CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Sydney Metro West – Western Tunnelling Package

Clyde/ Rosehill Site Operations Stage 1

October 2022 to December 2025

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Revision History

Rev	Date	Comments
A	20 June 2022	Initial submission
B	7 July 2022	Revised based on comments received
C	12 October 2022	Updated to include changes on the road system
D	31 October 2022	Updated Appendix B & H Updated Figure 3-15
E	6 March 2023	Added 3.2.3 – Tunnel Boring Machine Transportation and associated works Updated Section 4 - To include Grand Ave as part of the Haulage route due to height restrictions on Wentworth St. Updated section 7.4 – Onsite contacts
F	15 April 2024	Updated Figure 2-1 Updated Table 3-1 Added 3.2.3.1.1.1 Added 3.2.9 Updated Figures 3-30 – 3-32 Updated 3.5 & 3.5.1 Updated 4.3.1 Updated 4.4 Updated 7.3

		Added Appendix J – Approved Work Zones
G	13 May 2024	Temporary Parking removal (3.2.11)

Document Authorisation

Action Type	Position	Name	Signature	Date Signed
Prepared by	Logistics Manager			13 May 2024
Reviewed by	Construction Manager			13 May 2024
I hereby confirm this activity and all associated work, have been appropriately planned and the relevant resources are available to conduct the work in accordance with the agreed method. I hereby approve this activity to commence, as the stated controls applications are the most appropriate and are in accordance with the Risk Matrix.				
Approved by	Project Director			13 May 2024

NOTES: *Once <u>all</u> signatures have been obtained, the Document Author is responsible for ensuring the signed and approved hard and soft copies are uploaded on to the project share drive or passed to the Responsible Person for filing.*

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1 INTRODUCTION

1.1 Project Description

Sydney Metro is Australia's biggest public transport project, with the vision "to transform Sydney with a world-class metro." In 2024, Sydney will have 31 metro stations and more than 66 kilometres of new metro rail, revolutionising the way Australia's biggest city travels. By the end of the decade, the network will be expanded to include 46 stations and more than 113 kilometres of world-class metro for Sydney.

Sydney Metro West is a new 24-kilometre metro line with stations confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street in the Sydney CBD.

On completion in 2030, the Sydney Metro West project will support a growing city and deliver world-class metro services to more communities. This new underground railway will connect Greater Parramatta and the Sydney CBD.

This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between the two CBDs, linking new communities to rail services, and supporting employment growth and housing supply. The Sydney Metro West project is expected to create about 10,000 direct and 70,000 indirect jobs during construction.

The new 24-kilometre Sydney Metro West tunnel and excavation works for nine new stations will be delivered in three contracts—the Western Tunnelling Package (WTP), the Central Tunnelling Package (CTP) and the Eastern Tunnelling Package (ETP).

The Gamuda Australia and Laing O'Rourke Consortium (GLC) will deliver the Sydney Metro West (SMW) Western Tunnelling Package (WTP), which includes:

- Westmead Station box excavation, including temporary support, stub tunnels, partially mined station cavern and crossover cavern including permanent lining and support
- Parramatta Station, including excavation of station box and associated support
- Clyde Maintenance and Stabling Facility (MSF), including permanent dive structure, portal, spur running tunnels, spur tunnel junction cavern, bulk earthworks, civil structures, utilities corridor, road crossing and creek diversion
- Rosehill Services Facility, including shaft excavation, permanent lining and lateral support
- A precast segment manufacturing facility at Eastern Creek
- Demolition and site clearance works
- Tunnelling between Sydney Olympic Park (SOP) and Westmead. Tunnelling will be undertaken by placing the tunnel boring machines (TBMs) at the Rosehill Services Facility box and retrieved out at the SOP Station Box and then placed back at the Rosehill Services Facility and retrieved at the Westmead Station Box. No surface works are proposed at SOP except for the retrieval of the TBM.

1.2 Purpose

This Clyde/ Rosehill site specific Construction Traffic Management Plan (CTMP or this Plan) has been developed by Gamuda Laing O'Rourke (GLC) to identify the traffic management measures at the Clyde/ Rosehill worksite for site operations Stage 1 associated with the Sydney Metro West Western Tunnelling Package (WTP Works). Further Plans will be developed for the various phase of works as noted below:

- Clyde/ Rosehill Site Establishment – Approved
- Clyde/ Rosehill Utility Works - depending on the outcomes of the investigation works detailed in this CTMP
- Clyde/ Rosehill Site Operations – change to parking and speed reduction
- **Site Operations, TBM transportation and associated works – THIS PLAN**

This plan sets out the traffic management initiatives that will be deployed to minimise disruption and ensure the safety of the wide range of stakeholders potentially affected by the WTP works including but not limited to motorists, pedestrians, cyclists, public transport users, local residents, property owners, business owners and workers/ staff.

This plan has been prepared in accordance with SSI 10038 Planning Approval Condition D85 and will be submitted to the Planning Secretary of the NSW Department of Planning and Environment for information prior to the commencement of any construction in the area identified and managed within this CTMP

1.3 Objectives

GLC are committed to striving to achieve the objectives as outlined in the CTMF and the environmental performance outcomes, namely:

a) Minimising disruption and maintaining safety for all road users including pedestrian, cyclists, motorists and public transport users and providers
b) Ensuring construction traffic access the arterial network as soon as practicable on route to and immediately after leaving the construction site
c) Minimising change to traffic operations and kerbside access
d) Minimising construction traffic generation during network peak periods, as outlined in the EIS
e) Maintaining access to properties, businesses, and utility providers/ maintainers
f) Remain incident and injury free to workers and members of the public
g) Working collaboratively with other stakeholders and other major projects to mitigate traffic and transport impacts

2 LOCALITY AND EXISTING CONDITIONS

The site is located in an industrial area of western Sydney and is bounded by Duck Creek to the south, Unwin Street to the north, the Carlingford corridor to the west and Shirley Street/ Tennyson Street to the east as shown on **Error! Reference source not found.**.

Figure 2-1: Site locality

The Clyde/ Rosehill site is located within the nominated construction zone, highlighted below and is situated in a highly industrialised area which is predominantly zoned for industrial uses, refer to Figure 2-2.

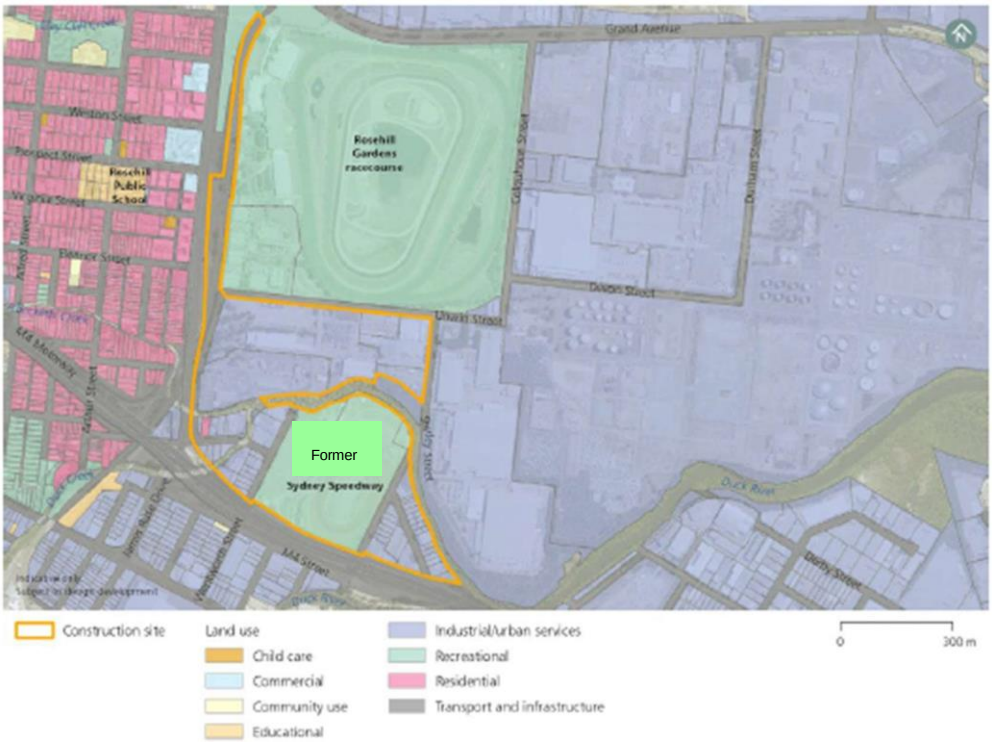


Figure 2-2: Existing land use zoning

A review of the existing sensitive receivers and their locations was undertaken by Sydney Metro West during the EIS development phase. The results of this review is shown below on Figure *2-3*. A land use survey is included as part of the detailed Noise and Vibration Impact Statement (SMWSTWTP-GLO-1NL-NL000-NV-PLN-000002). This is currently in draft and is being informed by construction from the EPA and other stakeholders. Throughout the construction period this detailed Noise and Vibration Impact Statement will be an evolving document.

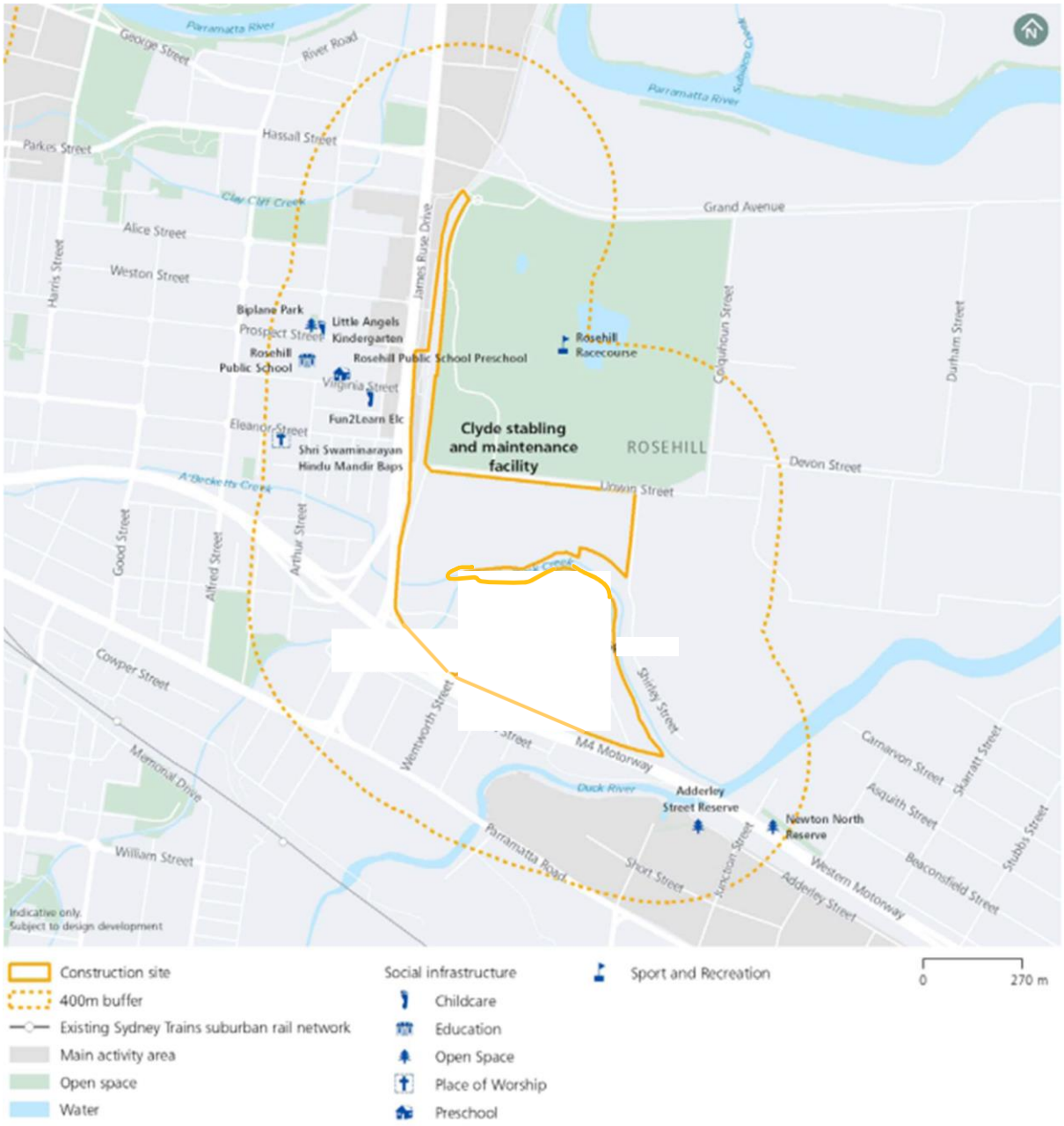


Figure 2-3: Existing sensitive receivers

Surrounding the site, the road network is typically local roads, with Parramatta Road, James Ruse Drive and Church Street being state arterial roads. The M4 Motorway is south of the site, refer to Figure 2-4. Refer to **Error! Reference source not found.** for actual site boundaries.

Figure 2-4: TfNSW Road Network Classification

Surrounding the site, the road network is typically recognised as Performance Based Standard routes allowing the use of greater mass vehicles, refer to Figure 2-5. The use of PBS vehicles will reduce the number of vehicles required for the spoil haulage task in particular. This will be notable post the TBM launch.

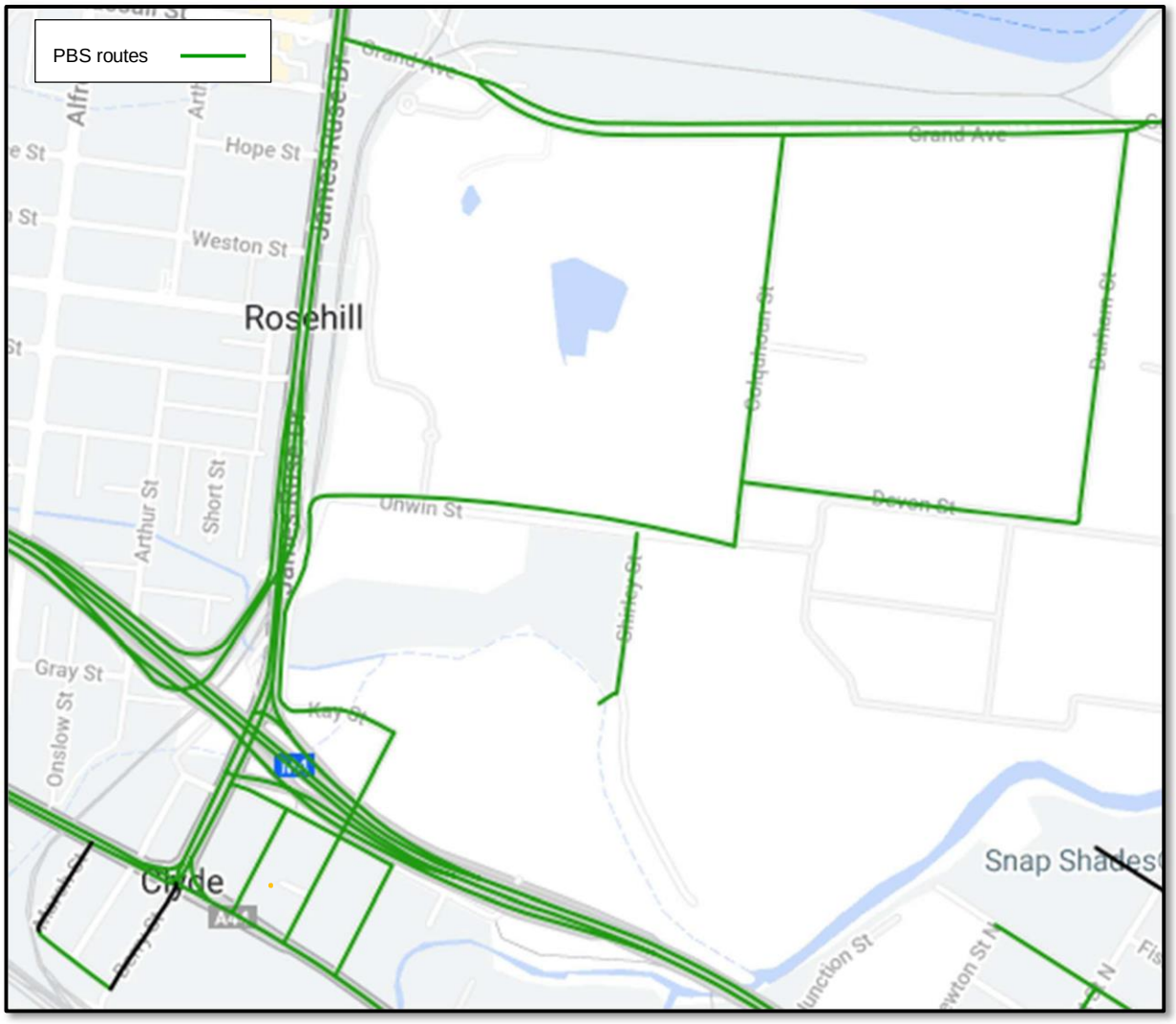


Figure 2-5: TfNSW recognised PBS routes

2.1 Wentworth Street

Wentworth Street is a local road under the care and control of the City of Parramatta Council. It starts at Parramatta Road and ceases at Kay Street Clyde. Wentworth Street runs in a north south direction. The speed limit is 50km/hr. No public transport operates along Wentworth Street.

North of the M4 Motorway overpass, the street previously contained industrial uses on the western side, however, with the demolition works by Sydney Metro West, the western side of the street contains no premises. On the eastern side of the street, Sydney Speedway was previously located. The speedway site also forms part of the Sydney Metro west Clyde site. South of the M4 Motorway overpass, the street has industrial complexes on both sides of the street. North of Kay Street,

Wentworth Street has been acquired by Sydney Metro from the City of Parramatta Council and was closed to the public on 14th June 2022 and Sydney Metro West has an interface agreement with Parramatta City Council for the area of Wentworth Street from north of the M4 overpass. All other land required for the construction and operation of the Sydney Metro West Stage 1 has been acquired by Sydney Metro.

Traffic signals are located at the intersection of Wentworth Street and Parramatta Road. These signals allow for all movements. Signalised pedestrian crossings are provided across Wentworth Street and on the northern approach on Parramatta Road. A left turn arrow hold is provided for east to north movements providing protection for the Wentworth Street signalised crossing.

Parking is typically unrestricted along Wentworth Street with a small section of No Parking provided on the eastern side of Wentworth Street leading towards the signals on Parramatta Road.

Footpaths are provided on both sides of the street between the M4 Motorway overpass and Parramatta Road. North of the overpass, a footpath is only provided on the western side.

A shared cycle path crosses Wentworth Street at the intersection with Martha Street. No dedicated crossing facilities are provided across Wentworth Street. This shared path is known as the M4 Motorway shared path, connecting South Wentworthville to Sydney Olympic Park, refer to Figure *2-6*.

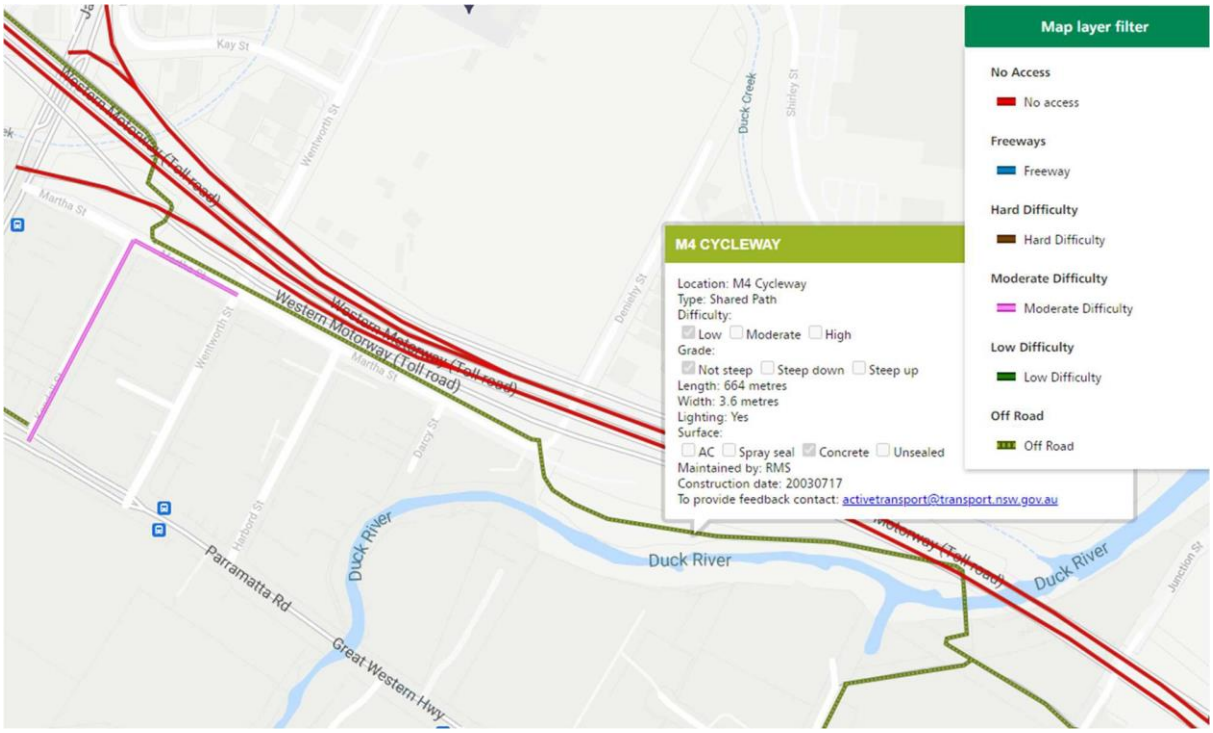


Figure 2-6: TfNSW Cycleway Finder

2.2 Kay Street

Kay Street was previously a local road under the care and control of the City of Parramatta Council. It starts at Wentworth Street and ceases at Unwin Street. Kay Street runs in an east west direction. The speed limit is 50km/hr. The street previously contained industrial premises which have been demolished as part of the Sydney Metro Enabling Works. There is no public transport operating along Kay Street. Parking is typically unrestricted. Footpaths are provided on both sides of the street. A bridge over Duck Creek is located on Kay Street. It is noted that Sydney Metro West has an interface agreement with Parramatta City Council for the area of Kay Street for the Western Tunnelling Package of works.

2.3 Unwin Street

Unwin Street, in sections, is a local road under the care and control of the City of Parramatta council. It starts at Kay Street and ceases at Colquhoun Street. Unwin Street runs in a north south direction between Kay Street and Unwin Street and east west direction between Unwin Street and Colquhoun Street. The existing speed limit is 50km/hr. No public transport operates along Unwin Street. Parking is restricted on the western side of Unwin Street between Kay Street and Unwin Street between the hours of 630AM-430PM Monday to Friday. There is a small section of 30 minute parking on the southern side of Unwin Street opposite the Rosehill Gardens entry to the stables. Outside of these two locations, parking is generally unrestricted.

Unwin Street between Kay Street and Unwin Street on the eastern side of the street, previously contained industrial premises which have been demolished by the Sydney Metro Enabling Works contractor. On the western side of this section of Unwin Street, the former Carlingford corridor. This rail line was closed in January 2020.

Fleet Street is located off Unwin Street. Fleet Street contains a TfNSW depot and provides a footpath connection to James Ruse Drive.

Unwin Street between Unwin Street and Shirley Street on the southern side of the street, also previously contained industrial premises which have largely been demolished other than the RTA heritage wall. The northern boundary of Unwin Street is bordered by Rosehill Gardens Racecourse.

Unwin Street has footpaths on the eastern side between Kay Street and Unwin Street and a small section of footpath exists on the southern side for approximately 160m east of Unwin Street. No other footpaths are provided, until east of Shirley Street.

A bridge over A'Becketts Creek is located on Unwin Street. It is noted that Sydney Metro West has an interface agreement with Parramatta City Council for the area of Unwin Street from Gate 1 (refer to figure 3.1) to Kay St in both directions.

Speed management devices are located along the east-west section of Unwin Street, as noted on Figure 2-7.

Figure 2-7: Speed management device on Unwin Street

2.4 Shirley Street

Shirley Street is a local road under the care and control of the City of Parramatta Council. It starts at Unwin Street and ceases at Duck River. Shirley Street generally runs in a north south direction. The speed limit is 50km/hr. the street previously contained industrial uses on the west side of the street north of Duck River, however, these were demolished as part of the Sydney Metro Enabling Works. Bulky good premises are located on the eastern side of the street. No public transport operates along Shirley Street. Parking is generally unrestricted; however, No Stopping is installed south of the Hytec gate, approximately 65m south of the Unwin Street kerb on the western side.

It is noted, however, that parking between the power poles occurs, refer to Figure *2-8*.

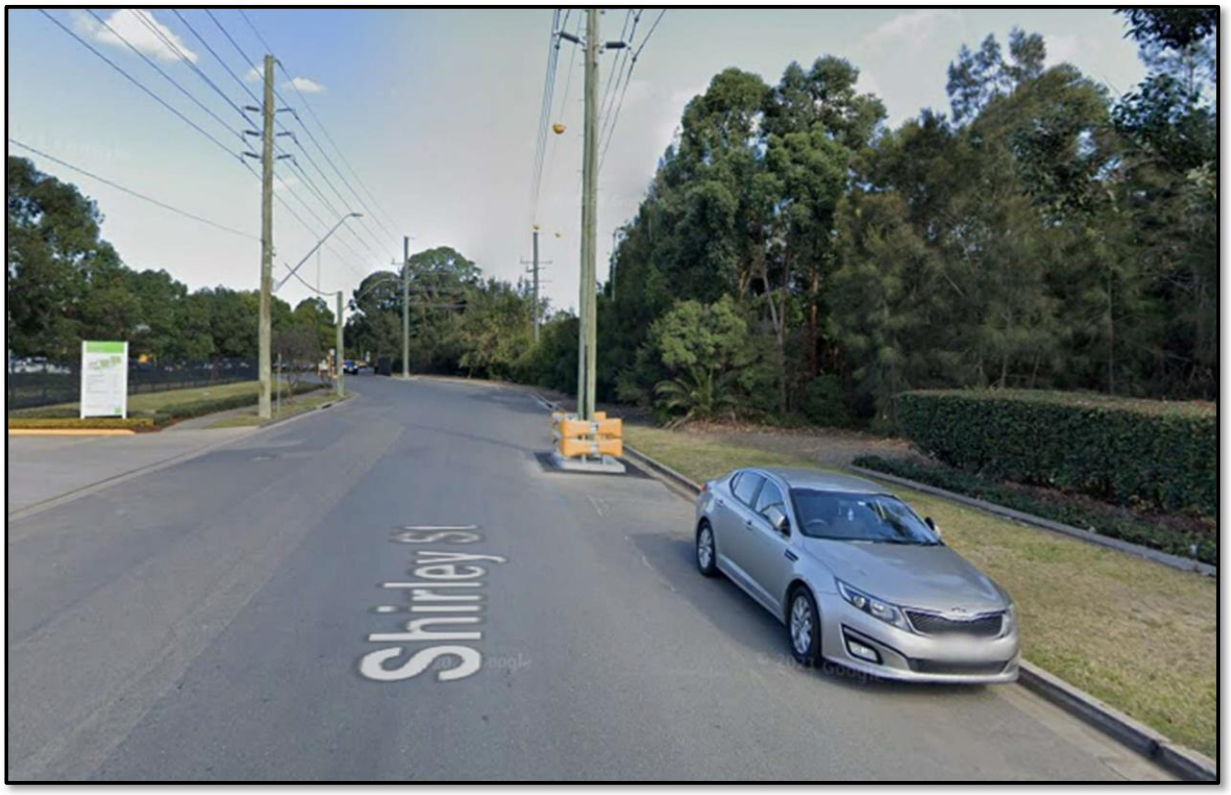


Figure 2-8: Parking on Shirley Street

2.5 Martha Street

Martha Street is a local road under the care and control of the City of Parramatta Council. It starts at James Ruse Drive and ends at Deniehy Street. Martha Street runs east to west and has a speed limit of 50km/hr. the street has industrial uses on the southern side and the M4 Motorway on the northern side. Parking is unrestricted along both sides of Martha Street. The M4 Motorway shared path is located on the northern side of Martha Street and a footpath is located on the southern side. At the eastern most end the shared path crosses across Martha Street to continue towards the east. There is no public transport along Martha Street.

2.6 Deniehy Street

Deniehy Street is a local road previously under the care and control of the City of Parramatta Council but this road is now under the Sydney Metro West ownership and was closed to the public on 14th June 2022. Footpaths typically exist only under the M4 Motorway overpass. No public transport operates along Deniehy Street. The buildings in this area will be demolished and the street will be incorporated into the construction site. However, at present the street is open to the public. Parking is unrestricted.

2.7 Tennyson Street

Tennyson Street is a local road previously under the care and control of the City of Parramatta Council but this road is now under the Sydney Metro West ownership and was closed to the public on 14th June 2022. Footpaths do not exist. No public transport operates along Deniehy Street. The buildings in this area will be demolished and the street will be incorporated into the construction site. However, at present the street is open to the public. Parking is unrestricted.

2.8 Colquhoun Street

Colquhoun Street is a local road under the care and control of the City of Parramatta Council. It starts at Grand Ave and ends at Unwin St. Colquhoun Street runs north to south and has a speed limit of 50km/hr. the street has industrial uses on the eastern side, including the Parramatta Light Rail stabling yard and the Rosehill racecourse on the western side. Parking is unrestricted along both sides of Colquhoun Street. There is no paved footpath although the grass verge on either side can be used by pedestrians. There is no public transport along Colquhoun Street.

Speed management devices are located along Colquhoun Street, as noted on Figure 2-9

Figure 2-9: Speed management device on Colquhoun Street

2.9 Grand Avenue

Grand Avenue is a local road under the care and control of the City of Parramatta Council. It starts at James Ruse Drive and ceases at the Parramatta River, Clyde. A small section of Grand Ave, east of Colquhoun St is under the control of the Parramatta Light Rail for access and egress to their stabling yard. Grand Ave runs in an east/west direction. The current speed limit is 50km/hr. The avenue contains a number of industrial uses on the northern side, the southern side includes Rosehill racecourse, Parramatta Light Rail stabling yard (under construction) and a number of industrial buildings.

Grand Avenue provides one of two main access/egress points into the Clyde area – the other being Wentworth Avenue. No public transport operates within the area or along Grand Avenue.

Traffic signals are located at the intersection of the James Ruse Drive, allowing all turn movements by providing a dedicated right turn bay on James Ruse Drive for northbound traffic. A shared straight and left turn lane for vehicles egressing from Grand Ave.

Signalised pedestrian crossings are provided across Grand Ave and James Ruse Drive. The Grand Ave crossing includes a red arrow hold, so that vehicles on James Ruse Drive waiting to turn left onto Grand Ave are held during the pedestrian phase of the traffic signals.

Parking is typically unrestricted along Grand Ave; however, parking is restricted over the Grand Ave Sydney Trains bridge, at the Parramatta Light Railroad crossing and approaching intersections.

Grand Ave has a paved footpath on the northern side from James Ruse Drive to the Parramatta Light Rail crossing. The remainder of the road has wide grassed verges that could be used by pedestrians. There is no pedestrian access over the Grand Ave bridge at James Ruse Drive on the southern side of the road, the northern side of the bridge has a pedestrian path.

3 SITE OPERATIONS

Indicative time: October through to December 2025

Indicative duration: 3 years & 4 months

The site operations works will consist of the following:

- Dive excavation
- D-wall construction
- General earthworks
- FRP works on the permanent structure at Rosehill
- Delivery and installation of precast struts
- Shaft piling
- Shaft excavation
- Acoustic shed installation
- Ancillary facilities construction such as:
    - Workshop
    - Water treatment plant
    - Compressors
    - Substation
- Utility works previously identified in the Site Establishment Construction Traffic Management Plan previously approved.

3.1 Working hours

The standard construction hours for the project are as noted in the Ministerial Conditions of Approval (MCoA D35) are:

a) 7AM to 6PM Monday to Friday
b) 8AM to 6PM Saturdays and
c) at no time on Sundays or public holidays

Ministerial Conditions if Approval D37 also allows for works to be 24hours per day, seven days per week for tunnelling, delivery of materials to directly support tunnelling activities, haulage of spoil and works within the acoustic shed, under Low Impact circumstances.

3.2 Operating Conditions

Vehicle access to and from the construction site will be managed to maintain pedestrian, cyclists and motorist safety. General traffic and higher mass vehicles access in the precinct will be maintained throughout the works. At the Clyde site, pedestrian management will be in place to facilitate heavy vehicle movements, where footpath exists.

Site access/ egress is proposed as per Table 3-1 and the locations are shown on Figure 3-1.

Table 3-1: Proposed site operations gates

Gate	Location	Vehicle type	Access	Egress	Permitted movements
Rosehill Site					
1	Unwin Street	Heavy	√	√	All
2	Unwin Street	Heavy	√	√	All
3	Unwin Street	Light	√	√	All
4	Shirley St	Heavy	√	√	Right in & left out
Clyde Dive Site					
CD01	James Ruse Drive – Prospect St extension	Light/ Heavy	√	√	Under traffic control only
CD02	Unwin Street	Light	√	√	No Left Turn for vehicle over 15.5m
MSF Site					
8	Unwin Street – LV Gate	Heavy	√	√	Left in & right out
		Light	√	√	All
9	Unwin Street	Heavy	√	√	Left in & right out
7	Kay Street (north)	Heavy	√	√	Left in & out
6	Kay Street (south)	Heavy	√	√	Left in & out
5	Wentworth Street – Used as exit only but can be used for exit	Heavy	√	√	Left in & right out

4	Kay Street (south)	Heavy	X	√	Exit left only
3	Wentworth Street (west)	Heavy	√	X	Entry left only
2	Deniehy Street	Heavy	√	X	Entry only
1	Wentworth Street (east)	Heavy	√	X	Right/ left turn in
LV	Wentworth Street (east)	Light	X	√	Right/ left turn out
NOTE: All gates can operate as access and egress if under traffic control					

Figure 3-1: Gate locations for site operations works - north

Figure 3-2: Gate locations for site operations works - south

The site will be accessed via existing driveways. The two primary site access gates along Unwin Street. Gate 1 is shown in Figure 3-3 and is located 300m to the west of Shirley Street. Gate 2 is shown in Figure 3-4 and is located 150m to the west of Shirley Street.

Access to the proposed site carpark is via an existing driveway to be nominated Gate 3 and located approximately 60m west of Shirley Street intersection. Gate 3 is shown in Figure 3-5.

Figure 3-3 – Site Access Proposed Gate 1

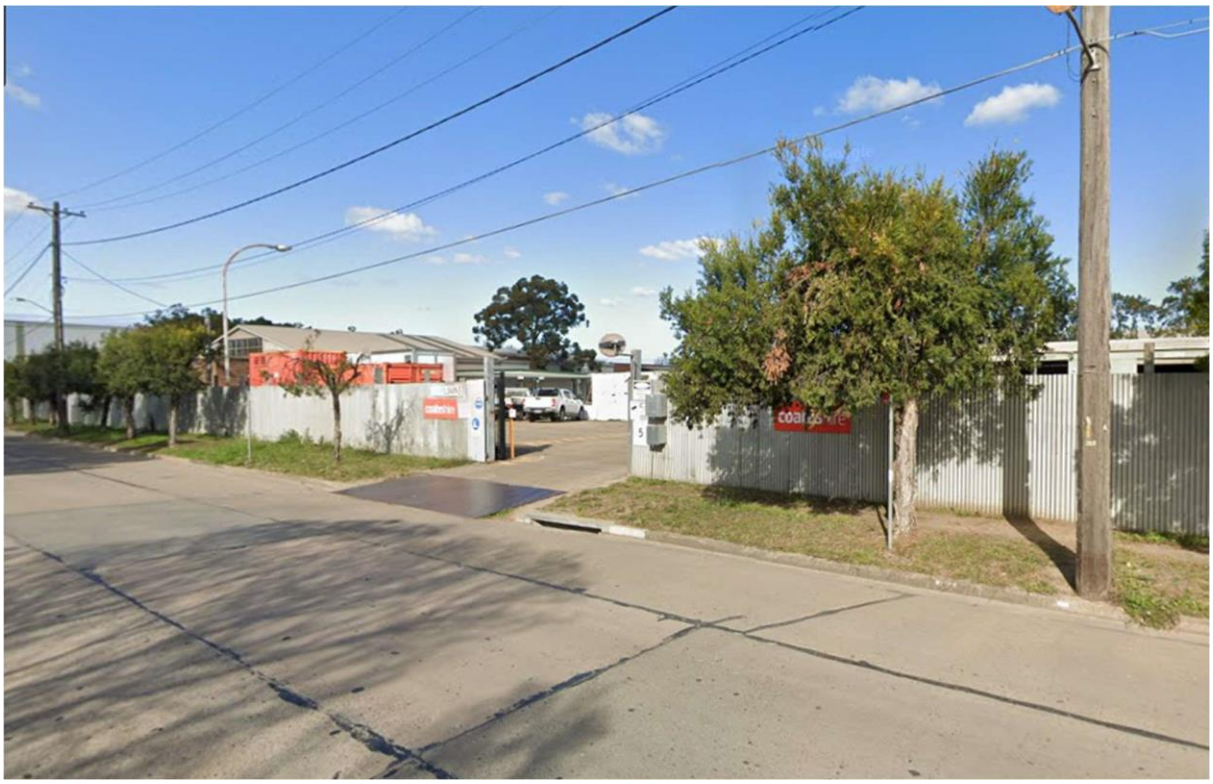


Figure 3-4 – Site Access Proposed Gate 2

Figure 3-5: Light vehicle access egress via Gate 3

The site will be accessed via existing driveways for gates 1-4. New driveways were installed for gates 5 and 6 on Unwin Street.

