Construction Environmental Management Plan (CEMP) Wallgrove Road, Horsley Park (Stage 1) | SSD-5248

Gazcorp Pty Ltd

Final

157,684 | 66284

7 June 2024

We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.



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Abbreviations

Term	Definition
AQMS	Air Quality Monitoring Station
CEMP	Construction Environmental Management Plan
CBD	Central Business District
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CNVMP	Construction Noise and Vibration Management Plan
DECC	NSW Department of Environment, Climate Change
DEC	NSW Department of Environment and Conservation
DP	Deposited Plan
DPE	Formally NSW Department of Planning and Environment, now known as Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
ENV	Excavated Natural Material
EMP	Environmental Management Procedure
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EPA	NSW Environment Protection Authority
ESCP	Erosion and Sediment Control Plan
GIE	Gazcorp Industrial Estate
Ha	Hectare
ICNG	NSW Interim Construction Noise Guideline 2009
JBS&G	JBS&G Australia Pty Ltd
LMP	Landscape Management Plan
MOD	Modification to the initial approval
OEH	NSW Office of Environment and Heritage
POEO Act	*Protection of the Environment Operations Act 1997 (NSW)*
RFS	Rural Fire Service
SLR	SLR Consulting
SSD	State Significant Development
SSD-5248	Development approval the overall site (concept proposal and Stage 1 development which includes vegetation clearance, bulk earth works, construction of internal roads, installation of utilities and construction of warehouse located in Lot 10)
TfNSW	Transport for NSW
VENM	Virgin Excavated Natural Material
Water NSW	Water New South Wales
WARR Act	*Waste Avoidance and Resource Recovery Act 2001 (NSW)*

1. Introduction

JBS&G Australia Pty Ltd (JBS&G) was engaged by Gazcorp Pty Ltd (Gazcorp) to prepare a Construction Environmental Management Plan (CEMP) for the overall site at 813-913 Wallgrove Road, Horsley Park, NSW 2175 (the site).

The property is located on land comprising part of Lot 100 of DP 1268340, being part of 813-913 Wallgrove Road, Horsley Park, within the Fairfield Local Government Area, and has an area of approximately 5.7 hectare (ha). The site is situated approximately 30 km west of the Sydney CBD and approximately 2 km west of Prospect Reservoir.

This property is currently being developed as a new Gazcorp Industrial Estate (GIE), subject to approval under State Significant Development (SSD) 5248.

The site location and layout are shown in **Figures 1** and **2**, respectively.

Description of the project is as follows:

- The Staged Development Application for the Gazcorp Industrial Estate comprised of:
  - 215,589 square metres (m^2) of gross floor area (GFA) comprised of 205,469 m^2 of warehouse/industrial uses and 10,120 m^2 of ancillary office space;
  - 14 warehouse buildings; and
  - Conceptual lot layout, site levels, road layout, urban design controls, conceptual landscape designs and infrastructure arrangements.
- Stage 1 Development Application:
  - Clearing of vegetation and undertaking of bulk earthworks across the entire site;
  - Construction of internal estate roads, water, sewer, telecommunications, and gas infrastructure;
  - Construction of stormwater management devices;
  - Installation of estate landscaping;
  - Construction and operation of a 41,224 m^2 fully temperature-controlled warehouse and distribution building, including 1,460 m^2 of ancillary office space; and
  - Intersection works in Wallgrove Road.

A construction certificate was issued for the site on 13 February 2023. This construction certificate (issued by Blackett Maguire + Goldsmith Pty Ltd, CC-23007). This construction certificate approved the commencement of:

- "Bulk earthworks across the entire site, civil, stormwater management systems, and infrastructure works only associated with the Stage 1 Development."

Construction commenced in March 2023.

Conditions of the approval (from MOD 4) require a CEMP to be written and implemented for the site as per follows:

	CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN
D2	The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of Condition D1 and to the satisfaction of the Planning Secretary and in consultation with TfNSW and Council.
D3	As part of the CEMP required under Condition D2 of this consent, the Applicant must include the following: (a) Construction Traffic Management Plan (CTMP) (see Condition C31); (b) Erosion and Sediment Control Plan (see Condition C45); (c) Construction Air Quality Management Plan (CAQMP) (see Condition C56); (d) Construction Noise Management Plan (CNMP) (see Condition C60); (e) Aboriginal Cultural Heritage Management Plan (ACHMP) (see Condition C70); (f) Vegetation and Riparian Management Plan (VRMP) (see Condition C77); (g) Unexpected Contamination Procedure (see Condition C93); and (h) Community Consultation and Complaints Handling.
D4	The Applicant must: (a) not commence construction of the Development until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the Development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

The current CEMP for the site (approved by DPE in November 2022) covers the civil activities which includes vegetation clearance, bulk earthworks, road works and installation of utilities as approved within the Stage 1 Development Application.

JBS&G understands that the construction of the warehouse in Lot 10 as part of the Stage 1 Development Application is commencing in the near future and the remaining aspects of the civils works will continue concurrently. As such, a new CEMP is needed to cover both the civils works and construction of the warehouse (in Lot 10). The design of this warehouse was assessed under Modification 4 (MOD 4) of SSD 5248 which was determined in December 2023. The conditions of consent from MOD 4 have been used for this CEMP.

1.1 Purpose

This revised CEMP has been designed to ensure that the risk to human populations in proximity of the site and the surrounding environment by the construction works is acceptable. This is achieved via the implementation of several ongoing monitoring and management measures pertaining to the proposed construction works on the site.

1.2 Responsibilities

The development of the site will be undertaken under the direction of the site owners (Gazcorp) and the relevant Principal Contractor at the time (depending of the phase of works).

The Principal Contractor will be responsible for the implementation of the majority of procedures provided to the CEMP. It is noted that where the specific procedures are technical or complex in nature then the Principal Contractor may appoint appropriately qualified agents (i.e. environmental consultants) to fulfil the requirements of the procedure, or advise the appropriate implementation of the procedure.

A formal list of procedures is provided to the CEMP based on an assessment of potential environmental emissions from anticipated site works required for the construction works. Specific responsibilities are nominated for the implementation of these procedures.

1.3 Environmental Procedures

This CEMP includes several procedures, or Environmental Management Procedures (EMPs) to manage environmental aspects and mitigate potential impacts (as detailed in **Section 7** and summarised in **Table 1-1**), as follows:

- EMP01 Air Quality
- EMP02 Biodiversity
- EMP03 Heritage and Archaeological Impacts
- EMP04 Noise and Vibration
- EMP05 Traffic
- EMP06 Erosion and Sediment Control
- EMP07 Waste Management
- EMP08 Stockpiling
- EMP09Soil and Contamination
- EMP10 Environmental Emergency Response-
- EMP11 Training
- EMP12 Non-Compliance
- EMP13 Incident Reporting
- EMP14 Record Keeping
- EMP15 CEMP Review

Table 1-1: Construction Activity and Identified Environmental Procedures

Activity	Environmental Considerations	Management Procedure
Earthmoving works	Noise generation Dust generation Traffic impacts Sediment migration	EMP01 Air Quality EMP02 Biodiversity EMP03 Heritage and Archaeological Impacts EMP04 Noise and Vibration EMP05 Traffic EMP06 Erosion and Sediment Control EMP07 Waste Management EMP08 Stockpiling EMP09 Soil and Contamination EMP10 Environmental Emergency Response EMP13 Incident Reporting
Delivery of construction materials	Noise generation Traffic impacts	EMP04 Noise and Vibration Control EMP05 Traffic

Activity	Environmental Considerations	Management Procedure
Construction (i.e. building of warehouse, landscaping and waste management)	Noise generation Dust generation Traffic impacts Waste management	EMP01 Air Quality EMP04 Noise and Vibration EMP05 Traffic EMP06 Erosion and Sediment Control EMP07 Waste Management EMP09 Soil and Contamination EMP10 Environmental Emergency Response EMP13 Incident Reporting

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2. Summary of site condition

2.1 Site details

The site is located in Wallgrove Road, Horsley Park NSW as shown on **Figure 1** and the proposed site layout is shown on **Figure 2**. The site details are summarised in **Table 2-1** and described further in **Section 2.2**

Table 2-1: Site details summary

Lot/DP (at time of writing)	Part Lot 100 DP 1268340
Address	813 – 913 Wallgrove Road, Horsley Park NSW 2175
Local Government Authority	Fairfield City Council
Site Zoning	IN1 – General Industrial
Previous Use	Agricultural
Proposed Use	Commercial/industrial land use
Site Area	Approximately 5.7 ha

2.2 Site condition

In February 2024 (the time of preparing this overall site CEMP), the site was predominately cleared land with small pockets of vegetation (mainly in the western riparian area near Reedy Creek). The site has been modified by civils works to level areas allowing the construction of roads, utilities and warehouses.

Construction of a warehouse in Lots 11-12 (northern area of the site) had commenced – approved under a separate SSD so covered by a separate CEMP.

General description of the surrounding areas is as per the following sections.

2.2.1 North

The site is bordered by a Water NSW water supply line to the north. Further north of the pipeline is the Eastern Creek industrial precinct, which comprises several large industrial buildings and warehouses.

2.2.2 South

An existing high voltage Transgrid transmission line is included within an easement that runs for most of the length of the GIE site's southern boundary.

Immediately to the south of the Transgrid easement are several rural residential lots that are largely cleared and contain a mix of sheds and residential dwellings. These lots include a mix of intensive small-scale rural activities, such as wood-chipping (for landscape supplies), market gardens, and a piggery as well as rural-residential dwellings located along Burley Road and Flavex Lane.

It is noted that only a small number of lots share a common boundary with the Site and that the dwellings are generally set back more than 100m from the GIE.

2.2.3 East

To the immediate east of the site is Wallgrove Road and the M7 Motorway form the eastern boundary of the GIE. On the opposite side of the M7 is the PGH brickworks facility owned by CSR Limited, while further east is the Western Sydney Parklands, and further again to the Prospect Reservoir and industrial uses within Wetherill Park.

2.2.4 West

Reedy Creek riparian corridor forms the western boundary of the estate, beyond which is land presently used as a quarry. Much of the land to the west is included within the WSEA, and includes the Oakdale South, Oakdale Central and Oakdale West Precincts, which are presently managed by Goodman.

3. Application, enforcement and regulatory requirements

3.1 Application of CEMP

The current CEMP for the site (approved by DPE in November 2022) covers the civil activities which includes vegetation clearance, bulk earthworks, road works and installation of utilities as approved within the Stage 1 Development Application.

The Stage 1 Development Application includes the construction of the warehouse in Lot 10 (construction programmed to commence in mid 2024). As such a new CEMP is needed to cover both the civils works and construction of the warehouse (in Lot 10), addressing all Stage 1 scope. The design of this warehouse (in Lot 10) was assessed under MOD 4 of SSD 5248 which was determined in December 2023.

3.2 Enforcement of CEMP

The CEMP will be enforced and implemented the Principal Contractor for the construction of the warehouse and minor earthworks by their subcontractors associated with the Stage 1 approval.

Any other development works (including the construction of warehouses in Lots other than Lot 10) will be covered under a separate CEMP.

3.3 Regulatory requirements

Future activities on site will be required to be completed in accordance with several sections of environmental and occupational health and safety legislation and associated regulations. The primary Acts, Regulations and Guidelines are listed below with a brief summary of their applicability. Please note that this list is not intended to be a comprehensive listing of acts and regulations. The site owner and contractors are required to satisfy themselves that all applicable legislation is adhered to, relevant permits and licences have been obtained, and their conditions satisfied.

Regulations that are to be considered as part of this CEMP include the following:

Work Health and Safety Act 2011

The overarching Act for NSW setting law relating to employee health and safety and employer responsibilities.

Work Health and Safety Regulation 2017

Sets Regulations and details the duties for employers to achieve required employee health and safety performance.

Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) is the key piece of environment protection legislation administered by the EPA.

Waste Avoidance and Resource Recovery Act 2001 (WARR Act)

The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) replaced the *Waste Minimisation and Management Act 1995* and controls waste generation and waste reduction.

Waste Classification Guidelines (EPA 2014)

All wastes generated and proposed to be disposed off-site shall be assessed, classified and managed in accordance with this guideline. Where wastes require immobilisation prior to off-site disposal an immobilisation approval shall be sought in accordance with Part 2 of this guideline.

***Contaminated Land Management Act 1997* (*CLM Act*)**

The *Contaminated Lands Management Act 1997* (CLM Act) controls the assessment of contamination and requirement of remediation of soils and groundwater. The act also contains guidance for the determination of whether a site presents a significant risk of harm and allows for accreditation of Site Auditors.

State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 of *State Environmental Planning Policy (Resilience and Hazards) 2021* relates to the decision-making process in undertaking remediation of land and making planning decisions in regard to contaminated and potentially contaminated land.

National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (NEPC 2013)

National guidelines for the assessment of land contamination endorsed by NSW EPA. These guidelines include recommended soil and groundwater assessment criteria for a variety of land uses.

Environmental Planning and Assessment Act 1979 and Regulation 2021

Provides for environmental planning instruments (EPIs) which establish planning controls for NSW. The EP&A Act also provides for the determination of development applications and ensures that the assessment of proposed development considers the appropriate matters.

4. General site management

Key general site management requirements are outlined below.

4.1 Hours of operation

As per development consent SSD-5248 (condition C57), all construction activities will be carried out between the following times:

- Monday – Friday: 7 am to 6 pm
- Saturday: 8 am to 1 pm
- Sundays and Public Holidays: No work is permitted

Works outside of these hours are only permitted in the following circumstances in accordance with condition C58:

a) works that are inaudible at the nearest sensitive receivers;

b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

4.2 Site induction

All personnel and contractors will complete a site induction upon arrival at the site, and prior to the commencement of any work tasks. The site induction will be facilitated by the Site Manager or delegate and include details of:

- General site and project orientation;
- Work tasks to be performed by the inductees and any special requirements or approvals;
- Key environmental risks and worker health and safety risks associated with the work tasks;
- Driver code of conduct to minimise vehicular traffic and noise impacts;
- Specific requirements and responsibilities under the Development Conditions of Consent; and
- Worker obligations and reporting requirements for with environmental incidents or near-misses.

The induction will ensure that the principles of the CEMP will be considered by all site personnel. A less detailed induction may be completed by site visitors who will not be undertaking work tasks.

5. Implementation and operation of the plan

The roles and responsibilities, training and communication mechanisms that underpin implementation of this plan are detailed in the following sections.

5.1 Role and responsibilities

Effective management of environmental aspects and promoting environmental awareness during construction of the Project is key to responsible project management. The roles and responsibilities of key personnel during the construction of the Project are outlined below in **Table 5-1**.

All personnel involved in construction phase of the Project are required to work in accordance with the CEMP.

Table 5-1: Roles and responsibility during construction

Role	Responsibilities
Executive Management	• Overarching responsibility for the Project • Licence holders and therefore hold overall responsibility for environmental management of the Project
Senior Project Engineer	• Directly responsible for the environmental management of the Project • Reports directly to Executive Management • Managing the environmental approval process • Directly responsible for the overseeing and fulfilling the commitments contained in the CEMP • Coordinating management reviews, external and internal audits and reporting progress against environmental targets and objectives • Conducting incident investigations and performing environmental risk assessments • Providing general environmental support • Environmental incident investigation and reporting • Reports to the Site Manager
Site Manager	• Oversees CEMP implementation • Monitors the activities of contractors and assesses compliance with the CEMP • Coordinates environmental supervision of clear-and-grade and other key activities • Coordinates the monitoring and audit program • Represents the Project on environmental matters with stakeholders • Reports to Senior Project Manager
Subcontractors and other site workers	• Implement environmental controls as directed • Report any environmental issues • Reports to the Site Manager

5.2 Induction and training

5.2.1 Training and competencies

The Principal Contractor will develop, implement, monitor and review a documented process that controls and governs all aspects of the management of training and competency in accordance with all laws and good industry practice.

The process must apply to all contractors and sub-contractors engaged to work on the Project to ensure all workers are qualified, trained, certified, adequately experienced and appropriately licenced to undertake all tasks for their individual roles. The training and competencies component will address as a minimum:

- the operation of vehicles and mobile plant
- the operation of equipment and plant
- all activities that require Australian High-Risk Licences
- all specialist certification (e.g. working at heights, rescue activities, work in confined spaces or any other applicable activity).

Job-specific training relevant to roles will also be undertaken and records maintained of induction and attendees.

5.2.2 Site specific inductions

All Project personnel will undertake site specific induction training prior to the commencement of any construction works for the Project. Site specific inductions will address:

- background of the Project
- approval conditions and an overview of the CEMP requirements

- legislative requirements of the company and individuals
- key personnel and roles
- emergency response procedures including fire season education and associated risks and restrictions
- environmental issues within the Project area and relevant management plans and procedures including for cultural heritage
- community issues related to the Project and relevant management plans and procedures
- penalties for non-compliance with required plans and procedures
- hazard and incident reporting and management procedures
- any other site-specific issues.

The provision for delivering site specific induction will be the responsibility of the Subcontractor, with records of attendees maintained.

5.3 Emergency preparedness and response

The Emergency Response Procedure provides the overarching framework for emergency response during operation. A site-specific Emergency Control Plan will be developed prior to construction. The Emergency Control Plan will detail as a minimum:

- appropriate procedures to follow if an emergency occur during Project construction, such as fire, lightning strikes, chemical spill, explosion, flooding, wildlife injury, damage to existing infrastructure and personnel injury;
- incident and corrective action records, which detail the procedures to record, document and follow up on environmental incidents and key personal that are to be involved;
- bushfire and fire prevention, including the development and implementation of a Fire Hazard Management Plan for the Project in consultation with the Rural Fire Service (RFS) and other relevant stakeholders.

Relevant procedures are outlined in **EMP10 Environmental Emergency Response** in **Section 7**.

5.4 Environmental inspections and monitoring

A compliance monitoring inspection program must be implemented during construction works in order to monitor compliance with the conditions of consent for the project.

The effectiveness of environmental protection measures described in this CEMP and sub plans will be assessed on a three-monthly basis by Gazcorp. During which, the following activities will be undertaken:

- Provide a surveillance tool to ensure that safeguards are being implemented;
- Identify where problems might be occurring;
- Identify where sound environmental practices are not being implemented; and
- Facilitate the identification and early resolution of problems.

Weekly environmental inspections will monitor aspects including:

- Review of relevant works approvals and permits
- Erosion and sediment controls and review of associated plans
- Drainage/groundwater protection
- Air quality, odours, dust emissions and mitigating controls
- Heritage impacts

- Noise and vibration management including approved working hours, required respites and safe working distances and buffer zone near the Water NSW water supply pipeline
- Hazardous substances and dangerous goods (including fuels and chemicals)
- Waste management, recycling and recovery

Any non-conformances identified will be highlighted discussed at regular project meetings by the Site Manager where rectification actions are discussed with all site teams.

The checklist will remain 'open' until:

- The issue has been resolved;
- A new or revised procedure has been established and implemented; or
- Training has been provided to relevant personnel/ sub-contractors.

Regular inspections to assess environmental management will be undertaken and documented as appropriate.

5.5 Reporting and compliance

Contractors will report all environmental and safety events to the Principal Contractor and Gazcorp within one hour of the incident occurring, or if not reasonably practicable, as soon as possible.

The Principal Contractor will report to relevant government agencies as required by approval conditions and legislation.

An incident is defined in the condition of consent as an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. Condition D9 sets out the requirements for reporting of incidents.

A non-compliance is defined in the conditions of consent as an occurrence, set of circumstances or development that is a breach of the project consent, and conditions D10, D11 and D12 set out reporting for identified non-compliance.

These requirements are also included within **EMP12 Non-Compliances** and **EMP13 Incident Reporting** in **Section 7**.

5.6 Review of the CEMP

The CEMP is a working document that will be reviewed and updated as required during the construction phase of the Project to ensure that it reflects current best practice environmental management.

Review of the CEMP will include a process of adaptive management, whereby the effectiveness and performance of current controls and mitigation measures are assessed and improved to ensure robust environmental performance. The review process will examine at a minimum:

- the implemented mitigation and environmental management controls
- incident reporting and procedures for preventative actions
- complaints handling procedures
- emergency response procedures for environmental incidents.

These requirements are also included within **EMP15 CEMP Review** in **Section 7**.

6. Communications and Complaint management

6.1 Site Communications

Communication during site works is critical to the safety and effectiveness of the work program. Pathways of communication include:

- Communication between site personnel, including Gazcorp and subcontractors;
- Communication between the Site Manager and all site personnel via daily prestart and toolbox meetings. This communication will establish the operational and environmental conditions for the day and for the following planned day ahead (at relevant prestart and toolbox meetings). These meetings will discuss the environmental controls and restrictions on work tasks to mitigate environmental impacts and will be documented in the daily field notes for the project;
- The Site Manager will report to the Project Manager information that encompasses all parameters required for the continued compliance to the CEMP. Communication will be via telephone or email, as the circumstances require; and
- The Site Manager with the assistance of the Project Engineer will report results and data collected over the course of site work to the Project Manager. This will be communicated via telephone/email daily summaries.

Prior to site works, the CEMP will be updated to contain a list of key persons and relevant stakeholders affiliated with activities at the site and their relevant contact information. In the event that a significant issue develops at the site, including, but not limited to, a chemical spill, or uncontrolled release to land, water or atmosphere; an unauthorised visitor; or a significant change in project scope, authorised persons can consult the CEMP for contact information.

All contact information will be verified and updated as necessary during the works.

6.2 Community Engagement

Any direct community engagement will be undertaken with consideration of GIE community engagement strategy.

Gazcorp has a website for the project as part of their community engagement strategy (www.momentumestate.com.au/planning/). This website includes contact details for enquiries and complaints.

During construction, the contact telephone number and email address of the site manager will be displayed on the gates and hoarding of the site.

6.3 Complaints and Feedback Protocol

A complaints register shall be maintained by Gazcorp or their representative.

An interaction will be recorded as a complaint if the stakeholder expresses a dissatisfaction in relation to the project or the proponent, consistent with the definition of a complaint as described in the Australian and New Zealand *Guidelines for Complaint Management* (ISO 10002:2018, NEQ).

If a complaint or feedback is received via the contact telephone number or email address, the site manager will investigate and resolve the complaint directly with the complainant.

If a complaint is received face-to-face on/near the project site by a project team member to their supervisor is to be advised who will then notify the site manager. The site manager may be notified initial by telephone or verbally, and a follow-up written notification shall be provided via email. The site manager is to then add this to the complaints register and contact the complainant.

Recording and responding to (if required) complaints are to be actioned immediately and closed out within five business days, unless escalation is required.

7. Environmental Management Procedures

This section outlines environmental objectives and mitigation and management controls for Project construction activities. These have been developed based on the impacts and management measures identified and assessed in the EIS.

Management strategies for the following matters are addressed in this CEMP:

- EMP01 Air Quality
- EMP02 Biodiversity
- EMP03 Heritage and Archaeological Impacts
- EMP04 Noise and Vibration
- EMP05 Traffic
- EMP06 Erosion and Sediment Control
- EMP07 Waste Management
- EMP08 Stockpiling
- EMP09 Soil and Contamination
- EMP10 Environmental Emergency Response
- EMP11 Training
- EMP12 Non-Compliance
- EMP13 Incident Reporting
- EMP14 Record Keeping
- EMP15 CEMP Review

Key legislative considerations and measures to be implemented in order to avoid and / or minimise environmental impacts are highlighted for each matter. The mitigation and management controls represent the minimum requirements that will be adopted during the construction phase.

In addition, as per Condition D3 of SSD 5248, the following specific management plans have been prepared and are appended to this CEMP:

- Construction Traffic Management Plan (CTMP) in accordance with Condition C31 of the conditions of consent SSD 5248 (located in **Appendix E**)
- Erosion and Sediment Controls Plan in accordance with Condition C45 of the conditions of consent SSD 5248 (located in **Appendix F**)
- Construction Air Quality Management Plan (CAQMP) in accordance with Condition C56 of the conditions of consent SSD 5248 (located in **Appendix A**)
- Construction Noise Management Plan (CNMP) in accordance with Condition C60 of the conditions of consent SSD 5248 (located in **Appendix D**)

- Aboriginal Cultural Heritage Management Plan (ACHMP) in accordance with Condition C70 of the conditions of consent SSD 5248 (located in **Appendix C**)
- Vegetation and Riparian Management Plan (VRMP) in accordance with Condition C77 of the conditions of consent SSD-5248 (located in **Appendix B**)

Specific requirements from these management plans have been summarised within the following relevant EMPs.

Air quality	EMP01
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To minimise dust emissions from earthworks and ensure compliance with SSD-5248 conditions of consent (C54-C56)

Background

A Construction Air Quality Management Plan (CAQMP) for the site has been prepared (SLR Consulting, March 2022) and forms Appendix A of this CEMP. Relevant aspects of this CAQMP are summarised as follows.

Air quality monitoring is performed by the NSW Office of Environment and Heritage (OEH) at a number of monitoring stations across NSW. The Prospect Air Quality Monitoring Station (AQMS) is located approximately 6.5 km to the northeast of the site. Air quality monitoring data recorded by the Prospect AQMS were obtained for the calendar years 2017 – 2021 and is summarised below in **Table 7-1**.

Table 7-1: Air quality monitoring data, Prospect AQMS 2017-2021

Year	PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)	
	24-hour	Annual	24-hour	Annual
2017	61.1	18.9	30.1	7.7
2018	113.3	21.9	47.5	8.5
2019	182.8	26.0	134.1	11.9
2020	245.8	20.2	70.8	8.6
2021	44.6	17.2	37.3	6.9
Criterion	**50**	**25**	**25**	**8**

The data show that background particulate levels in this area of Sydney can be elevated at times- due to events such as bushfires, dust storms and hazard reduction burns.

As identified in the Air Quality Impact Assessment (SLR Consulting 2021), the main emissions to air during the construction phase will be emissions of particulate matter including total particular matter, PM_{10} (particulates less than 10 microns) and $PM_{2.5}$ (particulates less than 2.5 microns) and nuisance dust from construction activities (including movement of vehicles and soil movement).

As such effective dust mitigation measures need to be implemented during the Stage 1 construction works so that the activities do not contribute to any additional exceedances of air quality criteria in the surrounding area.

Key potential sources of dust have been from the following sources:

- Dust emissions from earthworks activities (e.g. excavation and loading of soils to trucks);
- Wind-generated dust from disturbed surfaces and stockpiles;
- Wheel-generated dust and particulate matter emissions in diesel exhaust emissions from on-site plant and equipment and construction traffic movements; and
- Particulate matter associated with exhaust emissions from increased/congested traffic emissions due to road closures or diversions.

Air quality | EMP01

Based on a preliminary risk assessment, site activities that are likely to cause dust are summarised as follows (highest to lowest risk):

- Earthworks
- Construction
- Soil or other debris tracked onto roads

Adopted Air Quality Criteria

There are no air quality criteria outlined within Development Consent SSD 5248, therefore the CAQMP (SLR Consulting, 2022) adopted the NSW EPA criteria for the site as identified in **Table 7-2**.

Table 7-2: Assessment Criteria for Particulate Matter and Nuisance Dust

Pollutant	Averaging Period	Assessment Criteria ($\mu g/m^3$)
Particulate matter (PM_{10})	24-hours	50
	Annual	25
Particulate matter ($PM_{2.5}$)	24-hours	25
	Annual	8
Pollutant	**Averaging Period**	**Assessment Criteria (g/m^2/month)**
Deposited dust	Annual	2 (maximum increase in deposited dust level) 4 (maximum total deposited dust level)

Statutory Requirements and Guidance Documents

All operations on site are to be conducted so that concentrations of dust satisfy those stipulated in accordance with the *Protection of the Environment and Operations Act 1997 (NSW)* and NSW EPA.

The CAQMP considered relevant guidelines, including:

- Local Government Air Quality Toolkit, Module 3 – Guidelines for Managing Air Pollution, Part 3 – Guidance Notes for Construction Sites (EPA, 2018)
- NSW Air Quality Statement 2019 (DPIE, 2020)
- Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, Environment Protection Authority NSW (EPA, 2017)
- Holman *et al* 2014, *IAQM Guidance on the assessment of dust from demolition and construction,* Institute of Air Quality Management, London.
- Australian Standards / New Zealand Standards (AS/NZS) 3580.10.1:2016 "Methods for sample and analysis of ambient air – Determination of Particulates – Deposited Matter – Gravimetric method"
- AS/NZS 3580.1.1:2016 "Methods for sampling and analysis of ambient air Part 1.1: Guide to siting air monitoring equipment".

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Air quality	EMP01

Conditions of Approval

Dust controls during construction are required to comply with the following development consent conditions from SSD 5248:

Condition C54

The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent

Condition C55

During construction of the development, the Applicant must ensure that:

(a) exposed surfaces and stockpiles are suppressed by regular watering;

(b) all trucks entering or leaving the site with loads have their loads covered;

(c) trucks associated with the development do not track dirt onto the public road network;

(d) public roads used by these trucks are kept clean; and

(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

Condition C56

Prior to the commencement of construction works, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by Condition D2 and be prepared in accordance with Condition D1. The CAQMP must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) detail and rank all emissions from all sources of the Development, including particulate emissions;

(c) demonstrate compliance with the Protection of the Environment Operations Act 1997 (NSW) and its associated regulations;

(d) demonstrate that no offensive odours would be delectable beyond the boundary of the premises;

(e) identify the control measures that that will be implemented throughout construction works;

(f) describe measures to identify non-compliances and strategic measures to manage any non compliance; and

(g) describe proactive and reactive management strategies.

Mitigations and Control Measures

The following mitigation measures from the CAQMP should be implemented where relevant:

Communications

- Implement a community communications/engagement strategy.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.

Site Management

- For each incident/complaint: Record and acknowledge; assess and prioritise; investigate cause(s); action and rectify to reduce issues in a timely manner; respond to complainant; and record the measures taken for preventative actions.
- Make complaints register available to local authority when asked.
- When excessive dust events occur (i.e. prolonged visual dust in a particular area), additional watering of dust producing activities to be undertaken or activities temporarily halted until such times that the dust source is under control.

Air quality	EMP01

- Horsley Park weather forecast will be reviewed daily (i.e. wind, rain) to inform site dust management procedures for the day http://www.bom.gov.au/places/nsw/horsley-park/

Preparing and Maintaining the Site

- Ensure that all reasonable steps to minimise dust generated will be undertaken during construction.
- Ensure that exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.
- Utilise land stabilisation works to minimise exposed surfaces.
- Closely monitor dust generating activities in areas close to receptors and apply additional mitigation as required to best manage potential dust emissions.
- For stockpiles that will be in place for more than 20 days (and are not actively used) as well as any stockpiles that are susceptible to wind or water erosion to be suitably protected from erosion within 10 days of the establishment of each stockpile.
- Temporary stabilisation of disturbed surfaces will be undertaken within two weeks of the stockpile being established.
- Site fencing and barriers will be kept clean using wet methods (e.g. hosing down)

Operating Vehicle/Machinery and Sustainable Travel

- Ensure trucks associated with Stage 1 constructions will not track dirt off site and onto the public road network.
- Project access roads used by delivery trucks will be kept clean.
- All on-road vehicles to comply with relevant vehicle emission standards and maintained in good condition.
- Delivery trucks to switch off engines whilst undertaking a delivery on-site, if idling time is likely to exceed 5 minutes.
- Impose and signpost a maximum-speed-limit of the following:
  - General 20km/h
  - High risk area 10km/h
  - Haul routes 50km/h
- Truck queuing and unnecessary trips will be minimised through logistical planning and by the identification and use of specific park up/hold areas away from the Project.

Operation

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods
- Works will be assessed during strong winds or in weather conditions where high levels of airborne particulates may potentially impact the sensitive receivers.
- Continual monitoring of wind speed and direction will be undertaken to guide this decision and ensure that adequate mitigation measures are undertaken

Waste Management

- All trucks entering or leaving the Site will have their loads covered.
- No waste materials, timbers or any other combustible materials will be burnt on site.

Earthworks

- Scopes of work will be planned in such a way to assist in minimising the duration that surfaces are left uncovered
- Rehabilitation of disturbed surfaces will be undertaken within 20 days of final construction levels.

Air quality	EMP01

- If unanticipated strong odours or significant visual dust emissions are noted or observed on site, an investigation will be undertaken by the construction contractor Project Manager to identify the scope of work or source of the emission prior to undertaking and applying any additional mitigation measures.

Construction

- Sand and other aggregates will not be allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Soil or other debris tracked onto roads

- Use water-assisted dust sweeper(s) used as required for any material tracked out of the site.
- Record all inspections and maintenance of haul routes in site logbook.
- Implement a wheel washing system and/or cattle grid (with rumble grids to dislodge accumulated dust and mud prior to leaving the site).

Reference should also be made to the detailed Construction Air Quality Management Plan in ***Appendix A****.*

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Biodiversity	EMP02
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To eliminate potential impacts to potentially sensitive ecological receptors and ensure compliance with SSD-5248 conditions of consent (C77 - C78, MM23, MM24, MM26 and MM31)

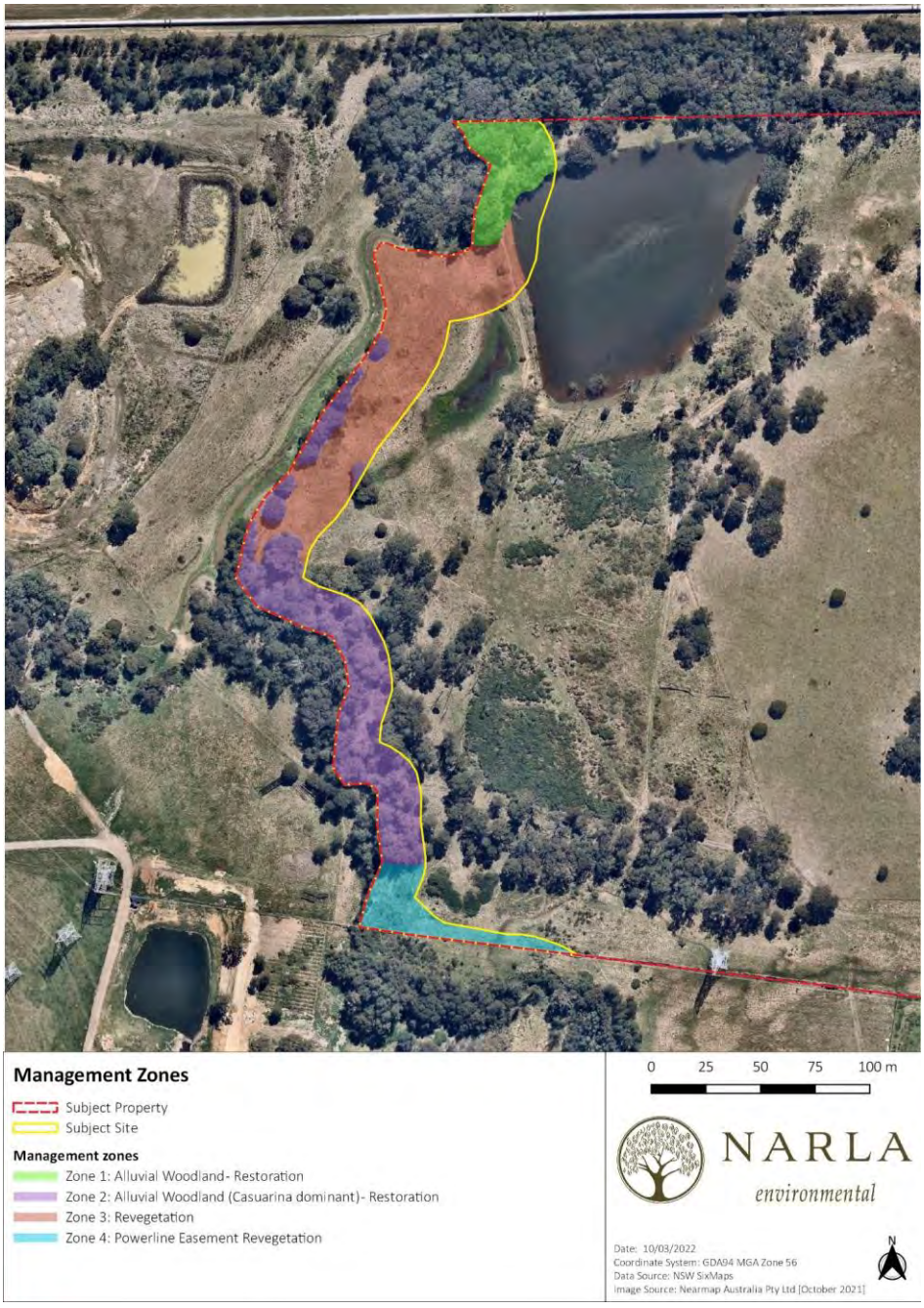
Background

There are two streams located on the Western border of the site. These areas have riparian corridors and any disturbance or modifications need to be managed in accordance with the requirements of the Natural Resources Access Regulator (NRAR).

A Vegetation Management Plan (Narla, 2022) provides the management procedures for this area and is located in **Appendix B** and forms the Vegetation and Riparian Management Plan (VRMP).

This VRMP identifies four management zones within the Subject Site (as shown in the following figure):

- *Zone 1: Alluvial Woodland – Restoration*, which its vegetation conforms to Biodiversity BC Act listed River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions, an Endangered Ecological Community (EEC);
- *Zone 2: Alluvial Woodland (Casuarina dominant)* – Restoration, which its vegetation conforms to Biodiversity BC Act listed River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions, an EEC;.
- *Zone 3: Revegetation*, which its vegetation is historically cleared and ground layers dominated by exotic species. Not an EEC and,
- *Zone 4: Powerline Easement Revegetation*, which its vegetation is historically cleared and ground layers dominated by exotic species.



Statutory Requirements and Guidance Documents

All activities on site are to be conducted in accordance with the *Biodiversity Conservation Act 2016 (NSW)* and *Environmental Protection and Biodiversity Conservation Act 1999 (Cwth).*

The VRMP considered relevant guidelines, including:

- Guidelines for riparian corridors on waterfront land, Department of Primary Industries (DPI) (2012)
- Guidelines for vegetation management plans on waterfront land, Department of Primary Industries (DPI) (2012)
- Priority Weeds for the Greater Sydney, NSW Weeds Wise, Department of Primary Industries (DPI) (2021)

- Managing Urban Stormwater: Soils and Construction, Landcom (2004)
- River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions - Determination to make a minor amendment to Part 3 of Schedule 1 of the Threatened Species Conservation, NSW Scientific Committee (2011)
- The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities, (Tozer, M. 2003)

Conditions of Approval

Biodiversity controls during construction are required to comply with the following development consent conditions from SSD 5248:

Condition C77

Prior to the commencement of construction, the Applicant must prepare a Vegetation and Riparian Management Plan (VRMP) for the Development to the satisfaction of the Planning Secretary. The VRMP must form part of the CEMP required by Condition D2 and the OEMP required by Condition D5. The VRMP must:

(a) be prepared in consultation with Council and DPIE Water;

(b) be prepared in accordance with the Guidelines for Vegetation Management Plans on Waterfront Land (Department of Primary Industries - Office of Water, 2012);

(c) include a strategy to maintain conservation areas in perpetuity;

(d) provide for delineation (fencing, bollards or similar) and interpretative signage at an early stage of the Development to prevent inadvertent access to the environmental areas during construction;

(e) focus on using local provenance where revegetation is planned;

(f) include a wide range of Cumberland Plain Woodland species to be planted; and

(g) ensure the welfare of fauna during construction.

Condition C76

The Applicant must:

(a) not commence construction until the VRMP is approved by the Planning Secretary; and

(b) implement the most recent version of the VRMP approved by the Planning Secretary for the duration of the Development.

Condition MM23

Construction Measures

- Mark clearing limits to further reduce clearing extents and to retain potential habitat and other ecologically significant features at the edges of the clearing limits wherever practicable;

- Limit vehicular and plant equipment access to this area during construction;

- Install temporary fencing to mark the limits of clearing and "nogo" areas; and

- Construction staff informed with regards to the status and location of protected areas during site induction and/or tool box talks.

Condition MM24

Where clearing of vegetation and fauna habitats will take place, preclearing and clearing protocols are recommended that include:

- Preparation of an inventory of trees and hollows to be removed, prior to clearing;

- Pre-clearance checks of hollow-bearing trees for the presence of bird nests and arboreal mammals, such as possums, gliders and bats, prior to felling;

- Safe removal of animals found to be occupying trees prior to the clearing of trees and their appropriate relocation into nearby woodlands; and

- Relocation of transportable features such as salvaged tree hollows, felled limber and large logs in the woodland areas to be retained to allow their continued use as fauna habitat.

Condition MM26

Erosion and sediment control plans will be implemented to mitigate the impact of soil disturbance and to prevent secondary or off-site impacts, particularly impacts on adjacent native vegetation along Reedy Creek.

Condition MM31

A Riparian Management Plan will be prepared and implemented to provide for the biodiversity improvement of the Reedy Creek riparian corridor through restoration and ongoing management. The Riparian Management Plan will include:

- Protection of the riparian corridor during construction;

- Restoration and ongoing management of riparian vegetation;

- Management of riparian vegetation as habitat for native wildlife;

- Feral animal management;

- Instructions for planting endemic species of local provenance

- Weed management;

- Reduction of sediment and nutrient delivery to waterways;

- In-stream erosion control;

- Fire management; and

- Monitoring and reporting protocols.

Mitigations and Control Measures

The VRMP identifies management actions for each of the zones which are summarised in the following table:

<table>
<tr><th rowspan="2">Zone</th><th rowspan="2">Objective</th><th colspan="4">Management Requirements</th></tr>
<tr><th>Weed Control</th><th>Revegetation</th><th>Erosion Control</th><th>Fencing</th></tr>
<tr><td>1</td><td rowspan="2">To restore and rehabilitate the degraded riparian zone and areas of significant vegetation; and

To reduce all priority weeds and environmental weeds, and prevent further incursion.</td><td rowspan="4">Priority and environmental weed cover is to significantly reduced.

Encroachment of weeds from the development site and neighbouring properties is to be prevented.</td><td>Revegetation of the mid-storey, shrub layer and ground layer is to be conducted within this zone, as the zone is highly degraded and the potential for unassisted natural regeneration is low. No canopy revegetation is required.

Native species representative of River-Flat Eucalypt Forest are to be planted to the following specifications:
• Mid-storey: 1 plant per 10m^2
• Ground layer: 4 plants per 1m^2.</td><td rowspan="4">Sediment fencing is to be installed and maintained where the riparian vegetation borders the proposed development site.

'Blue Book' (Landcom 2004) should be consulted to ensure any additional necessary erosion controls are adequately installed.</td><td rowspan="4">High visibility exclusion fencing and signage are to be installed where vegetation borders the proposed development site.

Any old fences within the zone that are not required are to be removed.</td></tr>
<tr><td>2</td><td>Revegetation of the canopy, mid-storey, shrub layer and ground layer is to be conducted within this zone, as the zone is highly degraded and natural regeneration is minimal. Canopy revegetation should focus on improving species diversity and focus on areas where gaps occur in the canopy.

Native species representative of River-Flat Eucalypt Forest are to be planted to the following specifications:
• Canopy: 1 plant per 50m^2 (where appropriate, and within canopy gaps).
• Mid-storey: 1 plant per 10m^2
• Ground layer: 4 plants per 1m^2.</td></tr>
<tr><td>3</td><td rowspan="2">To revegetate the degraded riparian zone; and</td></tr>
<tr><td>4</td><td>Revegetation of the shrub layer and ground layer is to be conducted within this zone, as the zone is highly degraded and natural regeneration is minimal. No canopy or mid-storey revegetation is to be conducted within this zone, as it is located within a powerline easement.</td></tr>
</table>

Biodiversity					EMP02
	To reduce all priority weeds and environmental weeds, and prevent further incursion.		Native species representative of River-Flat Eucalypt Forest are to be planted to the following specifications: • Shrub: 1 plant per 10m^2 • Ground layer: 4 plants per 1m^2.		

*Reference should also be made to the detailed Vegetation and Riparian Management Plan in **Appendix B**.*

Heritage and Archaeological Impacts	EMP03
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To minimise harm to heritage and archaeological items and ensure compliance with SSD-5248 conditions of consent (C70 – C73)

Background

Aboriginal Cultural Heritage Assessment (ACHA) was completed for the site (McCardle Cultural Heritage, 2020) which also includes the Aboriginal Cultural Heritage Management Plan (ACHMP) and forms **Appendix C**. The ACHA identified two highly disturbed surface sites and an area of potential archaeological sensitivity were located within the project area (as per the following figure).



Both WR1 and WR2 were low density artefact scatters that have been collected under the SSD and are no longer in the Project Area. The area of potential archaeological sensitivity was subject to test excavation and identified a background scatter of artefacts (representative of hunting and gathering activities). As these are well represented both locally and regionally and as such, protection/conservation was not required.

Statutory Requirements

All activities on site are to be conducted in accordance with the *Heritage Act 1977* and *National Parks and Wildlife Act 1974*.

Conditions of Approval

The following controls during construction are required to comply with development consent conditions:

Condition C70

Before the commencement of any clearing or construction works, the Applicant must prepare an Aboriginal Cultural Heritage Management Plan (ACHMP) for the Development to protect and manage 45-5-3684 0/VR 1 Prospect), WR2 and the area of archaeological sensitivity next to Reedy Creek to the satisfaction of the Planning Secretary. The ACHMP must form part of the CEMP required by Condition D2 and must:

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(a) be prepared by a suitably qualified and experienced expert in consultation with the Registered Aboriginal Parties;

(b) be submitted to the satisfaction of the Planning Secretary prior to construction of any part of the Development; and

(c) describe the measures to protect the Aboriginal artefacts in perpetuity.

Condition 71

The Applicant must:

(a) not commence construction until the ACHMP is approved by the Planning Secretary; and

(b) implement the most recent version of the ACHMP approved by the Planning Secretary for the duration of the Development.

Condition C72

If any item or object of Aboriginal heritage significance, or relic as defined by the Heritage Act 1977 (NSW) is identified on site:

(a) all work in the immediate vicinity of the suspected Aboriginal item, object or relic must cease immediately;

(b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and

(c) the Heritage Division of the Department of Premier and Cabinet (the former Heritage Division of the OEH) (or in relation to a relic, the Heritage Council) must be contacted immediately.

Condition C73

Work in the immediate vicinity of any suspected non-Aboriginal archaeological relic(s) must not recommence until this has been authorised by Heritage NSW.

Mitigations and Control Measures

During construction, protocols for the management of unexpected cultural heritage objects during construction are required in case something of significance is present. The following heritage management protocols must be implemented during the construction works:

- Aboriginal cultural heritage inductions for all personnel working on site before and during construction works; and
- Unexpected finds protocol (Aboriginal objects and human remains)

Inductions

Aboriginal cultural heritage inductions, (referred to as an Aboriginal Cultural Education Program) will form part of the overall Induction Package, will be required for all on-site personnel and contractors involved in the construction activities on site prior to any works within the project area.

This includes any ground disturbance works (including excavations and installation of utilities) that may have the potential to harm Aboriginal objects. As a minimum this induction will include:

- summary of the contents of the ACHMP;
- NSW and Commonwealth legislative requirements; and
- Statement explaining what cultural significance is.

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Heritage and Archaeological Impacts | EMP03

The below mitigations and control measures are consistent with those to be implemented for the site.

Aboriginal Heritage – Unexpected Finds

Should unexpected Aboriginal objects be uncovered during any stage of the development (including isolated artefacts, artefact scatters, scarred trees and hearths) the following procedures are to be implemented:

1. all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;
2. a 10 m wide buffer area around the suspected item or object must be cordoned off;
3. Heritage NSW must be contacted immediately; and
4. the heritage consultant contacted who will then implement further actions

This protocol is summarised as follows:



Non-Aboriginal Archaeology – Unexpected Finds

If any non-Aboriginal archaeological relics are uncovered during any works being carried out for the development:

1. all work in the immediate vicinity of the suspected relic(s) must cease immediately;
2. Heritage NSW must be contacted immediately; and
3. the suspected relic(s) must be evaluated, recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.

Discovery of human remains

Human skeletal remains are of the highest significance and importance to Aboriginal people, and all care, respect and dignity will be extended by all parties should human remains be uncovered.

Should any human remains or unidentifiable bone be found, work is to stop in that area immediately and an area of 15m cordoned off surrounding the remains/bone in high visibility fencing. The Land Manager is to be notified immediately.

*Reference should also be made to the detailed Aboriginal Cultural Heritage Management Plan in **Appendix C**.*

Noise and Vibration	EMP04
Responsibility:	Principal Contractor
Frequency:	Where activities are undertaken that may potentially cause noise or vibration Continuous
Objective:	To mitigate impacts of noise and vibration on adjoining land and ensure compliance with SSD-5248 conditions of consent (C59, C60, C62, C63, C65, and C67 – C69)

Background

A Construction Noise and Vibration Management Plan (Acoustic Logic, 2024) has been written for the entire site and forms **Appendix D**. This Plan:

- identified the nearest noise receptors
- quantified noise management levels and vibration criteria against adopted criteria
- provided recommendations and mitigation measures for activities that could cause noise and vibration impacts. This included recommendations for monitoring

The Construction Noise and Vibration Management Plan (CNVMP) identified that the nearest residential receivers are located south of the site with industrial receivers situated to the south and north, beyond the Sydney Water Supply Pipeline Easement.



Noise

The CNVMP identified the following noise criteria:

- For industrial receivers surrounding the subject site, a noise level of 75 dB(A) is allowed during recommended standard hours.
- For residential receivers surrounding the subject site, a noise level of 10 dB(A) above background level at these receivers is allowed during recommended standard hours with a highly noise affected management level of 75dB(A)Leq(15-min).
- If noise levels exceed the project specific noise management level at sensitive receiver locations, investigate and implement all practical and cost-effective techniques to limit noise emissions.

- If the noise management levels are still exceeded after applying all practical engineering controls to limit noise emissions investigate management controls and other techniques to mitigate noise emissions.

The noise management levels for the proposed excavation and construction activities are presented in the table below.

Noise Receiver Location	Management Level dB(A)$L_{eq\ (15\ min)}$
Residential Receivers (Receiver 1 to Receiver 3)	**Recommended Standard Hours** "Noise Affected" Level - 48 "Highly Noise Affected" Level – 75
Industrial Receivers (Receiver 4 & 5)	75

Vibration

Vibration caused by construction at any residence or structure outside the subject site must comply with the relevant standards.

Condition C101 requires confirmation from a Geotechnical Engineer that the proposed construction would not adversely affect the integrity of the Pipelines or stability of the embankments within the pipeline corridor.

The pipelines are approximately 40 – 50 metres from the northern Site boundary. The CNVMP identified that the proposed works are not anticipated to cause elevated vibration levels that will require specific mitigation measures beyond what is anticipated in the broader report.

The recommendations and mitigation measures from the CNVMP are summarised as follows and form the requirements of this EMP.

Statutory Requirements

All activities on site are to be conducted in accordance with the *Environmental Protection and Biodiversity Conservation Act 1999 (Cwth).*

The CNVMP considered relevant legislation and guidelines, including:

Noise

- *Protection of the Environment and Operations Act 1997 (NSW)*,
- Noise Policy for Industry (NSW EPA, 2017),
- Australian Standard 2436-1981 "Guide to Noise Control on Construction Maintenance and Demolition Site"
- *NSW Interim Construction Noise Guideline 2009*, Department of Environment and Climate Change (ICNG)

Vibration

- German Standard DIN 4150-3 Structural Vibration: Effects of Vibration on Structures;
- "Assessing Vibration: A Technical Guideline" (NSW EPA, 2006)
- British Standard BS 6472:1992 Guide to Evaluate Human Exposure to Vibration in Buildings

Conditions of Approval

Noise and vibration controls during construction are required to comply with the following development consent conditions:

Condition C59

The Development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures in the Appendix 6.

Condition C60

Prior to the commencement of construction, the Applicant must prepare a Construction Noise Management Plan (CNMP) for the Development to the satisfaction of the Planning Secretary. The CNMP must form part of a CEMP required by Condition D2 and must:

(a) be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;

(b) be approved by the Planning Secretary prior to the commencement of construction of each stage of the Development;

(c) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);

(d) describe the measures to be implemented lo manage high noise generating works such as piling, in close proximity to sensitive receivers;

(e) include strategies that have been developed with the community for managing high noise generating works;

(f) describe the community consultation undertaken to develop the strategies in (e); and

(g) include a complaints management system that would be implemented for the duration of construction.

Condition C62

The Applicant must ensure the Development does not exceed noise limits in Table 6 below or the project specific noise trigger levels determined by a noise verification required by condition A13A, whichever is lower, at the receivers shown in Figure 6 in Appendix 5:

Table 6: Noise Limits db(A)

Location	Day $L_{Aeq(15\ minute)}$	Evening $L_{Aeq(15\ minute)}$	Night $L_{Aeq(15\ minute)}$	Night L_{Amax}
Residential receivers	48	43	38	52
Industrial development to the south	51	51	51	

Condition C63

The Applicant must:

(a) complete the noise wall along the southern boundary of the site shown in Figure 6 in Appendix 5 within six (6) months of commencing any construction including bulk earthworks.

(b) consider the use of noise absorptive material in the construction of the noise wall; and

(c) ensure that the design of the noise wall is endorsed by a suitably qualified and experienced noise expert.

Noise and Vibration	EMP04

Condition C65

The Applicant shall:

(a) implement best management practice, including all reasonable and feasible measures to prevent and minimise noise and vibration during construction and operation of the Development (including low frequency noise and traffic noise);

(b) minimise the noise impacts of the Development during adverse meteorological conditions;

(c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; and

(d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.

Condition C67

Vibration caused by construction at any residence or structure outside the site must be limited to:

(a) for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and

(b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).

Condition C68

Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C67.

Condition C69

The limits in conditions C67 and C68 apply unless otherwise outlined in a CNMP, approved as part of the CEMP required by condition D2 of this consent.

Mitigations and Control Measures – Noise

- No hydraulic hammering is allowed within the project site.
- Although the Construction noise generated is within the acceptable guidelines, a 3m high acoustic barrier will be established in accordance with Condition C63 of the SSD 5248 Consent.
- Majority of excavation is to be done using Bull Dozers with Scrapers.
- Stationed equipment shall be located as far as possible from residences as practicable and are to be screened by an enclosure.
- Vehicle Noise:
    - Truck movements should not commence prior to 7am.
    - Trucks must turn off their engines during idling to reduce impacts on nearby residential receivers (unless truck ignition needs to remain on during concrete pumping).
    - Avoid careless dropping of construction materials into empty trucks.
    - Equipment shall be well maintained.
- Hand tools would only be typically used sporadically.
- After verified complaint, the use of hand-held jackhammers, grinders, and electric saws should be screened from surrounding receiver locations with localised acoustic barriers such as an Eco Barrier or plywood hoarding fixed to temporary fencing.
- Long term and short-term noise monitoring programmes are recommended to support the noise management systems of the construction work. This programme should consider:
    - Minimum two real time noise monitors should be setup along southern boundary of the project site. Detailed monitor locations should follow the major construction machines. It is recommended to carryout 1-week ambient noise monitoring before commencement of the construction work. The real time noise monitors are with camera to record the major picture of noise source if possible. Noise exceedance will be studied, and management action will be followed once the alarm message is received.
    - The monitoring report should be provided every fortnight to summarise the findings.
- Silencing Devices - Where construction process or appliances are noisy, the use of silencing devices may be possible. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts.
- Material Handling - The installation of rubber matting over material handling areas can reduce the sound of impacts due to material being dropped by up to 20dB(A).
- Treatment of Specific Equipment - In certain cases, it may be possible to specially treat a piece of equipment to reduce the sound levels emitted. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts.
- Establishment of Site Practices - This involves the formulation of work practices to reduce noise generation. This includes locating fixed plant items as far as possible from residents as well as rotating plant and equipment to provide respite to receivers. Construction vehicles accessing the site should not queue in residential streets and should only use the designated construction vehicle routes. Loading of these vehicles should occur as far as possible from any sensitive receiver.
- Community Consultation and Complaints Management - Real time noise monitoring data should be checked immediately after receiving complaint and determine the major noise source /activities based on the recorded noise level and pictures.

Noise and Vibration	EMP04

General noise management measures

- Acoustic barrier – barriers can be located at either the noise source or receiver and is most effective for static plant. Consideration should be made for use of acoustic barriers to reduce identified potential noise impacts to sensitive receivers.
- Silencing devices – where construction process or appliances are noisy, the use of silencing devices may be possible. These may take the form of engine shrouding or special industrial silencers fitted to exhausts
- Material handling – the installation of rubber matting over material handling areas should be considered and can reduce the sound of impacts due to material being dropped by up to 20 dB(A).
- Treatment of specific equipment – consideration should be made to specially treat equipment to reduce the sound levels emitted where possible or necessary. These may take the form of engine shrouding or special industrial silencers fitted to exhausts.
- Construction vehicles accessing the site should not queue in residential streets and should only use the designated construction vehicle routes, loading of vehicles should occur as far as possible from any sensitive receiver.
- Site practices should be established to reduce impacts to sensitive receivers, including locating fixed plant as far as possible from residents, and rotating plant and equipment to provide respite to receivers.
- Noise monitoring - In the event that complaints are made from neighbouring properties regarding noise impacts from the site, noise monitors will be installed at the property boundaries of the neighbouring properties nearest to the site to monitor noise levels. Noise data will be processed and presented with reference to the site noise management levels and provided to the client on a fortnightly basis for any monitoring undertaken.

Mitigations and Control Measures – Vibration

- In consultation with Water NSW, Gazcorp has been consulted with and have entered into a Construction Licence Deed (as executed on 15 November 2022) to undertake the works. Which includes the following requirements:
    - Undertaking of Dilapidation Surveys of the pipelines to the satisfaction of Water NSW,
    - Relevant Insurance policies in place.
    - Bank Guarantees for the performance of the Licence Deed
- Conduct vibration monitoring – even though vibration levels are significantly lower than the criteria specified by Water NSW, it is recommended that vibration monitors are installed close to the Warragamba Dam Pipeline before commencement of excavation work. The monitor should be with SMS system to send alarm message once the measured vibration exceeds the trigger level (recommended alarm trigger level of 2.5mm/s PPV).

Where non-compliances or noise complaints are raised, the following methodology will be implemented:

- Determine the offending plant/ equipment/ process
- Relocate the plant/ equipment/ process further away from the affected receiver(s) if possible
- Implement additional acoustic treatment in the form of localised barriers, silencers etc where practical
- Select alternative equipment/ process where practical
- If necessary, set up noise and vibration monitoring devices at locations representing the nearest noise/ vibration affected receivers and provide data for each complaint time period. Analysis would then be required to determine suitable mitigation measures.

*Reference should also be made to the detailed Construction Noise and Vibration Management Plan in **Appendix D**.*

Traffic	EMP05
Responsibility:	Principal Contractor
Frequency:	Heavy vehicle movements as generated by site works
Objective:	To minimise impacts on local road network and ensure compliance with SSD-5248 conditions of consent (B4, B6, C31, C66 and MM3)

Background

A Construction Traffic Management Plan (Ason Group, 2024) has been written for the site and is presented in **Appendix E**. This Construction Traffic Management Plan (CTMP) includes details of:

- Proposed staging of the works and access to the site via temporary or newly constructed entrances
- Traffic management plans
- Drivers code of conduct
- Transport impact assessment
- Plan administration including monitoring program, contingency plan and communications strategy.

The primary construction access is from the temporary access to be constructed from Wallgrove Road (approximate location of "Estate Road 03" in the following figure). It is assumed that the temporary access would be utilised for the entirety of the Site's construction or until the signalised intersection becomes operational as the site is developed (approximate location of "Estate Road 01" in the following figure).



The anticipated daily vehicle movements generated by the construction of the Estate have been estimated having consideration of the likely requirements for construction staff, plant, equipment, and haulage.

Traffic EMP05

From the CTMP, the estimated construction volumes are as follows:

Phase	Stage	Expected Movements per Day	
		Light Vehicles	Heavy Vehicles
Phase 1 (Temporary Access)	Stage 1	130	166
Phase 2 (Signalised Access)	Stage 1 (Continued)	50	20
	Stage 2	30	26
	Stage 3	34	50
	Stage 4	28	40
	Stage 5	88	110
	Stage 6	180	156
	Stage 7	64	76

It has been determined that the highest peak of construction traffic occurs during the overlap between Stages 1A, 1B, 1C and the construction volume of the signalised intersection.

Statutory requirements

All operations on site are to be conducted in accordance with the *Roads Act 1993 (NSW)*.

Conditions of approval

The following controls during construction are required to comply with development consent conditions:

Condition B4

Future development applications must be accompanied by a detailed assessment of the traffic and transport impacts on the surrounding road network and intersection capacity and must:

(a) Include detailed provisions of loading/unloading and access arrangement;

(b) demonstrate that sufficient car parking has been provided in accordance with the car parking rates approved under Condition B5 below, and details to promote non-car travel modes;

(c) have specific regard to the scope and timing of road infrastructure works in the surrounding road network; and

(d) verify that the development is generally consistent with the traffic volumes for the Concept Proposal.

(e) demonstrate the layout, spacing and position of all access points to the estate road network would:

i. minimise road safety risks, including consideration of cumulative impacts associated with the approved Concept Plan road and access layouts and minimise potential conflicts with other driveways within the Concept Plan;

ii. include adequate sight distances for all turning movements;

iii. accommodate the turning path of the largest vehicles accessing the site to minimise the risk of conflict with other vehicles on the estate road network; and

iv. minimise congestion and queuing on the estate road network.

(f) detail measures to minimise road safety risks and congestion including but not limited to:

i. consolidation of access points to reduce the number of driveways in close proximity to each other;

ii. line marking, warning signage and parking restrictions;

iii. restricted turning movements, such as left-in left-out restrictions; and

iv. installation of traffic controls.

Condition B6

To ensure that potential conflicts between heavy vehicles and light vehicles are minimised, future development applications must include details demonstrating satisfactory arrangements have been made to separate heavy and light vehicle movements.

Condition C31

Prior to the commencement of construction, the Applicant must prepare a Construction Traffic Management Plan (CTMP) for the Development to the satisfaction of the Planning Secretary. The CTMP must form part of the CEMP required by Condition D2 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with Council and TfNSW;

(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;

(d) detail heavy vehicle routes, access and parking arrangements;

(e) detail predicted daily and peak hour construction vehicle movements, types and routes;

(f) detail traffic and pedestrian management methods;

(g) provide the estimated duration and staging of construction works;

(h) detail the access and parking arrangements for construction vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;

(i) (provide measures to ensure the unhindered movement of authorised vehicles to the Warragamba to Prospect Pipeline;

(j) include a Driver Code of Conduct to;

i. minimise the impacts of earthworks and construction on the local and regional road network;

ii. minimise conflicts with other road users;

iii. minimise road traffic noise; and

iv. ensure truck drivers use specified routes;

(k) include a program to monitor the effectiveness of these measures; and

(l) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

Traffic	EMP05

Condition C66

Prior to the commencement of construction, the Applicant must prepare a Driver Code of Conduct and induction training for the Development to minimise road traffic noise. The Applicant must update the Driver Code of Conduct and induction training for construction and operation and must implement the Code of Conduct for the life of the Development.

Condition MM3

A Traffic Construction Management Plan is to be prepared and recommendations are to be implemented for the Stage 1 construction works.

Mitigations and control measures

- A left in / left out access point (to/from Wallgrove Road) will be provided for the construction works which is located at the eastern boundary of the Estate site. This will be active till the signalised intersection at the north east corner is operational.
- It is expected that future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 200 HV movements (100 in, 100 out) per day. In preparing relevant details VMPs, the contractor should:
  - Minimise interaction with other work areas, as far as possible.
  - Where possible, separate heavy vehicle movements from contractor car parking areas
  - Prepare Traffic Control Plans where necessary to provide additional management of on-site vehicle movements.
- Parking zones will be nominated on site by the Contractor. These are not to obstruct vehicle manoeuvre routes.
- Handling of all materials throughout the construction shall adhere to the following:
  - It is proposed that all material loading will occur within the construction site boundary.
  - No loading is proposed to occur outside of the provisioned areas.
  - Equipment, materials and waste will be kept within the construction site boundary.
- Drivers Code of Conduct will be implemented and must comply with all of the following:
  - Demonstrate safe driving and road safety activities.
  - Abide by traffic, road and environmental legislations.
  - Follow site signage and instructions.
  - Drivers must only enter and exit the Estate via the approved entry and exit points and travel routes.
  - Drivers must not utilise any other road or other accesses for any reason other than the temporary access on Wallgrove Road while travelling to or from the Estate noting internal roads have not yet been constructed
- Breach of conduct and removal from site will happen if any of the following occur:
  - Reckless or dangerous driving causing injury or death.
  - Driving whilst disqualified or not correctly licensed.
  - Drinking or being under the influence of drugs while driving
  - Failing to stop after an incident.
  - Loss of demerit points leading to suspension of licence.
  - Any actions that warrant the suspension of a licence
  - Exceeding the speed limit in place on any permanent or temporary roads
  - The use of roads other than the temporary access on Wallgrove Road to arrive and depart from the site to access the wider road network
- The contractor is responsible to ensure all company vehicles are safe and used in a safe manner by:

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Traffic	EMP05

- Ensure that all drivers adhere to the designated heavy vehicle routes as required by the route designated above. If a driver accesses the Estate contrary to the approved routes, then approval to drive to and from the Estate will be revoked by Management.
- Ensuring all vehicles are well maintained and that the equipment enhances driver, operator and passenger safety by way of:
  - Pre-commencement checks for all new plant arriving on-site and prior to undertaking any work.
  - Daily prestart inspections for all plant, vehicles and equipment currently on-site.
  - All construction plant must be fitted with a flashing light, fire extinguisher and reverse alarms (or squawkers).
  - Ensure all operators onsite have a current verification of competency (VOC) for their current driver's licence of the appropriate class.
- Ensure maintenance requirements are met and recorded.
- Identify driver training needs and arranging appropriate training or re-training.
- Encouraging Safe Driving behaviour by:
  - Ensuring the subcontractor is informed if their staff become unlicensed.
  - Not covering or reimbursing staff speeding or other infringement notices.
  - Ensuring Legal use of mobile phones in vehicles while driving only
- Encouraging better fuel efficiency by:
  - use of other transport modes or remote conferencing, whenever practical.
  - Providing training on, and circulating information about, travel planning and efficient driving habits

- With regards to environmental performance, the following shall be implemented:
  - No dirt or debris from the construction vehicles is tracked on to the public road network.
  - Reduce the impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;
  - Watering of dusty activities will be undertaken, or activities temporarily halted and then resumed once weather conditions have improved;
  - Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main Project work areas;
  - All vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria, and
  - Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.

*Reference should also be made to the detailed Construction Traffic Management Plan in **Appendix E**.*

Erosion and Sediment Control	EMP06
Responsibility:	Principal Contractor
Frequency:	Disturbance of soils or storage of exposed soils
Objective:	To minimise potential of sediment generation and migration to ensure compliance with SSD-5248 conditions of consent (C45, MM26, MM27, MM28 and MM40)

Background

A Sediment and Erosion Plan has been produced for the Stage 1 construction works as follows:

- overall site (Orion Consulting, 2022)
- Lot 10 (AT&L, 2024)

These plans provide designs and procedures of sediment control devices and form **Appendix F**.

Conditions of Approval

The following controls during construction are required to comply with development consent conditions:

Condition C45

Prior to the commencement of any construction or other surface disturbance, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by Condition D2.

Condition MM26

Erosion and sediment control plans will be implemented to mitigate the impact of soil disturbance and to prevent secondary or off-site impacts, particularly impacts on adjacent native vegetation along Reedy Creek.

Condition MM27

Stockpiles of overburden will be managed to limit unintended soil movement away from designated compound areas into adjacent woodland.

Condition MM28

All work sites will be constructed and managed in accordance with 'Managing Urban Stormwater: Soils and Construction' (Landcom,2004, "Blue Book").

Condition MM40

Erosion control measures will be implemented on the banks of Reedy Creek with consideration of the nature of the underlying soil and its susceptibility to scour.

Mitigations and Control Measures

This includes the following main aspects:

- Sediment fence around the entire site (as well as adjacent to internal roads when these have been constructed)
- Use of straw bale filters within the northern, south-eastern and south-western borders of the site
- Diversion swales on the western, south-eastern and north-eastern areas of the site to direct water into three sediment basins.
- Stabilised site access on the southern portion of the eastern boundary.
- Geotextile filters for constructed inlet drains

Erosion and Sediment Control | EMP06

The Sediment and Erosion Plan requires the following to be implemented during the works:

General

- All erosion and sediment control measures, including revegetation and storage of soil and topsoil, shall be implemented to the requirements of the "Environment Protection Authority" and "Dept of Land and Water Conservation". Measures outlined in the Sediment & Erosion Control Plan must be implemented prior to and maintained during and after the construction works.
- Topsoil from all areas to be disturbed shall be stockpiled and later respread to aid revegetation in those areas.
- All drainage works shall be constructed and stabilised as early as possible during development.
- All tail-out drains shall be grassed and trapezoidal in section. Sediment control device (e.g. fencing, coir logs or straw bales) shall be placed where required.
- Vehicular traffic shall be controlled during development confining access where possible to proposed or existing road alignments. Areas to be left undisturbed shall be marked off.
- Disturbance of vegetation shall be limited to fill areas, roadways and drainage lines. No lot grading shall be carried out in undisturbed areas without consultation with council's engineer.
- All disturbed areas shall be revegetated within 14 working days from the conclusion of land shaping.
- Minimise dust by watering when required.

Stockpiling

- Spoil and topsoil stockpiles shall be located more than 2 metres away from drainage lines and areas where water may concentrate.
- If stockpiles are to be in place for longer than 14 days then they shall be stabilised by covering with a mulch, temporary vegetation, geofabric or polymer binder.
- Following construction, topsoil shall be respread to a minimum depth of 100mm on the bare soil surfaces and revegetate.
- Where sufficient area, stockpiles to be (max) 2m high and protected with silt fence.

Sedimentation Control Devices

- All straw bales shall be bound with wire. Straw bales shall be placed end to end in a single row and embedded into the soil to a depth of 100mm. Each bale shall be securely anchored with two steel stakes driven 450mm into the ground and located on the bale centre line.
- Silt fences shall be constructed by stretching a filter fabric (propex or similar) between posts at a maximum of 2.5 m between centres. Fabric shall be buried 150mm along its lower edge.

Special Notes

- Location and extent of soil and water management devices is diagrammatic only and the actual requirements shall be confirmed on site.
- This plan is to be read in conjunction with the guidelines set out in "Managing Urban Stormwater Soils and Construction" -4th Edition and the accompanying road and drainage plans.
- Conformity with this plan shall in no way reduce the responsibility of the contractor to protect against water damage during the course of the contract.
- Management devices shall be maintained on a regular basis. Where cleaning is required, the sediment shall be removed to a point nominated by the engineer.
- Prior to the commencement of any earthworks, and after the road centrelines have been pegged and/or permanently marked, the site must be inspected by council's representative and the applicant's representative to identify and appropriately mark:

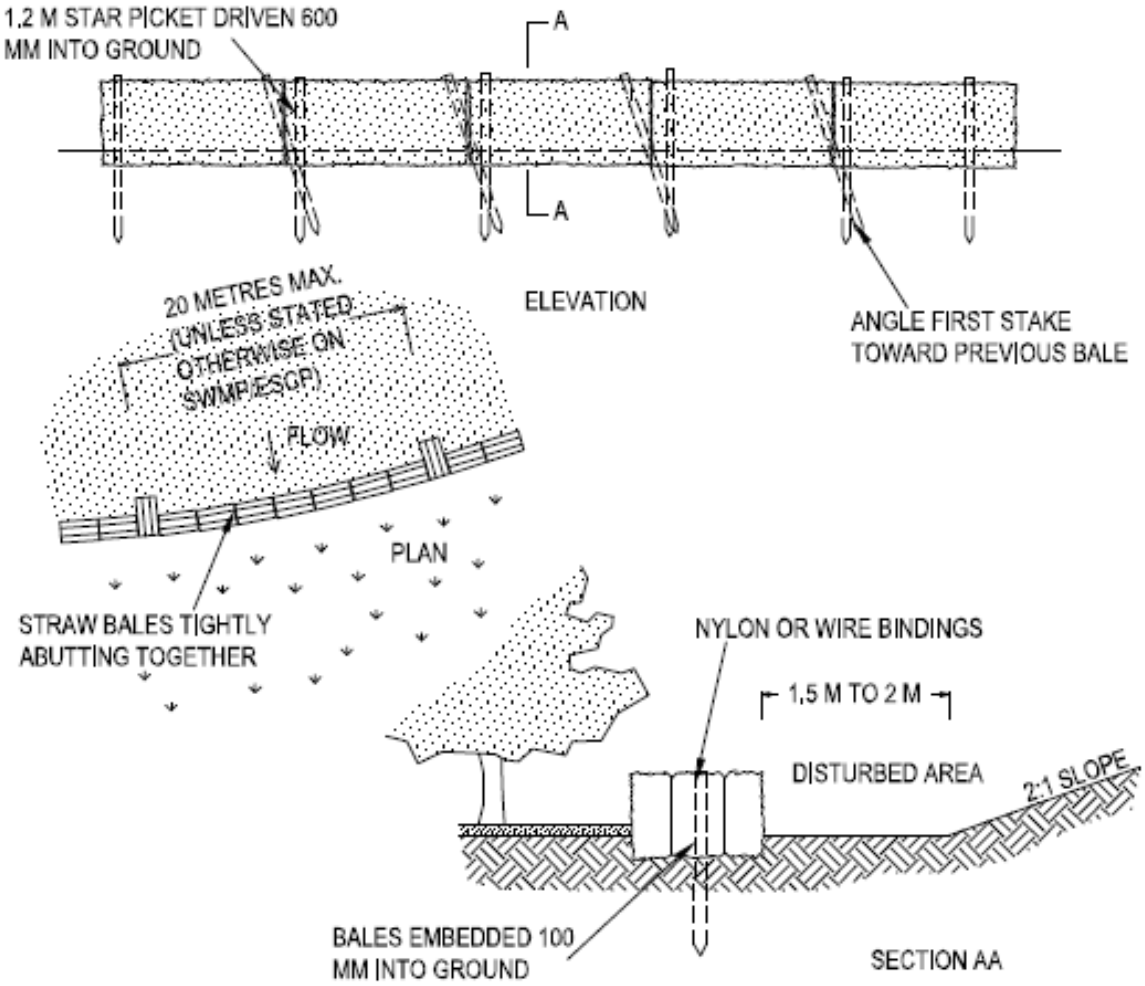
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- The trees to be retained.
- All trees to be left undisturbed and cordoned off.
- No trees shall be removed without council's clearance.
- Management devices to remain until the end of the maintenance period.

The following figures provide the details of the sediment control devices to be used at the site.

