13/10/2021

Traffic Management Plan – Civil Works

St Marys Temporary Bus Interchange

725.MAN.10.TMP

Revision 4.0

APPROVAL

Approver	Position	Approval Signature and Date
Patrick McMahon	Project Manager	 13/10/2021

Author	Position	Approval Signature and Date
Jennifer O'Brien	Traffic Manager	 12/10/2021

DOCUMENT VERSION CONTROL

Rev	Revision details / changes	Author	Position	Reviewer(s)	Rev Date
1.0	Draft for review	J. O'Brien	Traffic Manager	A. Genio	10/09/2021
2.0	Addressing TfNSW and PCC comments	J. O'Brien	Traffic Manager	P. McMahon	22/09/2021
3.0	Addressing additional comments from TfNSW and PCC, changes to Traffic Count Data and Bus impact assessments, minor changes elsewhere in document to comply with Conditions of Approval.	J. O'Brien	Traffic Manager	P. McMahon	29/09/2021
4.0	Addressing additional comments from TfNSW. Changes to Swept Path A3.03 and TGS's.	J. O'Brien	Traffic Manager	P. McMahon	13/10/2021

Control and Revision of the Traffic Management Plan

This Traffic Management Plan has been developed by Ward Civil Engineering. The Project Manager or Traffic Manager, in conjunction with the WHS Manager, must exercise their authority to approve the TMP and must also be the holder of a Prepare Work Zone Traffic Management Plans (PWZTMP) accreditation. The Project Manager is responsible for communicating the requirements to the project team. The Project Manager and the Traffic Manager, in conjunction with the WHS Manager, will also approve any revisions to the TMP.

The Project Manager is responsible for maintaining the TMP and ensuring all project staff have appropriate access to the current documents.

This TMP is the property of Ward Civil & Environmental Engineering for use on the St Marys Temporary Bus Interchange project, and will not be reproduced, loaned, or given away without the specific written permission of the Traffic Manager.

1. Contents

1. Abbreviations

Acronym	Definition
AADT	Annual average daily traffic
AS	Australian Standard 1742.3
CEMP	Construction Environmental Management Plan
Ch	Chainage
ESCP	Erosion and Sediment Control Plan
ESD	Entering sight distance
FAS	Flashing Arrow Signs
G1	Road and Maritime “JOB Specific Requirements”
G10	Roads and Maritime QA Specification G10 Traffic Management
PMP	Pedestrian Management Plan
RMS	Road and Maritime Services
ROL	Road Occupancy Licence
RSA	Road Safety Audit
SISD	Provide Safe Intersection Sight Distance
SZA	Speed Zone Authorisation
TGS	Traffic Guidance Scheme
TCWS	Traffic Control at Work Sites Manual
TMP	Traffic Management Plan
TRSB	Temporary Road Safety Barrier
VMP	Vehicle Management Plan
VMS	Vehicle Message Signs

2. Project Details

Project name: St Marys Temporary Bus Interchange	
Project Location – St Marys Temporary Bus Interchange (See project site locations below)	
Principal Contractor	
Name:	Ward Civil & Environmental Engineering
Address:	2-6 Orion Road, Lane Cove West, NSW 2066
Phone:	(02) 9438 3666
Ward Civil Contacts	
Project Manager:	Patrick McMahon
Mobile:	(+61) 478 648 095
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Project Engineer	Raymond Rouessart
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Traffic Manager:	Jennifer O'Brien
Mobile:	(+61) 412 747 724
Email:	Jennifer.Obrien@chandostraffic.com.au
RMS Traffic Control Ticket:	Prepare Work Zone Traffic Management Plans Card No. 0051866297

2.1. Nominated Traffic Control Officer

The nominated traffic control officer meets the minimum training requirements, holding a current Prepare a Work Zone Traffic Management Plan accreditation.

Traffic Control Company:	Chandos Traffic (Ward Group)
Company Address:	2-6 Orion Road, Lane Cove West, NSW 2066
Traffic Manager:	Jennifer O'Brien
RMS Traffic Control Tickets:	Prepare Work Zone Traffic Management Plans Card No. 0051866297
Telephone:	02 9438 3666
Mobile:	(+61) 412 747 724
Email:	Jennifer.obrien@chandostraffic.com.au

2.2. Review and update

This plan is a live document and amended to include all the updates to reflect any changes in the design and construction process, the need to prevent the recurrence of any compromise to the safety of road users and the public and in response to any incidents arising from the services or works, changes in law, traffic management process resulting from the continuous improvement process, variations and requests from TfNSW, councils and any other authority.

2.2.1. Copies and Distribution

Ward Civil will issue controlled copies of the plan to relevant construction and maintenance personnel. Ward Civil is required to comply with any traffic direction and/or instruction issued by Transport for New South Wales and the NSW Police Force.

3. Preface

This Construction Traffic Management Plan has been prepared in accordance with the Construction Traffic Management Framework. Ref: CoA E103

3.1. Purpose of the Traffic Management Plan

The purpose of this Traffic Management Plan is to ensure that Ward and the traffic controller's commitment to safety, traffic management, reporting and reviewing is met during the life of this project.

This will be accomplished with consideration given to; Traffic Plans, Traffic Demands, Traffic Routing, Traffic Control Devices, other road users and stakeholders, special (emergency) vehicle requirements and access, and Accredited Traffic Controllers.

This plan aims to identify the risks to persons undertaking work on, or adjacent to, a road. It shall ensure that appropriate control measures for any identified hazard are assessed, controlled, implemented, monitored, and reviewed by elimination, substitution, engineering, administration or by using personal protective equipment.

The legislative and reference documents used in conjunction with this plan include, but are not limited to: -

- Work Health and Safety Regulation 2017
- Road Transport (Safety and Traffic Management) Act
- Safework NSW - How to manage work health and safety risks code of practice 2011
- Safework NSW - Traffic Management: guide for Construction work
- Traffic Control at Worksites Manual Version 6 (TCAWS)
- Australian Standard AS1742.3 - 2009 Manual of uniform traffic control devices-Traffic control for works on Roads

All contractors, subcontractors, employers, self-employed persons, workers and other persons will be bound by the requirements set out in this plan.

This plan forms the basis of ongoing programmes in continuous improvement of traffic management and the required ongoing training and commitment of all personnel involved in this project.

Risk assessments will be conducted before Traffic Guidance Schemes are prepared and a Road Safety Audit to be conducted of the proposed TGSs by Certified Auditors in accordance with Specification G10 prior to erecting any traffic control devices onsite. A copy of the road safety audit including any details of any findings or corrective actions will be Appended to the TMP (*Refer to Appendix I).* This will determine a safe environment of workers and a safe route for pedestrians and on-coming vehicular traffic.

A Traffic Management Plan for Civil Works will be submitted to TfNSW in accordance with RMS G10 specification.

3.2. Structure of the Traffic Management Plan

The TMP is divided into sections related to specific components of traffic management as per the table of contents. Each section of the TMP details what is to be carried out to meet contractual, regulatory and Transport for NSW (TfNSW) requirements, as well as summarising organisational responsibilities and corporate policies and procedures applicable to each process.

This TMP including any attachments, referenced procedures and forms, is the Contractors system for project delivery as required by the contract. It references separate documents and plans as listed below:

- Quality Management Systems in accordance with specification Q6
- Safety Management Systems in accordance with specification G22
- Traffic Management Systems in accordance with specification G10
- Environmental Management Systems in accordance with specification G36
- TfNSW Standard Requirements

- Sydney Metro Airport CEMF
- SMWSA Staging Report v4.0
- Project Brief and Appendices.

The relationship between the requirements of the Client and the Ward Civil & Environmental Engineering Business Management System (BMS) has been detailed in the PMP (725.MAN.08). Within each section, specific plans and attachments are referenced including:

- Project Management Plan (PMP)
- Construction Environmental Management Plan (CEMP)
- Quality Management Plan (QMP)
- Work Health and Safety Management Plan (WHSP)
- Site Management Plan (SMP)
- Emergency Response Plan (ERP)
- Workplace Relations Management Plan (WRMP)
- Site Specific COVID Safety Management Plan (if applicable)

These documents are included or referenced in the TMP and are progressively prepared prior to the commencement of related activities.

The strategies identified in this plan will specifically address:

- Traffic management objectives and targets
- Constraints and risks
- Potential road network impact
- Organisation and responsibilities
- Management process tools
- Controls and measures to be applied
- Outline the specific community/stakeholder consultation process and community; relations strategies for managing changed traffic conditions
- Auditing, inspections and monitoring
- Reporting

This TMP has been prepared in accordance with and include all the following elements as detailed in TCAWS V6.

3.3. Document Hierarchy

The TMP for this project has been developed per the requirements of the contract documents, which apply in order of precedence:

- Relevant legislation
- The Contract, which conveys the scope of work and other contract requirements
- Ward Civil & Environmental Engineering Business Management System (BMS)
- Project Management Plan (PMP)
- Project Quality Plan (QMP)
- Traffic Management Plan (TMP)
- Project Specifications
- Project Drawings

These documents provide the framework and requirements for project execution that are incorporated in this TMP.

3.4. Control and Revision of the Traffic Management Plan

The Project and Traffic Manager must exercise their authority to approve the TMP. The Project Manager is responsible for communicating the requirements to the project team. The Project Manager and the Health & Safety Manager will also approve any revisions to the TMP.

The authorised versions of this document and the referenced attachments are those held electronically on the Ward server. Standard company procedures and forms referenced in this document can been downloaded from the BMS Database to subfolders of the Project Management Plan. The Project Manager is responsible for maintaining the TMP and ensuring all project staff have appropriate access to the current documents.

This TMP is to be reviewed for effectiveness at least once a month, after a significant incident or as directed by the project manager or senior management. Review and amendments of this TMP to be undertaken by person(s) qualified in RMS "Prepare Work Zone Traffic Management Plans" (i.e., hold a Red Card) and/or Road Safety Auditors (minimum level 3) that must be listed on the NSW Centre for Road Safety's Register of Road Safety Auditors.

3.5. Abbreviations used for Project Staff

Abbreviation	Title
CEO	Chief Executive Officer
COO	Chief Operations Officer
CM	Construction Manager
LCM	Legal & Commercial Manager
PM	Project Manager
SPE	Senior Project Engineer
CA	Contract Administrator
PE	Project Engineer
SE	Site Engineer
FS	Field Supervisor
SI	Superintendent
HSE	HSEQ Manager
CCL	Communication and Community Liaison
SUR	Project Surveyor
ITM	IT Manager

4. Project Overview

The TMP addresses the road safety and traffic management principles, systems and procedures which will be applied to inform and guide traffic past, through or around all works related to the Project Works, enabling the Project to fulfil its obligations under the contract agreement, associated project approvals as well as the requirements of relevant authorities/stakeholders.

All workers, employers and the management team involved in the construction of the project will adhere to the planning recommendations of this plan.

The TMP has been prepared to assist Ward staff to implement traffic and pedestrian management control measures when carrying out construction and related works on the Project. Traffic management will be undertaken in a way that will provide for the safety of all Ward staff, subcontractors and the public and ensure that road users are not exposed to foreseeable risks.

To guarantee its occurrence, Ward will comply with the requirements of this plan and liaise effectively with Lead Traffic Manager, support staff and specialist service providers.

4.1. Client

St Marys Temporary Bus Interchange upgrade is a project undertaken by Ward for Transport for NSW (TfNSW)

4.2. Contract

Contractual arrangements between Transport for NSW and Ward are contained in the following documents:

- Contract No 18.0000302514.1586 V200 dated 16/09/2021 between TfNSW and Ward

4.3. Project Description

TfNSW have engaged Ward Civil to construct the new St Marys Temporary Bus Interchange that consists of the construction of a new bus interchange at Veness Place car park on Station Rd, upgrading pedestrian crossings on Nariel St & Queen St. Relocation of the Taxi zone and Kiss & Ride areas and replacing road surfaces on Phillip Street and East Ln.

The St Marys Temporary Bus Interchange includes the following works sites and scope of works:

Project Site 1 – Temporary Bus Interchange Site

- Site Establishment
- Landscaping works to areas to new car park areas
- Reconfiguration of existing carpark on East Lane
- Utility relocations and adjustments along Station Street involving multiple service providers
- New Drainage works withing the bus interchange and along Station Street
- Pavement construction and earthworks for new bus interchange
- Installation of new road furniture and drivers' amenities facility
- Demolition and removal of existing car park asphalt
- Stamped Asphalt to East Lane
- Installation of new bus shelters
- Installation of new light poles and CCTV
- New asphalt and line marking
- Construction of new pre-cast barriers along station street

Project Site 2 – Nariel Street and Queen Street

- New asphalt and line marking
- Construction of new pre-cast barriers along station street
- Installation of new kiss-and-ride location and shelters
- Tree Removal
- Construction of new raised pavement markers
- Mill and re-sheet of asphalt on Queen and Narial Street
- Construction of new pram ramps

Project Site 3 – Phillip Street

- New asphalt and line marking
- Construction of new pram ramps

The following figures below outline the general locations and extent of works.

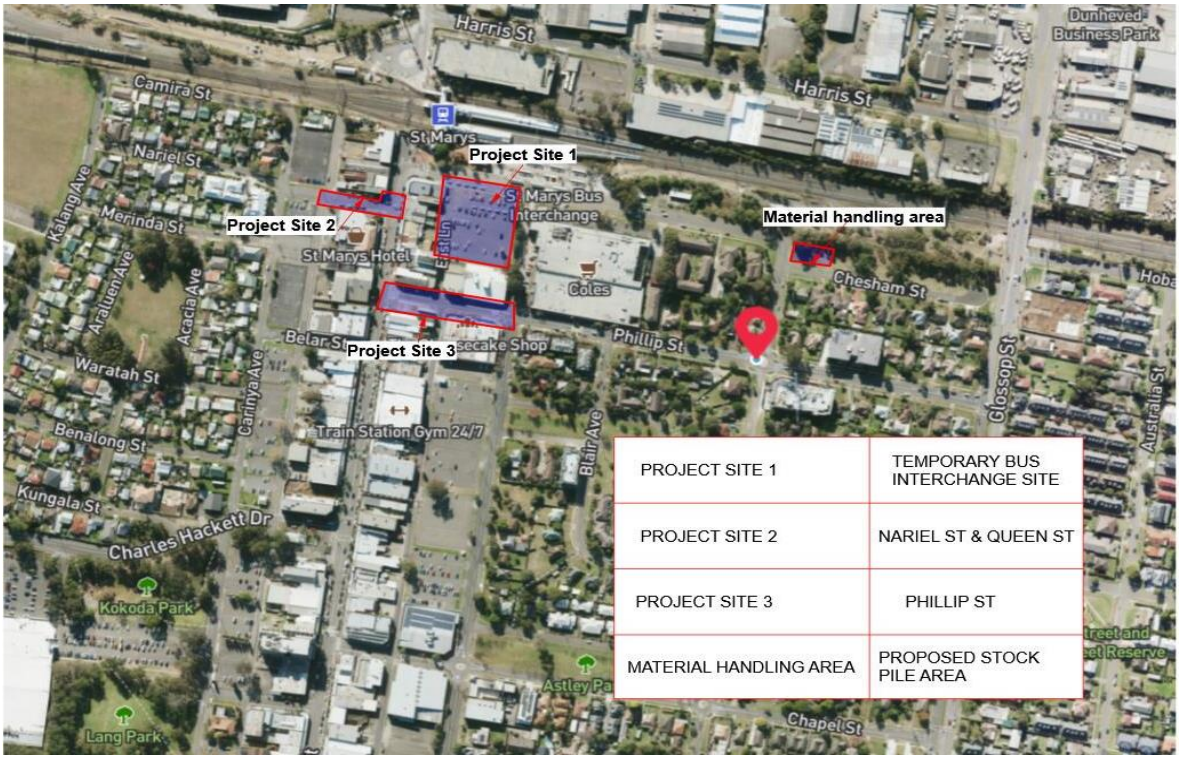


Figure 2 - Project Locations & Area of Works

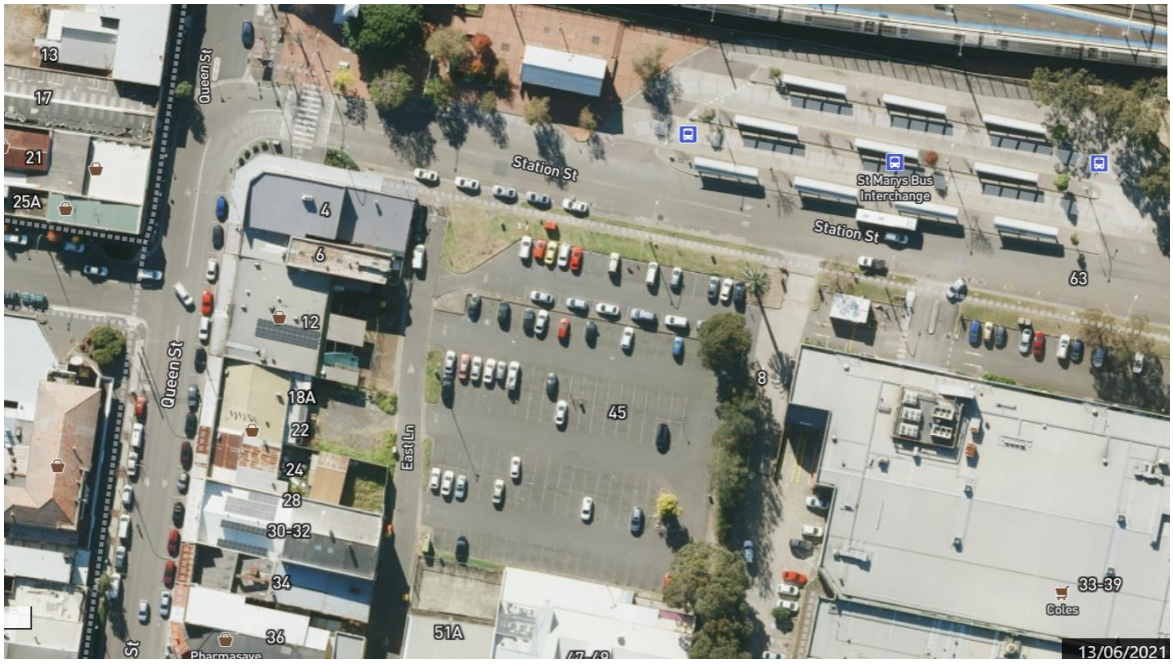


Figure 1 - Area of Works – Project site 1 - St Marys Temporary Bus Interchange

Figure 3 - Area of works Project site 2 - Nariel St & Queen St / Project site 3 - Phillip St

4.4 Working Hours

The standard working hours for the project are as follows:

- Monday – Friday 07:00 to 18:00
- Saturday – 08:00 to 13:00

However, to minimise impacts on traffic and road users, it is envisaged that some of the works will be undertaken outside of normal hours. Out of hours work on the project is proposed for up to 5 nights per week. The current proposed out of hours is:

- Sunday – Thursday 20:00 to 05:00

Out of hours works will be determined by the TMC when the ROL submissions have been assessed.

5. Identification and Assessment of Traffic Impacts of Proposed Works with Measures to Ameliorate the Impacts of Proposed Works

5.1. General

The construction of this project will have an impact on the existing traffic flows along the carriageway and the various side roads in close proximity to the respective intersections. In this regard, Ward will sequence construction works with the objective to:

- Maximise safety for workers and road users by isolating work areas from traffic flow at all times during the contractors works.
- Maintain existing capacity where possible.
- Minimise road user delays and detours that inconvenience motorists and other road users or interfere with traffic during periods of heavy vehicle traffic flow and major activities on site.
- Avoid restrictions on transport operators.
- Maintain access to all utilities and properties during the works, unless otherwise agreed with the relevant utility owner, landowner or occupier. Ref: CoA E110

The effective planning of all construction activities is the key to achieving these objectives. During the construction phase, specific processes will be developed. Potential restrictions on the existing road network may include but are not limited to:

- Lane closure/ road occupancy and roadwork speed limit submission.
- Short-term one lane alternate operations.
- Haulage operations.
- Haulage road crossing and over-dimension vehicle movements.
- Preparation of TGSs.
- Carrying out traffic surveillance duties and road safety audits.

With the exception of the short-term closures, Ward will maintain access for all vehicles along the carriageway. Road occupancies involving closure of any shoulder or auxiliary lane(s), where auxiliary lane(s) exist, Ward will always consider providing a minimum of one travel lane in each direction through the road occupancy or in line with the road occupancy licence conditions.

Where temporary traffic access is required, adequate consultation with the community will be sought prior to implementing the changes.

Where property access is required as a part of the project, adequate consultation will be undertaken with the affected residents prior to implementation. Access to private residence will be maintained as far as reasonably practicable.

Traffic Control Personnel are to be appointed solely for the purposes of this contract. The appointed organisation undertaking traffic control must be registered under the TfNSW Scheme Category G “Traffic Control”. Appointed personnel are to have applicable qualifications and training to undertake the role and are to have Blue Cards on their person at all times when controlling traffic.

Nominated Traffic Controllers to be issued with high visibility fluorescent vests or shirts, clearly bearing the words “Authorised Traffic Controller”. Vests are to be worn by Traffic Controllers as an outer garment at all times when controlling traffic.

5.1.1 Property Access

Ward Civil will maintain access to all properties during the entirety of works unless an alternative access is agreed in writing with the landowner(s) whose access is impacted by the construction works. Ref: CoA E111.

Where construction works restrict a property's access to a public road, Ward Civil will, until their primary access is reinstated, provide the property with temporary alternate access. Ref: CoA E112.
Any property access which has been physically affected by construction will be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier. Property access must be reinstated within 1 month of the work that physically affected the access is completed or in any other timeframe agreed with the landowner or occupier. Ref: CoA E113.

During construction, all reasonably practicable measures must be implemented to maintain pedestrian, cyclist 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 avoided, alternative pedestrian, cyclist and vehicular access, and parking arrangements must be developed in consultation with affected businesses and landowners and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption. Ref: CoA E114.

5.2. Traffic Data and Analysis

To keep the road user delays to a minimum, staging of all works will be planned so as to avoid lane closures/ road occupancies during peak periods. To assist the planning process, analysis of traffic volume to date has been undertaken to establish the capacity of the road, assess the potential impact on the traffic flow and identify the best time to apply the temporary traffic arrangements, so as to minimise the inconvenience to road users.

The traffic volume data is being collected on roads adjacent to the site that will be impacted by road occupancy. The data will be analysed to determine optimal working hours to increase productivity and to minimise the impact on road users.

5.2.1. Traffic Data – Pages Rd & Charles Hackett Dr, Queen St & Charles Hackett Dr, Glossip St & Phillip St.

The information in figure 4 has been extracted from Transport for NSW (TfNSW) traffic volume viewer. Permanent Counter located 440m West of Queens Street on the corner or Pages Rd & Great Western Highway

All Days (AADT) - This includes volume from all days of the week with no exclusions for public holidays or weekends.

