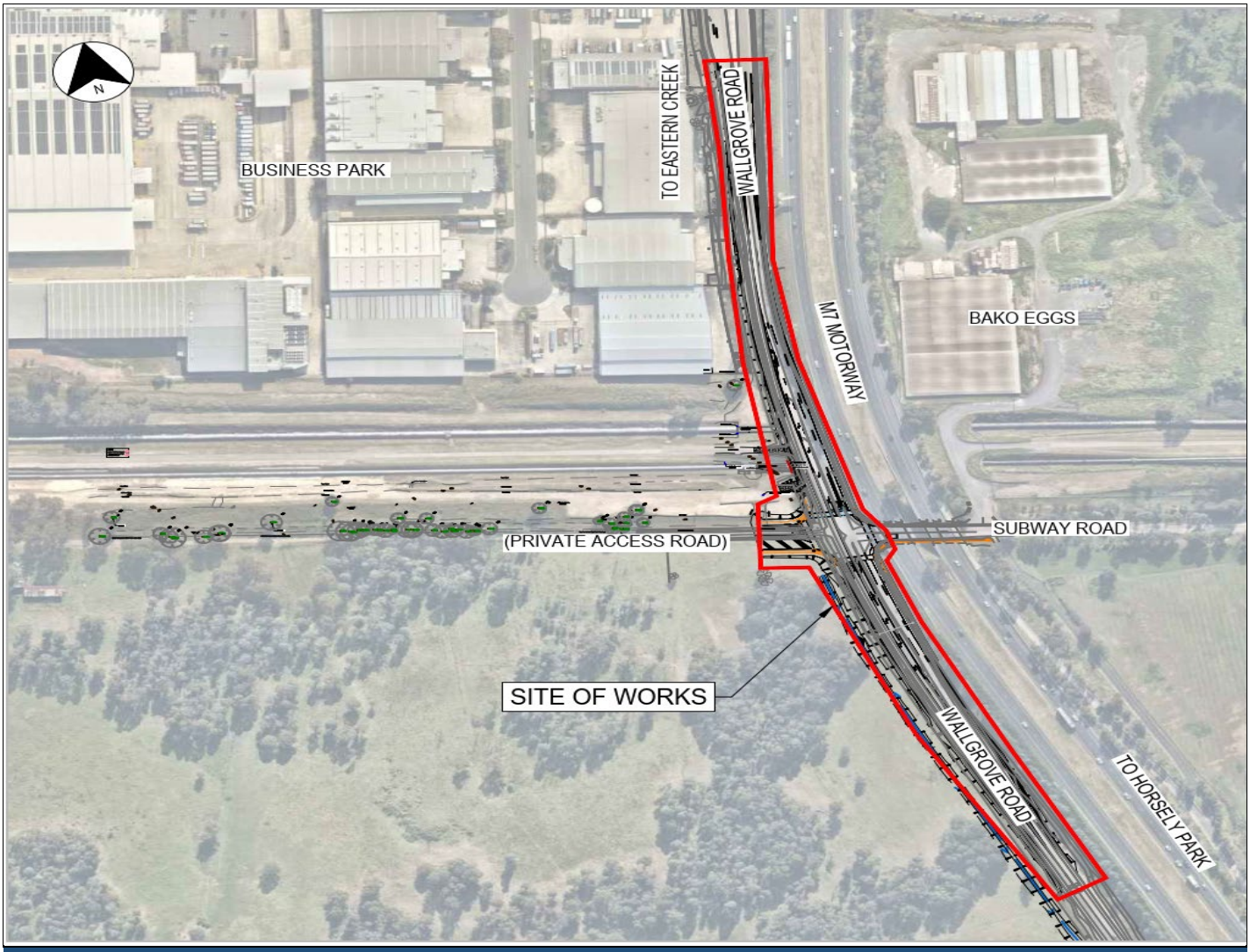
Allied

TRAFFIC MANAGEMENT



Traffic Management Plan

"19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade"

Client: Gazcorp

Date: 26/08/2022

Prepared By: Nass Chami

PWZTMP –0052135507

Revisions

Rev	Date	Descriptions	Prepared By	Approved By
0	05/05/2022	First Submission	Nass Chami	Nass Chami
1	17/05/2022	Added Traffic Count and staging plan	Nibraas Ahmad	Nass Chami
2	27/06/2022	TMC & NW&S Comments	Alex Ruello	Nass Chami
3	08/08/2022	TMC Comments & Bus Stop changes	Alex Ruello	Nass Chami
4	26/08/2022	Updated S2 & S3A	Alex Ruello	Nass Chami

Distribution

Revision	Issue Date	Company	Recipient
0	06/05/2022	TfNSW	Suthes Kumar
0	06/05/2022	Orion Consulting	Joshua Hoh, Mina Fahmy
1	18/05/2022	TfNSW	Suthes Kumar
1	18/05/2022	Orion Consulting	Joshua Hoh, Mina Fahmy
1	18/05/2022	Gazcorp	Tim Sachs
2	27/06/2022	TfNSW	Suthes Kumar
2	27/06/2022	Gazcorp	Tim Sachs
3	08/08/2022	TfNSW	Suthes Kumar
3	08/08/2022	Gazcorp	Tim Sachs, Boris Bobyk
4	26/08/2022	TfNSW	Suthes Kumar
4	26/08/2022	Gazcorp	Tim Sachs, Boris Bobyk
4	26/08/2022	AT&L	Chris Hannibal, Paul Kerry

Amendments

This plan is a “working document” and therefore may be subject to change during the project to continue to provide an efficient and cost-effective means of delivering Project Management. Should a revised plan be generated, there will be a corresponding revision number and summary details noted on the document revision table above. Amendments to this document from the previous issue are highlighted

Table of Contents

List of Tables

List of Figures

1.0 Introduction

1.1 Purpose and Scope

This Construction Traffic Management Plan (CTMP) outlines the traffic control and traffic management procedures to be implemented to manage potential impacts and risks associated with the traffic environment during the upgrade of Wallgrove Road, Horsley Park.

1.2 Objective and Strategies

This CTMP forms part of the overall planning and approval process associated with the project. The purpose of the CTMP is to describe how the delivery contractor Burtons Civil Engineering proposes to manage traffic during the work activities to ensure the safe and efficient movement of traffic around the work area.

A main priority of this project is to minimise disruption to traffic and to ensure all activities undertaken are carried out in a safe manner within the scope permitted by all stakeholder authorities. Key objectives are listed below:

- Implementing traffic control arrangements that maximize safety for workers and public by isolating the work area whilst minimizing delay to road users.
- Planning and staging all work activities to effectively minimize road occupancy and any potential impacts on the road network.
- Seeking approval from key stakeholders including Transport for NSW (TfNSW), Traffic Management Centre (CJM), Fairfield City Council, Blacktown City Council, Emergency Services and local businesses and residents to ensure they are informed about the works and changes to traffic conditions.

To achieve these objectives, it will be necessary to ensure appropriate control measures are implemented during work activities to address all potential traffic impacts and that these control measures comply with regulations and conditions of approval. To meet these objectives the TMP will incorporate the following strategies:

- Ensuring delays are minimised as much as possible.
- Ensuring all road users are managed including motorists, pedestrians, cyclists, vulnerable road- users and people using public transport.
- Ensuring work activities are carried out sequentially to minimize adverse impacts.
- Ensuring appropriate controls are in place to provide a safe construction site for all workers.
- Provision will be made for works personnel to enter the work area in a safe manner in accordance with safety procedures.
- All entry and exit movements to and from traffic streams will be in accordance with the requirements of safe working practices.

Site-specific Traffic Guidance Schemes (TGSs) have been developed and are included in Annexure A These shall identify the traffic control measures to be implemented during the various stages of the project. All proposed arrangements, signage and devices details contained within this TMP and TGSs are in accordance with Australian Standards 1742.3 as well as RMS Traffic Control at Work Sites Manual 6.1 and Specification G10 – Control of Traffic.

2.0 Project Overview

2.1 Project Details

Gazcorp Pty Ltd are undertaking an industrial development between 813 – 913 Wallgrove Road, Horsley Park. A condition of this development is a Developer-funded upgrade of Wallgrove Road managed as a Works Authorisation Deed (WAD). The proposal includes the widening and full depth reconstruction of the existing Wallgrove Road and a new intersection configuration at Subway Road, currently the private access road to multiple businesses on the eastern side of Wallgrove Road.
The proposal includes:

- Full depth reconstruction of the existing Wallgrove Road
- Widening of Wallgrove Road to make create an additional lane in the northbound and southbound direction
- Signalisation of the existing seagull intersection at Subway Road
- Removal of merge / acceleration lanes out of Subway Road heading northbound or southbound
- Construction of a cycle lane on the road pavement
- Utility relocation and adjustments
- Construction of new utility lead-in services from Mini Link Road to the proposed signalised intersection for the internal industrial development
- Provide new Line marking and signage
- Installation of formalised pedestrian crossing facilities and pedestrian paths
- Temporary infrastructure to allow project works including site compounds, sedimentation and erosion control, stockpiling sites and other infrastructure as required. The construction footprint for the proposal would be located entirely within the existing road corridor reserve on land owned by TfNSW. Temporary infrastructure may be located within the road corridor or the internal development.

Burton Civil Engineering has been engaged by Gazcorp to carry out the construction of these upgrades. Burton Contractors have nominated Allied Traffic Control for the associated controls for this project

Table 1 Project Overview

ITEM	DESCRIPTION
Project:	19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade
Road Classification:	State Main Road – MR515
Road Authority:	Transport for New South Wales
Local Government:	Fairfield City Council and Blacktown City Council
Client:	Gazcorp
Principal Contractor:	Burton Civil Engineering
Scope of Works:	• Site establishment • Staged TCS • Barrier placement • Minor enabling works e.g., locating/surveying/potholing/ • Utility adjustments and lead-in works • Road widening and drainage construction • Pedestrian path construction • Milling and re-sheeting • Line Marking and signage • Ultimate TCS and Signalling • Site Demobilisation • Under bore works across WaterNSW pipelines

	• Safety barrier installation • Augering and construction of piers
Project Dates and Duration:	Activities will be undertaken sequentially commencing late June 2022 with targeted completion being mid-2023.
Hours/Days of Work:	• 7am-6pm – Monday to Friday • 8am-1pm – Saturdays • No work on Sundays/Public Holidays • Night work will also be required for various activities onsite & out of hours approvals are required for such shifts.

2.2 Location

The sites proposed work area is situated between Mini Link Road, Eastern Creek & Chandos Street, Horsley Park. The main pavement upgrade works take place between Roussell Road and Chandos Street. Between Subway Road and Mini Link Road, the work is generally restricted to utility works undertaken on short term traffic control.

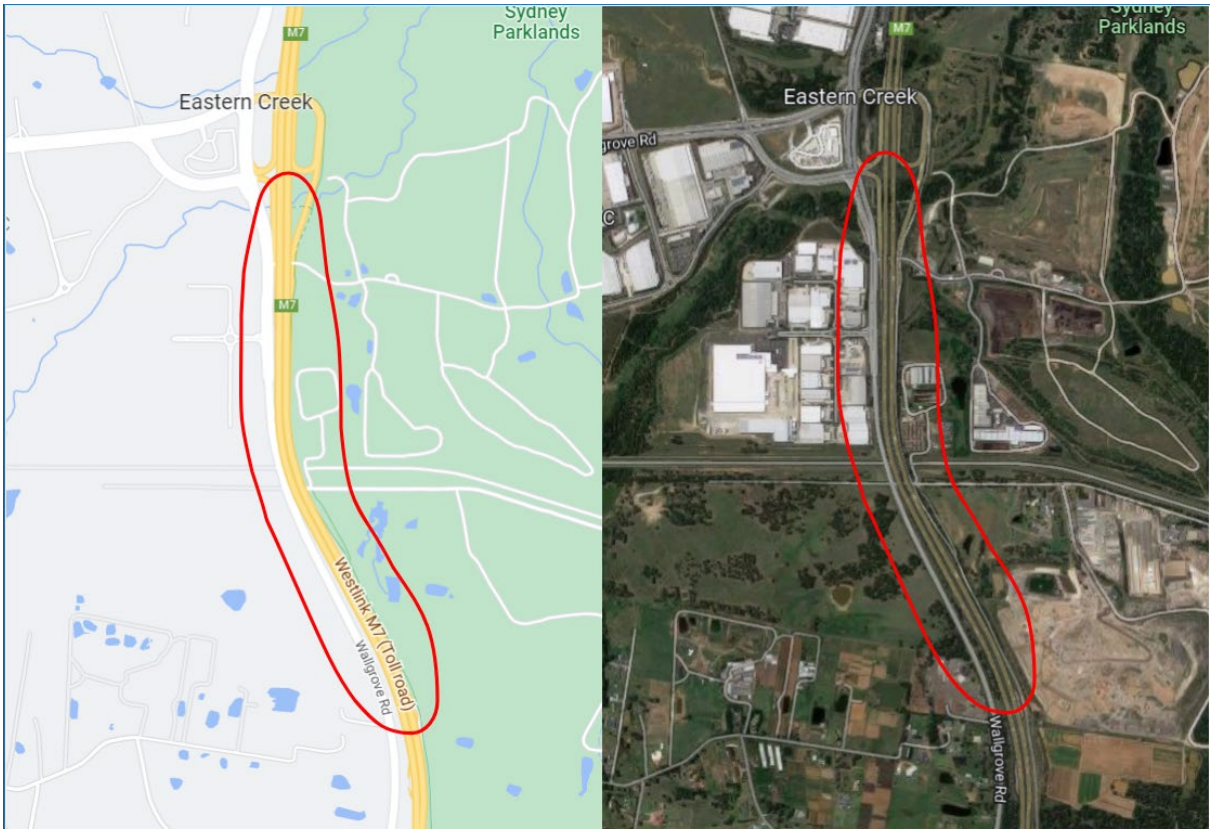


Figure 1 Location Map - Wallgrove Road, Horsley Park

2.3 Project Principal Contractor Representatives

Figure 2 Principal Contractor Representatives

ROLE/ RESPONSIBILITY	COMPANY	NAME	CONTACT NUMBER	CONTACT EMAIL
Project Manager	BURTON Contractors	Alex Ruello	0408 289 903	Alex.Ruello@burtoncontractors.com.au
Project Engineer	BURTON Contractors	Joseph George	0447 064 127	Joseph.George@burtoncontractors.com.au
Project Site Supervisor	BURTON Contractors	Peter Cullen	0418 280 086 (24 Hour Emergency)	Peter.Cullen@burtoncontractors.com.au
Safety Officer	BURTON Contractors	Mark Franklin	0408 117 872	Mark.Franklin@burtoncontractors.com.au
Environmental Representative	BURTON Contractors	Paris Spellson	0419 263 836	Paris.Spellson@burtoncontractors.com.au
Traffic Manager	BURTON Contractors	John Bailey	0447 783 383	John.Bailey@burtoncontractors.com.au
Traffic Management Representative	Allied Traffic Management	Nass Chami	0427 876 539	Nass.c@alliedmanagement.com.au

2.4 Roles and Responsibilities

The Project Manager has the ultimate responsibility to ensure the CTMP is implemented for the prevention of injury and property damage to employees, contractors, sub-contractors, road users and members of the public. The Project Manager will ensure that all site personnel are fully aware of their responsibilities, and that procedures & work practices are followed correctly

2.4.1 Competencies

All persons undertaking these works have a duty of care to themselves, their employees and all site users, to take all reasonable measures to prevent accident or injury.

This CTMP forms part of the overall Work Health and Safety Management Plan, and provides details on how all road users considered likely to pass through, past, or around the work site will be safely and efficiently managed for the full durations of the site occupancy and works.

Burtons Contractors has prepared this CTMP in collaboration with Allied Traffic Control and associated controls for the site. Burtons Contractors will ensure that at all times during working hours, an appropriately accredited traffic control site supervisor will be available as well as ensuring that traffic controllers used on the project are experienced and have completed all prerequisite accredited courses.

2.4.2 Responsibilities

Project Manager/Project Engineer
The Project Manager shall:

- Liaise with TfNSW, and any other authorities for all aspects of the proposed work.
- Ensure all traffic control measures of the TMP are placed and maintained in accordance with this plan and the relevant acts, standards and guidelines.
- Ensure suitable consultation with the affected stakeholders is maintained at all times.
- Arrange and/or undertake any necessary audits and incident investigations.
- Review feedback from various stakeholders and take appropriate corrective actions.

Project Engineer
The Project Engineer shall:

- Review the methodology for the work activities in consultation with subcontractors.
- Approve the commencement of all construction activities at each stage.
- Confirm when works are completed, and the next stage can commence.
- Undertake and submit any required inspection and evaluation reports

Project Site Supervisor:
The Site Supervisor shall:

- Coordinate work crews for all construction activities.
- Coordinate with the traffic control crews during the construction works and consult with the traffic management representative over any corrective action required to unsafe site conditions.
- Coordinate lighting, fencing and temporary amenities during the construction works.
- Instruct workers on the relevant safety standards, including the correct wearing of PPE

Environmental Representative:
The Environmental Representative shall:

- Advise on environmental matters for all construction activities.
- Liaise with the Principal and other relevant authorities on environmental matters.
- Ensure all personnel are aware of their roles and responsibilities in regard to environmental matters.
- Overall responsibility for establishment, management, and maintenance of environmental control measures.
- Ensure environmental risks of works are identified and appropriate mitigation measures are implemented.

Traffic Manager
The Traffic Control Site Supervisor is responsible for overseeing the day-to-day activities, and is therefore responsible for the practical application of the CTMP, and will:

- Hold a current “Prepare Work Zone Traffic Management Plan” qualification and have a minimum 5 years of recent experience in traffic management on road construction site of equivalent complexity to this Project.
- Ensure that the approved traffic management measures are implemented and maintained in accordance with the approved plans.
- Carry out regular inspections of the traffic control measures to ensure that they are effective.
- Amend and update the plan, as required, to ensure that they remain current as the work progresses.
- Identify situations where traffic congestion, or unsafe conditions for vehicles, cyclists, pedestrian and workers, are occurring and providing recommendations for improvement.
- Maintain current copies of the Traffic Management Plan and its various component plans, lane occupancy licenses and speed zone authorisation, and their controlled distribution.
- Keep records of the Traffic Controllers’ qualifications and ensuring that they are current.

- Liaise and facilitate regular meetings with the Principal, other authorities and relevant parties on traffic management matters for the Site, maintain records of these meetings and making them available to the relevant persons;
- In conjunction with Community Relations, undertaking consultation with local businesses and residents.
- Provide induction on the traffic management measures to site personnel.
- Record and report on all traffic incidents.
- Prepare monthly reports on traffic management matters (G10 Clause 4.7.2)

Traffic Controllers

Traffic Controllers shall be used to control road users to avoid conflict with plant, workers, traffic cyclists and pedestrians, and to stop and direct traffic in emergency situations.

Traffic Controllers will:

- Operate in accordance with TCAWS Manual 6.1 and AS1742.3
- Be accredited as a minimum with 'Traffic Controller' and 'Implement TGS' Training.
- Take appropriate breaks as required by AS1742.3 and WHS regulations.

Workers and Subcontractors

Workers and Subcontractors shall:

- Correctly wear all PPE required at all times whilst on the work site.
- Comply with the requirements of the TMP and ensure that no activity is undertaken that will endanger the safety of other workers or the general public.
- Enter and leave the site by approved access points and in accordance with safe work practices.

3.0 Work Activities, Program and Working Hours

3.1 Key Work Activities

The overall civil construction component of the project involves the following activities:

- Site Compound Establishment – a temporary site compound will be required that will include site office building, lunch facilities, storage containers and port-a-loo facilities.
- Work Area Establishment – required advance warning and specific traffic signage will be installed and approved safety barriers installed along proposed work areas in combination with staged traffic signals.
- Service Relocation and Adjustments – Installation of new lead in services and adjustment of existing utilities
- Road Widening – required earth works and construct pavement areas as required including milling and re-surfacing of required areas.
- Site Demobilisation – Upon completion, the site compound would be removed, and the area would be revegetated where required to return the area to its natural state prior to site establishment.

Construction activities shall be carried out progressively with each stage requiring different logic to ensure activities are carried out efficiently whilst minimising impact on traffic / residents / businesses.

3.2 Plant Requirements

Throughout the duration of the project, plant and equipment items that may be used include:

Figure 3 Plant & Equipment Requirements

Plant and Equipment Items	
• Franna Crane or Small Excavator Rig Crane • Truck Mounted Drill Rig • Large Trucks for removal of material • Tippers for delivery & removal of equipment. • Vacuum Trucks • Concrete Trucks/Pumps • Piling Rigs • Concrete Form Work • Large excavator • Pole grab truck	• Paving machines • Profiler • Portable Roller/Compactor • Power Generator • Elevated Work Platforms • Traffic Control Vehicles • Hand Tools & Jack Hammers • Temporary Fencing & Barriers • Permanent and Temporary Signage • Variable Message Boards • Boring machine

3.3 Work Program

The works activities are expected to commence for Burton Contractors from Late June 2022 and be completed Late June 2023. The program of works will be updated regularly throughout the duration of the project to reflect any necessary changes. Planned start date for Burtons Civil Engineering pending all approvals is June 2022. This TMP covers stages 1, 2 and 3A. Additional stages may be required and will be captured in a future revision of this CTMP. All stages proposed in this CTMP are to be undertaken consecutively with no overlap on long term staging.

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Stage 1													
Stage 2													
Stage 3A													
Finishing Works													

3.4 Working Hours

To practically minimise disruption to traffic, it is intended that once the site be established, most activities can take place behind safety barriers. Any activity that requires additional lane closures or impacts on Wallgrove Road will take place outside of clearway peak times and under specific occupancy hours as per the approved ROLs.

In general, the proposed working hours will be as follows:

- 7am-6pm Monday to Friday and 8am-1pm Saturdays
- No work on Sundays/Public Holidays
- Night work will also be required for site set -up, demobilisation, utility works between Subway Road and Mini Link Road and various activities onsite & major works periods where trafficable lanes will be impacted. This will be as per approved out of hours & ROL times.

4.0 Traffic Management Methodology

4.1 Existing Traffic Assessment

The proposed site can be considered as 2 halves detailed below:

The Northern portion of the site, between Subway Road & Roussell Road toward Mini Link Road features only utility adjustment work that will primarily be undertaken on night shifts with temporary traffic control.

The Southern portion of the site, between Subway Road & Roussell Road towards Chandos Street features the road reconstruction and signalisation works. These works will be completed with a combination of short-term traffic control works and long-term traffic staging with safety barriers. The road reconstruction works is centred on the Subway Road intersection.

For the Southern portion of the site, Wallgrove Road is a two-lane road with one lane in each direction and merge and turn lanes on the approaches to subway road (M7 underpass). There are no footpaths or cycleways located within the limit of works

The existing speed limit along Wallgrove Road is 70 kilometres per hour. Local roads intersecting the proposal have a speed limit of 50 kilometres per hour. Wallgrove road does not operate under clearway conditions.

4.1.1 Northern Portion - Mini Link Road to Roussell Road

For the Northern portion of the site, Wallgrove Road is a four-lane road with two lanes in each direction with the Roussell Road intersection providing turning lanes from each approach. There are no footpaths within this portion of the site. Partial cycleway access is provided on Wallgrove Road between Mini Link Road to Roussell Road. Established trees and planting with protective fencing are located along the vegetation strips on both carriageways.

The southbound carriageway sits adjacent to the M7 and the northbound carriageway sits adjacent to a private industrial estate.

The lane configurations at Wallgrove Road between Mini link road to Roussell are:

Northbound

- Two lanes split in to 4 lanes
- Two right turn lanes in to M7
- Two straight through lanes
- One left turn lane in to Mini Link Road
- Sealed shoulders up to 2m wide

Southbound

- Two lanes with one merge lane
- One right turn lane in to private road at M7 underpass
- Sealed shoulders up to 2m wide

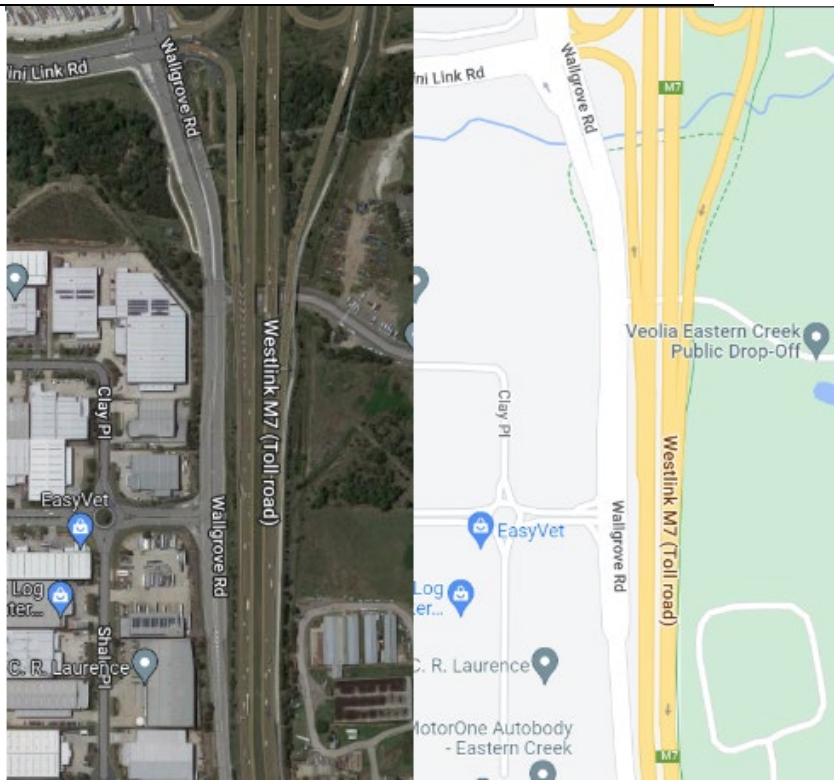


Figure 4 Northern Portion of Site

4.1.2 Roussell Road to Chandos Street – Southern Portion

No cycleway or footpath access is provided on Wallgrove Road between Roussell Road to Chandos Street. Established trees with protective fencing to private property are located behind mostly rural / security fencing along the Northbound carriageway. The southbound carriageway mainly consisting of established trees. The southbound carriageway sits adjacent to the M7 and the northbound carriageway sits adjacent to private residential land and the WaterNSW Warragamba pipeline corridor.

The lane configuration at Wallgrove Road between Roussell Road to Chandos Street are:

Northbound

- One lane to two lane at Subway Road intersection
- Right turn lane on approach
- Merge lane on exit
- Sealed shoulders up to 2m wide

Southbound

- Two lanes to one lane from Subway Road intersection
- Merge lane on exit
- One lane through remainder of carriageway
- Sealed shoulders up to 2m wide

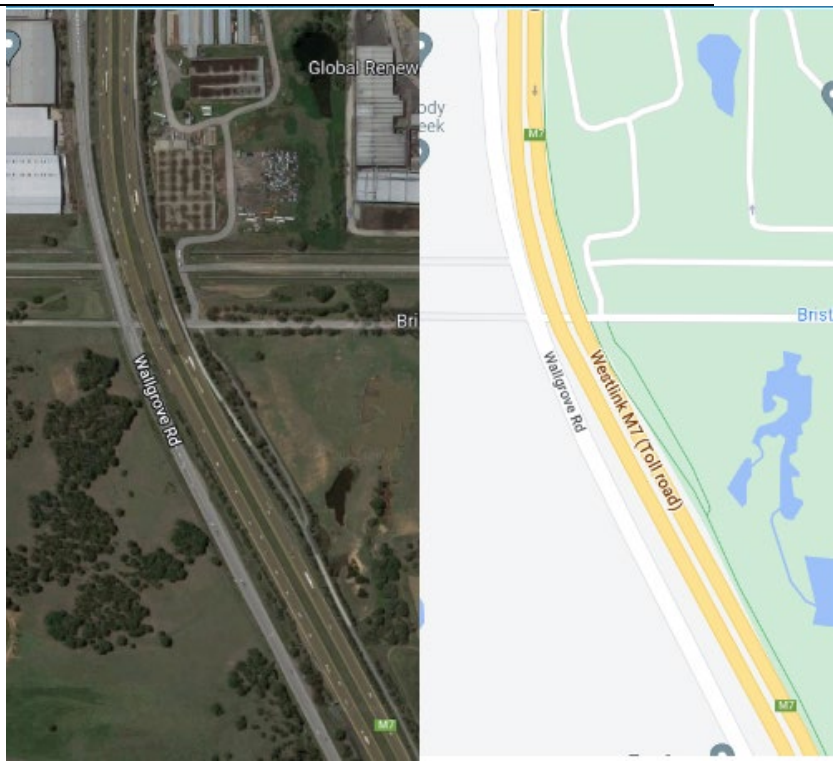


Figure 5 Southern Portion of Site

4.2 Traffic Crash Statistics

A review of the TfNSW Centre for Road safety was conducted, and details shown below. In the data available between 2016 – 2021 it is shown that there have been few crashes in the area on Wallgrove Road. The majority of crashes accounted for take place on the M7 Motorway.

The Northern portion of the site falls under Blacktown LGA while the Southern portion of the site is covered by the Fairfield LGA.

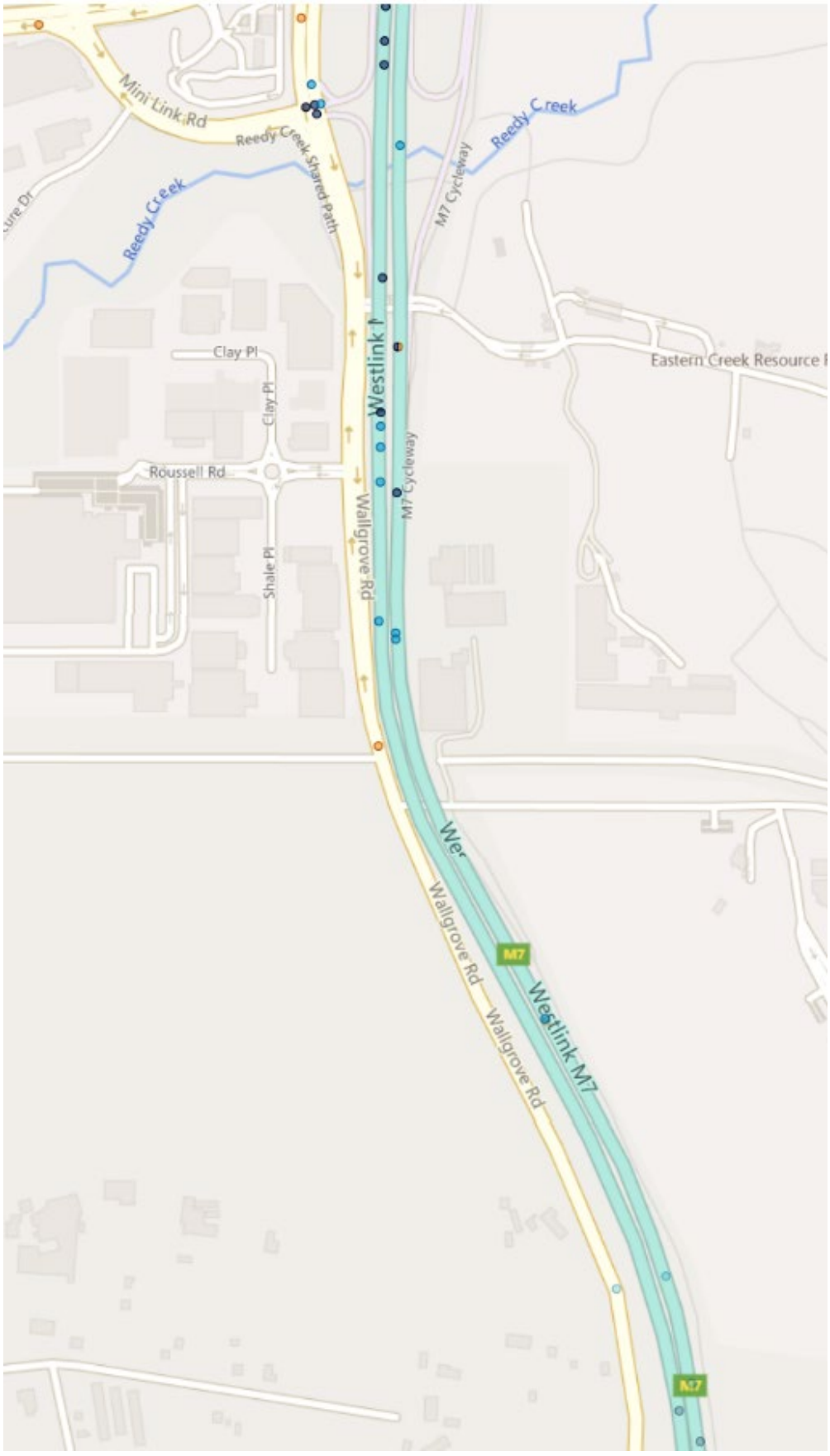


Figure 6 Combined Crash Statistics from Blacktown and Fairfield LGAs

4.3 Traffic Staging

Due to the existing speed limit being 70km/h along most of the work's alignment it is requested that a 60km/h work area speed limit be installed along the entire southern portion. Table 4-8 of the TCAWS 6.1 manual states that the speed limit must be reduced to 60km/h where:

There is frequent interaction between work vehicles and through traffic;

There is a reduced standard of alignment due to the works

This results in an overall 60km/h work area speed restriction of approximately 1.0km in length, as such repeater signs are required, and Roadwork speed limits enforced should also be erected.

As the project is primarily a full depth and full width road construction, there are very little differences between the existing and proposed pavement levels. Any interface between new and existing pavement where there is a difference of levels is to occur gradually, smoothly, and safely. Grades of ramps (where required at interfaces) are to be in accordance with the grades and tolerances of the R101 specification for safe public travel

Stage 1 – Roadworks along Northern Verge & carriageway

Item	Existing	Proposed Stage 1
Intersection	Seagull priority intersection with merge lanes	Staged TCS design to mimic ultimate design - no merge lanes
Lane Widths	Generally 3.5m wide	Generally 3.5m wide. Slight narrowing northbound approaching the intersection and local widening where required for truck turning paths
Barriers	Nil	Precast Type F concrete barrier or steel safety barriers with 0.3m offset to line marking with TfNSW approved end treatments
Speed Limit	70km/h	60km/h
Northbound turn lane into Subway Road	Length = 110m	Length = 85m
Southbound turn lane into Subway Road	Length = 126m	Removed. Traffic survey shows limited usage of this turning lane.
Truck access	26m B Double in all directions	26m B Double in all directions except for left out of Subway Road onto Wallgrove Road. This has been reduced to 19m Semi Trailers
Deceleration lane	None present	Length = 120m
Northbound lanes	1 lane	1 lane
Southbound lanes	1 lane	1 lane

Stage 2 – Roadworks in median

Item	Existing	Proposed Stage 2
Intersection	Seagull priority intersection with merge lanes	Staged TCS design to mimic ultimate design - no merge lanes
Lane Widths	Generally 3.5m wide	Generally 3.5m wide. Slight narrowing northbound approaching the intersection and local widening where required for truck turning paths
Barriers	Nil	Precast Type F concrete barrier or steel safety barriers with 0.3m offset to line marking with TfNSW approved end treatments

Speed Limit	70km/h	60km/h
Northbound turn lane into Subway Road	Length = 110m	Length = 95m
Southbound turn lane into Subway Road	Length = 126m	Removed. Traffic survey shows limited usage of this turning lane.
Truck access	26m B Double in all directions	26m B Double in all directions except for left out of Subway Road onto Wallgrove Road. This has been reduced to 19m Semi Trailers
Deceleration lane (internal development access)	None present	Length = 120m
Northbound lanes	1 lane	1 lane
Southbound lanes	1 lane	1 lane

Stage 3A – Roadworks in Southbound carriageway

Item	Existing	Proposed Stage 3A
Intersection	Seagull priority intersection with merge lanes	Staged TCS design to mimic ultimate design - no merge lanes
Lane Widths	Generally 3.5m wide	Generally 3.5m wide. Slight narrowing northbound approaching the intersection and local widening where required for truck turning paths
Barriers	Nil	Precast Type F concrete barrier or steel safety barriers with 0.3m offset to line marking with TfNSW approved end treatments
Speed Limit	70km/h	60km/h
Northbound turn lane into Subway Road	Length = 110m	Length = 95m
Southbound turn lane into Subway Road	Length = 126m	Removed. Traffic survey shows limited usage of this turning lane.
Truck access	26m B Double in all directions	26m B Double in all directions except for left out of Subway Road onto Wallgrove Road. This has been reduced to 19m Semi Trailers
Deceleration lane (internal development access)	None present	Length = 120m
Northbound lanes	1 lane	1 lane
Southbound lanes	1 lane	1 lane

4.4 Risks, Impacts and Mitigation Measures

This CTMP applies to all parts of the construction works. The scope includes:

- The provision for the safe movement of public traffic
- The protection of workers from passing traffic
- The provision for access to properties located within the vicinity of the works
- The provision of traffic controllers and safe operating locations
- The installation of any temporary signs, road markings, lighting and safety barriers
- The on-site management of construction traffic at the work site

Mitigation and control measures will be implemented to avoid, minimise or manage impacts on traffic and cyclists. A summary of the key areas of potential impact and the proposed measures to reduce these impacts are discussed in the following pages. These include the following:

- Traffic Volumes and Road Network Capacity
- Site Access for Construction Vehicles
- Cumulative Impacts on Adjoining Road Network
- CCTV Cameras and Gantry Mounted VMS
- Parking and Property Access
- Public Transport
- Heavy and Oversize Vehicles
- Emergency Vehicle Access
- Pedestrians and Cyclist Access
- School Zones
- Waste Collection
- Special Events

During the work hours, whilst traffic control is in place, appropriate and adequate signage and authorised personnel will be in place at all times to ensure the safe movement of traffic, cyclists around the work area. At the end of each shift, any temporary or inappropriate signage and devices will be removed, and the road returned to out of hour's operations as per the approved TGS.

4.4.1 Traffic Volumes and Road Network Capacity

Traffic volumes of the road system were derived from average daily traffic volumes (ADT) counts, obtained from RMS and surveys undertaken for the Old Wallgrove Road Upgrade Traffic and Transport Report. Classified link counts were conducted at the following locations;

- Wallgrove Road – Between M4 Motorway and interchange Drive (North and Southbound)
- Wallgrove Road – Between the Eastern Creek Waste Management Centre access road and the Sydney Water Pipeline (North and Southbound)
- M7 Motorway – North and Southbound.

A summary of traffic volume data is detailed below:

Location	ADT
M7 Motorway – North and Southbound	68,400
Wallgrove Road – Between M4 Motorway and Interchange Drive (North and Southbound)	30,600
Wallgrove Road – Between the Eastern Creek Waste Management Centre access road and the Sydney Water Pipeline (North and Southbound)	23,900

Table 2 Combined Volume Summary

Burton undertook a traffic survey on Thursday 12/05/22 to count the amount of southbound travelling vehicles that enter Subway Road. The results of the survey are below:

Road	Location	Direction	Peak	Total Vehicles	HCVs*
Wallgrove Road	Entering Subway Road	Southbound	AM (0800 - 0900)	23	70%
			PM (1700-1800)	0	0%

Table 3 Traffic Survey Results 12/05/22

The results of the survey show that very few vehicles travelling southbound access Subway Road. Based on these low numbers, the traffic staging design does not make allowance for a dedicated southbound turning lane into Subway Road.

As part of the overall assessment of the area construction vehicles will only be permitted to access areas including the proposed site compounds by left in and left out only, in a forward motion only.

Table 6 Existing Intersection Operations (2013)

Intersection	AM Peak				PM Peak			
	Average Delay	LoS	Control Type	Degree of Saturation	Average Delay*	LoS	Control Type	Degree of Saturation
Wallgrove Rd and Austral Bricks Access Rd	122	F	Priority	0.65	81	F	Priority	0.58

*Note: * Average delay is given in seconds per vehicle.*

Figure 7 - Level of Service for the existing intersection

A traffic impact assessment was undertaken by GHD for the consent of the internal development. The results are provided in the above figure. The results show that the existing intersection is operating at an 'F' level of service, which is the lowest criteria level for average vehicle delay. Removal of the dedicated left turn lane is not going to reduce the level of service of the intersection, as it currently operates at the lowest level already. It is important to note that all businesses other than Austral Bricks and Veolia no longer operate on Wallgrove Road. The Horsley Park Landfill (Veolia) has also ceased all future tipping at its site as it is now at capacity, which further reduces the number of vehicles required to access Subway Road from Wallgrove Road.

4.4.2 Site Access for Construction Vehicles

It is noted that there is currently no intersection access to the Gazcorp Site. There is an existing gated access into the Gazcorp site which is opposite the existing Austral Bricks Access Road (Future Subway Road). The Austral bricks access road is a two-lane two-way access road that connects Wallgrove Road with a number of industrial lots on the eastern side of the Westlink M7 and connects to Wallgrove Road at a priority intersection.

It is important to note that Gazcorp will be undertaking the internal development to the West of Wallgrove Road during the same period that Burton Contractors will be upgrade Wallgrove Road. The internal development will be undertaken by Cherrie Civil. This CTMP covers the site access for construction vehicles for both projects.

Any construction vehicles required to move around the construction site on a regular basis and throughout the works and will not be permitted to queue or park within the surrounding streets or work area unless permitted. The arrival of trucks will be staggered to prevent the possibility of queuing of trucks at any time. During mobilisation and de-mobilisation trucks will be able to queue in staged lane closures.

Dedicated construction vehicle routes will be developed with the objective of providing the shortest and safest distance to/from the work site. Truck movements to and from site shall be restricted to these designated routes and movements to ensure minimal impact on local streets within the vicinity of the site. These truck routes will need to be reviewed if there are any changes to traffic conditions. Access points and procedures shall be identified and clearly communicated to all drivers and suppliers prior to arriving to site. Information on the approved access routes and locations for all construction vehicles shall be provided through onsite toolbox talks, pre-start meetings and project inductions prior to work commencing. All work vehicles shall:

- Enter and leave site left in and left out in a forward direction using an approved VMP.
- Decelerate slowly and signal their intention by indicator to leave the traffic stream.
- Activate the vehicles rotating beacon on approach to and departure from work site.
- Wait until there is a gap in traffic before leaving the construction site or until given clearance by traffic controllers to exit the work area.
- Radio ahead to advise of approach to ensure work site space is available.
- Not obstruct any pedestrian crossings or footpaths
- Not obstruct trafficable lanes without an approved ROL

Traffic controllers must not stop general traffic to allow construction vehicles to enter or exit the work zone without an approved ROL

As part of the overall assessment of the area construction vehicles will only be permitted to access areas including the proposed site compounds by left in and left out only, in a forward motion only.

4.4.2.1 Burton Contractors

Expected traffic movements as a result of construction for Wallgrove Road is expected to be Twenty-Five (25) vehicle movements on an average day. This quantity will primarily consist of cars, truck and dogs, semi-trailers and truck floats. Burtons will endeavor to minimise the impact of these movements by planning works requiring multiple movements as well as deliveries to be between 10am to 3pm, outside of peak traffic periods along Wallgrove Road.

It is also noted that no Construction vehicles should obstruct any pedestrian crossings or footpaths, and no construction vehicles should layover/obstruct trafficable lanes without an approved ROL. Construction gate access will be as per construction staging drawing. In addition, no traffic controllers should stop general traffic to allow construction vehicles to enter or exit, without any approved ROL's.

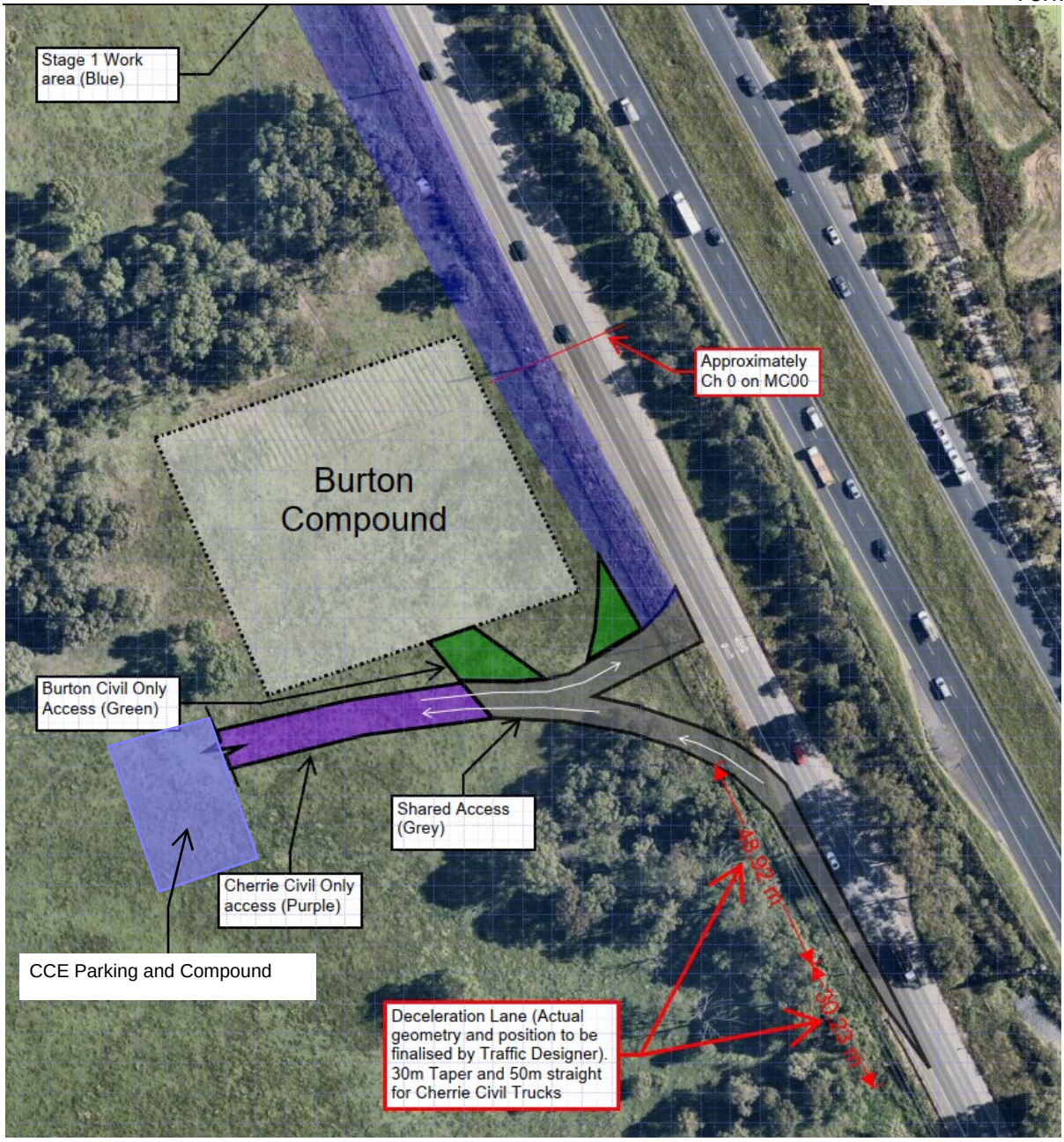
4.4.2.2 Cherrie Civil

The expected increase in traffic movements because of the internal development is expected to be Sixty (60) vehicle movements on an average day. This quantity will primarily consist of Truck & Dogs. All construction traffic for the internal development will access the site through the provision of a deceleration lane on entry and give-way exit back onto Wallgrove Road. This deceleration will also service Burton Contractors construction vehicles in a reduced capacity. Provided below is an example of the deceleration lane for this project.

The above vehicle movements and volumes are consistent with the detailed and traffic volumes provided for MOD 1, below:

Attachment 1

	6am-7am	7am-8am	8am-9am	9am-10am	10am-11am	11am-12pm	12pm-1pm	1pm-2pm	2pm-3pm	3pm-4pm	4pm-5pm	5pm-6pm	Total
Light Vehicles Inbound	15											15	20 vehicles (40 vehicle movements)
Light Vehicles Outbound							5	5					
Heavy Vehicles Inbound		3	3	3	3	3	3	3	3	3	3		30 vehicles (60 vehicle movements)
Heavy Vehicles Outbound		3	3	3	3	3	3	3	3	3	3		



4.4.3 Cumulative Impacts on Adjoining Road Network

Assessment shows that there are no ongoing road works that may cause a cumulative impact or potential clashes with other construction activities in this area. It is still vital that close liaison is maintained with the project team and CJM to ensure upcoming closures do not conflict with any other works that may be planned during the life of the project. Furthermore, because the most disruptive construction activities associated with these works are planned for night hours for installation and removal of the site set-up, and milling and re-sheeting it is not anticipated that there would be any adverse impact to the surrounding road network beyond some minor delays during these work periods.

4.4.4 CCTV Cameras and Traffic Gantry Mounted VMS

There are no existing CCTV cameras or gantry mounted VMS assets operated by CJM or TfNSW within the southern portion of the project upgrade, where long-term traffic changes are required.

There are no existing CCTV cameras or gantry mounted VMS assets operated by CJM or TfNSW within the northern portion the project (Roussell Road intersection), where short-term traffic changes are required.

During the works in the northern portion, there is potential to disturb the traffic signal detectors at the Roussell Road intersection while undertaking the utility works. Burton will contact the SRAP contractor and seek approval of any disturbance prior to enacting the works. Further to this, any disturbed detectors will be replaced at the earliest practical time, maintaining constant communication with the SRAP contractor.

4.4.5 Parking and Property Access

Parking will be located within the internal development accessed through the deceleration lane.

Property access to all properties will be maintained at all times. Early consultation with any impacts entities will occur in advance of any planned disruptions during the different stages of construction. There are no forecasted changes to existing parking facilities or property access during the works, including the unhindered movement of authorised vehicles to the Warragamba to Prospect Pipeline.

4.4.6 Public Transport

In accordance with the G10 consultation with the local bus companies will take place every 2 months as a minimum and provide an update of upcoming traffic switches or events that will affect the current bus pickup points and bus timetables

Bus route numbers 738 and 835 pass through the proposal travelling in both north bound and south bound directions. These buses are operated by Busways (738) and Transit Systems (835). The below figures illustrate the routes through and around the proposal. There are 2 x bus stops within the southern portion that will be affected during the works. The Northbound bus stop is Stop ID 576623 and the Southbound bus stop is Stop ID 276622.

Burton consulted with both bus companies about the proposed changes provided overleaf. Burton has received approval from Busways (Route 738) for the long-term closure of both stops. Transit Systems (Route 835) requested that the bus stops be temporarily relocated. Burton engaged with both Transit Systems and TfNSW for the alternative temporary bus stop locations and received approval for the alternative locations proposed in this CTMP. A copy of alternative stop location plans has been provided in Annexure L.

The alternative Northbound bus stop (Stop #4 in Annexure L and referred to in Transit Systems approval) is to be located inside the left-hand turn lane on approach to the Roussell Road intersection. This allows for busses to stop without impacting through traffic and provides for a shorter pedestrian journey to the industrial estate for patrons.

The alternative Southbound bus stop (Stop #1 in Annexure L and referred to in Transit Systems approval) is to be located on approach to the Roussel Road intersection in the locally widened road pavement. This allows for busses to stop without impacting through traffic, provides a concrete path at the intersection for patrons and features controlled pedestrian crossing at the lights to gain safe access to the industrial estate.

The alternative bus stop locations are also included in the Annexure C staging plans.

Any proposed changes to the operation of bus stops are to be notified to the affected operators. These communications are to be forwarded to the CJM. Any temporary bus stops proposed should have the same setup as the existing bus stop that is being replaced and be approved by the operators servicing the stop.

The project is not near any railway stations.

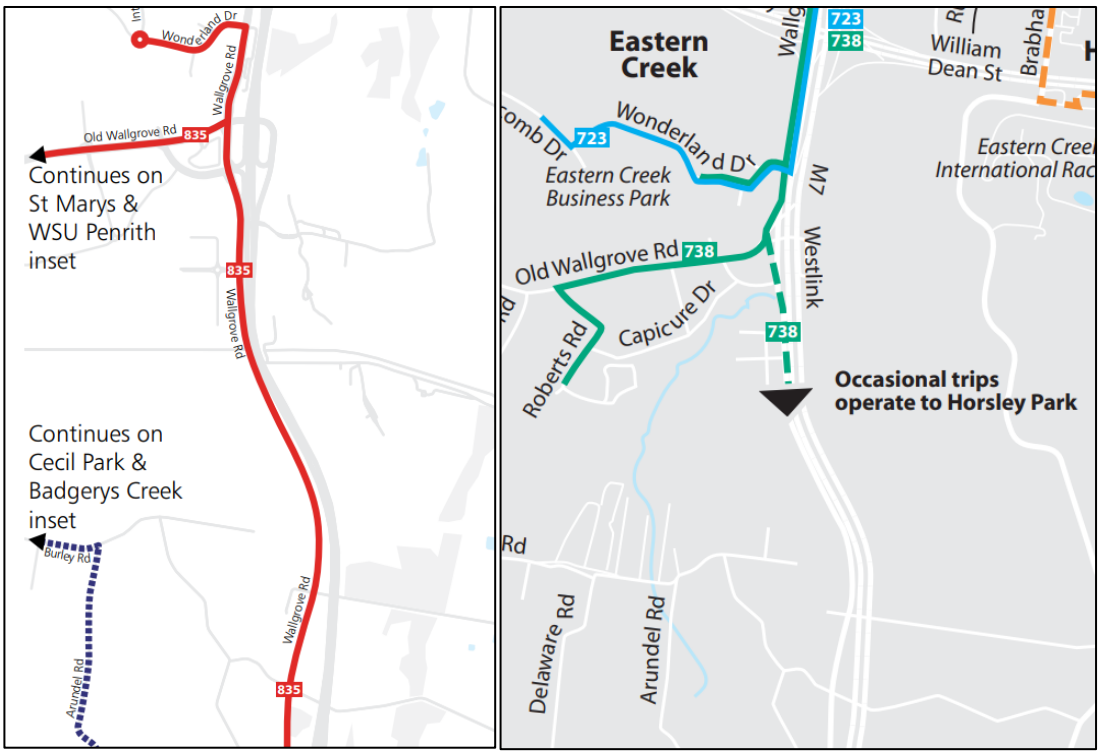


Figure 8 Transit Systems and Busways Route Maps

Re: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Reply | Reply All | Forward

SG Steve Grady <sgrady@busways.com.au>

To Alex Ruello; Nick Veljanovski; 'michael.takla@transitsystems.com.au'

Thu 21/07/2022 5:04 PM

You replied to this message on 25/07/2022 12:49 PM.
If there are problems with how this message is displayed, click here to view it in a web browser.

Hi Alex,

There's no issues from Busways.

Regards,
Steve Grady
Planning & Infrastructure Supervisor - Region 1
Busways Group
0438 537 903

From: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>
Sent: Thursday, July 21, 2022 5:02:32 PM
To: Steve Grady <sgrady@busways.com.au>; Nick Veljanovski <NVeljanovski@transitsystems.com.au>; 'michael.takla@transitsystems.com.au' <michael.takla@transitsystems.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Nick, Michael & Steve,

We have previously contacted each of you regarding the closure of the Northbound bus stop on Wallgrove Road for bus services 738 and 835 as per the below email thread. This is for stop ID 276623. FYI we haven't started the works yet and hence there has been no closure of the stop. We of course will provide notification in advance of the closure. It seems to have slipped through our fingers, but we should have also requested the long term closure of the southbound bus stop ID 276622

Can you please advise if there are any issues with the long term closure of this bus stop in parallel with the already approved stop closure for stop ID 276623?

Would appreciate a fast response

Figure 9 Busways acceptance of long-term closure

RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Reply | Reply All | Forward

HS Hannah Shilling <HShilling@transitsystems.com.au>

To Alex Ruello; Suthes Kumar

Cc Joseph George; BusApproval@transport.nsw.gov.au; Steve Grady; Adrian Prichard; Joseph Aouad

Mon 1/08/2022 10:44 AM

You replied to this message on 1/08/2022 11:09 AM.

Good Morning Alex,

We just went out with a bus to test whether the draw in bay southbound would be appropriate for a bus.

Thankfully the bus just fit, so we are happy to use the locations of stops 1 and 4 as the alternate stops.

Can you please arrange for Bus Zone signage to be installed?

Also can you please advise the start date of the change, once known.

Thanks.

Kind Regards,

Hannah Shilling
Network Project Planner

T: 02 8778 5853
A: Lot 2 Airfield Drive, Len Waters Estate NSW 2171
E: hshilling@transitsystems.com.au

I acknowledge the traditional owners of the land on which we live and work, and pay my respects to elders past, present and emerging.

TRANSIT SYSTEMS

Transit Systems NSW Reconciliation Action Plan
Artwork by Allan McKenzie, Gamilaroi / Wiradjuri Man

Figure 10 Transit Systems acceptance of proposed bus stop relocations

RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Reply | Reply All | Forward

SK Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
To Alex Ruello; Hannah Shilling
Cc Joseph George; Bus Approval; Steve Grady; Adrian Prichard; Joseph Aouad

Fri 5/08/2022 6:19 PM

Hi Alex,

TfNSW has no objection to the proposed temporary relocation of the bus stops. Please update the TMP to reflect these changes.

Regards
Suthes Kumar
Project–Contract Manager
Developer Works
Greater Sydney
Transport for NSW

M: 0408 655 528 **E:** Suthes.Kumar@transport.nsw.gov.au

transport.nsw.gov.au

129a Orchardleigh Street
Yennora NSW 2161

NSW GOVERNMENT Transport for NSW

I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

Please consider the environment before printing this email.

From: Alex Ruello [mailto:Alex.Ruello@burtoncontractors.com.au]
Sent: Monday, 1 August 2022 11:10 AM
To: Hannah Shilling <hshilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; Bus Approval <BusApproval@transport.nsw.gov.au>; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <aprichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Thanks for that Hannah,

Before we make the changes we will need to have some sort of approval from Transport & TMC.

Suthes – as soon as you are able, can you please advise if stops #1 and #4 are okay for Transport & TMC? If so, our revised TMP will be updated to reflect the changes.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

Figure 11 TfNSW acceptance of proposed bus stop relocations

4.4.7 Heavy and Oversized Vehicles

Wallgrove Road is an RAV road with access for 25/26m B-doubles. For this reason, heavy and oversize vehicles are expected frequently along the route and consideration must be given to the type of heavy vehicles to ensure that safe passageway and lane widths are maintained at all times past each work area and through the work site.

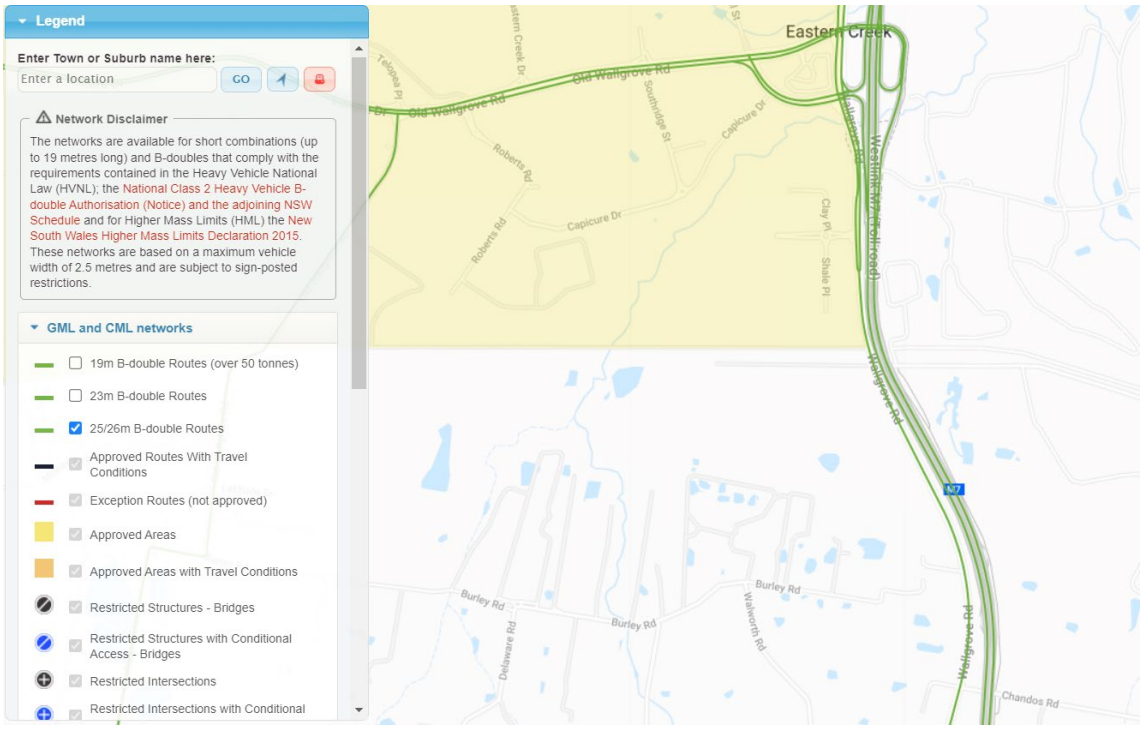


Figure 12 Restricted Access Vehicle Map (RAV) - Project Area

4.4.8 Emergency Vehicle Access

In accordance with the G10 consultation with all emergency services including fire and rescue, ambulance, police and SES, will be advised prior to the commencement of any road works and provisions made to ensure access through or past the work area is maintained at all times. Regular updates will be provided on the staging and progress of the works.

At all times when employees are on site, the site supervisor will take whatever action is practical to assist emergency vehicles, tow trucks and service vehicles to gain access to crash or vehicle breakdown sites which are causing or have the potential to cause an obstruction to traffic flow or imperil the safety of road users.

Should there be a vehicle breakdown outside of working hours when the site is unattended, the Burton emergency response number in section 2.3 is available and can contact emergency services or the 24 hour tow truck services listed in section 6.1.

4.4.9 Pedestrian and Cyclists

The Southern portion of the site has no existing dedicated pedestrian or cyclist facilities, where long term changes are required. Cycleway Finder reports that Wallgrove Road is considered “Hard Difficulty”

The Northern portion of the site features an existing cycle lane on the road pavement where short term traffic changes are required. Cycleway Finder reports that this section of Wallgrove Road is also considered “Hard Difficulty”

The M7 Motorway features a separate, continuous cycleway that runs adjacent to the eastern side of the

motorway. Access to this cycleway will not be impacted by the works. This cycleway, while outside the limit of works, provides entry / exit access at each cross road or over/underpass that the M7 intersects.

All existing pedestrian crossings, cycle ways and footpaths would be maintained for the duration of the construction period. There is potential for some footpath impacts to occur during construction. If footpaths are impacted, alternative paths would be established to ensure safe passage of pedestrians through the proposal area. Required pedestrian management plans would be submitted via the hold point process as required prior to any alterations.

That said, within the work site, provision will still be made to ensure that a safe route is provided at all times for cyclists and any pedestrians around the work area. The impacts on cyclist movement as a result of these works have been assessed and taken into consideration when developing TGSs including that:

- Suitable warning signage will be provided to maintain cyclist safety.
- Temporary diversions will be adequately delineated.
- Where it is necessary to fully close the cycle way or crossing, suitable and safe diversion points shall be established and if necessary, temporary ramps installed. These shall be returned to normal operations outside of construction hours and left free of debris and trip hazards.
- Site gates will be closed and locked when not in use to prevent unauthorized access.
- When movements of plant are expected through any gates then authorized traffic controllers will be in position to monitor and manage conflicting movements.

Cyclists and pedestrians will be detoured around the works where the 0.3m edge clearance will be implemented. Cyclists and pedestrians will be detoured onto the M7 cycleway. Any detours in place are to have:

- A clear route free of trip hazards at all times,
- Delineation, separating the detour from the works at all times,
- Sufficient lighting,
- Wheelchair compliant widths and ramps,
- Sufficient sight distances for vehicles and pedestrians,
- Be accessible at all times and to all pedestrian push buttons.

Refer to Annexure A for the cycleway detour TGS proposed.

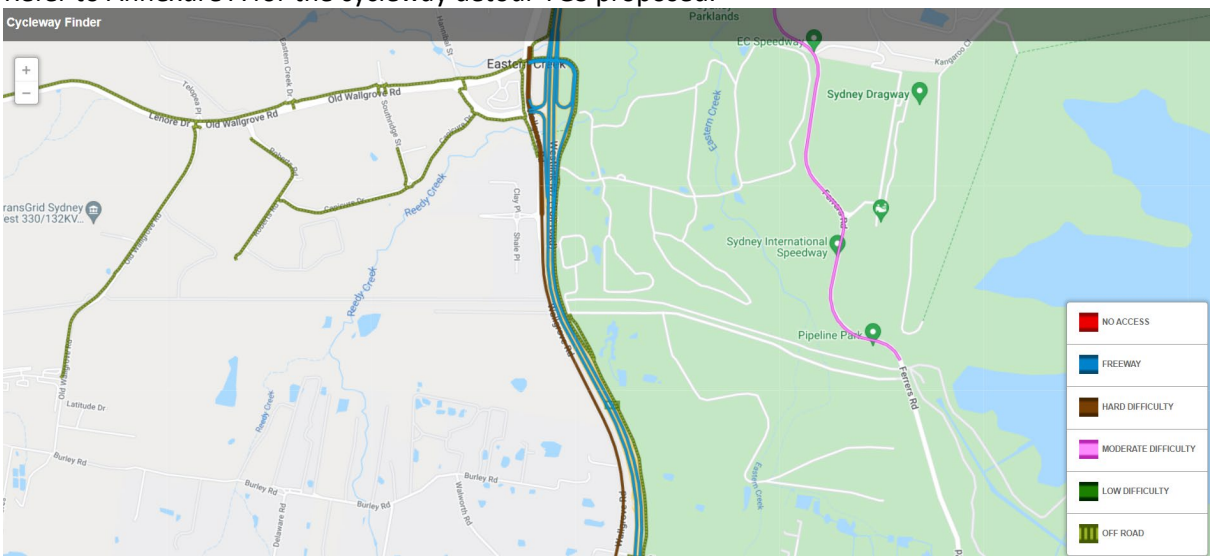


Figure 13 Bicycle Network Map - Wallgrove Road

4.4.10 School Zones

There are currently no school zones on Wallgrove Road within or near the vicinity of the project site.