*Reference should also be made to the detailed Erosion and Sediment Control Plans in **Appendix F**.*

EMP06-Figure 1: Straw Bale Filter

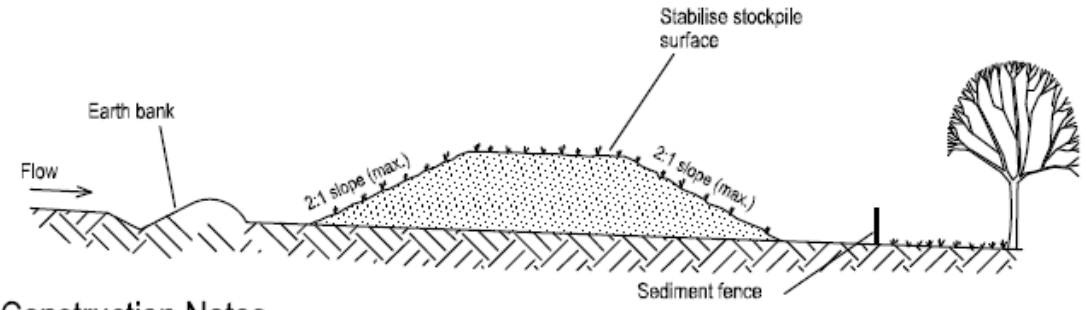


CONSTRUCTION NOTES:

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE,
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE,DRIVE THEM 600 mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS,
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

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EMP06-Figure 2: Stockpiles

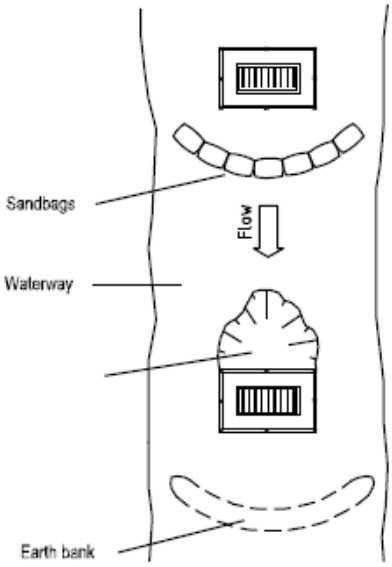


Construction Notes

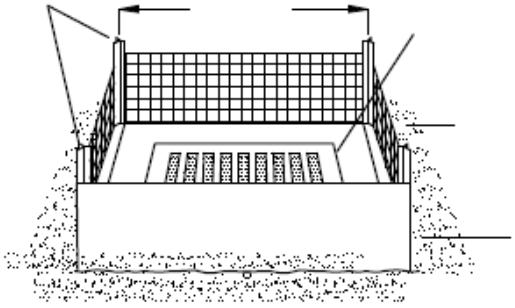
1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

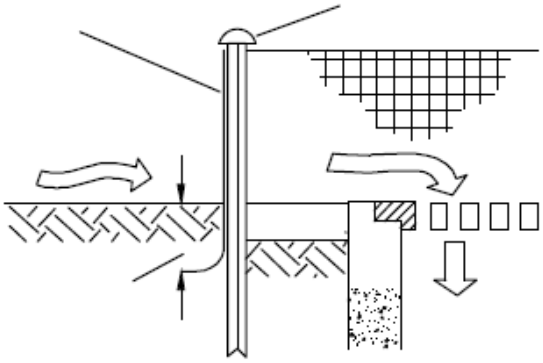
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EMP06- Figure 3 – Geotextile Inlet Filter



For drop inlets at non-sag points, sandbags, earth bank or excavation used to create artificial sag point



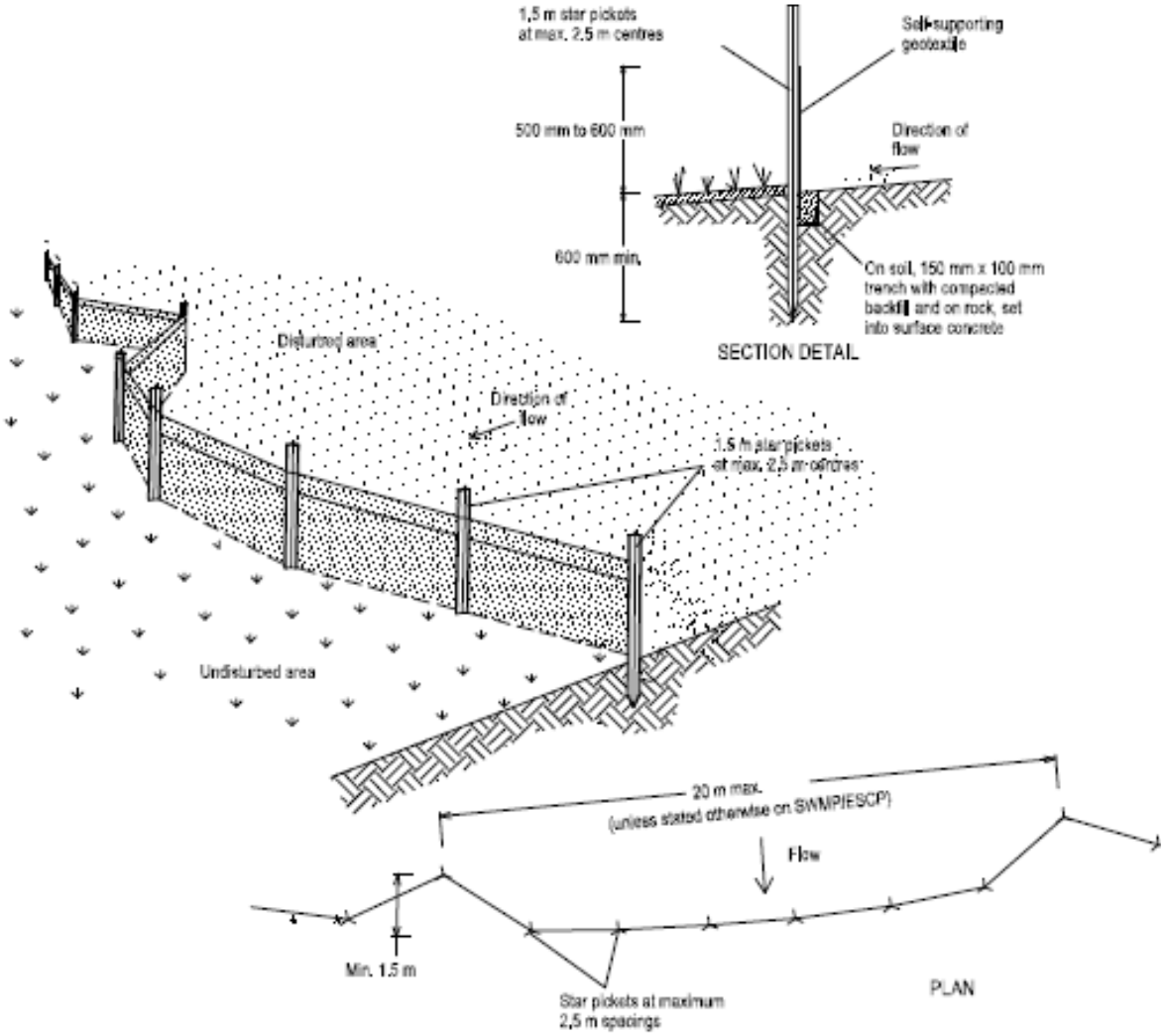


Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-8 for installation procedures for geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

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EMP06-Figure 4: Sediment Fences

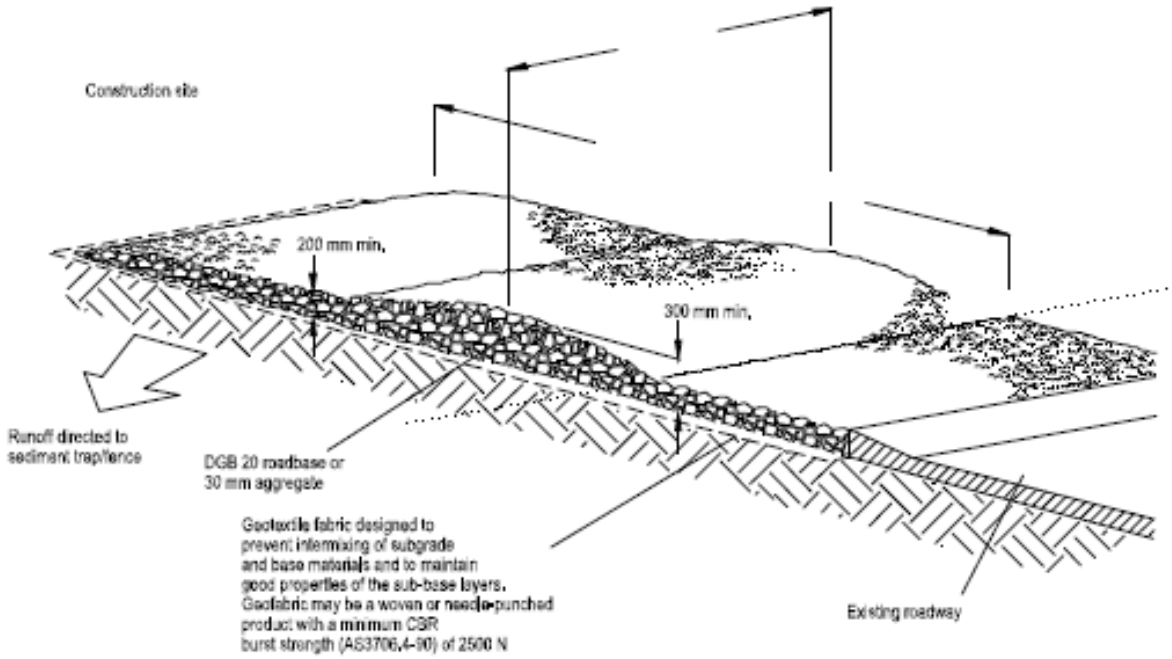


Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

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EMP06-Figure 5: Stabilised Site Access

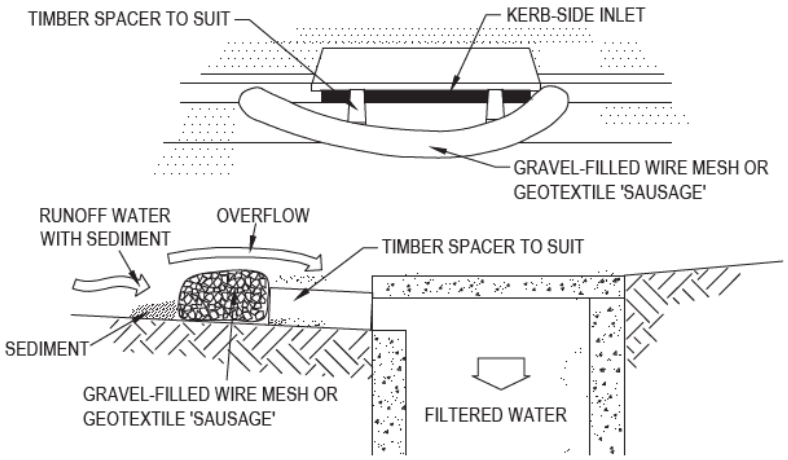


Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200 mm thick pad over the geotextile using road base or 30 mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

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EMP06-Figure 6: Mesh and gravel inlet filter



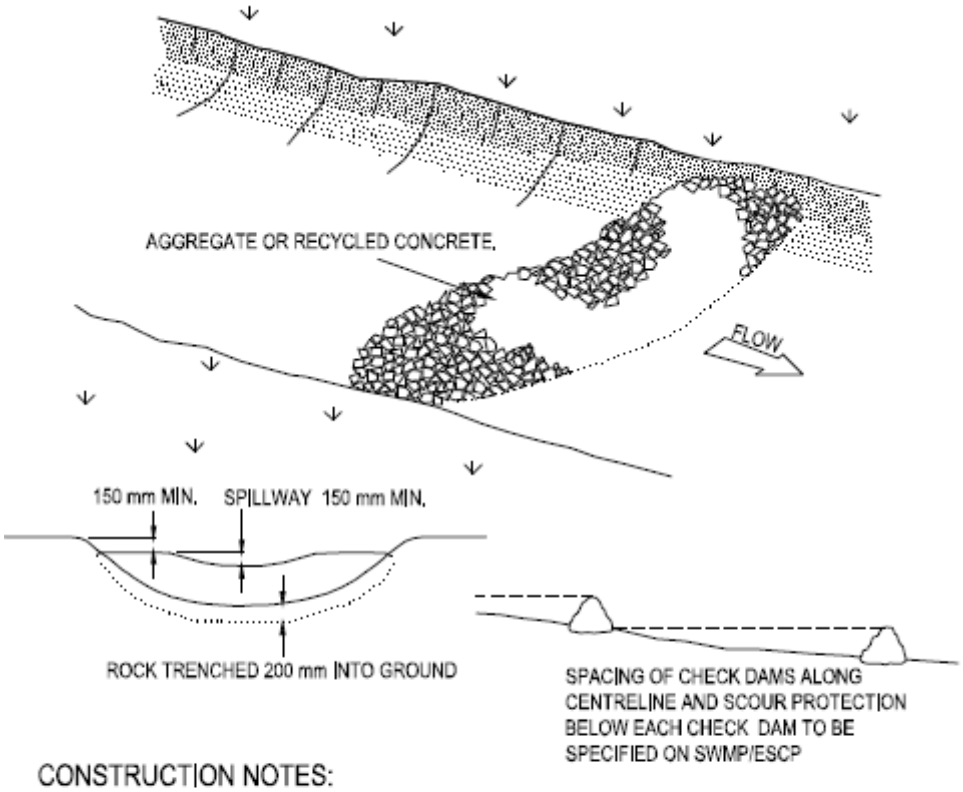
NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES:

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

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EMP06-Figure 7: Rock Check Dam



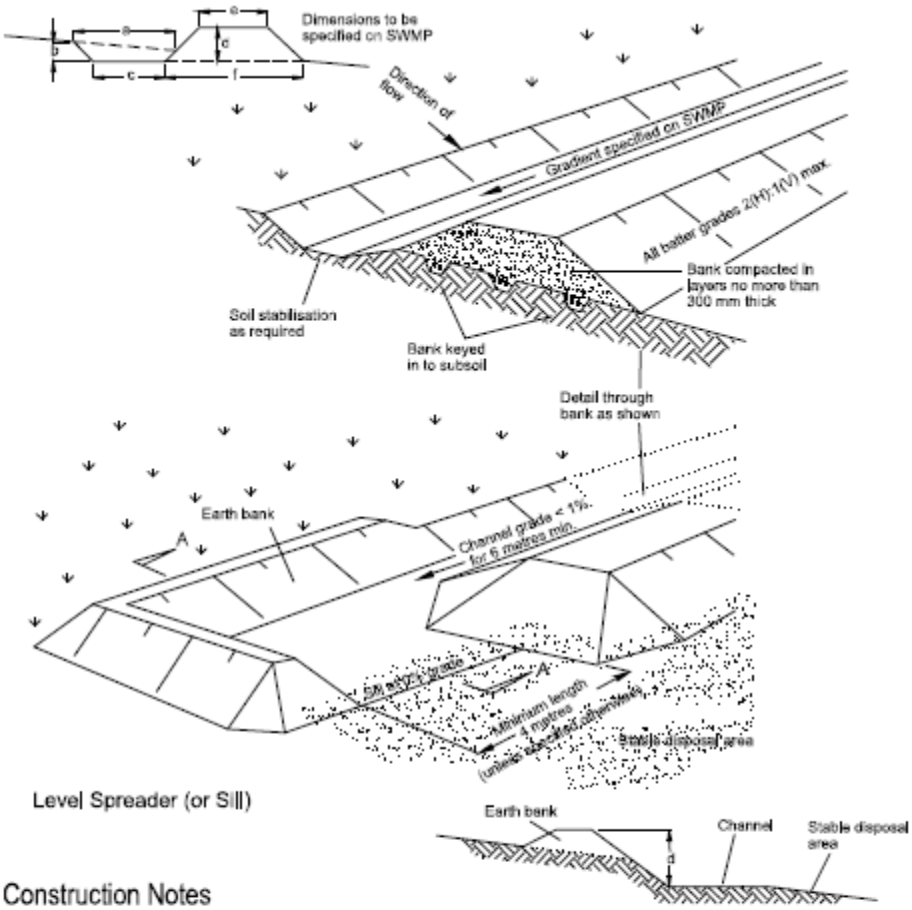
CONSTRUCTION NOTES:

1. CHECK DAMS CAN BE BUILT WITH VARIOUS MATERIALS, INCLUDING ROCKS, LOGS, SANDBAGS AND STRAW BALES. THE MAINTENANCE PROGRAM SHOULD ENSURE THEIR INTEGRITY IS RETAINED, ESPECIALLY WHERE CONSTRUCTED WITH STRAW BALES. IN THE CASE OF BALES, THIS MIGHT REQUIRE THEIR REPLACEMENT EACH TWO TO FOUR MONTHS.
2. TRENCH THE CHECK DAM 200 mm INTO THE GROUND ACROSS ITS WHOLE WIDTH. WHERE ROCK IS USED, FILL THE TRENCHES TO AT LEAST 100 MM ABOVE THE GROUND SURFACE TO REDUCE THE RISK OF UNDERCUTTING.
3. NORMALLY, THEIR MAXIMUM HEIGHT SHOULD NOT EXCEED 600 mm ABOVE THE GULLY FLOOR. THE CENTRE SHOULD ACT AS A SPILLWAY, BEING AT LEAST 150 mm LOWER THAN THE OUTER EDGES.
4. SPACE THE DAMS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM.

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EMP06-Figure 8: Earth Banks (High Flow)

High Flow



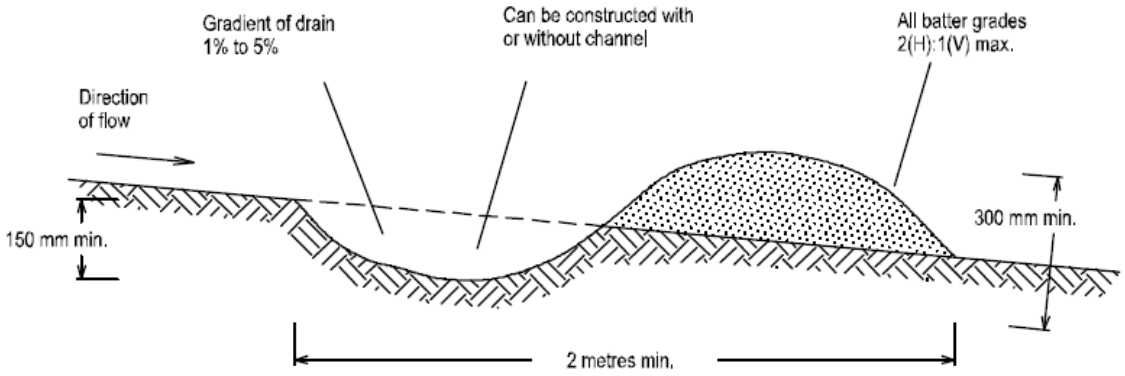
Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

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EMP06-Figure 9: Earth Banks (Low Flow)

Low Flow



NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

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Waste Management	EMP07
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To minimise the amount of waste generated during construction and ensure compliance with SSD-5248 conditions of consent (C89 – C91 and B58)

Background

The demolition and construction activities are anticipated to generate the following broad waste streams:

- Construction waste;
- Packaging waste; and
- Work compound waste from on-site employees.

Statutory requirements

All operations on site are to be conducted in accordance with the:

- NSW EPA Resource Recovery Orders and Resource Recovery Exemptions
- NSW EPA's Waste Classification Guidelines 2014
- *Protection of the Environment Operations Act* (POEO) 1997 and Amendment Act 2011, and
- Waste Avoidance and Resource Recovery Act 2001.

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition C89

All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

Condition C90

The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) and dispose of all wastes to a facility that may lawfully accept the waste.

Condition C91

Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal.

Condition B58

Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.

Waste Management | EMP07

Mitigations and Control Measures

The good waste practices on site should consider the following:

Waste Avoidance Strategies

Effective management of materials and construction and demolition waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only waste that cannot be cost effectively reused or recycled will be sent to landfill or appropriate disposal facilities.

- Applying practical building designs and construction techniques
- Minimising excavation works
- Investigating leased equipment and machinery rather than purchase and disposal
- Sorting and segregating site preparation and construction wastes to ensure efficient recycling of wastes
- Preferentially selecting building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Store wastes on-site appropriately to prevent cross-contamination and/or mixing of different waste types
- Reducing packaging waste by:
  - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
  - Purchasing in bulk
  - Requesting cardboard or metal drums rather than plastics
  - Requesting metal straps rather than shrink wrap, and
  - Using returnable packaging such as pallets and reels
- Arranging deliveries 'as needed' to mitigate degradation, weathering or moisture damage, and
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures

Re-use, Recycling and Disposal

- On-site source separation to ensure efficient recycling
- Concrete, tiles and bricks reused or recycled off-site
- Steel recycled off-site, and all other metals recycled where economically viable
- Framing timber recycled off-site
- Windows, doors and joinery off-site, where possible
- All glass that can be economically recycled will be recycled
- All solid waste timber, brick, concrete, rock that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner
- Re-use of materials on-site where possible
- Separate waste bins for recyclable and non-recyclable general wastes
- Assess excavation spoil for contamination status and beneficial re-use
- Retain used crates for storage purposes unless damaged
- Recycle cardboard, glass and metal wastes
- Provide sufficient space for storage of garden waste and other waste materials on-site
- Dispose of all asbestos, hazardous and/or intractable wastes in accordance with SafeWork NSW and NSW EPA requirements
- All used crates will be stored for reuse unless damaged
- Deliver batteries to drop off-site recycling facility, and
- Where source separation is utilised, materials are to be kept uncontaminated to guarantee the highest possible re-use value.

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Waste Management | EMP07

Waste Separation and Storage

It is anticipated that there will be enough space on-site for separate storage in, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full separation of waste types, the site manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled before removal from the site.

Waste Storage Areas

In accordance with good practice waste management, areas designated for waste storage will:

- Allow unimpeded access by site personnel and waste disposal contractors
- Take into account environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation
- Allow sufficient space for the storage of garden waste and other waste materials on-site
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety and accessibility in their selection, and
- Not present hazards to human health or the environment.

Contaminated Waste

- All asbestos and other hazardous waste must be handled according to appropriate legislation and regulation including the Work Health and Safety Regulation 2011 and disposed of in accordance with the SafeWork NSW and relevant EPA requirements.

Signage

- Standard signage will be posted in all waste storage and collection areas. All waste containers will be labelled correctly and clearly to identify stored materials.

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Stockpiling	EMP08
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To ensure appropriate management of stockpiles on site during construction and ensure compliance with SSD-5248 conditions of consent (C55 and MM27)

Background

Stockpiles are to be managed to ensure that clean and contaminated soils are kept separate as well as potential dust is mitigated.

Conditions of Approval

Controls during construction are required to comply with the following development consent conditions:

Condition C55

During construction, the Applicant must ensure that:

(a) exposed surfaces and stockpiles are suppressed by regular watering;

(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

Condition MM27

Stockpiles of overburden will be managed to limit unintended soil movement away from designated compound areas into adjacent woodland.

Mitigations and Control Measures

As per **EMP06 Sediment and Erosion Control**, for stockpiles the following procedures are to be implemented:

- Spoil and topsoil stockpiles shall be located minimum of 2 metres away from drainage lines and areas where water may concentrate.
- If stockpiles are to be in place for longer than 14 days then they shall be stabilised by covering with a mulch, temporary vegetation, geofabric or polymer binder.
- Following construction, topsoil shall be respread to a minimum depth of 100mm on the bare soil surfaces and revegetate.
- All stockpiles to be (max) 2m high and protected with silt fence.

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Soil and Contamination	EMP09
Responsibility:	Principal Contractor
Frequency:	On identification of unanticipated site conditions
Objective:	To ensure appropriate management of contaminated soil on site during construction and ensure compliance with SSD-5248 conditions of consent (B27, C93 and MM33)

Background

Contaminated soil is to be managed to ensure it is appropriately disposed of and areas not cross contaminated.

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition B27

The Applicant must:

(a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site;

(b) keep accurate records of the volume and type of fill to be used; and

(c) make these records available to the Planning Secretary upon request.

Condition C93

Prior to the commencement of earthworks, the Applicant must prepare an Unexpected Contamination Procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the of the CEMP in accordance with Condition D2 and must ensure any material identified as contaminated must be disposed offsite, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the site.

Condition MM33

An Unexpected Finds Protocol (UFP) will be established for site development, including set procedures in the event that asbestos or chemical contaminated soil is encountered during excavations.

Mitigations and Control Measures

There remains the possibility that additional hazards including contaminated soil may be identified during soil movement works. Sources of these could include:

- Contaminated imported soil.
- Contaminated soil from fly tipping, previous use of low-quality fill or poor demolition practices.
- Redundant services that have not previously been located or identified on “dial before you dig” searches.
- Demolition of existing structures (including buildings and utilities)

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned substances (or any other unexpected potentially hazardous substance) be identified during earthworks, the unexpected finds protocol (UFP) shall be implemented.

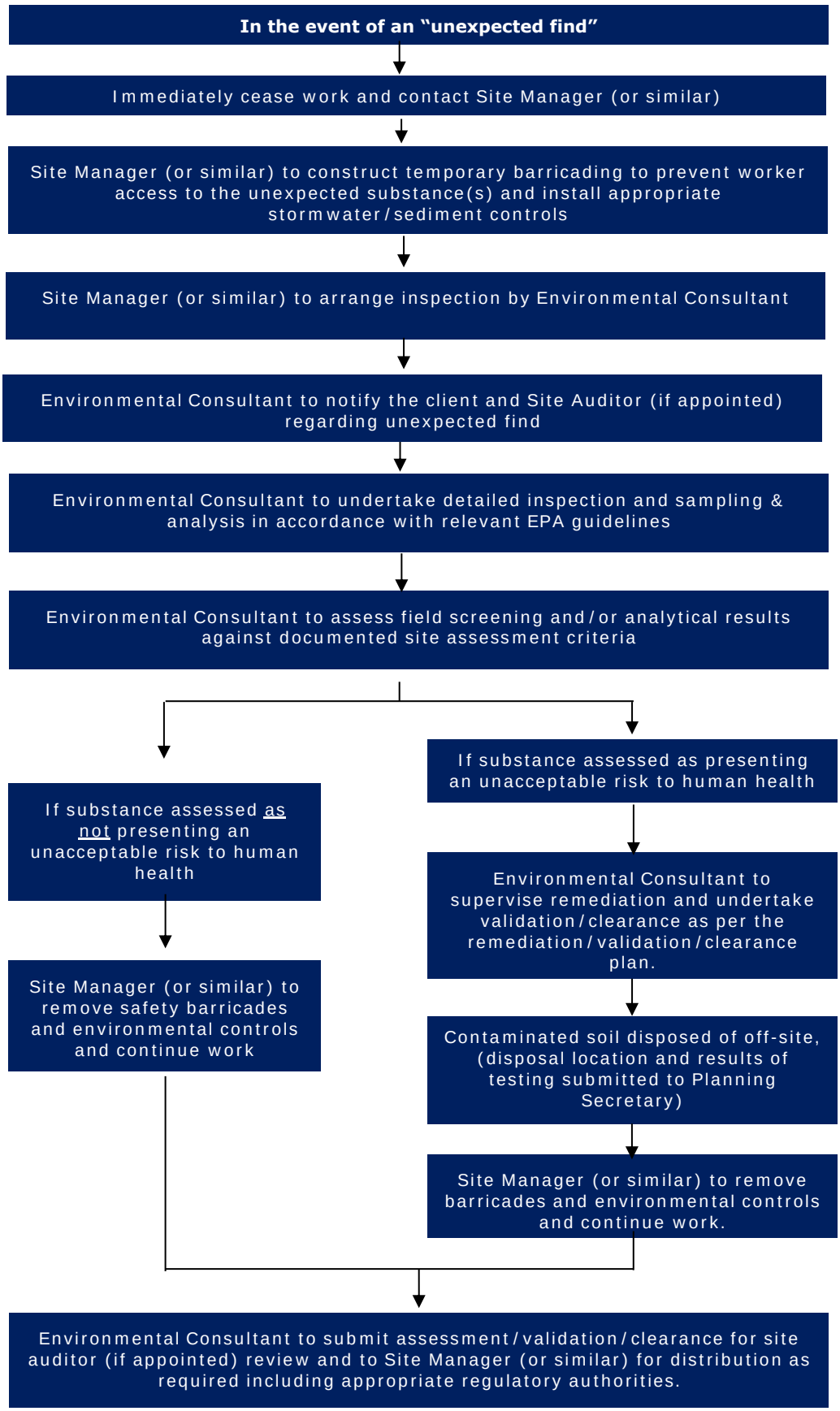
This process is provided in **EMP11-Figure 1** (below).

Soil and Contamination	EMP09

In addition to the UFP, the following procedures should be followed to ensure no contaminated material is imported to the site:

- ensure that only Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM), or other material approved in writing by EPA is brought onto the site;
- keep accurate records of the volume and type of fill to be used; and
- make these records available to the Planning Secretary upon request.

EMP11-Figure 1 – Contamination Unexpected Finds Protocol	EMP11



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Environmental Emergency Response	EMP10
Responsibility:	Principal Contractor
Frequency:	Where uncontrolled releases of potential environmental pollutants occur
Objective:	To ensure appropriate management of environmental emergency during construction and ensure compliance with SSD-5248 conditions of consent (D1 and D9)

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition D1

Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:….

….. g) a *protocol for managing and reporting any:*

i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);

ii. complaint;

iii. failure to comply with statutory requirements

Condition D9

The Department must be notified in writing to compliance@planning.nsw.gov.au immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if ii has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 7.

Mitigations and Control Measures

Environmental incidents on the site which would require potential emergency response would relate to a spill of hazardous liquid or material on soils on the site, or in proximity of stormwater discharge point, or relating to a release of potential asbestos affected materials.

For spills on **land**, the following shall be undertaken:

- Identify source of spill and stop when / if safe to do so;
- Identify area of spill and clear area of all personnel;
- Notify DPE (within 24hrs), and environmental manager of spill;
- Construct earthen bunding using earthmoving equipment available on site to contain spill;
- Environmental manager to coordinate the pumping of liquid waste out of the containment structure and disposal to a licensed waste facility;
- If solid waste:
  - environmental consultant coordinates the excavation and removal of the hazardous material to a secure area; and
  - Assess soils in vicinity of environmental incident for contamination and conduct remediation works where contamination has occurred.

Environmental Emergency Response	EMP10

For spills **in proximity of the stormwater outlets** from the site, the following shall be undertaken:

- Identify source of spill and stop when / if safe to do so;
- Identify circumference of spill and clear area of all personnel (where onshore area present);
- Notify DPE and environmental manager of spill with 24 hours;
- Environmental consultant instructs containment of area of spill in water by placement of temporary absorbent beams (available on site) to create 'coffer dam' around stormwater outlet to prevent discharge of spilt material;
- Environmental manager coordinates a liquid waste tanker to be bought onto site and pump directly from water contained within the impacted area until visual evidence of spill removed;
- Conduct chemical testing of water in the stormwater system as potentially affected by the spill to validate removal of contamination; and
- Subject to validation results, remove coffer dam.
- All emergency responses will be followed up with **EMP13 Incident Reporting** and **EMP15 CEMP Review**.

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Training	EMP11
Responsibility:	Principal Contractor
Frequency:	As required
Objective:	Suitably trained personnel will be available to implement the requirements of the CEMP

Mitigations and Control Measures

Principal Contractor shall ensure that any personnel engaged in the implementation of nominated tasks within the CEMP have been provided with adequate training to manage environmental aspects during construction. This will include inductions and other task specific training as required.

Principal Contractor shall maintain records of personnel engaged in the nominated tasks and their relevant training/qualifications for the period of three years in accordance with **EMP14 Record Keeping**.

Non-compliance	EMP12
Responsibility:	Principal Contractor
Frequency:	As required
Objective:	Suitably trained personnel will be available to implement the requirements of the CEMP

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition D10

The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.

Condition C11

A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Condition C12

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Procedure

Non-compliances with the intent and procedures of the CEMP may occur during the implementation of the CEMP. Such non-compliances may include events such as failure to maintain sediment and erosion controls, accidental spills from machinery etc.

Where a non-compliance is identified by a responsible organisation, they shall inform the affected organisations of the non-compliance in writing. Where a non-compliance with the CEMP is identified by another organisation (in the activities of an alternate organisation), then they shall have the responsibility of informing the non-complying party in writing of the non-compliance. The non-complying party will be required to rectify the non-conformity as soon as possible, as per the requirements of the relevant procedure(s) where non-compliance has occurred.

The non-compliance shall be detailed as per the requirements of **EMP13 Incident Reporting** to record the incident and to inform relevant follow up / review actions.

Detail of the action taken to rectify the non-compliance shall be provided to each of the affected organisations in writing. Where a non-compliance cannot be rectified, then the CEMP will require to be reviewed as per the requirements of **EMP15 CEMP Review**.

Incident Reporting	EMP13
Responsibility:	Principal Contractor
Frequency:	As required in response to environmental incidents and/or non-compliance with EMP
Objective:	To ensure the CEMP is implemented as intended.

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition D9

The Department must be notified in writing to compliance@planning.nsw.gov.au immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if ii has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 7.

Condition D10

The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.

Condition C11

A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Incident Notification, Reporting and Response

In accordance with Condition D9, the Planning Secretary must be notified in writing via the Major Projects website immediately after the incident is identified. The notification must identify:

- the development (including the development application number (SSD 5248) and the name of the development if it has one)
- the location and
- the nature of the incident.

Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 9 of the SSD 5248 conditions of approval.

Principal Contractor shall facilitate the completion of environmental incident forms for any environmental incident that occurs on the site. The Site Manager shall review all incident forms.

DPE shall be notified of any incidents:

- requiring emergency response within 24 hours of that incident.
- within 7 days after the non-compliance is identified

Record Keeping	EMP14
Responsibility:	Principal Contractor
Frequency:	As required
Objective:	Records of the implementation of the CEMP require to be retained.

Procedure

The Site Manager (or person nominated by the site manager) shall be responsible for the maintenance of all documents relating to the implementation of the CEMP. This shall include any additional assessment undertaken, registers for the maintenance of the CEMP (site inspection forms, works approval checklists, revised plans, *etc.*).

All records shall be retained by Principal Contractor throughout the time of implementation of the CEMP. In the event that the role of Principal Contractor is transferred from one organisation to another, control of all relevant (historical and current) documents will be transferred for safe keeping to the current Responsible Person.

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CEMP Review	EMP15
Responsibility:	Principal Contractor
Frequency:	As required in response to revisions to supporting documents or in response to non-compliances with CEMP
Objective:	The CEMP requires review to ensure its continued appropriateness to be used on the site

Procedure

A review of the CEMP shall be undertaken in response to a non-compliance with the CEMP, or at a minimum of once per year by an appropriately qualified contractor/consultant in conjunction with the Site Manager. This review shall consider:

- Any non-compliances with the CEMP that have been unable to be resolved;
- Where an incident is reported as occurring under the control of CEMP as per **EMP13 Incident Reporting**;
- Practicalities and efficiencies of management measures and whether there are more effective ways to improve environmental compliance;
- Any changes in state or national environmental protection legislation or guidelines that impact any part of the CEMP; or
- Any proposed changes in land-use of the site or adjoining sites which may impact upon exposure pathways.

If there is substantial changes to work activities on site (outside to those described in this CEMP) then a complete review of the CEMP document and compliance measures will be necessary to identify suitable replacement CEMP compliance mechanisms.

In addition, where a review identifies items which are required to be modified, or added to the CEMP, then a revision of the CEMP shall be prepared by a suitably qualified person.

8. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

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Figures



Figure 1a: Site Location marked in red. (*Source: SIX Maps*)



Figure 2b: Site Location marked in red (*Source: NearMap*)



Figure 3a: Site Layout

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Figure 4b: Stage 1DA Layout

Appendix A Air Quality Management Plan

MOMENTUM M7 DEVELOPMENT

Construction Air Quality Management Plan - Stage 1

Prepared for:

Gazcorp Pty Ltd
Level 10, 60 Park St
Sydney NSW 2000

SLR Ref: 610.30108-R02
Version No: -v0.1
March 2022

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Gazcorp Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.30108-R02-v0.1	14 March 2022	Sahar Bagheri	K Lawrence	KL

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1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Gazcorp Pty Ltd (Gazcorp) to prepare a Construction Air Quality Management Plan (CAQMP) for the Stage 1construction works to be undertaken as part of the Stage 1 development of a business hub to be located within the Western Sydney Employment Area (WSEA) at 813-913 Wallgrove Road, Horsley Park (the Development Site).

The aim of this CAQMP is to address potential air quality impacts on nearby sensitive receivers during the construction works. The Development Consent was granted for this Project on 11 November 2019. Development Consent has been granted as follows:

- Masterplan approval of 211,550 m^2 of GFA over 16 development lots, comprised of 198,300 m^2 of warehouse/industrial use and 13,250 m^2 of ancillary office floor space.
- Stage 1 Development Approval including:
  - Clearing of vegetation and bulk earthworks
  - Construction of internal estate roads with services utilities
  - Stormwater management
  - Landscaping
  - Construction and operation of Lot 10 (45,225 m^2 warehouse and 3,006 m^2 office space)
  - Intersection works on Wallgrove Road at the proposed southern link intersection.

This CAQMP is prepared for the stage 1 works which includes the earthworks for the whole Development Site and the construction and operation of Lot 10.

1.1 Objectives of the CAQMP

The objectives of this CAQMP are as follows:

- Maintain acceptable levels of amenity for surrounding receptors;
- Ensure compliance with relevant ambient air quality criteria for particulate matter and deposited dust at surrounding receptors;
- Maintain an effective response mechanism to deal with issues and complaints relating to dust emissions from the construction works;
- Outline air quality management commitments and responsibilities, including air quality compliance monitoring and reporting requirements; and
- Promote environmental awareness among employees and subcontractors.

2 Statutory Requirements

The Development Consent (SSD 5248) requirements stipulated for the construction of Stage 1 at the Development Site and where they have been addressed in this CAQMP are shown in **Table 1**.

Table 1 Assessment against SSD 5248 Conditions

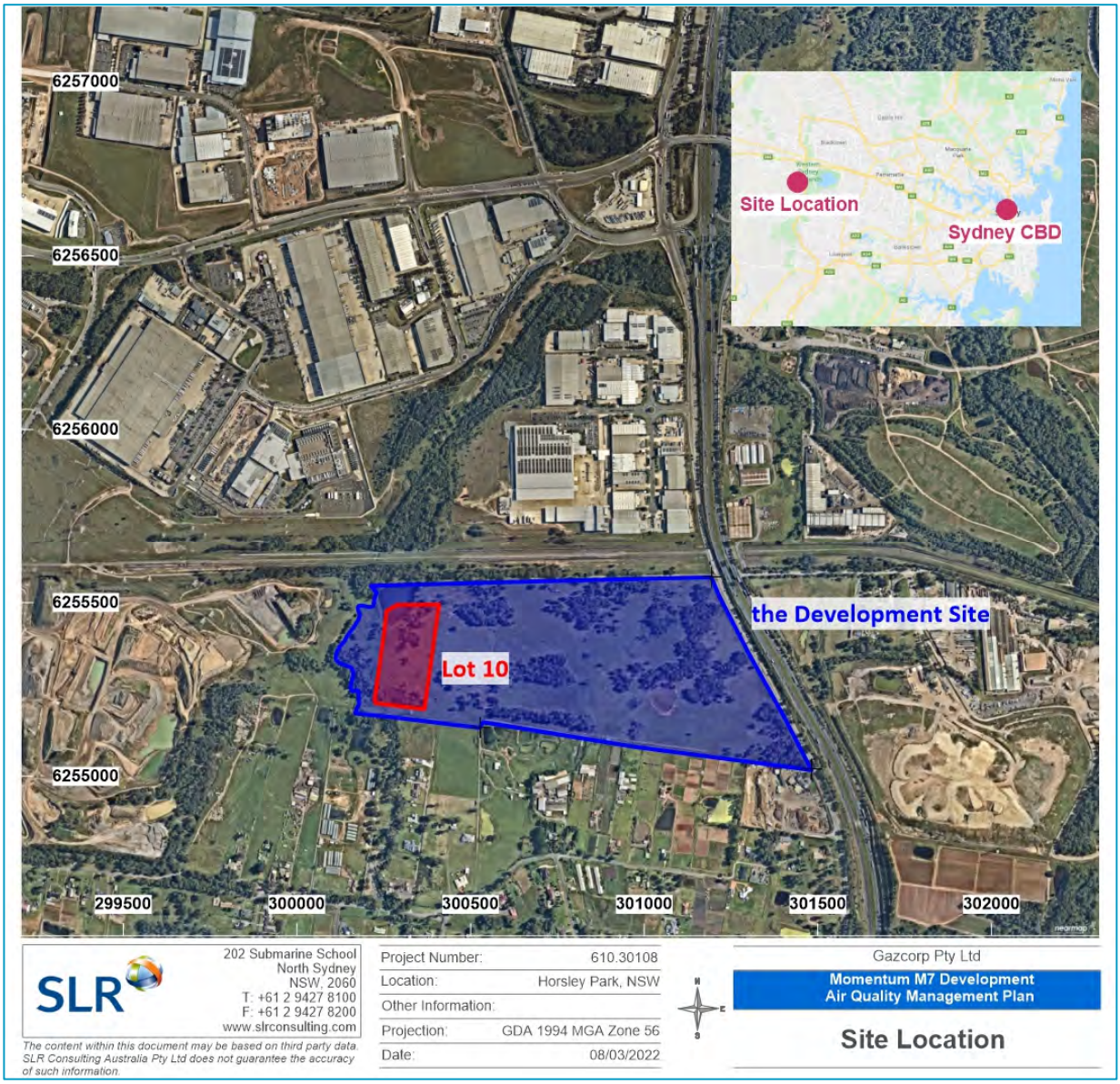
Conditions	Response / Section Reference
Dust Minimisation	
Condition C54	
The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	**Section 8**
Condition C55	
During construction, the applicant must ensure that: (a) exposed surfaces and stockpiles are suppressed by regular watering; (b) all trucks entering or leaving the Site with loads have their loads covered; (c) trucks associated with the Development do not track dirt onto the public road network; (d) public roads used by these trucks are kept clean; and (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.	**Section 8**
Air Quality	
Condition C56	
Prior to commencement of construction works, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by Condition D2 and be prepared in accordance with Condition D1, the CAQMP must: (a) be prepared by a suitably qualified and experienced person(s)	2-page CV of the author is attached in **Appendix D**
(b) detail and rank all emissions from all sources of the Development, including particulate emissions	**Section 7**
(c) demonstrate compliance with the Protection of the Environment Operations Act 1997 (NSW) and its associated regulations;	**Section 5**
(d) demonstrate that no offensive odours would be detectable beyond the boundary of the premises;	**Section 9**
(e) identify the control measures that will be implemented throughout construction works;	**Section 8**
(f) describe measures to identify non-compliance and strategic measures to manage any non-compliance; and	**Section 11**
(g) describe proactive and reactive management strategies.	**Section 11**

3 Project Overview

3.1 Site Location

The proposed development is located at 813-913 Wallgrove Road, Horsley Park, which is approximately 33 kilometres (km) west-northwest from the Sydney CBD and covers an area of approximately 52.2 hectares (ha). The local setting of the Development Site is shown in **Figure 1**.

Figure 1 Regional Locality

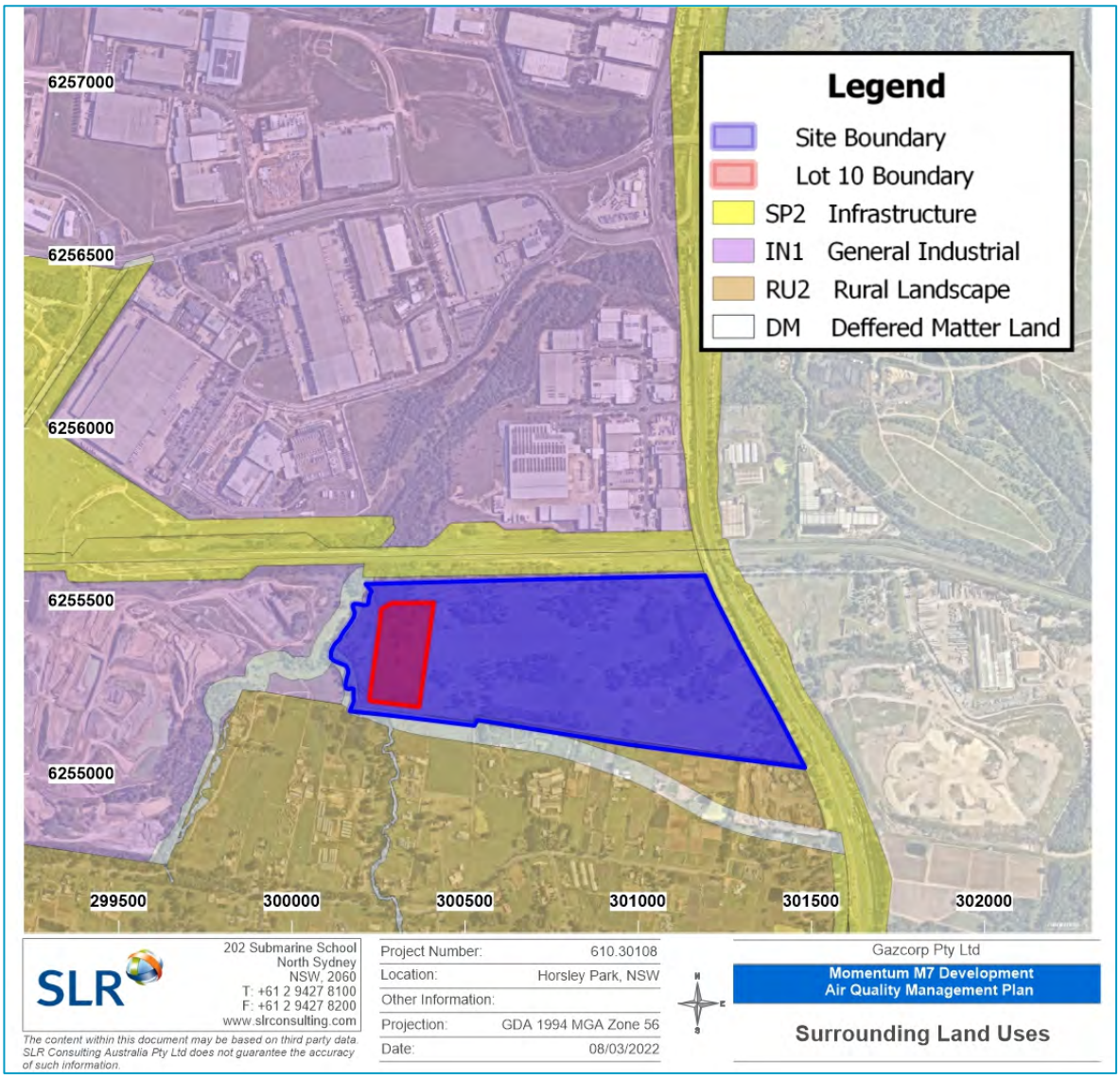


3.2 Surrounding Land Uses

As shown in **Figure 2**, adjacent areas to the west and north of the Development Site are zoned as general industrial. The nearest commercial receptors are located approximately 30 m to the south and 120 m to the north of the Development Site boundary while amenities (such as office buildings or workshops) within this zone, where individuals are likely to experience air quality impacts due to Stage 1 construction activities at the Development Site, are located approximately 300 m to the northeast and more than 350 m from the eastern and western boundaries of the Stage 1 construction areas.

The closest residential receptors to the Stage 1 construction areas are located to the south of the Development Site along Burley Road and Flavex Lane, with the nearest residence located approximately 140 meters (m) from the southern boundary of the Development Site. The nearest commercial receptors are located approximately 30 m to the south and 120 m to the north of the Stage 1 construction areas.

Figure 2 Surrounding Land Uses



Deferred matter land is land that has not yet been zoned in accordance with the Standard Instrument - Principle Local Environmental Plan.

3.3 Site Layout

The proposed layout of the Development Site, and the location of Lot 10 in the westernmost portion of the site, is shown in **Figure 3**.

Figure 3 Indicative Site Layout of the Development Site



3.4 Construction Activities

The Stage 1 construction activities at the Development Site are scheduled to commence in October 2022 and will extend until December 2023. The construction activities will be staged and are summarised in **Table 2**.

Table 2 Construction Staging and Activities – Stage 1

Milestone	Estimated Commencement	Planned Completion
Construction commencement	August 2022	
Earth works/civils	September 2022	November 2023
External road works	August 2022	November 2023

Construction hours will be in accordance with Conditions D57 and D58 of Development Consent SSD 5248, which are reproduced below:

*C57. The Applicant must comply with the hours detailed **Table 5**, unless otherwise agreed in writing by the Planning Secretary.*

Table 5: *Hours of Work*

Activity	Day	Time
Earthworks and Construction	Monday - Friday	7 am – 6 pm
	Saturday	8 am – 1 pm
	Sundays or Public Holidays	No work is permitted
Operation	Monday - Sunday	24 hours

C58. Works outside of the hours identified in Condition C57 may be undertaken in the following circumstances:

(a) Works that are inaudible at the nearest sensitive receivers;

(b) For the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

(c) Where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

The approved construction hours will be provided to all staff and contractors in their inductions. The movements of staff and contractors will be recorded for this project.

3.5 Construction Site Access

Access to the Development Site will be in accordance with the approved CTMP via Wallgrove Road.

4 Potential Sources of Air Emissions

The Air Quality Impact Assessment (AQIA) for the construction and operation of the Development Site was prepared by SLR in October 2021 (SLR 2021). As stated in the AQIA, the main emissions to air during the construction phase will be emissions of particulate matter (as TSP, PM_{10} and $PM_{2.5}$) and nuisance dust from the movement of vehicles and construction equipment, excavation and rehabilitation, demolition, clearing and grading, truck loading and unloading and wind erosion.

During the Stage 1 construction works, he key potential sources of dust have been identified as:

- Dust emissions from earthworks activities (e.g. excavation and loading of soils to trucks);
- Wind-generated dust from disturbed surfaces and stockpiles;
- Wheel-generated dust and particulate matter emissions in diesel exhaust emissions from on-site plant and equipment and construction traffic movements; and
- Particulate matter associated with exhaust emissions from increased/congested traffic emissions due to road closures or diversions.

In addition to the construction activities being carried out at any point in time, a number of other environmental factors may also affect the generation and dispersion of dust emissions, including:

- Wind direction - determines whether dust and suspended particles are transported in the direction of the sensitive receptors;
- Wind speed - governs the potential suspension and drift resistance of particles;
- Surface type - more erodible surface material types have an increased soil or dust erosion potential;
- Surface material moisture - increased surface material moisture reduces soil or dust erosion potential;
- Other external factors such as current works being undertaken by others outside of the defined Project boundaries and current climatic (dry) weather conditions;
- Rainfall or dew - rainfall or heavy dew that wets the surface of the soil reduces the risk of dust generation.

Potential air quality impacts associated with the proposed Stage 1 construction works, and the relative risk ratings, are addressed in **Section 7**.

5 Relevant Pollutants and Air Quality Criteria

5.1 Pollutants of Concern

As identified in **Section 4**, potential air pollutants of interest for the Stage 1 construction activities are considered to be both:

- Suspended particulate matter; and
- Deposited dust.

The following sections outline the potential health and amenity issues associated with the above pollutants, while **Section 5.2** outlines relevant air quality assessment criteria.

5.1.1 Suspended Particulate Matter

Airborne contaminants that can be inhaled directly into the lungs can be classified on the basis of their physical properties as gases, vapours or particulate matter. In common usage, the terms "dust" and "particulates" are often used interchangeably. The health effects of particulate matter are strongly influenced by the size of the airborne particles. Smaller particles can penetrate further into the respiratory tract, with the smallest particles having a greater impact on human health as they penetrate to the gas exchange areas of the lungs. Larger particles primarily cause nuisance associated with coarse particles settling on surfaces.

The term "total particulate matter" (TSP) refers to a category of airborne particles, typically less than 30 microns (µm) in diameter. Particulate matter with an aerodynamic diameter of 10 microns or less is referred to as PM_{10}. The PM_{10} size fraction is sufficiently small to penetrate the large airways of the lungs, while $PM_{2.5}$ (2.5 microns or less) particulates are generally small enough to be drawn in and deposited into the deepest portions of the lungs. Potential adverse health impacts associated with exposure to PM_{10} and $PM_{2.5}$ include increased mortality from cardiovascular and respiratory diseases, chronic obstructive pulmonary disease and heart disease, and reduced lung capacity in asthmatic children. In an urban setting, the emission of $PM_{2.5}$ is primarily associated with vehicles exhausts resulting from the incomplete combustion of diesel.

5.1.2 Deposited Dust

Section 5.1.1 is concerned in large part with the health impacts of particulate matter. Nuisance impacts need also to be considered, mainly in relation to deposited dust. Dust can cause nuisance by settling on surfaces and possessions, affecting visibility and contaminating tank water supplies. High rates of dust deposition can also adversely affect vegetation by blanketing leaf surfaces.

5.2 Ambient Air Quality Criteria

There are no air quality criteria outlined within Development Consent SSD 5248, therefore the NSW EPA criteria have been adopted in **Table 3**.

State air quality guidelines specified by the NSW Environmental Protection Agency (EPA) for the pollutants identified in **Section 5.1** are published in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA 2017) (hereafter 'Approved Methods'). The ground level air quality impact assessment criteria listed in Section 7 of the Approved Methods have been established by NSW EPA to achieve appropriate environmental outcomes and to minimise associated risks to human health as published in the Approved Methods. They have been derived from a range of sources and are the defining ambient air quality criteria for NSW and are considered to be appropriate for use in this assessment.

A summary of the relevant impact assessment criteria for particulate matter is provided in **Table 3**. The relevant criterion for nuisance dust deposition is provided in **Table 3**. The rate of dust deposition is measured by means of a collection gauge, which catches the dust settling over a fixed surface area and over a period of about 30 days.

Table 3 NSW EPA Impact Assessment Criteria for Particulate Matter and Nuisance Dust

Pollutant	Averaging Period	Assessment Criteria ($\mu g/m^3$)
Particulate matter (PM_{10})	24-hours	50
	Annual	25
Particulate matter ($PM_{2.5}$)	24-hours	25
	Annual	8
Pollutant	**Averaging Period**	**Assessment Criteria (g/m^2/month)**
Deposited dust	Annual	2 (maximum increase in deposited dust level) 4 (maximum total deposited dust level)

Source: EPA 2017

5.3 Government Air Quality Toolkit

The NSW EPA has developed the Local Government Air Quality Toolkit (EPA 2018), in response to requests from local Council officers for information and guidance on the common air quality issues they manage. Guidance is available under Part 3 of the Local Government Air Quality Toolkit for Construction Sites, which lists the common sources of emissions, and mitigation and management measures to control airborne dust levels from construction sites, and has been consulted in the development of this CAQMP.

6 Existing Environment

6.1 Local Meteorology

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording wind speed and wind direction data is the Horsley Park Automatic Weather Station (AWS) (Station ID 67119), located approximately 3.1 kilometres (km) southeast of the Development Site. The long term and short term seasonal wind roses and long term rainfall patterns observed at the Horsley Park AWS indicate that:

- Winds that would blow fugitive dust emissions from the demolition/construction works towards the nearest sensitive receptors located to the south of the proposed construction activities occur rarely during (less than 8%) of the time.
- The long term wind and rainfall patterns suggest that construction activities at the Development Site have the greatest potential to impact on surrounding sensitive receptors during the months of May (autumn), and July (winter) to September (spring).

Full analysis of the wind roses and rainfall can be found in **Appendix A**.

6.2 Background Air Quality

Air quality monitoring is performed by the NSW Office of Environment and Heritage (OEH) at a number of monitoring stations across NSW. The closest such station with data for the last five years is the Prospect Air Quality Monitoring Station (AQMS), which is located approximately 6.5 km to the northeast of the Development Site. Considering the relatively flat terrain between the Development Site and Prospect AQMS, as well as similar land use surrounding both locations, it is assumed that the air quality monitoring data recorded at the AQMS is a reasonable representation of the air quality experienced at the Development Site. The following relevant air pollutants are monitored at this station:

- Fine particles as PM_{10}; and
- Fine particles as $PM_{2.5}$.

A summary of the PM_{10} concentrations for the last five years (2017-2021) is tabulated in **Table 4** and presented graphically in **Figure 4** and **Figure 5**.

Table 4 Summary of PM_{10} Monitoring Data at Prospect AQMS (2017 – 2021)

Year	PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)	
	24-hour	Annual	24-hour	Annual
2017	61.1	18.9	30.1	7.7
2018	113.3	21.9	47.5	8.5
2019	182.8	26.0	134.1	11.9
2020	245.8	20.2	70.8	8.6
2021	44.6	17.2	37.3	6.9
Criterion	**50**	**25**	**25**	**8**

Figure 4 Measured 24-Hour Average PM_{10} Concentrations at Prospect AQMS (2017 – 2021)

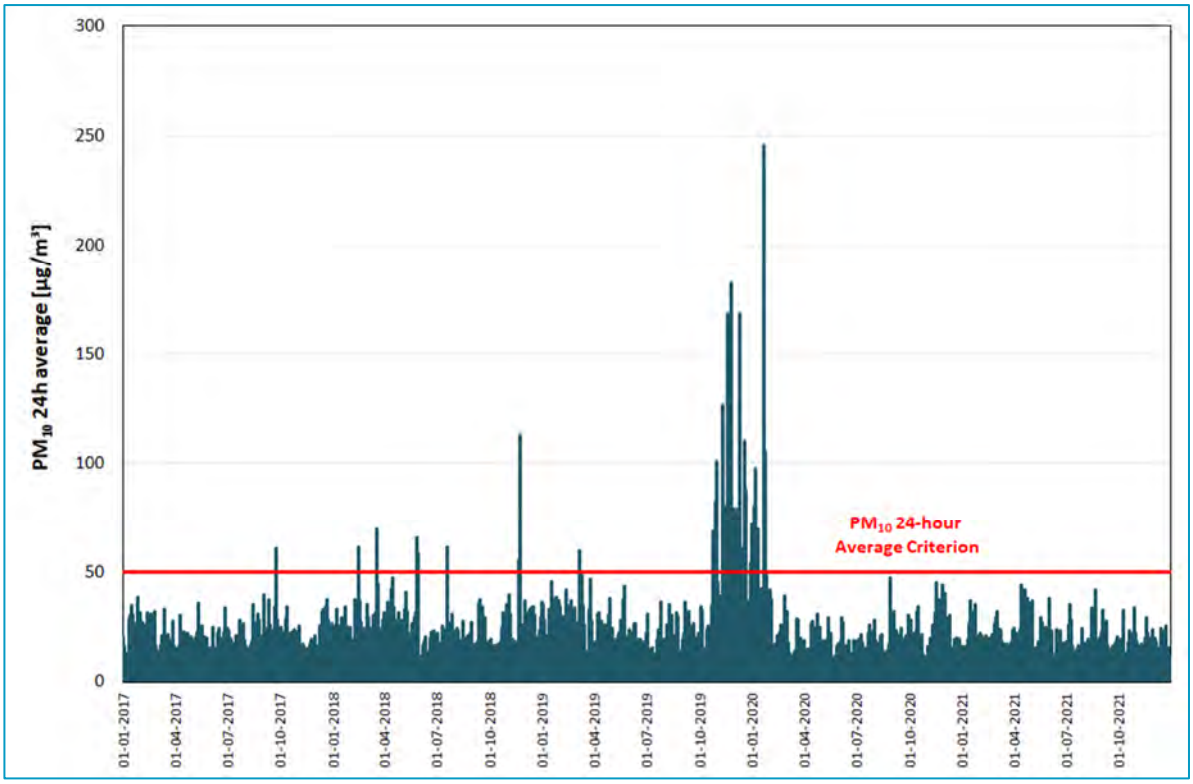
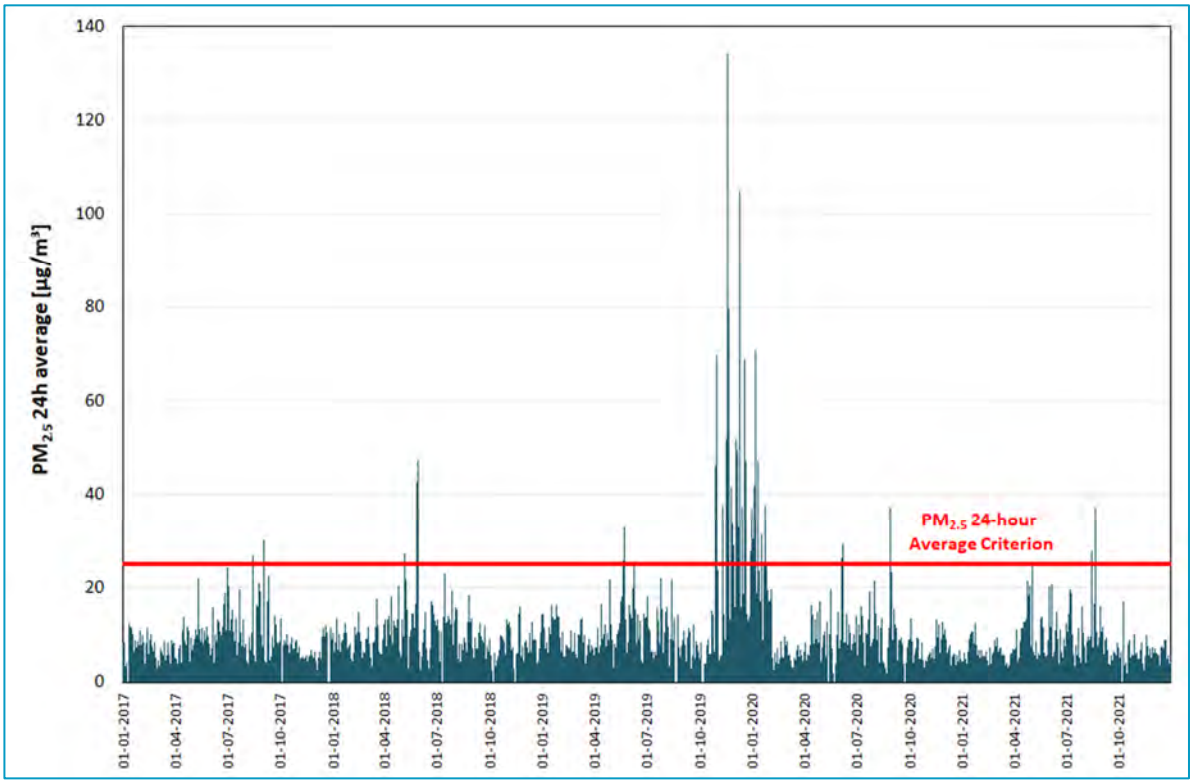


Figure 5 Measured 24-Hour Average $PM_{2.5}$ Concentrations at Prospect AQMS (2017 – 2021)



A review of the ambient air quality data presented in **Table 4**, **Figure 4**, and **Figure 5** shows that generally, the 24-hour average PM_{10} and $PM_{2.5}$ concentrations recorded by the Prospect AQMS are below the relevant 24-hour average guidelines, however isolated exceedances (normally on less than ten days per year) have been recorded in most years. The exception to this was the November 2019 to January 2020 period, when unprecedented and extensive bushfires within NSW resulted in an extended period of very elevated particulate concentrations across Sydney that were significantly above the 24-hour average guidelines. A review of the available compliance monitoring reports indicates that the intermittent exceedance days recorded during the other years were also primarily due to exceptional events such as bushfire emergencies, dust storms and hazard reduction burns.

In summary, the Prospect AQMS data show that background particulate levels in Sydney can be elevated at times. Effective dust mitigation measures therefore need to be implemented during the Stage 1 construction works so that the activities do not contribute to any additional exceedances of air quality criteria in the surrounding area.

7 Assessment of Dust Emissions during Construction

Potential impacts of dust emissions associated with proposed demolition and construction activities at the Development Site was performed in the AQIA (SLR, 2021) based on the methodology outlined in the Institute of Air Quality Management (UK) (IAQM) document, "*Assessment of dust from demolition and construction*" (Holman et al 2014). This guidance document provides a structured approach for classifying construction sites according to the risk of air quality impacts, to identify relevant mitigation measures appropriate to the risk (see **Appendix B** for full methodology).

The IAQM approach has been used widely in Australia for the assessment of air quality impacts from construction projects and the identification of appropriate mitigation measures, which has been accepted by regulators across all states and territories for a variety of construction projects.

The IAQM method uses a four-step process for assessing dust impacts from construction activities:

- **Step 1**: Screening based on distance to the nearest sensitive receptor; whereby the sensitivity to dust deposition and human health impacts of the identified sensitive receptors is determined.
- **Step 2**: Assess risk of dust effects from activities based on:
  - the scale and nature of the works, which determines the potential dust emission magnitude; and
  - the sensitivity of the area surrounding dust-generating activities.
- **Step 3**: Determine site-specific mitigation for remaining activities with greater than negligible effects.
- **Step 4**: Assess significance of remaining activities after management measures have been considered.

7.1 Risk Assessment – Stage 1 Works

Table 5 presents the preliminary risk of air quality impacts from uncontrolled construction activities during the Stage 1 works derived using the risk matrix provided in **Table B4** in **Appendix B**, based on the identified receptor sensitivity and sensitivity of the area. No significant demolition activities are proposed as part of the Stage 1 works, hence the risk of dust impacts from demolition activities have not been assessed.

Table 5 Preliminary Risk of Air Quality Impacts from Construction Activities (Uncontrolled)

Type of Receptor	Impact	Sensitivity of Area	Dust Emission Magnitude			Preliminary Risk		
			Earthworks	Construction	Trackout	Earthworks	Construction	Trackout
Residential	Dust Soiling	Low	Large	Medium	Large	Low Risk	Low Risk	Low Risk
	Human Health	Low				Low Risk	Low Risk	Low Risk

The results indicate that there is a low risk of adverse dust soiling and a low risk of human health impacts occurring at the off-site sensitive receptor locations even if no mitigation measures were to be applied to control emissions during the works.

Based on the dust emission magnitudes and the preliminary risk from these activities, the activities are ranked as (highest risk to lowest risk):

1. Earthworks
2. Construction
3. Track out

For almost all construction activity, the IAQM Methods notes that the aim should be to prevent significant effects on receptors through the use of effective mitigation, and experience shows that this is generally possible.

8 Mitigation Measures

As per **Section 7.1**, construction works at the Development Site pose a *low risk* to neighbouring sensitive receptors during earthworks, construction, and trackout phases. Nonetheless, in accordance with best practice construction methodology, and minimise potential for cumulative impacts on local air quality during periods of high background concentrations, a range of dust mitigation measures will be implemented during the Stage 1 works to minimise dust emissions.

Table 6 lists the mitigation measures to be adopted during the Stage 1 construction works.

Table 6 Site-Specific Management Measures Recommended by the IAQM

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Communications			
The Community Communications Strategy will be implemented.	Communications and Community Liaison Representative	Prior to commencing construction and ongoing	Best practice
The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the Contractor's Project Manager.	Construction Contractor		
The head or regional office contact information will be displayed on site signage.			
Site Management			
All dust and air quality incidents will be undertaken as per **Section 9** of this CAQMP.	Construction Contractor	Ongoing	**Section 9** of this document
All dust and air quality complaints will be undertaken as per **Section 9** of this CAQMP.			
Where excessive dust events occur (i.e. prolonged visual dust in a particular area), additional watering of dust producing activities will be undertaken or activities temporarily halted until such times that the dust source is under control.		During excessive dust events	Best practice
Horsley Park Bureau of Meteorology station weather forecast will be reviewed daily (i.e. wind, rain) to inform site dust management procedures for the day.		Daily	
Preparing and Maintaining the Site			
All reasonable steps to minimise dust generated will be undertaken during construction.	Construction Contractor	Ongoing	SSD 5248 Condition C54
Exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.			SSD 5248 Condition C55a
Land stabilisation works will be carried out in such a way on site to minimise exposed surfaces.			SSD 5248 Condition C55e
Dust generating activities in areas close to receptors will be closely monitored and additional mitigation applied as required to best manage potential dust emissions			Best practice

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Stockpiles that will be in place for more than 20 days and are not actively used as well as any stockpiles that are susceptible to wind or water erosion will be suitably protected from erosion within 10 days of the establishment of each stockpile. Temporary stabilisation of disturbed surfaces will be undertaken within two weeks of the stockpile being established.			
Site fencing and barriers will be kept clean using wet methods.			
Operating Vehicle/Machinery and Sustainable Travel			
Trucks associated with Stage 1 constructions will not track dirt off site and onto the public road network.	Construction Contractor	Ongoing	SSD 5248 Condition C55c
Project access roads used by delivery trucks will be kept clean.			SSD 5248 Condition C55d
All on-road vehicles will comply with relevant vehicle emission standards (prescribed by the NSW RMS), where applicable, and will be maintained in good condition, in accordance with manufacturer's specifications and POEO Act.			Best practice
Delivery trucks will switch off engines whilst undertaking a delivery on-site, if idling time is likely to exceed 5 minutes.			
Vehicle speed limit restrictions are implemented on site, including: • General - 20km/h • High risk area - 10km/h • Haul routes – 50 km/h			
Truck queuing and unnecessary trips will be minimised through logistical planning and by the identification and use of specific park up/hold areas away from the Project.			
Operations			
Only cutting, grinding or sawing equipment fitted with suitable dust suppression systems, such as water sprays will be used.	Construction Contractor	Ongoing	Best practice
Adequate water supply will be available on the site for effective dust/particulate matter suppression/ mitigation using a combination of potable and non-potable water sources.			
Water carts will be used on all denuded or exposed surfaces and unsealed roads to minimise dust emissions.	Construction Contractor	Ongoing	Best practice
Equipment, inclusive of, but not limited to Environmental spill kits will be readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Works will be assessed during strong winds or in weather conditions where high levels of airborne particulates may potentially impact the sensitive receivers. Continual monitoring of wind speed and direction will be undertaken to guide this decision and ensure that adequate mitigation measures are undertaken		Continuously and during high winds	
Waste Management			
All trucks entering or leaving the Site will have their loads covered.	Construction Contractor	Ongoing	SSD 5248 Condition C55b
No waste materials, timbers or any other combustible materials will be burnt on site.			Best practice
Earthworks			
Scopes of work will be planned in such a way to assist in minimising the duration that surfaces are left denuded	Construction Contractor	Ongoing	Best practice
Rehabilitation of disturbed surfaces will be undertaken within 20 days of final construction levels.		Within 20 days of final construction levels	
If unanticipated strong odours or significant visual dust emissions are noted or observed on site, an investigation will be undertaken by the construction contractor Project Manager to identify the scope of work or source of the emission prior to undertaking and applying any additional mitigation measures.		Ongoing	
Construction			
Sand and other aggregates will not be allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	Construction Contractor	Ongoing	Best practice
Trackout			
Water-assisted road sweeper(s) will be used on an as required basis should any material be tracked out of the site.	Construction Contractor	Ongoing	Best practice
Record all regular inspections and maintenance undertaken of site haul routes and project related access roads in a site log book.			
A wheel washing system and/or cattle grid system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) will be implemented.			
Demolition			
Ensure effective water suppression of dust is used during demolition operations.	Construction Contractor	Ongoing	Best practice
Bag and remove any biological debris or damp down such material before demolition.			

9 Complaints Handling and Response Procedure

All complaints will be handled in accordance with the sections below.

9.1.1 Performance Objective

To ensure that all environmental complaints in relation to the air emissions from the Stage 1 construction activities are promptly and effectively received, handled and addressed.

9.1.2 Responsibility

The Communications and Community Liaison Representative is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint. It should be ensured that all site employees are aware of and understand their obligations for complaints response.

All employees who take receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager, who will then contact the Communications and Community Liaison Representative.

9.1.3 Complaints Handling Procedure

Upon becoming aware of a complaint, the protocol outlined below will be followed.

1. Record and Acknowledge

Any employee who take receipt of a complaint, either verbal or written, is to immediately notify the Contractor's Project Manager who will then contact the Communications and Community Liaison Representative. The Contractor's Project Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works.

In the normal course of events, the first contact for complaints will usually be made in person or by telephone.

The complainant's name, address and contact details, along with the nature of the complaint, must be requested. If the complainant refuses to supply the requested information, a note will be made on the form and complainant advised of this.

2. Assess and Prioritise

The Communications and Community Liaison Representative will prioritise all complaints by considering the seriousness of the complaint including risk to health and safety and will attempt to provide an immediate response via phone or email.

3. Investigate

A field investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any air quality monitoring information and/or site records at and around the time of the complaint will be reviewed for any abnormality or incident that may have resulted in the complaint.

4. Action or Rectify

Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact. The Communications and Community Liaison Representative will assess whether the complaint is founded or unfounded and delegate the remediation of the issue to the Contractor's Project Manager for action, as required.

As outlined in **Section 11**, if a complaint regarding air quality impacts is concluded to be substantiated, the need for any changes to the air quality mitigation measures identified for the Project in **Section 8** and/or the air quality monitoring programme outlined in **Section 10** is to be reviewed and, the CAQMP updated as appropriate.

5. Respond to Complainant

The Communications and Community Liaison Representative and the Contract Superintendent will oversee the rectification of the issue. The Communications and Community Liaison representative will then respond to the complainant once the issue has been resolved. The complainant will be provided with a follow up verbal response on what action is proposed within two hours during night-time works (between the hours of 6:00 pm and 10:00 pm) and 24 hours at other times. Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant within ten days.

6. Record

It is imperative that an investigation of the situation is carried out and proposed improvements documented in order to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the Complaint Enquiry Form. A copy of the completed form will be maintained for at least five years. The complaint will also be recorded in the Complaints Register.

7. Preventative Action

Once the complaint has been suitably handled, proposed improvements will be investigated and implemented to minimise the potential of re-occurrence. The Complaint Enquiry Form will not be closed out until the preventative actions are completed and recorded on the form.

9.1.4 Complaints Register

A Complaints Register will be maintained during construction and will contain the following:

- A copy of the environmental complaint handling procedure;
- A separate reference sheet containing the contact details;
- Blank hard copies of the Complaint Enquiry Form; and

Copies of all completed Complaint Enquiry Forms, which are to be maintained for at least five years after the event to which they relate.

10 Proposed Air Quality Monitoring Program

As discussed in **Section 7**, the risk of construction dust emissions causing nuisance impacts at off-site sensitive receptor locations is concluded to be low. It is also noted that any impacts will be temporary and managed through the implementation of appropriate mitigation measures (see **Section 8**).

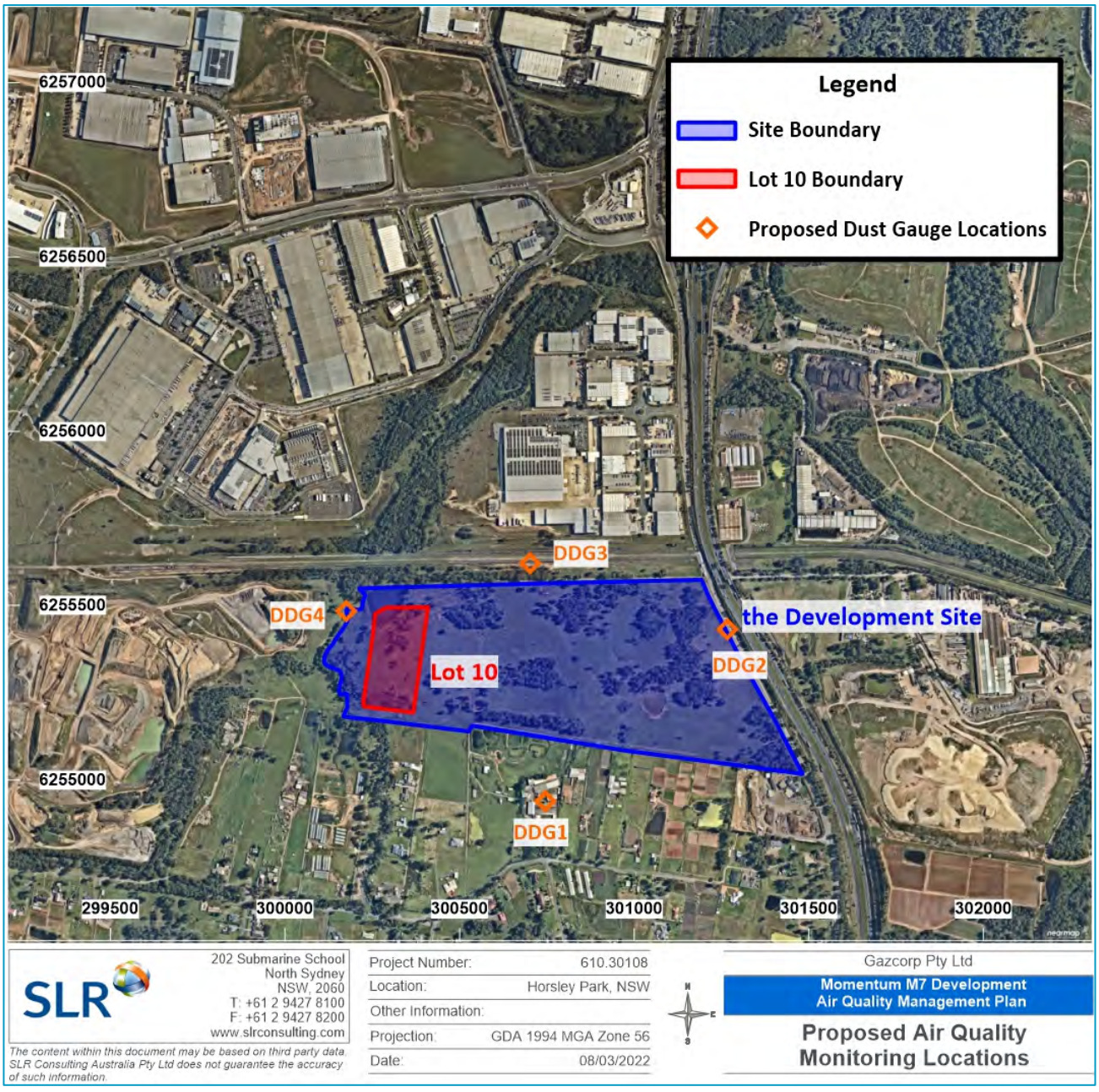
Air quality monitoring program is recommended to start 3 months prior to the start of stage 1 constructions to get a baseline regarding air quality in the vicinity of the Development Site. The dust gauges should be installed in compliance with the AS/NZS 3580.1.1:2016 and changed every 30 days. The results will be compared against NSW EPA criterion stated in **Section 5.2**. Furthermore, visually assessing the dust levels and the effectiveness of any dust controls that have been implemented, which may include engaging additional resources to reduce or mitigate the risk of dust leaving the site is recommended.

A summary of on-site air quality monitoring programme at the Development Site is shown in **Table 7**. The locations of these monitors are shown in **Figure 6**.

Table 7 Summary of On-Site Monitoring Programme

Pollutant	Equipment Used	Number of Monitoring Sites	Criterion (Averaging Period)
Deposited dust	Dust Deposition Gauges (DDGs)	4	4 g/m^2/month (annual average)

Figure 6 Air Quality Monitoring Locations for the Development Site



11 Contingency Management Plan

The air quality contingency management plan for the Stage 1 construction activities is shown in **Table 8**. As noted in **Section 10**, data from the ongoing monitoring program will be utilised to inform the appropriate contingency response for the Development.

Table 8 Air Quality Contingency Management Plan for the Construction of Momentum M7

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Visible dust leaving the site	Trigger	Daily inspections show that there is no visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site multiple times during a day OR from multiple locations within the site.
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as: • *Deployment of additional water sprays, water trucks etc*	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities
Dust deposition reading of >4g/m^2/month	Trigger	Dust deposition rates are less than 4 g/m^2/month at all the dust gauges.	Dust deposition rate greater than 4 g/m^2/month is recorded by any of the dust gauges	Dust deposition rates greater than 4 g/m^2/month are recorded by two or more dust gauges for two months in a row.
	Response	Continue monitoring program as normal.	• Gazcorp Project Managers to analyse data to try to identify the source(s) of dust. • Construction Contractor to review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering.	• Gazcorp Project Managers to review and investigate construction activities and respective control measures for the monitoring period. • If it is concluded that construction activities were directly responsible for the exceedance (i.e. the exceedance event was not caused due to high regional dust levels or local non-project dust source), Construction Contractor to submit an incident report to government agencies.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Complaints received regarding nuisance dust	Trigger	There are no complaints received during the construction	An air-quality related complaint is received from a nearby resident	Further complaints are received from the same complainant after the additional mitigation measures have been implemented
	Response	Continue monitoring program as normal.	• Report the complaint to the regulator, in line with complaints handling procedure (See **Section 9**). • Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate.	• Including real time monitors to measure PM_{10} and $PM_{2.5}$. • Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing (see **Appendix C**).

12 Roles and Responsibilities

The key responsibilities specifically for dust management are as follows:

12.1 Contractor's Project Manager

- Ensuring appropriate resources/plant/personnel are available for the implementation of this CAQMP;
- Assessing data from inspections and providing project-wide advice to ensure consistent approach and outcomes are achieved;
- Providing necessary training for project personnel to cover air quality management;
- Reviewing and update of this CAQMP;
- Assessing and engaging (as required) additional mitigation controls to best manage the risks of elevated dust levels before commencing works each day and ensuring that the appropriate controls are implemented and effective;
- Reviewing weather forecasts daily and current observations of meteorological conditions (as recorded at Horsley Park AWS);
- Ceasing particular scopes of works as required in the event of excessive dust generation due to extreme weather conditions or inadequately controlled construction activities (eg high winds, surface dirt accumulation, etc.); and
- In the event that an air quality complaint is received, the procedure in **Section 9** of this CAQMP will be implemented.

12.2 Environmental Coordinator

- Undertaking dust monitoring program; and
- Review that control measures are working in accordance with the CAQMP.

12.3 All Workers on Site

- Observing any dust emission control instructions and procedures that apply to their work;
- Taking action to prevent or minimise dust emission incidents; and
- Identifying and reporting dust emission incidents.

13 Review and Improvement of the CAQMP

The review of the CAQMP will be undertaken at least quarterly and will include participation by Gazcorp. The review will comprise, as a minimum, the following:

- Identification of areas of opportunity for ongoing improved environmental performance;
- Analysis of the causes of any recorded non-compliances, including those identified in environment inspections and audits;
- Verification of the effectiveness of corrective and preventative actions; and
- Highlighting any changes in procedures resulting from process improvement.

This CAQMP will also be reviewed and, if necessary, revised in the following circumstances:

- Where there is any change to the scope of the construction activities and/or disturbance footprint;
- Where it is identified that the environmental performance is not meeting the objectives of the CAQMP;
- In the event of a substantiated complaint being received regarding air quality impacts; and/or
- At the request of a relevant regulatory authority.