- Weekdays (AAWT) - This includes volume from Monday through to Friday. Three AADT figures are provided: AM Peak - Traffic volume during the hours of 6am to 10am.
- PM Peak - Traffic volume during the hours of 3pm to 7pm.
- Off Peak - Traffic volume during all hours of the day excluding 6am to 10am and 3pm to 7pm.
- Weekends (AAWET) - Traffic volume for Saturdays and Sundays only.
- Public Holidays (AAPHT) - Traffic volume from all days of the year defined as a Public Holiday (according to nsw.gov.au)

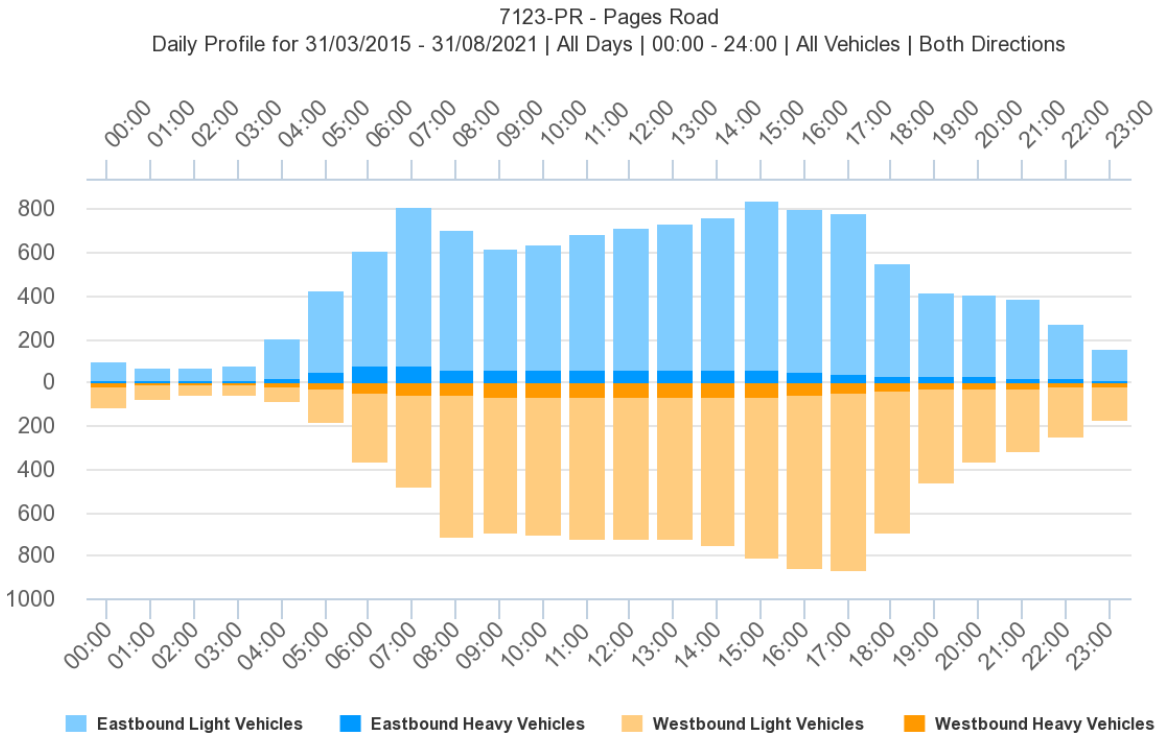


Figure 4: Traffic Volume – Pages Rd

This data shows a higher volume of traffic during the hours of 07:00 to 17:00 however the nearest traffic counter on Pages Rd is located on Great Western Highway therefore traffic volumes are expected to be significantly lower around the work area. Works will be staged to ensure sufficient lanes are kept open to handle traffic flows. The staging will be clearly defined in the TGS's developed with this TMP.

As part of the SMWSA EIS traffic surveys were carried out at key intersections along the proposed rail corridor. In the vicinity of St Marys Bus Interchange, the following intersections were surveyed in June 2019. The survey date was selected, outside of school holidays, to representing a "normal" traffic condition.

- Glossop Street/ Phillip Street
- Queen Street/ Charles Hackett Drive

The locations of the surveyed intersections are shown below in figure 5

Figure 5 – Intersections provided with traffic volume data

Surveyed volumes from these two locations can be used to provide an indicative volume of vehicles within (circulating) the Town Centre. Two-way peak hour traffic volumes on Phillip Street and Queen Street are presented in Table 1. "Inbound" indicates traffic travel towards the station precinct from the two intersections; and "outbound" indicates traffic travels out of the precinct.

Table 1 - Estimated traffic volumes based on provided volume

Intersection	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
Phillip Street east of Glossop Street	357	277	309	476
Queen Street north of Charles Hackett Drive	268	263	378	391

Results of traffic modelling of the two intersections, undertaken as part of SMWSA EIS, are reproduced in Table 2. The results indicate that both intersections operate with a good level of service with minimal overall delays.

Table 2 – Existing intersection performance near station precinct

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (s)	LOS	Delay (s)	LOS
Glossop Street/ Phillip Street	14	A	17	B
Queen Street/ Charles Hackett Drive	18	B	26	B

No additional traffic assessments are available for intersections/ road closer to the bus interchange. Observations undertaken within the precinct in October 2020, during the AM peal period, indicates that traffic generally flows well with minimal delays. It is noted that traffic/ pedestrian volumes, during site observations, were lower that what could generally be expected due to impacts of COVID-19.

6. Assessment of Public Transport Services Affected

6.1 Public Transport Overview

The existing St Marys Interchange consists of the train station, and the bus interchange located on the southern side of the rail line, on both sides of Station Street. The majority of the bus facilities are located on the northern side of Station Street, allowing direct pedestrian interchange with the train station. A taxi zone and additional bus stops for Night Service buses are located of the southern side of Station Street. A set-down/ pick-up area is provided to the west of the main train station entrance.

The interchange facilities are shown below.

- Bus set-down zone – provision for two buses.
- Bus stands – provision for 10 independent bus stands however only 5 currently in operation.
- Bus layover spaces-provision for five independent spaces.
- Taxi Zone–provision for storage of six taxis.
- Set-down/ pick-up zone–provision for two zones with capacity of three vehicles each.

Figure 6 - Existing public transport layout St Marys Station

6.2 Existing Bus Interchange

The existing configuration of St Marys bus interchange provides 10 stands. 5 stands facilitate pick-up activities and the remainder serve as additional layover spaces. There are additional 5 spaces along the northern kerb of Station Street. There is also a bus stop that is located at the southern kerb of Station Street that provides pick-up for Night Service buses.

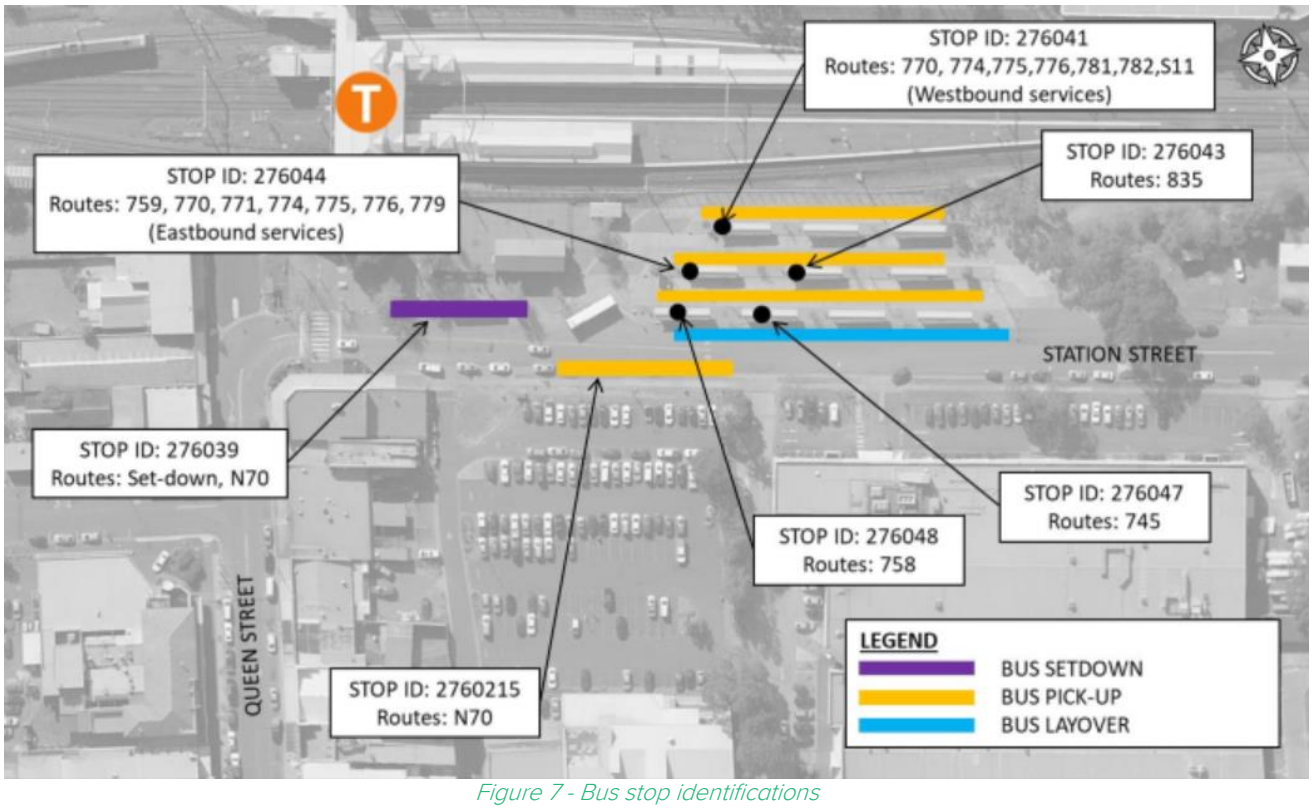


Figure 7 - Bus stop identifications

The majority of bus services using the interchange are operated by Busways. There is also a private school bus service "S11"), as well as Night Service buses which are operated by Hillsbus. Images below show the routes of each bus which uses the St Mary's bus interchange facility.

The first service of the day departs St Marys Station at **05:57** Mon to Fri, **06:03** on Sat & **07:34** on Sun, including Public Holidays. And the last service departs St Marys Station at **23:17** Mon to Sat and **22:17** on Sun including Public Holidays.

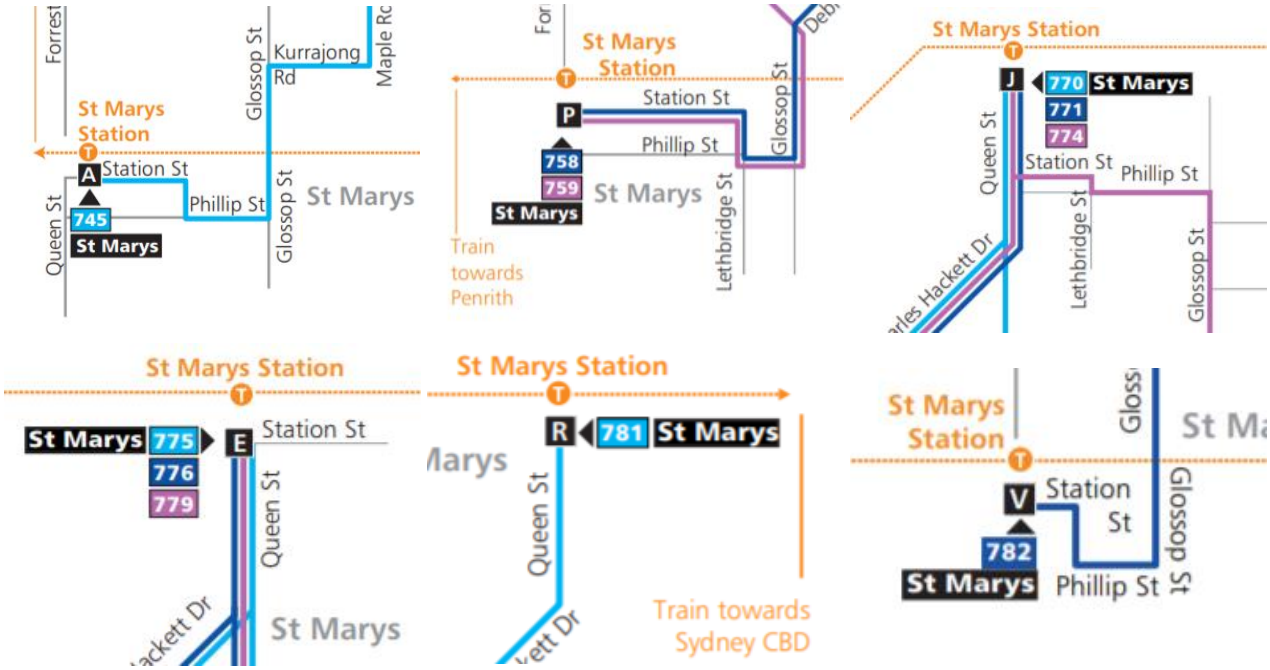


Figure 8 - Hillsbus bus routes via St Mary's Station

6.3 Assessment of TBI construction impacts on bus routes and/or bus stops

Busses 745, 758, 759, 744 (eastbound) and N70 (eastbound)

- Both busses arrive from Queen Street, turn left into the bus interchange, and then merge onto Station Street traveling east.
- The location of the bus stops and the bus routes are not affected by the TBI construction works.

Busses 770, 771, 775, 776, 779 and 781

- Both busses arrive from Queen Street, turn left into the bus interchange, and then turn right onto Station Street traveling west toward Queen Street.
- The location of the bus stops is not affected by the TBI construction works.
- The bus routes will be affected by the TBI construction works when the median island construction works on Station Street commence. These works cut off Station Street and can only commence once the bus stops and bus routes are relocated to the TBI.

Bus 774 (westbound)

- The bus arrives from Lethbridge Street, turns right into the bus interchange, and then turns right onto Station Street traveling west toward Queen Street.
- The location of the bus stop is not affected by the TBI construction works.
- The bus routes will be affected by the TBI construction works when the median island construction works on Station Street commence. These works cut off Station Street and can only commence once the bus stop and bus route are relocated to the TBI.

Bus 782

- The bus arrives from Lethbridge Street, turns right into the bus interchange, and then turns left onto Station Street traveling east.
- The location of the bus stops and the bus routes are not impacted by the TBI construction works.

N70 (westbound)

- The bus arrives from Lethbridge Street, stops along the southern kerb of Station Street, and then merges back onto Station Street traveling west toward Queen Street.
- The location of the bus stop is impacted by the TBI construction works and will require temporary relocation during construction.
- The bus routes will be affected by the TBI construction works when the median island construction works on Station Street commence. These works cut off Station Street and can only commence once the bus stop and bus route are relocated to the TBI.

6.4 Proposed bus route / bus stop changes

Any impacts to bus stops, bus zones and/or route services will be discussed with the CJP Transport Integration team ahead of works. In addition, Ward will allow a minimum 28 days' notice to allow the bus operator to make relevant changes in their systems and across all relevant apps, as well as abide by their contractual terms with transport.

6.1.1 N70 Bus Stop

The N70 bus stop (ID 2760215) is located on the southern kerb of Station Street and will need to be relocated to accommodate the construction of the Temporary Bus Interchange. Ward have contacted Hillsbus and agreed to move the bus stop further east on Station St outside of Coles as this will cause the least disruption to the service. Refer to image below. The N70 Bus operates between 00:31 to 05:31 Mon to Sun including Public Holidays.

This service is maintained by Hillsbus. Any additional communication and approvals relating to the N70 bus stop or route will be obtained through them.

Figure 9 - N70 Bus Stop relocation on Station Street

Figure 10 - N70 bus stop along the southern kerb of Station Street

6.1.2 Bus Layover Area northern kerb of Station Street

The bus layover area along the northern side of Station Street has a no stopping zone which occupies approximately 15m of the northern kerb run from the entrance to the bus interchange area. Ward proposes to extend this no stopping zone by approximately 10m to ensure adequate min 3.5m lane widths past the construction site barriers. Refer to figure below.

Figure 11 - Station Street layover area no stopping zone extension

Figure 12 - Station Street layover area no stopping zone

6.5 Proposed Taxi Rank changes

The existing Taxi rank is situated on the southern side on station St (shown in figure 13) accommodating approx. 6 Taxis this will be relocated to the existing Kiss and ride location at the station (shown in figure 14). Taxi's and kiss and ride facilities will be notified prior to moving the location and community notification has already submitted.

Figure 13 – Existing taxi rank

Figure 14 – Existing Kiss and Ride

6.6 Proposed Kiss and Ride changes

The current Kiss and Ride is located at the station (shown above in figure 14) in the early works this will be relocated to Nariel St (shown below in figure 15). This will involve installation of a seated area and shelter on the northern and southern footpath on Nariel St and adjustments to line marking and pram ramp access on the northern side only.

Figure 15 – New Kiss and Ride area on Nariel Street

7. Traffic Management

7.1. Planning

During the planning of construction works, the following must be considered:

- Works to be planned to cause the least possible disruption and have a low impact to traffic and pedestrians.
- As necessary approvals are to be obtained from relevant authorities for temporary traffic arrangements.
- Principal and regulatory authorities to be consulted when planning and implementing traffic management proposals.
- Licences and permits are to be in place prior to works proceeding.

7.2. Police Ambulance and Fire

Police, ambulance and fire departments will be notified of any changes to traffic conditions a month prior to work commencement. All emergency services will be given right of way through the site and any assistance that can be practically afforded to emergency services by our traffic management team will be provided.

Emergency services will be notified of all planned works and changed plans seven days prior to the works commencing.

7.3. Heavy Vehicles

The effective management of loads carried by heavy vehicles vary considerably, and over-dimension loads are transported regularly on the carriageway. These loads vary in width, height, length and mass. For Ward to safely and efficiently facilitate the movement of heavy vehicles, the TMP will:

- Consider the movement of heavy vehicles and over-dimension loads when preparing temporary works drawings and TGSs (adopting designs which provide a minimum lane width of 3.5 m and can accommodate the turning movements of a 26 m long B-Double heavy vehicle).
- 9.9m long (10-wheeler) construction vehicle is to be commissioned owing to the existing site constraints on the council's local road network.
- Limit obstructions and restrictions on the carriageways, and when required, provide alternatives to maintain access for transport operators including over-dimension load movements. Where it is not possible to adhere to the 3-tonne load limit on Station Street and other surrounding Council roads access is permitted for 3 tonne and over providing it is the only direct route to the project location, information can be found in the following link:
- https://www.rms.nsw.gov.au/roads/safety-rules/road-rules/heavy-vehicles/index.html
- Liaise with the police, permit authority and operators, as well as NHVR to provide up-to-date information of any obstructions (specify minimum dimensions) which may impact on the movement of over dimension vehicles.
- Liaise with TfNSW and City of Penrith Council for any approval/acknowledgement required for any works or haulage routes that impact Council roads. All communication to be submitted to TMC.
- When traffic control operations are in place, traffic controllers will effectively coordinate the movement of over-dimension vehicles through the work site.
- Assist the Special Permits Unit and over-dimension operators by notifying the relevant authority of any obstructions which may impact on over-dimension vehicle movements.
- Where possible, arrange the removal and re-instatement of roadside furniture and traffic control devices which impede over-dimension vehicle movements.
- Regularly monitor heavy vehicle movements through the work site and when required, implement the appropriate controls to mitigate potential hazards and/or congestion.

Ward will liaise with Transport for NSW representatives to establish communication protocols for the passage of over-dimension heavy vehicles prior to any deliveries.

A Swept Path analysis has been undertaken for various over dimension movements through and around the work areas – particular areas of concern are the Northern end of Queen St on the bend when completing the works for the new pedestrian crossing as this is proposed to be completed under a half road closure. Turning movements into the Interchange from a Westerly direction on Station St (only required if a road closure on Queen St is necessary). The swept path analysis documentation can be viewed in Appendix H.

7.4. Managing Pedestrians

Information collected for TfNSW Transport Impact Assessment shows that the relocation of the bus interchange from the northern side of Station Street to the southern side will impact pedestrian desire lines within the interchanges. Importantly it will result in customers interchanging between bus services and bus/ train services to cross Station Street. A median within Station Street is proposed to enforce these crossing movements to take place at the existing pedestrian crossing.

The initial strategic assessment, undertaken by ARUP, indicated that the period with the highest bus movements in the interchange is between 7:00-8:00am. That hour accommodates 33 inbound movements and 32 outbound movements.

The initial strategic assessment also undertook an initial investigation into potential pedestrian movements into the train station using the pedestrian crossing, which is shown in Figure 16. This assessment was carried out using a first principals approach based on Opal data as detailed pedestrian counts were not available.

Figure 16 – Estimated pedestrian movements at pedestrian crossing along Station St (ref TfNSW transport impact assessment)

Based on the estimated bus and pedestrian volumes, it is estimated that during peak periods the conflicting movements at this crossing would be in the order of:

- Pedestrians: 550
- Busses: 65

An initial assessment of these volumes, based on observations of the existing and other crossings within interchanges, indicated that the exiting pedestrian crossing will continue to operate within acceptable bounds. Maintaining safety for pedestrians while delays to buses being at an acceptable level.

When undertaking construction works Ward will ensure all pedestrian footpaths and crossings will be maintained at all times, this includes the pram ramp grades, footpath widths etc. Worksite will be safely delineated from pedestrian footpath at all times.

When planning construction activities, Ward will consider the following:

- Number of pedestrians.
- Type of pedestrian activity: commercial, retail, residential or recreational.
- Origin and destination points of the pedestrians, as well as their desired travel path.
- Needs of vulnerable pedestrians such as young children, the elderly, vision impaired, disabled people, people with prams and trolleys.
- Proximity of pedestrian generation developments such as schools, shopping centres, railway stations, bus terminals, etc.
- All footpath closures will be consulted with all relevant bodies including (but not limited to) council, affected stakeholders, affected residents etc prior to closure.

Understanding that unlike motor vehicles, pedestrian movements within and outside of the road reserve are generally unrestricted, with free access available to most areas. Because of this and to ensure provision of a safe environment to all pedestrians, Ward will ensure provisions will be made for the safe ongoing access by pedestrians. A minimum 1.2m width pedestrian path will be provided where pedestrian will be relocated as part of the works. Fencing will be installed to restrict physical access to hazardous areas as well as for site security, which will be appropriately sign posted. Various types of temporary and semi-permanent fencing may be installed, including plastic mesh, water filled plastic delineators, and ATF fencing. All physical barriers will be maintained during the project and appropriately secured to prevent injury to the public.

To implement these requirements, all temporary footpaths will be:

- Clearly defined and revised locations of these routes will be developed in consultation with TfNSW and forwarded to the local council for review and acceptance if it applies to a local road.
- Advice of pending changes to the routes will be provided to the users, together with signage detailing the changes when implemented.
- Signposted appropriately to indicate the direction of the footpath.
- Constructed with an all-weather surface, free of trip hazards.
- Designed to accommodate the type of pedestrians to be encountered within the area.
- Where required, provided with pram ramps, handrails and street lighting.
- The minimum width specified by the relevant authority.
- Where pedestrian and cyclist flow are in a direction that may not satisfy a clear desire line, special provisions for notification will be made; and kept well maintained while in operation.
- All temporary pedestrian footpaths will be Disability Discrimination Act (DDA) compliant.

Pedestrian movements are specific to the exact location and scope of a particular work operation. A Pedestrian Movement Plan will be drafted prior to the commencement of a specific work operation identifying the exact controls required to safely manage pedestrians past the worksite.

Where feasible, Ward's aim will be to maintain all existing pedestrian crossing facilities. Where this cannot be

achieved, alternative facilities that are to a similar standard to the present facility will be provided. Types of temporary crossing facilities may include pedestrian refuges, marked foot crossings, pedestrian-actuated traffic signals, temporary grade separated pedestrian bridges, etc. Traffic Controllers will monitor pedestrian movements and patterns for the first week of works and make any changes necessary to ensure pedestrians are able to move safely. Observations will cover day and night conditions as per clause 9.3.5 of the TCAWS manual version 6.

Appendix E shows the proposed set up for required footpath closures. Footpath's will be temporarily closed with appropriate signage displayed and traffic controllers in place to guide pedestrians (if required). Safety barriers will be set up along the outside lane, with two rows of tiger tails and cones or water filled barriers where pedestrians will be required to walk. This allows for a minimal exclusion zone between the pedestrian walkway and the safety barriers, any future pedestrian footpath closures will be consulted and approved by TfNSW, TMC and City of Penrith Council.

7.5. Managing Cyclists

Safe pedestrian and cyclist access must be maintained around the construction site 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. Ref: CoA E115.