4.4.11 Waste Collection

Blacktown council and Fairfield council are responsible for waste collection around the job site. Construction activities will not have a direct impact on waste collection services, including property access and kerb side collection; however, consultation is still required to ensure sufficient access if required remains in place for the duration of the project.

4.4.12 Special Events

Assessment shows that there are no planned special events that will impact the construction program. Any special events at:

- Commbank Stadium, Paramatta,
- Sydney Olympic Park Homebush and
- Blue Bet Stadium Penrith

Should be taken into consideration when planning any network disruption along the Wallgrove Road corridor.

Any planned M7 maintenance closures will direct traffic onto Wallgrove Road as the alternate route. Network disruptions during the closure may not be permitted.

4.4.13 Subway Road Businesses

Through community consultation we have identified that there are currently only 2 businesses that operate out of Subway Road: Veolia Waste Management and Austral Bricks. Other businesses that appear to operate out of Subway Road such as Bristille roofing, Bako Eggs and M Damjanovic have been confirmed to no longer operate out of Subway Road. We have engaged Veolia and Austral Bricks and have gained their approval for the proposed vehicle turn path restrictions. B-Double truck movements will be retained in all directions except for left out of Subway onto Wallgrove Road. This has been reduced to a 19m semi-truck and is reflect on the staged TCS plans. Refer to Annexure F for copies of correspondence with the businesses written approval of the proposed changes.

4.5 Traffic Management Implementation

4.5.1 Traffic Guidance Schemes

Site-specific Traffic Guidance Schemes (TGSs) will be developed for the various stages of the project and detail the work site location, signage to be installed, and any other changes to traffic conditions. Approach and departure signage, localized exclusion zones, diversions and traffic control devices shall be prepared in accordance with TCAWS 6.1 and AS1742.3 for all activities.
These TGSs shall cover various activities and include the following considerations:

- Construction vehicles activity, including loading and unloading of trucks within the site.
- Accredited Traffic Controllers provided to manage vehicle movements past the work area.
- When used Traffic Controllers having safe escape routes and sufficient visibility through the use of light towers/day makers during any night work.
- Additional warning signage and VMS for vehicles at site access points to alert them to the presence of construction traffic; to warn drivers of changes to the usual road conditions and to slow drivers on the approach to the work area.
- Having clear definition of the work site boundary through the erection of barriers around site boundaries adjacent to roads.

4.5.2 Road Occupancy License (ROL)

A Road Occupancy License (ROL) shall be sought from the CJM for approval to occupy the road space between designated hours. The TGSs shall be submitted along with the application to cover the proposed traffic management arrangement shown. The CJM will be provided with a minimum of 10 working days to process each application with an ROL generally being requested for the duration of one month, and then extended as required on an ongoing basis. All ROL's must include the project name MR515 Wallgrove Road, Horsley Park Intersection Upgrade. Should any changes or additional scope of work be added to the work site, then a new TCP shall be drafted to reflect this and a new ROL application submitted to the CJM. The CJM will be responsible for advising of conflicts with ROL approvals given to other projects.

Works are to be undertaken as per the program with sufficient contingency and time for site establishment and breakdown. The site manager is to monitor progress of each work activity and modify works, if necessary, to ensure lane closures are reopened as per ROL times. Contingency plans will be in place to assist with any unforeseen problems including having road plates and float trucks available on site. In the event that there is a risk of an ROL breach or over-run, then the CJM control room is to be called immediately.

ROLs shall only be activated by the approved License holder listed on the ROL and supervise crews working under this ROL. All activations and deactivations of ROLs for work shifts must use the web application system and not call the TMC

4.5.3 Road Work Speed Zone Authorisation (SZA)

A temporary 60km roadwork speed zone will be implemented day and night during the project to manage the speed of traffic approaching and passing the work site in accordance with the G10 & TCAWS 6.1 manual. A Speed Zone Authorisation (SZA) shall be requested at the same time as the ROL application and extensions required shall be managed in the same way as the ROLs. Temporary speed zones will be erected as per the approved TGS and operated in accordance with CJM/RMS requirements. Contradictory existing speed signs are to be covered for the duration of each shift.

Roadwork Speed Limits Enforced signage may also be used to supplement 60km speed zones.

4.5.4 Traffic Controllers and Portable Traffic Control Devices

Traffic controllers shall be used to implement lane closures as required during construction mobilisation and demobilisation and at any other times as required for any specific construction activities. Serious consideration will be given to traffic control implementation methods and safe standing locations that provide traffic controllers with an escape route. As such portable traffic signals or porta booms will be considered to be used on any roads above 45km/h for any stop slow or shuttle flow arrangements. Sufficient and necessary lighting shall be provided at the work area and UHF radio contact must be maintained at all times between traffic controllers and work crews.

The portable traffic control devices to be used is the Arrow Emergency Systems eStopTM. Approval for these systems exists on TfNSW QA Specification TS200 – Register of ITS Field Equipment page 7 is shown below in table 6.

Register of ITS Field Equipment **TS200**

A1.4 Traffic Signal Site – Type 1 Portable Traffic Signal

Supplier	Model / Type	Software	Category
Arrow Emergency Systems	e-STOP	PTU: ATCD_Slave-7.1 HRC: ATCD_Master-6.1	Type Approved

Table 4 TS200 Register of ITS Field Equipment

Porta boom's will adhere to the technical direction TETD 2019/03 | RMS.19.1236 – 13 May 2019 Use of Portable Boom Barriers.

4.5.5 Queue Management

At all times during each required shift, traffic queues shall be monitored to ensure that traffic does not exceed beyond the limits of the advanced warning signs on approach to the work area. Signs shall be repeated where necessary and where space permits. Close contact stall be maintained with the CJM control room during the project, if undesirable queues begin to form or if there is an incident in the surrounding area.

4.5.6 Advance Warning Signage and Device Requirements

All signs used shall conform to the designs and dimensions as per AS1742.3. Prior to installation, signs shall be checked to ensure they are in good condition and meet the following standard:

- Condition – signs that are bent, broken or have surface damage shall not be used.
- Cleanliness – signs should be free from accumulated dirt and grime.
- Fluorescence & Retro reflectivity – all signs and devices must meet minimum Standards

Signage requirements are shown on each Traffic Guidance Scheme. Any signs erected prior to being needed shall be covered by a suitable material and only removed immediately prior to the commencement of works. Signs and devices shall be positioned and erected in accordance with the locations and spacing shown on the TGS. All signs shall be positioned so that:

- They are properly displayed and securely mounted
- They are within the drivers' line of sight and do not obscure other devices and signs
- They do not become a possible hazard to vehicles especially along the road edge.
- They do not deflect traffic into an undesirable path.
- Fixed signs are to be 2.2m from the ground to the underside of the sign
- Should the use of additional or reduced number of signs or devices be required, they shall be recorded within the traffic control inspection records as a variation to the CTMP.

4.5.7 Delineation and Pavement Markings

Throughout the life of the project, the road past/through the work site shall be clearly delineated using appropriate methods. This shall be supplemented with any traffic management devices deemed necessary for both day and night conditions.

4.5.8 Safety Barrier System

Temporary safety barriers to be used are the NSW Precast Type F. These are approved as per TfNSW approved

safety barrier products issued May 1996 with MASH TL-2 rating to 70km/h. These barriers may be pinned to the road surface to allow greater working width.

Safety barriers shall be installed around the actual work area to ensure vehicles do not enter the work site and for the protection of the workers. These will conform to the specifications of AS3845 and RMS. An edge clearance of no less than 0.3m will be maintained from live traffic. If site conditions make it such that these distances are not possible to maintain, then alternative measures including a permanent speed reduction shall be reviewed after a detailed risk assessment. No construction work or pedestrian movement will be undertaken within deflection or impact zone of the safety barrier without additional risk assessment. Breaks with crash cushions or taper blocks will also be provided as necessary within the temporary barriers to allow access to the work site. Approved end terminals will be installed facing opposing traffic if barriers cannot be flared in sufficiently to mitigate risk of a blunt end being exposed to traffic.

With a 0.3m edge clearance in place, cyclists will be detoured around the works as described in section 4.4.9 and Annexure A

4.6 Traffic Management Monitoring and Audits

4.6.1 Daily Inspections and Records

On completion of establishing the work site, the site is to be monitored to ensure that all signage, devices and controls are maintained at all times.
The traffic control contractor will ensure that personnel are assigned to monitor the traffic control site and carry out daily inspections as follows:

Before Work Starts:

- Inspect all signage and devices including any VMS to ensure they are undamaged and comply with the requirements depicted on the Traffic Guidance Scheme.
- After any adjustments have been made to the signs and devices, conduct a drive through inspection to confirm effectiveness.
- Provide contact name and number for traffic control site supervisor to CJM for nights' activities if applicable.

During Construction Hours:

- Ensure that appropriate personnel drive through the site periodically to inspect all signs and devices including VMS and ensure they are undamaged and comply with the TGS.
- Ensure on site traffic controllers are in place and carrying out necessary duties.
- Keep records of any changes made or additional controls erected throughout the shift.
- Record any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties.

At the End of Each Shift Period:

- Conduct an end of shift site inspection, allowing time for any maintenance work.
- Remove any unnecessary signage (Workers Symbolic, Traffic Controller)
- Ensure any lighting is added to road safety barriers as necessary.
- Record details of inspection and any changes made.

4.6.2 Variations to Approved TMP and TGS

Daily inspection records including any minor variations to the approved CTMP and TGSs shall be kept and provided to the Project/Construction Manager. Any observations that may need significant changes made to the CTMP or

TGSs must be given to the Traffic Management Representative so that the changes can be communicated with the relevant authorities in order to obtain necessary approvals. Reviews and amendments of this CTMP are only to be undertaken by a person qualified in “Prepare Work Zone TMP”.

In emergency situations, on site variations shall be made and recorded using the appropriate form or checklist and the appropriate stakeholder to road authority representative notified as soon as is practical. Should any issues of concern be raised during the course of the project, TfNSW and CJM may review the CTMP and determine if changes must be made to the traffic management methodology on site. Changes to approved TGSs can only be made by the original drafter of the TGS requiring modification and require G10 Hold Point resubmission.

4.6.3 Road Safety Audits

A road safety audit may be required at different stages throughout the project especially after any major change in traffic conditions. The road safety auditor must be independent and be certified to level 3 on the RMS Road Safety Auditor Register as a minimum. If measures prove not to be fully effective, then in consultation with the road safety auditor, the CTMP will be revised, and appropriate measures implemented.

5.0 Consultation and Communication

5.1 Consultation with Stakeholders and Authorities

Early engagement has been undertaken with the key stakeholders and authorities, prior to the formal approval process. This is necessary in order to identify any key issues of concern that may require alternative approaches to be considered in methodology.

Further to any consultation, site- specific TGSs will be developed for each specific stage of work in accordance with relevant RMS and Australian Standards. These plans will show the specifics of the proposed works and individual traffic controls for each site. These TGSs will also be formally submitted for approval/comment by the relevant stakeholders prior to implementation in accordance with G10 requirements. The main stakeholders/authorities are as follows:

- TfNSW
- Traffic Management Centre (CJM)
- Blacktown City Council
- Fairfield City Council
- Emergency Services

Appendix A details these TGSs. Each TGS is to operate within the conditions of any approvals or licenses issued from authorities.

5.2 VMS Strategy

As part of the notification process, advanced warning of the road works will be communicated via Variable Message Signs (VMS) placed at strategic locations as shown on approved VMS schedules in accordance with the G10. These will convey information on the dates and times of the planned road works to motorists on a continual basis on the lead-up. The portable VMS units will be used to provide advance warning of the road works, and then changed to more specific messages (as required) during the actual work activities on each night. Messages must be displayed a minimum of 5 days prior to the works. Messages are to be a maximum of 2 screens and 3 lines per screen. Each Variable Message Sign will also include Radar Activated Speed Signs. In addition, it is requested that the CJM utilise their major overhead VMS network to advise motorists of lane closures and to exercise caution.

Placement of VMS units must:

- Not impact pedestrian safety and space
- Not impact TCS lanterns, visibility of existing TCS
- Not impact pedestrian and motorist sight lines

A VMS schedule has been included as Annexure B

5.3 Notification Process for Residents, Businesses and Commuters

Notification about traffic management impacts may include the following:

- Letterbox notifications, flyers and project updates
- Doorknocking
- Face to face engagement (meetings)
- Media releases and website updates

Local residents will also be consulted in advance where there is likely to be a direct impact, for example temporary loss of driveway access or power/water supply. The project Community Relations Team will provide relevant contact information for the purpose of dealing with queries and complaints including:

Project Enquires Email: info@burtoncontractors.com.au
Project Postal Address: Unit 3/11-21 Underwood Road, Homebush 2140

6.0 Emergency Arrangements and Incident Response Procedure

6.1 Emergency Services

Emergency services will be notified of the proposed works, including their nature, date, and times as well as contact details for the site supervisor. The Traffic Control Site Manager will be responsible for providing up to date information to the respective emergency services regarding the changes to traffic flow during the works. Arrangement to manage impacts on emergency services include:

- Notification and communication with affected emergency services including suggested detour routes when applicable.
- Provision for emergency service access through the construction site
- Communication with the workforce to ensure understanding of emergency access and response requirements.

Emergency Contact	Phone	Authority
Ambulance / Fire / Police	000	Emergency services
Poisons Information Centre	131 126	Poison information
Jemena	131 909	Gas
Ausgrid	131 388	Electricity authority
Endeavour Energy	131 003	Electricity authority
TransGrid	1800 027 253	Overhead electricity
Sydney Water	132 090	Water service
AAPT / PowerTel	1800 786 306	Fibre Optic
Uecomm	1300 275 662	Fibre Optic
NBN	1800 687 626	Fibre Optic
AARnet	6222 3530	Fibre Optic
TPG	1300 993 011	Fibre Optic
Telstra	132 203	Comms
Optus	1800 505 777	Comms
RMS – Traffic Enquiry	132 701	Roads Authority
RMS – Traffic Management Centre	131 700	Roads Authority
WorkCover NSW	131 050	Work Health Safety Authority
EPA NSW (Environmental Incidents)	131 555	Environmental Authority
DBYD	1100	Underground services
Call DBYD for current service strike contacts or http://www.1100.com.au/safeexcavation/emergencies		
Local Hospital (9.5km)	(02) 9881 1555	Mt Druitt Hospital

Emergency Contact	Phone	Authority
Local Medical Centre (2.9km)	(02) 9620 2880	Horsley Park Medical Centre
Local Police Station (8.8km)	(02) 8788 5199	Wetherill Park Police Station
Local Council	(02) 9839 6000	Blacktown Council
Local Council	(02) 9725 0222	Fairfield Council
Eastern Creek Towing	0412 296 966	
Wetherill Park Towing	(02) 9757 2666	
Prestige Vehicle Transport	0407 264 471	

Table 5 List of Emergency Contacts

6.2 Incident Response Procedures

In the event of any unplanned incident or accident on site, whether or not involving traffic or road users, the following project documents must be referred to for the appropriate procedure:

- Incident Management Plan
- Emergency Response Plan

In general, the following protocol will be followed:

- Notify the relevant authorities and update accordingly following their instructions.
- Where possible, cease work and remove restrictions.
- Modify traffic control as necessary and manage until emergency services arrive.
- Re-program any VMS units to advise of situation.
- Assess and re-evaluate risks and hazards, if necessary, postpone work activities.

In the event of an emergency situation, the following relevant authorities must be contacted and advised of the nature of the works, type of emergency and contact details for the site supervisor:

- Emergency Services: (000)
- CJM (131 700)
- Safework NSW (13 10 50)

Annexure A – Traffic Guidance Schemes

(Note – Long term TGS and staging plans are combined and are in Annexure C. Short term TGS to be developed on an as needs basis)

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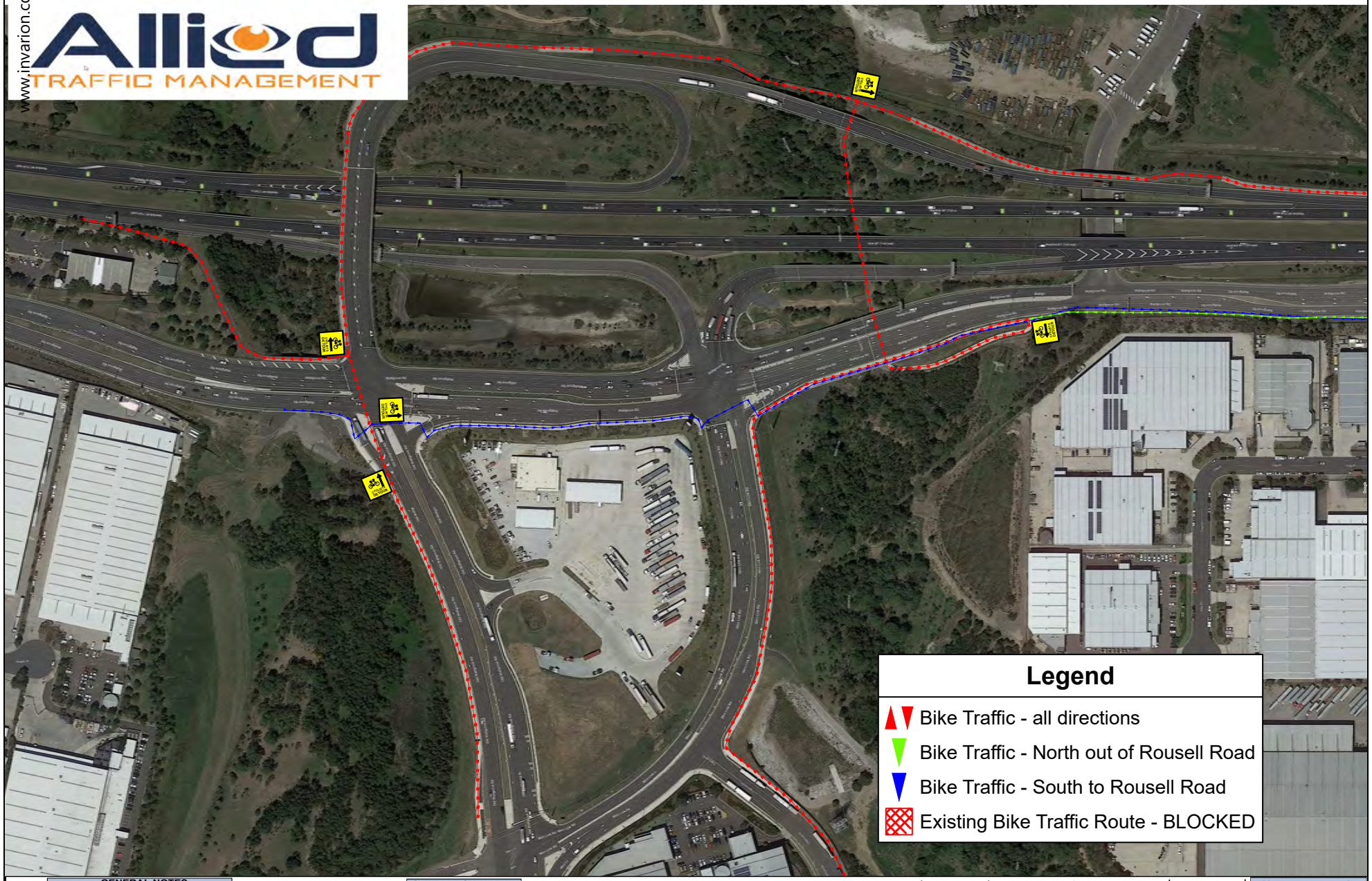
Allied TRAFFIC MANAGEMENT



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6. SIGNAGE SHALL BE PLACED ON THE SIDE OF THE ROAD ADJACENT TO THE TRAFFIC FLOW,
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LANE WIDTHS

THE MIN LANE WIDTH TO BE PROVIDED THROUGH OR PAST THE WORKSITE SHALL BE 3.0m (3.5m DESIRABLE)

TOLERANCES

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QUEUE MANAGEMENT PLAN

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VEHICLE MOVEMENT PLAN

ALL WORK VEHICLES TO ENTER AND EXIT WORKSITE UNDER THE DIRECTION OF TRAFFIC CONTROLLER WITH THE TRAFFIC FLOW ON DESIGNATED UHF CHANNEL

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DRAWN	Nasser Chami	Plan Name:	CYCLEWAY DETOUR	Road Type:	VARIOUS
DATE	02/08/2022	Works Location:	Wallgrove Road	Speed Limit:	70 km/h
REV	01	Suburb:	Erskine Park	Travelled Path:	ALL
PLAN MAY NOT BE TO SCALE		Page:	1 of 4	Operation:	DETOUR

DESIGNED: Nasser Chami

SIGNATURE:

0052135507

PWZTMP

N

PLAN : ALLIED 0275

RECOMMENDED TAPER LENGHTH

APPROXIMATE SPEED OF TRAFFIC KM/H	TRAFFIC CONTROL AT BEGINNING OF TAPER	LATERAL SHIFT TAPER	MERGE TAPER
45 OR LESS	15	15	15
46 - 55	15	15	30
56 - 65	30	30	60
66 - 75	N/A	70	115
76 - 85	N/A	80	130
86 - 95	N/A	90	145
96 - 105	N/A	100	160
> 105	N/A	110	180

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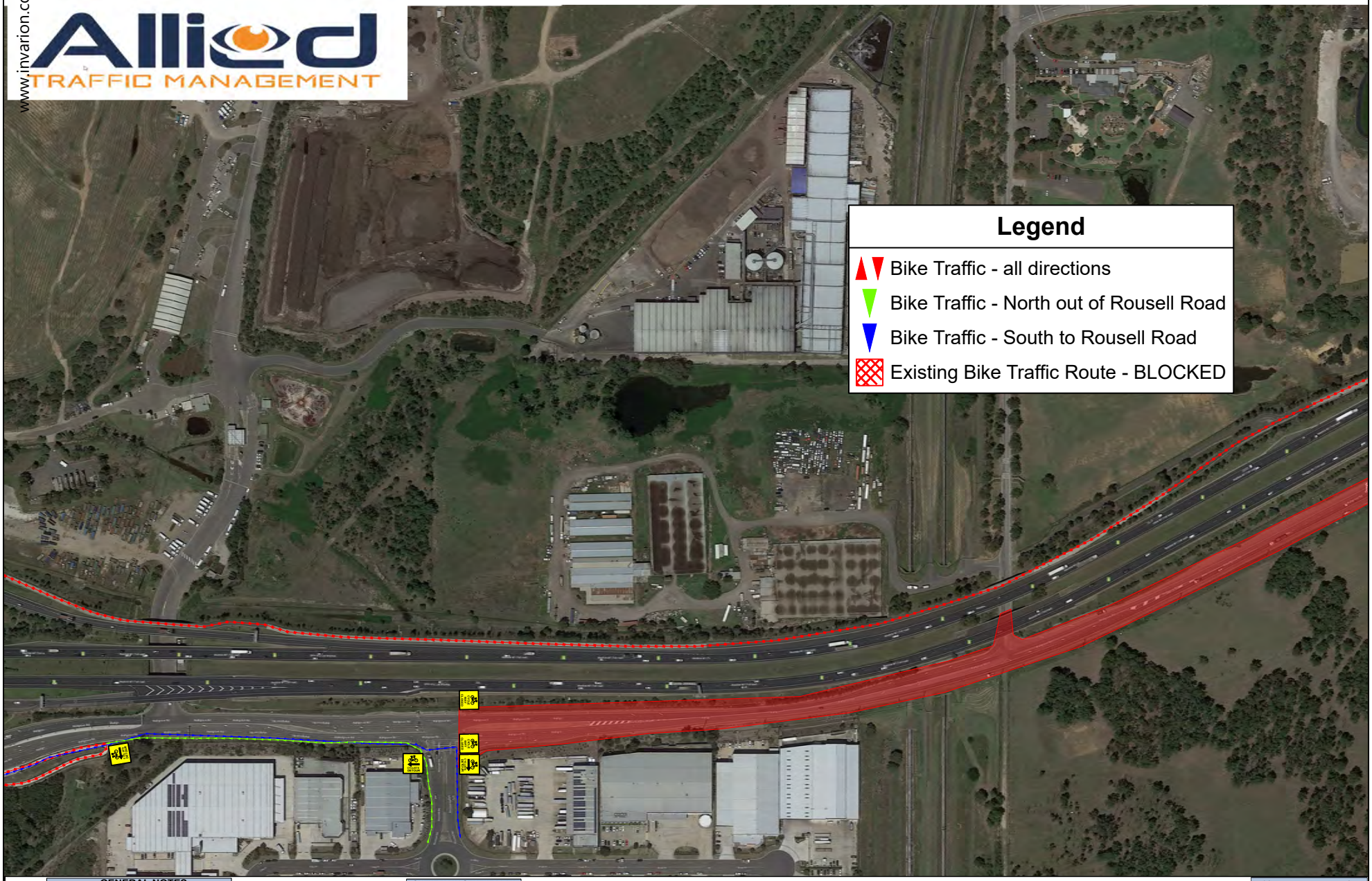
Allied TRAFFIC MANAGEMENT



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DATE	02/08/2022	Works Location:	Wallgrove Road	Speed Limit:	70 km/h
REV	01	Suburb:	Erskine Park	Travelled Path:	ALL
PLAN MAY NOT BE TO SCALE		Page:	2 of 4	Operation:	DETOUR

DESIGNED: Nasser Chami

SIGNATURE:

0052135507

PWZTMP

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PLAN : ALLIED 0275

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46 - 55	15	15	30
56 - 65	30	30	60
66 - 75	N/A	70	115
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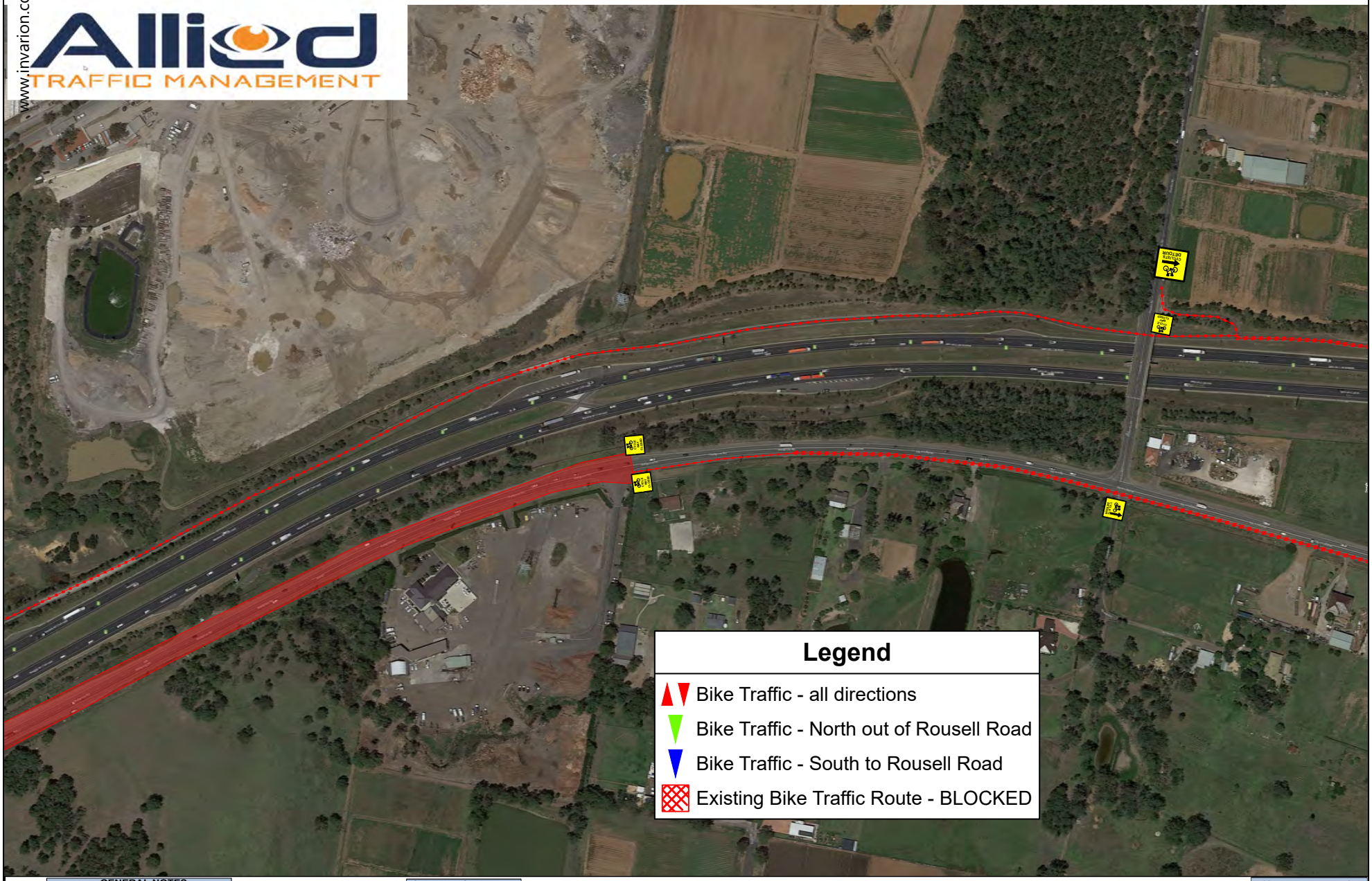

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REV	01	Suburb:	Erskine Park	Travelled Path:	ALL
PLAN MAY NOT BE TO SCALE		Page:	3 of 4	Operation:	DETOUR

DESIGNED: Nasser Chami

SIGNATURE:

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PWZTMP

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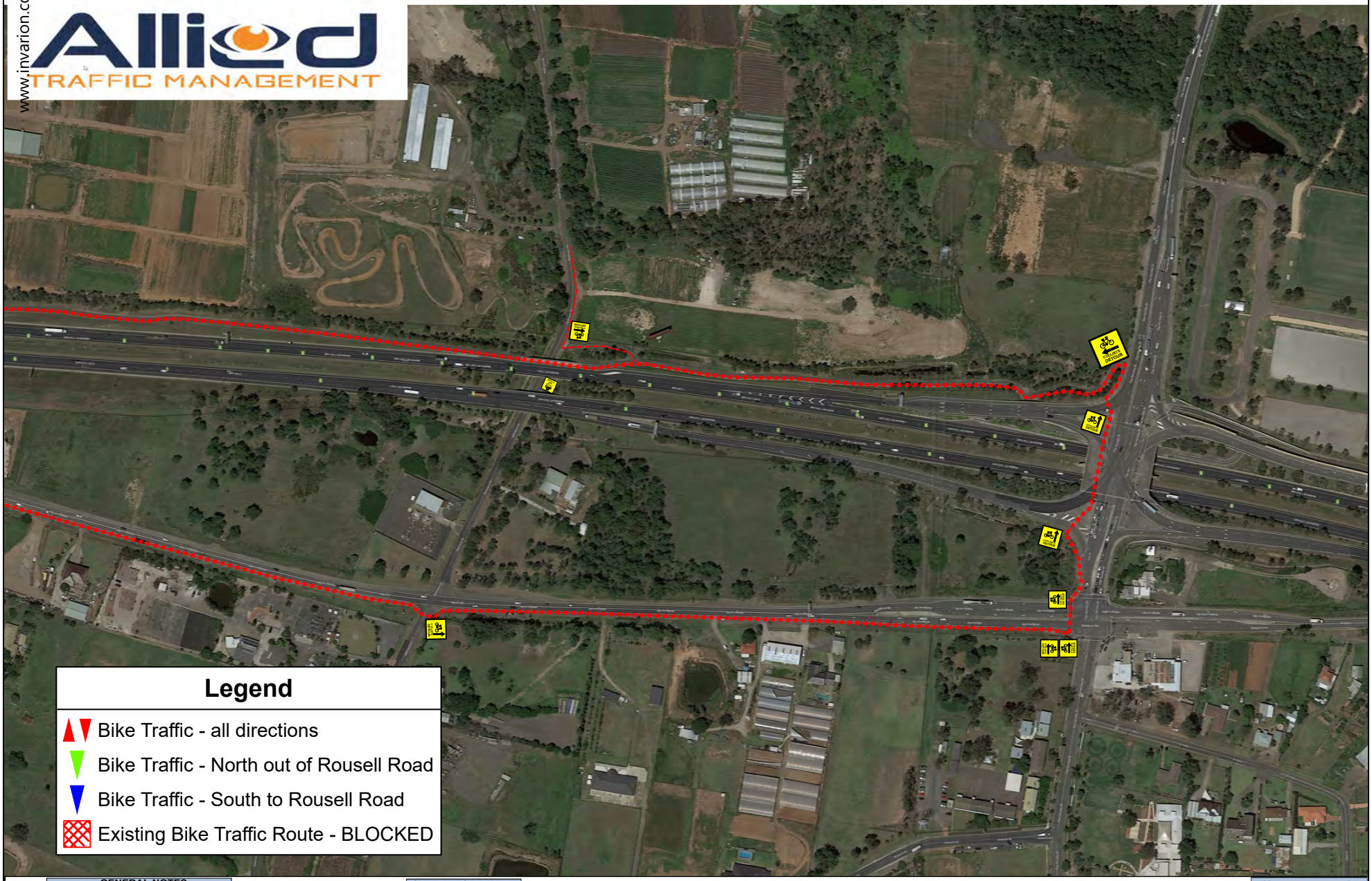

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SIGNATURE:

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PWZTMP

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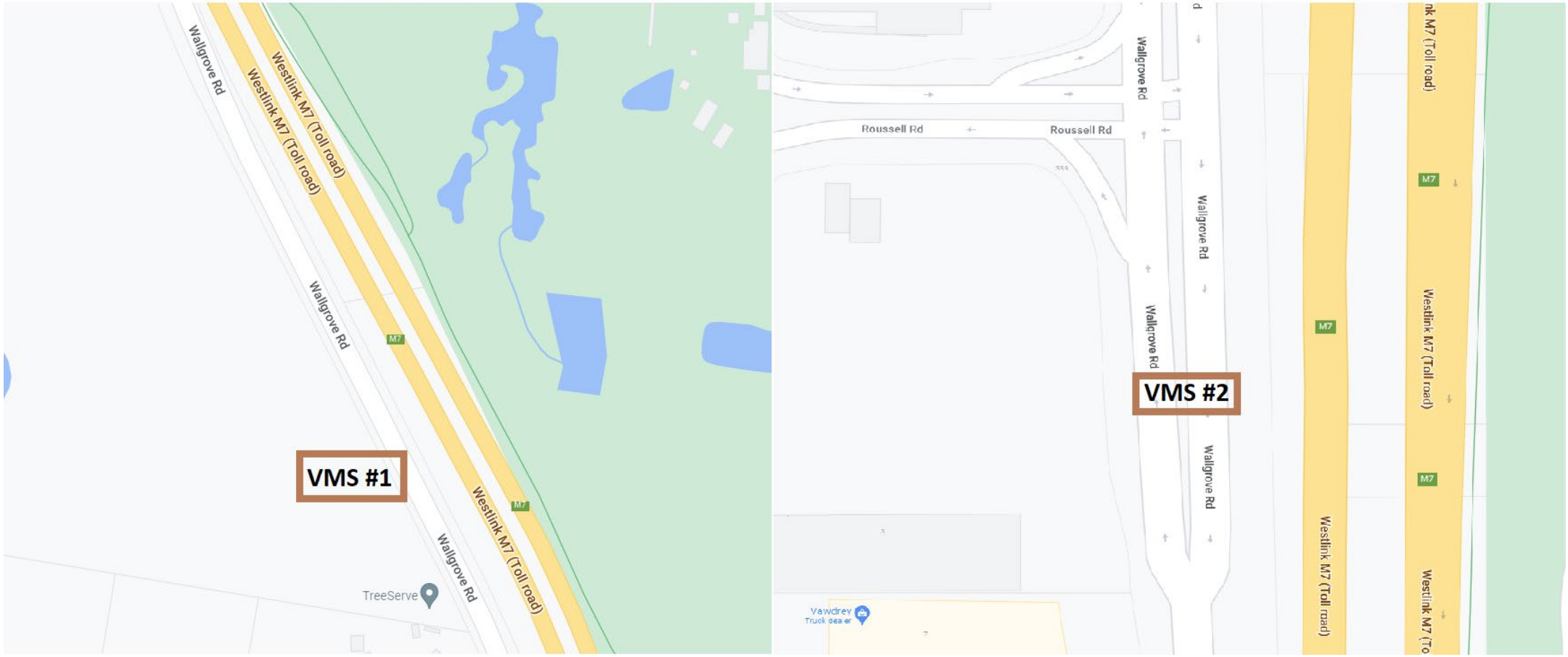
Annexure B – Variable Message Sign Schedules

Current Revision – Rev 1

VMS Location Map



VMS Schedule

VMS #	Location Description	Photo/Street View Location	Messages to be displayed
1	Wallgrove Road, South of the project site		Screen 1 CHANGED TRAFFIC CONDITIONS AHEAD Screen 2 DRIVE WITH CAUTION
2	Wallgrove Road, North of the project site		Screen 1 CHANGED TRAFFIC CONDITIONS AHEAD Screen 2 DRIVE WITH CAUTION

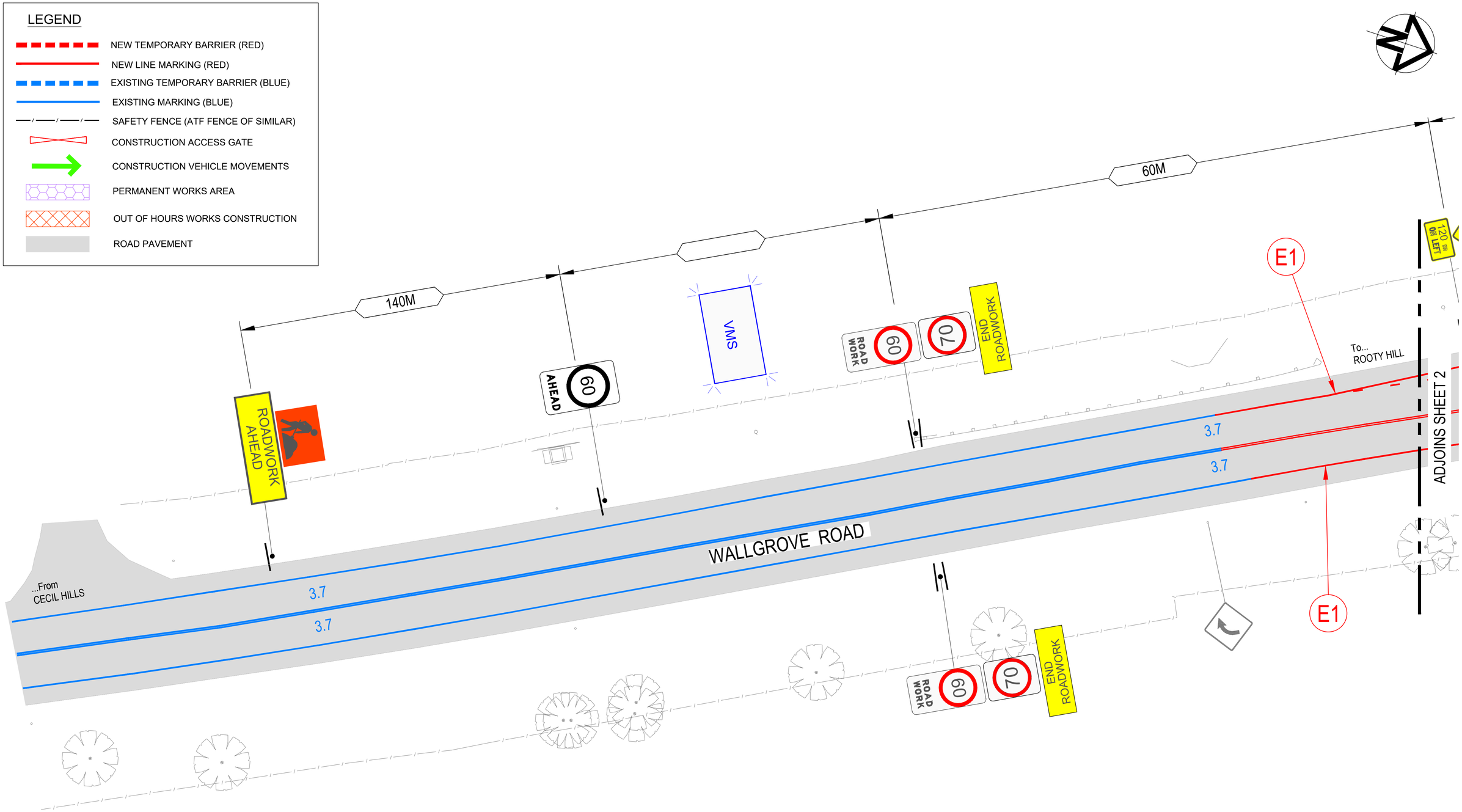
Annexure C – Staging Plans

(Note – Long term TGS and staging plans are combined)

Civil Staging Plan – Stage 1

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- ROAD PAVEMENT



Rev	Date	By	App	Amendment Details
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 1A LAYOUT - WESTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 1 OF 10

Drawing No.: TS01A-01

Rev: 4

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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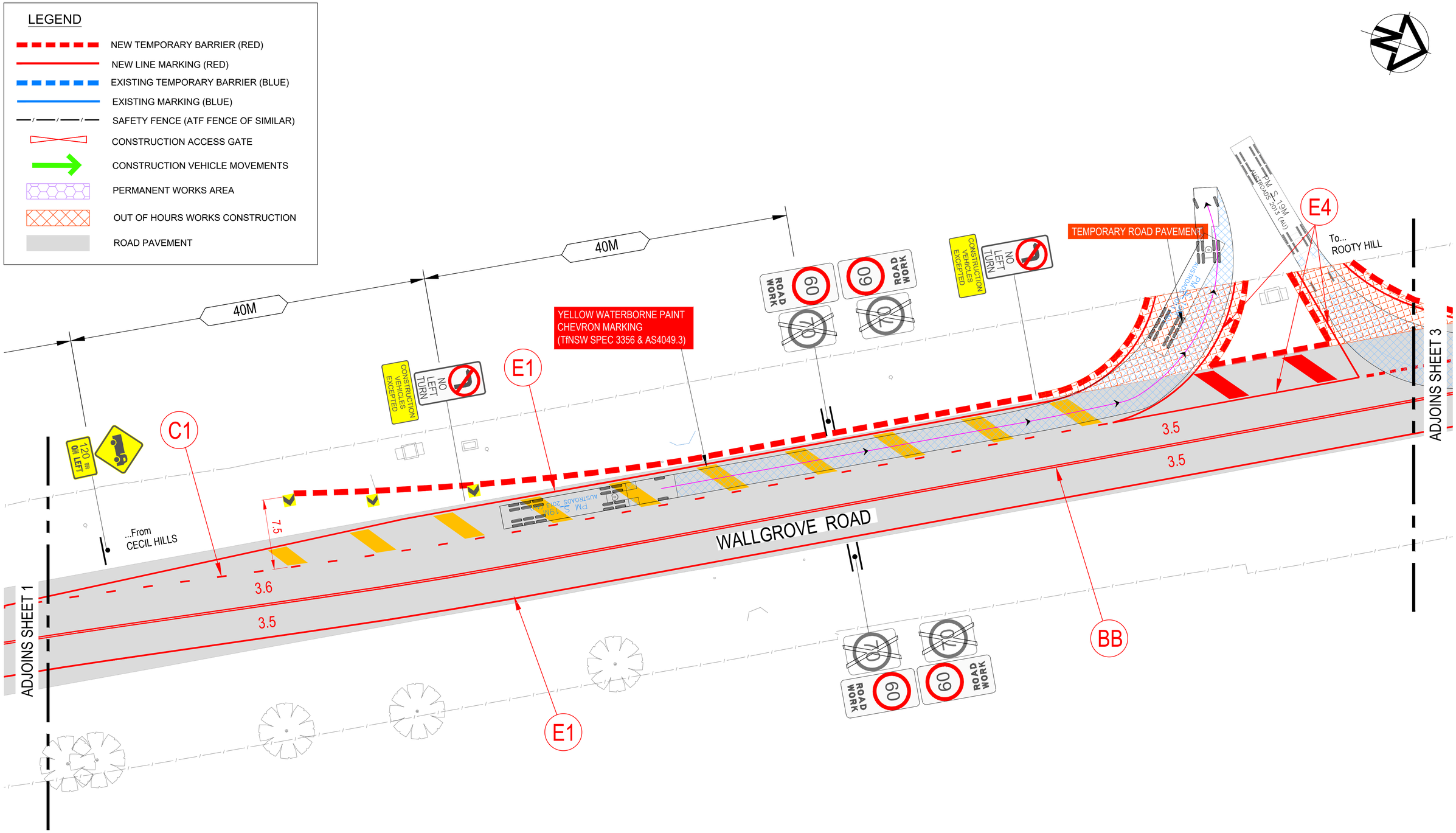

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Drawn	JKB	10/05/22
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Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

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Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 2 OF 10

Drawing No. TS01A-02

Rev 4

LEGEND

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- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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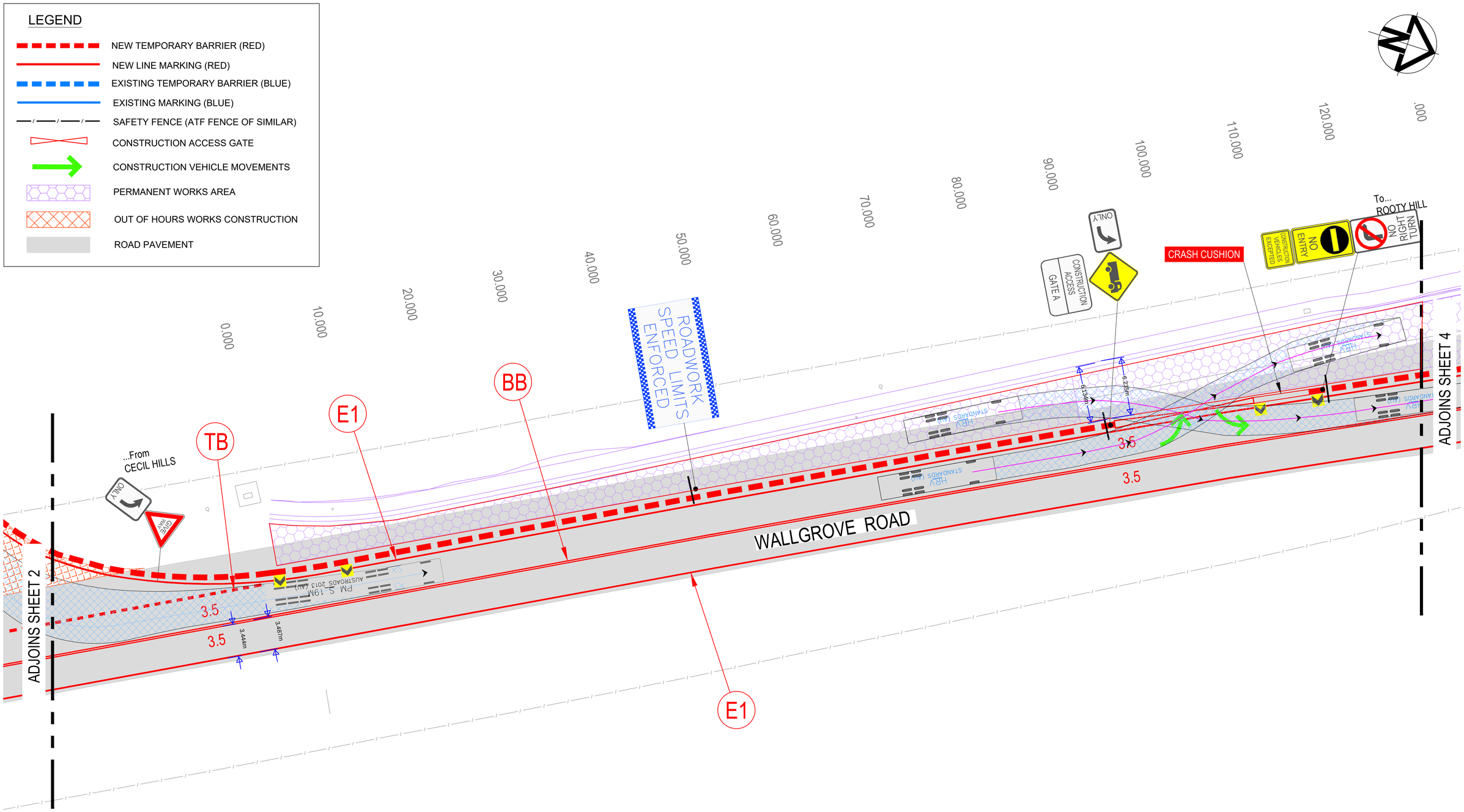

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Drafting Check		
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Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

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Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 3 OF 10

Drawing No.: TS01A-03

Rev: 4

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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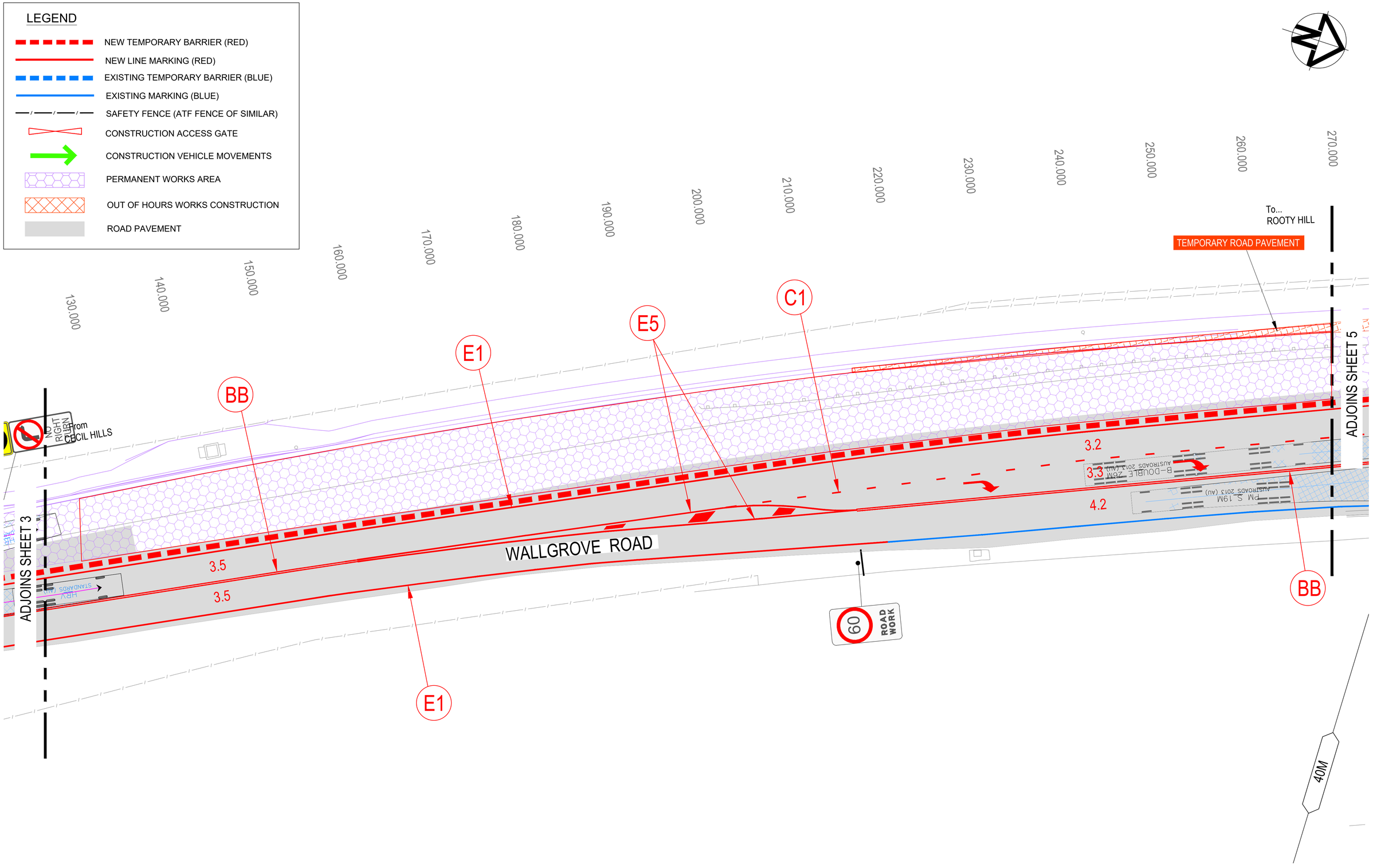

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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 4 OF 10

Drawing No.: TS01A-04

Rev: 4

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
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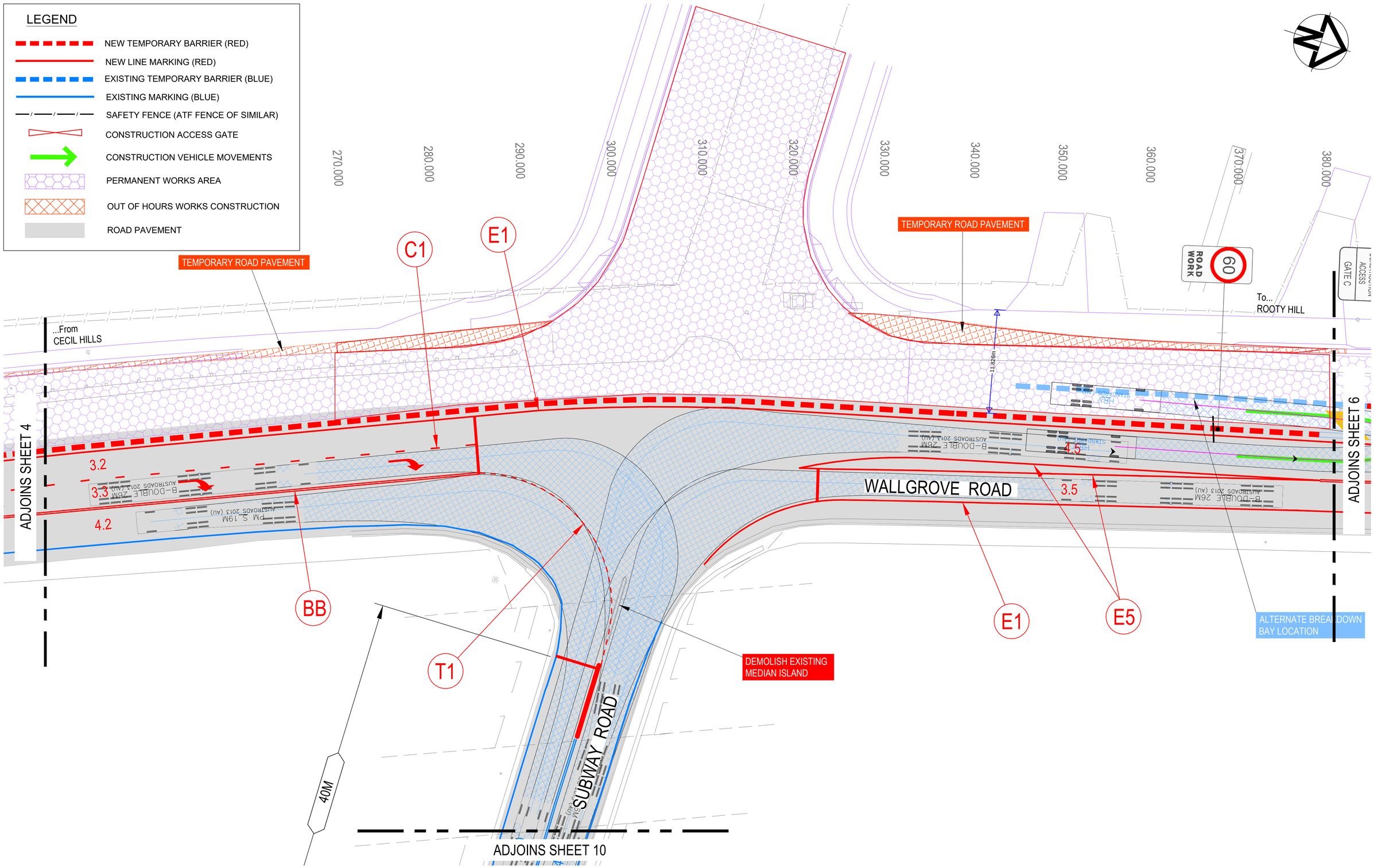

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Drawn	JKB	10/05/22
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Final Approval		
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Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 5 OF 10

Drawing No. TS01A-05

Rev 4

LEGEND

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380.000 390.000 400.000 410.000 420.000 430.000 440.000 450.000 460.000 470.000 480.000 490.000 500.000 510.000 520.000

CONSTRUCTION ACCESS GATE C

YELLOW WATERBORNE PAINT CHEVRON MARKING (TfNSW SPEC 3356 & AS4049.3)

CRASH CUSHION

CONSTRUCTION VEHICLES EXCEPTED

NO ENTRY

NO RIGHT TURN

...From CECIL HILLS

To... ROOTY HILL

ADJOINS SHEET 5

ADJOINS SHEET 7

HRV STANDARDS

3.8

3.5

3.432m

WALLGROVE ROAD

3.5

3.5

ALTERNATE BREAKDOWN BAY LOCATION

BREAKDOWN BAY & SITE ACCESS

E1

BB

E1

60 ROAD WORK

ROADWORK SPEED LIMIT

70M

Rev	Date	By	App	Amendment Details
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 1A LAYOUT - WESTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED

B-LINE DRAFTING

SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

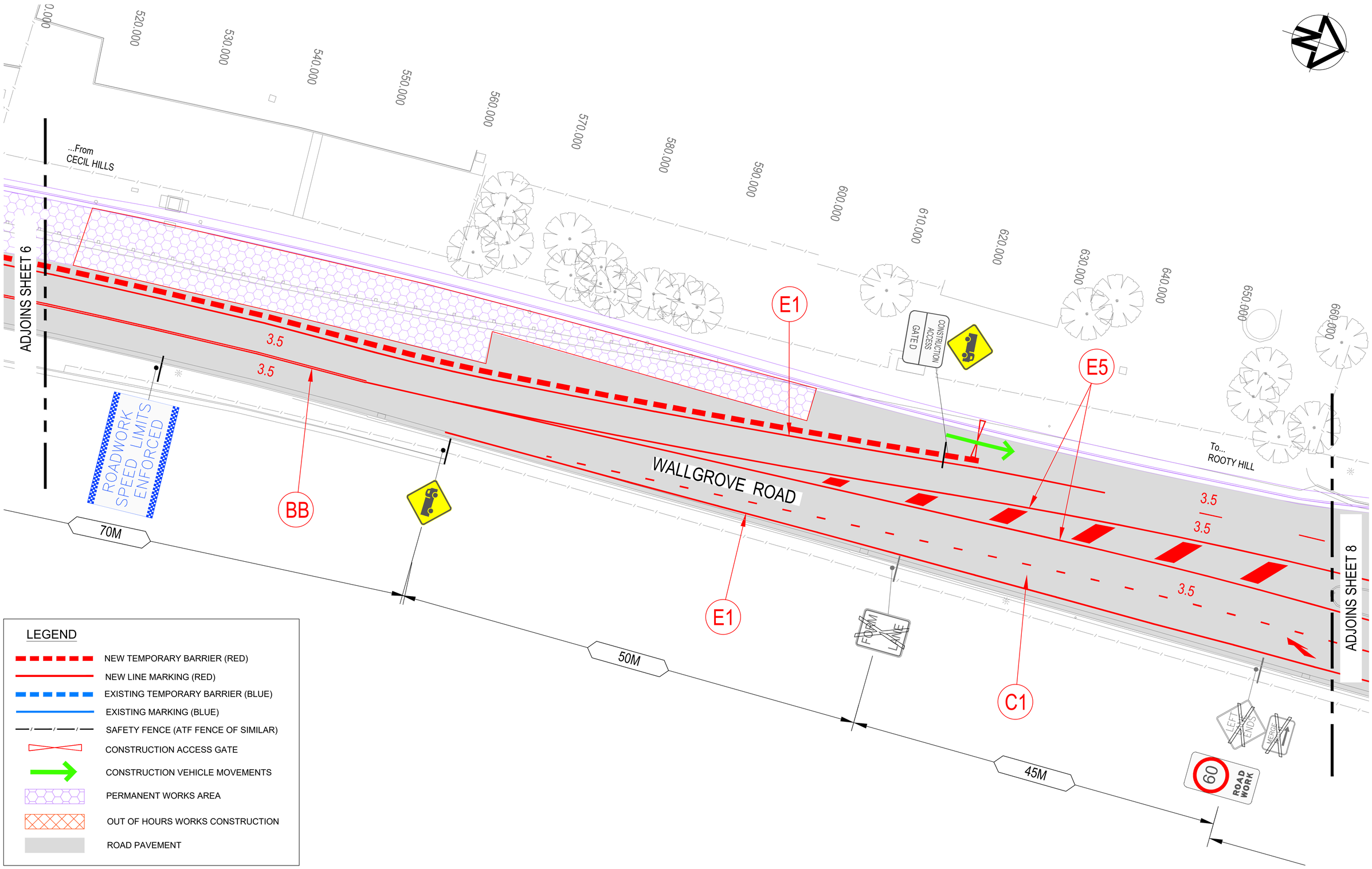
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN STAGE 1A SHEET 6 OF 10

Drawing No. TS01A-06

Rev 4



LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- ROAD PAVEMENT

Rev	Date	By	App	Amendment Details
4	01/08/22	JKB	"	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	"	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	"	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	"	STAGE 1A LAYOUT - WESTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE... 16/05/22

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Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 7 OF 10

Drawing No.: TS01A-07

Rev: 4

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- ROAD PAVEMENT

660.000

670.000

E5

...From CECIL HILLS

ADJOINS SHEET 7

Bus Stop

3.7

3.3

3.2

3.3

3.2

WALLGROVE ROAD

ROUSSELL ROAD

50

END ROADWORK

C1

E1

45M

FORM 1 LANE

VMS

55M

LEFT LANE ENDS

MERGE RIGHT

To... ROOTY HILL

ADJOINS SHEET 9

Rev	Date	By	App	Amendment Details
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
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Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

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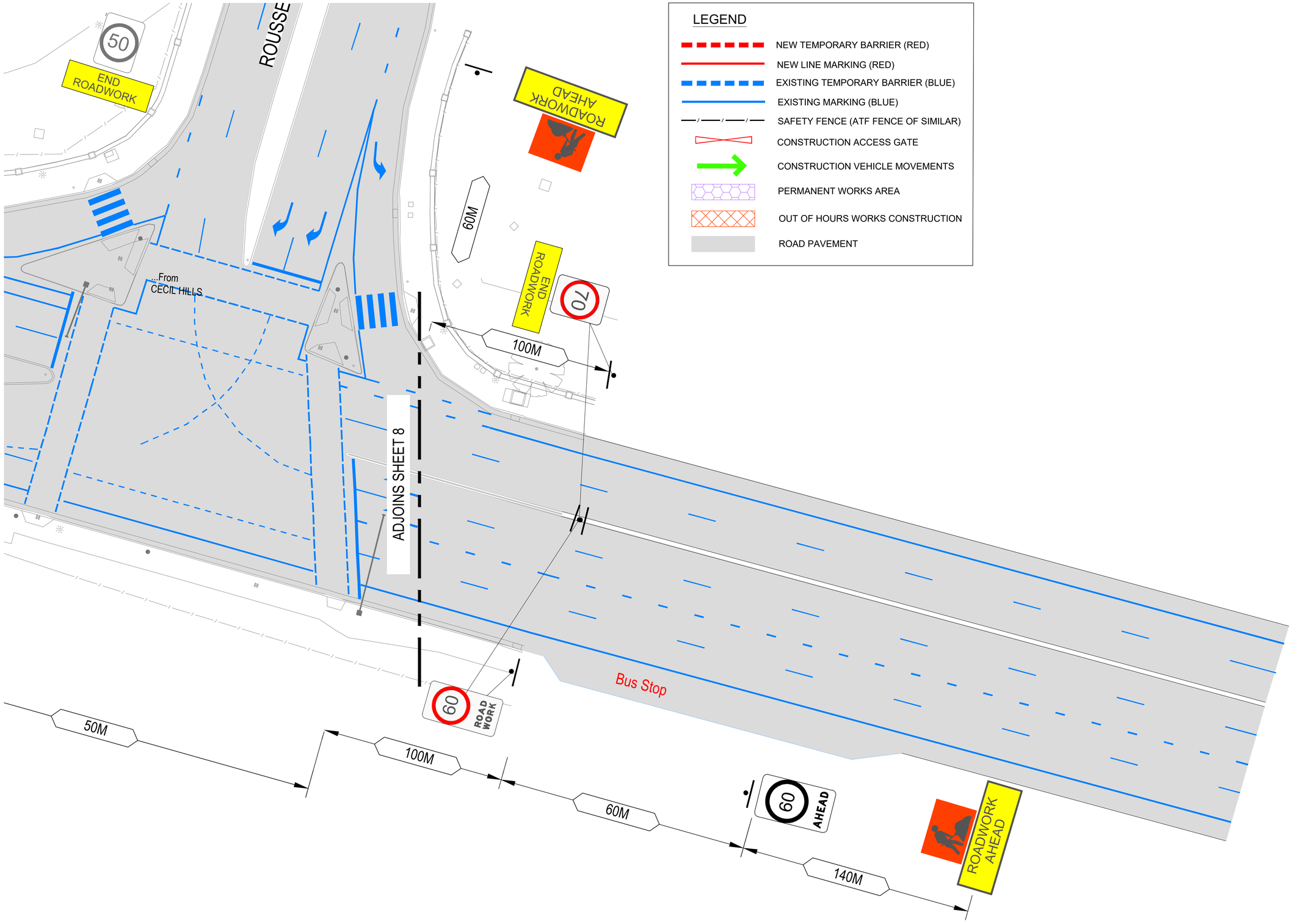
Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 8 OF 10

