signs, 2D for single sign above 60km/h	☐	X	Risk of vehicle driving past stop point and driving into reversing truck	M
3.4 Are taper lengths compliant and not placed in areas with poor sight distance?	☐	☐	NA	
3.5 Are lane status signs placed in advance of a lane merge?	☐	☐	NA	
3.6 Are the correct tapers being used? i.e. merge taper, traffic control taper, lateral shift taper.	☐	☐	NA	
3.7 Does the TGS clearly define transition zones between tapers on multilane roads, are they compliant?	☐	☐	NA	
3.8 Does the TGS clearly define Buffer areas, are they compliant and at least 30m in length?	☐	X	Risk of vehicle driving through workzone	M
3.9 Does the TGS clearly define site access and egress for work vehicles, is impact to traffic, managed?	X	☐		
3.10 Does the TGS clearly define pedestrian routes, are the routes suitable for all pedestrians?	X	☐		
3.11 Does the TGS consider Cyclists, can Cyclists transverse the site safely?	X	☐		

Section 4 - Do the works involve excavations YES (NO) (If answered no proceed to section 5)

	YES	NO	Enter description of risks if answered no to any question	Enter Risk Rating
4.1 Are excavations to be less then 200mm in depth?	☐	☐		
4.2 Are excavations to be less then 500mm in depth?	☐	☐	*	

Section 5 - Other Hazards & Risks			
	5.1		
	5.2		
	5.3		
	5.4		

Risk Management

Any Risks Identified identified during the above Risk Assessment must be assessed, with control measures listed below. Control measures must meet the WHS Risk Management Hierarchy of controls framework.

Item	Control Measures	Remaining Risk Rating
2.2	Reduced speed to 40km/h (long term TGS), additional 40 repeater signs, TC not to stand in travel path when stopping traffic, traffic hats to be installed on approach to stop point.	L
3.3 & 3.8	Reduced speed to 40km/h (long term TGS). Additional delineation leading up to PTCD and/or TC for additional advanced warning. Road configuration should also naturally slow traffic. Traffic Control must always have an escape route and not stand in the travel path of public traffic.	L

Risk evaluation Matrix

Risk ratings: Very high - VH; High - H; Medium - M; Low - L

Likelihood		Consequence: Insignificant C6	Minor C5	Moderate C4	Major C3	Severe C2	Catastrophic C1
Almost certain	L1	M	H	H	VH	VH	VH
Very likely	L2	M	M	H	H	VH	VH
Likely	L3	L	M	M	H	H	VH
Unlikely	L4	L	L	M	M	H	H
Very unlikely	L5	L	L	L	M	M	H
Almost unprecedented	L6	L	L	L	L	M	M

Refer to TCAWS Table 3-4 for descriptions of Likelihood and Consequence measures

TGS Designer: Name [redacted]

TGS Approved by: Name

One up Manager: Name