Though there are cycling routes and facilities in the station precinct the facilities at the station (shown below in figure 18) will be maintained and will not be affected by any construction works. The cycling activities around the area is observed to be minimal. No dedicated or off-road cycle facilities are provided in the vicinity of the interchange; however, Queen Street, Station Street and Phillip Street are noted as on-road (mixed traffic) facilities. No cyclist activity was observed during site visit of the interchange. Figure 9 shows the existing cycling route around the station precinct:

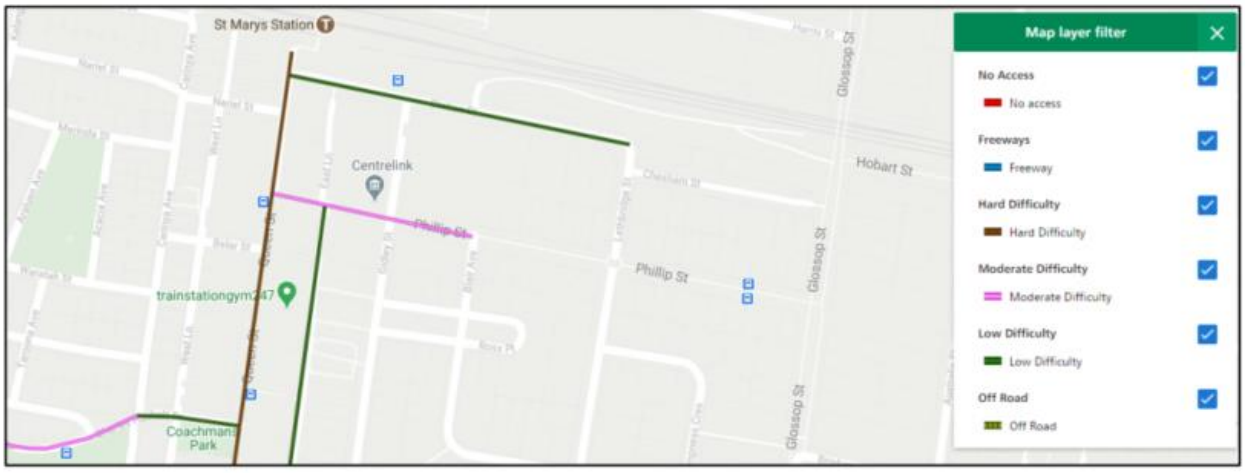


Figure 17 – Cycling route around the station precinct

Figure 18 – Existing cyclist facilities at the station

When planning construction activities, Ward will consider the following:

- Number of cyclists.
- Type of cycling activity: school children, recreational, commuter, utility, touring or sport training.
- Origin and destination points of the cyclists and the connectivity of their routes.
- Needs of vulnerable cyclists, such as young children under 14 years.
- Proximity of cyclist generating developments, such as schools, universities, public transport terminals, shopping precincts and CBDs, etc; and
- The travel speed of cyclists.

Where possible, the introduction of hazards into the travel path of cyclists will be avoided. Where this is not feasible, appropriate physical barriers, treatments and/or warning signs will be implemented. Fencing will be installed to restrict physical access to hazardous areas and for site security, which will be appropriately sign posted.

All physical barriers must be maintained during the project and appropriately secured to prevent injury to the public. Where work areas restrict access to cycle paths, alternative routes and facilities will be implemented. Alternatives may include using the opposite side of the road, detours via other streets/cycle routes, or the provision of temporary cycle paths through the work area.

Ward will ensure that all temporary cycle paths will be:

- Clearly defined.
- Signposted appropriately to indicate the direction of the cycle path.
- Constructed of an asphalt or concrete with a smooth surface, equivalent to the section of path on each approach to the temporary path.
- Free of loose materials and obstacles.
- Designed to accommodate the type of cyclists to be encountered along the route.
- Where required, provided with ramps, holding rails and street lighting.
- Kept well maintained while in operation.

The provision of on-road cycle facilities requires careful assessment, and the factors below will be strictly considered by Ward:

- On-street parking conditions.
- Travel speed of traffic.
- Traffic volumes.
- Bicycle volumes.
- Percentage of heavy vehicles.
- Carriageway, lane and parking lane widths available; and
- The alignment of the road.

Where feasible, Ward will aim to maintain all existing cycle crossing facilities. Where this cannot be achieved, alternative facilities which are a similar standard to the present facility will be provided in accordance with TCAWS Version 6 Section 9.4.1. Ward will also aim to engage and consult all cyclist groups prior to the works taking place.

7.6. Hazardous Movements

When planning construction vehicle movements, the following movements are considered hazardous:

- Entering and exiting work sites to and from adjacent travel lanes.
- U-turns movements across travel lanes and at median crossover points between dual carriageways.
- Reversing manoeuvres within the work area and in the adjacent travel lane.
- Transit of trucks through school zones when the school zone periods are in effect.
- The stopping of construction vehicles within the adjacent travel lanes; and
- Travelling through the work area between construction personnel and hazards.
- Three-point turns for construction vehicles whilst on public roads.
- All entry and egress to construction sites/ gates not in a forward direction.
- Over-dimensioned vehicle movements; and
- Hazardous goods vehicles using unapproved routes.

The project team will be required to apply control and measures to mitigate the risk of these hazardous movements including, but not limited to:

- Restrict the practice of specific movements (e.g., U turning bans).
- The provision of temporary traffic controls.
- The installation of deceleration, acceleration and turning lanes outside of the through lanes.
- Educating drivers; and
- Installation of warning devices on vehicles and the application of (VMPs).

Ward acknowledges how significant this issue is with attention given to the safe movement of construction vehicles when planning construction activities. When planning construction vehicle movements for each stage of work:

- Comply with all relevant environmental approvals and consent conditions.
- Minimise the number of vehicle movements by balancing earthworks and recycling excavated materials.
- Conduct a risk assessment to identify specific hazards and facilitate the application of mitigation measures.
- Promote safe driving principles.
- Develop on-road haulage routes which not only provide an efficient operation and uses major roads where possible, but also minimise the impact on the local road network and the local community.
- Analyse, assess and mitigate the impact of the traffic generated by the construction works.
- Set up depots, stockpiles and batching plants at locations which minimise travel distances and impact.
- Prepare Vehicle Movement plans (VMPs), *Appendix D*, for all construction vehicle movements, whether on-site or on-road, and ensure the routes are communicated to all construction personnel.
- Where feasible, restrict haulage operations to the construction corridor.
- Minimise the number of access points and haul road crossings.
- Evaluate the need for temporary traffic control and/or major traffic controls to separate conflicts.
- Implement appropriate environmental controls.
- Design and implement safe access points.
- Provide an efficient and well-maintained vehicle fleet; and
- Determine the most appropriate hours of operation which will minimise the impact on the road network and local communities.

The (VMP) may be combined with or superimposed on a TGS and a written document or drawing. The hours of operation for the movement of construction vehicles will be in accordance with the approved operating hours and in accordance with the environmental approvals.

7.7. Traffic Control Devices

7.7.1 Safety Barriers

Installation of barriers around work areas shall be identified and carried out in line with the recommendations presented in the TCAWS manual version 6 and the manufacturers specifications to ensure that they are performing the function as they were designed to do. Barriers will be installed in accordance with manufacturer specifications. Exclusion zones will be established behind barriers as required. No construction work or pedestrian movement will be undertaken within deflection or impact zone of the safety barrier without controls. Water filled plastic barriers may be used at those locations that preclude the use of rigid barriers, such as at corners or intersections and any other locations approved by the Principal, provided that their use complies with the TCWS and the Acceptance conditions for the safety barrier product. Where applicable Ward will Provide the manufacturer's recommended buffer zones on the approach side of water filled barriers.
Safety barriers must be selected from the products on the "safety barrier products (temporary workzone)".

http://www.rms.nsw.gov.au/business-industry/partners-suppliers/approved-products-materials/safety-barriers/temporary.html

7.7.2 Pavement Markings and Signs

All markings and signposting for use in temporary works to be in accordance with TfNSW requirements. Waterborne paint to be used for temporary pavement markings, unless otherwise specified. Method of removal of all redundant pavement markings to be removed by water blasting. For temporary pavement marking adjustment, all longitudinal line marking to be water blasted. For transverse lines (i.e., PCW's etc) black 3M tape will be used. Temporary Speed Zoning signs to be supplied and erected as indicated in TGSs and removed when no longer in use.

Diagrammatic signposting to be erected indicating the direction, number and arrangement of travel lanes, and the location of work areas prior to any change in traffic conditions. Signage to be erected in advance of the works (minimum letter size from signposting to be 150mm). An additional sign erected immediately prior to the start of the work for each direction of traffic. Signs to be replaced once known to be damaged or dilapidated.

7.8. Monitoring of Traffic Control Devices

All required traffic control measures and signs are to be checked at the commencement and conclusion of each day's work to ensure all in place as detailed in applicable TGSs. Details of daily inspections to be recorded. Person undertaking the check to be qualified in TfNSW "Apply Traffic Guidance Schemes" (i.e., hold a current Yellow Card).

7.9. Road Construction Works Adjacent to Traffic

All works adjacent to the roadway are to be separated from traffic by appropriate safety controls in line with the TCAWS manual version 6 and are shown by the Traffic Guidance Scheme's in Appendix C. Where it is not possible to carry out all works during the day works will be carried out from temporary lane closures in accordance with approved ROLs and TGSs.
Carriageway(s) to be restored to a safe and trafficable state for through traffic at the cessation of each workday/night.

7.9.1 Approved Clothing/PPE

All personnel working in close proximity to traffic must wear high visibility fluorescent safety clothing complying with AS/NZS 4602. All personnel must comply with the Ward PPE requirements as per the Safety Management Plan.

7.9.2 Plant and Equipment for Traffic Control

All vehicles used in traffic control operations are equipped with appropriate vehicle mounted warning devices. During daytime, plant and equipment working adjacent to traffic and having a projection beyond normal width of the item to have a fluorescent red flag attached to the outer end of the projection.

During poor light conditions and at night, an additional Traffic Controller with an illuminated red wand will direct traffic around such plant and equipment.

During night-time, where traffic is permitted to use the whole or portion of existing road all plant items and similar obstructions to be removed, with:

- Lateral clearance of at least 6m, where practicable; and
- Minimum clearance of 1.2m.

Any plant and equipment within 6m of the normal path of vehicles to be illuminated with no less than two (2) yellow steady lamps suspended vertically from:

- The point of the obstruction nearest to a traffic lane; and
- At each end of the obstruction on the side furthest away from the traffic lane.

7.9.3 Maintenance of Roadways

Existing Roadways

Routine maintenance to be carried out of pavement and drainage on existing roads within the limits of the Contract once work commences on site and within the nominated local (unclassified) haulage roads (refer to *Appendix D*). Prior to commencement of any construction activities, a dilapidation survey of existing road infrastructure will be conducted to any roads that will be used by heavy vehicles. Ref: CoA E107.

Maintenance work includes as needed:

- Repairing potholes.
- Cleaning kerbs and gutters.
- Clearing drainage blockages.
- Removal of debris from roadway.
- Straightening and cleaning roadside furnishings; and
- Grass mowing; and trimming of vegetation.

Temporary Roadways and Detours

Temporary roadways, detours, and any local roads used by construction traffic to be maintained to provide a safe trafficable condition for all classes of vehicles that may use them.

Work for which maintenance to be conducted includes:

- Existing pavements.

- Line marking.
- Kerb and gutter.
- Road shoulders and verges.
- Ancillary services.
- Roadside environment.
- Drainage.
- Signage.
- Trimming of vegetation; and housekeeping.

Repairs to be conducted for:

- Potholes; and
- Surface drainage blockages; and other failures.

Debris of any sort, such as animal carcasses to be removed without delay.

Line markings to be re-applied as necessary to clearly delineate traffic lanes for the duration of temporary traffic arrangements.

New Roadways Opened to Traffic

Routine maintenance of newly constructed sections of road to be carried out after opening to traffic until completion, or as otherwise directed by the Principal. Cooperate with TfNSW, local Councils or their agents in carrying out maintenance responsibilities when it is not Ward's responsibility.

Provision for Traffic Incidents

As can reasonably be expected personnel and equipment for after-hours maintenance/emergency callouts to be available. Any damage to safety barriers, signs or similar safety items to be rectified following any traffic incidents. Traffic control devices to be removed/repositioned and/or debris that interferes with traffic flow removed within the Site following any traffic incident.

Ward will ensure that all traffic control vehicles are fully stocked with the full suite of traffic control equipment so that additional controls can be implemented in the event of a traffic incident.

Plant on site that will assist in the event of a traffic incident are:

- Excavators (with capacity to lift/remove jersey barriers)
- Minimum of two labourers on standby
- Tow truck on standby – (02) 4505 5008
- Sweeper on standby – (02) 9657 4200

7.9.4 Opening to Traffic Upon Completion

Prior to opening to traffic, all relevant permanent signposting, pavement markings, safety barriers and traffic signals required under the Contract to be completed. All temporary traffic control devices no longer required for the safety of traffic to be removed when opened to traffic. The Principal will be given 10 days written notice of the date of opening the whole or part of the Works to traffic. Procedure for opening to traffic to be through consultation with Principal and where required Police.

Additionally, prior to opening the road to traffic, a Road Safety Audit – Pre-opening will be performed and any identified issues to be addressed as appropriate.

8. Project Specific Requirements

8.1. Objectives

All requirements for the management of traffic past, through and/or around the project site including, the provision of the safe movement of traffic, the protection of workers from passing traffic and the provision for access to adjoining properties located within the limits of the Contract.

8.2. Requirements

Traffic control devices and their use shall conform to the requirements of the TCAWS manual version 6. All traffic control devices shall be securely fixed in the correct position and maintained in an effective and clean condition suitable for day and night operations whilst employed on the work under the contract. Devices which are damaged or worn, or that do not conform to the above requirements, shall not be used.

The Supervisor, Foreman and / or senior Traffic Controller on the construction site shall ensure that all applicable controls and safety devices are implemented prior to the commencement of works daily.

The Traffic Management Plan shall be monitored continually throughout the construction period and reviewed by the Project Manager and nominated traffic control sub-contractor. Amendments to the Traffic Management Plan shall be made within the timeframe specified under the contract.

Daily inspections of devices shall be carried out by the traffic control sub-contractor to ensure all traffic control devices are maintained and comply with the Traffic Control at Worksites Manual, Main Roads Specifications, relevant Australian Standards and contract requirements.

Details of traffic lane configurations, traffic delays, periods of no lane closures, detours, and the use of side-tracks applicable to this contract are detailed in the project specific requirements of this plan.

Work shall be programmed to minimise the effect on the road users. Specific requirements for individual premises will be planned on a day-to-day basis during a planning meeting at the end of the preceding day.

8.2.1 Transport Management Centre (TMC)

All ROL's and SZA's are to be requested through and approved by the Transport Management Centre with referencing Major Project Name *"St Marys Temporary Bus Interchange"*. Evidence of coordination and consultation processes with TMC are to be maintained. The TMC are to be immediately notified of any traffic incidents within the works area. The TMC will be regularly communicated with until an incident has been cleared and all traffic movements have returned to normal.

The TMC are to be notified and co-ordinated within the event of an unusual traffic build up during any of our proposed road occupancy periods.

8.2.2 Road Occupancy Licence (ROL)

Consultation with TMC and Penrith City Council will be required as this area is a shared responsibility between both entities. Approvals for ROLs from Penrith City Council will be required for all ROL applications that are submitted to TMC. The Traffic Manager will liaise with Sydney Metro's CJP for ROLs and permits.

ROLs are to be obtained when planned activity requires an existing road to be used in such a way as to affect traffic flow. All ROLs will be submitted a minimum of 10 working days prior to works commencing to allow time for applications to be assessed and approved. Work activities to comply at all times with the lane occupancy hours and conditions granted in the ROLs. Copies of approved ROLs are always to be kept on site.

Attain copies of applicable ROLs for each section of works – this is only applicable where normal traffic flow is impeded during the works – not required for every day running of the works site. Copies of all current/applicable ROL's will be provided to TfNSW for their reference upon request.

All ROL:

- applications to be submitted 10 business days in advance
- applications must include the project name (*Sydney Metro Greater West Project*) prior to submission.
- applications that have been applied for or licenced without the Major Project Name should be re-applied for using the Major Project Name.
- activation and deactivation for work shifts must use the web application system and not call the TMC.

8.2.3 Traffic Guidance Schemes (TGSs)

Detailed TGSs will be created as part of the ROL approval process with TMC. TGSs will be updated and modified throughout the process as required when site conditions change, or future works become apparent. General site Traffic Management Plan showing all safety barriers and traffic management devices to be installed is as per the plans in *Appendix C.*

8.2.4 Temporary Speed Zoning

Temporary speed zone speed limit to be reduced to 40km/hr during temporary lane closures (if required). This speed reduction is required due to the proximity of road users to traffic control set up and work zone. A Speed Zone Application (SZA) will require approval of the TMC prior to any speed reduction being employed on the designated road network.

8.2.5 Working Adjacent to Traffic

During poor light conditions or at night, an additional traffic controller with an illuminated red wand will direct traffic around such plant and equipment.

During night-time, where traffic is permitted to use the whole or portion of the existing road, all plant items and similar obstructions will be removed from the normal path of vehicles, to provide a lateral clearance of at least 6 m, where practicable, with a minimum clearance of 1.2 m.

8.2.6 Use of Qualified Traffic Controllers

Traffic controllers must carry their current Traffic Control Accreditation on their person whenever performing traffic control duties. In addition, all traffic controllers must carry their current Work Health & Safety Construction Induction Card. Traffic controllers must also wear a high visibility vest complying with AS4602 “Authorized Traffic Controller” when controlling traffic.

8.2.7 Project Specific Requirements

The contractor is to make allowance for any special requirements that may arise due to special events occurring. The contractor shall contact the relevant local government authority to determine the events that are happening in the area during the construction period as required. Emergency vehicle access will be given priority over site traffic at all times.

To minimise traffic disruptions the contractor will make every effort to conduct these works in consultation with traffic control. Traffic controllers with approved traffic control devices will be in attendance to control and monitor pedestrian and any vehicular traffic as required. Traffic controllers must have their Traffic Control License on their person at all times whilst performing traffic control duties.

Refer to Traffic Guidance Schemes (TGS) for all signage positioning and site details. All TGSs shall be reviewed by the Principal Contractor each day and provide advice to traffic controllers of any proposed changes if required.

8.2.8 Restrictions to Traffic Lanes

Single lane reversible flow – Where single lane reversible flow (to serve both directions) is allowed, the Contractor shall maintain traffic flow under the control of traffic controllers in such a way that no road user is unduly delayed. In all cases, the length of one-lane, two-way operation shall be limited to one kilometre.

Stopping traffic in both directions – The Contractor may stop traffic in both directions simultaneously only for

purposes of construction of specific work and during the specific period reversing large vehicles onto site and for a period no longer than is deemed necessary.

All vehicles will enter and exit the site in a forward movement only as per the VMP (Appendix D).

Traffic lane widths will be kept to a minimum of 3.5m or as per existing widths.

8.2.9 Road Closures & Detouring Traffic

No detours, unless written approval from the local authority has been sighted.

8.2.10 Over Dimension, Overweight & Dangerous Goods Vehicles

The Contractor shall not reduce pre-existing provisions for the movement of heavy vehicles including over dimension, overweight and dangerous goods vehicles that have approval from the superintendent and/or other relevant authorities.

8.2.11 Preventing End of Queue Collisions

Additional traffic controllers, or other end of queue risk control measures deemed to be adequate for the site circumstances, shall be used in high-speed situations or where sight distance is restricted, to prevent rear end collisions where vehicles are stopped or slowed by the work under the contract. Additional traffic controllers shall also be used in other situations where described in AS 1742.3. additional guidance is provided in TCAWS manual version 6 regarding supplementary devices at roadworks to reduce speed.

8.2.12 Variable Message Signs (VMS)

VMS and other ITS devices will be used to supplement other traffic control devices, particularly in communicating complex arrangements to drivers. The need for these devices should be determined through a risk assessment either to supplement other traffic control devices or as an alternative traffic control device when site conditions constrain a preferred TGS layout. Where they are used, the contractor shall coordinate operation of temporary VMS and other early works ITS devices with the operations of the traffic control room or Transport Management Centre as appropriate. VMS installation is required a minimum 7 days prior to works commencement.

VMS boards will be placed at all roads approaching the work area, informing motorists of changed traffic conditions. A VMS plan will be prepared for approval by TMC (providing there is adequate space and does not pose a risk due to blocking line of site etc).

For this stage of works, smaller VMS units will be placed as per Appendix F – which will illustrate the location of the boards and the messages displayed on 2-screens at a time. The contact details of a relevant Ward associate will be displayed on portable VMS boards unit itself. Placement of VMS boards will be considered to ensure no impacts can be made to pedestrian safety space, TCS lanterns and visibility of existing TCS in general.

See Appendix C for the long-term signage plan which will be implemented upon barrier installation. Project signage will too be displayed as per Appendix C.

8.2.13 Additional Traffic Controllers

As required to provide rest breaks, manage traffic changes and traffic queuing.

8.2.14 Delineation of Traffic Corridors

Where described in the traffic Control at Worksites Manual, direction hazard markers, temporary raised reflective pavement markers, line marking, reflective mesh fencing and/or other such delineation devices shall be used in addition to the requirements of the AS1742.3 to delineate trafficked corridors.

8.2.15 Temporary Road Safety Barriers & End Treatments

Temporary Road Safety Barriers (TRSB) shall be used to contain and redirect errant vehicles so as to reduce the likelihood of them entering the work site. They may also be used to separate opposing traffic. Where TRSB are shown on the TGS, the type and location of barriers shall be as shown on the TGS. Opposing flows of traffic may be separated with TRSB with sufficient offset provided to reduce the likelihood that TRSB deflect into opposing

traffic flow in the event of impact.

When TRSB are used to protect the works site, the requirements to maintain a clearance zone behind the TRSB as specified in the RMS Safety Barrier System Acceptance Conditions shall apply. The maximum dynamic deflection is specified by the manufacturer. Provision shall be made to treat the approach and/or departure ends of both permanent and TRSB that are exposed to on-coming traffic, including barriers that are flared to terminate outside the clear zone. The deflection zones of the TRSB will be risk assessed. Crashworthy end treatments shall be implemented at the terminals of TRSB systems where there is a chance that an errant vehicle leaving the roadway may impact with the terminal of the barriers.

Where an errant vehicle leaves the travel lane in either of the cases identified above, the resulting collision with the barrier system will be in contradiction to the impact conditions that the barriers have been designed for. Indeed, an airborne vehicle striking the barrier system has a much higher chance of causing the barriers to topple inwards into the construction site and a collision at an acute angle with the barriers would both result in the barriers deflecting past their rated dynamic deflection zone. This presents a heightened risk for both the worker within the construction site as well as the occupants of the errant vehicle.

Where identified in TGSs, safety barriers are required to be from the list of safety barrier products accepted by the TfNSW. This list can be obtained from the TfNSW website at:
http:\www.rta.nsw.gov.au/doingbusinesswithus/designdocuments/safety_barriers.html

All barriers, end treatments and other delineation devices must meet / be installed as per TfNSW specifications and guidelines.

The project team is also required to provide the manufacture's recommended buffer zones (exclusion zones) on the approach side of the water filler barriers and behind barriers, as required, and construction work or pedestrian movement is not to be permitted within the deflection or working width zone of safety barriers. The deflection zones of the TRSB will be risk assessed.

8.2.16 Temporary Traffic Signals

Where existing traffic signals need to be removed and temporary relocated for civil works, temporary traffic signals on blocks will be used to maintain the traffic configuration as per approved TCS Staging Plans.