Drawing No.: TS01A-08

Rev: 4



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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		

Final Approval

Azimuth	Datum
MGA	AHD

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
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Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

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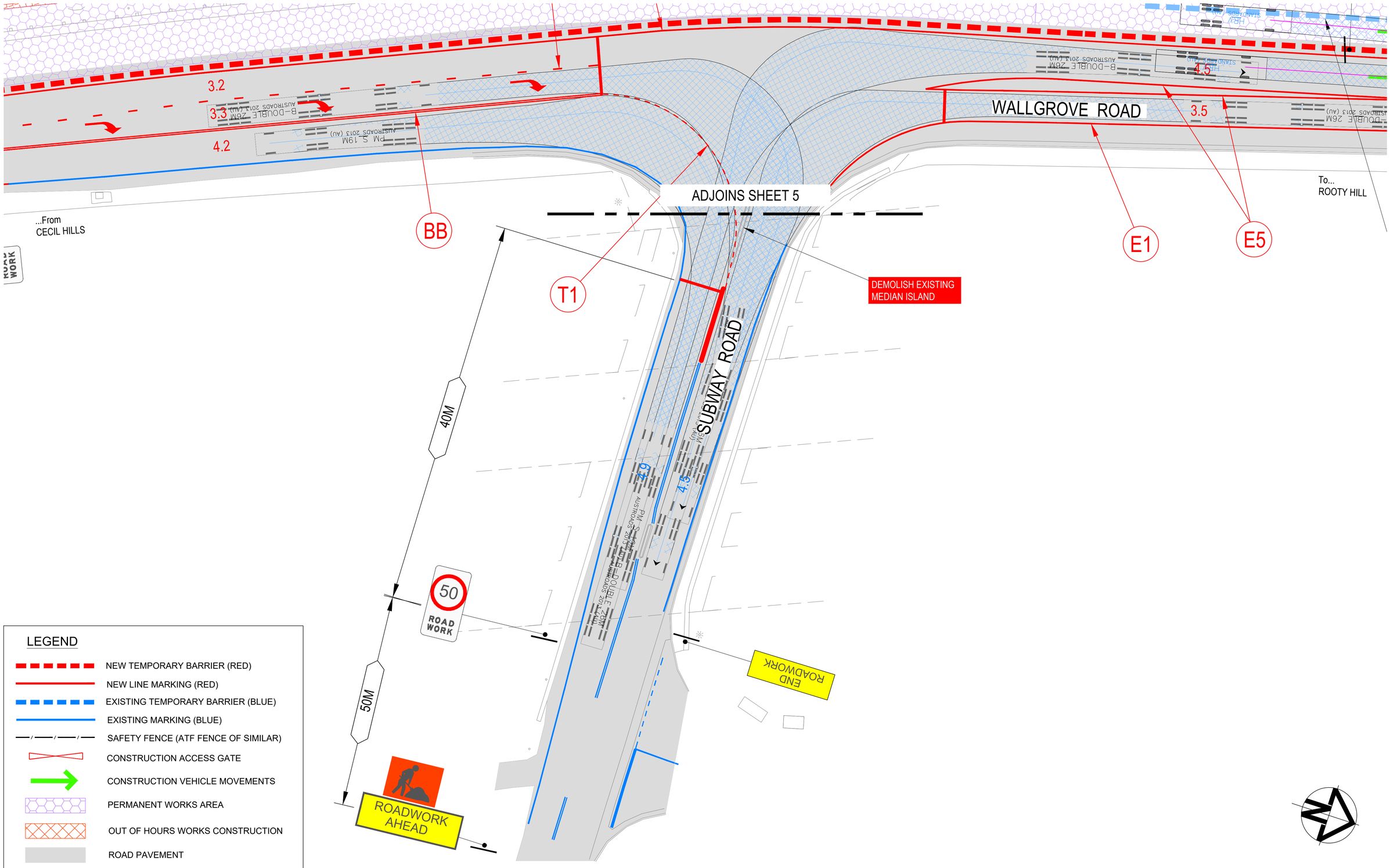
Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 9 OF 10

Drawing No.: TS01A-09

Rev: 4



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- NEW LINE MARKING (RED)
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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 10 OF 10

Drawing No.: TS01A-10

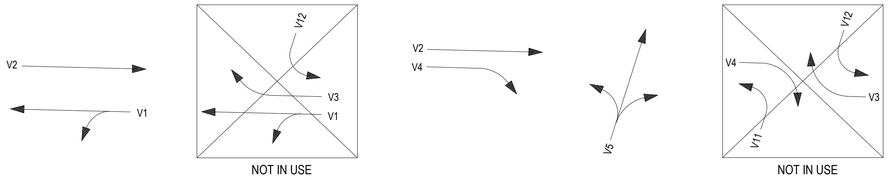
Rev: 4

TCS Staging Plan – Stage 1

TCS 5058

DATE IN SERVICE : 00/00/00

NSW GOVERNMENT | Transport for NSW



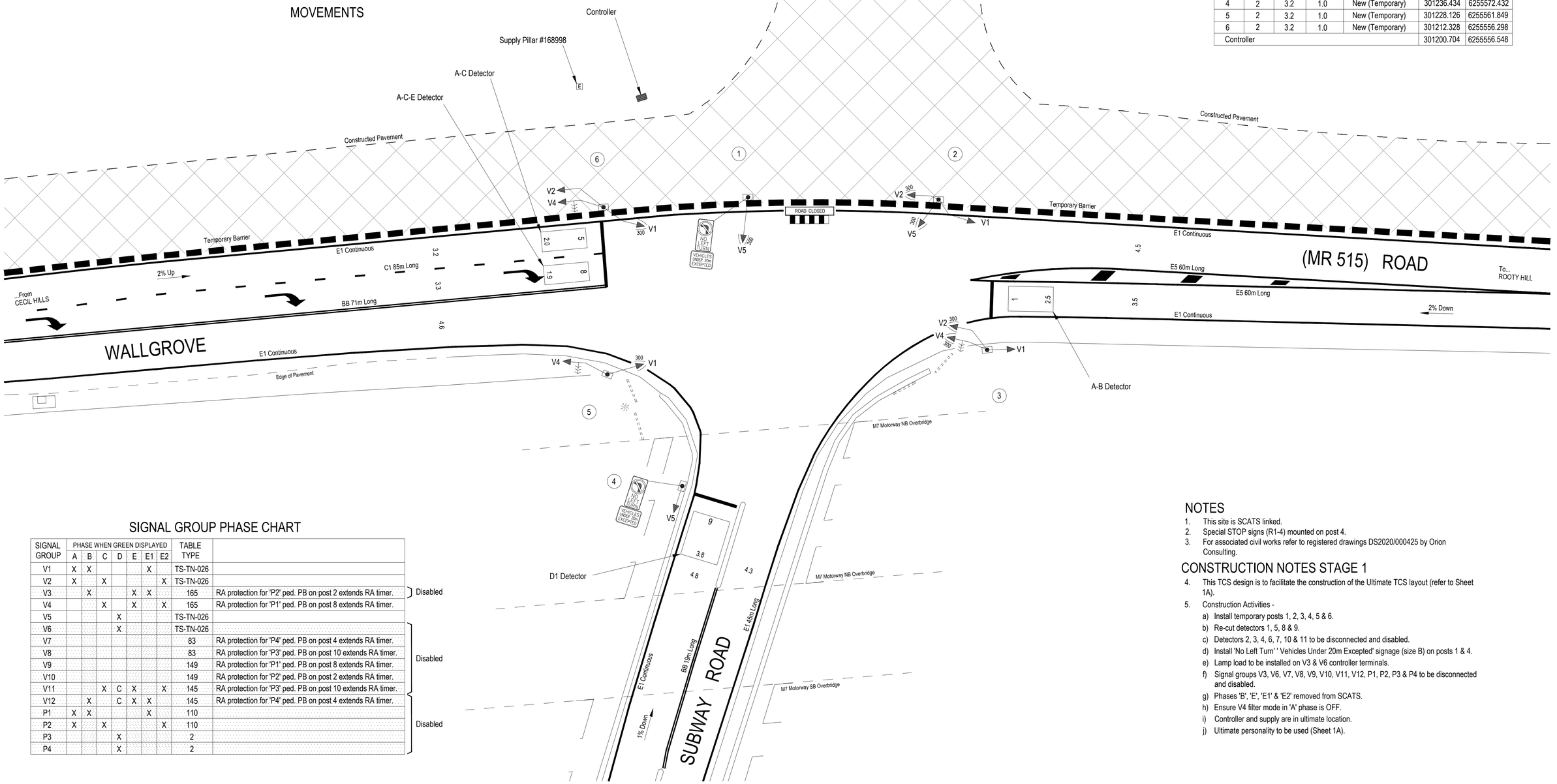
A PHASE | B / E1 PHASE | C PHASE (E2 PHASE - NOT IN USE) | D PHASE | E PHASE

Alternate

MOVEMENTS

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS	MGA CO-ORDINATES ZONE 56 / GDA1994 EASTING	NORTHING
1	2	3.2	1.0	New (Temporary)	301206.907	6255569.756
2	2	3.2	1.0	New (Temporary)	301201.227	6255587.950
3	2	3.2	1.0	New (Temporary)	301214.040	6255597.229
4	2	3.2	1.0	New (Temporary)	301236.434	6255572.432
5	2	3.2	1.0	New (Temporary)	301228.126	6255561.849
6	2	3.2	1.0	New (Temporary)	301212.328	6255556.298
Controller					301200.704	6255556.548



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED A	B	C	D	E	E1	E2	TABLE TYPE		
V1	X	X				X		TS-TN-026		
V2	X		X				X	TS-TN-026		
V3		X			X	X		165	RA protection for 'P2' ped. PB on post 2 extends RA timer.	Disabled
V4			X		X		X	165	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V5				X				TS-TN-026		
V6				X				TS-TN-026		
V7								83	RA protection for 'P4' ped. PB on post 4 extends RA timer.	Disabled
V8								83	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V9								149	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V10								149	RA protection for 'P2' ped. PB on post 2 extends RA timer.	
V11			X	C	X		X	145	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V12		X		C	X	X		145	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
P1	X	X				X		110		Disabled
P2	X		X				X	110		
P3				X				2		
P4				X				2		

NOTES

1. This site is SCATS linked.
2. Special STOP signs (R1-4) mounted on post 4.
3. For associated civil works refer to registered drawings DS2020/000425 by Orion Consulting.

CONSTRUCTION NOTES STAGE 1

4. This TCS design is to facilitate the construction of the Ultimate TCS layout (refer to Sheet 1A).
5. Construction Activities -
   a) Install temporary posts 1, 2, 3, 4, 5 & 6.
   b) Re-cut detectors 1, 5, 8 & 9.
   c) Detectors 2, 3, 4, 6, 7, 10 & 11 to be disconnected and disabled.
   d) Install 'No Left Turn' ' Vehicles Under 20m Excepted' signage (size B) on posts 1 & 4.
   e) Lamp load to be installed on V3 & V6 controller terminals.
   f) Signal groups V3, V6, V7, V8, V9, V10, V11, V12, P1, P2, P3 & P4 to be disconnected and disabled.
   g) Phases 'B', 'E', 'E1' & 'E2' removed from SCATS.
   h) Ensure V4 filter mode in 'A' phase is OFF.
   i) Controller and supply are in ultimate location.
   j) Ultimate personality to be used (Sheet 1A).

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT		SYMBOLS/ABRVS	VD003-6
STOP VALVE		STD POSN CMPT	VD001-5
GAS VALVE		INSTL STOP DET	VC005-17
SEWER MANHOLE		VEH GROUP OP	TS-TN-019
COMMS PIT		DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE		PED MVT OP	TS-TN-021
POWER POLE		SDO	TS-TN-026
STAY POLE			
TELEPHONE BOX		SURVEYOR : Orion Consulting	
COMMS PILLAR		DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520

DESIGNED : R BATES
CHECKED : J BATES
J BATES
SITE CHECKED
J BATES
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME
POSITION MANAGER
DATE 17/05/22
DESIGN PREPARED BY
B-Line Drafting on behalf of Burton

TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME
POSITION
DATE
NETWORK OPERATIONS
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 1/06/2022

TFNSW ACCEPTANCE
ACCEPTED
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 1/06/2022
ACCEPTED BY
Network Operations
SECTION

TRANSPORT FOR NEW SOUTH WALES

BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
WALLGROVE ROAD (MR515), SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_TDL-1_A.dgn
SCALE 5 0 (1:200) 5 10
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE 2/A
ISSUE A
REG No. DS2020/000569
TCS No. 5058
SHEET TDL-1

Revision 7 - August 2021

Civil Staging Plan – Stage 2

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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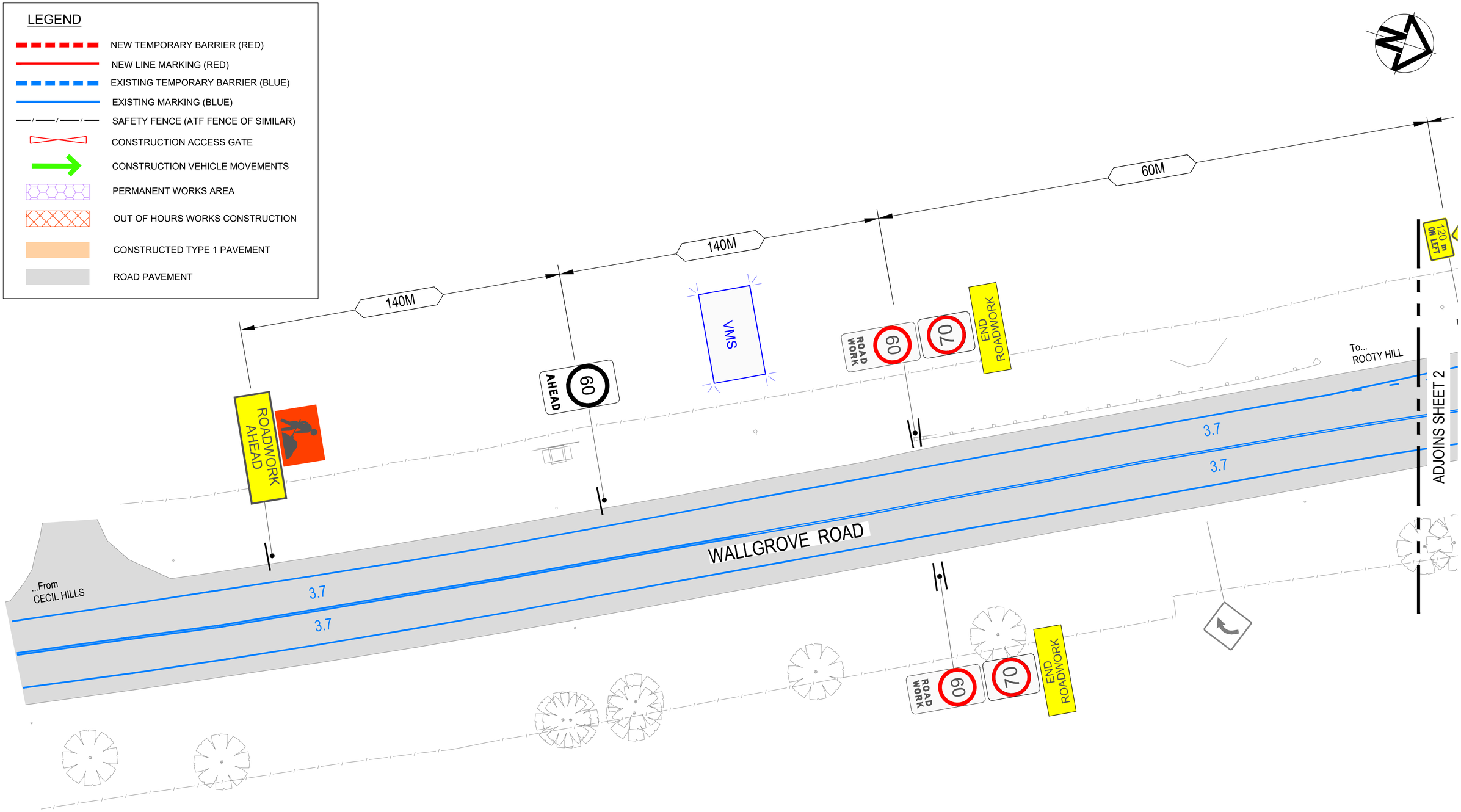
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT



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2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED

B-LINE DRAFTING

SIGNED..... DATE..16/05/22.....

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN STAGE 2A SHEET 1 OF 10

Drawing No.: TS02A-01

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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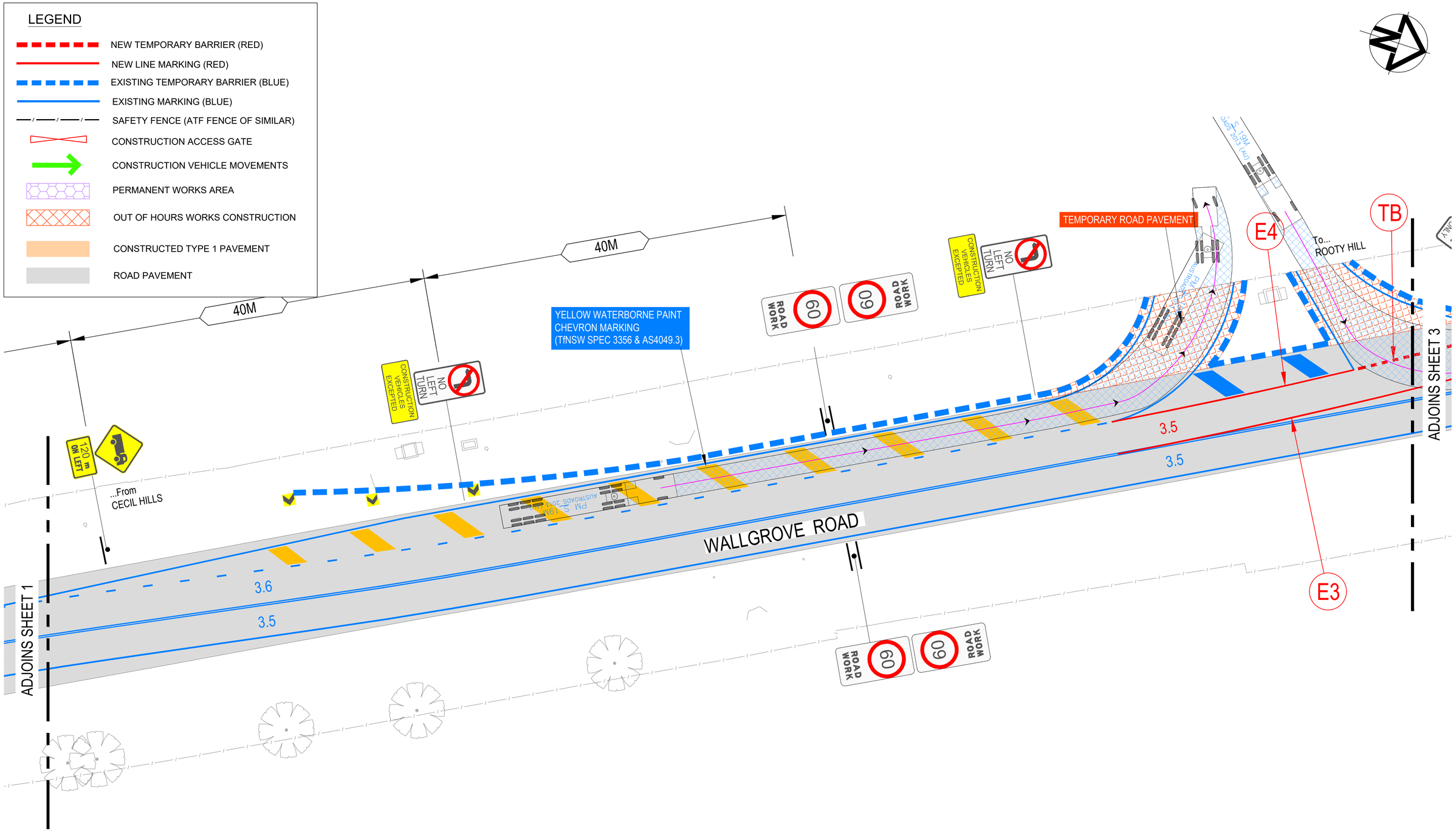

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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 2 OF 10

Drawing No. TS02A-02

Rev 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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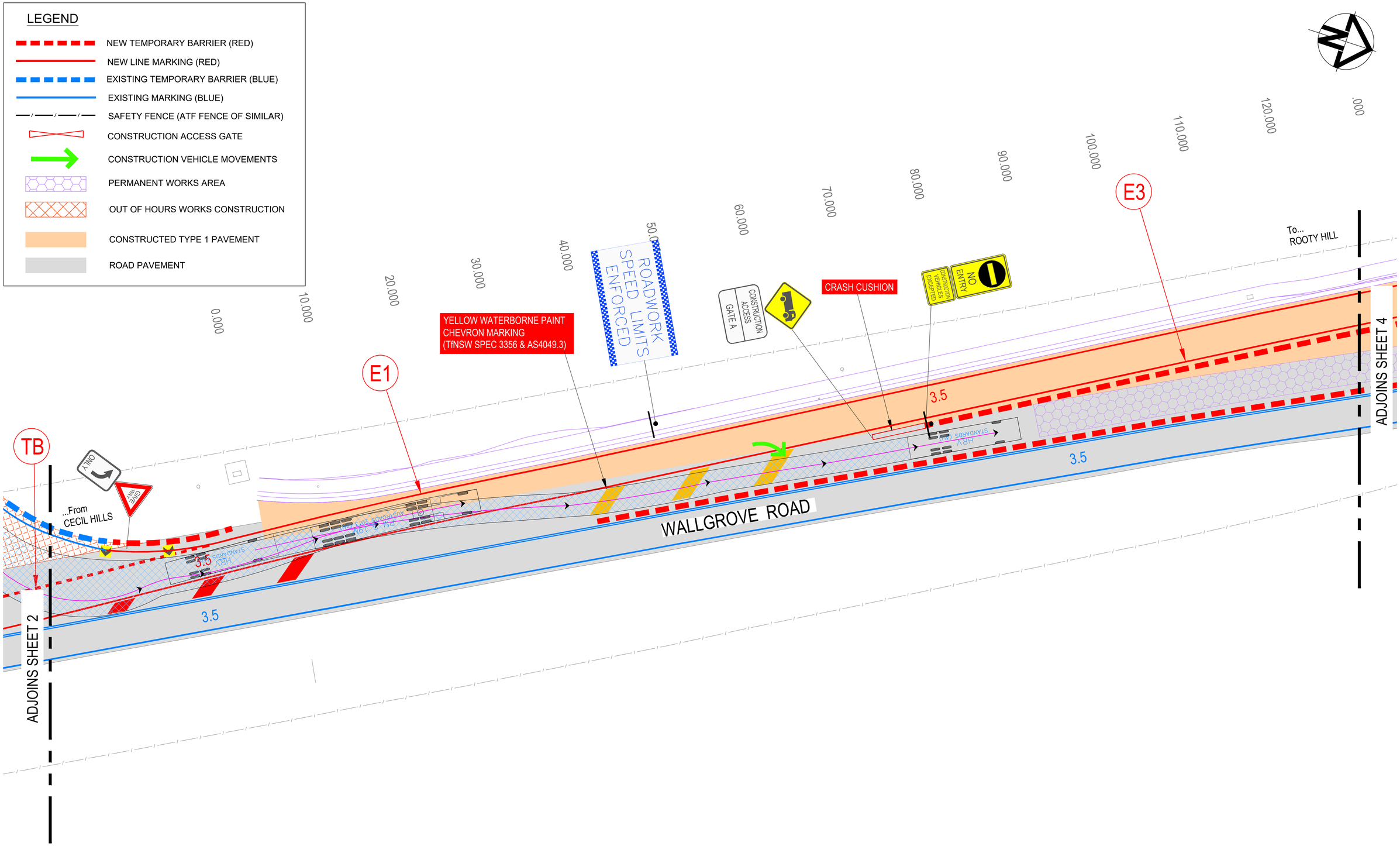

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Design Check		
Final Approval		
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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 3 OF 10

Drawing No. TS02A-03

Rev 5

LEGEND

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- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
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- ROAD PAVEMENT

130.000 140.000 150.000 160.000 170.000 180.000 190.000 200.000 210.000 220.000 230.000 240.000 250.000 260.000 270.000

E1 E3 C1 E3

TEMPORARY ROAD PAVEMENT

TEMPO

To...
ROOTY HILL

CONSTRUCTION ACCESS GATE B

HRV STANDARDS (4.3)

...From
CECIL HILLS

ADJOINS SHEET 3

ADJOINS SHEET 5

4.5 3.2 3.2

3.5 4.2 3.5

WALLGROVE ROAD

60 ROAD WORK

40M

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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 4 OF 10

Drawing No. TS02A-04

Rev 5

LEGEND

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- NEW LINE MARKING (RED)
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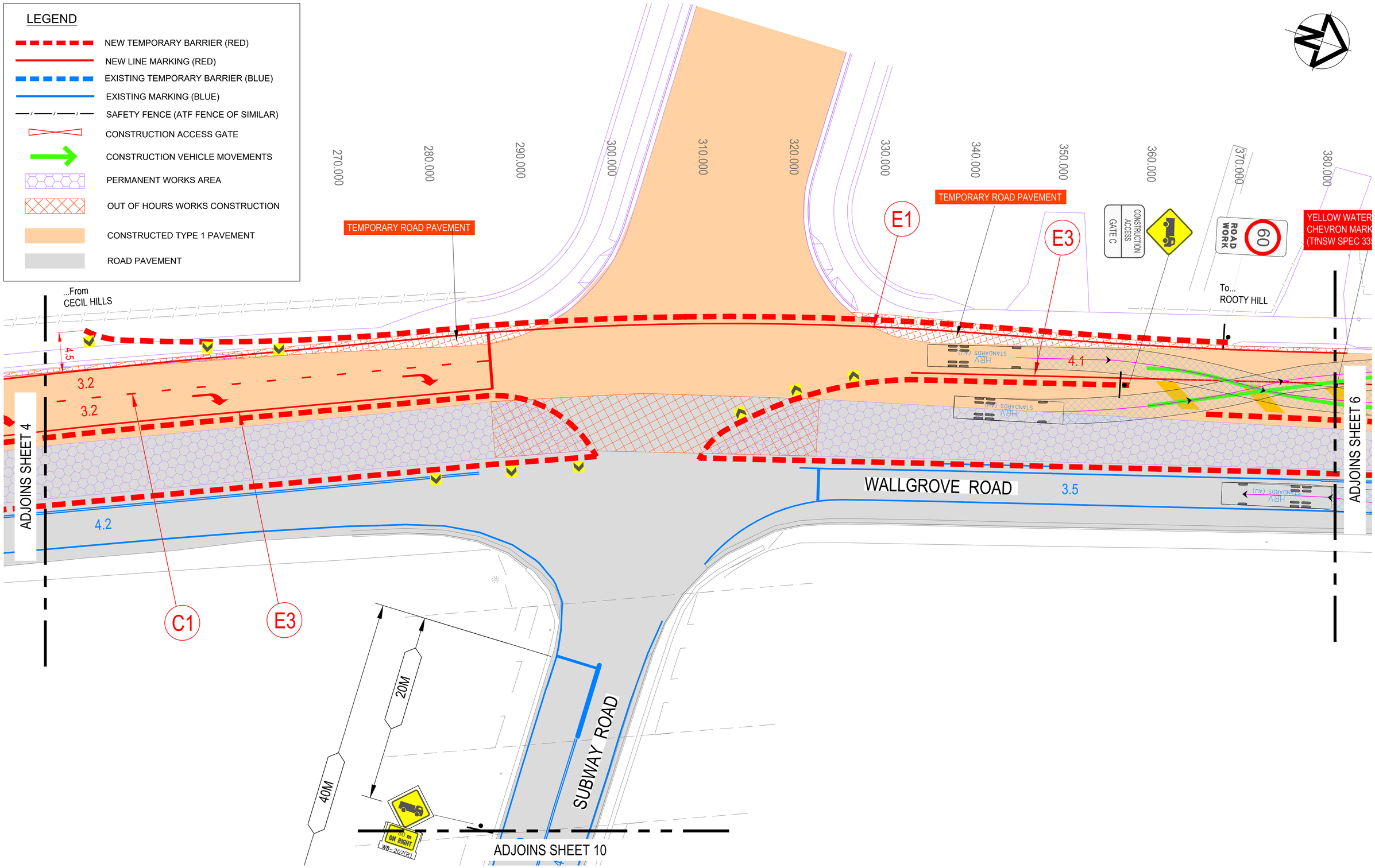

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Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

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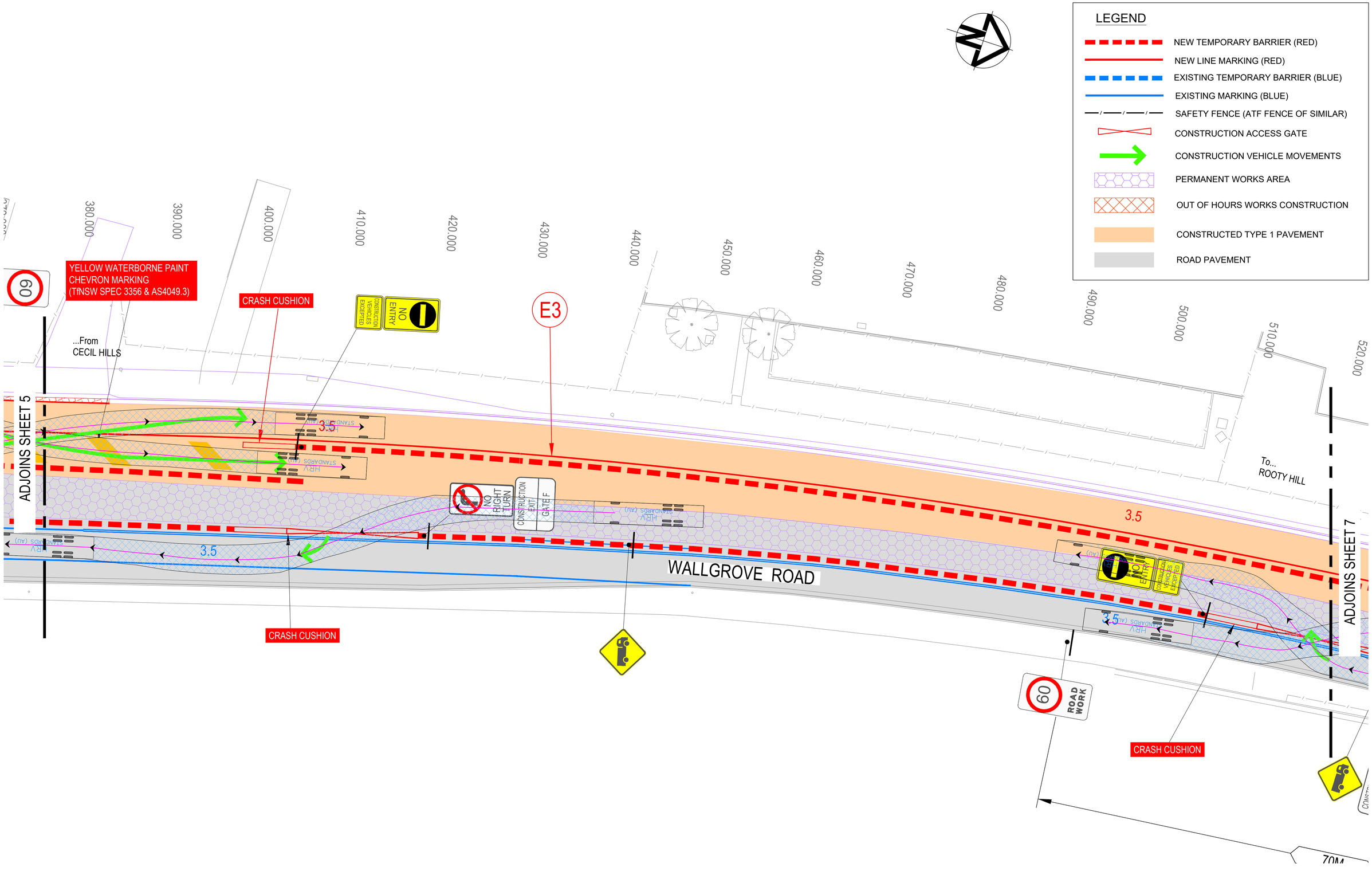
Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 5 OF 10

Drawing No. TS02A-05

Rev 5



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APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

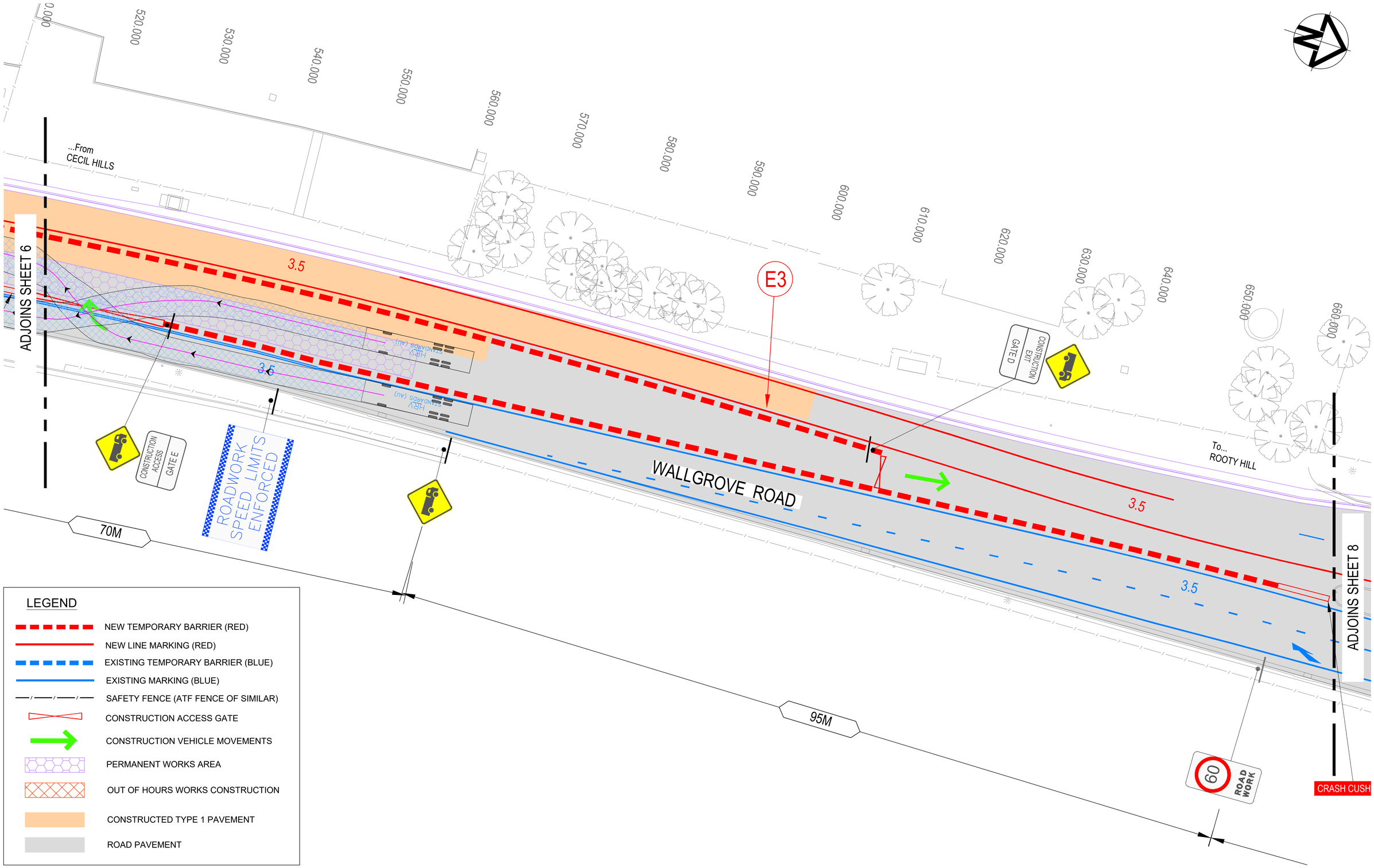
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 6 OF 10

Drawing No.: TS02A-06

Rev: 5



LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE... 16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 7 OF 10

Drawing No. TS02A-07

Rev 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
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- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

660.000
670.000
...From CECIL HILLS
ADJOINS SHEET 7
Bus Stop
3.7
3.3
3.2
3.3
3.2
50
END ROADWORK
ROUSSELL ROAD
CRASH CUSHION
WALLGROVE ROAD
45M
FORM 1 LANE
VMS
55M
LEFT LANE ENDS
MERGE RIGHT
To... ROOTY HILL
ADJOINS SHEET 9

Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
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Design	JKB	10/05/22
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Contractor: BURTON CONTRACTORS

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SIGNED..... DATE... 16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

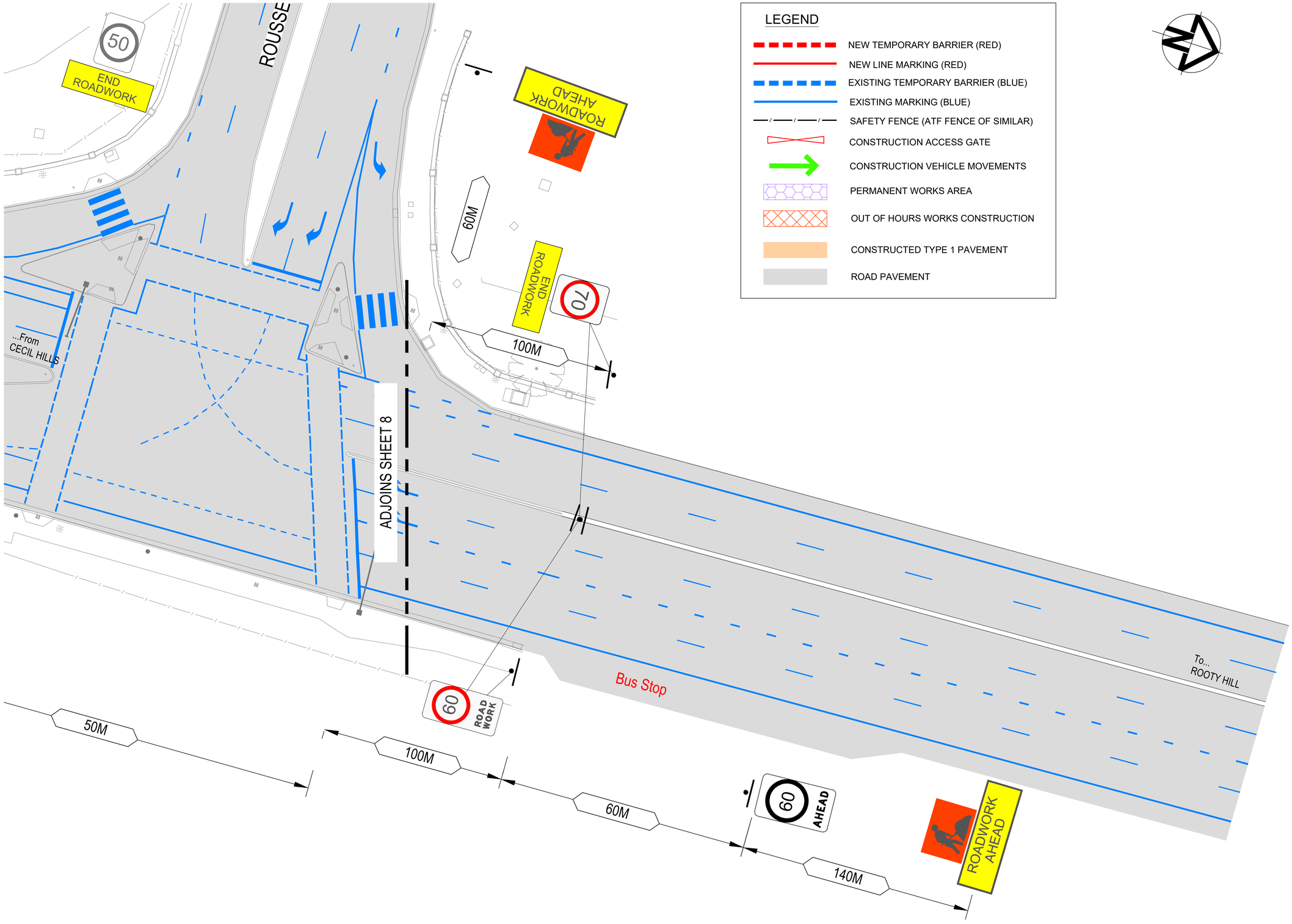
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 8 OF 10

Drawing No. TS02A-08

Rev 5



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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

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B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW Government)

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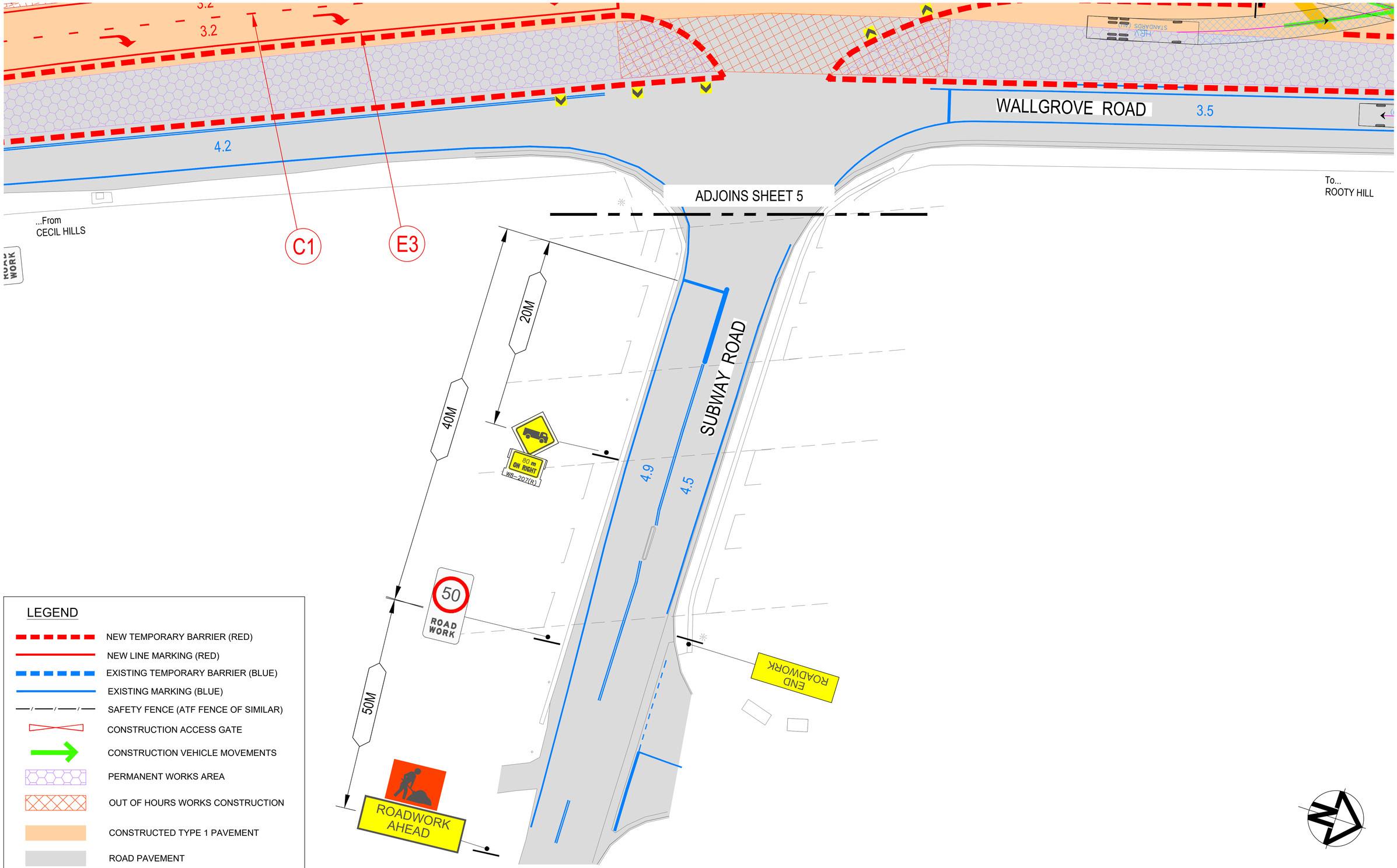
Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 9 OF 10

Drawing No.: TS02A-09

Rev: 5



LEGEND

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Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 10 OF 10

Drawing No.: TS02A-10

Rev: 5

TCS Staging Plan – Stage 2

TCS 5058

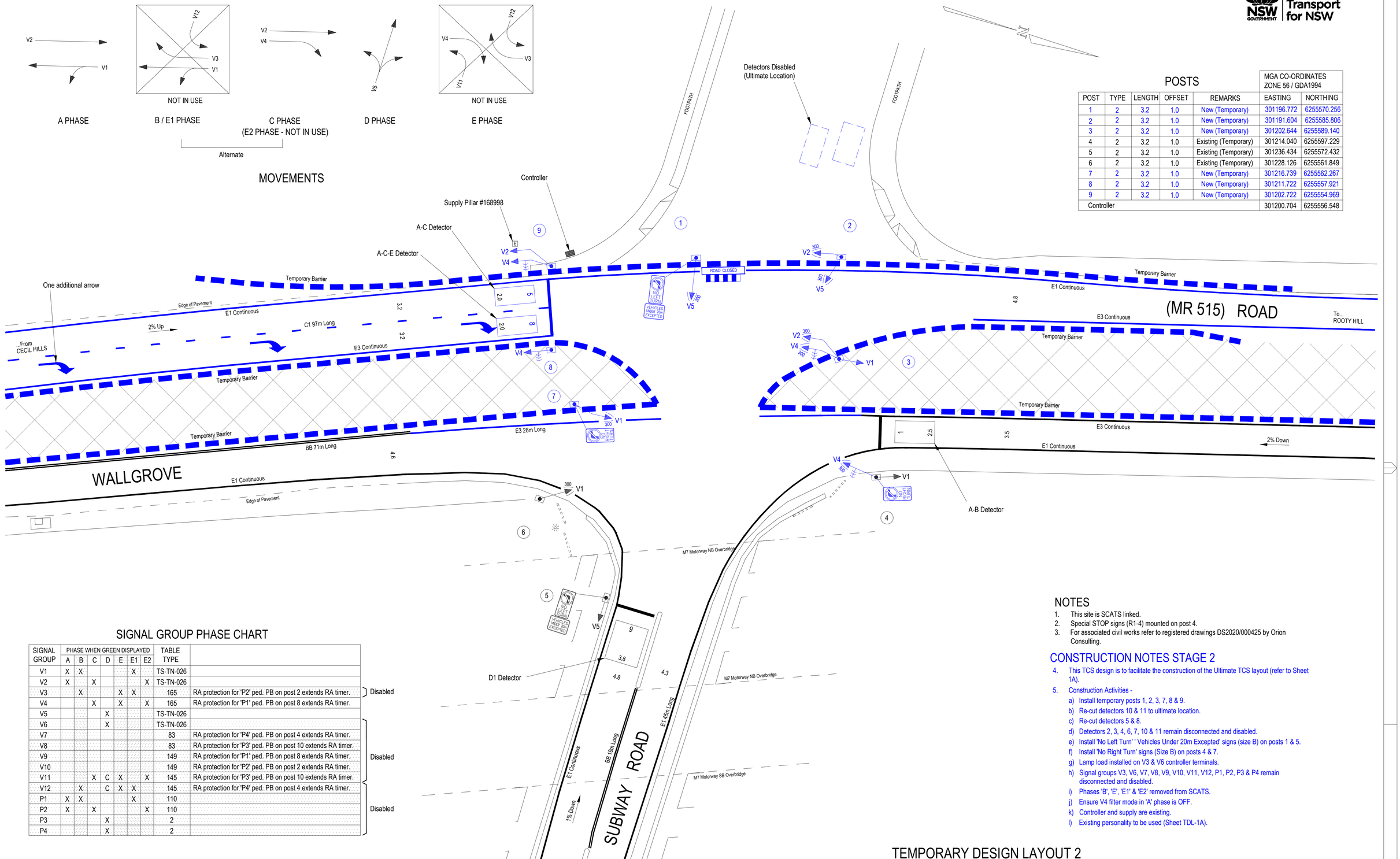
DATE IN SERVICE : 00/00/00

NSW GOVERNMENT | Transport for NSW

MOVEMENTS

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS	MGA CO-ORDINATES ZONE 56 / GDA1994 EASTING	NORTHING
1	2	3.2	1.0	New (Temporary)	301196.772	6255570.256
2	2	3.2	1.0	New (Temporary)	301191.604	6255585.806
3	2	3.2	1.0	New (Temporary)	301202.644	6255589.140
4	2	3.2	1.0	Existing (Temporary)	301214.040	6255597.229
5	2	3.2	1.0	Existing (Temporary)	301236.434	6255572.432
6	2	3.2	1.0	Existing (Temporary)	301228.126	6255561.849
7	2	3.2	1.0	New (Temporary)	301216.739	6255562.267
8	2	3.2	1.0	New (Temporary)	301211.722	6255557.921
9	2	3.2	1.0	New (Temporary)	301202.722	6255554.969
Controller					301200.704	6255556.548



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED A	B	C	D	E	E1	E2	TABLE TYPE		
V1	X	X				X		TS-TN-026		
V2	X		X				X	TS-TN-026		
V3		X			X	X		165	RA protection for 'P2' ped. PB on post 2 extends RA timer.	Disabled
V4			X		X		X	165	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V5				X				TS-TN-026		
V6				X				TS-TN-026		
V7								83	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
V8								83	RA protection for 'P3' ped. PB on post 10 extends RA timer.	Disabled
V9								149	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V10								149	RA protection for 'P2' ped. PB on post 2 extends RA timer.	
V11			X	C	X		X	145	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V12		X		C	X	X		145	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
P1	X	X				X		110		Disabled
P2	X		X				X	110		
P3				X				2		
P4				X				2		

NOTES

1. This site is SCATS linked.
2. Special STOP signs (R1-4) mounted on post 4.
3. For associated civil works refer to registered drawings DS2020/000425 by Orion Consulting.

CONSTRUCTION NOTES STAGE 2

4. This TCS design is to facilitate the construction of the Ultimate TCS layout (refer to Sheet 1A).
5. Construction Activities -
   a) Install temporary posts 1, 2, 3, 7, 8 & 9.
   b) Re-cut detectors 10 & 11 to ultimate location.
   c) Re-cut detectors 5 & 8.
   d) Detectors 2, 3, 4, 6, 7, 10 & 11 remain disconnected and disabled.
   e) Install 'No Left Turn' ' Vehicles Under 20m Excepted' signs (size B) on posts 1 & 5.
   f) Install 'No Right Turn' signs (Size B) on posts 4 & 7.
   g) Lamp load installed on V3 & V6 controller terminals.
   h) Signal groups V3, V6, V7, V8, V9, V10, V11, V12, P1, P2, P3 & P4 remain disconnected and disabled.
   i) Phases 'B', 'E', 'E1' & 'E2' removed from SCATS.
   j) Ensure V4 filter mode in 'A' phase is OFF.
   k) Controller and supply are existing.
   l) Existing personality to be used (Sheet TDL-1A).

TEMPORARY DESIGN LAYOUT 2

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT		SYMBOLS/ABRVS	VD003-6
STOP VALVE		STD POSN CMPT	VD001-5
GAS VALVE		INSTL STOP DET	VC005-17
SEWER MANHOLE		VEH GROUP OP	TS-TN-019
COMMS PIT		DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE		PED MVT OP	TS-TN-021
POWER POLE		SDO	TS-TN-026
STAY POLE			
TELEPHONE BOX		SURVEYOR : Orion Consulting	
COMMS PILLAR		DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520

DESIGNED : R BATES
CHECKED : J BATES
J BATES
SITE CHECKED
J BATES
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME
POSITION MANAGER
DATE 17/05/22
DESIGN PREPARED BY
B-Line Drafting on behalf of Burton

TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME
POSITION
DATE
NETWORK OPERATIONS
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022

TFNSW ACCEPTANCE
ACCEPTED
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022
ACCEPTED BY
Network Operations
SECTION

TRANSPORT FOR NEW SOUTH WALES

BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
WALLGROVE ROAD (MR515), SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_TDL-2_A.dgn
SCALE 5 0 (1:200) 5 10
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE TDL-1/A
ISSUE A
REG No. DS2020/000569
TCS No. 5058
SHEET TDL-2

Revision 7 - August 2021

Civil Staging Plan – Stage 3A

LEGEND

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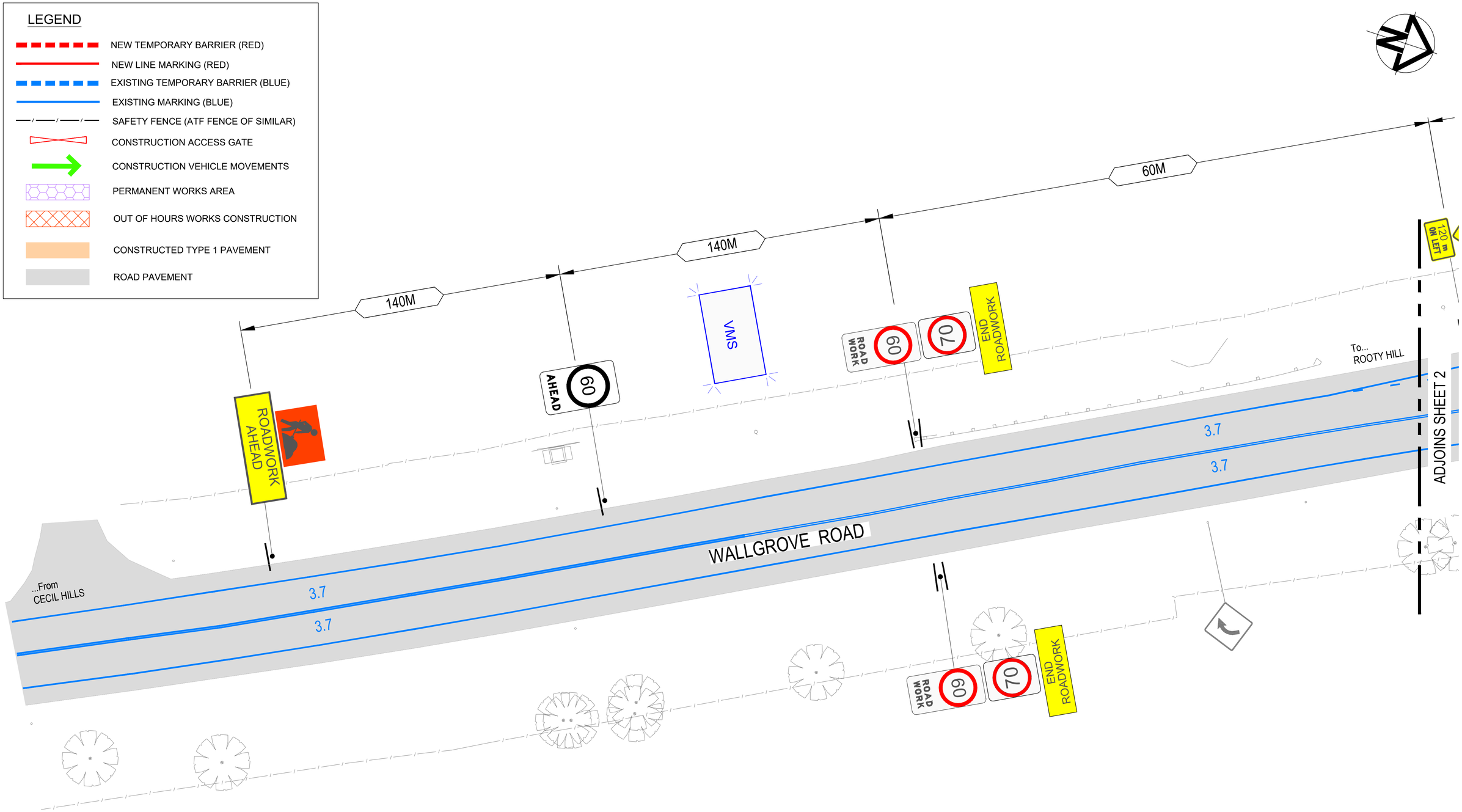

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1	10/05/22	JKB	-	STAGE 3A LAYOUT - EASTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 1 OF 10

Drawing No.: TS03A-01

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
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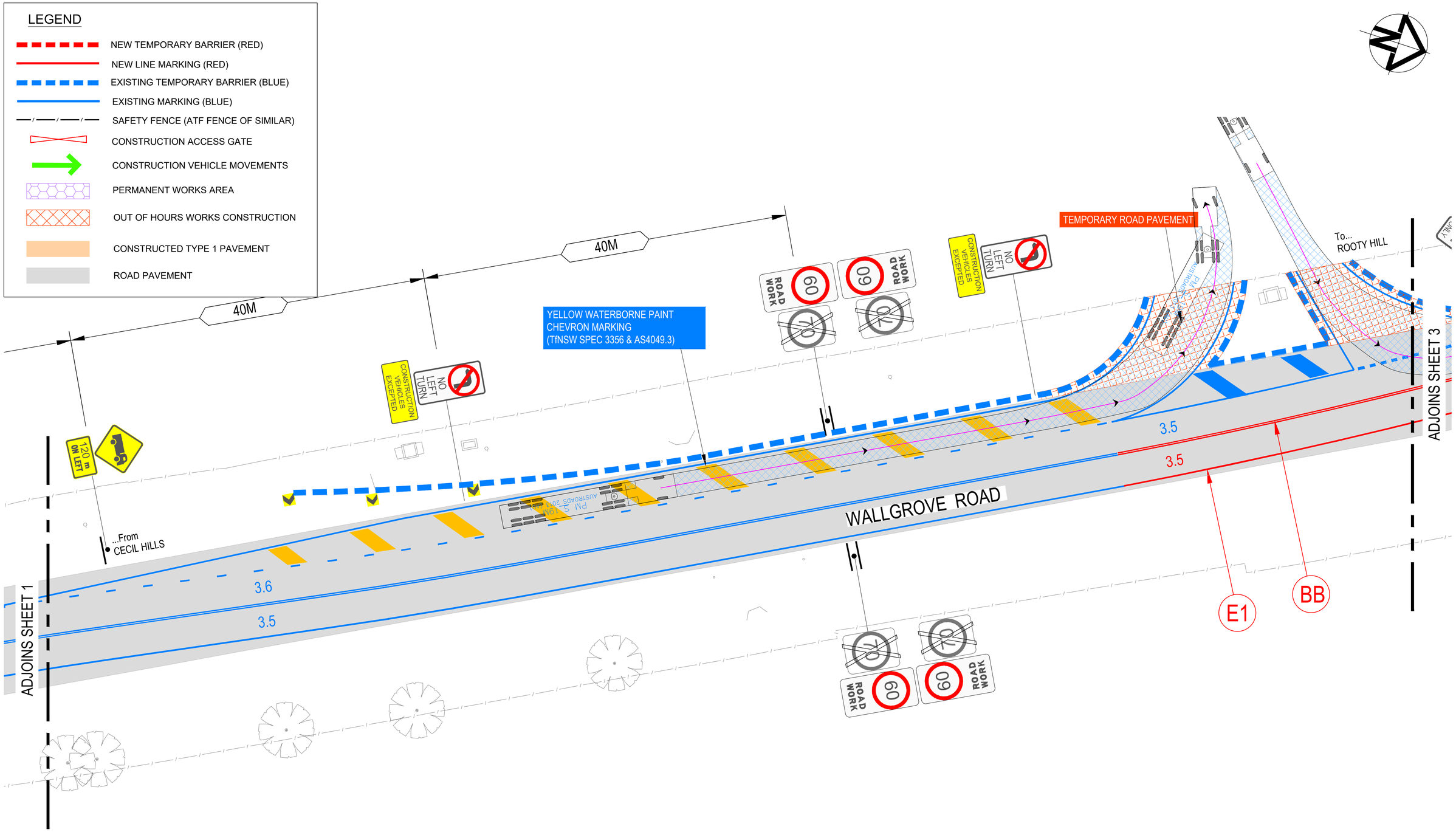

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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 2 OF 10

Drawing No.: TS03A-02

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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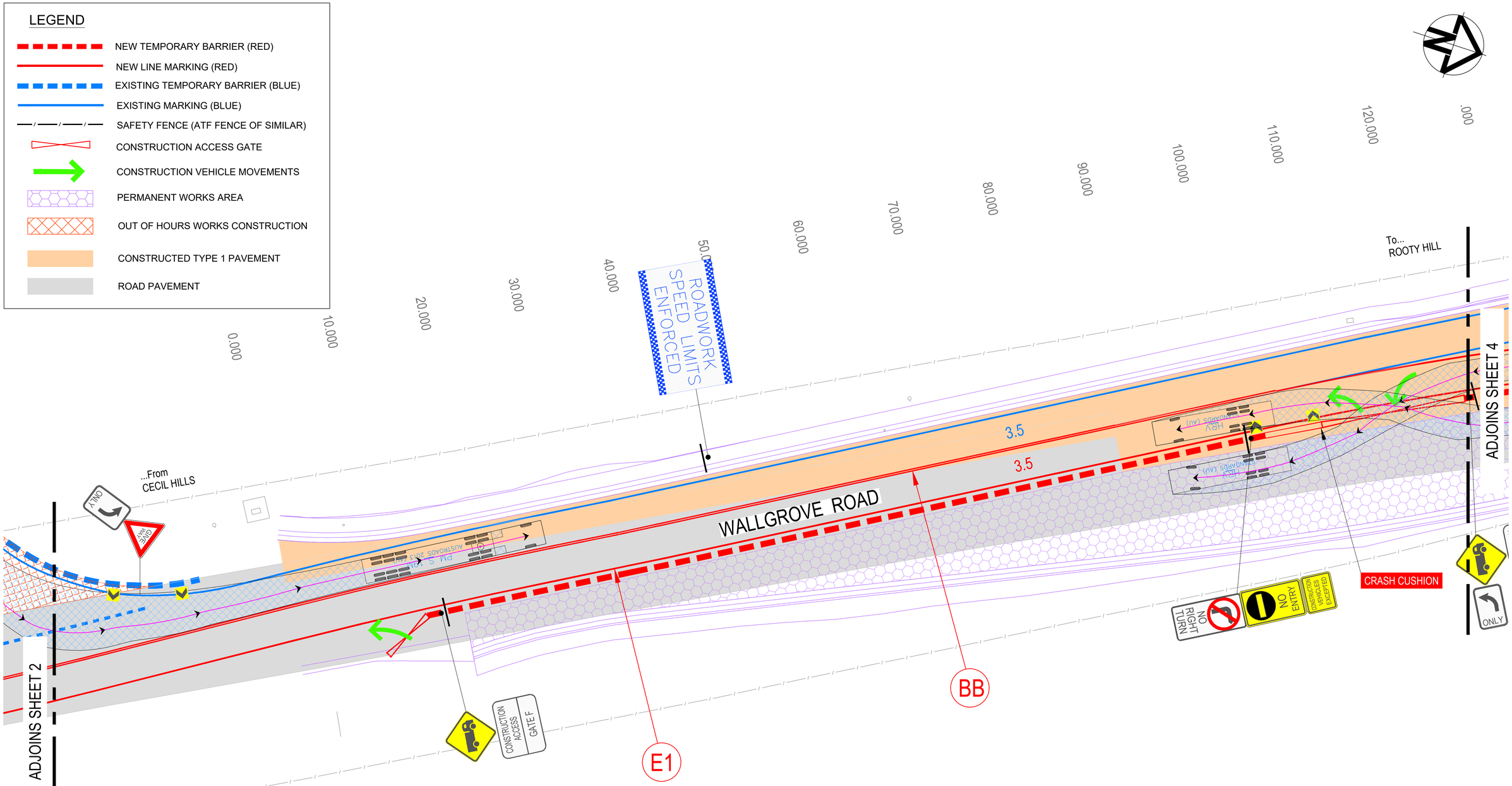

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Contractor: BURTON CONTRACTORS

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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 3 OF 10