14 References

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- Holman *et al* 2014, *IAQM Guidance on the assessment of dust from demolition and construction,* Institute of Air Quality Management, London. http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf.
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- Australian Standards / New Zealand Standards (AS/NZS) 3580.10.1:2016 "Methods for sample and analysis of ambient air – Determination of Particulates – Deposited Matter – Gravimetric method".
- AS/NZS 3580.1.1:2016 "Methods for sampling and analysis of ambient air Part 1.1: Guide to siting air monitoring equipment".

15 Feedback

At SLR, we are committed to delivering professional quality service to our clients. We are constantly looking for ways to improve the quality of our deliverables and our service to our clients. Client feedback is a valuable tool in helping us prioritise services and resources according to our client needs.

To achieve this, your feedback on the team's performance, deliverables and service are valuable and SLR welcome all feedback via https://www.slrconsulting.com/en/feedback. We recognise the value of your time and we will make a $10 donation to our 2022 Charity Partner – Lifeline, for every completed form.

APPENDIX A

WIND ROSES AND RAINFALL DATA ANALYSIS

Wind Conditions

Local wind speed and direction influence the dispersion of air pollutants. Wind speed determines both the distance of downwind transport and the rate of dilution as a result of 'plume' stretching. Wind direction, and the variability in wind direction, determines the general path pollutants will follow and the extent of crosswind spreading. Surface roughness (characterised by features such as the topography of the land and the presence of buildings, structures and trees) will also influence dispersion.

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording wind speed and wind direction data is the Horsley Park Automatic Weather Station (AWS) (Station ID 67119), located approximately 3.1 kilometres (km) southeast of the Development Site. Considering the relatively flat terrain between the Development Site and Horsley Park AWS, it is considered reasonable to assume that the wind conditions recorded at the Horsley Park AWS are representative of the wind conditions experienced at the Development Site.

Annual wind roses for the years 2017 to 2021 compiled from data recorded by the Horsley Park AWS are presented in **Figure A1**, with seasonal wind roses for 2021 presented in **Figure A2**. Wind roses show the frequency of occurrence of winds by direction and strength. The bars correspond to the 16 compass points (degrees from North). The bar at the top of each wind rose diagram represents winds blowing from the north (i.e. northerly winds), and so on. The length of the bar represents the frequency of occurrence of winds from that direction, and the widths of the bar sections correspond to wind speed categories, the narrowest representing the lightest winds. Thus it is possible to visualise how often winds of a certain direction and strength occur over a long period, either for all hours of the day, or for particular periods during the day.

The 'Beaufort Wind Scale' (consistent with terminology used by the BoM) presented in **Table A1** was used to describe the wind speeds experienced at Oakdale West.

Table A1 Beaufort Wind Scale

Beaufort Scale #	Description	m/s	Description on land
0	Calm	0-0.5	Smoke rises vertically
1	Light air	0.5-1.5	Smoke drift indicates wind direction
2-3	Light/gentle breeze	1.5-5.3	Wind felt on face, leaves rustle, light flags extended, ordinary vanes moved by wind
4	Moderate winds	5.3-8.0	Raises dust and loose paper, small branches are moved
5	Fresh winds	8.0-10.8	Small trees in leaf begin to sway, crested wavelets form on inland waters
6	Strong winds	>10.8	Large branches in motion, whistling heard in telephone wires; umbrellas used with difficulty

Source: http://www.bom.gov.au/lam/glossary/beaufort.shtml

The annual wind rose (**Figure A1**) indicates that the predominant wind directions in the area are from the southwest. Calm wind conditions (wind speed less than 0.5 m/s) were recorded approximately 12% of the time throughout the five year period reviewed. The average seasonal wind roses for the years 2017-2021 indicate that:

- In summer, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.8 m/s). The majority of winds originated from eastern and south eastern quadrants, with very few winds from westerly directions. Calm wind conditions were recorded approximately 10% of the time during summer.
- In autumn, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.1 m/s). The majority of winds originated from the southwest quadrant, with very few winds from the northeast. Calm wind conditions were observed to occur approximately 12.5% of the time during autumn.
- In winter, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 10.1 m/s). The majority of winds originated from the southwest quadrant, with very few winds from the east. Calm wind conditions were observed to occur approximately 13.5% of the time during winter.
- In spring, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.9 m/s). The frequencies of winds were generally even from all directions. Calm wind conditions were observed to occur approximately 11% of the time during spring.

Wind erosion of dust from exposed surfaces (ie, during the construction phase of the development) is usually initiated when wind speeds exceed the threshold friction velocity for a given surface or material, however a general rule of thumb is that wind erosion can be expected to occur above 5 m/s (USEPA 2006). The frequency of wind speeds for the period of 2017-2021 is presented in **Figure A3**. The plot showed that the frequency of wind speeds exceeding 5 m/s for the period 2017-2021 at Horsley Park AWS was approximately 6%.

Figure A1 Annual and Seasonal Wind Roses for Horsley Park (2017 to 2021)

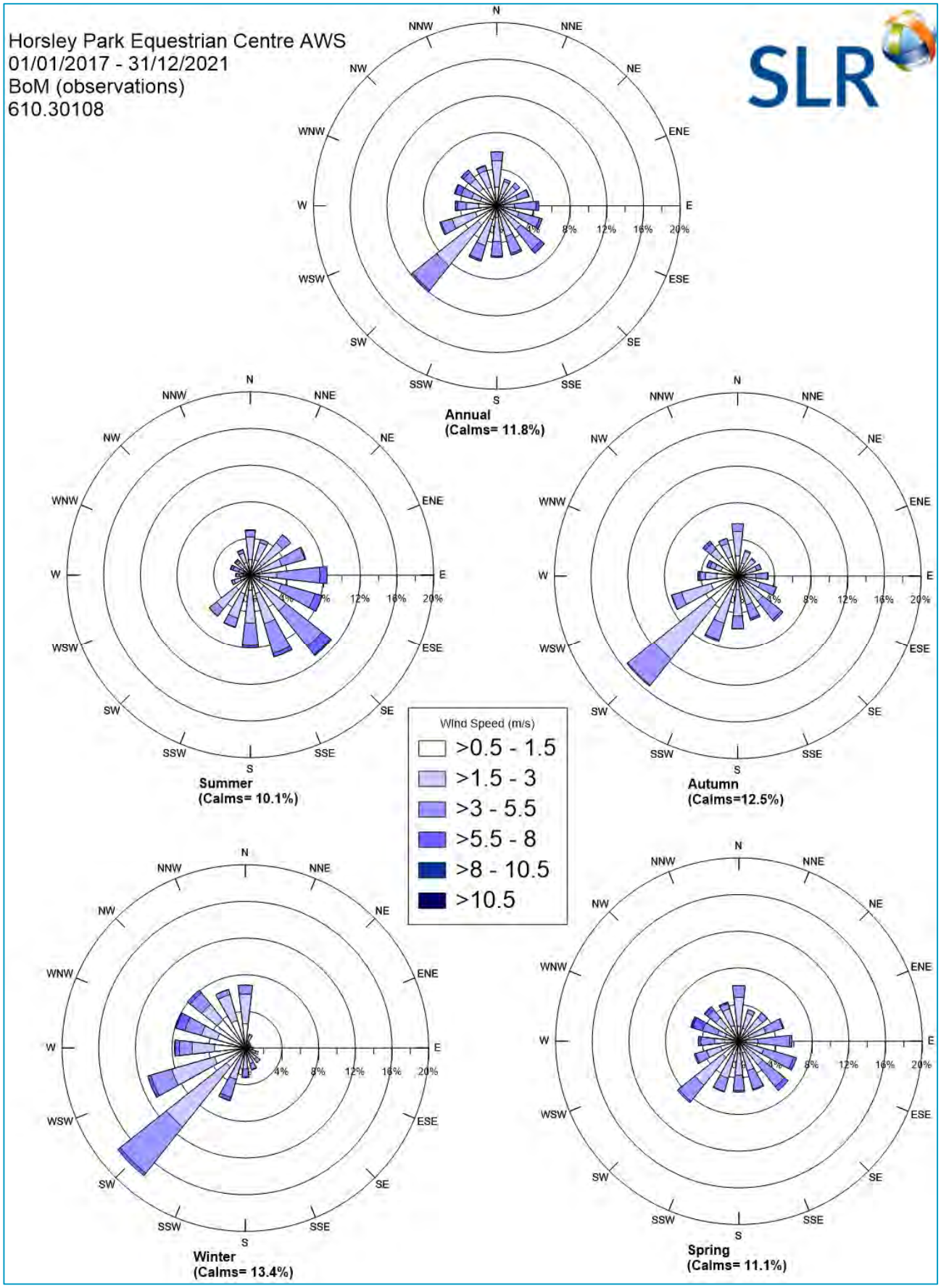
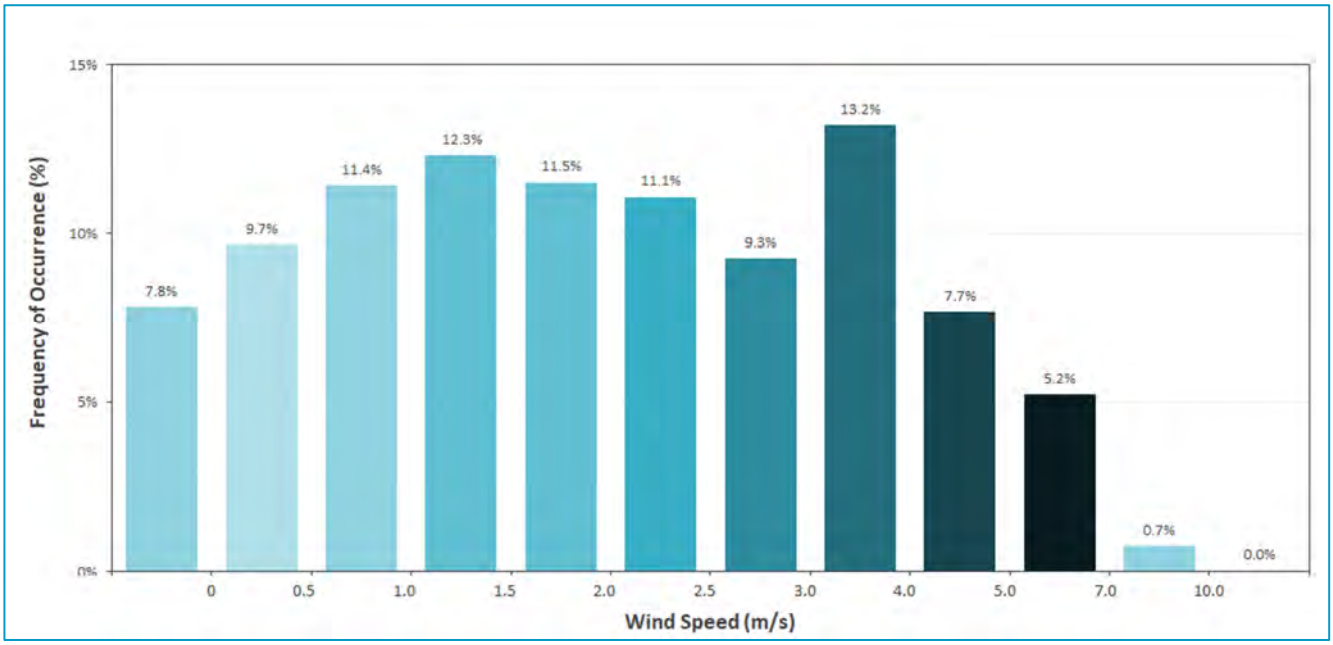


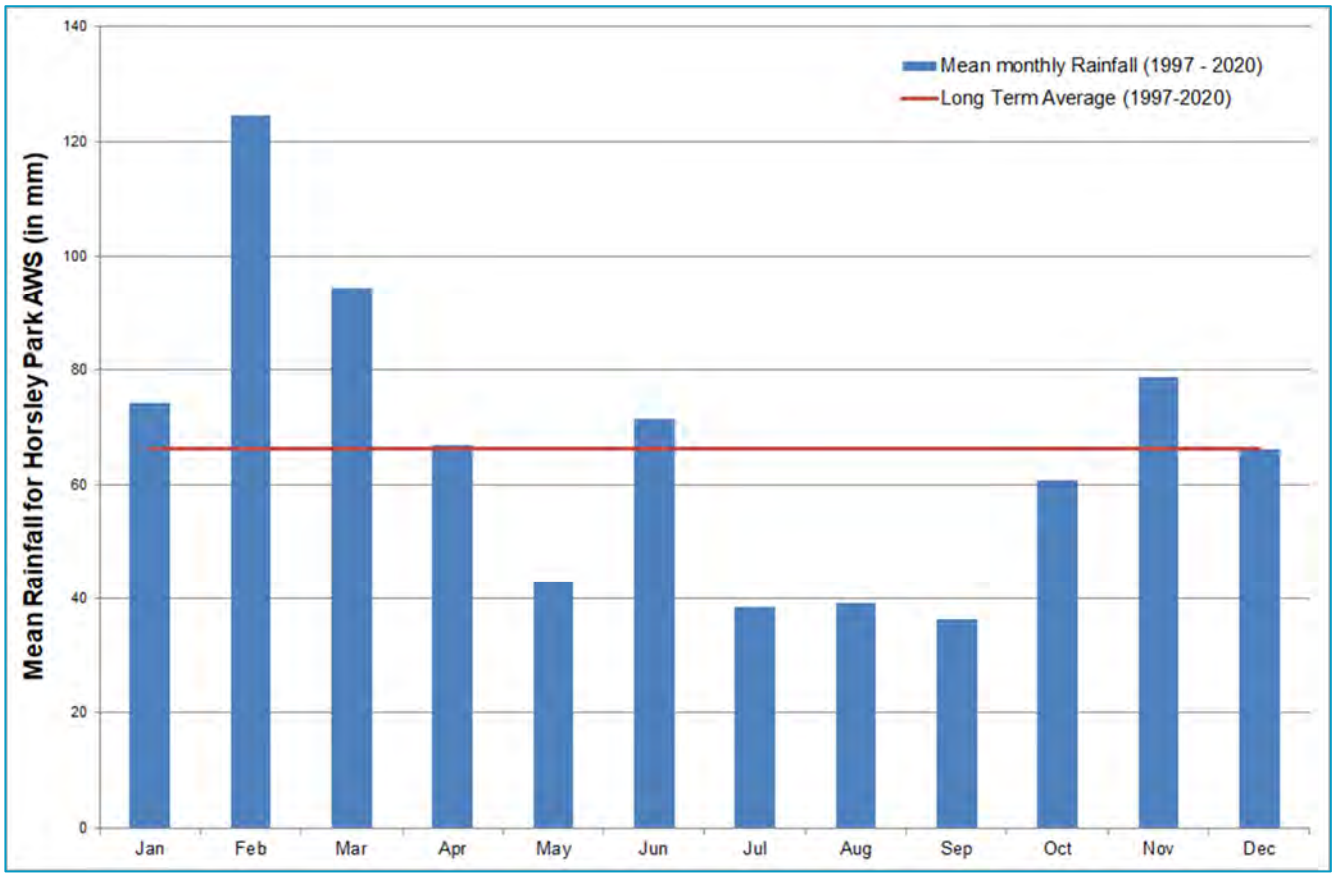
Figure A3 Wind Speed Frequency Chart for Horsley Park AWS – 2017-2021



Rainfall

Dry periods (no rainfall) have the greatest potential for fugitive dust emissions during construction. The long-term monthly rainfall averages recorded at Horsley Park AWS rain gauge are shown in **Figure A4**. It is noted that generally rainfall is relatively low in mid-winter to mid spring periods. This rainfall pattern suggests that dust emissions from the construction activities at the Development Site have the greatest potential to impact on receptors for the period of late autumn to early spring.

Figure A4 Long term Mean Rainfall for Horsley Park AWS – 1997 to 2021



APPENDIX B

CONSTRUCTION PHASE RISK ASSESSMENT METHODOLOGY

Step 1 – Screening Based on Separation Distance

As noted in **Section 3.2**, the nearest residential receptors are located approximately 140 m from the southern boundary of the Development Site. The nearest commercial receptors are located approximately 30 m to the south, 100 m to the east and 120 m to the north of the Development Site boundary.

The IAQM screening criteria for further assessment is the presence of a sensitive receptor within:

- 350 m of the boundary of the site; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).

As residential receptors are located approximately 140 m of the boundary of the site further assessment is required.

Step 2a – Assessment of Scale and Nature of the Works

Step 2a of the assessment provides "dust emissions magnitudes" for each of four dust generating activities; demolition, earthworks, construction, and track-out (the movement of site material onto public roads by vehicles). The magnitudes are: *Large*; *Medium*; or *Small*, with suggested definitions for each category. The definitions given in the IAQM guidance for earthworks, construction activities and track-out, which are most relevant to this Development, are as follows:

Demolition *(Any activity involved with the removal of an existing structure [or structures]. This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time)*:

- ***Large***: Total building volume >50,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >20 m above ground level;
- ***Medium***: Total building volume 20,000 m^3 – 50,000 m^3, potentially dusty construction material, demolition activities 10-20 m above ground level; and
- ***Small***: Total building volume <20,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10m above ground, demolition during wetter months.

Earthworks *(Covers the processes of soil-stripping, ground-levelling, excavation and landscaping)*:

- ***Large***: Total site area greater than 10,000 m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than 8 m in height, total material moved more than 100,000 t.
- ***Medium***: Total site area 2,500 m^2 to 10,000 m^2, moderately dusty soil type (e.g. silt), 5 to 10 heavy earth moving vehicles active at any one time, formation of bunds 4 m to 8 m in height, total material moved 20,000 t to 100,000 t.

- ***Small***: Total site area less than 2,500 m^2, soil type with large grain size (e.g. sand), less than five heavy earth moving vehicles active at any one time, formation of bunds less than 4 m in height, total material moved less than 20,000 t, earthworks during wetter months.

Construction *(Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc)*:

- ***Large***: Total building volume greater than 100,000 m^3, piling, on site concrete batching; sandblasting.
- ***Medium***: Total building volume 25,000 m^3 to 100,000 m^3, potentially dusty construction material (e.g. concrete), piling, on site concrete batching.
- ***Small***: Total building volume less than 25,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

Track-out *(The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network)*:

- ***Large***: More than 50 heavy vehicle movements per day, surface materials with a high potential for dust generation, greater than 100 m of unpaved road length.
- ***Medium***: Between 10 and 50 heavy vehicle movements per day, surface materials with a moderate potential for dust generation, between 50 m and 100 m of unpaved road length.
- ***Small***: Less than 10 heavy vehicle movements per day, surface materials with a low potential for dust generation, less than 50 m of unpaved road length.

Note: No significant demolition activities are proposed as part of the works.

In order to provide a conservative assessment of potential impacts, it has been assumed that if at least one of the parameters specified in the 'large' definition is satisfied, the works are classified as large, and so on.

Based on the above, dust emission magnitudes have been categorised as presented in **Table B1**.

Table B1 Categorisation of Dust Emission Magnitude

Activity	Dust Emission Magnitude	Basis
Earthworks	Large	**IAQM Definition:** Total site area greater than 10,000 m^2, potentially dusty soil type (eg clay, which will be prone to suspension when dry due to small particle size), more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than 8 m in height, total material moved more than 100,000 t. **Relevance to this Project:** *An estimated 52.2 ha (522,000 m^2) site area is expected to undergo bulk earthworks.*
Construction	Medium	**IAQM Definition:** Total building volume 25,000 m^3 to 100,000 m^3, potentially dusty construction material (eg concrete), piling, on site concrete batching. **Relevance to this Project:** *A warehouse and distribution building is proposed to be constructed on Lot 10 covering an area of 45,225 m^2 including 3,006 m^2 of office space.*
Trackout	Large	**IAQM Definition:** More than 50 heavy vehicle movements per day, surface materials with a high potential for dust generation, greater than 100 m of unpaved road length. **Relevance to this Project:** *It is estimated that approximately 60 heavy vehicles movements per day will occur during the peak construction period.*

Step 2b – Risk Assessment

Assessment of the Sensitivity of the Area

Step 2b of the assessment process requires the sensitivity of the area to be defined. The sensitivity of the area takes into account:

- The specific sensitivities that identified sensitive receptors have to dust deposition and human health impacts;
- The proximity and number of those receptors;
- In the case of PM_{10}, the local background concentration; and
- Other site-specific factors, such as whether there are natural shelters such as trees to reduce the risk of wind-blown dust.

Individual receptors are classified as having *high*, *medium* or *low* sensitivity to dust deposition and human health impacts (ecological receptors are not addressed using this approach). The IAQM method provides guidance on the sensitivity of different receptor types to dust soiling and health effects as summarised in **Table B2**. It is noted that user expectations of amenity levels (dust soiling) is dependent on existing deposition levels.

Table B2 IAQM Guidance for Categorising Receptor Sensitivity

Value	High Sensitivity Receptor	Medium Sensitivity Receptor	Low Sensitivity Receptor
Dust soiling	Users can reasonably expect a high level of amenity; or The appearance, aesthetics or value of their property would be diminished by soiling, and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods as part of the normal pattern of use of the land.	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or The appearance, aesthetics or value of their property could be diminished by soiling; or The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.	The enjoyment of amenity would not reasonably be expected; or Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.
	Examples: Dwellings, museums, medium and long term car parks and car showrooms.	*Examples: Parks and places of work.*	*Examples: Playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.*
Health effects	Locations where the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).	Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).	Locations where human exposure is transient.
	Examples: Residential properties, hospitals, schools and residential care homes.	*Examples: Office and shop workers, but will generally not include workers occupationally exposed to PM10.*	*Examples: Public footpaths, playing fields, parks and shopping street.*

According to the IAQM methods, the sensitivity of the identified individual receptors (as described above) is then used to assess the *sensitivity of the area* surrounding the active construction area, taking into account the proximity and number of those receptors, and the local background PM_{10} concentration (in the case of potential health impacts) and other site-specific factors. Additional factors to consider when determining the sensitivity of the area include:

- any history of dust generating activities in the area;
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors;
- any conclusions drawn from analysing local meteorological data which accurately represent the area and if relevant, the season during which the works will take place;
- any conclusions drawn from local topography;
- the duration of the potential impact (as a receptor may be willing to accept elevated dust levels for a known short duration, or may become more sensitive or less sensitive (acclimatised) over time for long-term impacts); and
- any known specific receptor sensitivities which go beyond the classifications given in the IAQM document.

Based on the criteria listed in **Table B2**, the sensitivity of the identified receptors in this study is concluded to be *high* for health impacts and *high* for dust soiling, as they include residential areas where people may be reasonably expected to be present continuously as part of the normal pattern of land use.

The IAQM guidance for assessing the sensitivity of an area to dust soiling is shown in **Table B3**. The sensitivity of the area should be derived for each of activity relevant to the project (ie construction and earthworks).

Table B3 IAQM Guidance for Categorising the Sensitivity of an Area to Dust Soiling Effects

Receptor Sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Note: Estimate the total number of receptors within the stated distance. Only the *highest level* of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors < 20m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors < 50 m is 102. The sensitivity of the area in this case would be high.

A modified version of the IAQM guidance for assessing the *sensitivity of an area* to health impacts is shown in **Table B4**. For high sensitivity receptors, the IAQM methods takes the existing background concentrations of PM_{10} (as an annual average) experienced in the area of interest into account and is based on the air quality objectives for PM_{10} in the UK. As these objectives differ from the ambient air quality criteria adopted for use in this assessment (i.e. an annual average of 19.4 $\mu g/m^3$ for PM_{10}) the IAQM method has been modified slightly.

This approach is consistent with the IAQM guidance, which notes that in using the tables to define the *sensitivity of an area*, professional judgement may be used to determine alternative sensitivity categories, taking into account the following factors:

- any history of dust generating activities in the area;

- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors;
- any conclusions drawn from analysing local meteorological data which accurately represent the area, and if relevant the season during which the works will take place;
- any conclusions drawn from local topography;
- duration of the potential impact; and
- any known specific receptor sensitivities which go beyond the classifications given in this document.

Table B4 IAQM Guidance for Categorising the Sensitivity of an Area to Dust Health Effects

Receptor sensitivity	Annual mean PM_{10} conc.	Number of receptors [a,b]	Distance from the source (m)				
			<20	<50	<100	<200	<350
High	>25 µg/m^3	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	21-25 µg/m^3	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	17-21 µg/m^3	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<17 µg/m^3	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>25 µg/m^3	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	21-25 µg/m^3	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	17-21 µg/m^3	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<17 µg/m^3	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Notes:

(a) Estimate the total within the stated distance (e.g. the total within 350 m and not the number between 200 and 350 m); noting that only the highest level of area sensitivity from the table needs to be considered.

(b) In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties.

The nearest sensitive receptor is located within 350 m from the nearest Development Site. Based on the classifications shown in **Table B3** and **Table B4**, the sensitivity of the area to dust soiling and to health effects may both be classified as '*low*'. Additionally, these categorisations have been made taking into account the 5-year mean background PM_{10} concentration of 20.8 µg/m^3 recorded at Prospect AQMS (see **Section 6.2**).

Risk Assessment

The dust emission magnitude from Step 2a and the receptor sensitivity from Step 2b are then used in the matrices shown in **Table B5** (earthworks and construction), **Table B6** (track-out) and **Table B7** (demolition) to determine the risk category with no mitigation applied.

Table B5 Risk Category from Earthworks and Construction Activities

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table B6 Risk Category from Track-out Activities

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Table B7 Risk Category from Demolition Activities

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

APPENDIX C

AIR QUALITY NOTIFICATION FORM

Construction of Momentum M7	
Air Quality Notification Form ➢ This form to be completed within 24hrs of an exceedance of PM10 dust >50 µg/m^3 (24hr average) on site (CAQMP Sect 5.2.1 Table 4 – 24hr average) ➢ This form to be completed by the Contractor PM, PE or Environmental Representative ➢ Please attach site observation photographs as required	
Contract	
Prepared by (Print Name)	
Position (Project PM, Engineer etc)	
Time/Day/Date of notification	
What were the PM_{10} levels recorded at the start of the shift?	
Was there scope of work specific dust generation observed during the reporting period? (If yes, please provide site specific area)	
Was the measured dust level influenced by dust from external sources? (yes/no/possible)	
Dust generating construction related activities at the time of the notification (1) Provide a brief description of works being undertaken at the time of the dust being observed	
Wind direction and speed relating to the reporting period (show variable wind directions and speed throughout the notification period. Attach wind charts if applicable) (3)	
Were additional dust mitigation resources implemented during the reporting period? (if yes, provide a brief description)	
Sign/Date	
Gazcorp Contract Superintendent to Complete	
Notified ER Time/Day/Date	
Follow up required (yes/no)	
Is this notification issued as a result of an external complaint?	
Sign/Date	

APPENDIX D - CURRICULUM VITAE OF AUTHOR

CURRICULUM VITAE



VARUN MARWAHA

ASSOCIATE

Air Quality, Asia-Pacific

QUALIFICATIONS

BEng	2006	Bachelor of Engineering - Chemical, University of Sydney

EXPERTISE

- Air Quality Dispersion modelling using a variety of software applications
- Meteorological and Ambient air quality monitoring & assessment for legislative compliance
- Australian state and federal regulatory compliance – Air Quality
- Opportunities and constraints reporting
- Detailed knowledge of air quality/meteorological interactions

Varun is an Associate Air Quality Consultant working within the Air Quality team. He has over 10 years of environmental and process engineering experience.

Varun has acquired a broad environmental experience including air quality (including odour) impact assessments, emission inventories (including National Pollutant Inventory), air quality dispersion modelling (including Ausplume, CALPUFF and CAL3QHCR), air quality monitoring (including odour), meteorological monitoring, meteorological modelling (The Air Pollution Model [TAPM] & CALMET), greenhouse gas assessments and overall project management.

Varun has conducted numerous environmental audits and prepared NPI reports for a range of industries including power stations throughout Australia.

Varun is a Certified Air Quality Professional (CAQP) and a Certified Practicing Project Manager (CPPM), and is respected for his contribution to the air quality industry.

PROJECTS

Sentosa Gateway Project, Singapore	The project involved the assessment of air impacts due to road traffic tunnel from Sentosa Island to mainland Singapore. The project proposed to build a tunnel for the outbound traffic from Sentosa with tunnel exits located on Lower Delta Road and Keppel Road. The emissions were quantified and modelled using CAL3QHCR and CALPUFF modelling suites to predict the roadside impacts. The project also included assessment of other sources of pollutants in the region for the cumulative assessment
Sydney Harbour Bridge, Sydney, NSW, Australia	Compliance Monitoring (Lead, PM_{10} and TSP). The project involves repainting the iconic Sydney Harbour Bridge. The process includes stripping the old paint (containing lead), preparation of the surface and repainting. The monitoring was conducted for lead concentration in the air along with the concentration of particulate (PM_{10} and TSP) was required. For lead monitoring, membrane filters were used and for particulate monitoring High Volume air samplers (HVAS) were employed.

Capital Metro Project, Canberra, ACT, Australia (2018-2019)	The project involved preparation of Air Quality Impact Assessment (AQIA) for the proposed ACT Light Rail Stage 1 – Gungahlin to Civic Project, a 12 kilometre light rail service linking the fast- developing area of Gungahlin in the north, to the City. The emissions due to the operation of light rail network were quantified and compared to the existing regional air emissions levels. It was demonstrated that the regional emissions were likely to decrease significantly when compared with the current situation.
Proposed Residential Development, RMS	Road Traffic Impact Assessment. The project involved assessment of roadside impacts on the proposed residential development due to road traffic on a busy motorway. The aim of the project was to determine the maximum impacts and validating against the monitored roadside data. The emissions were quantified and modelled using CAL3QHCR modelling suite to predict the roadside impacts. The project also included assessment of other sources of pollutants in the region for the cumulative assessment. The modelling skills were put to test when integrating predicted results from several modelling suites (CAL3QHCR and CALPUFF)
Proposed Haul Roads (Fortescue Metals Group), WA, Australia	The project involved assessment of two possible options for building haul roads in separate directions. The aim of the project was to determine mine access route from the nearest transport facility. The emissions were quantified and modelled using CALPUFF modelling suite to predict the roadside impacts on the nearest receptors on each haul road route.
Confidential Highway Project, QLD, Australia	Emissions estimation and modelling for an air quality impact assessment for a proposed new highway in Queensland. Work included the estimation of vehicle emissions for the operational phase using the COPERT-Australia emissions modelling software and dispersion modelling of the road and tunnel emissions using CAL3QHCR and CALPUFF dispersion models.
MEMBERSHIPS	Clean Air Society of Australia and New Zealand (CASANZ)
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	Institute of Chemical Engineers (IChemE)
ACCREDITATION	Certified Air Quality Professional (CAQP), CASANZ
	Certified Practicing Project Manager (CPPM), UNE
TRAINING	Advanced CALPUFF Course – Clean Air Society of Australia and New Zealand (CASANZ), 2008
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Appendix B Vegetation and Riparian Management Plan



Vegetation Management Plan

813 Wallgrove Road, Horsley Park

Report prepared by Narla Environmental Pty Ltd

for Gazcorp Pty Ltd

March 2022

NARLA

environmental

Report:	Vegetation Management Plan – 813 Wallgrove Road, Horsley Park
Prepared for:	Gazcorp Pty Ltd
Prepared by:	Narla Environmental Pty Ltd
Project no:	Gazc2
Date:	March 2022
Version:	Final v2.0

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1. Project Background

This Vegetation Management Plan (VMP) has been prepared to accompany a controlled activity approval for the proposed commercial development at 813 Wallgrove Road, Horsley Park 2175 (Lot 100/ DP1268340; hereafter referred to as the 'Subject Property'; **Figure 1**). The Subject Property is approximately 52.2ha, with the proposed development comprising twenty (20) warehouses along with access roads and carparking spaces (hardstand areas).

The proposed development is situated adjacent to a riparian corridor, located along the western boundary of the Subject Property. Two (2) streams are located along this boundary, a 2nd order stream (unnamed) and a 3rd order stream (Reedy Creek). The riparian corridors of these streams are 20m and 30m respectively, and form the Vegetated Riparian Zone (VRZ). This VMP will accompany the controlled activity approval, and aims to provide appropriate environmental protection and impact mitigation measures to ensure the stability of the watercourse and VRZ within the Subject Property.

1.1 Management Zones

The following vegetation communities were present within the Subject Site (**Figure 2**):

- Alluvial Woodland; and
- Exotic Dominated.

Four (4) management zones have been identified within the Subject Site to account for varying management objectives and requirements (**Figure 3**):

- Zone 1: Alluvial Woodland - Restoration
- Zone 2: Alluvial Woodland (Casuarina dominant) - Restoration;
- Zone 3: Revegetation; and
- Zone 4: Powerline Easement Revegetation.

The objectives and recommendations of each management zones are outlined in **Section 2**.

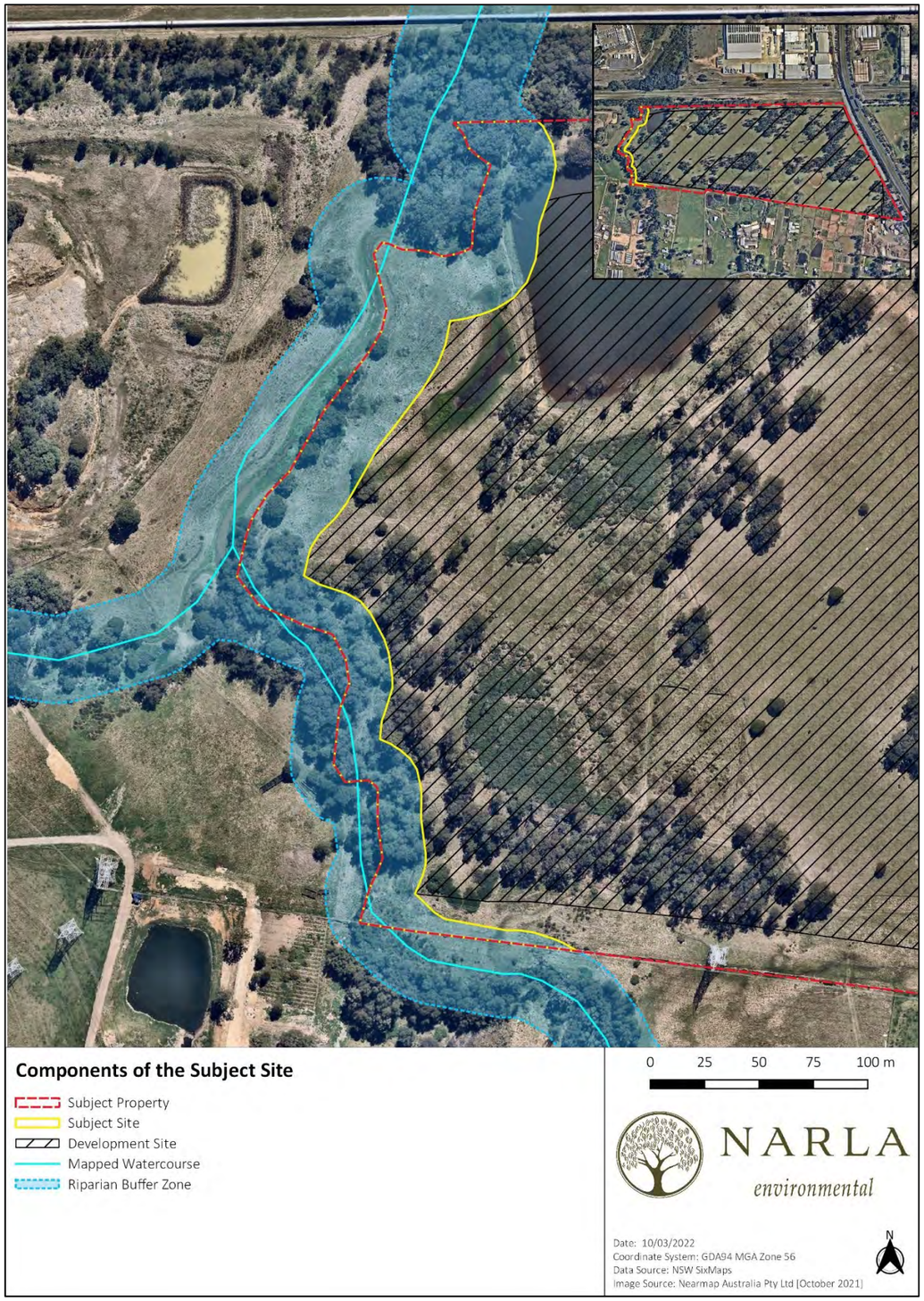


Figure 1. Components of the Subject Site.

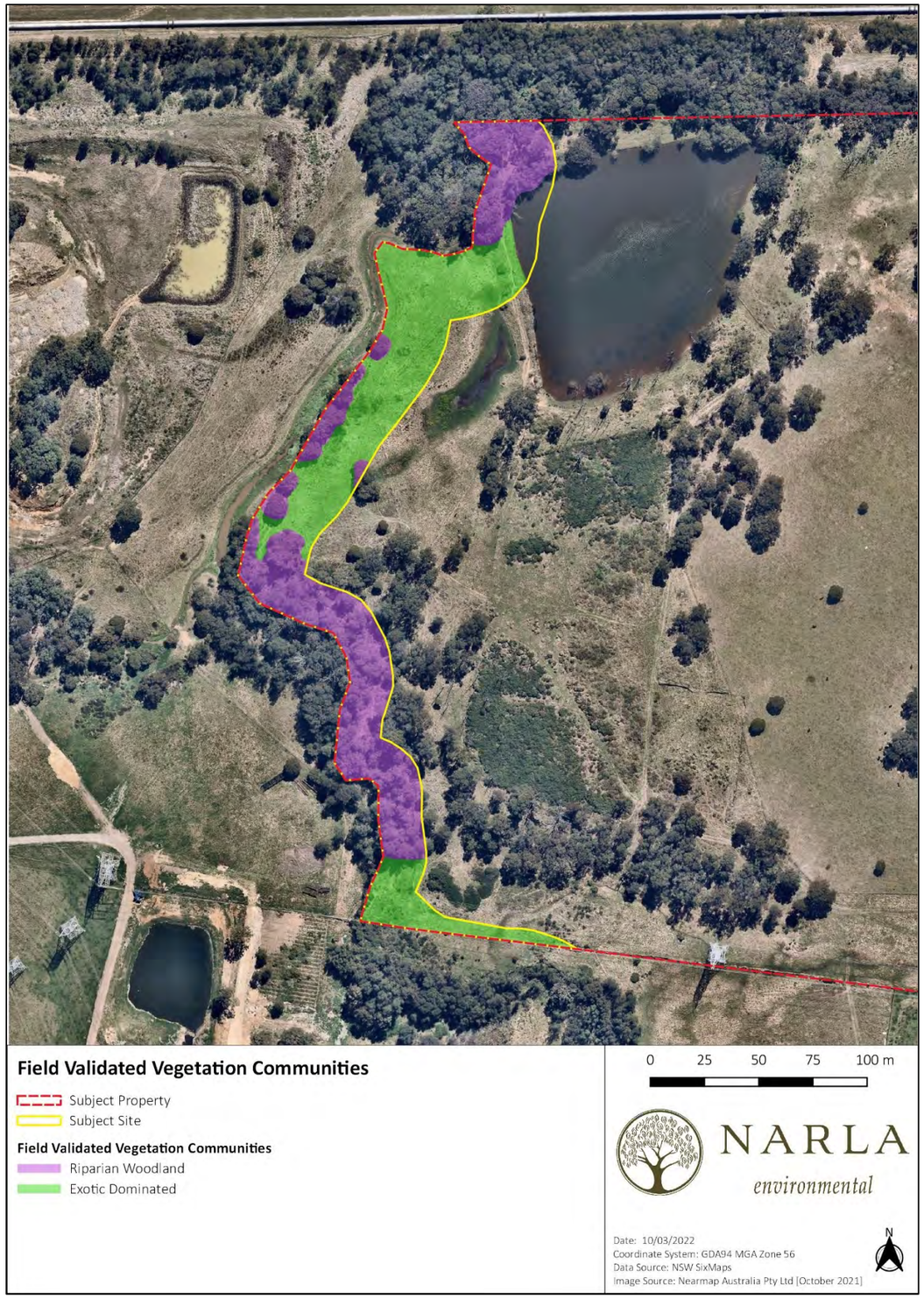


Figure 2. Field validated vegetation communities within the Subject Site.

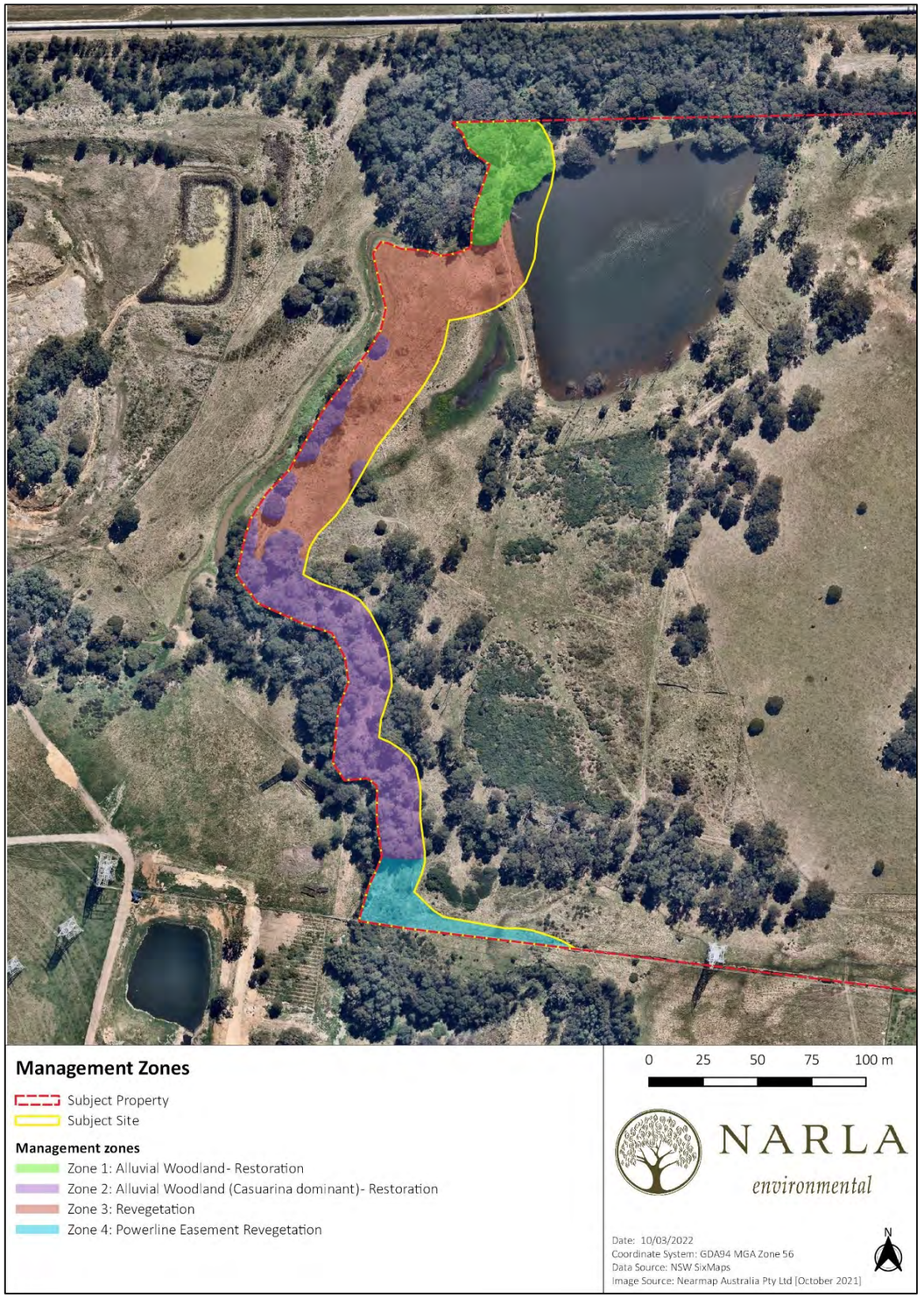


Figure 3. Management Zones within the Subject Site.

2. Management Zones

Management Zone 1: Alluvial Woodland - Restoration

Approximate Area = 0.15ha



<u>Description</u>

This management zone encompasses areas of Alluvial Woodland (as described by Tozer 2003) within the Subject Site that are to be restored as per the VMP. The zone comprised a dominant canopy of *Eucalyptus amplifolia* with scattered *Casuarina glauca.* The shrub and groundlayer was highly degraded, dominated by *Cestrum parqui* (priority weed)*, Ehrharta erecta, Lycium ferocissimum* (priority weed)*, Sida rhombifolia* and *Tradescantia fluminensis.* Minor infestations of the priority weed *Alternanthera philoxeroides* were also present. Some native shrub and groundlayer species were observed within the zone, albeit not common, including *Bursaria spinosa, Cynodon dactylon, Microlaena stipoides* and *Plectranthus parviflorus.*

The vegetation within this zone conforms to the BC Act listed River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions, an Endangered Ecological Community.

<u>Objectives of zone</u>

- To restore and rehabilitate the degraded riparian zone and areas of significant vegetation; and
- To reduce all priority weeds and environmental weeds, and prevent further incursion.

<u>Management Requirements</u>

Weed Control

- Priority weed cover is to significantly reduce within the zone, namely *Alternanthera philoxeroides, Cestrum parqui* and *Lycium ferocissimum.*
- Environmental weed cover is to be reduced, with a focus surrounding areas of natural regeneration and revegetation areas.
- Encroachment of weeds from the development site and neighbouring properties is to be prevented.

Revegetation

- Revegetation of the mid-storey, shrub layer and groundlayer is to be conducted within this zone, as the zone is highly degraded and the potential for unassisted natural regeneration is low. No canopy revegetation is required.
- Native species representative of River-Flat Eucalypt Forest are to be planted to the following specifications:
    - Mid-storey: 1 plant per $10m^2$
    - Ground layer: 4 plants per $1m^2$.
- **Appendix A** outlines the recommended species for planting within this zone.

Erosion Control

- Sediment fencing is to be installed and maintained where the riparian vegetation borders the proposed development site. This is to prevent damage to the riparian vegetation as a result of the development. Sediment fencing should be retained during construction.
- Preceding construction works, the 'Blue Book' (Landcom 2004) should be consulted to ensure any additional necessary erosion controls are adequately installed.

Fencing

- High visibility exclusion fencing and signage are to be installed where vegetation borders the proposed development site.
- Any old fences within the zone that are not required are to be removed.

Management Zone 2: Alluvial Woodland (Casuarina dominant) - Restoration

Approximate Area = 0.46ha



<u>Description</u>

This management zone encompasses areas of Alluvial Woodland (as described by Tozer 2003) within the Subject Site that are to be restored as per the VMP. The zone was in a similar condition to Zone 1, however comprised a dominant canopy of *Casuarina glauca,* and sparser occurrences of *Eucalyptus amplifolia.* A mid-storey dominated by *Melaleuca styphellioides* and to a lesser extent, *Melaleuca linariifolia*. The shrub and groundlayer was highly degraded, dominated by *Cestrum parqui* (priority weed), *Lycium ferocissimum* (priority weed), *Sida rhombifolia* and *Tradescantia fluminensis.* Minor infestations of the priority weed *Anredera cordifolia* were also present. Some native shrub and groundlayer species were observed sporadically throughout the zone, including *Acacia parramattensis, Bursaria spinosa, Clematis aristata, Cynodon dactylon, Einadia nutans, Einadia trigonos, Microlaena stipoides* and *Plectranthus parviflorus.*

The vegetation within this zone conforms to the BC Act listed River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions, an Endangered Ecological Community.

<u>Objectives of zone</u>

- To restore and rehabilitate the degraded riparian zone and areas of significant vegetation; and
- To reduce all priority weeds and environmental weeds, and prevent further incursion.

<u>Management Requirements</u>

Weed Control

- Priority weed cover is to significantly reduce within the zone, namely *Anredera cordifolia, Cestrum parqui* and *Lycium ferocissimum.*
- Environmental weed cover is to be reduced, with a focus surrounding areas of natural regeneration and revegetation areas.
- Encroachment of weeds from the development site and neighbouring properties is to be prevented.

Revegetation

- Revegetation of the canopy, mid-storey, shrub layer and groundlayer is to be conducted within this zone, as the zone is highly degraded and natural regeneration is minimal. Canopy revegetation should focus on improving species diversity and focus on areas where gaps occur in the canopy. As such, *Casuarina glauca* is not recommended for planting within this zone, particularly as many regenerating plants were noted.
- Native species representative of River-Flat Eucalypt Forest are to be planted to the following specifications:
    - Canopy: 1 plant per 50m^2 (where appropriate, and within canopy gaps).
    - Mid-storey: 1 plant per 10m^2
    - Ground layer: 4 plants per 1m^2.
- r outlines the recommended species for planting within this zone.

Erosion Control

- Sediment fencing is to be installed and maintained where the riparian vegetation borders the proposed development site. This is to prevent damage to the riparian vegetation as a result of the development. Sediment fencing should be retained during construction.
- Preceding construction works, the 'Blue Book' (Landcom 2004) should be consulted to ensure any additional necessary erosion controls are adequately installed.

Fencing

- High visibility exclusion fencing and signage are to be installed where vegetation borders the proposed development site.
- Any old fences within the zone that are not required are to be removed.

Management Zone 3: Revegetation

Approximate Area = 0.49ha



<u>Description</u>

This management zone encompasses areas that have been historically cleared and are to be revegetated to River-Flat Eucalypt Forest. The zone was devoid of native canopy trees, mid-storey and shrub species. The groundlayer was dominated by exotic species, including *Bromus catharticus*, *Cenchrus clandestinus, Cirsium vulgare*, *Paspalum dilatatum, Plantago lanceolata, Sida rhombifolia* and *Verbena bonariensis*. A number of priority weeds were also present within the zone, including *Alternanthera philoxeroides, Anredera cordifolia, Lycium ferocissimum, Rubus fruticosus* sp. agg. and *Senecio madagascariensis*.

<u>Objectives of zone</u>

- To revegetate the degraded riparian zone; and
- To reduce all priority weeds and environmental weeds, and prevent further incursion.

<u>Management Requirements</u>

Weed Control

- Priority weed cover is to significantly reduce within the zone, namely *Alternanthera philoxeroides, Anredera cordifolia, Lycium ferocissimum, Rubus fruticosus* sp. agg. and *Senecio madagascariensis*.
- Environmental weed cover is to be reduced, with a focus surrounding areas of natural regeneration and revegetation areas.
- Encroachment of weeds from the development site and neighbouring properties is to be prevented.

Revegetation

- Revegetation of the canopy, mid-storey, shrub layer and groundlayer is to be conducted within this zone, as the zone is highly degraded and comprised minimal species regeneration.
- Native species representative of River-Flat Eucalypt Forest are to be planted to the following specifications:
    - Canopy: 1 plant per 50m^2.
    - Mid-storey: 1 plant per 10m^2
    - Ground layer: 4 plants per 1m^2.
- **Appendix A** outlines the recommended species for planting within this zone.

Erosion Control

- Sediment fencing is to be installed and maintained where the riparian vegetation borders the proposed development site. This is to prevent damage to the riparian vegetation as a result of the development. Sediment fencing should be retained during construction.
- Preceding construction works, the 'Blue Book' (Landcom 2004) should be consulted to ensure any additional necessary erosion controls are adequately installed.

Fencing

- High visibility exclusion fencing and signage are to be installed where vegetation borders the proposed development site.
- Any old fences within the zone that are not required are to be removed.

Management Zone 4: Powerline Easement Revegetation.
Approximate Area = 0.12ha



Description

This management zone encompasses areas that have been historically cleared and managed due to being situated within a powerline easement. The zone is to be revegetated to River-Flat Eucalypt Forest using only shrub and groundlayer species. The zone was devoid of native canopy trees, with regenerating native shrubs such as *Bursaria spinosa* and *Melaleuca styphelioides* present. Similar to Zone 3, the groundlayer was dominated by exotic species, including *Bromus catharticus*, *Cenchrus clandestinus, Cirsium vulgare*, *Paspalum dilatatum, Plantago lanceolata, Sida rhombifolia* and *Verbena bonariensis*. A number of priority weeds were also present within the zone, including *Alternanthera philoxeroides, Anredera cordifolia, Lycium ferocissimum, Rubus fruticosus* sp. agg. and *Senecio madagascariensis*.

Objectives of zone

- To revegetate the degraded riparian zone; and
- To reduce all priority weeds and environmental weeds, and prevent further incursion.

Management Requirements

Weed Control

- Priority weed cover is to significantly reduce within the zone, namely *Alternanthera philoxeroides, Anredera cordifolia, Lycium ferocissimum, Rubus fruticosus* sp. *agg* and *Senecio madagascariensis*.
- Environmental weed cover is to be reduced, with a focus surrounding areas of natural regeneration and revegetation areas.
- Encroachment of weeds from the development site and neighbouring properties is to be prevented.

Revegetation

- Revegetation of the shrub layer and groundlayer is to be conducted within this zone, as the zone is highly degraded and comprised minimal species regeneration. No canopy or mid-storey revegetation is to be conducted within this zone, as it is located within a powerline easement.
- Native species representative of River-Flat Eucalypt Forest are to be planted to the following specifications:
    - Shrub: 1 plant per $10m^2$
    - Ground layer: 4 plants per $1m^2$.
- **Appendix A** outlines the recommended species for planting within this zone.

Erosion Control

- Sediment fencing is to be installed and maintained where the riparian vegetation borders the proposed development site. This is to prevent damage to the riparian vegetation as a result of the development. Sediment fencing should be retained during construction.
- Preceding construction works, the 'Blue Book' (Landcom 2004) should be consulted to ensure any additional necessary erosion controls are adequately installed.

Fencing

- High visibility exclusion fencing and signage are to be installed where vegetation borders the proposed development site.
- Any old fences within the zone that are not required are to be removed.

3. Ongoing Management Actions

3.1 Performance Criteria

Objective	Key Performance Indicator (KPI)	How will this KPI be assessed?	Designated time to meet KPI	If KPI cannot be met by designated time
Remove priority weeds	Reduce priority weeds across all management zones by 95% cover within the first year of the VMP. Priority weeds are to be maintained at <1% cover within subsequent years.	This is determined by the Project Ecologist through a site assessment that comprises established monitoring plots within the Management Zones.	Within 12 months of bush regeneration works commission.	Double the amount of site visits by Bush Regeneration team for the next 6 months or until KPI is met.
Control all other (environmental) weeds	Other (environmental) weeds are to be reduced by 10% each year (from starting cover %) across all management zones for the life of the VMP (and maintained below 10%).	This is determined by the Project Ecologist through a site assessment that comprises permanent monitoring plots within the Management Zones.	Within 12 months of bush regeneration works commission.	Double the amount of site visits by Bush Regeneration team for the next 6 months or until KPI is met.
Conduct revegetation	Revegetation of River-flat Eucalypt Forest is to be completed within all management zones by a suitably qualified Bush Regeneration Contractor in conjunction with weed control. Plantings are to follow the species listed in **Appendix A.**	This is determined by the Project Ecologist who will confirm the installation of plants within the Management Zones.	Within 6 months of bush regeneration works commission (revegetation can be delayed if weather is unfavourable for planting e.g. if no rain is forecast for an extended period of time).	Bush Regeneration Contractor must be contacted immediately. The proponent must commission double the number of site visits for the following year, unless planting is completed before this time.
Survival of plantings.	>90% survival rate of all plantings installed within each Management Zone over the life of the VMP.	This is determined by the Project Ecologist through an annual site assessment involving a count of individual plantings installed.	Each Spring for the life of the VMP.	A Bush Regeneration Contractor must be contacted in order to replace all plants that have not survived the initial establishment phase of the VMP. If plants continue to die following the 2-year mark of the VMP, watering visits are to be scheduled with the Bush Regeneration Team to ensure survival.
Installation of Sediment and Exclusion Fencing.	Installation of sediment fencing surrounding the proposed construction area consistent with the 'Blue Book' (Landcom 2014). Installation of exclusion fencing where the riparian zone borders the development site.	Confirmed by a site visit by the Project Ecologist.	Prior to construction.	Immediately install sediment fencing and exclusion fencing where required by the VMP.
Removal of old fencing	Remove all unnecessary, old fencing within the Subject Site.	Confirmed by a site visit by the Project Ecologist.	Prior to construction.	Immediately remove all old fencing within the Subject Site.

3.2 Work Schedule / Timing

Task	Process for Completion	Time Required (estimate)	Responsibility	Scheduling				
				Year 1	Year 2	Year 3	Year 4	Year 5
Appointment of relevant contractors	Appointment of a qualified Project Ecologist.	Prior to any excavation or construction works; and prior to yearly monitoring events	Project Manager					
	Appointment of a Qualified Bushland Regenerator Contractor.							
Installation of Sediment Fencing and Controls.	Installation of sediment control surrounding the proposed construction area must be completed prior to any excavation or modification of vegetation for construction.	Once, prior to any excavation or vegetation clearing for construction works.	Construction Contractor					
Exclusion Fencing	High visibility exclusion fencing and signage are to be installed where riparian vegetation borders the proposed development site.	Once, prior to any excavation or vegetation clearing for construction works.	Construction Contractor					
Old Fencing	Remove all unnecessary, old fencing within the Subject Site.	Once, prior to any excavation or vegetation clearing for construction works.	Construction Contractor					
Implement Hygiene Protocol	Implementation of Hygiene Protocol as per the report, 'Arrive Clean, Leave Clean' (Commonwealth of Australia 2015).	During all construction and vegetation works.	Contractors Project Ecologist					
Weed Control	Reduce priority weeds across all management zones by 95% cover	As quoted by Bush Regenerator Contractor.	Bush Regeneration Contractors					
	Maintain priority weeds at <1% cover.							
	Other (environmental) weeds are to be reduced by 10% each year (from starting cover %) across all management zones.							
Revegetation	Revegetation of River-flat Eucalypt Forest is to be completed within all management zones.	As quoted by Bush Regenerator Contractor. Follow up plantings are to be undertaken throughout the life of the VMP if the survival rate drops below 90%.	Bush Regeneration Contractors		As required where survival is <90%			
Long-term maintenance.	Any repair or maintenance of signage or fences (including sediment fences).	As advised by Bush Regenerator or Project Ecologist.	Bush Regeneration Contractors		As required			
Monitoring and Reporting	Assess progress of restoration and revegetation works through sampling of permanent vegetation plots and a general assessment of the Subject Site.	Annually (in spring); 1 day for site assessment and 2 days for reporting	Project Ecologist					

3.3 Details Applicable to Management Zones

3.3.1 Assigning a Project Ecologist

Prior to commencement of any vegetation clearing, woody weed removal, or construction works within the Subject Property, a Project Ecologist must be assigned to oversee relevant works. The Project Ecologist must as a minimum:

- Hold a relevant tertiary degree in Science, Biology, Ecology, Environmental Science, Environmental Management, or Natural Resource Management;
- Be fully licensed under the Biodiversity Conservation Act 2016 (or equivalent); and
- Be fully licensed with a NSW Animal Research Authority (or equivalent) permitting the handling, relocation, and humane euthanasia of all terrestrial fauna.

3.3.2 Assigning a Bush Regenerator Contractor

All works associated with weed management and revegetation are to be implemented by a fully qualified and experienced Bush Regeneration Contractor with familiarity of western Sydney flora.

3.3.3 Weed Management

- Weed management is to be undertaken throughout all Management Zones, targeting weed infestations and ensuring no weed encroachment from surrounding areas.
- Weed management visits will be as quoted by the Bush Regenerator Contractor, or until the weeds are controlled to levels deemed acceptable by the Project Ecologist.
- Weeding techniques, such as scrape and paint, cut and paint or hand removal, should be used within the Subject Site. Herbicide spraying will be required to control larger weed infestations, however should be minimised in close proximity to the watercourses.
- All weeds removed are to be bagged, removed from site, and disposed of at a registered waste facility.

3.3.4 Planting Guidelines

- Recommended species for planting are listed in **Appendix A.**
- Shrub plantings are to be undertaken using hiko cells or tube stock.
- Groundcover (grass, sedge and herb) densities can be achieved using a combination of any of the following sources: direct seeding (e.g. *Microlaena stipoides*), translocation by bush regenerators, or planting of hiko cell or tube stock.
- Plantings must consist of local provenance plant species grown from seed collected within the broader catchment to be supplied by a native plant nursery specialising in indigenous plant species.
- Success of plantings and planting methods will be reviewed by the Project Ecologist during the monitoring visits.
- Planting efforts should only be conducted by a qualified Bush Regenerator Contractor.
- Tube stock and hiko cells are to be planted into appropriately sized pits in the soil that are at least twice the depth of the pot the plant is in. Appropriate fertiliser and soil wetting agent should be applied to each plant.
- Planting must only take place after exotic groundcovers have been cleared around the planting area.
- All plantings should be watered and maintained by a team of Bush Regenerators Contractors, with extra watering visits planned during times of predicted low rainfall.

3.3.5 Monitoring Specifications

a. Establishment of Monitoring Quadrats and Photo-points

- One (1) 20m x 20m permanent monitoring plot is to be established within each management zone.
- Vegetation monitoring is to be completed on an annual basis (in spring) by a suitably qualified Ecologist.
- A list of native and exotic species, including percentage cover, is to be recorded within each monitoring plot.
- Two (2) photo points are to be established within each management zone to monitor regeneration and revegetation, and included in annual monitoring reports.
- Installed plantings are to be assessed for survival via counting. Dead plants should be replaced when plant survival rate falls below 90%.

3.3.6 Reporting and Review

Monitoring reports are to be produced annually (in Spring) following monitoring events. These are to be produced by a suitably qualified Ecologist. Monitoring reports are to include the following:

- A summary of annual weed and management works;
- A site assessment based on performance targets;
- Presentation of photographic evidence to illustrate progress of weed control and revegetation;
- Any management issues/recommendations required to meet performance targets;
- Update work specifications as required to meet performance targets; and
- Management/maintenance requirements or recommendations to inform any subsequent management of the site (beyond the 1st year maintenance period)

This VMP should be reviewed by a qualified Ecologist at least every five years from the date of its adoption.

4. References

Department of Primary Industries (DPI) (2012) Guidelines for riparian corridors on waterfront land https://www.industry.nsw.gov.au/__data/assets/pdf_file/0003/160464/licensing_approvals_controlled_activities_riparian_corridors.pdf

Department of Primary Industries (DPI) (2012) Guidelines for vegetation management plans on waterfront land

Department of Primary Industries (DPI) (2021) Priority Weeds for the Greater Sydney, NSW Weeds Wise https://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=55

Landcom (2004) Managing Urban Stormwater: Soils and Construction

NSW Scientific Committee (2011) River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions - Determination to make a minor amendment to Part 3 of Schedule 1 of the Threatened Species Conservation Act https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2011-2012/river-flat-eucalypt-forest-on-coastal-floodplains-minor-amendment-determination

SBA Architects (2020) Momentum M7 – Modification 01, Proposed Development, Estate Masterplan. 813-913 Wallgrove Road, Eastern Creek. Plan No. MM7 – DA-001(A).

Tozer, M. (2003) The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities.

Sydney Water (2014) Stormwater connections to waterways in the Rouse Hill Development Area

5. Appendices

Appendix A. Recommended revegetation species list for River-flat Eucalypt Forest on Coastal Floodplains (Sydney Water 2014)*

Scientific Name	Canopy	Mid-storey	Groundcover
Acacia floribunda		X	
Acacia parramattensis		X	
Acmena smithii	X		
Angophora floribunda	X		
Angophora subvelutina	X		
Aristida vagans			X
Backhousia myrtifolia		X	
Breynia oblongifolia		X	
Bursaria spinosa		X	
Casuarina cunninghamiana subsp. *cunninghamiana*	X		
Casuarina glauca	X		
Centella asiatica			X
Centipeda cunninghamii			X
Clematis aristata			X
Commelina cyanea			X
Cymbopogon refractus			X
Dichelachne micrantha			X
Dichondra repens			X
Digitaria parviflora			X
Doodia aspera			X
Einadia hastata			X
Eucalyptus amplifolia	X		
Eucalyptus baueriana	X		
Eucalyptus botryoides	X		
Eucalyptus moluccana	X		
Eucalyptus tereticornis	X		
Geranium solanderi			X
Glycine clandestina			X
Hardenbergia violacea			X
Helichrysum diosmifolius			X
Hydrocotyle peduncularis			X
Imperata cylindrica var. *major*			X
Lomandra filiformis			X
Lomandra longifolia			X
Lomandra multiflora subsp. *multiflora*			X
Melaleuca decora	X		
Melaleuca linariifolia		X	
Melaleuca styphelioides	X		
Microlaena stipoides var. *stipoides*			X
Ozothamnus diosmifolius		X	
Pandorea pandorana			X
Themeda australis			X
Tristaniopsis laurina	X		
Viola hederacea			X
Wahlenbergia gracilis			X

**The species provided are to be prioritised for revegetation. In the instance that these species cannot be sourced, additional locally native species can be substituted following correspondence with the Project Ecologist.*

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Appendix C Aboriginal Cultural Heritage Management Plan

Orion Consulting

M

Gazcorp Industrial Estate (SSD 5248) Archaeology

LGA: Fairfield

Aboriginal Cultural Heritage Assessment (ACHA)

14 May 2020

McCARDLE CULTURAL HERITAGE PTY LTD

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McCARDLE
CULTURAL HERITAGE

Report No: J20224 ACHMP	
Approved by:	Penny McCardle
Position:	Director
Signed:	
Date:	14 May 2020

This report has been prepared in accordance with the scope of services described in the contract or agreement between McCardle Cultural Heritage Pty Ltd (MCH), ACN: 104 590 141, ABN: 89 104 590 141, and Orion Consulting. The report relies upon data, surveys, measurements and specific times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by Orion Consulting. Furthermore, the report has been prepared solely for use by Orion Consulting and MCH accepts no responsibility for its use by other parties.

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1 INTRODUCTION

1.1 INTRODUCTION

McCardle Cultural Heritage Pty Ltd (MCH) has been commissioned by Orion Consulting on behalf of Gazcorp Pty Ltd prepare an to prepare an Aboriginal Cultural Management Plan (ACHMP) in accordance with the SSD (5248) requirements for an Industrial Estate located at 813-913 Wallgrove Road, Horsley Park, NSW.

This Aboriginal Cultural Heritage Management Plan (ACHMP) pertains to the entire Project Area, informing all subsequent stages of the development, and meets the conditions set out by the SSD requirements. The key components of the ACHMP that will be addressed derive from the SSD requirements and include:

Aboriginal Cultural Heritage Management Plan

C70. Before the commencement of any clearing or construction works, the Applicant must prepare an Aboriginal Cultural Heritage Management Plan (ACHMP) for the Development to protect and manage 45-5-3884 (WR1 Prospect), WR2 and the area of arcaheological sensitivityy nect to Reedy Creek to the satisfaction of the Planning Secetary. The ACHMP must form part of the CEMP required by Condition D2 and must:

a) be prepared by a suitably qualified and experienced expert in consultation with the Registered Aboriginbal Parties;

b) be submitted to the satisfaction of the Planning Secetary prior to construction of any part of the development; and

c) describe the measures to protect the Aboriginal artefacts in perpetuity.

C71. The Applicant must:

a) not commence construction until the ACHMP is approved by the Planning Secretary; and

b) impliment the must recent version of the ACHMP approved by the Planning Secretary for the duration of the Development.

Unexpected finds Protocol

C72. If any items or objects of Aboriginal heritage significance, or relic as defined by the *Heritage Act 1977* (NSW) is identified on site:

a) all work in the immediate vicinity of the suspected Aboriginal item, object or relic must cease immediately;

b) a 10m wide buffer area around the suspected item or object must be cordoned off; and

c) the Heritage Division of the Department of Premier and Cabinet must be contacted immediately.

Follwing consultation with the Department of Planning, Industry and Environment (DPIE), Biodiversity and Conservation Division (BCD) the Registered Aboriginal Parties (RAPs) who registered for the project during the first Aboriginal Culural Heritage Assessment (ACHA) were to be consulted for the ACHA undertaken to inform this ACHMP along with any new RAPs.

Darug Custodians Aboriginal Corporation (DCAC) are the registered Aboriginal party for the project.

1.2 OVERVIEW

This ACHMP applies to the Gazcorp Industrial Estate ('the Project Area") located approximately 33 kilometres south west of the Sydney CBD. Comprising approximately 52 hectares, the project area includes Lot 5 DP 24090 located at 813-913 Wallgrove Road, Horsley Park. The location of the project area is provided in Figures 1.1 and 1.2.

Figure 1.1 Location of the project area

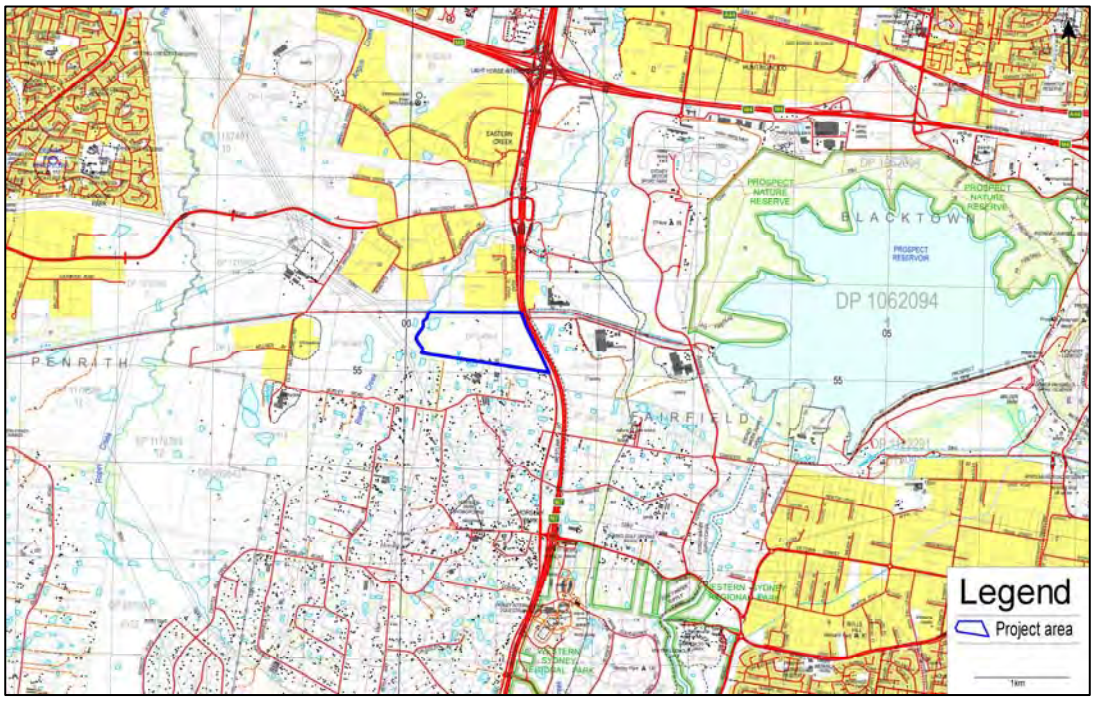


Figure 1.2 Aerial photograph of the project area (nearmap 2019)



1.3 PURPOSE

This document is intended to provide guidance for the management of Aboriginal cultural heritage within the Project Area for all activities prior to works commencing, during works and after works are complete. For the practical management of Aboriginal cultural heritage a clear outline of roles and responsibilities is provided in this document to be used by land managers and contractors who may need to access, or conduct works within the Project Area.

1.4 PROJECT INTENDED LAND USE

The project is for an industrial estate (Figure 1.3) that will include the following:

- 2111,550 square metres of gross floor area comprised of 198,300 square metres of warehouse/industrial uses and 13,250 metres square of ancillary office floor space;
- 16 development lots with a total of 14 building envelopes; and
- lot layouts, site levelling, infrastructure and utilities and landscaping.

Stage 1 of the development will include:

- vegetation clearing and bulk earthworks;
- construction of internal estate roads and utilities infrastructure;
- construction of stormwater management devices;
- development landscaping;
- construction and operation of a 45,225-metre square warehouse and distribution building, including 3,000 metres square of ancillary office spaces; and
- intersection works at Wallgrove Road.

Figure 1.3 Plan



2 LEGISLATIVE CONTEXT

The following overview of the legislative framework, is provided solely for information purposes for the client, and should not be interpreted as legal advice. MCH will not be liable for any actions taken by any person, body or group as a result of this general overview and MCH recommends that specific legal advice be obtained from a qualified legal practitioner prior to any action being taken as a result of the general summary below.

Land managers are required to consider the affects of their activities or proposed development on the environment under several pieces of legislation. Although there are a number of Acts and regulations protecting Aboriginal heritage, including places, sites and objects, within NSW, the three main ones include:

- National Parks and Wildlife Act (1974, as amended)
- National Parks and Wildlife Regulation (2009)
- Environmental Planning and Assessment Act (1979)

2.1 NATIONAL PARKS AND WILDLIFE ACT (1974, AS AMENDED)

The National Parks and Wildlife Act (1974), Amended 2010, is the primary legislation for the protection of Aboriginal cultural heritage in New South Wales. The NPW Act protects Aboriginal heritage (places, sites and objects) within NSW and the Protection of Aboriginal heritage is outlined in s86 of the Act, as follows:

- "A person must not harm or desecrate an object that the person knows is an Aboriginal object" s86(1)
- "A person must not harm an Aboriginal object" s86(2)
- "A person must not harm or desecrate an Aboriginal place" s86(4)

Penalties apply for harming an Aboriginal object, site or place. The penalty for knowingly harming an Aboriginal object (s86[1]) and/or an Aboriginal place (s86[4]) is up to $550,000 for an individual and/or imprisonment for 2 years; and in the case of a corporation the penalty is up to $1.1 million. The penalty for a strict liability offence (s86[2]) is up to $110,000 for an individual and $220,000 for a corporation.

Harm under the National Parks and Wildlife Act (1974, as amended) is defined as any act that; destroys defaces or damages the object, moves the object from the land on which it has been situated, causes or permits the object to be harmed. However, it is a defence from prosecution if the proponent can demonstrate that;

1) harm was authorised under an Aboriginal Heritage Impact Permit (AHIP) (and the permit was properly followed), or
2) the proponent exercised due diligence in respect to Aboriginal heritage.

The 'due diligence' defence (s87[2]), states that if a person or company has applied due diligence to determine that no Aboriginal object, site or place was likely to be harmed as a result of the activities proposed for the Project Area, then liability from prosecution under the NPW Act 1974 will be removed or mitigated if it later transpires that an Aboriginal object, site or place was harmed. If any Aboriginal objects are identified during the activity, then works should cease in that area and BCD notified (DECCW 2010:13). The due diligence defence does not authorise continuing harm.

The archaeological due diligence assessment and report has been carried out in compliance with the NSW DECCW 2010 Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW.

2.2 NATIONAL PARKS AND WILDLIFE REGULATION (2009)

The National Parks and Wildlife Regulation 2009 provides a framework for undertaking activities and exercising due diligence in respect to Aboriginal heritage. The Regulation (2009) recognises various due diligence codes of practice, including the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW which is pertinent to this report, but it also outlines procedures for Aboriginal Heritage Impact Permit (AHIP) applications and Aboriginal Cultural Heritage Consultation Requirements (ACHCRs); amongst other regulatory processes.

2.3 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979 (EP&A ACT)

EP&A Act establishes the statutory framework for planning and environmental assessment in NSW and the implementation of the EP&A Act is the responsibility of the Minister for Planning, statutory authorities and local councils. The EP&A Act contains three parts which impose requirements for planning approval:

- Part 3 of the EP&A Act relates to the preparation and making of Environmental Planning Instruments (EPIs), State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).
- Part 4 of the EP&A Act establishes the framework for assessing development under an EPI. The consent authority for Part 4 development is generally the local council, however the consent authority may by the Minister, the Planning Assessment Commission or a joint regional planning panel depending upon the nature of the development.
- Part 4, Division 4.1 of the EP&A Act establishes the assessment pathway for State significant development (SSD) declared by the State Environmental Planning Policy (State and Regional Development) 2011 (NSW). Once a development is declared as SSD, the Secretary's Environmental Assessment Requirements (SEARs) will be issued outlining what issues must be considered in the EIS.
- Part 5 of the EP&A Act provides for the control of 'activities' that do not require development consent and are undertaken or approved by a determining authority. Development under Part 5 that are likely to significantly affect the environment is required to have an EIS prepared for the proposed activity.
- Part 5.1 of the EP&A Act establishes the assessment pathways for State significant infrastructure (SSI). Development applications made for SSI can only be approved by the Minister. Once a development is declared as SSI, the SEARs will be issued outlining what issues must be addressed in the EIS.

The applicable approval process is determined by reference to the relevant environmental planning instruments and other controls, LEPs and State Environmental Planning Policies (SEPPs).

The applicable approval process is determined by reference to the relevant environmental planning instruments and other controls, LEPs and State Environmental Planning Policies (SEPPs). This project falls under Part 4 Division 1 with SSD approval (SSD 5248).

2.4 ASK FIRST: A GUIDE TO RESPECTING INDIGENOUS HERITAGE PLACES AND VALUES

Ask First: A guide to respecting Indigenous heritage places and values (2002) was commissioned by the Australian Heritage Commission to provide a practical guide for land developers, land users and managers, cultural heritage professionals and others who may impact on Indigenous cultural heritage. Ask First is intended to be complementary to the Australia ICOMOS Burra Charter and the Australian Natural Heritage Charter. The main focus of Ask First is to emphasise that consultation and negotiation with Aboriginal parties is the best way of addressing Aboriginal cultural heritage issues.

Ask First acknowledges that maintaining Indigenous cultural values and places is a vital part of the community's sense of place, cultural identity and well-being. Indigenous Australians' heritage creates and maintains links between their ancestors, people and the land.

Ask First states that in recognising the rights and interests of Aboriginal peoples in their heritage, all parties concerned with identifying, conserving and managing this heritage should acknowledge, accept and act on the principles that Aboriginal people:

- are the primary source of information on the value of their heritage and how it is best conserved;
- must have an active role in any Aboriginal heritage planning process;
- must have input into primary decision-making in relation to Aboriginal heritage so that they can continue to fulfil their obligations towards this heritage; and
- must control intellectual property and other information relating specifically to their heritage, as this may be an integral aspect of its heritage value.

Ask First also emphasise the benefits of consultation and negotiation in the management of Indigenous cultural heritage and the need to comply with relevant Territory and Commonwealth Aboriginal cultural heritage legislation and statutory authorities, as outlined above. These guidelines have been considered in the development of this ACHMP.

3 CONSULTATION

This ACHMP has been produced in consultation with the Registered Aboriginal Parties (RAPs) as identified throughout the Aboriginal Cultural Heritage Consultation Requirements for proponents (ACHCRs), (DECCW now BCD; April 2010) and attempted to include the RAPs who originally registered during the assessment undertaken previously by AMBS (2013). RAPs were invited to provide input/comment throughout the project on any cultural heritage issues associated with the local area, the Project Area, and the ACHMP outlined in this document.