8.2.17 Anti–Gawking Screens

Anti-gawking screens are used to minimise visibility of the construction activities to the travelling public. When the requirement for anti-gawking screens are identified, they shall be installed where activities are likely to cause traffic delays or may be a visual distraction to drivers. To minimise the risk of visibility, no shade cloth will be installed at approaches, driveways etc.

8.2.18 Dust and Sediment Control

Prior to work commencing on site sediment and erosion control measures shall be installed along the contoured edges immediately down slope of any future disturbed areas.

The controls shall be maintained in an operational condition until the development activities have been completed.

9. Consultation and Communication Strategy

Ward acknowledges the importance of disseminating changed traffic condition information to enable road users to effectively plan their journeys. The community relations manager on behalf of the project and in consultation with TfNSW will:

- Provide timely, accurate and comprehensive traffic and transport information to road users.
- Influence road users to abide by reduced speed limits in construction areas.
- Allow and accommodate community feedback regarding traffic and transport management.
- Minimise and manage traffic impacts on local residents and businesses; and
- Ensure media is well informed and work with Ward to inform road users of traffic changes.

Any notifications developed for this project will also require additional consultation and approval from CJP Operational Communications.

Surrounding residents/businesses will be notified of any works and provided with the project contact details by letter box drop minimum seven days prior to any works commencing, particularly night works.

9.1. General

A cooperative and coordinated approach among traffic and transport providers with Ward will enable the public and freight transport operators to receive timely, accurate and credible information.

All information intended for release to the community in relation to the management of the roadways in the project area will be submitted to the TfNSW for approval before it is distributed. TfNSW will be informed immediately of any changes to information provided to the community.

Approval will be obtained from the Transport Management Centre for all communications related to changes. This approval will be arranged internally by TfNSW. The Ward Civil Community Relations Officer will submit all traffic communication via the normal approval process to TfNSW.

The project team will be required to:

- Be available at all reasonable times to address any community questions concerning planned traffic arrangements including any traffic switches.
- inform the community on Traffic management (including property access).
- Access information for temporary and permanent works, including pedestrian/cyclist access and temporary traffic arrangements.
- Any traffic disruptions and restrictions; and or the construction of temporary detours.
- Notify local residents, businesses and local council about construction activities which will affect access to their properties or otherwise significantly disrupt use of their premises. Such notification shall be made at least five working days before commencing work affecting the premises and shall advise the nature of the work, why it is necessary, indicate the expected duration plus any changes to arrangements for traffic or property access. Contact details for the Project team shall also be provided.
- Advertise significant traffic management changes, detours, traffic disruptions and work outside the working hours contained in the environmental assessment documents. Newspapers are to be identified that are read/used by the driving community on the project.
- Advise TfNSW if any part of the temporary works that is the subject of an advertisement is to be changed or varied so as to make the advertisement substantially incorrect.

9.2. Media and Community Events

The project team will be required to:

- Hold on-going discussions with TfNSW regarding dates, commencing at least 3 months prior to the anticipated occurrence of the event, for major milestones / traffic switches and the opening of the works or any stage of the works and local road works to traffic.
- Give TfNSW at least 20 days written notice of the date of opening of the works or any stage of the works and local road works to traffic, to enable TfNSW to organise any associated official media/community events.
- Plan for an event of some form to mark the opening of the works to traffic.
- Not announce the proposed opening of the works and/or any stage of the works or local road works to traffic without the approval of TfNSW.

9.3. Identification of Key Stakeholders

Ward recognises a critical first step is to identify the audience and key stakeholders. The following stakeholders will be consulted when preparing TGSs, as required.

- Transport for NSW
- Penrith City Council
- Coles Supermarket
- Centrelink
- Businesses with rear access on East Lane – Access for garbage truck to be maintained with turn around area to be left open within the carpark at the northern end of East lane.

9.4. Information to be Reported

Traffic management information will be provided by the Traffic Representative or Project Manager to the project steering committee. The information reported can vary depending on scale, nature, population and geography of the project and sub-projects and include:

- Traffic, pedestrian and cyclist incidents.
- Community and media feedback.
- Current and upcoming critical issues, including those identified by Transport for NSW and other stakeholders with the proposed measures to address these issues.
- Construction activities and scheduling.
- Recent and proposed changed traffic conditions and the impact on the road network.
- Traffic analysis and modelling results.
- Status of the TMPs, planned lane closure/road occupancy and roadwork speed limit, approvals and implementation.
- Media and community information released and proposed to be released.
- Results and feedback from recent inspections and road safety audits.
- Performance results and trends of the project's traffic management targets.

10. Managing Unplanned Incidents

The occurrence of unexpected incidents within the project boundary or any adjacent site will potentially have a negative impact on the operation of the road network and might temporarily restrict construction activities.

Ward will create an emergency response procedure which will incorporate standard operating procedures for managing any unexpected construction site emergencies/incident that may occur during the project delivery.

In the event of any traffic related accident within the site, Ward or the traffic manager shall immediately record the date and time of the event and take date stamped photos of the traffic control devices in the vicinity of the crash. Where an incident requires the attendance of Police and or Emergency Services, Ward shall make the appropriate notifications. Ward will provide an incident report to TMC for any traffic incidents relating to construction activities.

Ward will provide traffic control by qualified controllers for emergencies and develop strategies to manage:

- Unplanned incidents on the road network
- Construction site emergencies/unplanned incidents

10.1. Types of Incidents

Different types of emergencies/unplanned incidents that may occur include, but are not limited to:

- Motor vehicle accidents
- Bush fires
- Environmental spills
- Construction-type incidents
- Catastrophic structural failures
- Inclement weather conditions
- Flooding
- Anti-social behaviour
- ROL overrun

10.2. Manage Unplanned Incidents on the Road Network

To address this issue, Ward's Traffic Representative will:

- Apply and maintain communication protocols
- Inform the road authority of any incident and provide assistance
- If resources are available, provide initial response to unplanned incidents with the aim of making the scene of the incident safe and prevent further harm to persons or property
- Provide support to emergency services, including traffic control, in the vicinity of the incident
- During major incidents, provide a senior construction representative on-site to liaise with the road authority and emergency service agencies
- Reschedule planned works that will interfere with the incident or create additional delays to those road users already affected by the incident
- Disseminate road condition information to TfNSW and the local council for their distribution to road users

10.3. Manage Construction Site Emergencies/Unplanned Incidents

- Ward will develop an Emergency Response Plan as part of the Workplace Health and Safety Plan (WHSP) incorporating standard operating procedures for managing construction site emergencies/incidents and will:
- Define the roles and responsibilities in the event of incidents and emergencies
- Establish and define emergency response procedures dealing with different categories of emergency arising from construction, traffic or environmental incidents
- Define roles and responsibilities of project personnel during emergencies and incidents
- List available works contractors' resources
- Define TfNSW, local council and emergency services roles and responsibilities in the event of an incident or emergency
- Outline the communication protocols and system
- Outline incident administration procedures including training, record keeping
- Establish formal arrangements for the review and maintenance of the plan

10.4. Road Crash or Vehicle Breakdown Within Work Site

Broken down vehicles and vehicles involved in minor non-injury crashes shall be temporarily moved to a suitable location as soon as possible after details of the crash locations have been gathered and noted. Where necessary to maintain traffic flow, vehicles shall be temporarily moved into the closed section of the work area, providing there is no risk to vehicles and their occupants or to workers. Suitable recovery systems shall be used to facilitate prompt removal of broken down or crashed vehicles. Assistance shall be given to ensure the impact of the incident on the network is minimised.

Details of all incidents and accidents shall be reported to the site supervisor and project manager using the nominated incident report form.

In the event of a traffic accident occurring within the construction site or at other locations affected by the works, the Principal Contractor will record knowledge of the facts and photograph the approach to the accident site including the location of all safety devices and signs as soon as possible after the accident.

A report must be given to TfNSW within the nominated timeframe. If necessary, the traffic control site supervisor will amend the approved TGS to suit the conditions and ensure this is communicated to the TMC. *Refer to Appendix A for detailed incident management plan*

10.5. Serious Injury or Fatality within Work Site

In the case of serious injury or fatality occurring within the traffic control zone all work shall cease immediately, machinery and vehicles turned off and the area cleared of personnel as soon as possible. Traffic Controllers (and other personnel if necessary) shall be deployed immediately to ensure no traffic or other road users approach the area. Personnel are to proceed to the muster area on the corner of Station Street/East Lane.

Further details for incident management are found in the Traffic Incident Management Plan and Incident Response Plan (Appendix A).

10.6. Incident in Close Proximity to the Work Site

The traffic control site supervisor and/or project manager will be required to notify relevant key stakeholders such as NSW Police, TMC, Council of traffic incidents that occur in close proximity to but not within the actual work site. For example, if a major crash occurred just outside the boundary of the work area and was due to issues un-related to the construction site, the construction personnel may be the first 'eyes and ears' to the incident. This notification is required to be done immediately in order to mitigate traffic delays caused by such incidents.

10.7. Provision for Extreme Weather Conditions

Weather is not expected to adversely impact the effectiveness of the traffic control detailed on the Traffic Guidance Schemes. However, should adverse weather conditions be encountered during the works the following contingency plans shall be put in place:
In the event of heavy rain, an on-site assessment shall be made and sign spacing and tapers if applicable may be increased to account for increased stopping distances. The Traffic Control Site Supervisor shall audit the site and where signage and/or devices are not clearly visible, traffic controllers shall adjust signage to improve visibility or if necessary or possible, provide additional signage and delineation. Messages displayed on VMS may be adjusted to warn drivers to reduce speed and exercise caution when approaching and passing the work site. Any changes shall be noted in the daily traffic control checklist.

10.8. Failure of Power or Damage to Services

In the event that any services (electricity/water/gas) are damaged, all works shall cease immediately. Traffic Controllers shall be deployed immediately to ensure no traffic or road users enter the area if unsafe. The Police and relevant supply authority shall be contacted immediately. All site personnel shall be briefed on evacuation and control procedure.

CCTV Cameras located at the intersections must be maintained at all times. During power outages or movements, of camera must be approved. Approval must be sought from, TMC System Operations, 10 business days prior.

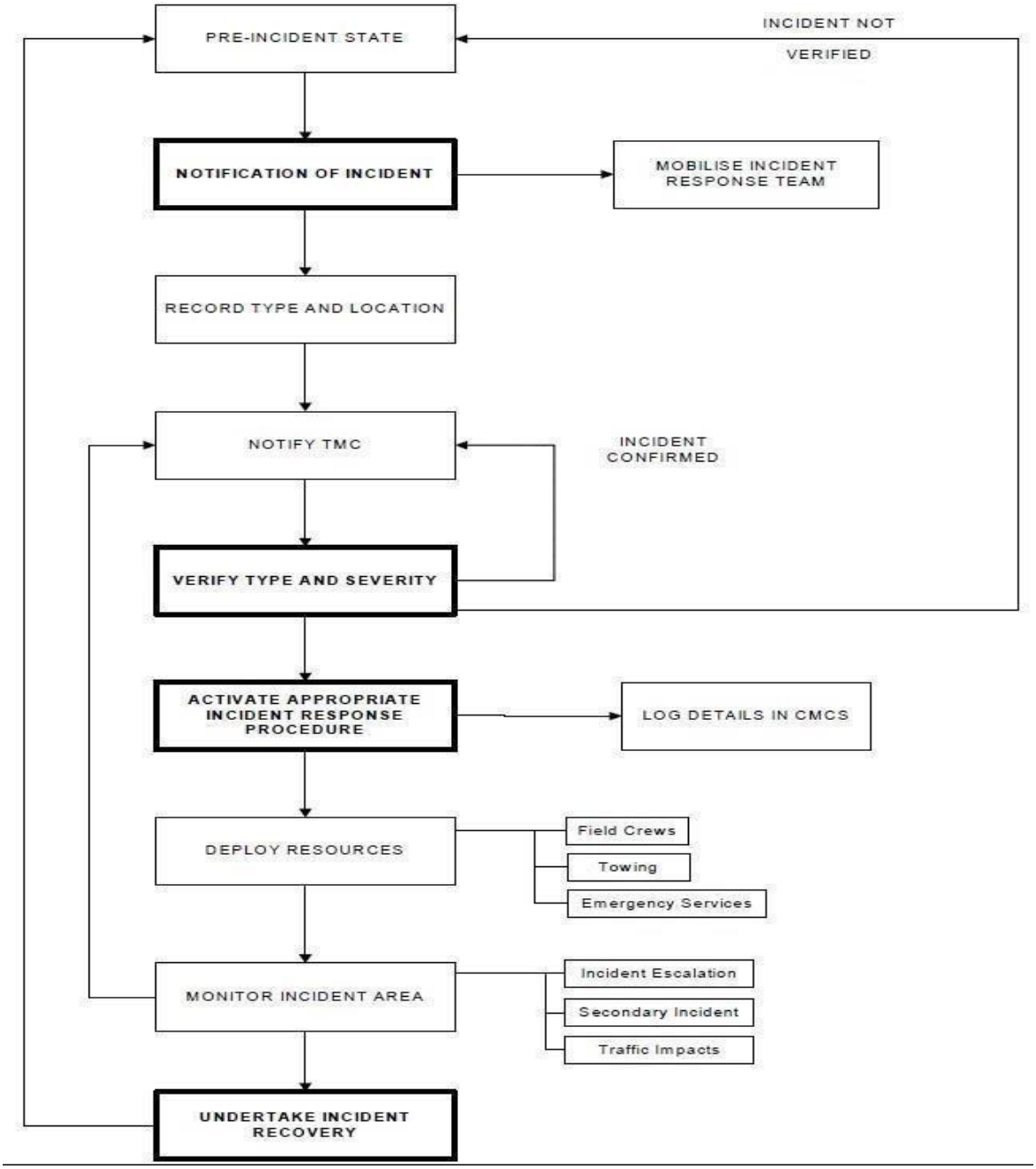
10.9. Manage Emergencies

Ward acknowledges the inevitable nature of emergencies and their potentially significant social, economic and environmental consequences. Accordingly, we are aware that the NSW Government has enacted the State Emergency & Rescue Management Act 1989 to support emergency management activities.

In NSW, the agencies primarily responsible for controlling particular hazards/emergencies are:

Unplanned Incident Agency	Contacts
NSW Police Service	000
NSW Ambulance Service	000
NSW Fire Service	000
State Emergency Service (SES)	132 500
TMC	131 500
Safe Work NSW	13 10 50

11. Emergency Response Plan



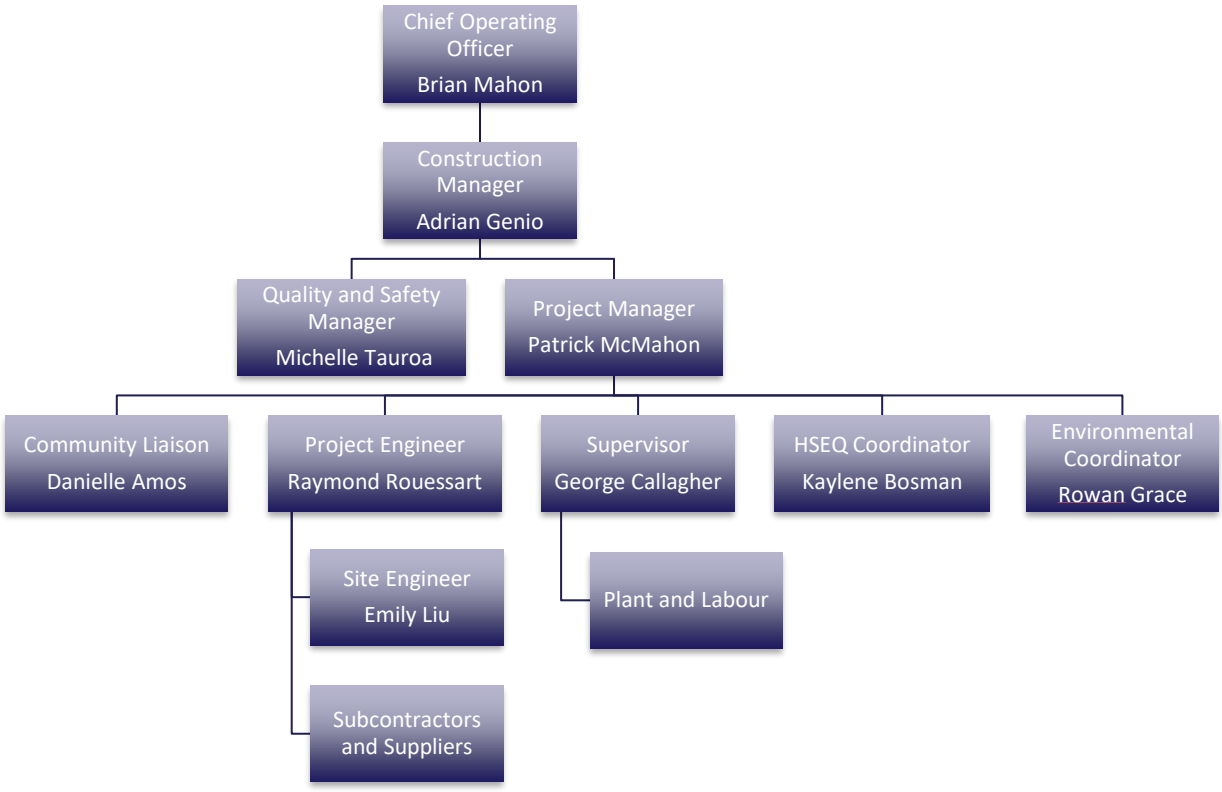
11.1. Climatic and Seasonal Conditions

To address variable climatic conditions, Ward will install appropriate delineation, advance warning signs and speed zoning. Lighting will be provided if night vision is poor.

In the event of bushfires or flooding, these situations will be treated as an unplanned incident by Ward and a response implemented in accordance with the relevant incident response plan.

Further to this, seasonal variations in traffic volumes, day light savings changes and NSW holiday periods are also events that will require attention by Ward's project team due to the effects on traffic flows during these periods.

12. Roles and Responsibilities



12.1. Principal Contractor

The Principal Contractor has an obligation to ensure all work at the construction workplace is carried out in a manner that will:

- Prepare a written construction safety plan, in accordance with the regulations before construction work starts
- Ensures compliance with the contract requirements
- Provide a safe passage for both pedestrians and vehicular traffic through the work site
- Minimise delays and inconveniences to the community

In order to fulfil the above obligations, the requirements contained within the Traffic Management Plan are to be compiled by all those who engaged in work on this project.

The management of the Contractor is committed to the requirements of this Traffic Management Plan. This will be achieved by:

- Providing clear direction and support in maintaining the objectives and standards set out in this Traffic Management Plan
- The use of only accredited traffic controllers approved regulatory and advisory signs
- Providing suitable communication between the Contractor's supervisory staff and the Senior Traffic Controllers, e.g., radio transceiver or mobile phone
- Providing the means necessary to achieve a safe working environment
- Reviewing procedures and work best practices
- Providing control measures to effectively minimise the generation of dust
- Monitor the use of any work method statement to ensure that all persons, to whom the statement applies, comply with the statement

- Not allowing person to start construction work, unless the Principal Contractor has sighted the
- person's general induction evidence (Blue / White Card)
- Ensure a person has been given a site-specific induction for the workplace before allowing the person to start construction work
- Ensure that all persons working have the opportunity to read and/or understand the Traffic Management Plan prior to starting construction work

12.2. Project Manager

The following list of requirements is not exhaustive for the responsibilities of a Project Manager:

- Programming of the works
- Outlines the high-risk construction activity i.e., working on, or adjacent to a road
- Monitoring, reviewing and amending the Traffic Management Plan, as required
- Managing non-conformances / corrective action and minor incidents
- Ensure that an applicable Safe Work Method Statement (which may be generic if the activity is performed in the same way and in the same or similar circumstance) is delivered through training to all persons affected on the construction site

12.3. Works Supervisor

The following list of requirements is not exhaustive for the responsibilities of a Supervisor:

- Ensure compliance with the approved TMP, Traffic Control at Worksite Manual & Amendments, Main Roads specification and the contract requirements
- Periodic inspection of traffic control devices on a daily basis prior to commencement of work in conjunction with the Traffic Controllers Supervisor
- Ensure that all traffic controllers are in fact licensed or accredited to perform the duties of a traffic controller
- Identify non-conformances and implementation of corrective actions

12.4. Traffic Control Subcontractor

The nominated sub-contractor is responsible but not limited to the following:

- Implementation of the approved Traffic Management Plan in accordance with the Traffic Control at Worksites Manual and all other relevant documents
- Ensuring the conflicting regulatory speed signs are covered during works and at completion of works to reinstate the current regulatory speed for each individual street / road
- The monitoring and recording of changes in traffic movements
- Advising Contractor supervisory staff in the first instance of any non – conformances, accidents, near misses or complaints
- Providing only duly accredited traffic controllers
- Will ensure all traffic controllers are wearing "Authorized Traffic Controller" high visibility vests in compliance with AS4602. And all other specified PPE when controlling traffic.

12.5. Driver Responsibilities

- Ward's project team will be required to ensure that the drivers employed on the project, whether direct employees or sub-contractors, understand the responsibility to drive safely, in accordance with the NSW Road Rules and any other directives issued on the project and Ward's Safe Operation of Light Vehicle Standard
- Drivers will comply with the Vehicle Movement Plan (VMPs) developed for the project and special care must be taken when exiting and entering traffic flows

12.6. TfNSW Services and Local Council Responsibilities

In accordance with its statutory obligations, TfNSW and the local councils are responsible for road safety and traffic management of the road network. In conjunction with emergency service agencies, this includes the management of incidents and emergencies.

Ward understands the detailed management of large-scale emergencies and incidents happening within the boundary of the site shall be in accordance with the State requirements as laid out in the NSW State Emergency Management Plan (EMPLAN). Ward will provide support to emergency service agencies and/or TfNSW/local councils when emergencies/incidents occur within or adjacent to the construction site.

13. Quality System Management

13.1. Conformance Requirements

Ward will demonstrate in this Traffic Management Plan that they have conformed to the RMS Technical Specification and other relevant reference documents.

13.1.1. Recording & Monitoring

Details of all changes in traffic movements shall be recorded and maintained throughout the construction period and submitted within 7 days from the date of practical completion.

Regular inspections of traffic control devices shall be carried out a minimum of twice daily and recorded in the daily traffic diary – a copy is provided in the appendix. These records are available for inspection during the project. These records will be held on site by traffic control and submitted at the end of the shift to the contractor's works supervisor.

Traffic delays shall be assessed and recorded on the traffic diaries. Contractor supervisory staff shall be notified of any delays that exceed the contract requirements.

Queue lengths shall be assessed hourly and additional advance warning signs shall be erected if deemed necessary.

A register of complaints and subsequent actions shall be maintained and forwarded to the Superintendent on a weekly basis. The contractor shall be advised immediately of any traffic incidents or complaints. If the issue cannot be corrected immediately and is of a contractual nature, then it should be elevated to the contractor's management.

Non-conformances and corrective actions shall be identified, controlled, and implemented in accordance with company quality procedures. All non-conformances shall be acted on by traffic control and the contractor on receipt of written notice of the nonconformance.

Principal to carry out any remedial work deemed necessary under the contract guidelines. A Non-Conformance Report (NCR) shall be forwarded to the RRC's representative within 24 hours upon completion. Non-conformances and corrective actions shall be identified, controlled, and implemented in accordance with Company Quality Procedures.

Reporting Form	Responsibility	When
Details of erection and removal of Regulatory Traffic Signs / Devices – Form 501 (as required)	Project Manager, assisted by Traffic Control Works Supervisor	Min 5 days prior to commencement and completion of the works
Traffic Management Audit Checklist	Traffic Control Traffic Control	Each day
Traffic Diaries	Traffic Control Traffic Control	Each day
Complaints Register	Project Manager	Each day
Non-Conformance/Corrective Action	Project Manager	As req.
Incident Report	Project Manager	As req.