Drawing No.: TS03A-03

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
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- EXISTING MARKING (BLUE)
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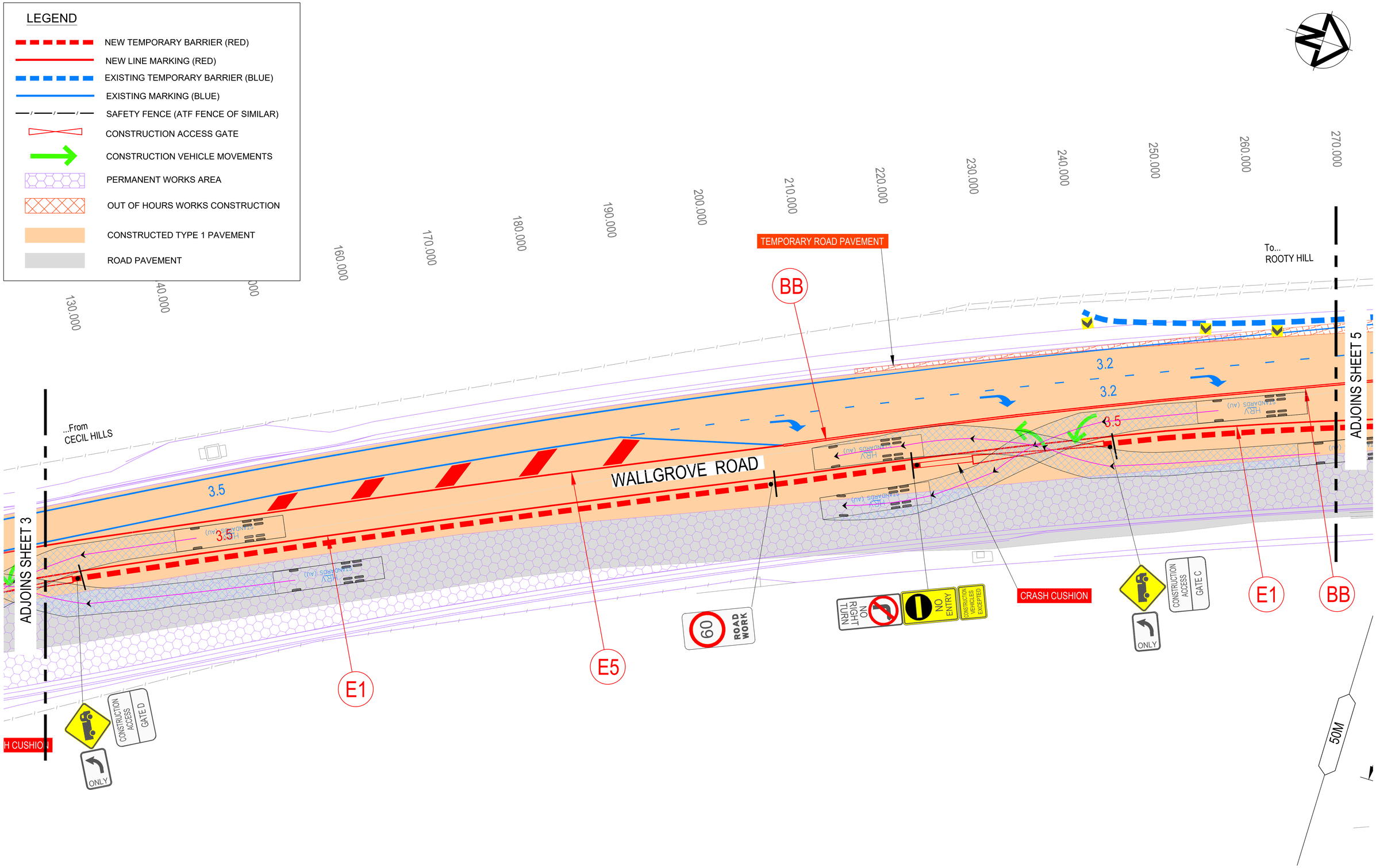

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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 4 OF 10

Drawing No.: TS03A-04

Rev: 5

LEGEND

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- NEW LINE MARKING (RED)
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- EXISTING MARKING (BLUE)
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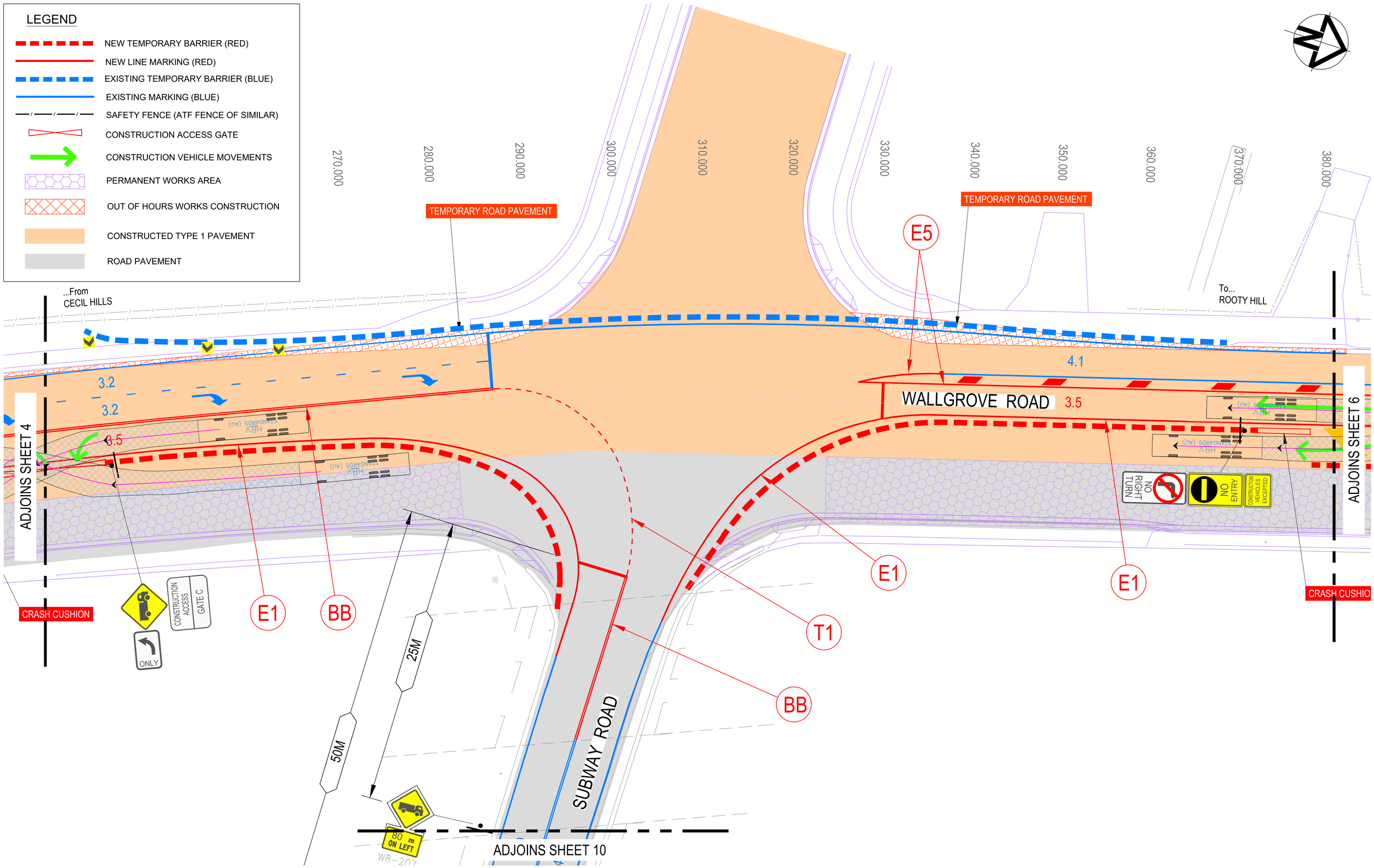

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Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 5 OF 10

Drawing No.: TS03A-05

Rev: 5

LEGEND

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410.000 420.000 430.000 440.000 450.000 460.000 470.000 480.000 490.000 500.000 510.000 520.000

...From CECIL HILLS

E5

ROAD WORK 60

YELLOW WATERBORNE PAINT CHEVRON MARKING (TfNSW SPEC 3356 & AS4049.3)

SHEET 5 ADJOINS

3.5

3.5

WALLGROVE ROAD

3.5

3.5

To... ROOTY HILL

SHEET 7 ADJOINS

CONSTRUCTION VEHICLE EXCEPTION

CRASH CUSHION

CONSTRUCTION ACCESS GATE B

E1

BB

ROAD WORK 60

ROADWORK SPEED LIMIT

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Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE.. 16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

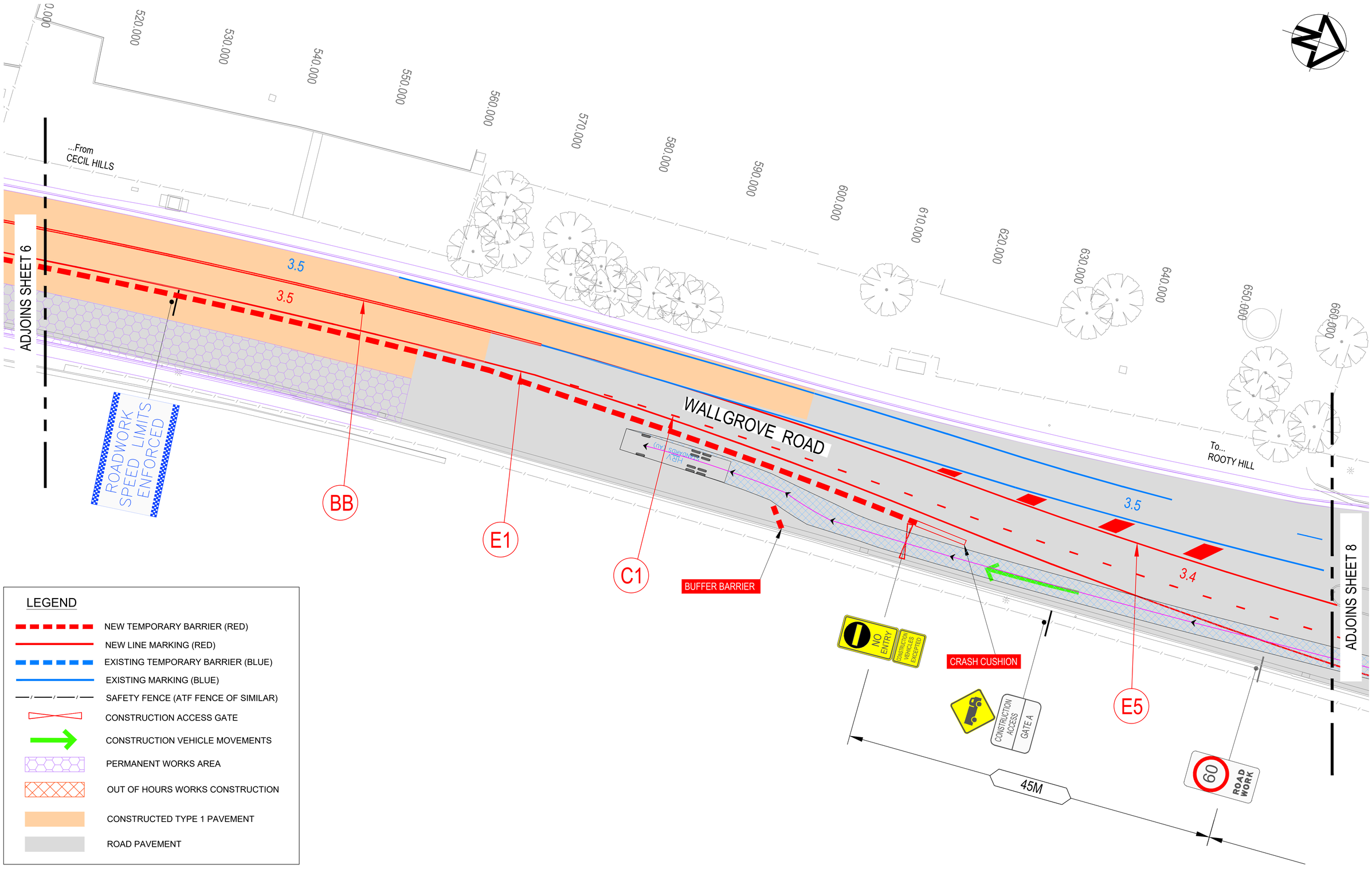
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 6 OF 10

Drawing No. TS03A-06

Rev 5



LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED, BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 3A LAYOUT - EASTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
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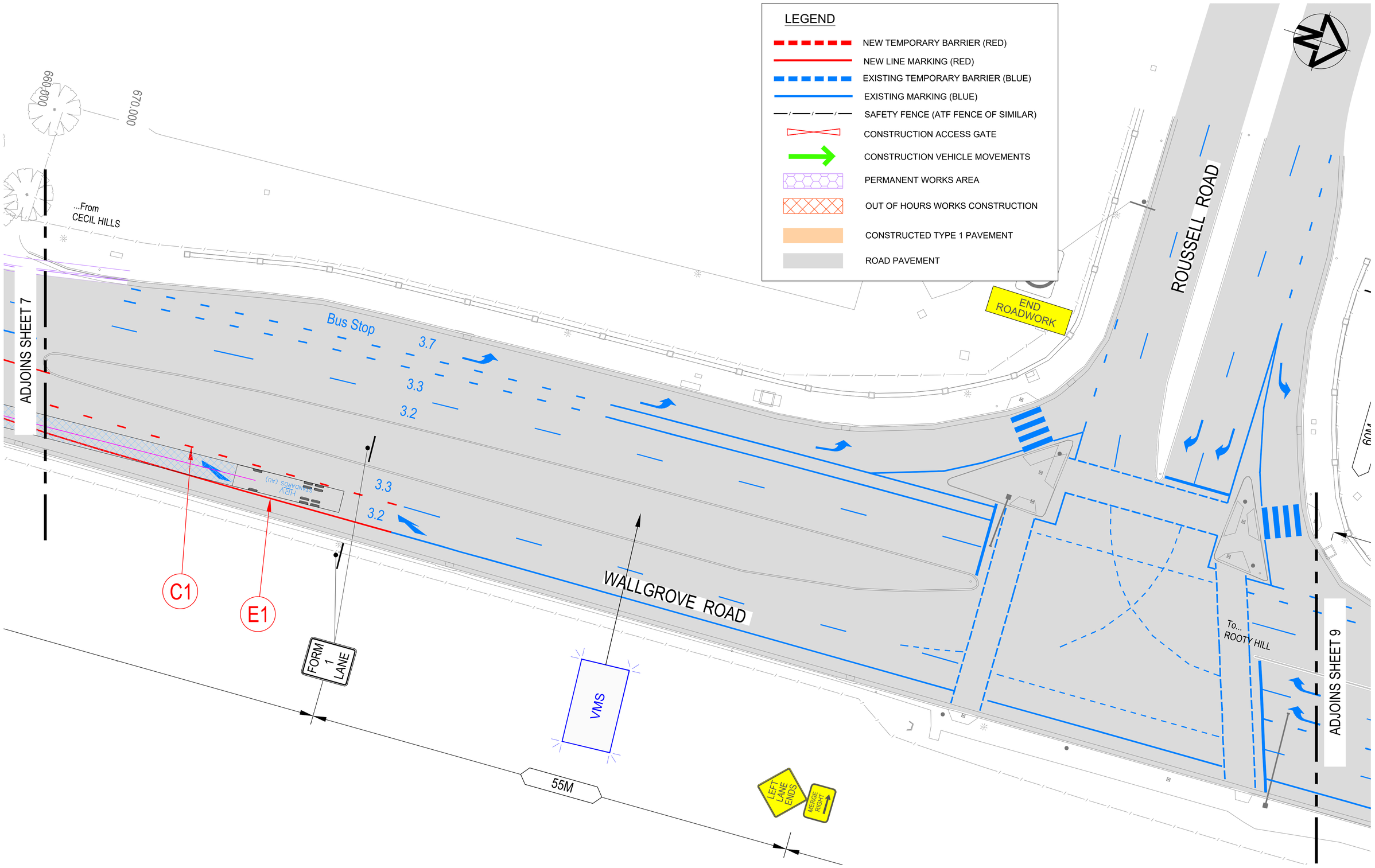
Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 7 OF 10

Drawing No.: TS03A-07

Rev: 5



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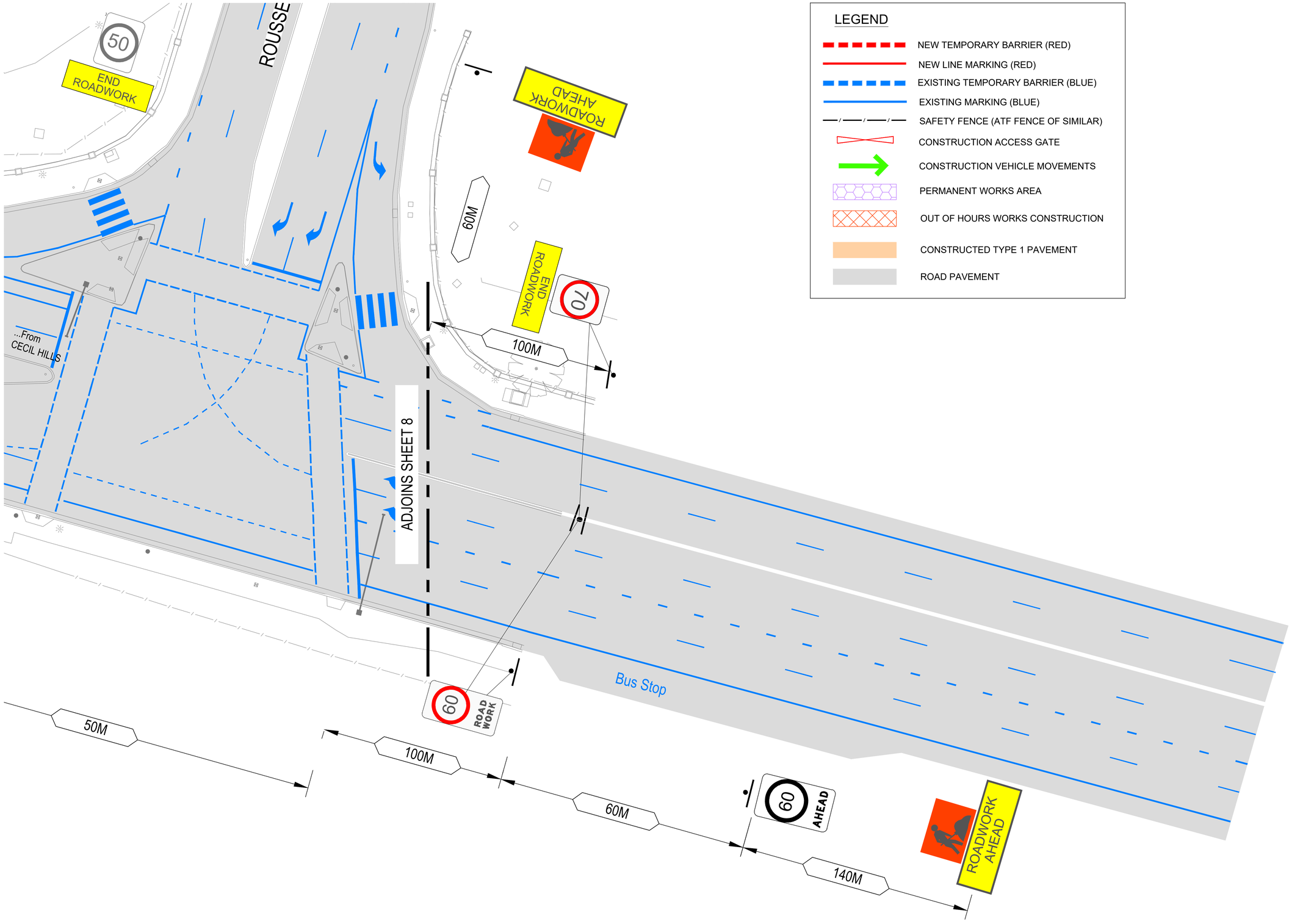
Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 8 OF 10

Drawing No.: TS03A-08

Rev: 5



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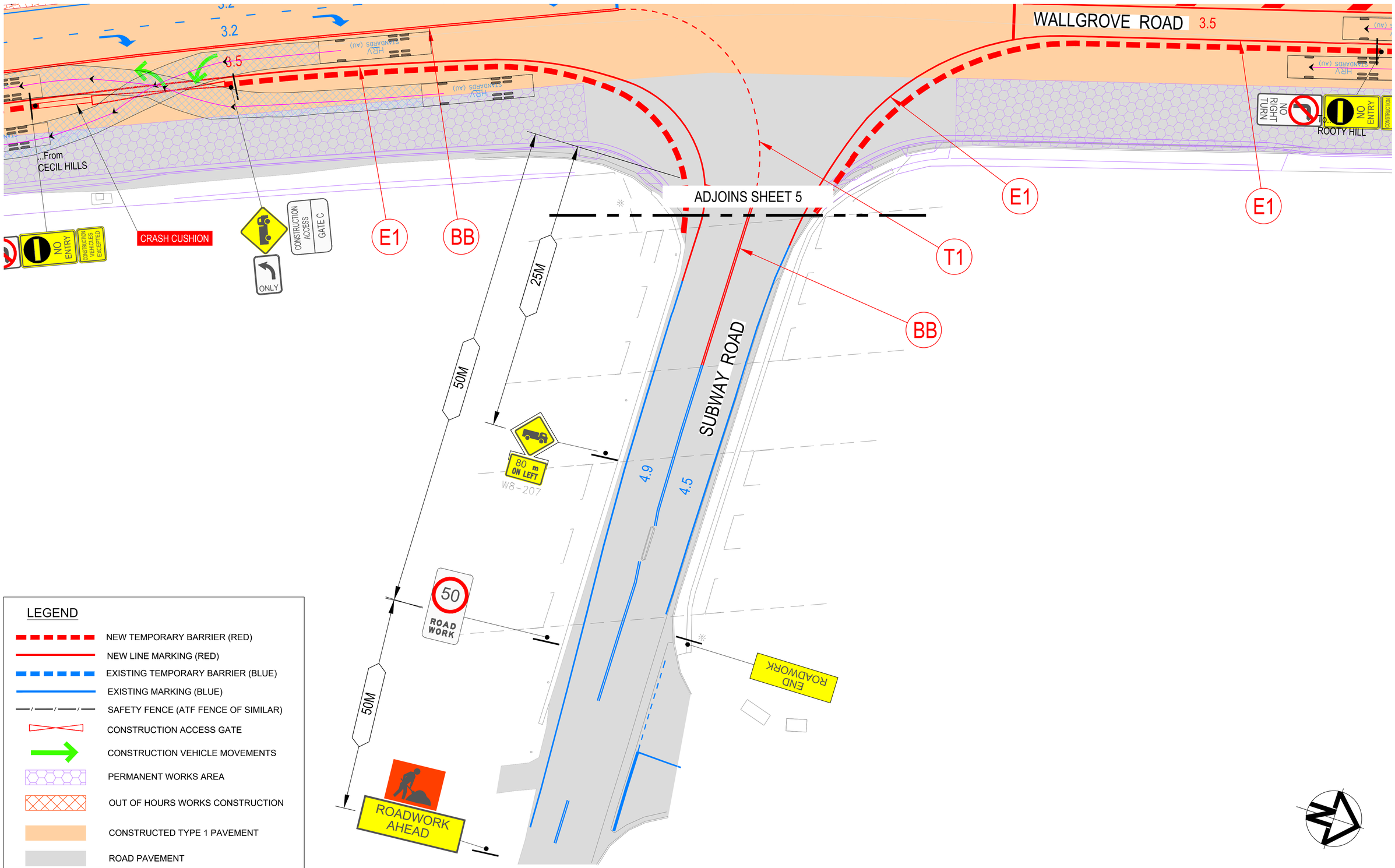
Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 9 OF 10

Drawing No.: TS03A-09

Rev: 5



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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 9 OF 10

Drawing No.: TS03A-10

Rev: 5

TCS Staging Plan – Stage 3A

TCS 5058

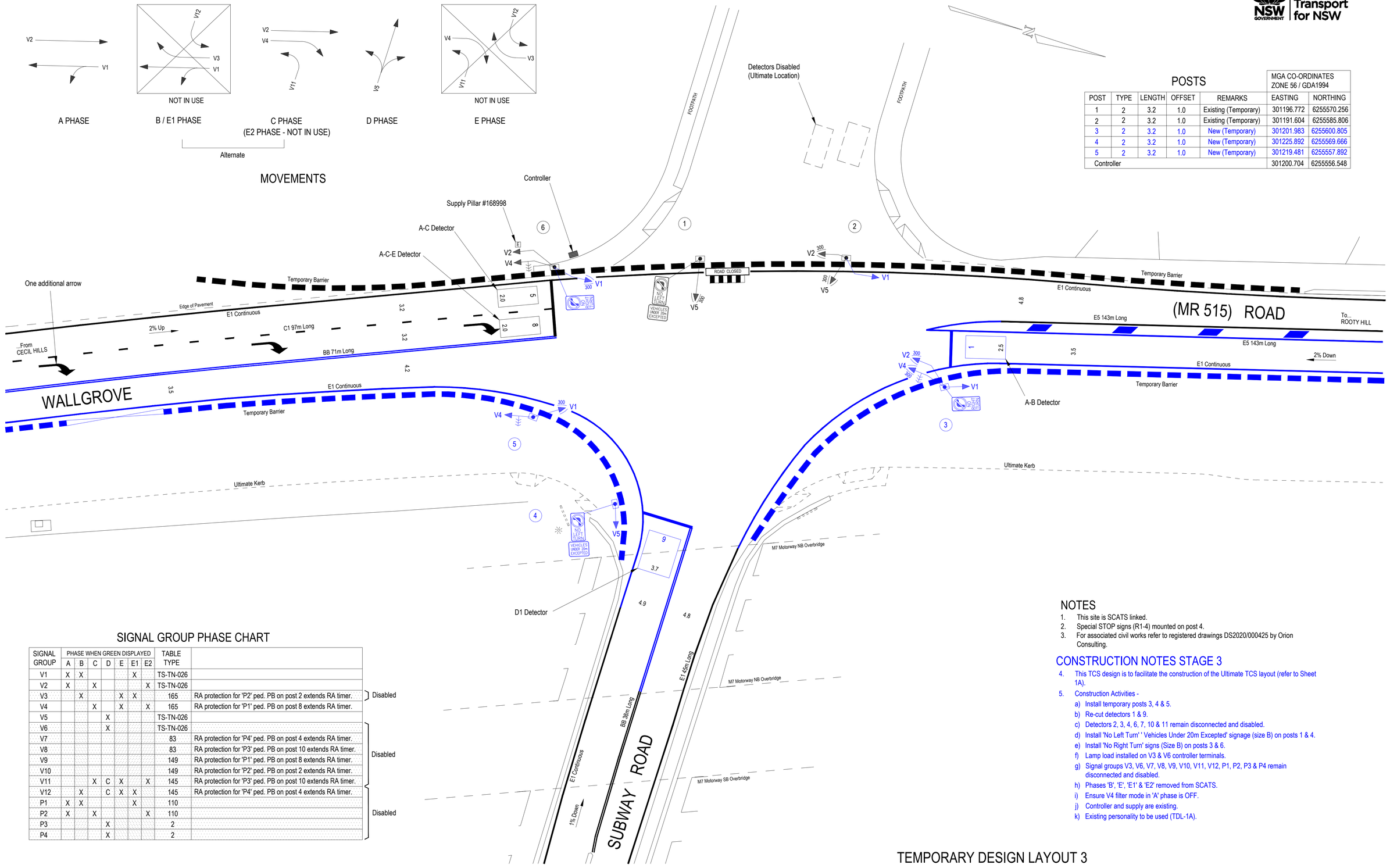
DATE IN SERVICE : 00/00/00

NSW GOVERNMENT | Transport for NSW

MOVEMENTS

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS	MGA CO-ORDINATES ZONE 56 / GDA1994 EASTING	NORTHING
1	2	3.2	1.0	Existing (Temporary)	301196.772	6255570.256
2	2	3.2	1.0	Existing (Temporary)	301191.604	6255585.806
3	2	3.2	1.0	New (Temporary)	301201.983	6255600.805
4	2	3.2	1.0	New (Temporary)	301225.892	6255569.666
5	2	3.2	1.0	New (Temporary)	301219.481	6255557.892
Controller					301200.704	6255556.548



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED A	B	C	D	E	E1	E2	TABLE TYPE		
V1	X	X				X		TS-TN-026		
V2	X		X				X	TS-TN-026		
V3		X			X	X		165	RA protection for 'P2' ped. PB on post 2 extends RA timer.	Disabled
V4			X		X		X	165	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V5				X				TS-TN-026		
V6				X				TS-TN-026		
V7								83	RA protection for 'P4' ped. PB on post 4 extends RA timer.	Disabled
V8								83	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V9								149	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V10								149	RA protection for 'P2' ped. PB on post 2 extends RA timer.	
V11			X	C	X		X	145	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V12		X		C	X	X		145	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
P1	X	X				X		110		Disabled
P2	X		X				X	110		
P3				X				2		
P4				X				2		

NOTES

1. This site is SCATS linked.
2. Special STOP signs (R1-4) mounted on post 4.
3. For associated civil works refer to registered drawings DS2020/000425 by Orion Consulting.

CONSTRUCTION NOTES STAGE 3

4. This TCS design is to facilitate the construction of the Ultimate TCS layout (refer to Sheet 1A).
5. Construction Activities -
   a) Install temporary posts 3, 4 & 5.
   b) Re-cut detectors 1 & 9.
   c) Detectors 2, 3, 4, 6, 7, 10 & 11 remain disconnected and disabled.
   d) Install 'No Left Turn' ' Vehicles Under 20m Excepted' signage (size B) on posts 1 & 4.
   e) Install 'No Right Turn' signs (Size B) on posts 3 & 6.
   f) Lamp load installed on V3 & V6 controller terminals.
   g) Signal groups V3, V6, V7, V8, V9, V10, V11, V12, P1, P2, P3 & P4 remain disconnected and disabled.
   h) Phases 'B', 'E', 'E1' & 'E2' removed from SCATS.
   i) Ensure V4 filter mode in 'A' phase is OFF.
   j) Controller and supply are existing.
   k) Existing personality to be used (TDL-1A).

TEMPORARY DESIGN LAYOUT 3

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT		SYMBOLS/ABRVS	VD003-6
STOP VALVE		STD POSN CMPT	VD001-5
GAS VALVE		INSTL STOP DET	VC005-17
SEWER MANHOLE		VEH GROUP OP	TS-TN-019
COMMS PIT		DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE		PED MVT OP	TS-TN-021
POWER POLE		SDO	TS-TN-026
STAY POLE			
TELEPHONE BOX		SURVEYOR : Orion Consulting	
COMMS PILLAR		DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520
DESIGNED : R BATES
CHECKED : J BATES
J BATES
SITE CHECKED
J BATES
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME
POSITION MANAGER
DATE 17/05/22
DESIGN PREPARED BY
B-Line Drafting on behalf of Burton

TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME
POSITION
DATE
NETWORK OPERATIONS
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022

TFNSW ACCEPTANCE
ACCEPTED
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022
ACCEPTED BY
Network Operations
SECTION

TRANSPORT FOR NEW SOUTH WALES

BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
WALLGROVE ROAD (MR515), SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_TDL-3_A.dgn
SCALE 5 0 (1:200) 5 10
ISSUE A
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE TDL-2/A
REG No. DS2020/000569
TCS No. 5058
SHEET TDL-3

Revision 7 - August 2021

Annexure D – Traffic Risk Assessment

Current Revision – Rev 2

SECTION 1: PROJECT DETAILS and RISK ASSESSMENT DEVELOPMENT & AUTHORISATION							
Project:	Wallgrove Road Intersection Upgrade	**Project No:**	423	**Date TRA Developed:**	27/04/2022	**Developed by (name):**	Nibraas Ahmad

REVISION CONTROL											
Revision:	0	Date:	27/04/2022	Revised by (name):	Nibraas Ahmad	Revision:		Date:		Revised by (name):	
Revision:	1	Date:	21/06/2022	Revised by (name):	Alex Ruello	Revision:		Date:		Revised by (name):	
Revision:	2	Date:	08/08/2022	Revised by (name):	Alex Ruello	Revision:		Date:		Revised by (name):	
Revision:		Date:		Revised by (name):		Revision:		Date:		Revised by (name):	

SECTION 5: RISK ASSESSMENT

What is an ACTIVITY?
An activity is the construction task being undertaken. E.g. Operation of an articulated dump truck to transport material on site.

What is a HIGH RISK ACTIVITY?
A high risk activity requires a worker to a hold licence, competency or Burton Contractors work permit/approval to perform the activity. This is due to the hazardous nature of the work.

What is a HAZARD?
A hazard is anything that could cause harm. E.g. Articulated dump truck tray rolling over while transporting material on site.

What is a RISK?
A risk is the assessment and determination of likelihood and consequence of the hazard occurring. E.g. crush injury to operator or nearby pedestrian from articulated dump truck tray rolling over. Using the **Risk Matrix**, allocate the **Risk Score** based on the consequence – e.g. permanent disability / fatality, and likelihood – e.g. likely to occur. The **Risk Score** is where the two points intersect – for this example it is a 3. The risk must be assessed before control measures are applied, and again after control measures are applied to verify if the risk has been eliminated or reduced.

Hierarchy of Controls
Burton Contractors employs a Hierarchy of Controls which is split into 3 levels of control. Each level describe the ways in which a risk can be controlled. The higher the level of control, the greater level of protection and reliability is provided in effectively controlling the risk.

The most effective form of control is elimination, however where this is not possible, a combination of Level 2 and/or 3 controls must be applied to minimise the risk.

Risk Matrix
The risk matrix provided below is used to distribute risks into four categories – Critical, High, Medium and Low.

A task with an identified risk of Critical must not proceed. The Project Manager must escalate the high risk activity with Construction Manager & QSE Team Leader to identify strategies to reduce risk or where Director approval is required where risk cannot be lowered to acceptable level.

For further information on either the Hierarchy of Controls or the Risk Matrix of please consult Burton Procedure PR-007 Risk Management or the QSE Department.

How to look for hazards:
A simple way to begin looking for hazards can be by dividing your workplace into logical workplace groupings, such as:

- Task hazards (working on machines, loading the truck, excavating around services, tools / equipment / material used for the task);
- Workplace hazards (road works, in and around schools and playgrounds, depth and location of excavations, surrounding works);
- Environmental hazards (weather conditions – strong wind, rain, extreme heat);

There are many other activities that can be undertaken to help with identifying hazards. These include:

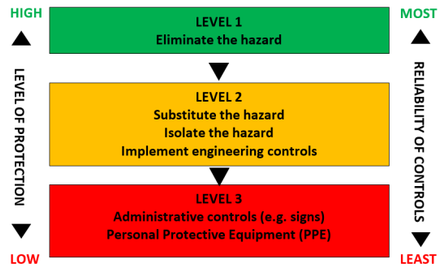
- Walking through and inspecting each task or location;
- Consulting with workers. Ask about any problems they have encountered or how the job should be carried out safely;
- Consider the following:
  - How people use equipment and materials;
  - How suitable the equipment used for the task is; and
  - How people could be injured directly and indirectly by the various workplace hazards.

		CONSEQUENCE			
		CRITICAL	HIGH	MEDIUM	LOW
LIKELIHOOD	Almost certainly will occur	1	2	4	7
	Likely to occur	3	5	8	11
	Possibility to occur	6	9	12	15
	Unlikely to occur	10	13	16	18
	Could occur rarely	14	17	19	20
Injury		Permanent disability / Fatality	Hospitalisation / <6 months lost time injury.	>6 months lost time injury / Medical treatment injury.	First aid – No lost time injury.
Environmental		Unplanned event likely to cause significant long term environmental impact and require an extensive rehabilitation.	Unplanned event likely to cause a serious environmental impact and require rehabilitation.	Unplanned event likely to cause a minor environmental impact and require rehabilitation.	Negligible unplanned event immediately contained and recovered within control system. No environmental impact.
Property / Plant		>$50k. Major damage or total loss.	$10k – $50k. Significant damage.	$2k-$10K. Minor damage.	<$2k. Very minor damage
Stakeholders		Significant adverse national public, media attention. Major litigation likely. Licence to operate threatened.	Significant adverse local, public, media attention. Serious Regulatory breach Prosecution/fine likely.	Minor adverse local, public or media attention. Significant scrutiny from Regulator, Minor prosecution or litigation possible.	Public concerns restricted to local complaints. Ongoing scrutiny from Regulator, prosecution unlikely.

RISK SCORE	CATEGORY
1 – 6	Critical
7 – 10	High
11 – 14	Medium
15 – 20	Low

A task with an identified risk of Critical must not proceed. The Project Manager must escalate the high risk activity with Construction Manager & QSE Team Leader to identify strategies to reduce risk or where Director approval is required where risk cannot be lowered to acceptable level.

Likelihood	Definition	Frequency Scale
Almost certainly will occur	Would expect the event to occur **every time** the activity is undertaken (daily), >90% of the time the activity is undertaken.	Every day
Likely to occur	Would expect the event to occur **at least once a week** if the activity was done regularly, 60 – 90% of the time the activity was undertaken.	Every week
Possibility to occur	Would expect the event to occur **once per month** if the activity was done regularly, 30 – 60% of the time the activity was undertaken.	Every month
Unlikely to occur	Would expect the event to occur **once during the project** <30% of the time the activity was undertaken.	Duration of project
Could occur rarely	Would expect the event to occur **only in exceptional circumstances** <5% of the time the activity was undertaken whether performed regularly or infrequently.	Duration of project



Risk Identification	Risk Rating	Control Level	Mitigation Measure/Response	Residual Risk
- Adjacent traffic generating developments	12	ADMINISTRATIVE	- Review all traffic generating developments in the area and identify potential impacts. - Where possible, coordinate construction activities to minimise cumulative impacts on the road network. - Implement traffic control as required to manage the operations of adjacent developments.	18
- Adverse Weather Conditions	8	ENGINEERING ADMINISTRATIVE	- Monitor weather bureau websites and notices. - Where necessary liaise with emergency services agencies, FCC/BCC/TfNSW/CJM. Implement CEMP relevant sub-plan for weather condition. - Support Emergency Services Agencies. - If the road network is affected notify TfNSW/CJM. - Remove any current short-term traffic control operations and limit the use of Traffic Controllers. - As required, install appropriate traffic controls and or advance warning signs to warn of hazard. - Increase the frequency traffic control inspections to rectify and or re-install damaged signs and devices. - Regularly inspect the road network adjacent to works. Monitor weather conditions and review controls accordingly.	12
- Approval delay by authorities cause disruption and delay to project	8	ADMINISTRATIVE	- "No Surprise" approach between all parties by involving and consulting throughout the approval process. - Submissions given adequate lead time	12
- Bush / Grass Fires	13	ENGINEERING ADMINISTRATIVE	- Liaise with the NSW Rural Fire Service and identify possible risk areas along the project. Source and comply with fire bans and instructions. - Ensure fire extinguishers are available on site. Develop SOPs and SWMS when conducting hot works. - Maintain both pedestrian and vehicle accesses to adjoining properties at all times. If a fire occurs, notify the NSW Fire Brigade and adjoining property owners. - Follow and execute the Incident Emergency Spill Plan. - Support Emergency Services Agencies if required. - If the road network is affected, notify FCC/BCC/TMC and implement appropriate traffic controls to make area safe.	16

			- Monitor fire and modify actions accordingly	
Damage to utilities	11	ISOLATE ENGINEERING ADMINISTRATIVE	- Ensure Dial Before You Dig procedures are in place and implemented. Obtain Permit to Excavate Record prior to commence work. Obtain relevant spotters if required for High Risk services - Implement Working around Utility / Excavation SWMS. - Notify emergency services and relevant utility authority if any damage occurred. If required, isolate the incident area. - If required, implement traffic control measures at the incident scene, and notify FCC/BCC/TfNSW/CJM. - Report on incident for input into review process (preventive action). - Traffic lanes shall be made to operational as soon as road occupancy repair works completed. - Steel plates to be on site for road crossings, to be implemented to M209 spec.	18
Dust	11	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Monitor weather bureau websites and notices. - Where necessary liaise with emergency services agencies, BCC/FCC/TMC. - Implement CEMP relevant Air Quality Management sub-plan for weather condition. Minimise dust build-up within the work areas. - If the road network is affected notify BCC/FCC/TMC. - Remove any current short-term traffic control operations and limit the use of Traffic Controllers. - As required, install appropriate traffic controls and or advance warning signs to warn of hazard. - Monitor storm and review controls accordingly.	15
Early Construction Start Time	8	ELIMINATE SUBSTITUTE ADMINISTRATIVE	- Plan all works to avoid working outside of daylight hours. Obtain relevant approvals from agencies. - Assess the impacts on the community and road users. - Follow processes outlined in the CCL Plan to ensure stakeholders are provided with advance notice. - Utilise VMS to notify the motorists of any changed traffic conditions. - Implement appropriate traffic controls to minimise impact on the road network, including the operation of bus services.	15
Night Works	5	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Night work is generally high risk by the nature of the work – ensure Construction Manager & QSE team Leader are aware of scheduled night works - Refer to General Mobile Plant Controls. - ROL & TCP for work - Prior notification to residents of work. Night shifts not to exceed parameters outlined in the OOHW permit approval - Set up detour as per TCP - Sufficient lighting required for work - Ground workers to be in white overalls for visibility - Monitor queuing of traffic - Pos comms for traffic controllers - Pos comms for excavator operator & truck driver	13
End of queue management (local roads only)	11	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- Review traffic volumes to estimate end of queue location for the proposed stoppage time. - Notify road users about the expected delays. - Install VMS as required to notify and warn approaching traffic. - In addition to the standard TCP, implement end of queue traffic controls as per section - Consult and follow 4.6 of the TCAWS v06.1 manual. - Develop contingency plans for a stoppage 10 minutes and more. - Additional daymakers to be installed on queue approach as required	15
Extreme (high/low) temperature	12	ELIMINATE SUBSTITUTE ADMINISTRATIVE	- Monitor weather bureau website and notices. - Ensure staff are provided with adequate water and resources to mitigate dehydration. Reschedule works to avoid extreme temperature periods. - During hot weather periods, limit the length of short term stoppages on the road network, and ensure water is available on site. - When traffic controllers are in operation, ensure they are provided with appropriate PPE, water and relieved at regular frequencies. - Regular inspect the road network adjacent to works. Monitor weather conditions.	15
Fog	12	ELIMINATE	- No work shall be undertaken in fog unless appropriate sight distance is available.	15

		ADMINISTRATIVE	- Keep the traffic lanes and shoulder clear all the time. - Monitor conditions regularly and be prepared for changes in weather. Flashing yellow lamps shall be mounted on warning signs. - Rotating flashing yellow lamps shall be mounted on all construction plant and vehicles. - Install RRPMs and delineation devices along all temporary works	
General Media Misinformation	12	ELIMINATE ADMINISTRATIVE	- Construction staff to be instructed not to provide comments to media or political enquiries. - Construction staff to be instructed to record the name, organisation and mobile number of the media contact and immediately contact their supervisor. - Liaise regularly with stakeholders. - Provide a single point of contact for the project. - Release regular project updates and information to stakeholders. Monitor feedback and the various media to identify trends.	15
Haulage Operations	13	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- Plan all routes to maximise safety and minimise impact on the road network. - Comply with the haulage operation requirements stipulated within the Traffic Management Plan. - Prepare and implement specific Vehicle Movement Plans and associated Traffic Guidance Schemes. - Coordinate haulage operations and road occupancies. - Monitor haulage routes and review Vehicle Movement Plans as required. As a contingency, identify suitable alternative routes.	16
Heavy Vehicle Breakdown	12	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- If the vehicle is obstructing travel lanes, notify BCC/FCC/TMC immediately. - Where possible, provide initial response and install traffic controls to make site safe.	16
High Volumes of heavy vehicles	15	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Give consideration of the high percentage of heavy vehicles during the construction phase. - Plan all works to avoid restrictions, impacts and speed limit reductions overnight during peak heavy vehicle periods. - Provide a high standard of traffic controls to warn, inform and guide heavy vehicles through the work areas. - Implement temporary works that comply with the TfNSW's Road Design Guide, provide a safe road environment, and accommodate the movements of heavy vehicles.	18
Impacts to Emergency Services	11	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Design and implement emergency service accesses in all phases of construction. - Inform and regularly update emergency services in regards to the site gates and accesses. - Consult with emergency services on access restrictions and alternative arrangements. Provide 24 hour contact number to all emergency services.	15
Increased traffic generated by project	11	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Estimate the potential traffic generated by the project. - Review existing traffic volume with increased project generated volume to determine the potential impact it will have on the road network. - Give consideration to the potential increased traffic volumes when preparing the TCP's. Where required, modify traffic controls to accommodate increased traffic volumes. - Monitor the road network and implement traffic management solutions, as required to maintain the performance of the road network.	15
Localized and flash flooding	4	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Consult Burton generated Flood Contingency Plan. - Implement Incident Emergency Spill Plan. Support Emergency Services Agencies. - If the road network is affected notify BCC/FCC/TMC. - Where required, assist with the removal of drainage obstructions. - Where possible, install appropriate traffic controls and or advance warning signs to warn of hazard. - Monitor flood levels and review controls accordingly.	12
Major Congestion	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING	- Analyse possible impacts due to works, using traffic modelling where necessary and analyse, to identify issues. - Develop traffic schemes to mitigate congestion where possible. Program works during low traffic periods. - Through Traffic Management Plan process, and information signage, alert public to likely congestion and delays. - Monitor road network for congestion, review traffic management measures where required.	12

		ADMINISTRATIVE		
Major Incidents	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- Maintain regular contact and liaison with BCC/FCC/TMC. - Ensure procedures are in place to deal with the various types of incidents. - Monitoring of the roads will identify unsafe road conditions, unplanned incidents, non- conforming traffic control measures and unusual congestion. - When required use appropriate traffic control measures, including traffic controllers, signage, pavement markings and lighting. - TCPs to be designed and installed in accordance with TCAWS manual. Establish and implement TCPs. - Report on incident to input into review process (preventative action).	12
Minor Vehicle Crashes	9	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- If an unplanned incident occurs, notify emergency services. - Assist in providing a high standard of traffic controls to warn, inform and guide motorists, through the work areas. - Implement temporary works that comply with the TfNSW Road Design Guide, and provide a safe road environment. - Where possible, provide initial response and install traffic controls to make site safe and assist vehicle occupants. - Support emergency services.	12
Public transport disruptions	9	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Consult regularly with public transport operators with regard to proposed changes to public transport arrangements, alternative arrangements need to be agreed with Operator. - Install temporary information signage to inform public transport users of changes to services and new stop locations and routes. - Provide information for public transport operators for call centres and websites regarding changes to services.	12
Seasonal traffic variations – school holidays, public holidays	15	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Maintain regular contact and liaison with TMC and Local Police Command. - Schedule work, if possible to avoid conflict with seasonal traffic increases or conversely to utilise quieter periods to benefit project activities for road related matters.	18
Tracking debris onto travel lanes	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Install primary environmental controls to prevent tracking onto roadways. - When required, apply secondary controls (water carts, street sweepers) to remove debris from the road surface. - Traffic Control Site Manager to conduct daily inspection and monitoring of road surface conditions, if necessary to assist traffic control to make safe until debris cleared. - Report on incident for input into review process (preventive action)	12
Traffic control at work site	9	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Implement a high standard of traffic controls to warn, inform and guide motorists through the work areas. - Develop TGSs in accordance with TfNSW TCAWS, G10 and AS 1742.3 requirements. - Long term TGSs to be prepared by SafeWorkNSW ‘Prepare traffic management plans and traffic guidance schemes’ ticket holder along with ‘Carry out risk management process’ ticket holder - Ensure all staff and subcontractors are trained and certified as competent persons to perform any traffic control task. - Site Management Team to conduct regular inspections of traffic controls and assist to rectify minor deficiencies. - Conduct regular inspections and audits. - Review traffic controls to suit changes to site conditions. Rectify any deficiencies as a matter of urgency.	12
Unknown Oversize Load Transport	13	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Instruct staff to be on the lookout for over dimension loads approaching the work areas, and where required modify the travel paths accordingly. - When the over dimension movement seems to be in breach of the TfNSW requirements, record vehicle details and notify TMC. - If the vehicle is considered a safety hazard to other road users notify the police.	16
Reduced Lane Widths (where and if utilised)	8	ELIMINATE SUBSTITUTE ISOLATE	- Reduce speed limit throughout site from 60km/h to 40km/h during night works - Provide advanced warning signage / notification of changed traffic conditions - 3.0m lane widths are to be maintained at a minimum and conforming with AGRD	12

		ENGINEERING ADMINISTRATIVE	- Swept paths to be considered for all turns within the work zone if affecting turning paths	
Reduction in edge clearance from 0.5m to 0.3m **Risks Include** Cyclist Collision Narrow shoulder/cycleway Reduce breakdown facilities Hampered turn paths Narrow carriageway Increased shyline effect	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Provide advanced warning signage / notification of changed traffic conditions - Swept paths to be considered for all turns within the work zone and included on staging plans showing the type of vehicle size permitted. Turn paths must not conflict or cross line marking or intersect other turn paths for concurrent vehicle movements (ie at traffic lights) - Lane geometry is to be drafted and designed by a Traffic Engineer to ensure that vehicles can safely travel through the worksite. - Ensure appropriate sight distances are observed and factored for B Double haul routes - Deflection behind concrete barriers to be compliant to manufacturer standards - Reduce existing speed limit from 70km/h down to 60km/h - Provide alternate path provisions or detour routes for cyclists through areas of reduced edge clearance. - Alternate routes or path provisions to have clear advanced signage to direct cycle traffic - Alternate routes to be clear of trip hazards, safely delineated, have sufficient lighting, be wheelchair compliant, have sufficient sight distances for vehicles and pedestrians and be accessible at all times and to all pedestrian push buttons. - Provide generally 3.5m wide lanes for increased travel lane where edge clearance has been reduced from 0.5m to 0.3m - Provide appropriate facilities for potential vehicle breakdowns to allow for continued traffic flow - Undertake independent Road Safety Audit after barrier installation where reduced edge clearances are present - Provide long continuous barrier lengths / runs in staging plans to reduce shy line effects by reducing number of gates / breaks in barrier runs - Maintain consistent offset of barriers from line marking to reduce driver reaction to isolated objects or features	12

APPLICABLE LEGISLATION, STANDARDS, CODES OF PRACTICE AND GUIDANCE MATERIAL

Hazard/Risk	Legislation	Standard	Codes of Practice	Guidance Materials
1. Legal Compliance	WHS Act 2011 Part 2 Division 3 WHS Regulation 2017 Chapter 6 Part 6.3 & Part 6.4 Workplace Injury Management & Workers Compensation Act 1998 (NSW) Workplace Injury Management & Workers Compensation Regulation 2002 (NSW) Workers Compensation Act 1987 (NSW) Workers Compensation Regulation 2016 (NSW) Workers' Compensation (Dust Diseases) Act 1942 (NSW) Workers' Compensation (Dust Diseases) Regulation 2013 (NSW)	AS 4801 Occupational Health and Safety Management Systems ISO 9001 Quality Management Systems	COP: How to manage work health and safety risks COP: Work health and safety consultation, coordination and cooperation COP: Construction work	Guidelines for Health Surveillance – NOHSC
2. Emergency Management	WHS Act 2011 Part 3 WHS Regulation 2017 Chapter 3 Part 3.2 Division 4 Workplace Injury Management & Workers Compensation Act 1998 (NSW) Workplace Injury Management & Workers Compensation Regulation 2002 (NSW) Workers Compensation Act 1987 (NSW) Workers Compensation Regulation 2016 (NSW) Workers' Compensation (Dust Diseases) Act 1942 (NSW) Workers' Compensation (Dust Diseases) Regulation 2013 (NSW)	AS 1885.1 Workplace injury and disease recording standards AS 1319 Safety signs for the occupational environment AS 3745 Planning for emergencies in facilities AS 1851 Maintenance of fire protection systems and equipment	COP: First aid in the workplace COP: Managing the work environment and facilities COP: Work health and safety consultation, coordination and cooperation COP: Construction work	
3. Plant and Equipment	WHS Act 2011. Part 2. Division 3 WHS Regulation 2017 Chapter 5 Part 5.1 Division 7	AS 2294 Earth-Moving Machinery - Protective Structures HB 9 Occupational Personal Protection AS 1418 Cranes, hoists and winches AS 2294 Earthmoving machinery – Protective structures AS 2359 Powered industrial trucks AS 2550 Cranes, hoists and winches – safe use AS 2958 Earthmoving Machinery – Safety –Wheeled machines	COP: Excavation work COP: Managing the risks of plant in the workplace Moving plant on construction sites code of practice Work near overhead power lines code of practice COP: Demolition work COP: Construction work	SWA - Working in the vicinity of overhead and underground electric lines - Guidance material SWA - Cranes guidance material SWA Information sheet - Using powered mobile plant as a crane Guidelines for Integrating OHS into National Industry Training Packages - NOHSC Guidelines for OHS Competency Standards for the Operation of

APPLICABLE LEGISLATION, STANDARDS, CODES OF PRACTICE AND GUIDANCE MATERIAL				
Hazard/Risk	**Legislation**	**Standard**	**Codes of Practice**	**Guidance Materials**
		AS 4024 series - Safety of Machinery AS 4987 Earth-Moving Machinery - Tip-over protection structure (TOPS) for compact excavators AS 4991 Lifting devices ISO 8643:1997: Earthmoving machinery–Hydraulic excavator and backhoe loader boom-lowering control device–Requirements and tests. AS 1788.2 Abrasive Wheels - Selection, care and use AS/NZS 3947.3 Low voltage switchgear and control gear, switches, disconnectors, switch-disconnectors and fuse combination units AS 61508.6 Functional safety of safety related systems AS 62061 Safety of machines: Functional safety of safety related electrical, electronic and programmable electronic systems ISO 13849.1 Safety of machinery: Safety-related parts of control systems - General principles ISO 12100 Safety of machinery - General principles for design		Load shifting Equipment and other Types of Specified Equipment – NOHSC National OHS Certification Standards for Users and Operators of Industrial Equipment - NOHSC National Standard for Plant - NOHSC
5. Traffic	WHS Act 2011 WHS Regulation 2017 Chapter 4 Part 4.5	AS 1742 Manual of uniform traffic control devices AS 4687 Temporary fencing and hoardings	COP: Construction work	Australian Road Rules TfNSW Traffic Control at Worksite Manual Version 6 Austroads - Guide to Road Design SWA - Traffic Management Guide: Construction Work SWA - Traffic Management - General Guide SWA - Information Sheet - Traffic Management SWA - Traffic hazard checklist SWA - Traffic control measures checklist RMS Specifications: G10 Traffic Management RMS Specifications: G22 Work Health and Safety
6. Manual Handling	WHS Act 2011 WHS Regulation 2017 Chapter 4 Part 4.2		COP: Hazardous manual tasks COP: How to manage work health and safety risks	National Standard for Manual Tasks - NOHSC
7. Management of Subcontractors	WHS Act 2011 Part 2 Division 3 WHS Regulation 2017 Chapter 6 Part 6.3 & Part 6.4		COP: Work health and safety consultation, coordination and cooperation COP: Induction for Construction Work COP: Construction work COP: How to manage work health and safety risks COP: Management risks of plant in the workplace	
15. Alcohol and Drugs	WHS Act 2011 WHS Regulation 2017		COP: Work health and safety consultation, coordination and cooperation COP: How to manage work health and safety risks	
16. Travelling to and from Sites	WHS Act 2011 WHS Regulation 2017 Chapter 3 Part 3.2		COP: How to manage work health and safety risks COP: Construction work	
18. Noise	WHS Act 2011 WHS Regulation 2017 Chapter 4 Part 4.1 Protection of the Environment Operations Act 1997	AS/NZS 1269 Occupational Noise Management AS 2012 Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors AS 1217 Measurement of airborne sound emitted by machines AS 2436 Guide to noise and vibration control on construction, demolition and maintenance sites AS 1055 Acoustics - Description and measurement of environmental noise HB 9 Occupational personal protection	COP: Managing noise and preventing hearing loss at work COP: How to manage work health and safety risks COP: Construction work	A guide to the Noise Policy for Industry (2017) (EPA) NSW Road Noise Policy (TfNSW) Construction Noise and Vibration Guideline (TfNSW) National Standard for Occupational Noise - NOHSC Control Guide Management of Noise at Work - NOHSC
20. Workplace Environment and Facilities	WHS Act 2011 WHS Regulation 2017 Chapter 3 Part 3.2	AS/NZS 1680 Interior and workplace lighting AS/NZS 1668 The use of ventilation and air conditioning in buildings	COP - Amenities for Construction Work - Work cover NSW COP: Managing the work environment and facilities COP: Work health and safety consultation, coordination and	

APPLICABLE LEGISLATION, STANDARDS, CODES OF PRACTICE AND GUIDANCE MATERIAL				
Hazard/Risk	**Legislation**	**Standard**	**Codes of Practice**	**Guidance Materials**
			cooperation	
21. Use of Small Plant	WHS Act 2011 WHS Regulation 2017 Chapter 5 Part 5.1 Division 7	AS ISO 5439 Mechanical vibration - Measurement and vibration of human exposure to hand-transmitted vibration HB 9 Occupational Personal Protection	COP: Construction work COP: Managing the risks of plant in the workplace	
22. Site Access and Egress	WHS Act 2011 WHS Regulation 2017 Chapter 3 Part 3.2		COP: Construction work Traffic Management: Guide for construction work COP: Demolition Work COP: Excavation Work	
27. Fatigue	WHS Act 2011 WHS Regulation 2017		COP: Work health and safety consultation, coordination and cooperation COP: How to manage work health and safety risks	Guide to managing the risk of fatigue at work
28. Public / Pedestrians	WHS Act 2011 WHS Regulation 2017	AS 4586 Slip resistance classification of pedestrian surface materials AS 4663 Slip resistance measurement of existing pedestrian surfaces AS 1319 Safety signs for the occupational environment	COP: Work health and safety consultation, coordination and cooperation COP: Managing the risk of falls at workplace Preventing Falls in Construction Codes of Practice COP: Construction Work COP: Excavation Work	
30. Night Work	WHS Act 2011 WHS Regulation 2017		COP: How to manage work health and safety risks COP: Managing the work environment and facilities COP: Construction work	Traffic Control at Worksite Manual v6 TfNSW Spec G10
31. Bullying, Violence, Harassment	WHS Act 2011 WHS Regulation 2017 Anti-Discrimination Act 1977		COP: Work health and safety consultation, coordination and cooperation COP: How to manage work health and safety risks	

Annexure E – Traffic Incident Management Plan

Current Revision – Rev 3

1. SITE SPECIFIC INFORMATION

Site **Compound** Location: **813-913 Wallgrove Road, Horsley Park**
Site **Works** Location: **813-913 Wallgrove Road, Horsley**
Site access and egress is from access gates from **Wallgrove Road** **Site Communication via Radio UHF Channel 11**

2. PROJECT CONTACTS

Position	Name	Location	Phone
Project Manager	Alex Ruello	Site	0408 289 903
Engineer	Joseph George	Site	0447 064 127
Site Supervisor	Peter Cullen	Site	0418 280 086
Warden	Peter Cullen	Site	0418 280 086
Construction Manager	Joseph Aouad	Site / Office	0418 425 316
WHSE Coordinator	Mark Franklin	Site	0408 117 872
QSE Systems Team Leader	Melinda Brown	Office	0421 831 826
Homebush Office		3/11-21 Underwood Road	(02) 9581 5550

Peter Cullen
Site Supervisor
PH: 0418 280 086
First Aid officer
Chief Warden
24 hr Emergency Contact

Mark Franklin
WHS Coordinate
PH: 0408 117 872
First Aid Officer

3. EXTERNAL EMERGENCY CONTACTS

Emergency Contact	Phone	Authority
Ambulance / Fire / Police	000	Emergency services
Poisons Information Centre	131 126	Poison information
Jemena	131 909	Gas
Ausgrid	131 388	Electricity authority
Endeavour Energy	131 003	Electricity authority
Transgrid	1800 027 253	Overhead electricity
Sydney Water	132 090	Water service
AAPT / PowerTel	1800 786 306	Fibre Optic
Uecomm	1300 275 662	Fibre Optic
NBN	1800 687 626	Fibre Optic
AARnet	6222 3530	Fibre Optic
TPG	1300 993 011	Fibre Optic
Telstra	132 203	Comms
Optus	1800 505 777	Comms
RMS – Traffic Enquiry	132 701	Roads Authority
RMS – Traffic Management Centre	131 700	Roads Authority
WorkCover NSW	131 050	Work Health Safety Authority
EPA NSW (Environmental Incidents)	131 555	Environmental Authority
DBYD	1100	Underground services
Call DBYD for current service strike contacts or http://www.1100.com.au/safeexcavation/emergencies		
Local Hospital (9.5km)	(02) 9881 1555	Mt Druitt Hospital
Local Medical Centre (2.9km)	(02) 9620 2880	Horsley Park Medical Centre
Local Police Station (8.8km)	(02) 8788 5199	Wetherill Park Police Station
Local Council	(02) 9839 6000	Blacktown Council
Local Council	(02) 9725 0222	Fairfield Council
Eastern Creek Towing	0412 296 966	
Wetherill Park Towing	(02) 9757 2666	
Prestige Vehicle Transport	0407 264 471	

4. EMERGENCY EQUIPMENT LOCATIONS

Equipment	Type	Location	Inspection/Test Frequency
First aid kit	Wall mount kit	Site office Burton	Quarterly
First aid kit	Portable response kit	Delegates Office	Quarterly
First aid kit	Portable response kit	Supervisor vehicle	Quarterly
First aid kit	Portable response kit	Site engineer	Quarterly
First aid kit	Portable response kit	Leading Hand	Quarterly
Spill kit	120L response kit	Site container	6 monthly
Spill kit	Portable satchel type	Supervisor vehicle	6 monthly
Spill kit	Portable satchel type	Leading hand vehicle	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Site Office Burton	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Delegates office	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Container	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Lunchroom	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Toilet	6 monthly
Fire Blanket	N/A	Burton lunchroom	6 montly
Two-way radio	Portable handheld ICOM BC-160	Site office burton	During emergency evacuation drill
Two-way radio	Portable handheld ICOM BC-160	Site Supervisor	During emergency evacuation drill
Two-way radio	Portable handheld ICOM BC-160	Leading hand	During emergency evacuation drill

5. EMERGENCY RESPONSE EQUIPMENT RISK ASSESSMENT

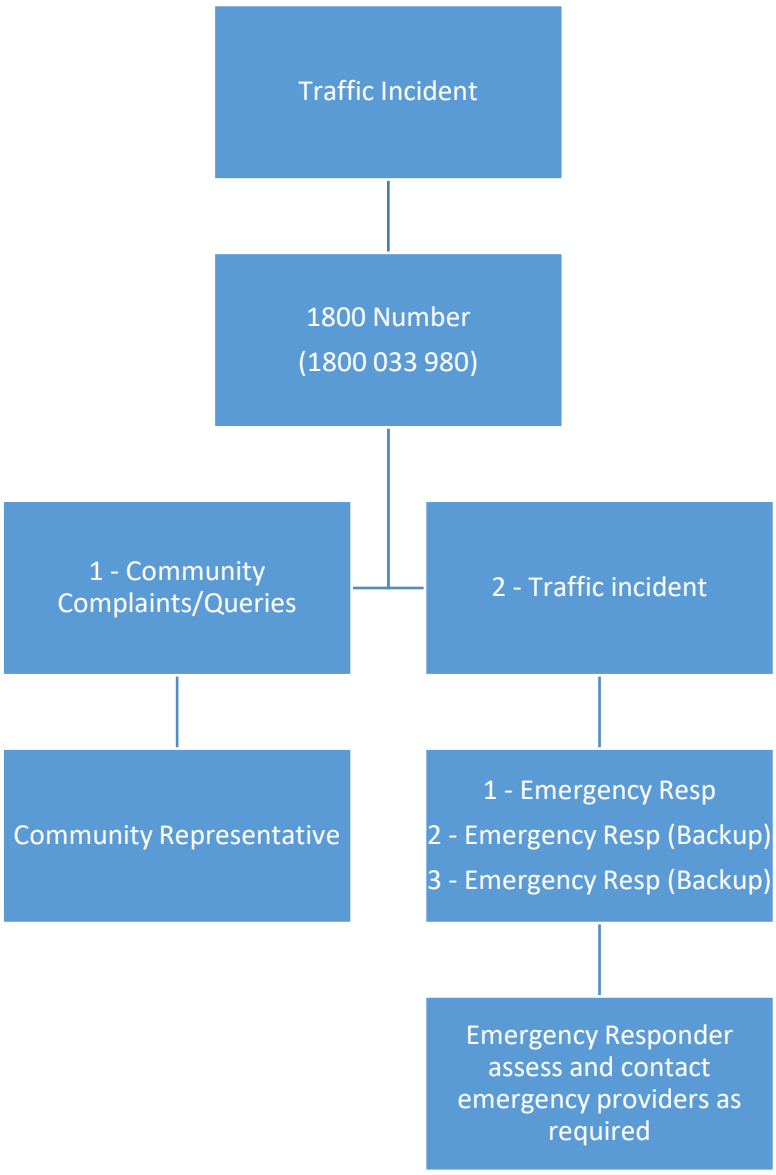
Location of the workplace		
Nearest hospital	Mt Druitt Hospital	
Nearest medical centre	Horsley Park Medical Centre	
Maximum time to medical service	5 minutes (medical centre)	
Number and composition of workers and other persons at the workplace		
Number of workers	< 20	
Number of other persons	< 5 (TfNSW etc)	
Shifts	Day and night	
Overtime worked	TBA	
Remote or isolated workers	Nil	
Work activities	**Emergency**	**Response requirements**
Road construction; Asphalting, line marking, spray sealing Interaction of workspace with other site activities	1. Traffic incident – minor – severe injuries of road users. 2. Impact with workers – unlikely although serious / fatal injuries. 1. Fire / explosion from leaking fluids	Ensure no addition personnel placed in danger Assess IP condition Apply First Aid Contact relevant Emergency Services 000 Fire extinguishers - Extinguish fire if safe to do so Ensure area is secured and access unobstructed/controlled for emergency services Contact stakeholder; TfNSW, SafeWork etc.
Boring, piers & head beam Road construction	3. Traffic incident – minor – severe injuries of road users. 4. Impact with workers – unlikely although serious / fatal injuries. 5. Fire / explosion from leaking fluids	Ensure no addition personnel placed in danger Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc.
Utilities – installation, unexpected finds Trenching Potholing	1. Electrocution 2. Contaminated material 3. Minor / serious cuts 4. Impact injuries (pipes etc.) 5. Asbestos	Ensure no addition personnel placed in danger Apply First Aid Contact relevant Emergency Services 000 DBYD

		Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc.
Excavation (minor)	1. Collision / impact 2. Fire 3. Explosion – flammable materials	Ensure no addition personnel placed in danger Extinguish fire if safe to do so Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc.
Chemical spills / leaks Use of chemicals for minor tasks	1. Skin contact (likely – possible) 2. Splashback into eye (possible) 3. Inhalation (minor inhalation risk present, severe inhalation risk unlikely) 4. Ingestion (very unlikely)	Ensure no addition personnel placed in danger, maintain awareness of possible chemical splashes or fumes etc. Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc. First aid kit: Eye wash Others: Fresh air; hand wash; Poisons Info help line Fire extinguishers
General construction activities & ground workers Tree removal, trimming, mulching Waste classification, sampling, geotech investigations Manual work – lifting, pulling, pushing, etc. to undertake general manual tasks	1. Muscular strains 2. Sprains 3. Cuts / abrasions 4. Friction / other burns 5. Fragments in eyes 6. Animal bites 7. Heat / cold	Ensure no addition personnel placed in danger Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, RMS, WorkCover etc. Site and Vehicle First Aid Kits

Requird first aid and emergency response equipment	
Number of first aiders needed	minimum x 1
Training and competencies for first aiders	Provide First Aid (HLTAID001, HLTAID002, HLTAID003)
Number and location of kits	Site office x 1. Additional kits in Supervisor & Engineers vehicles.
Contents of first aid kits	Comprehensive workplace kit. – This would be adequate for the site due to the number of workers anticipated not to be >25 at a time.
Kit maintenance	Inspect and replenish kits quarterly
Fire extinguishers	Standard type AB(E) sufficient for site – likely locations include plant, lunchroom facilities or hazardous substances. Locations on site for extinguishers include crib room, container & site office. 9kg recommended in order to manage a small site

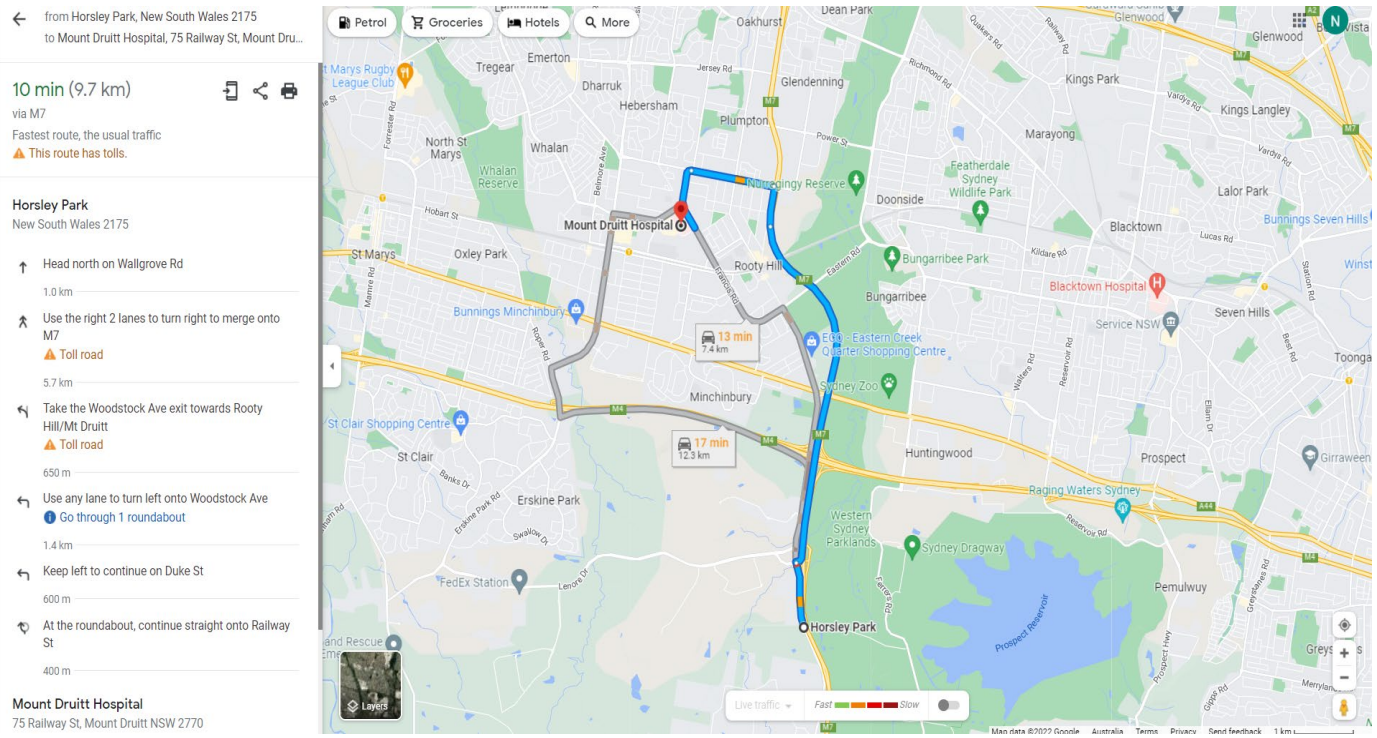
	fire or plant engine fire.
Spill kits	Container x1. Additional kits in Supervisor & Engineers vehicles.
Communication equipment	Minimum 1 set of 2-way radios
Transportation	Company Vehicle at minimum present on site
Comments	Close proximity to medical facilities and emergency services– no stretcher or AED required.
Assessment completed by	Mark Franklin
Date of Assessment	03/03/2021

6. TRAFFIC INCIDENT PROCEDURE

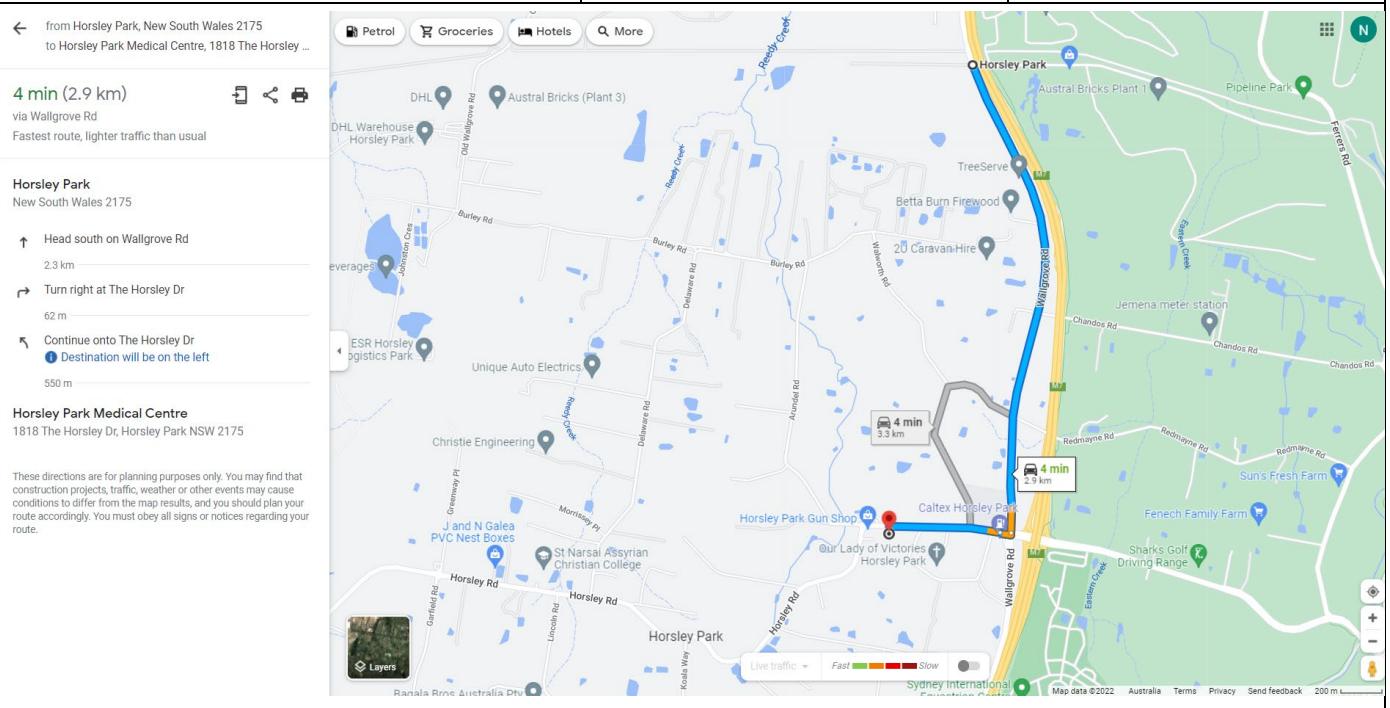


7. MEDICAL EMERGENCY LOCATION

HOSPITAL – Mt Druitt Hospital	Address – 75 Railway St, Mt Druitt	Phone – 9881 1555



HEALTHCARE CENTRE – Horsley Park medical centre	Address - 1818 The Horsley Dr, Horsley Park	Phone 9620 2880



8. SITE PLAN – ASSEMBLY AREAS

9. GENERAL EMERGENCY RESPONSE & SITE EVACUATION RESPONSE

1. DETERMINE TYPE OF EMERGENCY

The type of emergency will determine the response procedure. Is it: MEDICAL, ENVIRONMENTAL – SPILL, FIRE, VEHICLE ACCIDENT etc.