3.1 ABORIGINAL CULTURAL HERITAGE CONSULTATION REQUIREMENTS (ACHCRS)

The ACHCRs include a four staged approach of Aboriginal consultation with specific timeframes for the various components throughout the process. This process was completed as part of the assessment undertaken by MCH which informed this ACHMP (details of full consultation can be found in the 2020 assessment report) The RAP for this project are Darug Custodians Aboriginal Corporation (DCAC)

A copy of the draft ACHMP was forwarded to DCAC for their review and were asked to provide their comments no later than 28th May 2020. DCAC responded earlier and a final copy of the ACHMP was forwarded to DCAC on 14th May 2020.

3.2 PROTOCOL FOR CONTINUED ABORIGINAL CONSULTATION

Subject to any modifications initiated by DCAC, the following protocol will be followed with respect to consultation.

- The Land Manager will advise DCAC of the date of planned commencement of activities within the Project area;
- The land Manager will contact DCAC every 6 months to advise of the project's progress and all consultation will be documented;
- In the event that any possible archaeological sites are identified during construction works, the Land Manager will notify the Heritage Consultant and DCAC following the Unexpected Finds Procedure in Section 6;
- The effectiveness and value of the consultation will be periodically reviewed with DCAC. In the event there is agreement that the approach to consultation needs to change, the changed procedures would be documented in the ACHMP.

4 REGISTERED AHIMS SITES IN THE PROJECT AREA

4.1 SITES IN THE PROJECT AREA

Two highly disturbed surface sites and an area of potential archaeological sensitivity were located within the project area. Their location is shown in Figure 4.12.

Figure 4.1 Sites and area of archaeological sensitivity in the project area

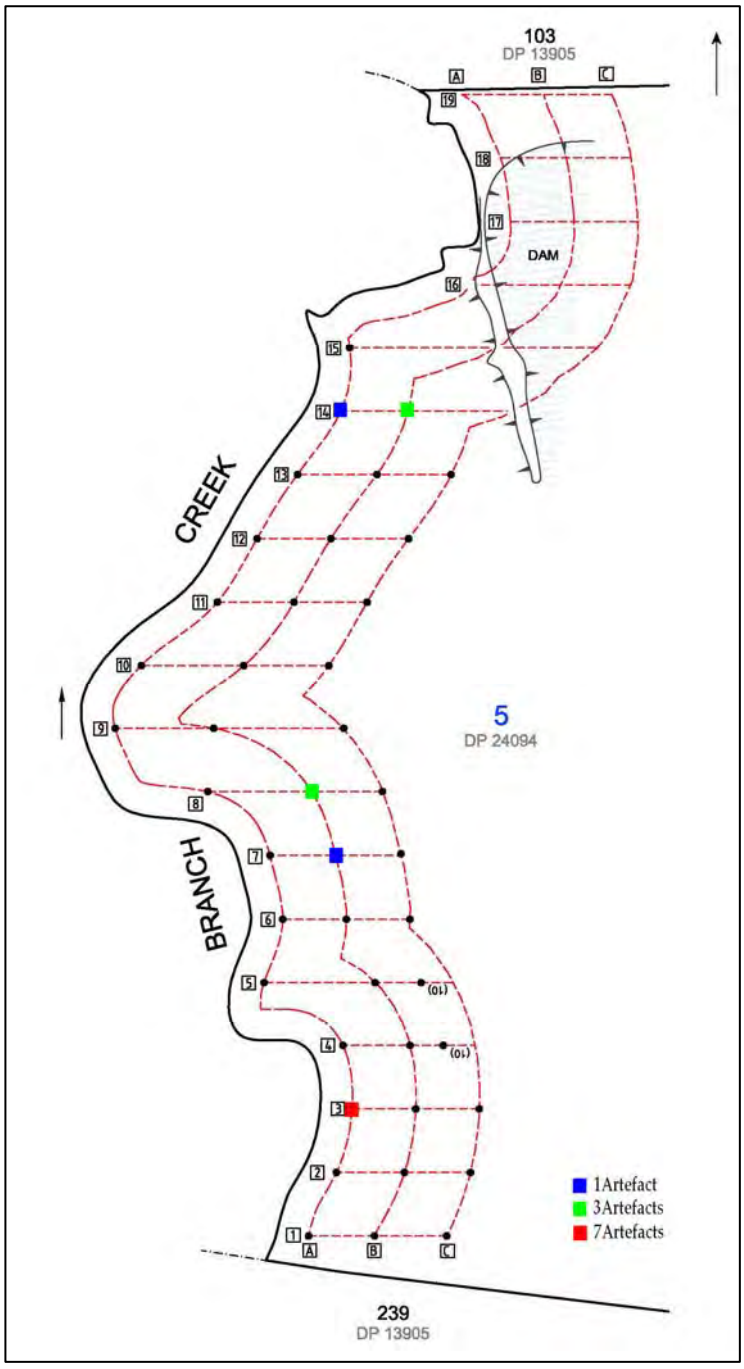


Both WR1 and WR2 were low density artefact scatters that have been collected under the SSD and are no longer in the Project Area.

The area of potential archaeological sensitivity was subject to test excavation and identified a background scatter of artefacts (Horsley Park 1). Figure 4.2 shows the locations of the subsurface artefacts.

As site Horsley Park 1 is a background scatter of discarded artefacts representative of hunting and gathering activities and is well represented both locally and regionally and as such, protection/conservation was not required. Additionally, as the nature of the site was known, further investigations were not required and being an SSD project, an AHIP is not required. As the nature of the site is understood, being a background scatter of discarded artefacts with no specific activity areas identified, salvage works are not required.

Figure 4.2 Location of subsurface artefacts



5 HERITAGE MANAGEMENT PROTOCOLS

The heritage management protocols for unknown Aboriginal objects (sites) set out below must be followed for the proposed development. The implementation of the heritage management protocols and the ACHMP will be overseen by the Project Land Manager. It is the Land Manager's responsibility to ensure these protocols are implemented and an outline of the roles and responsibilities are provided in Section 8.

Protocols for the management of unexpected cultural heritage objects during construction are set out in Section 6.

A number of mandatory heritage management protocols must be implemented including;

1) Aboriginal cultural heritage inductions for all personnel working on site before and during construction works;
2) Temporary storage and transfer of Aboriginal objects; and
3) Permanent storage of Aboriginal objects in a keeping place or re-burial in a suitable location. This location is currently being discussed with the RAPs.

5.1 ABORIGINAL CULTURAL HERITAGE INDUCTION

Aboriginal cultural heritage inductions, (referred to as an Aboriginal Cultural Education Program) forming part of the overall Induction Package, will be required for all on-site personnel and contractors involved in the construction activities on site prior to any works within the project area. This includes installation of utilities or any other harm that may have the potential to harm Aboriginal objects. The induction program will be developed by the heritage consultant and DCAC and will include, but not limited to;

1) the content of this ACHMP;
2) NSW and Commonwealth legislative requirements (as outlined in Section 2); and
3) Statement explaining what cultural significance is.

The initial induction will be conducted by the site safety officer with assistance from DCAC and heritage consultant for all management personnel. Further inductions for all remaining site workers will be conducted by the site safety officer. The induction will not exceed 30 minutes in length and attendees will acknowledge understanding and participation of the cultural heritage induction content by signing an attendee sheet. The list of attendees will be maintained on site by the Land Manager to ensure all required personnel have participated in the cultural heritage induction and will be made available to DCAC and heritage consultant when requested.

5.2 MANAGEMENT OF AHIMS SITES

As both surface sites have been collected and the subsurface site required no further archaeological works, there are no heritage management strategies required for the known sites in the project area.

5.3 TEMPORARY STORAGE OF ABORIGINAL OBJECTS

All aboriginal objects will be stored in an appropriate manner in a secure on-site keeping place to be agreed upon by all parties in consulatation with DCAC.

5.4 PERMANENT STORAGE OF ABORIGINAL OBJECTS

The repatriation of all Aboriginal objects to a permanent storage location will be decided by the RAPs and may involve either the re-burial of objects to a specific location within the Project Area that will be protected in perpetuity or transferred to an off-site secure keeping place.

If permanent storage is decided, this will be documented in a *Transfer of Aboriginal Objects for Safekeeping* agreement which will be submitted to BCD.

If re-burial is decided, this will be undertaken in accordance with DCAC cultural protocols and tradition and documented in an AHIMS site card that will include a photographic record, field notes and GPS location that will be submitted to AHIMS. A culturally appropriate depositional container selected by DCAC will be used for reburial and may include traditional bark containers for wrapping the Aboriginal objects.

6 UNEXPECTED FINDS PROTOCOLS

Unexpected find protocols have been developed to provide procedures for unexpected finds including Aboriginal objects and the discovery of human remains. These protocols must be followed throughout all stages of the development.

6.1 UNEXPECTED ABORIGINAL OBJECTS

Should unexpected Aboriginal objects be uncovered during any stage of the development, Figure 6.1 illustrates the protocols. Unexpected Aboriginal objects may include, but not limited to, isolated artefacts, artefact scatters, scarred trees and hearths (descriptions of such objects are provided in Appendix B).

Should unexpected Aboriginal objects be uncovered during any stage of the development;

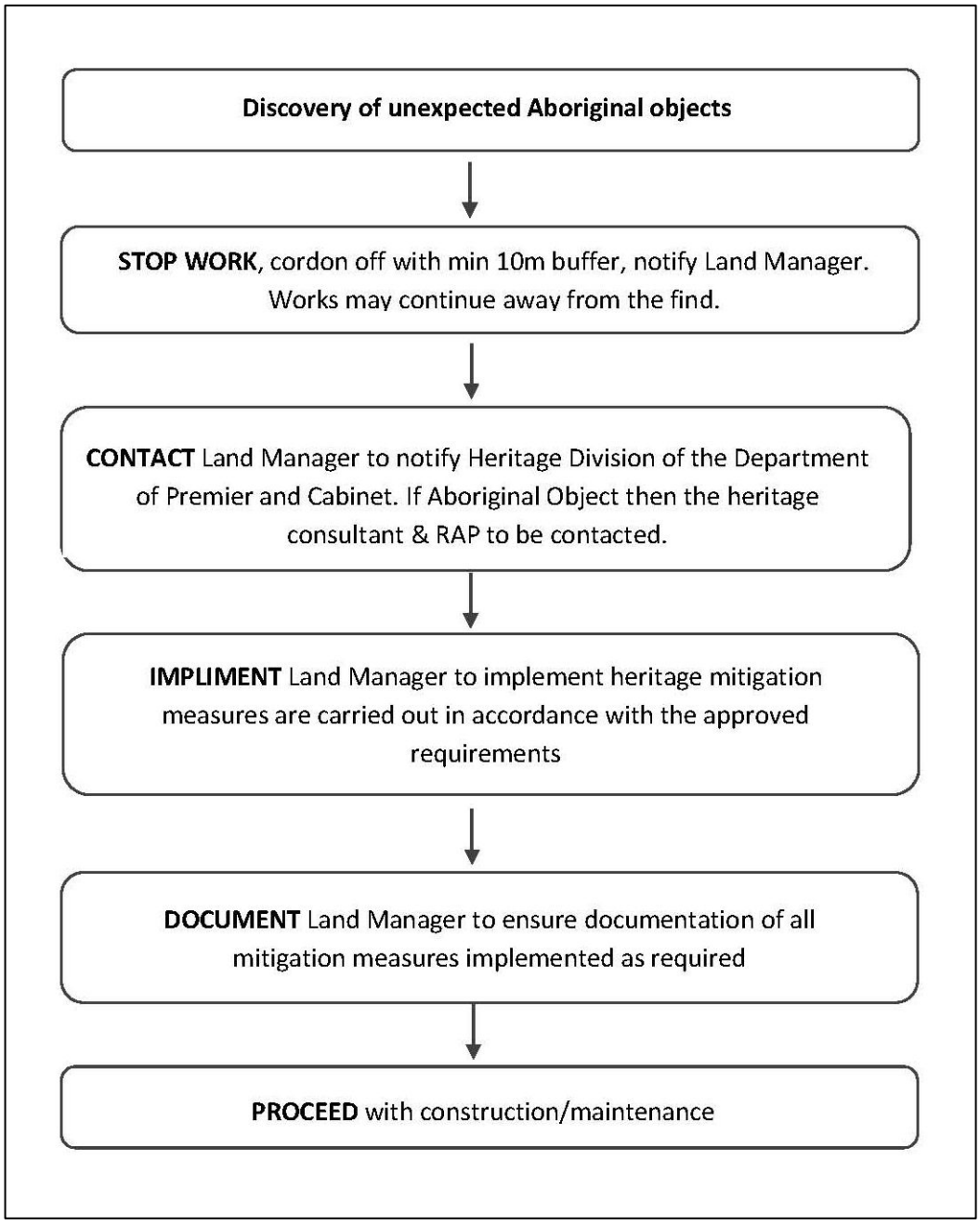
1) all work in the immediate vicinity of the suspected Aboriginal item, object or relic must cease immediately;
2) a 10m wide buffer area around the suspected item or object must be cordoned off; and
3) the Heritage Division of the Department of Premier and Cabinet, specifically DPIE/BCD must be contacted immediately.

Additionally, the Land Manager will then contact the heritage consultant and DCAC, who in consultation with BCD, will assess the object(s) and recommend appropriate mitigation measures. The Land Manager is to implement all reasonable mitigation measures recommended by the heritage consultant and in consultation with DCAC and BCD.

If additional works are required, such as salvage excavations, the Land Manager is to arrange for the heritage consultant and DCAC to undertake those works. The methodology for undertaking additional works will be dependent on a number of factors including, but not limited to, site/object type and disturbances. Due to the unknown nature of unexpected objects, methodologies for the salvage of unexpected Aboriginal objects will be determined during consultation with DCAC.

Any Aboriginal objects collected must be managed in accordance with Sections 5.3 and 5.4. The mitigation measures undertaken must be reported to DCAC and BCD and the appropriate required analysis and reporting complete. Provided these heritage unexpected finds protocols have been followed, construction/maintenance works in that location may proceed.

Figure 4.3 Unexpected finds protocol flow chart



6.2 DISCOVERY OF HUMAN REMAINS

Human skeletal remains are of the highest significance and importance to Aboriginal people, and all care, respect and dignity will be extended by all parties should human remains be uncovered.

If human remains or unidentified bone are uncovered during any stage of the development and maintenance activities, the appropriate State legislation will be followed. All human remains fall under the *Coroners Act 2009* in the first instance. If they are identified as Aboriginal and older than 100 years old, they will fall under the *NSW NPWS Act 1974* (as amended). Figure 6.2 outlines the required protocols should human remains be uncovered.

Should any human remains or unidentifiable bone be found, work is to stop in that area immediately and an area of 15m cordoned off surrounding the remains/bone in high visibility fencing. The Land Manager is to be notified immediately.

The Land Manager will contact the heritage consultant and local NSW Police immediately, who will then contact the NSW Forensic Services who will determine if they are:

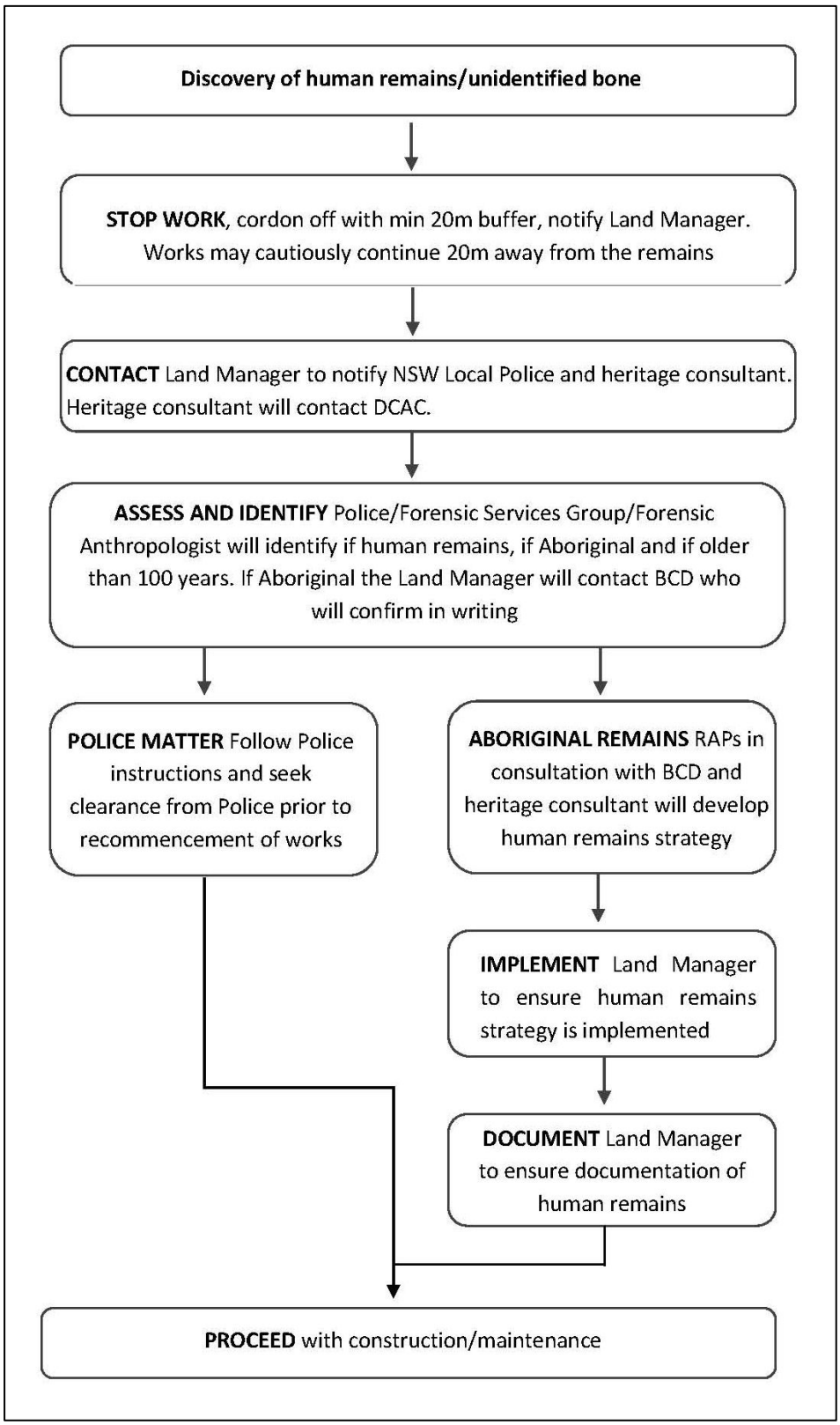
1) Human;
2) Aboriginal or non-Aboriginal;
3) If Aboriginal, determine antiquity (older or younger than 100 years)

If it is determined the remains are Aboriginal and older than 100 years old, the Police will notify the Land Manager who must contact BCD immediately and an BCD officer will confirm the identification in writing. BCD, in consultation with the RAPs and the heritage consultant will develop a human remains management strategy and the Land Manager is to ensure this strategy is implemented. The Land Manager must also document the human remains management strategy and the heritage consultant will provide a letter of clearance prior to any works recommencing at that location.

If the remains are determined to be a Police matter, Police instructions will be followed and clearance to recommence works should be sought from the Police.

Provided the human skeletal protocols have been followed and documented, and a clearance letter from the heritage consultant has been obtained, construction/maintenance works may proceed in that location.

Figure 4.4 Human remains protocol flow chart



7 COMPLIANCE, DISPUTE RESOLUTION AND REVIEW PROCEDURES

To ensure compliance with this ACHMP, a dispute resolution process and method of reviewing and amending this document have been developed. If required, the procedures outlined below will apply.

7.1 IMPLEMENTATION AND COMPLIANCE

The Land Manager is to implement the ACHMP and ensure that it is complied with as per Section 7. Meetings between the Land Manager, DCAC and the Heritage Consultant are to occur in accordance with the following:

- The Land Manager will contact DCAC every six months to discuss ongoing implementation and compliance of the ACHMP, or as required; and
- DCAC and Heritage Consultant will be notified in writing if there is a change in Land Manager.

In the event that there is a non-compliance with this plan, the non-compliance should be reported immediately to the project Heritage Consultant for determining the environmental consequence. The extent and nature of the non-compliance will be evaluated by the project Heritage Consultant using the Risk Matrix as outlined by NSW DPIE and shown in Table 7.1. If the project archaeologist determines that the non-compliance is of a Medium or High risk level, the project archaeologist shall notify NSW DPIE. If the project Heritage Consultant determines the non-compliance to be of Low Risk or an Administrative non-compliance, the Heritage Consultant shall take appropriate action to rectify the matter and/or document and record the non-compliance in annual reporting.

Table 4.1 Non-Compliance Risk Matrix

Risk Level	Description
High	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions).

7.2 DISPUTE RESOLUTION

- Any party may advise the other of an issue of dispute verbally, whereupon the Land Manager and the Heritage Consultant will discuss and seek to resolve the issue;
- Where verbal notice does not result in resolution of an issue of dispute within 48 hours, the party that raised the issue of dispute must advise the other in writing including the details of the issue of dispute within 7 days of the event. The Land Manager will, on receipt of a

written advice, liaise with the relevant parties to appoint and organise a meeting with an Independent Expert within 7 days. The Independent Expert (who might be a mutually agreeable third-party heritage consultant or an officer from BCD) will be employed to mediate the dispute;

- At the meeting to be chaired by the Independent Expert, each of the parties may present their issues in the dispute to the Independent Expert for consideration and decision, and
- In so far as the Independent Expert's decision is consistent with all relevant legislative and regulatory obligations, all parties to the dispute agree to be bound by the decision of the Independent Expert in relation to the resolution of the dispute.

7.3 REVIEW AND AMENDMENTS

- Any party may advise the other of a proposed amendment to the provisions of this ACHMP, whereupon the Land Manager, DCAC and Heritage Consultant will discuss the proposed amendment/s. The ACHMP should be revisited for updating when required by the Land Manager, heritage consultant and RAPs; and
- Amendments to this ACHMP must be approved by consensus of the Land Manager, DCAC and Heritage Consultant and in consultation with, and the approval of, where required, the relevant State Government regulatory agency.

8 ROLES AND RESPONSIBILITIES

8.1 LAND MANAGER

8.1.1 DEFINITION

The Land Manager is the person who manages the land within the Project Area. For the purpose of this ACHMP, the Land Manager is the on-site manager/supervisor from the construction company.

8.1.2 RESPONSIBILITIES

- The Land Manager must read, understand and implement the practical application of this ACHMP. Any queries should be directed to the heritage consultant;
- Follow instructions outlined in the flow charts for the Heritage Management Protocols;
- Follow instructions outlined in the flow charts for the Unexpected Finds protocol (Section 6.1) and Human Remains Protocol (Section 6.2);
- Be the point of contact for all onsite personnel and maintain a list of all onsite personnel;
- Ensure the construction site is secured and all visitors and on-site personnel are directed through the site office each visit. This is to ensure that all visitors and personnel receive the correct induction prior to entering the site;
- Ensure all onsite personnel undertake and understand the Cultural Heritage Induction and maintain an attendees list. Ensure the inductees understand their responsibilities in this ACHMP and are provided with access to a copy of this ACHMP for use within a common area on site, such as the site office and lunch room. It is the Land Manager's responsibility to ensure the site safety manager delivers the Cultural Heritage Induction to on-site personnel following his or her induction;
- Be aware of onsite activities ensuring that all areas to be protected are fenced off prior to works and must communicate to all onsite personnel that such areas are off limits (this includes vehicular movements);
- Be aware and understand there is a STOP WORK requirement in that location upon the discovery of an Aboriginal Object and/or skeletal remains or unidentified bone as outlined in the Unexpected Finds Protocols (Section 6.1) and Human Remains Protocol (Section 6.2). The Land Manager must also ensure all onsite personnel have the necessary procedures in place, equipment available and secure that location immediately;
- Must contact the appropriate individuals and organisations required under the Heritage Management, Unexpected Finds and Human Remains Protocols. This may include, but not limited to, heritage consultant, RDCAC, Local Police and/or Government Authorities;
- Maintain a contact list for individuals and organisations who may need to be contacted under this ACHMP;
- Ensure the ACHMP is updated as required until the completion of works; and
- Where site meetings, other than for the Heritage Management, Unexpected Finds and Human Remains Protocols, with DCAC, at least 2 weeks' notice will be given.

8.2 ONSITE PERSONNEL

8.2.1 DEFINITION

This includes all individuals undertaking any type of work within the development area subject to this ACHMP.

8.2.2 RESPONSIBILITIES

- Report to the site office prior to entering the site to ensure knowledge and understanding of the ACHMP is current and all personnel are aware of any changes that may have occurred;
- Undertake the Cultural Heritage Induction prior to starting any works associated with the development of the entire Project Area;
- Read and understand this ACHMP and direct any queries to the Land Manager as required under the provisions of this ACHMP;
- Follow the instructions outlined in the Heritage Management Protocols section of this ACHMP (Section 5);
- Follow the instructions outlined in the Unexpected Finds and Human Remains Protocols section(s) of this ACHMP (Section 6.1 and 6.2 respectively) if needed;
- Be aware that there is an immediate STOP WORK requirement for the discovery of Unexpected Finds and Human Remains; and
- Be aware that all on site works and activities are to occur only within the defined Project Area, which must be visually defined prior to works being undertaken;
- Be aware that conservation areas are off limits, including all vehicular movement.

8.3 REGISTERED ABORIGINAL PARTIES (RAPS)

8.3.1 DEFINITION

The person(s) or organisations, of Aboriginal decent who have registered as holders of traditional knowledge in the Project Areas part of the consultation process undertaken for this ACHMP. The RAPs for this project area DCAC.

8.3.2 RESPONSIBILITIES

- Report to the site office prior to entering the site to ensure they are aware of any site conditions that may have changed, such as safety, and obtain the relevant update of works being undertaken that day;
- Provide advice on Aboriginal cultural heritage issues that may arise during the Project in a timely manner (within 7 days);
- Assist in the identification of cultural heritage sites; and
- Participate in the cultural heritage activities in this ACHMP.
- Assist the Land Manager with the implementation of this ACHMP if required;
- Assist with the Cultural Heritage Induction if required;

- Assist with the recording, salvage (if appropriate), analysis and reporting of any new sites identified within the Project Area in accordance with the relevant legislation, consultation with the heritage consultant and this ACHMP; and
- Provide advice and assistance to the Land Manager and heritage consultant with the review and amendment(s) and/or updating of this ACHMP as required.

8.4 HERITAGE CONSULTANT

8.4.1 DEFINITION

An individual or organisation engaged by the Land Manager who possess the appropriate qualifications (minimum Honours in Archaeology) and experience to undertake the heritage assessment, management activities and consultation required for the ongoing management of the provisions of the ACHMP.

8.4.2 RESPONSIBILITIES

- Report to the site office prior to entering the site to ensure he/she are aware of any site conditions that may have changed, such as safety, and obtain the relevant update of works being undertaken that day;
- Assist the Land Manager with the implementation of this ACHMP if required;
- Assist with the Cultural Heritage Induction if required;
- Provide heritage advice to the Land Manager and DCAC in accordance with the relevant legislation;
- Undertake the assessment, recording, salvage (if appropriate), analysis and reporting of any new sites identified within the Project Area in accordance with the relevant legislation, consultation with DCAC and this ACHMP;
- Provide advice and assistance to the Land Manager and DCAC with the review and amendment(s) and/or updating of this ACHMP as required; and
- Liaise with DCAC as required.

8.5 CONFIDENTIALITY

All individuals and organisations as outlined above will respect that some information shared will be confidential. This may include:

- Commercial information, or
- Sensitive Aboriginal cultural information.

Other than in accordance with a written agreement by the identified individuals/ organisations, no information will be provided to any other persons other than to:

- Enable project works, or
- As required by law.

8.6 INTELLECTUAL PROPERTY RIGHTS

Some works undertaken for this development will contain Aboriginal cultural information. Such materials will be developed between the Land Manager and DCAC and shall be jointly owned so that both parties may reference the material. Any culturally sensitive material or information not be included in public documents may include sacred knowledge. DCAC will retain copyright to their cultural information.

9 CONCLUSION

This ACHMP has been prepared as a guiding document for the management of Aboriginal cultural heritage within Gazcorp Industrial Estate (SSD 5248) Project Area. This ACHMP should be used for the management of cultural heritage within the Project Area until the practical completion of the project.

Appendix A

Unexpected Finds Heritage Investigation Methodologies

Verification and management of all Aboriginal objects (sites)

All potential Aboriginal sites will be verified by the heritage consultant and representatives from DCAC.

The purpose of the verification process is to determine whether or not the objects in question are in fact Aboriginal objects to ensure appropriate management measures be implemented.

The verification process will include the following provisions:

1. One representative from DCAC may assess the Aboriginal object (site) for its cultural status and must provide evidence and justification for significance;
2. A heritage consultant may assess the scientific status of the Aboriginal object (site) and provide evidence and justification for significance;
3. An AHIMS site card and pro-forma assessment sheet will be completed for each Aboriginal object (site); and
4. Management recommendations specific to each Aboriginal object (site), based on both traditional knowledge and scientific methodology, will be provided to the Land Manager. Should a potential site be either scientifically or culturally significant but no evidence or justification is provided, the matter will be put to BCD.

Surface artefact scatters

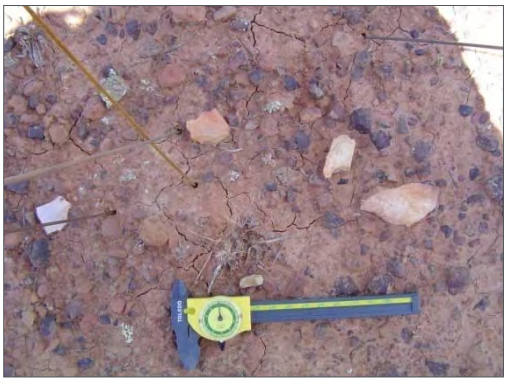
Also described as open campsites, artefact scatters and open sites, these deposits have been defined as two or more stone artefacts within 50 metres of each other and may include archaeological remains such as stone artefacts, shell, and sometimes hearths, stone lined fire places and heat treatment pits. These sites are usually identified as surface scatters of artefacts in areas where ground surface visibility is increased due to lack of vegetation. Erosion, agricultural activities (such as ploughing) and access ways can also expose surface campsites. Artefact scatters may represent evidence of;

- Camp sites, where everyday activities such as habitation, maintenance of stone or wooden tools, manufacturing of such tools, management of raw materials, preparation and consumption of food and storage of tools has occurred;
- Hunting and/or gathering events;
- Other events spatially separated from a camp site, or
- Transitory movement through the landscape.

If a potential artefact scatter has been identified, the Unexpected Finds Protocol must be followed immediately.

Examples of artefact scatters (MCH)







Surface isolated finds

Isolated artefacts are usually identified in areas where ground surface visibility is increased due to lack of vegetation. Erosion, agricultural activities (such as ploughing) and access ways can also expose surface artefacts. Isolated finds may represent evidence of;

- Hunting and/or gathering events; or
- Transitory movement through the landscape.

If a potential isolated find has been identified, the Unexpected Finds Protocol must be followed immediately.

Examples of isolated artefacts (MCH)









Hearth

A hearth may also be known as an oven, earth oven, campfire or fireplace. In general, a hearth is a relatively small (<2m diameter) roughly circular piles of ash-stained, heat fractured rock and/or lumps of burnt clay (known as hearth stones) and are often associated with an ash-stained substrate and charcoal fragments found on or in open ground. Hearths are typically associated with burnt flora, faunal remains (particularly bone and shell) and other cultural material, including stone artefacts. Hearths are assumed to have been used for food cooking and/or heating and/or heat-treating stone for stone tool manufacture,

These sites are usually identified as surface and/or subsurface sites in areas where ground surface visibility is increased due to lack of vegetation. Erosion, agricultural activities (such as ploughing) and access ways can also expose hearths, although this usually results in a disturbed hearth with hearth stones dispersed over a slightly larger area than their original location.

Hearths may represent evidence of;

- Camp sites, where everyday activities such as habitation, maintenance of stone or wooden tools, manufacturing of such tools, management of raw materials, preparation and consumption of food and storage of tools has occurred; and
- Hunting and/or gathering events.

If a potential hearth has been identified, the Unexpected Finds Protocol must be followed immediately.

Examples of hearths and a hearth stone (MCH; OEH)









Burials

Burials can occur anywhere (ground, cave, and hollow tree). Cave burials usually do not survive due to both animal and human disturbances and extant tree burials are rare due to logging and land clearance. Ground burials tend to be in soft sandy soils, but can be found in soil and clay. Burials are also commonly found in association with burial goods including stone axe heads (Howitt 1996:464-465). Generally they are only identified through accidental exposure. Although factors such as land clearance and associated erosion reduce the likelihood of burials surviving intact, bone is durable and commonly survives in such environments, albeit in fragmentary form.

If a burial or skeletal remians are uncovered, the Skeletal Remains Protocoal must be followed immediately. Once verified by the appropriate specialists and Police, the burial/skeletal remains will be recorded and assessment undertaken. Management recommendations will be made in consultation with the RAPs, BCD and the heritage consultant.

Appendix D Construction Noise and Vibration Management Plan

MATTHEW PALAVIDIS
VICTOR FATTORETTO
MATTHEW SHIELDS

813-913 Wallgrove Road, Horsley Park

SSD Construction Noise and Vibration Management Plan

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1 EXECUTIVE SUMMARY

Acoustic Logic has been engaged to prepare a construction noise and vibration management plan to support the masterplan development application submission during the construction stage of the industrial development proposed to be located at 813-913 Wallgrove Road, Horsley Park.

The proposed industrial development project site spans approximately 40 hectares of land with receivers surrounding the site being industrial with the nearest residential receivers located to the south of the site. The findings and recommendations are summarised below:

- No hydraulic hammering is required within the project site during BEW stage.
- Predicted vibration levels to NSW Warragamba to Prospect Pipeline are very low, additional mitigation measures beyond the broader report are not required.
- Predicted construction noise levels are generally lower than the Noise Management Levels based on NSW EPA Interim Construction Guidelines and fully satisfy requirements of Condition C62. As such, there are no Highly Affected Noise levels (> 75 dB(A)) that trigger additional noise mitigation/ management measures in line with the NSW Interim Construction Noise Guideline (ICNG) and Condition C60 (e) & (f).

Summarised DA Condition and actions are below.

Table 1 – Summary and Action for DA Conditions

Prior to the commencement of construction, the Applicant must prepare a Construction Noise Management Plan (CNMP) for the Development to the satisfaction of the Planning Secretary. The CNMP must form part of a CEMP required by Condition D2 and must:	**Action**
(a) be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;	George Wei (Author) has been approved by the Planning Secretary (refer letter dated 24 November 2022
(b) be approved by the Planning Secretary prior to the commencement of construction of each stage of the Development;	Outstanding
(c) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);	Noise management levels are achieved in accordance with the EPA's Interim Construction Noise Guideline (DECC, 2009) and the Operational Noise Limits outlined in Condition C62 of the Consent. Additional monitoring has been recommended during Construction to verify that the levels are achieved.
(d) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;	the CNMP does not predict high noise generating works, and so no such strategies are not necessary.
(e) include strategies that have been developed with the community for managing high noise generating works; and	the CNMP does not predict high noise generating works, and therefore community consultation is not required
(f) describe the community consultation undertaken to develop the strategies in (e); and	As above.
(g) include a complaints management system that would be implemented for the duration of the Development.	A complaints management system is included in Section 7.9.5

2 INTRODUCTION

The potential noise and vibration generated from the construction of the industrial warehouse facilities will be assessed based on the requirements of the following:

- Condition C60 of Development Consent by NSW Government Department of Planning, Industry and Environment.
- NSW Environmental Protection Authority, *'Interim Construction Noise Guideline'*;
- Australian Standards AS2436:2010 Guide to Noise Control on Construction, Maintenance and Demolition Sites;
- NSW Environmental Protection Authority, *'Assessing Vibration: A technical Guideline'; and*
- DIN 4150, *'Vibration in Buildings (1999-02)'*.

The acoustic assessment is based on the architectural drawing DA-001(P3) dated 31 July 2020 provided by SBA Architects Project No. 20109. See Figure 1 below for an extract of the masterplan project site.

The principal issues, which will be addressed in this report, are:

- Identification of the noise and vibration standards which will be applicable to this project.
- Formulation of a strategy for construction to comply with the standards identified in the above point.
- Development of a monitoring programme to measure and regulate noise and vibration at all potentially affected locations.
- Establishment of direct communication networks between affected groups namely NSW Planning & Infrastructure, Construction group and Acoustic Logic Consultancy Pty Ltd.

3 SITE DESCRIPTION AND NEAREST NOISE RECEIVERS

The development land is located at 813-913 Wallgrove Road, Horsley Park and is bound between Wallgrove Road/M7 Motorway to the east and Reedy Creek to the west.

The nearest residential receivers are located south of the site with industrial receivers situated to the south and north, beyond the Sydney Water Supply Pipeline Easement. The nearest receivers are detailed below:

Receiver 1: Residential receivers located at 138, 142, 144 and 146 Burley Road, Horsley Park south of the project site. The distance between project site and the nearest receiver building is minimum 180m.

Receiver 2: Residential receivers located at 28, 34, 48, 50, 58-64 and 56-104 Burley Road, Horsley Park south of the project site. The distance between project site and the nearest receiver building is minimum 270m.

Receiver 3: Residential receivers located at 2A, 2B & 2C Burley Road, Horsley Park south of the project site. The distance between project site and the nearest receiver building is minimum 200m and separated by commercial building of Receiver 5.

Receiver 4: Industrial receivers located at 1-21 Shale Place and 1-14 Clay Place, Horsley Park north of the project site.

Receiver 5: Industrial receiver located at 785-811 Wallgrove Road, Horsley Park south of the project site.

See Figure 2 below for an aerial photo of the project site, nearest receivers and the noise measurement locations.

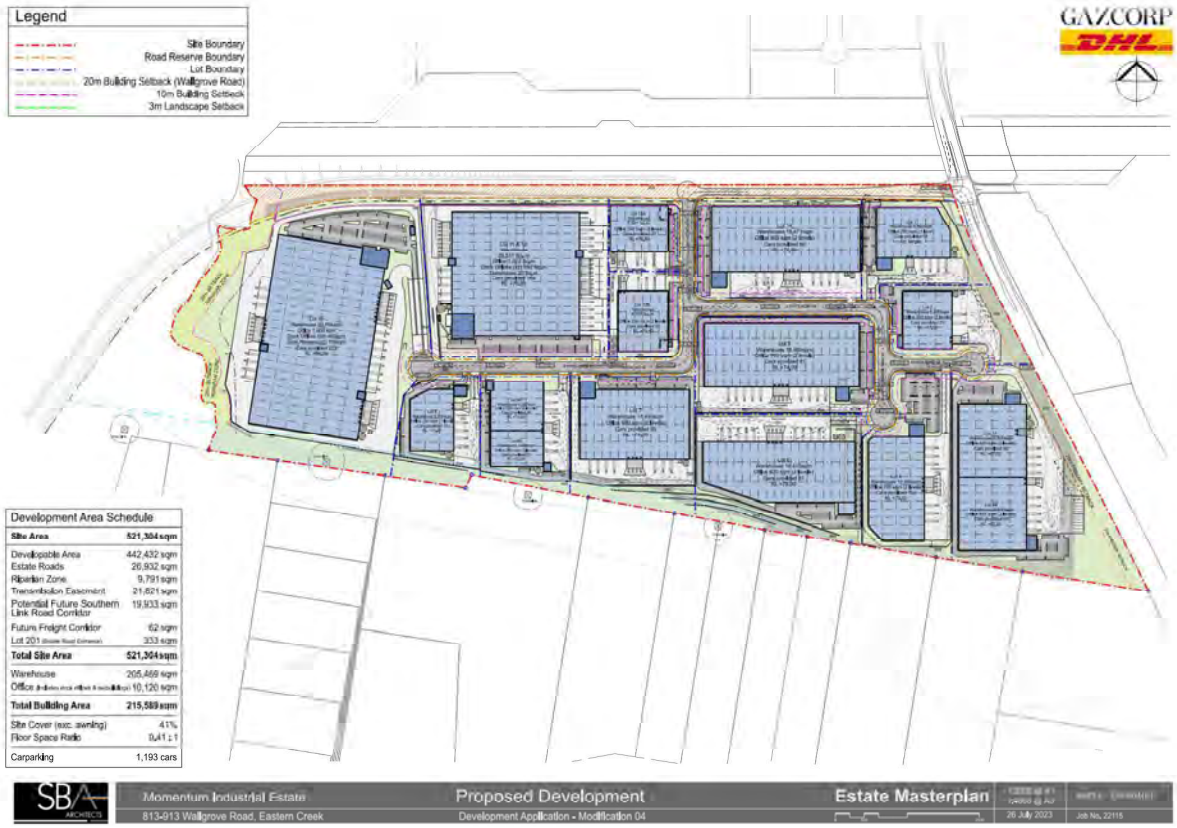


Figure 1: Masterplan project site overview



Figure 2: Aerial View and Noise Measurement Locations

4 CONSTRUCTION HOURS

Section 2.2 of the EPA Interim Construction Noise Guideline lists the recommended standard hours of construction, which are detailed below:

- 7:00 am to 6:00 pm, Mondays to Fridays.
- 8:00 am to 1:00 pm, Saturdays.
- No work on Sundays and public holidays.

Works may be undertaken outside these hours where:

- The delivery of material is required outside the hours by the police or other authorities.
- It is required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm.
- The work is approved through this Construction Noise and Vibration Plan.

5 BACKGROUND NOISE LEVELS

Unattended noise monitoring was conducted recently by using Rion NL-42 (Type 2) sound lever meters.

The monitoring was continuous, with statistical noise levels recorded at 15-minute intervals throughout the monitoring period. Measurements were taken on "A" frequency weighting and fast time response.

All monitoring equipment used retains current calibration - either manufacturers' calibration or NATA certified calibration. The monitors were field calibrated at the beginning and the end of the measurement with no significant drift in calibration noted.

The monitoring locations are shown in Figure 2.

Ambient, assessment and rating background levels have been determined from the long term, unattended noise monitoring data based on the methodology in the Noise Policy for Industry Fact Sheet B. Appendix 1 contains graphs of the data collected, including periods identified as being affected by adverse weather conditions (as defined by INP Fact Sheet B).

Weather data was obtained from records provided by the Bureau of Meteorology for the weather station located at Horsley Park Equestrian Centre.

Detailed monitor locations are presented within the figure above.

The NPfI day time periods are:

- Day - period from 7 am to 6 pm Monday to Saturday or 8 am to 6 pm on Sundays and public holidays

The following tables summarise the assessment background noise levels (ABL) for each location. Where no ABL is indicated, that period was affected by adverse weather or other extraneous noise and excluded from the ABL calculation.

Table 2 – NPfI Assessment Background Noise Levels Location 1

Location	Date	ABL
		Day
L1	Thursday 13 January 2022	-
	Friday 14 January 2022	41
	Saturday 15 January 2022	40
	Sunday 16 January 2022	40
	Monday 17 January 2022	42
	Tuesday 18 January 2022	-
	Wednesday 19 January 2022	-
	Thursday 20 January 2022	-
	Friday 21 January 2022	42
	Saturday 22 January 2022	41
	Sunday 23 January 2022	39
	Monday 24 January 2022	39
	Tuesday 25 January 2022	41
	Wednesday 26 January 2022	-
	RBL	**40**

Table 3 – NPfI Assessment Background Noise Levels Location 2

Location	Date	ABL
		Day
L2	Thursday 13 January 2022	-
	Friday 14 January 2022	42
	Saturday 15 January 2022	40
	Sunday 16 January 2022	39
	Monday 17 January 2022	41
	Tuesday 18 January 2022	-
	Wednesday 19 January 2022	-
	Thursday 20 January 2022	-
	Friday 21 January 2022	45
	Saturday 22 January 2022	44
	Sunday 23 January 2022	41
	Monday 24 January 2022	40
	Tuesday 25 January 2022	42
	Wednesday 26 January 2022	39
	Thursday 27 January 2022	42
	Friday 28 January 2022	43
	Saturday 29 January 2022	40
	Sunday 30 January 2022	40
	Monday 31 January 2022	40
	Tuesday 01 February 2022	40
	Wednesday 02 February 2022	-
	Thursday 03 February 2022	44
	RBL	**40**

Table 4 – NPfI Assessment Background Noise Levels Location 3

Location	Date	ABL
		Day
L3	Thursday 13 January 2022	-
	Friday 14 January 2022	48
	Saturday 15 January 2022	44
	Sunday 16 January 2022	42
	Monday 17 January 2022	46
	Tuesday 18 January 2022	-
	Wednesday 19 January 2022	-
	Thursday 20 January 2022	-
	Friday 21 January 2022	51
	Saturday 22 January 2022	48
	Sunday 23 January 2022	44
	Monday 24 January 2022	47
	Tuesday 25 January 2022	52
	Wednesday 26 January 2022	43
	Thursday 27 January 2022	52
	Friday 28 January 2022	50
	Saturday 29 January 2022	47
	Sunday 30 January 2022	46
	Monday 31 January 2022	46
	Tuesday 01 February 2022	43
	Wednesday 02 February 2022	-
	Thursday 03 February 2022	48
	Friday 04 February 2022	-
	RBL	**46**

5.1 RATING BACKGROUND NOISE LEVELS MEASURED FOR SSD-10330

Further to the discussion of existing ambient profile, the following RBL data obtained by SLR Consultants at 106 Burley Road, Horsley Park is detailed within DPIE's comments pertaining to the Consent Modification for the Gazcorp Industrial Estate (Ref: SSD-5248 MOD 1).

Table 5 –Rating Background Noise Levels Measured by SLR Consultants at 106 Burley Road (Ref: SSD-5248 MOD 1)

Time Period	Rating Background Noise Level dB(A)L_{90}
Day	38

As the above rating background noise levels are lower than the results of the RBL recorded by this office for the development, the above Rating Background Noise Levels have been adopted for the purposes of assessing Noise Management Level of the residential receivers south of the project site.

5.2 SUMMARISED BACKGROUND NOISE LEVEL

The following table summarises the rating background noise levels determined for the daytime periods as defined in the NPfI.

Table 6 – NPfI Rating Background Noise Levels

Location	Rating Background Noise Level (dB(A) L_{90})
	Day
Receiver 1	40
Receiver 2	40
Receiver 3	46
106 Burley Road	38

6 NOISE MANAGEMENT LEVELS AND VIBRATION CRITERIA

6.1 REQUIREMENT BY DEVELOPMENT CONSENT

The following requirements have been detailed in Development Consent by NSW Government Department of Planning, Industry and Environment:

C60. Prior to the commencement of construction, the Applicant must prepare a Construction Noise Management Plan (CNMP) for the Development to the satisfaction of the Planning Secretary. The CNMP must form part of a CEMP required by Condition D2 and must:

(a) be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;

(b) be approved by the Planning Secretary prior to the commencement of construction of each stage of the Development;

(c) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time);

(d) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;

(e) include strategies that have been developed with the community for managing high noise generating works; and

(f) describe the community consultation undertaken to develop the strategies in (e); and

(g) include a complaints management system that would be implemented for the duration of the Development.

6.2 EPA – INTERIM CONSTRUCTION NOISE GUIDELINE

The Interim Construction Noise Guideline (ICNG) outlines that the transmission of noise generated by various construction/excavation activities will primarily occur via two paths:

- Airborne Noise.
- Ground-borne Noise.

As the nearby residential receivers are a minimum 300m away from the boundary of the site, ground-borne noise as a result of vibration transmitted through the ground into the structure, is unlikely to occur.

6.2.1 Airborne Noise Transmission for Residential Receivers

Table 2 of the Interim Construction Noise Guideline outlines the management levels for noise at residences depending on the hours of construction.

- *"Noise affected" level*. Where construction noise is predicted to exceed the "noise affected" level at a nearby residence, the proponent should take reasonable/feasible work practices to ensure compliance with the "noise affected level". For residential properties, the "noise affected" level occurs when construction noise exceeds ambient levels by more than 10dB(A)$L_{eq(15min)}$.
- "*Highly noise affected level*". Where noise emissions are such that nearby properties are "highly noise affected", noise controls such as respite periods should be considered. For residential properties, the "highly noise affected" level occurs when construction noise exceeds 75dB(A)$L_{eq(15min)}$ at nearby residences.

The noise management levels are outlined in the table below.

Table 7 – Noise Management Levels for Residential Receivers

Time of Day	Management Level dB(A)$L_{eq(15mins)}$
Recommended standard hours: Monday to Friday (7am – 6pm); Saturdays (8am – 1pm) and no works on Sunday or public holidays	Noise affected RBL* + 10dB(A) = 48
	Highly noise affected level = 75

*** The lowest RBL or rating background level is the overall single figure background noise levels measured during the assessment period at the affected receiver boundary.**

6.2.2 Airborne Noise Transmission for Industrial Receivers

This guideline also outlines the noise emission management levels from the construction site to industrial receivers.

"4.1.3 Commercial and industrial premises

Due to broad range of sensitivities that commercial or industrial land can have to noise from construction, the process of defining management levels is separated into three categories. The external noise levels should be assessed at the most affected occupied point of the premises:

- *Industrial premises: external $L_{Aeq(15min)}$ 75dB(A)*
- *Offices, retail outlets: external $L_{Aeq(15min)}$ 70dB(A)*
- *Other businesses that may be very sensitive to noise, where the noise level is project specific as discussed below.*

The proponent should assess construction noise levels for the project and consult with occupants of commercial and industrial premises prior to lodging an application where required.

During construction, the proponent should regularly update the occupants of the commercial and industrial premises regarding noise levels and hours of work."

6.3 AUSTRALIAN STANDARD 2436-1981 "GUIDE TO NOISE CONTROL ON CONSTRUCTION MAINTENANCE AND DEMOLITION SITE"

Where compliance with EPA requirements cannot be achieved, noise emissions must be managed in accordance with the principles outlined in AS 2436:

- A reasonable suitable noise criterion is established.
- All practicable measures be taken on the building site to regulate noise emissions, including the siting of noisy static processes on parts of the site where they can be shielded, selecting less noisy processes, and if required regulating construction hours.
- The undertaking of noise monitoring where non-compliance occurs to assist in the management and control of noise emission from the building site.

6.4 SUMMARY OF APPLICABLE GUIDELINES

Based on these guidelines, the following procedure will be used to assess noise emissions:

- For industrial receivers surrounding the subject site, a noise level of 75 dB(A) is allowed during recommended standard hours.
- For residential receivers surrounding the subject site, a noise level of 10 dB(A) above background level at these receivers is allowed during recommended standard hours with a highly noise affected management level of 75dB(A)$L_{eq(15\text{-}min)}$.
- If noise levels exceed the project specific noise management level at sensitive receiver locations, investigate and implement all practical and cost-effective techniques to limit noise emissions.
- If the noise management levels are still exceeded after applying all practical engineering controls to limit noise emissions investigate management controls and other techniques to mitigate noise emissions.

6.4.1 Summarised Noise Management Levels

The summarised noise management levels for the proposed excavation and construction activities are presented in the table below.

Table 8 – Summarised Noise Management Levels

Noise Receiver Location	Management Level dB(A)$L_{eq\ (15\ min)}$
Residential Receivers (Receiver 1 to Receiver 3)	**Recommended Standard Hours** "Noise Affected" Level - 48 "Highly Noise Affected" Level – 75
Industrial Receivers (Receiver 4 & 5)	75

6.5 VIBRATION

Vibration caused by construction at any residence or structure outside the subject site must comply with the following standards:

- For structural damage vibration, German Standard DIN 4150-3 *Structural Vibration: Effects of Vibration on Structures; and*
- For human exposure to vibration, the evaluation criteria presented in EPA NSW "Assessing Vibration: A Technical Guideline" (Feb 2006). The EPA guideline is based on the British Standard BS 6472:1992 *Guide to Evaluate Human Exposure to Vibration in Buildings (1Hz to 80Hz)* for low probability of adverse comment.

The criteria and the application of this standard are discussed in separate sections below.

Table 9 – DIN 4150-3 (1999-02) Safe Limits for Building Vibration

TYPE OF STRUCTURE		PEAK PARTICLE VELOCITY (mms^{-1})			
		At Foundation at a Frequency of			Plane of Floor of Uppermost Storey
		< 10Hz	10Hz to 50Hz	50Hz to 100Hz	All Frequencies
1	Buildings used in commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

6.5.1 Assessing Amenity

EPA NSW "Assessing Vibration: A Technical Guideline" (Feb 2006) is based on the guidelines contained in BS 6472:1992. This guideline provides procedures for assessing tactile vibration and regenerated noise within potentially affected buildings.

The recommendations of this guideline should be adopted to assess and regulate vibration within the excavation/construction site.

Table 10 – EPA Recommended Vibration Criteria

		RMS acceleration (m/s^2)		RMS velocity (mm/s)		Peak velocity (mm/s)	
Place	**Time**	**Preferred**	**Maximum**	**Preferred**	**Maximum**	**Preferred**	**Maximum**
Continuous Vibration							
Residences	Daytime	0.01	0.02	0.2	0.4	0.28	0.56
Offices		0.02	0.04	0.4	0.8	0.56	1.1
Workshops		0.04	0.08	0.8	1.6	1.1	2.2
Impulsive Vibration							
Residences	Daytime	0.3	0.6	6.0	12.0	8.6	17.0
Offices		0.64	1.28	13.0	26.0	18.0	36.0
Workshops		0.64	1.28	13.0	26.0	18.0	36.0

6.5.2 Structure Borne Vibration

German Standard DIN 4150-3 (1999-02) provides vibration velocity guideline levels for use in evaluating the effects of vibration on structures. The criteria presented in DIN 4150-3 (1999-02) are presented in Table 2.

It is noted that the peak velocity is the absolute value of the maximum of any of the three orthogonal component particle velocities as measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

7 PRELIMINARY CONSTRUCTION NOISE EMISSION ASSESSMENT (STANDARD CONSTRUCTION HOURS)

7.1 PROPOSED SCOPE OF WORK DURING STANDARD CONSTRUCTION HOURS

The proposed scope of work to be undertaken is detailed as follows:

- Excavation of the existing foundation.
- Construction of the industrial estate warehouses and associated landscaping/internal roadways.

7.2 PROGRAMME OF CONSTRUCTION WORK

The programme of the proposed construction works as advised to this office is detailed below:

Estate Earthworks:

May 2023 – April 2024

Estate Roads:

December 2023 – April 2024

Lot 11&12 Construction:

October 2023 – September 2024

Lot 10 Construction:

April 2024 – May 2025

Lot 14A Construction:

June 2024 – April 2025

7.3 PROPOSED STANDARD CONSTRUCTION HOURS OF WORK

The above scope of work is proposed to be undertaken during the following standard construction hour periods:

Monday to Friday: 7:00am to 6:00pm;

Saturday: 8:00am to 1:00pm; and

Sunday/Public Holidays: No Works.

See Figure 2 for a detailed location where the construction works are to be undertaken and the nearest surrounding receivers to the project site.

7.4 REQUIREMENTS BY DA CONDITIONS

7.4.1 Condition C60 (d)

> *Describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers*

This office has been advised that **No Hydraulic Hammering** is required within the project site for the construction of the project buildings.

Our review indicates that the major noise sources during site excavation and construction work, as well as during the Lot 10 Construction Stage, have been provided below.

7.5 ACTIVITIES TO BE CONDUCTED AND THE ASSOCIATED NOISE SOURCES

Preliminary noise impacts have been undertaken based on the assumed typical worst-case scenario and associated Sound Power Level noise data is detailed below:

Table 11 – Sound Power Levels of the Proposed Equipment

Construction Stage	Equipment / Process	Sound Power Level dB(A)
Site Excavation and Masterplan Construction	Concrete Pump	105
	Concrete Truck	105
	Excavator with Bucket Attachment	105
	Diesel Mobile Crane	105
	Semi-Trailer	105
	Compactor	98
	Grader	99
	Scraper	102
	Bobcat	104
	Drum Roller	104
	Lump Hammer	105
	Water Cart	107
	Forklift	97
	Welders	101*
Lot 10 Construction	Semi-Trailer	105
	Diesel Mobile Crane	105
	Concrete Pump	105
	Concrete Truck	105
	General Hand Tools	95
	Jackhammer	105*
	Angle Grinder	105*
	Welders	101*

**A tonality correction has been applied in line with the requirements of AS2436.*

The noise levels presented in the above table are derived from the following sources, namely:

- On site measurements;
- Table A1 of Australian Standard 2436-2010; and
- Data held by this office from other similar studies.

7.6 PRELIMINARY NOISE ASSESSMENT DURING STANDARD CONSTRUCTION HOURS

7.6.1 Methodology

Noise from the loudest typical construction activities have been predicted to the nearest most affected sensitive receivers. The predicted noise levels are presented in this section and are based on the areas on site in which the plant is likely to be used.

Where the position of the construction activity is variable, a range of predicted noise levels is presented to take into account the change in noise impact depending on where on the site the work is conducted.

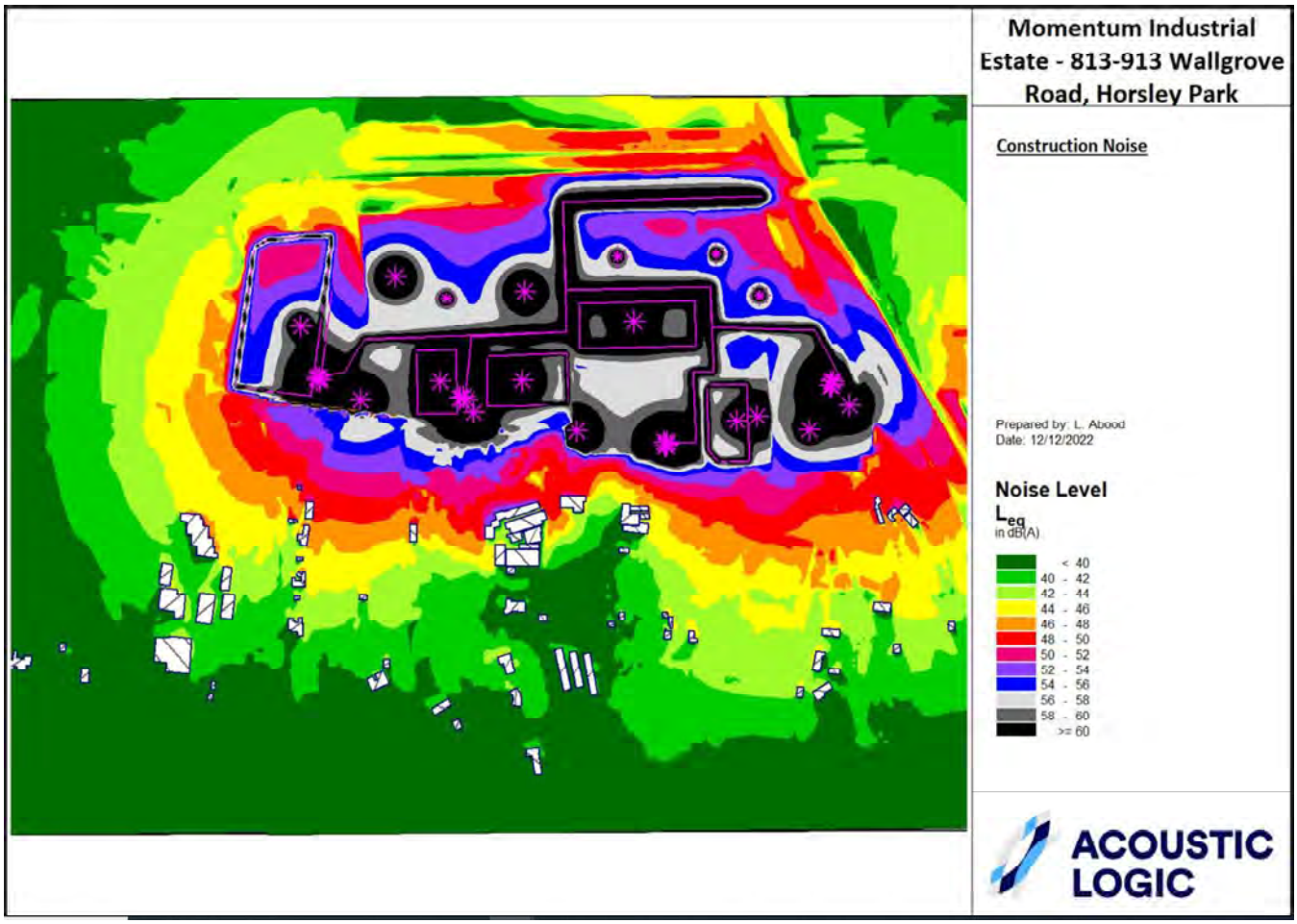
Predictions take into account:

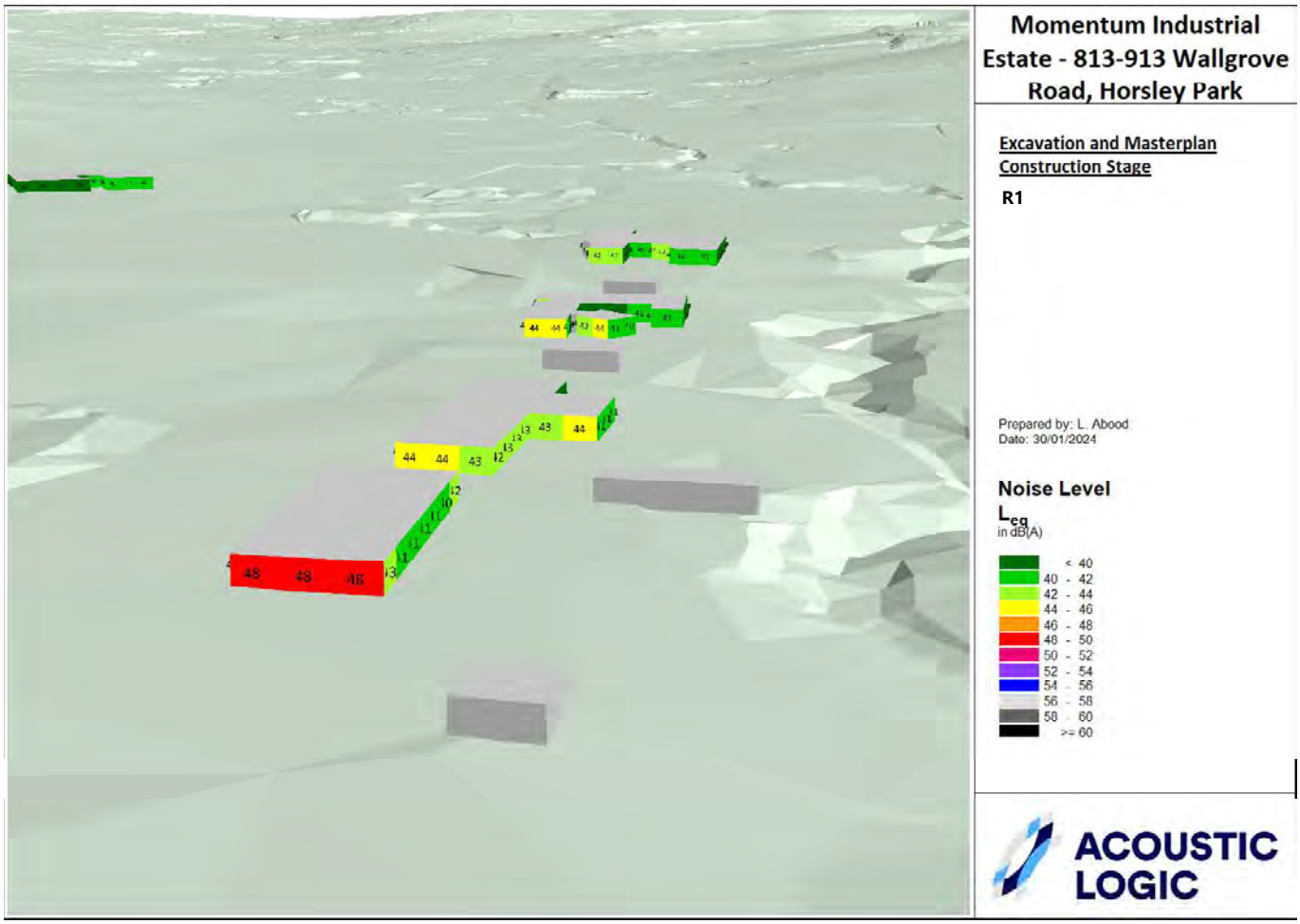
- The distance between the noise source and the receiver; and
- The screening effect provided by barriers or building structures (where relevant).

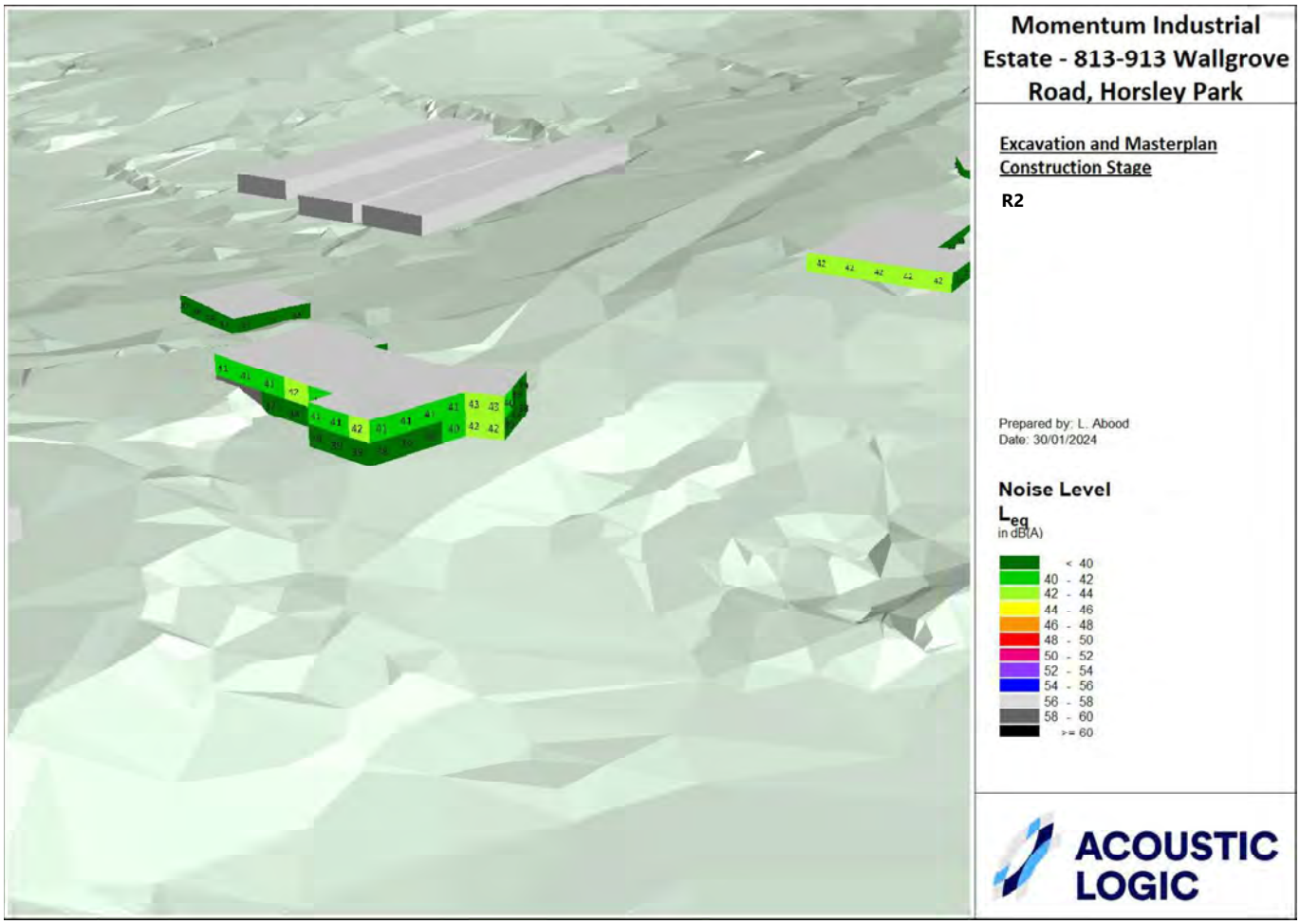
7.6.2 Predicted Noise Levels

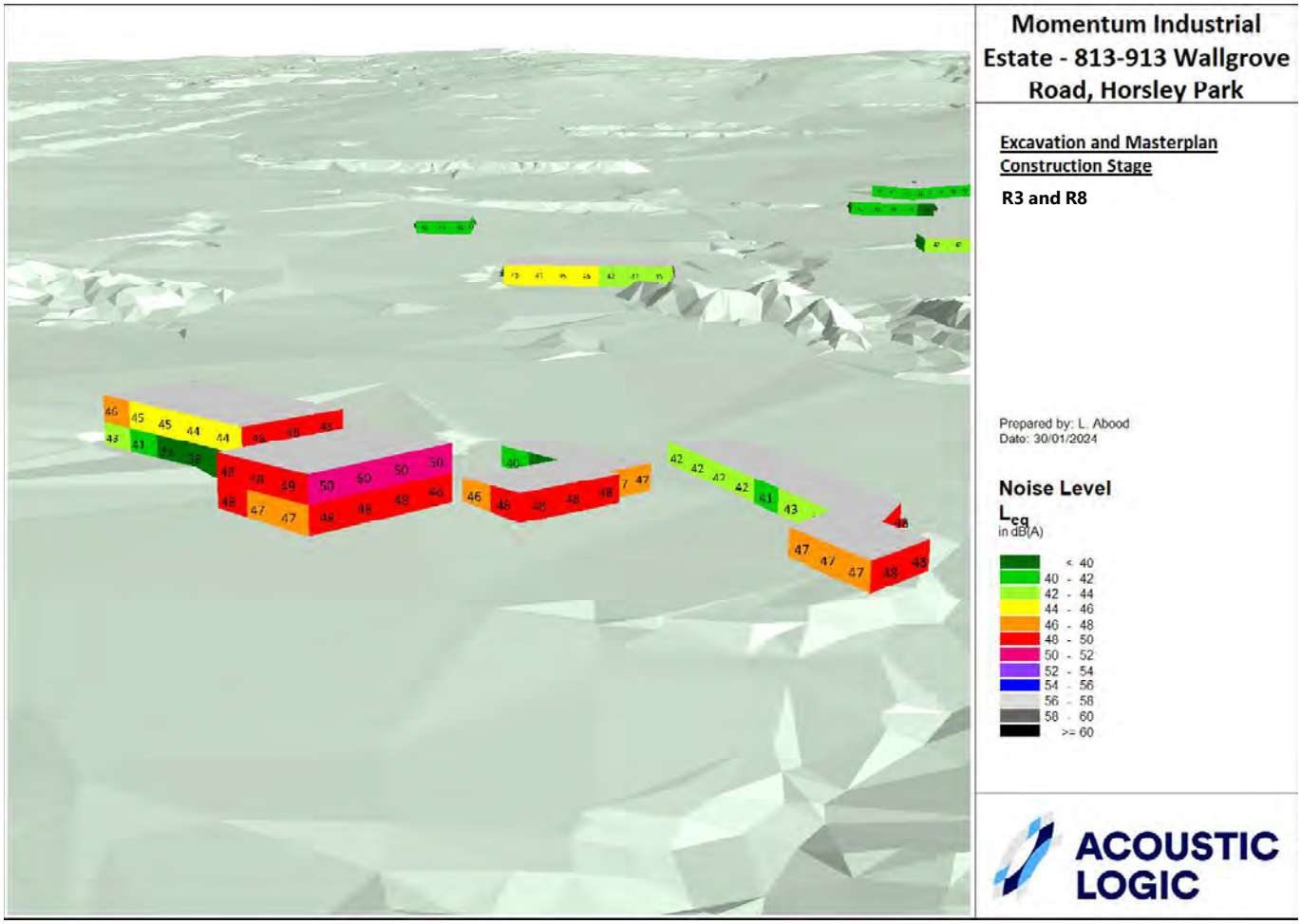
SoundPLAN noise modelling has been undertaken based on the assumed construction methodology and activities likely to be undertaken simultaneously at the project site and therefore resulting in the *'worst-case'* scenario.

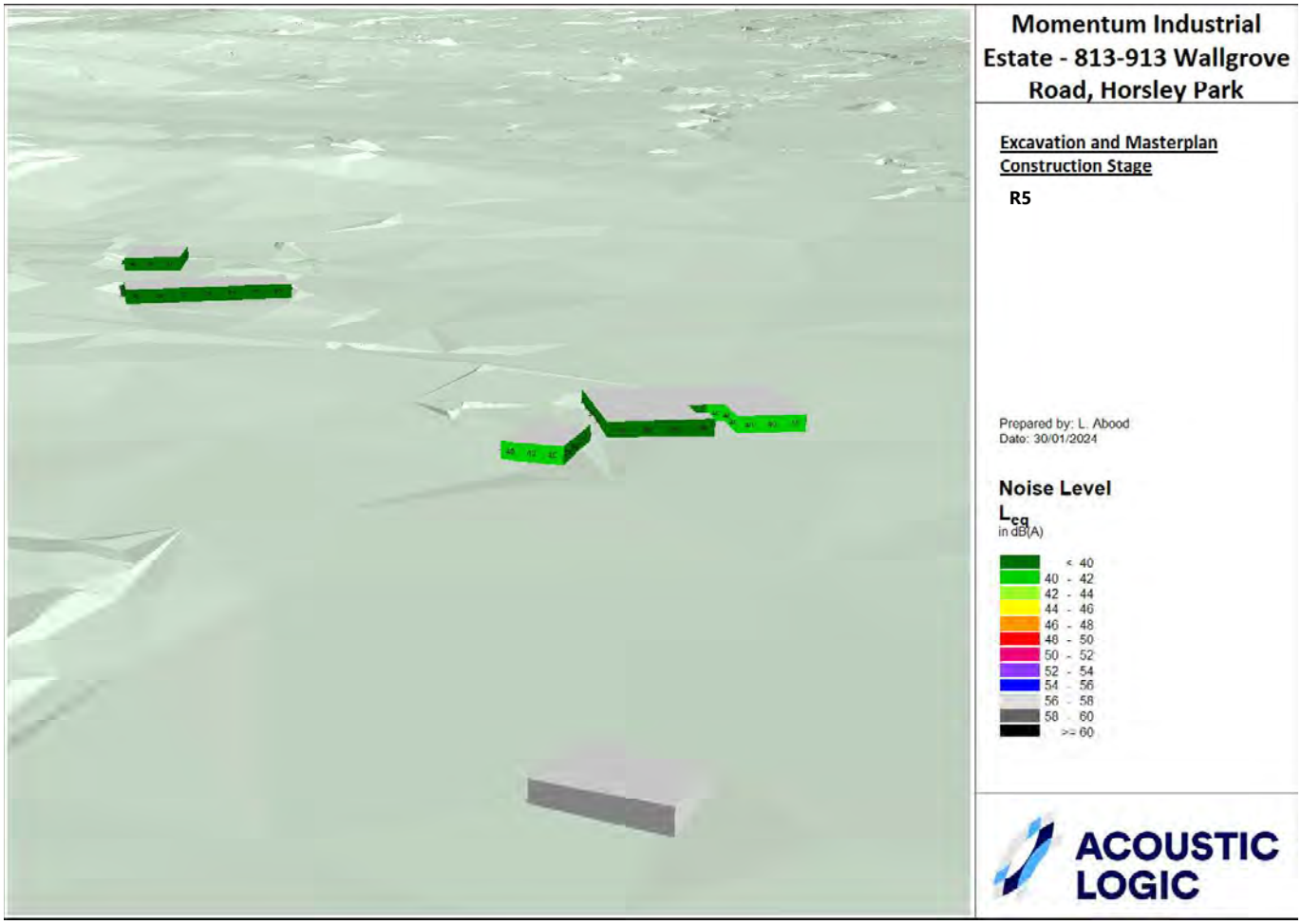
The SoundPLAN noise modelling presents the cumulative predicted external noise levels to the nearest surrounding receivers. In addition, see the tables below for the predicted noise level range.