In the event of a traffic related accident within the site, the contractor shall immediately notify the principal's representative, the police, and any necessary emergency services.

14. Opening to Traffic Upon Completion

All relevant permanent sign posting pavement markings, safety barriers and traffic signals required under the Project Deed is required to be in place prior to opening of any part of the project works to traffic.

All temporary traffic control devices no longer required for the safety of traffic, when any part of the project works is opened to traffic are also required to be removed or covered. At least 20 business days written notice is to be given to TfNSW of the date of opening any part of the works to traffic.

Additionally, prior to opening the road to traffic, a Road Safety Audit – Pre-opening will be performed and any identified issues to be addressed as appropriate.

Consultations for opening traffic are to be carried out with TfNSW and the police.

15. References

- TCAWS Traffic Control at Worksites Manual Version 6.0 - 2020
- Australian Standard AS1742.3 - 2009 Manual of uniform traffic control devices-Traffic control for works on roads
- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2017
- ISO 31000:2018 Risk Management – Guidelines
- ISO 9001:2015 Quality Management Systems – Requirements

APPENDIX A – TRAFFIC INCIDENT MANAGEMENT PLAN

TRAFFIC INCIDENT MANAGEMENT PLAN		
Item	**Actions**	**Responsibility**
A)	• **REQUIREMENT:** Nominate a specific site contact person to deal with issues related to clearing St Marys Temporary Bus Interchange when notified by the RMS Traffic Commander, TMC, City of Penrith Council or NSW Police • Site Supervisor – George Callaghan 0498 005 655	Field Supervisor
B)	• **REQUIREMENT:** Provide capacity on site for basic early traffic control that may be required at an incident, such as cones, signs and clearing debris • The following provisions have been allowed and are located at the site compound - *5-8t Excavator or Posi track for assisting in clearing Debris* - *2 x labourers on-site or on standby at all times during the duration of the works to assist in the event of an incident.*	Field Supervisor
C)	• **REQUIREMENT:** Keep suitable plant available on-site during construction for moving temporary concrete safety barriers • Plant will be on site during construction with the capacity to move temporary concrete barriers in an emergency situation	Field Supervisor
D)	• **REQUIREMENT:** Contact Transport Management Centre immediately if a traffic incident occurs during working hours • TMC contact details: 131 500	Project Manager/ Field Supervisor
E)	• **REQUIREMENT:** Respond within 1 hour to after-hours callouts from the Transport Management Centre or NSW Police • Nominated on call personnel • George Callaghan 0498 005 655 • Patrick McMahon 0478 648 095	Project Manager/ Field Supervisor
F)	• **REQUIREMENT:** Keep records of communications with the Transport Management Centre and NSW Police • *All traffic incidents resulting with communication with TMC, and NSW police will be logged in WARD's system as an incident. An incident form will be completed and will include a record of communication*	Project Manager/ Field Supervisor
G)	• **REQUIREMENT:** Keep records of all traffic incidents attended • *(As per F)*	Project Manager/ Field Supervisor

CHANDOS TRAFFIC

DAILY HAZARD ANALYSIS CHECKLIST

PART A: PROJECT INFORMATION							
Project Name:		Project No.:					
Team Leader Name:				Date:		Time:	
Job site location:							

PART B: PRE-START ASSESSMENT			
Are there enough traffic controllers for the Job?	☐	Have all traffic controllers been inducted?	☐
Are all traffic controllers wearing approved PPE?	☐	Is there a SHEWMS/ RA completed, signed and dated by all workers?	☐
Are all traffic controllers fit for work?	☐	Has a daily vehicle prestart inspection been completed?	☐

PART C: PERMITS			
PERMITS REQUIRED		PERMIT NUMBERS	ADDITIONAL COMMENTS
ROL	☐		
Council Permit	☐		
TCP	☐		
Other	☐		

PART D: POTENTIAL HAZARDS							
Mobile Plant	☐	Traffic Volume	☐	Traffic Speed	☐	High pedestrian activity	☐
Overhead Works	☐	Slip's, Trips & Falls	☐	Extreme Weather	☐	Other works near by	☐

PART E: HAZARDS, RISKS & CONTROLS Risk rating 1 = Low 2 = Moderate 3 = High 4 = Acute

POTENTIAL HAZARDS	RISK RATING	CONTROL MEASURES	NEW RISK RATING	ADDITIONAL COMMENTS

PART F: WORKER SIGN-ON

By signing the below I confirm that: (1) I understand the tasks involved in today's activities; (2) I am fit to perform all work activities required today; (3) I am not under the influence of any drugs or alcohol; and (4) I am rested and have had all rest breaks required by fatigue management laws for any vehicle that I am licensed to drive and may be required to use.

TEAM LEADER (print):		SIGNATURE:		TIME:	

WORKER NAME (print)	SIGNATURE	TIME	WORKER NAME (print)	SIGNATURE	TIME

PART G: SITE INSPECTIONS

Time of inspection:		Yes	No	N/A
Are all devices still in place?		☐	☐	☐
Have site conditions changed?		☐	☐	☐
Do I need to modify the TCP?		☐	☐	☐

Time of inspection:		Yes	No	N/A
Are all devices still in place?		☐	☐	☐
Have site conditions changed?		☐	☐	☐
Do I need to modify the TCP?		☐	☐	☐

Time of inspection:		Yes	No	N/A
Are all devices still in place?		☐	☐	☐
Have site conditions changed?		☐	☐	☐
Do I need to modify the TCP?		☐	☐	☐

Additional comments:

PART H: END OF SHIFT CHECK LIST

Have all Traffic Control devices been safely removed from site?	☐	
Have all RO_'s been deactivated?	☐	
Do any devices need to remain on site?	☐	
Has all paperwork been signed and a copy given to client?	☐	

PART I: END OF SHIFT SIGN OFF

TRAFFIC CONTROL TEAM LEADER	SIGNATURE	TIME

APPENDIX C – TRAFFIC GUIDANCE SCHEMES

Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-01	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: Signage Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	Station St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Long term signage	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: 40km			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)

Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Main site entry and exit through driveway on Station Street

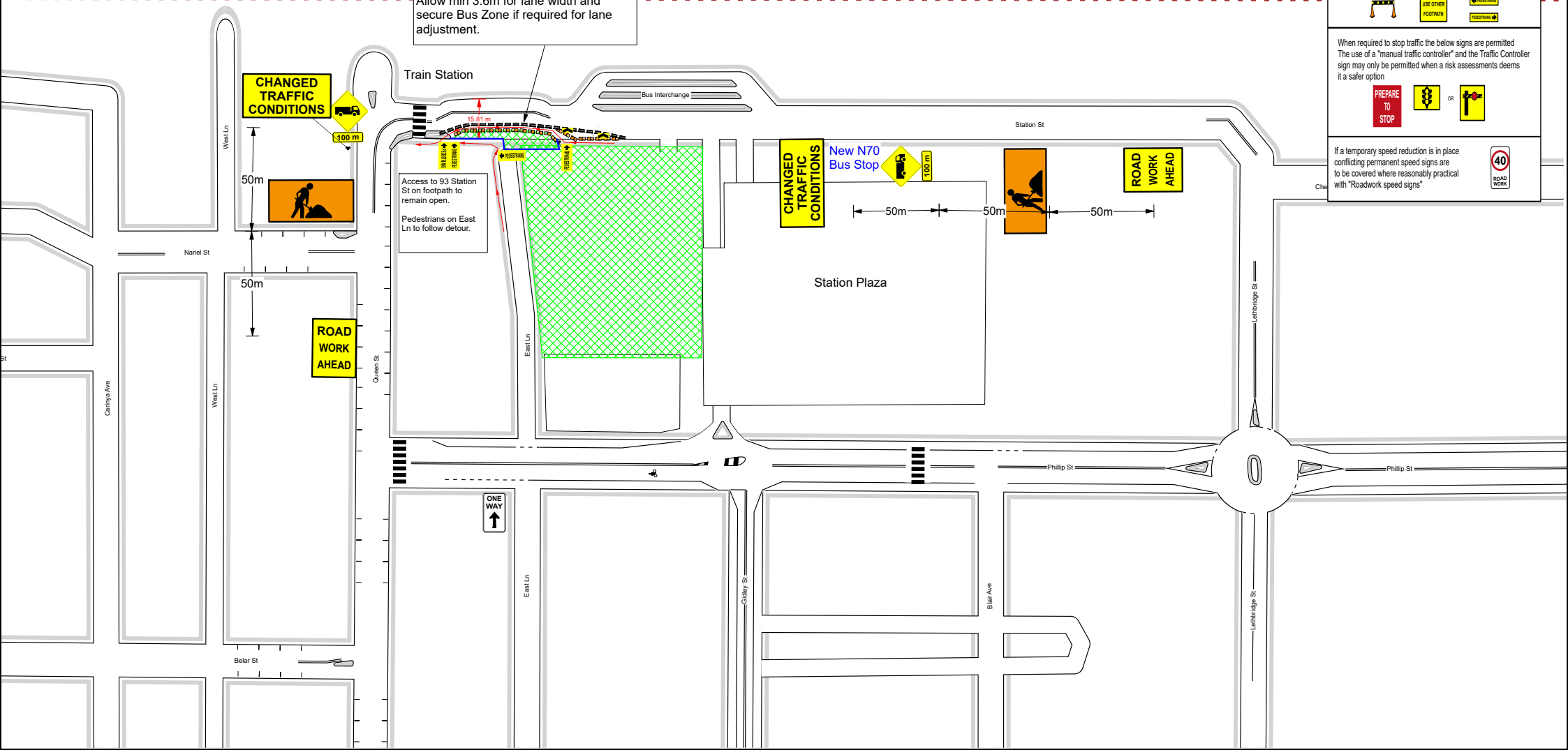
Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-02 V2	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: Signage Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	Station St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Long term barriers	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: 40km			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints. Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			
		Modified by:		Date:	PWZTMP #			

laterally shift traffic alignment to complete utility adjustments in road behind barriers.

Allow min 3.6m for lane width and secure Bus Zone if required for lane adjustment.



Recommended taper length (m)

Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

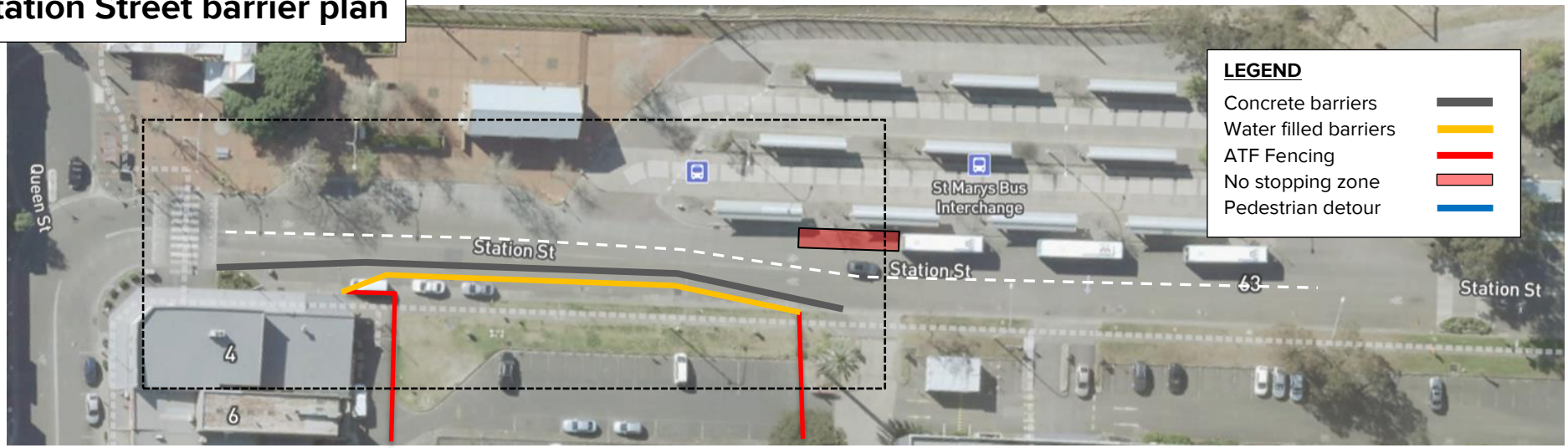
Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

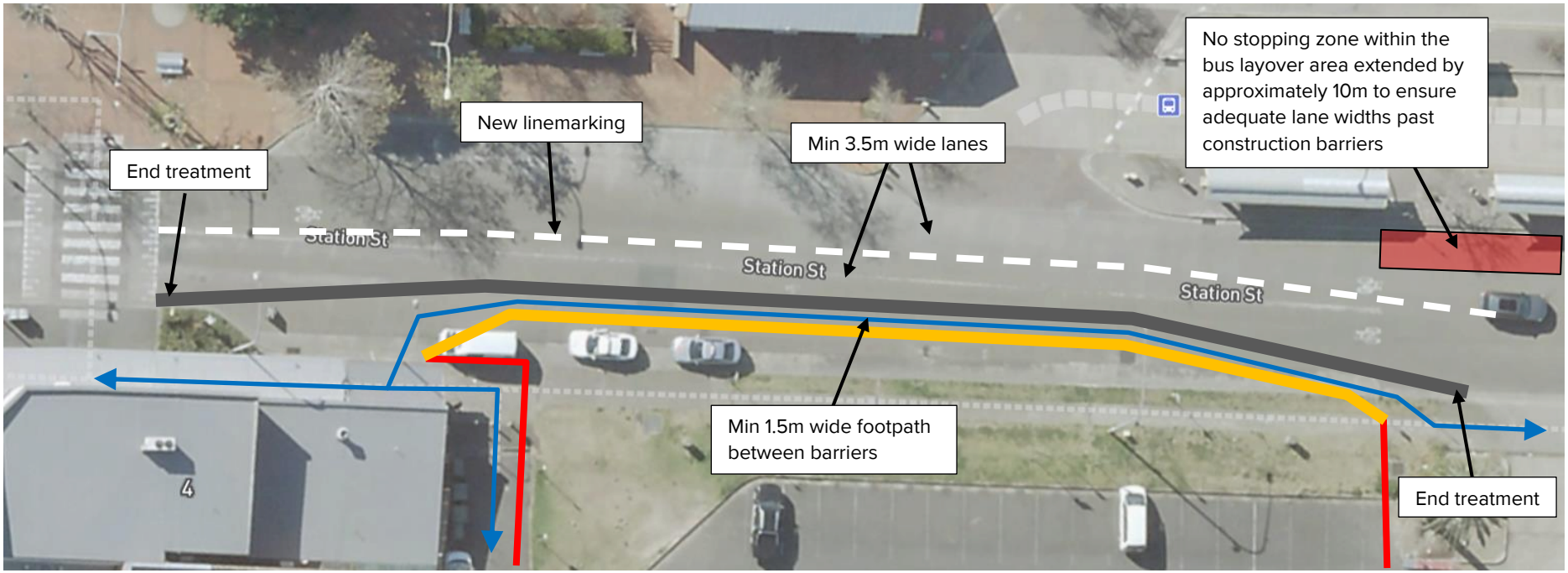
To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Station Street barrier plan





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Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-03	CLIENT:	Ward Civil	ROAD TYPE:	Council			
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			
00	Draft for Review	ROAD NAME:	Nariel St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Road closure detour	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP #	0051866297		
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP #	TCT0039359		
		Modified by:		Date:	PWZTMP #			

COMMENTS

TRAFFIC CONTROL REQUIRED:
3 TC 1 vehicle Nightworks

Access to be maintained to bus stops and residential properties

Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.

Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder

Recommended taper length (m)

Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-04	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: min 3 TC & 1 vehicle Portaboom x 3 Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	Queen St / Station St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Partial Road closure Stop / Slow control	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP #	0051866297		Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints. Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP #	TCT0039359		
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)

Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-05	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: min 3 TC & 1 vehicle Portaboom x 3 Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	Queen St / Station St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Partial Road closure Stop / Slow control	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints. Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)

Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-06	CLIENT:	Ward Civil	ROAD TYPE:	Council
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way
00	Draft for Review	ROAD NAME:	Queen st	EXISTING SPEED LIMIT:	50km
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x
02		TASK:	Road closure detour	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359
		Modified by:		Date:	PWZTMP #

COMMENTS

TRAFFIC CONTROL REQUIRED:
3 TC 1 vehicle

Access to be maintained to bus stops and residential properties

Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.

Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder

Existing Speed (km/h	Tra
45 or less	
46 to 55	
56 to 65	
66 to 75	
76 to 85	
86 to 95	
96 to 105	
Greater than 105	

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56 to 65
Greater than 66 -

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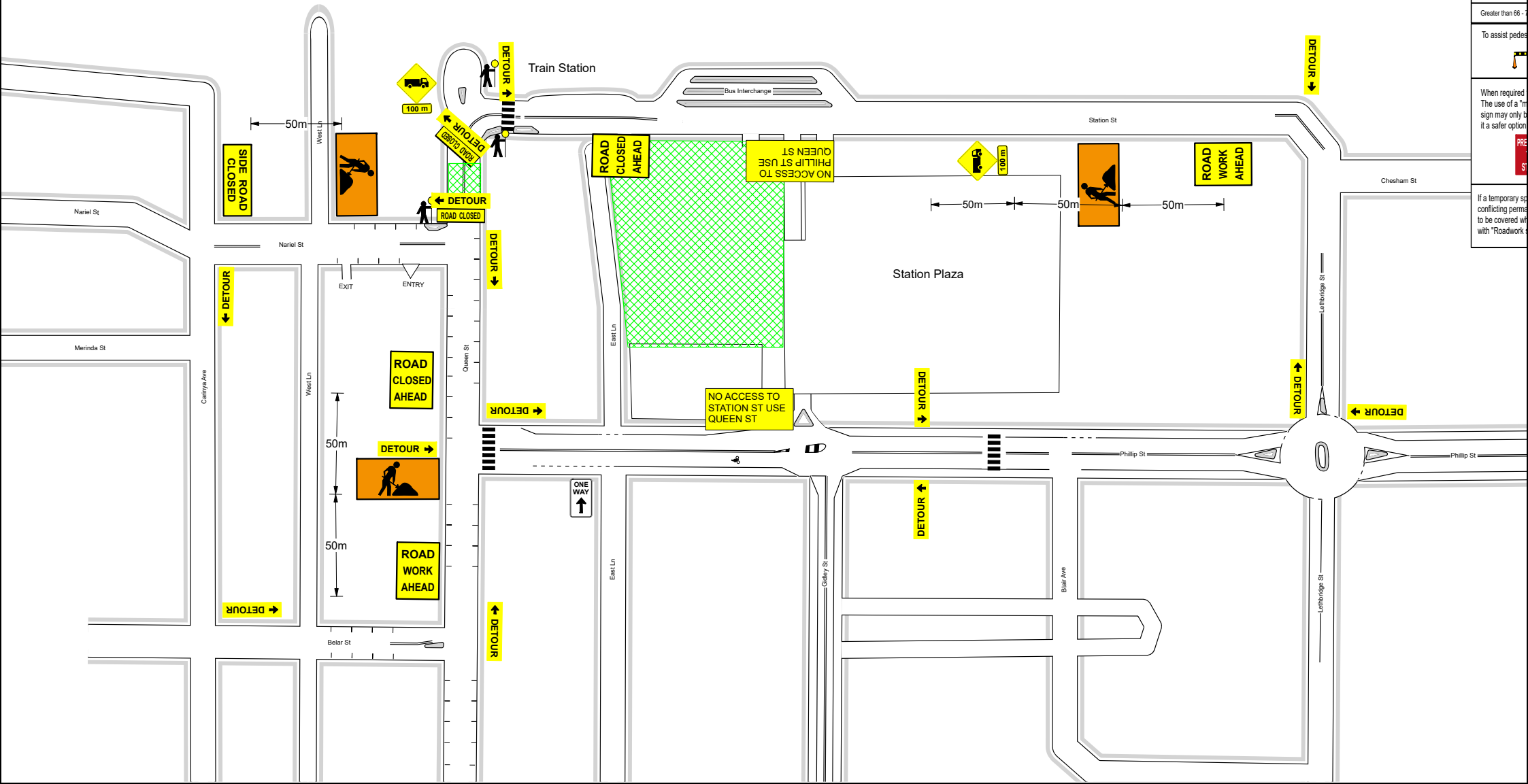

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Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated
for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

East ln access to remain as normal from Phillip St for Stakeholders

TGS #	CT-21-WC-SMB-07	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: 2 x TC & 1 vehicle Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	East Ln	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Road closure	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)			
Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated
for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

East In access to remain as normal from Phillip St for Stakeholders

TGS #	CT-21-WC-SMB-08	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: 2 x TC & 1 vehicle Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	East Ln	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Road closure	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)			
Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Recommended taper length (m)			
Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

PREPARE TO STOP

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

TGS #	CT-21-WC-SMB-09	CLIENT:	Ward Civil	ROAD TYPE:	Council		
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way		
00	Draft for Review	ROAD NAME:	Phillip St	EXISTING SPEED LIMIT:	50km		
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x		
02		TASK:	Road closure detour	SPEED REDUCTION REQUIRED:	YES NO x	Reduced to: 40km	
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP #	0051866297	
		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP #	TCT0039359	
		Modified by:		Date:	PWZTMP #		

CHANDOS TRAFFIC

COMMENTS

TRAFFIC CONTROL REQUIRED: min 4 TC & 1 vehicle

Access to be maintained to bus stops and residential properties

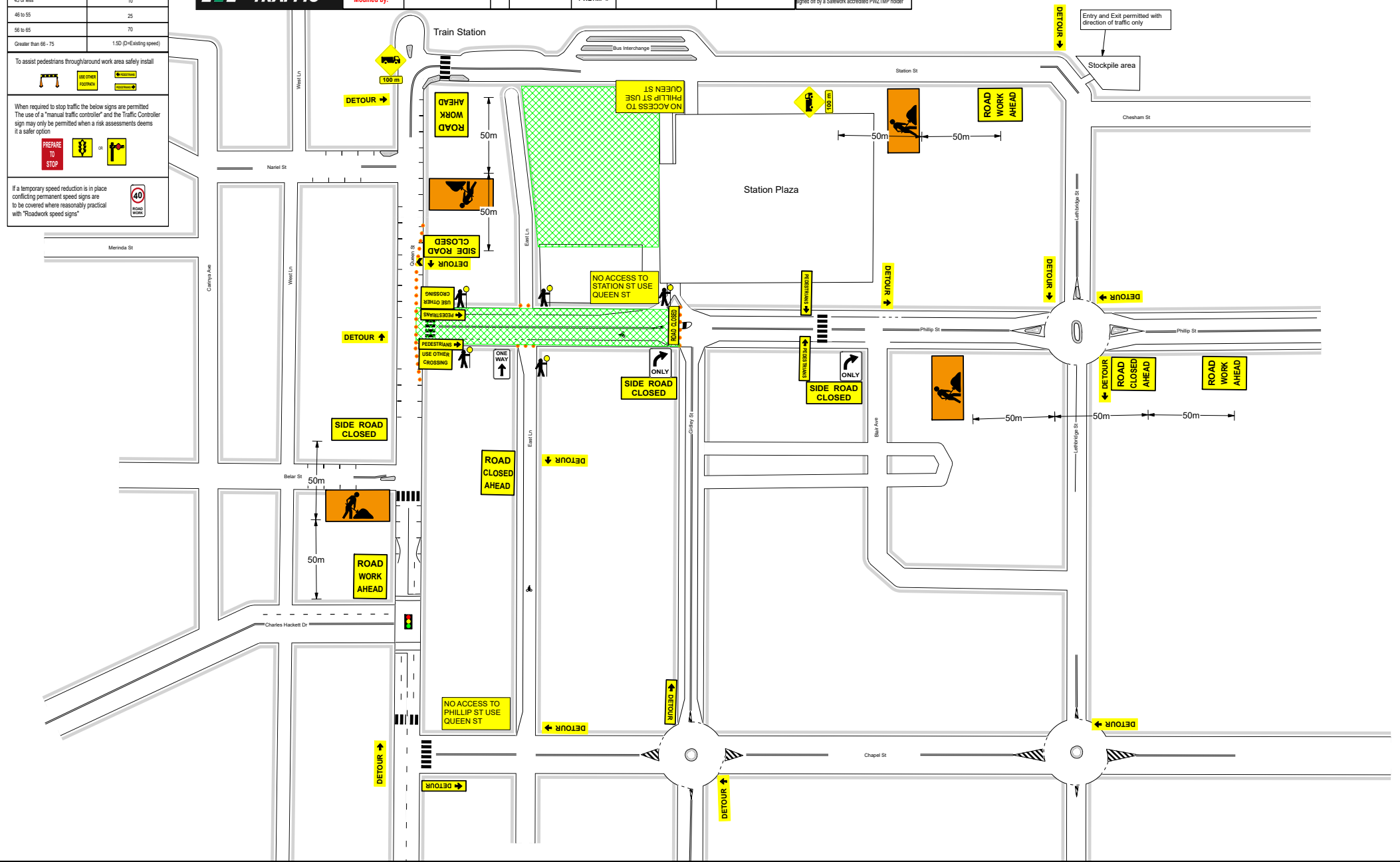
Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.

Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder

Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access



Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-01	CLIENT:	Ward Civil	ROAD TYPE:	Council
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way
00	Draft for Review	ROAD NAME:	Station St	EXISTING SPEED LIMIT:	50km
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x
02		TASK:	Long term signage	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: 40km
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359
		Modified by:		Date:	PWZTMP #

COMMENTS

TRAFFIC CONTROL REQUIRED:
Signage

Access to be maintained to bus stops and residential properties

Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.

Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder

Recommended taper length (m)

Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-11	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: 2 Tc & 1 vehicle Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	Queen St / Nariel St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Parking lane closure	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)

Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

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Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-12	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: 3 TC 1 vehicle Nightworks Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	Nariel St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Partial road closure detour	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)			
Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

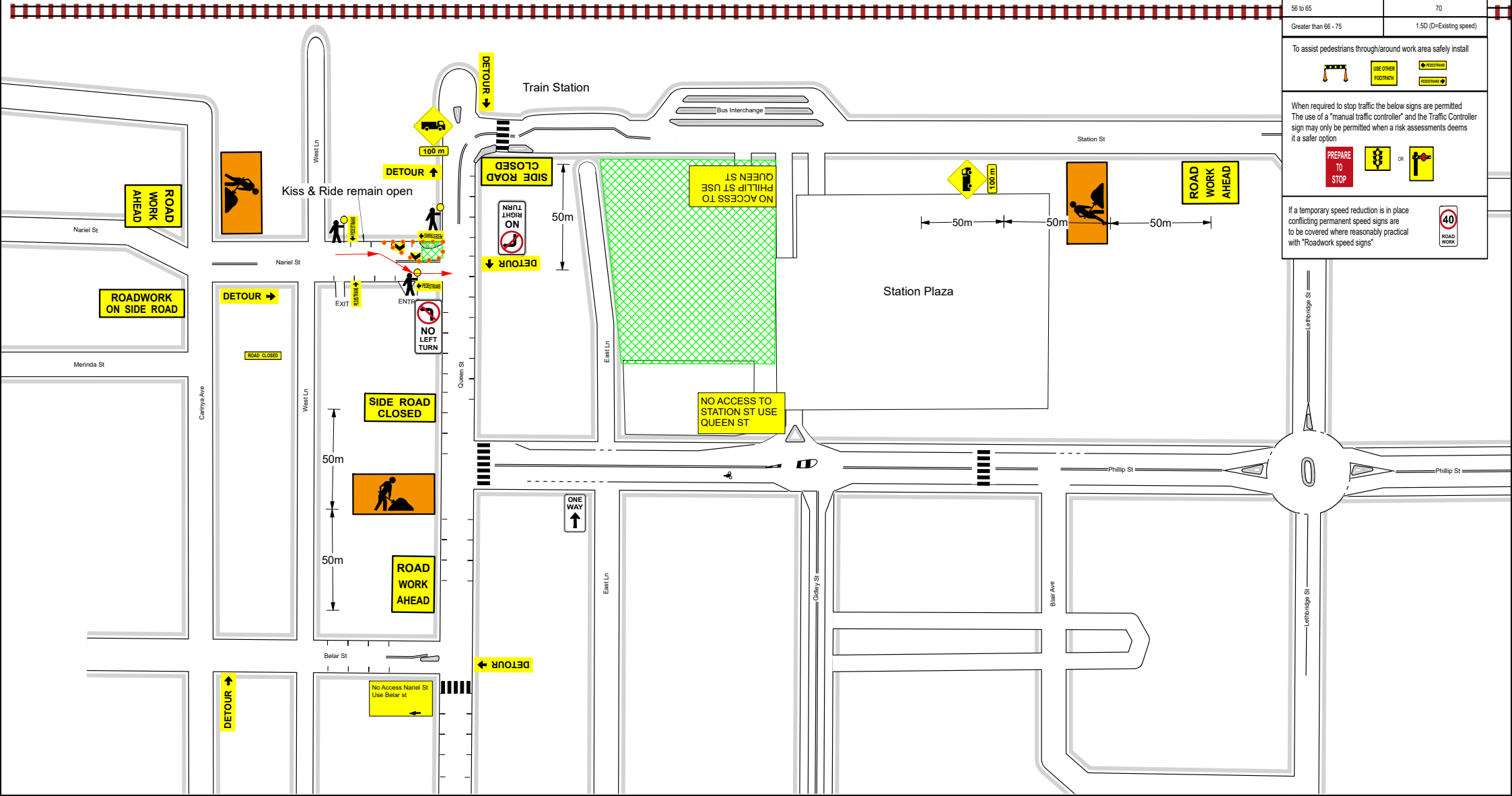
Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

PREPARE TO STOP

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"



Main site entry and exit through driveway on Station Street

Entries to the site from East Ln to be gated for vehicle access if required.

Laneway between Station St and Phillip St to be blocked off for pedestrian access

TGS #	CT-21-WC-SMB-13	CLIENT:	Ward Civil	ROAD TYPE:	Council			COMMENTS
REV	DESCRIPTION	PROJECT:	St Marys Bus Interchange	ROAD CONFIGURATION:	1 lane 2way			TRAFFIC CONTROL REQUIRED: 2 Tc & 1 vehicle Access to be maintained to bus stops and residential properties
00	Draft for Review	ROAD NAME:	Queen St / Nariel St	EXISTING SPEED LIMIT:	50km			
01		SUBURB:	St Marys	ROL REQUIRED:	YES NO x			
02		TASK:	Partial road closure / detour	SPEED REDUCTION REQUIRED:	YES NO x Reduced to: .			
03		Designed by:	Jennifer O'Brien	Date: 08/09/2021	PWZTMP # 0051866297			Sign spacing and taper lengths are in accordance with Australian Standards AS1742.3 & TCWS Manual 6.0. Distances between signs may vary due to onsite constraints.
CHANDOS TRAFFIC		Approved by:	Katie Foley	Date: 08/09/2021	PWZTMP # TCT0039359			Plan is a guide only and can be amended onsite and signed off by a Safework accredited PWZTMP holder
		Modified by:		Date:	PWZTMP #			

Recommended taper length (m)			
Existing Speed (km/h	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 to 55	15	15	30
56 to 65	30	30	60
66 to 75	N/A	70	115
76 to 85	N/A	80	130
86 to 95	N/A	90	145
96 to 105	N/A	100	160
Greater than 105	N/A	110	180

Existing perm. speed limit (km/h)	Distance between tapers (m)
45 or less	10
46 to 55	25
56 to 65	70
Greater than 66 - 75	1.5D (D=Existing speed)

To assist pedestrians through/around work area safely install

When required to stop traffic the below signs are permitted
The use of a "manual traffic controller" and the Traffic Controller sign may only be permitted when a risk assessments deems it a safer option

If a temporary speed reduction is in place conflicting permanent speed signs are to be covered where reasonably practical with "Roadwork speed signs"

APPENDIX D – VEHICLE MOVEMENT PLAN (VMP)

Volume of construction vehicles per shift will be low (approx. 5 to 10). The Haulage route will be as per figure below. The following will act as overarching guidelines during ingress/egress to site and general vehicle movement:

- Site access must be left in right out in a forward motion
- 9.9m long (10-wheeler) construction vehicle is to be commissioned owing to the existing site constraints on the council's local road network.
- All pedestrian crossings, driveways, footpaths will be maintained at all times – there will be no obstructions caused by construction vehicles.
- For vehicles ingress and egress out of site will be at natural flow. Should there be a need to stop general traffic, this will be conducted under an approved ROL (if required) and TGS in place.
- A spotter will be in place at all times during ingress and egress of vehicles to guide the vehicle and spot for pedestrian movement.

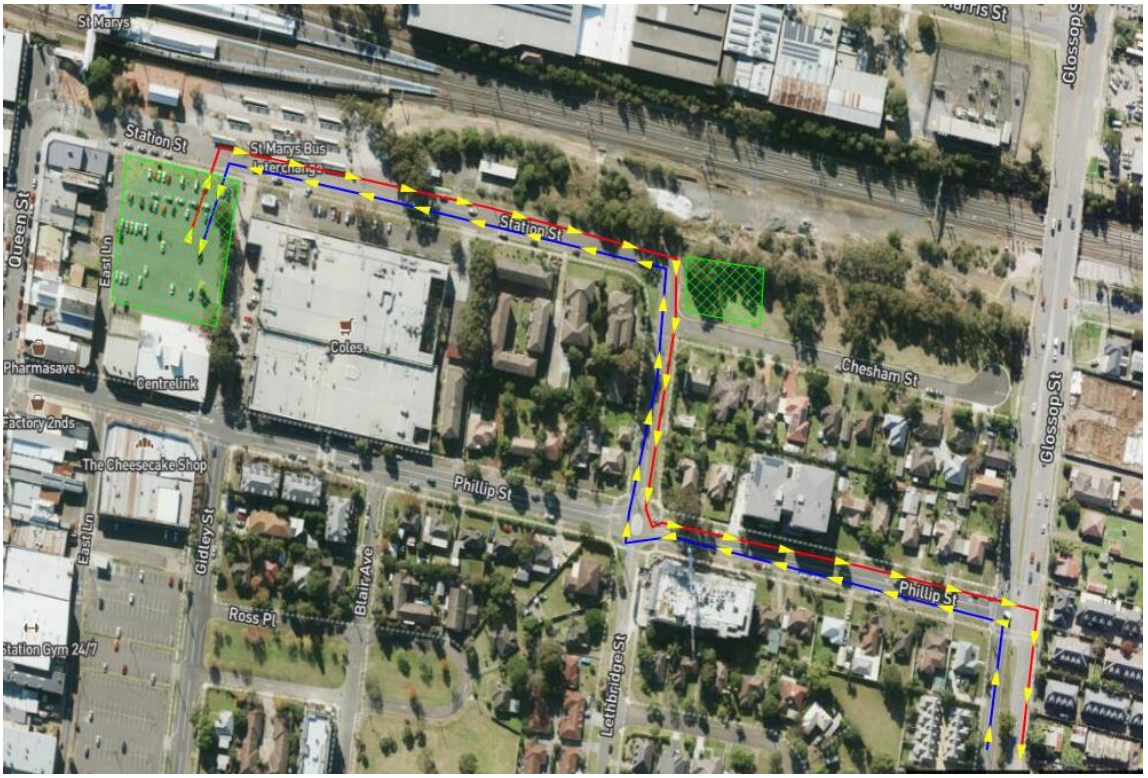


Figure 7 - Construction Traffic to and from Station Rd compound / site

APPENDIX E – CONSTRUCTION STAGING AND PEDESTRIAN MANAGEMENT PLAN

All excavation and plant operation work in general will be conducted with a designated spotter in place. Depending on the plant equipment being operated, a risk assessment will be conducted as part of the Safe Work Method Statement (SWMS) to outline and implement control measures relevant to the activity. Some controls that may be implemented to ensure pedestrian safety may include the (or combination of) following:

- Spotter in place at all times during plant operation
- Slew restriction on excavators (where possible)
- 2-way positive communication between spotter and operator
- Exclusion zone set up
- Pedestrian diversions (where approved)

Figure 8 - Footpath closure Station St for utility relocation works

Figure 9 - Footpath closure carpark laneway

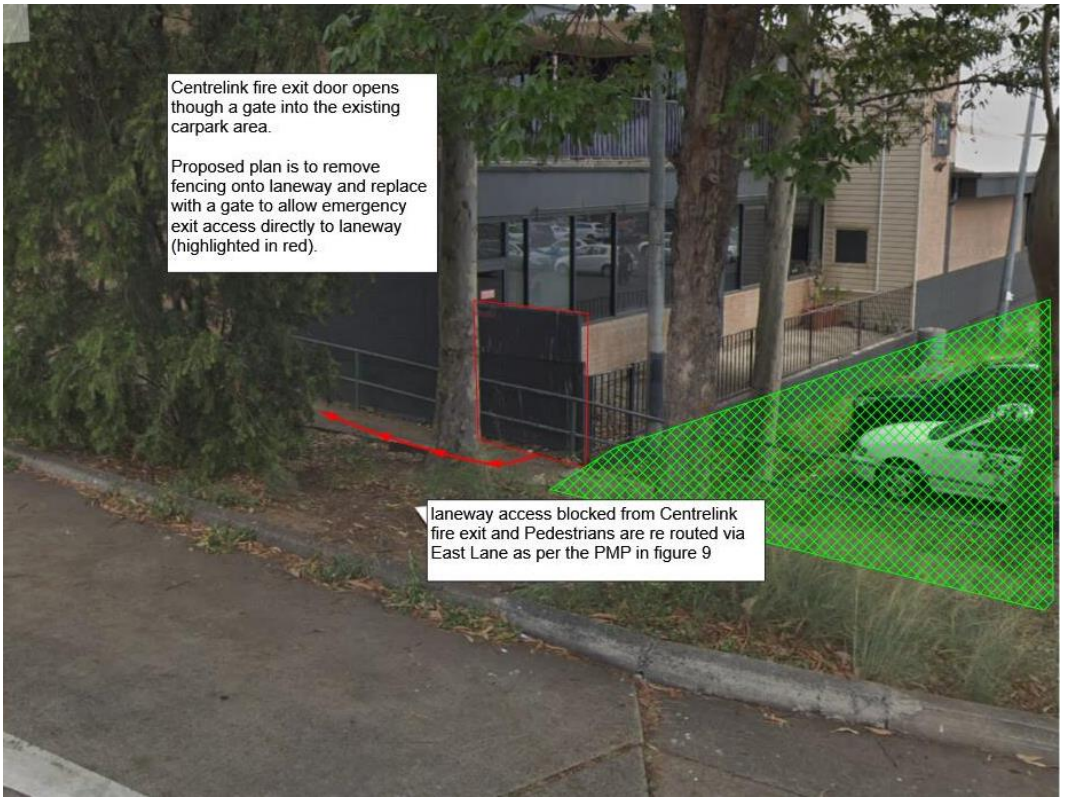


Figure 10 – Centrelink fire exit repositioning

External Work- Stage 1A Nariel St & Queen St - day time works and Nigh shift where shown below

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CARINYA AVENUE

WEST LANE

WEST LANE

NARIEL STREET

QUEEN STREET

LOT 185 / DP26908
LOT 184 / DP26908
LOT 183 / DP26908
LOT 182 / DP26908
LOT 181 / DP26908
LOT 180 / DP26908
LOT 179 / DP26908
LOT 178 / DP26908
LOT 177 / DP26908
LOT 176 / DP26908
LOT 2 / DP588155
LOT B / DP379018
LOT A / DP379018
LOT 7 / DP18072
LOT 6 / DP18072
LOT 5 / DP18072
LOT 4 / DP18072
LOT CP / SP12965

-Remove Parking

-Prep for Line marking

Maintain 1.5m wide footpath

-Remove Parking

-Set up fencing

-Demo kerb & FRP to new pram ramp

-Tree removal

-Utility prep/PH

-Set up fencing & Baririers

-FRP to Raised crossing both sides of Queen Street

-FRP ramp on N/S

-Demo & FRP kerb & pram ramps on N/S

-FRP raised ramp on N/S

CONVERT (4) 1P PARKING SPACES TO (4) KISS-N-RIDE

NEW SHADE STRUCTURE (DETAIL AND LOCATION TO BE CONFIRMED WITH COUNCIL)

RETAIN EXISTING VEHICLE CROSSING

NEW AT-GRADE ZEBRA CROSSING; SUBJECT TO FURTHER COORDINATION AND APPROVAL BY COUNCIL AND LOCAL TRAFFIC COMMITTEE. REFER TO SHT-GE-000504 FOR DETAILS.

NEW KERB RAMP TO PCC STD DRG SD 1002

EXISTING KERB RAMP TO BE REMOVED. KERB AND GUTTER TO BE REINSTATED TO PCC STD DRG SD 1003.

NEW LIGHT POLE

NEW LANDSCAPE ISLAND

(1) 1P PARKING SPACE REMOVED

RECONSTRUCT KERB RETURN

ADJOINS SHT-RD-001202

(3) 1P PARKING SPACES REMOVED

PROPOSED RELOCATED TAXI STAND (5 SPACES)

1.50 m

6.0

BUS LANE

BUSES AND TAXIS EXCEPTED

LEGEND

- BOUNDARY / LOT PROPERTY
- EXISTING SURVEY
- INDICATIVE LIMITS OF METRO BOX CONSTRUCTION ZONE
- NEW PROPERTY FENCE
- NEW PEDESTRIAN FENCE
- NEW GUARDRAIL
- NEW PRECAST CONCRETE TYPE F BARRIER (F01 — F01)
- NEW BUS LANE
- NEW KISS AND RIDE PARKING
- NEW LANDSCAPE
- TEMPORARY BUS DROP OFF
- TEMPORARY BUS PICK UP
- TEMPORARY BUS LAYOVER
- TEMPORARY PEDESTRIAN AREA
- PARKING SPACE TO BE REMOVED
- EXISTING PAVEMENT
- NEW DRIVERS FACILITY
- NEW BUS SHELTER

NOTES

1. PENRITH CITY COUNCIL MAY MANAGE AND USE THE RETAINED VENESS PLACE CAR PARK AREA TEMPORARILY FOR PUBLIC CAR PARKING. THIS AREA IS ONLY AVAILABLE WHILE THE TEMPORARY BUS INTERCHANGE IS IN OPERATION (BETWEEN APPROXIMATELY MAR 2022 AND MAR 2027)

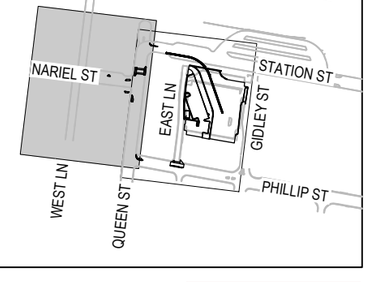
Parking removal

Work compound set up 24hrs

Pedestrian walkway (1.5m)

N/S areas

KEYPLAN



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EXTERNAL REFERENCE FILES	
DESIGN LOT CODE	-
DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING	-
PLOT DATE / TIME	26-May-21 / 9:34:20 PM
PLOT BY	MICHAEL.PANCITO
CLIENT	Transport for NSW

REV	DATE	WVR No.	APPROVAL
0	13.11.20		S. CHAVA
1	03.03.21		S. CHAVA
2	22.04.21		S. CHAVA

SCALES ON A3 SIZE DRAWING: 1 : 500 FULL SIZE A3 (2.5 0 2.5 5 7.5m)

CO-ORDINATE SYSTEM: GDA 94 MGA ZONE 56 | HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: -

CHECK PRINT

		PRELIM. INITIAL	FINAL DATE
DISCIPLINE	M. PANCITO		22.04.21
DISCIPLINE	V. ECCLES		22.04.21
DISCIPLINE	S. ANDREWS		22.04.21
DISCIPLINE	V. ECCLES		22.04.21
BACKDRAFTED/CORRECTED	C. VAVOULAS		22.04.21
CONFIRMED	S. CHAVA		22.04.21

PREPARED FOR GREATER SYDNEY DIVISION ON BEHALF OF SYDNEY METRO WEST. SYDNEY AIRPORT

PENRITH CITY COUNCIL
STATION STREET ST MARYS
CONSTRUCTION OF TEMPORARY BUS INTERCHANGE FOR THE DEVELOPMENT OF ST MARYS STATION GENERAL ARRANGEMENT PLAN

A3

SHEET 1 OF 2

TINSW REGISTRATION No. DS2021/000076 | PART 1

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
DETAILED DESIGN	-	SHT-RD-001201	2

EW Stage 1B- Nariel & Philip Street- Night works

-Boxout and place AC details to corners

-Box out Footpath details & reinstate

-Water blast line marking Philip street

ADJOINS SHT-PV-001001

QUEEN STREET

EXCEPTED TAXIS AND BUSES

BUS LANE

EAST LANE

STATION STREET

PHILLIP STREET

GIDLEY STREET

STAMPED ASPHALT TO BE REINSTATED AS PER EXISTING

STAMPED ASPHALT SHARED ZONE MATERIAL (STREETPRINT COATING OR EQUAL) AS APPROVE BY PENRITH CITY COUNCIL AND TfNSW

REFER SHT-GE-000505 FOR CONTINUOUS FOOTPATH TREATMENT DETAILS

CARPARK FINISHED SURFACE LEVELS TO MATCH EXISTING. TO BE CONFIRMED.

NEW TRENCH GATE AND FRAME. REFER TO GUTTER BRIDGE DETAIL ON SHT-GE-000503

REINSTATE EXCAVATIONS FOR UTILITIES WITH PAVEMENT TYPE F2. PAVING TO BE MIN 1.2.

EXISTING TREE TO BE RETAINED AND PROTECTED; EXTENTS OF PAVING WORK (INCLUDING M&C) AROUND THE TREE TO BE DETERMINED IN CONSULTATION WITH THE CONTRACTOR'S ARBORIST

SEE NOTE 10

NO PARKING

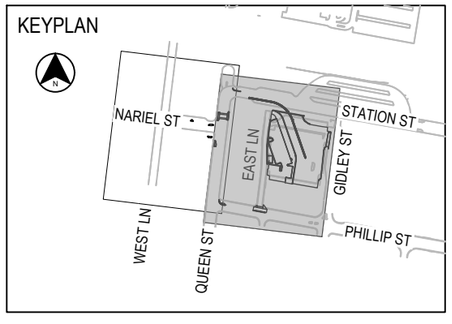
LEGEND

- BOUNDARY / LOT PROPERTY
- EXISTING SURVEY
- M&C, MI, F1, F1b, F2, FP3, BS
- FP1, FP2, DW, TF, STENCIL, RP
- XXXX — PAVEMENT TAG
- I-1 OR E-1 — INTERFACE OR EDGE DETAILS
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- NEW HAUNCHED PIT
- SUBSURFACE DRAINAGE
- NEW DRIVERS FACILITY
- N/S areas

NOTES

1. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.
2. REFER TO SHT-GE-000021 AND SHT-GE-000024 FOR GENERAL NOTES.
3. REFER TO SHT-PV-000501 AND SHT-PV-000502 FOR PAVEMENT PROFILE DETAILS.
4. REFER TO SHT-PV-005011 TO SHT-PV-000512 FOR INTERFACE DETAILS.
5. REFER TO SHT-PV-005021 TO SHT-PV-000522 FOR EDGE DETAILS.
6. MINIMUM PAVING WIDTH SHALL BE 1.2 m TO ENABLE MACHINE COMPACTION.
7. REFER TO SHT-RD SERIES FOR KERB TYPES AND SET OUT DETAILS.
8. SUBSURFACE DRAINS SHALL BE CONNECTED EITHER TO EXISTING PITS OR PROPOSED PITS U.N.O.
9. FOR SUBSURFACE DRAINS AGAINST GRADE, MINIMUM GRADE SHALL BE 0.5%.
10. PROVIDE JOINT P7D TO TIE PAVEMENT TYPE RP TO EXISTING RIGID PAVEMENT. REFER TO TFNSW DRAWINGS DS2012/001191 FOR DETAILS.