Light and heavy vehicle access into the Clyde dive site is proposed via the existing signalised intersection of Prospect Street/ James Ruse Drive, #4, refer to Figure 3-6. The light vehicle access will be limited to right in and left in/ left out only whilst the heavy vehicle access will be via the right turn bay. Egress will be via a left turn onto James Ruse Drive or via the existing driveways on Unwin Street.

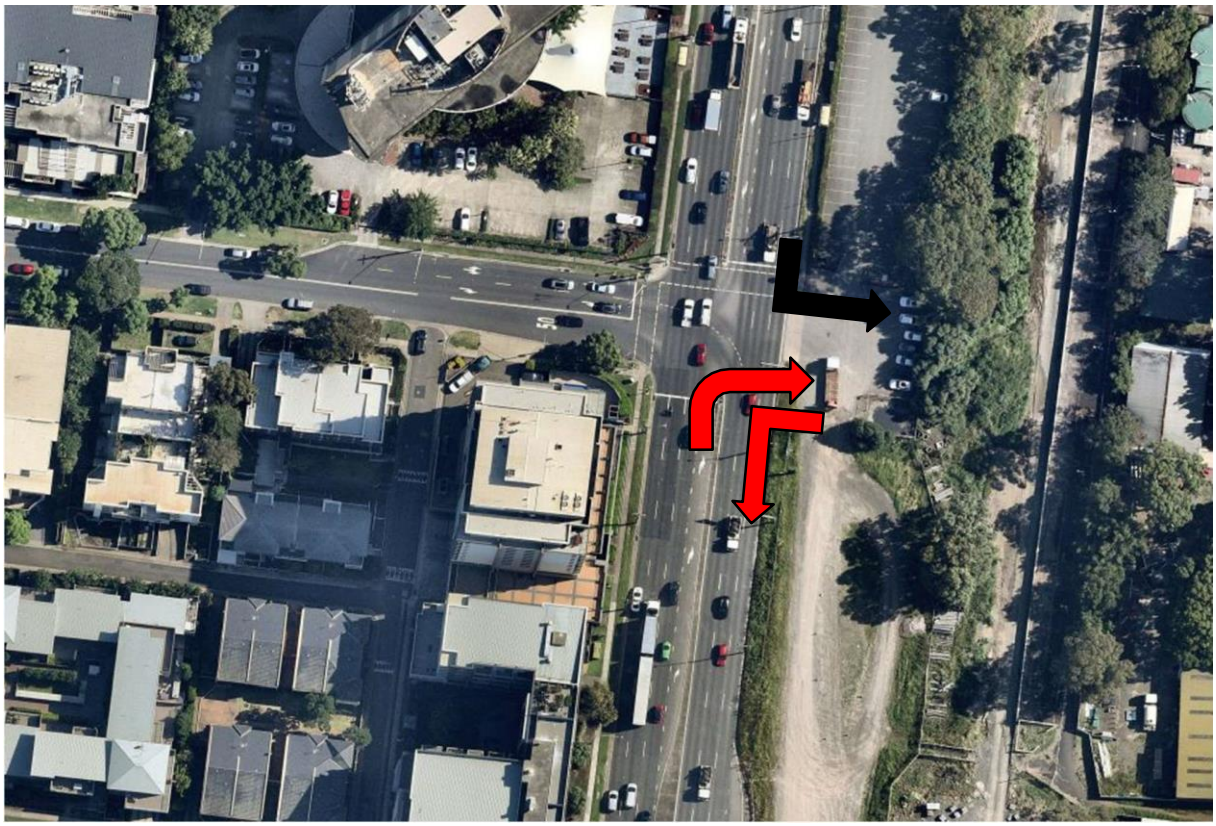


Figure 3-6: James Ruse Drive vehicle entry into site and exit from site

Access and egress will be via the newly constructed driveway on Unwin Street with left in/ left out movements only, refer to Figure 3-7.

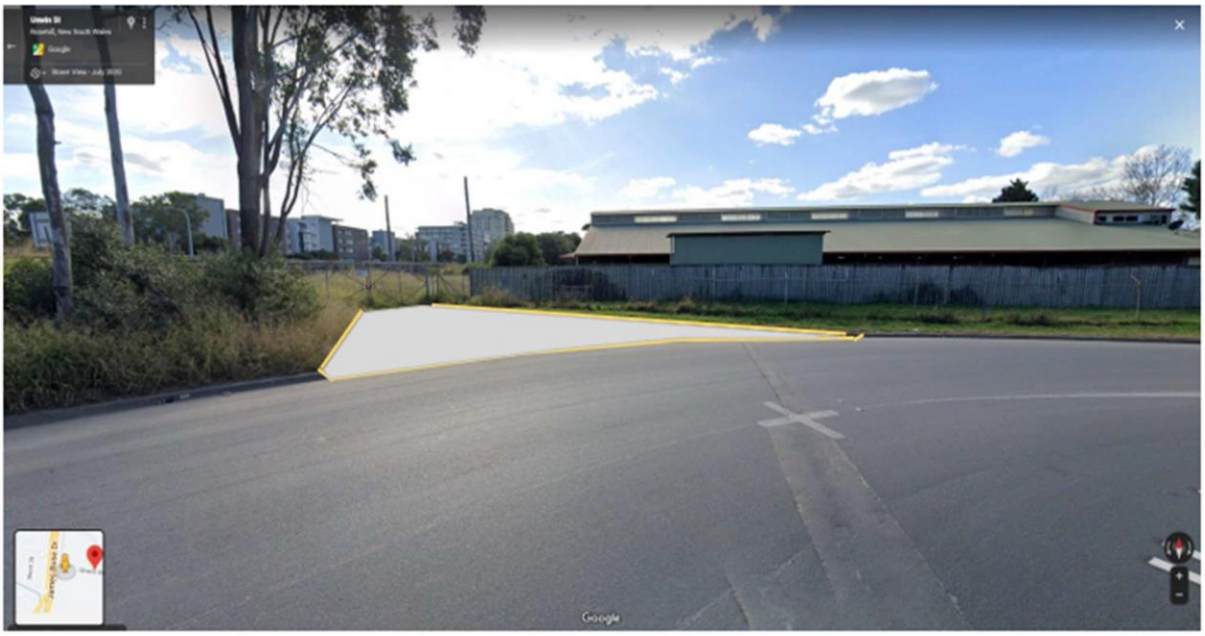


Figure 3-7: Unwin Street gate #5

Heavy vehicle access into the Clyde dive site is via the P5 entry off James Ruse Drive and egress is proposed via the existing egress point, gate#6, on Unwin Street, refer to Figure 3-8. Light vehicle egress is left out of P5. A new driveway was installed to provide a more suitable egress point. Vehicles will turn left out only and exit the area via Grand Ave.

Figure 3-8: Unwin Street heavy vehicle egress from the Rosehill site

Heavy vehicle access and egress will also be required on Kay Street. The existing driveways on Kay Street, as noted on Figure 3-9, Figure 3-10 and Figure 3-11.

Figure 3-9: Kay Street north gate

Figure 3-10: Kay Street south gate

Figure 3-11: Kay Street south gate

Similarly, gates are required on Wentworth Street, as noted on Figure 3-2. The gate for Wentworth Street north of Kay Street will use the current roadway, which has been subsumed into the site, refer to Figure 3-12

Figure 3-12: Wentworth Street north of Kay Street

The other gate location on Wentworth Street will use an existing driveway (former speedway site) as noted on Figure 3-13

Figure 3-13: Former speedway entry/ exit

The gate for Deniehy Street north of Martha Street will use the current roadway, which has been subsumed into the site, refer to Figure 3-14.

Figure 3-14: Deniehy Street area to be subsumed into site

3.2.1 Road Design

It is proposed to adjust the line marking on sections of Wentworth St, Kay St and Unwin St to assist with the management of gate access and egress and to reduce the risk of vehicles driving over the sign posted speed limit due to the wider lanes and no vehicles parking in the area.

Wentworth St will have a dedicated right turn lane northbound into the Maintenance Facility Site (MSF) main gate allowing for a dedicated straight through lane to prevent any queuing of traffic. A dedicated left turn lane into Kay St from Wentworth St northbound will be introduced to separate work vehicles entering site shown as Gate 10 in figure 3.2.

Kay St will have TfNSW approved temporary safety barriers implemented on both the eastbound and westbound carriageway to reduce lane widths to 3.5m to assist with vehicle speed management at the 40km/h roadwork limit. This will also assist with larger vehicles entering and exiting construction gates as the swept paths do require these vehicles to use the whole road from the centre line.

Unwin St will have a section south of the haul road reduced to two lanes with new line marking and TfNSW approved temporary safety barriers implemented. All vehicles exiting the haul road and Clyde site are to stop and give way to all vehicles on Unwin St. Refer to Appendix H for the Design Drawings

3.2.2 Haul Road

The spoil removed from the Clyde dive site will be hauled to the main Clyde site via a haul road that crosses Unwin Street between the two site gates. 40t dump trucks (Moxys) will be used to cart the material to reduce the number of trips required to move the spoil. These vehicles will be managed under traffic control when operational during the times of 7AM to 5PM daily, refer to Figure 3-15. .

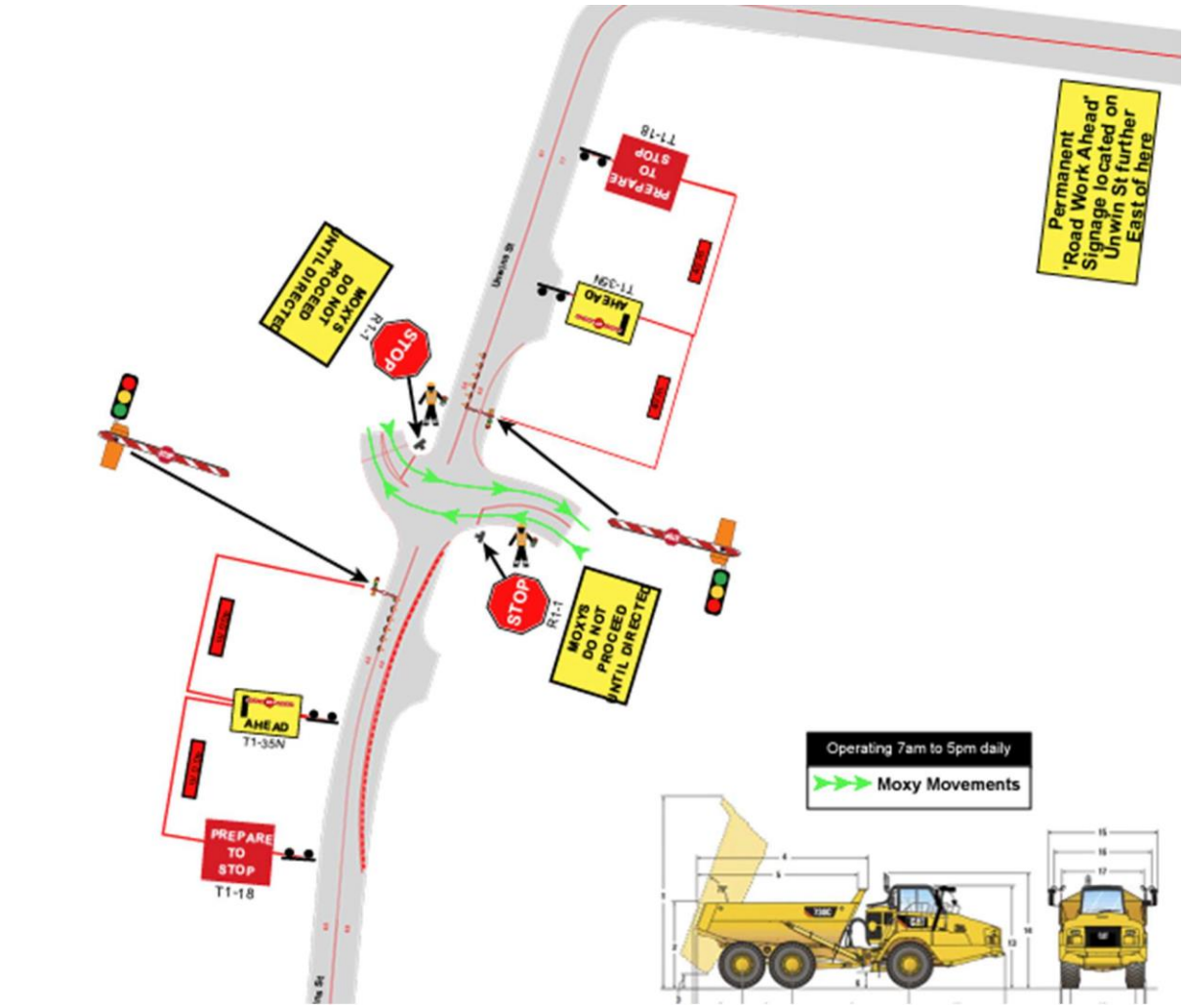


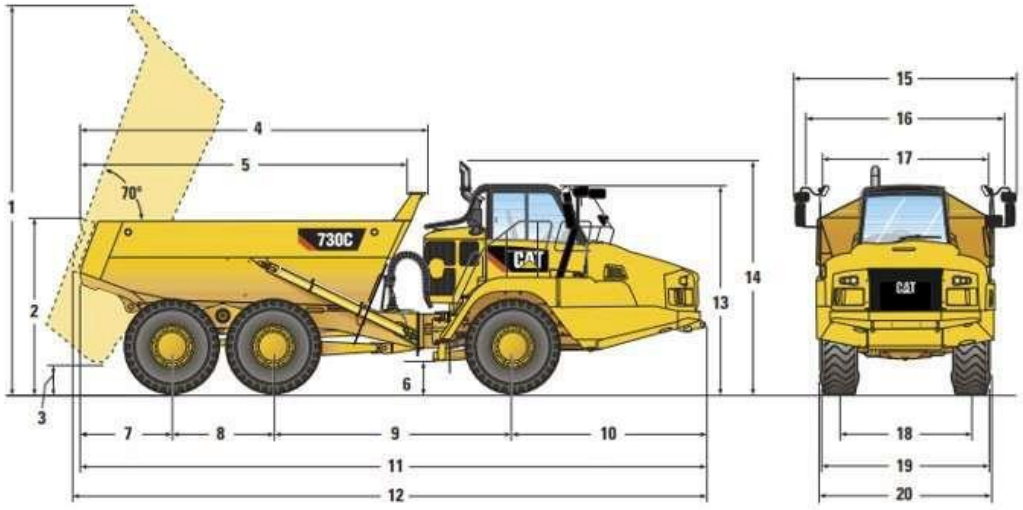
Figure 3-15: Haul road crossing on Unwin Street

3.2.2.1 Haul Road and Gate Upgrades

Unwin St at the haul road crossing will be upgraded to accommodate the gate entry and exit and the crossing of Moxys between gates. New kerbs and line marking will be implemented as per the new design drawings, refer to Appendix H Design Drawings for details. Gates have been aligned to ensure swept paths for larger vehicles are achievable. All vehicles exiting Clyde Dive and Clyde site are to come to a stop at the 'Stop' signs before entering Unwin St when safe to do so. The pavement on Unwin St at the location Moxy's will be trafficking east/west will be rebuilt to accommodate the constant 40t loads, the pavement design will use the existing subgrade if it is suitable and not import the 150mm of DGB but that will be determined on the day through compaction testing. There will likely be some repairs required at the edges where the concrete meets the asphalt but not a full repave. The top of 235mm concrete will match top of asphalt with the concrete to be a rough broom surface.

3.2.2.2 Dump Truck (Moxy) Vehicles

The Moxy is a large 40t dump truck that is shorter in length than a truck and dog and carries 2t more in material giving us the ability to clear the Unwins St road crossing in a shorter time frame and move more spoil in the process. Refer to Figure 3-16 for details on the Moxy specifications.



	mm	ft/in
1	6464	21'3"
2	2911	9'7"
3	559	1'10"
4	5783	19'0"
5*	5411	17'9"
6	543	1'9"
7	1556	5'1"
8	1700	5'7"
9	3979	13'1"
10	3210	10'6"

	mm	ft/in
11	10 445	34'3"
12**	10 555	34'8"
13	3482	11'5"
14	3779	12'5"
15	3704	12'2"
16**	3268	10'9"
17	2902	9'6"
18	2275	7'6"
19***	2877	9'5"
20****	2950	9'8"

Figure 3-16: Moxy Vehicle Specification

3.2.2.3 Dump Truck (Moxy) Unwins St Management

The Moxy's will be operational daily between the hours of 7am and 5pm. During peak periods there will be 150 movements per day across the 10 hours period equalling 15 movements per hour. A Traffic Guidance Scheme will be implemented daily between these times to manage the vehicles crossing Unwins St. It is expected that 2 or more Moxy's will cross Unwins St under boom gate operation in both directions at the one-time equating to a 30 second stoppage on Unwins St every 7.5 minutes. Signage and signals with boom gates will be installed in permanent location as per the TGS plan but will be covered when not in use. General traffic entering and exiting the site will do so under normal traffic conditions without boom gate operation. The Security Traffic Controller on the gates will manage the boom gate operation for Moxy's as follows:

1. Moxy driver is to stop at the stop signs exiting the site
2. Moxy driver is to call up on UHF radio when at the stop signs to request boom gate activation
3. Traffic Controller to check if it is safe to operate the signals/boom

4. Traffic Controller to announce over the UHF radio 'boom gates have been activated, proceed once you have visually checked it is clear to do so'
5. Any vehicles turning right out of site are to 'Give Way' to the Moxy's
6. Moxy drivers are to call clear on the UHF radio once through the intersection
7. Traffic Controllers to check all vehicles are clear of Unwins St
8. Traffic Controller to call on the UHF radio signal/boom deactivated when intersection is back to normal operation
9. If there is an issue with the signal/boom gate operation all Moxy movements must cease until the signal/boom issue is rectified by the traffic controller. All other vehicles can continue to use the gates under normal traffic conditions.

3.2.3 Tunnel Boring Machine (TBM) Delivery Overview

GLC requires two Tunnel Boring Machines to be delivered to the Rosehill site to undertake tunnelling works for the Western Tunnelling Package. The delivery is forecasted to commence as of April 2023 through until end of May 2023. The TMB's will be delivered to the Port of Newcastle to be transported under over size over mass permits to the Rosehill site. An assessment of the proposed route has been carried out to determine any prior works that need to be completed before the commencement of the deliveries. Two traffic islands will need to be temporarily modified to be removable and parking restrictions to be in place for some of the wider loads. Refer to section 3.2.3.1 & 3.2.3.1.2 for additional details.

Each TBM consists of 28 individual components delivered in a specific sequence, with the initial phase being the delivery, construction and launching from the Rosehill Site towards Sydney Olympic Park. Whilst the first TBM is being constructed, the second will be simultaneously delivered and is expected to start its mining program approximately four weeks behind the first TBM. Assuming the mining program remains on time, the first TBM is expected to breakthrough at Sydney Olympic Park in March 2024 followed by the second TBM approximately four weeks behind. The TBM's will then be deconstructed into the same size components as per original delivery and transported back to Rosehill to be rebuilt and relaunched towards Westmead.

The TBM's will be delivered in sections with the largest component being the two gripper shields at 6.99m Wide, 4.33m in Height and 130 tonne.

3.2.3.1 TBM Route Works and Maintenance

3.2.3.1.1 Traffic Island Temporary Modifications and Maintenance

Two centre traffic islands on the route need to be removed and temporarily reinstated with removable kerb delineation. The centre islands are located on Colquhoun St and Unwin St in Rosehill, refer to Figure 3-17 & Figure 3-18 A number of alternatives were looked at prior to coming to conclusion that the islands would need to be removed, including ramping and filling of the islands although it was not deemed suitable by the haulage company. An assessment of the islands has been completed and confirmed they are placed on top of the road pavement. GLC propose to remove the concrete islands and any reo protruding out of the pavement to road level. We will install temporary kerb delineation similar to Figure 3-19 and removable signage. The temporary island arrangements will be in place until the second TBM has been removed from the Sydney Olympic site and transported by road back to the Rosehill site to be placed back into the hole to continue tunnelling to Westmead. The traffic islands will be reinstated under temporary ROL and Council permits to their original designs. Refer to Appendix H for the design.

Whilst the temporary island installation is in place GLC will carry out a weekly inspection of the islands to ensure they remain in place as per the designs. These inspections will be detailed on

the GLC weekly inspection checklists. Spare paddles and kerb delineation will be kept onsite to ensure repairs can be made as soon as possible.

Figure 3-17: Colquhoun St traffic island

Figure 3-18: Unwin St traffic island

Figure 3-19: Temporary kerb delineation

3.2.3.1.1.1 Reinstatement of Permanent Traffic Islands

Once the Tunnel boring Machine has been delivered from Sydney Olympic Park back to Rosehill in end of 2024, we will commence the works to reinstate the traffic island on Colquhoun St and Unwin St. Works will be carried under a shuttle flow arrangement with TfNSW Road Occupancy Licences and Parramatta City Council permits. The islands will be installed as per the approved designs by Parramatta Council. Once the works are completed, a field Road Safety Audit will be completed on the islands and supplied to the relevant stakeholders and Parramatta City Council.

3.2.3.1.2 Ampol High Pressure Pipeline Protection

On Grand Ave an Ampol high-pressure oil line runs from the northern side of the Grand Ave Bridge, across the eastbound traffic lane and down the middle of Grand Ave. The TBM deliveries must cross the pipe at 2 locations, once just east of the Grand Ave Bridge and again when turning right from Grand Ave into Colquhoun St. GLC have approval from Ampol to cross the pipeline with the following conditions:

- Crossing of the Ampol pipeline at alternative locations are not permitted at this stage.
- All data received from machinery axle weights were re-calculated for both crossing zones.
- Road steel plate (standard wall thickness dimension) is requested at each site crossing nominated as mandatory for these equipment's listed
- The Ampol procedures requested that the crossing shall be at right angles to the pipeline alignment. Vehicle crossings shall be limited as 10-15km/h to dedicated pipeline crossing locations, which must be clearly sign posted.
- No other additional road modifications work is required at this stage.
- Vibration monitoring is not requested at these crossing zones.
- All works within 20 metres of the Ampol pipeline are to be supervised by an authorised Ampol representative.
- If the scope of works changes in any way from what we have detailed, this approval will be retracted, and changes of works scope/methodology will need to be resubmitted for Ampol approval review.

Road plates will be installed a week prior to the first TBM delivery and remain in place for until all TBM components have reached the Rosehill Site. Plates would be removed, and the road will return to normal. We will repeat this process again when we need to move the TBM back into Rosehill site from Sydney Olympic Park. The relevant ROL and Council permits will be obtained for these works.

To warn motorist of the road plates fixed signage will be used at the site near the Grand Ave bridge due to the lack of locations for portable VMS, see Figure 3-23: Warning signage on eastbound approach. At Colquhoun St on Grand Ave portable VMS will be installed to notify motorist on all approaches to the plates, see Appendix I Portable Variable Message Signs

Figure 3-20: Ampol Pipeline Crossing Overview

Figure 3-21: Ampol Pipeline Crossing Near Grand Ave Bridge

Figure 3-22: Ampol Pipeline Crossing at Colquhoun St

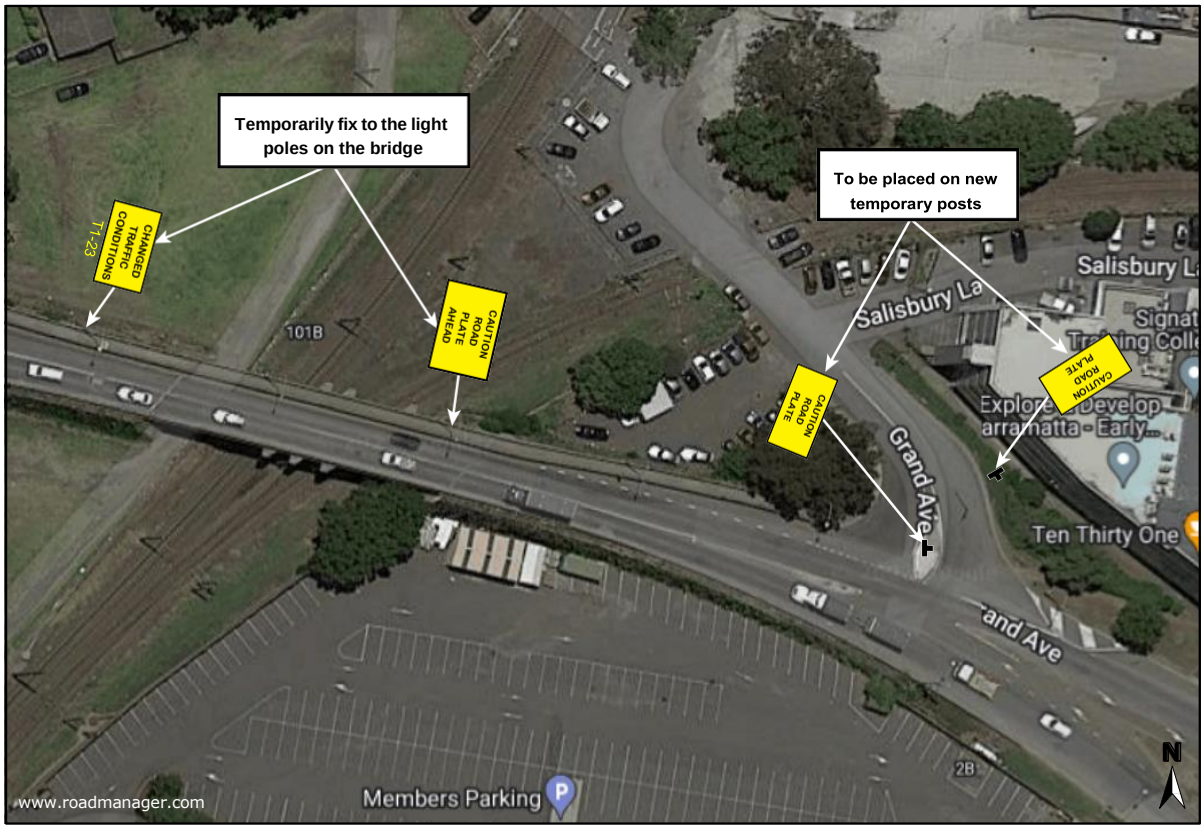


Figure 3-23: Warning signage on eastbound approach

3.2.3.2 TBM Delivery Route

56 TBM components will be shipped to the Port of Newcastle for transportation to the Rosehill site and then onto Westmead at a later stage. There are 3 different routes to site that have been assessed. Route 1 is for the widest and heaviest loads, route 2 is used for wide but not heavy loads and route 3 is the standard route for loads up to the size of the gantries. All movements will occur at night under approved OSOM permits and when required, ROL and Council permits.

1. Route 1 – 8 loads

COMPONENTS: Cutterheads, Front Shields, Main Drives and Gripper shields

MAP LINK: https://goo.gl/maps/XsEsoiDWF4qcQ9hk8

VIA: Selwyn Street, George Street, Industrial Drive, Maitland Road, (U-Turn Maitland Road at Sandgate), Maitland Road, Newcastle Inner City Bypass, Newcastle Road, Thomas Street, Newcastle Link Road, M1, Pennant Hills Road, M2, M7, M4, Silverwater Rd, Parramatta Rd, James Ruse Drive, Grand Avenue, Colquhoun Street, Unwin Street.

2. Route 2 – 6 loads

COMPONENTS: Inner telescopic shields, Outer telescopic shields & Tail skins

MAP LINK: https://goo.gl/maps/diYAo8W3qdb6QNYi6

VIA: Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, M1, Pennant Hills Road, M2, M7, M4, Silverwater Rd, Parramatta Rd, James Ruse Drive, Grand Avenue, Colquhoun Street, Unwin Street.

3. Route 3 – 42 loads

COMPONENTS: Erector loads, Gantries and remaining small loads.

MAP LINK: https://goo.gl/maps/fPLQfuw7S1sV4XMi6

VIA: Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, M1, Pennant Hills Road, M2, M7, M4, Silverwater Rd, Parramatta Rd, James Ruse Drive, Grand Avenue, Colquhoun Street, Unwin Street.

Routes 1 and 2 will require Traffic Control assistance once they reach the Rosehill area. TGS will need to be implement for a traffic hold on the Grand Avenue Bridge whilst the delivery makes its way over the bridge due to the width of the vehicle and the weight limits on the bridge. Due to the width of the vehicles, parking will need to be removed on Grand Avenue on the northern side from the Grand Ave Bridge to Colquhoun Street. User Pays Police and a tow truck are proposed to be onsite to allow for the removal of any vehicles that remain in the parking lane. Route 3 does not require any additional assistance on top of the normal pilot vehicle associated with the movement. Refer to Appendix B for the TGS.

3.2.4 Impact on Traffic Flow

The EIS for the Sydney Metro West Stage 1 project, noted for light vehicles that the site operations phase of the works would have a more peak hour focus than the site establishment phase of works. and that light vehicle numbers would be fairly constant over the work day, refer to Figure 3-24.

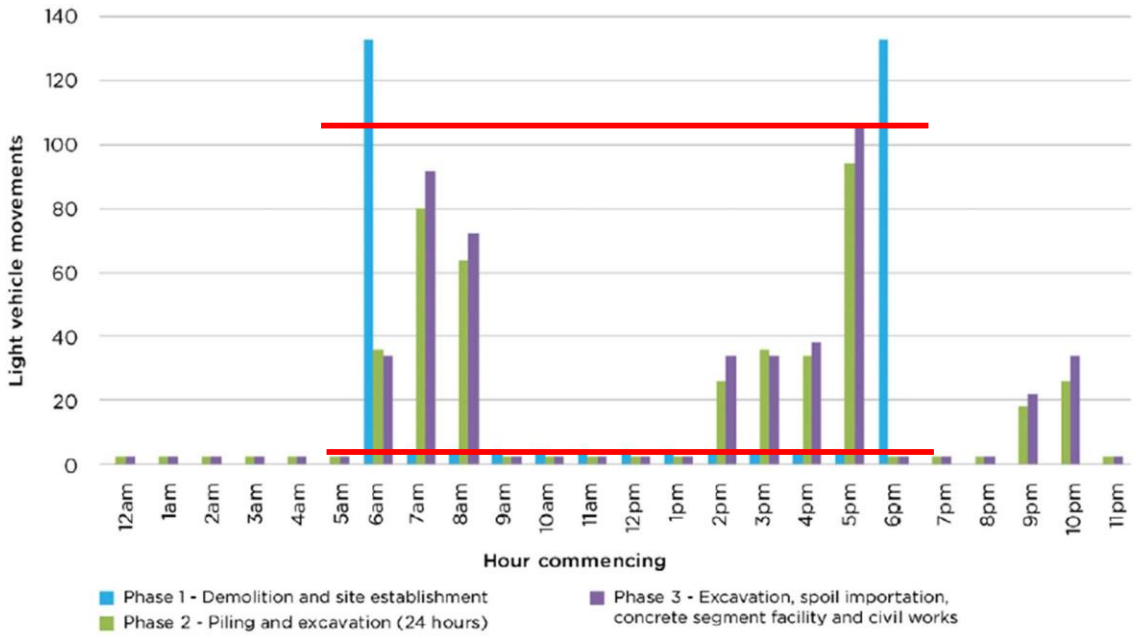


Figure 10-13: Hourly light vehicle movements at the Clyde stabling and maintenance facility construction site

Note: Movement means a one way movement. A truck entering and then leaving a work site represents 2 movements.

Figure 3-24: EIS light vehicle movements

For heavy vehicle movements, the EIS predicted movements were evenly spread over the course of the work day, refer to Figure 3-25. During the piling and excavation phase of the works, heavy vehicle movements would be in the order of 18 per hour (equating to 9 vehicles) whilst during the excavation and spoil importation and civil works the heavy vehicle movements would be 44 per hour (equating to 22 vehicles).

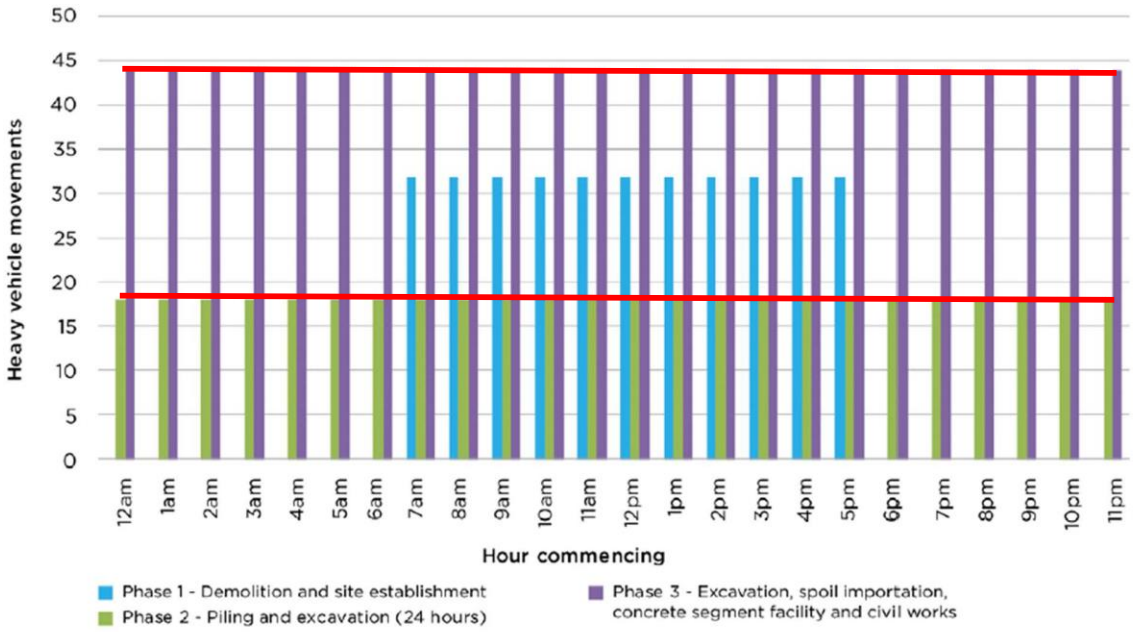


Figure 10-14: Hourly heavy vehicle movements at the Clyde stabling and maintenance facility construction site

Note: Movement means a one way movement. A truck entering and then leaving a work site represents 2 movements.

Figure 3-25: EIS hourly heavy vehicle movements (source: EIS Chapter 10 page 10-13)

A comparison of traffic volumes during the site operations stage 1 is provided in Table 3-2.

Table 3-2: Comparison of EIS and GLC Site Operations vehicle movements (numbers)

Time	EIS Light	GLC Light	EIS Heavy	GLC Heavy
0600-0800	170 (85) – 180 (90)	170 (85)	18 (9) – 44 (22)	16 (8) – 44 (22)
1400-1600	76 (38) – 80 (40)	76 (38)	18 (9) – 44 (22)	16 (8) – 44 (22)
1600-1700	96 (48)- 104 (52)	132 (66)	18 (9) – 44 (22)	16 (8) – 44 (22)
1700-1800	98 (49) -104 (52)	104 (52)	18 (9) – 44 (22)	16 (8) – 44 (22)
1800-0600	60 (30) – 66 (33)	36 (18)	18 (9) – 44 (22)	16 (8) – 44 (22)
Total	**500 (250) – 534 (267)**	**518 (259)**	**90 (45) – 220 (110)**	**80 (40) – 220 (110)**

Traffic volumes were provided in the EIS, refer to Table 3-3.