2. RAISE ALARM

Contact the Emergency Services on 000 and provide the following information:

1. The exact location of the emergency;
2. Type and extent of the emergency; and
3. Any special equipment or personnel required for rescue.

Follow all instructions issued by the 000 operator then raise the alarm in the workplace by contacting Emergency Warden or member of your Project Team or fellow workers. Once the Project Team is aware of the situation they must notify the QSE Department as soon as possible.
Notify workers to evacuate using most appropriate and available means – 2way radio, mobile phone, runner (verbal).

3. CONTAIN INCIDENT – EXTINGUISH FIRE / MOP SPILL

Only attempt to contain the incident if it is safe to do so and you are trained in the use of emergency equipment – fire extinguisher, spill kit.

4. EVACUATE TO ASSEMBLY AREA

Check for hazards to ensure workers and others are not at risk from flammable materials, live electricity, exposure to substances.
If you are not directly involved in containing the emergency and immediately upon being instructed to evacuate your work location, leave by the designated or safest / direct route.
Ensure all personnel around you are aware of the evacuation and assemble at nominated Evacuation Assembly Area/s to be accounted for. If you are aware of any missing workers, report it to a member of your Emergency Warden or Project Team IMMEDIATELY.

5. EVACUATE INJURED PERSONS

Assist and if possible, remove seriously injured persons from the accident area, only if no further danger exists and providing it is safe to do so. Do not disturb the scene of the incident, except to make the area safe.

6. FOLLOW INSTRUCTIONS OF EMERGENCY SERVICES

You must remain in assembly area until otherwise instructed for a safe return to your work area by Emergency Services, or your Emergency Warden.
Emergency Wardens and the Project Team must account for all personnel on site and assist Emergency Services Personnel as instructed.

7. Incident Notification and Report

If not already done, contact Burton Contractors Business Manager Construction or QSE Team Leader to notify of the event.
A ***TP-019 Incident Report*** is to be completed post emergency. The report must be forwarded to the QSE Department via email:
qse@burtoncontractors.com.au

10 SITE EMERGENCY SCENARIOS AND RESPONSE PROCEDURES

ANY LIFE THREATENING EMERGENCY CALL 000

CONTACT SITE SUPERVISOR: Peter Cullen – 0418 280 086

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
General public vehicle incident on site	Immediate Injury to drivers and/or workers on site. Escalation of incident with additional vehicles becoming involved in the incident Release of fluids Possibility of Fire Traffic signals struck by vehicle & un-operational Power pole struck by vehicle downing powerlines	Stop work determine if risk of injury or further incident to other workers or plant in the work zone. Notify Site Supervisor Contact emergency services 000 Contact Utility Owner (If required) Contact stakeholder; Gazcorp Contact TMC Provide first aid to injured persons (if permitted) UHF radios notify operators to remain away from incident. Traffic control implemented to manage localised traffic (if on-site) Area kept clear for Utility Owners vehicle and/or Emergency services to attend Do not approach any down powerlines and mange area to keep by standers away Notify Environmental Coordinator for release of fluids only	Traffic controller & stop/slow bat Traffic cones Bollards First Aid kit & Spill kit Fire extinguisher UHF Radios Spill Kit
Plant / vehicle incident on site (contained to work area)	Immediate threat or Injury to Operator, drivers, and other workers. Release of fluids	Stop work, determine if risk of injury or further incident to other workers or plant exists, if no risk, move plant away from are and await instructions Notify Site Supervisor	Traffic cones Bollards First Aid kit

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
Plant collision Plant rollover	Possibility of Fire	Contact emergency services 000 (If required) Notify Asset owner (If not Burton) UHF radios notify operators to remain away from incident. Traffic control implemented to manage localised traffic (if on-site) Notify Environmental Coordinator for release of fluids only Apply first aid to injured persons (if any) Attempt to control the spill or extinguish fire if not putting yourself at risk Contain spill within site, use available resources (i.e. spill kits), attempt to contain & prevent entering stormwater system Clean up the affected area Contact stakeholder; Gazcorp Plant / vehicles to remain out of service until repairs or inspection by competent person conducted	Spill kit Fire extinguisher Traffic controller & stop/slow bat
Overhead Services Strike Power, Street lighting, and communications interrupted	Electric shock to workers Electrical fire Loss of services to public Traffic congestion / delays if across road Damage to Burton's reputation	Stop work determine if risk of injury or further incident to other workers or plant in the work zone or residents. Notify Site Supervisor & TMC Contact emergency services 000 (If Required) Contact stakeholder; Utility Owners Apply first aid or CPR to injured worker Ask additional first aiders to assist with CPR (If required) UHF radios notify operators to remain away from incident. Traffic control implemented to manage localised traffic (if on-site) If no immediate danger of fire, operator to stay in cabin until given all clear to	Traffic controller & stop/slow bat Traffic cones Bollards First Aid kit Fire extinguisher UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		move. Exclusion zone to be established around area. Downed power cables are not to be approached. All vehicles/plant to be isolated and no other vehicle permitted in area Area kept clear for Utility Owners vehicle and/or Emergency services to attend Contact residents of service disruption (if any) Contact stakeholders; Gazcorp, SafeWork.	
Underground services strike Sewer, water, Gas and communications	Loss of services to public Electrocution Contamination of local properties Damage to Burton's reputation Explosion, fire	Stop work determine if risk of injury or further incident to other workers, plant in the work zone or residents. Notify Site Supervisor Contact emergency services 000 (If Required) Contact stakeholder; Utility Owners Apply first aid or CPR to injured worker Ask additional first aiders to assist with CPR (If required) UHF radios notify operators to remain away from the area. Traffic control implemented to manage localised traffic (if on-site) Exclusion zone to be established around area. All vehicles/plant to be isolated and no other vehicle permitted in area Area kept clear for Utility Owners vehicle and/or Emergency services to attend Contact residents of service disruption (if any) Contact stakeholders; Gazcorp, SafeWork.	First aid kit Fire extinguisher Traffic controller & stop/slow bat Traffic cones Bollards UHF Radios
Excavation / Trench Collapse	Engulfment - Workers exposed to Life threatening injuries.	Stop work	Hand Tools

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		Advise other workers to evacuate trench Notify Site Supervisor Contact emergency services 000 Apply first aid to injured worker UHF radio notify all workers to remain away from area. Traffic control implemented to manage localised traffic (if on-site) Exclusion zone to be established around area. Area kept clear for Emergency services to attend If risk of further collapse do not enter area or attempt rescue Attempt to identify, locate the position and number of the trapped workers. If person visible (if safe to do so) remove as much material as possible to ensure they can breathe. Contact stakeholders; Gazcorp, SafeWork.	Ladders Excavators Traffic controller & stop/slow bat First Aid kit Bollards Flagging Emergency Services – Police, Ambulance, Fire/Rescue UHF Radios
Fall from Height	Injured worker / potential death of a person	Assess the situation- Do not attempt to move the injured person Stop work determine if risk of injury or further incident to other workers or plant in the work zone. Notify Site Supervisor Contact emergency Services 000 UHF radio notify all workers to remain away from area. Traffic control implemented to manage localised traffic (if on-site) Exclusion zone to be established around area. Apply first aid to injured worker Area kept clear for Emergency services to attend	Traffic controller & stop/slow bat First Aid kit Bollards Flagging Emergency Services – Police, Ambulance, Fire/Rescue UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		Contact stakeholders; Gazcorp, SafeWork.	
Unexpected Find	Discovery of: Asbestos, other hazardous substances, aboriginal, archaeological, heritage.	Stop work Notify Site Supervisor Notify all workers to remain away from area Isolate area and install signage Notify relevant authorities Do not re-enter until advised by authorities / relevant consultants Contact stakeholder; Gazcorp.	Bollards Flagging Signage – exclusion zone UHF Radios
Other external emergency – e.g.; Incident at adjoining properties that continued work operations could affect emergency response and continued operation.	An external emergency outside construction site	Stop work and turn off machines Notify Site Supervisor UHF radio Notify all workers to remain away from area Contact emergency services 000 (if required) Stop work and prepare to evacuate area (if required). Contact stakeholder; Gazcorp.	Emergency Services – Fire/Rescue, Ambulance or Police UHF Radios
Plant fire	Plant damage Injury to workers	Stop work and turn off machine Evacuate plant Notify Site Supervisor Contact Fire/Rescue 000 (if required) Ensure no addition personnel placed in danger Assess IP condition Apply First Aid	Fire extinguisher First aid kit Hose / water cart Barricading Traffic controller to direct traffic & stop/slow bat UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) If no risk to workers attempt to extinguish fire if safe to do so Isolate area Contact stakeholders; Utility Owners, Gazcorp, SafeWork.	
Medical emergency – other E.g. Heart attack	Injured worker / potential death of a person	Remain calm, assess the situation. Do not attempt to move the injured person Notify Site Supervisor Contact Ambulance 000 UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) Assess IP condition Commence CPR until ambulance arrives or first aid as required Ask additional first aiders to assist with CPR Contact stakeholder; Gazcorp, SafeWork	First Aid Kit UHF Radios
Localised site fire	Placing human life and property at risk. Death or injury to flora and fauna.	Stop work in area If no risk to persons remove any flammable or combustible materials from the area of the fire. Contact Fire/Rescue 000 Notify Site Supervisor Ensure no addition personnel placed in danger Assess IP condition	Hose / water cart Fire Extinguishers Barricading First Aid Kit Traffic controller to direct traffic & stop/slow bat UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		Apply First Aid UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) Contact stakeholder; Gazcorp If no risk to workers attempt to extinguish fire if safe to do so Isolate area	
Uncontrolled Sediment Discharge	Discharge of sediment laden water	Stop work, control source of sediment (e.g. divert water around stockpiles). Install additional sediment controls such as gravel inlet filters and sediment fences. Notify site supervisor & Environmental Coordinator Contact stakeholder; Gazcorp	Spill Kits Mobile Plant UHF Radios
Substance spill – Oil, Diesel	Discharge of oily water to storm water. Contamination of soil and groundwater. Damage to reputation.	Stop in the area where the spill occurred. Notify site supervisor & Environmental Coordinator Spill response kits are kept at all sites for deployment in the event of an oil spill. Attempt to control the spill if not putting yourself at risk Contain spill within site, use available resources (i.e. spill kits), attempt to contain & prevent entering stormwater system Clean up the affected area Contact stakeholder; Gazcorp	Spill Kit Wash facilities PPE as per SDS requirements UHF Radios
Substance Spill – Chemical	Discharge of chemicals to storm water. Contamination of soil and groundwater.	Stop work in the area where the spill occurred. Notify site supervisor & Environmental Coordinator Spill response kits are kept at all sites for deployment in the event of an oil spill. Attempt to control the spill if not putting yourself at risk	Spill Kits First aid kit Wash facilities PPE as per SDS

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
	Damage to reputation.	Contain spill within site, use available resources (i.e. spill kits), attempt to contain & prevent entering stormwater system Clean up the affected area Contact stakeholder; Gazcorp	requirements UHF Radios
Flooding into open Excavation and/or Trench	Flooding damage to assets Fall into Trench/Excavation- injury or death caused by drowning Engulfment – Trench/Excavation Wall collapse	Notify Site Supervisor Ensure no addition personnel placed in danger Contact Emergency Services 000 Assess IP condition Apply First Aid and/or commence CPR Ask additional first aiders to assist with CPR UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) Contact stakeholder e.g., Utility Owners, Gazcorp, SafeWork Isolate area Park all plant above and/or away from the flood AREA	Submersible pump Vac Truck Barricading and/or ATF Traffic controller to direct traffic & stop/slow bat UHF Radios

DRSABCD

St John

IN AN EMERGENCY CALL **TRIPLE ZERO (000)** FOR AN AMBULANCE

D — Dangers?

Ensure the area is safe for yourself, others and the patient.

R — Responsive?

Check for a response: ask name, squeeze shoulders.
No response? Send for help.
Response? Make comfortable and monitor response.

S — Send for help

Call triple zero (000) for an ambulance or ask another person to make the call.

A — Open Airway

Open the mouth and check the airway for foreign material.
Foreign material? Place in the recovery position and clear the airway.
No foreign material? Leave in position.
Open the airway by tilting the head back with a chin lift.

B — Normal Breathing?

Check for breathing: look, listen, feel for 10 seconds.
Not normal breathing? Ensure an ambulance has been called; start CPR.
Normal breathing? Place in the recovery position and monitor breathing.

C — Start CPR

30 chest compressions : 2 breaths.
Continue CPR until help arrives or the patient starts breathing.

D — Attach defibrillator (AED)

and follow the voice prompts.

Learn first aid•1300 ST JOHN•www.stjohn.org.au

10. Acknowledgement of ERP

I acknowledge that I have been inducted into this Emergency Response Plan and have read and understood the contents. I understand my responsibilities and what is required of me should an emergency occur.

Name	Position/Role	Signature	Date
Peter Cullen	Site Supervisor/ Emergency Warden First Aid Officer		
Alex Ruello	Project Manager		
Mark Franklin	First Aid Officer		

Annexure F – Subway Road Business Correspondence

Veolia approval for proposed truck restrictions

From: Bernhart, Stephen
To: Alex Ruello
Cc: Promit Biswas; Jim Hennessy
Subject: Re: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia
Date: Monday, 9 May 2022 5:31:39 PM
Attachments: image007.png

Hi Alex,

I have passed on your details to one of our contractors (JK Williams) who is working onsite at the moment. As mentioned previously, they will be floating mobile plant on/off site.

In general, Veolia is comfortable with the proposed access changes, provided that it does not restrict access for floating mobile plant on/off site. We will not be operating b-double length vehicles.

Regards,

Stephen Bernhart
Manager - Horsley Park Waste Management Facility
Veolia Australia & New Zealand

Mobile: +61 418 687 384
716 - 752 Wallgrove Road / Horsley Park / NSW 2175 Australia
www.veolia.com/ANZ

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On Mon, 9 May 2022 at 08:03, Alex Ruello <Alex.Ruello@burtoncontractors.com.au> wrote:

> Hi Stephen,
>
> Friendly reminder about the below proposal and Veolia's acceptance of the configuration changes.
>
> Regards,
>
> Alex Ruello
> **Project Manager**
> **Burton Contractors Pty Ltd**
>
> T: 0408 289 903
> M: 0408 289 903
> F: 02 9581 5551
> E: Alex.Ruello@burtoncontractors.com.au
>
> BURTON Civil Engineering Contractors
> www.burtoncontractors.com.au
>
> **Sydney Office**
> Homebush Business Village
> Unit 3/11-21 Underwood Rd
> Homebush NSW 2140
> T: 02 9581 5550 F: 02 9581 5551
>
>
>
> **From:** Alex Ruello
> **Sent:** Wednesday, 27 April 2022 4:03 PM
> **To:** Bernhart, Stephen <stephen.bernhart@veolia.com>
> **Cc:** Promit Biswas <promit.biswas@veolia.com>; Jim Hennessy <jim.hennessy@veolia.com>
> **Subject:** RE: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia
>
> Hi Stephen,
>
> Apologies for the delay in our response. We are currently in the process of developing our TMP. We have reached out and made contact with the potentially affected stakeholders so we can finalise the temporary traffic design to be included as part of our TMP.
>
> Looking at the snapshot of the intersection below, Burton are currently looking at a design that restricts 26m B-Double movements in all directions in and out of the private road (Called "Subway Road" in our design) onto Wallgrove Road. The temporary design will cater for 19m semi-trailer trucks during the approximate 1 year long works scheduled to start in June/July 2022.

Can you please advise if the proposed changes are acceptable to Veolia?

Regards,

Alex Ruello
Project Manager
Burton Contractors Pty Ltd

T: 0408 289 903
M: 0408 289 903
F: 02 9581 5551
E: Alex.Ruello@burtoncontractors.com.au

BURTON
Civil Engineering Contractors
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Sydney Office
Homebush Business Village
Unit 3/11-21 Underwood Rd
Homebush NSW 2140
T: 02 9581 5550 F: 02 9581 5551

From: Bernhart, Stephen <stephen.bernhart@veolia.com>
Sent: Tuesday, 19 April 2022 11:46 AM
To: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>
Cc: Promit Biswas <promit.biswas@veolia.com>; Jim Hennessy <jim.hennessy@veolia.com>
Subject: Re: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia

Hi Alex,

Thank you for reaching out to advise of the upcoming works.

To enable us to have a better understanding of the works and the potential impacts on our operations, would you be able to provide us with a Traffic Management Plan for the works?

We will be floating earthmoving equipment into/out of our facility over and above normal truck movements and we will need to understand how the works may affect these movements as well..

Regards,

Stephen Bernhart
Manager - Horsley Park Waste Management Facility
Veolia Australia & New Zealand

Mobile: +61 418 687 384
716 - 752 Wallgrove Road / Horsley Park / NSW 2175 Australia
www.veolia.com/ANZ

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On Fri, 15 Apr 2022 at 14:38, Hennessy, Jim <jim.hennessy@veolia.com> wrote:

> For you ?
>
> ---------- Forwarded message ---------
> From: **Alex Ruello** <Alex.Ruello@burtoncontractors.com.au>
> Date: Thu, 14 Apr 2022 at 10:08 am
> Subject: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia
> To: jim.hennessy@veolia.com <jim.hennessy@veolia.com>
> Cc: Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
>
> Hi Jim,
>
> You may remember me from my most recent project with Burton at Erskine Park Road. Vijay has passed on your contact details as the best contact for discussing the below topic. If you are not the best contact for this, it would be appreciated if you could point me in the right direction.
>
> As you may know, there is a planned upgrade for Wallgrove Road which affects the intersection that runs beneath the M7 to one of Veolia's landfill sites. I will be the Project Manager from Burton managing this upgrade.
>
> For us to complete the upgrade, we will need to make changes to the existing road and traffic conditions which may have some impact on the access to your business. We will not be able to implement any change that may negatively impact access without written consent from the affected business. The existing intersection is configured as a 'seagull' priority intersection that gives right of way to North-South traffic on Wallgrove Road, making access in and out of "Subway Road" difficult at times. The ultimate design is a set of traffic lights at this intersection which will eliminate the difficulty of accessing your business for truck sizes up to and including B-Doubles.

To manage traffic during the upgrade of Wallgrove Road, we propose to put in a set of temporary traffic lights immediately that will serve the same purpose as the ultimate design. This will give an immediate benefit to all businesses that are accessed from “Subway Road”. However, during the preliminary development of the temporary traffic signal design, we found that maintaining safe turn paths for B-Double truck movements in and out of the intersection was not practical. The most balanced design that we currently have allows for truck sizes up to and including 19m Semi-trailers, being the next size down from B-doubles in terms of turn path space requirements.

The construction phase of the project will run for approximately 11 months from the time that we commence the implementation of the temporary traffic signals, approximately scheduled for a June/July 2022 start. Burton are seeking approval from Veolia to temporarily restrict B-Double trucks from accessing “Subway Road” during the construction phase of the project. We will be seeking this same approval from all other stakeholders on “Subway Road”. We understand that you may have some questions or require more information from us regarding the works and we will be happy to address any queries that you have. I am happy to answer any queries via email or alternatively coordinate a time for a Teams meeting to go through the above in more detail. The approval from affected stakeholders is critical for our approval to commence construction works and would appreciate a rapid response.

Please do not hesitate to contact me on the below details

Regards,

Alex Ruello
Project Manager
Burton Contractors Pty Ltd

T: 0408 289 903
M: 0408 289 903
F: 02 9581 5551
E: Alex.Ruello@burtoncontractors.com.au

BURTON
Civil Engineering Contractors
www.burtoncontractors.com.au

Sydney Office
Homebush Business Village
Unit 3/11-21 Underwood Rd
Homebush NSW 2140
T: 02 9581 5550 F: 02 9581 5551

--

Regards

Jim Hennessy
NSW Sales Manager - Resource Recovery
NSW STATE OFFICE

P: +61 2 9841 2844 / **M:** **+61 429 128 368**

Corner Unwin & Shirley Streets/ Rosehill/ NSW 2142 Australia
www.veolia.com

Austral / Brickworks approval for proposed truck restrictions

Alex Ruello

From: Avery Spackman <Avery.Spackman@australbricks.com.au>
Sent: Wednesday, 18 May 2022 11:55 AM
To: Alex Ruello
Cc: Emily Antonio; Sean Cribb

Hi Alex

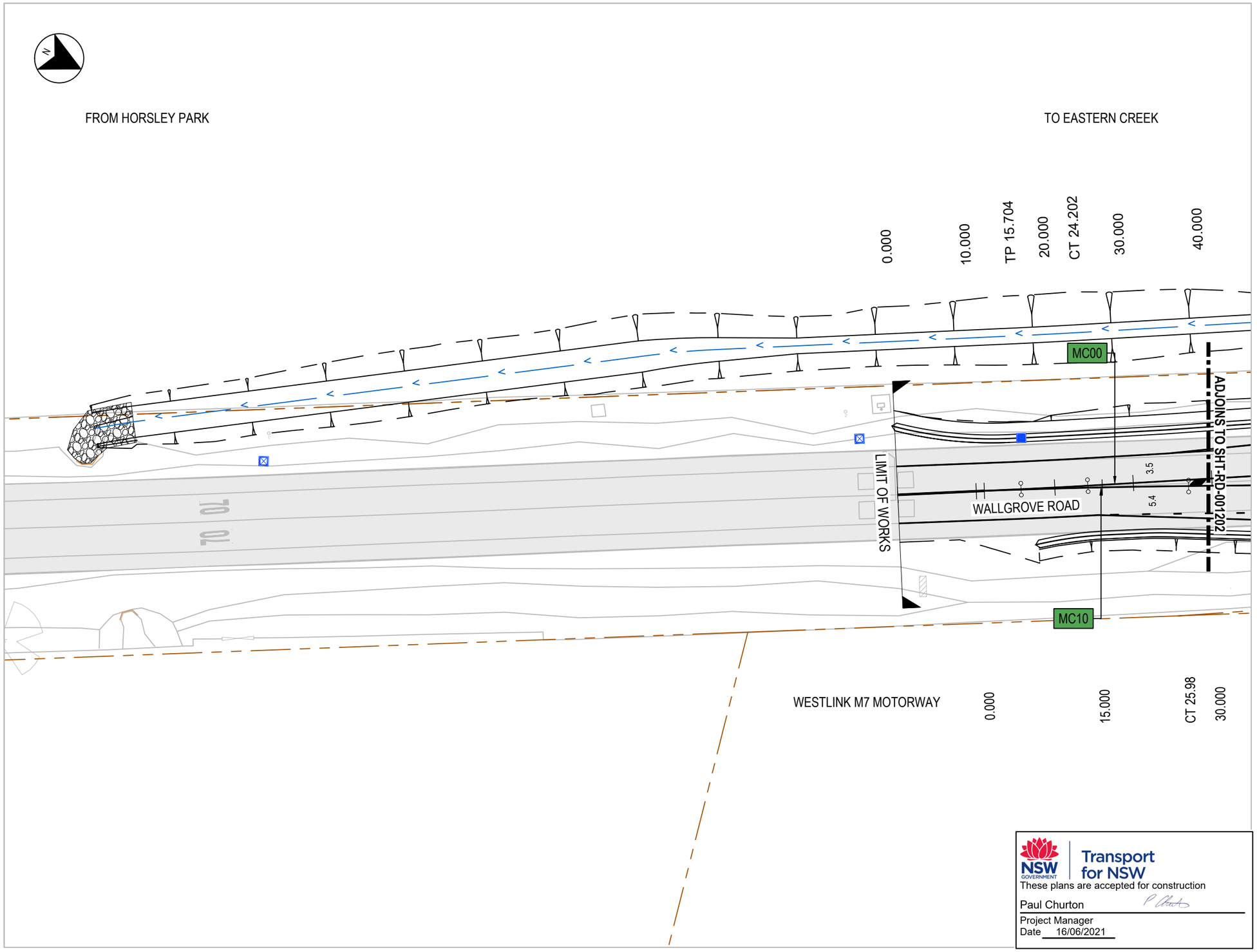
Austral bricks are giving you permission to proceed as discussed with the intersection on Wallgrove road.

Regards Avery

Avery Spackman
General Manager Austral Bricks NSW
Direct 02 9830 7776
Mobile 0414 408 224
Tel 02 9830 7700
Fax 02 9830 7770
Email Avery.Spackman@australbricks.com.au
Austral Bricks
2 Latitude Road
Horsley Park NSW 2175
www.australbricks.com.au

Get social with us!

Annexure G – Ultimate Design Civil Drawings



LEGEND

- 0.000 — ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- STN — SURVEY CONTROL MARKER
- SAFETY BARRIER

NOTES

1. FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND SHT-GE-000022.
2. FOR DRAINAGE, REFER TO SHT-SM-001001 TO SHT-GE-001006.
3. FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.
4. FOR UTILITIES, REFER TO SHT-UT-001001 TO SHT-UT-001006, SHT-UT-001011 TO SHT-UT-001016 AND SHT-UT-004001 TO SHT-UT-004004.

NSW GOVERNMENT Transport for NSW

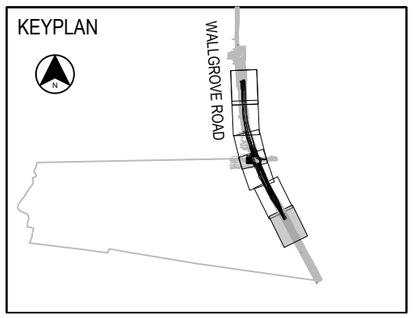
These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

KEYPLAN



ACCEPTED FOR CONSTRUCTION

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DESIGN LOT CODE:

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING:

PLOT DATE / TIME: PLOT BY:

EXTERNAL REFERENCE FILES:

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
0	31.07.2020	50% DETAILED DESIGN		P.BYRUM
1	11.11.2020	80% DETAILED DESIGN		P.BYRUM
2	18.02.2021	100% DETAILED DESIGN		P.BYRUM
3	01.04.2021	ACCEPTED FOR CONSTRUCTION		P.BYRUM

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

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY:

Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

	TITLE	NAME	DATE
DRAWN		JASON BOVIS	31.07.2020
DRG CHECK		PHILIP BYRUM	31.07.2020
DESIGN		PHILLIP STODDART	31.07.2020
DESIGN CHECK		PHILIP BYRUM	31.07.2020
DESIGN MNGR		PHILIP BYRUM	31.07.2020
PROJECT MNGR		PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

A3

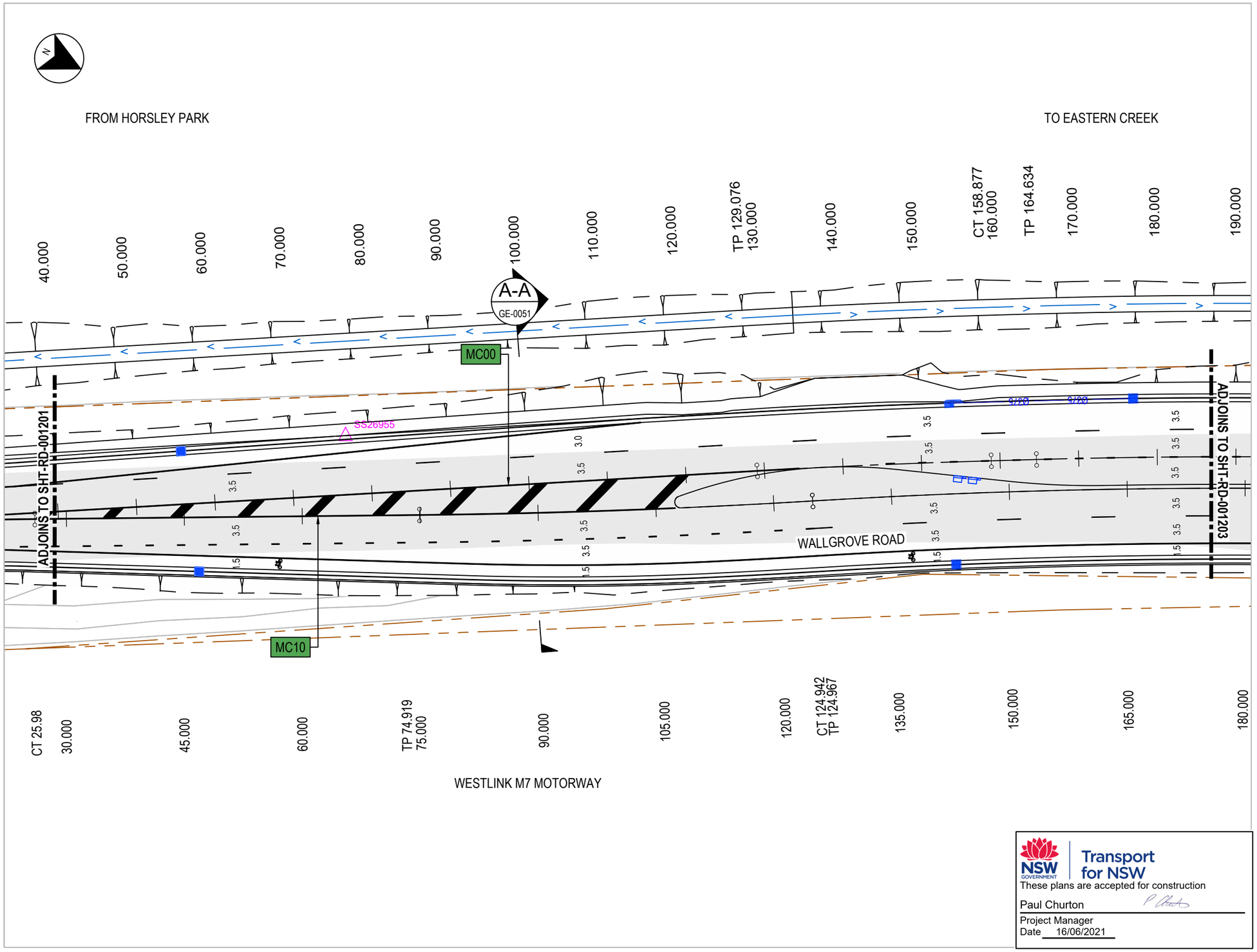
FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE GENERAL ARRANGEMENT

SHEET 1 OF 6

TfNSW REGISTRATION No. DS2020/000425 PART -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION EDMS No. - SHEET No. SHT-RD-001201 ISSUE 3



LEGEND

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
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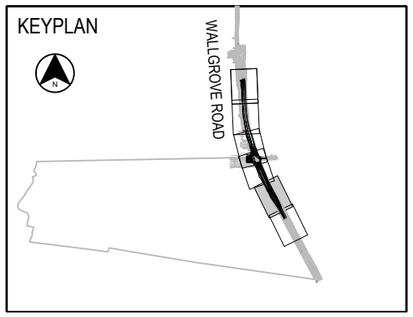
KEYPLAN



NSW GOVERNMENT Transport for NSW
These plans are accepted for construction
Paul Churton
Project Manager
Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED 50mm ON A3 SIZE ORIGINAL

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EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
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SCALES ON A3 SIZE DRAWING: 2.5 0 2.5 5 7.5m — 1 : 500 FULL SIZE A3

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

	TITLE	NAME	DATE
	DRAWN	JASON BOVIS	31.07.2020
	DRG CHECK	PHILIP BYRUM	31.07.2020
	DESIGN	PHILIP BYRUM	31.07.2020
	DESIGN CHECK	PHILIP BYRUM	31.07.2020
	DESIGN MNGR	PHILIP BYRUM	31.07.2020
	PROJECT MNGR	PAUL CHURTON	31.07.2020

PREPARED FOR
SYDNEY DIVISION
NETWORK DEVELOPMENT

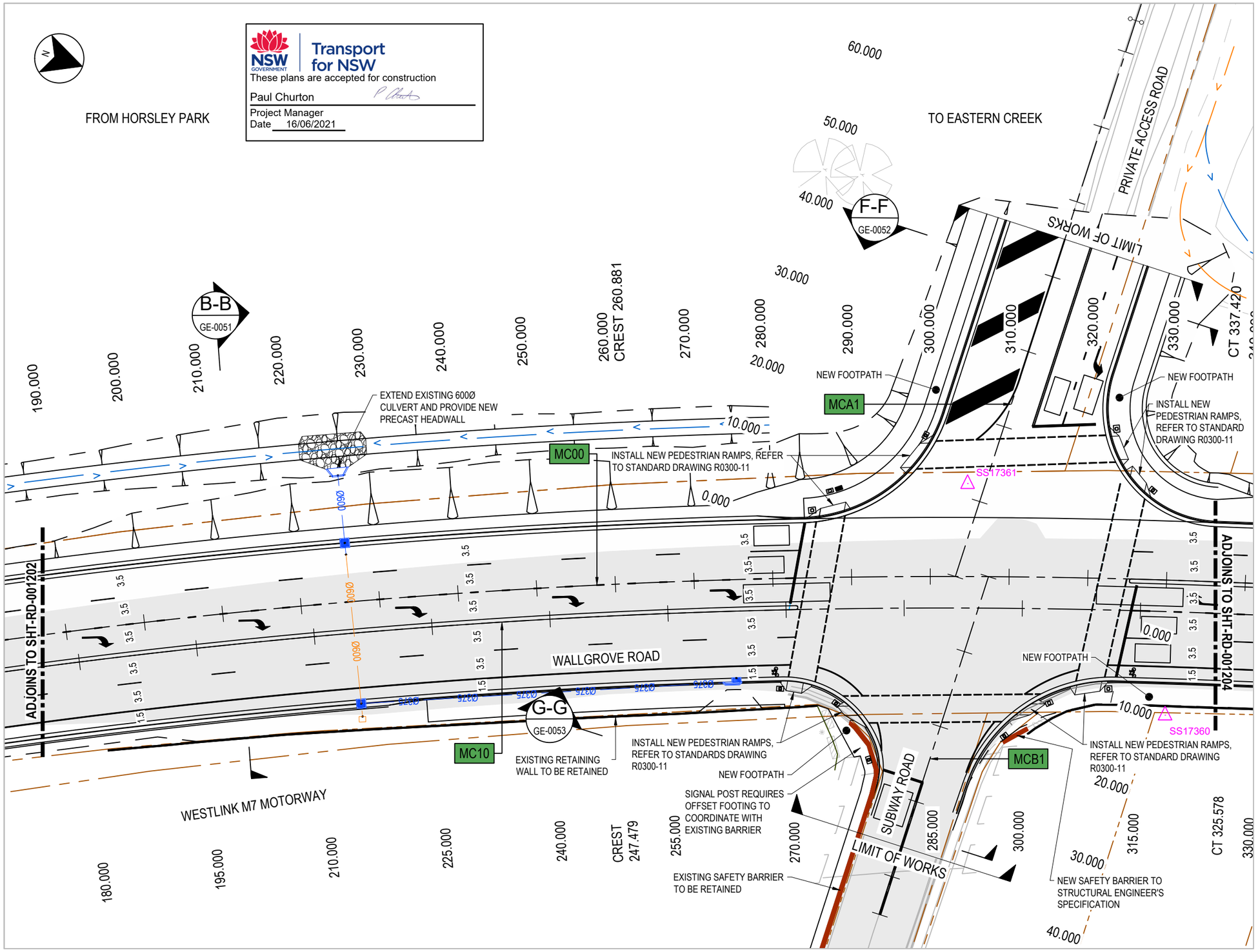
FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK
INTERSECTION UPGRADE
GENERAL ARRANGEMENT

A3

SHEET 2 OF 6

TINSW REGISTRATION No. DS2020/000425 PART -

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
ACCEPTED FOR CONSTRUCTION	-	SHT-RD-001202	3



These plans are accepted for construction
Paul Churton
Project Manager
Date 16/06/2021

LEGEND

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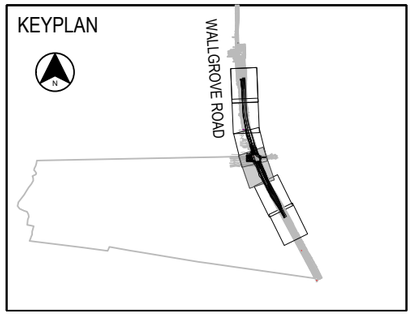
KEYPLAN



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C:\12ds\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg				

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ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

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	DESIGN MNGR	PHILIP BYRUM	31.07.2020
	PROJECT MNGR	PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

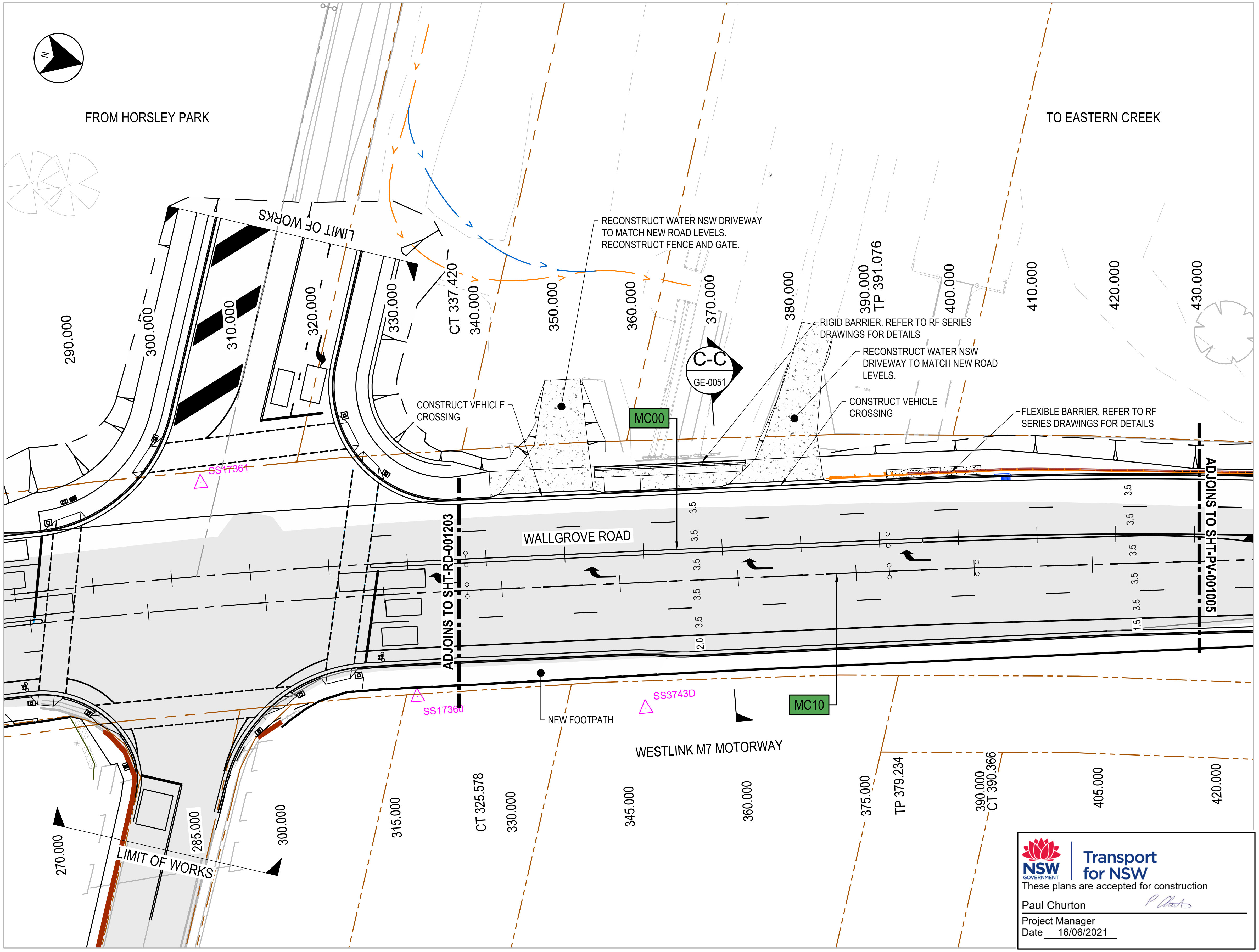
A3

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE
GENERAL ARRANGEMENT

SHEET 3 OF 6

TfNSW REGISTRATION No. DS2020/000425 | PART -

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
ACCEPTED FOR CONSTRUCTION	-	SHT-RD-001203	3



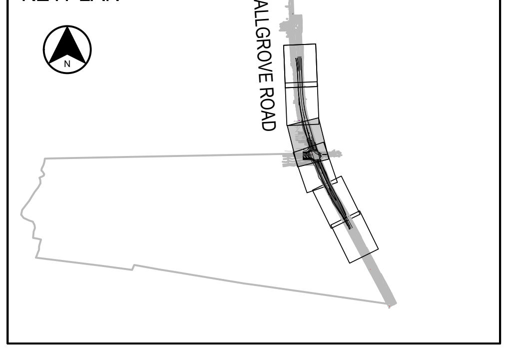
LEGEND

0.000	ROAD CONTROL LINE
	CADASTRAL BOUNDARY
	PROPOSED DESIGN
	EXISTING SURVEY
MXXX	ROAD CONTROL LINE LABEL
	EXISTING PAVEMENT
	EXISTING STORMWATER PIT
	NEW STORMWATER PIT
	PIPE CONNECTION TO EXISTING PIT
	ADJUST / MODIFY EXISTING PIT INLET
STN	SURVEY CONTROL MARKER
	SAFETY BARRIER

NOTES

1. FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND SHT-GE-000022.
2. FOR DRAINAGE, REFER TO SHT-SM-001001 TO SHT-GE-001006.
3. FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.
4. FOR UTILITIES, REFER TO SHT-UT-001001 TO SHT-UT-001006, SHT-UT-001011 TO SHT-UT-001016 AND SHT-UT-004001 TO SHT-UT-004004.

KEYPLAN



NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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

50mm ON A3 SIZE ORIGINAL

DRAWING FILE LOCATION / NAME				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
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	2	18.02.2021	100% DETAILED DESIGN		P.BYRUM	
	3	01.04.2021	ACCEPTED FOR CONSTRUCTION		P.BYRUM	

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

CO-ORDINATE SYSTEM: MGA Z56 — HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

PLOT DATE / TIME — PLOT BY

TITLE	NAME	DATE
DRAWN	JASON BOVIS	31.07.2020
DRG CHECK	PHILIP BYRUM	31.07.2020
DESIGN	PHILLIP STODDART	31.07.2020
DESIGN CHECK	PHILIP BYRUM	31.07.2020
DESIGN MNGR	PHILIP BYRUM	31.07.2020
PROJECT MNGR	PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

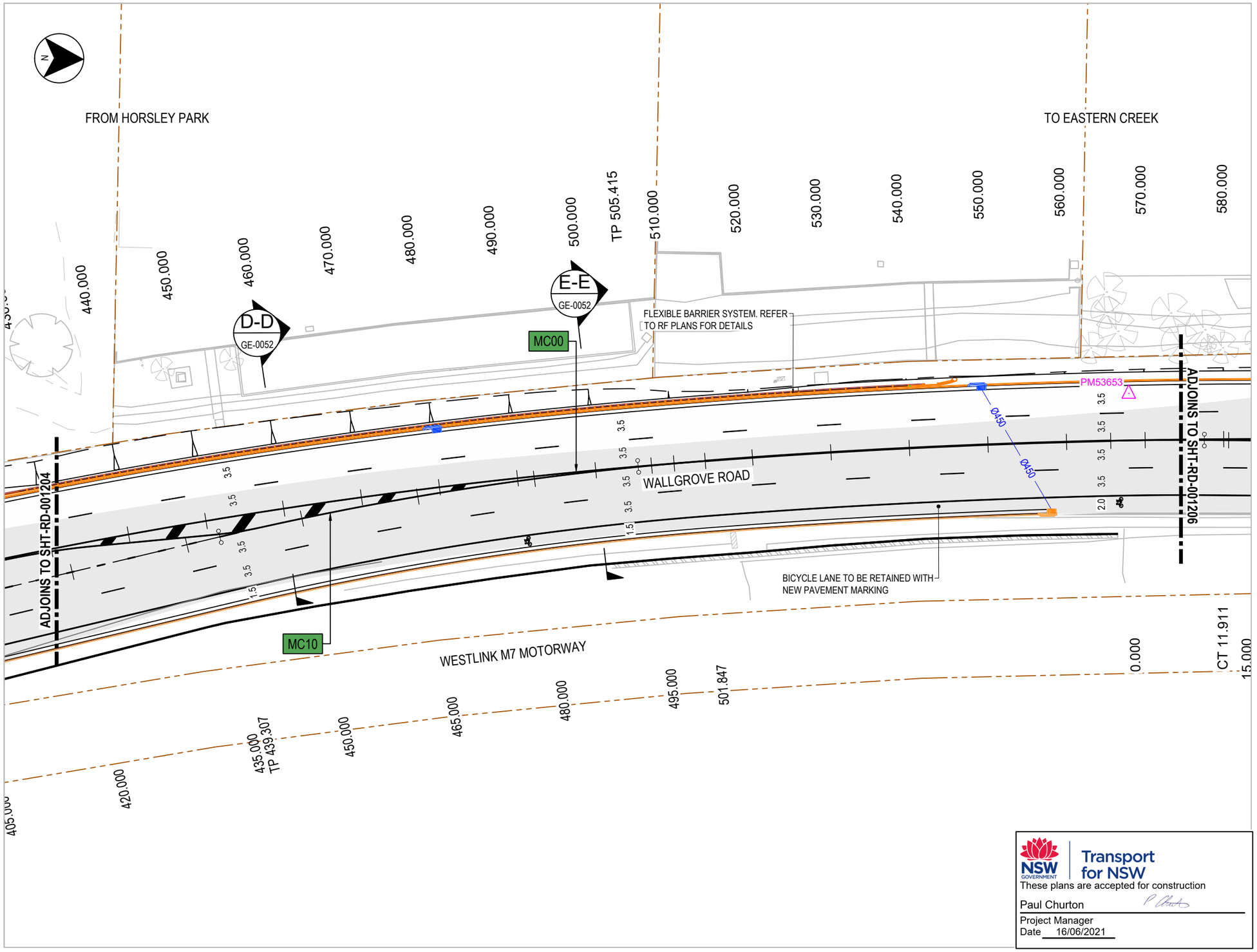
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE GENERAL ARRANGEMENT

A3

SHEET 4 OF 6

TfNSW REGISTRATION No. DS2020/000425 — PART -

ISSUE STATUS	EDMS No.	SHEET No.	ISSUE
ACCEPTED FOR CONSTRUCTION	-	SHT-RD-001204	3



LEGEND

- 0.000 — ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- STN — SURVEY CONTROL MARKER
- SAFETY BARRIER

NOTES

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2. FOR DRAINAGE, REFER TO SHT-SM-001001 TO SHT-GE-001006.
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4. FOR UTILITIES, REFER TO SHT-UT-001001 TO SHT-UT-001006, SHT-UT-001011 TO SHT-UT-001016 AND SHT-UT-004001 TO SHT-UT-004004.

NSW GOVERNMENT Transport for NSW

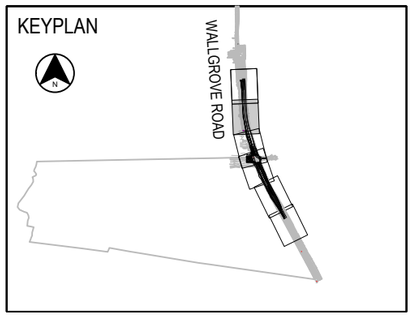
These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

KEYPLAN



ACCEPTED FOR CONSTRUCTION

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PLOT DATE / TIME: PLOT BY:

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	0	31.07.2020	50% DETAILED DESIGN		P.BYRUM
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CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

	TITLE	NAME	DATE
DRAWN		JASON BOVIS	31.07.2020
DRG CHECK		PHILIP BYRUM	31.07.2020
DESIGN		PHILLIP STODDART	31.07.2020
DESIGN CHECK		PHILIP BYRUM	31.07.2020
DESIGN MNGR		PHILIP BYRUM	31.07.2020
PROJECT MNGR		PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

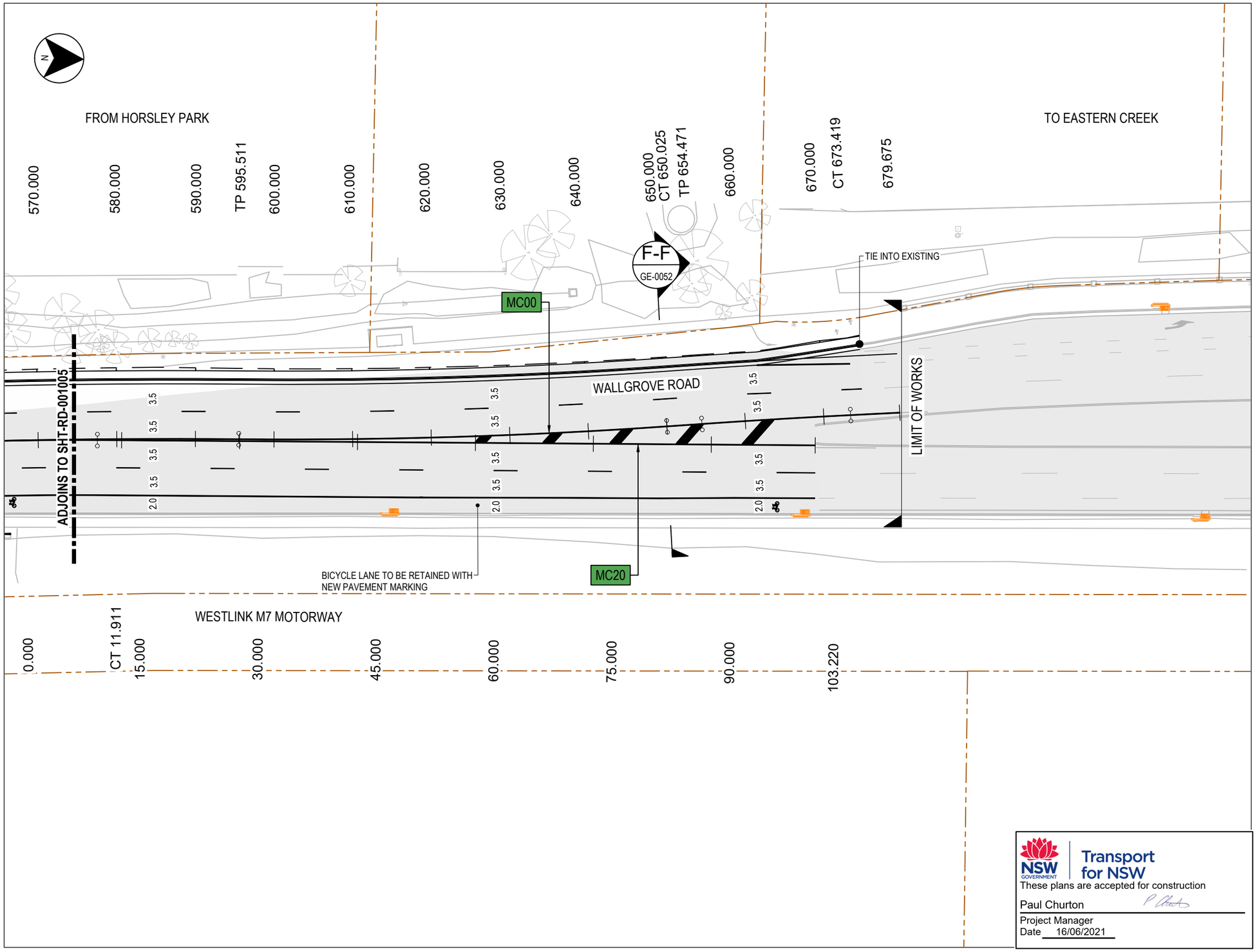
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE GENERAL ARRANGEMENT

A3

SHEET 5 OF 6

TfNSW REGISTRATION No. DS2020/000425 PART -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. SHT-RD-001205 | ISSUE 3



LEGEND

- 0.000 — ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
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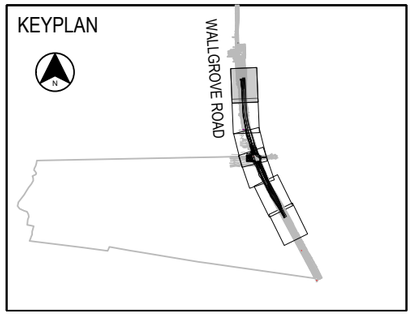
Transport for NSW
These plans are accepted for construction
Paul Churton
Project Manager
Date 16/06/2021

KEYPLAN



ACCEPTED FOR CONSTRUCTION

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EXTERNAL REFERENCE FILES:

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

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY:

Orion Consulting
ABN:25 604 089 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

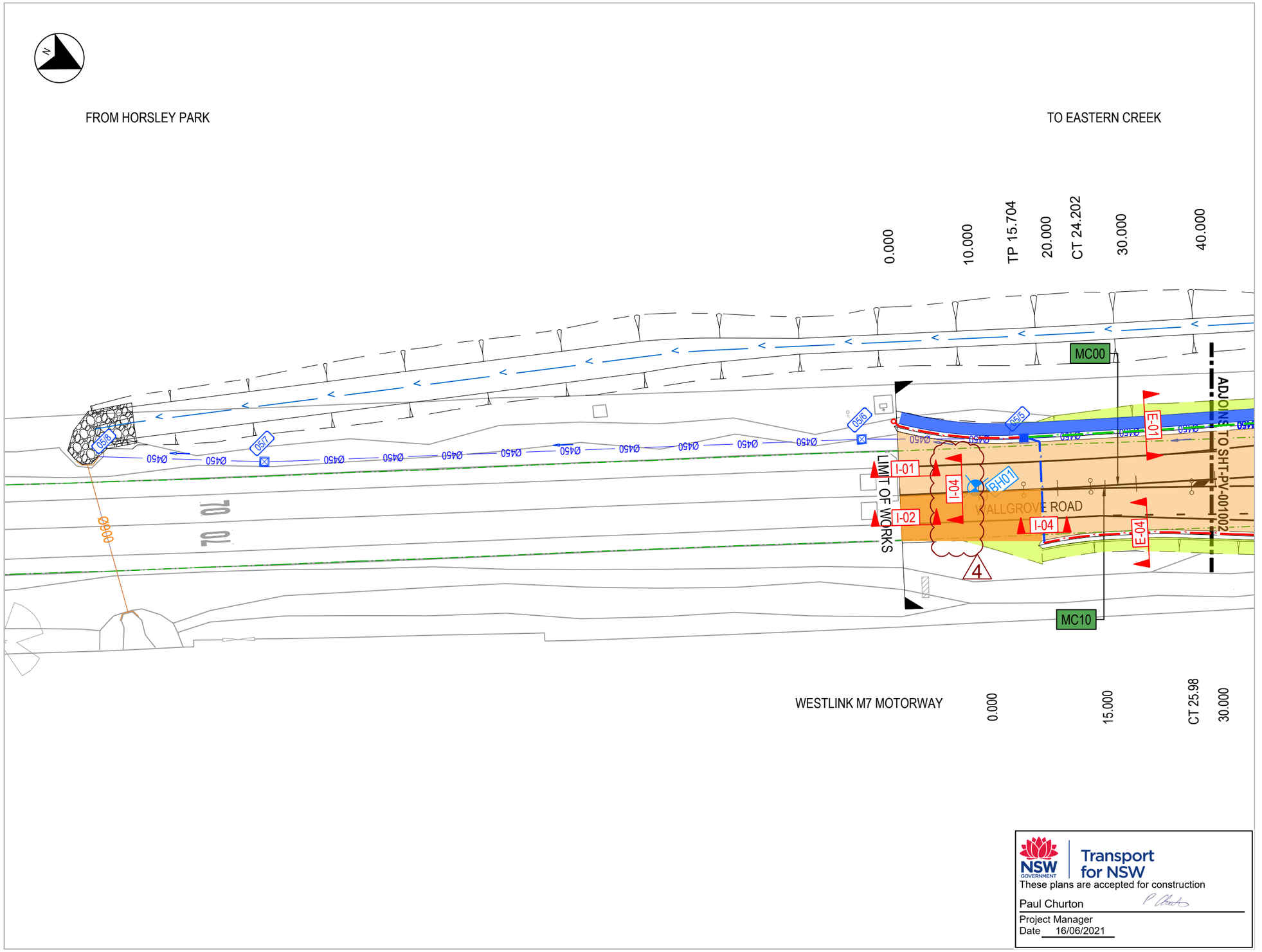
	TITLE	NAME	DATE
DRAWN		JASON BOVIS	31.07.2020
DRG CHECK		PHILIP BYRUM	31.07.2020
DESIGN		PHILLIP STODDART	31.07.2020
DESIGN CHECK		PHILIP BYRUM	31.07.2020
DESIGN MNGR		PHILIP BYRUM	31.07.2020
PROJECT MNGR		PAUL CHURTON	31.07.2020

CLIENT: GAZCORP
PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE GENERAL ARRANGEMENT

A3
SHEET 6 OF 6

TfNSW REGISTRATION No. DS2020/000425 PART -
ISSUE STATUS: ACCEPTED FOR CONSTRUCTION
EDMS No. -
SHEET No. SHT-RD-001206
ISSUE 3



LEGEND FOR PAVEMENT TYPES

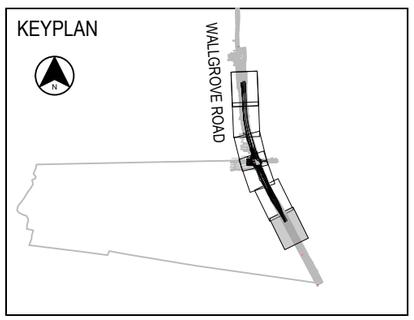
- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
- M&C - MILL AND CORRECTION
- GV - GRASSED VERGE
- CD1- CONCRETE ACCESS DRIVEWAY
- P2 - STRUCTURAL CONCRETE FOOTPATH
- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- BATTER

- 0.000 — ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
- SUBSURFACE TRENCH DRAIN
- COMBINED STORMWATER/SUBSURFACE DRAIN
- INTERFACE DRAIN
- FLUSHING POINT

NOTES

1. ALL DIMENSIONS ARE IN METRES UNO.
2. FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND SHT-GE-000022.
3. FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
4. FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO RD-SERIES.