KEYPLAN



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EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
	0	03.03.21	ISSUED FOR 80% DETAILED DESIGN		S. CHAVA
	1	22.04.21	IFT		S. CHAVA

REVISION IN PROGRESS

SCALES ON A3 SIZE DRAWING: 2.5 0 2.5 5 7.5m — 1 : 500 FULL SIZE A3

CO-ORDINATE SYSTEM: GDA 94 MGA ZONE 56 | HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: -

CHECK PRINT

	PRELIM. INITIAL	FINAL DATE
DISCIPLINE M. PANCITO		22.04.21
DISCIPLINE V. ECCLES		22.04.21
DISCIPLINE F. RASHID		22.04.21
DISCIPLINE C. NAVARRO		22.04.21
BACKDRAFTED/CORRECTED C. VAVOULAS		22.04.21
CONFIRMED S. CHAVA		22.04.21

CLIENT: NSW GOVERNMENT Transport for NSW

PENRITH CITY COUNCIL
STATION STREET ST MARYS
CONSTRUCTION OF TEMPORARY BUS INTERCHANGE FOR THE DEVELOPMENT OF ST MARYS STATION PAVEMENT PLAN

A3

SHEET 2 OF 2

PREPARED FOR: GREATER SYDNEY DIVISION ON BEHALF OF SYDNEY METRO WEST. SYDNEY AIRPORT

TfNSW REGISTRATION No. DS2021/000076 | PART 1

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
DETAILED DESIGN	-	SHT-PV-001002	1

EW Stage 2A Nariel & Philip Street - Night works

- Nariel & Philip street
- Line marking

CARINYA AVENUE

WEST LANE

NARIEL STREET

QUEEN STREET

ADJOINS SHT-PV-001002

REMOVE EXISTING MARKING BY WATERBLASTING

REMOVE EXISTING MARKING BY WATERBLASTING (TYP.)

NEW TRENCH GATE AND FRAME. REFER TO GUTTER BRIDGE DETAIL ON SHT-GE-000503

REFER SHT-GE-000503 FOR RAISED PEDESTRIAN CROSSING DETAILS

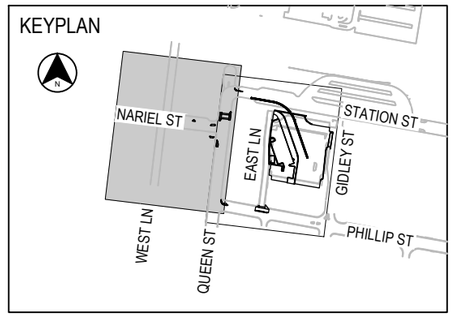
LEGEND

- BOUNDARY / LOT PROPERTY
- EXISTING SURVEY
- M&C, MI, F1, F1b, F2, FP3, BS
- FP1, FP2, DW, TF, STENCIL, RP
- XXXX — PAVEMENT TAG
- I-1 OR E-1 — INTERFACE OR EDGE DETAILS
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- NEW HAUNCHED PIT
- SUBSURFACE DRAINAGE
- NEW DRIVERS FACILITY
- N/S areas

NOTES

1. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.
2. REFER TO SHT-GE-000021 AND SHT-GE-000024 FOR GENERAL NOTES.
3. REFER TO SHT-PV-000501 AND SHT-PV-000502 FOR PAVEMENT PROFILE DETAILS.
4. REFER TO SHT-PV-005011 TO SHT-PV-000512 FOR INTERFACE DETAILS.
5. REFER TO SHT-PV-005021 TO SHT-PV-000522 FOR EDGE DETAILS.
6. MINIMUM PAVING WIDTH SHALL BE 1.2 m TO ENABLE MACHINE COMPACTION.
7. REFER TO SHT-RD SERIES FOR KERB TYPES AND SET OUT DETAILS.
8. SUBSURFACE DRAINS SHALL BE CONNECTED EITHER TO EXISTING PITS OR PROPOSED PITS U.N.O.
9. FOR SUBSURFACE DRAINS AGAINST GRADE, MINIMUM GRADE SHALL BE 0.5%.
10. PROVIDE JOINT P7D TO TIE PAVEMENT TYPE RP TO EXISTING RIGID PAVEMENT. REFER TO TFNSW DRAWINGS DS2012/001191 FOR DETAILS.

KEYPLAN



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EXTERNAL REFERENCE FILES	WVR No.	SCALES ON A3 SIZE DRAWING: 1 : 500 FULL SIZE A3	DRAWINGS / DESIGN PREPARED BY: -
CO-ORDINATE SYSTEM: GDA 94 MGA ZONE 56	HEIGHT DATUM: AHD		

REV	DATE	AMENDMENT / REVISION DESCRIPTION	APPROVAL
0	03.03.21	ISSUED FOR 80% DETAILED DESIGN IFT	S. CHAVA
1	22.04.21	REVISION IN PROGRESS	S. CHAVA

CHECK PRINT — PRELIM. / FINAL

	INITIAL	DATE
DISCIPLINE	M. PANCITO	22.04.21
DISCIPLINE	V. ECCLES	22.04.21
DISCIPLINE	F. RASHID	22.04.21
DISCIPLINE	C. NAVARRO	22.04.21
BACKDRAFTED/CORRECTED	C. VAVOULAS	22.04.21
CONFIRMED	S. CHAVA	22.04.21

CLIENT: NSW GOVERNMENT Transport for NSW

PREPARED FOR: GREATER SYDNEY DIVISION ON BEHALF OF SYDNEY METRO WEST. SYDNEY AIRPORT

PENRITH CITY COUNCIL
STATION STREET ST MARYS
CONSTRUCTION OF TEMPORARY BUS INTERCHANGE FOR THE DEVELOPMENT OF ST MARYS STATION
PAVEMENT PLAN

A3

SHEET 1 OF 2

TfNSW REGISTRATION No.	PART
DS2021/000076	1

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
DETAILED DESIGN	-	SHT-PV-001001	1

EW Stage 2B Nariel & Philip Street - Night works

- Nariel & Philip street Asphalt works
- Line marking

-Night shift area

ADJOINS SHT-PV-001001

QUEEN STREET

EAST LANE

STATION STREET

PHILLIP STREET

GIDLEY STREET

STAMPED ASPHALT TO BE REINSTATED AS PER EXISTING

STAMPED ASPHALT SHARED ZONE MATERIAL (STREETPRINT COATING OR EQUAL) AS APPROVED BY PENRITH CITY COUNCIL AND TfNSW

REFER SHT-GE-000505 FOR CONTINUOUS FOOTPATH TREATMENT DETAILS

CARPARK FINISHED SURFACE LEVELS TO MATCH EXISTING. TO BE CONFIRMED.

NEW TRENCH GATE AND FRAME. REFER TO GUTTER BRIDGE DETAIL ON SHT-GE-000503

REINSTATE EXCAVATIONS FOR UTILITIES WITH PAVEMENT TYPE F2. PAVING TO BE MIN 1.2.

EXISTING TREE TO BE RETAINED AND PROTECTED; EXTENTS OF PAVING WORK (INCLUDING M&C) AROUND THE TREE TO BE DETERMINED IN CONSULTATION WITH THE CONTRACTOR'S ARBORIST

SEE NOTE 10

LEGEND

- BOUNDARY / LOT PROPERTY
- EXISTING SURVEY
- M&C, MI, F1, F1b, F2, FP3, BS
- FP1, FP2, DW, TF, STENCIL, RP
- XXXX — PAVEMENT TAG
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- ADJUST / MODIFY EXISTING PIT INLET
- NEW HAUNCHED PIT
- SUBSURFACE DRAINAGE
- NEW DRIVERS FACILITY

NOTES

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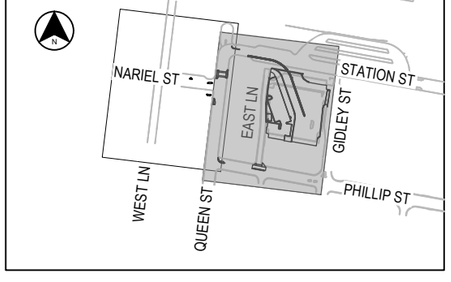
KEYPLAN



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DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING	-		
PLOT DATE / TIME	26-May-21 / 9:31:59 PM	PLOT BY	MICHAEL.PANCITO

EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
	0	03.03.21	ISSUED FOR 80% DETAILED DESIGN		S. CHAVA
	1	22.04.21	IFT		S. CHAVA

REVISION IN PROGRESS

SCALES ON A3 SIZE DRAWING: 2.5 0 2.5 5 7.5m — 1 : 500 FULL SIZE A3

CO-ORDINATE SYSTEM	HEIGHT DATUM
GDA 94 MGA ZONE 56	AHD

DRAWINGS / DESIGN PREPARED BY: -

CHECK PRINT — PRELIM. / FINAL

		INITIAL	DATE
DISCIPLINE	M. PANCITO		22.04.21
DISCIPLINE	V. ECCLES		22.04.21
DISCIPLINE	F. RASHID		22.04.21
DISCIPLINE	C. NAVARRO		22.04.21
BACKDRAFTED/CORRECTED	C. VAVOULAS		22.04.21
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CLIENT: NSW GOVERNMENT Transport for NSW

PENRITH CITY COUNCIL
STATION STREET ST MARYS
CONSTRUCTION OF TEMPORARY BUS INTERCHANGE FOR THE DEVELOPMENT OF ST MARYS STATION
PAVEMENT PLAN

A3

SHEET 2 OF 2

PREPARED FOR: GREATER SYDNEY DIVISION ON BEHALF OF SYDNEY METRO WEST. SYDNEY AIRPORT

TfNSW REGISTRATION No. DS2021/000076 — PART 1

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
DETAILED DESIGN	-	SHT-PV-001002	1

Stage 2C- Service installation- Day and Night shift

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QUEEN STREET

ADJOINS SHT-PV-001001

EXCEPTED TAXIS AND BUSES

0.000

LANE BIS

NEW TRENCH GATE AND FRAME. REFER TO GUTTER BRIDGE DETAIL ON SHT-GE-000503

STAMPED ASPHALT TO BE REINSTATED AS PER EXISTING

STAMPED ASPHALT SHARED ZONE MATERIAL (STREETPRINT COATING OR EQUAL) AS APPROVED BY PENRITH CITY COUNCIL AND TfNSW

EAST LANE

REFER SHT-GE-000505 FOR CONTINUOUS FOOTPATH TREATMENT DETAILS

CARPARK FINISHED SURFACE LEVELS TO MATCH EXISTING. TO BE CONFIRMED.

PHILLIP STREET

GIDLEY STREET

STATION STREET

NO PARKING

REINSTATE EXCAVATIONS FOR UTILITIES WITH PAVEMENT TYPE F2. PAVING TO BE MIN 1.2.

EXISTING TREE TO BE RETAINED AND PROTECTED; EXTENTS OF PAVING WORK (INCLUDING M&C) AROUND THE TREE TO BE DETERMINED IN CONSULTATION WITH THE CONTRACTOR'S ARBORIST

SEE NOTE 10

LEGEND

- BOUNDARY / LOT PROPERTY
- EXISTING SURVEY
- M&C, MI, F1, F1b, F2, FP3, BS
- FP1, FP2, DW, TF, STENCIL, RP
- XXXX — PAVEMENT TAG
- I-1 OR E-1 — INTERFACE OR EDGE DETAILS
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- NEW HAUNCHED PIT
- Service installation

F1 & M&C Asphalt including median tie in to compound area Line marking

Service installation

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE.
2. REFER TO SHT-GE-000001 FOR GENERAL NOTES.
3. REFER TO SHT-PV-000501 AND SHT-PV-000502 FOR PAVEMENT PROFILE DETAILS.
4. REFER TO SHT-PV-005011 TO SHT-PV-000512 FOR INTERFACE DETAILS.
5. REFER TO SHT-PV-005021 TO SHT-PV-000522 FOR EDGE DETAILS.
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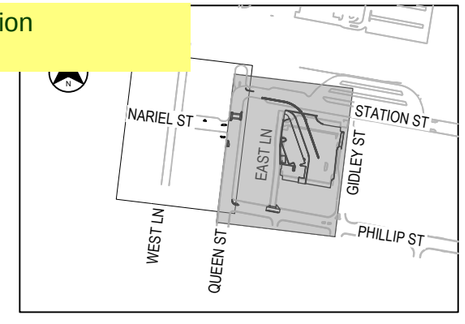

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EXTERNAL REFERENCE FILES	
DESIGN LOT CODE	-
WVR No.	
APPROVAL	S. CHAVA, S. CHAVA
DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING	-
SCALES ON A3 SIZE DRAWING	2.5 0 2.5 5 7.5m; 1 : 500 FULL SIZE A3
CO-ORDINATE SYSTEM	GDA 94 MGA ZONE 56
HEIGHT DATUM	AHD
DRAWINGS / DESIGN PREPARED BY	-
PLOT DATE / TIME	26-May-21 / 9:31:59 PM
PLOT BY	MICHAEL.PANCITO

REV	DATE	AMENDMENT / REVISION DESCRIPTION
0	03.03.21	ISSUED FOR 80% DETAILED DESIGN
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REVISION IN PROGRESS

CHECK PRINT — PRELIM. INITIAL / FINAL DATE

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DISCIPLINE	V. ECCLES	22.04.21
DISCIPLINE	F. RASHID	22.04.21
DISCIPLINE	C. NAVARRO	22.04.21
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CONFIRMED	S. CHAVA	22.04.21

CLIENT: NSW GOVERNMENT Transport for NSW

PENRITH CITY COUNCIL
STATION STREET ST MARYS
CONSTRUCTION OF TEMPORARY BUS INTERCHANGE FOR THE DEVELOPMENT OF ST MARYS STATION PAVEMENT PLAN

A3

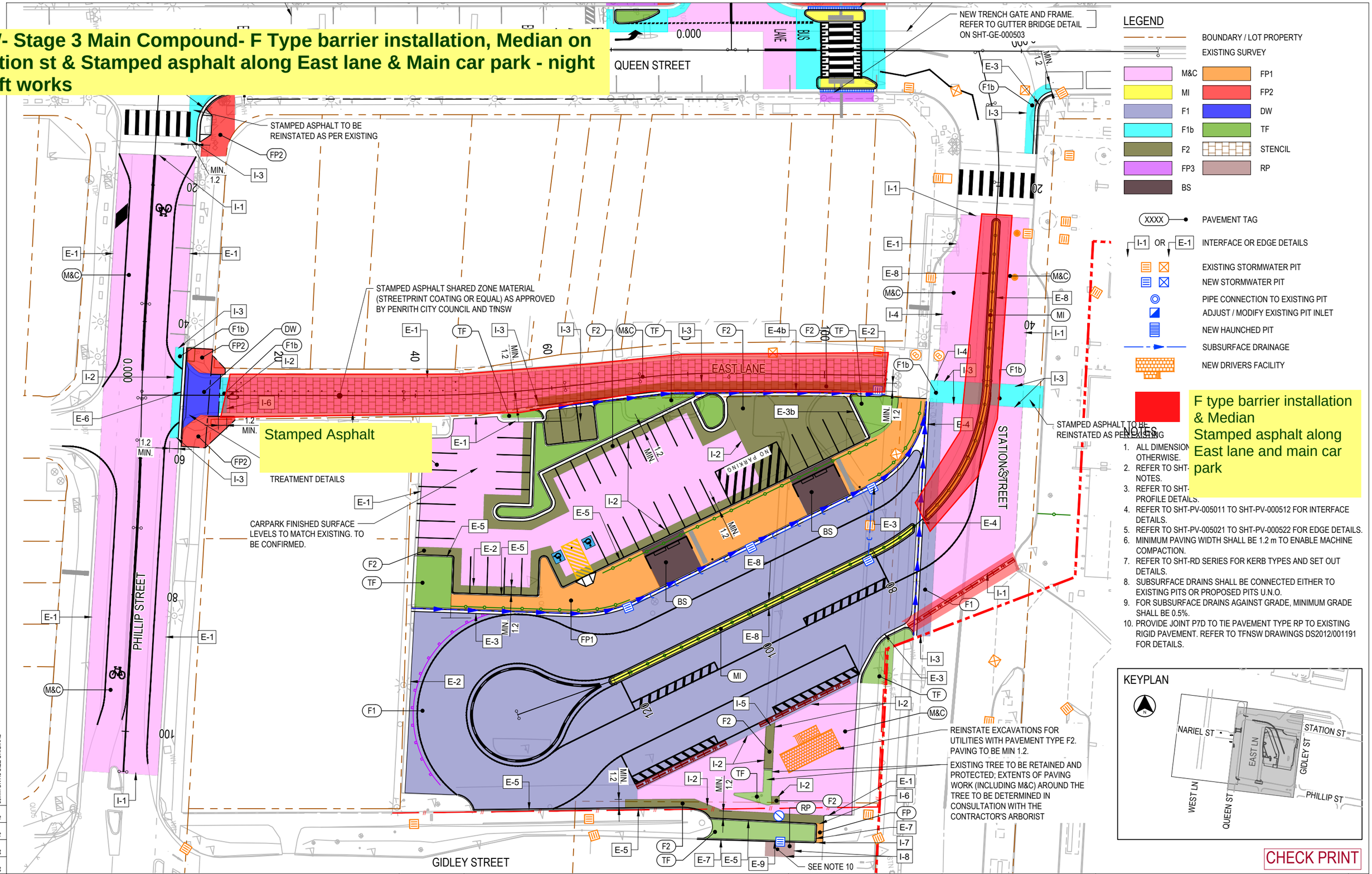
SHEET 2 OF 2

PREPARED FOR: GREATER SYDNEY DIVISION ON BEHALF OF SYDNEY METRO WEST. SYDNEY AIRPORT

TfNSW REGISTRATION No. DS2021/000076 — PART 1

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
DETAILED DESIGN	-	SHT-PV-001002	1

EW- Stage 3 Main Compound- F Type barrier installation, Median on station st & Stamped asphalt along East lane & Main car park - night shift works



LEGEND

- BOUNDARY / LOT PROPERTY
- EXISTING SURVEY
- M&C, MI, F1, F1b, F2, FP3, BS
- FP1, FP2, DW, TF, STENCIL, RP
- XXXX — PAVEMENT TAG
- I-1 OR E-1 — INTERFACE OR EDGE DETAILS
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- NEW HAUNCHED PIT
- SUBSURFACE DRAINAGE
- NEW DRIVERS FACILITY

F type barrier installation & Median
Stamped asphalt along East lane and main car park

NOTES

1. ALL DIMENSION… OTHERWISE.
2. REFER TO SHT-… NOTES.
3. REFER TO SHT-… PROFILE DETAILS.
4. REFER TO SHT-PV-005011 TO SHT-PV-000512 FOR INTERFACE DETAILS.
5. REFER TO SHT-PV-005021 TO SHT-PV-000522 FOR EDGE DETAILS.
6. MINIMUM PAVING WIDTH SHALL BE 1.2 m TO ENABLE MACHINE COMPACTION.
7. REFER TO SHT-RD SERIES FOR KERB TYPES AND SET OUT DETAILS.
8. SUBSURFACE DRAINS SHALL BE CONNECTED EITHER TO EXISTING PITS OR PROPOSED PITS U.N.O.
9. FOR SUBSURFACE DRAINS AGAINST GRADE, MINIMUM GRADE SHALL BE 0.5%.
10. PROVIDE JOINT P7D TO TIE PAVEMENT TYPE RP TO EXISTING RIGID PAVEMENT. REFER TO TFNSW DRAWINGS DS2012/001191 FOR DETAILS.

KEYPLAN

CHECK PRINT

Last saved by: MICHAEL.PANCITO(2021-05-26) Last Pl…

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

DRAWING FILE LOCATION / NAME: PW:/P0054029-SHT-PV-001002.DWG	DESIGN LOT CODE: -	DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: -
PLOT DATE / TIME: 26-May-21 / 9:31:59 PM	PLOT BY: MICHAEL.PANCITO	CLIENT: NSW Government Transport for NSW

EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
	0	03.03.21	ISSUED FOR 80% DETAILED DESIGN		S. CHAVA
	1	22.04.21	IFT		S. CHAVA

REVISION IN PROGRESS

SCALES ON A3 SIZE DRAWING: 2.5 0 2.5 5 7.5m — 1 : 500 — FULL SIZE A3

CO-ORDINATE SYSTEM: GDA 94 MGA ZONE 56 | HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: -

CHECK PRINT — PRELIM. / FINAL

		INITIAL	DATE
DISCIPLINE	M. PANCITO		22.04.21
DISCIPLINE	V. ECCLES		22.04.21
DISCIPLINE	F. RASHID		22.04.21
DISCIPLINE	C. NAVARRO		22.04.21
BACKDRAFTED/CORRECTED	C. VAVOULAS		22.04.21
CONFIRMED	S. CHAVA		22.04.21

PREPARED FOR: GREATER SYDNEY DIVISION ON BEHALF OF SYDNEY METRO WEST. SYDNEY AIRPORT

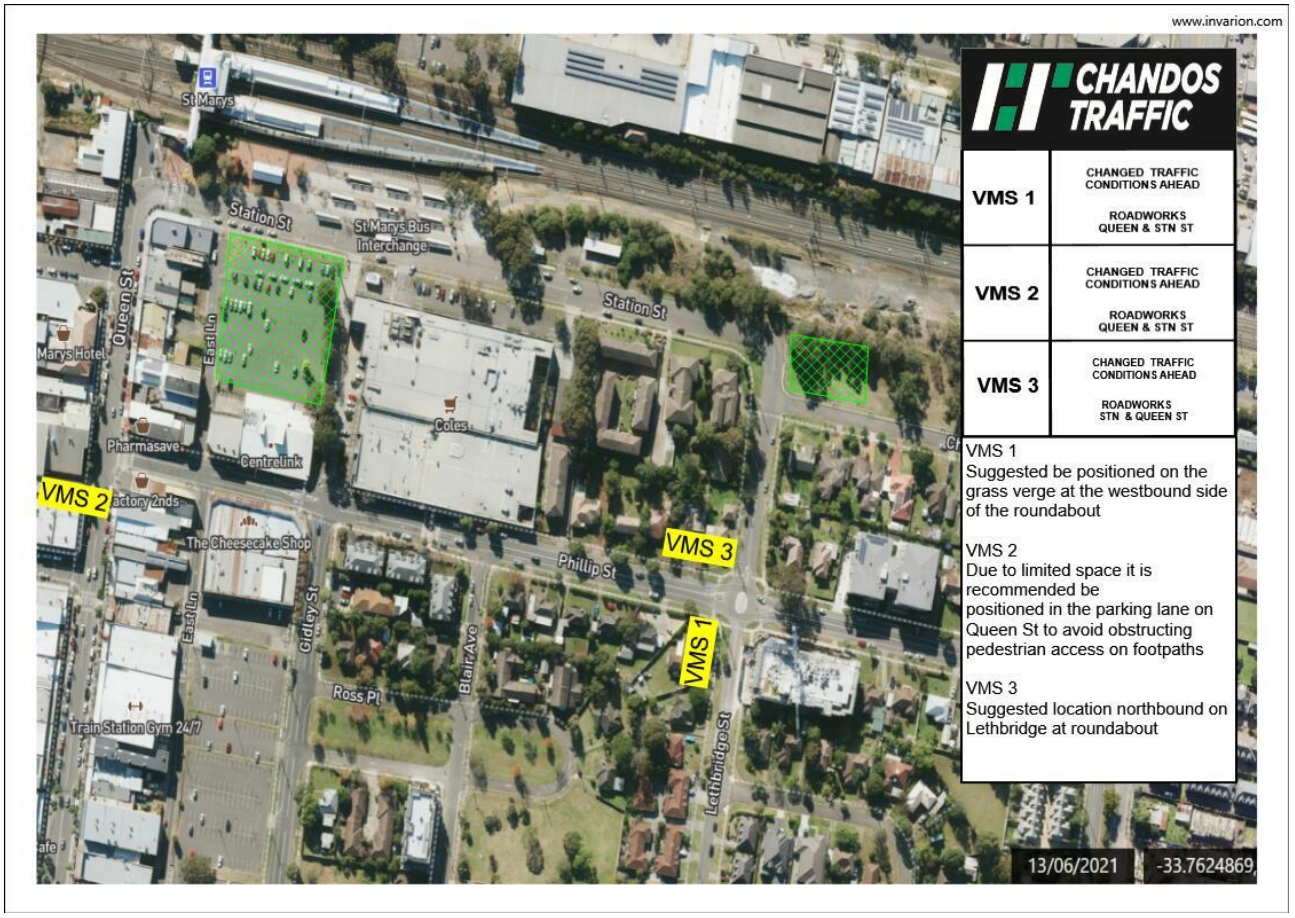
PENRITH CITY COUNCIL
STATION STREET ST MARYS
CONSTRUCTION OF TEMPORARY BUS INTERCHANGE FOR THE DEVELOPMENT OF ST MARYS STATION PAVEMENT PLAN