Table 3-3: 2019 traffic volumes (source: EIS Chapter 10 Table 10-16 page 10-13)

Road	Direction	Morning peak hour vehicles per hour	Evening peak hour vehicles per hour
Unwin Street, west of Colquhoun Street	Eastbound	220	190
	Westbound	280	130
Kay Street west of Wentworth Street	Eastbound	150	170
	Westbound	270	90
Wentworth Street, north of Parramatta Road	Northbound	260	120
	Southbound	150	180

The data shows that the vehicle numbers predicted in the EIS and GLC vehicle numbers are substantially under the volumes provided for previously in this area when all businesses were operational. It is further noted that a number of businesses that previously operated in the area are no longer present, as the demolition works for the Sydney Metro site has been completed.

3.2.5 Impact on public transport

No public transport operates in the Clyde area.

3.2.6 Impact on active transport

As noted in the EIS, "*the pedestrian network around the Clyde stabling and maintenance facility construction site is limited given the industrial land uses to the east of Rosehill Gardens racecourse and north of Duck River".*

As noted in section 2 of this CTMP, footpaths are limited, with no pedestrian facilities provided on the east west section of Unwin Street, adjacent to the site, and footpaths provided on Shirley Street, for a short length and on the eastern side of Unwin Street north south section. However, as noted in sections 2.1 and 2.5, the M4 shared path crosses Wentworth Street at Martha Street. It is noted that this path was constructed in 2003 when the Clyde area was a heavily used industrial area.

Where footpaths cross existing driveways that are to be used for the works, appropriate traffic control will be put in place, with pedestrian management, as per TGS-PED-ALL-1101 (included in Appendix B with intermittent stops of pedestrians.

A review of crash statistics was undertaken which showed that between the years of 2016 and 2020, there were three (3) reported crashes at the intersection of Martha Street and Wentworth Street where the shared path crosses across Wentworth Street with all crashes being vehicle crashes only, refer to Figure 3-26.

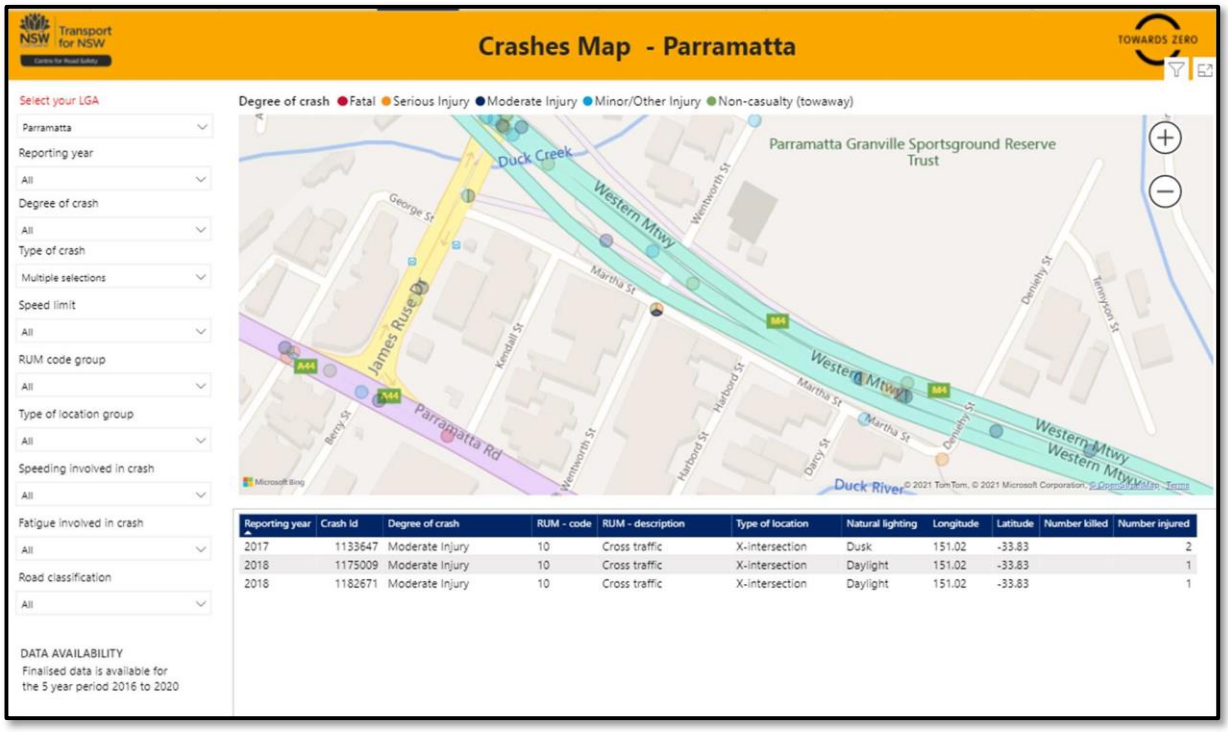


Figure 3-26: TfNSW Road Safety Centre for NSW – Crash statistics

TfNSW have also implemented a Be truck aware campaign which aims to show road users, the challenges that truck drivers face every day. Where an existing driveway crosses a footpath truck awareness decals have been installed either side of the driveway, as noted on Figure 3-27.

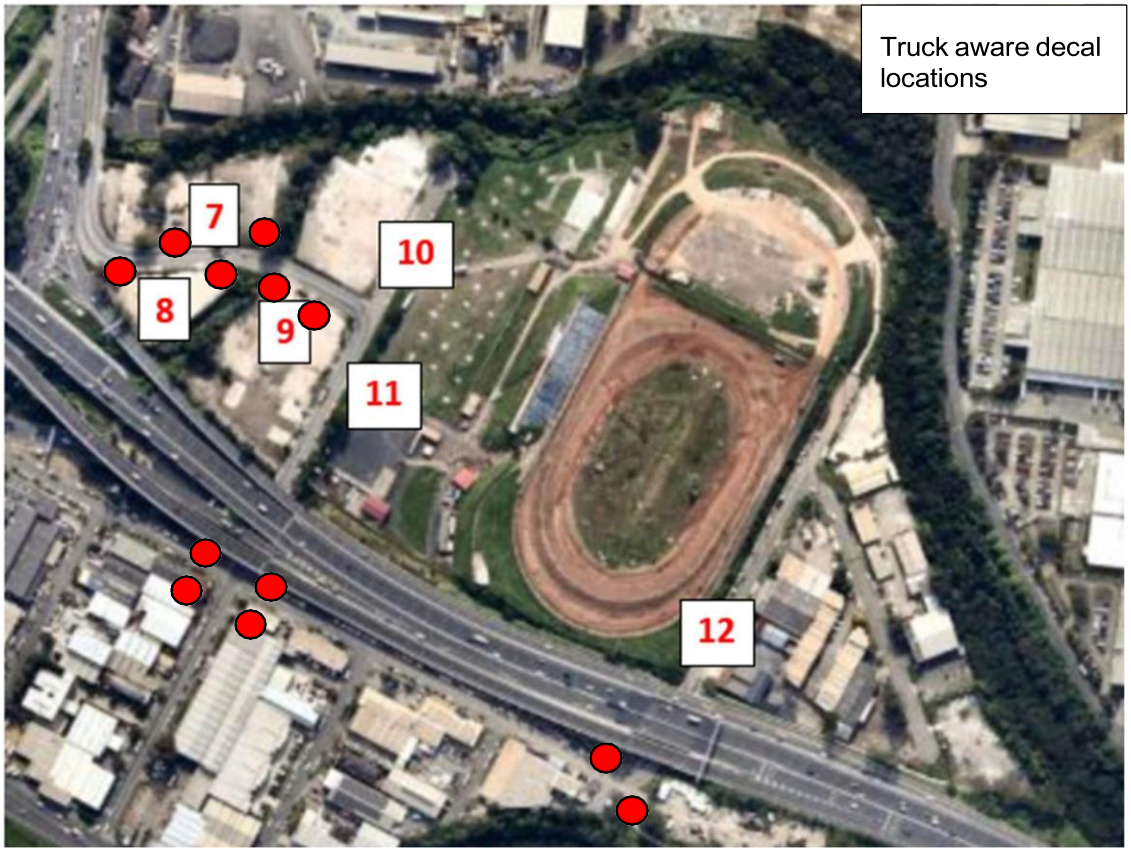


Figure 3-27: Proposed Truck Aware decal locations

GLC will not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided which complies with the applicable standard.

3.2.7 Impact on properties and utilities

During construction, all reasonably practicable measures will be implemented to maintain pedestrian, cyclists and vehicular access to, and parking in the vicinity of businesses and affected properties. Disruptions will be planned to be avoided, however, where it is unavoidable, the disruption will be minimised. In the event that it is not possible to minimise the impact, alternate access for all forms of traffic and/ or parking arrangements, will be provided in consultation with the affected businesses and these alternate access arrangements will be implemented before the disruption. Adequate signage and directions to businesses will be provided before, and for the duration of any disruption

GLC will ensure that access to all utilities and properties will be maintained during works, unless otherwise agreed with the relevant utility owner, landowner or occupier. Where access is affected, GLC will reinstate the access to an equivalent standard within one month of the completion of works, or as agreed by the landowner or occupier.

3.2.8 Impact on parking

All parking will be removed on:

- Wentworth Street between the M4 Motorway overpass and Kay Street
- Kay Street – entire length
- Unwin Street between Kay Street and Shirley Street

Parking will remain as per existing at all other locations. A revised Construction Parking and Access Strategy will be provided separately.

3.2.9 Work Zones and Heavy Vehicle Marshalling

During some stages of the works, there may be a requirement for using kerb space on adjacent streets for short-term parking, including idling, for example for the unloading of deliveries to the site. Applications for a Works Zone will be undertaken by GLC to the relevant authority where this necessity arises.

In accordance with the CEMF and MCoA, the use of a Works Zone permits would ideally be limited to local roads, with idling and queuing on state or regional roads being avoided or minimised as much as practicable. Approved Work Zones would be located in places that are away from sensitive land users and would not block or disrupt access for pedestrian or shared user paths unless alternative access is provided. Works Zones will also not be permitted within existing bus zones and their operating times, unless arrangements have been approved for the relocation of the bus zone.

Where approved, Works Zone locations relevant to the Clyde Rosehill Site would be included within this CTMP. Please refer to Appendix J which depicts/lists the approved Work Zones.

3.2.10 Cumulative impacts

There are no cumulative impacts. Parramatta Light Rail is operating at the northern end of Clyde near Grand Avenue, with most vehicles accessing and egressing the site via the Grand Avenue bridge onto James Ruse Drive. Regular contact will be maintained throughout the life of the project, through attendance at the Traffic Control Group (TCG) and Traffic and Transport Liaison Group (TTLG).

3.2.11 Staged temporary removal of parking for Over Size & Over Mass Deliveries

During the life of the project, there might be some additional need for temporary parking removal to facilitate deliveries with Oversize and Overmass vehicles (OSOM). The potential impact and mitigation approach will be reviewed on a case-by-case basis including consideration of duration of works and impact on relevant stakeholders. Where disruption cannot be avoided, alternative parking arrangements will be investigated and implemented where feasible and practical to ensure impact is minimised. The appropriate approvals and permits will be sought from Transport for NSW and Parramatta Council as described in the relevant CTMPs.

During TBM retrieval operations, temporary parking removal (from 5pm through to 5am) will be required on the south side of Grande Ave between Rosehill Racecourse Gate 1 & Colquhoun St (See Figure 3-27-1). Additionally, temporary parking removal along the eastern side of Colquhoun St from 5pm through to 5am. Additionally, western side of Colquhoun St will need to be removed for the widest loads (See Figure 3-27-2). Parking will be reinstated once the loads have reached

site.

A night time parking survey carried out in April shows current parking night time usage (See Figure 3-27-3). A communication strategy including VMS Boards and mail drops to all relevant stakeholders will take place in the weeks leading up to TBM delivery.

Figure 3-27-1: Grande Avenue parking removal

Figure 3-27-2: Colquhoun Street parking removal

Date	Time	Vehicles
19/04/2024	8pm	48
19/04/2024	12am	76
22/04/2204	8pm	93
25/04/2024	12am	75

Figure 3-27-3: Combined Night Time Survey of Parking Usage on Grande Ave & Colquhoun St.

3.3 Special events

Rosehill Gardens Racecourse is located on the northern side of Unwin Street, opposite the Clyde Maintenance and Stabling Facility. Gate 2, refer to, Figure 3-28, to the racecourse is located on Unwin Street servicing the in-field car park, the float parking area, exhibition and event parking area and exhibition loading dock and general deliveries.

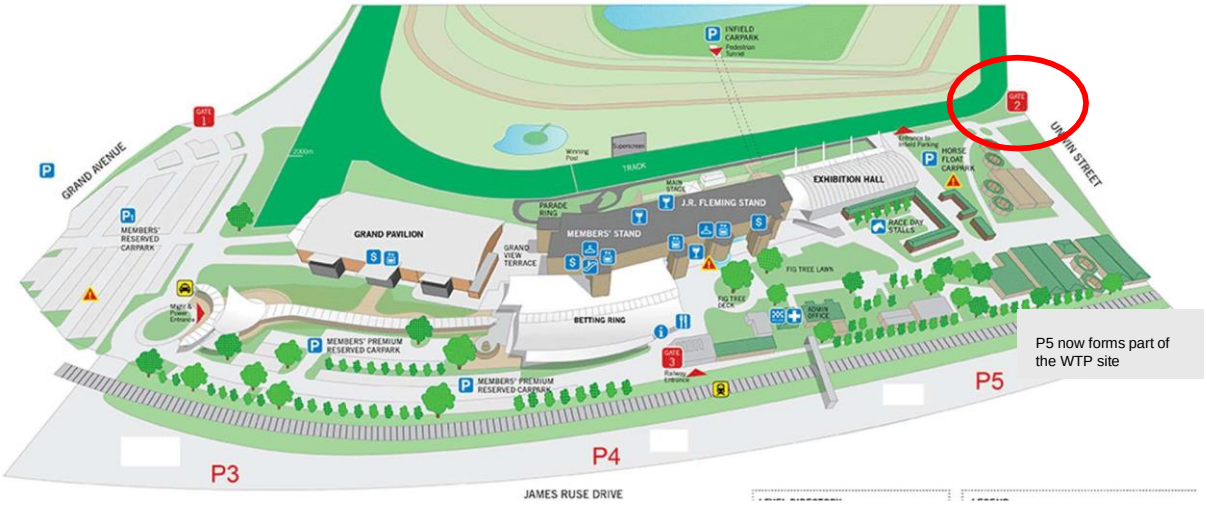


Figure 3-28: Rosehill Gardens Racecourse gate overview

A calendar of racing events at the racecourse is available is updated regularly.

A number of other non-race day events are also held at the racecourse including:

- The Caravan and Camping show with over 80,000 visitors
- Sydney Santa Spectacular with 35,000 visitors
- The Pool and Spa Outdoor living expo with 7,000 visitors
- Other events ranging from between 1,000 to 10,000 attendees.

All of these non-race day events visitors/ attendees, access/ egress via either Grand Parade or James Ruse Drive.

During major special events, defined in *Guide to Traffic and Transport Management for Special Events,* published by NSW Government (version 3.5 July 1, 2018) as a Class One event that has major impacts on the transport and traffic network, GLC will review options to limit our impact by:

- Minimising the level of construction activity and, if necessary, ceasing all construction activity
- Maintaining appropriate access to all areas within the event precinct
- Erection of hoardings, site fencing and gates at key locations with the construction site boundary, to permit pedestrian movements adjacent to the construction site and separate pedestrians from construction vehicles
- Scheduling deliveries to the construction site outside of special event periods, especially during peak bump in and bump out times. The hours of opening of the infield car park is as noted below.

11:00 am	**Member Gates Open**
11:15 am	Public Gates Open
12:25 pm	First Race
6:00 pm	Last Race

3.4 Staff transport and parking

All staff parking during the site operations phase of the works will be catered for within the site. 72 light vehicle car spaces will be available for the workforce off Unwin Street, refer to Figure 3-29.

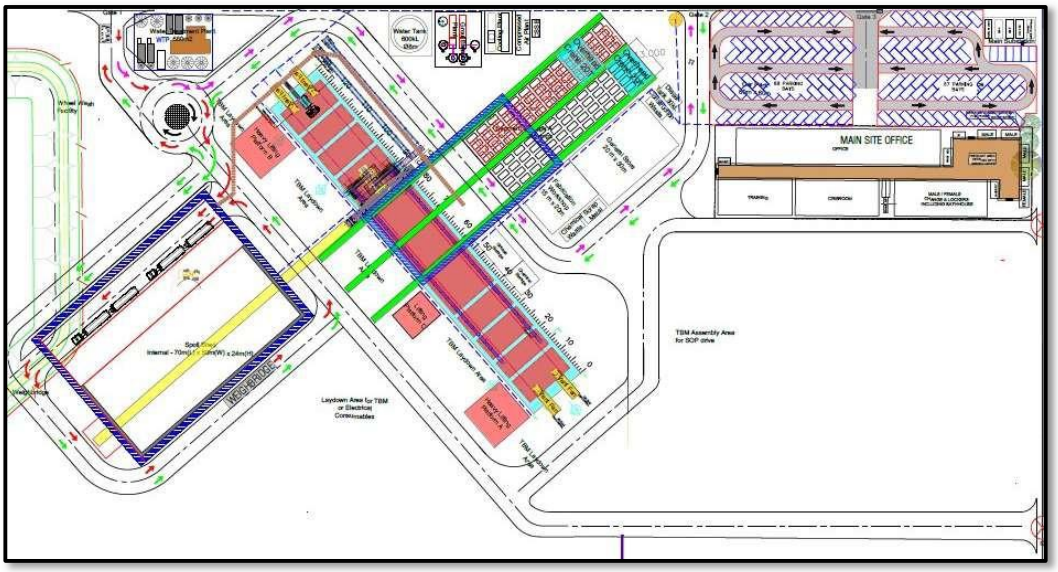


Figure 3-29: Rosehill site light vehicle onsite parking

For the Clyde Dive site, workforce parking is available. Access is via Unwin St opposite MSF West gate 8 with a direct access to walk into the Clyde Dive Site. See figure 3-29-1 for the details of the location.

Figure 3-30: Clyde Dive Light Vehicle onsite parking

For the Clyde MSF East site, workforce parking is available with over 80 Light Vehicle parking spaces. Access is via Wentworth St eastern side, through the old speedway gate. See figure 3-31 for details on the location.

Figure 3-31: MSF East Light Vehicle onsite parking

For the MSF West site, ample onsite parking is available with over 65 Light Vehicle parking spaces. Access is via Unwin St gate 8. See figure 3-32 for details on the location.

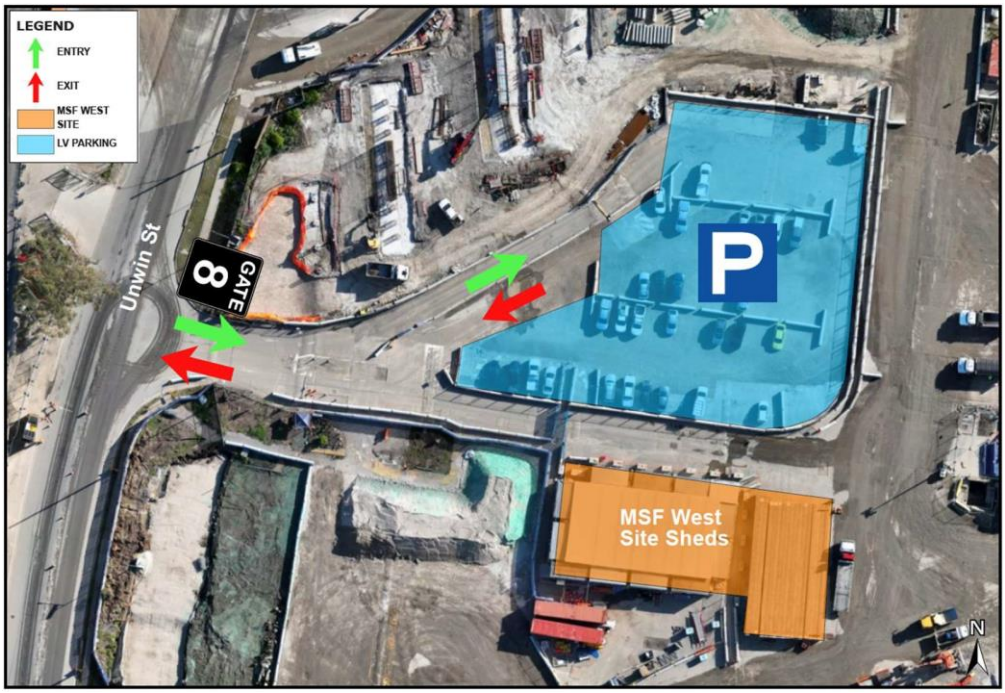


Figure 3-32: Clyde Dive Light Vehicle onsite parking

3.5 Traffic Guidance Schemes (TGS) identified works

Gate management may be required where heavy vehicle access/ egress points interact with footpaths/ shared paths. The TGS for gate management is provided in Appendix B. Multiple TGS for the Kay St realignment TGS have been developed to assist with the traffic switches scheduled to occur across the 4 traffic switches.

3.5.1 Road occupation and restoration

Works will be completed on Unwin St, Kay St and Wentworth St that will impact the road and footpaths. See “MSF Road Realignment CTMP".

For any works that involve an occupation of the road/ footpath, a Road Occupancy License (ROL) will be sought from the Transport Management Centre (TMC). If it impacts a Parramatta City Council Road, a Council permit will also be sought.

Any TfNSW ROLs through the TMC will be applied for a minimum of 10 business days from the proposed start date. Electronic lodgement of the ROL will be undertaken using TfNSW’s OpLinc system. Council permits will be lodged electronically in accordance with the City of Parramatta Council requirements. For any works where parking is temporary impact, GLC will ensure that the parking removal is staged to minimise the time of parking space occupation.

For any road opening required on a Parramatta Council Road, the relevant Road Opening Permit (ROP) will be applied for through the existing City of Parramatta Council website. The ROP will also be accompanied by a ROL. Details on the permits required are found at City of Parramatta Council road permits.

A register of permits/ licenses will be maintained through the works period and can be tabled at the TCG, if requested.

4 Fleet Management

Trucks to be used on the project will be compliant with NSW legislation, Sydney Metro's Principal Contractor Health and Safety Standard, relevant Australian Design Rules and vehicle standards and the Heavy Vehicle National Legislation. All heavy vehicle operations will be conducted in accordance with GLC's Chain of Responsibility (CoR) Management Plan, including monitoring of compliance with nominated haulage routes.

A combination of truck types will be used during the site operations works, with trucks being truck and dog, semi-trailers, 12.5m Single Unit trucks and low loaders. All trucks will enter and exit the site in a forward direction, where reasonable and feasible. Where there is a requirements to undertake reversing movements on the public road system, appropriate traffic control will be implemented.

4.1 Management strategy

Construction site traffic will be managed to minimise movements during peak periods. This will be achieved through scheduling of vehicles and staggered start and finish times. GLC will provide sufficient onsite parking for heavy vehicles. This will ensure that vehicles are not idling or queuing on public roads. Given the amount of space available on site, there is no requirement for further marshalling facilities.

4.2 Drivers and operators

Operator selection will be based on safety performance criteria. Operators and drivers will be required to have general construction industry induction cards and will be required to attend ongoing general project and site specific inductions.

All operators will be comprehensively trained with regard to community expectations and impacts from heavy vehicle movements through site inductions and attendance at the Sydney Metro Industry Curriculum (SMIT) – Safe Heavy Vehicle Introduction Skills which provides drivers with the knowledge, skills, motivation and confidence to drive heavy vehicles safely and professionally in an urban built up road environments, whilst undertaking a transport task required on the project. The training course focuses on low risk driver behaviours, shared the road safely with vulnerable road users and reinforces heavy vehicle driver knowledge and skill. The project and site inductions will have a particular focus on operator behaviour. The driver induction process will include safety awareness in relation to all road users, particularly pedestrians and cyclists where the M4 shared path along Martha Street crosses the heavy vehicle routes.

4.3 Heavy vehicle routes and compliance

Generally, the heavy vehicle routes will be via arterial roads/ freeways/ tollways. Where possible the routes have considered the requirements of the Environmental Impact Statement (EIS). It is noted that the EIS for this site shows access via Wentworth Street, however, the EIS does not identify heavy vehicle routes north of the M4 Motorway overpass, refer to Figure 4-1. However, the roads within the Clyde area are recognised as heavy vehicle routes, refer to Figure 2-5.

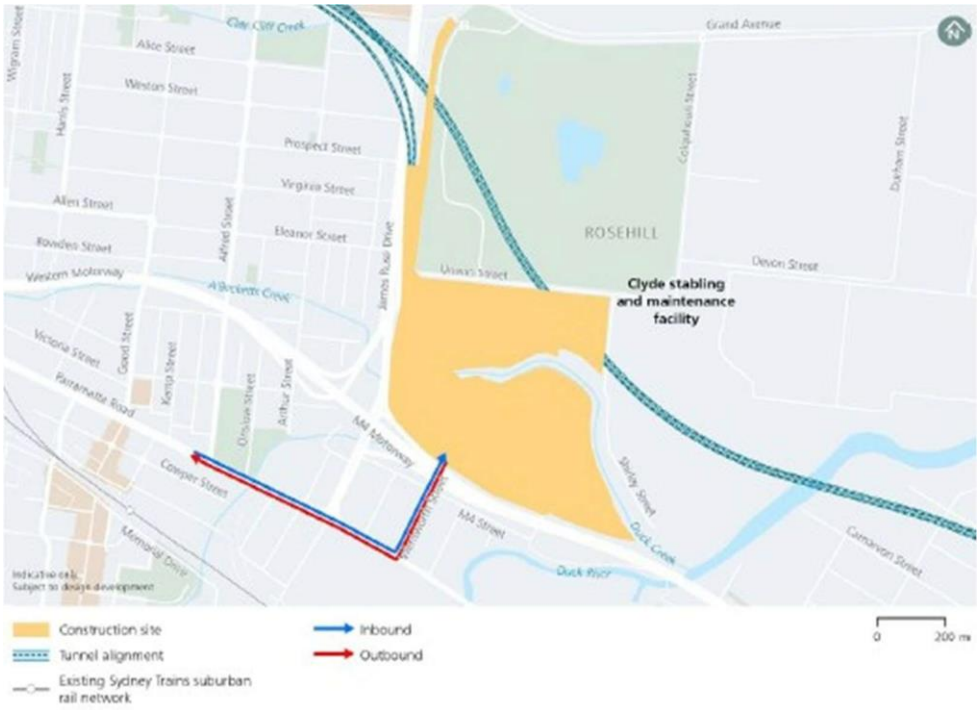


Figure 4-1: EIS nominated heavy vehicle routes

4.3.1 Approved heavy vehicle routes

There are a number of local roads within the Clyde/ Rosehill area that are required to access/ egress the construction site. The EIS nominates Wentworth St off Parramatta Rd to access and egress the site which restricts the site to only one entry and exit point. GLC have been approved to use James Ruse Drive, Grand Ave, Colquhoun St and Unwin St as an entry and exit point into the area. This route is also an OSOM route into site due to the restrictions on Wentworth St. The roads to be used for heavy vehicle movements that are not captured within the EIS are as per Table 4-1 and Figure 4-2

Table 4-1: Roads to be used not included in the EIS

Road name	Between	Between	Classification	Two way traffic flow	Parking	Speed limit
Wentworth Street	M4 Motorway Overpass	Kay Street	Local	Yes	Yes	50km/hr
Kay Street	Wentworth Street	Unwin Street	Local	Yes	Yes	50km/hr
Unwin Street	Kay Street	Colquhoun Street	Local	Yes	Yes	50km/hr
Shirley Street	Unwin Street	Duck Creek	Local	Yes	Yes	50km/hr
Martha Street	Wentworth Street	Deniehy Street	Local	Yes	Yes	50km/hr
Colquhoun St	Unwin St	Grand Ave	Local	Yes	Yes	50km/h
Grand Ave	James Ruse Dr	Colquhoun St	Local	Yes	Yes	50km/h

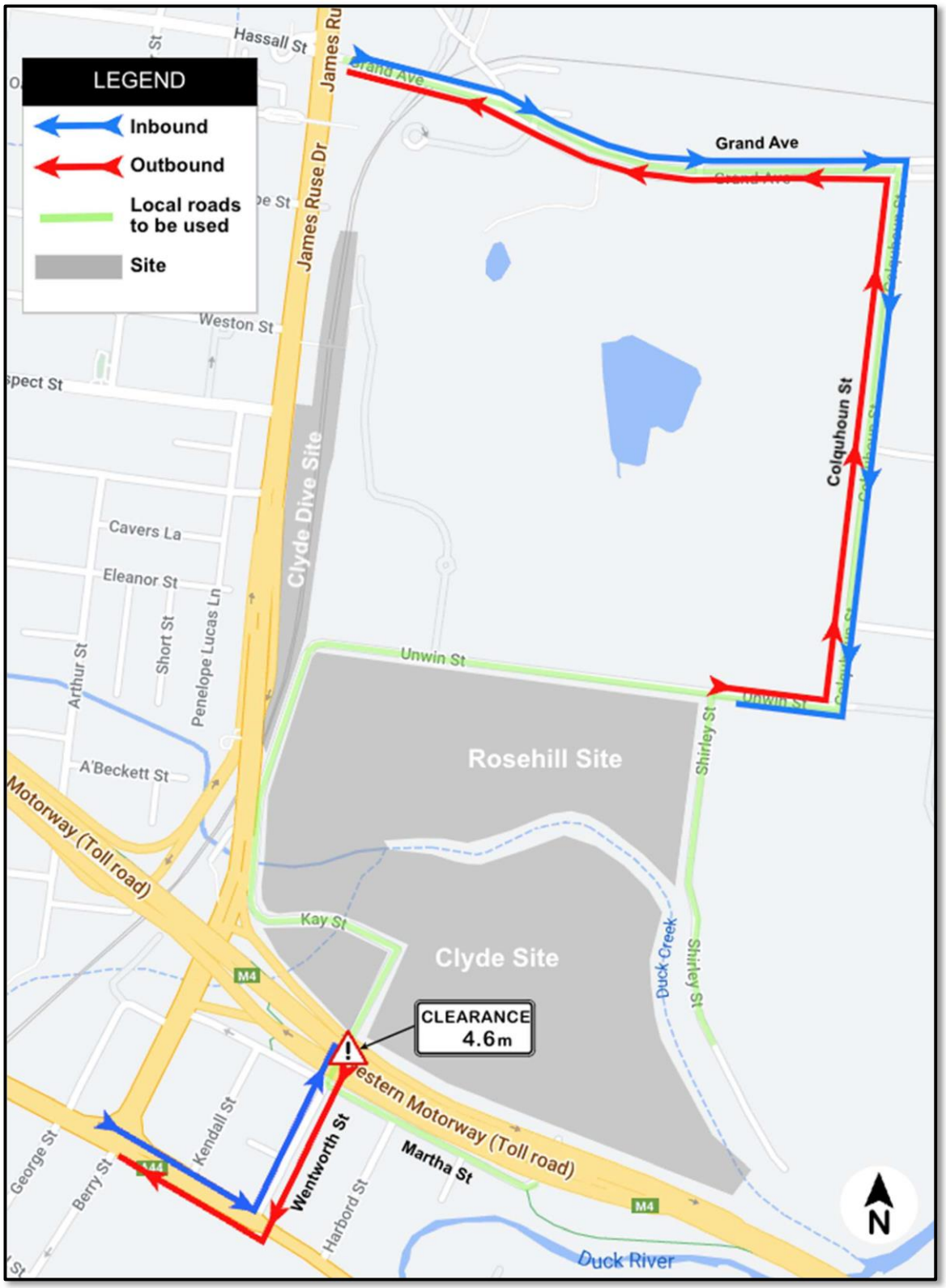


Figure 4-2: Local roads within the Clyde/ Rosehill area

The Heavy Vehicle Local Road report has been provided as a separate document and once approved will be included within this CTMP. Materials will be delivered/ removed from site using a combination of vehicles and taken to authorised disposal sites around Sydney, refer to Appendix C for the proposed routes to the closest motorway.

4.4 Permits / Over dimensional vehicles

Permit issue for vehicles greater than 4.5 tonnes is through the National Heavy Vehicle Regulator (NHVR). This applies to special purpose vehicles (SPV) such as mobile cranes and other oversize/ over mass (OSOM) vehicles.

For over dimensional vehicles, generally vehicles that are greater than 25m in length or 3,5m width require a pilot(s). Extremely long or wide vehicles will require an escort (fee payable). Permits will be applied for by the transport operator.

As part of the permit process over dimensional vehicles to be notified of WCX details so that in the event of a strike event at the M4 Motorway overpass on Wentworth St WCX is to be immediately contacted by driver and Sydney Metro. *M4 WestConnex Motorway Control Centre: (02) 9595 9600*

Oversize vehicles will be required at this site for the delivery of large plant and piling rigs. These deliveries will occur outside of peak hours. Contractors will manage their own permits.

The existing M4 Motorway overpass on Wentworth St is currently height limited (4.6m) as noted on Figure 4-3.

Figure 4-3: M4 Overpass on Wentworth Street

Where vehicles are unable to be accommodated, an alternative route would be detailed within the accompanying permit application for oversize vehicles with the use of Grand Avenue or James Ruse Drive into the Clyde Dive site being the only other routes available.

5 MINISTERIAL CONDITIONS OF APPROVAL

There are a number of plans/ reports that are required under the Ministerial Conditions of Approval (MCoA) as noted in Appendix A and included in subsequent appendices of this CTMP.

5.1 Heavy Vehicle Local Road (HVLR) report

A Heavy Vehicle Local Road is to be provided to the Planning Secretary for approval, for use of local roads not identified in the EIS or other planning documents. The report includes the following:

a) A swept path analysis
b) Demonstration that the use of local roads by Heavy Vehicles for the CSSI will not compromise the safety of pedestrians and cyclists of the safety of two way traffic flow on two way roadways
c) Details as to the date of completion of the road dilapidation surveys for the subject local roads and
d) Measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during their peak operation times and
e) Written advice from an appropriately qualified professional on the suitability of the proposed Heavy Vehicle route which takes into consideration items a) to d).

A copy of the HVLR is provided in Appendix C.

5.2 Construction Parking and Access Strategy (CPAS)

A Construction Parking and Access Strategy is to be provided to the Planning Secretary for approval at least one (1) month before the commencement of construction that reduces the availability of existing parking. The approved strategy will be implemented before impacting on street parking. The CPAS identifies and provides mitigation measures to alleviate the impacts form on and off street parking changes during construction. The CPAS includes the following:

a) Achieving the requirements of MCoA D90 which includes:
    a) Minimise parking on public roads
    b) Minimise idling and queuing on state and regional roads
    c) Not carry out marshalling of construction vehicles near sensitive land user(s)
    d) Not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided and
    e) Ensure spoil haulage vehicles adhere to the nominated haulage routes identified in the CTMPs
b) Confirmation and timing of the removal of on and off street parking associated with construction of stage 1 of the CSSI
c) Parking surveys of all parking spaces to be removed or occupied by the project workforce to determine current demand during peak, off peak, school drop off and pickup, weekend periods and during special events
d) Consultation with affected stakeholders utilising exiting on and off street parking stock which will be impacted as a result of construction
e) Assessment of the impacts to on and off street parking stock taking into consideration occupation by the project workforce, outcomes of consultation with affected stakeholders and considering the impacts of special events

f) Identification of reasonable and practicable mitigation measures to manage impacts to stakeholders as a result of on and off street parking changes including but not necessarily limited to, staged removal and replacement of parking, provision of alternative parking arrangements, managed staff parking arrangements and working with relevant council(s) to introduce parking restrictions adjacent to work sites and compounds or appropriate residential parking schemes.

g) Where resident parking schemes already exist, off road parking facilities must be provided for the project workforce

h) Mechanisms for monitoring, over appropriate intervals (not less than six (6) months), to determine the effectiveness of implemented mitigation measures

i) Details of shuttle bus service(s) to transport the project workforce to construction sites from public transport hubs and off site car parking facilities, where these are provided, and between construction sites

j) Provision of contingency measures should the results of mitigation or monitoring indicate implemented measures are ineffective and

k) Provision of reporting of monitoring results to the Planning Secretary and relevant Council(s) at six (6) monthly intervals

A copy of the CPAS is provided in Appendix D.

5.3 Road dilapidation report

Road dilapidation reports were previously provided for the local roads used by construction vehicles. These reports were undertaken prior to the use of these roads. A copy of the report(s) were provided to the relevant road authority within three (3) weeks of completion of the survey and no later than one (1) month before the road is used.