KEYPLAN



NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED 50mm ON A3 SIZE ORIGINAL

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DESIGN LOT CODE:

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING:

EXTERNAL REFERENCE FILES:

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1	11.11.2020	80% DETAILED DESIGN		P.BYRUM
2	18.01.2021	100% DETAILED DESIGN		P.BYRUM
3	01.04.2021	ACCEPTED FOR CONSTRUCTION		P.BYRUM
4	22.04.2021	INTERFACE TAG UPDATED		P.BYRUM

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

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

PLOT DATE / TIME: PLOT BY

	TITLE	NAME	DATE
DRAWN		JASON BOVIS	31.07.2020
DRG CHECK		PHILIP BYRUM	31.07.2020
DESIGN		PHILLIP STODDART	31.07.2020
DESIGN CHECK		PHILIP BYRUM	31.07.2020
DESIGN MNGR		PHILIP BYRUM	31.07.2020
PROJECT MNGR		PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

A3

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

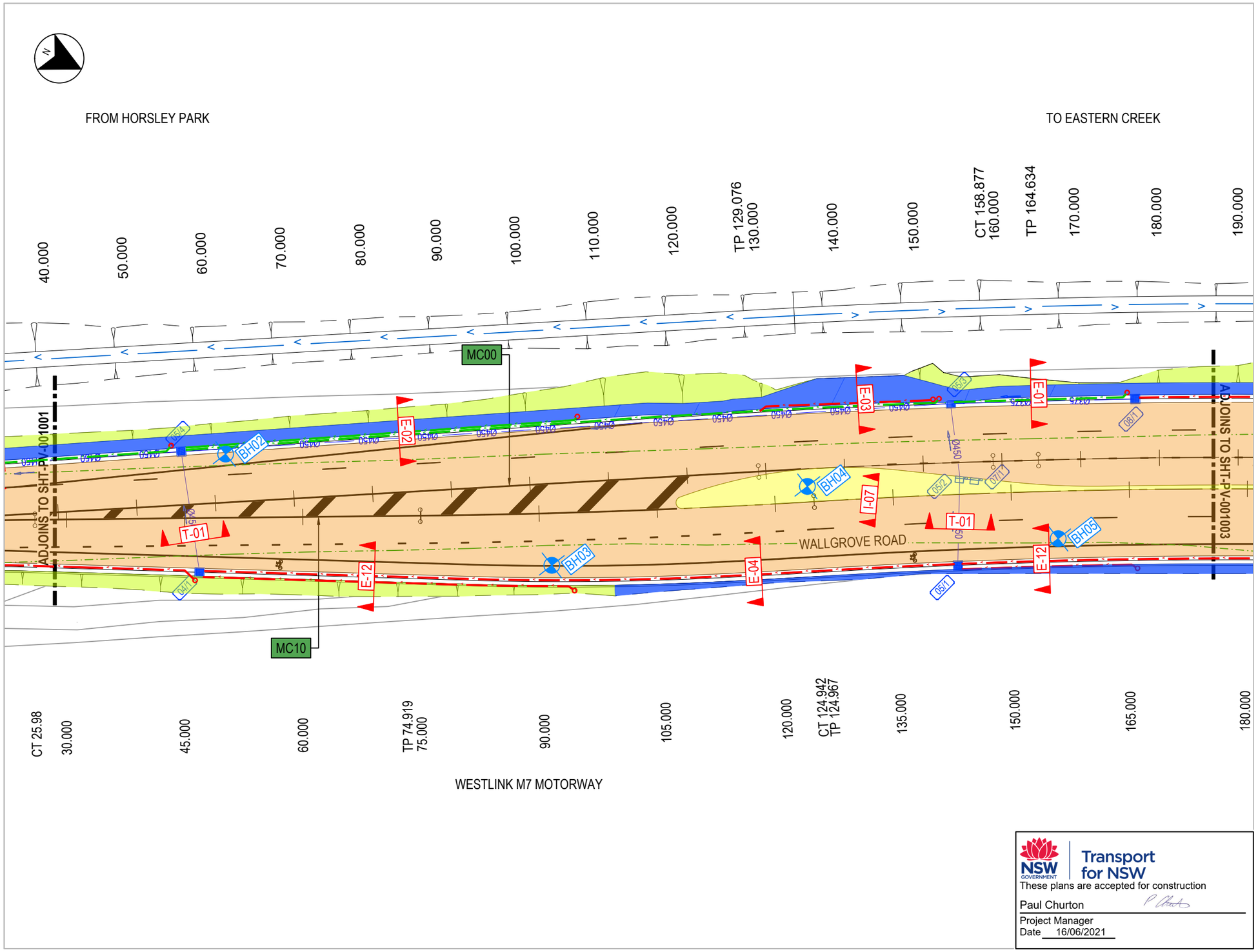
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE

PAVEMENT PLAN

SHEET 1 OF 6

TfNSW REGISTRATION No. DS2020/000425 PART -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. SHT-PV-001001 | ISSUE 4



LEGEND FOR PAVEMENT TYPES

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- BATTER - GEO GRID TREATMENT
- BATTER

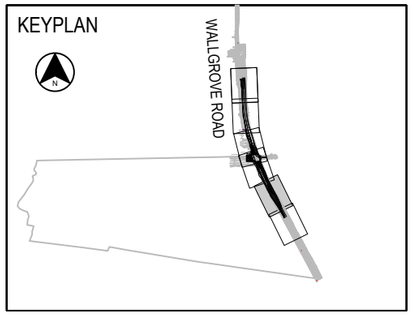
0.000

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
- SUBSURFACE TRENCH DRAIN
- COMBINED STORMWATER/SUBSURFACE DRAIN
- INTERFACE DRAIN
- FLUSHING POINT

NOTES

1. ALL DIMENSIONS ARE IN METRES UNO.
2. FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND SHT-GE-000022.
3. FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
4. FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO RD-SERIES.

KEYPLAN



NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME: C:\12ds\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg

DESIGN LOT CODE

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING

EXTERNAL REFERENCE FILES

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

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY

Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

PLOT DATE / TIME PLOT BY

TITLE	NAME	DATE
DRAWN	JASON BOVIS	31.07.2020
DRG CHECK	PHILIP BYRUM	31.07.2020
DESIGN	PHILLIP STODDART	31.07.2020
DESIGN CHECK	PHILIP BYRUM	31.07.2020
DESIGN MNGR	PHILIP BYRUM	31.07.2020
PROJECT MNGR	PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

A3

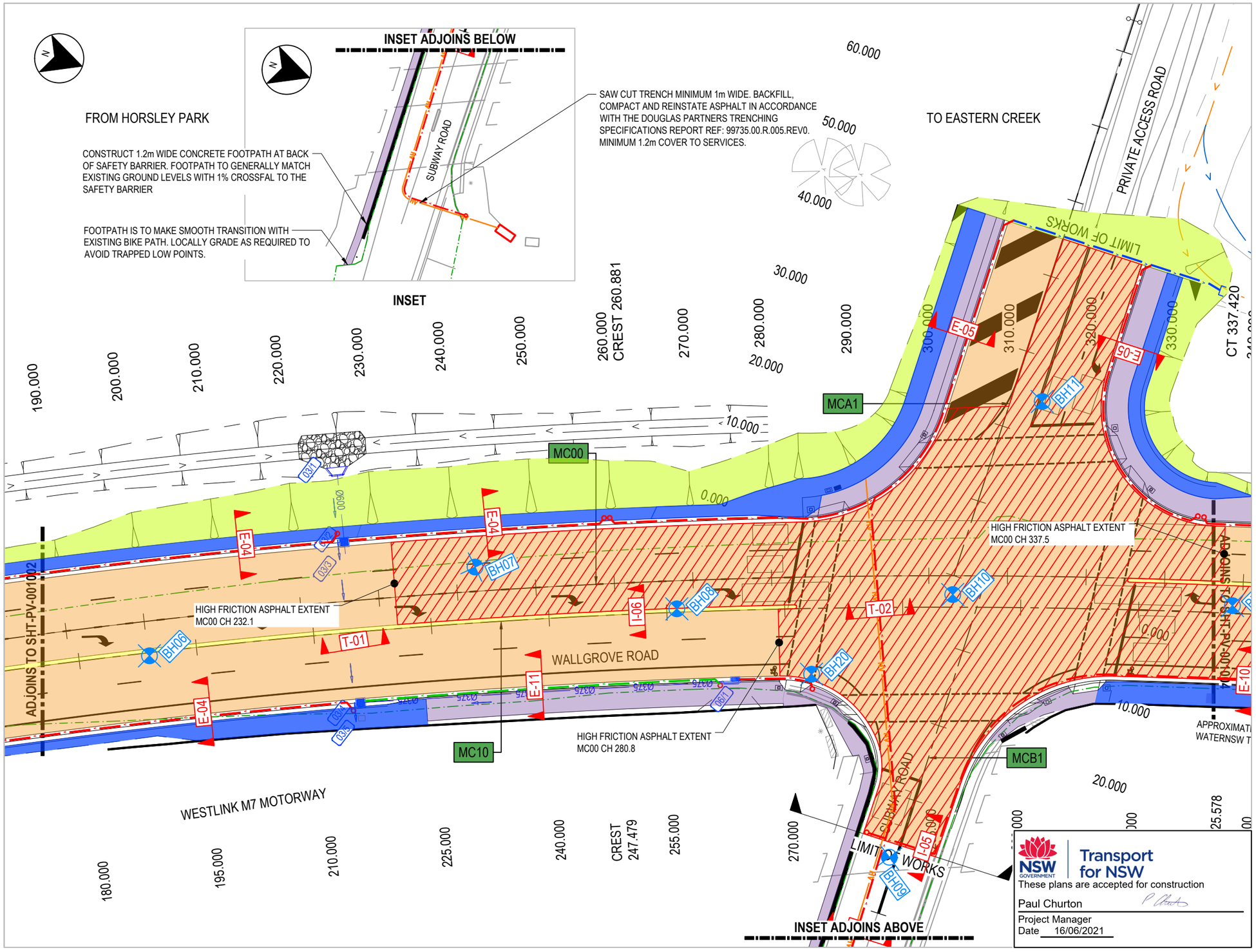
FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE PAVEMENT PLAN

SHEET 2 OF 6

TfNSW REGISTRATION No. DS2020/000425 PART -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. SHT-PV-001002 | ISSUE 3



LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
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0.000

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
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NOTES

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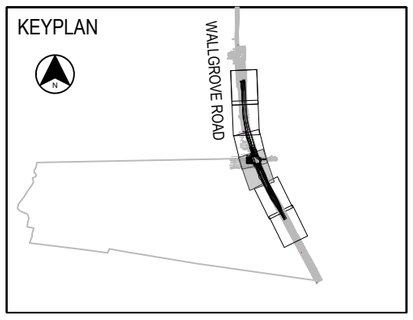
KEYPLAN



ACCEPTED FOR CONSTRUCTION

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EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	TITLE	NAME	DATE			SHEET 3 OF 6
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	1	11.11.2020	80% DETAILED DESIGN		P.BYRUM			DRG CHECK	PHILIP BYRUM	31.07.2020			
	2	18.01.2021	100% DETAILED DESIGN		P.BYRUM			DESIGN	PHILLIP STODDART	31.07.2020			
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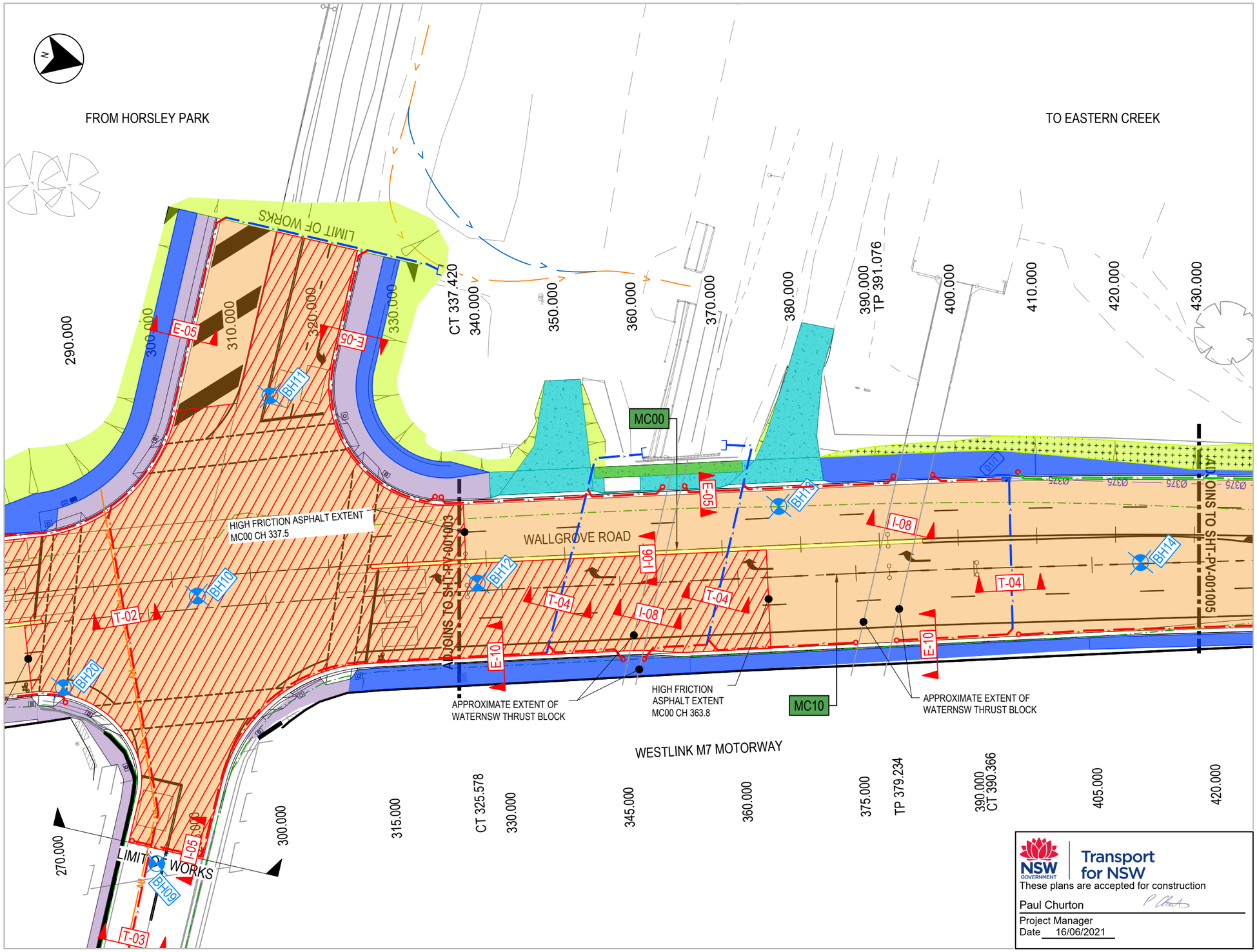
								PROJECT MNGR	PAUL CHURTON	31.07.2020			



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0.000

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NOTES

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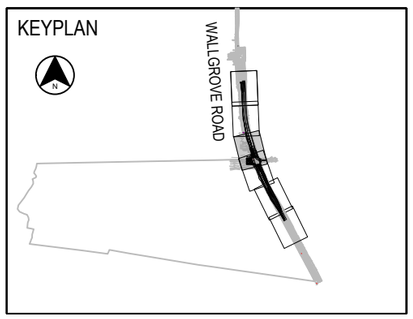
2. FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND SHT-GE-000022.
3. FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
4. FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO RD-SERIES.

KEYPLAN



NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED 50mm ON A3 SIZE ORIGINAL

DRAWING FILE LOCATION / NAME: C:\12ds\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg

DESIGN LOT CODE | DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING | PLOT DATE / TIME | PLOT BY

EXTERNAL REFERENCE FILES

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
0	31.07.2020	50% DETAILED DESIGN		P.BYRUM
1	11.11.2020	80% DETAILED DESIGN		P.BYRUM
2	18.01.2021	100% DETAILED DESIGN		P.BYRUM
3	01.04.2021	ACCEPTED FOR CONSTRUCTION		P.BYRUM

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

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting — ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

	TITLE	NAME	DATE
	DRAWN	JASON BOVIS	31.07.2020
	DRG CHECK	PHILIP BYRUM	31.07.2020
	DESIGN	PHILLIP STODDART	31.07.2020
	DESIGN CHECK	PHILIP BYRUM	31.07.2020
	DESIGN MNGR	PHILIP BYRUM	31.07.2020
	PROJECT MNGR	PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

A3

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

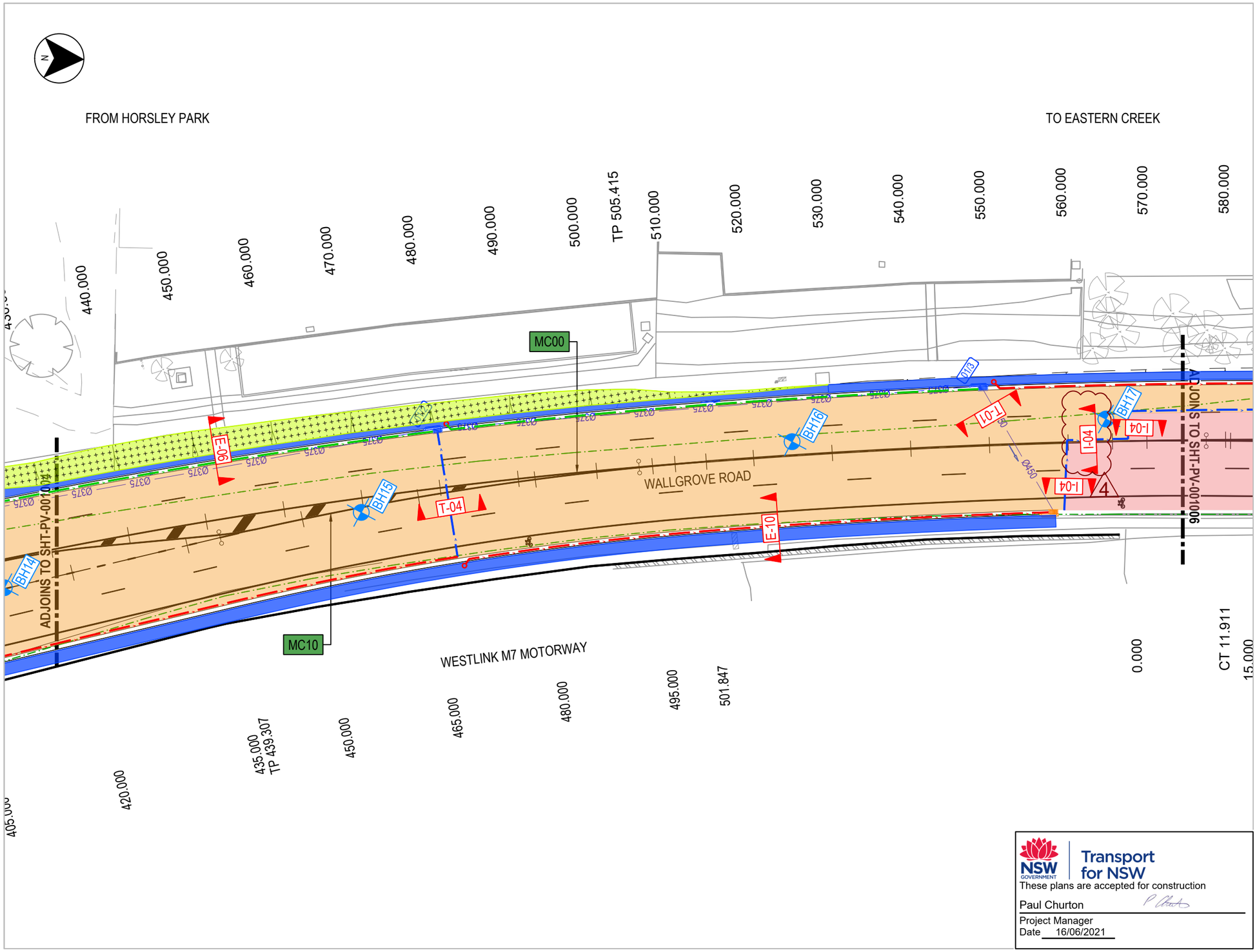
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE

PAVEMENT PLAN

SHEET 4 OF 6

TfNSW REGISTRATION No. DS2020/000425 | PART -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. SHT-PV-001004 | ISSUE 3



LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
- M&C - MILL AND CORRECTION
- GV - GRASSED VERGE
- CD1- CONCRETE ACCESS DRIVEWAY
- P2 - STRUCTURAL CONCRETE FOOTPATH
- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- BATTER

0.000

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
- SUBSURFACE TRENCH DRAIN
- COMBINED STORMWATER/SUBSURFACE DRAIN
- INTERFACE DRAIN
- FLUSHING POINT

NOTES

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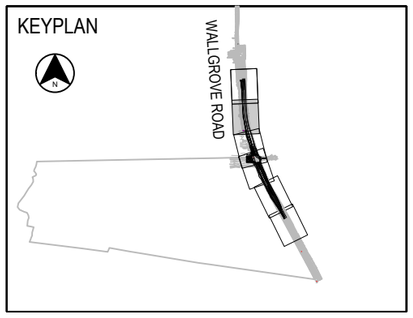
KEYPLAN



NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME: C:\12dS\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg

DESIGN LOT CODE:

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING:

PLOT DATE / TIME: PLOT BY:

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
	0	31.07.2020	50% DETAILED DESIGN		P.BYRUM
	1	11.11.2020	80% DETAILED DESIGN		P.BYRUM
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	3	01.04.2021	ACCEPTED FOR CONSTRUCTION		P.BYRUM
	4	22.04.2021	INTERFACE TAG UPDATED		P.BRYUM

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

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

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DESIGN	PHILLIP STODDART	31.07.2020
DESIGN CHECK	PHILIP BYRUM	31.07.2020
DESIGN MNGR	PHILIP BYRUM	31.07.2020
PROJECT MNGR	PAUL CHURTON	31.07.2020

A3

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

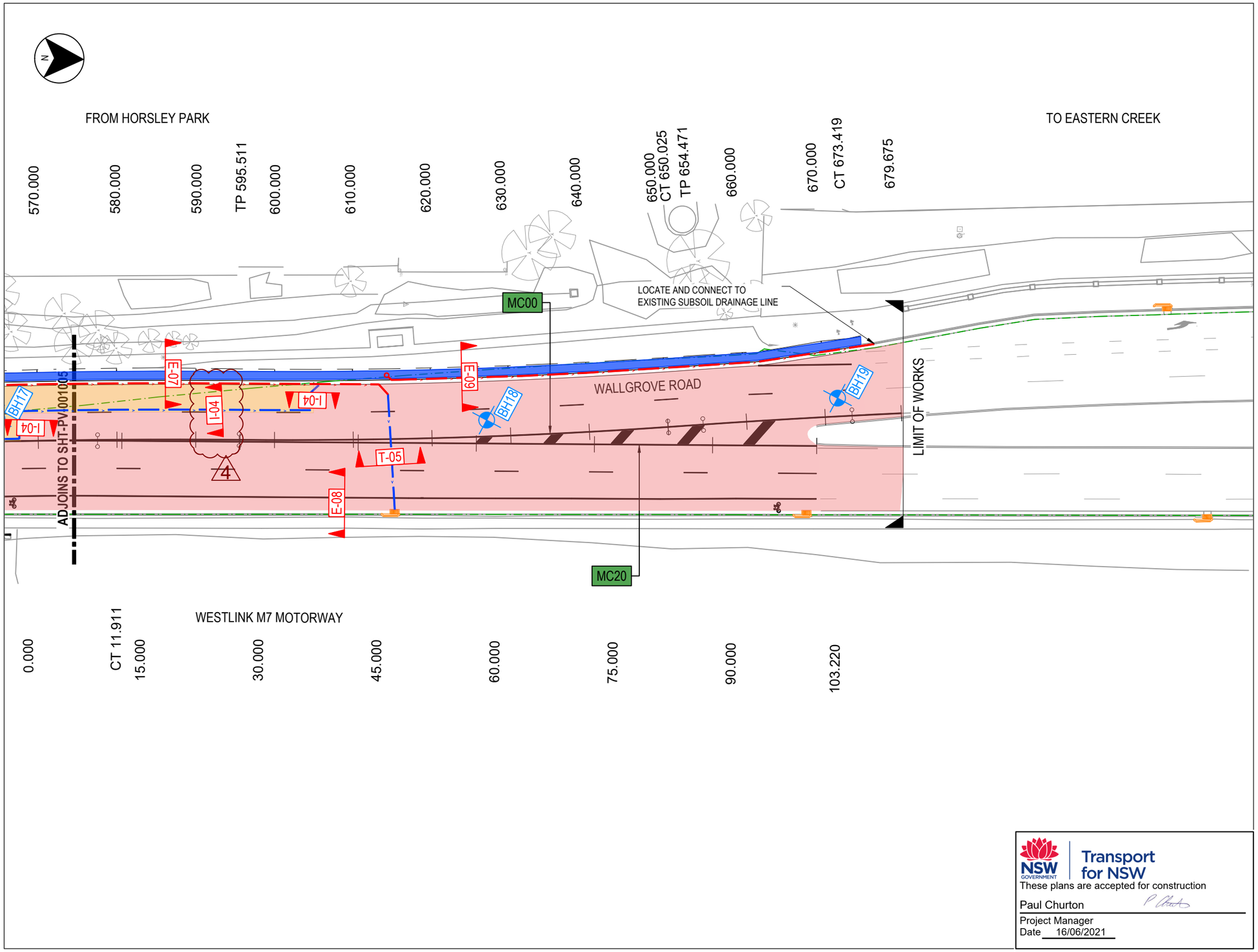
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE

PAVEMENT PLAN

SHEET 5 OF 6

TNSW REGISTRATION No. DS2020/000425 PART -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION EDMS No. - SHEET No. SHT-PV-001005 ISSUE 4



LEGEND FOR PAVEMENT TYPES

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- BATTER

0.000

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- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- MXXX — ROAD CONTROL LINE LABEL
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- NEW STORMWATER PIT
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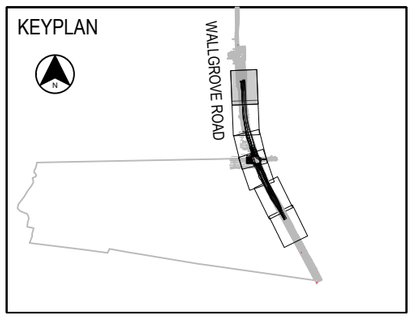
4. FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO RD-SERIES.

KEYPLAN



NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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: C:\12dS\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg

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DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING:

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CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting

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DESIGN CHECK	PHILIP BYRUM	31.07.2020
DESIGN MNGR	PHILIP BYRUM	31.07.2020
PROJECT MNGR	PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

A3

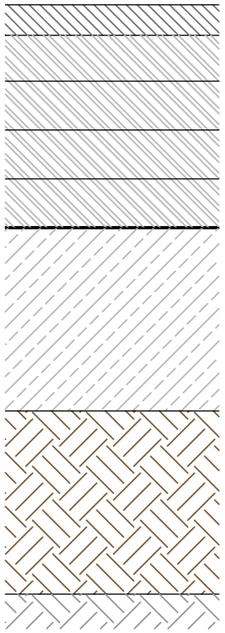
FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE PAVEMENT PLAN

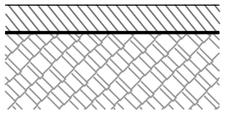
SHEET 6 OF 6

TfNSW REGISTRATION No. DS2020/000425 PART -

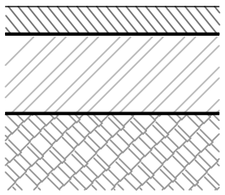
ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. SHT-PV-001006 | ISSUE 4



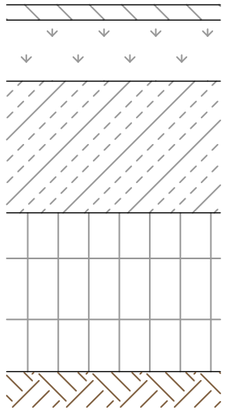
PAVEMENT TYPE - T1
FULL DEPTH AC



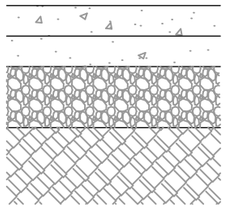
PAVEMENT TYPE - M&R
MILL AND RESHEET (EXISTING PAVEMENT)



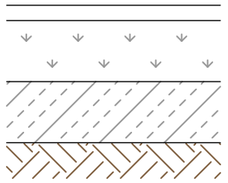
PAVEMENT TYPE - M&C
MILL AND CORRECTION (EXISTING PAVEMENT)



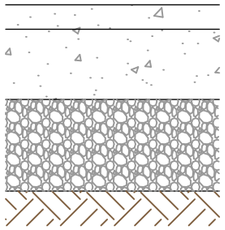
PAVEMENT TYPE - GV
GRASSED VERGE (TfNSW R44)



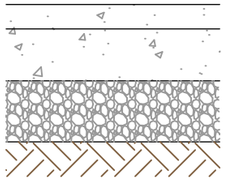
PAVEMENT TYPE - RM1
RAISED CONCRETE MEDIAN



BATTER



PAVEMENT TYPE - CD1
CONCRETE ACCESS DRIVEWAY



PAVEMENT TYPE - P1
PEDESTRIAN FOOTPATH
(TO BE CONSTRUCTED TO FAIRFIELD CITY
COUNCIL'S CONSTRUCTION SPECIFICATION
AND TfNSW R44)

PAVEMENT TYPE - P2
STRUCTURAL CONCRETE FOOTPATH
(SUBJECT TO STRUCTURAL DESIGN)

NOTES

1. ALL PAVEMENTS, FOOTPATHS AND RAISED MEDIANS ARE CONSTRUCTED TO TfNSW SPECIFICATIONS.
2. CORRECTIVE COURSE THICKNESS WILL VARY TO MATCH REVISED SURFACE LEVELS.
3. SEAL ALL CRACKS IN THE EXISTING PAVEMENT AFTER MILLING AND SWEEPING LOOSE DEBRIS IN ACCORDANCE WITH M211. 50mm OF THE EXISTING WEARING SURFACE IS TO BE MILLED AND REMOVED.
4. PEDESTRIAN FOOTWAY IS TO BE IN ACCORDANCE WITH FAIRFIELD CITY COUNCIL'S STANDARD DRAWING S-501.
5. SURFACE OF THE COMPACTED UNBOUND GRANULAR MATERIAL MUST BE MOISTENED PRIOR TO PLACING THE CONCRETE TO MINIMISE MOISTURE LOSS.

NSW GOVERNMENT Transport for NSW
These plans are accepted for construction
Paul Churton
Project Manager
Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME: C:\12dS\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg

DESIGN LOT CODE:

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING:

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EXTERNAL REFERENCE FILES:

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
0	31.07.2020	50% DETAILED DESIGN		P.BYRUM
1	11.11.2020	80% DETAILED DESIGN		P.BYRUM
2	17.02.2021	100% DETAILED DESIGN		P.BYRUM
3	01.04.2021	ACCEPTED FOR CONSTRUCTION		P.BYRUM

SCALES ON A3 SIZE DRAWING: 0.5 0 0.5 1 1.5 2m — 1 : 100 FULL SIZE A3

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: Orion Consulting
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DESIGN CHECK		PHILIP BYRUM	31.07.2020
DESIGN MNGR		PHILIP BYRUM	31.07.2020
PROJECT MNGR		PAUL CHURTON	31.07.2020

CLIENT: GAZCORP

PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT

A3

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE
PAVEMENT PROFILES

SHEET 1 OF 1

TfNSW REGISTRATION No.: DS2020/000425 PART: -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No.: - | SHEET No.: SHT-PV-005001 | ISSUE: 3

Annexure H – Ultimate Design TCS Drawings

TCS 5058

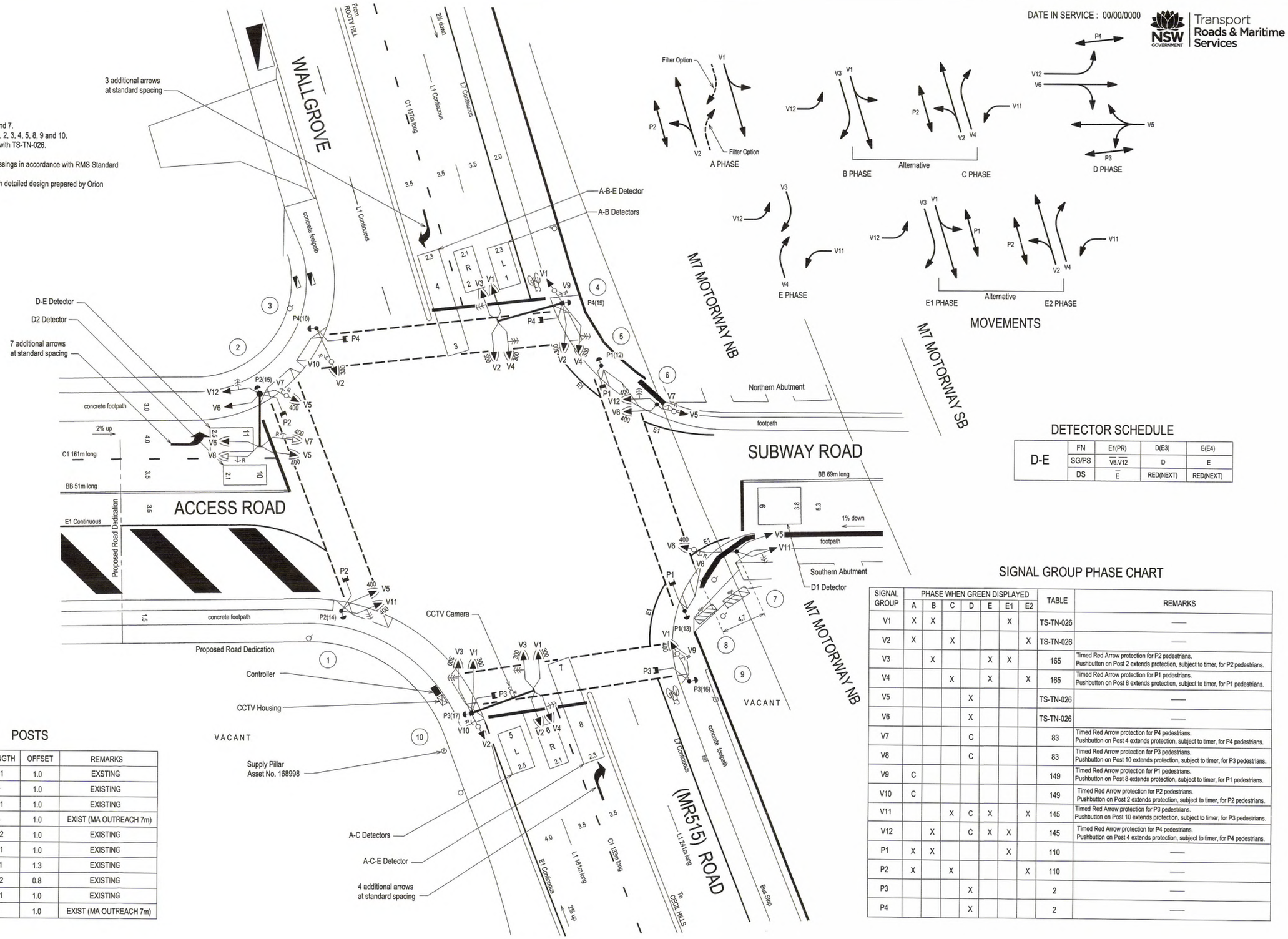
DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE : 00/00/0000

NSW GOVERNMENT Transport Roads & Maritime Services

NOTES

1. This site is SCATS linked.
2. Special STOP signs R1-4 are placed on Posts 2 and 7.
3. Audio tactile push buttons are provided on posts 1, 2, 3, 4, 5, 8, 9 and 10.
4. Single Diamond Overlap operation in accordance with TS-TN-026.
5. CCTV Camera is mounted on Post 10.
6. Kerb ramps to be constructed at all pedestrian crossings in accordance with RMS Standard (Road) Drawing R.0300-11.
7. All civil construction works to be in accordance with detailed design prepared by Orion Consulting drawing no. DS2020/000425.



DETECTOR SCHEDULE

D-E	FN	E1(PR)	D(E3)	E(E4)
	SG/PS	V6.V12	D	E
	DS	E	RED(NEXT)	RED(NEXT)

POSTS

POSTS	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	EXSTING
2	5XL	-	1.0	EXISTING
3	2	4.1	1.0	EXISTING
4	9	-	1.0	EXIST (MA OUTREACH 7m)
5	2	3.2	1.0	EXISTING
6	2	4.1	1.0	EXISTING
7	2	4.1	1.3	EXISTING
8	2	3.2	0.8	EXISTING
9	2	4.1	1.0	EXISTING
10	9	-	1.0	EXIST (MA OUTREACH 7m)

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED							TABLE	REMARKS
	A	B	C	D	E	E1	E2		
V1	X	X				X		TS-TN-026	——
V2	X		X				X	TS-TN-026	——
V3		X			X	X		165	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V4			X		X		X	165	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V5				X				TS-TN-026	——
V6				X				TS-TN-026	——
V7				C				83	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
V8				C				83	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V9	C							149	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V10	C							149	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V11			X	C	X		X	145	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V12		X		C	X	X		145	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
P1	X	X				X		110	——
P2	X		X				X	110	——
P3				X				2	——
P4				X				2	——

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND	
HYDRANT	□
STOP VALVE	▲
GAS VALVE	#
SEWER MANHOLE	Ⓢ
COMMS PIT	◪
ELECT LIGHT POLE	○
POWER POLE	○
STAY POLE	⊘
TELEPHONE BOX	⚿
COMMS PILLAR	◒

REFERENCE PLANS	
SYMBOLS/ABRVS	VD003-6
STD POSN CMPT	VD001-5
INSTL STOP DET	VC005-17
VEH GROUP OP	TS-TN-019
DET LOGIC OP	TS-TN-020
PED MVT OP	TS-TN-021
SURVEYOR : Orion Consulting	
DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520
DESIGNED : G VARLEY Road Delay Solutions Pt.
CHECKED : P STODDART Orion Consulting Pty.
SITE CHECKED
PHILIP BYRUM
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME GLEN VARLEY
POSITION DIRECTOR
DATE 10.05.2021
ROAD DELAY SOLUTIONS
ROAD DELAY SOLUTIONS Pty Ltd
9 HORST PLACE WARRIEWOOD NSW 2102 AUSTRALIA
Mobile 0414 800 912 Email gvarley@bigpond.com

RMS RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME Philip Byrum
POSITION Traffic Signal Design Mgr
DATE 01/06/2021
NETWORK OPERATIONS
NAME NEIL C. LEITCH
POSITION A.L.N.O.C.
DATE 3.6.2021

RMS ACCEPTANCE
ACCEPTED
NAME Dina Hamer
POSITION Network Safety Services Mgr
DATE 16/06/2021
ACCEPTED BY
Network Safety Services
SECTION

ROADS AND MARITIME SERVICES
BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
M.R.515 WALLGROVE ROAD, SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK
DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_DES_1a.dgn ~~1A_DES.dgn~~
SCALE 5 0 (1:200) 5 10
ISSUE A
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE 2/A -
REG No. DS2020/000569
TCS No. 5058
SHEET 1

Revision 6 - July 2017

TCS 5058

DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE : 00/00/0000

Transport Roads & Maritime Services

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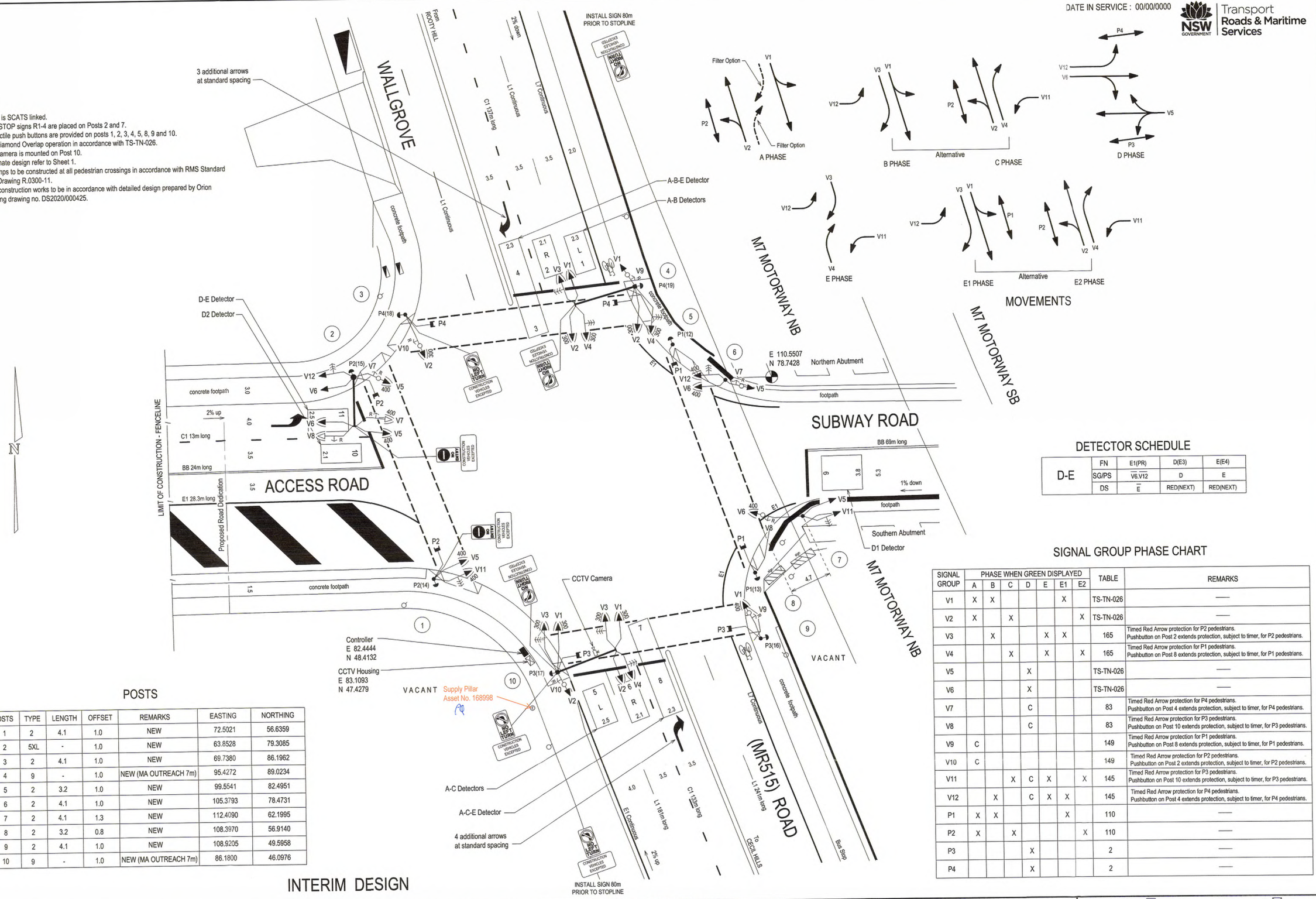
5. CCTV Camera is mounted on Post 10.
6. For Ultimate design refer to Sheet 1.
7. Kerb ramps to be constructed at all pedestrian crossings in accordance with RMS Standard (Road) Drawing R.0300-11.
8. All civil construction works to be in accordance with detailed design prepared by Orion Consulting drawing no. DS2020/000425.



POSTS

POSTS	TYPE	LENGTH	OFFSET	REMARKS	EASTING	NORTHING
1	2	4.1	1.0	NEW	72.5021	56.6359
2	5XL	-	1.0	NEW	63.8528	79.3085
3	2	4.1	1.0	NEW	69.7380	86.1962
4	9	-	1.0	NEW (MA OUTREACH 7m)	95.4272	89.0234
5	2	3.2	1.0	NEW	99.5541	82.4951
6	2	4.1	1.0	NEW	105.3793	78.4731
7	2	4.1	1.3	NEW	112.4090	62.1995
8	2	3.2	0.8	NEW	108.3970	56.9140
9	2	4.1	1.0	NEW	108.9205	49.5958
10	9	-	1.0	NEW (MA OUTREACH 7m)	86.1800	46.0976

DETECTOR SCHEDULE

D-E	FN	E1(PR)	D(E3)	E(E4)
	SG/PS	V6.V12	D	E
	DS	E	RED(NEXT)	RED(NEXT)

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED							TABLE	REMARKS
	A	B	C	D	E	E1	E2		
V1	X	X				X		TS-TN-026	——
V2	X		X				X	TS-TN-026	——
V3		X			X	X		165	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V4			X		X		X	165	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V5				X				TS-TN-026	——
V6				X				TS-TN-026	——
V7				C				83	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
V8				C				83	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V9	C							149	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V10	C							149	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V11			X	C	X		X	145	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V12		X		C	X	X		145	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
P1	X	X				X		110	——
P2	X		X				X	110	——
P3				X				2	——
P4				X				2	——

INTERIM DESIGN

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT	□	SYMBOLS/ABRVS	VD003-6
STOP VALVE	▲	STD POSN CMPT	VD001-5
GAS VALVE	#	INSTL STOP DET	VC005-17
SEWER MANHOLE	⊛	VEH GROUP OP	TS-TN-019
COMMS PIT	◪	DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE	☼	PED MVT OP	TS-TN-021
POWER POLE	○		
STAY POLE	⊘		
TELEPHONE BOX	⚿	SURVEYOR : Orion Consulting	
COMMS PILLAR	◕	DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520
DESIGNED : G VARLEY, Road Delay Solutions Pty Ltd
CHECKED : P STODDART, Orion Consulting Pty Ltd
SITE CHECKED
PHILIP BYRUM
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME GLEN VARLEY
POSITION DIRECTOR
DATE 10.05.2021
ROAD DELAY SOLUTIONS
ROAD DELAY SOLUTIONS Pty Ltd 9 HORST PLACE WARRIEWOOD NSW 2102 AUSTRALIA Mobile 0414 800 912 Email gvarley@bigpond.com

RMS RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME Phillip Byrum
POSITION Traffic Signal Des Mgr
DATE 01/06/2021
NETWORK OPERATIONS
NAME NEIL C. LEITCH
POSITION N.O.C.L.
DATE 3.6.2021

RMS ACCEPTANCE
ACCEPTED
NAME Linda Hanna
POSITION Network Safety Service Mgr
DATE 16/06/2021
ACCEPTED BY
Network Safety Service
SECTION

ROADS AND MARITIME SERVICES
BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
M.R.515 WALLGROVE ROAD, SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK
DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_DES_2a.dgn 2A_DES.dgn
SCALE 5 0 (1:200) 5 10
ISSUE A
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE -
REG No. DS2020/000569
TCS No. 5058
SHEET 2

Revision 6 - July 2017

Annexure I – Vehicle Management Plan

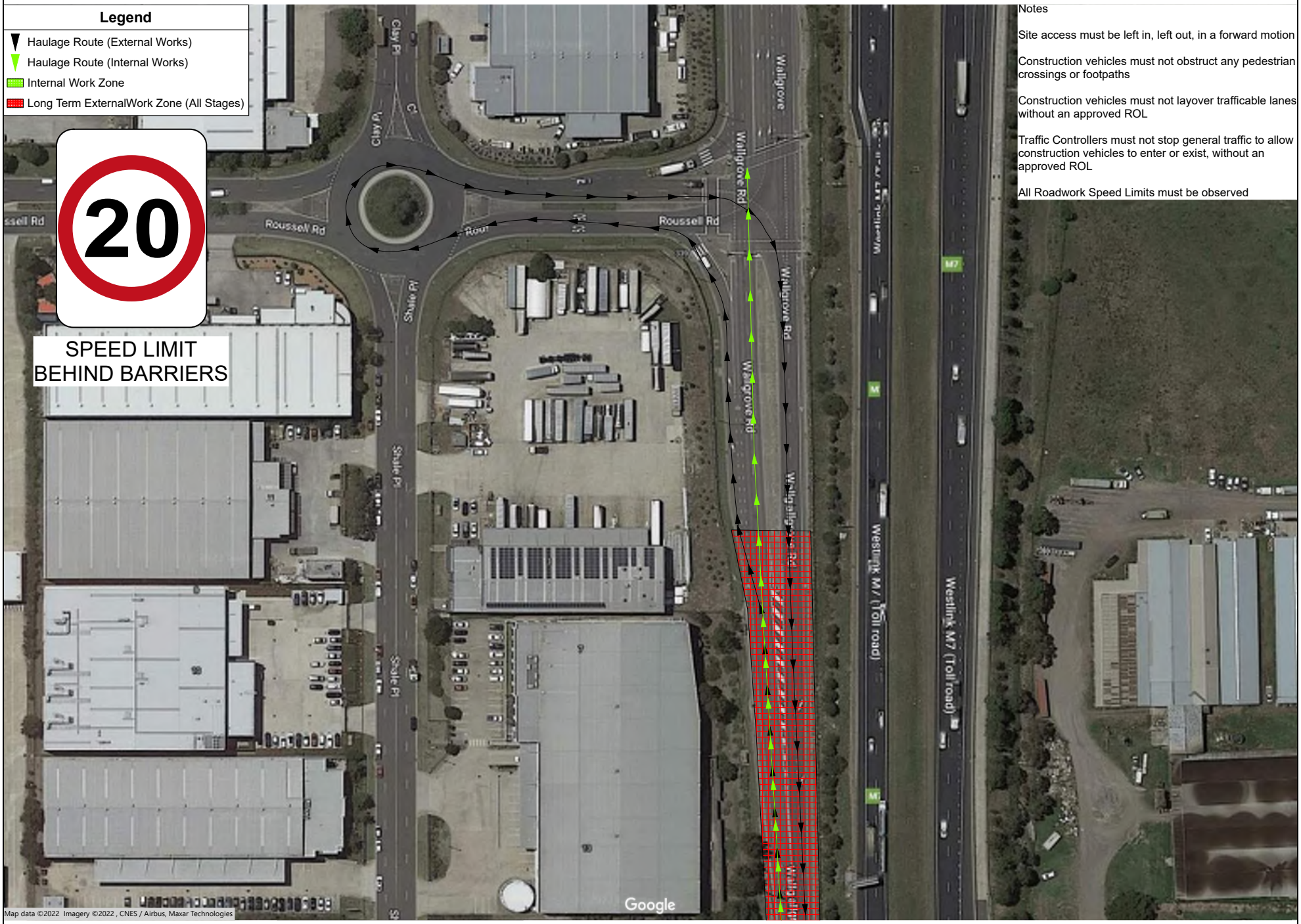
www.invarion.com

Legend

- Haulage Route (External Works)
- Haulage Route (Internal Works)
- Internal Work Zone
- Long Term ExternalWork Zone (All Stages)

20

SPEED LIMIT
BEHIND BARRIERS



Notes

Site access must be left in, left out, in a forward motion

Construction vehicles must not obstruct any pedestrian crossings or footpaths

Construction vehicles must not layover trafficable lanes without an approved ROL

Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL

All Roadwork Speed Limits must be observed

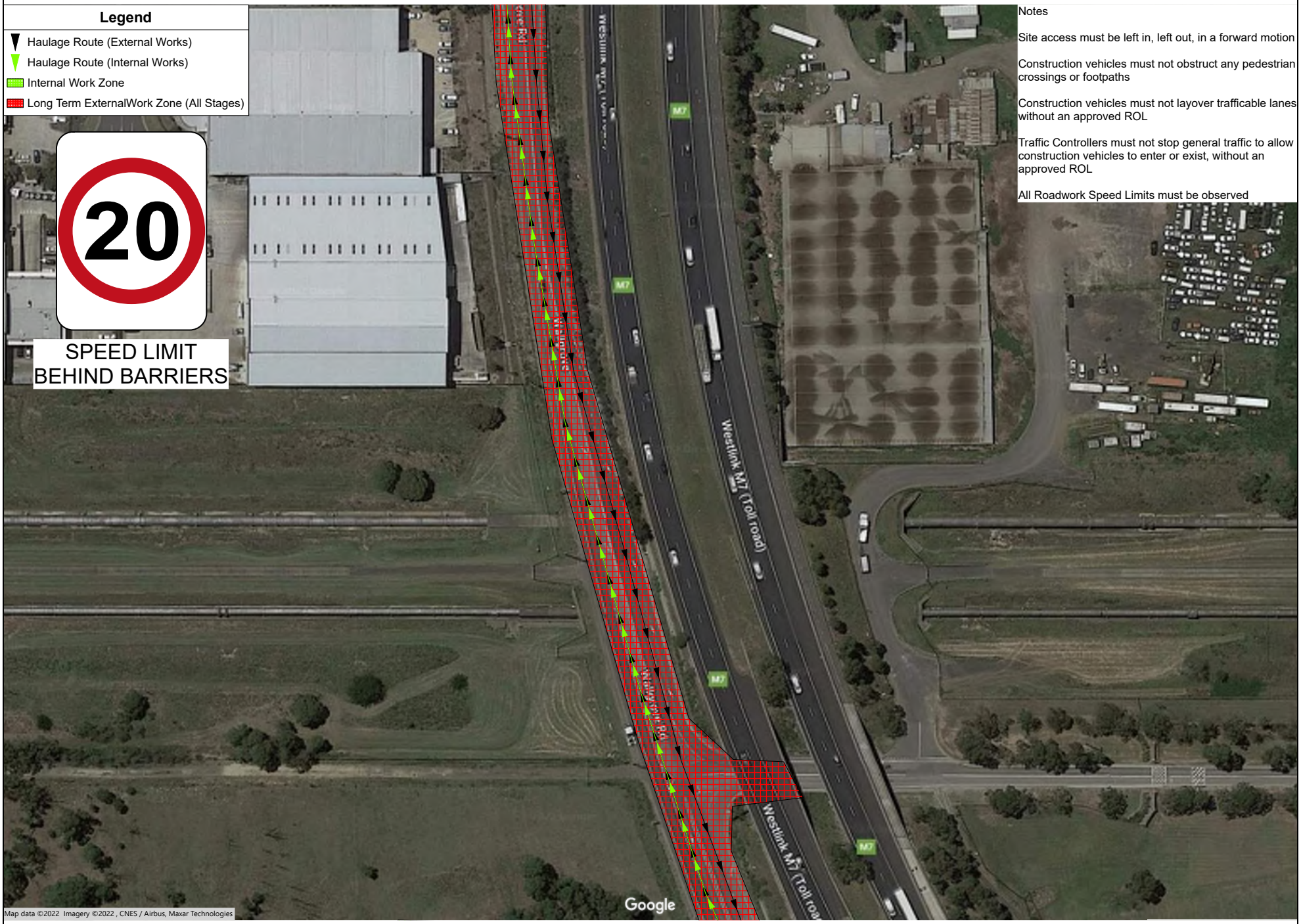
www.invarion.com

Legend

- Haulage Route (External Works)
- Haulage Route (Internal Works)
- Internal Work Zone
- Long Term ExternalWork Zone (All Stages)

20

SPEED LIMIT
BEHIND BARRIERS



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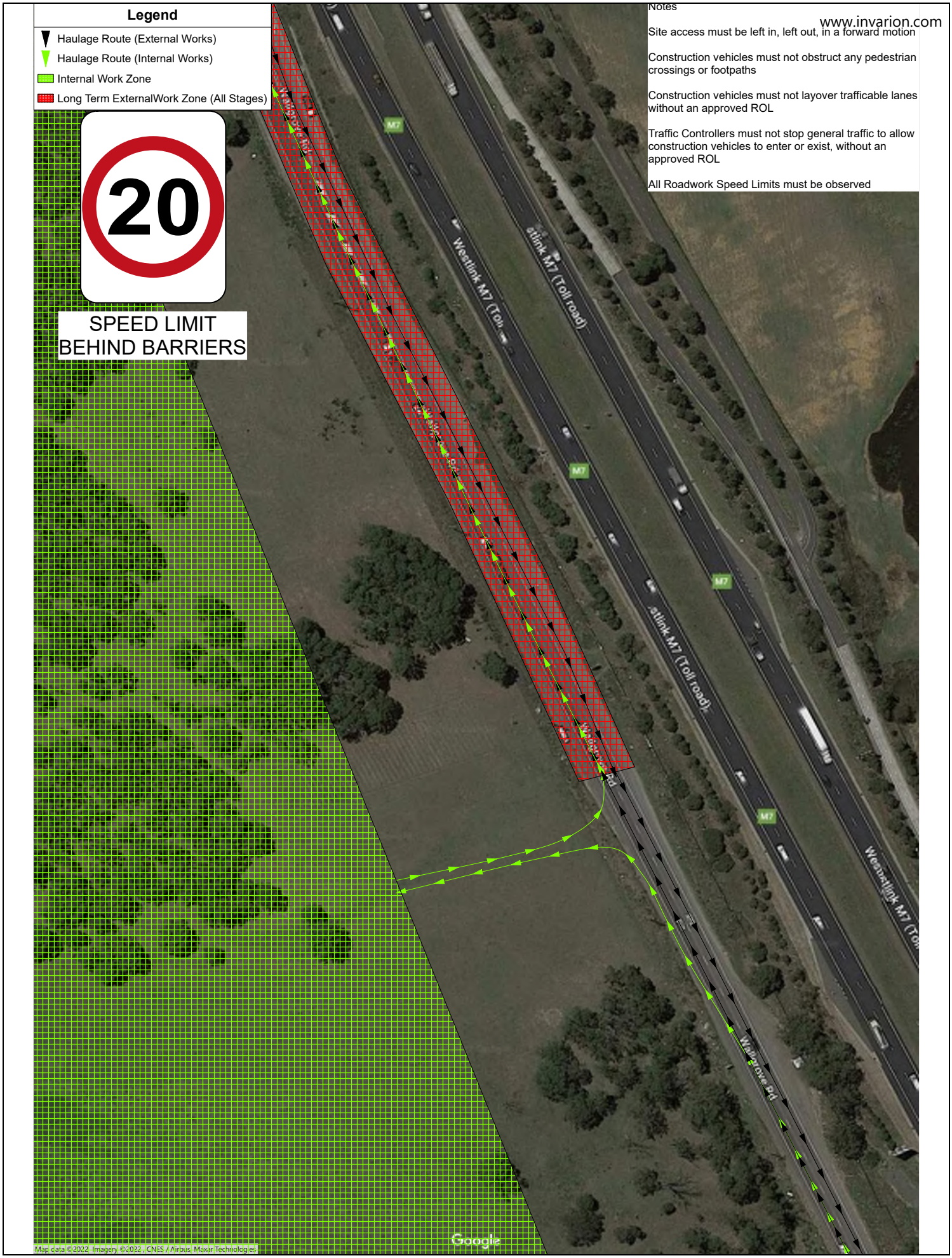
Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
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SPEED LIMIT
BEHIND BARRIERS
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www.invarion.com
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Westlink M7 (Toll road)
M7
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
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Westlink M7 (Toll road)
Wallgrove Rd
M7
Burley Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
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SPEED LIMIT
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Wallgrove Rd
Westlink M7 (Toll road)
M7
Chandos Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
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SPEED LIMIT
BEHIND BARRIERS
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Wallgrove Rd
Westlink M7 (Toll road)
M7
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
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Long Term ExternalWork Zone (All Stages)
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www.invarion.com
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All Roadwork Speed Limits must be observed
20
SPEED LIMIT
BEHIND BARRIERS
The Horsley Dr
Felton St
Wallgrove Rd
M7
Westlink M7 (Toll road)
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
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SPEED LIMIT
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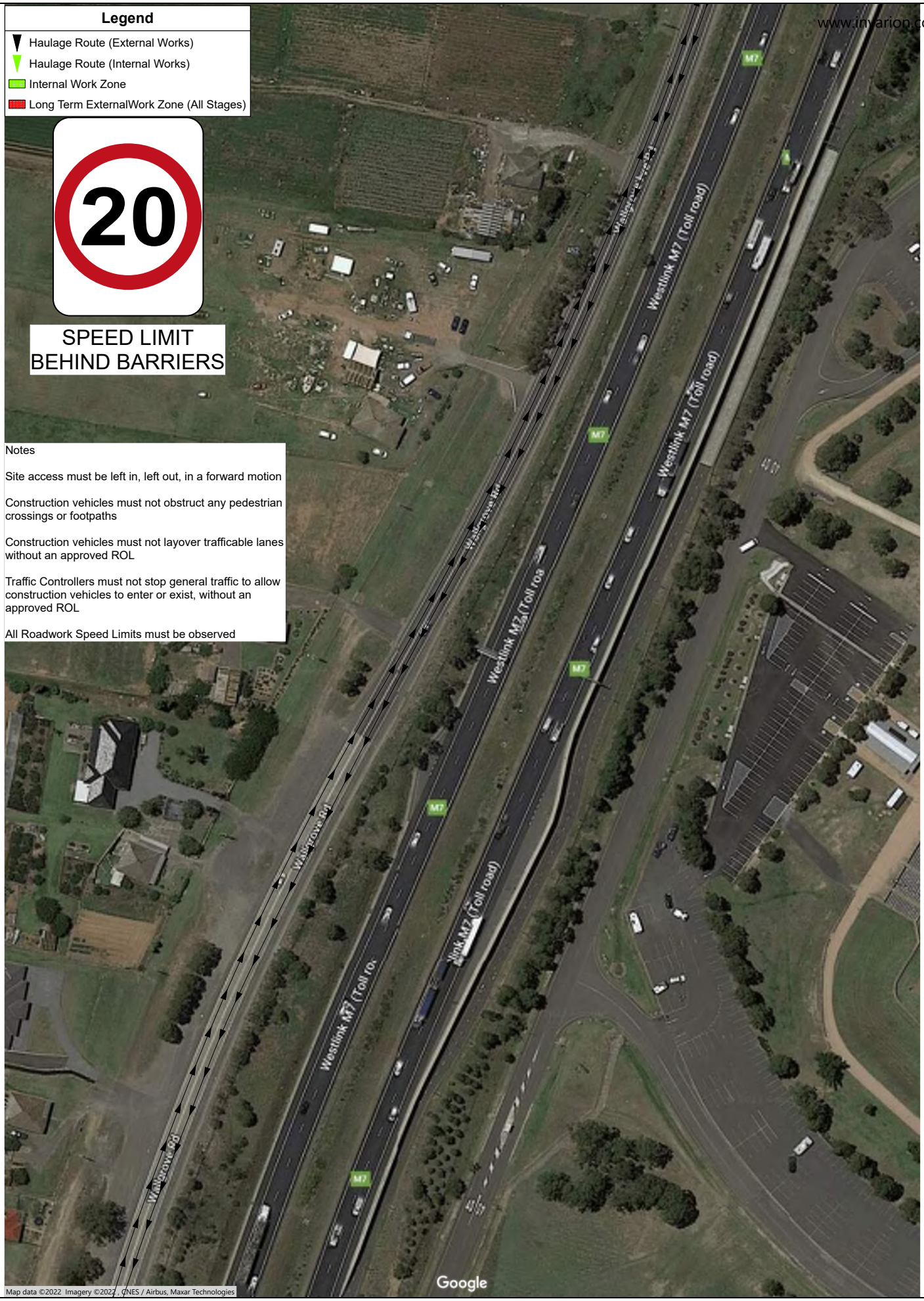
Wallgrove Rd
Westlink M7 (Toll road)
M7
Cobham St
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies




Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
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Long Term ExternalWork Zone (All Stages)
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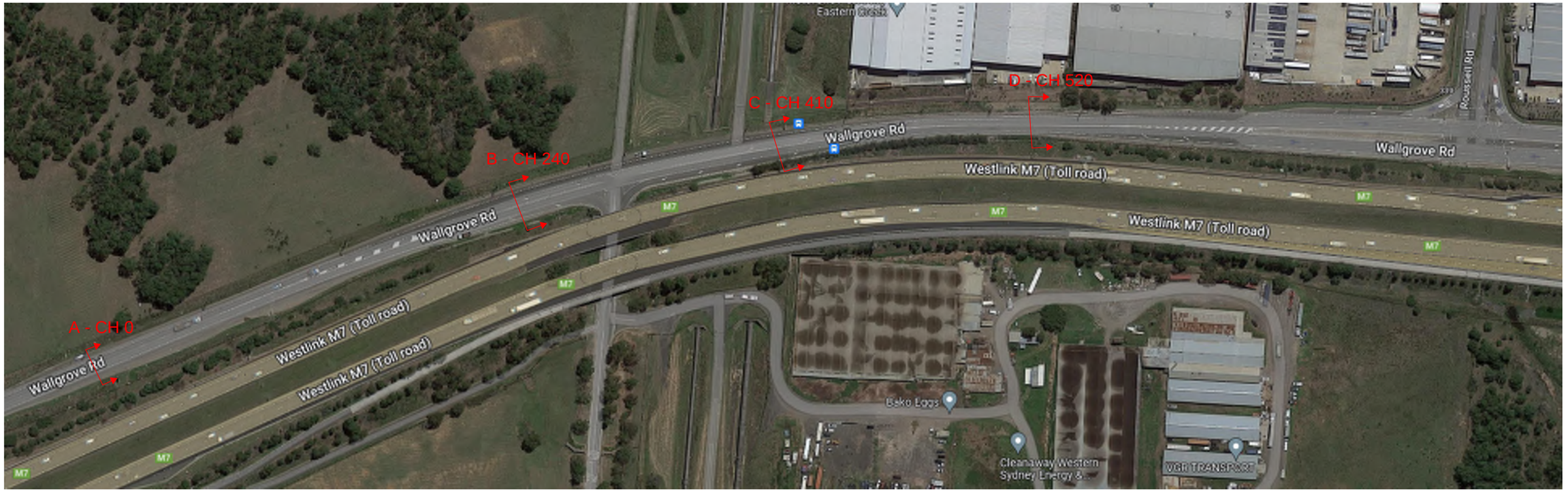
Wallgrove Rd
Westlink M7 (Toll road)
M7
Saxony Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies

Annexure J – Cross Sections

Existing Wallgrove Road Cross Sections - N.T.S.