A3 — SHEET 2 OF 2

TfNSW REGISTRATION No.: DS2021/000076 — PART 1

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
DETAILED DESIGN	-	SHT-PV-001002	1

APPENDIX F – VMS PLAN



APPENDIX G – TRAFFIC CONTROL RISK ASSESSMENT

TRAFFIC RISK ASSESSMENT

CONTRACT DETAILS					
Project Name:	St. Marys Bus Interchange	**Job No.:**	725	**Revision No.:**	0.1
Prepared on: **In consultation with:**	08/09/2021 Ross Traynor, GM Chandos Traffic, 0408 903 889	**Address:** **ABN:**	Suite 2, 2-6 Orion Road, Lane Cove West, NSW 2066 65 098 942 459	**Work Area:**	Entire Project
Reviewed on: **In consultation with:**	08/09/2021 Raymond Rouessart, Project Engineer, 0451 551 320	**Reviewed by:**	Jennifer O'Brien, Traffic Manager, 0412 474 724	**Date:**	09/09/2021

RISK ASSESSMENT MATRIX

Consequence	Risk Score Calculator	Probability				Risk Description	Control Application	Risk Class
		Likely	Possible	Unlikely	Rare			
	Significant Fatality/s or permanent disability. Court action.	16	15	12	10	Intolerable. Implement strict control measures to reduce the hazard to as low as reasonably practicable (ALARP). Eliminate hazard or introduce further controls.	Any hazard assessed as presenting a High level of risk will not be allowed to commence.	**High** 16-13 Tier 1
	Major Serious injury. Infringement notice.	14	13	9	6	Review process. Implement strict control measures to reduce hazard to ALARP. Activity must not commence without the approval of the Project Manager. Management must determine the level of supervision required.	Any hazard presenting as medium risk level shall not be allowed to proceed until appropriate controls have been developed. Supervision must be in place whilst undertaking task.	**Medium** 7-12 Tier 2
	Moderate Medical treatment required.	11	8	5	3	Tolerable. Monitor, manage and undertake activity in accordance with identified controls.	Any hazard assessed as presenting a low risk ranking will be permitted to be undertaken using a combination of controls and communicated to the workers through pre-start, toolbox talks, Take 5 and site-specific induction.	**Low** 1-6
	Minor First Aid treatment or less.	7	4	2	1			

Environmental Penalties:
Tier 1 = $1 million to $2 million (negligence) or $5 million (wilful)

TRAFFIC RISK ASSESSMENT

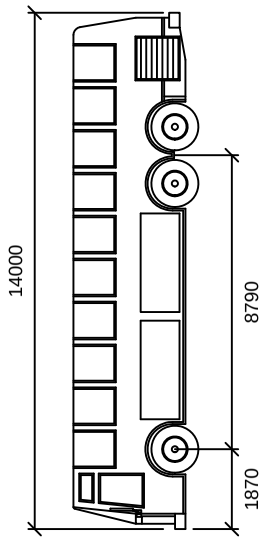
Tier 2 = $250,000 to $1 million

TRAFFIC RISK ASSESSMENT									
Step No.	Stage of Work Construction Maintenance Demolition	Activity	Hazard Description	Risk Score SWMS required for High	Control Action Requirements Prior to commencement	Activity Planning, Resource, Equipment and General Considerations	Residual Risk Score	Actions Who What When	Status Date Completed
1	Site Establishment	▪ Installation of long-term traffic control measures	▪ Collision due to contradictory signage/ devices	▪ Medium	▪ Review of TGS against existing signage ▪ Workzone temporary barriers ▪ Advanced warning (VMS)	▪ Pre-planning ▪ Equipment	Low	Traffic Manager / Site Team	
2	Construction	▪ Stop/Slow traffic control	▪ Serious Injury to TC on foot ▪ Fatality	▪ High	▪ Portable Traffic control Devices (PTCD)	▪ Equipment	Low	Traffic Manager / Traffic Supervisor	
3	Construction	▪ Lane Closure	▪ Vehicle / person collision ▪ Public interaction	▪ High	▪ Use of temporary speed zones ▪ Shadow vehicles to delineate workers ▪ Relocate Kiss & Ride	▪ Planning ▪ Equipment	Low	Traffic Manager / Traffic Supervisor	
4	Construction	▪ Blackout ROL	▪ Vehicle / person collision ▪ Vehicle / Vehicle collision	▪ High	▪ Approved TGS & ROL ▪ PTCD in lieu of manually controlling traffic	▪ Planning ▪ Equipment	Low	Traffic Manager / Traffic Supervisor	
5	Construction	▪ Road Closure	▪ Collisions ▪ Disruptions to traffic flow on network	▪ High	▪ Advanced warning (VMS) ▪ Adequate detour signage	▪ Planning ▪ Equipment	Low	Traffic Manager / Traffic Supervisor	

APPENDIX H – SWEPT PATH ANALYSIS

Traffic Solutions

Design Vehicle



OR mm

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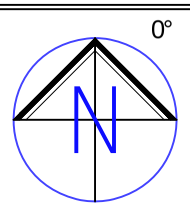
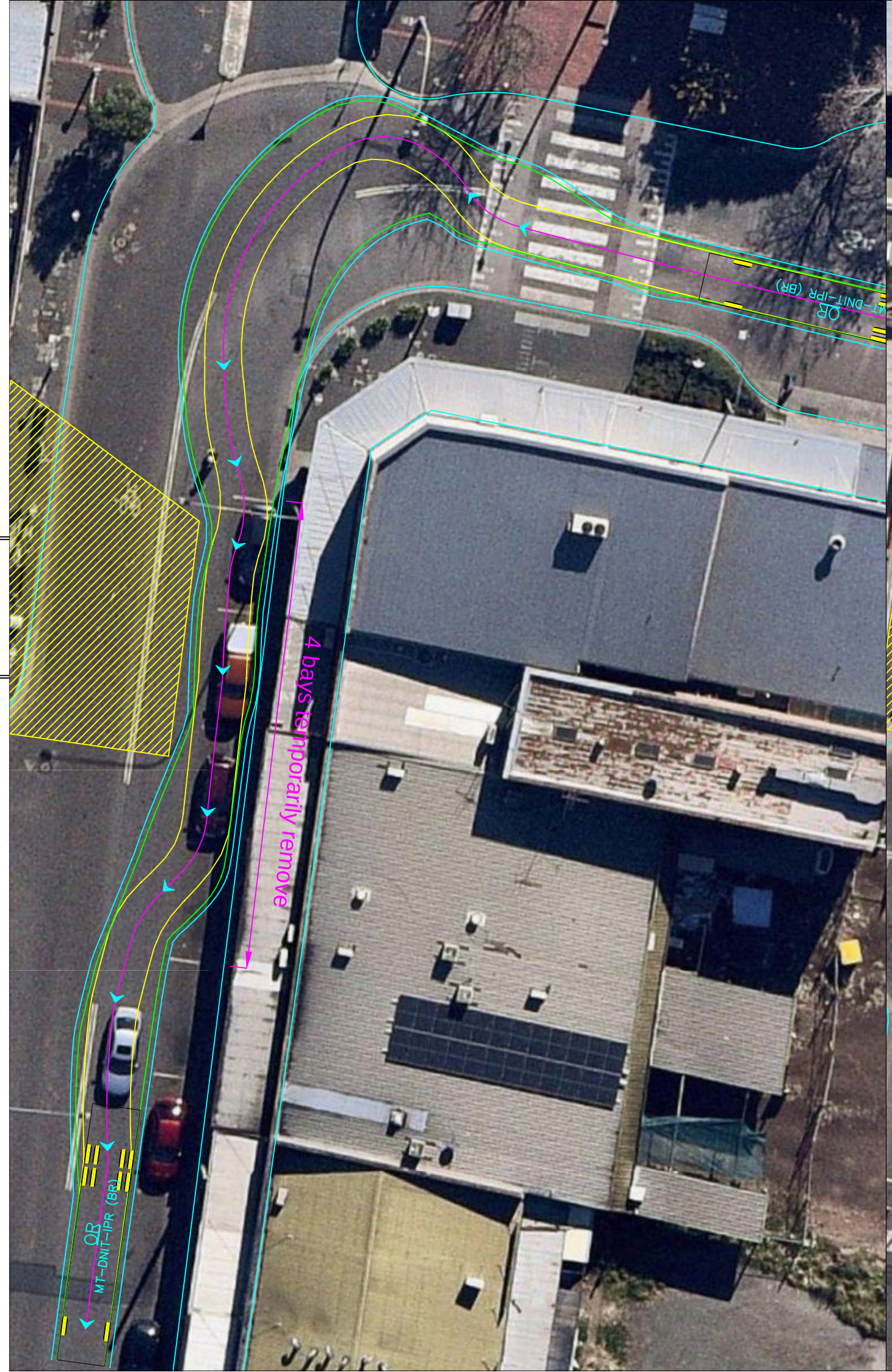
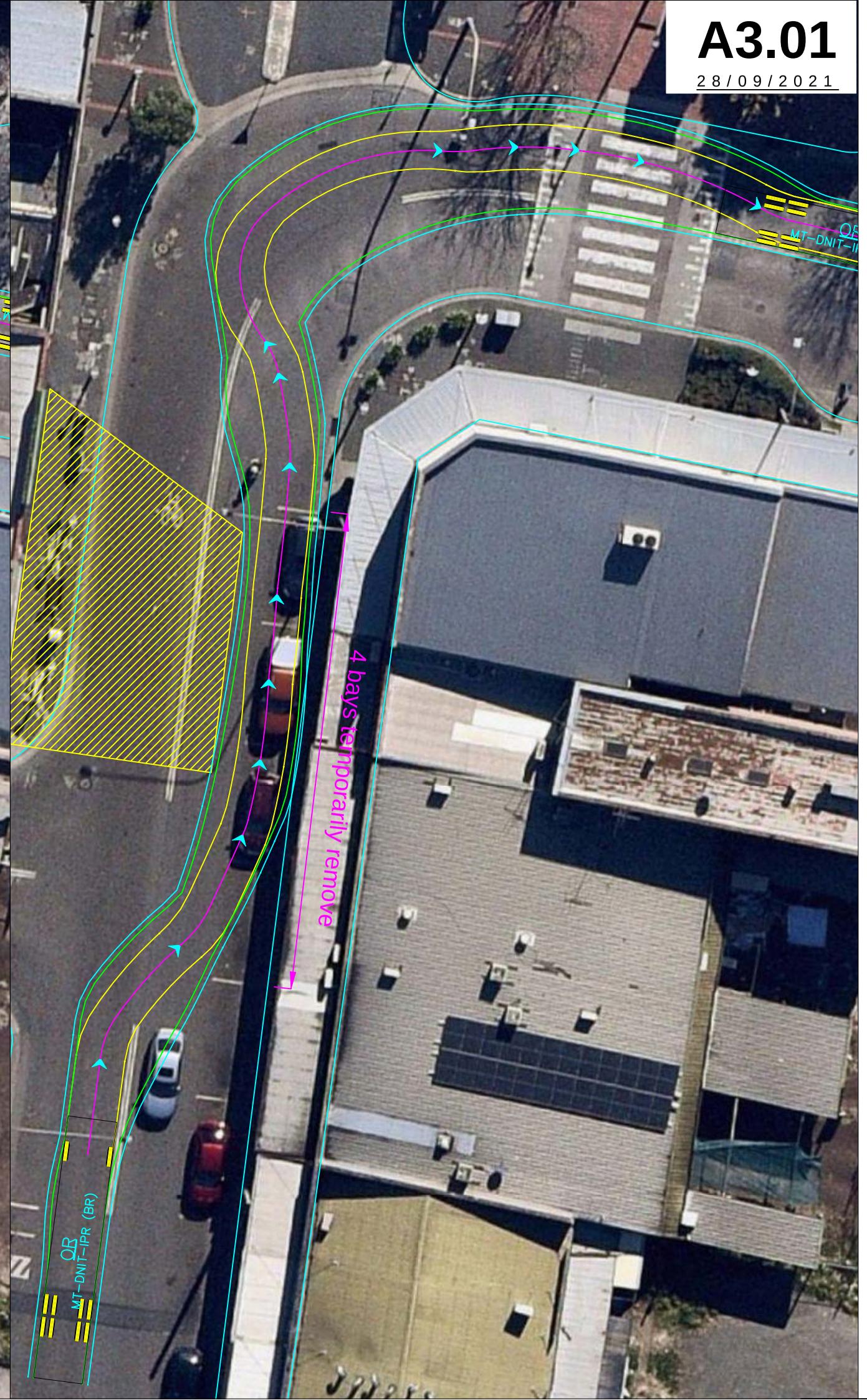
Steering Angle	:	44.7



A3.01

28/09/2021



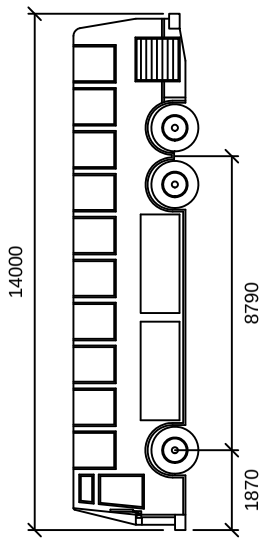


St Marys Bus Interchange, North St Marys (NSW)

Scale 1:250 @ A3
Swept Path Diagram (Coach Bus)
Plan prepared by EB Traffic Solutions Pty Ltd

Traffic Solutions

Design Vehicle



OR	mm
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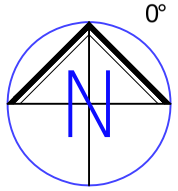
Steering Angle	: 44.7



A3.02

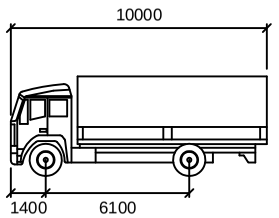
28/09/2021

St Marys Bus Interchange, North St Marys (NSW)

Scale 1:250 @ A3
Swept Path Diagram (Coach Bus)
Plan prepared by EB Traffic Solutions Pty Ltd

Traffic Solutions

Design Vehicle



LRIGID
mm

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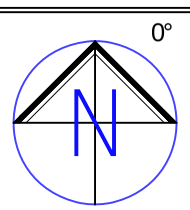

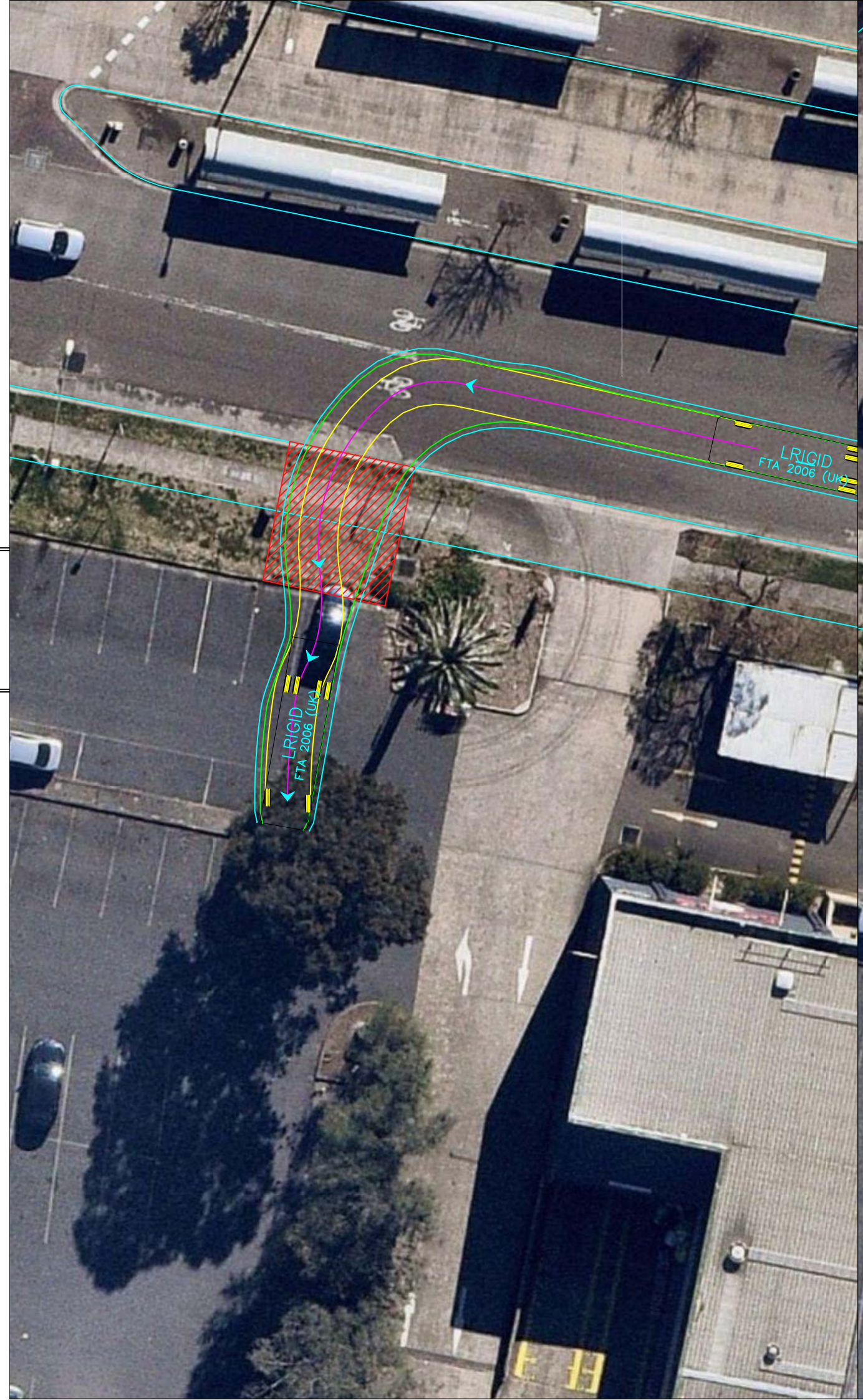

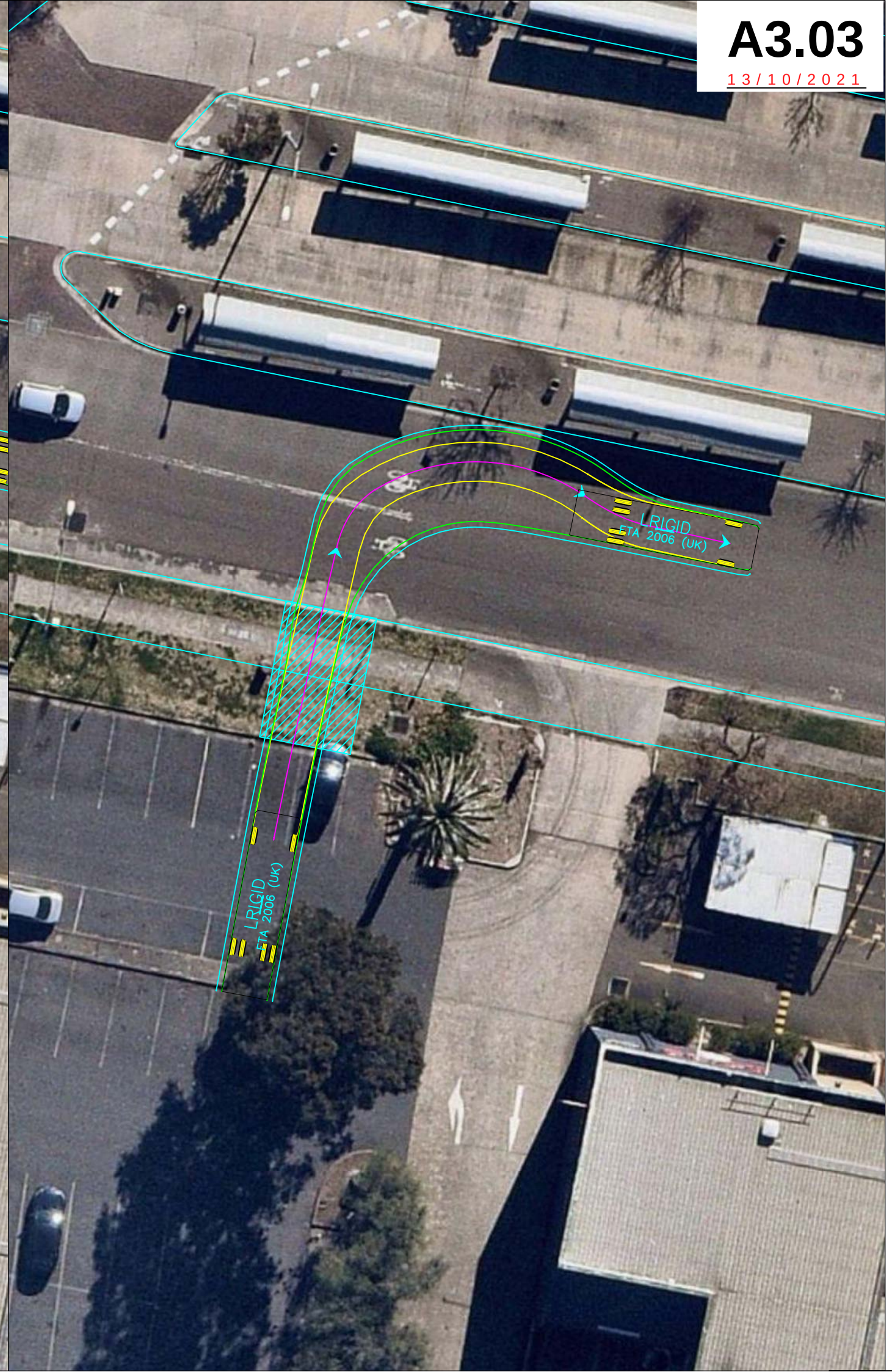

A3.03

13/10/2021

St Marys Bus Interchange, North St Marys (NSW)

Scale 1:250 @ A3
Swept Path Diagram (Rigid Truck)
Plan prepared by EB Traffic Solutions Pty Ltd