If damage to roads occurs as a result of heavy vehicle use associated with the construction works, GLC, will, at the relevant road authority's discretion:

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

A copy of the Road Dilapidation Report transmittal to the City of Parramatta Council is provided in Appendix D of the HVLR included in Appendix C of this CTMP.

6 COMMUNITY AND CONSULTATION

6.1 Communications and the community

Table 6-1 notes the notifications to be provided to the local community and travelling public for the site operations stage 1 works, associated with this CTMP.

Any enquiries, compliments or complaints will be directed to GLC's communications team via

- Information line 1800 612 173
- Email metrotunnels@transport.nsw.gov.au
- Mailing address Sydney Metro West, PO BOX K659, Haymarket, NSW 1240

Table 6-1:Proposed community notifications

Notification	Applicable?
Newsletters	Yes
Construction email updates	Yes
Fact sheets	Yes
Site signage	Yes
GLC website	Pending
Sydney Metro website	Pending
Variable Message signs	Where required

6.2 Speed awareness signs

Radar detected speed awareness signs will be deployed for the first week of site operations works. These signs will be installed on Unwin Street, Wentworth Street and Martha Street.

6.3 Stakeholders

Various stakeholders will be consulted for further development of this CTMP. Stakeholder details that have been consulted are provided in Table 6-2.

Table 6-2: Stakeholder consultation details

Stakeholder	Date	Consultation type
Sydney Metro Traffic Control Group TfNSW-Customer Journey Planning	19th May 2022	Presentation
TfNSW Customer Journey Planning	20th June 2022	Submission of CTMP
Sydney Metro West	20th June 2022	Submission of CTMP
City of Parramatta Council	20th June 2022	Submission of CTMP
TfNSW Customer Journey Planning	8th July 2022	Resubmission of CTMP

Stakeholder	Date	Consultation type
Sydney Metro West	8th July 2022	Resubmission of CTMP
City of Parramatta Council	8th July 2022	Resubmission of CTMP
NA	11 July 2022	Approved
TCG	15th Sept 2022	Presentation
Australian Turf Club	26th Sept 2022	Meeting and presentation
TfNSW Customer Journey Planning	31 October 2022	Resubmission of CTMP
Sydney Metro West	31 October 2022	Resubmission of CTMP
City of Parramatta Council	31 October 2022	Resubmission of CTMP
Rev D of CTMP Approved	4th November 2022	CTMP Rev D Approval
TfNSW Customer Journey Planning	6th March 2023	Resubmission of CTMP
Sydney Metro West	6th March 2023	Resubmission of CTMP
City of Parramatta Council	6th March 2023	Resubmission of CTMP

6.3.1 Traffic and Transport Liaison Group (TTLG)

The TTLG has been established by Sydney Metro for the project, as required under MCoA D94. The TTLG consists of members from Sydney Metro, City of Parramatta Council and representatives from the Emergency Services. The development of this CTMP will occur in consultation with this group. The TTLG meets monthly.

Supplementary analysis and modelling as required by Sydney Metro and/ or the Traffic and Transport Liaison Group(s) will be undertaken to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations including changes to and the management of pedestrians, bicycle and public transport networks, public transport services, and pedestrian and cyclist movements. Any revised traffic management measures identified through the supplementary analysis and modelling will be incorporated into the CTMP.

6.3.2 Traffic Control Group (TCG)

A TCG has been established for the project by Sydney Metro. The TCG meets fortnightly and is comprised of Sydney Metro representatives, Council representatives and other project contractors.

6.3.3 Emergency Services

Relevant Emergency Services will be informed, in a timely manner of relevant activities proposed within this CTMP. The initial communication to these stakeholders will be via the TTLG. Regular updates will be provided to Emergency Services representatives noting changes to the road network, changes to road conditions and worksite access locations. This communication will be via emails and face to face discussions. Access to properties for emergency vehicles will be provided at all times.

7 OTHER CONSIDERATIONS

7.1 Road safety audits

Road safety audits will be undertaken during the development of the CTMP and upon implementation of the long term work site, refer to Appendix E.

7.2 Inspections and monitoring

Typical inspections and monitoring is as per Table 7-1 (source: Traffic Control at Worksites Manual Table 8-1)

Table 7-1: inspections and frequency

Stage	Activity	Purpose
Planning	TGS verification	To ensure that the TGS selected or designed is suitable for the works and location
During temporary traffic management	Weekly inspections	To ensure that the CTMP and relevant TGS are appropriate and operating safely, effectively and efficiently
	Shift inspection	To ensure that the TGS is implemented as designed. This includes at a minimum twice per shift and when: A. TGS is installed/ changed or updated B. At regular frequency after work commences (every 2 hours) C. Once aftercare arrangements have been installed, if required
	CTMP review	To ensure that the CTMP controls are achieving the required outcomes
	Road safety audits	To identify road safety crash potential and areas of risk that could lead to traffic crashes
Post completion	Post completion inspection	To ensure that the site has been demobilised as planned and is safe for opening to traffic

7.3 Emergency and incident management

In the event of an incident that has the potential to impact traffic or public transport, at sites managed by GLC, GLC will ensure that traffic control resources are provided. These resources include:

- Traffic control personnel
- Traffic control vehicle containing:
    - Barrier boards
    - Cones/ bollards
    - Flashing arrow
    - Signs
    - Spill kit

GLC will report all traffic incidents to Sydney Metro, the Transport Management Centre (13 17 00), M4 West Connex Motorway Control Centre (02) 9595 9600, and Customer Journey Planning.

7.4 On site contacts

Site contacts are provided in Table 7-2.

Table 7-2: Site contacts

Name	Position	Organisation	Contact #	Email

A COMPLIANCE TABLES

Table 7-3: Relevant Ministerial Conditions of Approval

Requirement	Details	Where addressed
MCoA D80	Access to all utilities and properties must be maintained during works, unless otherwise agreed with the relevant utility owner, landowner or occupier	Section 3.2.7
MCoA D81	Any property access physically affected by the CSSI must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier. Property access must be reinstated within one (1) month of the work that physically affected the access is completed or in any other time frame agreed with the landowner or occupier	Section 3.2.7
MCoA D85	Construction Traffic Management Plans (CTMPs) must be prepared in accordance with the Construction Traffic Management Framework. A copy of the CTMPs must be submitted to the Planning Secretary for information before the commencement of any construction in the area identified and managed within the relevant CTMP	This plan
MCoA D86	Local roads proposed to be used by Heavy Vehicles to directly access construction sites that are not identified in the documents listed in Condition A1 of this schedule must be approved by the Planning Secretary and be included in the CTMP	Appendix C
MCoA D87	All requests to the Planning Secretary for approval to use local roads under Condition D86 must include the following: a) A swept path analysis b) Demonstration that the use of local roads by Heavy Vehicles for the CSSI will not compromise the safety of pedestrians and cyclists of the safety of two-way traffic flow on two-way roadways c) Details as to the date of completion of the road dilapidation surveys for the subject local roads and d) Measure that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during their peak operation times and	Appendix C

Requirement	Details	Where addressed
	e) Written advice from an appropriately qualified professional on the suitability of the proposed Heavy Vehicle route which takes into consideration items a) to d) of this condition	
MCoA D88	Before any local road is used by a Heavy Vehicle for the purposes of construction of Stage 1 of the CSSI, a Road Dilapidation Report must be prepared for the road. A copy of the Road Dilapidation Report must be provided to the Relevant Road Authority(s) within three (3) weeks of completion of the survey and at no later than one (1) month before the road being used by Heavy Vehicles associated with the construction of Stage 1 of the CSSI	Section 5.3 and Appendix C
MCoA D89	If damage to roads occurs as a result of the construction of Stage 1 of the CSSI, the Proponent must either (at the Relevant Road Authority's discretion): a) Compensate the Relevant Road Authority for the damage so caused or b) Rectify the damage to restore the road to at least the condition it was in pre-work as identified in the Road Dilapidation Report	Section 5.3
MCoA D90	Vehicles associated with the project workforce (including light vehicles and Heavy Vehicles) must be managed to: a) Minimise parking on public roads	Section 3.2.8
	b) Minimise idling and queuing on state and regional roads	Section 4
	c) Not carry out marshalling of construction vehicles near sensitive land user(s)	Section 4
	d) Not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided and	Section 3.2.6
	e) Ensure spoil haulage vehicles adhere to the nominated haulage routes identified in the CTMP	Section 4.3
MCoA D91	A Construction Parking and Access Strategy must be prepared to identify and mitigate impacts resulting from on and off street parking changes during construction. The Construction Parking and Access Strategy must include, but not necessarily limited to:	Appendix D

Requirement	Details	Where addressed
	a) Achieving the requirement of Condition D90 above b) Confirmation and timing of the removal of on and off street parking associated with construction of Stage 1 of the CSSI c) Parking surveys of all parking spaces to be removed or occupied by the project workforce to determine current demand during peak, off peak, school drop off and pick up, weekend periods and during special events d) Consultation with affected stakeholder utilising existing on and off street parking stock which will be impacted as a result of construction e) Assessment of the impacts to on and off street parking stock taking into consideration, occupation by the project workforce, outcomes of consultation with affected stakeholders and considering the impacts of special events. f) Identification of reasonable and practicable mitigation measures to manage the impacts to stakeholders as a result of on and off street parking changes including but not necessarily limited to, staged removal and replacement of parking, provision of alternative parking arrangements, managed staff parking arrangements and working with relevant council(s) to introduce parking restrictions adjacent to work sites and compounds or appropriate residential parking schemes g) Where residential parking schemes already exist, off road parking facilities must be provided for the project workforce h) Mechanisms for monitoring, over appropriate interval (not less than 6 months) to determine the effectiveness of implemented mitigation measures i) Details of shuttle bus service(s) to transport the project workforce to construction sites from public transport bubs and off site car parking facilities (where these are provided) and between construction sites j) Provision of contingency measures should the results of mitigation or monitoring indicate implemented measures are ineffective and k) Provision of reporting or monitoring results to the Planning Secretary and Relevant Council(s) at six (6) monthly intervals	

Requirement	Details	Where addressed
MCoA D92	The Construction Parking and Access Strategy must be submitted to the Planning Secretary for approval at least one (1) month before the commencement of any construction that reduces the availability of existing parking. The approved Construction Parking and Access Strategy must be implemented before impacting on on-street parking and incorporated into the CTMPs	Section 5.2 and Appendix D
MCoA D93	During construction, all reasonably practicable measures must be implemented to maintain pedestrian, cyclists and vehicular access to, and parking in the vicinity of businesses and affected properties. Disruptions are to be avoided, and where avoidance is not possible, minimised. Where disruption cannot be minimised, alternate pedestrian, cyclists and vehicular access, and parking arrangements must be developed in consultation with affected businesses and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of any disruption	Section 3.2.7
MCoA D94	A Traffic and Transport Liaison Group(s) must be established in accordance with the Construction Traffic Management Framework to inform the development of CTMPs	Section 6.3.1
MCoA D95	Supplementary analysis and modelling as required by Sydney Metro and/ or the Traffic and Transport Liaison Group(s) must be undertaken to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations including changes to and the management of pedestrians, bicycle and public transport networks, public transport services, and pedestrian and cyclist movements. Revised traffic management measures must be incorporated into the CTMPs	Section 6.3.1
MCoA D96	The permanent road works at Clyde/ Rosehill must be designed, constructed and operated with the objective of integrating with existing and proposed road and related transport networks and minimising adverse changes to the safety, efficiency and accessibility of the networks and avoid deterioration tin peak period levels of service in relation to permanent and operational changes. Design and assessment of related traffic, parking, pedestrian and cycle accessibility impacts and changes shall be undertaken in:	Not relevant to the CTMP – Refer to Design process

Requirement	Details	Where addressed
	a) In consultation with, and to the reasonable requirements of the relevant Traffic and Transport Liaison Group b) In consideration of existing and future demand, connectivity (in relation to permanent changes) and performance and safety requirements c) To minimise and manage local area traffic impacts d) To ensure access is maintained to property and infrastructure and e) To meet relevant design, engineering and safety guidelines, including Austroads, Australian Standards and TfNSW requirements Copies of civil, structure and traffic signal design plans shall be submitted to the Relevant Road Authority for consultation during design development and before completion of construction of Stage 1 of the CSSI	
MCoA D97	Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclist and public transport users must be subject to safety audits, demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be prepared in consultation with the relevant Traffic and Transport Liaison Group before the completion and use of the subject infrastructure and must be made available to the Planning Secretary upon request	Not relevant to the CTMP – Refer to Design process
MCoA D98	Safe pedestrian and cyclist access must be maintained around construction sites during construction. In circumstances where pedestrian and cyclist access is restricted or removed due to construction activities, a proximate alternate route which complies with the relevant standards must be provided and signposted before the restriction or removal of the impacted access	Section 3.2.6
MCoA D99	Opportunities to maximise spoil material removal by non-road methods must be investigated and implemented where reasonably practicable to minimise movements by road	Not practical for Clyde/ Rosehill site

Table 7-4: Relevant Revised Environmental Management Measures

Requirement	Impact/ issue	Details	Where addressed
TT1	Changes to the network	The community would be notified in advance of proposed road and pedestrian network changes through appropriate forms of community liaison	Section 6
TT2	Traffic incidents	In the event of a traffic related incident coordination would be carried out with Transport for NSW including Transport Coordination and/ or Traffic Management Centre's Operations Manager	Section 0
TT3	Emergency vehicle access	Access to properties for emergency vehicles would be provided for at all times	Section 3.2.7
TT4	Road safety	Vehicle access to and from construction sites would be managed to maintain pedestrian, cyclists and motorist safety. Depending on the location this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or on occasions police presence	Section 3.2.6
TT5	Road safety	Additional enhancements for pedestrian, cyclist and motorist safety near the construction sites would be implemented during construction. This would include measures such as: • Assessing the suitability of construction haulage routes through sensitive land use areas with respect to road safety	Appendix C
		• Deployment of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers	Section 6.2
		• Providing community education and awareness about sharing the road safely with heavy vehicles	Appendix C
		• Specific construction driver training to understand the route constraints, safety and environmental	Appendix C

Requirement	Impact/ issue	Details	Where addressed
		considerations such as sharing the road safety with other road users and limiting the use of compression braking	
		• Requiring technology and equipment to improve vehicle safety, eliminate heavy vehicle blind spots and motor vehicle location and driver behaviour	Appendix C
TT6	Road safety	• All trucks would enter and exit construction sites in a forward direction, where reasonable and feasible	Section 4
TT7	Congestion	Construction site traffic would be managed to minimise movements during peak periods	Section 4
TT8	Congestion	Construction site traffic immediately around construction sites (WMS, PMS, BNS and FDS) would be managed to minimise vehicle movements through school zones during pick up and drop off times	Applicable to Westmead (WMS), Parramatta (PMS), Burwood North (BNS) and Five Dock (FDS) only as noted in the REMM
TT9	Congestion	Opportunities to minimise impacts at the Alexandra Avenue/ Bridge Road intersection would be determined in consultation with Transport for NSW	Applicable to Westmead site as noted in the REMM
TT10	Loss of parking	Where existing parking is removed to facilitate construction activities, consultation would occur with the relevant local council to investigate opportunities to provide alternative parking facilities	Section 6
TT11	Loss of parking	Construction sites would be managed to minimise the number of construction workers parking on surrounding streets by: • Encouraging workers to use public or active transport • Encouraging ride sharing • Provision of alternative parking locations and shuttle bus transfers where feasible and reasonable	Appendix D
TT12	Change of bus stop locations	Any temporary closure or relocation of bus stops and kiss and ride facilities would be carried out in consultation with	Applicable to Westmead (WMS), North Strathfield (NSMS), Burwood

Requirement	Impact/ issue	Details	Where addressed
		Transport for NSW including Transport Coordination (for relevant locations), the relevant local council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops	North (BNS) and The Bays (TBS) only as noted in the REMM
TT13	Bus priority	Opportunities to improve bus priority along the temporary detour at Westmead metro station construction site would be investigated during detailed design	Applicable to Westmead site as noted in the REMM
TT14	Active transport	Pedestrian and cyclist access would be maintained during the temporary closure of Alexandra Avenue at Westmead. Wayfinding and customer information would be provided to guide pedestrians and cyclists to alternative routes	Applicable to Westmead site as noted in the REMM
TT15	Impacts on active transport	Where existing cyclists facilities, (eg: bicycle parking) would be temporary unavailable to facilitate construction activities, suitable replacements facilities would be provided for this duration	Section 3.2.6
TT17	Impacts on special events	During major special events, impacts to the transport and traffic network would be reduced by, (as necessary) • Minimising the level of construction activity and, if necessary, ceasing all construction activity • Maintaining appropriate access to all areas within the event precinct • Erection of hoardings, site fencing and gates at key locations with the construction site boundary, to permit pedestrian movements adjacent to the construction site and separate pedestrians from construction vehicles • Scheduling deliveries to the construction site outside of special event periods	Section 3.3
TT18	Property access	Access to existing properties and buildings would be maintained in consultation with property owners	Section 3.2.7

Requirement	Impact/ issue	Details	Where addressed
TT19	Construction vehicle impacts	Traffic control measures required at the Parramatta metro station construction site access on Gorge Street would be determined in consultation with Transport for NSW	Applicable to Parramatta site as noted in the REMM
C11	Occurrence of cumulative impacts	Coordination and consultation with the following stakeholders would occur, where required, to manage the interface of projects under construction at the same time: • Transport for NSW including Transport Coordination • Department of Planning, Industry and Environment • Sydney Trains • NSW Trains • Sydney Buses • Sydney Water • Port Authority of NSW • Sydney Motorways Corporation • Emergency Services providers • Utility providers • Construction contractors Coordination and consultation with these stakeholders would include: • Provision of regular updates to the detailed construction program, construction sites and haul routes • Identification of key potential conflict points with other construction projects • Developing mitigation strategies in order to manage conflicts. Depending on the nature of the conflict this could include: – Adjustments to the Sydney Metro construction program work activities or haul routes or	Section 6

Requirement	Impact/ issue	Details	Where addressed
		adjustments to the program activities or haul routes of other construction projects – Coordination of traffic management arrangements between projects	

B TRAFFIC GUIDANCE SCHEMES

Table 7-5: Traffic Guidance Schemes

TGS#	Location	Between		Time of Day	Traffic control	Works	Impacts
TGS-PED-ALL-1101	All				Pedestrian management	Heavy Vehicle access/ egress across footpaths	Intermittent stop of pedestrians during heavy vehicle movements at footpath locations
TGS-BG01-UNW	Unwins St	Gate 1 &	Kay St	7am to 5pm daily	Moxy management	Haul road crossing	Intermittent stopping for haul road crossing
GLC-003	Various	Various		Day/ night	Dynamic work area	Line marking removal and installation	Intermittent stopping of traffic for line marking works
GLC-004	Various	Various		Day/ night	Stop slow	Line marking removal and installation	Intermittent stopping of traffic for line marking
GLC-005	Unwin Street	Kay Street	Unwin Street	Day/ night	Stop slow	Driveway/ pavement works – western side	Intermittent stopping of traffic (shuttle flow)
GLC-006	Unwin Street	Kay Street	Unwin Street	Day/ night	Stop slow	Driveway/ pavement works eastern side	Intermittent stopping of traffic (Shuttle flow)
GLC-008	Wentworth Street	M4 Motorway overpass	Kay Street	Day	Stop slow	Gate management	Intermittent stopping of traffic
1915872	All	All	All	All	Speed reduction	All	NA

TGS#	Location	Between		Time of Day	Traffic control	Works	Impacts
GLC 059	Unwin St	Shirley St	Rosehill site gate 2	8pm to 5am	Stop slow	Traffic island removal & TBM delivery	Intermittent stopping of traffic
2023-0220	Unwin St	Shirley St	Rosehill site gate 2	8pm to 5am	Stop slow	Traffic island removal & TBM delivery	Intermittent stopping of traffic
GLC 060	Colquhoun St	Grand Ave	Unwin St	8pm to 5am	Stop slow	Traffic island removal & TBM delivery	Intermittent stopping of traffic
2023-0217	Colquhoun St	Grand Ave	Unwin St	8pm to 5am	Stop slow	Traffic island removal & TBM delivery	Intermittent stopping of traffic
2023-0213	Grand Ave	James Ruse Dr	Colquhoun St	8pm to 5am	Stop slow	TBM delivery	Intermittent stopping of traffic
2023-0214	Grand Ave	Grand Ave bridge	Colquhoun St	8pm to 5am	Parking lane closure	TBM delivery	Parking lane closure
2023-0221	Grand Ave	James Ruse Drive	Rosehill Racecourse - Gate 1	8pm to 5am	Stop slow EB	TBM delivery	Intermittent stopping of traffic
2023-0281	Grand Ave	James Ruse Dr	Colquhoun St	8pm to 5am	Stop/slow	Steel plate installation	Intermittent stopping of traffic
2023-0282	Grand Ave	at Colquhoun St		8pm to 5am	No right turn EB - Detour	Steel plate installation	Minimal impact, small detour around the block

GENERAL NOTES

- THIS TGS HAS BEEN PREPARED IN ACCORDANCE WITH THE TCAWS MANUAL 2020
- ALL SIGNAGE MUST BE PLACED TO NOT RESTRICT PEDESTRAIN PATH IN ACCORDANCE WITH THE TCAWS MANUAL V4 2010, SECTION 3.2.8
- THE CONTRACTOR SHALL ENSURE ALL ROL AND SZA REQUIREMENTS ARE SATISFIED DURING IMPLEMENTATION OF THIS TGS.
- ANY EXISTING SIGNAGE THAT CONFLICTS WITH THIS TGS MUST BE COVERED AT THE START OF SHIFT AND UNCOVERED AT THE END OF SHIFT.
- THE SITE MUST COMPLY WITH THE TRAFFIC CONTROL AT WORK SITES MANUAL V4 2010 EDITION AN A.S. 1742.3
- PEDESTRIANS WILL ONLY BE HELD FOR SHORT PERIODS WHILST THE TRUCKS ENTER/EXIT THE SITE AND WILL NOT BE UNDULY HELD BY TRAFFIC CONTROLLERS OUTSIDE OF IMMEDIATE VEHICLE MOVEMENTS

TRAFFIC CONTROLLERS ON SITE TO EXTEND
PEDESTRIAN BARRIER WHILE TRUCK ENTERS AND EXIT WORK SITE

EXTENDABLE PEDESTRIAN BARRIER SIMILAR TO BELOW IMAGE

EXAMPLE WORK SITE

DRAWN BY: LS

DRW CHECK: SS

APPROVED: SL

IND REVIEW: N/A

COORDINATE SYSTEM: HEIGHT DATUM: SCALE:

PROJECT

CLIENT

SYDNEY METRO

TYPICAL PEDESTRIAN MANAGEMENT
SHORT TERM STOP ON FOOTPATH

DRAWING No: TGS-PED-ALL-1101

SHEET 1 OF 1

REVISION B-00

Plot Date: 19 March 2017 - 1:20 PM

Cad File No: C:\Users\samuel\OneDrive\FDConsulting\102-SUELEWISCONSULTING\10-DELTAGROUP\126-GENERICPEDESTRIANCLOSURE_VEHICLEACCESS\102-10-126-B-00.dwg

PEDESTRIANS WATCH YOUR STEP

T8-1

PEDESTRIANS WATCH YOUR STEP

T8-1

STOP

R1-1

GIVE WAY TO PEDESTRIANS

R2-10

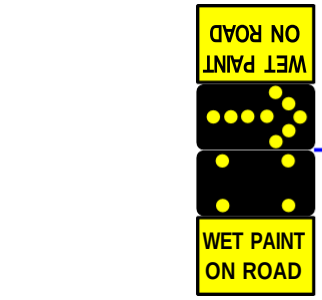
REV	BY	DATE	DESCRIPTION	APPD.
B-00	LS	19/03/2017	AMENDED AS PER COMMENTS	SL
A-01	LS	19/03/2017	UPDATED NOTES	SL
A-00	LS	19/02/2017	INITIAL DRAFT	SL

GAMUDA Australia

LAING O'ROURKE

NSW GOVERNMENT

sydney METRO



LINE MARKER

Good sight distance: Open Road - 300m to 500m Built-Up - 200m to 300m
Poor sight distance: Tail Vehicle to remain at start of Poor Sight Distance section until work vehicle has released a section where good sight distance is available.

TAIL VEHICLE

VMS

TRAFFIC CONES TO BE SPACED AT 24m CENTRES IF NEEDED FOR PROTECTING FRESHLY PAINTED LINES

DYNAMIC WORK 2 LANE / 2 WAY LINE MARKING

Personnel Requirements	Asset Requirements						
Traffic Controllers	VMS	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
1	1	0	0	0	0	0	

Notes:
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8: The value of speed limits displayed shall match the speed zone approval.
9: Signage used in the TGS is to be B Size.
10: Ensure all approval requirements are met prior to commencing set up.
Cover all conflicting & Contradicting road signage & devices where required.
12: If required cone spacing is to be no greater than 24m centres.
13: TTM Inspections to be undertaken on a regular basis.
14: Estimated Queue Lengths to be noted here _____
15: The site MUST comply with the TCAWS (Traffic Control at Worksites) Manual Issue 6 2020 and AS 1742.3 (MUTCD)

Amendments:
All amendments to the TGS must be clearly documented on this plan. Amendments can only be made by the Traffic Supervisor holding a current PWZTMP card in consultation with the relevant project works supervisor.

Name:_____ be
PWZTMP Card Number:_____
Exp Date: _____
Date:_____ Sign:_____ 11:
Reason for modification:_____

Revisions	No:	Date:	Time:	Description:	Appr:
	0	27/09/22	09:30am	Issued for Implementation	MC
	1				
	2				
	3				
	4				
	5				
	6				

CLIENT: GAMUDA - GLC

GAMUDA Australia
LAING O'ROURKE

SCALE: 1:750
Original Size A3

Lack group
Planning Division Ph: 02 8319 4888
Email : LGP@Lackgroup.com.au

PROJECT: GLC - SYDNEY METRO WEST - WTP
TITLE: Unwin St, Kay St & Wentworth St Clyde

Drawn By: Peter Ingram — Certification Type : PWZ
Approved By: Morgan Cross — Certification Type : PWZ
Implemented by: — Certification Type :

WORK ACTIVITY: Line Marking
TGS NUMBER: 003
PAGE NO: 1 of 1

Certification Number: 0051 721 258 — Signed:
Certification Number: TCT0052862 — Signed:
Certification Number: — Signed:

ADD NORTH MARKER

50m

50m

KEEP LEFT

50m

EXTREMETIES TO BE SET UP AND REPEATER SIGNAGE TO BE USED AS LINE MARKING PROGRESSES ALONG UNWINS ST, KAY ST AND WENTWORTH ST

WORK ZONE

UNWINS ST

UNWINS ST

KAY ST

WENTWORTH ST

WORK ZONE

KEEP LEFT

50m

50m

50m

Personnel Requirements		Asset Requirements				
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE
3	1	0	0	0	0	0

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Name:

PWZTMP Card Number:_____

Exp Date: _____

Date:_____ Sign:_____

Reason for modification:_____

TRAFFIC CONES TO BE SPACED AT 24m CENTRES IF NEEDED FOR PROTECTING FRESHLY PAINTED LINES

No:	By:	Date:	Description:
0	MC	27/08/22	Issued for Implementation
1	MC	06/03/23	11:30am Add Boomgates
2			
3			

Appr:
MC

CLIENT:
GAMUDA GLC

Disclaimer:
The guidance scheme is for Traffic Management purposes only. Worksafe makes no warranties, expressly or implied, that it is free from inaccurate or incomplete in any way, and for any reason. This plan is (including without limitation, liability in negligence) for all expenses, losses, damages and costs you might incur as a result of the information being

SCALE: 1:750
Original Size A3

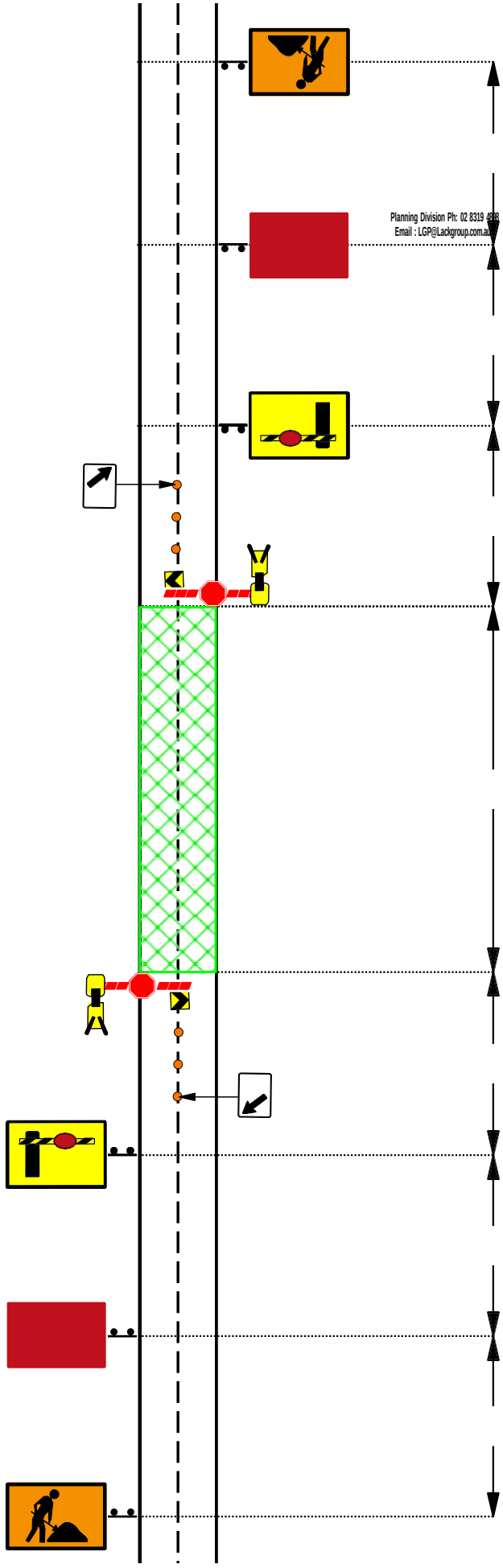
PROJECT: GLC - SYDNEY METRO WEST - WTP
Client:
TITLE: Unwin St, Kay St & Wentworth St Clyde
Drawn By: Peter Ingram

WORK ACTIVITY: Line Marking
Drawing Number: WRS-TGS-
TGS NUMBER: 004

PAGE NO: 1 of 1
Signed:

ADD NORTH MARKER

2
3
4
5
6



Planning Division Ph: 02 8319 [illegible]
Email : LGP@Lackgroup.com.au

Drawn By: Peter Ingram

Approved By: Morgan Cross

Implemented by:

Certification Type : PWZ Certification Number: 0851 721 358
Certification Type : PWZ Certification Number: 0021 721 257
Certification Type : PWZ Certification Number: TCT0052882
Certification Type : Certification Number:

Signed:
Signed:
Signed:

W E S

○	○	○	○	○	○	○		

GAMUDA Australia
LAING O'ROURKE
Lack group

Personnel Requirements			Asset Requirements				
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
0	0	0	0	0	0	0	

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Name:

PWZTMP Card Number:

Exp Date:

Date:_____ Sign:

Reason for modification:

No:	By:	Date:	Description:
1	SD	00/01/21	Issued for Implementation
No:	Date:	Time:	Description:
3			
0	15/09/22	03:15pm	Issued for Implementation

Appr: MC

Appr:

Disclaimer:
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SCALE: 1:750

1 MC GAMUDA / LAING O'ROURKE CONSORTIUM

Job Location:

Client:

PROJECT: GLC - SYDNEY METRO WEST - WTP

Drawn By: Peter Ingram

Work Activity:

Drawing Number: WRS TGS

WORK ACTIVITY: SPEED REDUCTION

Signed:

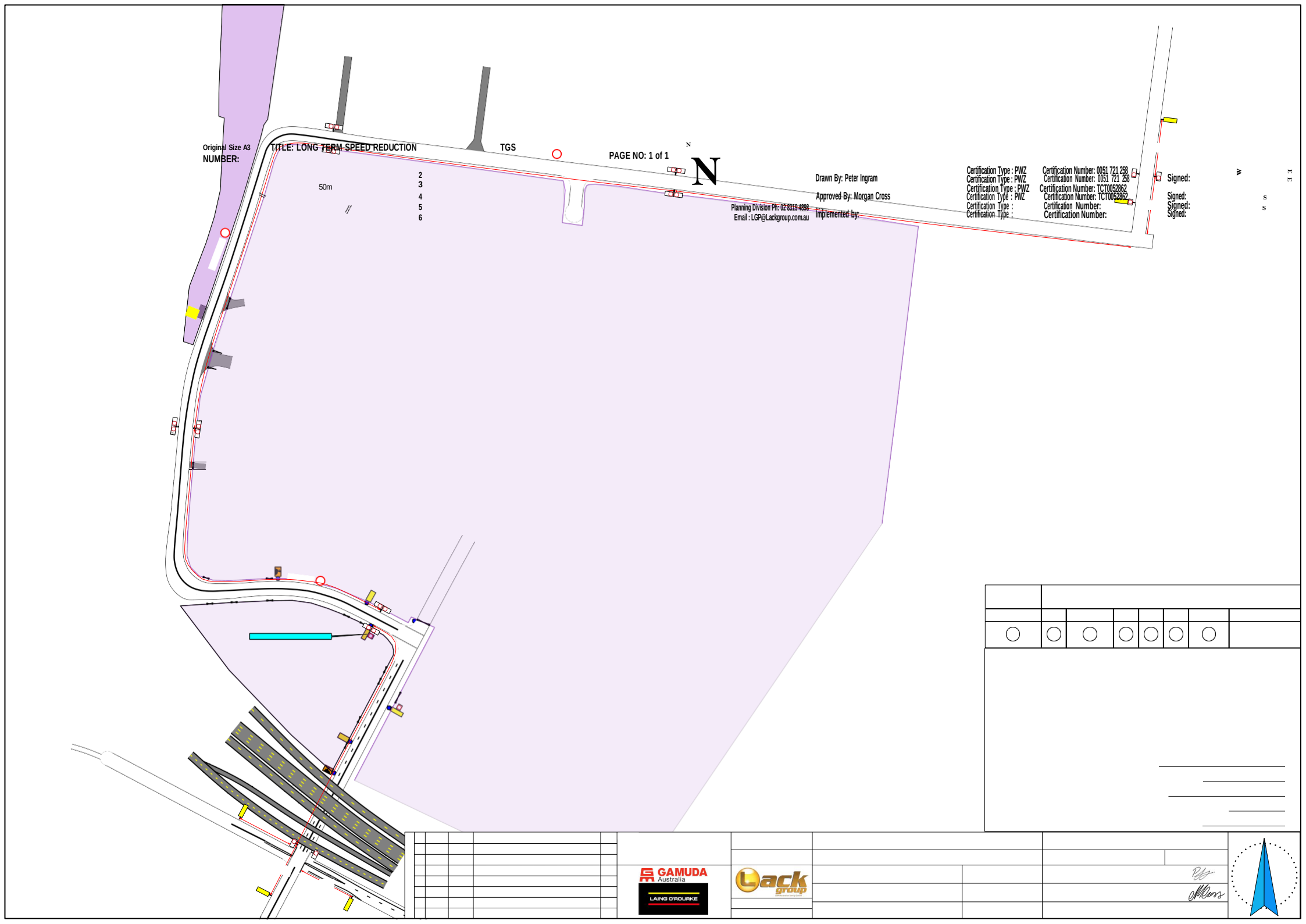
N

Original Size A3
NUMBER:

TITLE: LONG TERM SPEED REDUCTION

TGS

PAGE NO: 1 of 1



Drawn By: Peter Ingram

Approved By: Morgan Cross

Implemented by:

Planning Division Ph: 02 8319 4898
Email : LGP@Lackgroup.com.au

Certification Type : PWZ Certification Number: 0051 721 258
Certification Type : PWZ Certification Number: 0051 721 258
Certification Type : PWZ Certification Number: TCT0052862
Certification Type : PWZ Certification Number: TCT0052862
Certification Type : Certification Number:
Certification Type : Certification Number:

Signed:
Signed:
Signed:
Signed:

GAMUDA Australia
LAING O'ROURKE
Lack group

Personnel Requirements	Asset Requirements						
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
5	2	0	0	0	0	4	

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Name: _____

PWZTMP Card Number: _____

Exp Date: _____

Date: _____ Sign: _____

Reason for modification: _____

No:	By:	Date:	Description:
1	SD	00/01/21	Issued for Implementation
2			
3		12/12/22	09:30am Issued for Implementation
4		05/03/23	04:00pm add cones on approach
5			

Original Size A3

This TGS is not to scale

Appr: MC

CLIENT:

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Client Contact:

SCALE: 1:750

MC

GA MUDA -

PROJECT: GLC - SYDNEY METRO WEST - WTP

Job Location:

Client: GLC

Drawn By: Peter Ingram

Approved By: Morgan Cross

Original Size A3

WORK ACTIVITY: 1 LANE ALTERNATE

Work Activity:

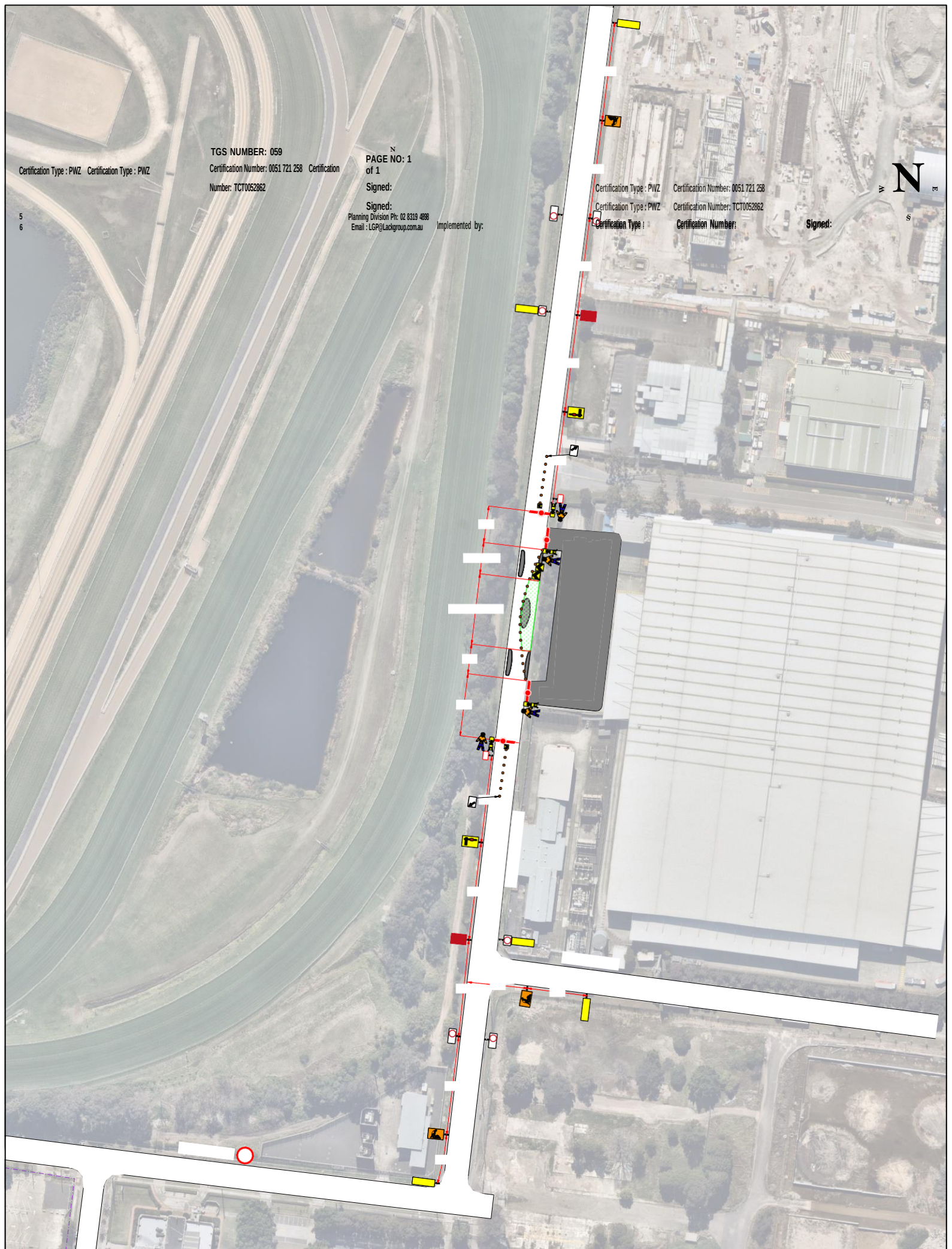
Drawing Number: WRS-TGS-

TITLE: COLQUHOUN ST ROSEHILL

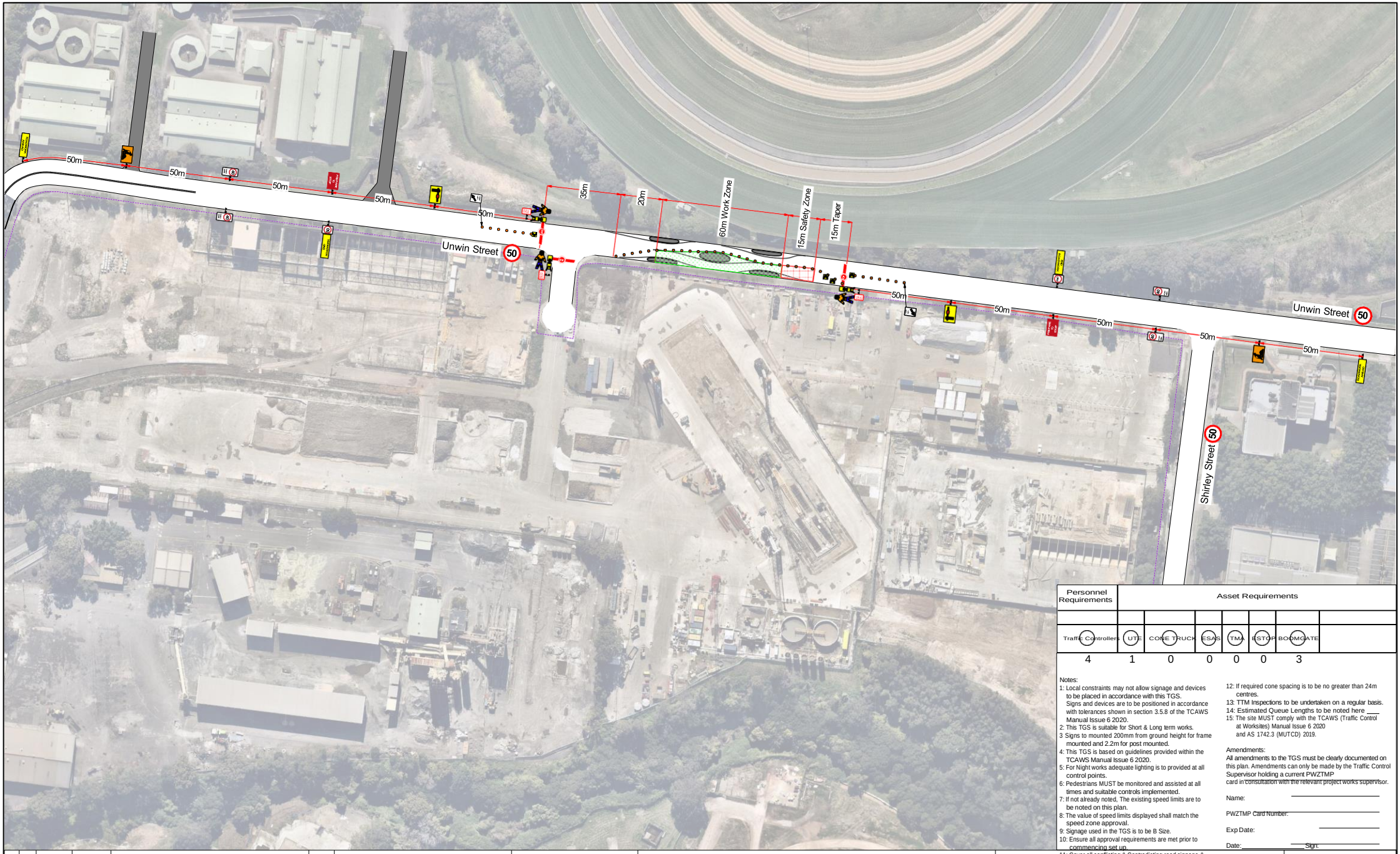
Signed By: Peter Ingram

Signed:

Approved By: Morgan Cross



GAMUDA Australia
LAING O'ROURKE
Lack group



Personnel Requirements	Asset Requirements						
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
4	1	0	0	0	0	3	

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Name: _____
PWZTMP Card Number: _____
Exp Date: _____
Date: _____ Sign: _____
Reason for modification:

Revisions

No:	Date:	Time:	Description:	Appr:
0	12/12/22	09:15pm	Issued for Implementation	MC
1	05/03/23	04:00pm	add cones on approach	PI
2				

CLIENT: GAMUDA Australia / GAMUDA LAING O'ROURKE CONSORTIUM / LAING O'ROURKE

SCALE: 1:750

Original Size A3

PROJECT: GLC - SYDNEY METRO WEST - WTP

WORK ACTIVITY: 1 LANE ALTERNATE FLOW

TITLE: UNWIN ST ROSEHILL

TGS NUMBER: 060

PAGE NO: 1 of 1

Drawn By: Peter Ingram

3

4

Original Size A3 This TGS is not to scale Client Contact: Certification Type : DWZ Certification Number: TCT0052062

Approved By: Morgan Cross

5
6 Kay Street 50

Planning Division Ph: 02 8319 4898
Email : LGP@Lackgroup.com.au

Implemented by:

Certification Type : PWZ Certification Number: 0051 721 258 Signed:

Certification Type : PWZ Certification Number: TCT0052862 Signed:

Certification Type : Certification Number: Signed:

E

S

Personnel Requirements	Asset Requirements						
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
5	2	0	0	0	0	4	

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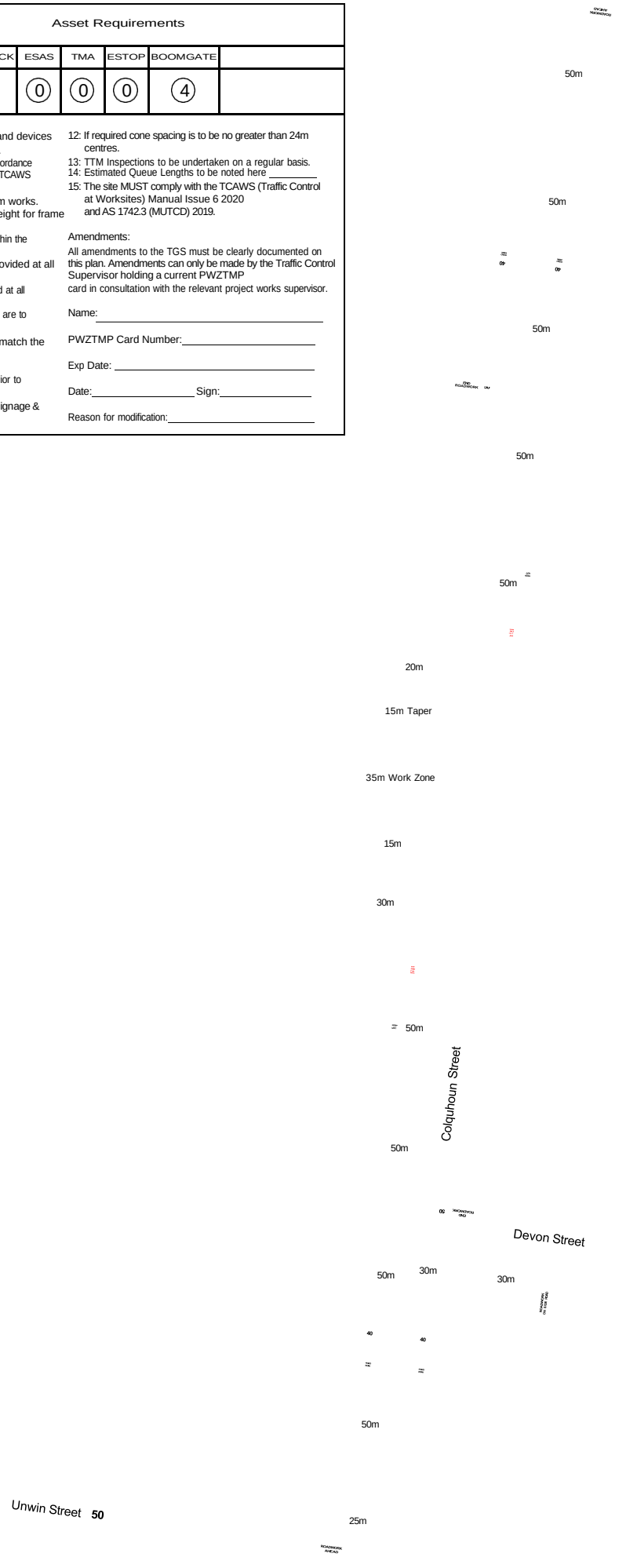
PWZTMP Card Number: _____

Exp Date: _____

Date: _____ Sign: _____

Reason for modification: _____



Revisions

No:	Date:	Time:	Description:	Appr:
1	30/01/23	01:00pm	Issued for implementation	PI
2	05/03/23	04:00pm	add cones on approach	PI

PROJECT : GLC - SYDNEY METRO WEST - WTP

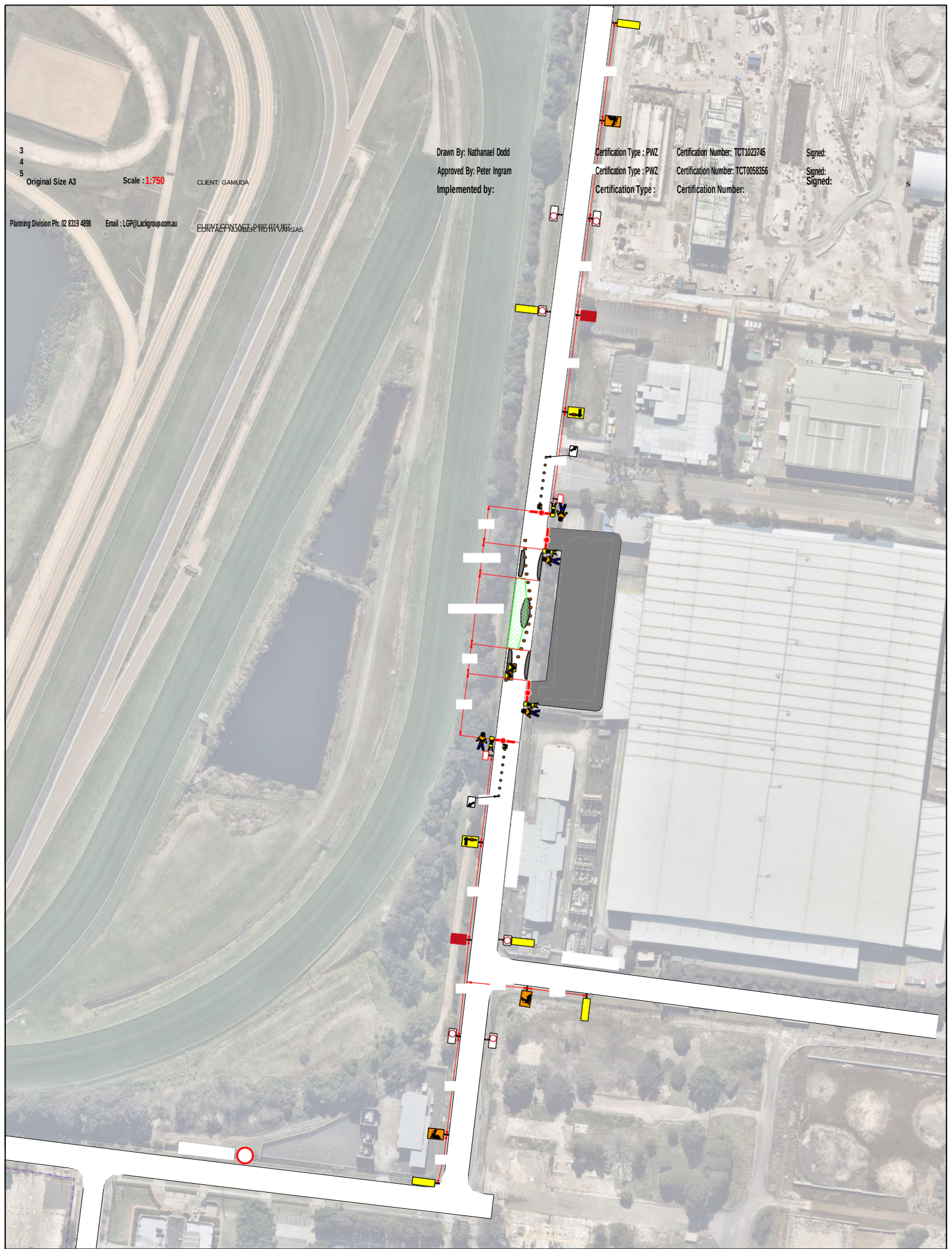
WORK ACTIVITY: 1 LANE ALTERNATE

ADDRESS : COLQUHOUN ST ROSEHILL

TGS NUMBER: 2023-0217

PAGE NO: 1 of 1

N



3
4
5

Original Size A3

Scale : 1:750

CLIENT: GAMUDA

Planning Division Ph: 02 8319 4898

Email : LGP@Lackgroup.com.au

CLIENT CONTACT: 0492 074 907
CONTACT NUMBER: RUTH VARGAS

Drawn By: Nathanael Dodd

Approved By: Peter Ingram

Implemented by:

Certification Type : PWZ | Certification Number: TCT1023745 | Signed:

Certification Type : PWZ | Certification Number: TCT0058356 | Signed:

Certification Type : | Certification Number: | Signed:

S

GAMUDA Australia

LAING O'ROURKE

Lack group

Lack Safe

Work Safe, home safe. #LackSafe

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11: Cover all conflicting & Contradicting road signage & devices where required.
12: Frequency of shift TTM inspections to be in accordance with TCAWS, AS 1742.3 & Ausroad guide & noted on Lack Group sign diary.
13: If required cone spacing is to be no greater than 24m centres.
14: TTM Inspections to be undertaken on a regular basis.
15: Estimated Queue Lengths to be noted here _____
16: The site MUST comply with the TCAWS (Traffic Control at Worksites) Manual Issue 6.1 2022 and AS 1742.3 (MUTCD) 2019.
17: The installation and removal of signage and devices must be carried out in a forward direction in the advance warning area, starting on the approaches of the work site and progress towards the work area, unless shown otherwise on the related documents.

Amendments:
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Name:_____

PWZTMP Card Number:_____

Exp Date: _____

Date:_____ Sign:_____

Reason for modification:

Legend

Safety Zone

Traffic Cone

Work Area

Personnel Requirements

Asset Requirements

Traffic Controllers UTE CONE TRUCK ESAS TMA ESTOP BOOMGATE

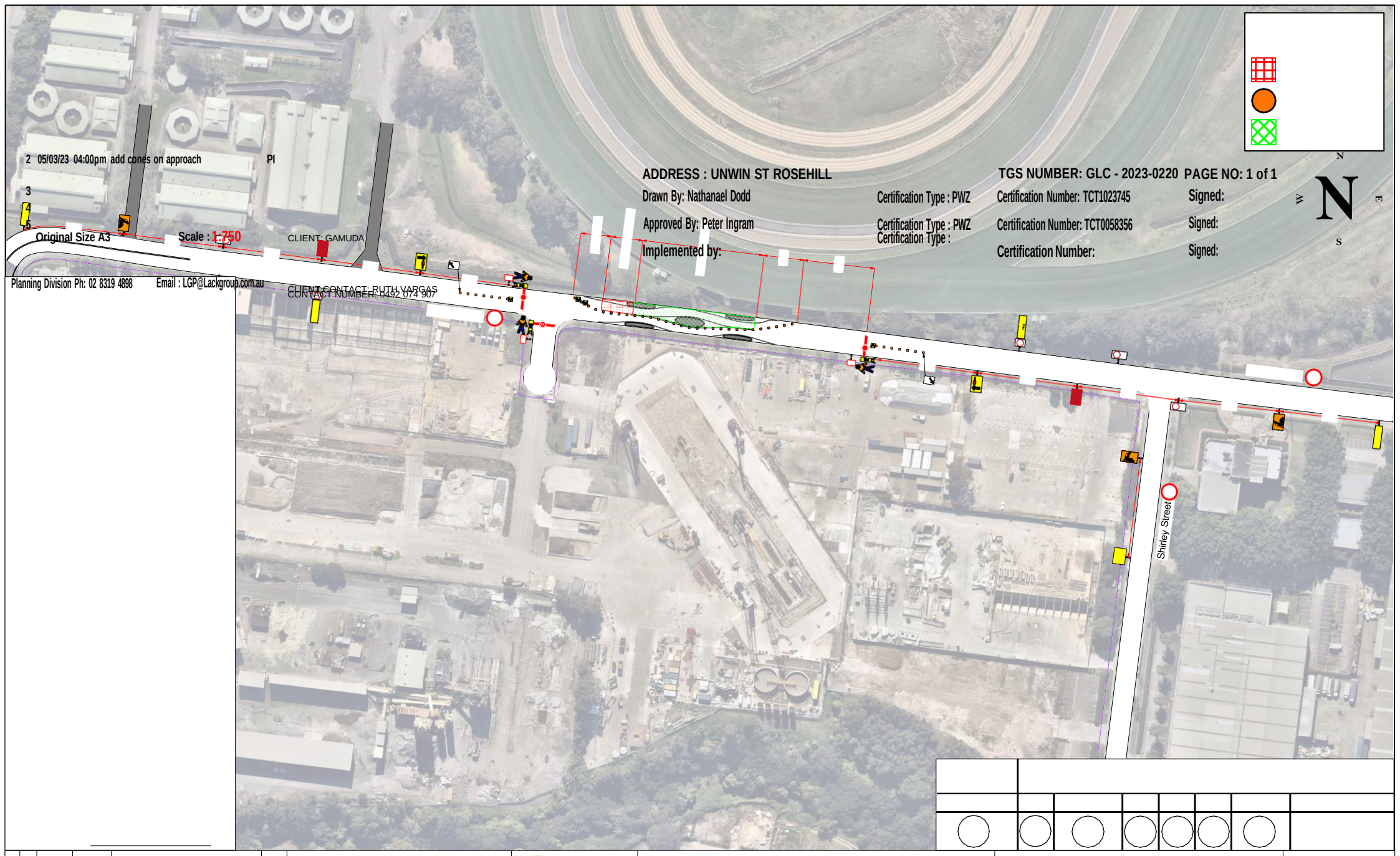
4 1 1 0 0 0 3

Revisions

No:	Date:	Time:	Description:	Appr:
1	30/01/23	03:00pm	Issued for Implementation	PI

PROJECT : GLC - SYDNEY METRO WEST - WTP

WORK ACTIVITY: 1 LANE ALTERNATE



GAMUDA Australia

LAING O'ROURKE

Lack group

Lack Safe

Work Safe. Home safe. #LackSafe

C HEAVY VEHICLE LOCAL ROAD REPORT

(Provided separately)

D CONSTRUCTION PARKING AND ACCESS STRATEGY

(Provided separately)

E ROAD SAFETY AUDIT REPORT

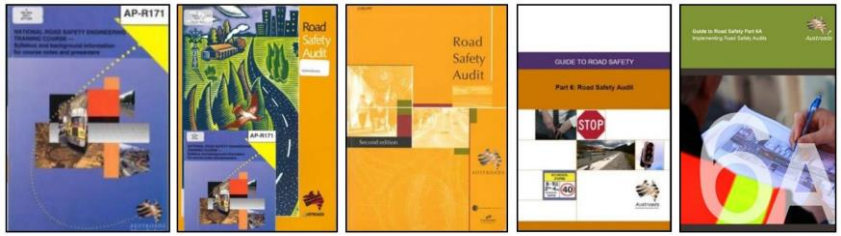
Road Safety Audit Report

Sydney Metro West – Western Tunnelling Package

Practical
Independent
Specialised

Road/Area	Unwin Street and Kay Street		**Road Safety Audits Reference**	RSA-13223
Traffic Stage/Phase	Clyde/Rosehill Site Operations – Stage 1		**Report Date**	12 October 2022
Audit Stage	*Desktop* Traffic Guidance Scheme		**Lead Auditor** **Second Auditor**	
Client			**TMP / Drawings**	CTMP - Clyde/Rosehill Site Operations Stage 1 dated 12 October 2022. Ref: SMWSTWTP-GLO-CLJ-TF-PLN-000001.
Client Contact			**Report Provider**	Road Safety Audits

Desktop TGS General Scope: The scope of the audit is to assess the plans on their merits and in the context of the road environment, with standards and guidelines as a reference.



Sydney Metro West – Western Tunnelling Package Clyde/Rosehill Site Operations – Stage 1				
	Audit Point	**Treatment Option**	Responder: **Response**[x]	**Status**[y]
1.	The routes and measures described in the CTMP are considered to be appropriate and no roads safety issues are identified. The proposed signage in relation to the road works and approaches to the work sites on Unwin Street and Kay Street are consistent with current guidelines and standards. No road safety issues are identified.	Nil. Note only Risk: N/A	Noted	Closed
2.	It is noted that water filled barriers are proposed along the eastern side of Unwin Street south of the Moxy crossing point. Waterfilled barrier are also proposed on both sides of Kay Street along the curve and east of the curve. It needs to be recognised that any barrier, including water filled barriers, are a hazard and they should only be installed to shield a work area or roadside hazard that can cause a greater level of injury compared to a vehicle striking the safety barrier. In this case, it appears that the water filed barrier are proposed as a channeliser device to narrow the available pavement width at the subject locations. The use of water filled barriers as proposed is not supported from a road safety perspective.	Review. Consider the use of channeliser devices such as Klemmfix instead of water filled barrier. Risk: Low to Medium	Temporary traffic control is still occurring through the area and the waterfilled barriers were selected to give the Traffic Controllers a safer operation as Klemmfix can be easily trafficked increasing the risk to a traffic controller. The speed limit in the area has been limited to Roadwork 40kmh 24/7 in the area so the chances of any injury occurring to drivers impacting a waterfilled barrier is low. See comment 4 for additional supporting information.	Closed

Sydney Metro West – Western Tunnelling Package Clyde/Rosehill Site Operations – Stage 1				
	Audit Point	**Treatment Option**	**Sue Lewis Consulting** Responder:	
			Response[x]	**Status**[y]
3.	Proposed lane widths of 4.0m (centreline to water filled barrier installation) is inconsistent with current standards for minimum clear pavement width that should be available for passing of a broken down vehicle. Drivers would have to cross the centreline to pass a stationary vehicle and this is not considered to be appropriate from a road safety perspective.	Review. Ensure that there a is minimum clear pavement width of 5m along each lane. The actual traffic lane width can be narrowed by line marking the edge line (effectively creating a traffic lane and shoulder). Risk: Low to Medium	Lane 1 is a parking lane in the current configuration so the lane is actually wider in the proposed changes than what it would be with a vehicle parked and the through traffic lane.	Closed
4.	Based on the proposed installation of No Stopping signs along Unwin Street, Kay Street and Wentworth Street, it appears that existing kerbside parking will no longer be permitted. The removal of the kerbside parking creates excessively wide traffic lanes which can result in higher traffic operating speeds and drivers forming two lanes along the subject locations. The wider lanes and the need for drivers to merge on the approaches to the proposed lane narrowing, combined with the expected higher operating speeds, can increase the potential for crashes.	Review. It would be preferable to retain the kerbside parking to maintain traffic flow in a single lane. Risk: Low to Medium	Due to the removal of the Industrial estate no vehicles are parking on these streets which is creating the higher operating speeds through the area due to the width of the road. This is the reason for the No Stopping signs and the implementation of the waterfilled barriers through the area.	Closed

Explanatory Notes

Short Format: This 'short format' report has been pioneered by RSA (Road Safety Audits) since 2008, initiated through requests by clients to assist their processes, for ease with stakeholders, and for timeliness. It is typically confined in use to construction traffic management and typically for discrete packages of plans / areas and often for large projects with repetitious small audit sections. The use of this format assumes that the reader/s know what a road safety audit is and how to respond to it.

Projects: Audit points are often raised in projects in relation to: 1. specific themes (e.g. the use of a safety barrier type), or 2. the treatment of particular locations. Once key issues have been initially raised, they will not necessarily be re-raised in future audits. This will depend on the issue, the RSA's perception of the client's assessment and understanding of the issue, and other factors. Therefore, discrete audits as part of a project should be read and actioned by a **project representative who is familiar with the audit history**.

Responding: Although the client receiving the report does not have to agree to the audit findings/suggestions, the issues and associated risks should be carefully considered. A written response should be made to all of the audit findings raised, then signed off by the responsible person from the project team.

[X]**Response**: The responder should focus on and consider the **audit point**, regardless of whether the audit team's suggested treatment option is feasible / appropriate / agreed to.

[Y]**Status**: The status of the issue as it sits with the Project. i.e. 'actioned', 'closed', 'pending information / further guidance'.

Language:

Austroads Road Safety Audit Part 6 suggests that the organisation responding to the audit provides a risk assessment. However, RSA will at times offer a guide of 'high' 'medium' and 'low' risk, which is based on a professional appraisal of the risk ('severity' and 'frequency') for the responder to use as a guide. Other language commonly used and its intent is as follows:

- 'Urgent': Needs immediate attention / changes as per RSA suggestion or similar.
- 'Recommend' / 'Serious' / 'Important': Must be robustly reviewed. Most likely requires a change to avoid a high-risk road environment for one or more user groups.
- 'Should' / 'Suggest' / 'Significant': Based on the view of the RSA team the suggestion should be done, but it concedes that there could be reasons why inaction or alternative action may be preferred. Must be robustly reviewed by contractor and where relevant with key traffic engineering project stakeholders.
- 'Review' / 'Consider': RSA is raising an observation but has no *strong* opinion on the outcome and need for changes. Project should review because it's not an immediate and high risk and may not be immediately obvious to RSA the reasons for the practice / setup / behaviour. May need monitoring.
- 'Minor': Typically, a low road-safety consequence / compliance issues (to guidelines or plans) / administrative controls. Unlikely to increase risk of crash.
- 'Note': Little or no road safety significance. Typically added to give a complete picture of the design, site, context, analysis, auditors understanding.

Intent of Issues Listing Order: Audit points might be clustered according to location, theme, or time. When this is not done and the audit comprises an uncategorised list of points, the key issues are often discussed first. However, there is no official ordering of points, and they should all be read on their merits and on the basis of the language guide above.
References: 1. Austroads Guide to Road Safety – Road Safety Audit – (2019) 6 and 6A; 2. AS 1742.3 – 2019; 2. State specific codes and guidelines re: Traffic Control at Work Sites; and 3. Design: 1. Austroads guidelines and 2. state-specific supplements and technical publications as relevant.

Safe System: Austroads GRS-RSA6A encourages practitioners to adopt safe system principles within the road safety audit. Safe system (roads) calls for a design to not allow serious injury and fatalities to occur for the expected road users and the typical crash types expected for that design type. This design-objective is considered within this road safety audit as a good practice objective. However, in practice, safe system-based analysis of risks and treatment options is typically not adopted for traffic management stage audits in the same way as it is in design stage audits.

Process and Quality: RSA's quality assurance process is based on its senior auditors having a rich experience base, but also utilises customised checklists designed for niche areas in traffic engineering/road design (e.g. safety barriers, pavement shaping, CBD traffic management), in conjunction with a four-layer audit process: 1. on-site inspection; 2. media and data capture and review; 3. specialist / second auditor input; and (where warranted) 4. secondary blinded reviews.

Audit Coverage: The audit has attempted to balance the safety needs of all road users. As per Austroads guidelines, the suggestions provided have attempted to be realistic/feasible and commensurate with the actual risk posed. Suggestions are made from a safety perspective only, and are made in the absence of full project knowledge and design constraints. RSA can provide a detailed risk assessment / issue evaluation report upon request. The audit raises potential safety risks noted / observed / anticipated by the audit team, and in particular the higher-risk issues. However, a road safety audit is undertaken by people, highly influenced by the experience, views and limitations of the individual team members. It is expected that the project team has competence to identify safety issues itself as the project progresses, and to ask the audit team further questions where necessary.

ROADWORKS
ROAD SAFETY AUDIT

GLC-WTP – Rosehill Traffic Control Works – TGS Audit

Civlink Consulting Pty Ltd
ABN 64 633 194 948
Telephone +61 432 544 458
Email Website www.civlink-consulting.com.au

CONTENTS

Document Control

Title:	Description
Ref No.:	20230228 – GLC – WTP – RSA 0003 - 00
Description:	Roadworks road safety audit on the selection of Traffic Guidance Schemes and Stage 1A staging plans provided for the Rosehill precinct works. The plans were provided as part of the Western Tunnel Package construction works at the Rosehill Station

Role	Name	Position	Date	Signed
Author:		LEVEL 3 ROAD SAFETY AUDITOR	28.02.2023	
Approved by:		LEVEL 3 ROAD SAFETY AUDITOR	28.02.2023	

Document Revisions

No.	Date	Issue / Description
00	28.02.2023	ORIGINAL ISSUE

Author: Alex Gosper

Reviewer: Louis Peau

Approved by: Alex Gosper

Date 28.02.2023

Distribution: Sue Lewis (Sue Lewis Consulting)

Executive Summary

Audited Project:	Sydney Metro – Western Tunnel Package
Audit for:	Gamuda Australia and Laing O'Rourke Construction (Western Tunnel Package)
Address:	N/A
Audit Type:	Roadworks road safety audit
Commencement Meeting:	22nd February 2023
Site Visit:	N/A – no site visit conducted as part of this audit. Site has been visited as part of previous site road safety audits.
Completion Meeting:	To be advised
Previous Audit:	Site audit of implemented construction changes on site.

This Roadworks Road Safety Audit reviewed the selection of Traffic Guidance Schemes and Stage 1A construction staging plans provided for the Rosehill precinct works. The plans were provided as part of the Western Tunnel Package construction works at the Rosehill Station. The audit checked that the proposed arrangements are 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 28.02.2023

The road safety audit identified a number of possible deficiencies, each of which have had a risk classification as medium and low and are listed in Section 4 - Audit Findings.

1. Introduction

1.1 Purpose of Audit

This report presents findings of a roadworks road safety audit. The audit will review the Traffic Guidance Schemes and Stage 1A staging plans proposed for use around the Rosehill Station precinct as part of the Sydney Metro - Western Tunnel Package construction works.

The audit is conducted to verify the planning documents for the works, 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 Traffic Guidance Schemes being audited are located in the areas highlighted in red as shown in Figure 1, below;

Figure 1: Desktop Road Safety Audit Scope [Source: Nearmap]

1.2 Audit Objectives

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

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

- Check the compatibility between the traffic management's safety features and the functional classification of the roads.
- Identify any design 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 RTA 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, 2021.

1.4 Audit Team

This Audit Team consisted of:

a) **Alex Gosper** (Civlink Consulting Director / Traffic Manager / Senior Civil Engineer). Alex is a registered Road Safety Auditor with the Institute of Public Works Engineers Australia, NSW and Senior auditor in both VIC & QLD. Alex is a registered Level 3 Road Safety Auditor in NSW.

b) **Sue Lewis** (Sue Lewis Consulting Pty Ltd) Sue has 20+ years experience in the traffic industry, with significant experience working on some of the largest infrastructure projects in Australia. Sue is a Level 2 Road Safety Auditor in NSW.

c) **Declan C Mc Garry** (CGU) Declan has more than 5 years experience working in traffic management roles across a number of significant infrastructure and upgrade projects in NSW. Declan is a Level 1 Road Safety Auditor in NSW.

d) **Abdullah Khan** Abdullah has more than 7 years' experience in the traffic industry across a number of State Significant Infrastructure projects in NSW. Abdullah is a Level 1 Road Safety Auditor in NSW.

2. Road Safety Audit Program

2.1 Commencement Meeting

Wednesday the 22nd of February a commencement email was received from Sue Lewis requesting a desktop audit be conducted on the traffic guidance schemes provided as part of the Rosehill precinct Sydney Metro station construction works. The audit was to be conducted by Alex Gosper, Lead Road Safety Auditor (Civlink Consulting) with the assistance of Louis Peau, Abdullah Khan and Declan McGarry. The audit was to be conducted on the provided Traffic guidance Schemes which included works on several roads around the Rosehill site.