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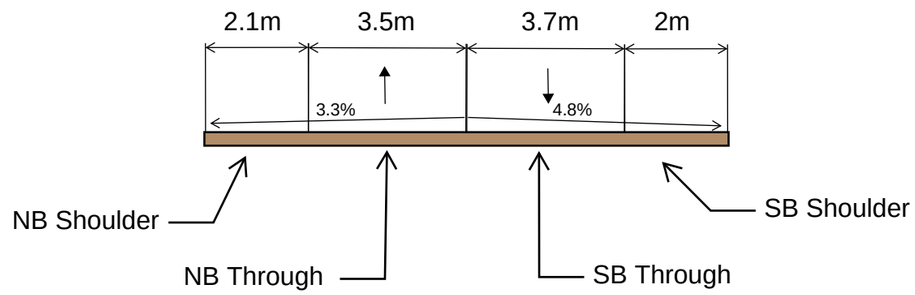
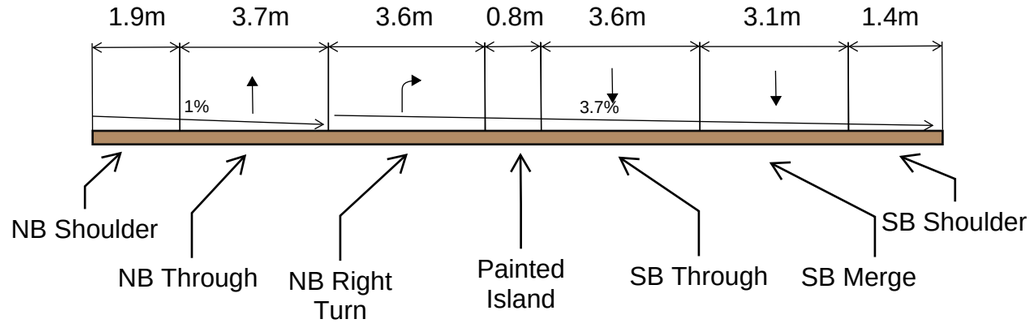
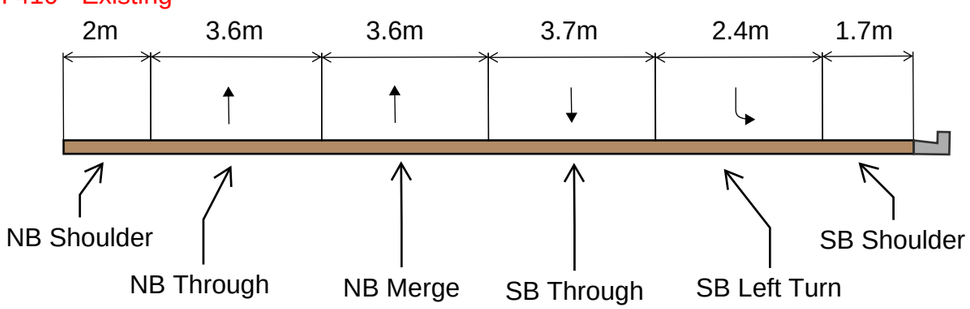


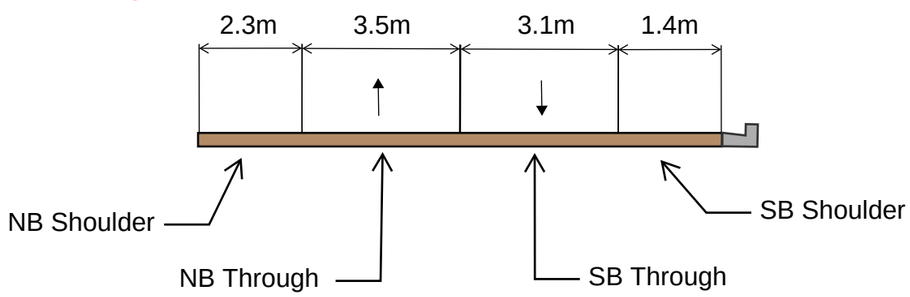
B - CH 240 - Existing



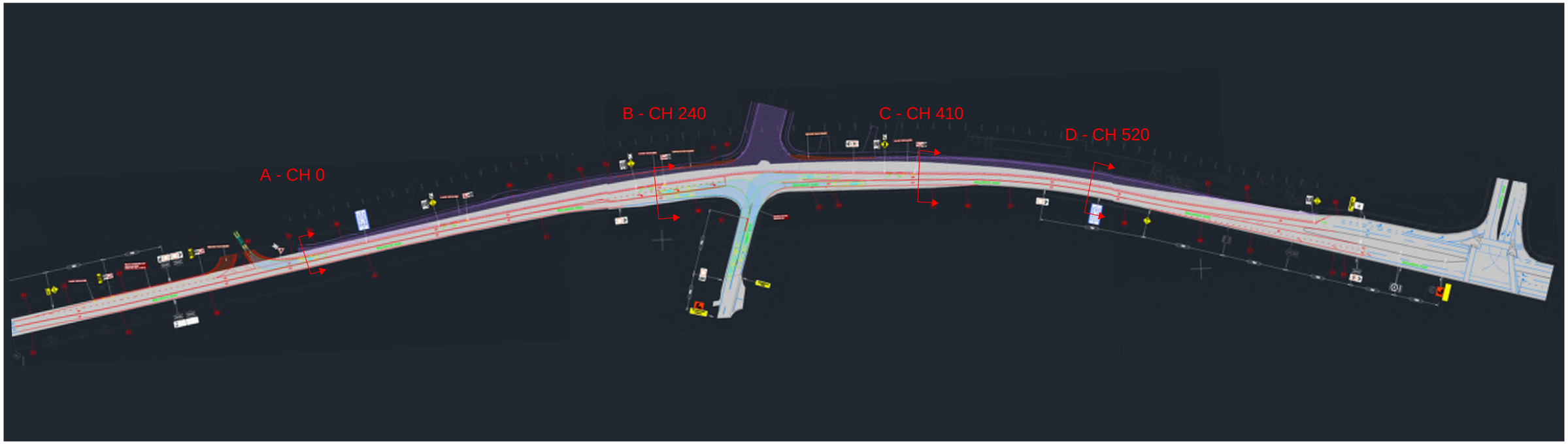
C - CH 410 - Existing



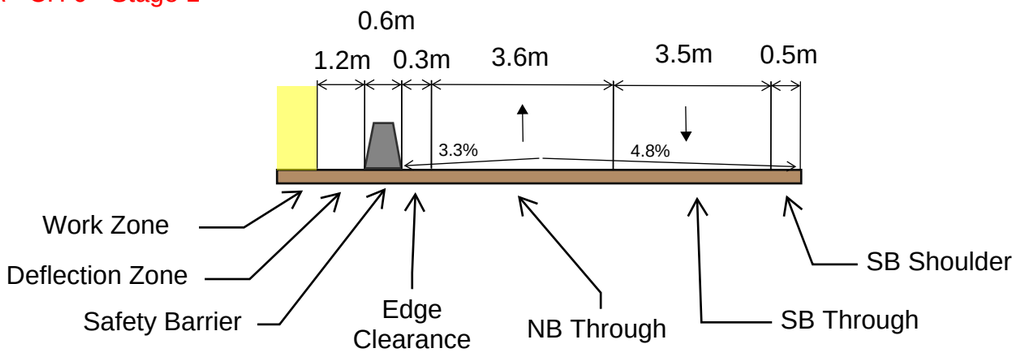
D - CH 520 - Existing



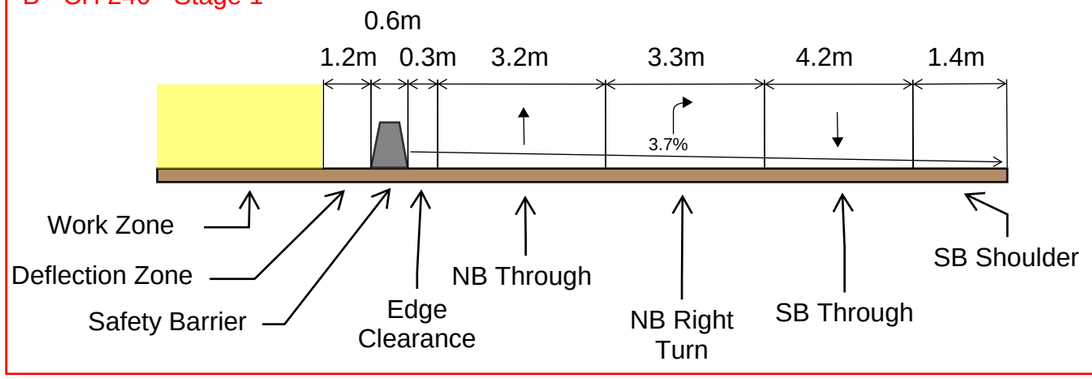
Stage 1 Wallgrove Road Cross Sections - N.T.S.



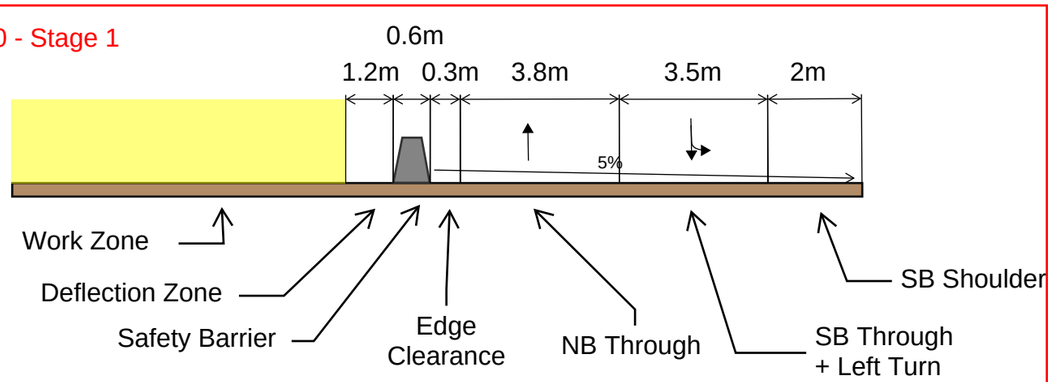
A - CH 0 - Stage 1



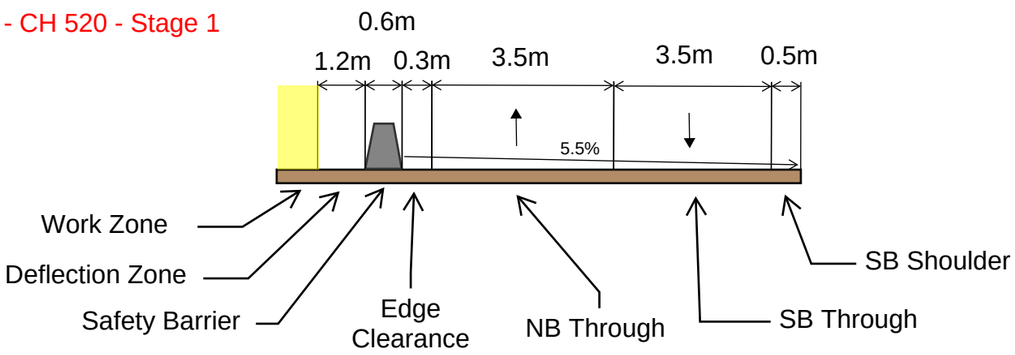
B - CH 240 - Stage 1



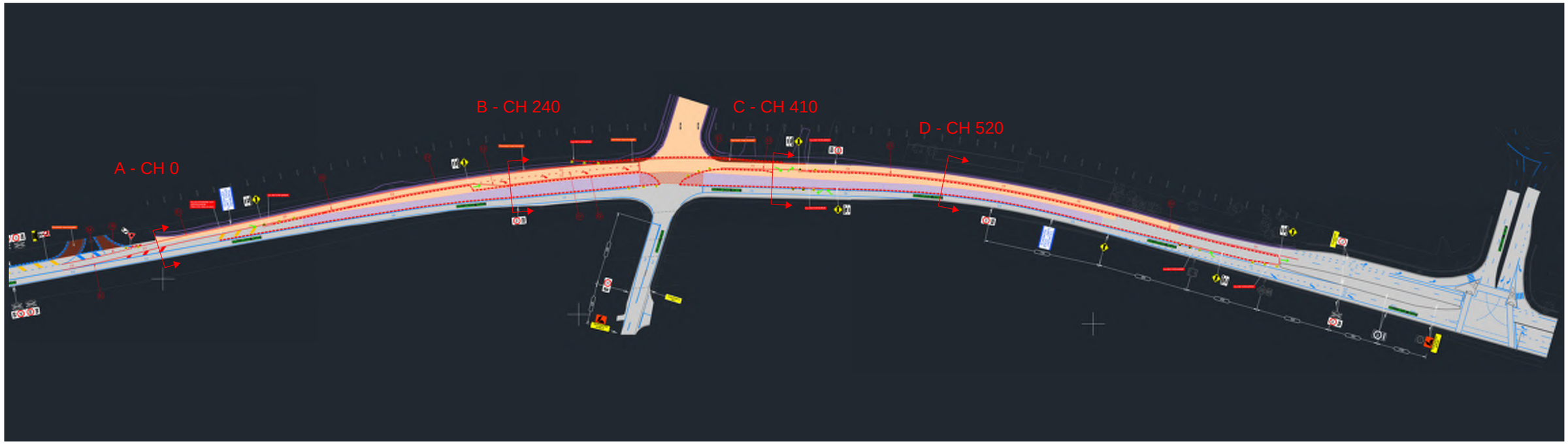
C - CH 410 - Stage 1



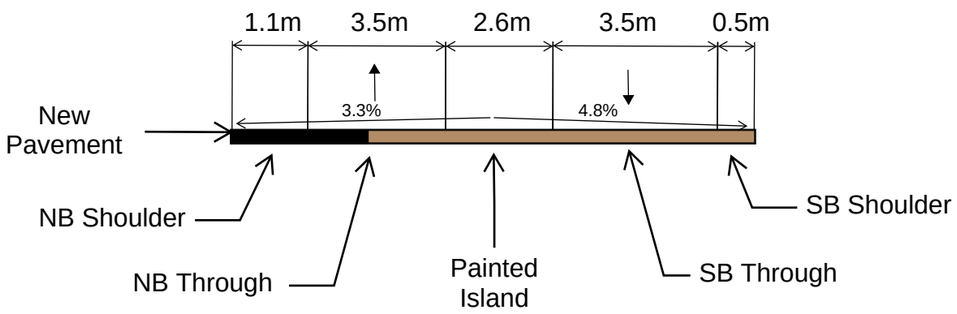
D - CH 520 - Stage 1



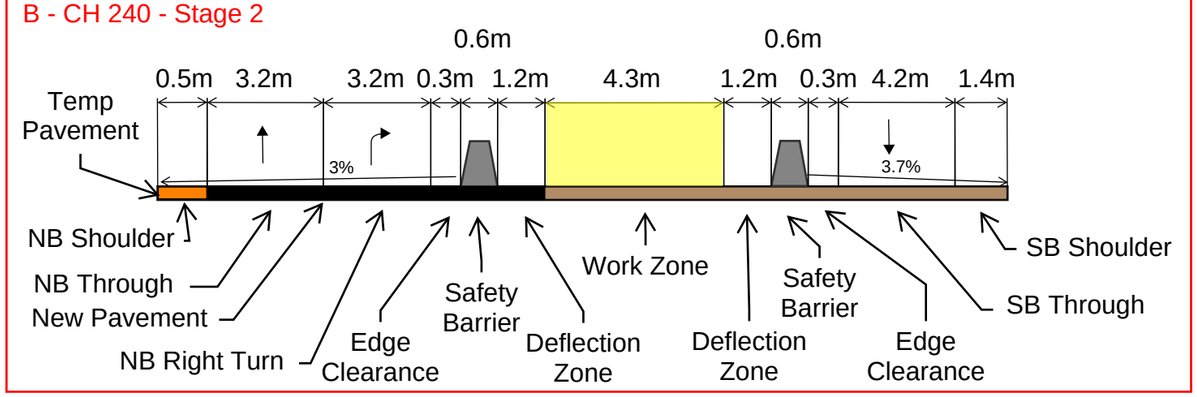
Stage 2 Wallgrove Road Cross Sections - N.T.S.



A - CH 0 - Stage 2



B - CH 240 - Stage 2



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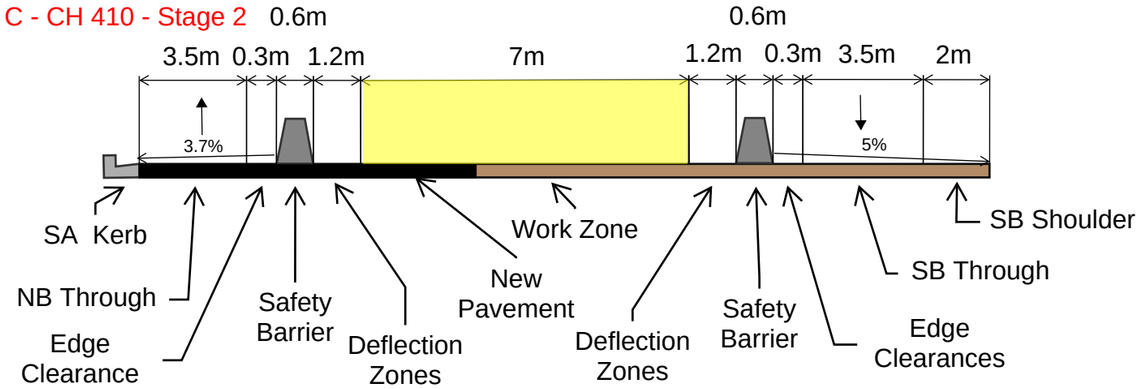
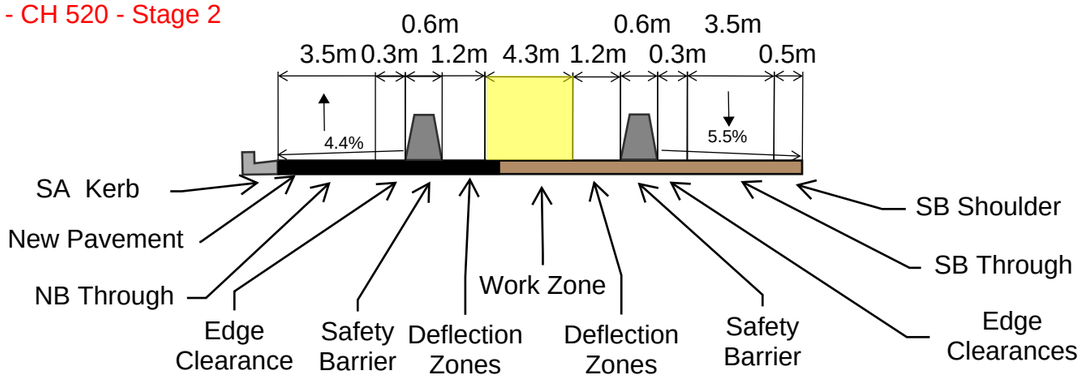
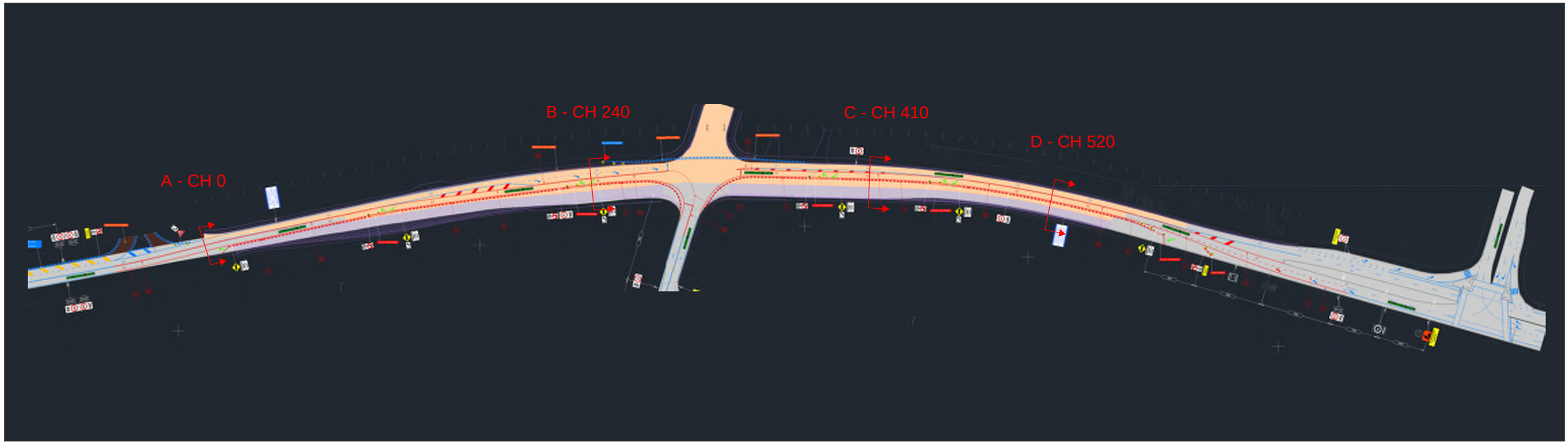


D - CH 520 - Stage 2



Stage 3A Wallgrove Road Cross Sections - N.T.S.



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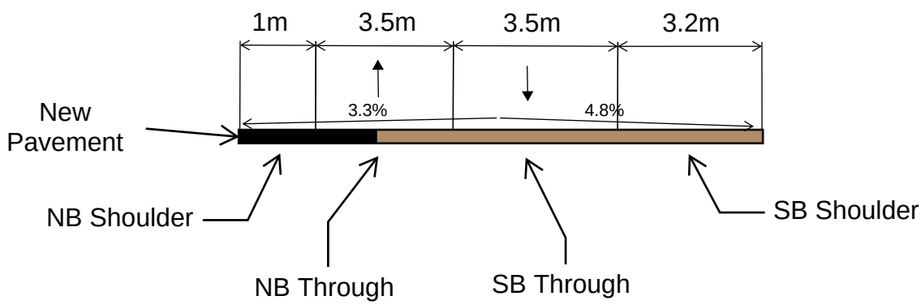

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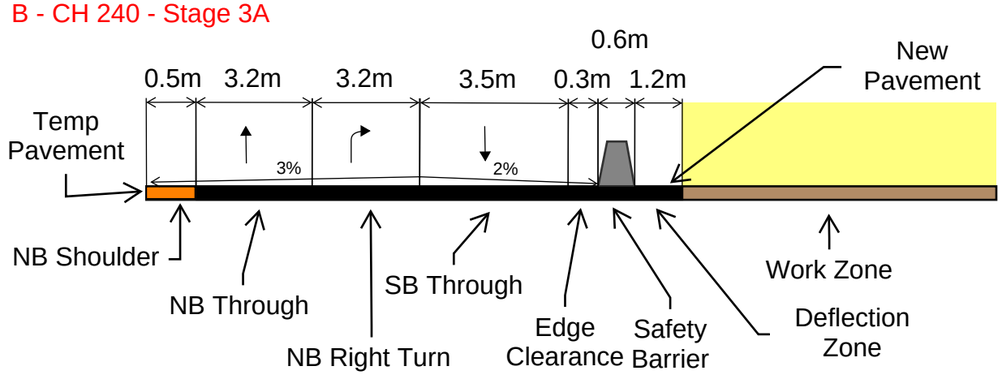

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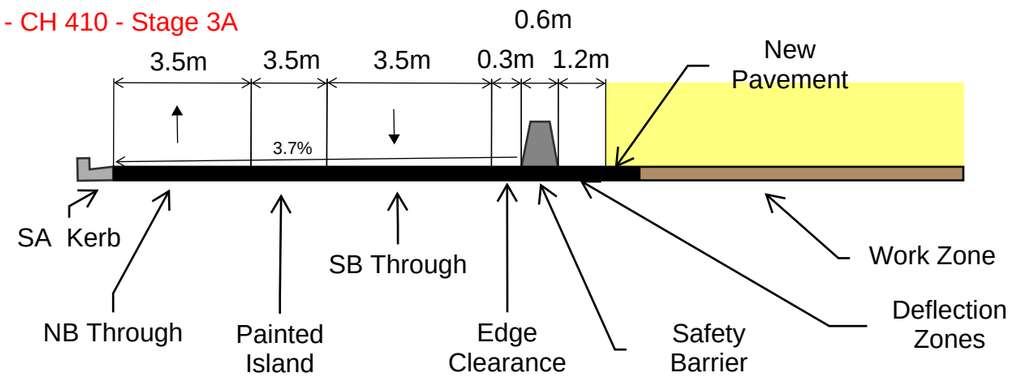
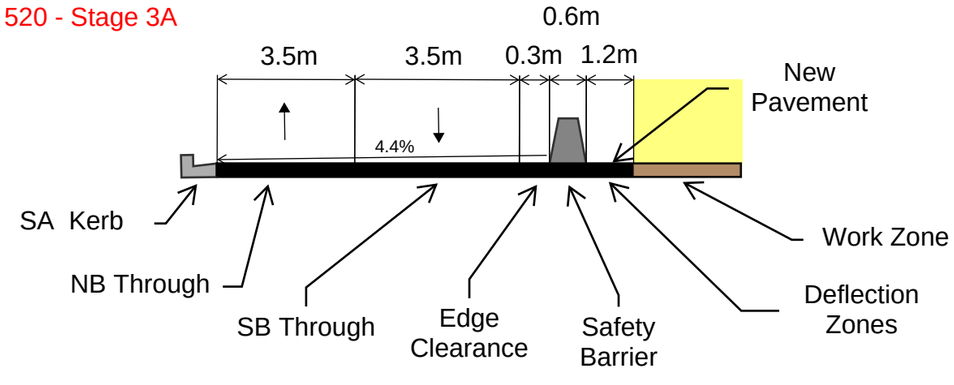


D - CH 520 - Stage 3A



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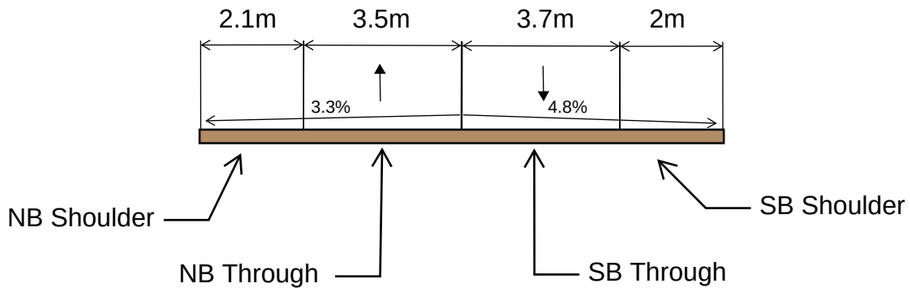

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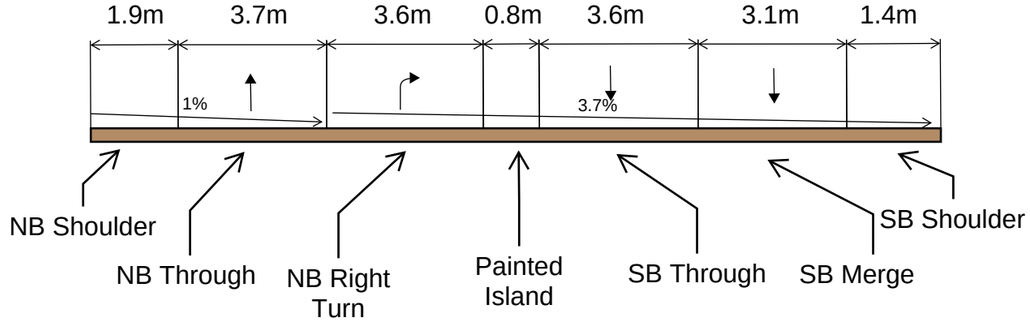

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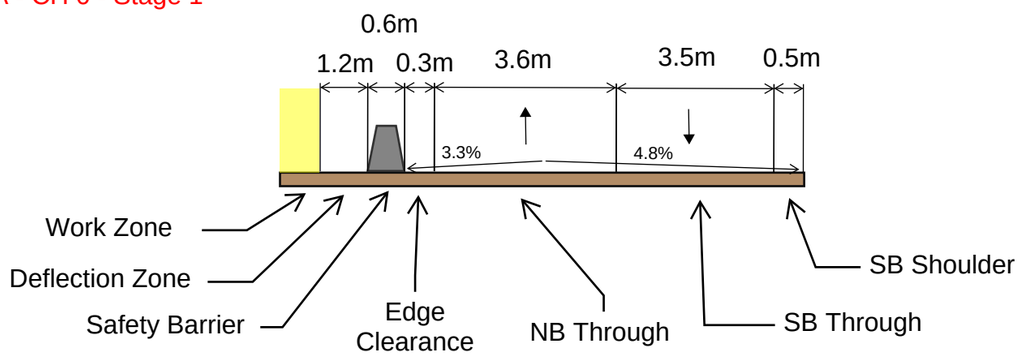

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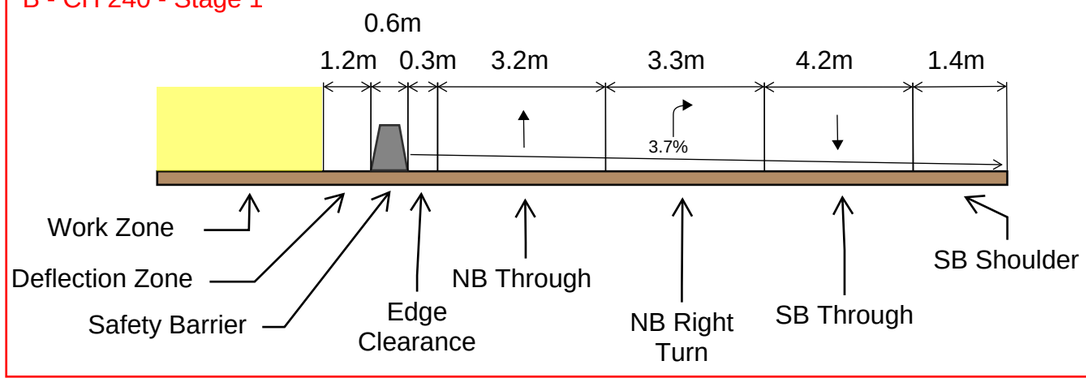

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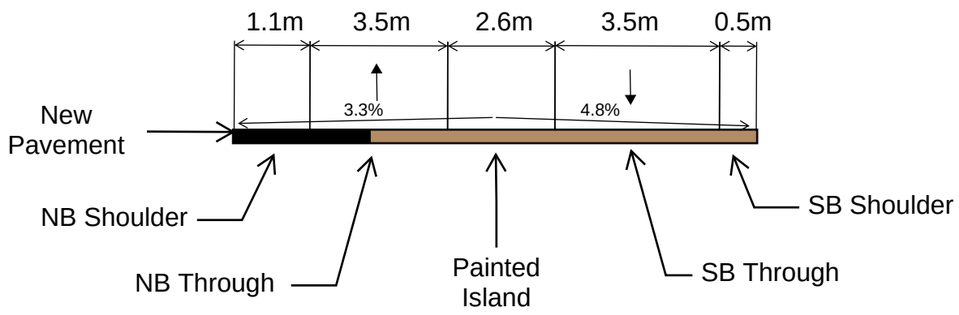

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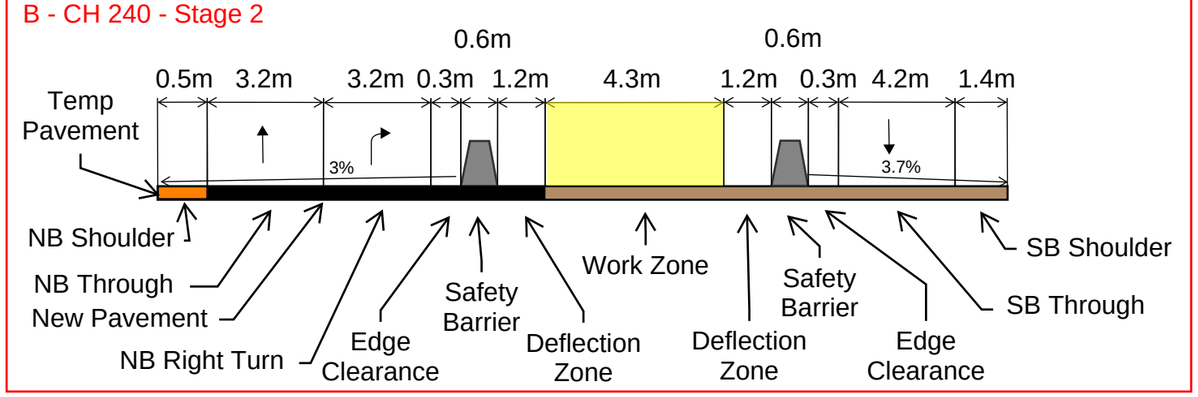

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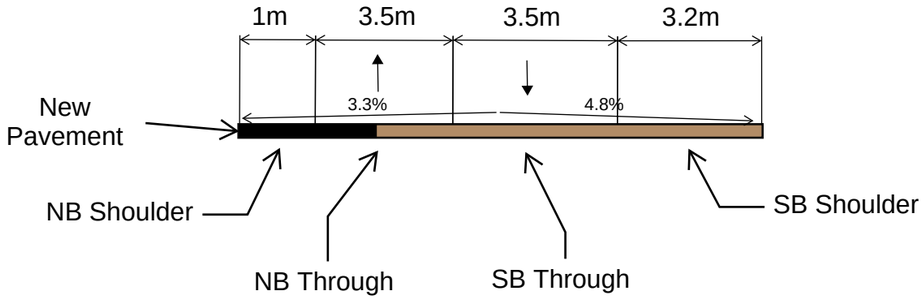

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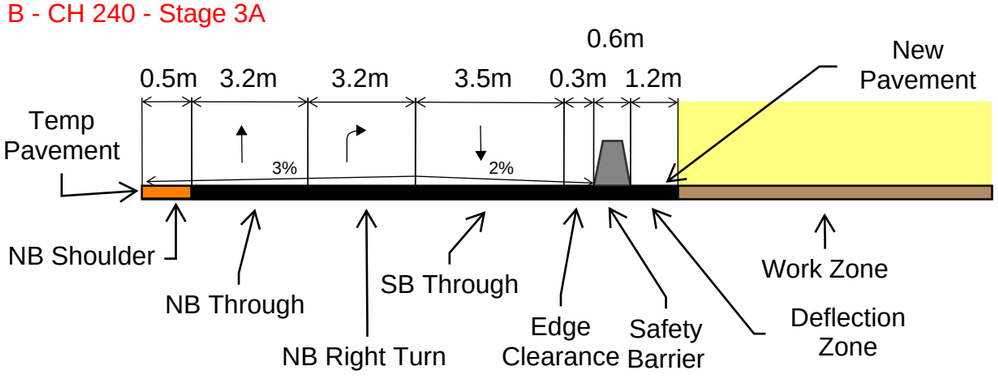

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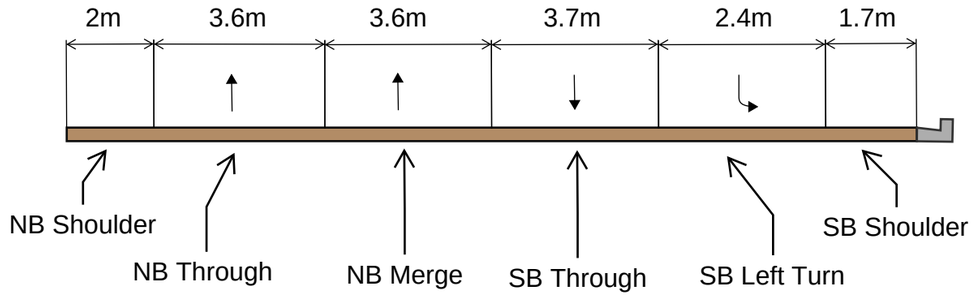

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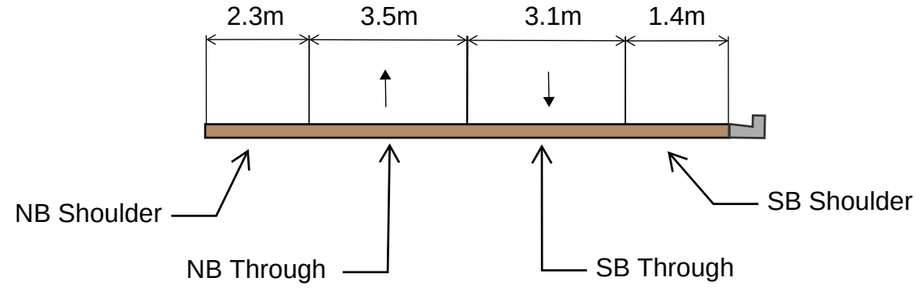

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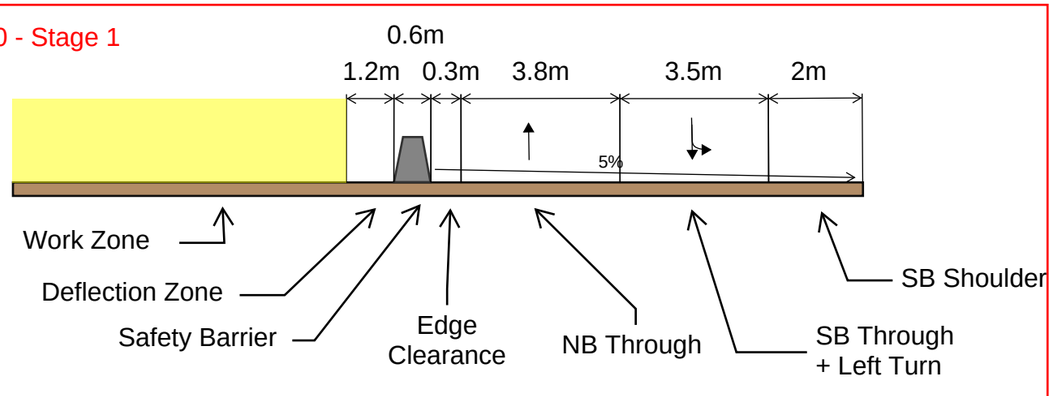

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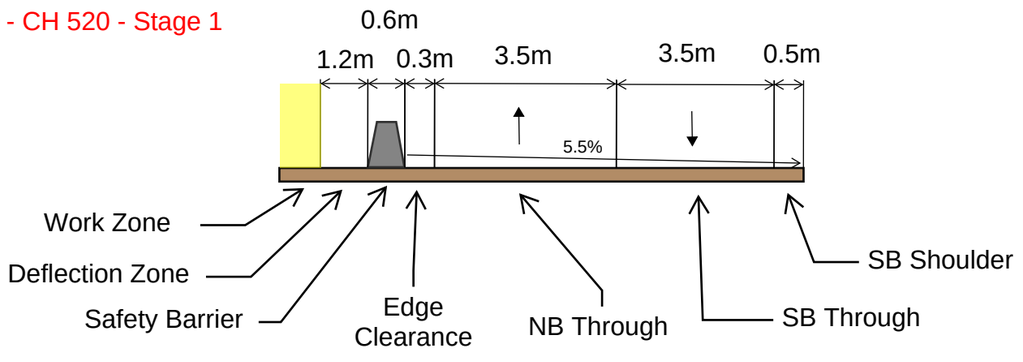

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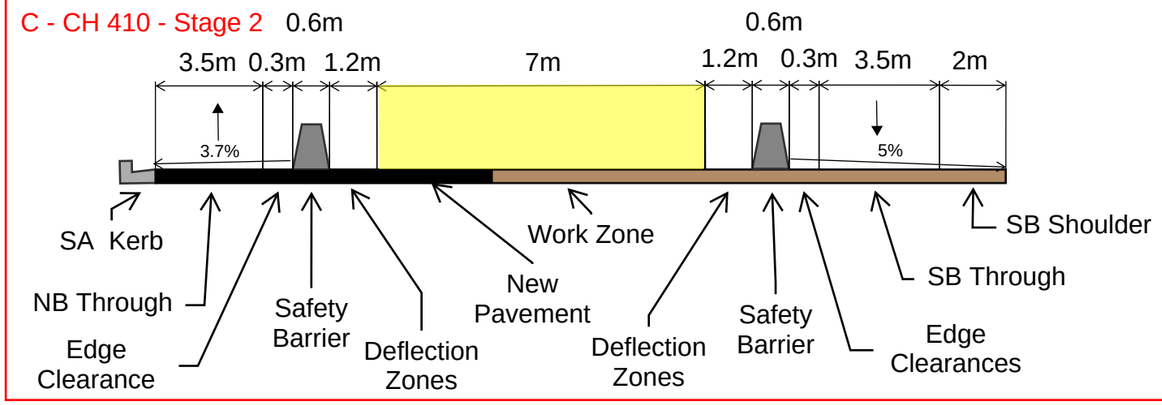
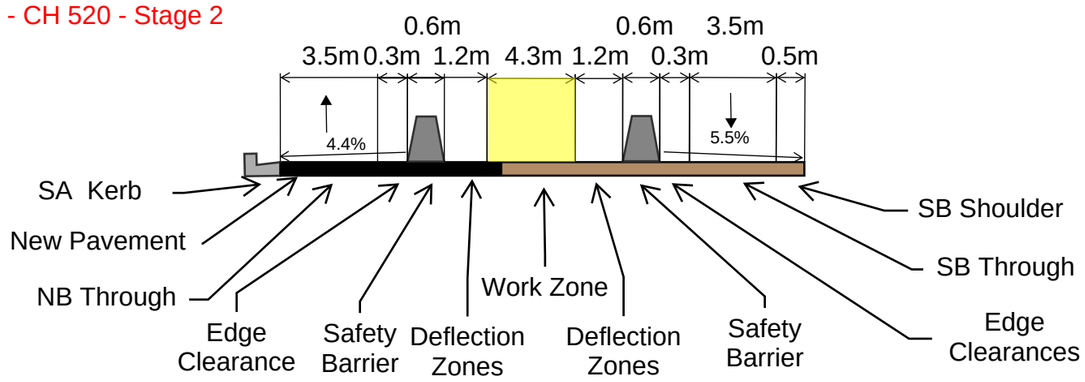
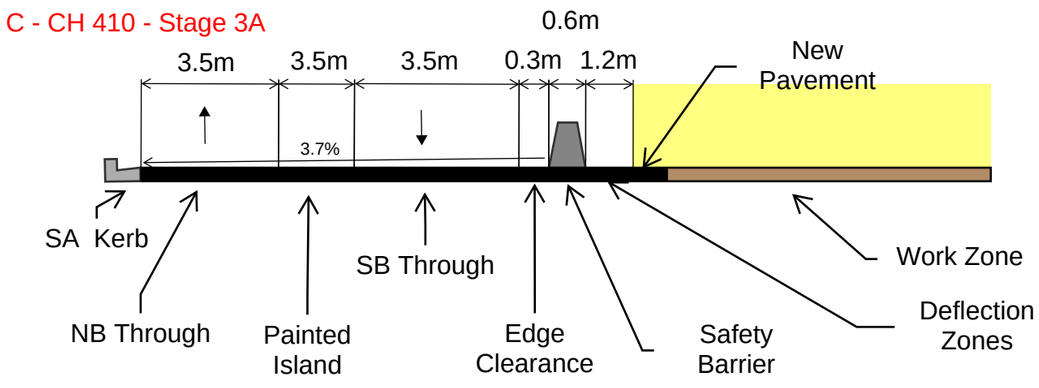


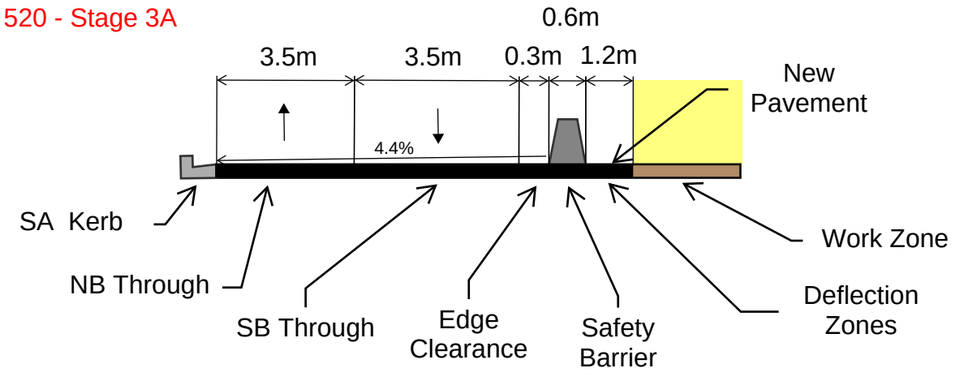
D - CH 520 - Stage 2



C - CH 410 - Stage 3A



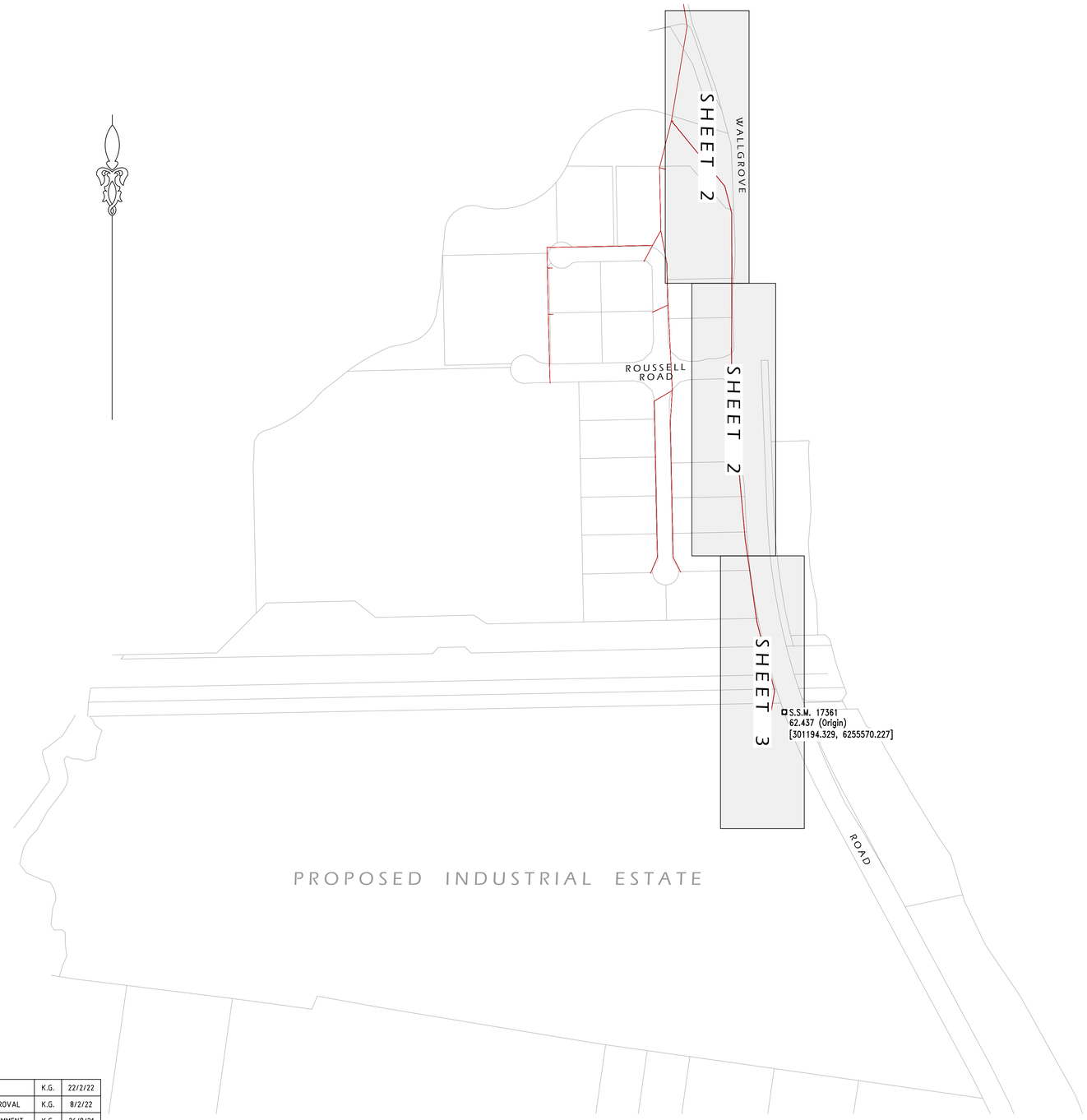
D - CH 520 - Stage 3A



Annexure K – Sewer Design

A1

DEVELOPER CONTRACT PLAN



LOCALITY SKETCH

NOT TO SCALE

0 10 20 30 40 50 METRES

NOTES :-

1 WATER SERVICING COORDINATOR: ROSE ATKINS RIMMER (INFRASTRUCTURE) Pty. Ltd.
SHOP 7 & 8 M CENTRE
40 STERLING ROAD MINCHINBURY NSW 2770
Ph: (02) 9853 0200

SURVEY: *RPS AUSTRALIA EAST Pty. Ltd.*
LEVEL 13, 255 PITT STREET SYDNEY NSW 2000
Ph: (02) 8270 8300

FOR: *GAZCORP Pty. Ltd.*
5 VISCOUNT PLACE LIVERPOOL NSW 2170
Ph: (02) 9821 3588 / 0418 619 282

2 ALL WORKS & MATERIALS ARE TO BE IN ACCORDANCE WITH THE SEWERAGE CODE OF AUSTRALIA WSA 02-2002-2.2 (SYDNEY WATER EDITION – Version 4 – 2017) AND SYDNEY WATER'S TECHNICAL SPECIFICATION – CIVIL (Version 9.0).

3 ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS.

4 THE CONSTRUCTOR IS TO DETERMINE LEVELS & LOCATIONS OF SERVICES PRIOR TO CONSTRUCTION. VERTICAL AND HORIZONTAL CLEARANCE BETWEEN SEWERS AND UNDERGROUND SERVICES MUST BE IN ACCORDANCE WITH SECTION 4.4.5 OF THE SEWERAGE CODE OF AUSTRALIA WSA 02-2002-2.2 (SYDNEY WATER EDITION – Version 4).

5 ALL SURVEY MARKS ARE PEGS UNLESS OTHERWISE NOTED.

6 THE CONSTRUCTOR SHALL VERIFY ANY EXISTING INVERT LEVELS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES MUST BE REFERRED TO THE DESIGNER IMMEDIATELY PRIOR TO THE COMMENCEMENT OF WORK.

7 ALL STRUCTURES TO BE IN ACCORDANCE WITH MAINTENANCE STRUCTURE SCHEDULE (SHEET 4). SHOULD THE CONSTRUCTOR CHOOSE TO USE A DIFFERENT STRUCTURE TO THAT SHOWN IN THE SCHEDULE, THE W.S.C. MUST BE INFORMED IN WRITING FOR CONSIDERATION.

8 ALL STRUCTURES TO BE CONSTRUCTED TO PROPOSED FINISHED SURFACE LEVELS. THE CONSTRUCTOR IS TO LIAISE WITH THE SITE SUPERINTENDENT TO VERIFY ALL FINAL LEVELS.

9 PIPES TO BE MICROTUNNELLED IN STEEL ENCASING PIPE SHOWN ACCORDINGLY:

PIPES TO BE MICROTUNNELLED IN G.R.P. JACKING PIPE SHOWN ACCORDINGLY:

PIPES TO BE MICROTUNNELLED IN FREE BORE SHOWN ACCORDINGLY:

10 BUILDING OVER/ADJACENT TO SEWER. CONDITIONS APPLY. REFER TO TAP-IN.

11 ALL LEVELS ELECTRONICALLY GENERATED. NO LEVEL BOOK AVAILABLE.

12 THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE SEWERAGE CODE OF AUSTRALIA (CLAUSE 22.3.4.4) ARE:

MAINTENANCE STRUCTURES:
2 TESTS / 1m LAYER WITHIN 300mm OF EACH M.H. OR M.S. (138 Tests)

NOTE: LEVEL 1 GEOTECHNICAL INSPECTION MUST BE PROVIDED IN ACCORDANCE WITH AS 3798 FOR ALL EARTHWORKS EXCEEDING 3.0m FILL OR BACKFILL THICKNESS.

13 COUNCIL'S TREE PRESERVATION ORDER TO BE STRICTLY ADHERED TO. EXCAVATIONS IN THE VICINITY OF TREES ARE TO BE CARRIED OUT IN ACCORDANCE WITH ARBORIST SPECIFICATIONS AND UNDER THE SUPERVISION OF THE SITE ARBORIST (MANUAL OR HYDRO-EXCAVATION MAY BE REQUIRED).
NOTE: TREES SHOWN ON PLAN BASED ON THE CLIENT SUPPLIED SURVEY INFORMATION. ALL TREES MAY NOT HAVE BEEN SHOWN.

14 MICROTUNNEL Ch00-Ch515.93 & Ch842.02-Ch886.14 WITH DN300 (345 O.D.) SN20,000 G.R.P. PIPE WITH EXTERNAL R.R.J. COUPLINGS IN DN500 (508 O.D.) STEEL ENCASING PIPE (SPL). REFER TO SEW-1402-V & DETAIL 'A' ON SHEET 4.

MICROTUNNEL Ch739.78-Ch842.02 WITH DN300 (345 O.D.) SN20,000 G.R.P. PIPE WITH EXTERNAL R.R.J. COUPLINGS IN O.D.530 SN50,000 G.R.P. JACKING PIPE WITH STAINLESS STEEL COUPLINGS. REFER TO SEW-1402-V & DETAIL 'C' ON SHEET 4.

MICROTUNNEL Ch515.93-Ch739.78 WITH DN300 (345 O.D.) SN20,000 G.R.P. PIPE WITH EXTERNAL R.R.J. COUPLINGS IN A FREE BORE. REFER TO SEW-1402-V & DETAIL 'B' ON SHEET 4.

ENCASING PIPE SHALL BE INSTALLED CONCURRENTLY WITH THE TRENCHLESS EXCAVATION. IT IS THE RESPONSIBILITY OF THE CONSTRUCTOR TO ENSURE THE CONSTRUCTABILITY OF THE BORE – REFER TO TRENCHLESS CONSTRUCTION NOTES (SHEET 4). THE CONTRACTOR IS TO ENSURE THE MAXIMUM SLIPLINING LOAD AND SHORT TERM CRITICAL BUCKLING PRESSURE DURING INSTALLATION AND GROUTING DO NOT EXCEED THE MAXIMUM ALLOWABLE FOR THE PIPE.

15 VIBRATION MONITORING SHALL BE UTILISED AT ALL TIMES DURING THE CONSTRUCTION FOR SEWER MICROTUNNELING UNDER WaterNSW PIPELINES. REFER TO WaterNSW 'GUIDELINES FOR DEVELOPMENT ADJACENT TO THE UPPER CANAL & WARRAGAMBA PIPELINES' [Version 3, February 2020] FOR REQUIREMENTS.

No.	REVISION DESCRIPTION	BY	DATE
08	STAGING ADDED	K.G.	22/2/22
07	ON HOLD PENDING SYDNEY WATER APPROVAL	K.G.	8/2/22
06	M.H. ADDED AS PER SYDNEY WATER COMMENT	K.G.	26/8/21
05	STEEL ENCASING PIPE DETAIL UPDATED	K.G.	27/7/21
04	SYDNEY WATER COMMENTS ADDRESSED	K.G.	8/7/21
03	I.V. COMMENTS ADDRESSED	K.G.	12/3/21
02	ISSUE FOR WaterNSW APPROVAL	K.G.	23/2/21
01	DESIGN UPDATED FOR DISCUSSION	K.G.	21/8/20
00a	CONCEPT DESIGN FOR DISCUSSION	K.G.	19/3/20
00	CONCEPT DESIGN FOR DISCUSSION	K.G.	29/1/20

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS
SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :-
DIAL BEFORE YOU DIG . . . . . Ph. 1100
ELECTRICITY . . . . AUSGRID . . . . Ph. 131 388
GAS . . . . . JEMENA . . . . Ph. 131 909
TELECOMMUNICATIONS . . TELSTRA . . Ph. 132 203
. . . . . Ph. . . . . .
GIVING AT LEAST 48 HOURS NOTICE.

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.
WATER: DN100 Water	26/8/21	RPS			
STORMWATER: SWD	26/8/21	RPS			
OPTIC FIBRE: OP-FIB	26/8/21	RPS			
TELSTRA: TEL	26/8/21	RPS			
AUSGRID: E	26/8/21	RPS			

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER . . . . .
WATER SERVICE CO-ORDINATOR . . . . .
CONSTRUCTOR . . . . .
COMPLETED . . . . . W.A.C. PREPARED . . . . .

DESIGNER . . . . .

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE (DN)	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES
O.D. 530	G.R.P.	SN50000	102.24	JACKING PIPE
				W/ S.S. COUPLINGS
500	STEEL	-	560.05	(508 O.D.) ENCASING PIPE
				6.4mm THICKNESS
300	G.R.P.	SN20000	886.14	(345 O.D.) EXTERNAL
				R.R.J. COUPLINGS

DESIGN HEAD . . . m

NO BOUNDARY TRAPS REQUIRED.

GDA 94

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN . 1:500 . SECTION { HOR. . 1:1000 . VERT. . 1:250 .

CROSS SECTIONS . . — . . NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES.

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY . . . . . 207-D8 . . . . . (Version 8.1 Digital)

SHEET . 1 . OF . 10 . File No. N/A . . . . .

SYDNEY WATER CORPORATION

Case No. 181159ww

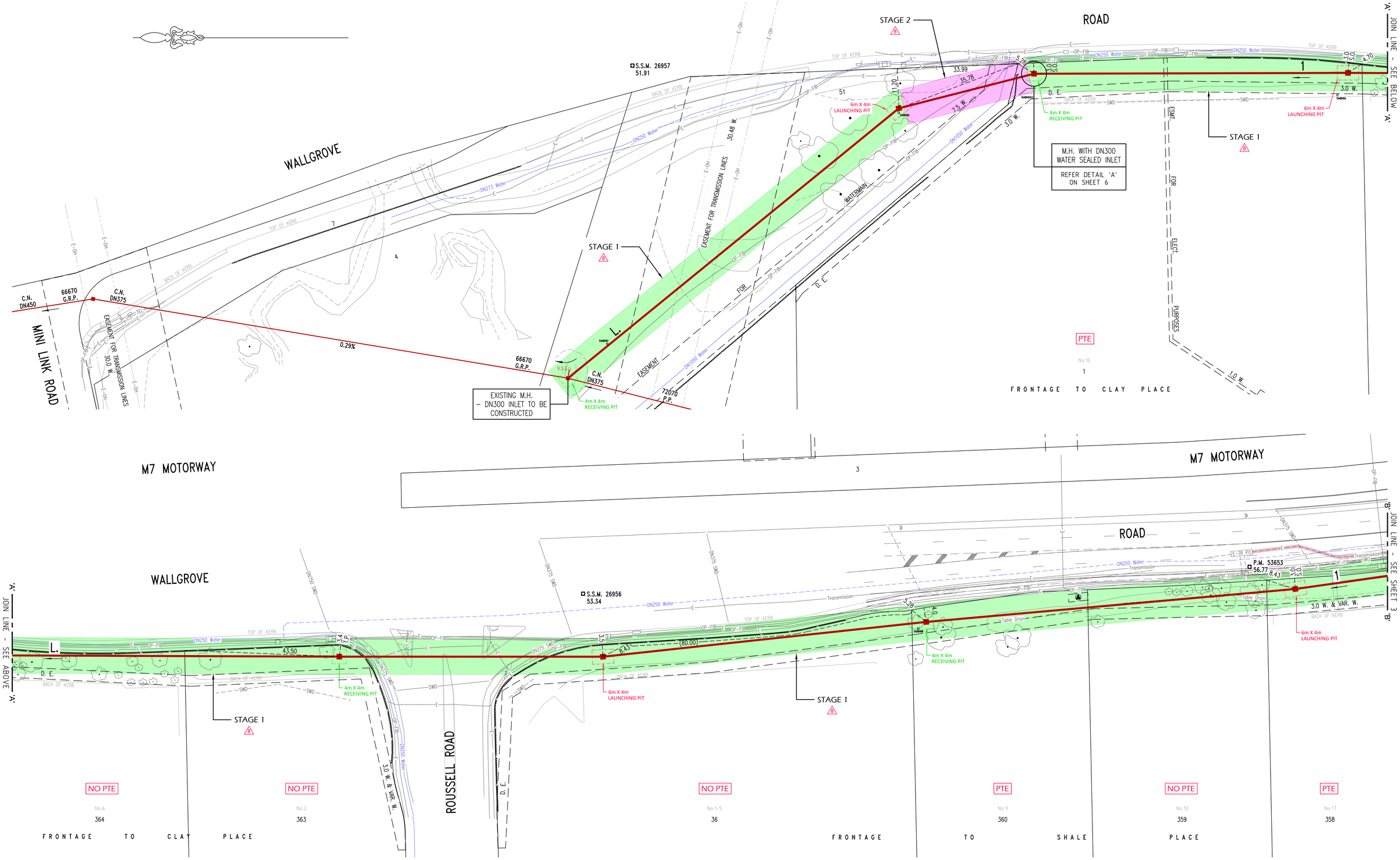
BLACKTOWN SEWERAGE
DRAINS TO
SPS 259 VIA EASTERN CREEK SUB'N SEC.2
QUAKERS HILL S.T.W.