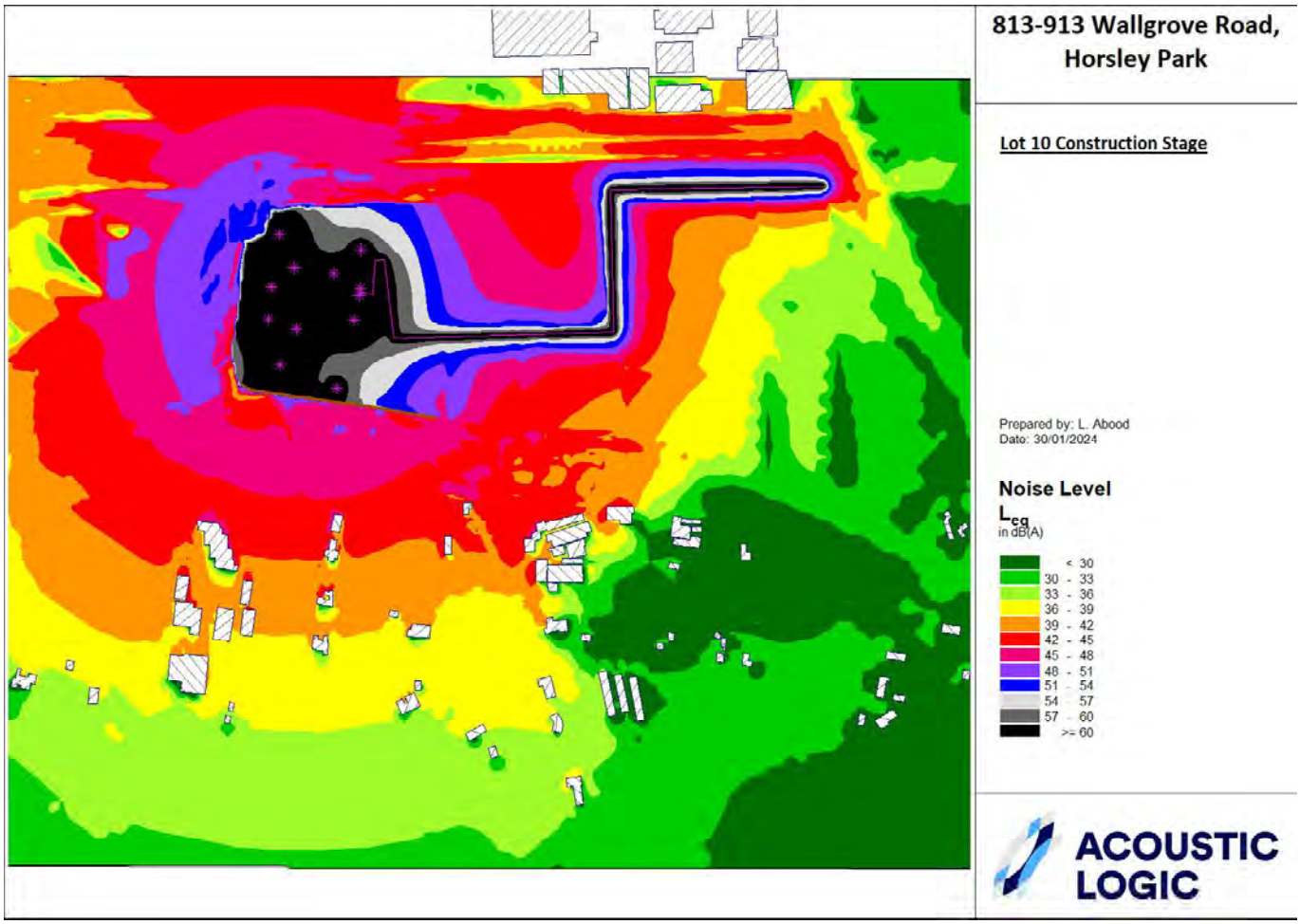

Momentum Industrial Estate - 813-913 Wallgrove Road, Horsley Park
Construction Noise
Prepared by: L. Abood
Date: 12/12/2022
Noise Level
L_{eq}
in dB(A)
< 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
50 - 52
52 - 54
54 - 56
56 - 58
58 - 60
>= 60
ACOUSTIC LOGIC

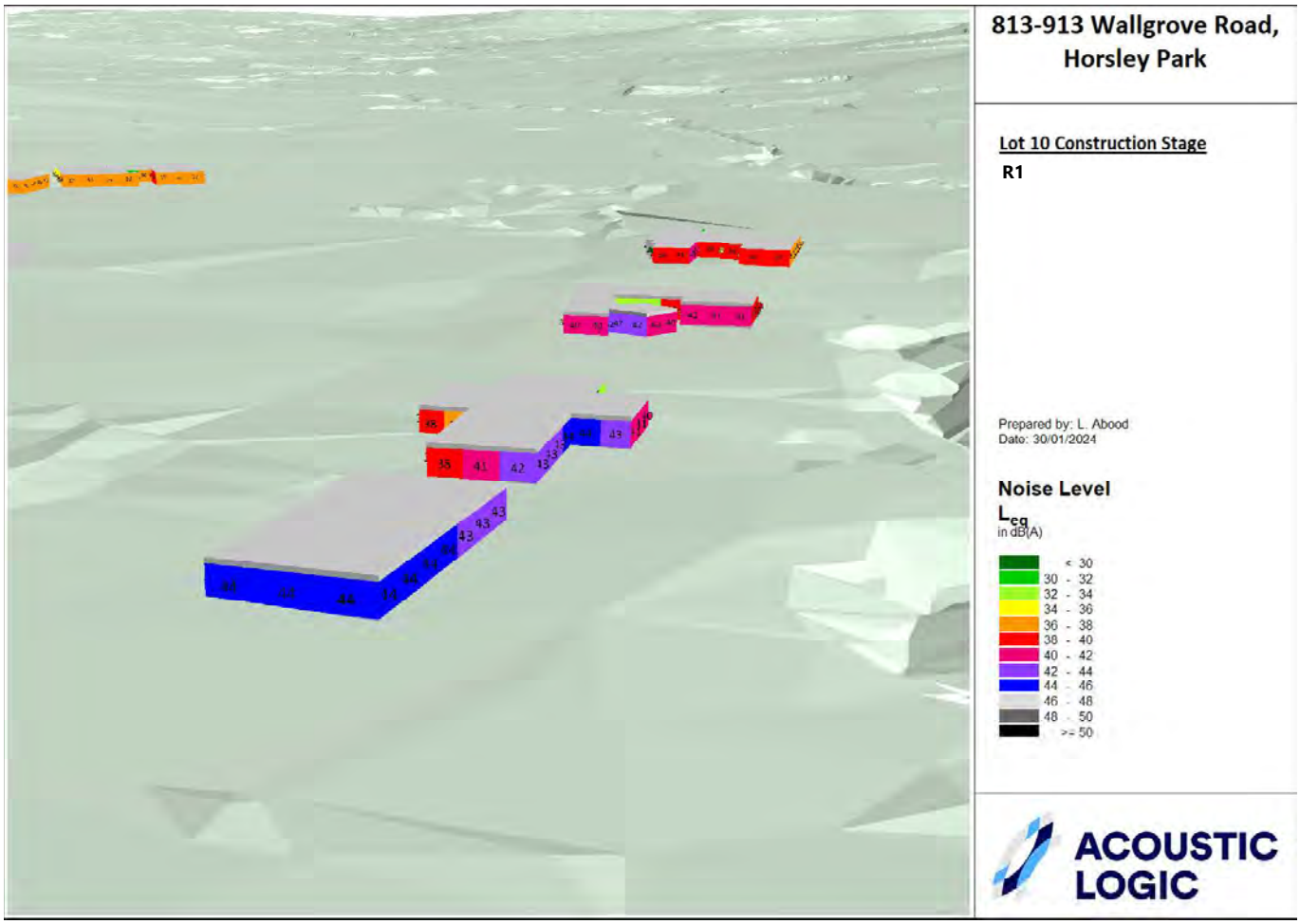

Momentum Industrial Estate - 813-913 Wallgrove Road, Horsley Park
Excavation and Masterplan Construction Stage
R1
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
50 - 52
52 - 54
54 - 56
56 - 58
58 - 60
>= 60
ACOUSTIC LOGIC

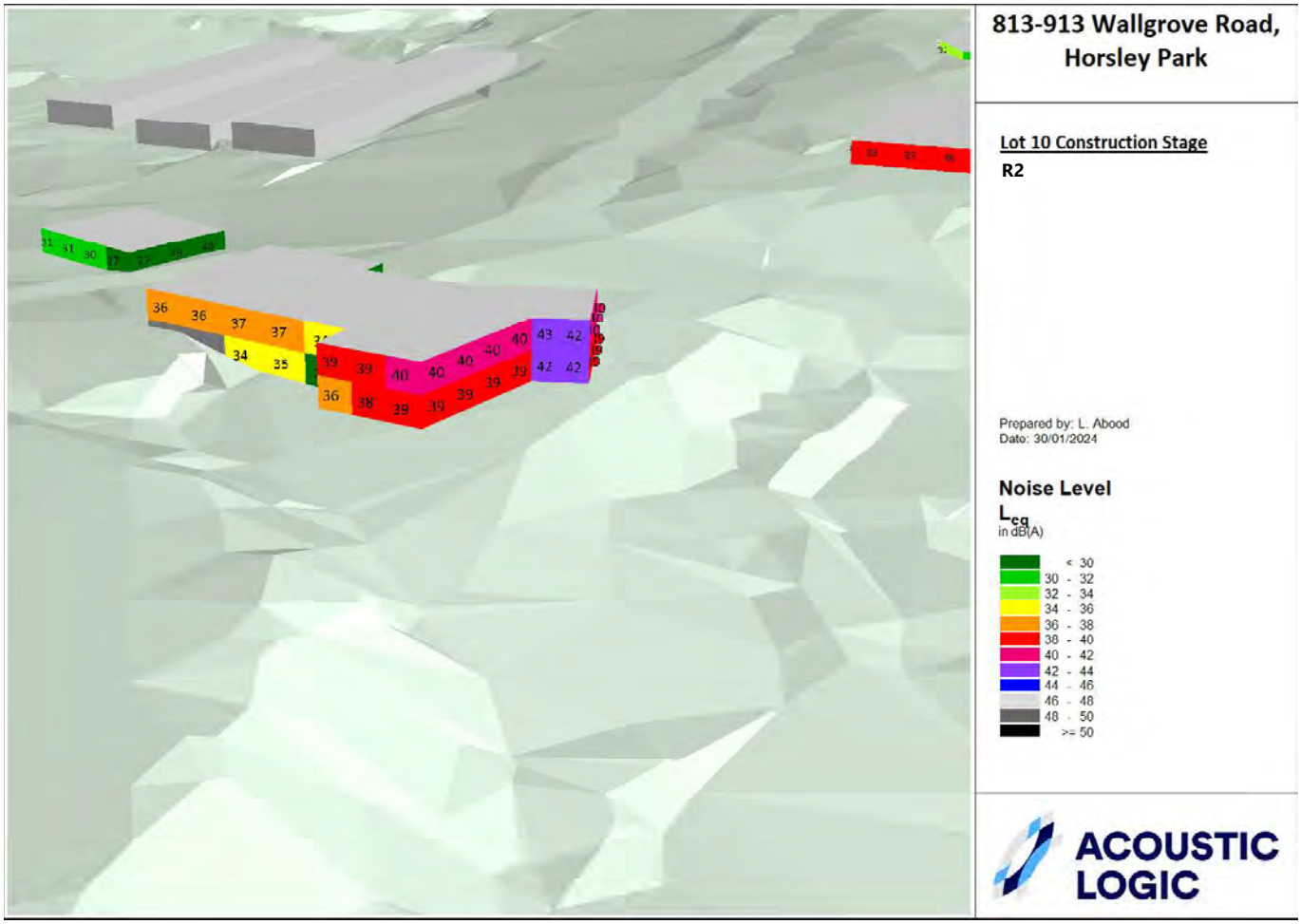

Momentum Industrial Estate - 813-913 Wallgrove Road, Horsley Park
Excavation and Masterplan Construction Stage
R2
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
Leq
in dB(A)
< 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
50 - 52
52 - 54
54 - 56
56 - 58
58 - 60
>= 60
ACOUSTIC LOGIC

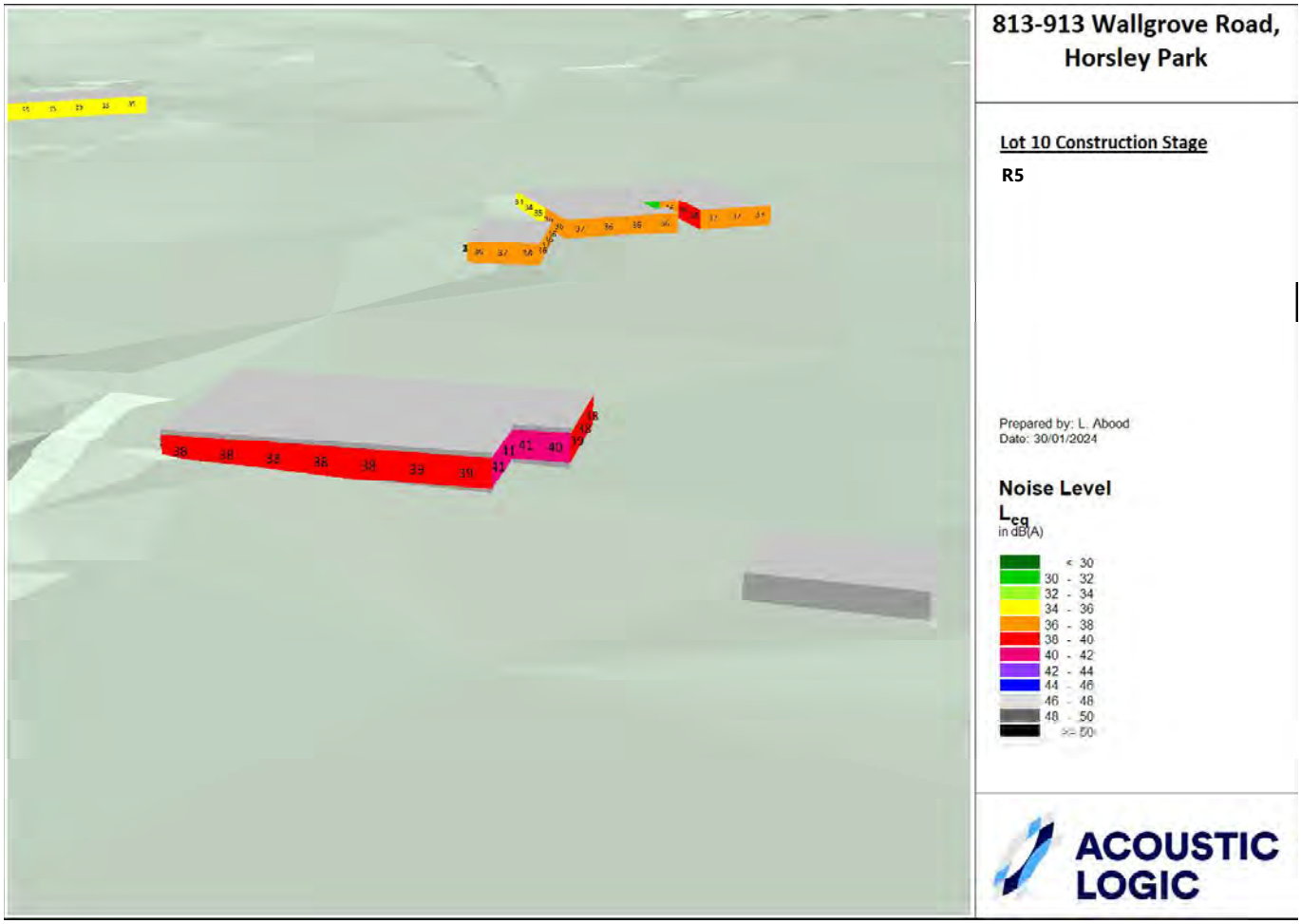

Momentum Industrial Estate - 813-913 Wallgrove Road, Horsley Park
Excavation and Masterplan Construction Stage
R3 and R8
Prepared by: L. Abood
Dato: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
50 - 52
52 - 54
54 - 56
56 - 58
58 - 60
>= 60
ACOUSTIC LOGIC


Momentum Industrial Estate - 813-913 Wallgrove Road, Horsley Park
Excavation and Masterplan Construction Stage
R5
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
50 - 52
52 - 54
54 - 56
56 - 58
58 - 60
>= 60
ACOUSTIC LOGIC


813-913 Wallgrove Road,
Horsley Park
Lot 10 Construction Stage
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 30
30 - 33
33 - 36
36 - 39
39 - 42
42 - 45
45 - 48
48 - 51
51 - 54
54 - 57
57 - 60
>= 60
ACOUSTIC
LOGIC


813-913 Wallgrove Road,
Horsley Park
Lot 10 Construction Stage
R1
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 30
30 - 32
32 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
>= 50
ACOUSTIC
LOGIC


813-913 Wallgrove Road,
Horsley Park
Lot 10 Construction Stage
R2
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 30
30 - 32
32 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
>= 50
ACOUSTIC
LOGIC


813-913 Wallgrove Road,
Horsley Park
Lot 10 Construction Stage
R5
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 30
30 - 32
32 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
>= 50
ACOUSTIC
LOGIC


813-913 Wallgrove Road,
Horsley Park
Lot 10 Construction Stage
R7
Prepared by: L. Abood
Date: 30/01/2024
Noise Level
L_{eq}
in dB(A)
< 30
30 - 32
32 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
>= 50
ACOUSTIC
LOGIC

7.7 COMBINED PREDICTED CONSTRUCTION NOISE EMISSIONS

The predicted construction noise emissions from construction activities being undertaken within the project site as presented in section 7.3 of this report are detailed in the table below.

Table 12 – Combined Predicted Construction Noise Levels

Receiver	Masterplan Excavation and Construction Stage Predicted Noise Level dB(A) $L_{eq\ 15\ min}$	Lot 10 Construction Stage Predicted Noise Level dB(A) $L_{eq\ 15\ min}$	Noise Management Level dB(A) $L_{eq\ 15\ min}$	Discussion
R1	≤ 48	≤ 44	"Noise Affected" Level - 48 "Highly Noise Affected" Level – 75	Construction activity below the Noise Affected Management Level
R2	≤ 43	≤ 43		
R3	≤ 43	≤ 30		
R4	≤ 39	≤ 36		
R5	≤ 44	≤ 41		
R6	≤ 38	≤ 36		
R7	≤ 60	≤ 42	75	
R8	≤ 50	≤ 40		

7.8 AMELIORATIVE MEASURES

7.8.1 Site Specific Recommendations

Detailed site-specific recommendations to mitigate noise and vibration impacts on surrounding receivers are detailed below. These controls should be reviewed once a contractor is appointed, and the construction methodology is finalised.

- No hydraulic hammering is allowed within the project site.
- Although the Construction noise generated is within the acceptable guidelines, a 3m high acoustic barrier will be established in accordance with Condition C63 of the SSD 5248 Consent. It is noted that the Sound Plan modelling in this report does not include the boundary fencing.



- Majority of excavation is to be done using Bull Dozers with Scrapers.
- Stationed equipment shall be located as far as possible from residences as practicable and are to be screened by an enclosure.
- Vehicle Noise:
    - Truck movements should not commence prior to 7am.
    - Trucks must turn off their engines during idling to reduce impacts on nearby residential receivers (unless truck ignition needs to remain on during concrete pumping).
    - Avoid careless dropping of construction materials into empty trucks.
- Equipment shall be well maintained.

Hand tools would only be typically used sporadically. Additionally, we recommend the following controls:

- After verified complaint, the use of hand-held jackhammers, grinders, and electric saws should be screened from surrounding receiver locations with localised acoustic barriers such as an Eco Barrier or plywood hoarding fixed to temporary fencing.

7.8.2 Noise Monitoring

Long term and short-term noise monitoring programmes are recommended to support the noise management systems of the construction work.

- Minimum two real time noise monitors should be setup along southern boundary of the project site. Detailed monitor locations should follow the major construction machines. It is recommended to carryout 1-week ambient noise monitoring before commencement of the construction work. The real time noise monitors are with camera to record the major picture of noise source if possible. Noise exceedance will be studied, and management action will be followed once the alarm message is received.
- The monitoring report should be provided every fortnight to summarise the findings.

7.9 GENERAL RECOMMENDATIONS

General noise management practices which may be adopted are discussed below. In addition, notification, reporting and complaints handling procedures should be adopted as recommended in section in this report.

7.9.1Silencing Devices

Where construction process or appliances are noisy, the use of silencing devices may be possible. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts.

7.9.2 Material Handling

The installation of rubber matting over material handling areas can reduce the sound of impacts due to material being dropped by up to 20dB(A).

7.9.3 Treatment of Specific Equipment

In certain cases, it may be possible to specially treat a piece of equipment to reduce the sound levels emitted. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts.

7.9.4 Establishment of Site Practices

This involves the formulation of work practices to reduce noise generation. This includes locating fixed plant items as far as possible from residents as well as rotating plant and equipment to provide respite to receivers.

Construction vehicles accessing the site should not queue in residential streets and should only use the designated construction vehicle routes. Loading of these vehicles should occur as far as possible from any sensitive receiver.

7.9.5 Community Consultation and Complaints Management

DA Condition C60 requires below:

(e) *include strategies that have been developed with the community for managing high noise generating works, and*

(f) describe the community consultation undertaken to develop the strategies in (e) and

(g) include a complaints management system that would be implemented for the duration of the Development.

Noise modelling indicates that the noise generated by construction activities to residential receivers will satisfy the Noise Management Level based on NSW EPA Interim Construction Noise Guideline and significantly lower than the Highly Affected Noise Level 75 dB(A). Strategies for managing high noise generating works in accordance with the NDW EPA Interim Construction Noise Guidelines are not required. However, the following procedures are recommended for handling noise complaint.

Real time noise monitoring data should be checked immediately after receiving complaint and determine the major noise source /activities based on the recorded noise level and pictures.

7.9.5.1 Performance Objective

- To ensure that all environmental complaints in relation to the noise and vibration from the Stage 1 construction activities are promptly and effectively received, handled and addressed.

7.9.5.2 Responsibility

- The Communications and Community Liaison Representative is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint. It should be ensured that all site employees are aware of and understand their obligations for complaints response.

- All employees who take receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager, who will then contact the Communications and Community Liaison Representative.

7.9.5.3 Complaints Handling Procedure

- Upon becoming aware of a complaint, the protocol outlined below will be followed.

7.9.5.4 Record and Acknowledge

- Any employee who take receipt of a complaint, either verbal or written, is to immediately notify the Contractor's Project Manager who will then contact the Communications and Community Liaison Representative. The Contractor's Project Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works.

- In the normal course of events, the first contact for complaints will usually be made in person or by telephone.

- The complainant's name, address and contact details, along with the nature of the complaint, must be requested. If the complainant refuses to supply the requested information, a note will be made on the form and complainant advised of this.

7.9.5.5 Assess and Prioritise

- The Communications and Community Liaison Representative will prioritise all complaints by considering the seriousness of the complaint including risk to health and safety and will attempt to provide an immediate response via phone or email.

7.9.5.6 Investigate

- A field investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any air quality monitoring information and/or site records at and around the time of the complaint will be reviewed for any abnormality or incident that may have resulted in the complaint.

7.9.5.7 Action or Rectify

- Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact. The Communications and Community Liaison Representative will assess whether the complaint is founded or unfounded and delegate the remediation of the issue to the Contractor's Project Manager for action, as required.

- As outlined in Section above, if a complaint regarding air quality/acoustic impacts is concluded to be substantiated, the need for any changes to the acoustic mitigation measures identified for the Project in Section 7 and/or the noise/vibration monitoring programme is to be reviewed.

7.9.5.8 Respond to Complainant

- The Communications and Community Liaison Representative and the Contract Superintendent will oversee the rectification of the issue. The Communications and Community Liaison representative will then respond to the complainant once the issue has been resolved. The complainant will be provided with a follow up verbal response on what action is proposed within 24 hours. Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant within ten days.

7.9.5.9 Record

- It is imperative that an investigation of the situation is carried out and proposed improvements documented in order to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the Complaint Enquiry Form. A copy of the completed form will be maintained for at least five years. The complaint will also be recorded in the Complaints Register.

7.9.5.10 Preventative Action

- Once the complaint has been suitably handled, proposed improvements will be investigated and implemented to minimise the potential of re-occurrence. The Complaint Enquiry Form will not be closed out until the preventative actions are completed and recorded on the form.

7.9.5.11 Complaints Register

Procedures of complaints management have been detailed in CEMP prepared for this project.

- A Complaints Register will be maintained during construction and will contain the following:
- A copy of the environmental complaint handling procedure;
- A separate reference sheet containing the contact details;
- Blank hard copies of the Complaint Enquiry Form; and
- Copies of all completed Complaint Enquiry Forms, which are to be maintained for at least five years after the event to which they relate.

8 CONSTRUCTION VIBRATION ASSESSMENT (STANDARD CONSTRUCTION HOURS)

8.1 VIBRATION PRODUCING ACTIVITIES

Proposed activities that have the potential to produce significant ground vibration include:

- Excavation Work; and
- Construction Work.

8.2 REQUIREMENTS BY WATER NSW

Condition C101

Condition C101 requires confirmation from a Geotechnical Engineer that the proposed construction would not adversely affect the integrity of the Pipelines or stability of the embankments within the pipeline corridor.

Further Analysis of impact to Warragamba To Prospect Pipe Corridor

Consideration Water NSW *Guideline for Developments Adjacent to the Upper Canal and Warragamba Pipelines (GDAUCWP) 2021* taking in to account the potential effects of the development.

Location of Pipelines in proximity to Site

The pipelines are approximately 40 – 50 metres from the Site boundary.



Table 13 – Vibration Criteria

Factor to be considered		Application to SSD 5248
Excavation	No excavation is to be made within a five-metre buffer of the water supply infrastructure without prior engineering analysis of the structural stability and effects excavation accepted by WaterNSW	No excavation works associated with SSD 5248 Consent are proposed within 5 metres of the water supply infrastructure. This criterion is not applicable.
Vibration	The German Standard DIN 4150-3:2016 Structural Vibration Part 3: Effects of Vibration in Structures should be used to assess vibration effects.	Refer to Predicted vibration levels

8.3 PREDICTED VIBRATION LEVELS

Although no excavation works are proposed in the vicinity of the boundary (the area is predominantly fill) we have considered a 14T Vibratory Roller and Excavator Hammering (not proposed) for potential impact the construction works may have to the pipelines. The provides a worst-case analysis for consideration.

Plant/Equipment	PPV (mm/s) at distance from source						WaterNSW GDAUCWP/ German Standard DIN 4150-3:2016 Criteria (mm/s)
	5m	10m	15m	20m	30m	40m	Warragamba Pipelines
14T Vibratory Roller[1]	9.4	4.0	2.0	1.1	0.3	0.1	3mm/s 1-10 Hz
Excavator Hammering[2]	–	6	3.0	1.6	0.5	0.1	3-8 mm/s 10-50 Hz 8-10 mm/s 50-100 Hz

1. EMS measured a 14 Tonne Vibratory Roller for the M5 East Cooks River Substation Access Road (Report No.: EMS19 6381), EMS assumes similar vibration emissions from the 13.3T Padfoot Roller and 11.5 Smooth Drum Roller.
2. Based on the measurement given in the RTA *Environmental Noise Management Manual* (ENMM) 2001 of an excavator hammering at 10m metres with Peak Particle Velocity of 6 mm/s.
3. EMS notes when using the British Standard for impacts to residences, it is important that the criteria are reduced by 50% to account for resonances in structures due to prolonged vibration activities (to avoid structural damage to buildings). The frequency of vibration from the vibratory rollers is assumed to be above 15 Hz whilst the excavator/hammering is assumed to be between to be between 1 and 100 Hz.

8.4 FINDINGS

The proposed works with the SSD 5258 MOD 1 consent are not anticipated to cause elevated vibration levels that will require specific mitigation measures beyond what is anticipated in the broader report.

Further to above, we note Gazcorp has been in consultation with Water NSW regarding the works associated with SSD 5248. It has entered into a Construction Licence Deed (as executed on 15 November 2022) to undertake the works. Below is a non-exhaustive list of requirements:

- Undertaking of Dilapidation Surveys of the pipelines to the satisfaction of Water NSW,
- Relevant Insurance policies in place.
- Bank Guarantees for the performance of the Licence Deed

A letter to commence construction was received from Water NSW on 29 November 2022.

8.5 VIBRATION MONITORING

The predicted vibration levels are significantly lower than the criteria specified by Water NSW. It is recommended to install a vibration monitor on site at location on surface level close to the Warragamba Dam Pipeline before commencement of excavation work. The monitor should be with SMS system to send alarm message once the measured vibration exceeds the trigger level (recommended alarm trigger level of 2.5mm/s PPV).

8.5.1 Downloading of Vibration Monitor Data

Downloading of the vibration monitor data will be conducted on a regular basis. In the event of exceedance of the vibration criteria, downloading of the vibration monitor data will be conducted more frequently. Results obtained from the vibration monitor will be presented in a graph format and will be forwarded to the client for review. It is proposed that reports are provided fortnightly with any exceedances in the vibration criteria reported as detailed in this report.

8.5.2 Presentation of Vibration Monitor Results

A fortnightly report will be submitted to the client via email summarising the vibration events. The vibration exceedance of criteria is recorded, and the report shall be submitted within 24 hours. Complete results of the continuous vibration logging will be presented in fortnight reports including graphs of the collected data.

9 CONCLUSION

Acoustic Logic has prepared a construction noise and vibration management plan to support the masterplan development application submission during the construction stage of the industrial development proposed to be located at 813-913 Wallgrove Road, Horsley Park.

- No hydraulic hammering is allowed within the project site during construction stage.
- Predicted vibration levels to NSW Warragamba to Prospect Pipeline are low, real time vibration monitoring is recommended to ensure that the Water NSW Pipes are safeguarded during construction work.
- Predicted construction noise levels are generally lower than the Noise Management Levels recommended by NSW EPA Interim Construction Guidelines. Real time noise monitoring programmes are recommended to mitigate the noise impact to residential receivers

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,



Acoustic Logic Consultancy Pty Ltd
George Wei
Director, MAAS

NSW Fair Trading Approved Building and Development Certifier – Acoustic (Registration No: BDC04838)

Appendix E Construction Traffic Management Plan



Construction Traffic Management Plan

Gazcorp Industrial Estate
813 – 913 Wallgrove Road, Horsley Park
18/04/2024
P2302r01

Info@asongroup.com.au
+61 2 9083 6601
Suite 17.02, Level 17,
1 Castlereagh Street,
Sydney, NSW 2000

Document Control

Project No	P2302
Project	Gazcorp Industrial Estate (GIE) – Construction Traffic Management Plan
Client	Gazcorp Pty Ltd
File Reference	P2302r01v07 CTMP_Gazcorp Industrial Estate (GIE), Issue VII.docx

Revision History

Revision No.	Date	Details	Author	Approved by
-	8/06/2023	Draft	M. Abdullah	M.Dizon, Jr./ J. Laidler
1	25/09/2023	Issue I	M. Abdullah	J. Laidler
2	27/09/2023	Issue II	M. Abdullah	J. Laidler
3	17/10/2023	Issue III	M. Abdullah	J. Laidler
4	18/10/2023	Issue IV	M. Abdullah	J. Laidler
5	2/11/2023	Issue V	M. Abdullah	J. Laidler
6	17/11/2023	Issue VI	M. Abdullah	J. Laidler
7	18/04/2024	Issue VII	M. Khodadadifard	J. Laidler

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APPENDICES

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Appendix I. Allied TMP – Signalised Intersection

Glossary

Acronym	Description
Council	Fairfield City Council
CTMP	Construction Traffic Management Plan
DA	Development Application
DCP	Development Control Plan
DPHI	Department of Planning, Housing and Infrastructure
GFA	Gross Floor Area
GIE	Gazcorp Industrial Estate
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
NHVR	National Heavy Vehicle Regulator
OC	Occupation Certificate
TfNSW	Transport for New South Wales
TGS	Traffic Guidance Scheme
TIA	Transport Impact Assessment
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

1 Introduction

1.1 Background

Ason Group has been engaged by Gazcorp Pty Ltd to prepare an overarching Construction Traffic Management Plan (CTMP) to identify the systems and measures taken by Gazcorp Pty Ltd for the construction traffic management associated with the construction of the Gazcorp Industrial Estate (GIE) (the Estate). The Estate plan is provided in **Figure 1**.

Further, the Estate belongs to SSD 5248 which was approved on 11 November 2019[1]. Two Modifications after the original SSD were also approved, and that is being (MOD 1) approved on 23 December 2021[2], and (MOD 2) approved on 22 December 2022[3]. It is worth noting that MOD 3[4] was withdrawn. Furthermore, two additional modifications (MOD 4[5], and MOD 5[6]) are currently being assessed at the time of writing of this report.



Figure 1: Gazcorp Industrial Estate – MOD 2

1.2 Report Purpose

The purpose of this report is to detail a traffic management plan for construction that seeks:

- To minimise traffic impacts on the surrounding road network and adjacent landowners / occupiers,
- Ensure safety of workers, pedestrians, road users and any site-specific considerations (including surrounding neighbours),

[1] https://www.planningportal.nsw.gov.au/major-projects/project/26011
[2] https://www.planningportal.nsw.gov.au/major-projects/project/41081
[3] https://www.planningportal.nsw.gov.au/major-projects/projects/gazcorp-industrial-estate-mod-2
[4] https://www.planningportal.nsw.gov.au/major-projects/projects/ssd-5248-modification-4-lots-13-and-14
[5] https://www.planningportal.nsw.gov.au/major-projects/projects/ssd-5248-modification-4-amendments-lot-10
[6] https://www.planningportal.nsw.gov.au/major-projects/projects/ssd-5248-modification-5-changes-lots-13-and-14

- Provide appropriate warnings of changes in road / traffic conditions, and of personnel / workers and plant engaged in the works on or adjacent to roads accessible to the general public;
- Minimise disruptions to public transport;
- Provide information regarding the construction vehicle access routes and any changed road conditions (if applicable); and
- Communicate the arrangements for and impacts of any activities affecting traffic.
- To develop Traffic Guidance Schemes in accordance with relevant Australian Standards and guidelines where required.

It is expected that this plan will be updated should any necessary changes to the currently proposed arrangements arise in the future. Any special events (if required) would be subject to a separate request for a specific permit not covered by this report.

Ason Group is responsible for the preparation of this Plan only and not for its implementation, which is the responsibility of the Contractor. In accordance with Condition C32 of the consent, no works can commence until a CTMP report is approved by the Planning Secretary of the Department of Planning & Environment (DPE).

1.3 References

The below reports have been referenced in the preparation of this CTMP:

- GHD, SSD 5248 Traffic Impact Assessment, 813-913 Wallgrove Road, ref: 21/22381, 23 August 2012 (GIE TA)
- Ason Group, SSD 5248 Transport Assessment, 813-913 Wallgrove Road, ref: 1440r02v3, 30 February 2021 (GIE MOD 1 TA)
- Ason Group, SSD 5248 Response to Submissions, 813-913 Wallgrove Road, ref: 1440r04v02, 25 October 2021 (GIE MOD 1 RTS)
- Ason Group, SSD 36156297 Transport Assessment, Lot 11 & 12, 813 Wallgrove Road, ref: 1877r01v02, 25 March 2022 (DHL TA)
- Ason Group, SSD 36156297 Response to Submissions, 813 Wallgrove Road, ref: 1877l01v3, 7 October 2022 (DHL RTS)
- Ason Group Lot 11-12: Ason Group, Construction Traffic Management Plan, Lot 11-12, Gazcorp Industrial Estate ref: P2234r01v3 CC CTMP Lot 11-12, Gazcorp Industrial Estate Issue III.
- Department of Planning and Environment, SSD 5248 Gazcorp Industrial Estate Modification 2, 11 November 2019 (SSD 5248 MOD 2)
- Department of Planning and Environment, SSD 36156297 DHL Warehouse and Distribution Centre, 22 December 2022 (SSD 36156297)
- Allied Traffic Management, Traffic Management Plan, 19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade, 26 August 2022 (GIE CTMP)

1.4 Project Representatives & Stakeholders

This report has been prepared by consultants who hold the TfNSW (formerly RMS) Prepare a Work Zone Traffic Management Plan certification. Details of the accredited personnel are provided below:

- James Laidler Ticket No. TCT0031686
- Jasmine Wong.: Ticket No. TCT1043265

This Construction Traffic Management Plan (CTMP) has been prepared to meet the requirements outlined in Appendix A and Appendix E, Section E.2 of the *Transport for NSW Traffic Control at Work Sites Technical Manual (Issue No. 6.1, Feb 2022) (TCAW).*

Through the preparation of this CTMP, the project representatives and stakeholders consulted in the development of the traffic management strategy are listed below:

TABLE 1: PROJECT REPRESENTATIVES AND STAKEHOLDERS

Name	Organisation	Role
Tim Sachs	Gazcorp	Senior Project Manager
Sangeeth Subramaniam	Gazcorp	Project Manager
Ali Rasouli	Ason Group	Principal Traffic Engineer
James Laidler	Ason Group	Senior Traffic Engineer
Musstafa Abdullah	Ason Group	Traffic Engineer

During the CTMP approvals stage, the CTMP should be provided to relevant stakeholders for consideration, such as Council, TfNSW, neighbouring properties, and Contractor's safety team, to support traffic management investigations.

1.5 Estate Location

With reference to **Figure 2** below, the Gazcorp Industrial Estate is located at 813 – 913 Wallgrove Road, Horsley Park, which is also legally known as Lot 5 DP 24094. It is situated within Fairfield City Council's Local Government Area (LGA) and, as such, is subject to Fairfield City Council's controls.



Figure 2: Estate Location

1.6 Authority Requirements

The Department of Planning, Housing and Infrastructure (DPHI) has reviewed the Construction Traffic Management Plan (CTMP) and provided preliminary feedback. Below is a summary of their comments along with our responses addressing each of these points.

TABLE 2: DPIE COMMENTS – PRELIMINARY

Comments	Response
Evidence of consultation with Fairfield City Council or Transport for NSW.	Evidence of consultation with Transport for NSW is provided in **Appendix H**. Response to TfNSW feedback is provided in **Table 5**.. Fairfield City Council was also consulted, response to Fairfield City Council feedback is provided in **.**
Detail the measures that are to be implemented to ensure road safety and network efficiency during construction.	Safety for all road users has been outlined and discussed in **Section 2.3** and **Section 4.2** Network efficiency has been addressed in **Section 6** and **Section 6.2.**
The expected construction vehicle movements for Stage 1 outlined in Section 4.1.2 of the CTMP do not correlate with those assessed and approved under SSD-5248. The discrepancy has not been identified or justified in the CTMP.	The following trips that are to be generated from the entire estate within the SSD-5248-MOD 2 (SSDA) report have been outlined below. • AM Peak 541 trips/hr (inbound & outbound) • PM Peak 397 trips/hr (inbound & outbound) • Daily 5,774 trips/hr (inbound & outbound) Within the SSDA report, Stage 1 indicated the operational development related to the development of Lots 11 & 12. Stage 1 operational volumes are not comparable to the Stage 1 construction volumes, as they relate to different activities, as follows: SSDA Stage 1: Relates to the trip generation once Lots 11 & 12 become operational. CTMP Stage 1: Relates to the construction volumes of the estate earthworks, estate infrastructure works and partial construction of warehouses – see **Table 7** for more detail. As such, the construction volumes outlined within **Section 4.1.2** do not correlate with the operational volumes within the SSDA.
The CTMP does not explicitly detail traffic and pedestrian management methods	Traffic management is defined in **Section 4.2.6** and **Appendix D.** Pedestrian management is defined in **Section 4.2.5**
Section 4.1.5 of the CTMP identifies the Warragamba to Prospect Pipeline, however, does not detail what measures will be taken to ensure the unhindered movement of authorised vehicles permitted to access the pipeline.	Refer to **Section 4.1.5** for further details.

Upon reviewing Ason Group's responses to the DPHI preliminary comments, DPHI has provided additional feedback. Below is a summary of their comments, along with our responses addressing each point.

TABLE 3: DPIE FURTHER COMMENTS

Comments	Response
Further detail required in response to C31(i). The Applicant must demonstrate in more detail how measures are to be implemented to ensure the unhindered movement of authorised vehicles to the Warragamba Pipeline. Mitigation methods are to be outlines in the instance this cannot be achieved.	Noted, Refer to **Section 4.1.5** which outlines that the accesses are indeed separated and not affected by the operation of each other.
The Department notes that the Traffic Impact Statement, dated 23 August 2013, for the Stage 1 development (SSD-5248) states that construction of the Stage 1 development would generate 27 daily vehicles. However, the Stage 1 CTMP does not provide construction vehicle movements of the Stage 1 development. Please clarify the discrepancy. If the construction traffic volume described in the CTMP is accurate, please explain the increase and any additional measures to be implemented to manage the additional impacts.	The Traffic Impact Assessment (TIA) [7]was prepared by GHD in 2013. The TIA It recommended that further, more detailed construction traffic management planning be when they become available. Condition C32 of the Consent also outlines that a detailed CTMP must be prepared prior to commencement of construction. As such, volumes outlined within the original TIA were estimated only and not reflective of the current construction process. **Table 19** outlines the expected construction volumes for the entirety of the construction program, with **Section 6.2** outlining the suitability of this construction traffic in relation to the impacts of the surrounding road network.

1.7 Stakeholder Consultation

1.7.1 Fairfield City Council Feedback

Fairfield City Council has reviewed the CTMP and provided preliminary feedback. Below is a summary of their comments along with our responses addressing each of these points.

[7] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-5248%2120191119T003602.739%20GMT

TABLE 4: DPIE FURTHER COMMENTS

<table>
<tr><th>Comments</th><th>Response</th></tr>
<tr><td>The applicant is to clarify the SIDRA modelling assessment for the proposed interaction during the AM & PM peak hours for the scenario prior to the operation of the signalised intersection. Whilst the CTMP mentions the scenario for prior operations of the signalised intersection, the SIDRA modelling assessment has been carried out as a signalised intersection with the assumptions of Isolated Cycle Time (120 sections assuming that traffic signals are in operation</td><td>Ason group has carried out the SIDRA modelling prior to the signalised intersection for the temporary access as a “Give Way” intersection and not as a signalised intersection and the result of the giveaway intersection can be found in Appendix C.

A summary of the temporary access performance is shown below.
<table><tr><th colspan="4">TEMPORARY ACCESS PERFORMANCE</th></tr><tr><td>Peak Period</td><td>AVD (s)</td><td>LOS</td><td>DOS</td></tr><tr><td>AM</td><td>0.7</td><td>D</td><td>0.637</td></tr><tr><td>PM</td><td>0.8</td><td>B</td><td>0.701</td></tr></table>Additionally, the modelling for the signalised intersection was previously completed and approved by TfNSW during the initial assessment of the GIE TA[8]. This assessment was based on the assumption that the site would be fully operational at its maximum capacity.

In this CTMP, The SIDRA modelling was conducted for the signalised intersection, considering the construction traffic volume during phase 2. It is important to note that this phase involves significantly lower traffic compared to the site’s full operational capacity.</td></tr>
<tr><td>The applicant shall come up with strategies and measures to minimise the traffic impacts on the adjoining road network. Specific traffic and access mitigation measures through the risk assessment processes are to be included within the CTMP. The risk assessment/ audit process shall be undertaken by the applicant to pro-actively manage road safety by identifying and addressing the risks associated with the road safety deficiencies.</td><td>In response to the directive to minimise traffic impacts on the adjoining road network, a traffic generation analysis of the construction traffic volumes pre-signalised intersection was conducted. The traffic volume accessing the site represents only a small percentage of Wallgrove Road and is limited to left in and left out movements, thereby posing a minimal safety risk to the road network. Figure 17 shows a comparison between the construction traffic volume during Phase 1 and the traffic volume of Wallgrove Road

As for the risk assessment associated with the construction traffic after the operation of the signalised intersection, all the construction traffic will access the site through the signalised intersection, which does not carry a risk.
To further enhance road safety and minimize potential risks, a series of proactive measures have been outlined in the Comprehensive Traffic Management Plan (CTMP) and detailed in Appendix B.</td></tr>
</table>

[8] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-5248%2120191119T003546.100%20GMT

	A key approach adopted is the implementation of regular toolbox meetings and monitoring procedures. These meetings serve as essential platforms to educate drivers about the Driver Code of Conduct, ensure compliance with road safety regulations, and adherence to road rules. By emphasising road safety awareness and fostering a culture of compliance, conflicts with different road users, such as pedestrians, cyclists, and motor vehicles, are significantly reduced. This approach aligns with the commitment to managing road safety effectively and addressing potential risks associated with road safety deficiencies
The applicant is to submit swept path diagrams to demonstrate the largest vehicle can satisfactorily traverse the construction vehicle route and can turn into and out of the site whilst not adversely impacting other road users.	Please refer to **Appendix F** for a detailed swept path analysis of the largest construction vehicles (12.5 m HRV) accessing the site via the temporary access route.
The relocation of the existing bus stop shall be consulted with the affected stakeholders. Any issues raised by affected businesses, TfNSW and the bus company need to be satisfactorily addressed.	Please refer to **Appendix G**, for details regarding the stakeholders' consultation conducted by Burton. The findings indicate that both TfNSW and the bus company are not obligated to relocate the bus stops based on the consultation results.
The CTMP shall be referred to TfNSW given that there will be a significant number of vehicles using the state road for an extended period of time during construction. Any issues raised by TfNSW shall be satisfactorily addressed.	Consultation with TfNSW is presented in **Appendix H**. **Table 5** outlines a comprehensive overview of the responses addressing all the issues raised by TfNSW.

1.7.2 TfNSW Feedback

Transport for NSW was consulted regarding this CTMP, and they provided their feedback on 01 November 2023. The feedback from TfNSW and ASON's responses to each comment are presented in **Table 5** below:

TABLE 5: TFNSW COMMENTS

Comments	Response
Separate TMP for the signalised intersection to be submitted to CJP	Allied Traffic Management has prepared a TMP for the signalised intersection. This plan has been reviewed and consulted with TfNSW during the WAD process. For detailed information regarding Allied TMP, please refer to **Appendix I**
Any Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS.	The Traffic Guidance Schemes (TGS) have been designed in accordance with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual. They have been prepared by persons holding TfNSW certification. For more detailed

	information, please refer to **Section 1.4**. and **Appendix D**
Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals.	As detailed in the report, the construction activities related to the GIE will necessitate two access arrangements, as outlined in **Section 2.4.1** for interim construction access and **Section 2.4.2** for ultimate construction access. For the interim access, it is important to note that there will be no need for lane closures or Speed Zone Authorizations associated with the Road Occupancy Licence (ROL) that may impact the state road network. Moreover, this access point is situated beyond a 100m radius from any traffic signals. Similarly, the ultimate construction access does not require any lane closures or Speed Zone Authorizations that would impact the state road network. Furthermore, the ultimate access point is located at a traffic signalised intersection, and there will not be any roadwork involved on the public road. Therefore, obtaining a Road Occupancy Licence (ROL) is not necessary for the ultimate access point. In the event an ROL is required, then the appropriate approvals processes will be undertaken. Refer to **Section 2.**
Access to be maintained for residents, businesses and emergency vehicles at all times.	Access for residents, businesses, and emergency vehicles will be maintained at all times
No marshalling or queuing of construction vehicles is to occur on public roads. Arriving vehicles that are not able to use parking bay/work zone must continue to a holding point until space becomes available.	Noted, however there is no work zone proposed as part of the construction works. To ensure there is no queuing of construction vehicles on public roads, a detailed schedule for deliveries of goods and materials will be established in advance. All anticipated deliveries will be communicated to site personnel during daily prestart meetings to streamline operations and minimise disruptions.
When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles.	A qualified construction personnel will be provided to manage vehicles entering or leaving the Site to avoid any conflicts between pedestrians and heavy vehicles.
Access to the site should be at the farthest point from the intersection as practicable to reduce additional conflicting vehicle manoeuvres.	The temporary construction access to the site has been arranged at the farthest point from the intersection. Refer to **Section 2.4**.
Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic and pedestrian movements in this area.	Noted

Any approved Works Zone should only be used for work activities. No infrastructure, including bins, tanks or traffic control equipment should be left on the road when the works zone is not in use by a vehicle. All non-vehicular items must be contained with the work area and not on the carriageway. When a work zone is not in use, the area/lane must be opened up to allow for normal trafficable conditions	Noted. At no stage of the construction process Work Zone is needed. Refer to **Section 2.1**
Should TfNSW Network and Asset Management, Network Operations, CJP Operations, Network and Safety or other TfNSW business area determine that that more information is to be provided for review and acceptance, including other TCS locations, this information must be submitted prior to the CTMP being implemented, or otherwise agreed upon.	Noted
Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742	All traffic control devices, including signage and line marking, will be installed by the proponent and will conform with Australian Standards 1742.

1.8 Road Hierarchy

The road hierarchy in the locality is presented in Figure 2 and summarised below for key roads.

TABLE 6: ROAD HIERARCHY

Road Name	Road Classification	Speed Limit	Description
M4 Western Motorway	Motorway	110 km/h	The M4 Western Motorway generally consists of 3 lanes in each direction separated by a median. There are no parking opportunities on both sides of the road.
Westlink M7 Motorway	Motorway	100 km/h	The Westlink M7 Motorway generally consists of 2 lanes in each direction separated by a median. There are no parking opportunities on both sides of the road.
Wallgrove Road	Arterial	70 km/h	Wallgrove Road generally consists of 1 lane in each direction separated by line marking only. There are no parking opportunities on both sides of the road.
Estate Road 01	Local	50 km/h	Once constructed, it provides connectivity and access to various areas and facilities within the Estate.
Estate Road 02	Local	50 km/h	Once constructed, it provides connectivity and access to various areas and facilities within the Estate.
Estate Road 03	Local	50 km/h	Once constructed, it provides connectivity and access to various areas and facilities within the Estate.

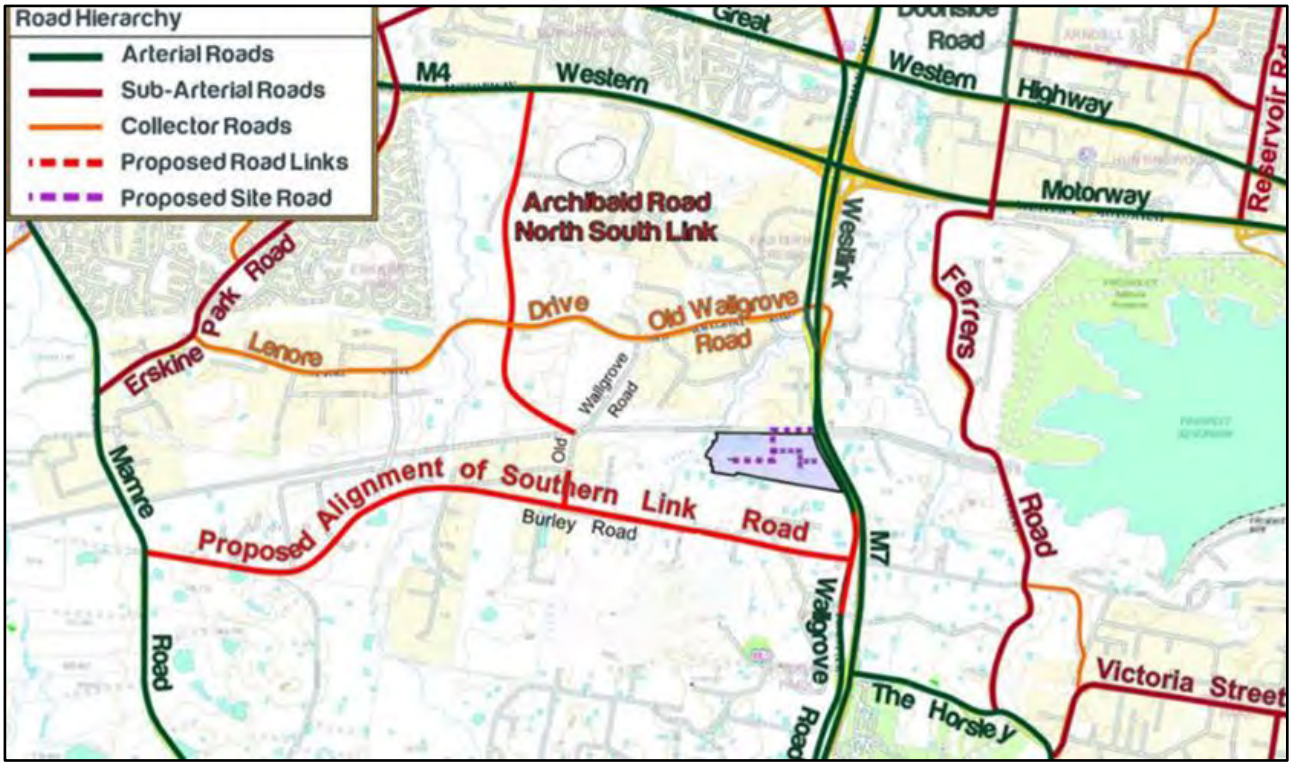


Figure 3: Road Hierarchy

2 Proposed Works and Staging

2.1 Project Details

The proposed construction activities for the estate road work and the bulk earth work have already started in April 2023 as evidence in **Table 8.** The construction process of GIE is expected to span approximately 5-6 years, depending on approvals from relevant authorities and any potential delays caused by inclement weather. The evaluation of the project will be carried out in 2 construction phases as follows:

- Phase 1: Pre-operation of the Wallgrove Road/Estate Road 01(the Signalised intersection), this phase focuses on the construction activities and traffic management measures prior to the Signalised intersection becoming operational.
- Phase 2: Post-construction of the Signalised intersection, this phase assesses the construction work and traffic conditions after the completion of the Signalised intersection.

2.2 Works Stages

2.2.1 Overview

The construction of GIE – the basis of this CTMP – will progress through 7 stages, commencing with Stage 1. During most of Stage 1 works, the majority of construction vehicles will utilise the temporary access for the Estate entry (Phase 1), while a few construction vehicles from Stage 1 and all construction vehicles from Stages 2-7 will access the Estate through the main access at the Signalised intersection (Phase 2). It is expected that the signalised intersection will be operational in January 2024.

It is worth mentioning that once the Signalised intersection is operational, it will become the access for construction vehicles, while the temporary access will be permanently closed. **Figure 4** provides a visual representation of the overall plan, including the respective stages and their associated construction areas.

To clarify, the construction of the signalised intersection is **not** included in this CTMP. However, it should be noted that the construction volume associated with the signalised intersection will be taken into account in the cumulative traffic assessment of the Estate.

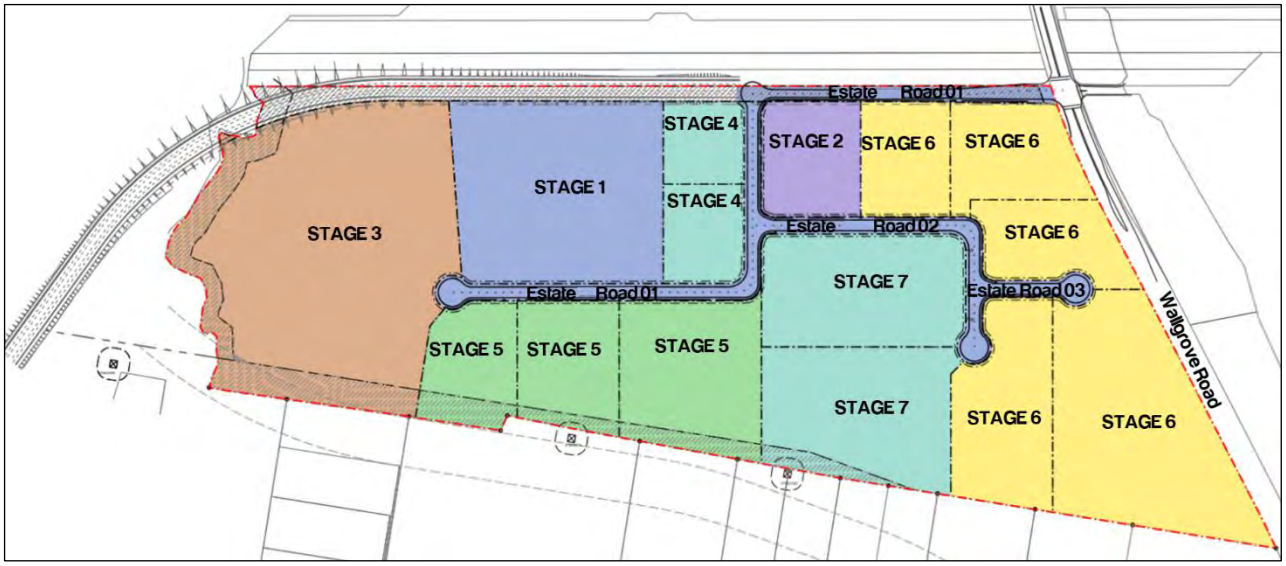


Figure 4: Construction Stages

TABLE 7: WORK STAGES

Phase	Stage	Description
Phase 1 (Prior to Signalised Intersection)	Stage 1	Stage 1 includes a range of tasks, including; • Bulk earthworks; • Internal estate roads; • Temporary LILO access off Wallgrove Road. • Construction of Lot 11 & 12
Phase 2 (Utilising Signalised Intersection)	Stage 1 (Continued)	Continued Stage 1 tasks including; • Internal Estate Roads • Construction of Lot 11 & 12
	Stage 2	• Construction of Lot 14A
	Stage 3	• Construction of Lot 10
	Stage 4	• Construction of Lot 13A & 13B
	Stage 5	• Construction of Lot 7& Lot 8A & Lot 8B & Lot 9
	Stage 6	• Construction of Lot 14B & Lot 1 & Lot 2 & Lot 3A & Lot 3B & Lot 4
	Stage 7	• Construction of Lot 5 & 6

Further details regarding each scenario are outlined below.

2.2.2 Phase 1 Pre-Operation of The Signalised Intersection

The description of works is seen below:

TABLE 8: STAGE SUMMARY – STAGE 1A – ESTATE ROAD & BULK EARTHWORK

Criteria	Response
Description of Key Activities	Estate Road and Bulk earthworks
Stage Length	Apr 2023 – Oct 2023 (6 Months)
Max. Vehicle Size	AV, Trucks & Dog
Vehicle Movement Frequency	Approximately 40 light vehicle movements / day + Approximately 60 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N Public transport services (i.e., location of bus stops) would not be affected beyond what has already been assessed and approved within the GIE CTMP prepared by Allied Traffic Management. As part of the GIE CTMP, 2 bus stops with Stop IDs 576623 and 276622 would be temporarily relocated during construction and both have already received approval from TfNSW. The alternative bus stop locations are shown in **Appendix A**.
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 9: STAGE SUMMARY – STAGE 1B – LOT 11-12

Criteria	Response
Description of Key Activities	Bulk earthworks, retaining walls
Stage Length	Oct 2023 – Dec 2023 (2 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRVs)
Vehicle Movement Frequency	Approximately 20 light vehicle movements / day + Approximately 50 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N Public transport services (i.e. location of bus stops) would not be affected beyond what has already been assessed and approved within the GIE CTMP prepared by Allied Traffic Management. As part of the GIE CTMP, 2 bus stops with Stop IDs 576623 and 276622 would be temporarily relocated during construction and both have already received approval from TfNSW. The alternative bus stop locations are shown in **Appendix A**.
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 10: STAGE SUMMARY – STAGE 1C – LOT 11-12

Criteria	Response
Description of Key Activities	Structure
Stage Length	Oct 2023 – May 2023 (7 Months)
Max. Vehicle Size	12.5m HRVs
Vehicle Movement Frequency	Approximately 60 light vehicle movements / day + Approximately 40 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N Public transport services (i.e. location of bus stops) would not be affected beyond what has already been assessed and approved within the GIE CTMP prepared by Allied Traffic Management. As part of the GIE CTMP, 2 bus stops with Stop IDs 576623 and 276622 would be temporarily relocated during construction and both have already received approval from TfNSW. The alternative bus stop locations are shown in **Appendix A**.
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

It is noted from the table above that Stage 1C overlaps between Phase 1 and Phase 2

2.2.3 Phase 2 Post-Operation of The Signalised Intersection

TABLE 11: STAGE SUMMARY – STAGE 1C – LOT 11-12

Criteria	Response
Description of Key Activities	Fit Out
Stage Length	Apr 2024 – Aug 2024 (4 Months)
Max. Vehicle Size	12.5m HRV
Vehicle Movement Frequency	Approximately 50 light vehicle movements / day + Approximately 20 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements **(If yes, provide further details)**	N
Lane or Footpath Closures **(If yes, provide further details)**	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 12: STAGE SUMMARY – STAGE 2

Criteria	Response
Description of Key Activities	Construction of Lot 14A
Stage Length	May 2024- Mar 2025 (10 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 30 light vehicle movements / day + Approximately 26 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y – All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y – Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements **(If yes, provide further details)**	N
Lane or Footpath Closures **(If yes, provide further details)**	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 13: STAGE SUMMARY – STAGE 3

Criteria	Response
Description of Key Activities	Construction of Lot 10
Stage Length	May 2024- Jun 2025 (13 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 34 light vehicle movements / day + Approximately 50 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 14: STAGE SUMMARY – STAGE 4

Criteria	Response
Description of Key Activities	Construction of Lot 13A & 13B
Stage Length	Jul 2024- Feb 2025 (7 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 28 light vehicle movements / day + Approximately 40 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y – All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y – Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 15: STAGE SUMMARY – STAGE 5

Criteria	Response
Description of Key Activities	Construction of Lot 7& Lot 8A & Lot 8B & Lot 9
Stage Length	Feb 2025- Sept 2026 (19 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 88 light vehicle movements / day + Approximately 110 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 16: STAGE SUMMARY – STAGE 6

Criteria	Response
Description of Key Activities	Construction of Lot 14B & Lot 1 & Lot 2 & Lot 3A & Lot 3B & Lot 4
Stage Length	Jul 2026 – Dec 2027 (17 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 180 light vehicle movements / day + Approximately 156 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 17: STAGE SUMMARY – STAGE 7

Criteria	Response
Description of Key Activities	Construction of Lot 5 & 6
Stage Length	Jan 2027- Dec 2028 (23 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 64 light vehicle movements / day + Approximately 76 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

2.3 Risk Assessment

A risk assessment is aimed to identify the hazards and risks associated with the works. The purpose of this risk assessment is to determine the controls required for the protection of the road workers and road users. A risk assessment has been completed and is attached in **Appendix B**.

2.4 Access Arrangements

As mentioned earlier, the construction work for the GIE will involve two main access arrangements. These arrangements are as follows:

2.4.1 Interim Construction Access

A left in / left out access point (to/from Wallgrove Road) will be provided for the construction works which is located at the eastern boundary of the Estate site. An indicative temporary access layout reproduced from the GIE CTMP is shown in **Figure 5.**

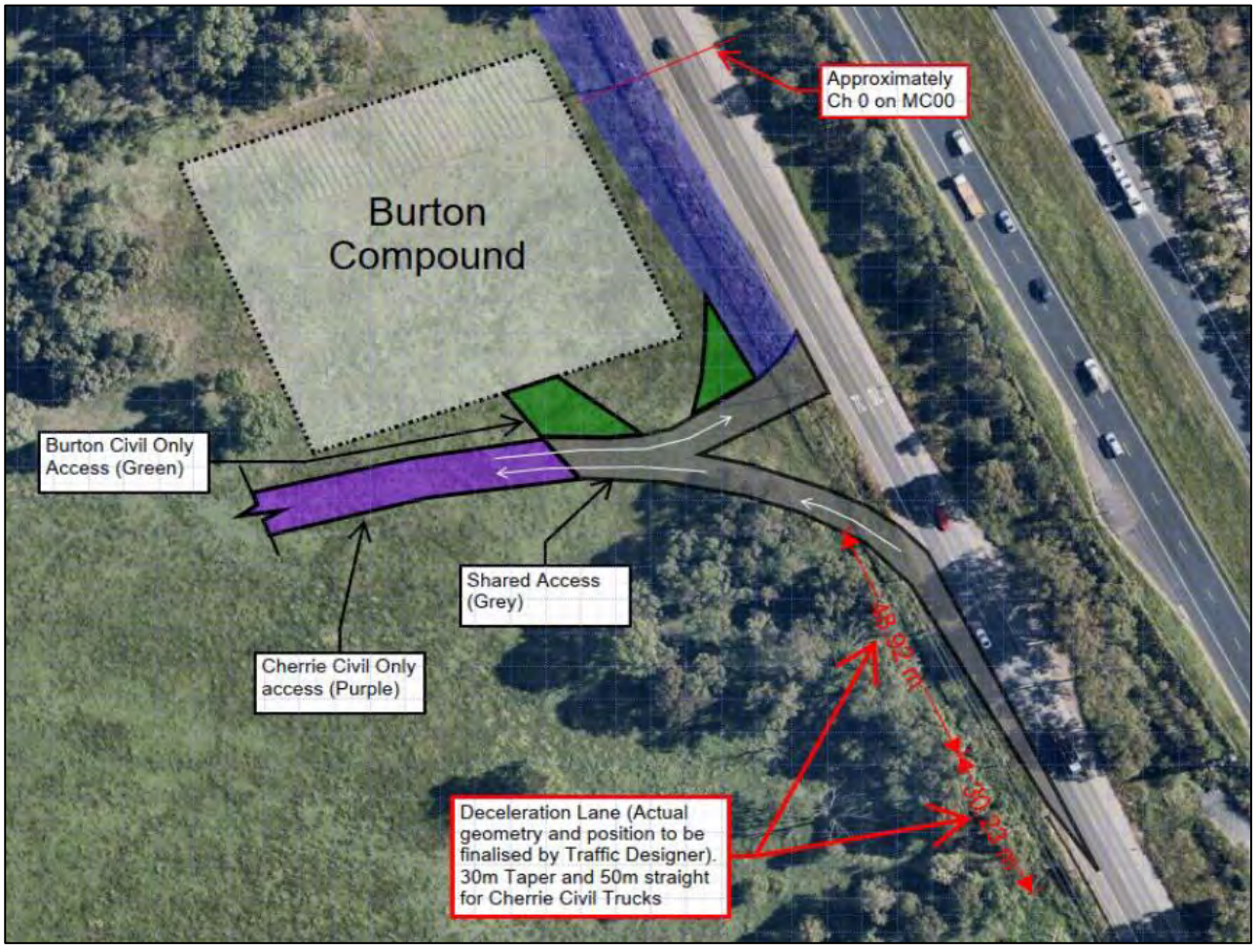


Figure 5: Temporary Estate Access from Wallgrove Road

(Source: Traffic Management Plan, "19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade" dated 26 August 2022 (GIE CTMP) prepared by Allied Traffic Management)

2.4.2 Ultimate Construction Access

Upon completion of the Wallgrove Road/Estate Road 01 upgrade works and the internal estate roads the interim access will be retired, and the construction traffic will access the Estate via the upgraded (Wallgrove Road/Estate Road 01) signalised intersection, as shown in **Figure 6**.

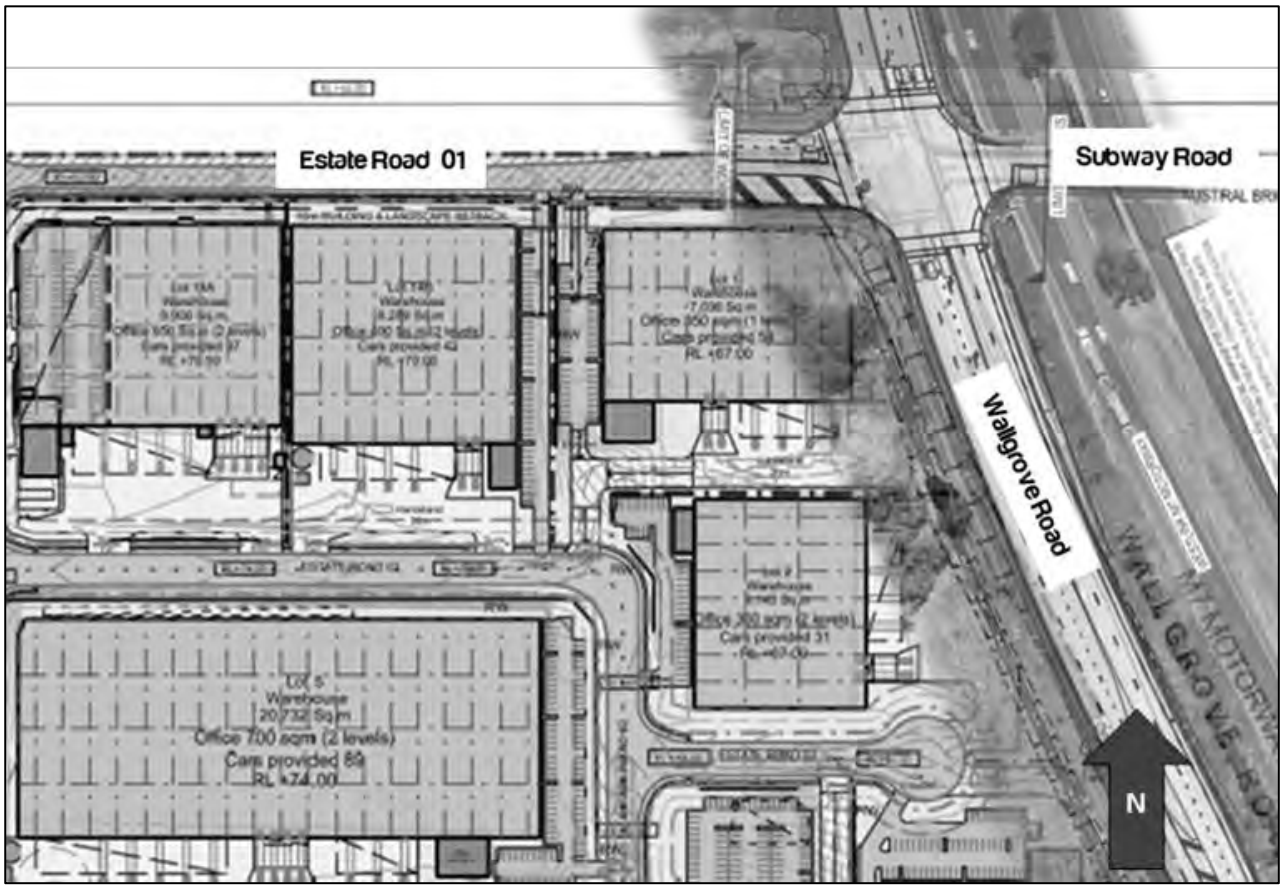


Figure 6: Access Arrangements Ultimate Access

(Source: 19-0108 – 813 Wallgrove Road, Horsley Park intersection upgrade preservation of survey infrastructure plan by Orion Consulting)

It is expected that this access point will be utilised by construction vehicles until the full completion of the construction works excluding inclement weather and it will be the main access for the Estate when operating.

All heavy vehicles and light vehicles will utilise the ultimate construction access upon the construction completion as outlined in **Figure 7.**

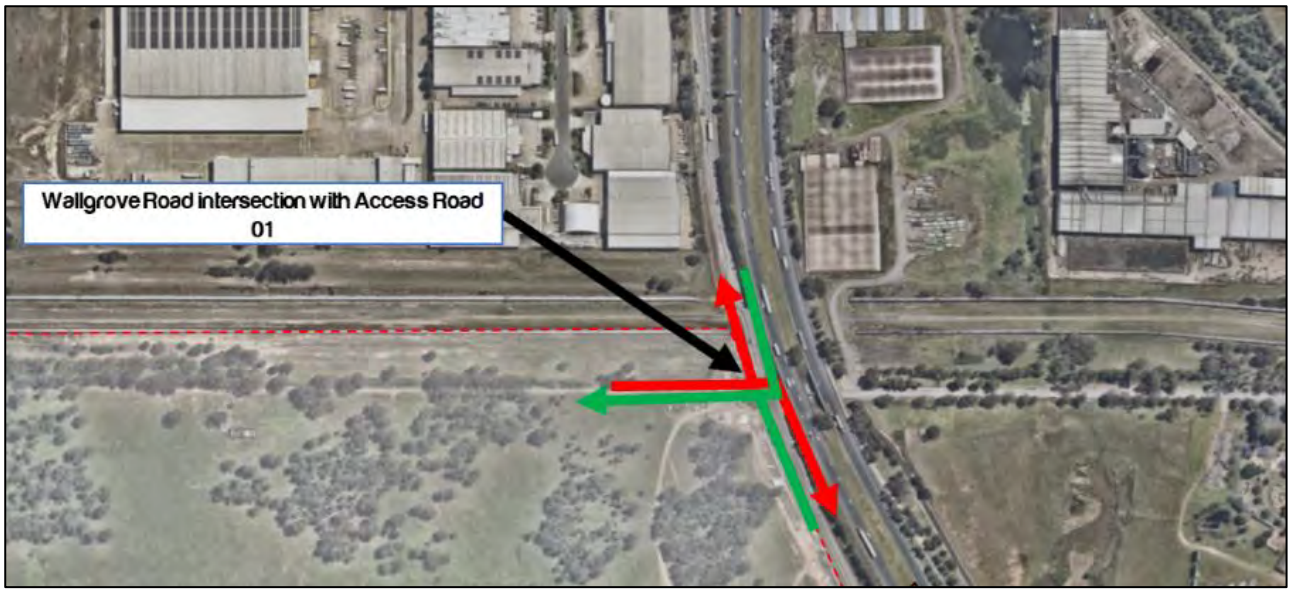


Figure 7: Heavy Vehicle Movements Via the Ultimate Access

Moreover, the Emergency vehicle access to and from the Estate will be available at all times while the Estate is occupied by construction activities. This process would be implemented through emergency protocols on the site which will be developed by the Contractor and shall be documented within the Contractor's Emergency Management Plan.

2.4.3 Individual Lot Access

Access to individual lots shall vary during the course of the construction works. However, internal traffic movements and access to work areas shall be managed, with suitable Traffic Guidance Scheme prepared by Contractors and designed in accordance with Austroads—Guide to Temporary Traffic Management and AS1742.3, depending on the specific work area. All internal traffic movements will be internally managed within the Estate boundaries.

2.5 Hours of Work

Based on the information provided to Ason Group by Gazcorp, a summary of the construction hours is shown in **Table 18** which is in accordance with the Council guidelines and SSD-5248-Mod-2 Condition of Consent (CoC) condition C57

TABLE 18: HOURS OF WORK

Activity	Day	Time
Construction works	Monday – Friday Saturday Sundays or Public Holidays.	7 am to 6 pm 8 am to 1 pm No work

It is anticipated that construction works will not be conducted outside of the hours outlined above. Should out of work hours be required, Gazcorp will need to lodge an application for an Out of Work Hours Permit with Fairfield City Council to seek approval for these works. The type of works that might be undertaken outside the recommended standard hours are:

- The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads.
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm.
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours.
- Public infrastructure works that shorten the length of the project and are supported by the affected community.
- Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours.

Works outside of the hours identified in the conditions may be undertaken in the following circumstances:

- Works that are inaudible at the nearest sensitive receivers;
- Works agreed to in writing by the Planning Secretary;
- For the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- Where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

3 Existing Conditions

3.1 Site Access

It is noted that there is currently no intersection access to the GIE. However, a temporary access to GIE has been constructed which consists of a deceleration lane on entry and give-way exit back onto Wallgrove Road as presented in **Figure 5.**

Further, as mentioned before, the traffic signal at the Estate Road 01/ Wallgrove Road intersection is currently under construction as previously mentioned. A site inspection has been undertaken on 02 February 2023 and it was observed that this intersection currently works as a signalised T-intersection connecting Wallgrove Road to the Austral Bricks Access Road as shown in **Figure 8**.

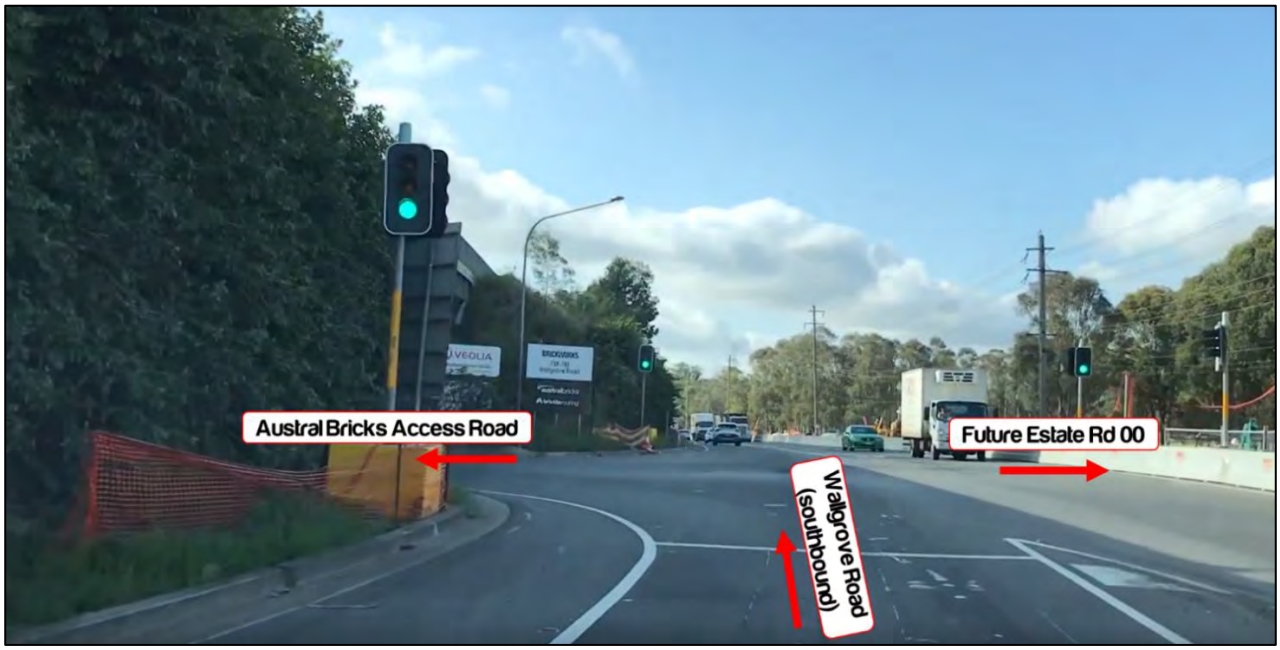


Figure 8: Signalised Intersection at Wallgrove Road and Austral Bricks Access Road (02 Feb 2023)

3.2 Active Transport Connections

3.2.1 Existing Pedestrian Accessibility

Due to the current undeveloped nature immediately surrounding the Estate, pedestrian infrastructure is currently non-existent. Key pedestrian desire lines in the vicinity of the Estate would be triggered by connections to existing public transport infrastructure. In this regard, it is anticipated that the Work Authorisation Deed (WAD) which has been finalised between Gazcorp and TfNSW for the Signalised intersection at Estate Road 01/Wallgrove Rd would have pedestrian infrastructure provision such as formal footpaths and crossings to facilitate pedestrian activity and access.

Other recent improvements to Wallgrove Road and Old Wallgrove Road further north of the Estate have included the provision of pedestrian infrastructure with shared paths and footpaths.

It is noted that any Traffic Guidance Scheme (TGS) shall maintain a suitable level of access past work areas for pedestrians at all times.

3.2.2 Existing Cycle Routes

The existing cycle network in the vicinity of the Estate is shown in **Figure 9**. The area within the locality of the Estate is well serviced with cycle routes – both on-road and off-road. Notable cycle routes include the route along the M7 Westlink to the east of the Estate.

Other notable off-road cycle routes are those to the north of the Estate including along Lenore Drive and Old Wallgrove Road. Furthermore, recent upgrades to Old Wallgrove Road have included off-road shared cycle/pedestrian pathways and pedestrian only footpaths.

It is noted that any TGS shall maintain a suitable level of access past work areas for cyclists at all times.

3.3 Public Transport Services

3.3.1 Bus Services

The Integrated Public Transport Service Planning Guidelines highlight the impact of bus services on travel mode choices for locations within a 400-meter radius (equivalent to approximately 5 minutes' walking distance) of a bus stop. Although the Estate currently lacks bus stops within this specified radius, it is important to note that 2 located bus stops are situated approximately 500 meters away, as illustrated in **Figure 9**.

It is noted that the Wallgrove Road Opposite Roussell Road (Stop ID: 276622) and Wallgrove Rd Before Roussell Rd (Stop ID: 276623) bus stops have been temporarily relocated since the submission of the Ason Group's approved *SSD 36156297 Transport Assessment, Lot 11 & 12, 813 Wallgrove Road, ref: 1877r01v02, dated 25 March 2022* (DHL TA) to accommodate construction traffic to the GIE. Details of the relocation of these bus stops are outlined in the GIE CTMP.