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 traffic guidance schemes and might not address all concerns existing at the time of the audit. The auditors have endeavoured to identify features of the site 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.	TGS Reference	Description of Deficiency / Observation	Risk level
1	2023-0282	No issues identified	Note
2	2023-0221 – Intermittent Stoppage	The plan shows the traffic being stopped by a traffic controller and stop bat. It is unclear if the required risk assessment has been conducted in accordance with the Traffic Control at Worksites Manual. The position of the traffic controller is noted to be at the commencement of a permanent barrier and may provide adequate protection for the traffic controller however may also increase the liklihood of traffic passing the traffic controller without stopping when directed.	Likelihood – Possible Severity – Minor Risk Rating – Medium
3	2023-0221 – Intermittent Stoppage	The plan shows the traffic controller stopping traffic at 60m past the signals. It is unclear of the demand for this connection or the duration of the stoppage. Any queues exceeding the storage available may contribute to rear-end and side-swipe type collisions where queues extend onto James Ruse Drive.	Likelihood – Unlikely Severity – Moderate Risk Rating – Medium
4	2023-0214 – Parking prevention	No issues identified	Note
5	2023-0213 – Oversize load intermittent stoppage	No issues identified	Note
6	2023-0220 – 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	Likelihood – Unlikely Severity – Minor Risk Rating – Low

7	2023-0220 – 1 lane alternate	Some approaches appear to only have a single speed reduction sign on display. It is noted that there may be some other, existing long-term speed reductions in place as a result of construction works. Any speed reduction should be repeated or gated to align with requirements in the TCWS and TfNSW Speed Zoning guidelines. The absence of sufficient signage may contribute to higher speeds of traffic through site, and increased seveirty of run-off road incidents. It is noted that the typical speed of vehicles in this area is already quite low.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
8	TGS-060 - 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
9	2023-0217 – 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
10	TGS-059 – 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
11	Long term speed reduction	No issues identified	**Note**

12	TGS 009 – long term barriers	The barrier arrangement does not specify the type of barrier or the clearance provided to the works or excavation behind. Delineation of the barriers is not specified. There is no documented barrier design statement as suggested by section 6.7.2 of the TCWS. It is not stated if the barrier wil be of an approved type. Installation of barriers where the deflection is not catered for, or the barrier installation does not provide suitable protection for works may contribute to an increased severity of run-off road incidents. It is also noted that there are no end terminals stipulated for the barriers.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
13	TGS 008 – Long term gate management	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
14	TGS 005 & 6 – Stage 1 – western and eastern verge	The plans show implementation of what appears to be barriers protecting the eastern works and driveway gate. The barriers don't apopear to have a deflection zone provided behind, nor do they appear to have end terminals stipulated in the plan. It is noted that the speed of traffic in this area is relatively low, however an impact at 40 or 50km/h with a concrete barrier will still likely result in occupant injury.	**Likelihood – Unlikely** **Severity – Moderate** **Risk Rating – Medium**
15	TGS 005 – Stage 1 western verge	The plan shows what appears to be barriers on the western verge, protecting works. The barriers do not show any clear delineation or alignment markers to channel traffic onto the opposing (southbound) lane. This may contribute to some confusion or hesitation and potentially some low-speed side-swipe or run-offroad incidents.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
16	TGS 004 – Line marking	The plan details traffic controllers utilising stop bats. It is unclear if necessary risk assessments to hold traffic without a PTCD have been completed in accordance with TCWS.	**Note**
17	TGS 003 – Line marking	No issues identified	**Note**

18	BG01-UNW	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles. It is also unclear if the plan is to be established within an existing 40km/h zone. Where it is incorporating a new, reduced speed zone the signs should be duplicated or repeated (in accordance with TCWS) and an end roadwork sign with a speed reinstatement should be included.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**
19	TGS-POED-ALL-1101	No issues identifeid	**Note**
20	Appendix H – Road Design Drawings	Road plates are specified in various locations in the design drawings. It Is unclear if the road plates will be prepared and installed in accordance with TfNSW Specification 3368 for the skid resitatnce coating, or if they are to be installed in accordance with TfNSW Specification M209. Poorly installed road plates can contribute to motorcyclists loss of control or vehicles impacting excavations the plates are intended to protect.	**Note**
21	Tremporary traffic island plans	No issues identified	**Note**
22	Traffic staging plan – Stage 1A	Barriers are shown on Unwin Street in a number of locations. The approach terminals at each end of the barrier are not specified. Insufficient protection may contribute to a higher severity of run-off road incidents. No defelction / no-go zone is defined on the plans either, nor is it clear what type of barriers are proposed for use. Delineation and lighting is also unclear. It is noted that the prevailing speed of traffic in this area is relatively low however run-off road incidents involving barriers may contribute to occupant injury.	**Likelihood – Unlikely** **Severity – Moderate** **Risk Rating – Medium**
23	Traffic staging plan – Stage 1A	The northbound approach to site on Wentworth Street (Shown on sheet 1 of 9) only has a second lane develop for a very short distrance before the introduction of the new merge arrangement. The inclusion of the auxiliarly / second lane for a short distance may contribute to driver confusion and potentially some low-speed side-swipe type collisions.	**Likelihood – Unlikely** **Severity – Minor** **Risk Rating – Low**

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 Stage 1A staging plans and associated traffic guidance schemes as part of the Sydney Metro West construction project. 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.

Appendix A – Supporting information

Document Number	Revision	Description
Appendix H – Road design drawings (Stage 1A Construction staging drawings)	3	Construction Staging Plans
Appendix B – Traffic guidance schemes (multiple)	Multiple	A variety of Traffic Guidance Schemes for the operation of the site at Rosehill Station precinct

Gamuda Laing O'Rourke
Project: Western Tunnel Project (Sydney Metro)
Issued Date: 28/02/2023

Item	Reference	Comment	Client's Response/Action for Resolution	Close out Date
1	2023-0282	No issues identified	CLOSED	2/3/2023
2	2023-0221 – Intermittent Stoppage	The plan shows the traffic being stopped by a traffic controller and stop bat. It is unclear if the required risk assessment has been conducted in accordance with the Traffic Control at Worksites Manual. The position of the traffic controller is noted to be at the commencement of a permanent barrier and may provide adequate protection for the traffic controller however may also increase the liklihood of traffic passing the traffic controller without stopping when directed.	Updated with Ute and TC behind concrete barriers CLOSED	6/2/2023
3	2023-0221 – Intermittent Stoppage	The plan shows the traffic controller stopping traffic at 60m past the signals. It is unclear of the demand for this connection or the duration of the stoppage. Any queues exceeding the storage available may contribute to rear-end and side-swipe type collisions where queues extend onto James Ruse Drive.	The stoppage will be for 5 min while the TBM crosses the Grand Ave bridge and it will occur late at night when traffic numbers are minimal CLOSED	6/2/2023
4	2023-0214 – Parking prevention	No issues identified	CLOSED	2/3/2023
5	2023-0213 – Oversize load intermittent stoppage	No issues identified	CLOSED	2/3/2023
6	2023-0220 – 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	Updated - CLOSED	6/2/2023
7	2023-0220 – 1 lane alternate	Some approaches appear to only have a single speed reduction sign on display. It is noted that there may be some other, existing long-term speed reductions in place as a result of construction works. Any speed reduction should be repeated or gated to align with requirements in the TCWS and TfNSW Speed Zoning guidelines. The absence of sufficient signage may contribute to higher speeds of traffic through site, and increased seveirty of run-off road incidents. It is noted that the typical speed of vehicles in this area is already quite low.	In this area the road is already limited to 40km/h. Signs on TGS are additional signage to support the 40km/h speed limit CLOSED	2/3/2023
8	TGS-060 - 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	Updated - CLOSED	6/2/2023
9	2023-0217 – 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	Updated - CLOSED	6/2/2023
10	TGS-059 – 1 lane alternate	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	Updated - CLOSED	6/2/2023
11	Long term speed reduction	No issues identified	CLOSED	2/3/2023
12	TGS 009 – long term barriers	The barrier arrangement does not specify the type of barrier or the clearance provided to the works or excavation behind. Delineation of the barriers is not specified. There is no documented barrier design statement as suggested by section 6.7.2 of the TCWS. It is not stated if the barrier wil be of an approved type. Installation of barriers where the deflection is not catered for, or the barrier installation does not provide suitable protection for works may contribute to an increased severity of run-off road incidents. It is also noted that there are no end terminals stipulated for the barriers.	This plan was previously approved through an RSA and CTMP submission. Barriers are detailed within the CTMP and no one will be working behind the barriers. CLOSED	2/3/2023
13	TGS 008 – Long term gate management	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles.	Updated CLOSED	6/2/2023
14	TGS 005 & 6 – Stage 1 – western and eastern verge	The plans show implementation of what appears to be barriers protecting the eastern works and driveway gate. The barriers don't apopear to have a deflection zone provided behind, nor do they appear to have end terminals stipulated in the plan. It is noted that the speed of traffic in this area is relatively low, however an impact at 40 or 50km/h with a concrete barrier will still likely result in occupant injury.	This plan was previously approved through an RSA and CTMP submission. Barriers are detailed within the CTMP and all have had crash cushions. Deflection zones are ahered to and managed onsite whilst working behind the barriers CLOSED	2/3/2023
15	TGS 005 – Stage 1 western verge	The plan shows what appears to be barriers on the western verge, protecting works. The barriers do not show any clear delineation or alignment markers to channel traffic onto the opposing (southbound) lane. This may contribute to some confusion or hesitation and potentially some low-speed side-swipe or run-offroad incidents.	This plan was previously approved through an RSA and CTMP submission. Barriers are detailed within the CTMP and all have had crash cushions. Deflection zones are ahered to and managed onsite whilst working behind the barriers	2/3/2023
16	TGS 004 – Line marking	The plan details traffic controllers utilising stop bats. It is unclear if necessary risk assessments to hold traffic without a PTCD have been completed in accordance with TCWS.	Updated to PTCD CLOSED	6/2/2023
17	TGS 003 – Line marking	No issues identified	CLOSED	2/3/2023
18	BG01-UNW	TCWS suggests cones are used to channel traffic approaching a PTCD (boom gate). This doesn't appear to be incorporated into the plan and may see some vehicles attempt to pass the boom gate when closed. This may contribute to some low speed collisions with plant or other vehicles. It is also unclear if the plan is to be established within an existing 40km/h zone. Where it is incorporating a new, reduced speed zone the signs should be duplicated or repeated (in accordance with TCWS) and an end roadwork sign with a speed reinstatement should be included.	Updated. Cones added and TGS is within a Roadwork 40km zone. CLOSED	2/3/2023
19	TGS-POED-ALL-1101	No issues identifeid	CLOSED	2/3/2023
20	Appendix H – Road Design Drawings	Road plates are specified in various locations in the design drawings. It Is unclear if the road plates will be prepared and installed in accordance with TfNSW Specification 3368 for the skid resitatnce coating, or if they are to be installed in accordance with TfNSW Specification M209. Poorly installed road plates can contribute to motorcyclists loss of control or vehicles impacting excavations the plates are intended to protect.	Road plates will be orderd with skid resistant coatings that meet the TfNSW Spec 3368. VMS and warning signs will also be installed whilst plates are in position CLOSED	2/3/2023
21	Tremporary traffic island plans	No issues identified	CLOSED	2/3/2023
22	Traffic staging plan – Stage 1A	Barriers are shown on Unwin Street in a number of locations. The approach terminals at each end of the barrier are not specified. Insufficient protection may contribute to a higher severity of run-off road incidents. No defelction / no-go zone is defined on the plans either, nor is it clear what type of barriers are proposed for use. Delineation and lighting is also unclear. It is noted that the prevailing speed of traffic in this area is relatively low however run-off road incidents involving barriers may contribute to occupant injury.	This plan was previously approved through an RSA and CTMP submission CLOSED	2/3/2023
23	Traffic staging plan – Stage 1A	The northbound approach to site on Wentworth Street (Shown on sheet 1 of 9) only has a second lane develop for a very short distrance before the introduction of the new merge arrangement. The inclusion of the auxiliarly / second lane for a short distance may contribute to driver confusion and potentially some low-speed side-swipe type collisions.	This plan was previously approved through an RSA and CTMP submission CLOSED	2/3/2023

F STAKEHOLDER CONSULTATION

Meeting Minutes

WTP – Australian Turf Club (ATC) Fortnightly PCG

Date:	26th September 2022	**Times:**	14:00 to 14:45
Venue:	Microsoft Teams		
Chairperson:		**Minutes:**	
Attendees:			
Apologies:			

	Agenda item	Responsibility	Date
1	Welcome **Acknowledgement of country** I would like to acknowledge Aboriginal peoples as the traditional owners and custodians of the land on which we are all meeting today. I would also like to pay my respects to Elders, past and present and acknowledge other Aboriginal people joining this meeting today and their respective cultures and nations.	Chair	

	Agenda item	Responsibility	Date
Current Scopes and possible impacts to ATC			
2	**Pedestrian Access to ATC**	GLC	Ongoing
2.1	Full timber hoarding around new walkway is planned to commence shortly with post installation, hoarding planned the week after. Full scope not completed for approx. 3 weeks due to steel fabrication, roller gates, boom gates and painting (updated in the 1WLA) planned start works on the Wk26th Sept	GLC	Wk26th
2.2	Race day Saturday 24th - any comments • Security breach into GLC area on the race day – email sent from ATC – Metro (JN Review and comment) • Boom gates • Access to site via water filled barriers • Race event this Wednesday 28th	ATC	Note
2.3	Water ponding on scaffold flat ramp, GLC and amend scaffolding or put a drain in GLC installed drain holes and Carpet – Completed 20/09/22 • GLC to review threshold between timber / carpet and concrete/carpet – look at a trim to be installed	GLC	Completed
~~2.6~~	~~ATC request 3 x extra bollards Western end of the new ATC walkway – confirmed by GLC (JN) to be completed. Confirm date to be completed by GLC NF to walk with MS~~	~~JN/NF~~	~~Site walk 14/09/22~~ ~~Completed 20/09/22~~
2.7	All ATC works within GLC land fencing/ electrical works etc. must be to be reviewed Site worked planned 08:30 28/09/22 (JN/HK)	HK/JN	26/09/22
2.8	Hoarding colour under review – Requested by ATC to be Royal Blue and no transport branding – with PK	PK	26/09/22
2.9	ATC have an event this Wednesday 28th Sept, GLC committed to not undertaking any works across this walkway.	JN	28/09/22
3	**Tree Clearing adjacent to Stables**	**GLC**	
3.1	Scope approx. 3 - 4 weeks away (ATC preferred after the 17th Oct) ATC requested not be completed 2 weeks prior to the 15th – 16th October Raceday – Race not at Rosehill but a lot of media within the stables • No tree removal 2 weeks prior to the 15th Oct – adjacent to the stables – GLC to review program etc. (JN) • Area 1 - Start tree removal on the Southern end of site (Unwin St South moving towards the Stables) Start Wk26 Sept – Works started 26/09/22 consultation is with ATC/Metro regarding 2no. trees closer to the stables on Unwin St. No issues 10am Tuesday 27th • Area 2 - Start tree removal North of the stables 17th – 19th October • Area 3 - Start tree removal adjacent to the North stables 19th – 21st October • Area 4 - Start tree removal adjacent to the South stables 24th – 26th October • Site walk required Areas 2,3 and 4 – planned 9am 28/09/22 • JN requested from PK what was sent to ATC to GLC are aware.	Metro/GLC	South of site 26th September North Stables 17th Oct Stables 19th – 26th October

	Agenda item	Responsibility	Date
3,2	Interface areas: • (PK) noted that within the stables the roller door can be pulled down and the blinds raised to support mitigation measures • Comments on no noise barrier being built prior to tree removal and earthworks – GLC noted there will be a methodology sent through with localised noise mitigations in place • No Vegetation clearing from 15th – 16th Oct and 2 weeks prior – media events within stables – request from ATC • GLC/Metro to brief presentation to ATC – ongoing with Metro/ATC site walk Wed • GLC/SM/ATC to agree on mitigations and dates to start a stated above	Metro	notes
4	**Geotechnical investigation with ATC**	GLC	
4.1	 Area reinstated – GLC to brief ATC on a return date Check area weekly on Mondays – Ongoing (checked and no concerns 26/09/22)	GLC	ongoing
5	**Service searching 1500 Water main / HV route (South of Stables)**	**GLC**	**Ongoing**
5.1	Works to start after 9am and will continue Monday and Tuesday next week GLC to send through the location of the truck and works to allow consultation with the trainers	GLC	13/09/22 ongoing
~~**6**~~	~~**Geotechnical/Service searching works on Unwin Street**~~	**GLC**	**12/09/22**
~~6.1~~	~~Test pits being completed Saw cutting to be completed after 9am~~ ~~DSI Bore holes within sites~~	~~GLC~~	~~12/09/22~~ ~~Completed~~
7	**Ongoing works**	**GLC**	**09/09/12**
7.1	Survey monitoring within ATC P4 carpark (theodolite only) – No issues to complete review events	GLC	Daily
7.2	Drone flights every 1-2 weeks pending on scope	GLC	Every 1-2 weeks
~~7.3~~	~~Concrete barrier installation M4 off ramp – night works~~ ~~Monday, Tuesday Thursday night this week only – no issues~~	~~GLC~~	~~Ongoing~~ ~~Completed~~
Future Scope			
5	Remove/relocation (onsite) of Pedestrian footbridge • Date to commence - October	GLC	~~Wk26 Sept~~ October
6	Stay Pole on the platform near gate house – stay wires to be removed within ATC area – (Date TBC) – no issues to complete.	NF/HK	Note
Other Business			
~~8~~	~~GLC to preplace prisms on the gate house – 30 minutes low impact – No issues to complete~~	~~GLC/ATC~~	~~13/09/22~~ Completed

	Agenda item	Responsibility	Date
9	Request for GLC to Install of ATC Signage (wording to be confirmed) No construction works, no construction parking, ATC event parking only etc, as an extra mitigation for the P4 carpark. Arrange separate meeting (NF)	GLC/ATC	~~Arrange site meeting NF 14/09/22~~ Signs Ordered
10	Trucks and trailers removing large amounts of spoil daily through Unwin St – no concerns	GLC	Note Ongoing
11	ATC review the Traffic management on Unwin St to check if there is any concerns with road access / wait times etc for horse floats and access to ATC access. Presented by (GLC Traffic Manager)– Unwin Street Traffic changes as per TCLG (attached) • No issues from ATC – just noting to review race weekends and days	MS/NF	Note
12	Sydney Trains has requested Metro to follow up ATC with 2no. service agreements that run through the North of the GLC site. Sydney Trains has requested these be extinguished. These corridors run underneath where GLC will store the footbridge once removed. PK following up	PK/HK	ongoing
	Close	**Chair**	

West

Unwin St Traffic Changes

Thursday 15th Septermber

The sites

- Clyde Maintenance and Stabling Facility (MSF)
- Clyde Dive
- Rosehill site

West

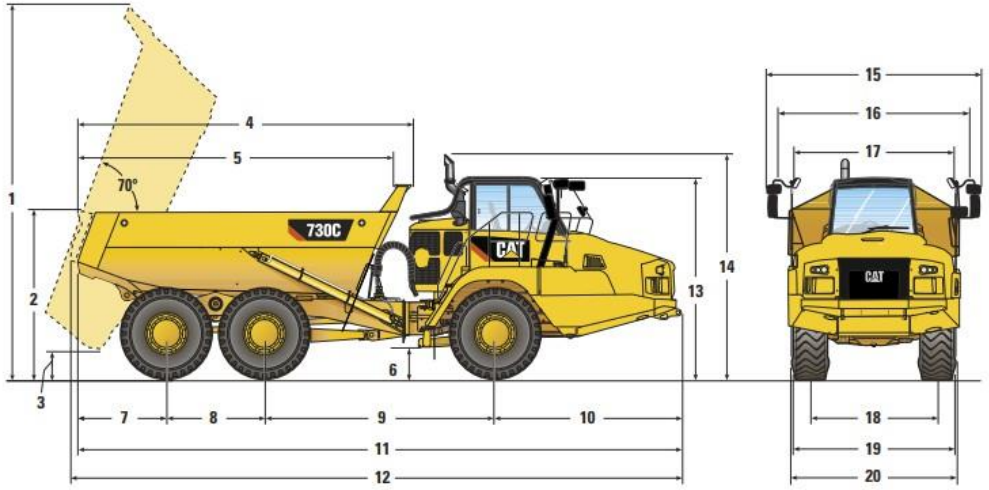
The sites – Clyde Dive

Haul Road – Unwin St Crossing

Background

1. During the Request for Tender GLC discussed the proposal to install temporary traffic signals on Unwin Street to facilitate the movement between the eastern and western construction sites that are adjacent to Unwin Street
2. The intention is to run un-registered Moxy's across Unwin Street
3. The use of temporary signals and other traffic control solutions were assessed through a multi criteria analysis (MCA)
4. The outcome of the MCA was that the installation of temporary boom gates with portable traffic signals was a cost effective and safe operation to facilitate Moxys crossing
5. Unwin Street between west of Shirley Street and Wentworth Street will be replaced with a bridge and the existing road decommissioned.

40t Dump Truck (Moxy)



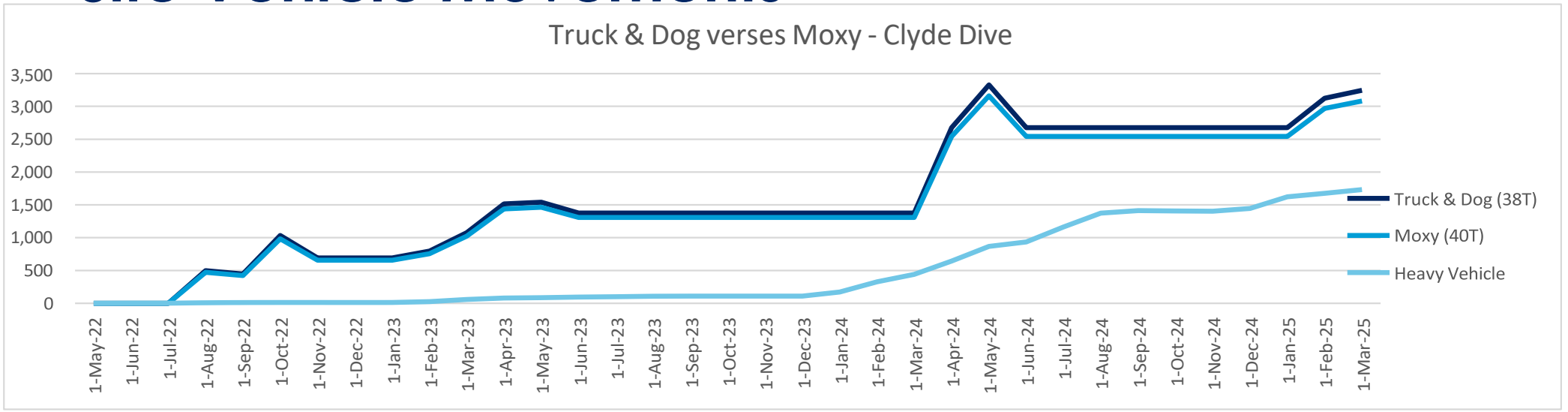
	mm	ft/in
1	6464	21'3"
2	2911	9'7"
3	559	1'10"
4	5783	19'0"
5*	5411	17'9"
6	543	1'9"
7	1556	5'1"
8	1700	5'7"
9	3979	13'1"
10	3210	10'6"

	mm	ft/in
11	10 445	34'3"
12**	10 555	34'8"
13	3482	11'5"
14	3779	12'5"
15	3704	12'2"
16**	3268	10'9"
17	2902	9'6"
18	2275	7'6"
19***	2877	9'5"
20****	2950	9'8"

Proposed pavement design key considerations

- Kerbs will be remodelled to allow for swept paths in and out of the gates
- The proposed number of vehicles including the axle loadings of the vehicles
- The pavement design will be Proof Engineered in line with the technical requirements of the Western Tunnelling Package contract.
- Duration of the boom gate/portable signal operations would be between the completion of the local area works in 2022 and November 2024.

Site Vehicle Movements



- Moxys peak: 3,161/21 working days = 150 per day / 10 hours per day = 15 per hour
(2 x Moxy's will cross under the same stoppage at approx. every 7.5mins for max 30 second stoppage)
- Remaining heavy vehicle movements peaks: 2,141/21 working days =102 /10 = 10 per hour
- Vehicle movements: 25 per hour

Traffic volumes

- EIS noted that vehicle volumes on Unwin Street prior to the demolition works occurring

Table 10-16: Clyde stabling and maintenance facility construction site existing traffic volumes (2019)

Road	Direction	Morning peak hour (vehicles per hour)	Evening peak hour (vehicles per hour)
Unwin Street west of Colquhoun Street	Eastbound	220	190
	Westbound	280	130

Traffic volumes

Road	Unwin Street
Location	Midway Between Unwin Street And Kay Street
Suburb	Rosehill
Site No.	966201
Start Date	Wednesday 15/06/2022
Direction	Northbound

Average Weekday	1744
All Day Average	1389
Weekday Heavy's	37.1%
All Day Heavy's	36.0%

Starting Time	Day of Week						
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	20-Jun	21-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun
AM Peak	138	144	130	156	146	74	21
PM Peak	171	160	154	145	171	60	17

Road	Unwin Street
Location	Midway Between Unwin Street And Kay Street
Suburb	Rosehill
Site No.	966201
Start Date	Wednesday 15/06/2022
Direction	Southbound

Average Weekday	1927
All Day Average	1537
Weekday Heavy's	37.1%
All Day Heavy's	36.1%

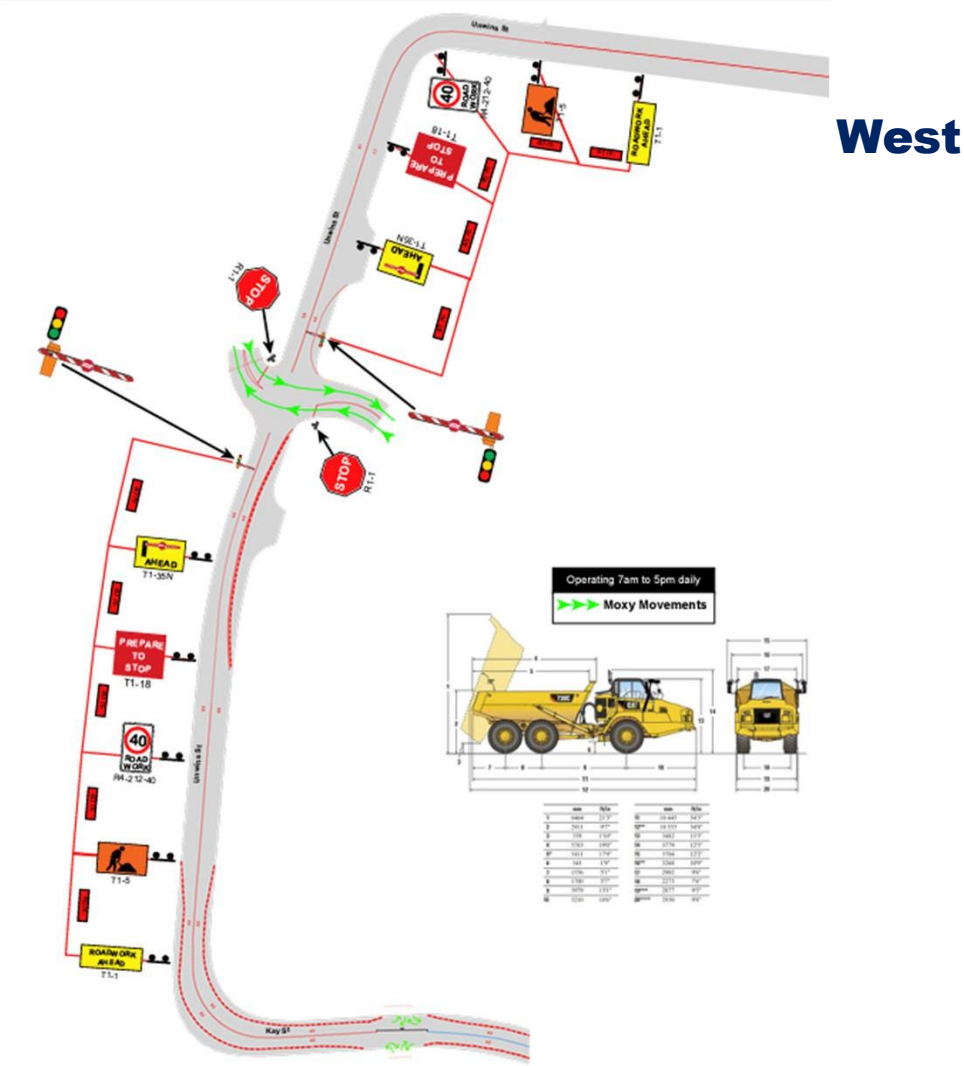
Starting Time	Day of Week							Ave W'day
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
	20-Jun	21-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	
AM Peak	234	209	214	218	222	103	20	
PM Peak	156	149	110	91	128	44	26	

- Austraffic counts undertaken on Unwin St between Unwin Street and Kay Street in June 2022

- Vehicles volumes have reduced from the EIS counts in 2019

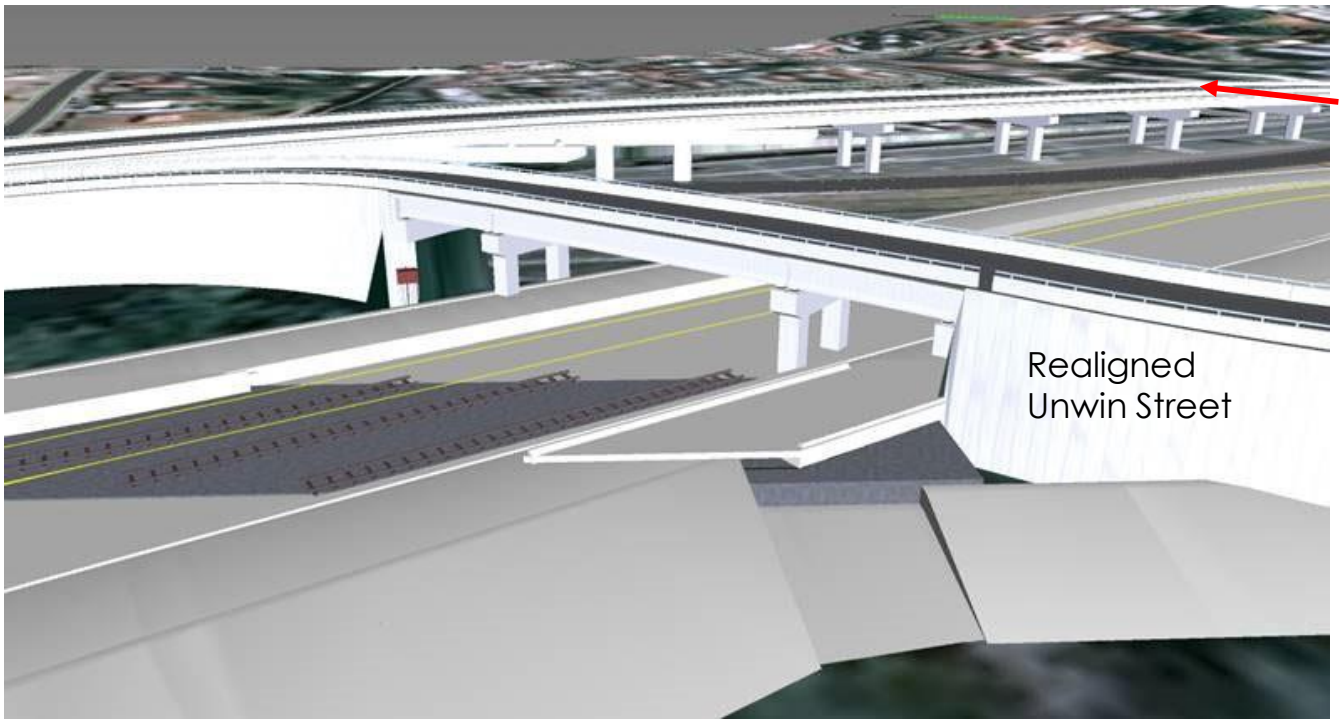
Haul Road Crossing

- Boom gate operation will only occur for the Moxys operating daily between 7am and 5pm
- All other vehicles can enter and exit site under normal traffic conditions, stopping at the stop signs when exiting site to ensure it is safe to proceed
- If boom gates fail to activate Moxys are to cease operation until they are rectified
- Signs to be installed on permanent posts and covered when boom gates are not in operation
- Weekly inspections to be completed prior to commencing operation
- Shift inspections to be carried out regularly during the day



Unwin Street – End State

Clyde / Rosehill Bridge Works – End State



Questions and answers

G INSPECTIONS AND CHECKLISTS

Audit Details			
Audit Date:		**Audit Time:**	
Address:	Clyde/Rosehill Site		
WTP Site:		**Subcontractor:**	
Person completing the audit:			
GLC Supervisor on site:		**Position:**	

Traffic Control Crew Details			
Crew Members:			
Are all the workers inducted on WTP?	Yes ☐	No ☐	Comments:
Are all the workers inducted on the currently Site?	Yes ☐	No ☐	Comments:

Work zone Inspection				
TGS:			**ROL:**	
Is a copy of the location TMP and relevant TGS available?			Yes ☐	No ☐
Is the TGS implemented on the correct way?			Yes ☐	No ☐
Comments or details of action taken:				
Have any adjustments been made to the approval TGS?			Yes ☐	No ☐
If yes, provide details:	Are changes within tolerance? **If no, TGS must be reviewed by a PWZTMP**		Yes ☐	No ☐
	Have changes been approved? **If no, TGS must be approved**		Yes ☐	No ☐
Comments or details of action taken:				
Have all signs and devices been installed in accordance with approval TGS?			Yes ☐	No ☐
Comments or details of action taken:				

Are the PTCD positioned as prescribed on TGS?	Yes ☐		No ☐
Comments or details of action taken:			
Are sign and devices in good condition, clearly visible to road users?	Yes ☐		No ☐
Comments or details of action taken:			
Are all signs mounted level and suitably clear of travel lanes?	Yes ☐		No ☐
Comments or details of action taken:			
Are conflicting or non-applicable signs covered or removed?	Yes ☐	No ☐	N/A ☐
Comments or details of action taken:			
Is temporary delineation installed as prescribed i.e., straight line forming taper?	Yes ☐		No ☐
Comments or details of action taken:			
Are manual traffic controllers clear of travel lane, have suitable escape route?	Yes ☐		No ☐
Comments or details of action taken:			
Are site accesses and egresses well defined and safe for work vehicles?	Yes ☐		No ☐
Comments or details of action taken:			
Are registered trailers i.e., VMS / light towers; suitably clear of travel lanes and delineated?	Yes ☐	No ☐	N/A ☐

Comments or details of action taken:				
Are temporary speed zones operating as prescribed?		Yes ☐	No ☐	N/A ☐
Comments or details of action taken:				
Are workers on foot / plant clearances been applied / observed?		Yes ☐	No ☐	N/A ☐
Comments or details of action taken:				
Is the TGS valid for the site activity and operating safely as intended?		Yes ☐	No ☐	
Comments or details of action taken:				
Is TGS appropriate for the current traffic conditions?		Yes ☐	No ☐	
Comments or details of action taken:				
Have potential hazards identified in TGS been addressed? i.e., end-of-queue management		Yes ☐	No ☐	
Comments or details of action taken:				
Has the team leader completed the daily pre-start and risk assessment? **Please attach a copy to this audit**		Yes ☐	No ☐	
Comments or details of action taken:				
Is the Traffic Control crew with adequate PPE?	**Hi Vis Long Sleeves**	Yes ☐	No ☐	
	Pants	Yes ☐	No ☐	

	Hard Hat	Yes ☐	No ☐
	Steel cap boots	Yes ☐	No ☐
	Gloves (clipped when not in use)	Yes ☐	No ☐
	Safety Glasses	Yes ☐	No ☐
Is the crew equipped with 2-way radios		Yes ☐	No ☐
Is the communication between crew members clear?		Yes ☐	No ☐
Is any of the crew members showing fatigue signs?		Yes ☐	No ☐

General overview		
Is the job site safe to continue the works	Yes ☐	No ☐
If not, what was the immediate corrective action implemented		
Have the traffic islands on Colquhoun St and Unwin St been inspected to ensure the temporary Klemmfix arrangement is in place?		