R.A.R. REFERENCE: 12/25955/wwLI *DESIGNED:* S.R./K.G. *DRAFTED:* K.G. *VERIFIED:* D.I.S. *REVIEWED:* D.I.S. *VARIATION ID:* *APPROVAL DATE:*

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 1 OF 10 SHEETS

A1F

DEVELOPER CONTRACT PLAN



DENOTES STAGE 1 WORKS

DENOTES STAGE 2 WORKS

DENOTES EASEMENT FOR PADMOUNT SUBSTATION

0 10 20 30 40 50 METRES

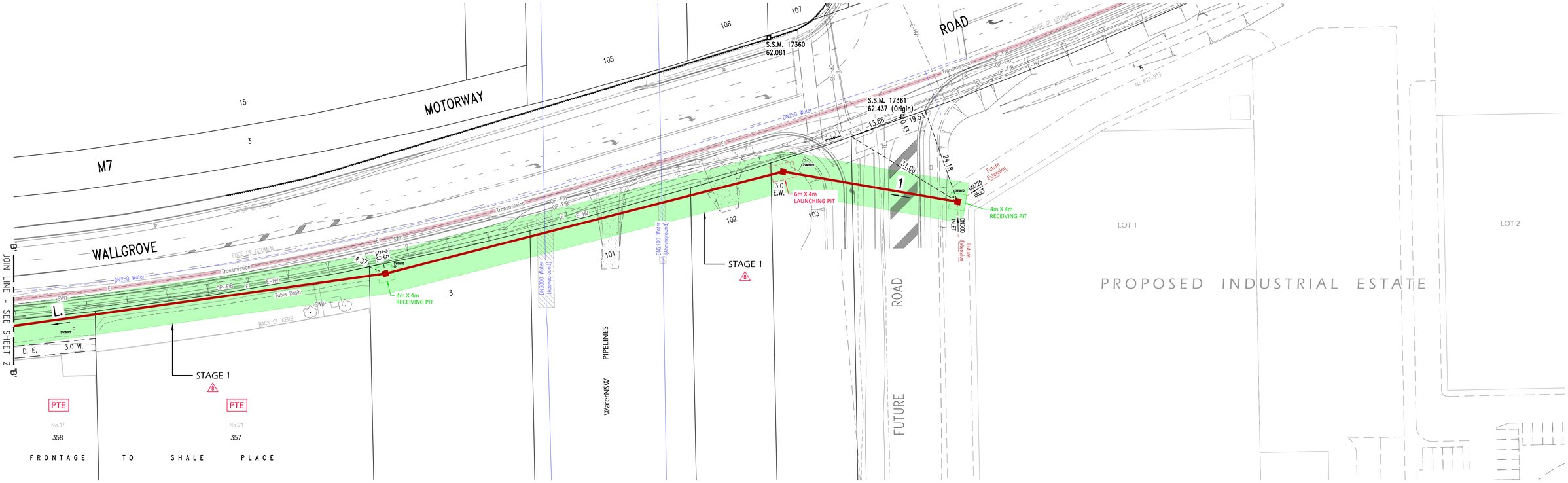
WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	Case No. 181159ww — SHT 2 OF 10 SHTS. SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1

R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 2 OF 10 SHEETS

A1F

DEVELOPER CONTRACT PLAN



DENOTES STAGE 1 WORKS

DENOTES STAGE 2 WORKS

0 10 20 30 40 50 METRES

WORK AS CONSTRUCTED CERTIFICATION	
DEVELOPER	
W.S.C.	
CONSTRUCTOR	
COMPLETED	
W.A.C. PREPARED	
DESIGNER	

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

Case No. 181159ww | SHT 3 OF 10 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

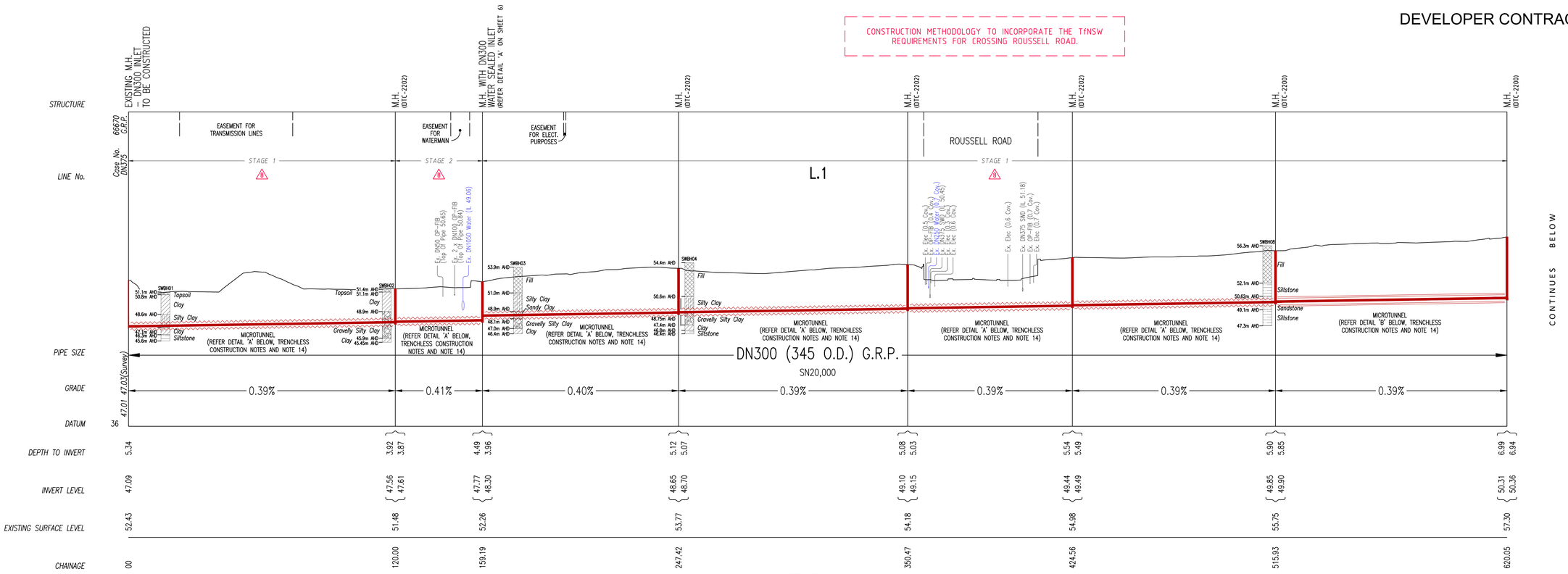
R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 3 OF 10 SHEETS

A1F

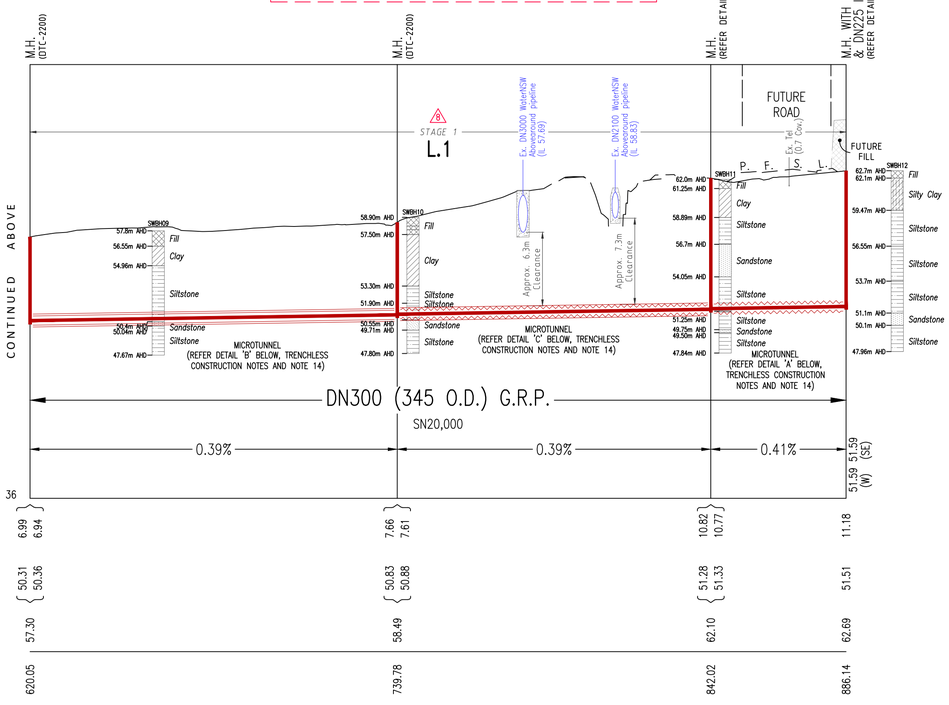
DEVELOPER CONTRACT PLAN

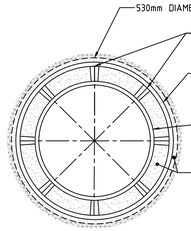
CONSTRUCTION METHODOLOGY TO INCORPORATE THE TfNSW REQUIREMENTS FOR CROSSING ROUSSELL ROAD.



CONSTRUCTION METHODOLOGY TO INCORPORATE THE REQUIREMENTS CONTAINED WITHIN WaterNSW 'GUIDELINES FOR DEVELOPMENT ADJACENT TO THE UPPER CANAL & WARRAGAMBA PIPELINES'.

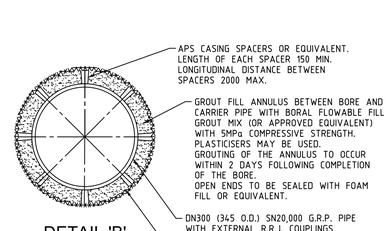
SETTLEMENT & VIBRATION MONITORING OF PIPELINES IS REQUIRED FOR THE MICROTUNNELING UNDER WaterNSW PIPELINES. REFER TO WaterNSW 'GUIDELINES FOR DEVELOPMENT ADJACENT TO THE UPPER CANAL & WARRAGAMBA PIPELINES' FOR REQUIREMENTS.





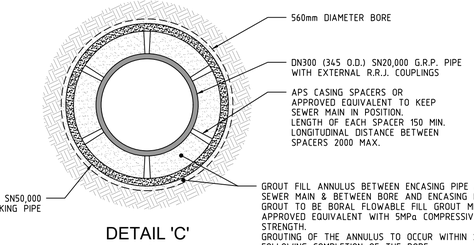
DETAIL 'A'
DN300 SEWER
STEEL ENCASING PIPE
MICROTUNNEL SECTION

(NOT TO SCALE)



DETAIL 'B'
DN300 SEWER
FREE BORE
MICROTUNNEL SECTION

(NOT TO SCALE)



DETAIL 'C'
DN300 SEWER
G.R.P. ENCASING PIPE
MICROTUNNEL SECTION

(NOT TO SCALE)

TRENCHLESS CONSTRUCTION NOTES:

THE CONTRACTOR SHALL FURNISH ALL LABOUR, PLANT, MATERIAL, TOOLS AND EQUIPMENT TO COMPLETE THE TRENCHLESS INSTALLATION THROUGH ALL CLASS OF MATERIALS.

THE CONTRACTOR SHALL BE FAMILIAR WITH THE GEOTECHNICAL REPORT BY DOUGLAS PARTNERS Pty. Ltd. (FILE NAME: 99735.00.R.002.Rev1.SW, DATED 9/7/2021) THAT HAS BEEN PREPARED FOR DEVELOPMENT.

ANY GAPS OR DEFICIENCY IN GEOTECHNICAL INFORMATION REQUIRED BY THE CONTRACTOR MUST BE INVESTIGATED AT THEIR OWN COST.

THE CONTRACTOR SHALL ALLOW FOR ALL CONSUMABLES WHICH MAY BE REQUIRED TO SUCCESSFULLY COMPLETE THE BORE SUCH AS DRILLING FLUIDS, BENTONITE SLURRY, PIPE SLEEVE, PIPE SPACERS AND GROUT ETC.

THE CONTRACTOR SHALL ALLOW FOR DISPOSAL OF ALL SPOIL RELATED TO TRENCHLESS CONSTRUCTION.

NO VARIATIONS WILL BE ALLOWED FOR UNFORESEEN WORK THROUGH FAILURE TO ADOPT THE ABOVE PRECAUTION.

1.1 SUBMITTALS

PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT A CLEAR AND DETAILED STATEMENT FOR THE EXECUTION OF THE TRENCHLESS PIPE INSTALLATION TO THE WSC. THE SUBMISSION SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

a) COMPLETE TRENCHLESS CONSTRUCTION METHODOLOGY, INCLUDING SPECIFICATION ON THE PROPOSED MACHINERY THAT WILL BE USED, ALIGNMENT CONTROLS AND SEQUENCE OF OPERATION;
b) SAFETY MANAGEMENT PLAN;
c) QUALITY MANAGEMENT PLAN;
d) STATEMENT OF CAPABILITY THAT THE PROPOSED EQUIPMENT AND METHODOLOGY SHALL BE CAPABLE OF ACHIEVING THE TOLERANCES IN LINE AND LEVEL AS SPECIFIED;
e) SCHEDULE OF WORK;
f) GROUND MONITORING EQUIPMENT AND METHODS (IF APPLICABLE);
g) DRAWING OF THE WORK SITE, INCLUDING LOCATION AND FOOTPRINT OF EQUIPMENT, BORING PITS AND SLURRY CONTAINMENT PITS;
h) METHOD OF SPOIL/SLURRY/DRILLING FLUIDS, TRANSPORTATION FROM CUT FACE, NATURE OF HAULAGE EQUIPMENT AND DISPOSAL;
i) CONTINGENCY PLANS DETAILING HOW STOPPAGES DUE TO OBSTRUCTIONS OR LOSS OF GROUND SHALL BE DEALT WITH.

1.2 PERFORMANCE REQUIREMENTS

j) THE CONTRACTOR SHALL PROVIDE AT LEAST ONE SELF-CONTAINED BORING RIG IN GOOD OPERATING CONDITION, WITH SUFFICIENT TORQUE AND POWER, NECESSARY TO COMPLETE THE WORKS IN A SATISFACTORY MANNER;
k) DEWATERING NOT PERMITTED DURING TRENCHLESS INSTALLATION, BUT, IF REQUIRED MAYBE PERMITTED FOR CONSTRUCTION OF ACCESS/RECOVERY SHAFTS. REFER TECHNICAL SPECIFICATION - CIVIL VERSION 9.0 FOR DEWATERING PROPOSAL.
l) THE CONTRACTOR SHALL ENSURE PIPES ARE INSTALLED INTO PLACE WITHOUT DAMAGING THE PIPE JOINTS;
m) THE CONTRACTOR SHALL ENSURE DIRECTIONAL CONTROL OF THE BORE/AUGER HEAD IS MAINTAINED AT ALL TIMES
n) IF DRILL PATH TOLERANCES ARE NOT ACHIEVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR: (A) REDO THE PIPE JACKING INSTALLATION; (B) MAKING FORMAL REQUEST FOR CHANGES TO THE ALIGNMENT OF THE WATERMAIN (C) OTHER ALTERNATIVE SOLUTIONS AS DETERMINED BY THE PRINCIPAL.

1.3 OBSTRUCTION AND LOSS OF GROUND

o) IF STOPPAGE IN THE FORWARD PROGRESS OF THE WORKS IS ENCOUNTERED, THE CAUSE OF THE STOPPAGE SHALL BE DETERMINED BY THE CONTRACTOR. WHEN THE CAUSE HAS BEEN IDENTIFIED, THE INSTALLATION METHOD SHALL BE MODIFIED TO BEST SUIT THE ACTUAL CONDITIONS ENCOUNTERED. THE CONTRACTOR SHALL ALLOW FOR ALL NECESSARY MATERIALS AND EQUIPMENT REQUIRED TO MITIGATE ANY OCCURRENCE OF STOPPAGES;
p) SHOULD APPRECIABLE LOSS OF GROUND OCCUR DURING THE TRENCHLESS OPERATION, ALL VOIDS SHALL BE BACKPACKED PROMPTLY TO THE EXTENT PRACTICABLE WITH SOIL CEMENT CONSISTING OF A SLIGHTLY MOISTENED MIXTURE COMPRISING ONE PART CEMENT TO FIVE PARTS GRANULATE MATERIALS. WHERE THE SOIL IS NOT SUITABLE FOR THIS PURPOSE, THE CONTRACTOR SHALL ALLOW FOR IMPORTING OF SUITABLE MATERIAL AS REQUIRED.

1.4 RESPONSIBILITY FOR FINAL TRENCHLESS DESIGN & CONSTRUCTION

THE CONTRACTOR SHALL INDEPENDENTLY EVALUATE THE FEASIBILITY OF THE PROPOSED TRENCHLESS INSTALLATION AND CONFIRM SUITABILITY OF THE EQUIPMENT AND CONSTRUCTION PROCEDURES IN RELATION TO THE ACTUAL SITE TOPOGRAPHY, SOIL AND GROUNDWATER CONDITIONS, EXISTING SITE CONSTRAINTS AND ANY OTHER RELEVANT FEATURES.

THE CONTRACTOR SHALL CONFIRM THAT THE PROPOSED CARRIER PIPE, SLEEVE PIPE & GROUT MIX AS DOCUMENTED ON THE DESIGN DRAWINGS ARE SUITABLE FOR INSTALLATION IN ACCORDANCE WITH HIS PROPOSED METHODOLOGY. WHERE A VARIATION TO THE BORE METHODOLOGY IS REQUIRED, THE CONTRACTOR SHALL PROVIDE BE RESPONSIBLE FOR THE FINAL DESIGN OF THE TRENCHLESS INSTALLATION, AND SHALL PROVIDE ALL NECESSARY DOCUMENTATION TO THE WSC FOR APPROVAL, PRIOR TO COMMENCEMENT OF ANY WORKS.

MAINTENANCE STRUCTURE SCHEDULE

(REFER NOTE 7)

LINE NO.	CHAINAGE	TYPE	DN RISER	CLASS OF COVER	MATERIAL	COMMENTS
1	120.00	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	159.19	M.H.	1200	D	CAST IN-SITU	M.H. WITH DN300 WATER SEALED INLET. REFER NOTES ON SHEET 5 & DETAIL 'A' ON SHEET 6.
1	247.42	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	350.47	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	424.56	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	515.93	M.H.	1200	D	CAST IN-SITU	DTC-2200[F] (18/3/15)
1	620.05	M.H.	1200	D	CAST IN-SITU	DTC-2200[F] (18/3/15)
1	739.78	M.H.	1200	D	CAST IN-SITU	DTC-2200[F] (18/3/15)
1	842.02	M.H.	1200	D	CAST IN-SITU	REFER NOTES ON SHEET 5 & DETAIL 'K' & DEEP M.H. DETAILS ON SHEETS 9.
1	886.14	M.H.	1200	D	CAST IN-SITU	REFER NOTES ON SHEET 5 & DETAIL 'L' & DEEP M.H. DETAILS ON SHEETS 9.

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER	Sydney WATER
W.S.C.	Case No. 181159ww | SHT 4 OF 10 SHTS.
CONSTRUCTOR	
COMPLETED	SYDNEY WATER CORPORATION
W.A.C. PREPARED	FOR DETAILS OF SERVICES SEE SHEET 1
DESIGNER	
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 4 OF 10 SHEETS

R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:

MAINTENANCE HOLE NOTES:

GENERAL NOTES:

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FLOWING, SHEETS 1-4 AND SYDNEY WATER SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCIES IN THESE DOCUMENTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR A DECISION BEFORE PROCEEDING WITH THE WORK.

A. SEWERAGE CODE OF AUSTRALIA WSA-02-2002-2.2 SYDNEY WATER EDITION 1 - VERSION 4 - PART 3

B. WSA 201-2013-1.1 MANUAL FOR SELECTION AND APPLICATION OF PROTECTIVE COATINGS AND SYDNEY WATER SUPPLEMENT TO WSA 201

C. SYDNEY WATER STANDARD SPECIFICATION SS210 CORROSION PROTECTION AND REHABILITATION OF MAINTENANCE REV. 3

D. SYDNEY WATER LIST OF ACCEPTABLE PRODUCT SPECIFICATIONS.

E. WSA 114-2002 INDUSTRY STANDARD FOR CONCRETE SPECIAL CLASS

F. WSA-2011 INDUSTRY STANDARD FOR DUCTILE IRON ACCESS COVERS FOR WATER SUPPLY & SEWERAGE

G2. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

G3. THE CONTRACTOR SHALL CHECK AND BE RESPONSIBLE FOR THE CORRECTNESS OF ALL DIMENSIONS AND ANY DISCREPANCY SHALL BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT. SETTING OUT DIMENSIONS AND SIZES OF STRUCTURAL MEMBERS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS.

G4. WHERE PROPRIETARY PRODUCTS HAVE BEEN SPECIFIED, A SUITABLE EQUIVALENT MAY BE USED WHERE APPROVED BY SYDNEY WATER. PROPRIETARY PRODUCTS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

G5. STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND EXCAVATION IN THE VICINITY OF ADJACENT STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO PART OF THE STRUCTURE SHALL BE OVER STRESSED. APPROVAL OF ALL PROPOSALS MUST BE GRANTED BY THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK.

G6. THE CONTRACTOR SHALL NOTIFY THE ENGINEER FORTY EIGHT (48) HOURS BEFORE THE REINFORCEMENT IS COMPLETED. THE CONTRACTOR SHALL ALLOW TWO (2) HOURS AFTER THE COMPLETION OF THE REINFORCEMENT FOR THE ENGINEER'S INSPECTION. CONCRETE SHALL NOT BE ORDERED UNTIL THE REINFORCEMENT IS APPROVED BY THE ENGINEER.

G7. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT SAA CODES, THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITY AND THE SPECIFICATION.

G8. NO CHANGES SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

G9. U.N.O. DENOTES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

G10. AT THE COMPLETION OF WORKS, ALL DISTURBED AREAS INCLUDING ROAD PAVEMENTS, KERBS AND FOOTPATHS SHALL BE REINSTATED TO MATCH EXISTING ADJACENT MATERIAL.

G11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL SERVICES TO BE RELOCATED, ADJUSTED OR PROTECTED.

G12. ALL WATER STOPS ARE HYDROTITE CJ0725-3K OR APPROVED EQUIV. INSTALLED WITH MIN. 50 COVER TO THE EARTH FACE, IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

G13. DESIGN LOADS:
LIVE LOAD = CLASS 'D' TO AS3996-2006
SURCHARGE AROUND STRUCTURES = 20kPa
GROUND WATER AT SURFACE

G14. ALL INTERNAL SURFACES (EXCLUDING BENCHING) OF MAINTENANCE HOLES SHALL BE PROVIDED WITH A PROTECTIVE COATING IN ACCORDANCE WITH WSA 201 AND SYDNEY WATER SUPPLEMENT. COATING SYSTEM SHALL BE CPL, EUH OR NOV.

FORMWORK:

FW1. FORMWORK AND CONCRETE FINISHES SHALL COMPLY WITH AS3610 SAA FORMWORK CODE.
SURFACES EXPOSED TO VIEW TO - CLASS 2;
SURFACES NOT EXPOSED TO VIEW - CLASS 4

FW2. CONCRETE SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa PRIOR TO STRIPPING OF FORMWORK.

FOUNDATIONS:

F1. MINIMUM ALLOWABLE BEARING PRESSURES FOR MAINTENANCE HOLES SHALL BE 100kPa. ALLOWABLE BEARING CAPACITY TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING MAINTENANCE HOLE BASE.

F2. ANY OVER-EXCAVATION OR VOIDS OF FOUNDATION MATERIALS TO BE FILLED WITH NORMAL CLASS N15 MASS CONCRETE TO AS 1379.

F3. BLINDING CONCRETE OR BEARING SURFACE SHALL BE SATURATED WITH WATER AND EXCESS REMOVED IMMEDIATELY PRIOR TO POURING CONCRETE BASE.

CONCRETE NOTES:

C1. CONCRETE DIMENSIONS SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

CS. MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT INTERNAL FACE AND 55mm COVER AT EXTERNAL FACE UNO.

C3. CONCRETE SHALL BE SPECIAL CLASS SCC40 TO WSA 114-2002 AND AS3735 EXCEPT AS VARIED BELOW.

SECTION 4 - MIX DESIGN

MINIMUM F'c AT 28 DAYS	40MPa
MINIMUM BINDER CONTENT	450kg/m^3
MAXIMUM 56 DAY DRYING SHRINKAGE STRAIN	600x10^{-6}
MAXIMUM WATER:CEMENT RATIO	0.45
SLUMP	80-120mm

SECTION 6 - SUPPLEMENTARY CEMENTITIOUS MATERIALS
THE TOTAL AMOUNT OF SUPPLEMENTARY CEMENTITIOUS MATERIALS SHALL NOT BE MORE THEN 60% BY WEIGHT OF THE TOTAL CEMENT MATERIAL.

SECTION 6.2 - FLYASH
THE MAXIMUM AMOUNT OF SLAG FLYASH SHALL BE 25% BY WEIGHT OF THE TOTAL CEMENT MATERIAL.

SECTION 6.3 - SLAG
THE MAXIMUM AMOUNT OF SLAG SHALL BE 50% BY WEIGHT OF THE TOTAL CEMENT MATERIAL.

SECTION 6.5 - AGGREGATES.
THE MAXIMUM NOMINAL SIZE OF AGGREGATE SHALL BE 20mm. RECYCLED MATERIAL OR SLAG PRODUCTS SHALL NOT BE USED AS AGGREGATES.

SECTION 6.7 - CHEMICAL ADMIXTURES.
WHERE TWO OR MORE ADMIXTURES ARE PROPOSED FOR INCORPORATION INTO A CONCRETE MIX THE MANUFACTURES SHALL CERTIFY THE COMPATIBILITY OF THE ADMIXTURES.

C4. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. THE VIBRATOR SHALL NOT BE USED TO SPREAD CONCRETE.

C5. CURING OF ALL CONCRETE TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 7 DAYS. POLYETHYLENE SHEETING OR WET HESSIAN MAY BE USED. POLYETHYLENE AND HESSIAN TO BE ADEQUATELY SECURED TO RESIST WIND AND TRAFFIC FORCES. ALTERNATIVE CURING MAY BE ACHIEVED BY APPLYING SIKA ANTISOL WB CURING COMPOUND OR APPROVED EQUIVALENT TO ALL SURFACES IN ACCORDANCE WITH THE MANUFACTURES REQUIREMENTS FOR A PERIOD OF 14 DAYS.

C6. CONCRETE SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 32MPa PRIOR TO BACKFILLING AND TESTING OF STRUCTURES. BACKFILL SHALL BE PLACED AND COMPACTED EVENLY AROUND MAINTENANCE HOLES IN LAYERS NOT EXCEEDING 300mm LOOSE THICKNESS.

C7. ALL CONSTRUCTION JOINTS SHALL BE SCABBLED TO 3mm AMPLITUDE, WIRE BRUSH CLEANED, WATER STOP PLACED & PRIMED WITH CEMENT SLURRY IMMEDIATELY PRIOR TO PLACING CONCRETE.

C8. WATERSTOPS SHALL BE HYDROTITE CJ-0725-3K (25X7mm) HYDROPHILIC SEAL OR APPROVED EQUIVALENT.

STRUCTURAL CRITERIA:

SD1. SOIL PROPERTIES:
ø' = 30°
DENSITY (y) = 20kN/m^3
COEFFICIENT OF EARTH PRESSURE AT REST Ko = 0.5

SD2. LOADS:
LIVE LOAD:
SUBJECT TO VEHICULAR TRAFFIC - SM1600 TO AS5100.2
SURCHARGE AROUND STRUCTURES = 20 kPa
GROUND WATER AT SURFACE

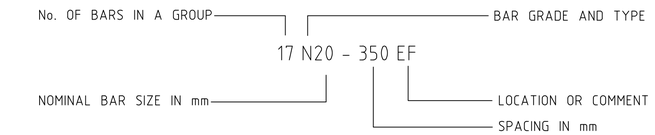
SD3. CONCRETE EXPOSURE CLASSIFICATION: D (AS3735)

REINFORCEMENT NOTES:

R1. STEEL REINFORCING MATERIALS SHALL BE TO AS/NZS4671.
SHAPE - D
STRENGTH GRADE = 500MPa
DUCTILITY CLASS - N

R2. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY: IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

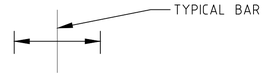
R3. DESIGNATION OF REINFORCEMENT BARS AS IN EXAMPLE:



R4. THE FOLLOWING ABBREVIATIONS APPLY TO THE LOCATION OF REINFORCEMENT:

EW EACH WAY	FF FAR FACE	CP CENTRALLY PLACED
EF EACH FACE	B BOTTOM	BB BOTTOM BOTTOM (LAID FIRST)
NF NEAR FACE	T TOP	TT TOP TOP (LAID FIRST)

R5. EXTENT OF BARS SHOWN THUS:



R6. SPLICE REINFORCEMENT ONLY AT LOCATIONS SHOWN ON DRAWINGS. LAP LENGTHS TO COMPLY WITH THE FOLLOWING UNLESS NOTED OTHERWISE.

BAR TYPE AND SIZE	VERTICAL BARS	HORIZONTAL BARS WITH MORE THAN 300mm OF CONCRETE BELOW BAR	OTHER LOCATIONS	90° COG LENGTH
N12	500	550	500	200
N16	700	800	700	200
N20	1000	1250	1000	250
N24	1200	1500	1200	300
N28	1400	1750	1400	350
N32	1600	1950	1600	400
N36	1700	2200	1700	450

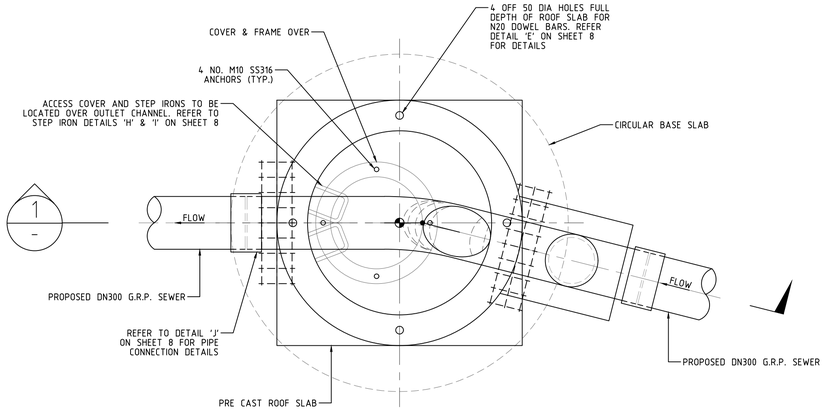
R7. REINFORCEMENT SHALL BE SUPPORTED ON APPROVED PLASTIC OR PLASTIC TIPPED WIRE STOOLS AT NOT MORE THAN 600mm CENTRE BOTHWAYS IN SLABS AND AT 1000mm CENTRES IN BEAMS.

R7. LOAD BEARING WELDED JOINTS FOR THE TRANSMISSION OF LOADS BETWEEN REINFORCEMENT IS NOT PERMITTED.
NON LOAD BEARING WELDED JOINTS (TACK WELDS) TO KEEP REINFORCEMENT IN POSITION DURING FABRICATION, TRANSPORT & CONCRETING, IS PERMITTED WHERE WELDING WILL NOT IMPACT DUCTILITY OF REINFORCEMENT.
WELDING SHALL BE IN ACCORDANCE WITH AS 1554.3.
LAP LENGTHS SHALL NOT BE REDUCED DUE TO WELDING.

R8. EXPOSURE CLASS B2 FOR EXTERNAL CONCRETE FACE;
EXPOSURE CLASS D FOR INTERNAL CONCRETE FACE.

R9. MINIMUM COVER TO BE 55mm FOR CLASS B2 EXPOSURE;
MINIMUM COVER TO BE 75mm FOR CLASS D EXPOSURE.

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER	Sydney WATER
W.S.C.	
CONSTRUCTOR	Case No. 181159ww | SHT 5 OF 10 SHTS.
COMPLETED	
W.A.C. PREPARED	
DESIGNER	SYDNEY WATER CORPORATION
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	FOR DETAILS OF SERVICES SEE SHEET 1

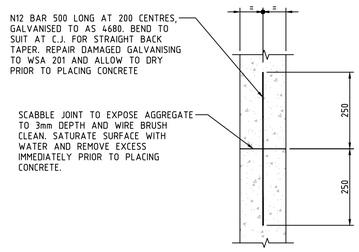


● DENOTES CENTRE OF M.H.

● DENOTES INTERSECTION POINT OF SEWERS

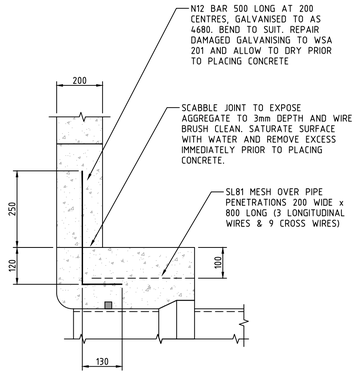
DETAIL 'A'
WATER SEALED M.H. DETAIL - PLAN

SCALE: 1:20



CONSTRUCTION JOINT (C.J.1)

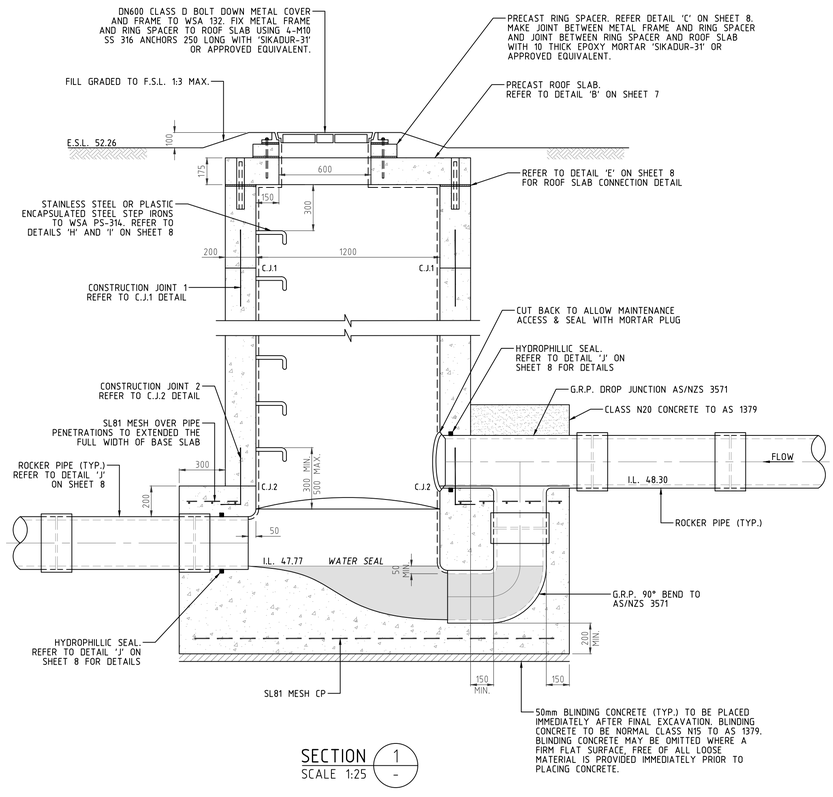
NOT TO SCALE



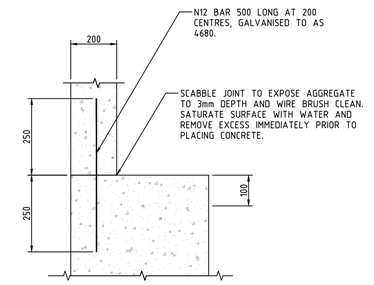
CONSTRUCTION JOINT (C.J.2)

(AT PIPE PENETRATIONS)

NOT TO SCALE



SECTION 1 - SCALE 1:25

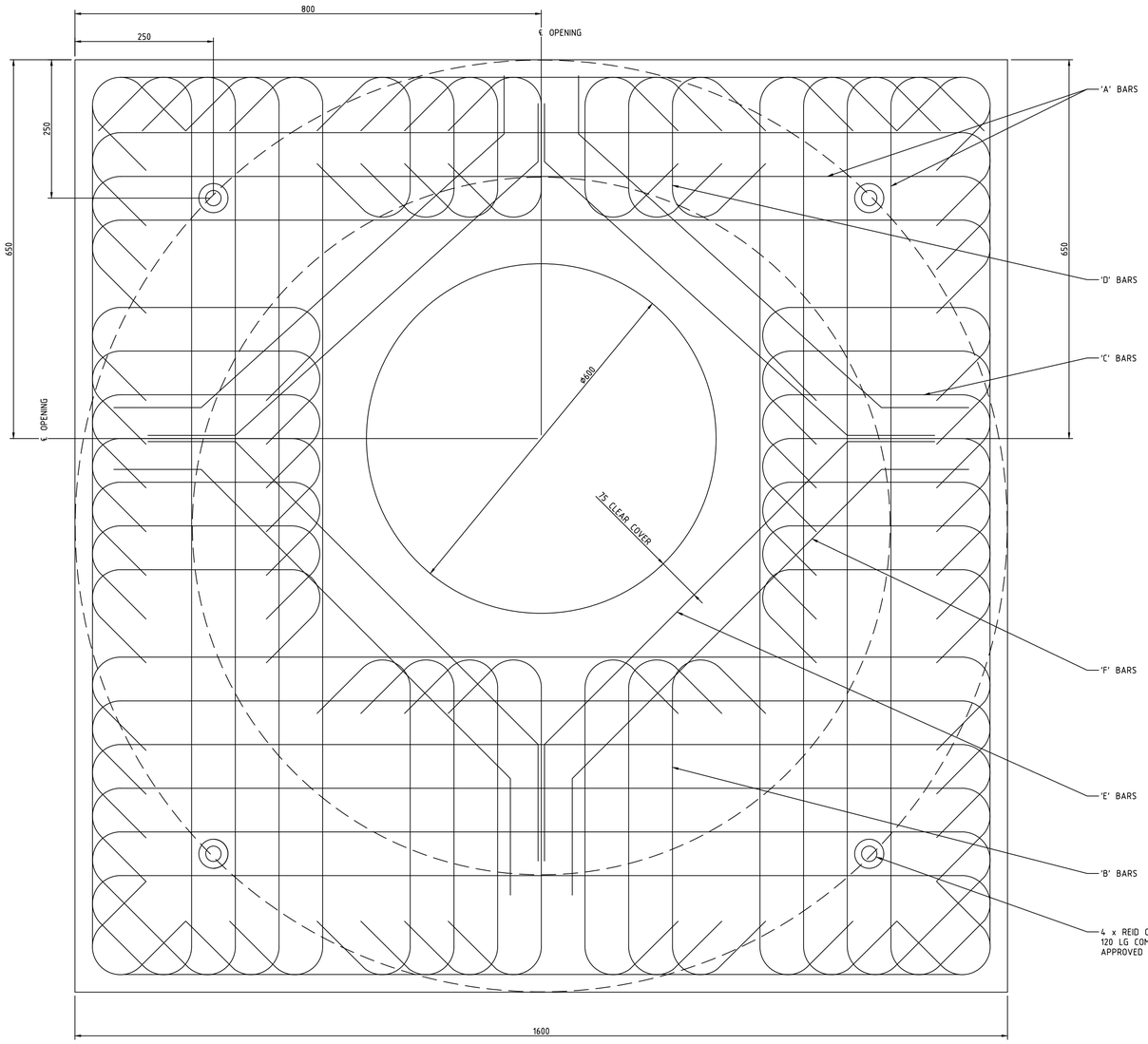


CONSTRUCTION JOINT (C.J.2)

(WITHOUT PIPE PENETRATIONS)

NOT TO SCALE

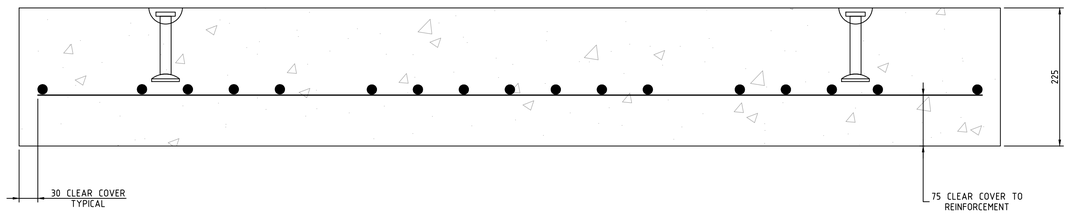
WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	Sydney WATER Case No. 181159ww — SHT 6 OF 10 SHTS. SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1



ROOF SLAB DESIGN LOADS	
DESIGN WHEEL LOAD	TYPICAL USE
8,000 kg (W80 TO AS 5100.2)	FOR PUBLIC AND PRIVATE ROAD CARRIAGEWAYS, FOOTPATHS / VERGES / MEDIAN STRIPS NOT RESTRICTED TO VEHICLES, DRIVEWAYS IN AREAS ZONED 'RESIDENTIAL, INDUSTRIAL OR COMMERCIAL', AND PARKLAND WITH NO RESTRICTION TO VEHICULAR ACCESS.

BAR SCHEDULE

DESIGNATION	SHAPE	No.	BAR SIZE
A	1540	21	N16
B	540	7	N16
C	390	14	N16
D	240	7	N16
E	135° 135° 200 735 100	4	N16
F	135° 135° 200 750 200	4	N16

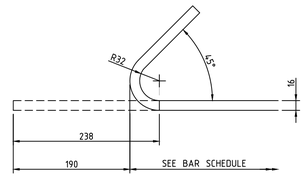


DETAIL 'B'

WATER SEALED M.H. ROOF SLAB

APPROXIMATE WEIGHT - 1.3 TONNE

NOT TO SCALE



N16 HOOK BENDING DETAILS

(NOT TO SCALE)

ROOF SLAB NOTES:

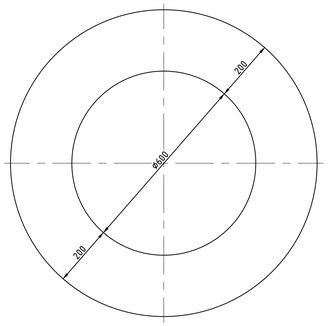
RS1. PRECAST CONCRETE ROOF SLAB SHALL HAVE A MINIMUM STRENGTH OF 25MPa AT TIME OF LIFTING.

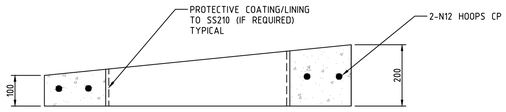
RS2. SPREADER BARS MUST BE USED DURING LIFTING TO ENSURE LIFT FORCE IS VERTICAL.

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER	Sydney WATER
W.S.C.	
CONSTRUCTOR	Case No. 181159ww | SHT 7 OF 10 SHTS.
COMPLETED	
W.A.C. PREPARED	
DESIGNER	SYDNEY WATER CORPORATION
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 7 OF 10 SHEETS

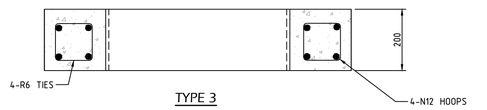
R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:



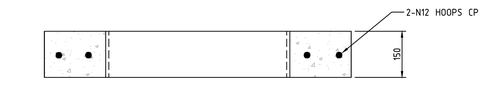


TYPE 5

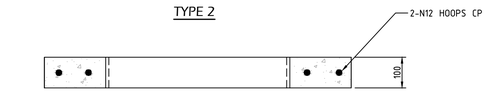
TYPE 4



TYPE 3



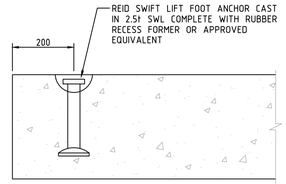
TYPE 2



TYPE 1

DETAIL 'C'
WATER SEALED M.H.
PRECAST RING SPACER DETAIL (TYP.)

(NOT TO SCALE)

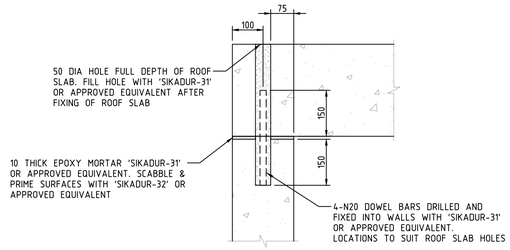


DETAIL 'D'
WATER SEALED M.H.
PRECAST ROOF CASTING DETAIL (TYP.)

(NOT TO SCALE)

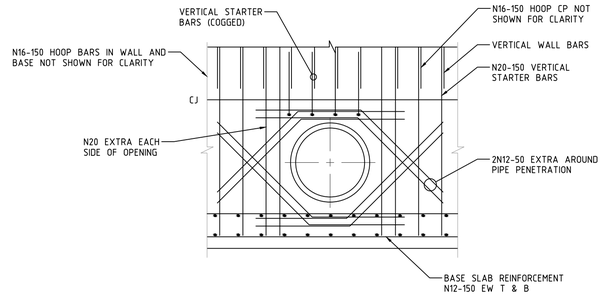
NOTES:

1. PRECAST CONCRETE ROOF PANEL TO HAVE A MINIMUM STRENGTH OF 25MPa AT LIFTING.
2. SPREADER BARS MUST BE USED DURING LIFTING TO ENSURE LIFT FORCE IS VERTICAL



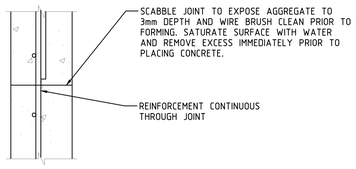
DETAIL 'E'
WATER SEALED M.H.
PRECAST ROOF CONNECTION DETAIL (TYP.)

(NOT TO SCALE)



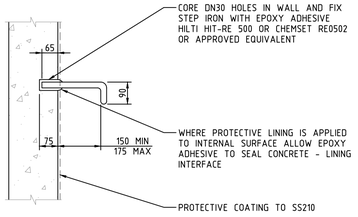
DETAIL 'F'
WATER SEALED M.H.
PENETRATION DETAIL IN BASE SLAB (TYP.)

(NOT TO SCALE)



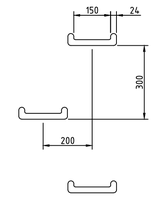
DETAIL 'G'
WATER SEALED M.H.
CONSTRUCTION JOINT DETAIL (TYP.)

(NOT TO SCALE)



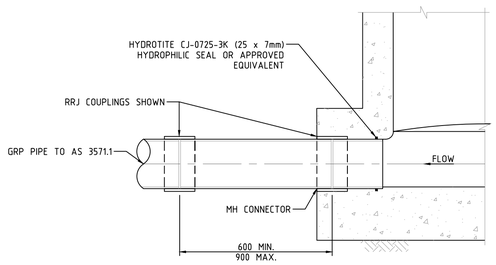
DETAIL 'H'
WATER SEALED M.H.
STEP IRON FIXING DETAIL (TYP.)

(NOT TO SCALE)



DETAIL 'I'
WATER SEALED M.H.
STEP IRON SET OUT DETAIL (TYP.)

(NOT TO SCALE)



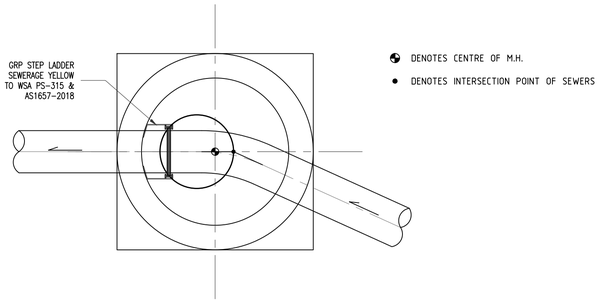
DETAIL 'J'
WATER SEALED M.H.
TYPICAL M.H. BASE FOR G.R.P. SLEEVE COUPLED PIPE

(NOT TO SCALE)

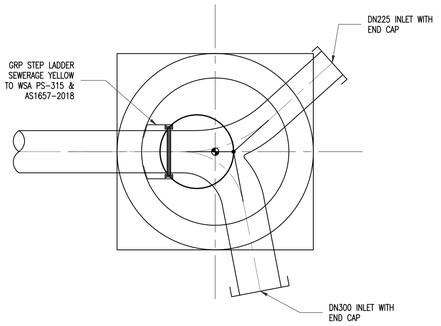
PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 8 OF 10 SHEETS

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	Case No. 181159ww — SHT 8 OF 10 SHTS. SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1

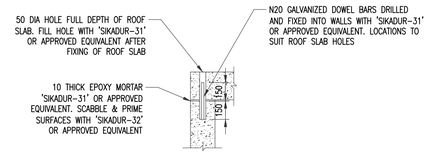
R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:



DETAIL 'K'
DEEP M.H. DETAIL - PLAN (Ch842.02)
SCALE 1:20

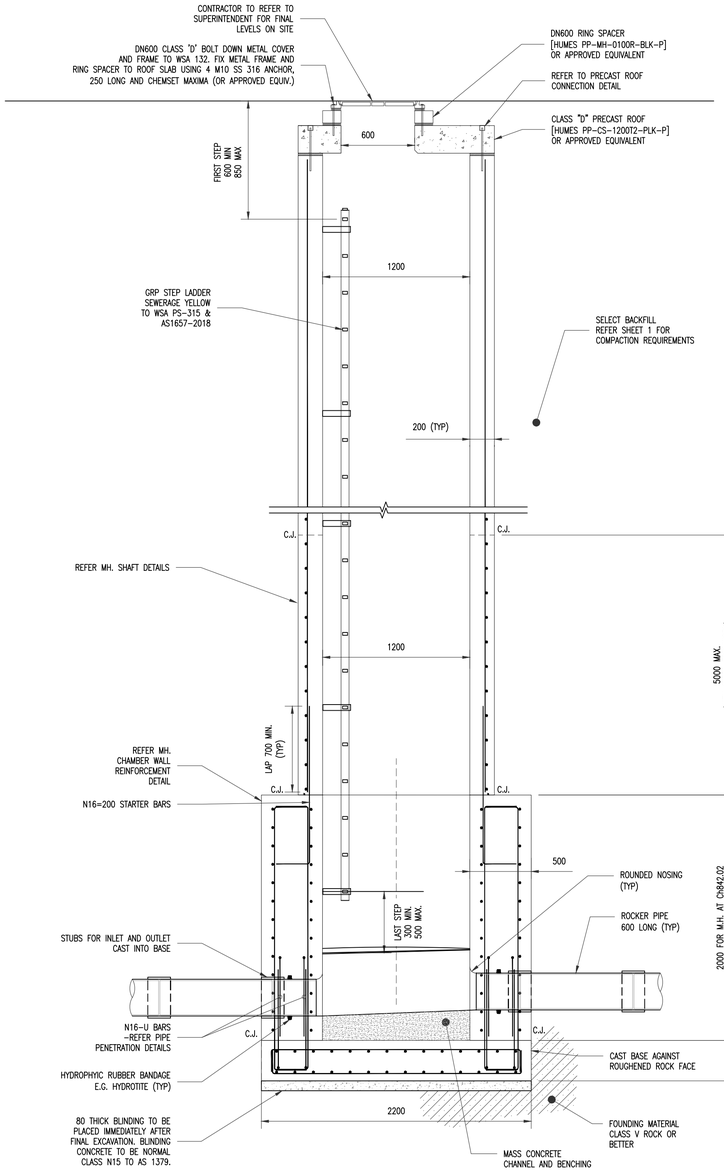


DETAIL 'L'
DEEP M.H. DETAIL - PLAN (Ch886.14)
SCALE 1:20

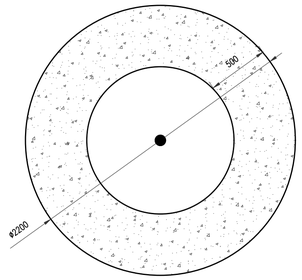


PRECAST ROOF CONNECTION DETAIL
SCALE: 1:20

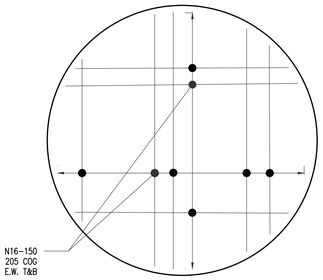
CONSTRUCTION JOINT DETAIL
SCALE: 1:20



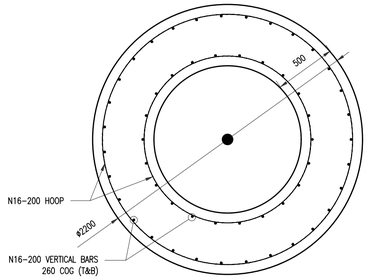
MH DEPTH >10m DETAIL
SCALE 1:20



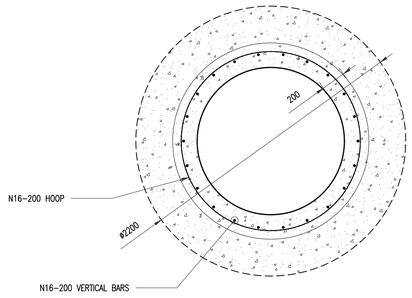
MH BASE FRAMING PLAN
SCALE 1:20



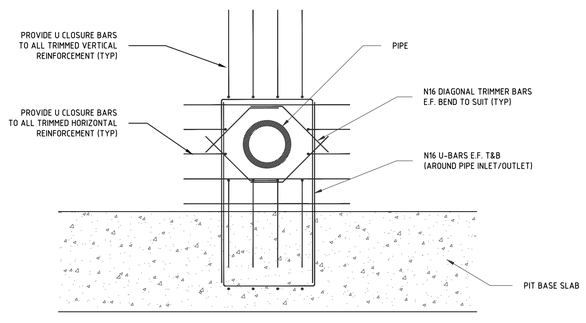
MH BASE REINFORCEMENT PLAN
SCALE 1:20



CHAMBER WALL REINFORCEMENT PLAN
SCALE 1:20



MH SHAFT REINFORCEMENT PLAN
SCALE 1:20



PIPE PENETRATION DETAIL AT PIT BASE
SCALE 1:20

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED	Case No. 181159ww | SHT 9 OF 10 SHTS.
DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 9 OF 10 SHEETS

R.A.R. REFERENCE: 12/25955/wwLI *DESIGNED:* S.R./K.G. *DRAFTED:* K.G. *VERIFIED:* D.I.S. *REVIEWED:* D.I.S. *VARIATION ID:* *APPROVAL DATE:*

Annexure L – Alternate Bus Stop Consultation

Alex Ruello

From: Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Sent: Friday, 5 August 2022 6:19 PM
To: Alex Ruello; Hannah Shilling
Cc: Joseph George; Bus Approval; Steve Grady; Adrian Prichard; Joseph Aouad
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Hi Alex,

TfNSW has no objection to the proposed temporary relocation of the bus stops. Please update the TMP to reflect these changes.

Regards
Suthes Kumar
Project–Contract Manager
Developer Works
Greater Sydney
Transport for NSW

M: 0408 655 528 **E:** Suthes.Kumar@transport.nsw.gov.au

transport.nsw.gov.au

129a Orchardleigh Street
Yennora NSW 2161

Transport for NSW

I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

Please consider the environment before printing this email.

From: Alex Ruello [mailto:Alex.Ruello@burtoncontractors.com.au]
Sent: Monday, 1 August 2022 11:10 AM
To: Hannah Shilling <hshilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; Bus Approval <BusApproval@transport.nsw.gov.au>; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <aprichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Thanks for that Hannah,

Before we make the changes we will need to have some sort of approval from Transport & TMC.

Suthes – as soon as you are able, can you please advise if stops #1 and #4 are okay for Transport & TMC? If so, our revised TMP will be updated to reflect the changes.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

T: 0408 289 903
M: 0408 289 903
F: 02 9581 5551
E: Alex.Ruello@burtoncontractors.com.au

BURTON Civil Engineering Contractors
www.burtoncontractors.com.au

Sydney Office
Homebush Business Village
Unit 3/11-21 Underwood Rd
Homebush NSW 2140
T: 02 9581 5550 F: 02 9581 5551

From: Hannah Shilling <HShilling@transitsystems.com.au>
Sent: Monday, 1 August 2022 10:44 AM
To: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; BusApproval@transport.nsw.gov.au; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <APrichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Good Morning Alex,

We just went out with a bus to test whether the draw in bay southbound would be appropriate for a bus.

Thankfully the bus just fit, so we are happy to use the locations of stops 1 and 4 as the alternate stops.

Can you please arrange for Bus Zone signage to be installed?

Also can you please advise the start date of the change, once known.

Thanks.

Kind Regards,

Hannah Shilling
Network Project Planner

T: 02 8778 5853
A: Lot 2 Airfield Drive, Len Waters Estate NSW 2171

E: hshilling@transitsystems.com.au

I acknowledge the traditional owners of the land on which we live and work, and pay my respects to elders past, present and emerging.

Transit Systems NSW Reconciliation Action Plan
Artwork by Allan McKenzie, Gamilaroi / Wiradjuri Man

From: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>
Sent: Friday, 29 July 2022 5:41 PM
To: Hannah Shilling <HShilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; BusApproval@transport.nsw.gov.au; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <APrichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Hannah & Suthes,

I have drafted the attached to present multiple options for alternate bus stop locations to try and short circuit the potential solution.

1. **Bus Stop #1** – There is a wider shoulder here that will fit a bus here. There is a concrete footpath that leads to the traffic lights and pedestrian crossing at the Roussell Road intersection. This would serve the SB direction only
2. **Bus Stop #2** – This is an alternate to the preferred Transit Systems location for NB and SB bus stop. This location offers the benefits of negating queuing traffic in the Roussell Road intersection
3. **Bus Stop #3** – This is Transit System's preferred location for both a NB & SB bus stop
4. **Bus Stop #4** – Alternate location for NB direction only

These can be mixed and matched in any combination to service both NB and SB. example #1 & #3, #2 & #4, #2 only, #3 only etc

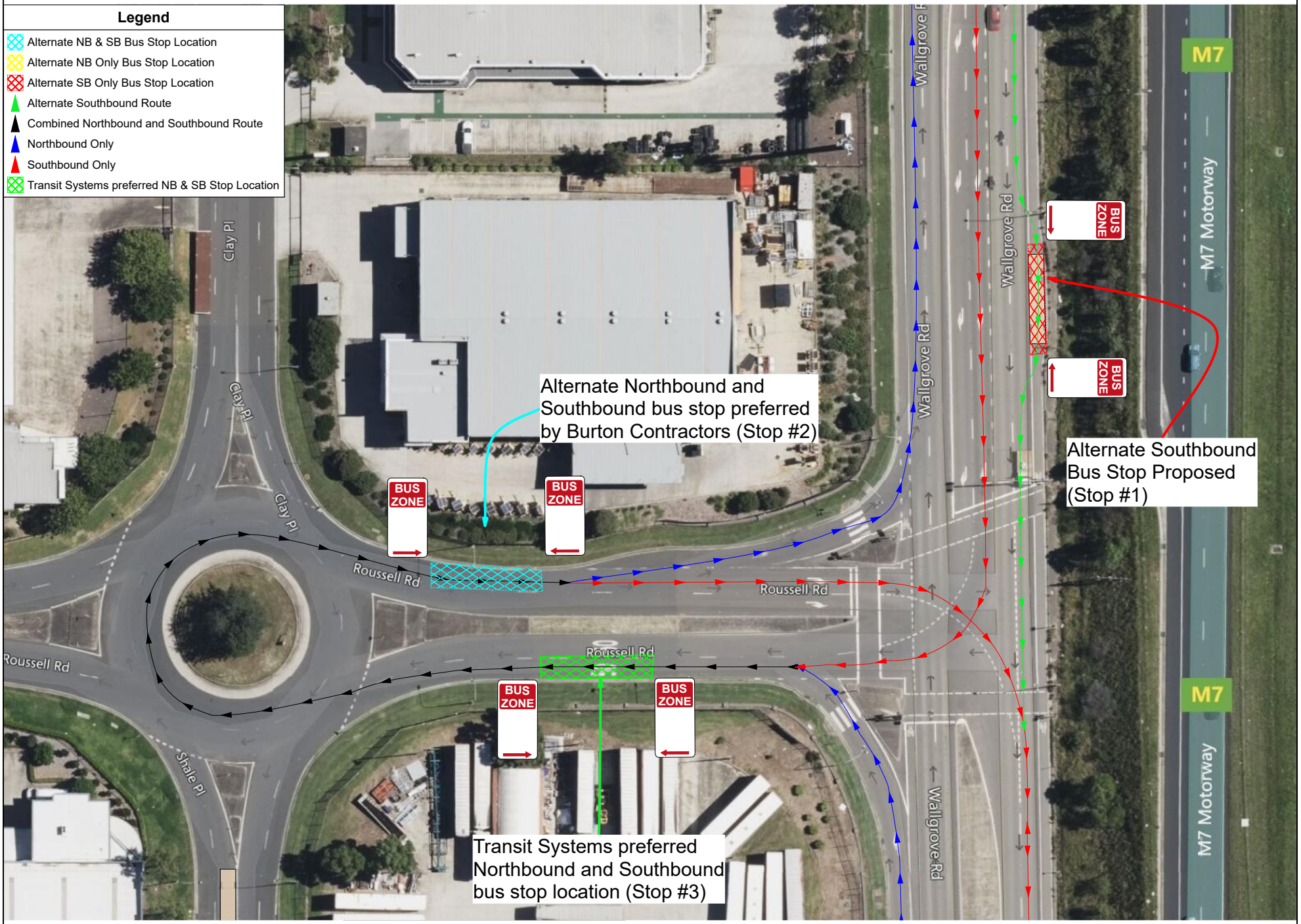
Hannah – Can you please advise if any of the bus stop locations are not acceptable?

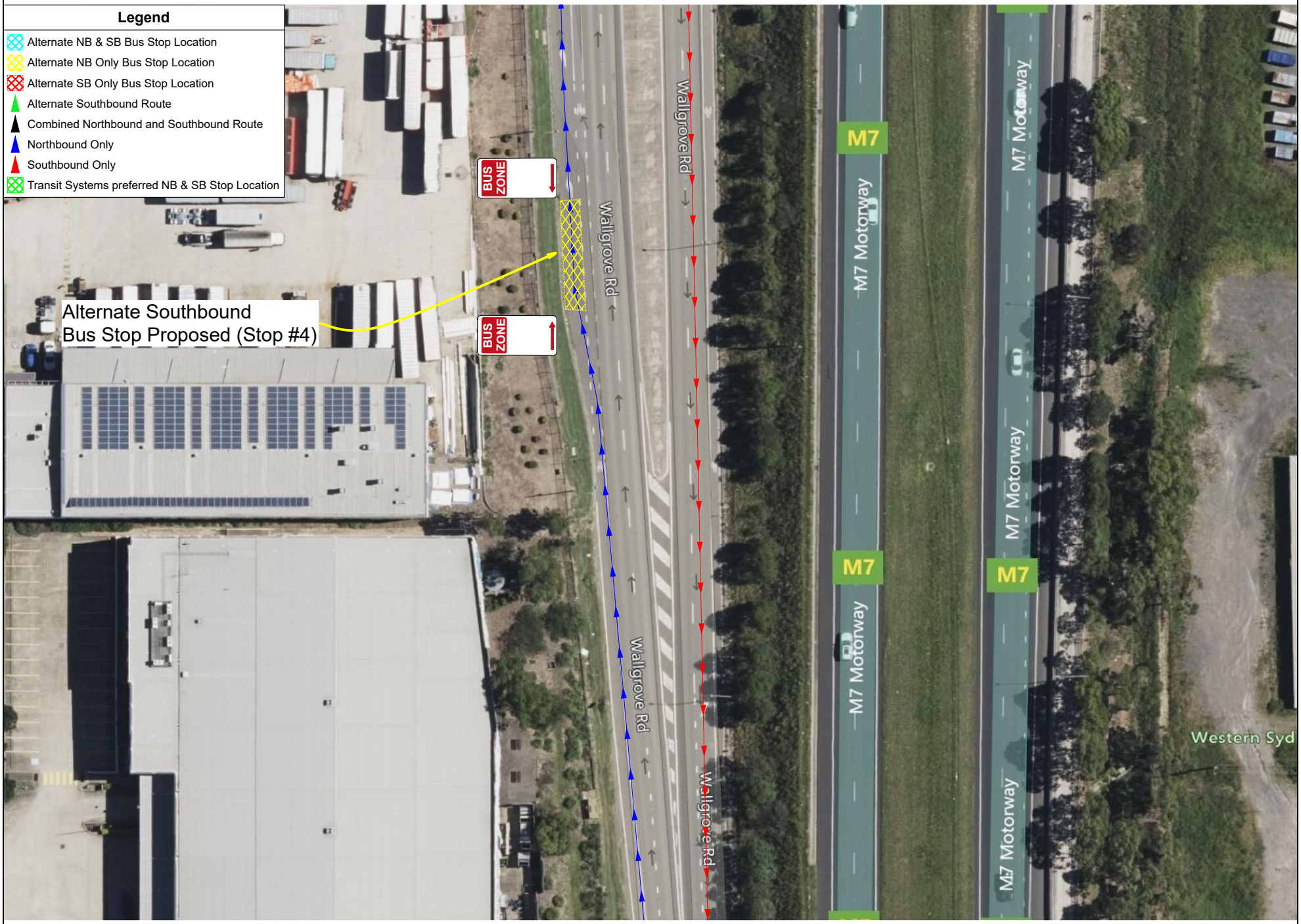
Suthes – Can you please advise if any of the proposed bus stop locations are not acceptable to TfNSW? Can you please also check with TMC to see if they have any objections to any of the proposed bus stop locations? We would prefer to have these approved in advance of the next CTMP submission to avoid another potential 20-day review cycle.

Thank you all in advance. Please let me know if the attached or explanation is not clear enough and I will do my best to explain.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

www.invarion.com




Legend
Alternate NB & SB Bus Stop Location
Alternate NB Only Bus Stop Location
Alternate SB Only Bus Stop Location
Alternate Southbound Route
Combined Northbound and Southbound Route
Northbound Only
Southbound Only
Transit Systems preferred NB & SB Stop Location
Alternate Southbound
Bus Stop Proposed (Stop #4)
BUS ZONE
BUS ZONE
Wallgrove Rd
Wallgrove Rd
Wallgrove Rd
Wallgrove Rd
M7
M7
M7
M7 Motorway
M7 Motorway
M7 Motorway
M7 Motorway
M7 Motorway
Western Syd

MOMENTUM INDUSTRIAL ESTATE EARLY WORKS

VEHICLE CODE OF CONDUCT CHECKLIST

FORM NO. SA-29-FR-01

CTMP REFERENCED PWZTMP- 0052135507

DRIVER COMPLIANCE			
Name of Supplier:		**Date:**	
Subcontractor:		**Subcontractor Contact Name:**	
Depot Address:			
Type: Rigid / Semi / B-Double / Float / Tipper / Other:			
Drivers Name:		**Driver's License Number:**	
Registration Number:		**Driver's License Type:**	

INDUCTION		
	Site Address: 813-913 Wallgrove Rd, Horsley Park Accessing Site: • Access to site is via Wallgrove Rd. • Access is left into site and left out of site in a forward direction only • Decelerate slowly and signal intention to leave the traffic stream • Activate the vehicle rotating beacon on approach to and departure from the work site • Wait until there is a gap in traffic before leaving the construction site or until given clearance by traffic controllers to exit the work area. • Radio ahead to advise of approach to ensure work site space is available • Not obstruct any pedestrian crossings or footpaths • Not obstruct trafficable lanes without an approved ROL. • Stick to designated truck routes.	
	Site Working Hours: • 7am-6pm – Monday to Friday • 8am-1pm – Saturdays • No works on Sundays	
	Heavy Vehicle Specific: • Limited to 10 per hour • Access to site between 10am-3pm • Limit use of air braking as much as possible • All heavy vehicles to comply with the National Heavy Vehicle Accreditation Scheme	
	Is the Driver wearing site specific PPE?	
	Cherrie Civil have a defined set of Site Traffic Rules which include:	

	Traffic Management Plan must be adhered to whilst on site and driving on surrounding streets 10 KMP speed limit for internal roads. UHF radio Channel: **TBC** Operational flashing light/beacon and reversing beeper must be operational No overtaking other vehicles or plant without positive radio communications No reversing at any time without a spotter Obey stop signs and site signage Construction machinery has right of way at all times	
	Mobile phones are not to be used whilst operating plant or equipment. If a call must be taken/made ensure you are in a safe location and plant or equipment is not in operation.	
	Emergency Procedure Call of Emergency, Emergency, Emergency over Channel **TBC** UHF and/or 3 blasts of air horn.	
	First Aider: **Chris Farnham** Mobile No: **0420 519 636** First Aid kit is located at: **Site Office**	
	This site has a zero tolerance for the use of or persons under the influence of drugs and alcohol and conducts random Drug and Alcohol Tests.	
	Lifting chains are to be fitted with safety latch hooks. SWL tag to be in date – Stamped every 12 months. Do not use damaged and / or worn slings or chains to unload / load delivery.	
	Overhead Powerlines: Is my mechanical lifting equipment located outside the recommended safe working distance from overhead powerlines? Do NOT unload equipment underneath overhead wires.	
	Loads to be covered before leaving site.	

HEAVY VEHICLE COMPLIANCE		**Time of verification**			
No.					
01	Are you within your logbook hours?				
02	Are you under the influence of Drugs or Alcohol?				
03	Are you fatigued?				
04	Are you overweight / oversize / incorrectly loaded or restrained?				
05	Is your truck road worthy?				
06	Does the driver have appropriate time allocated for the trip, so speed limits are complied with?				
07	Has the load been checked and is the load secured?				
08	The load does not exceed the maximum mass and dimensions?				
09	How is the load secured? (Specify)				
Note: Where no is indicated above, notify the CCE Site Manager and/or Supplier/Subcontractor listed above					
Notes / Comments:					

TIME SCHEDULE		
Arrival time at site:	Waiting time at site:	Time of departure from site:
Arrival time at site:	Waiting time at site:	Time of departure from site:
Arrival time at site:	Waiting time at site:	Time of departure from site:

DECLARATION			
I declare that this Heavy Vehicle is roadworthy, load(s) is/are properly loaded within the weight capacity and dimensions of the truck and correctly restrained.			
Supplier / Subcontractor:		**Position / Role:**	
Signature:		**Date:**	

Checked and Verified (CCE use only)			
CCE Representative:		**Position / Role:**	
Signature:		**Date:**	

SITE ACCESS MAP