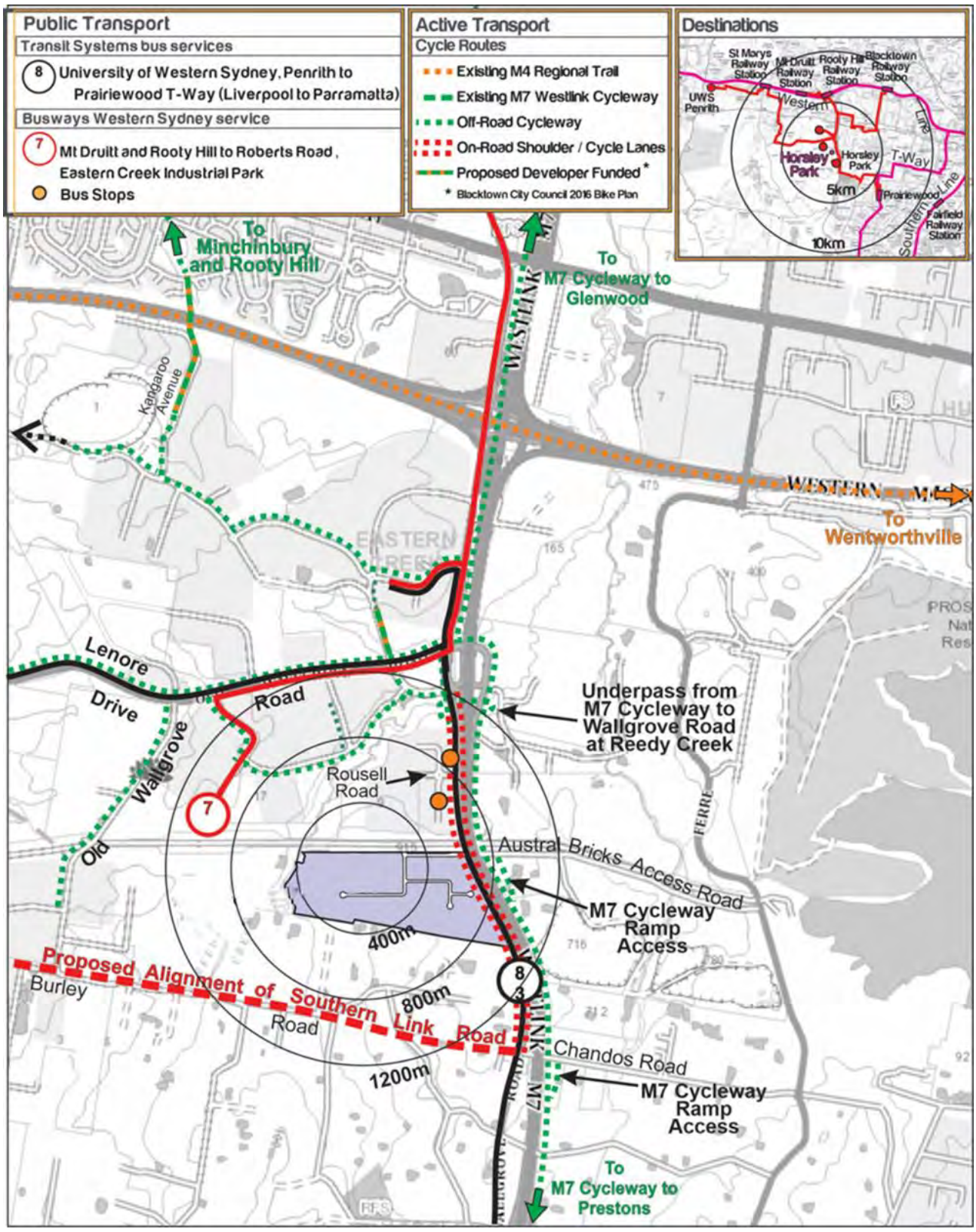


Figure 9: Existing Public Transport and Cycle Links

3.4 Existing Traffic

3.4.1 Baseline Traffic Flows

Traffic surveys were undertaken on 03 May 2023 to establish the baseline traffic flows at the following:

- Wallgrove Road/ Brickworks Access (future signalised intersection)
- Temporary Left-in Left-out (LILO) access to 813-913 Wallgrove Road

The surveyed traffic flows during the peak periods are shown in **Figure 10** and **Figure 11.**

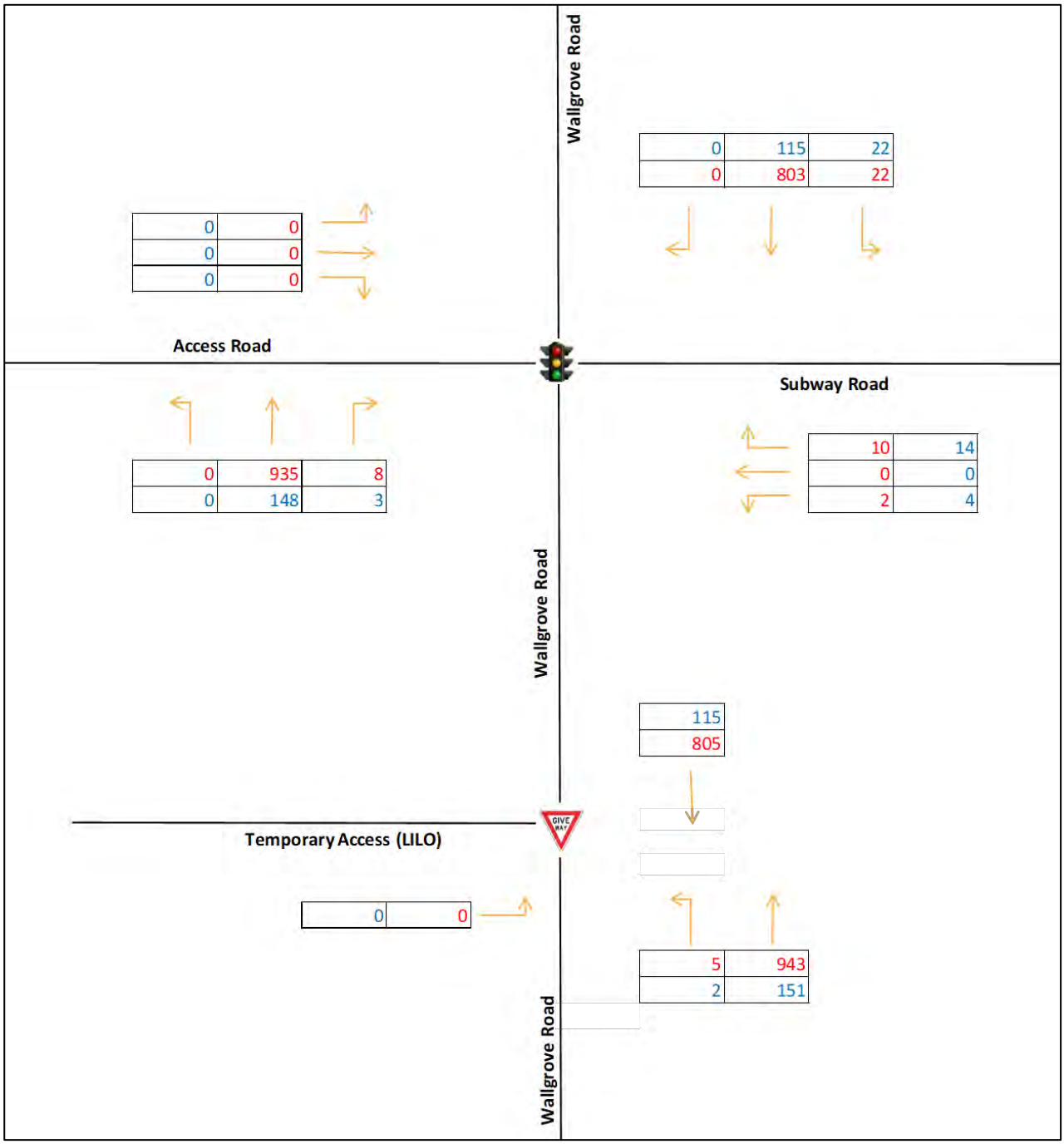


Figure 10: Baseline Traffic Volumes – AM Peak

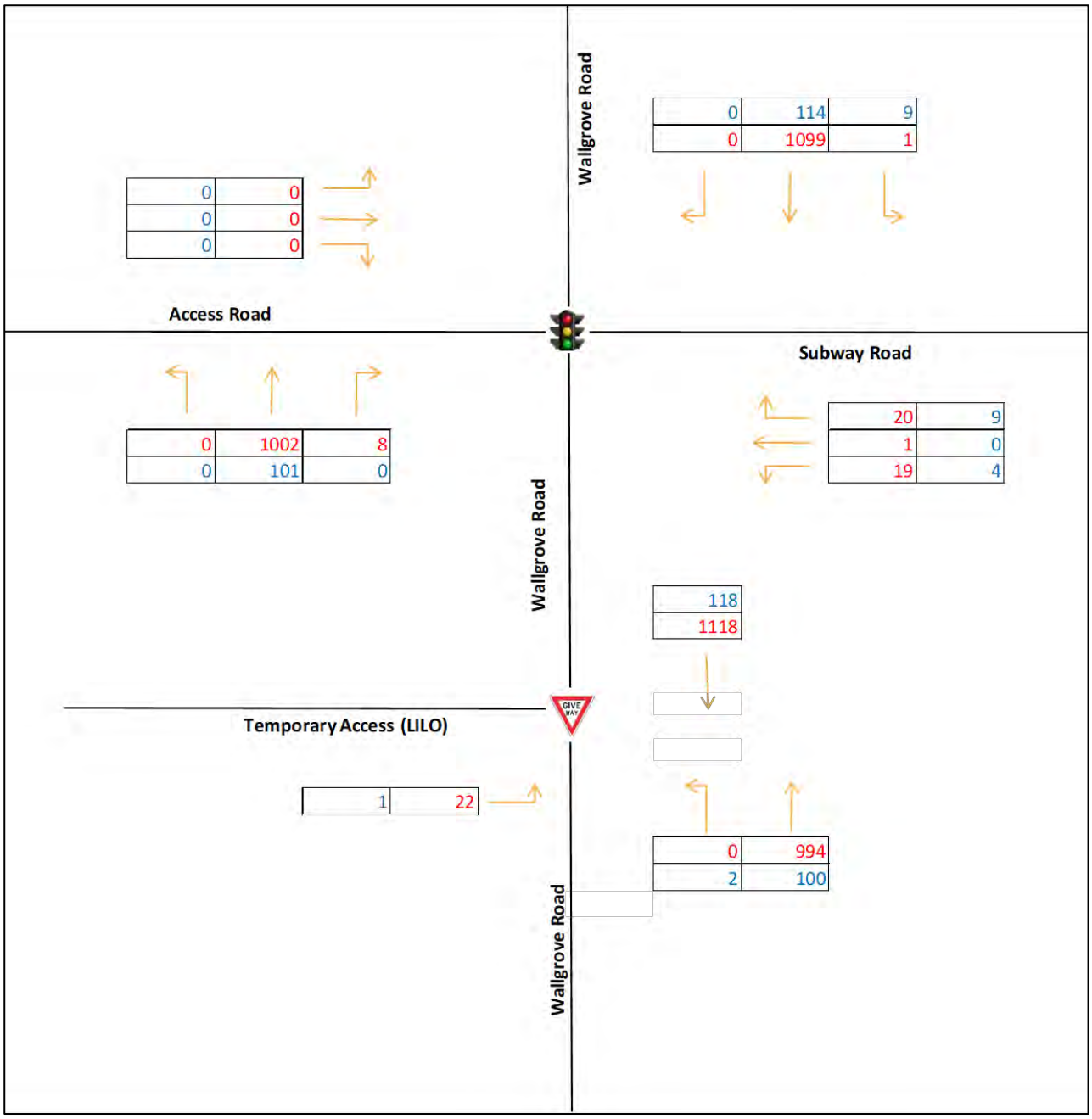


Figure 11: Baseline Traffic Volumes – PM Peak

4 Traffic Management Plan

4.1 Traffic Movements

4.1.1 Background

The following figures, sourced from the Ason Group, SSD 36156297 Transport Assessment, Lot 11 & 12, 813 Wallgrove Road, ref: 1877r01v02, 25 March 2022 (DHL TA), have been approved and provide relevant information regarding future **operational** traffic volumes associated with the Estate.

- AM Peak 541 movements per hour (inbound and outbound)
- PM Peak 397 movements per hour (inbound and outbound)
- Daily 5,774 movements per day (inbound and outbound)

4.1.2 Current Construction Traffic Estimates

The anticipated daily vehicle movements generated by the construction of the Estate have been estimated having consideration of the likely requirements for construction staff, plant, equipment, and haulage. The anticipated construction schedule has been provided in **Section 2.2.2** and **2.2.3** with the estimated traffic volumes are as follows:

TABLE 19: ESTIMATED CONSTRUCTION VOLUMES

Phase	Stage	Expected Movements per Day	
		Light Vehicles	Heavy Vehicles
Phase 1 (Temporary Access)	Stage 1	130	166
Phase 2 (Signalised Access)	Stage 1 (Continued)	50	20
	Stage 2	30	26
	Stage 3	34	50
	Stage 4	28	40
	Stage 5	88	110
	Stage 6	180	156
	Stage 7	64	76

For reference, a construction vehicle would relate to all contracted parties involved in day-to-day construction activities on site. This would include;

- All Vehicles making material deliveries to and from the Estate.
- All Contractors and their sub-contractor's construction site vehicles
- All construction staff working on the projects arriving / departing the Estate in private cars.

In turn, the following are exempt from the requirements of the CTMP (as they are not part of construction works within the Estate);

- All Gazcorp staff and their design / management consultants
- Food vans / food deliveries by non-contracted parties
- Relevant Authorities / Agencies (including DPE or Fairfield City Council/, and other stakeholders including Endeavour Energy, TransGrid, Sydney Water, NBN or others who have assets on the Site)
- Members of the public who may drive in ad hoc.

4.1.3 Construction Vehicle Access Routes

It is expected that all heavy vehicles will access the Site via the approved TfNSW Restricted Access Vehicles (RAV) Map for 26 m B-double Access. The access routes are shown in **Figure 12** and **Figure 13.**

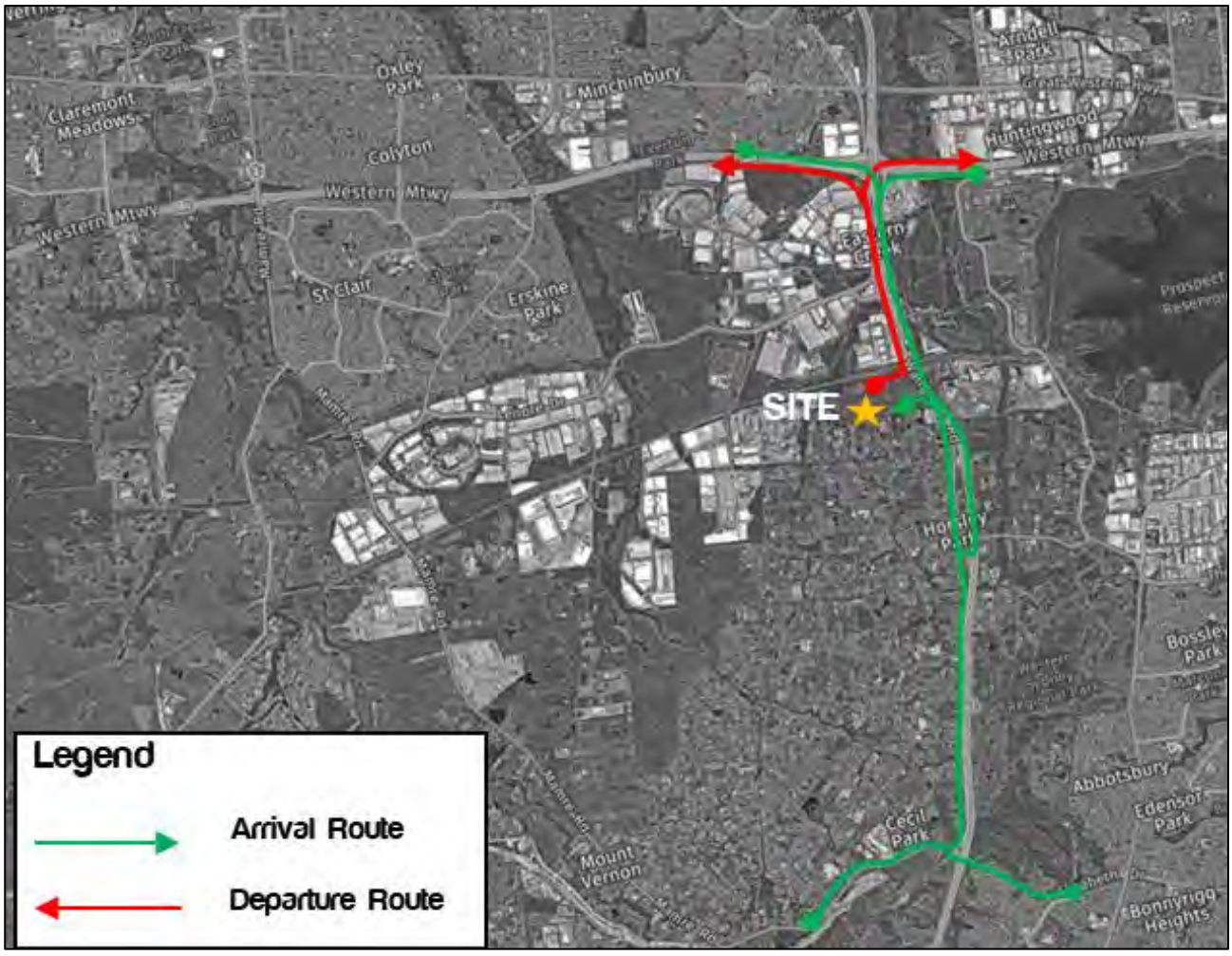


Figure 12: Construction Vehicle Route Map – Temporary Access

All construction vehicles will enter and exit the Site via Wallgrove Road. It is anticipated that all heavy vehicles will access the Estate via the following routes:

TABLE 20: VEHICLE ROUTE MAP – TEMPORARY ACCESS

Access	Route	Direction
Arrival	Route 1	From eastbound on M4 Western Motorway, then head south along Westlink M7. Turn right onto The Horsley Drive, then right onto Wallgrove Road. Finally left turn onto the Estate
	Route 2:	From westbound on M4 Western Motorway, then head south along Westlink M7. Turn right onto The Horsley Drive, then right onto Wallgrove Road. Finally left turn onto the Estate
	Route 3	From eastbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate.
	Route 4	From westbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate
Departure	Route 1	From the Estate, left turn onto Wallgrove Road then west on M4 Western Motorway
	Route 2	From the Estate, left turn onto Wallgrove Road then east on M4 Western Motorway.

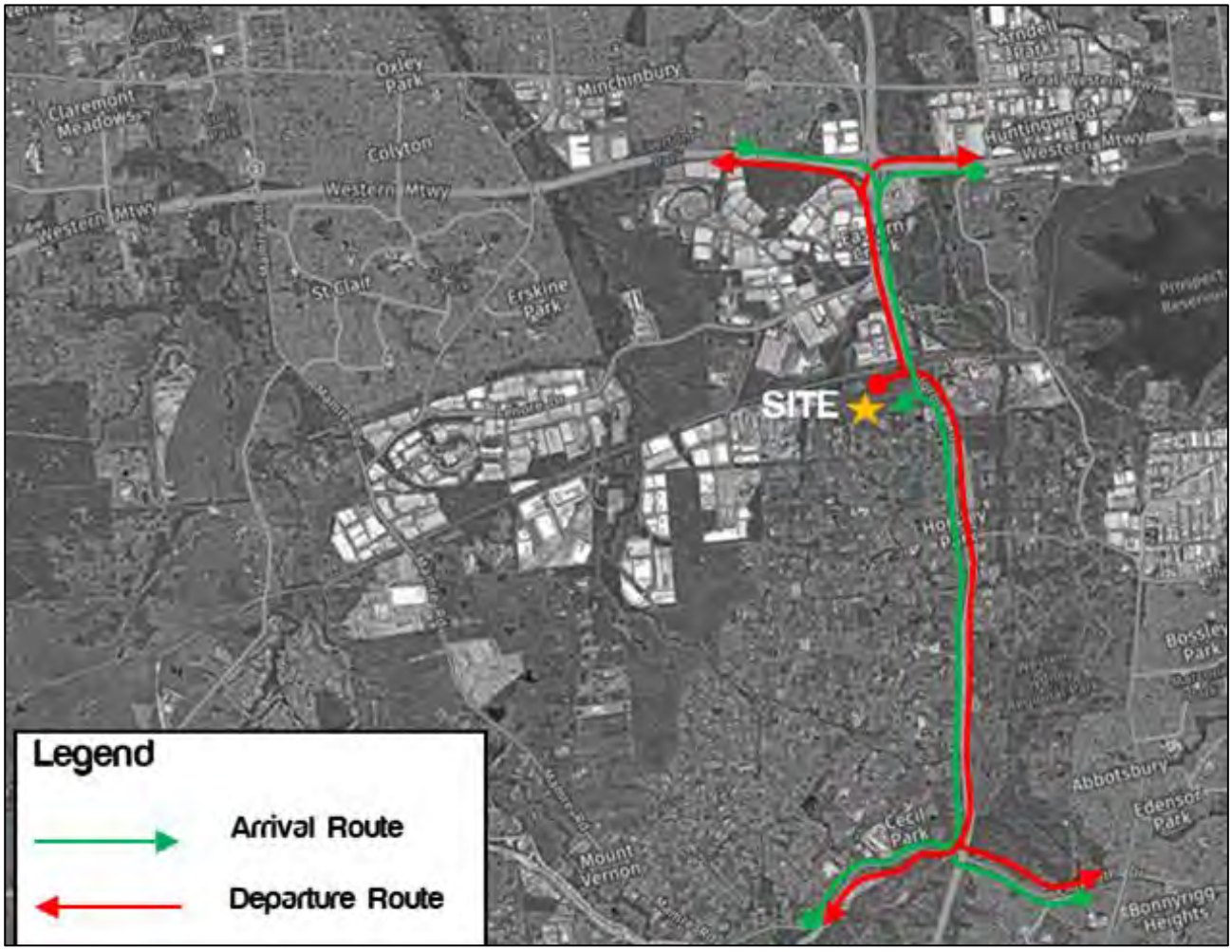


Figure 13: Construction Vehicle Route Map – Ultimate Access

TABLE 21: VEHICLE ROUTE MAP – ULTIMATE ACCESS

Access	Route	Direction
Arrival	Route 1	From eastbound on M4 Western Motorway, then head south along Wallgrove Road. Then right turn onto the Estate.
	Route 2:	From westbound on M4 Western Motorway, then head south along Wallgrove Road. Then right turn onto the Estate.
	Route 3	From eastbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate.
	Route 4	From westbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate.
Departure	Route 1	From the Estate, left turn onto Wallgrove Road then west on M4 Western Motorway.
	Route 2	From the Estate, left turn onto Wallgrove Road then east on M4 Western Motorway.
	Route 3	From the Estate, right turn onto Wallgrove Road then west on Elizabeth Drive.
	Route 4	From the Estate, left turn onto Wallgrove Road then east on Elizabeth Drive.

A copy of the approved routes will be distributed by the Contractor to all drivers before their arrival to the Estate. No trucks are to be queued on local roads. Mobile phones, two-way radios or application-based solutions should be used to coordinate truck arrivals.

As can be shown in **Figure 14**, the RAV Map illustrates that B-doubles are capable of traveling to and from the Estate within approved routes.

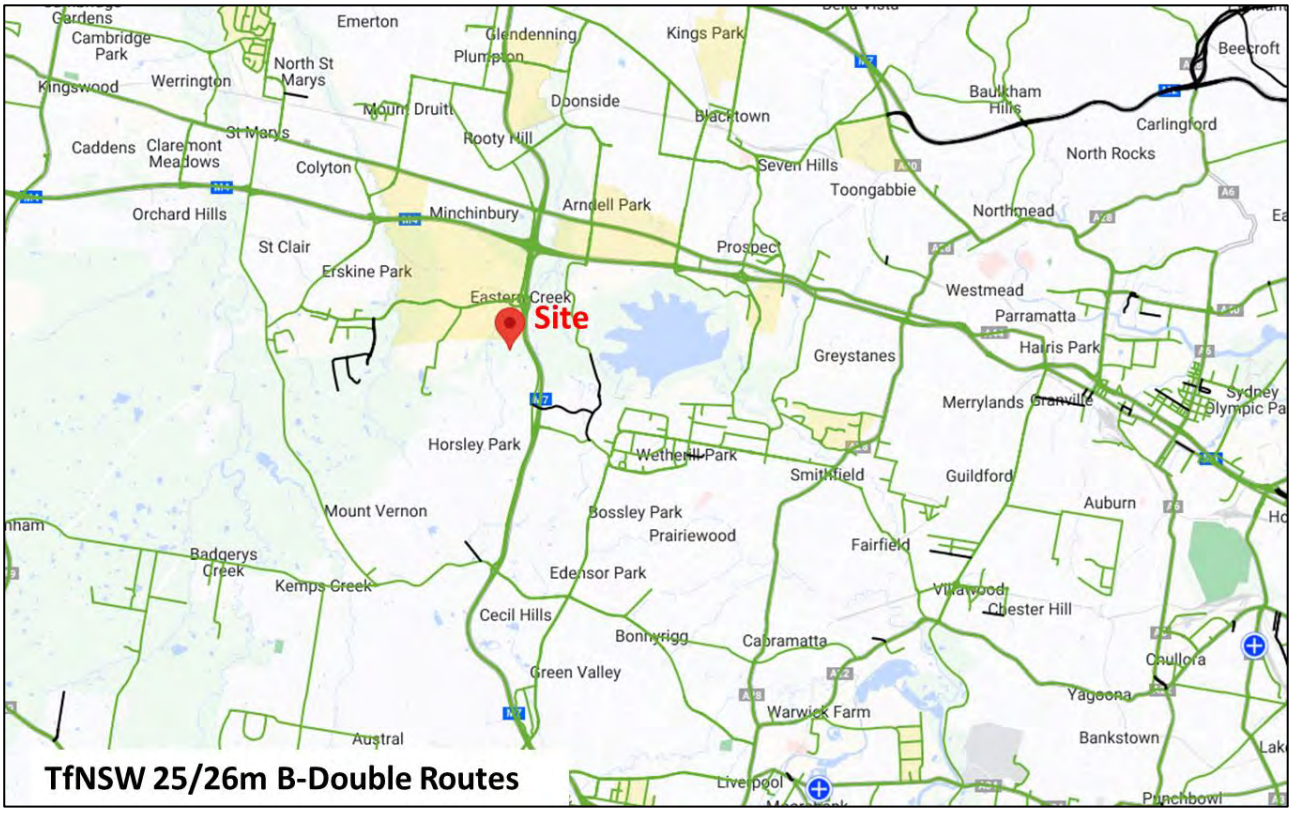


Figure 14: Restricted Access Map

4.1.4 Truck Movements & Contractor Parking

As discussed before, the primary construction access will be via the temporary access until the Signalised intersection is completed. Once the Signalised intersection is finished, it will become the primary access for construction vehicles, and the temporary access will be permanently closed. Relevant truck routes for both accesses are shown in **Figure 12** and **Figure 13.**

The implementation of the access route shall be done so in accordance with any conditions of consent received from TfNSW. It is expected that a schedule for deliveries of materials and goods will be established prior to that day, with Traffic Controllers maintaining radio contact with construction vehicles at all times. Thus, at no stage shall queueing occur on the public road network. In the event that vehicles were required to use a layover prior to arrival to site.

It is expected that future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 200 HV movements (100 in, 100 out) per day. In preparing relevant details VMPs, the contractor should:

- Minimise interaction with other work areas, as far as possible.
- Where possible, separate heavy vehicle movements from contractor car parking areas
- Prepare Traffic Control Plans where necessary to provide additional management of on-site vehicle movements.

4.1.5 Sydney Water Supply Pipeline Easement

A Sydney Water Supply Pipeline easement runs to the north of the Estate which is subject to a number of restrictions. It is imperative to note that the unhindered movement of authorised vehicles accessing the Sydney Water Supply Pipeline Easement will not be obstructed by the construction activities of the Estate. All construction activities will be conducted in a manner that does not impede the access routes and pathways designated for these specific purposes. As illustrated in **Figure 15,** the access driveway to the Sydney Water Supply Pipeline Easement is distinct and is not disrupted by the operation of Wallgrove Road and Estate Road 01 intersection.

Contractors associated with the Site are not anticipated to directly impact this access to the easement, and every effort will be made to minimise vehicular movements near the easement access for all construction works, wherever feasible. Notwithstanding, in the event any works associated with the Site may impact WaterNSW's access, the WaterNSW will be notified as early as possible, and other arrangements will be made to make sure that WaterNSW retains an access to the easement at all times.



Figure 15: Sydney Water Supply Pipeline Easement Access Driveway and Estate Road 01 Access Locations

4.2 Other General Requirements

4.2.1 Driver Code of Conduct

All drivers shall adhere to the Driver Code of Conduct, outlined in **Section 5**.

4.2.2 Contractor Parking

The contractor will have to nominate the parking zones required for contractor parking. The parking area is not expected to obstruct any vehicle manoeuvre routes. The location of Contractor parking lots is expected to change as construction continues and encompasses various portions of the Estate.

4.2.3 Loading & Materials Handling

Handling of all materials throughout the construction shall adhere to the following.

- It is proposed that all material loading will occur within the construction site boundary.
- No loading is proposed to occur outside of the provisioned areas.
- Equipment, materials and waste will be kept within the construction site boundary.

During latter stages of construction, tie in works will be required within the kerbside of the internal estate roads. All materials handling shall be undertaken off the public roadway. In the event materials handling are required from the roadway, then prior approval shall be sought and obtained from the Authorities.

4.2.4 Fencing Requirements

Temporary exclusion fencing will be erected along the entire boundary of the Estate and will be maintained for the duration of the construction program. The fencing is to ensure unauthorised persons are kept out of the Estate. The access gates would be provided and will be closed at all times outside of the permitted construction hours.

4.2.5 Pedestrian and Cyclist Management

Installing chain mesh construction fencing along the borders of the Estate can effectively restrict public access and enhance its security. However, to manage any pedestrian and cyclist movements around the Estate, pedestrian and cyclist protection would be required and would be included within a revised TGS once the footpaths / shared paths along Estate Roads become available.

4.2.6 Traffic Guidance Schemes

Any TGS's, associated risk assessments, consultation schedules, TGS verification checklist, and inspection checklists shall be prepared by an accredited person, in accordance with the TfNSW Traffic Control at Worksites Manual (Issue 6.1) and AS1742.3:2019. All TGSs involving signage or impacts to public roads shall be approved by the Traffic Management Centre (TMC), prior to the works for which they relate. These TGS's shall be updated to respond to any changes to prevailing traffic conditions throughout the life of the works. Of specific relevance to the Estate, TGS's have been prepared for the following:

- The utilisation of the temporary construction access on Wallgrove Road;
- The utilisation of the Signalised intersection on Wallgrove Road.

TGS's have been attached in **Appendix D.**

5 Drivers Code of Conduct

5.1 Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks and construction on the local and regional road network;
- Minimise conflict with other road users;
- Minimise road traffic noise; and
- Ensure truck drivers use project approved routes only.

5.2 Code of Conduct

The code of conduct requires that while driving any vehicle for work-related purposes. Drivers are to be issues with a copy of the Drivers Code of Conduct, and must comply with all of the following:

- Demonstrate safe driving and road safety activities.
- Abide by traffic, road and environmental legislations.
- Follow site signage and instructions.
- Drivers must only enter and exit the Estate via the approved entry and exit points and travel routes.
- Drivers must not utilise any other road or other accesses for any reason other than the temporary access on Wallgrove Road while travelling to or from the Estate noting internal roads have not yet been constructed.

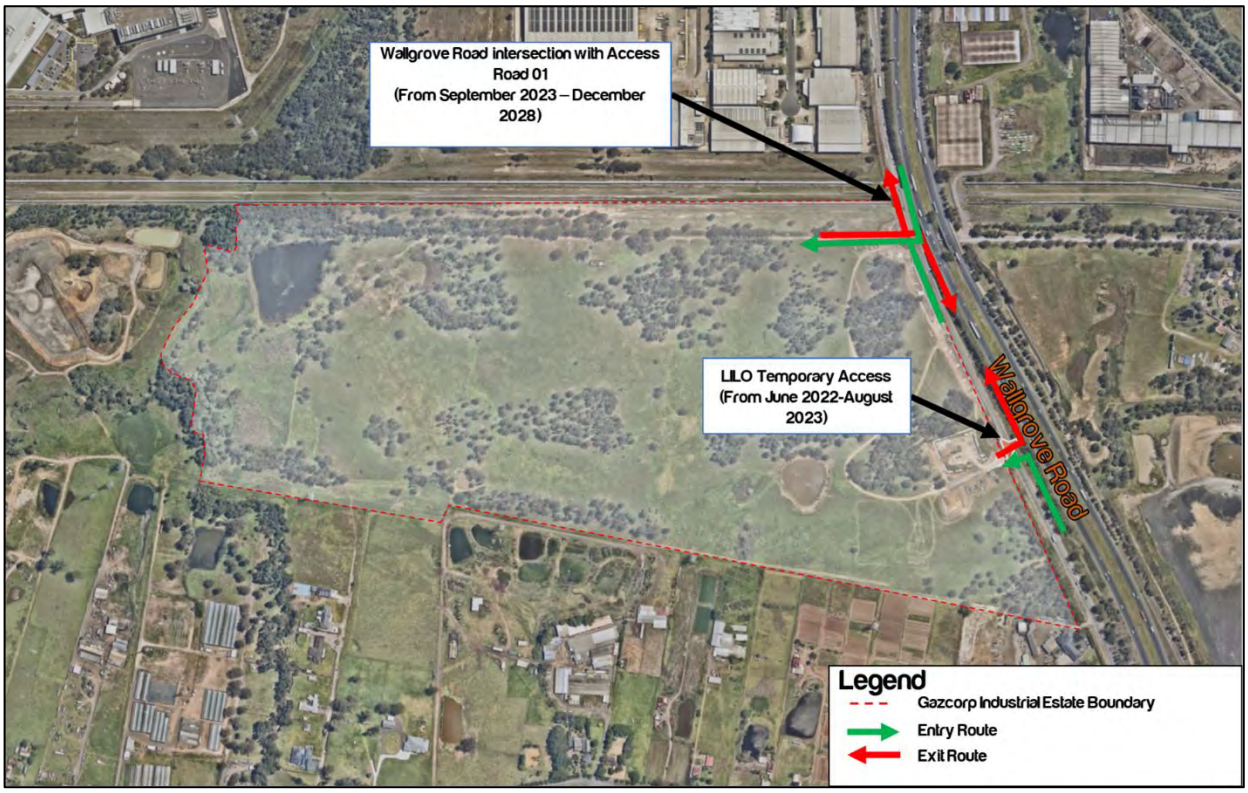
The below activities in any vehicles will be considered as a breach of conduct and will result in removal from site:

- Reckless or dangerous driving causing injury or death.
- Driving whilst disqualified or not correctly licensed.
- Drinking or being under the influence of drugs while driving
- Failing to stop after an incident.
- Loss of demerit points leading to suspension of licence.
- Any actions that warrant the suspension of a licence
- Exceeding the speed limit in place on any permanent or temporary roads
- The use of roads other than the temporary access on Wallgrove Road to arrive and depart from the site to access the wider road network.

5.3 Driver Responsibilities

All Drivers on site must:

- Abide with the following route to and from the Estate.



- Be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.
- Display the highest level of professional conduct when driving a vehicle at all times.
- Ensure they have a current driver licence for the class of vehicle they are driving, and this licence is to be carried at all times.
- Immediately notify their supervisor or manager if their drivers' licence has been suspended, cancelled, or has had limitations applied.
- Comply with all traffic and road legislation when driving.
- Assess hazards while driving.
- Undertake daily pre-start checks of oil, tyre pressures, radiator and battery levels of company vehicles they regularly used.
- Drive within the legal speed limits, including driving to the conditions.
- Not drive outside of the approved heavy vehicle routes. All drivers must obey weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies. Heavy Vehicles shall adhere to the routes outlined in **Section 4.1.3**
- Be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW Road Rules. Works must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline.
- Do not queue on public roads unless a prior approval has been sought.
- Be aware that at no time may a tracked plant be permitted or required on a paved road.
- Never drive under the influence of alcohol or drugs, including prescription and over the counter medication if they cause drowsiness – to do so will merit disciplinary measures.
- All drivers to report to their supervisor if they have been prescribed medication prior to the start of work.
- Wear a safety seat belt at all times when in the vehicle.
- Avoid distraction when driving – the driver will adjust car stereos/mirrors etc. before setting off or pull over safely to do so.
- Report ALL near-misses, crashes and scrapes to their manager,
- Report infringements to a manager at the earliest opportunity.

- Report vehicle defects to a manager prior to the next use of the vehicle.
- Follow the approved site access/egress routes only.
- Follow speed limits as imposed within the estate.
- Keep loads covered at all times.

5.4 The Site Team Responsibilities

The Contractor is responsible to take all steps necessary to ensure company vehicles are as safe as possible and will not require staff to drive under conditions that are unsafe.

This will be achieved by undertaking the following:

- Ensure that all drivers adhere to the designated heavy vehicle routes as required by the route designated above. If a driver accesses the Estate contrary to the approved routes, then approval to drive to and from the Estate will be revoked by Management.
- Ensuring all vehicles are well maintained and that the equipment enhances driver, operator and passenger safety by way of:
  - Pre-commencement checks for all new plant arriving on-site and prior to undertaking any work.
  - Daily prestart inspections for all plant, vehicles and equipment currently on-site.
  - All construction plant must be fitted with a flashing light, fire extinguisher and reverse alarms (or squawkers).
  - Ensure all operators onsite have a current verification of competency (VOC) for their current driver's licence of the appropriate class.
- Ensure maintenance requirements are met and recorded.
- Identify driver training needs and arranging appropriate training or re-training. This may include providing the below:
  - Operator VOC assessment as part of all inductions.
  - Regular Toolbox discussions on safety features, managing fatigue, approved heavy routes, driver responsibility and drink-driving.
- Encouraging Safe Driving behaviour by:
  - Ensuring the subcontractor is informed if their staff become unlicensed.
  - Not covering or reimbursing staff speeding or other infringement notices.
  - Ensuring Legal use of mobile phones in vehicles while driving only
- Encouraging better fuel efficiency by:
  - Use of other transport modes or remote conferencing, whenever practical.

Providing training on, and circulating information about, travel planning and efficient driving habits

5.5 Crash or Incident Procedure

- Vehicles should be stopped as close as possible to the scene without hindering traffic. The safety of the individual should be ensured first, followed by providing assistance to any injured people and immediately seeking help if required.
- Ensure the following information is noted:

  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers.
  - Names and addresses of witnesses.
  - Insurers details
- Give the following information to the involved parties:
  - Name, address and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

5.6 Environmental Procedures

A range of measures shall be implemented to ensure the following;

- No dirt or debris from the construction vehicles is tracked on to the public road network.
- Reduce the impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;
- Watering of dusty activities will be undertaken, or activities temporarily halted and then resumed once weather conditions have improved;
- Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main Project work areas;
- All vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria, and

Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.

6 Transport Impact Assessment

6.1 Construction Traffic Generation

It is expected that stages of construction will overlap and will therefore increase the demand during each month. While the construction of the signalised intersection is not explicitly included in this CTMP, it is crucial to highlight that the construction volume of the signalised intersection will be factored into the cumulative traffic assessment of the Estate. The following outline the daily traffic volumes for the Estate during each Phase:

6.1.1 Phase 1 Prior to The Construction of The Signalised Intersection:

It has been determined that the highest peak of construction traffic occurs during the overlap between Stages 1A, 1B, 1C and the construction volume of the signalised intersection from late September 2023 to late October 2023. The estimated traffic volumes during this period are shown in the table below:

TABLE 22: PHASE 1 PEAK TRAFFIC MOVEMENT

Period	Light Vehicle Movement	Heavy Vehicle Movement	Total
AM Peak	20 veh/hr	36 veh/hr	56 veh/hr
PM Peak	30 veh/hr	16 veh/hr	46 veh/hr
Daily	130 veh/day	166 veh/day	296 veh/day

Referring to the table above, the construction traffic movement for Phase 1 aligns with the operation traffic of GIE during both the AM and PM peak periods.

Furthermore, Construction traffic volumes generally represent a small proportion of the existing background traffic occurring on Wallgrove Road. Figure below visualises hourly count volumes of construction traffic in the subsequent construction periods against existing background traffic. This demonstrates that the addition of construction traffic is relatively small in comparison.

The daily traffic volumes for the Estate prior to the construction of the Signalised intersection are outlined in the figure below:

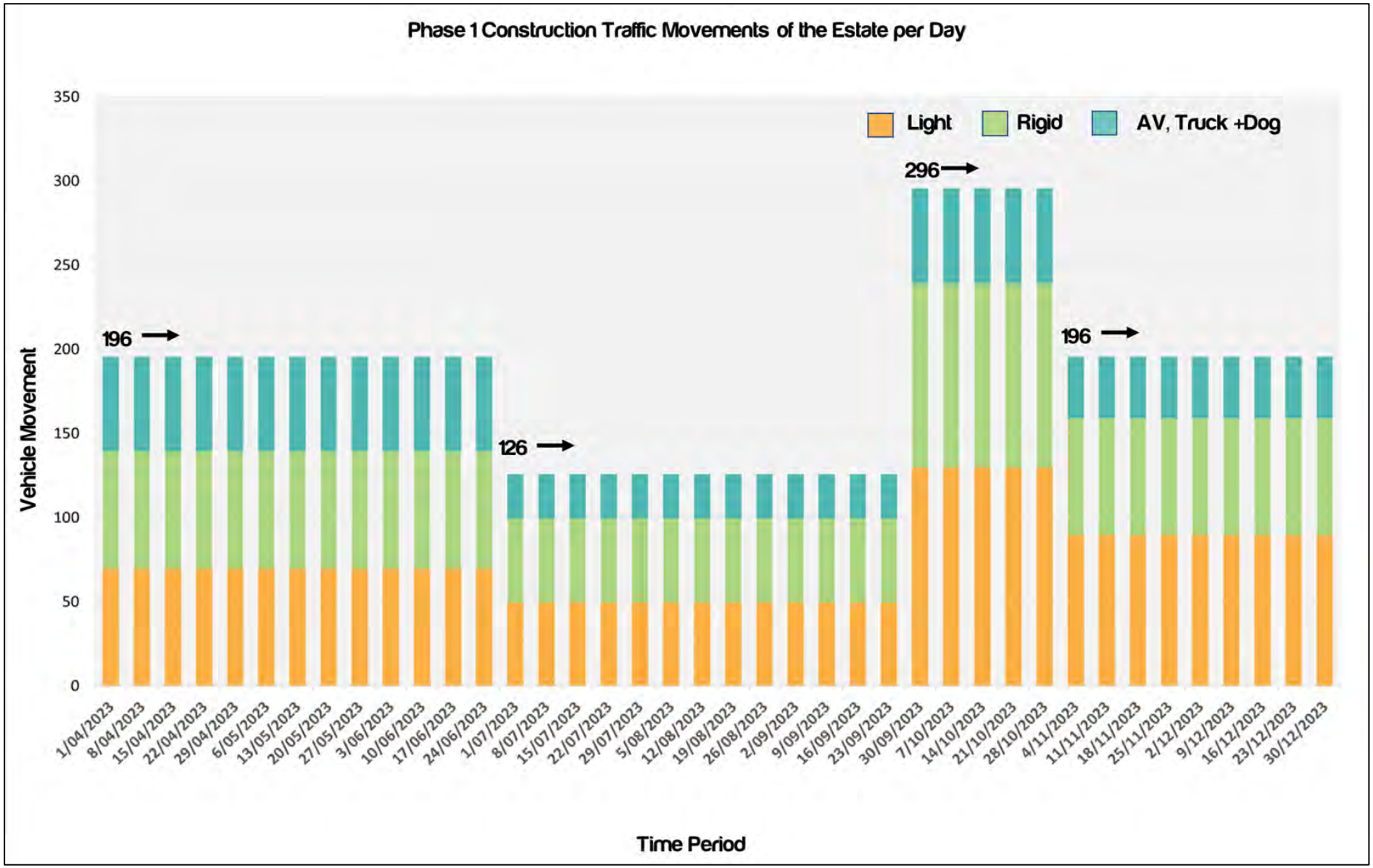


Figure 16: Phase 1 Construction Vehicle Movements of the Estate – Daily

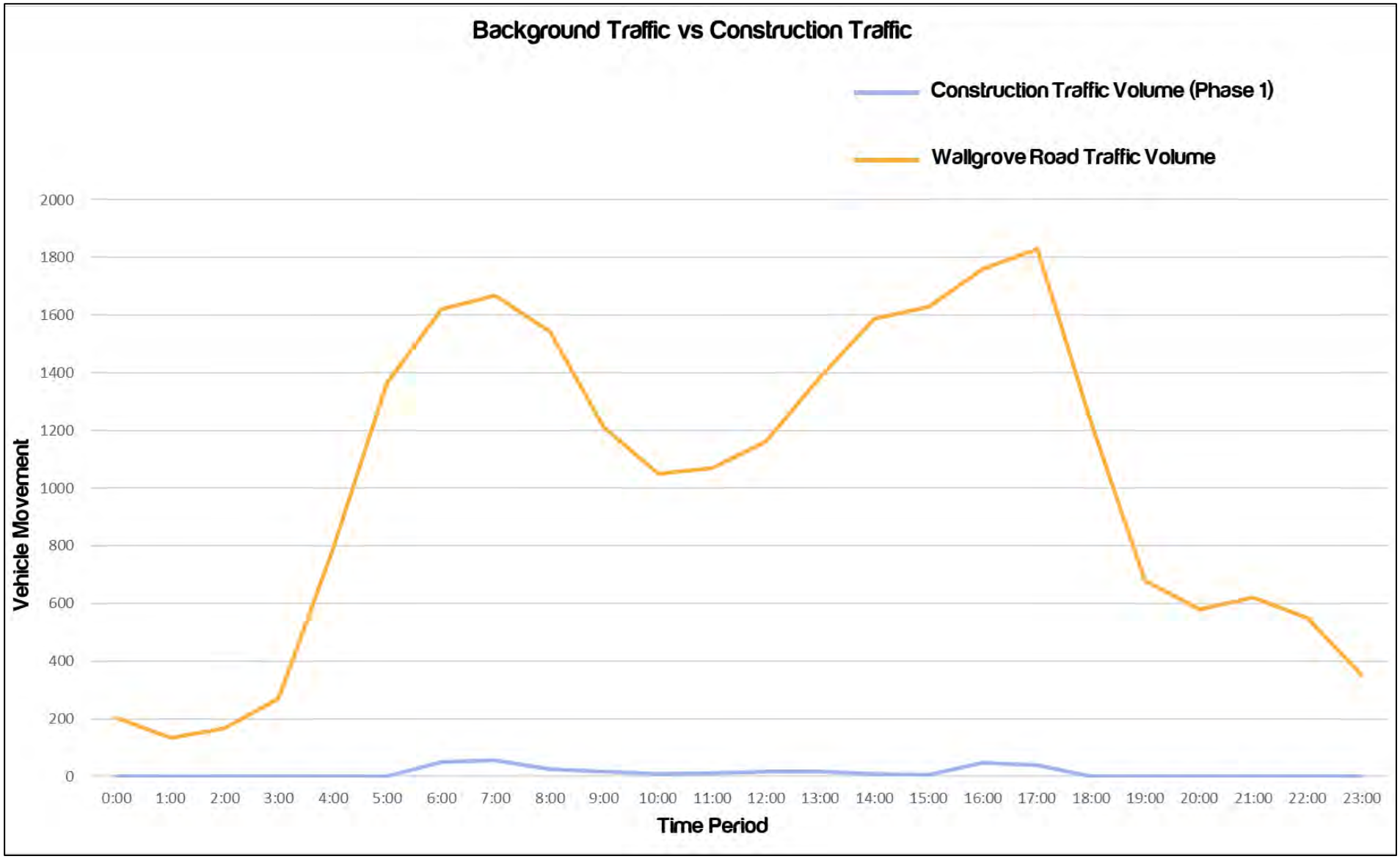


Figure 17: Background Traffic vs Construction Traffic – Phase 1

6.1.2 Phase 2 Post to the construction of the signalised intersection:

It can be observed that the construction traffic demand is anticipated to vary each month during phase 2, culminating in its peak during Stage 6, which is scheduled to take place between January 2027 and November 2027.

The estimated traffic volumes during the peak period of Phase 2 are shown in the table below:

TABLE 23: PHASE 2 PEAK TRAFFIC MOVEMENT

Period	Light Vehicle Movement	Heavy Vehicle Movement	Total
AM Peak	44 veh/hr	94 veh/hr	138 veh/hr
PM Peak	90 veh/hr	30 veh/hr	120 veh/hr
Daily	268 veh/day	266 veh/day	534 veh/day

Based on the provided table, it can be observed that the peak construction traffic movement for Phase 2 coincides with the operational traffic of GIE during both the AM and PM peak periods. Furthermore, the accompanying figure below illustrates the hourly count volumes of construction traffic for Phase 2 in relation to the existing background traffic. This visual representation clearly indicates that the increase in construction traffic is relatively minimal in comparison.

The figure provided below illustrates the daily traffic volumes for the Estate following the completion of the Signalised intersection.

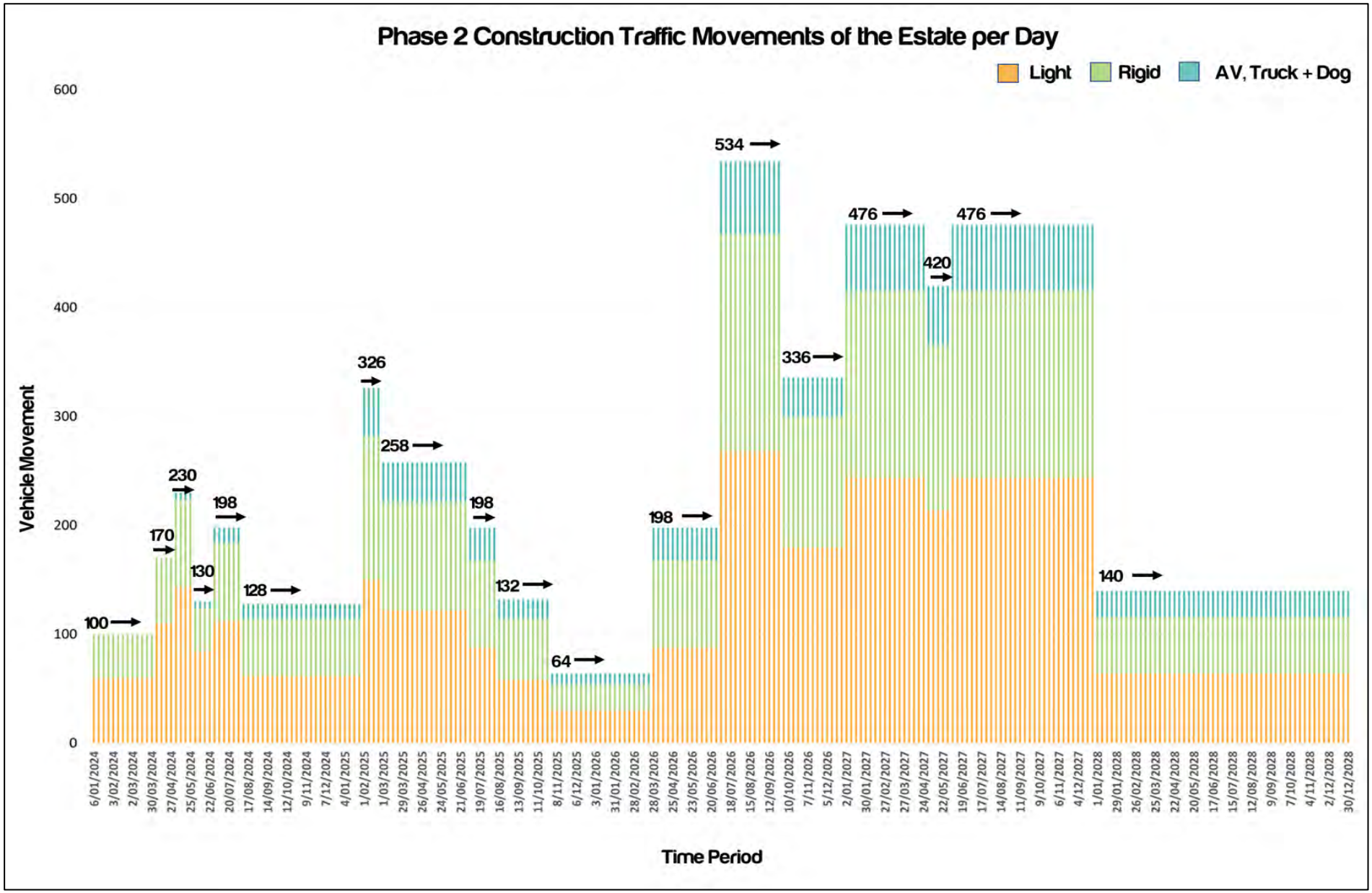


Figure 18: Phase 2 Construction Vehicle Movements of the Estate – Daily

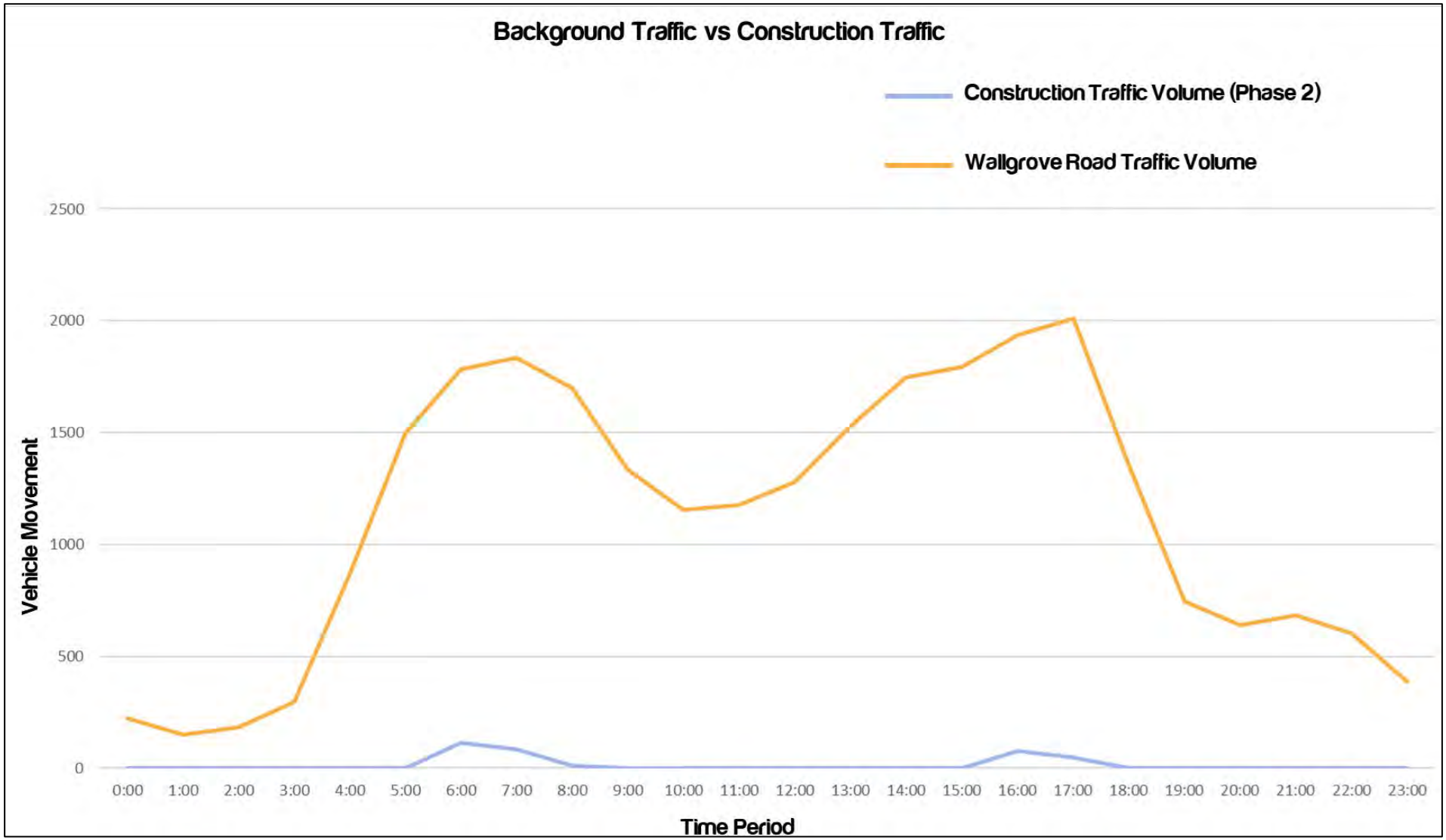


Figure 19: Background Traffic vs Construction Traffic – Phase 2

6.2 Cumulative Impacts

Given that Phase 1 construction traffic will utilise the Interim construction access and Phase 2 construction traffic will utilise the Signalised intersection, the estimated construction traffic has been allocated to the respective intersections. The distribution of construction traffic for Phase 1 is shown in the **Figure 20** and **Figure 21**.

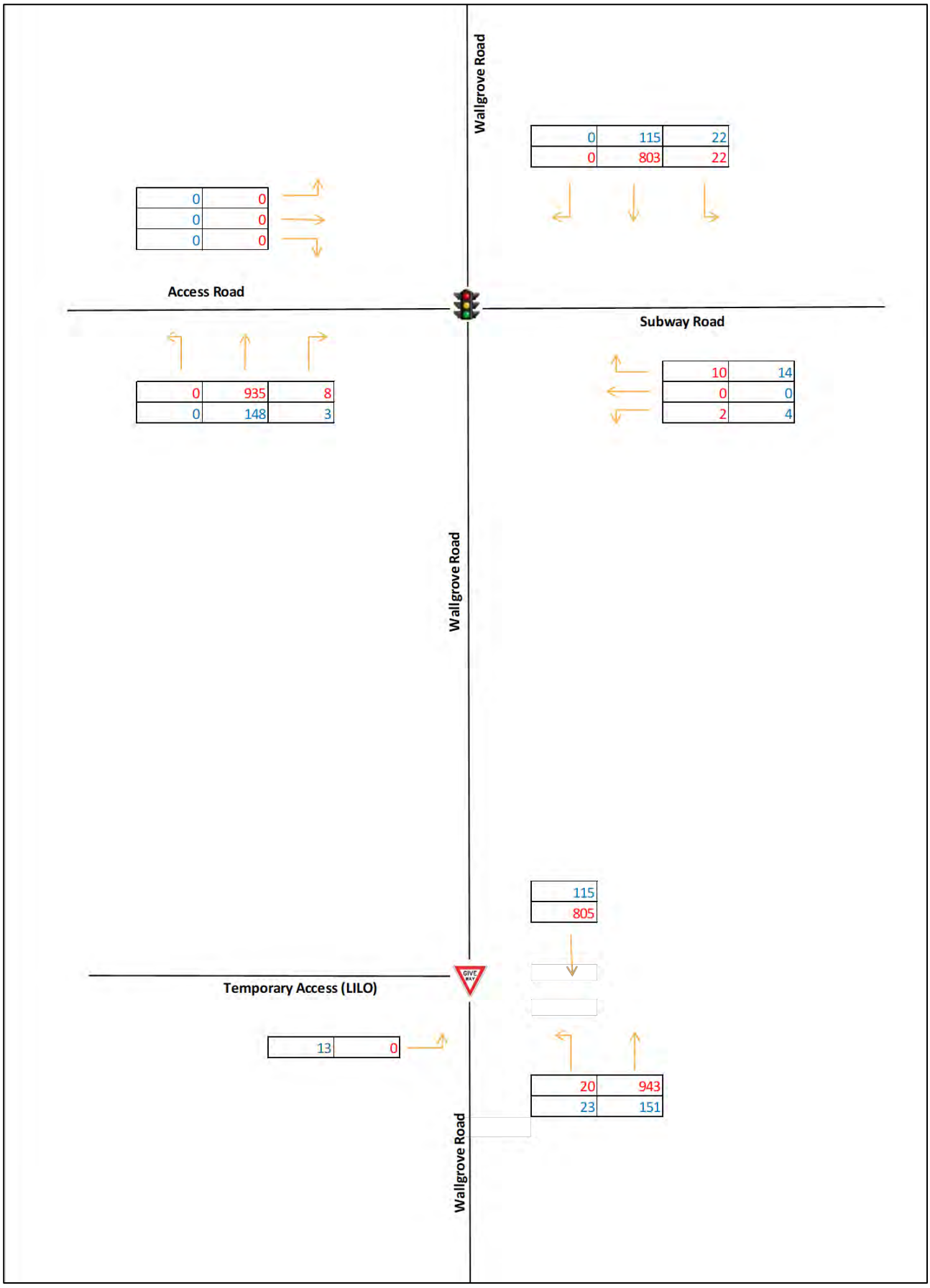


Figure 20: Baseline Traffic Volumes with Construction Volume – Phase 1 - AM Peak

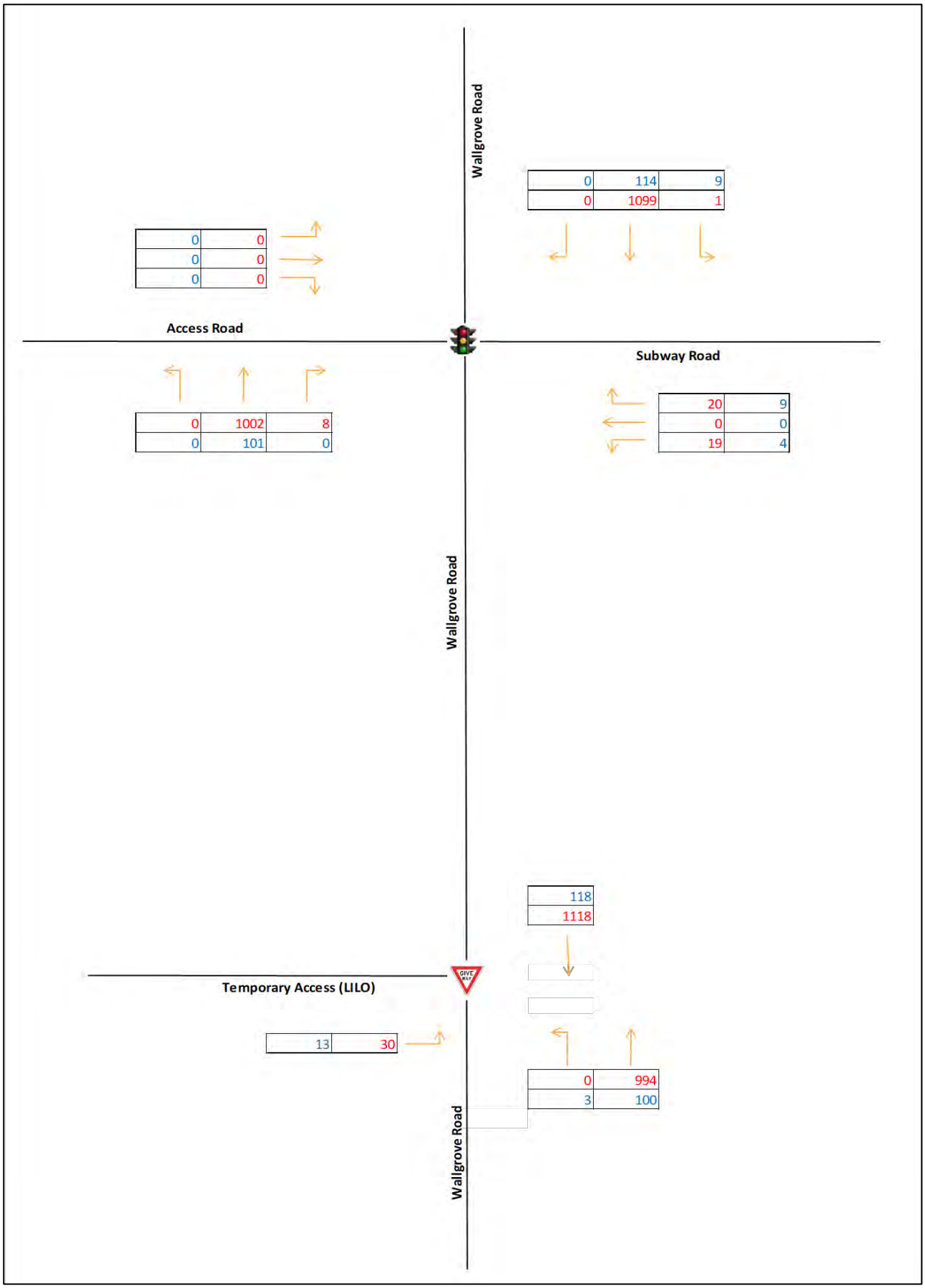


Figure 21: Baseline Traffic Volumes with Construction Volume – Phase 1- PM Peak

Similarly, the distribution of construction traffic for Phase 2 is shown in **Figure 22** and **Figure 23.**

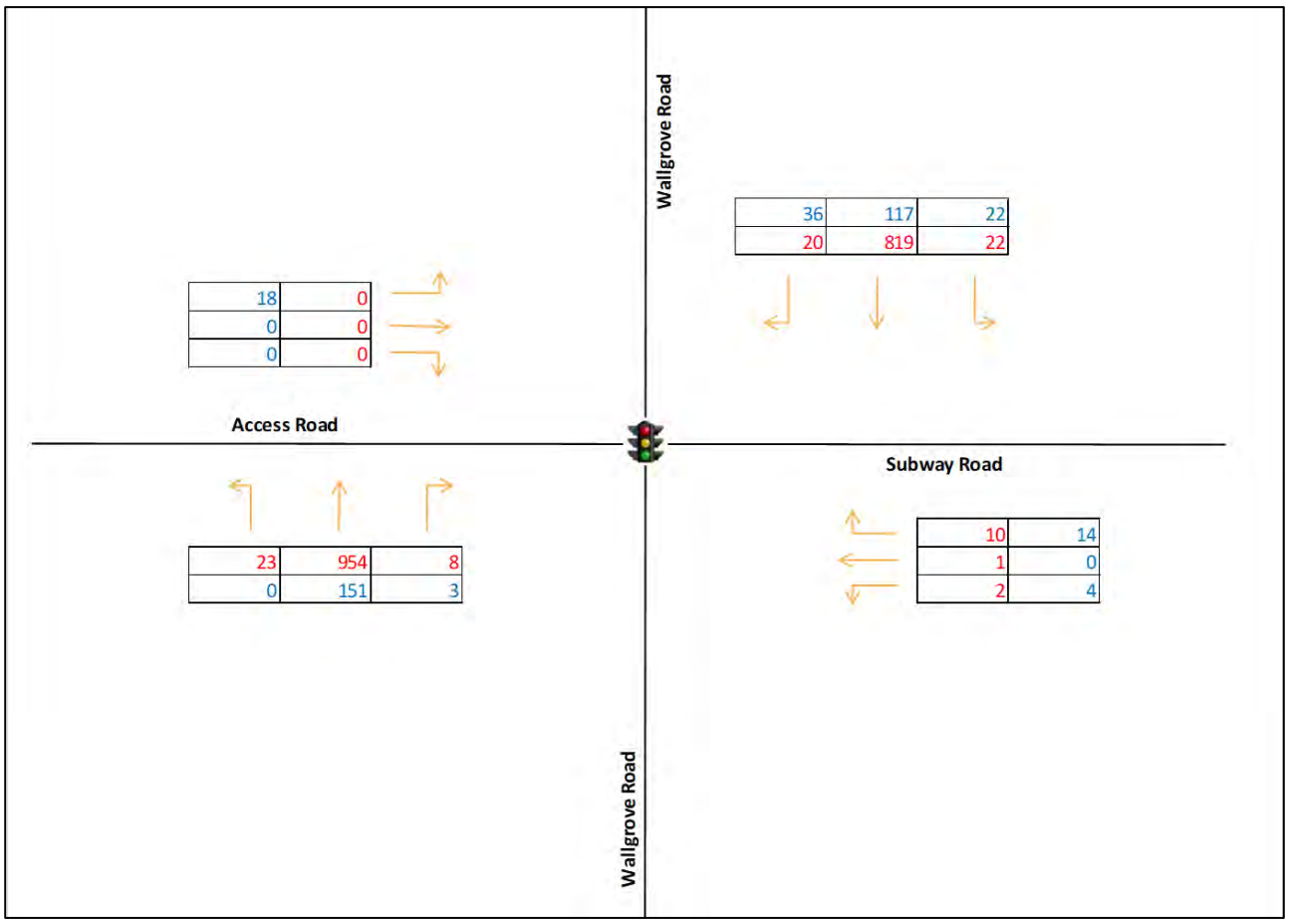


Figure 22: Baseline Traffic Volumes with Construction Volume – Phase 2 - AM Peak

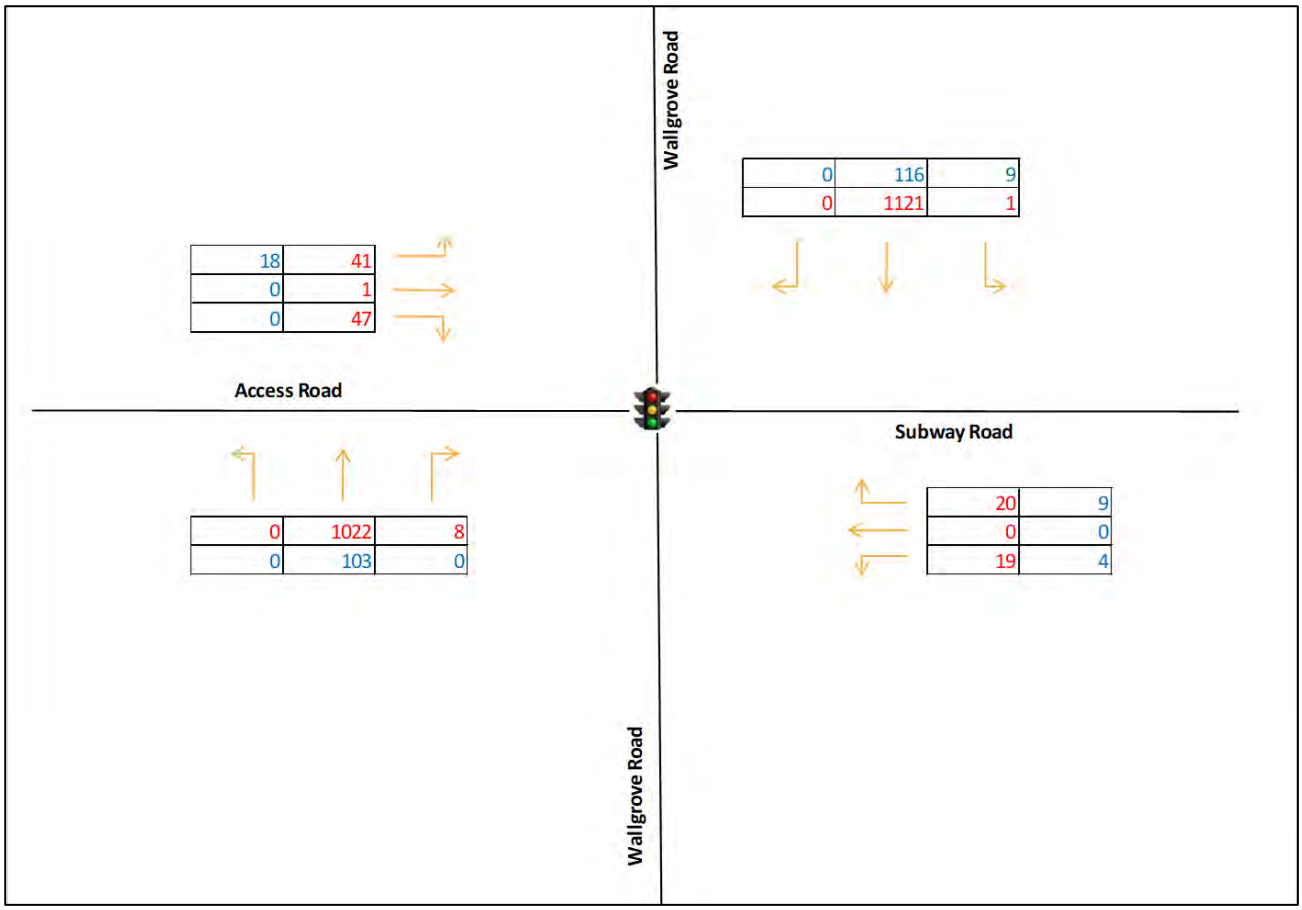


Figure 23: Baseline Traffic Volumes with Construction Volume – Phase 2 - PM Peak

The impact of construction traffic for both phases have been assessed using SIDRA computer program which outputs a range of performance measures, in particular:

- **Degree of Saturation (DOS):** DOS is defined as the ratio of demand (arrival) flow to capacity.
- **Average Vehicle Delay (AVD):** Provides a measure of the operational performance of an intersection and is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.
- **Level of Service (LOS):** Comparative measure that provides an indication of the operating performance, based on AVD. For signalised and roundabout intersections, it is based on average delay to all vehicles, while at priority-controlled intersections it is based on the worst approach delay.

Table 24 provides a summary of the SIDRA LOS parameters, which are based on the RMS Guide.

TABLE 24: SIDRA LEVEL OF SERVICE SUMMARY

Level of Service	Average Delay per Vehicle (sec/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

Table 25 provides results of the calibrated SIDRA model for the temporary access with Wallgrove Road during peak periods.

TABLE 25: TEMPORARY ACCESS PERFORMANCE

Peak Period	AVD (s)	LOS	DOS
AM	0.7	D	0.637
PM	0.8	B	0.701

Note: The critical gap and headway follow up timing was changed from 5s and 3s to 4.5s and 2.5s respectively in consultation with SIDRA support and per Table 7.1 of AUSTROADS 2020: Guide to Traffic Management Part 3: Transport Study and Analysis Methods.

The AVD range between 0.7 – 0.8 seconds for both AM and PM peaks indicating that the intersection is operating near capacity. However, during the afternoon peak, SIDRA suggests that the LOS is classified as "Worst (B)" which suggests that the intersection is still within the acceptable range of delays and has spare capacity. SIDRA summaries can be referenced in **Appendix C**. Moreover, the results of the SIDRA analysis for the Signalised intersection with the construction volume are summarised in **Table 26**.

TABLE 26: SIGNALISED INTERSECTION PERFORMANCE

Peak Period	AVD (s)	LOS	DOS
AM	13	A	0.511
PM	14.4	A	0.554

It is recognised that the peak construction traffic of Phase 2 consisting of 534 vehicles movements per day is considerably less than the approved operational traffic volumes being 5,774 vehicle movements per day.

Further, a SIDRA assessment undertaken on the Signalised intersection shows that the intersection can operate at an overall LOS A during the cumulative peak construction period. SIDRA summaries can be referenced in Appendix **C**.

7 Plan Administration

7.1 Monitoring Program

This CTMP shall be subject to ongoing review and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator. As a minimum, review of the CTMP shall occur monthly. All and any reviews undertaken should be documented, however key considerations regarding the review of the CTMP shall be:

- Tracking deliveries against the volumes outlined within report. Deliveries will be tracked against approved volumes and will keep a vehicle log - including rego & time of entry - for the purpose of assessing the effectiveness of these monitoring programs.
- Reporting and Monitoring of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved. This should be undertaken fortnightly during construction.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (Parking and access issues)
- To ensure TGSs are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" card holders to ensure they remain consistent with the set-up on-site.
- Regular checks undertaken to ensure all loads are entering and leaving site covered as outlined within this CTMP.
- The Contractor shall be responsible for preparing a dilapidation report periodically (once a month) to assess the condition of Estate Road 01 and Estate Road 01following their completion and are utilised by construction traffic. The dilapidation report of these roads should note whether there has been any reduction in the quality of the road as a result of construction vehicle traffic.

The development of a program to monitor the effectiveness of this CTMP shall be established by the Contractor. This process is expected to form part of the monitoring plan required to be included as part of the overarching Construction Environmental Management Plan (CEMP), of which this CTMP forms a part.

7.2 Contingency Plan

A contingency plan shall be established by the Contractor. Notwithstanding, **Table 27** outlines an indicative plan to be undertaken by the builder in the event that the monitoring program identifies the management plan is not effective in managing the construction impacts.

TABLE 27: CONTINGENCY PLAN

Risk		Condition Green	Condition Amber	Condition Red
Construction Movements	Trigger	Construction traffic volume is in accordance with permissible and programmed volume and time constraints	Construction traffic volumes exceeds programmed volume but is within permissible volume constraints	Construction traffic volumes exceeds permissible volume and time constraints
	Response	No response required	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as:	As with Condition Amber, plus; • If it is concluded that construction activities were directly responsible

			• Review CTMP and update where necessary • Provide additional training.	for the exceedance, submit an incident report to government agencies.
Queuing	Trigger	No queuing identified	Queuing identified within Estate	Queuing identified on the public road
	Response	No response required Continue monitoring program	Review the delivery schedule prepared by the builder. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Driver Code of Conduct	As with Condition Amber, plus • Review and investigate construction activities. • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Temporary halting of activities and resuming when conditions have improved. • Review CTMP and update where necessary, provide additional training.
Noise	Trigger	Noise levels do not exceed imposed noise constraints	Noise levels in minor excess of imposed noise constraints	Noise levels greatly in excess of imposed noise constraints
	Response	No response required	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	As with Condition Amber If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
Traffic Guidance Scheme	Trigger	No observable issues	Minor inconsistencies with TGS to onsite operations	Near miss or incident occurring regardless of / as a result of the TGS being implemented
	Response	No response required	Traffic Controller to amend TGS on site and to keep a log of all changes	Stop work until an investigation has been undertake into the incident. There are to be changes made to the TGS to ensure that the safety of all workers, students and civilians are catered for.

Dust	Trigger	No observable dust	Minor quantities of dust in the air and tracking on to the road	Large quantities of dust in the air and tracking on to the road
	Response	No response required	Review and investigate construction activities and respective control measures, where appropriate. Implement additional remedial measures, such as: • Deployment of additional water sprays • Relocation or modification of dust-generating sources • Check condition of vibrating grids to ensure they are functioning correctly. • Temporary halting of activities and resuming when conditions have improved	As with Condition Amber. • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Implement relevant responses and undertake immediate review to avoid such occurrence in future.

It is therefore proposed to incorporate the above items within the communications strategy. The contingency plan outlines the most effective methods to ensure that each item identified within the Monitoring Program is adhered to, resulting in the impacts to the wider community being minimised. It also represents the efforts undertaken to continually improve CTMP and ensure that the process being utilised are indeed best practice.