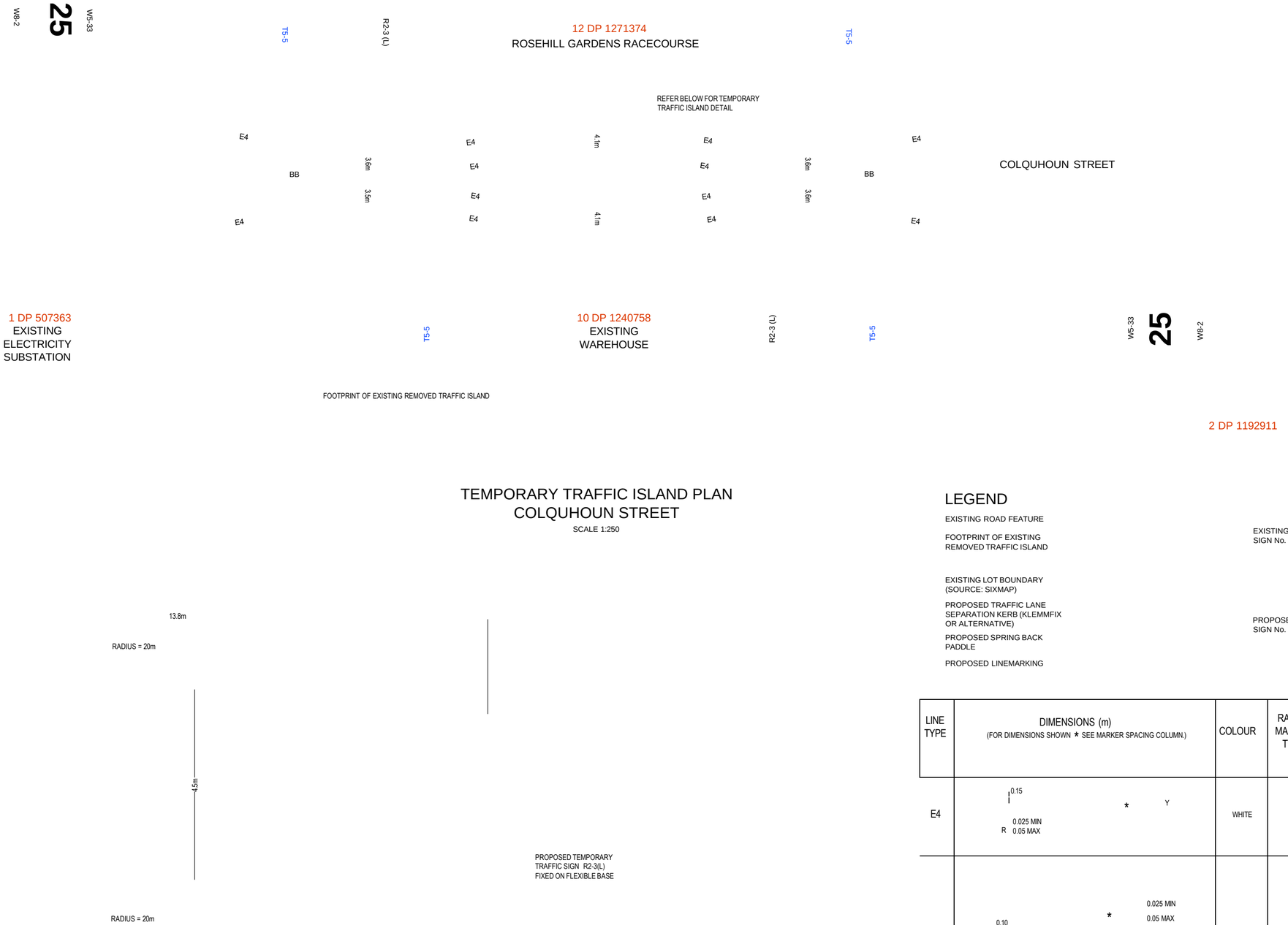
Audit Team			
Name:	**Position:**	**Company:**	**Signature:**

Traffic Control company representative			
Name:	**Position:**	**Company:**	**Signature:**

H ROAD DESIGN DRAWINGS

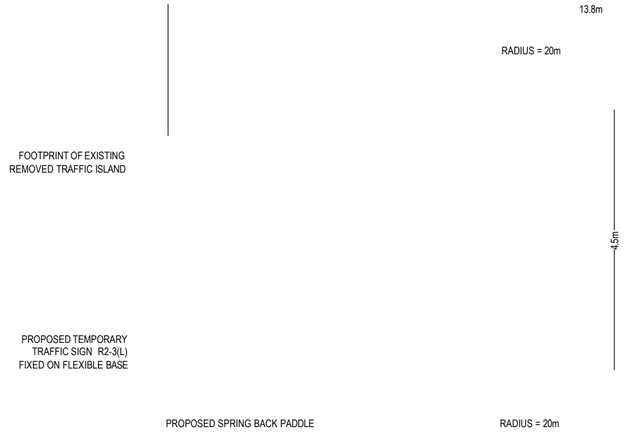
Table 7-6: Road design drawings

Drawing #	Description
TS01A-01	Wentworth Street north of Martha Street speed reduction and signage
TS01A-02	Wentworth Street north of M4 Motorway overpass – speed reduction, signage, linemarking and barrier arrangements at gate
TS01A-03	Wentworth Street south of Kay Street – speed reduction, signage and line marking
TS01A-04	Kay Street west of Wentworth Street – speed reduction, signage, linemarking and barrier arrangements
TS01A-05	Kay Street and Unwin Street – signage, linemarking and barrier arrangements
TS01A-06	Unwin Street – signage and line marking arrangements
TS01A-07	Unwin Street – signage, linemarking and barrier arrangements
TS01A-08	Unwin Street at haul road crossing – signs and lines
TS01A-09	Unwin Street signage and linemarking
SMWSTWTP-GLO-TWDB-RHS-DRG-265020	Traffic Island Temporary Arrangements - 2 of 2 sheets
SMWSTWTP-GLO-TWDB-RHS-DRG-265030	Traffic Island Permanent Arrangements - 2 of 2 sheets
SMWSTWTP-GLO-TWDB-RHS-DRG-265061	Island Swept paths for temporary and permanent – 4 of 4 sheets
25901-25_SK001	Road Plate design for Ampol pipeline protection



TEMPORARY TRAFFIC ISLAND PLAN
COLQUHOUN STREET

SCALE 1:250



TRAFFIC ISLAND DETAIL PLAN
COLQUHOUN STREET

SCALE 1:50

LEGEND

EXISTING ROAD FEATURE

FOOTPRINT OF EXISTING REMOVED TRAFFIC ISLAND

EXISTING LOT BOUNDARY (SOURCE: SIXMAP)

PROPOSED TRAFFIC LANE SEPARATION KERB (KLEMMFIX OR ALTERNATIVE)

PROPOSED SPRING BACK PADDLE

PROPOSED LINEMARKING

EXISTING TRAFFIC SIGN No. T5-5

T5-5

PROPOSED TRAFFIC SIGN No. R2-3(L)

R2-3 (L)

LINE TYPE	DIMENSIONS (m) (FOR DIMENSIONS SHOWN * SEE MARKER SPACING COLUMN.)	COLOUR	RAISED MARKER TYPE	MARKER SPACING ( ) (m)*	
				NORMAL SPACING (A)	ALTERNATIVE SPACING (B)
E4	0.15; 0.025 MIN 0.05 MAX; R; *; Y	WHITE	Y R	12	12
BB	0.10; 0.10; 0.10; *; 0.025 MIN 0.05 MAX; 0.025 MIN 0.05 MAX	WHITE	YY YY	12	12

SCALES:

0 0.5 1.0 1.5 2.0 2.5 3.0

SCALE 1:50 (A1)

0 2.5 5 7.5 10 12.5 15

KEYPLAN:

CLIENT:

PRELIMINARY

SYDNEY METRO

SERVICE PROVIDERS

TBM DELIVERY

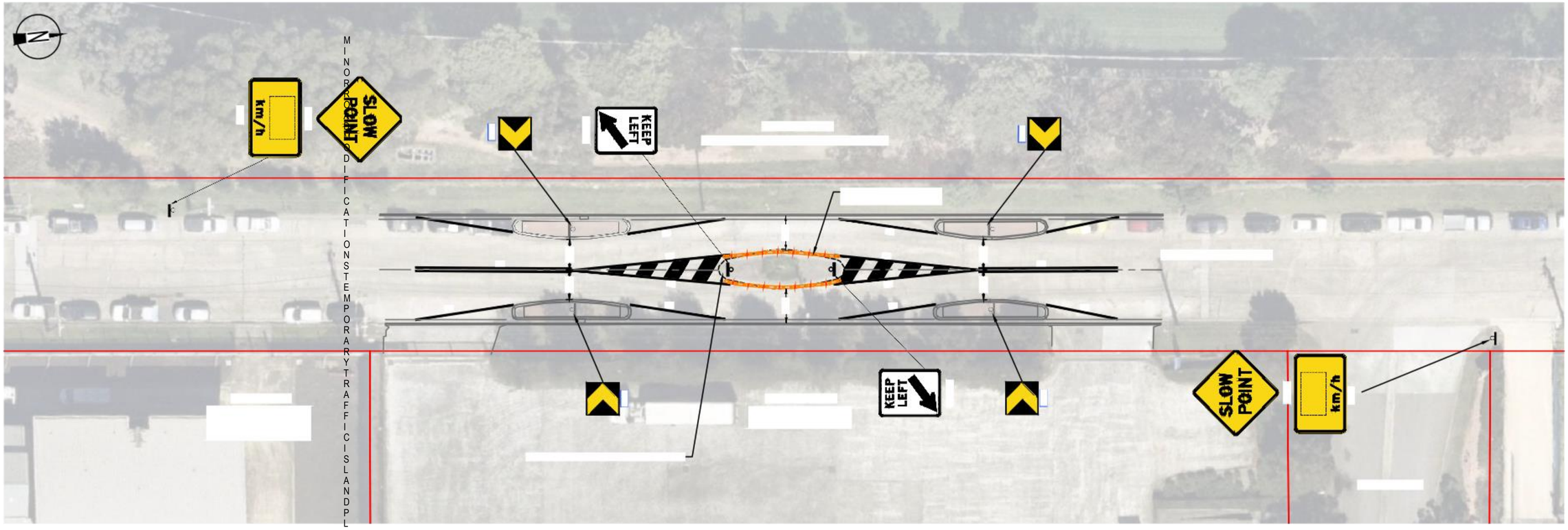
DRAWN ED

DESIGN KW

KW/MC

Cad File: Z:\SYD\25000\25901\025 TBM Access Route (TWDB-RSH-265020.dwg
Plot Date: 10/02/23 - 17:08

10.02.2023
10.02.2023



MINOR MODIFICATION TEMPORARY TRAFFIC ISLAND PLAN

SCALE 1:250 (A1)

No.	Amendment Description	Design by	Verified by	by	Date
01	DRAFT	KW/MC	JA	JA	10.02.2023

PRINCIPAL AEO:

DRG CHECK JA 10.02.2023
DESIGN CHECK JA 10.02.2023
APPROVED JA 10.02.2023

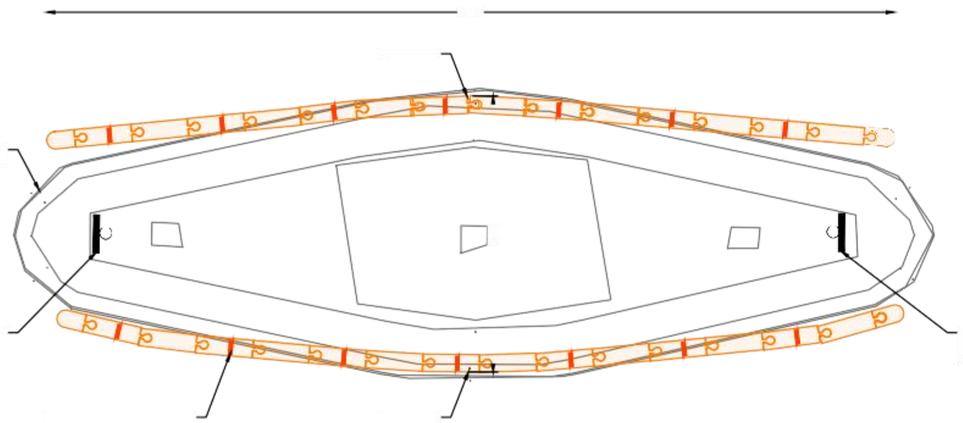
SHEET 1 OF 2
DOCUMENT No:
STATUS: PRELIMINARY
DRG No: SMWSTWTP-GLO-TWDB-RHS-DRG-265020

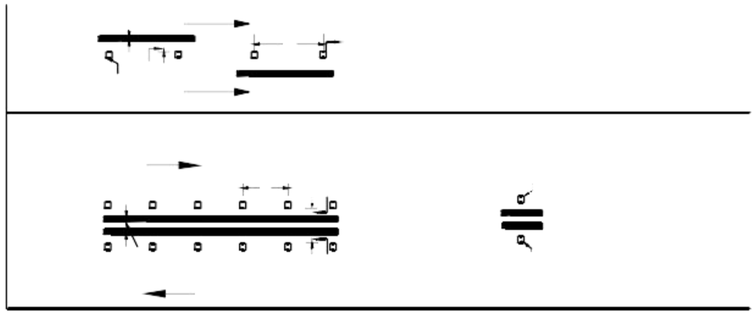
SHEET: 1 OF 16 C
EDM NO:
REV 01 VER

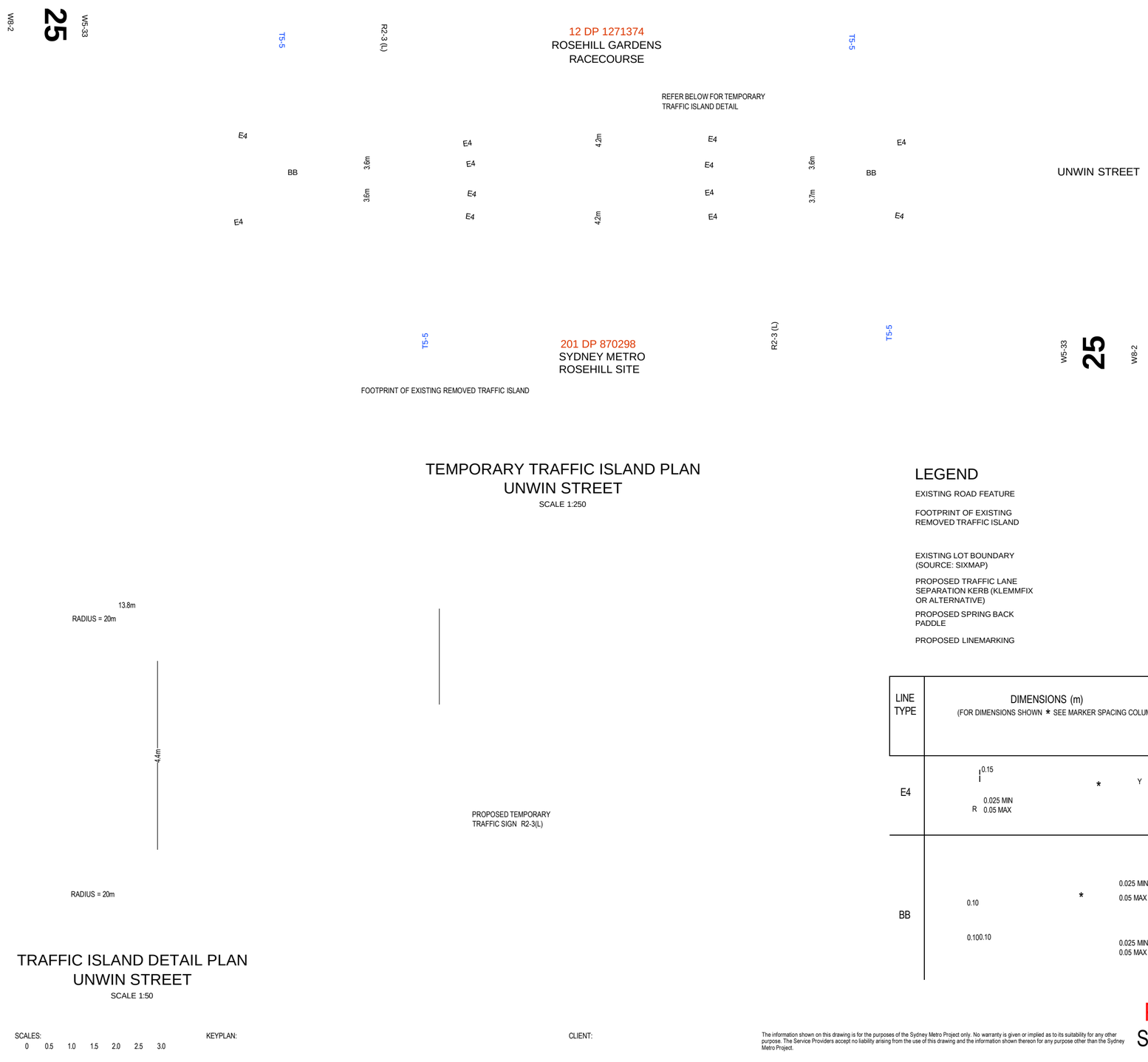
Co-ordinate System: Height Datum: This sheet may be prepared using colour and may be incomplete if copied NOTE: Do not scale from this drawing.

SMEC | GHD DESIGN JOINT VENTURE

ADG ENGINEERS
10.02.2023







TEMPORARY TRAFFIC ISLAND PLAN
UNWIN STREET

SCALE 1:250

TRAFFIC ISLAND DETAIL PLAN
UNWIN STREET

SCALE 1:50

LEGEND

EXISTING ROAD FEATURE

FOOTPRINT OF EXISTING REMOVED TRAFFIC ISLAND

EXISTING LOT BOUNDARY (SOURCE: SIXMAP)

PROPOSED TRAFFIC LANE SEPARATION KERB (KLEMMFIX OR ALTERNATIVE)

PROPOSED SPRING BACK PADDLE

PROPOSED LINEMARKING

EXISTING TRAFFIC SIGN No. T5-5

T5-5

PROPOSED TRAFFIC SIGN No. R2-3(L)

R2-3 (L)

LINE TYPE	DIMENSIONS (m) (FOR DIMENSIONS SHOWN * SEE MARKER SPACING COLUMN.)	COLOUR	RAISED MARKER TYPE	MARKER SPACING ( ) (m)*	
				NORMAL SPACING (A)	ALTERNATIVE SPACING (B)
E4	0.15 * Y; R: 0.025 MIN 0.05 MAX	WHITE	Y R	12	12
BB	0.10 0.10 0.10; * 0.025 MIN 0.05 MAX	WHITE	YY YY	12	12

SCALES:

0 0.5 1.0 1.5 2.0 2.5 3.0

SCALE 1:50 (A1)

0 2.5 5 7.5 10 12.5 15

KEYPLAN:

CLIENT:

PRELIMINARY

SYDNEY METRO

SERVICE PROVIDERS

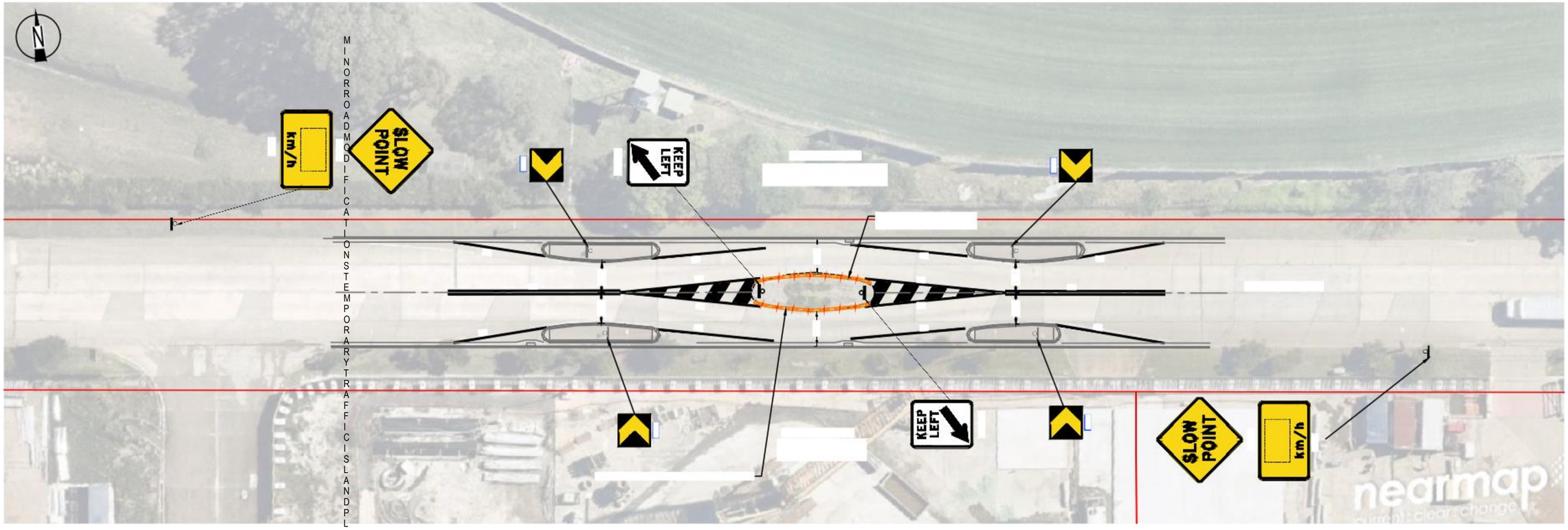
TBM DELIVERY

DRAWN KW DESIGN KW/MC ED

Cad File: Z:\SYD\250000\259011\025 TBM Access Route (TWDB-RSH-265)\CV\DWG\259011-025_SMWSTWTP-GLO-TWDB-RHS-DRG-265021.dwg
Plot Date: 10/02/23 - 17:08

10.02.2023
10.02.2023

MINOR ROAD MODIFICATIONS TEMPORARY TRAFFIC ISLAND PLAN



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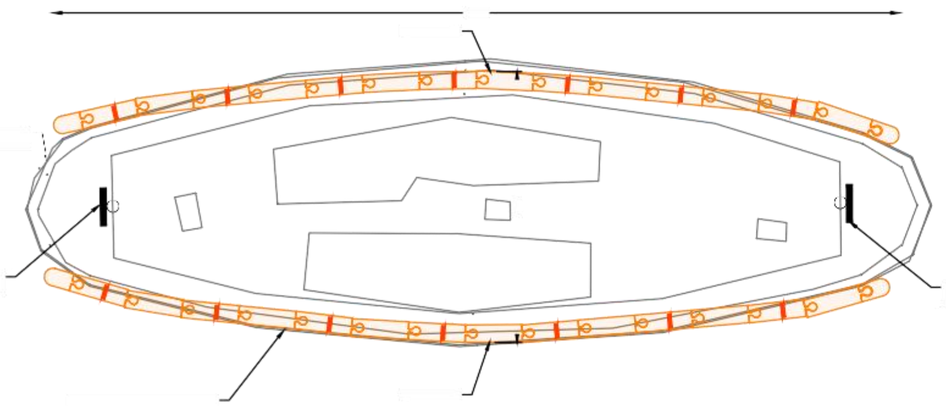
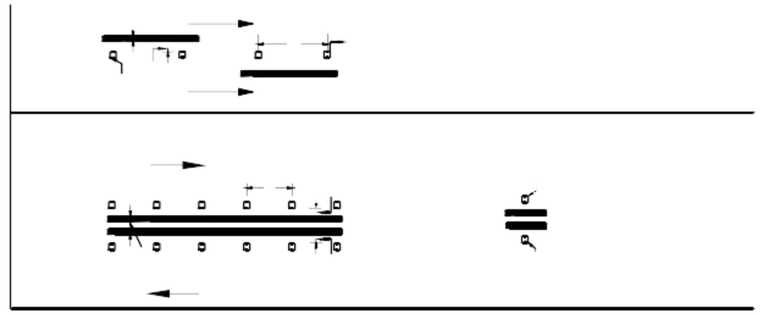
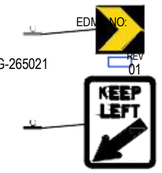






No.	Amendment Description	Design by	Verified by	by	Date
01	DRAFT	KW/MC	JA	JA	10.02.2023

PRINCIPAL AEO:

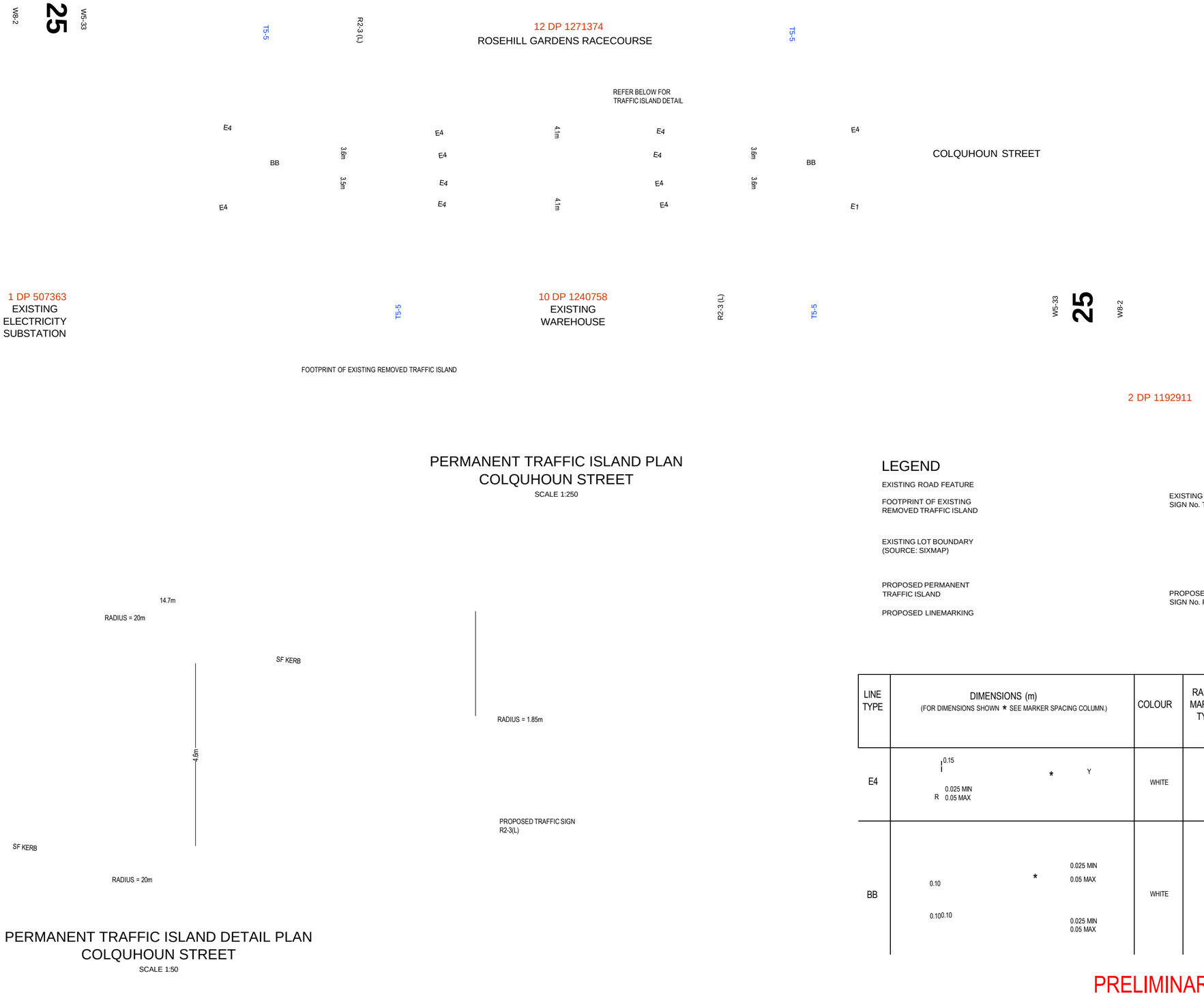
DRG CHECK JA 10.02.2023
DESIGN CHECK JA 10.02.2023
APPROVED JA 10.02.2023

SHEET 2 OF 2
DOCUMENT No:
STATUS: PRELIMINARY
DRG No: SMWSTWTP-GLO-TWDB-RHS-DRG-265021
SHEET: 1 OF 16
EDM NO:
REV 01
VER C

Co-ordinate System: Height Datum: This sheet may be prepared using colour and may be incomplete if copied NOTE: Do not scale from this drawing.

SMEC | GHD DESIGN JOINT VENTURE

ADG ENGINEERS 10.02.2023



PERMANENT TRAFFIC ISLAND PLAN
COLQUHOUN STREET

SCALE 1:250

PERMANENT TRAFFIC ISLAND DETAIL PLAN
COLQUHOUN STREET

SCALE 1:50

SCALES:
0 0.5 1.0 1.5 2.0 2.5 3.0

SCALE 1:50 (A1)

KEYPLAN:

CLIENT:

LEGEND

EXISTING ROAD FEATURE

FOOTPRINT OF EXISTING
REMOVED TRAFFIC ISLAND

EXISTING LOT BOUNDARY
(SOURCE: SIXMAP)

PROPOSED PERMANENT
TRAFFIC ISLAND

PROPOSED LINEMARKING

EXISTING TRAFFIC
SIGN No. T5-5

T5-5

PROPOSED TRAFFIC
SIGN No. R2-3(L)

R2-3 (L)

LINE TYPE	DIMENSIONS (m) (FOR DIMENSIONS SHOWN * SEE MARKER SPACING COLUMN.)	COLOUR	RAISED MARKER TYPE	MARKER SPACING ( ) (m)*	
				NORMAL SPACING (A)	ALTERNATIVE SPACING (B)
E4	0.15 * Y; 0.025 MIN 0.05 MAX R	WHITE	Y R	12	12
BB	0.10 * 0.025 MIN 0.05 MAX; 0.10 0.10 0.025 MIN 0.05 MAX	WHITE	YY YY	12	12

PRELIMINARY

SYDNEY METRO

SERVICE PROVIDERS

TBM DELIVERY

Cad File: Z:\SYD\25000\259011\025 TBM Access Route (TWDB-RSH-265030.dwg
Plot Date: 10/02/23 - 17:08

0 2.5 5 7.5 10 12.5 15

SCALE 1:250 (A1)

01 DRAFT KW/MC JA JA 10.02.2023

No. Amendment Description Design by Verified by by

Co-ordinate System: Height Datum: This sheet may be prepared using colour and may be incomplete if copied NOTE: Do not scale from this drawing.

PRINCIPAL AEO:

SMEC | GHD DESIGN JOINT VENTURE

ADG ENGINEERS 10.02.2023

DRAWN KW 10.02.2023

DESIGNED KW/MC 10.02.2023

DRG CHECK JA 10.02.2023

DESIGN CHECK JA 10.02.2023

APPROVED JA 10.02.2023

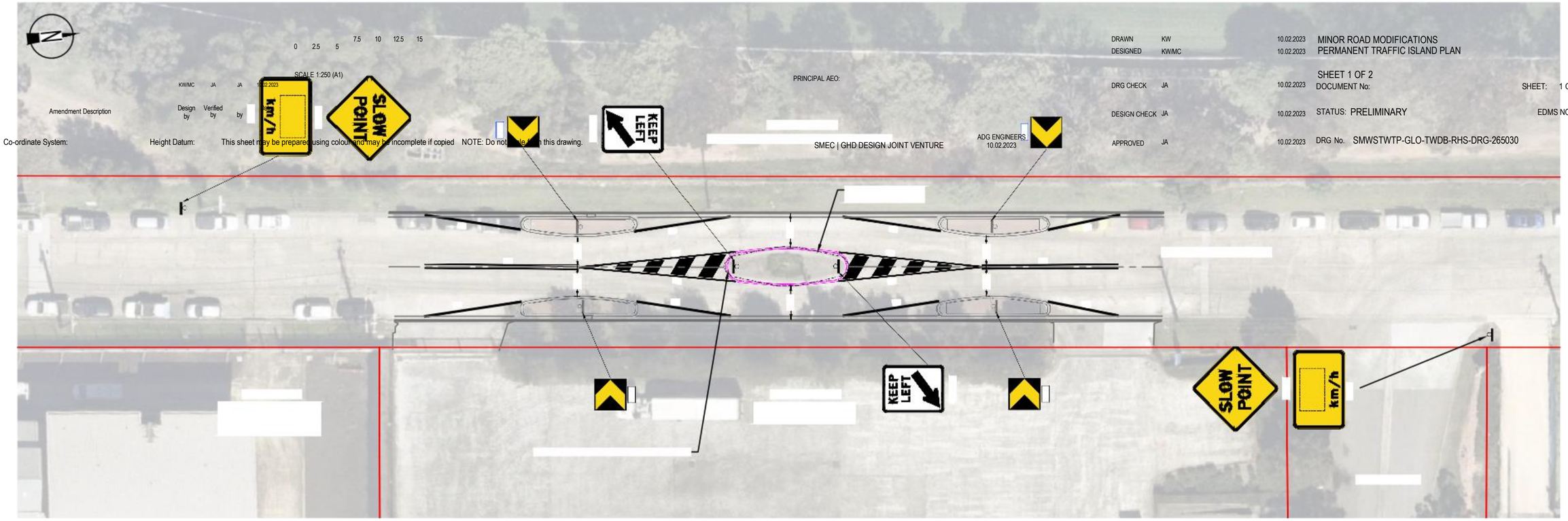
MINOR ROAD MODIFICATIONS
PERMANENT TRAFFIC ISLAND PLAN

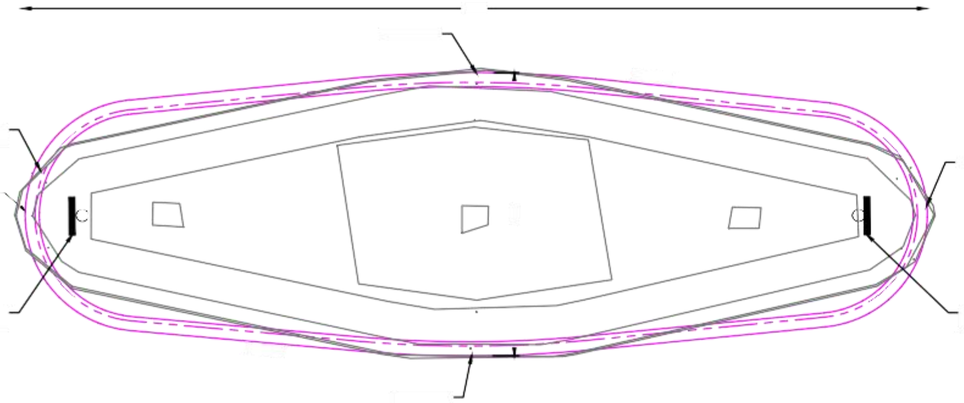
SHEET 1 OF 2

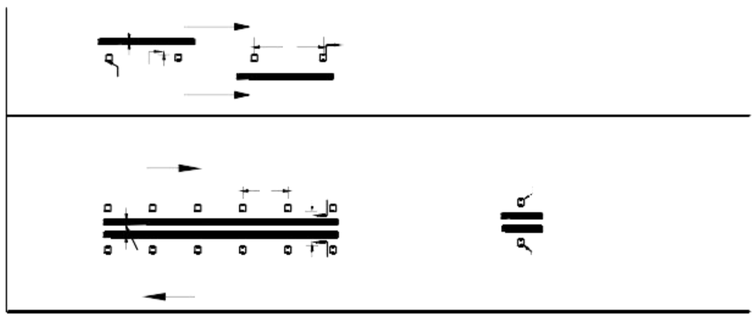
DOCUMENT No: SHEET: 1 OF 16 C

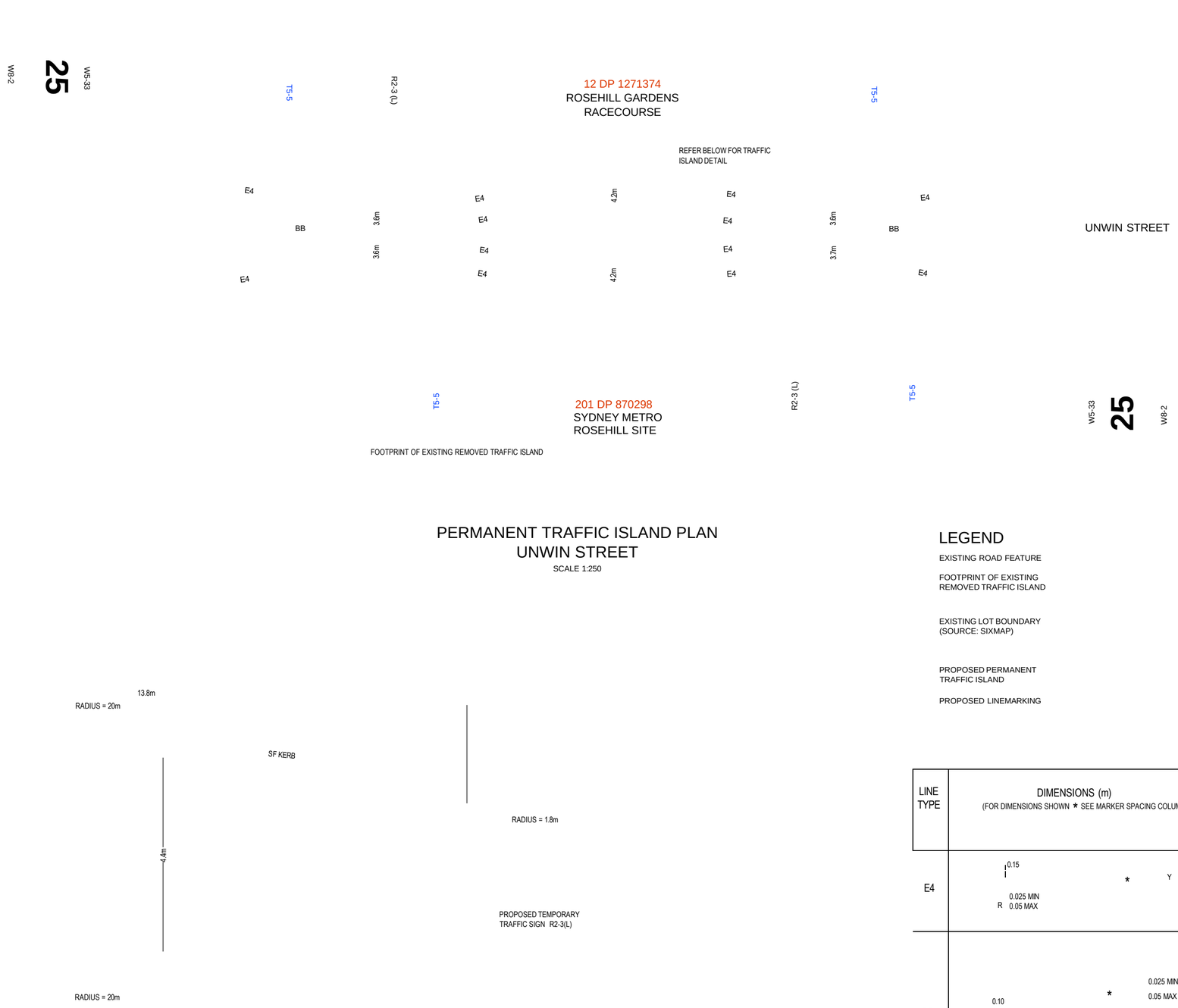
STATUS: PRELIMINARY EDMS NO:

DRG No. SMWSTWTP-GLO-TWDB-RHS-DRG-265030 REV 01 VER

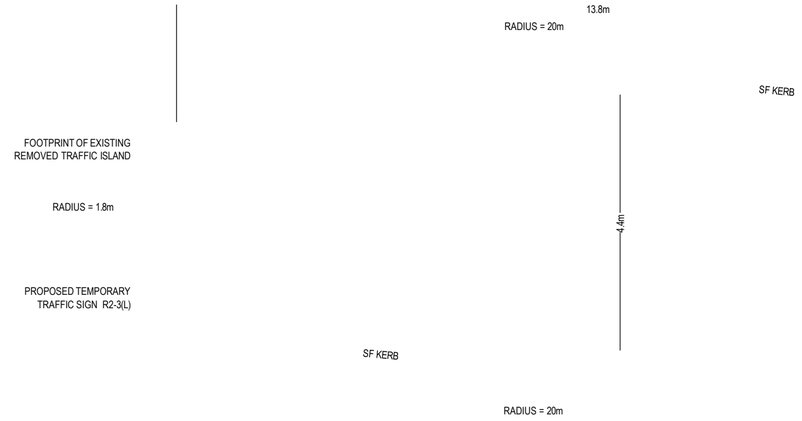








PERMANENT TRAFFIC ISLAND PLAN
UNWIN STREET
SCALE 1:250



PERMANENT TRAFFIC ISLAND DETAIL PLAN
UNWIN STREET
SCALE 1:50

LEGEND

EXISTING ROAD FEATURE

FOOTPRINT OF EXISTING REMOVED TRAFFIC ISLAND

EXISTING LOT BOUNDARY (SOURCE: SIXMAP)

PROPOSED PERMANENT TRAFFIC ISLAND

PROPOSED LINEMARKING

EXISTING TRAFFIC SIGN No. T5-5

T5-5

PROPOSED TRAFFIC SIGN No. R2-3(L)

R2-3 (L)

LINE TYPE	DIMENSIONS (m) (FOR DIMENSIONS SHOWN * SEE MARKER SPACING COLUMN.)	COLOUR	RAISED MARKER TYPE	MARKER SPACING ( ) (m)* NORMAL SPACING (A)	MARKER SPACING ( ) (m)* ALTERNATIVE SPACING (B)
E4	0.15 * Y; R 0.025 MIN 0.05 MAX	WHITE	Y R	12	12
BB	0.10 * 0.025 MIN 0.05 MAX; 0.100.10 0.025 MIN 0.05 MAX	WHITE	YY YY	12	12

SCALES:
0 0.5 1.0 1.5 2.0 2.5 3.0

SCALE 1:50 (A1)

KEYPLAN:

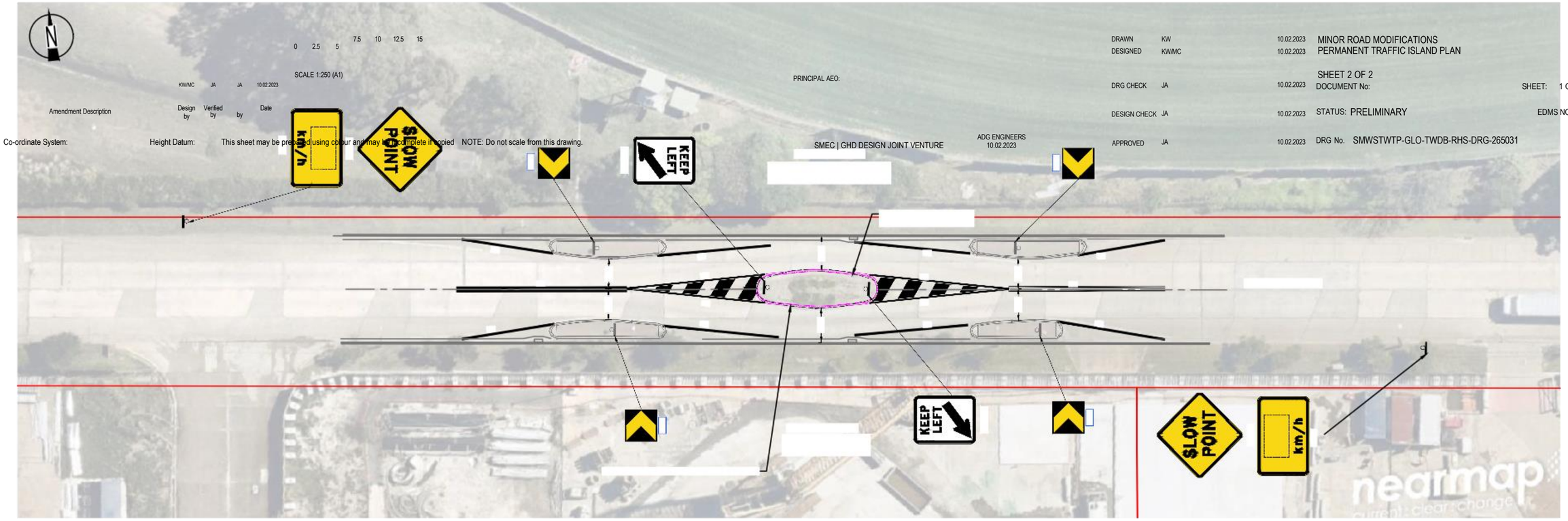
CLIENT:

SERVICE PROVIDERS

PRELIMINARY

SYDNEY METRO

TBM DELIVERY



0 2.5 5 7.5 10 12.5 15

SCALE 1:250 (A1)

No.	Amendment Description	Design by	Verified by	by	Date
01	DRAFT	KW/MC	JA	JA	10.02.2023

Co-ordinate System: Height Datum: This sheet may be prepared using colour and may be incomplete if copied NOTE: Do not scale from this drawing.

PRINCIPAL AEO:

SMEC | GHD DESIGN JOINT VENTURE

ADG ENGINEERS 10.02.2023

DRAWN	KW	10.02.2023
DESIGNED	KW/MC	10.02.2023
DRG CHECK	JA	10.02.2023
DESIGN CHECK	JA	10.02.2023
APPROVED	JA	10.02.2023

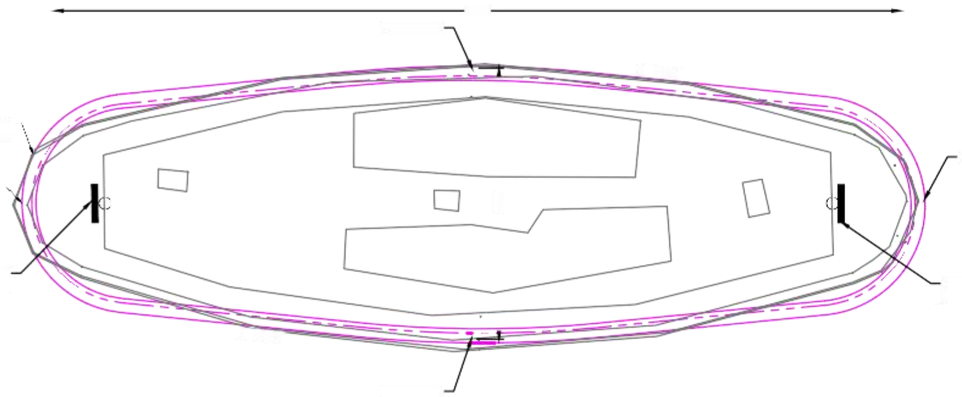
MINOR ROAD MODIFICATIONS
PERMANENT TRAFFIC ISLAND PLAN

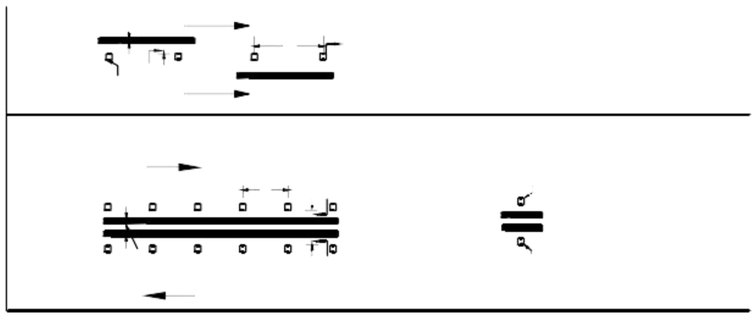
SHEET 2 OF 2

DOCUMENT No: SHEET: 1 OF 16 REV 01 VER C

STATUS: PRELIMINARY EDMS NO:

DRG No. SMWSTWTP-GLO-TWDB-RHS-DRG-265031





12 DP 1271374
ROSEHILL GARDENS
RACECOURSE

4.2m
3.6m
3.6m
3.6m
3.7m
4.2m

UNWIN STREET

201 DP 870298
SYDNEY METRO
ROSEHILL SITE

TURNING PATH PLAN
UNWIN STREET

SCALE 1:250

LEGEND

WHEEL TRACK

VEHICLE CHASSIS CLEARANCE - 250mm

VEHICLE BODY CLEARANCE - 250mm

VEHICLE BODY

B-Double (26.0m)

Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

SCALES:
0 2.5 5 7.5 10 12.5 15

SCALE 1:250 (A1)

KEYPLAN:

CLIENT:

PRINCIPAL AEO:

SERVICE PROVIDERS

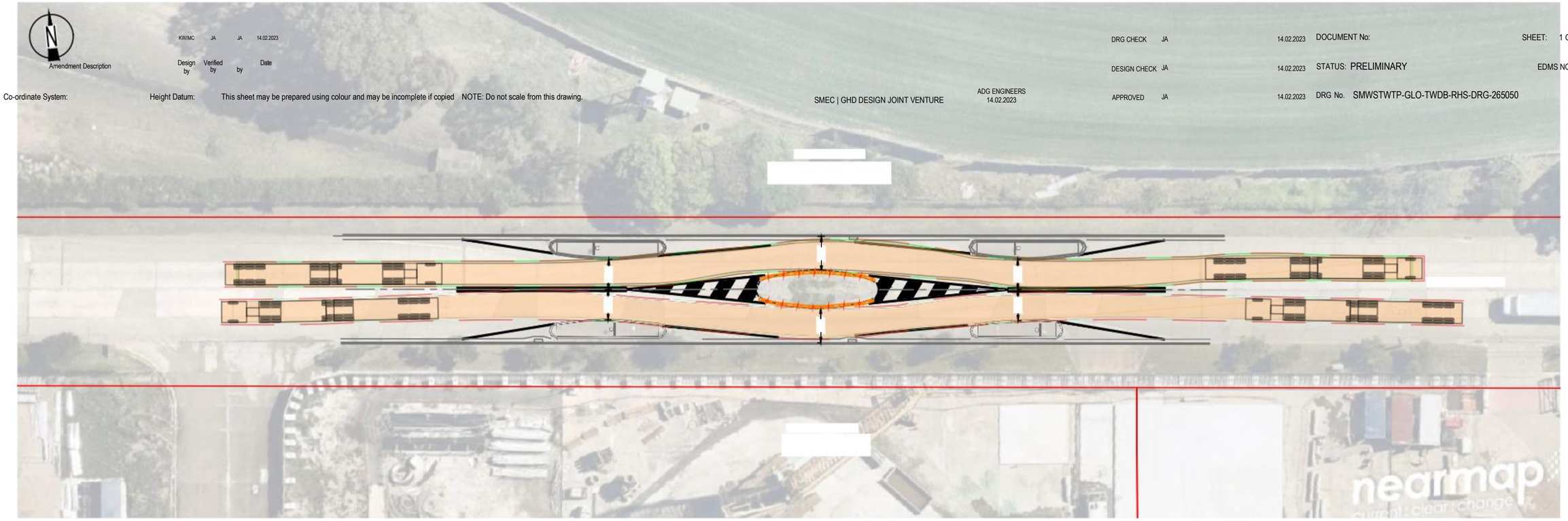
DRAWN	KW	14.02.2023
DESIGNED	KW/MC	14.02.2023

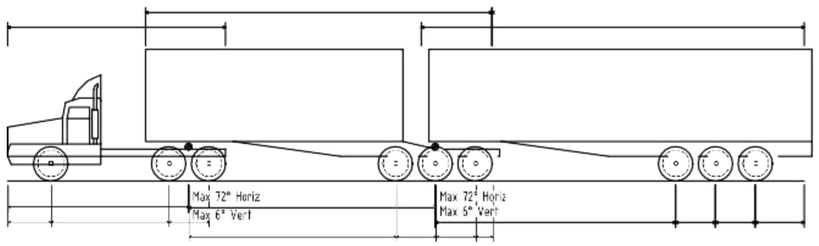
PRELIMINARY

SYDNEY METRO

TBM DELIVERY
MINOR ROAD MODIFICATIONS
TEMPORARY TRAFFIC ISLAND TURNING PATH PLAN
SHEET 1 OF 2

01	DRAFT	KW/MC	JA	JA	14.02.2023	DRG CHECK	JA	14.02.2023	DOCUMENT No:	SHEET:	1 OF 16 C
No.	Amendment Description	Design by	Verified by	by	Date	DESIGN CHECK	JA	14.02.2023	STATUS: PRELIMINARY	EDMS NO:	
Co-ordinate System:		Height Datum:	This sheet may be prepared using colour and may be incomplete if copied NOTE: Do not scale from this drawing.		SMEC | GHD DESIGN JOINT VENTURE	ADG ENGINEERS 14.02.2023	APPROVED	JA	14.02.2023	DRG No. SMWSTWTP-GLO-TWDB-RHS-DRG-265050	REV 01 VER





12 DP 1271374
ROSEHILL GARDENS RACECOURSE

4.1m
3.5m
3.3m
3.5m
3.3m
4.1m

COLQUHOUN STREET

1 DP 507363
EXISTING
ELECTRICITY
SUBSTATION

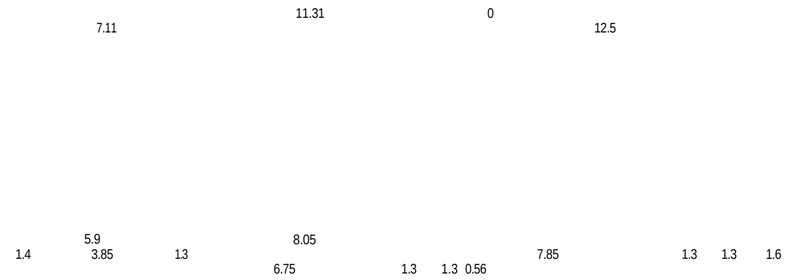
10 DP 1240758
EXISTING
WAREHOUSE

2 DP 1192911

TURNING PATH PLAN

COLQUHOUN STREET

SCALE 1:250



LEGEND

B-Double (26.0m)

WHEEL TRACK	Overall Length 26.000m
VEHICLE CHASSIS CLEARANCE - 250mm	Overall Width 2.500m
VEHICLE BODY CLEARANCE - 250mm	Overall Body Height 4.300m
VEHICLE BODY	Min Body Ground Clearance 0.540m
	Track Width 2.500m
	Lock-to-lock time 6.00s
	Curb to Curb Turning Radius 15.000m

SCALES:
0 2.5 5 7.5 10 12.5 15

SCALE 1:250 (A1)

KEYPLAN:

CLIENT:

PRELIMINARY

SYDNEY METRO

PRINCIPAL AEO:

SERVICE PROVIDERS

DRAWN ED

DESIGN KW KW/MC

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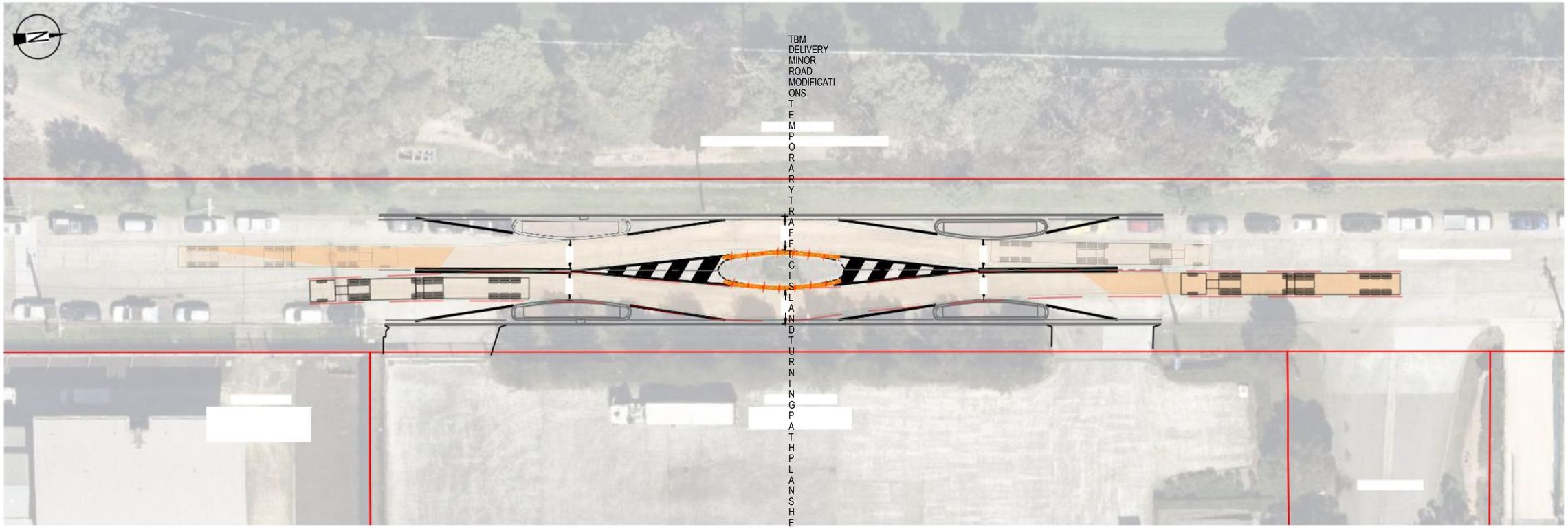
Plot Date: 14/02/23 - 14:19

14.02.2023

14.02.2023



TBM DELIVERY MINOR ROAD MODIFICATIONS TEMPORARY TRAFFIC ISLAND TURNING PATH PLANSHEET 2 OF 2

No.	Amendment Description	Design by	Verified by	by	Date
01	DRAFT	KW/MC	JA	JA	14.02.2023

Co-ordinate System: Height Datum: This sheet may be prepared using colour and may be incomplete if copied NOTE: Do not scale from this drawing.

SMEC | GHD DESIGN JOINT VENTURE

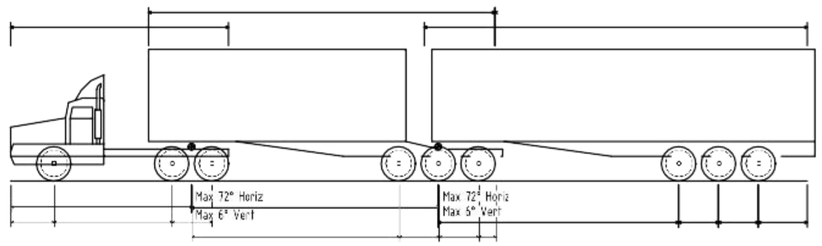
ADG ENGINEERS 14.02.2023

DRG CHECK	JA	14.02.2023	DOCUMENT No:
DESIGN CHECK	JA	14.02.2023	STATUS: PRELIMINARY
APPROVED	JA	14.02.2023	DRG No. SMWSTWTP-GLO-TWDB-RHS-DRG-265051

SHEET: 1 OF 16 C

EDMS NO:

REV 01 VER



12 DP 1271374
ROSEHILL GARDENS
RACECOURSE

UNWIN STREET

201 DP 870298
SYDNEY METRO
ROSEHILL SITE

TURNING PATH PLAN
UNWIN STREET

SCALE 1:250

LEGEND

WHEEL TRACK

VEHICLE CHASSIS CLEARANCE - 250mm

VEHICLE BODY CLEARANCE - 250mm

VEHICLE BODY

B-Double (26.0m)

Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

SCALES:
0 2.5 5 7.5 10 12.5 15

SCALE 1:250 (A1)

KEYPLAN:

CLIENT:

PRINCIPAL AEO:

SERVICE PROVIDERS

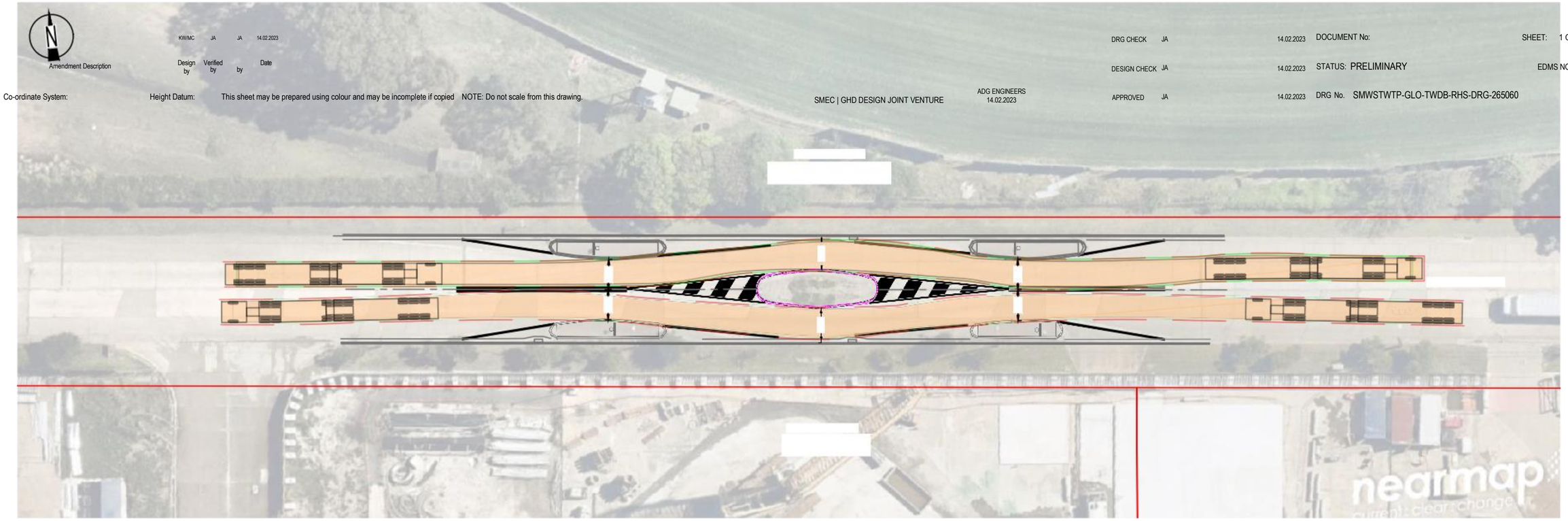
PRELIMINARY

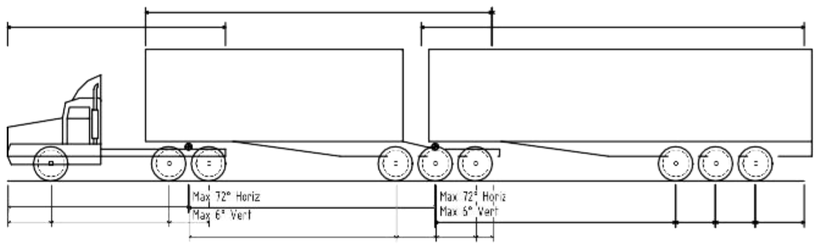
SYDNEY METRO

DRAWN	KW	14.02.2023
DESIGNED	KW/MC	14.02.2023

TBM DELIVERY
MINOR ROAD MODIFICATIONS
PERMANENT TRAFFIC ISLAND PLAN TURNING PATH PLAN
SHEET 1 OF 2

01	DRAFT	KW/MC	JA	JA	14.02.2023	DRG CHECK	JA	14.02.2023	DOCUMENT No:	SHEET:	1 OF 16 C
No.	Amendment Description	Design by	Verified by	by	Date	DESIGN CHECK	JA	14.02.2023	STATUS: PRELIMINARY	EDMS NO:	
Co-ordinate System:		Height Datum:	This sheet may be prepared using colour and may be incomplete if copied	NOTE: Do not scale from this drawing.	SMEC | GHD DESIGN JOINT VENTURE	ADG ENGINEERS 14.02.2023	APPROVED	JA	14.02.2023	DRG No. SMWSTWTP-GLO-TWDB-RHS-DRG-265060	REV 01 VER





12 DP 1271374
ROSEHILL GARDENS RACECOURSE

4.1m
3.5m
3.3m
3.5m
3.3m
4.1m

COLQUHOUN STREET

1 DP 507363
EXISTING
ELECTRICITY
SUBSTATION

10 DP 1240758
EXISTING
WAREHOUSE

2 DP 1192911

TURNING PATH PLAN
COLQUHOUN STREET

SCALE 1:250

11.31
0
7.11
12.5

5.9
8.05
1.4
3.85
1.3
6.75
1.3
1.3
0.56
7.85
1.3
1.3
1.6

LEGEND

WHEEL TRACK

VEHICLE CHASSIS CLEARANCE - 250mm

VEHICLE BODY CLEARANCE - 250mm

VEHICLE BODY

B-Double (26.0m)

Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

SCALES:
0 2.5 5 7.5 10 12.5 15

SCALE 1:250 (A1)

KEYPLAN:

CLIENT:

PRELIMINARY

SYDNEY METRO

PRINCIPAL AEO:

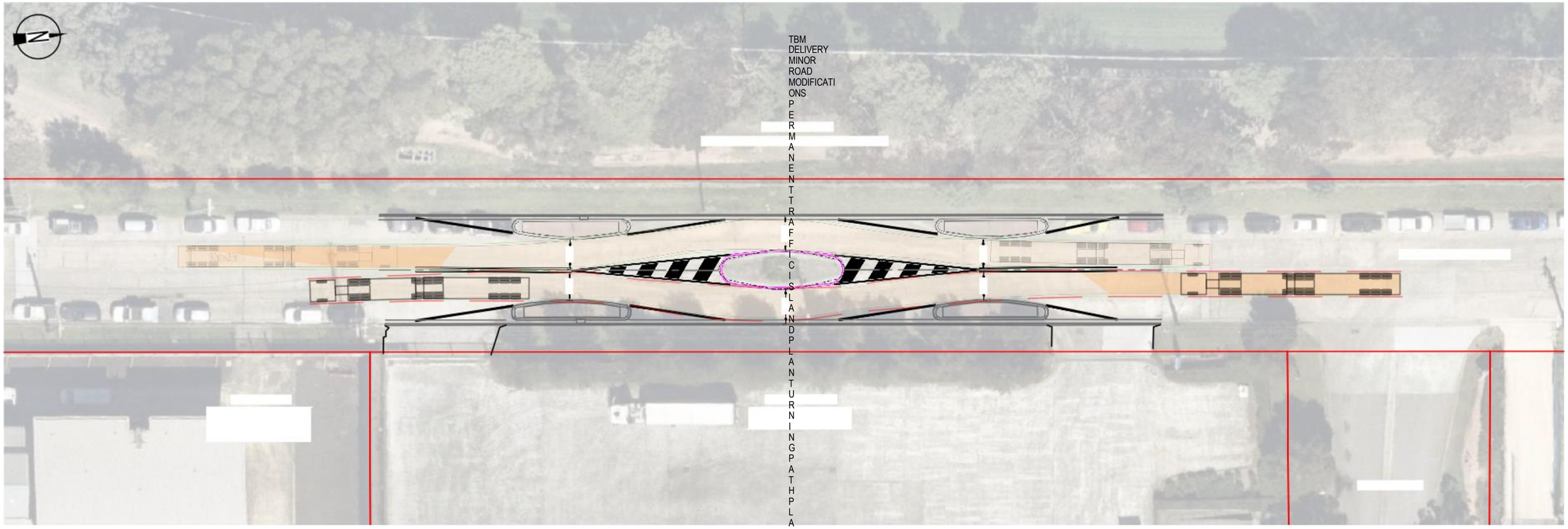
SERVICE PROVIDERS

DRAWN ED

DESIGN KW KW/MC

14.02.2023

14.02.2023



TBM DELIVERY MINOR ROAD MODIFICATIONS

PERMANENT TRAFFIC ISLAND PLANTURNING PATH PLANSHEET 2 OF 2

No.	Amendment Description	Design by	Verified by	by	Date
01	DRAFT	KW/MC	JA	JA	14.02.2023

Co-ordinate System: Height Datum: This sheet may be prepared using colour and may be incomplete if copied NOTE: Do not scale from this drawing.

SMEC | GHD DESIGN JOINT VENTURE

ADG ENGINEERS

DRG CHECK JA 14.02.2023

DESIGN CHECK JA 14.02.2023

APPROVED JA 14.02.2023

DOCUMENT No:

STATUS: PRELIMINARY

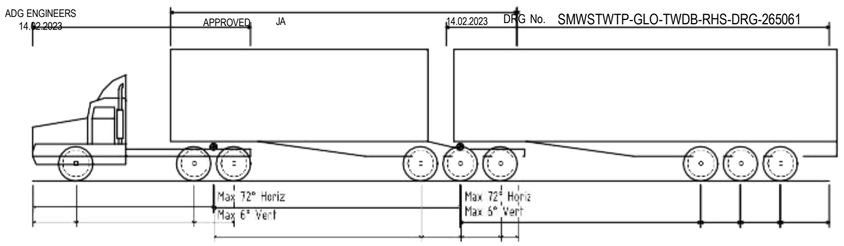
DRG No. SMWSTWTP-GLO-TWDB-RHS-DRG-265061

SHEET: 1 OF 16

EDMS NO:

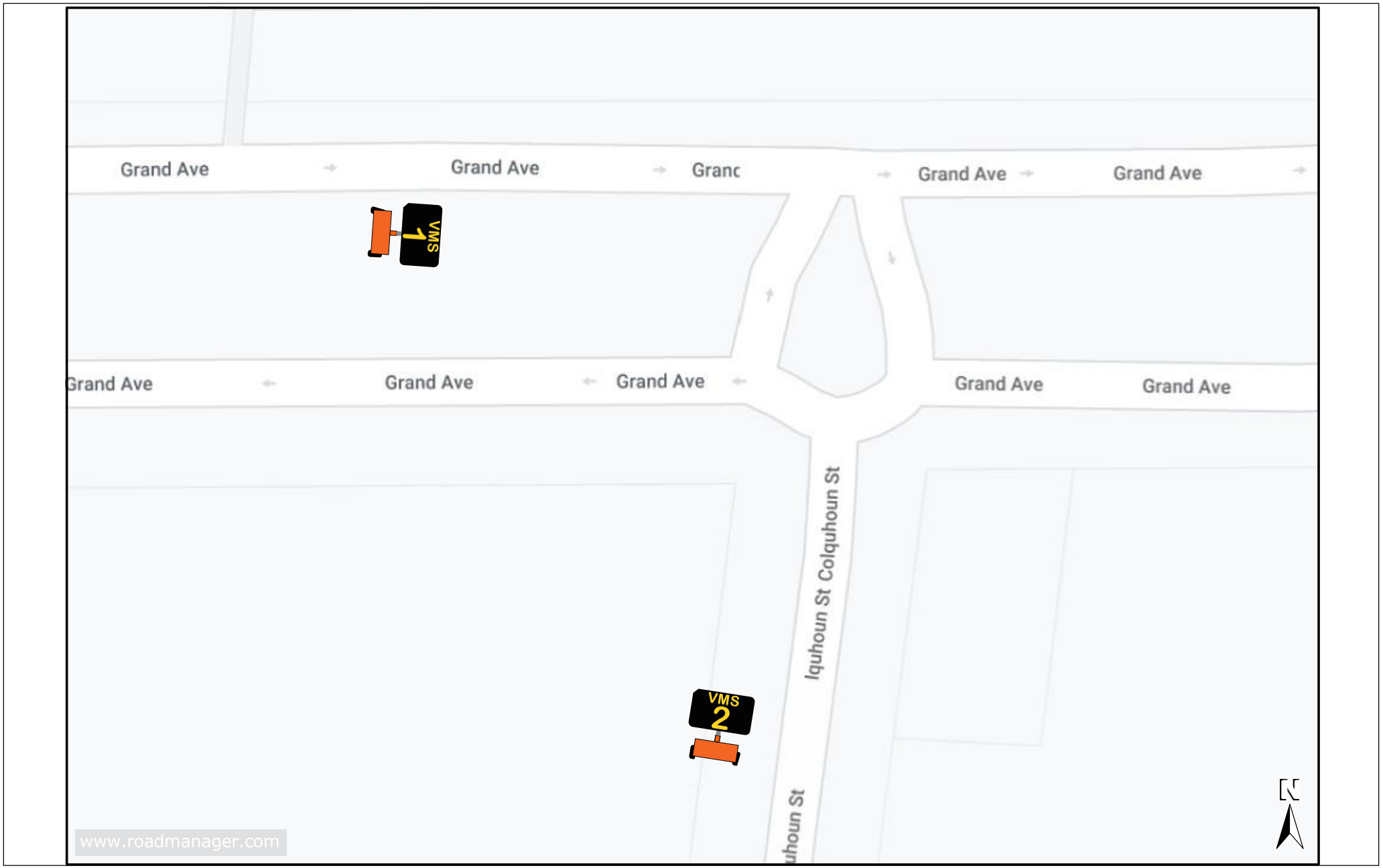
REV 01

VER C



I PORTABLE VARIABLE MESSAGE SIGNS

Variable Message Sign Overview Map



Portable VMS Locations and Messaging

VMS 1: Grand Ave, eastbound prior to Colquhoun St	
	
VMS Facing: Eastbound traffic	**VMS ID Number:** unknown
NOTES: To be placed in the median. Do not block other signage. Keep board away from the through lane of traffic to ensure the TBM can pass with ease without clipping the sides of the board	
DISPLAY DATES/TIMES: During instal on the plates	
Frame 1	**Frame 2**
CAUTION ROADWORK AHEAD	ROADWORK FOLLOW DETOUR
DISPLAY DATES/TIMES: For the whole period the plates are in place	
Frame 1	**Frame 2**
SLOW DOWN ROAD PLATE AHEAD	CAUTION ROAD PLATE AHEAD

VMS 2: Colquhoun St, northbound prior to Grand Ave	
	
VMS Facing: Northbound traffic	**VMS ID Number:** unknown
NOTES: Do not block the footpath or other signage. Keep board away from the through lane to ensure vehicles can pass with ease without clipping the sides of the board	
DISPLAY DATES/TIMES: During instal on the plates	
Frame 1	**Frame 2**
CAUTION ROADWORK AHEAD	CAUTION SLOW DOWN
DISPLAY DATES/TIMES: For the whole period the plates are in place	
Frame 1	**Frame 2**
SLOW DOWN ROAD PLATE AHEAD	CAUTION ROAD PLATE AHEAD

J APPROVED WORK ZONES