7.3 Communications Strategy

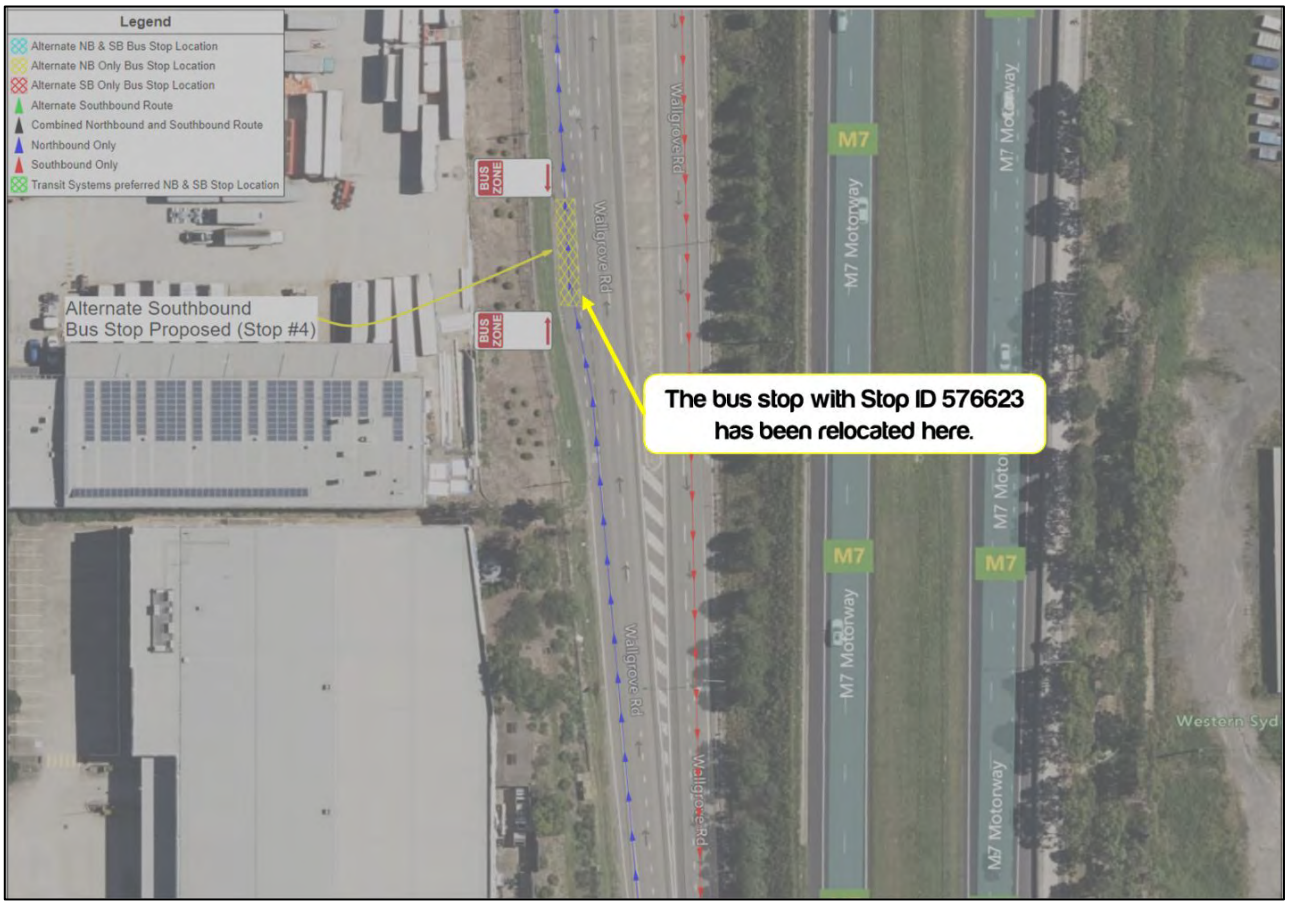
A communications strategy shall be established by the Contractor. The Contractor is to notify the community liaison representative when traffic is expected to exceed the parameters set within “Condition Green” of **Table 27**. **Table 28** outlines an indicative communication strategy to ensure that adequate communication with key stakeholders have been met.

TABLE 28: COMMUNICATION STRATEGY

Risk	Stakeholder	Action
Warehouse Specific Disruption	• TfNSW • Fairfield City Council • Transport Management Centre (TMC) • NSW Police • Emergency Services • Gazcorp	Stakeholder meetings Stakeholder emails
Wider Traffic Disruption	• TfNSW • Fairfield City Council • Transport Management Centre (TMC) • NSW Police • Emergency Services • Gazcorp • Surrounding Residents / Tenants / Schools	

If and when there are any proposed changes to the CTMP conditions, then these shall be captured ongoing discussions with TfNSW. In the event that the CTMP report requires to be changed, a copy of the revised CTMP report should be submitted developments.cjp@transport.nsw.gov.au for further review and endorsement.

Appendix A. Alternative Temporary Bus Stop Locations



Source: GIE CTMP prepared by Allied Traffic Management dated 26/08/2022[8]

[8] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-5248%2120221221T050819.373%20GMT

Appendix B. Risk Assessment

813-913 Wallgrove Road, Eastern Creek

Risk Assessment and Communication Tool

Project Number	P2302
Project Name	Gazcorp Industrial Estate (GIE)
Site Location	813-913 Wallgrove Road, Eastern Creek
Date of Assessment	9/11/2023
Revision	Issue II

Name	Company	Title
J. Laidler	Ason Group	Senior Traffic Engineer
M. Abdullah	Ason Group	Traffic Engineer
Tim Sachs	Gazcorp	Senior Project Manager
Sangeeth Subramaniam	Gazcorp	Project Manager

Document Control

Date Issued	Revision	Issued By	Checked By
08/06/2023	Draft	M. Abdullah	J. Laidler
26/09/2023	Issue I	M. Abdullah	J. Laidler
9/11/2023	Issue II	M. Abdullah	J. Laidler

Risk Matrix		**Consequence**				
		Minor	Major	Severe	Critical	Catastrophic
		A	B	C	D	E
Very Unlikely	1	Low	Low	Medium	Medium	Medium
Unlikely	2	Low	Low	Medium	Medium	High
Possible	3	Low	Medium	High	High	High
Likely	4	Medium	Medium	High	High	Extreme

Almost Certain	5	Medium	High	High	Extreme	Extreme

Description	
A - Minor	Could result in injury or illness not resulting in a lost work day or minimal environmental damage not required to be notified under jurisdiction requirements.
B - Major	Could result in injury or illness resulting in one or more lost work day(s) or environmental damage can be mitigated and is not required to be notified under jurisdiction
C - Severe	requirements where restoration activities can be accomplished.
D - Critical	Could result in permanent partial disability, injuries or illness that may result in
E - Catastrophic	hospitalisation of persons or environmental damage can be mitigated and is required to be notified under jurisdiction requirements.

Likelihood Descriptor	**Design Likelihood**
1 - Very unlikely	Industry experience suggests design failure is very unlikely. It can be assumed failure
2 - Unlikely	Industry experience suggests design failure is unlikely to occur in the life of design.
3 - Possible	Industry experience suggests design failure is possible some time during the life of the
4 - Likely	Industry experience suggests design failure is likely to occur during the life of the product.
5 - Almost certain	Industry experience suggests design failure is almost certain to occur during the life of the

Risk Assessment and Communication Tool

Example

ID. Ref	Risk and/ or Hazard	Risk Description	Location	Existing Control	Initial Risk Rating			Design Response to risk and /or hazard	Status of Risk	Assignment of risk or hazard	Residual risk rating		
					C	L	RR				C	L	RR
1	Unauthorized Access to the Site	Site prevents unauthorised access	Entire Site	Nil	C	3	High	Boundary fence will be provided as part of the main works. The design provides a defined separation between public areas and work area. Admin area is located in front of the site to minimise unauthorised visitor access	Design Solution	Main Contractor	B	2	Low
2	Interaction between pedestrians and vehicles	Vehicles and pedestrians to be separates as best possible	Entire Site & Access Roads	Nil	D	3	High	separate pedestrians from vehicles in construction sites, use barrier fencing, signage and markings, traffic control measures, and temporary walkways. Ensure that the site is well-lit, especially when	Design Solution	Main Contractor	B	2	Low

								it get dark, and train workers on safety around construction equipment and vehicles to promote awareness of potential hazards.					
3	Potential vehicle conflict points	Vehicles can crash with each other while manoeuvring through the site	Entire Site & Access Roads	Nil	B	3	Medium	Use one-way manoeuvring around a site to limit interaction between vehicles to designated access points. Maintain Low speeds throughout the site to ensure safety for drivers.	Design Solution	Main Contractor	B	1	Low
4	Potential vehicle with other road users	Construction Vehicles can crash with other Road users while manoeuvring through the site	Site Access & Road	Nil	C	3	High	Conducting regular toolbox meetings is essential to ensure drivers are well-informed about the Driver Code of Conduct, compliance with road safety regulations, and adherence to road rules. This proactive approach	Design Solution	Main Contractor	B	2	Low

								helps minimise conflicts with various road users, including pedestrians, cyclists, and motor vehicles.					
5	Fatigue	Injury caused by fatigue	Entire Site	Nil	C	3	High	Toolbox meetings and regular breaks (in line with WHS practices) to minimise fatigue	Design Solution	Main Contractor	B	1	Low
6	Fall risks	Injury due to falls (in general)	Entire Site	Nil	E	3	High	Proper safety equipment, training, and site maintenance should be implemented to ensure a safe work environment.	Design Solution	Main Contractor	C	2	Medium
7	Misdirected access in to neighbouring site	Vehicle in unsafe locations	Entire Site	Nil	C	3	High	Ensuring appropriate directional signage has been provided to ensure vehicles do not access the wrong construction site, which could create potential safety breaches and hazards for all partied. Additionally,	Design Solution	Main Contractor	B	2	Low

								communicating with the neighbouring site can help to identify any potential issues related to access or safety, and facilitate the sharing of best practices and resources. This can promote a culture of collaboration and cooperation between neighbouring sites, and ultimately help to improve overall safety and efficiency in the area.					
8	Conflicting Traffic Management	Coordinating Traffic Controllers could create misleading and wrong advice	Entire Site	Nil	C	3	High	Regular toolbox meetings, safety briefings, liaison with traffic management teams, and updated signage plans can minimize construction site hazards by adopting a comprehensive	Design Solution	Main Contractor	C	2	Medium

								approach to traffic management.					

Appendix C. SIDRA Summary

MOVEMENT SUMMARY

Site: 101 [Temporary Access AM (Site Folder: Phase 1-Prior-Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Road / Temporary Access Road
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	45	53.5	45	53.5	0.033	6.2	LOS A	0.0	0.0	0.00	0.50	0.00	51.7
2	T1	All MCs	1152	13.8	1152	13.8	0.637	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	69.1
Approach			1197	15.3	1197	15.3	0.637	0.5	NA	0.0	0.0	0.00	0.02	0.00	68.3
North: Wallgrove Road															
8	T1	All MCs	968	12.5	968	12.5	0.531	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	69.4
Approach			968	12.5	968	12.5	0.531	0.2	NA	0.0	0.0	0.00	0.00	0.00	69.4
West: Temporary Access Road															
10	L2	All MCs	14	100.0	14	100.0	0.139	44.0	LOS D	0.4	5.5	0.94	0.97	0.94	32.3
Approach			14	100.0	14	100.0	0.139	44.0	LOS D	0.4	5.5	0.94	0.97	0.94	32.3
All Vehicles			2179	14.6	2179	14.6	0.637	0.7	NA	0.4	5.5	0.01	0.02	0.01	68.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Temporary Access PM (Site Folder: Phase 1-Prior-Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Road / Temporary Access Road
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	3	100.0	3	100.0	0.003	6.6	LOS A	0.0	0.0	0.00	0.48	0.00	49.6
2	T1	All MCs	1152	9.1	1152	9.1	0.619	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	69.2
Approach			1155	9.4	1155	9.4	0.619	0.3	NA	0.0	0.0	0.00	0.00	0.00	69.2
North: Wallgrove Road															
8	T1	All MCs	1301	9.5	1301	9.5	0.701	0.4	LOS A	0.0	0.0	0.00	0.00	0.00	68.9
Approach			1301	9.5	1301	9.5	0.701	0.4	NA	0.0	0.0	0.00	0.00	0.00	68.9
West: Temporary Access Road															
10	L2	All MCs	45	30.2	45	30.2	0.196	22.8	LOS B	0.6	4.9	0.87	0.96	0.93	41.7
Approach			45	30.2	45	30.2	0.196	22.8	LOS B	0.6	4.9	0.87	0.96	0.93	41.7
All Vehicles			2501	9.8	2501	9.8	0.701	0.8	NA	0.6	4.9	0.02	0.02	0.02	68.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Proposed Intersection AM (Site Folder: Phase 2- Post Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Rd-Subway Rd-Access Rd AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	24	0.0	24	0.0	*0.511	20.2	LOS B	18.2	141.8	0.58	0.53	0.58	51.1
2	T1	All MCs	1163	13.7	1163	13.7	0.511	12.1	LOS A	18.2	142.5	0.58	0.53	0.58	56.1
3	R2	All MCs	12	27.3	12	27.3	0.044	14.0	LOS A	0.2	1.6	0.47	0.65	0.47	49.3
Approach			1199	13.5	1199	13.5	0.511	12.3	LOS A	18.2	142.5	0.58	0.53	0.58	55.9
East: Subway Road															
4	L2	All MCs	6	66.7	6	66.7	0.175	47.4	LOS D	1.7	17.9	0.90	0.73	0.90	27.3
5	T1	All MCs	1	0.0	1	0.0	*0.175	49.5	LOS D	1.7	17.9	0.90	0.73	0.90	31.9
6	R2	All MCs	25	58.3	25	58.3	0.175	56.7	LOS E	1.7	17.9	0.90	0.73	0.90	27.4
Approach			33	58.1	33	58.1	0.175	54.7	LOS D	1.7	17.9	0.90	0.73	0.90	27.5
North: Wallgrove Road															
7	L2	All MCs	46	50.0	46	50.0	0.447	18.5	LOS B	14.7	116.9	0.54	0.51	0.54	48.9
8	T1	All MCs	985	12.5	985	12.5	0.447	11.4	LOS A	15.1	117.1	0.54	0.50	0.54	56.8
9	R2	All MCs	59	64.3	59	64.3	*0.341	17.2	LOS B	1.1	12.4	0.60	0.72	0.60	45.7
Approach			1091	16.9	1091	16.9	0.447	12.0	LOS A	15.1	117.1	0.55	0.51	0.55	55.6
West: Access Road															
10	L2	All MCs	20	94.7	20	94.7	0.069	43.1	LOS D	0.9	11.3	0.78	0.70	0.78	27.5
11	T1	All MCs	1	0.0	1	0.0	0.009	46.5	LOS D	0.1	0.7	0.87	0.59	0.87	33.2
12	R2	All MCs	1	0.0	1	0.0	0.009	52.1	LOS D	0.1	0.7	0.87	0.59	0.87	33.5
Approach			22	85.7	22	85.7	0.069	43.7	LOS D	0.9	11.3	0.79	0.69	0.79	28.0
All Vehicles			2344	16.4	2344	16.4	0.511	13.0	LOS A	18.2	142.5	0.57	0.53	0.57	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wallgrove Road												

P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Access Road												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All Pedestrians		100	105	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Proposed Intersection PM (Site Folder: Phase 2-Post Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Rd-Subway Rd-Access Rd AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	1	0.0	1	0.0	0.497	20.0	LOS B	17.9	135.2	0.57	0.51	0.57	51.4
2	T1	All MCs	1184	9.2	1184	9.2	0.497	11.9	LOS A	17.9	135.3	0.57	0.51	0.57	56.4
3	R2	All MCs	8	0.0	8	0.0	*0.033	15.0	LOS B	0.1	0.9	0.52	0.66	0.52	49.4
Approach			1194	9.1	1194	9.1	0.497	12.0	LOS A	17.9	135.3	0.57	0.52	0.57	56.4
East: Subway Road															
4	L2	All MCs	24	17.4	24	17.4	0.256	48.2	LOS D	2.9	25.0	0.92	0.75	0.92	30.5
5	T1	All MCs	1	0.0	1	0.0	*0.256	51.2	LOS D	2.9	25.0	0.92	0.75	0.92	31.7
6	R2	All MCs	31	31.0	31	31.0	0.256	60.2	LOS E	2.9	25.0	0.92	0.75	0.92	29.0
Approach			56	24.5	56	24.5	0.256	54.8	LOS D	2.9	25.0	0.92	0.75	0.92	29.7
North: Wallgrove Road															
7	L2	All MCs	11	90.0	11	90.0	0.554	20.3	LOS B	20.9	159.5	0.60	0.55	0.60	46.9
8	T1	All MCs	1302	9.4	1302	9.4	*0.554	12.6	LOS A	21.1	159.4	0.60	0.55	0.60	55.8
9	R2	All MCs	1	0.0	1	0.0	0.004	13.9	LOS A	0.0	0.1	0.49	0.61	0.49	49.4
Approach			1314	10.0	1314	10.0	0.554	12.7	LOS A	21.1	159.5	0.60	0.55	0.60	55.7
West: Access Road															
10	L2	All MCs	48	39.1	48	39.1	0.128	42.9	LOS D	2.2	20.4	0.80	0.73	0.80	31.4
11	T1	All MCs	1	0.0	1	0.0	0.165	49.0	LOS D	1.8	12.8	0.91	0.73	0.91	31.5
12	R2	All MCs	34	0.0	34	0.0	0.165	55.5	LOS D	1.8	12.8	0.91	0.73	0.91	31.8
Approach			83	22.8	83	22.8	0.165	48.1	LOS D	2.2	20.4	0.85	0.73	0.85	31.5
All Vehicles			2646	10.3	2646	10.3	0.554	14.4	LOS A	21.1	159.5	0.60	0.54	0.60	53.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wallgrove Road												

P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Access Road												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All Pedestrians		100	105	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Appendix D. Traffic Guidance Schemes

ASON ACCEPTS NO RESPONSIBILITY WHATSOEVER FOR THE USE OF UNAPPROVED PLANS IN ANY CONSTRUCTION OR FOR ANY COMMERCIAL PURPOSES. SET OUT DIMENSIONS OF ALL DESIGN LINES, GRID LINES, CONTROL LINES, RECOVERY MARKS AND BENCH MARKS SHOULD BE VERIFIED AND CONFIRMED AGAINST THE LATEST INFORMATION AT CONSTRUCTION. ASON IS TO BE NOTIFIED IMMEDIATELY OF ANY ERROR OR DISCREPANCY AND THE MATTER RESOLVED PRIOR TO THE COMMENCEMENT OR CONTINUATION OF ANY WORK. THIS NOTE IS AN INTEGRAL PART OF THIS PLAN/DATA.
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TGS GENERAL NOTES

- ALL PUBLIC ROADS WILL HAVE A SPEED LIMIT OF 50KM/H UNLESS IDENTIFIED OTHERWISE
- NOT ALL DIMENSIONS SHOWN ARE TO SCALE
- LOCATION OF SIGNS ARE TO BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY
- ALL SIGNS ARE TO BE MINIMUM SIZE A
- ALL SIGNS ARE TO BE CLASS 1 RETROREFLECTIVE
- ALL TRAFFIC CONTROL PLANS ARE TO BE IMPLEMENTED IN ACCORDANCE WITH TFNSW'S TRAFFIC CONTROL AT WORK SITES TECHNICAL MANUAL ISSUE 6 (RELEASED 2020) AND AUSTRALIAN STANDARDS AS1742.3:2019 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS
- THIS TRAFFIC CONTROL PLAN MUST BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLAN" TICKET AND TFNSW'S TRAFFIC CONTROL AT WORK SITES CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION

- THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TCP BEFORE ANY PHYSICAL WORK COMMENCES AND ENSURE A COPY OF THE TCP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL ALSO DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TCP HAS BEEN IMPLEMENTED CORRECTLY AND THAT THE IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY VARIATIONS TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL
- IT IS THE RESPONSIBILITY OF THE AN ACCREDITED PERSONNEL WITH A 'PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN' TO ENSURE THE FOLLOWING:
  * THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURE THROUGH TO THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND DEVICES. THE CORRESPONDING RECORDS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
  * VEHICULAR ACCESS AND SERVICING REQUIREMENTS ARE TO BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES
  * AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE

- ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN
- IF THE WORKSITE IS LEFT UNATTENDED IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS
- TRAFFIC CONTROLLER (T1-34) AND PREPARE TO STOP (T1-18) SIGNS ARE TO BE COVERED OR REMOVED WHEN TRAFFIC CONTROLLER/S ARE NOT ON SITE.
- ALL SIGNAGE IS TO BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS
- IF REQUIRED, A TGS MUST BE SELECTED, DEVELOPED AND IMPLEMENTED BY A SUITABILITY QUALIFIED PERSON (PWZTMP AND ITCP QUALIFICATIONS)

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date:23/05/2023

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
-	23.05.23	TGS FOR WALLGROVE RD SITE ACCESS	MA	JL	JL

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Nearmaps dated 29 Nov 2023.
Wallgrove Road has a posted speed limit of 70km/h.

DESIGNED: Musstafa Abdullah	PAPER SIZE: A1
CHECKED BY: James Laidler	DATE: 23.05.2023
APPROVED BY: James Laidler	SCALE: 1:400

CLIENT

Gazcorp

PROJECT

P2302

813-913 WALLGROVE ROAD

DOCUMENT INFORMATION

TGS

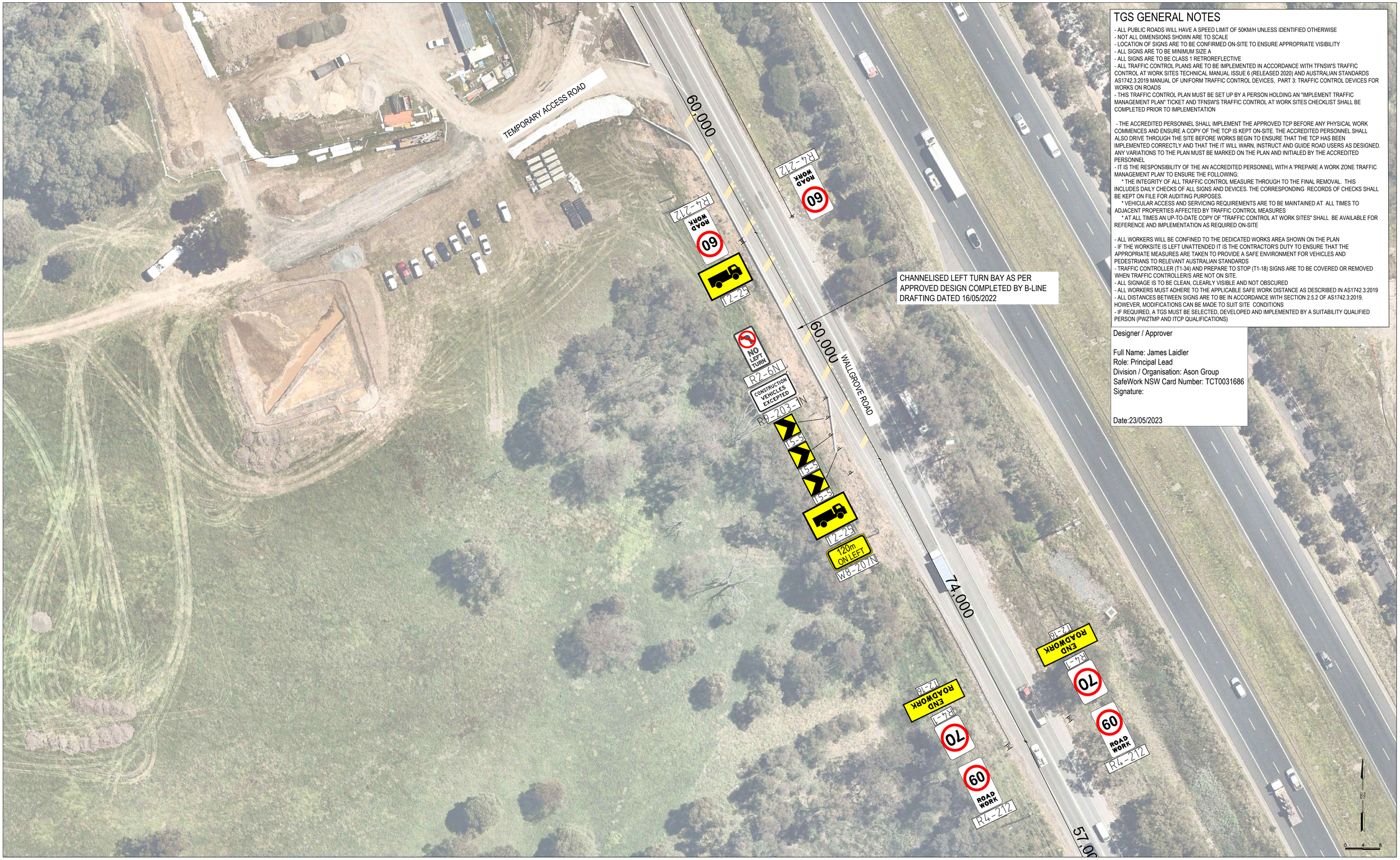
WALLGROVE RD SITE ACCESS

DRAWING STATUS: FOR CONSTRUCTION

FILE NAME: AG2302-01-v01.dwg

SHEET: AG01

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au



TGS GENERAL NOTES

- ALL PUBLIC ROADS WILL HAVE A SPEED LIMIT OF 50KM/H UNLESS IDENTIFIED OTHERWISE
- NOT ALL DIMENSIONS SHOWN ARE TO SCALE
- LOCATION OF SIGNS ARE TO BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY
- ALL SIGNS ARE TO BE MINIMUM SIZE A
- ALL SIGNS ARE TO BE CLASS 1 RETROREFLECTIVE
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  * AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE

- ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN
- IF THE WORKSITE IS LEFT UNATTENDED IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS
- TRAFFIC CONTROLLER (T1-34) AND PREPARE TO STOP (T1-18) SIGNS ARE TO BE COVERED OR REMOVED WHEN TRAFFIC CONTROLLER/S ARE NOT ON SITE.
- ALL SIGNAGE IS TO BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS
- IF REQUIRED, A TGS MUST BE SELECTED, DEVELOPED AND IMPLEMENTED BY A SUITABILITY QUALIFIED PERSON (PWZTMP AND ITCP QUALIFICATIONS)

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date:23/05/2023

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
-	14.02.23	TGS FOR WALLGROVE RD SITE ACCESS	MA	JL	JL

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Nearmaps dated 29 Nov 2023.
Wallgrove Road has a posted speed limit of 70km/h.

DESIGNED: Musstafa Abdullah	PAPER SIZE: A1
CHECKED BY: James Laidler	DATE: 23.05.2023
APPROVED BY: James Laidler	SCALE: 1:400

CLIENT: Gazcorp

PROJECT: P2302 — 813-913 WALLGROVE ROAD

DOCUMENT INFORMATION

TGS

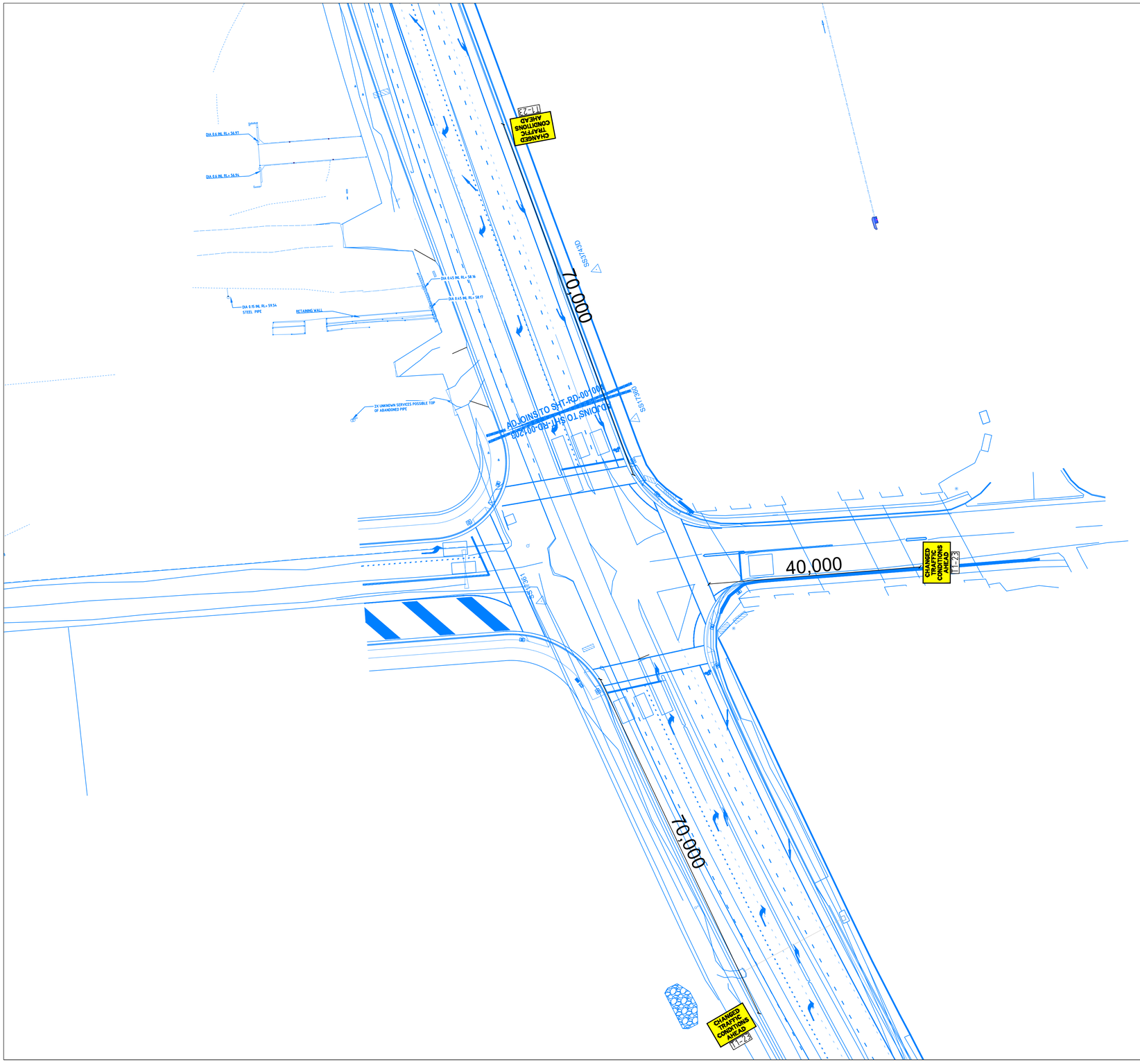
WALLGROVE RD SITE ACCESS

DRAWING STATUS: FOR CONSTRUCTION
FILE NAME: AG2302-01-v01.dwg
SHEET: AG02

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TGS GENERAL NOTES

- ALL PUBLIC ROADS WILL HAVE A SPEED LIMIT OF 50KM/H UNLESS IDENTIFIED OTHERWISE
- NOT ALL DIMENSIONS SHOWN ARE TO SCALE
- LOCATION OF SIGNS ARE TO BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY
- ALL SIGNS ARE TO BE MINIMUM SIZE A
- ALL SIGNS ARE TO BE CLASS 1 RETROREFLECTIVE
- ALL TRAFFIC CONTROL PLANS ARE TO BE IMPLEMENTED IN ACCORDANCE WITH TFNSW'S TRAFFIC CONTROL AT WORK SITES TECHNICAL MANUAL ISSUE 6 (RELEASED 2020) AND AUSTRALIAN STANDARDS AS1742.3:2019 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS
- THIS TRAFFIC CONTROL PLAN MUST BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLAN" TICKET AND TFNSW'S TRAFFIC CONTROL AT WORK SITES CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION

- THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TCP BEFORE ANY PHYSICAL WORK COMMENCES AND ENSURE A COPY OF THE TCP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL ALSO DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TCP HAS BEEN IMPLEMENTED CORRECTLY AND THAT THE IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY VARIATIONS TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL
- IT IS THE RESPONSIBILITY OF THE AN ACCREDITED PERSONNEL WITH A 'PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN TO ENSURE THE FOLLOWING:
  * THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURE THROUGH TO THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND DEVICES. THE CORRESPONDING RECORDS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
  * VEHICULAR ACCESS AND SERVICING REQUIREMENTS ARE TO BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES
  * AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE

- ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN
- IF THE WORKSITE IS LEFT UNATTENDED IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS
- TRAFFIC CONTROLLER (T1-34) AND PREPARE TO STOP (T1-18) SIGNS ARE TO BE COVERED OR REMOVED WHEN TRAFFIC CONTROLLER/S ARE NOT ON SITE.
- ALL SIGNAGE IS TO BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS
- IF REQUIRED, A TGS MUST BE SELECTED, DEVELOPED AND IMPLEMENTED BY A SUITABILITY QUALIFIED PERSON (PWZTMP AND ITCP QUALIFICATIONS)

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date:01/06/2023

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
-	23.05.23	TGS FOR WALLGROVE RD SITE ACCESS	MA	MD	JL

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Orino dated 08 July 2022.
Wallgrove Road has a posted speed limit of 70km/h.

DESIGNED: Musstafa Abdullah	PAPER SIZE: A1
CHECKED BY: Mario Dizon	DATE: 01.06.2023
APPROVED BY: James Laidler	SCALE: 1:400

CLIENT: Gazcorp

PROJECT: P2302
813-913 WALLGROVE ROAD

DOCUMENT INFORMATION

TGS

WALLGROVE RD POST TRAFFIC SIGNALE

DRAWING STATUS: FOR CONSTRUCTION
FILE NAME: AG2302-02-v01.dwg
SHEET: AG01

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Appendix E. TGS Verification Checklist

TGS verification checklist

TGS Verification must be undertaken after selecting or designing a TGS as a confirmation of appropriateness prior to approval for use. A PWZTMP or TGS qualified person must undertake this verification.

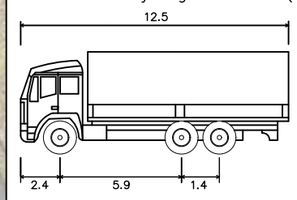
Completed by:				
Name:	James Laidler	**Signature:**		
Qualification	Senior Traffic Engineer PWZTMP #0052158569			
TGS details:				
TMP Reference:	P2302r01 Overarching CTMP, Gazcorp Industrial Estate (GIE). Draft	**TGS Reference:**		
Date:	8/06/2023	**Review type**	☐ Site Inspection	☑ Desktop Review
Sources used for desktop review	Near Map, Dated 30/03/2023.			
Site details				
Street name:	Wallgrove Road	**Confirmed posted speed limits:**	70km/h	
Street name:	Subway Road	**Confirmed posted speed limits:**	40km/h	
List unique site-specific Hazards / Risks identified on site. **E.g., utilities, infrastructure, vegetation, schools,**				
n/a				

TGS details					
Have the below been addressed on the TGS for this location?					
Traffic volumes	☑ Yes	☐ No	☐ N/A	**Details**	Traffic volumes have been assessed for Wallgrove Road and the construction volume of the Estate.
Predicted queue length	☑ Yes	☐ No	☐ N/A	**Details**	• Temporary Access o Not expected to queue onto the adjacent northbound lane on Wallgrove Road when entering the Site given 50m storage area and 30m taper provided at the temporary access. • Signalised Access o Based on the approved SSDA there will be no queuing expected on Wallgrove Road/ Subway Road when vehicles enter/existing the Estate.
Shoulder widths	☑ Yes	☐ No	☐ N/A	**Details**	South direction of Wallgrove Roads is designed for B-doubles, therefore sufficient shoulder widths. However, there are no shoulders in the north direction of Wallgrove Road.
Sight distances	☑ Yes	☐ No	☐ N/A	**Details**	Straight road with no obstructions and good sight distance
Existing infrastructure	☑ Yes	☐ No	☐ N/A	**Details**	No trees, poles, or other infrastructure
Transport services	☐ Yes	☐ No	☑ N/A	**Details**	None within 500m of the Estate.
Pedestrian generators	☐ Yes	☑ No	☐ N/A	**Details**	No footpaths near the GIE
Appropriate site access	☑ Yes	☐ No	☐ N/A	**Details**	Appropriate site access to accommodate construction vehicles.
Appropriate escape route for traffic controllers	☐ Yes	☐ No	☑ N/A	**Details**	No Traffic Controllers required for this TGS. Furthermore, if the TGS changes then appropriate routes will be designed to ensure the safety for all traffic controllers.

Appendix F. Swept Path (as requested by Council)

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HRV – Heavy Rigid Vehicle (AS/NZS2890.2:2002)



VEHICLE ENVELOPE
300mm CLEARANCE
500mm CLEARANCE

Overall Length	12.500m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

INDICATIVE FENCING ALIGNMENT TO ACCOMMODATE SIMULTANEOUS 12.5m HRVs SWEPT PATHS AT TEMPORARY ACCESS.

HRV - Heavy Rigid Vehicle

HRV - Heavy Rigid Vehicle

N

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Nearmaps dated 29 Nov 2023.
Wallgrove Road has a posted speed limit of 70km/h
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 12.5m HRV

DESIGNED	Jasmine Wong
PAPER SIZE	A3
APPROVED BY	X.XXXX
DATE	27.03.2023
SCALE	1:400
	0 4 8

CLIENT
PRIME CONSTRUCTIONS

PROJECT
2234
813-913 WALLGROVE ROAD

DOCUMENT INFORMATION
SWEPT PATHS
12.5m HRV

FILE NAME	AG2234-03-v01.dwg
SHEET	AG01

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info@asongroup.com.au

Appendix G. Alternate Bus Stop Consultation (as requested by Council)

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

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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

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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

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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

Appendix H. Evidence of Consultation with TfNSW

Musstafa Abdullah

From:	Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>
Sent:	Wednesday, 1 November 2023 2:37 PM
To:	Musstafa Abdullah; Development Sydney; Development CTMP CJP
Cc:	Ali Rasouli; James Laidler
Subject:	RE: SSD- 5248 - Gazcorp Industrial Estate - CTMP
Attachments:	P2302r01v04 CTMP_Gazcorp Industrial Estate (GIE), Issue IV.pdf

Hi Musstafa,

Transport for NSW (TfNSW), Greater Sydney Division has reviewed the CTMP and endorse the proposed temporary construction arrangements, subject to the following conditions:

- Separate TMP for the signalised intersection to be submitted to CJP
- Any Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS.
- Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals.
- Access to be maintained for residents, businesses and emergency vehicles at all times.
- No marshalling or queuing of construction vehicles is to occur on public roads. Arriving vehicles that are not able to use parking bay/work zone must continue to a holding point until space becomes available.
- When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles.
- Access to the site should be at the farthest point from the intersection as practicable to reduce additional conflicting vehicle manoeuvres.
- Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic and pedestrian movements in this area.
- Any approved Works Zone should only be used for work activities. No infrastructure, including bins, tanks or traffic control equipment should be left on the road when the works zone is not in use by a vehicle. All non-vehicular items must be contained with the work area and not on the carriageway. When a work zone is not in use, the area/lane must be opened up to allow for normal trafficable conditions
- Should TfNSW Network and Asset Management, Network Operations, CJP Operations, Network and Safety or other TfNSW business area determine that that more information is to be provided for review and acceptance, including other TCS locations, this information must be submitted prior to the CTMP being implemented, or otherwise agreed upon.
- Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742

Endorsement of the CTMP is not an approval to the type of traffic management or delineation devices used, nor is it an approval to any traffic guidance schemes depicted within the CTMP. It is assumed that the proponent has used type approved devices and has developed its traffic guidance schemes in accordance with the relevant Australian Standards and Guidelines.

The proponent is to ensure local residents, businesses, schools and other stakeholders in the affected area as well as emergency service organisations are notified of the changes associated with the CTMP, prior to its implementation.

Please ensure this CTMP is shared and adhered to by all contractors. . If the CTMP changes, please forward a copy to Developments.CJP@transport.nsw.gov.au or further review and endorsement.

Kind Regards,

Heather Trengove
Principal Transport Planner
Customer Journey Planning
Greater Sydney
Transport for NSW

T: 0481 482 667
231 Elizabeth Street, Sydney 2000
Note: I work Mon, Tue, Wed

OFFICIAL

From: Musstafa Abdullah <musstafa.abdullah@asongroup.com.au>
Sent: Wednesday, 18 October 2023 12:26 PM
To: Development Sydney <Development.Sydney@transport.nsw.gov.au>; Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>
Cc: Ali Rasouli <ali.rasouli@asongroup.com.au>; James Laidler <james.laidler@asongroup.com.au>
Subject: SSD- 5248 - Gazcorp Industrial Estate - CTMP

Some people who received this message don't often get email from musstafa.abdullah@asongroup.com.au. Learn why this is important

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To Whom it May Concern,

By way of introduction, Ason Group is the traffic engineer engaged to provide traffic input for SSD- 5248 - Gazcorp Industrial Estate.

As per Department of Planning, Industry & Environment comments , we are required to prepare a CTMP (construction traffic management plan) in consultation with TfNSW. We are committed to fulfilling this requirement and have attached the CTMP for your review.

Given the urgency of the matter, we would greatly appreciate receiving your input as soon as possible.

Thank you for your attention to this matter.

Regards,

Musstafa Abdullah
Traffic Engineer | Ason Group

T: +61 2 9083 6601 | E: musstafa.abdullah@asongroup.com.au
A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000

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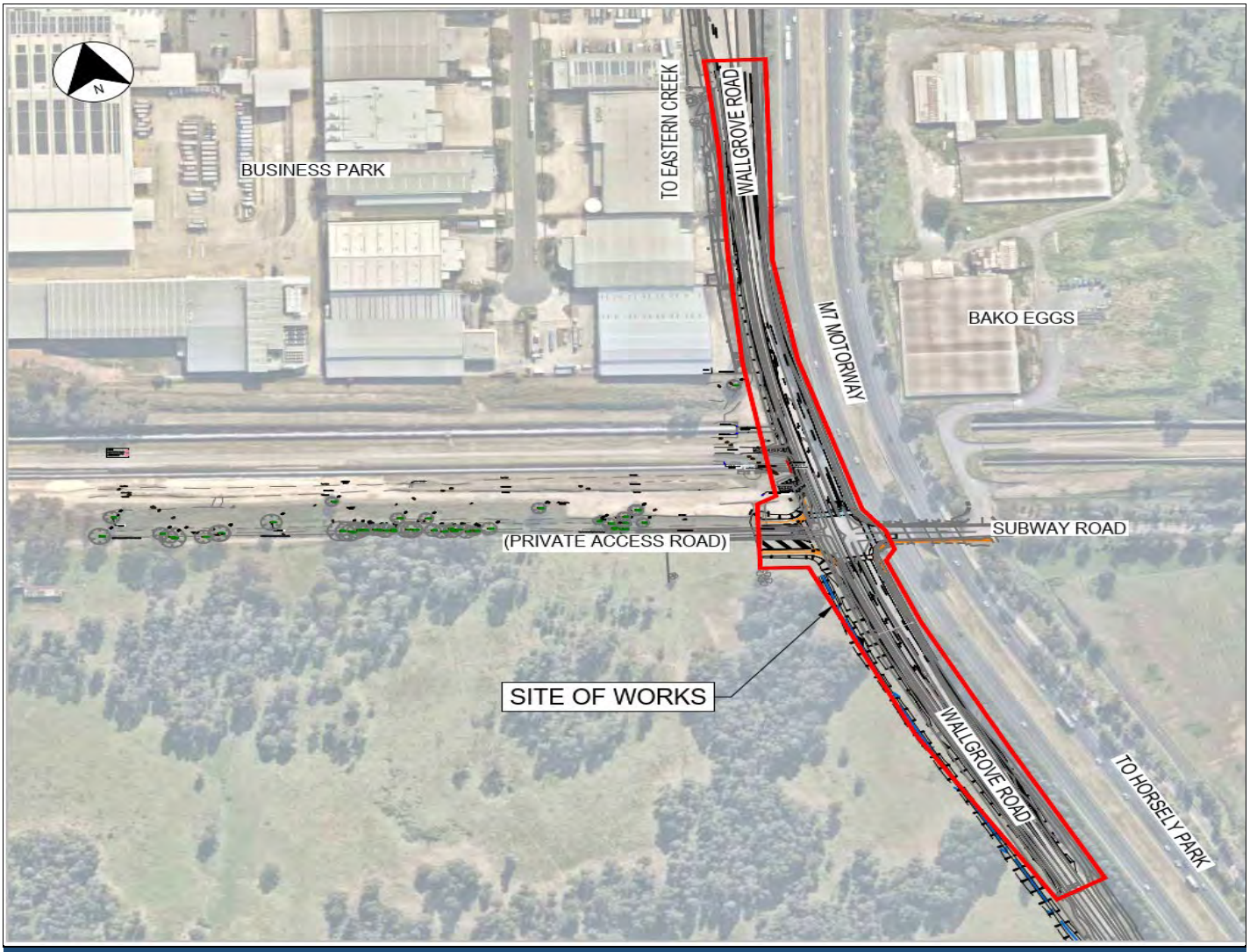
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Appendix I. Allied TMP – Signalised Intersection

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

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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.

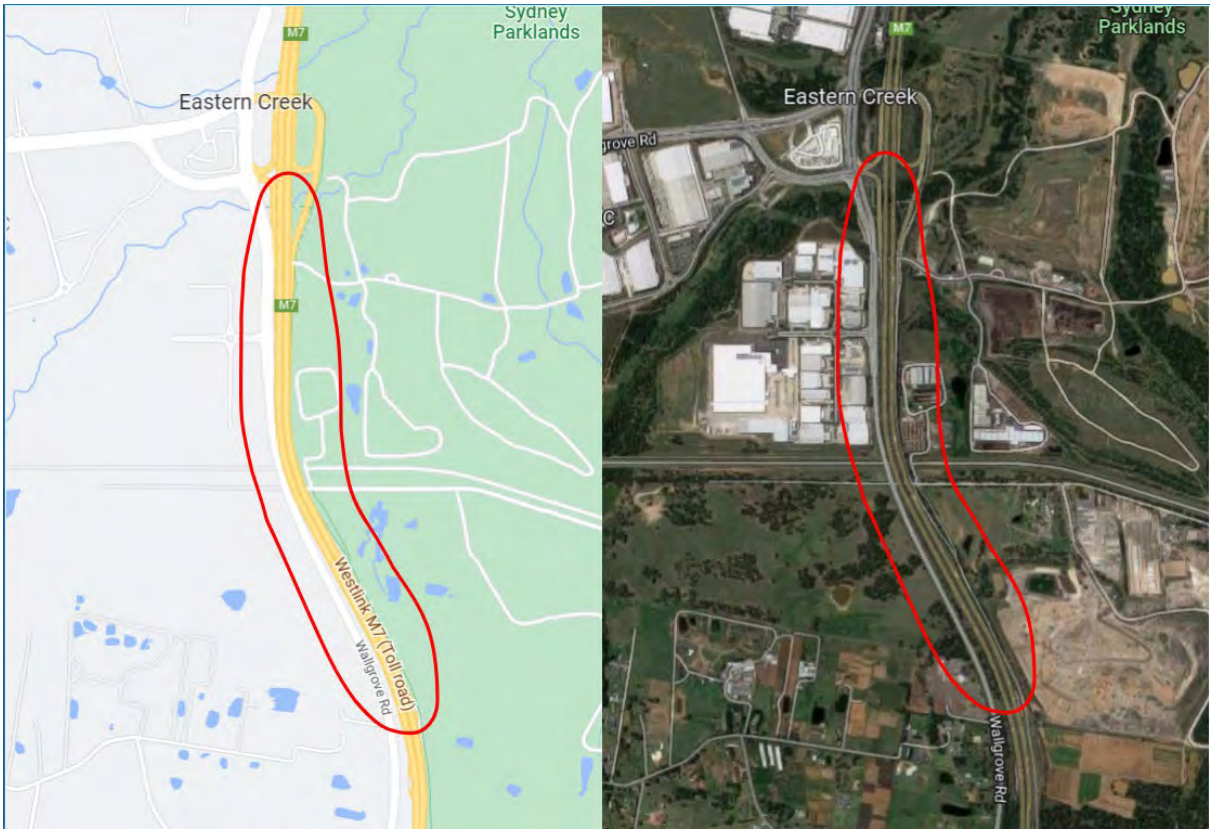


Figure 1 Location Map - Wallgrove Road, Horsley Park

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

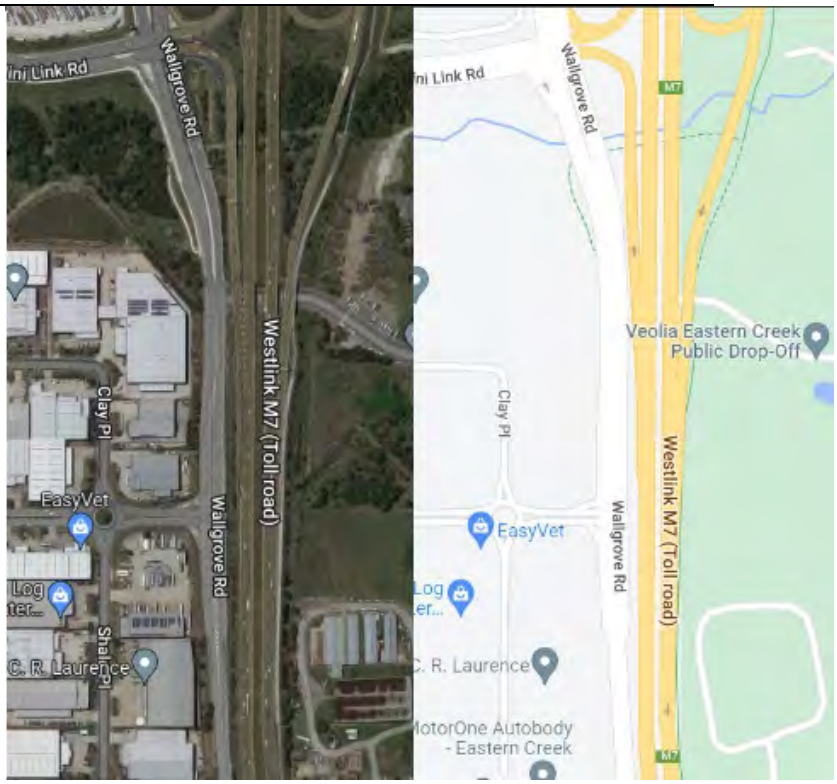


Figure 4 Northern Portion of Site

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

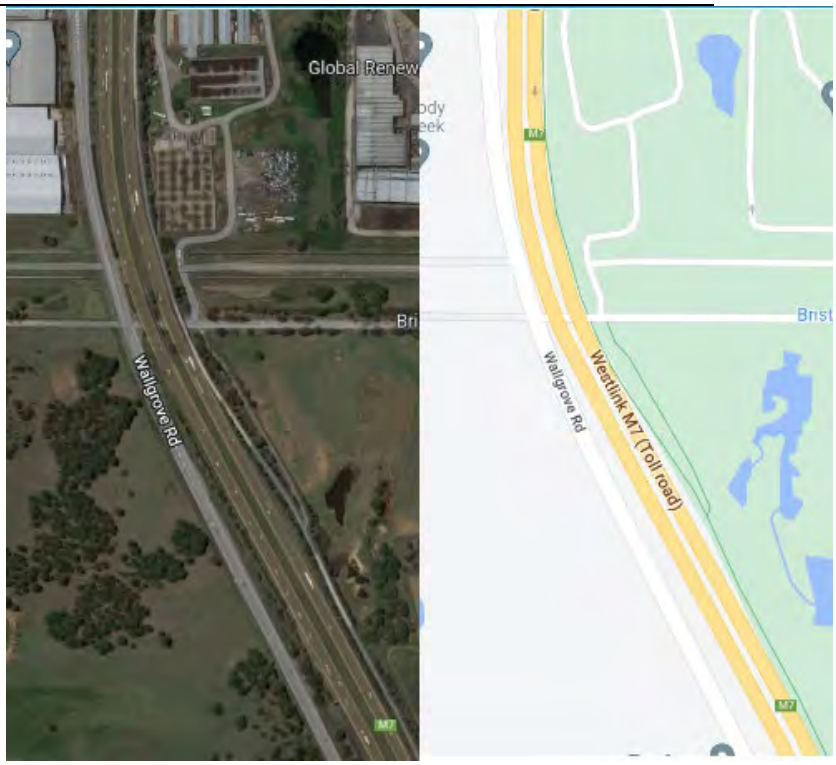


Figure 5 Southern Portion of Site

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.

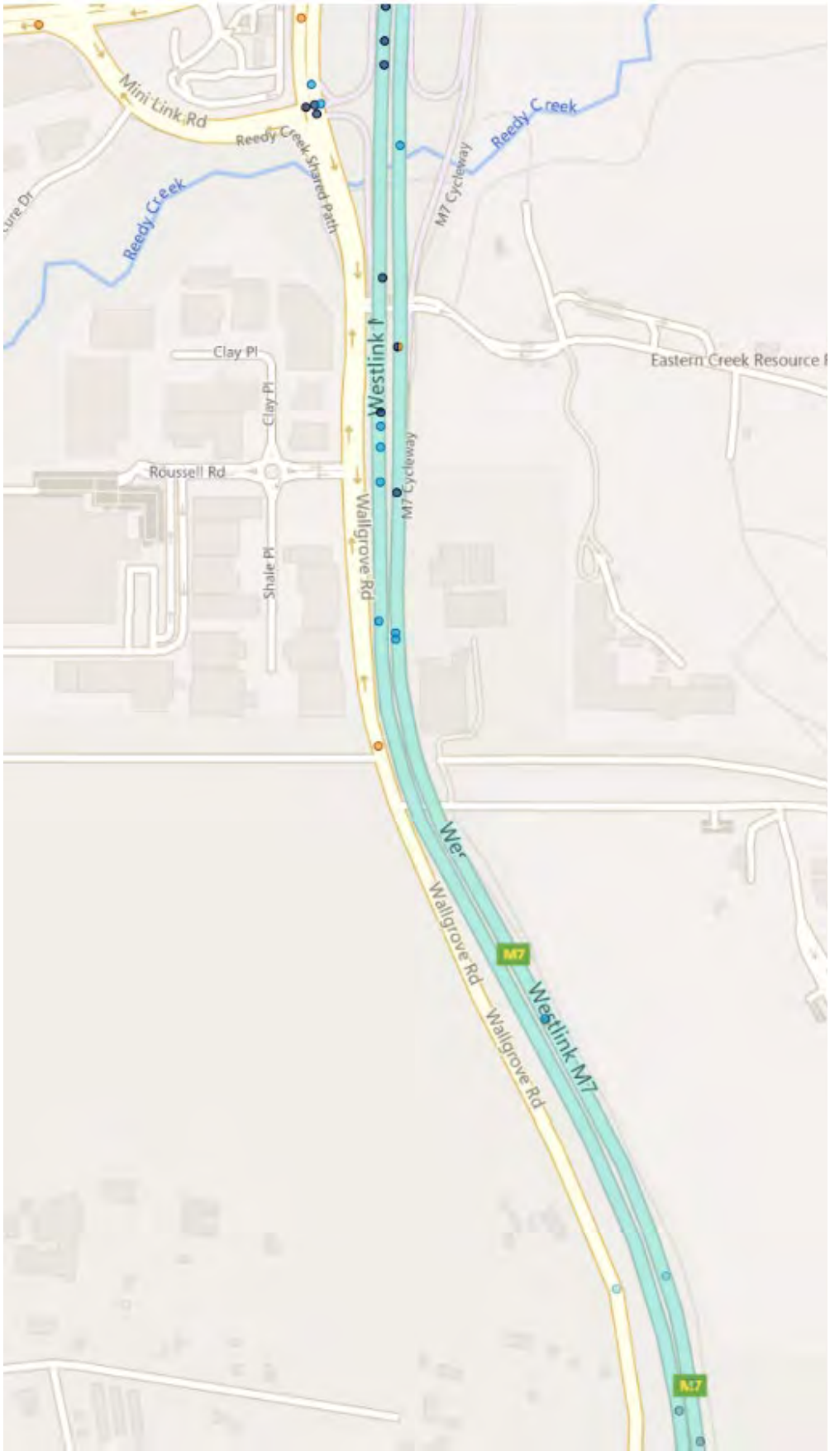


Figure 6 Combined Crash Statistics from Blacktown and Fairfield LGAs

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.

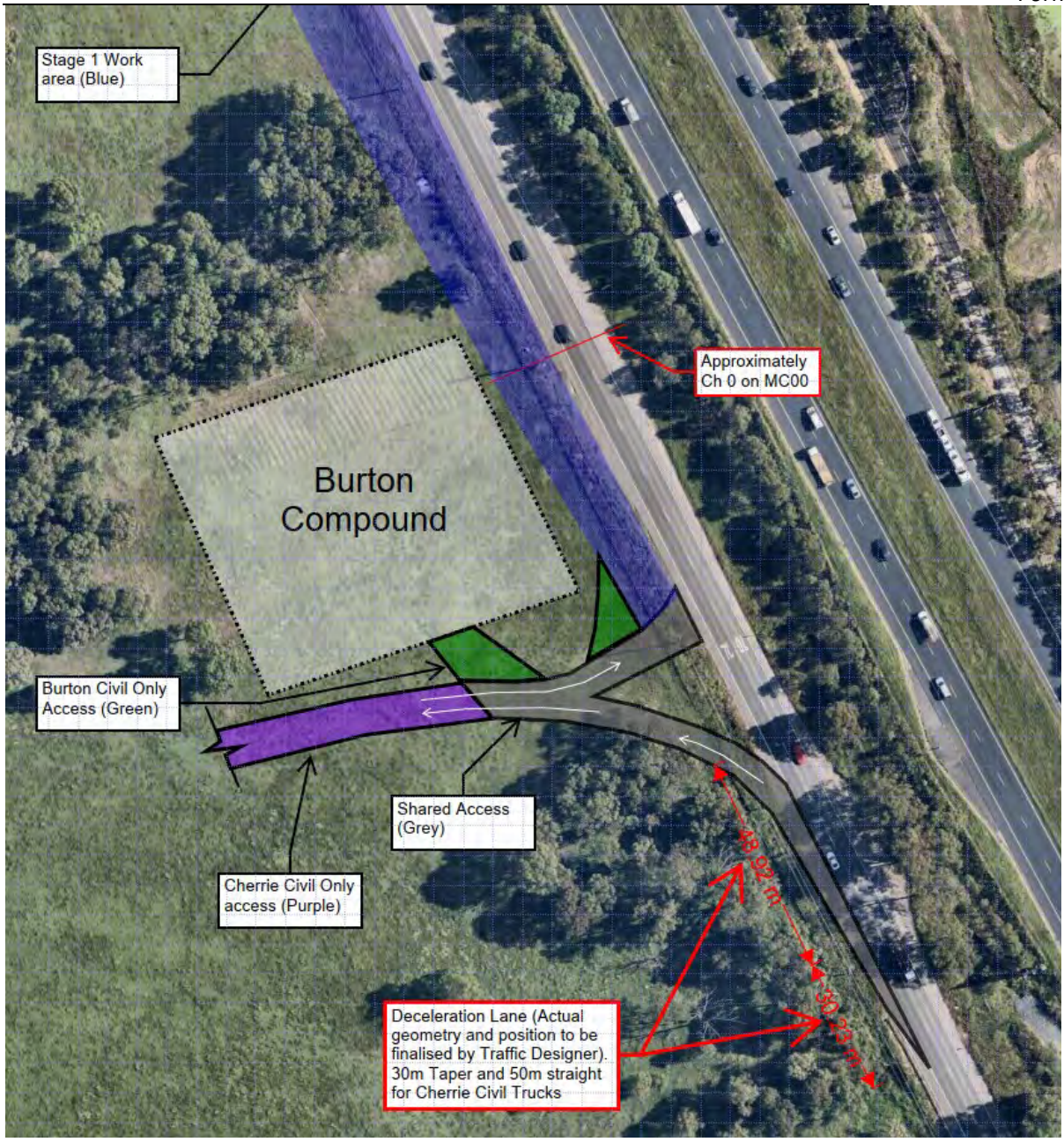
4.4.2.1 Burton Contractors

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.



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.

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.

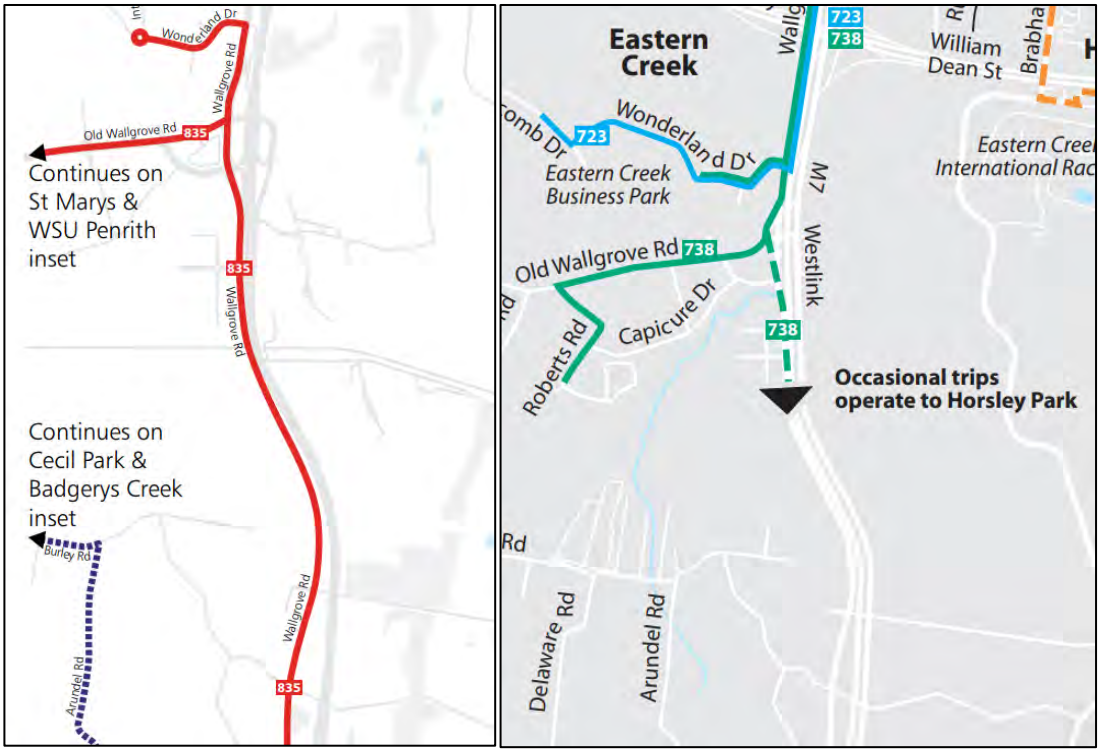


Figure 8 Transit Systems and Busways Route Maps

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>

Mon 1/08/2022 10:44 AM

To Alex Ruello; Suthes Kumar

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

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.

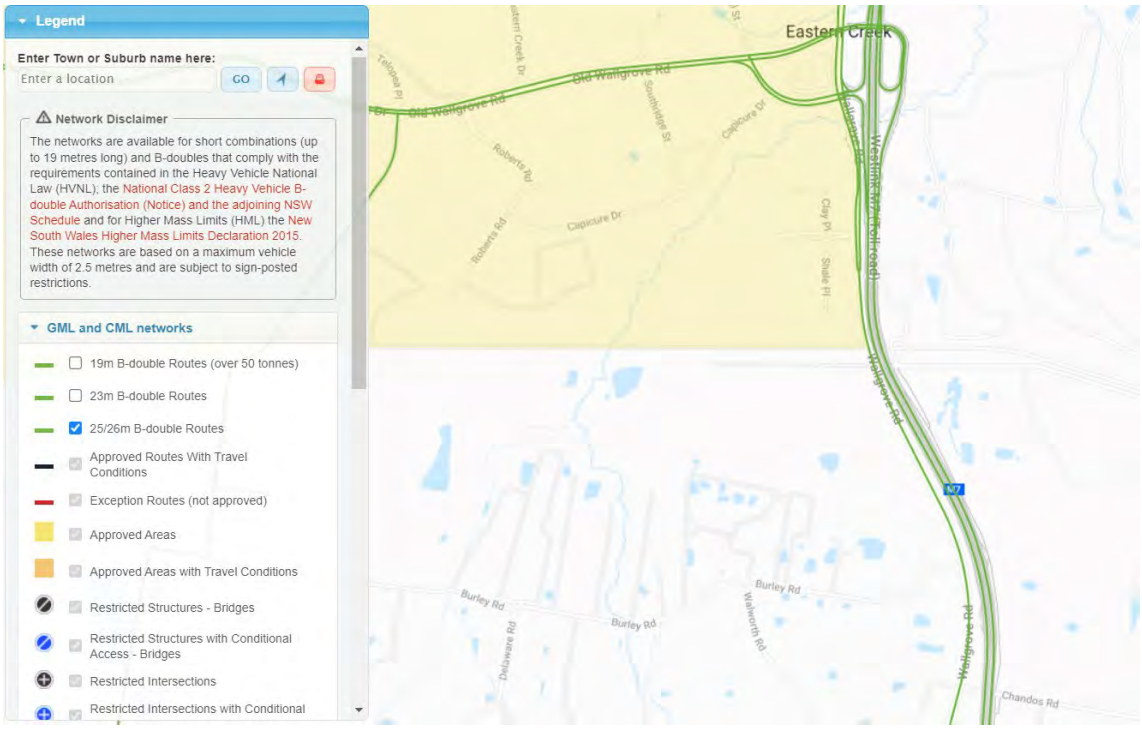


Figure 12 Restricted Access Vehicle Map (RAV) - Project Area

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.

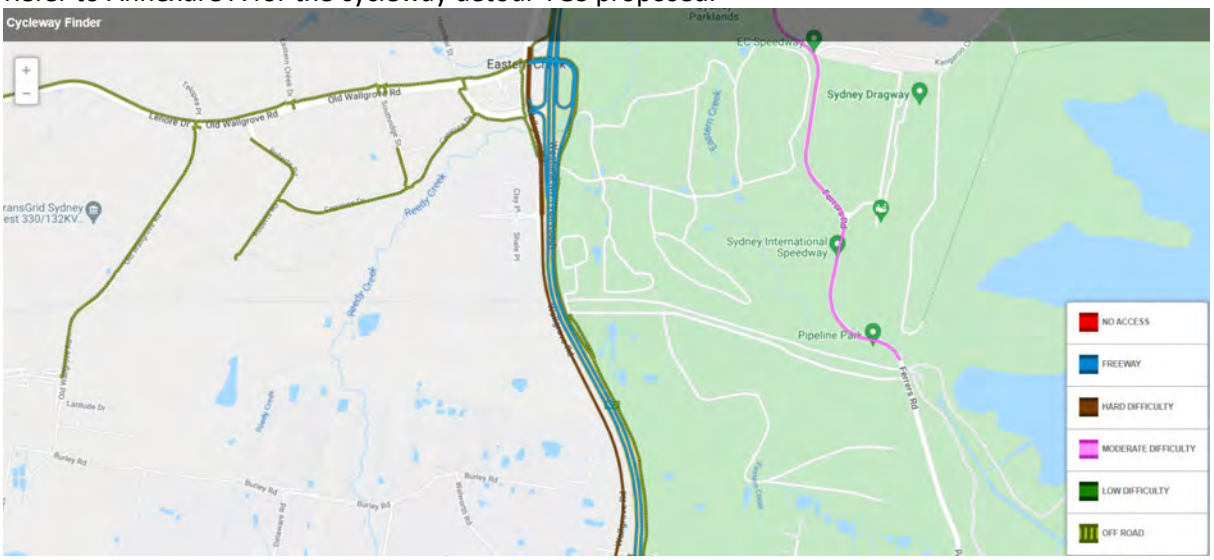


Figure 13 Bicycle Network Map - Wallgrove Road

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:

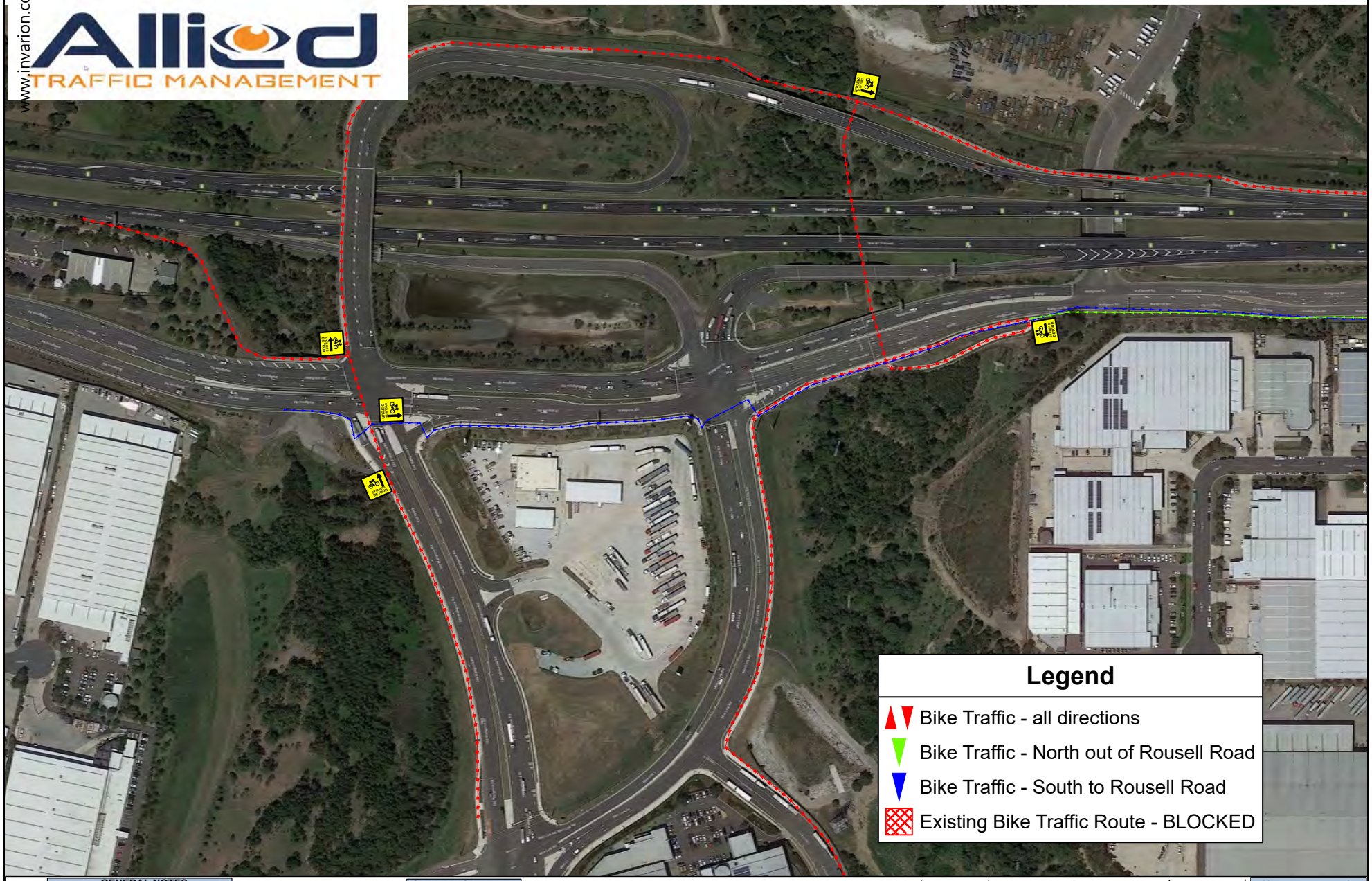
- Emergency Services: (000)
- CJM (131 700)
- Safework NSW (13 10 50)

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,
7. REMOVAL OF TRAFFIC CONTROL SIGNS AND DEVICES SHOULD BE UNDERTAKEN IN THE REVERSE ORDER OF ERECTION, PROGRESSING FROM THE WORK AREA OUT TOWARD THE APPROACHES.

LANE WIDTHS

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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

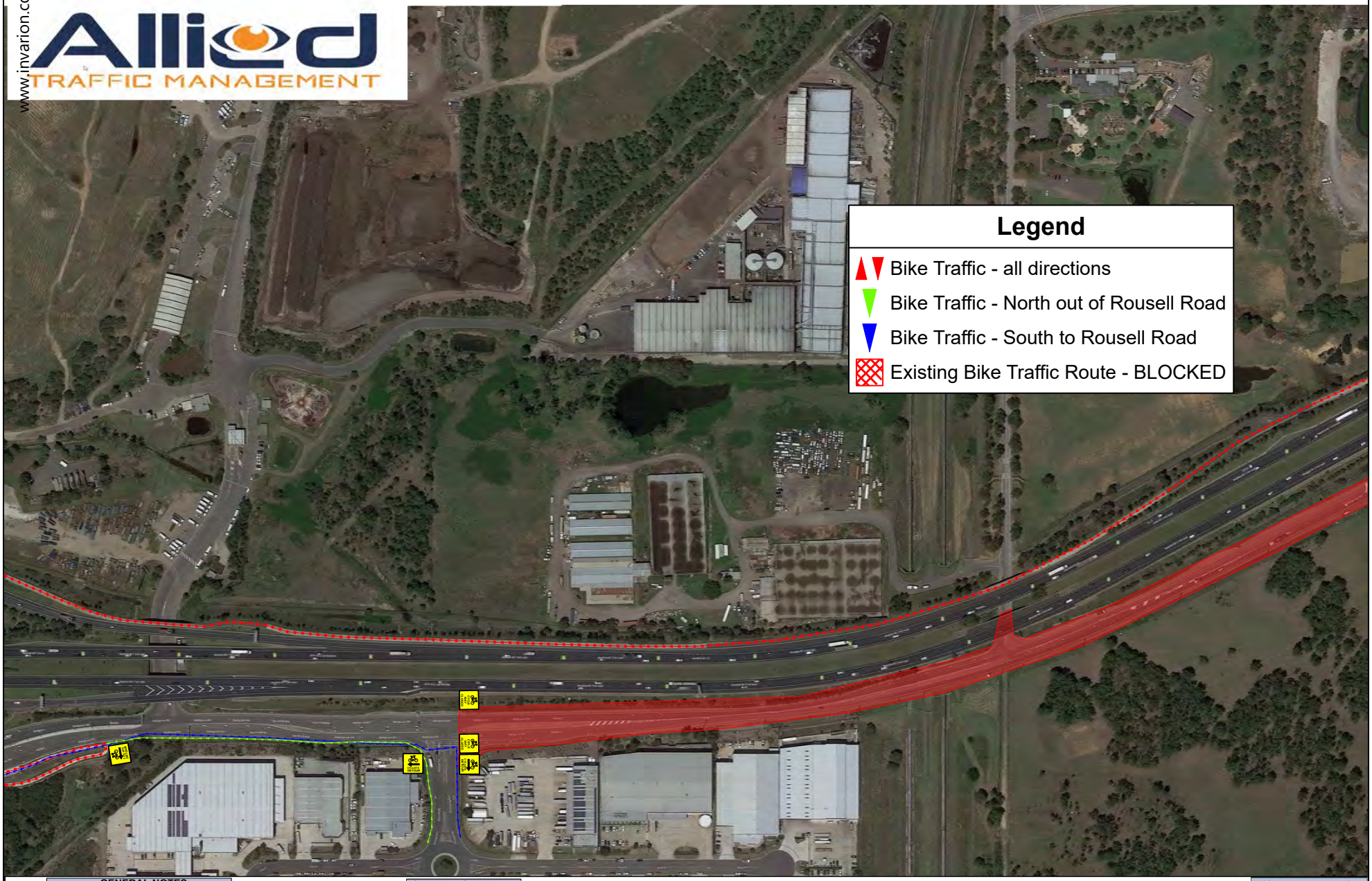
PLAN : ALLIED 0275

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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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

N

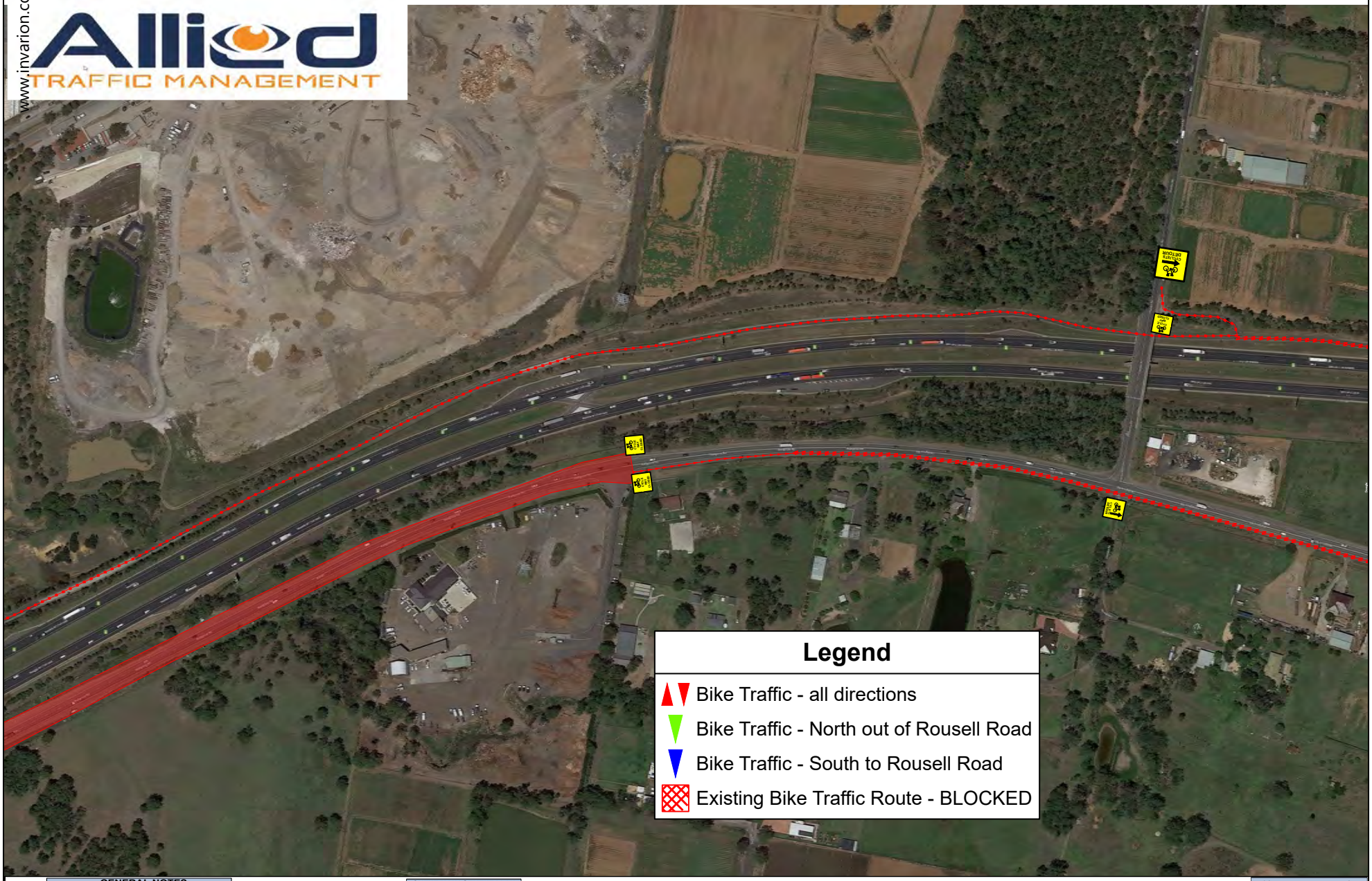
PLAN : ALLIED 0275

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PWZTMP

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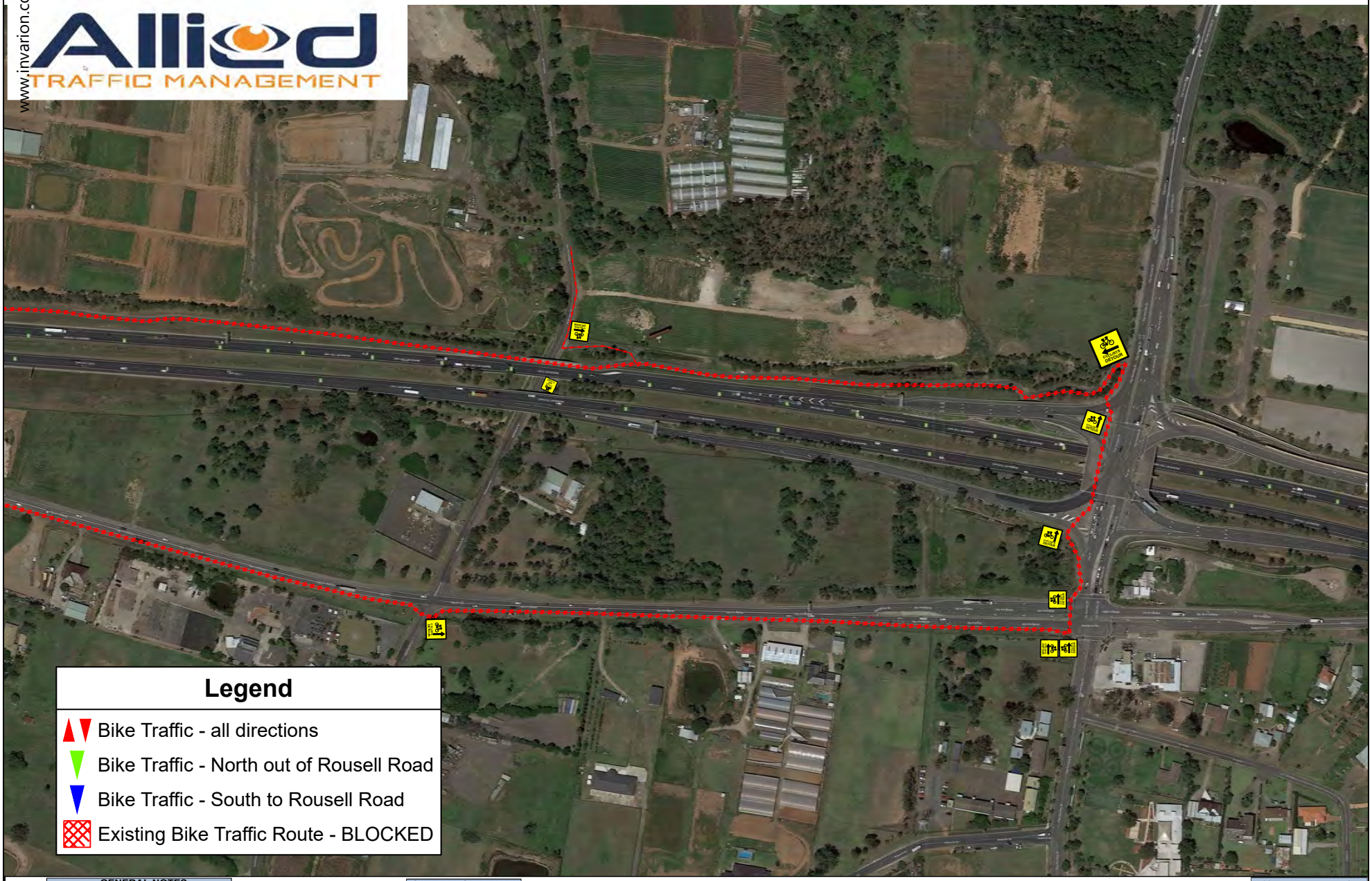
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DESIGNED: Nasser Chami

SIGNATURE:

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PWZTMP

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PLAN : ALLIED 0275

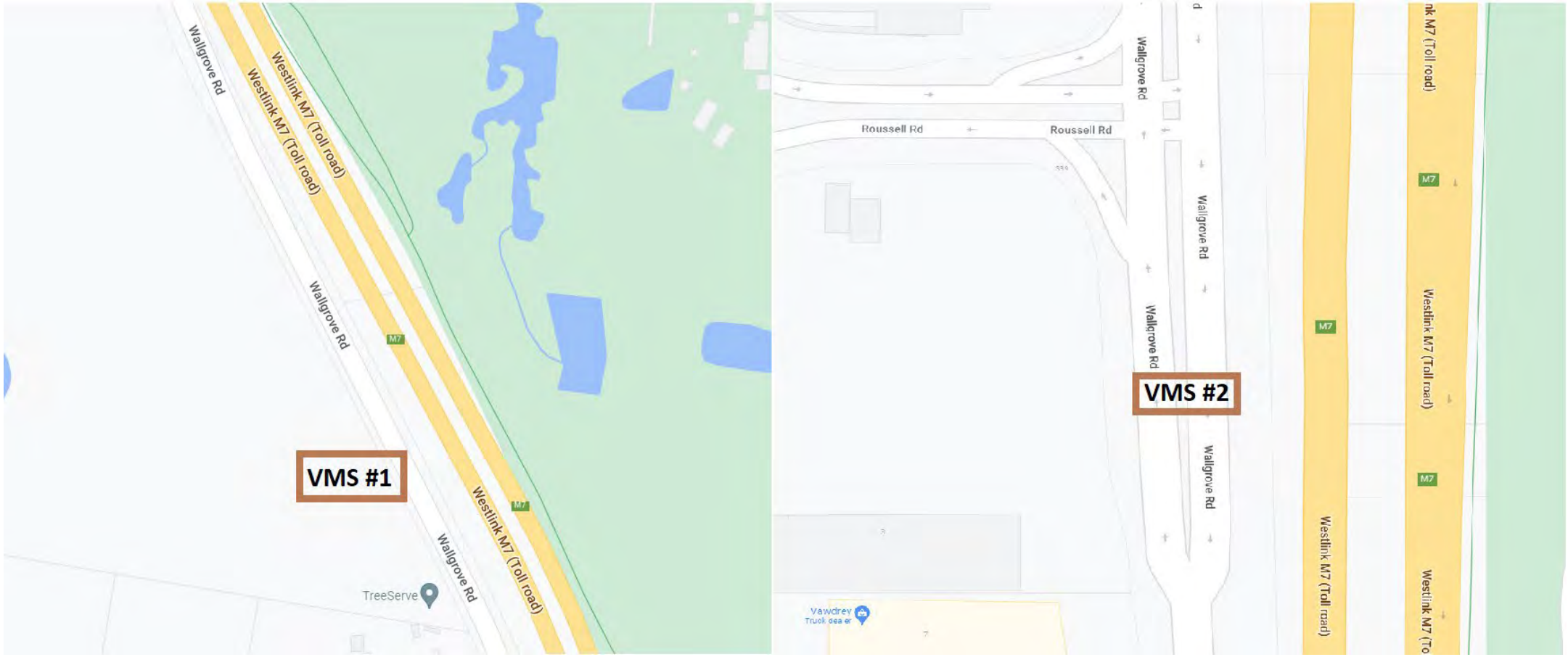
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Annexure B – Variable Message Sign Schedules

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

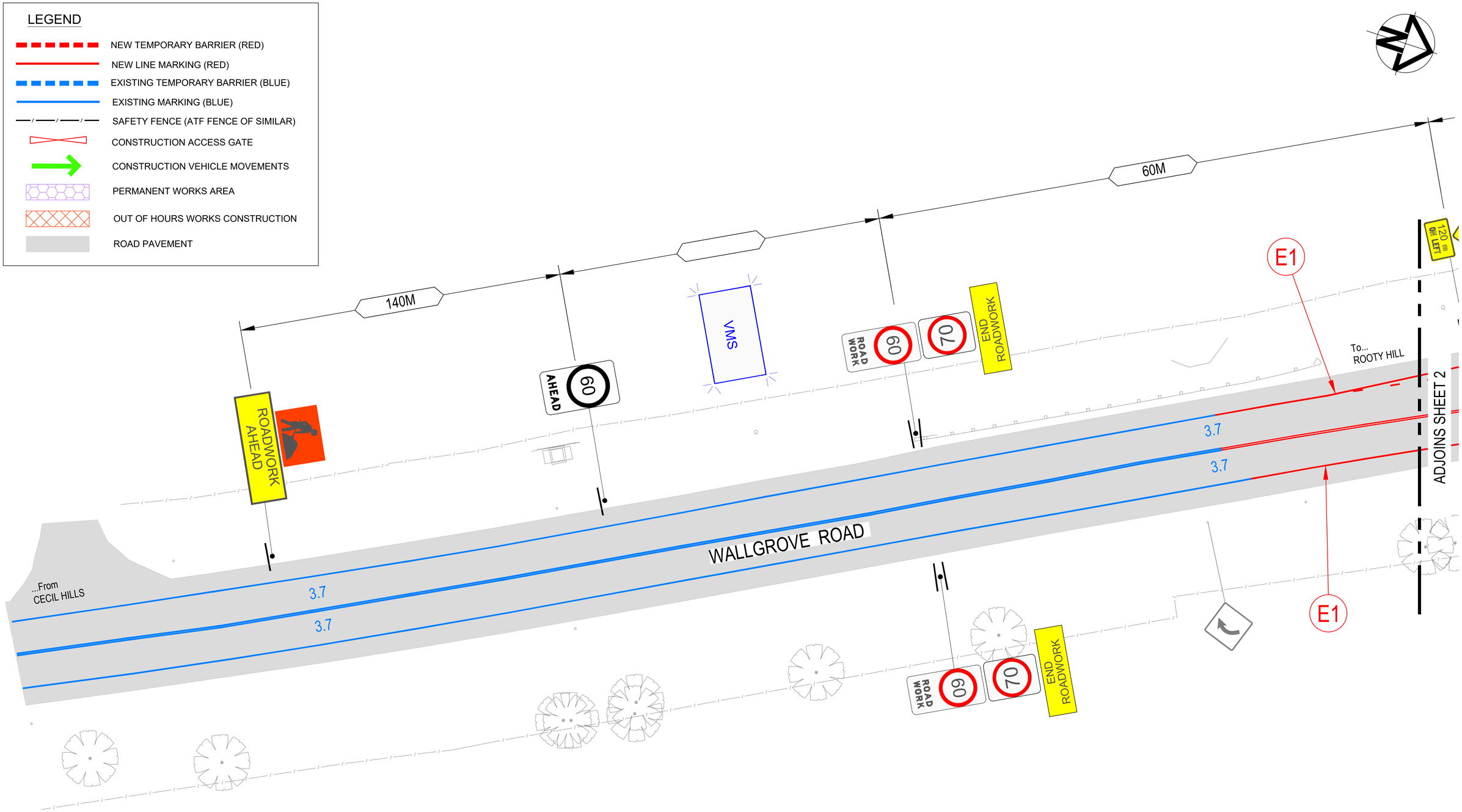
Annexure C – Staging Plans

(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	Datum
MGA	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

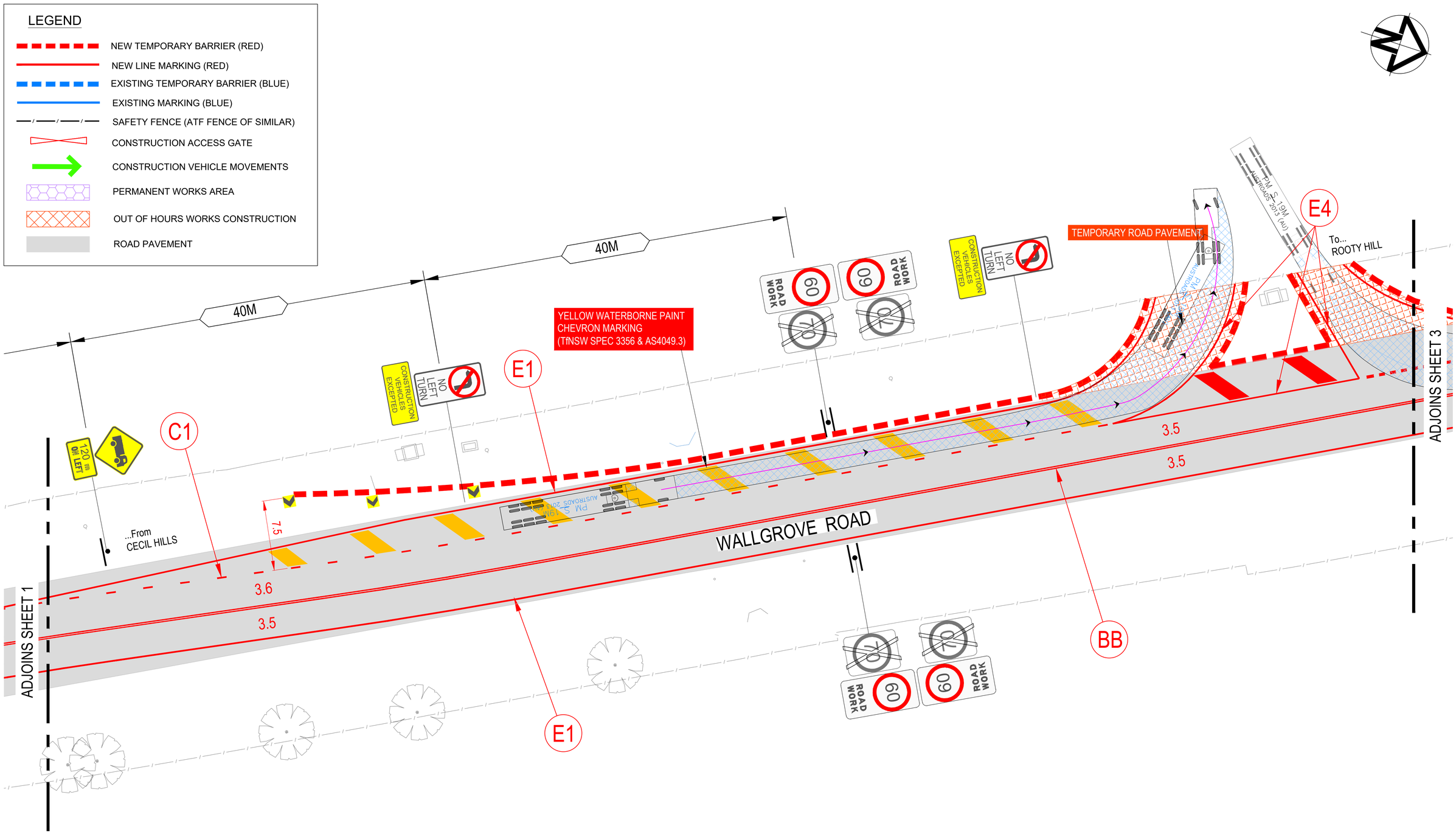
Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 1 OF 10

Drawing No. TS01A-01

Rev 4

LEGEND

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- NEW LINE MARKING (RED)
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- EXISTING MARKING (BLUE)
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Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
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Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

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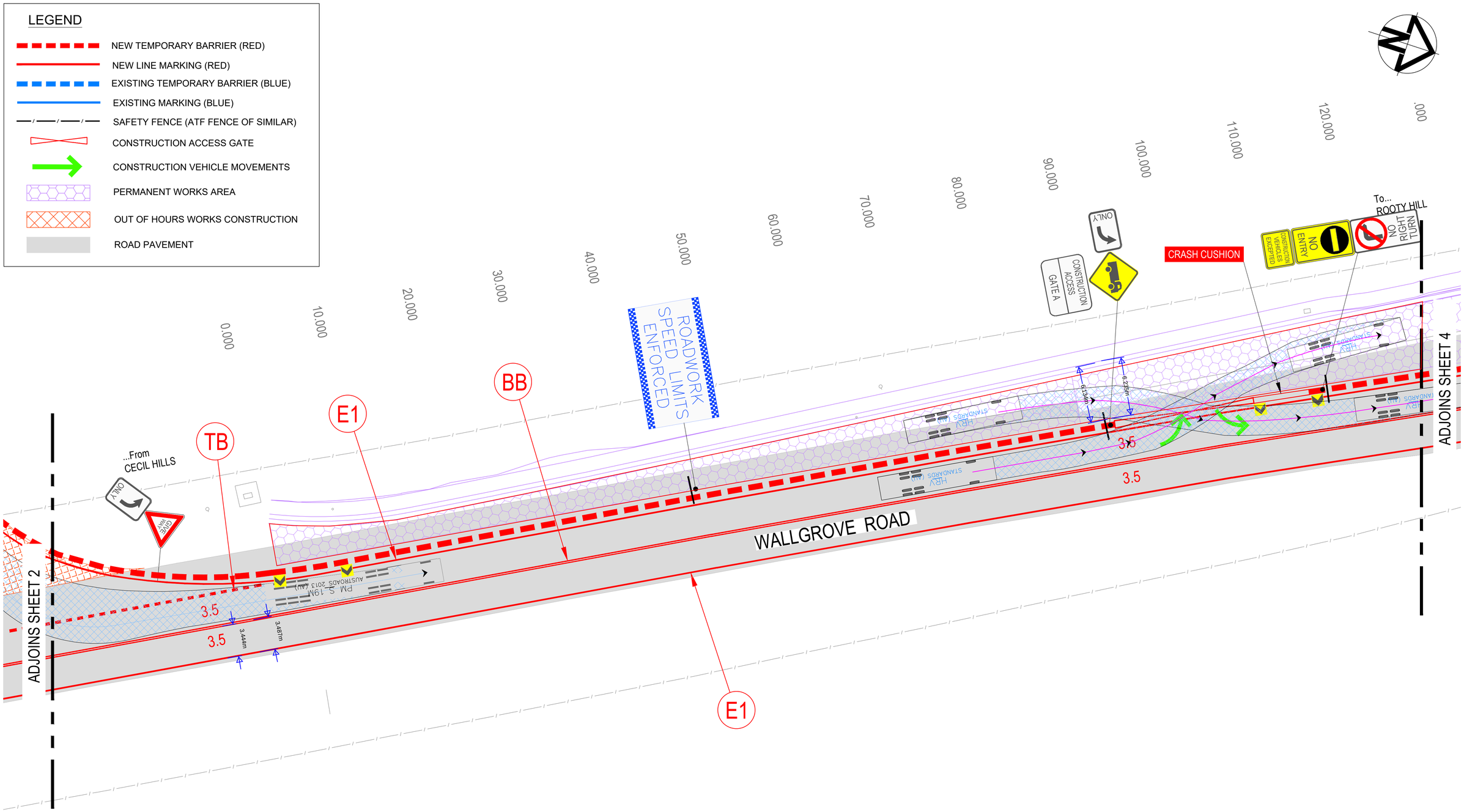
Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 2 OF 10

Drawing No. TS01A-02

Rev 4

LEGEND

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- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
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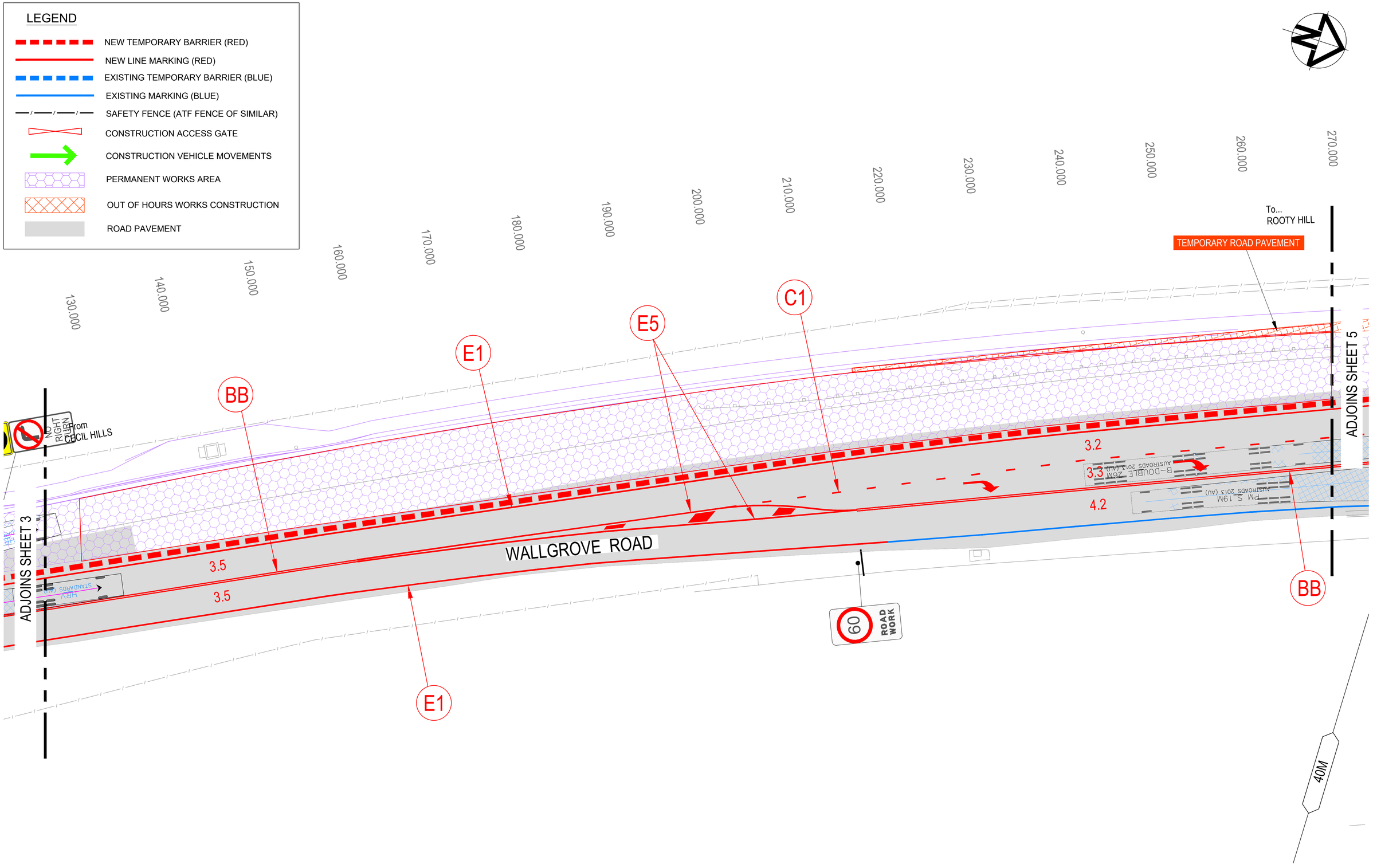
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STAGE 1A
SHEET 3 OF 10

Drawing No.: TS01A-03

Rev: 4

LEGEND

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- NEW LINE MARKING (RED)
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Drafting Check		
Design Check		
Final Approval		
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Contractor: BURTON CONTRACTORS

APPROVED
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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 1A
SHEET 4 OF 10

Drawing No.: TS01A-04

Rev: 4

LEGEND

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270.000 280.000 290.000 300.000 310.000 320.000 330.000 340.000 350.000 360.000 370.000 380.000

TEMPORARY ROAD PAVEMENT

TEMPORARY ROAD PAVEMENT

C1

E1

...From
CECIL HILLS

ADJOINS SHEET 4

ADJOINS SHEET 6

To...
ROOTY HILL

ROAD WORK 60

ACCESS GATE C

111.826m

3.2

3.3

4.2

4.5

3.5

B-DOUBLE 26M
AUSTROADS 2013 (AU)

PM S 19M
AUSTROADS 2013 (AU)

WALLGROVE ROAD

BB

T1

E1

E5

DEMOLISH EXISTING
MEDIAN ISLAND

ALTERNATE BREAKDOWN
BAY LOCATION

40M

SUBWAY ROAD

ADJOINS SHEET 10

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HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 5 OF 10

Drawing No. TS01A-05

Rev 4

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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

...From CECIL HILLS

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

CRASH CUSHION

CONSTRUCTION VEHICLES EXCEPTED

NO ENTRY

NO RIGHT TURN

ADJOINS SHEET 5

3.8

3.5

3.432m

HRV STANDARDS

WALLGROVE ROAD

3.5

3.5

To... ROOTY HILL

ADJOINS SHEET 7

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: NSW GOVERNMENT Transport Roads & Maritime Services

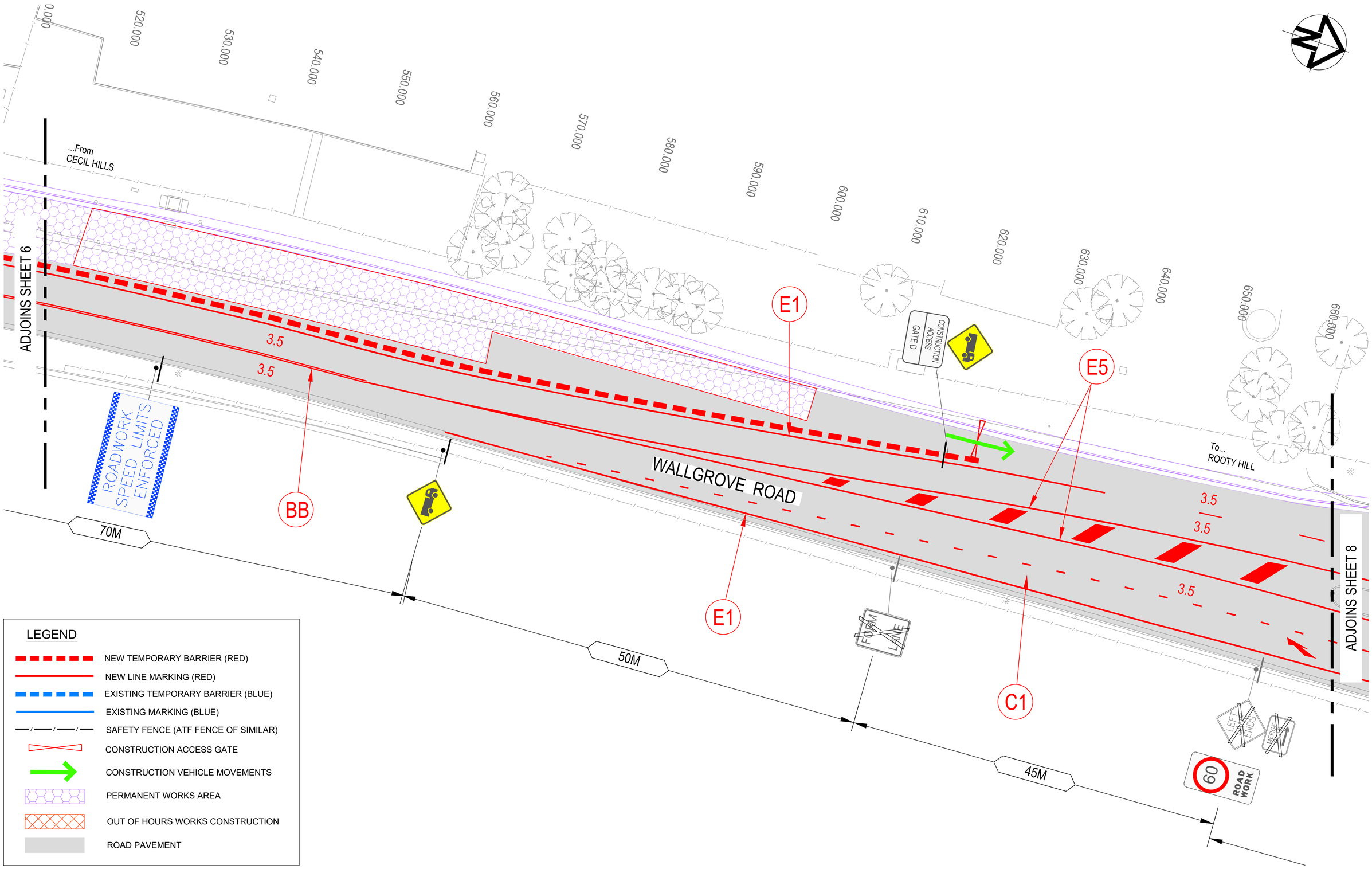
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 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

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 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)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- 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
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

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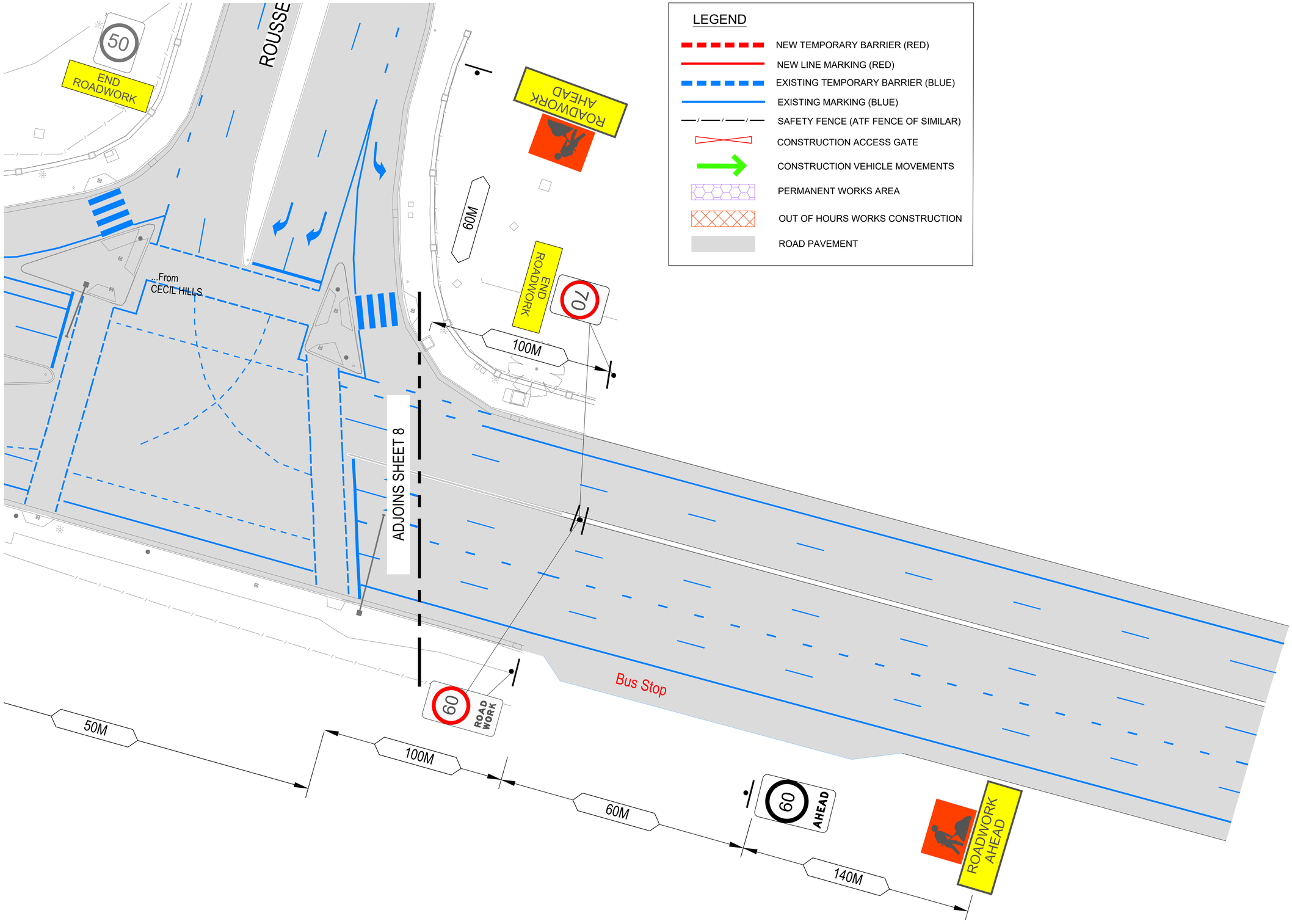
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No.: TS01A-08

Rev: 4



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	Datum
MGA	AHD

Contractor: BURTON CONTRACTORS

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

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

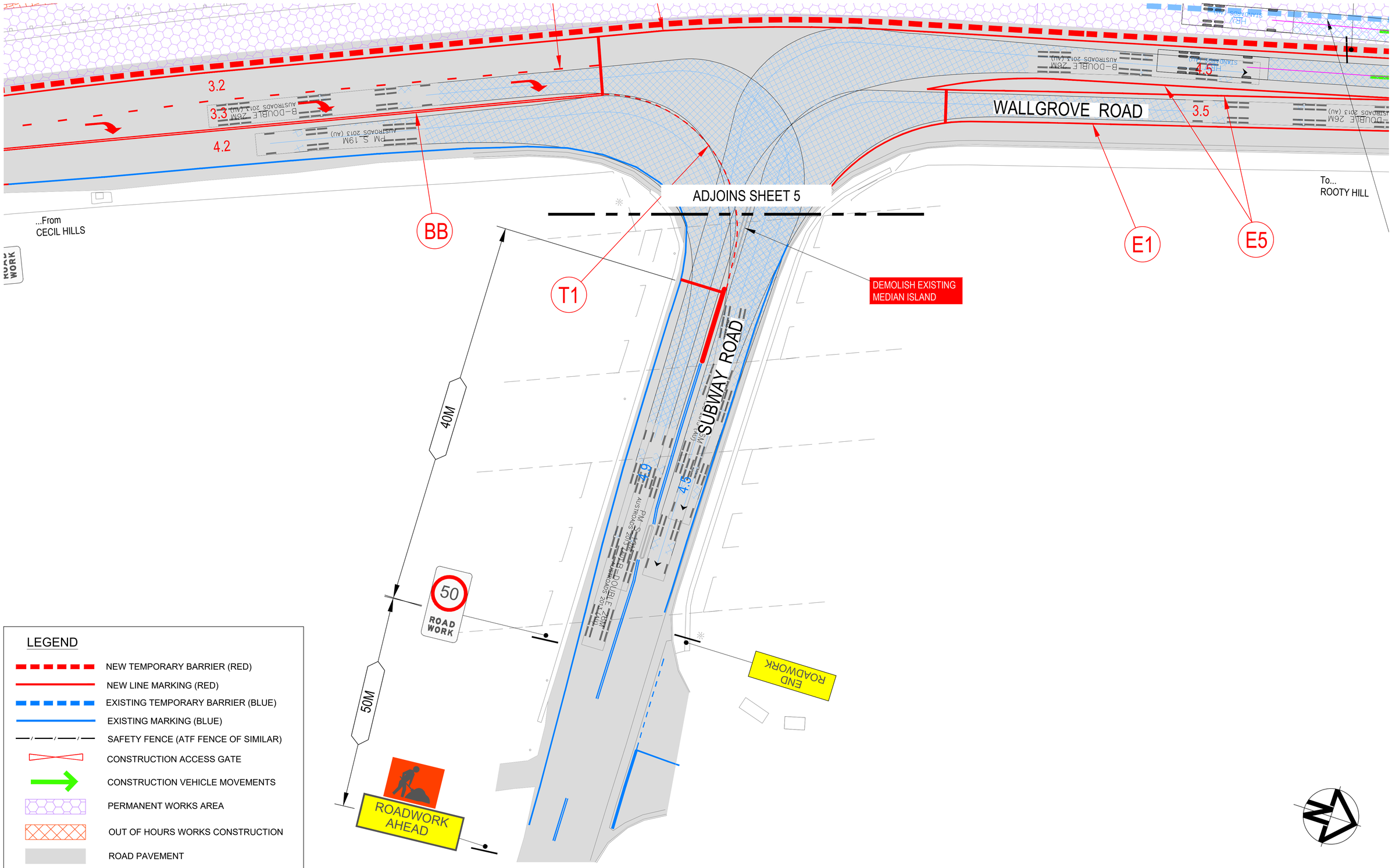
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No.: TS01A-09

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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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: 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 1A
SHEET 10 OF 10

Drawing No.: TS01A-10

Rev: 4

TCS Staging Plan – Stage 1

TCS 5058

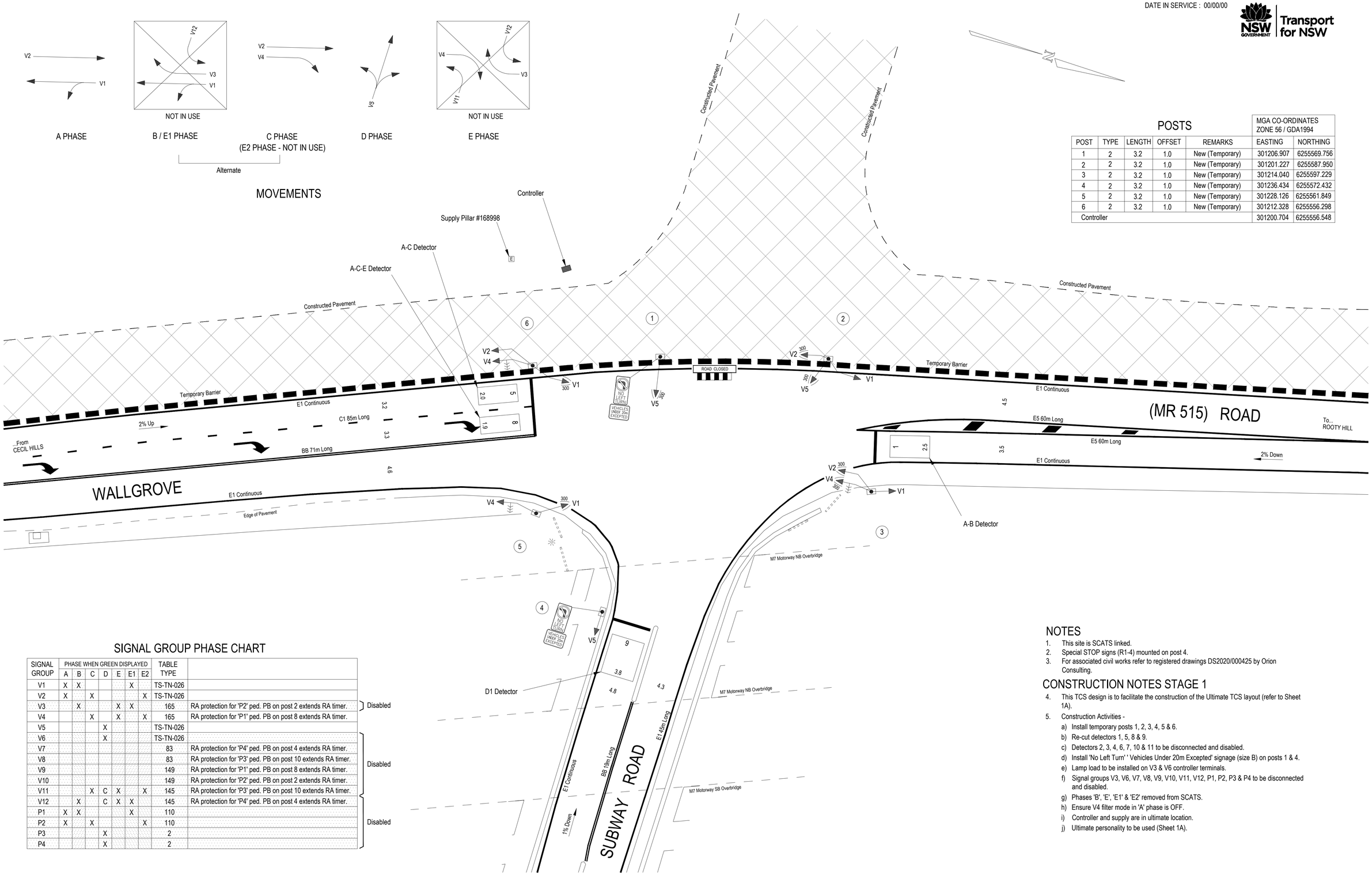
DATE IN SERVICE : 00/00/00

NSW GOVERNMENT | Transport for NSW

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

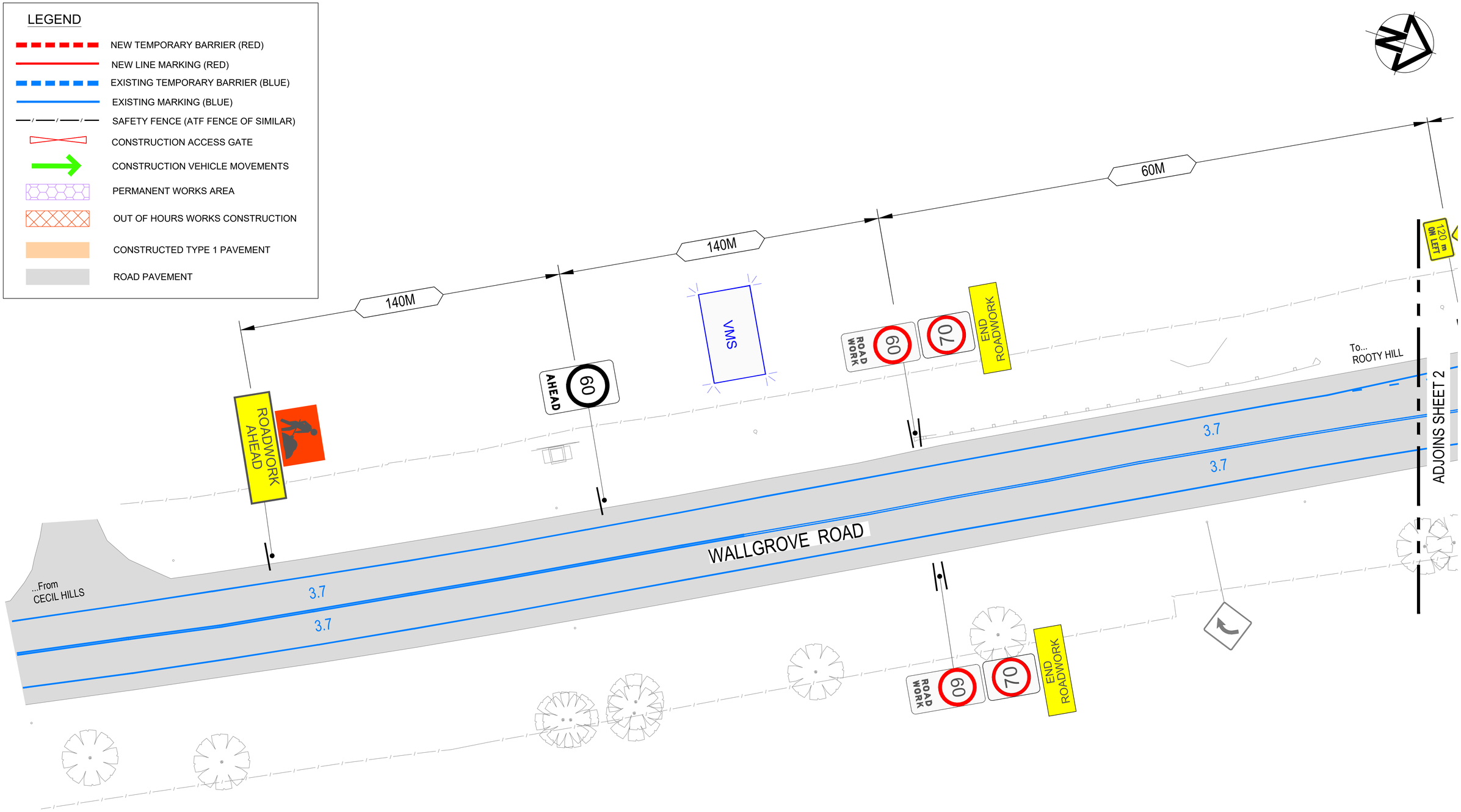
Revision 7 - August 2021

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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)
- 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
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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

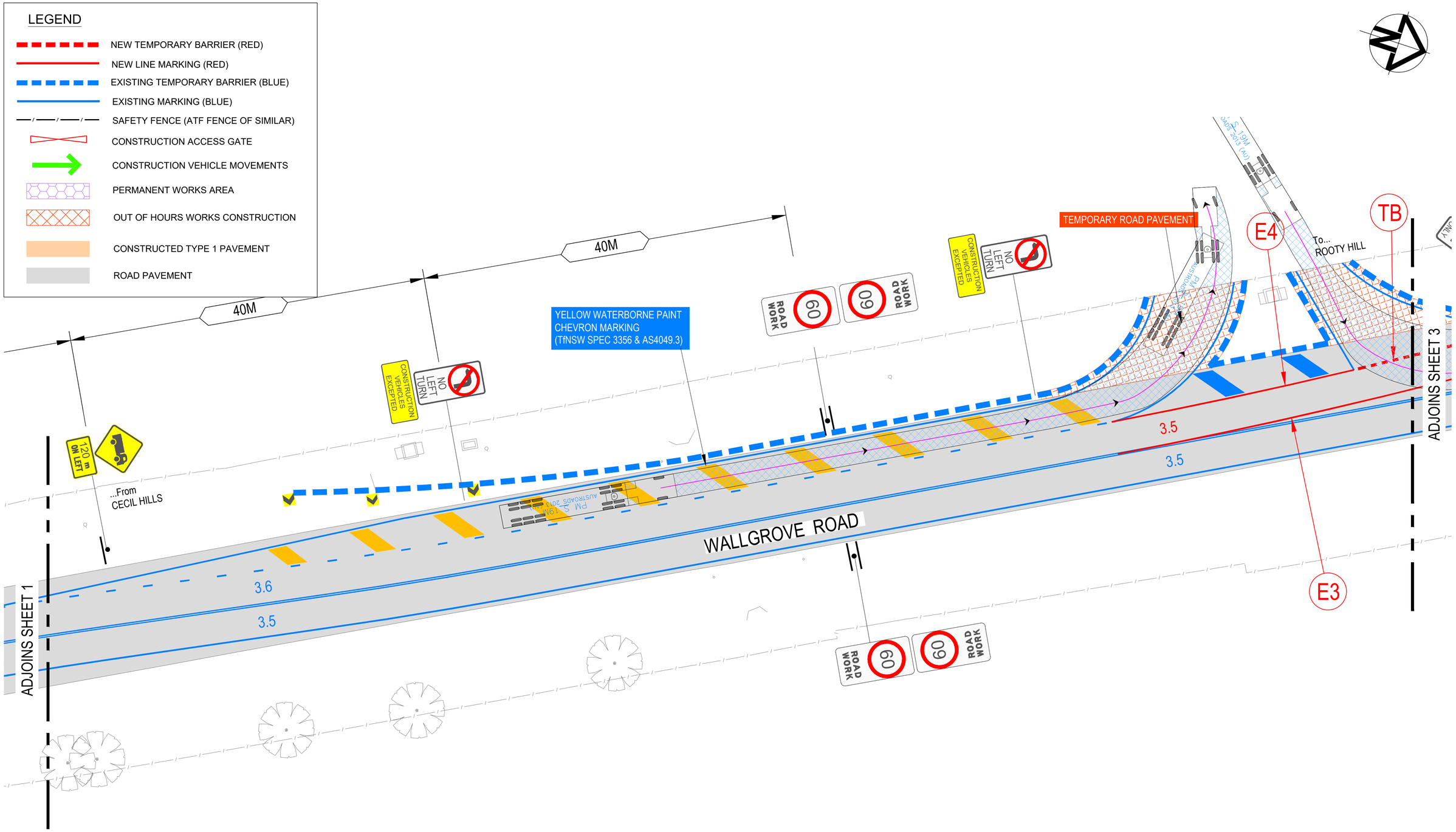
Drawing Title: TRAFFIC STAGING PLAN STAGE 2A SHEET 1 OF 10

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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Drawn	JKB	10/05/22
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Design Check		
Final Approval		
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Contractor: BURTON CONTRACTORS

APPROVED

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

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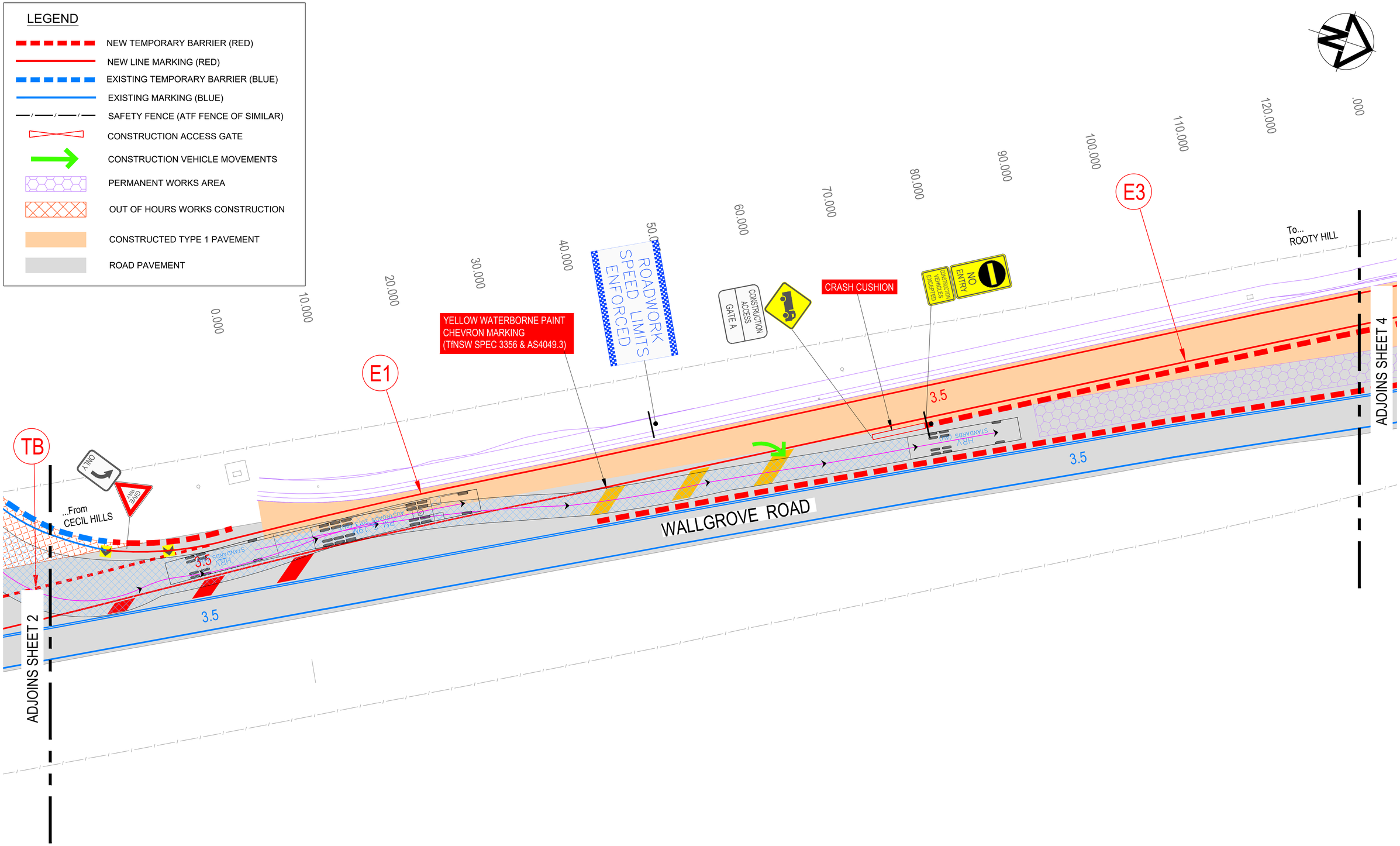
Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 2 OF 10

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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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
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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 3 OF 10

Drawing No. TS02A-03

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
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- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- 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

...From
CECIL HILLS

ADJOINS SHEET 3

ADJOINS SHEET 5

CONSTRUCTION ACCESS GATE B

HRV STANDARDS (4.3)

3.5 3.2 3.2 4.5 4.2 3.5

WALLGROVE ROAD

60 ROAD WORK

40M

Rev	Date	By	App	Amendment Details
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Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

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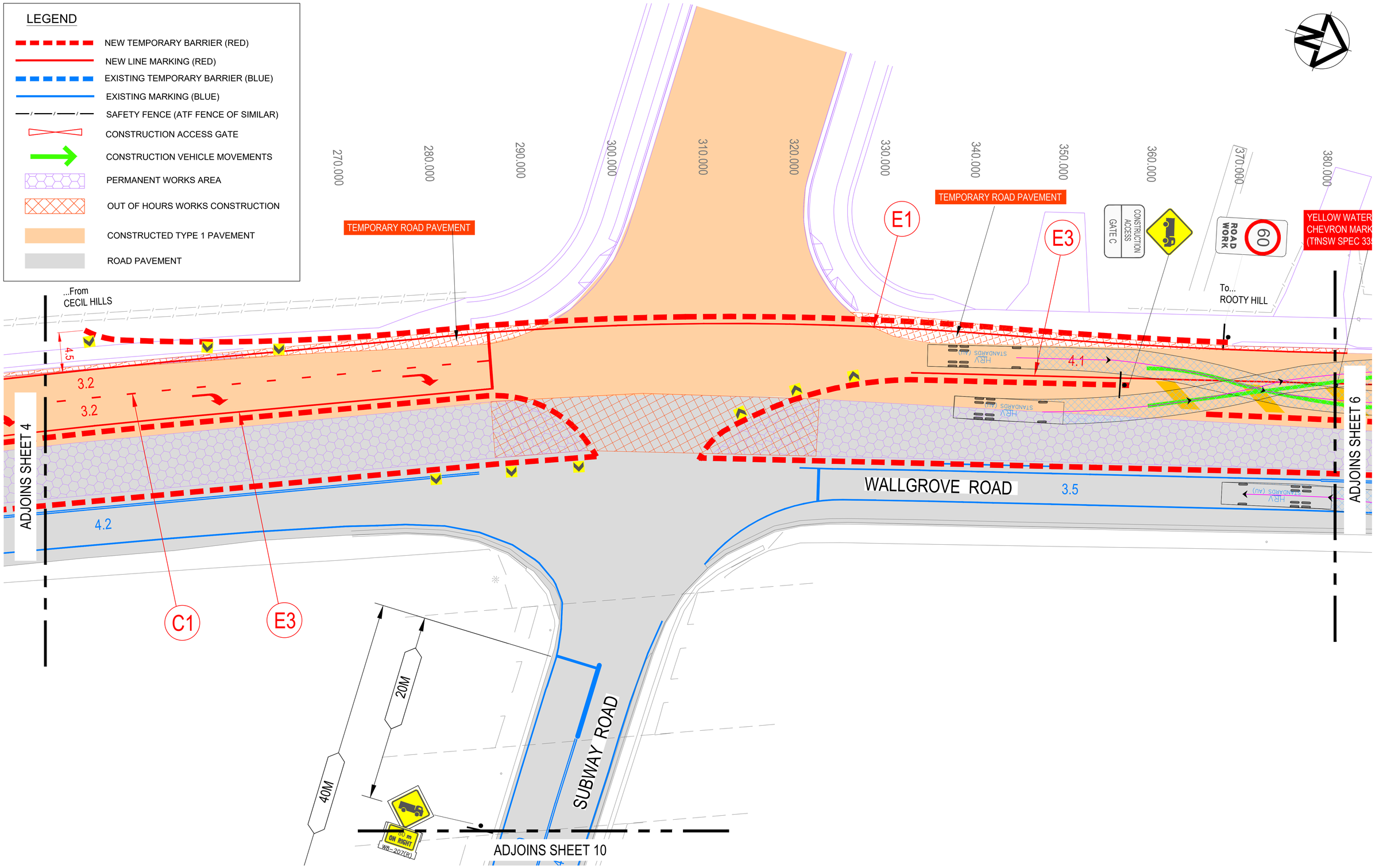
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STAGE 2A
SHEET 4 OF 10

Drawing No.: TS02A-04

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
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Drawn	JKB	10/05/22
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Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
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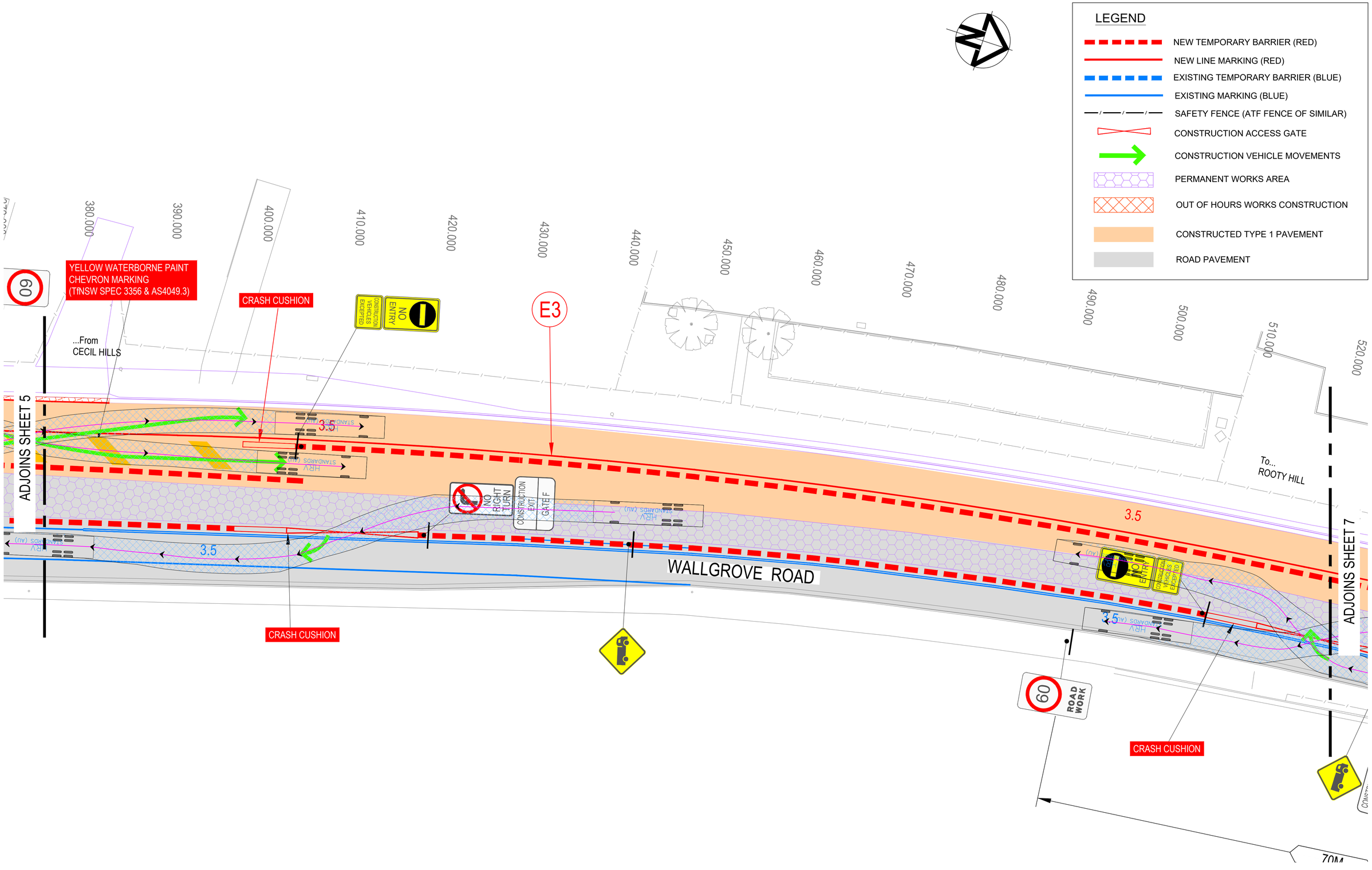
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No. TS02A-05

Rev 5



Rev	Date	By	App	Amendment Details
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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

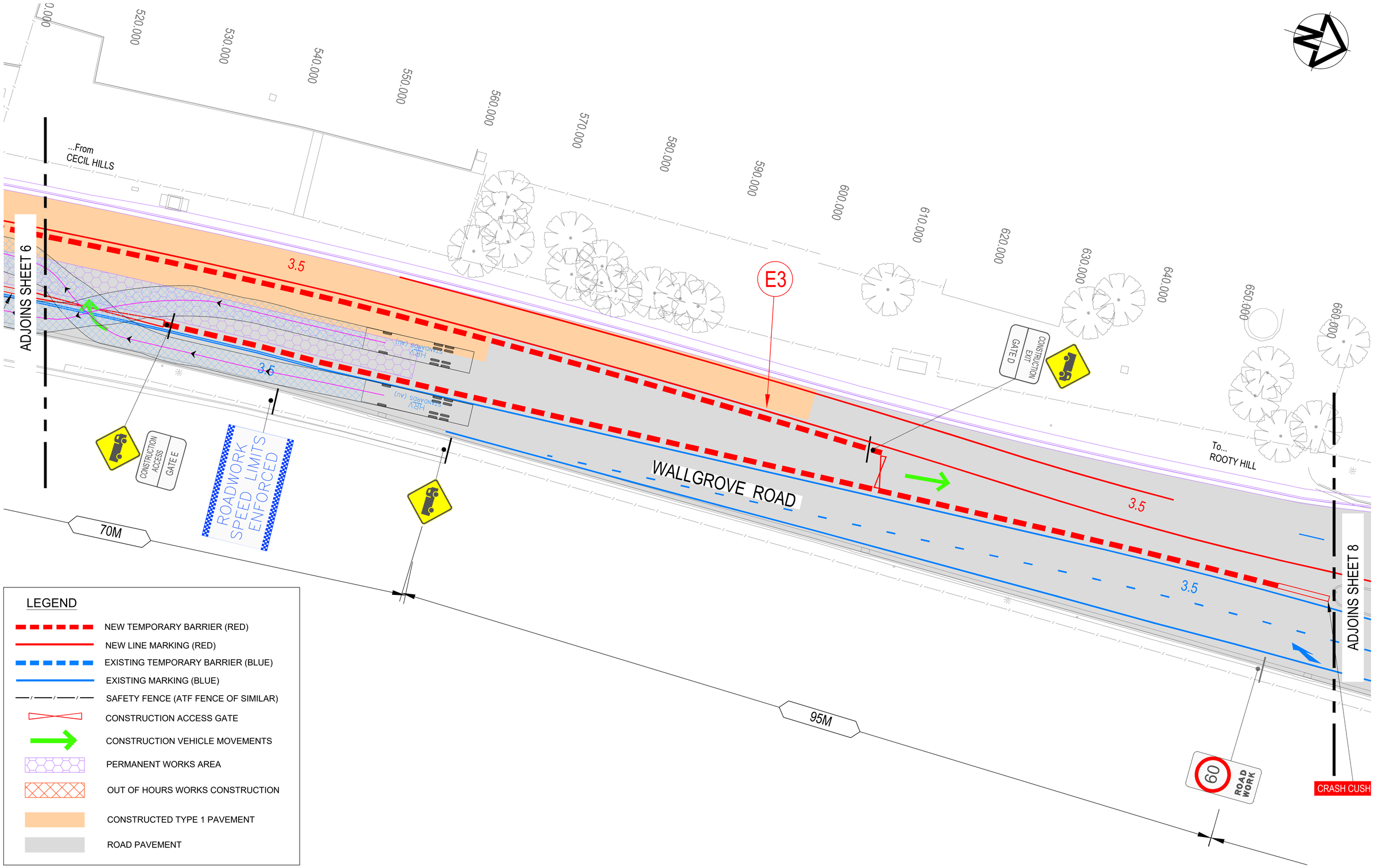
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No.: TS02A-06

Rev: 5



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
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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 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)
- 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

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
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
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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

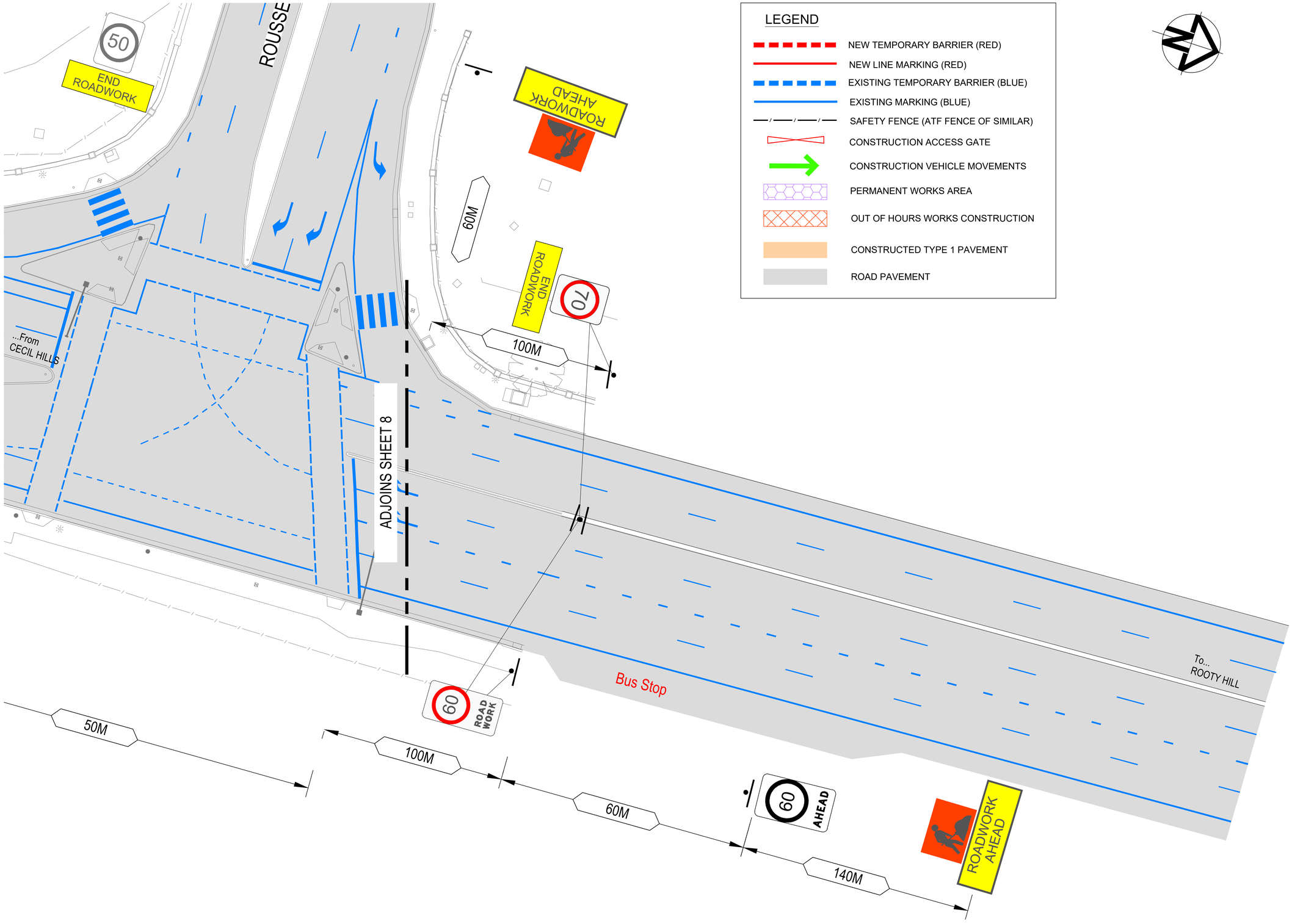
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No. TS02A-08

Rev 5



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
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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: Transport Roads & Maritime Services (NSW Government)

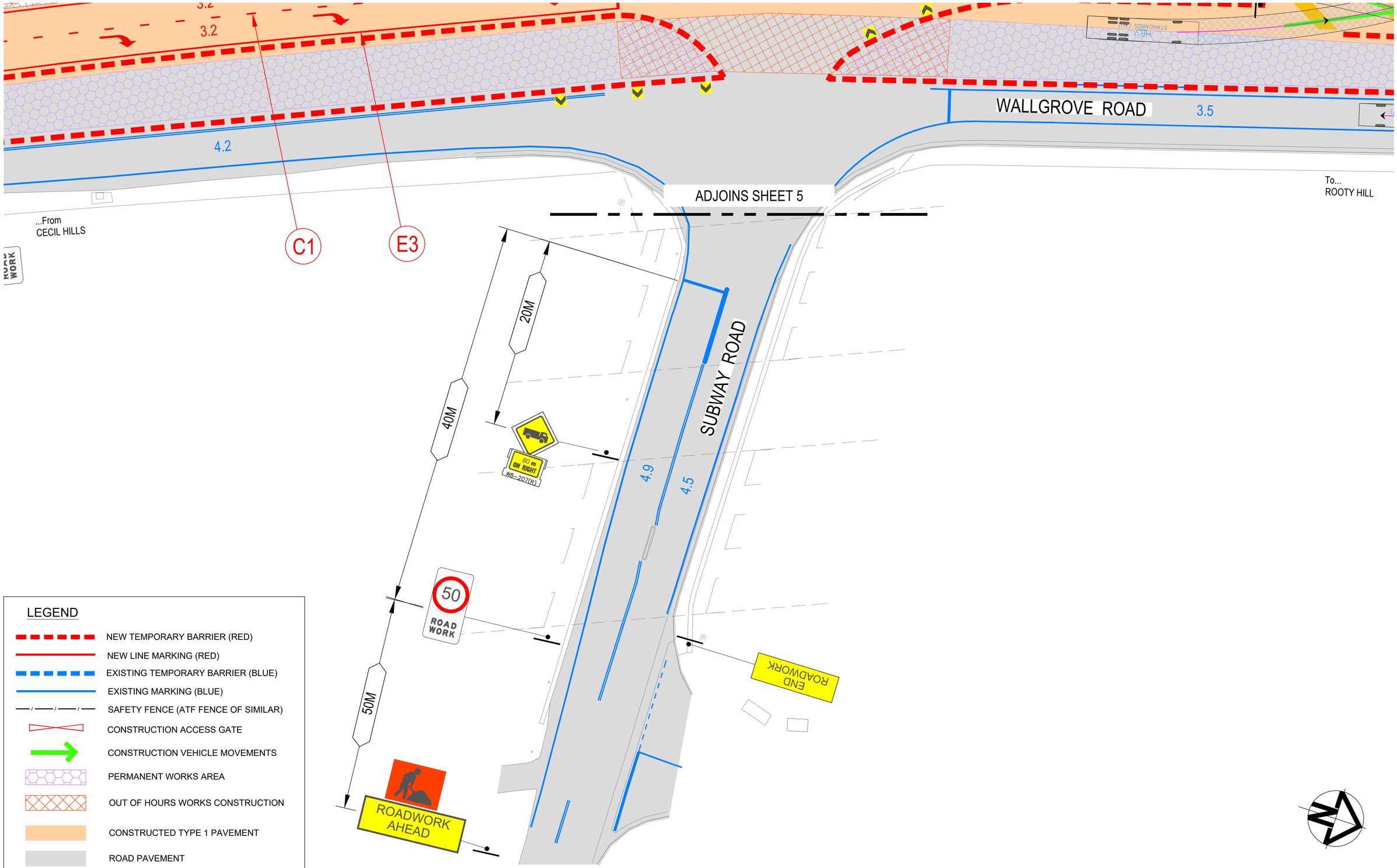
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No.: TS02A-09

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
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- ROAD PAVEMENT

Rev	Date	By	App	Amendment Details
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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 10 OF 10

Drawing No.: TS02A-10

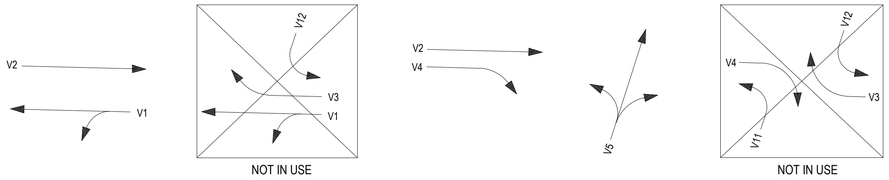
Rev: 5

TCS Staging Plan – Stage 2

TCS 5058

DATE IN SERVICE : 00/00/00

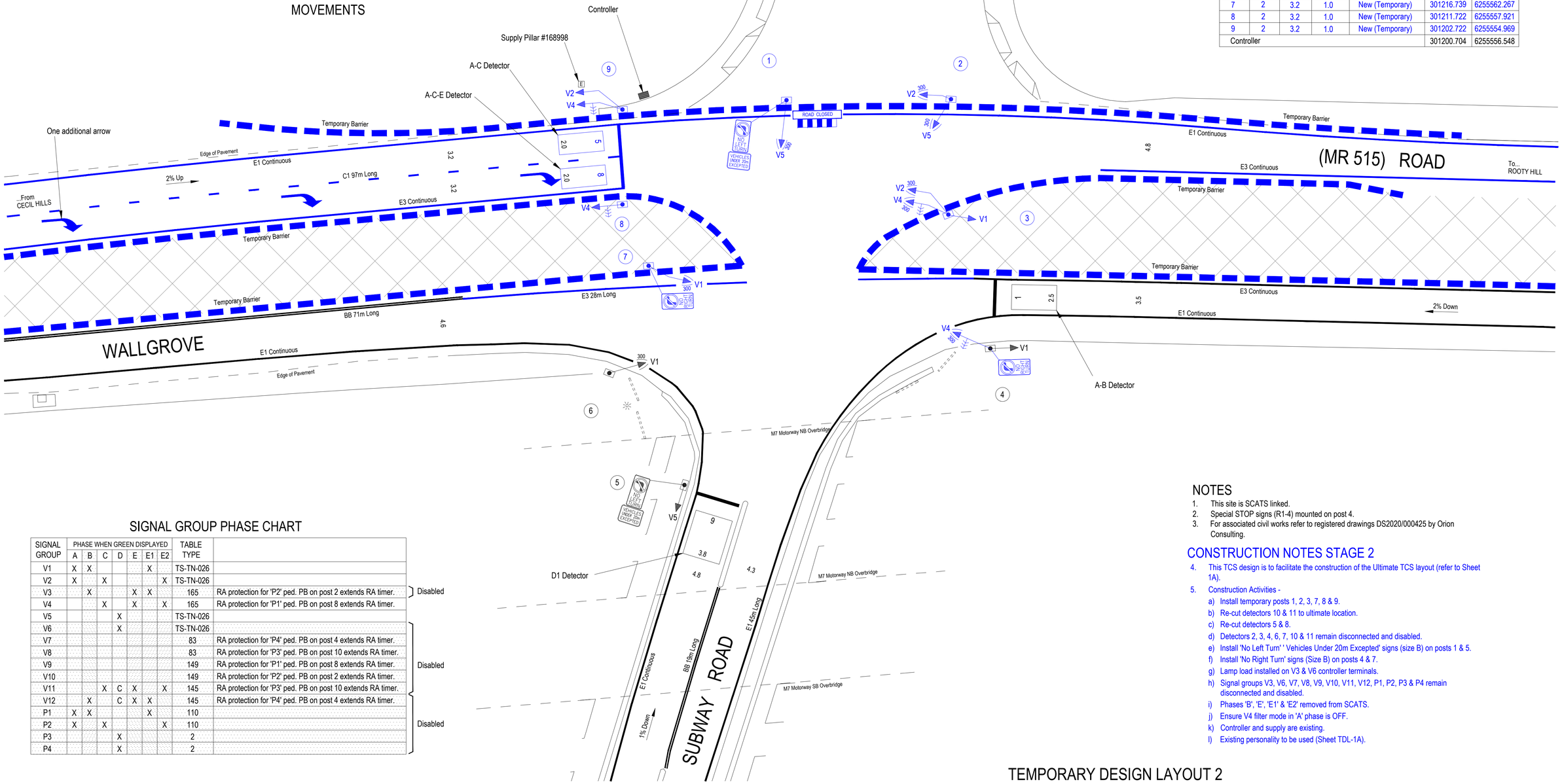
NSW GOVERNMENT | Transport for NSW



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.	
V9								149	RA protection for 'P1' ped. PB on post 8 extends RA timer.	Disabled
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		
P2	X		X				X	110		Disabled
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

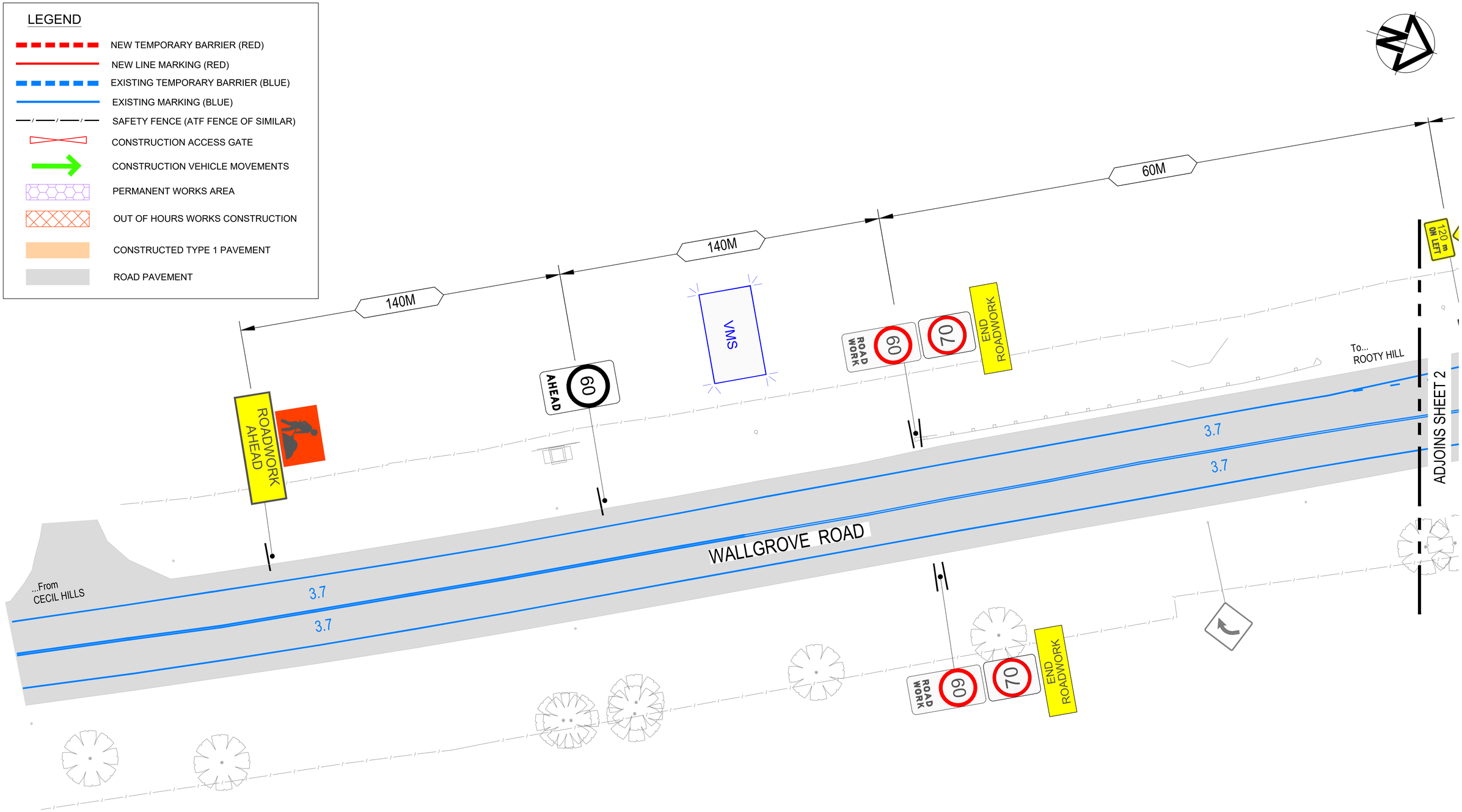
Revision 7 - August 2021

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Civil Staging Plan – Stage 3A

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
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- PERMANENT WORKS AREA
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- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT



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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

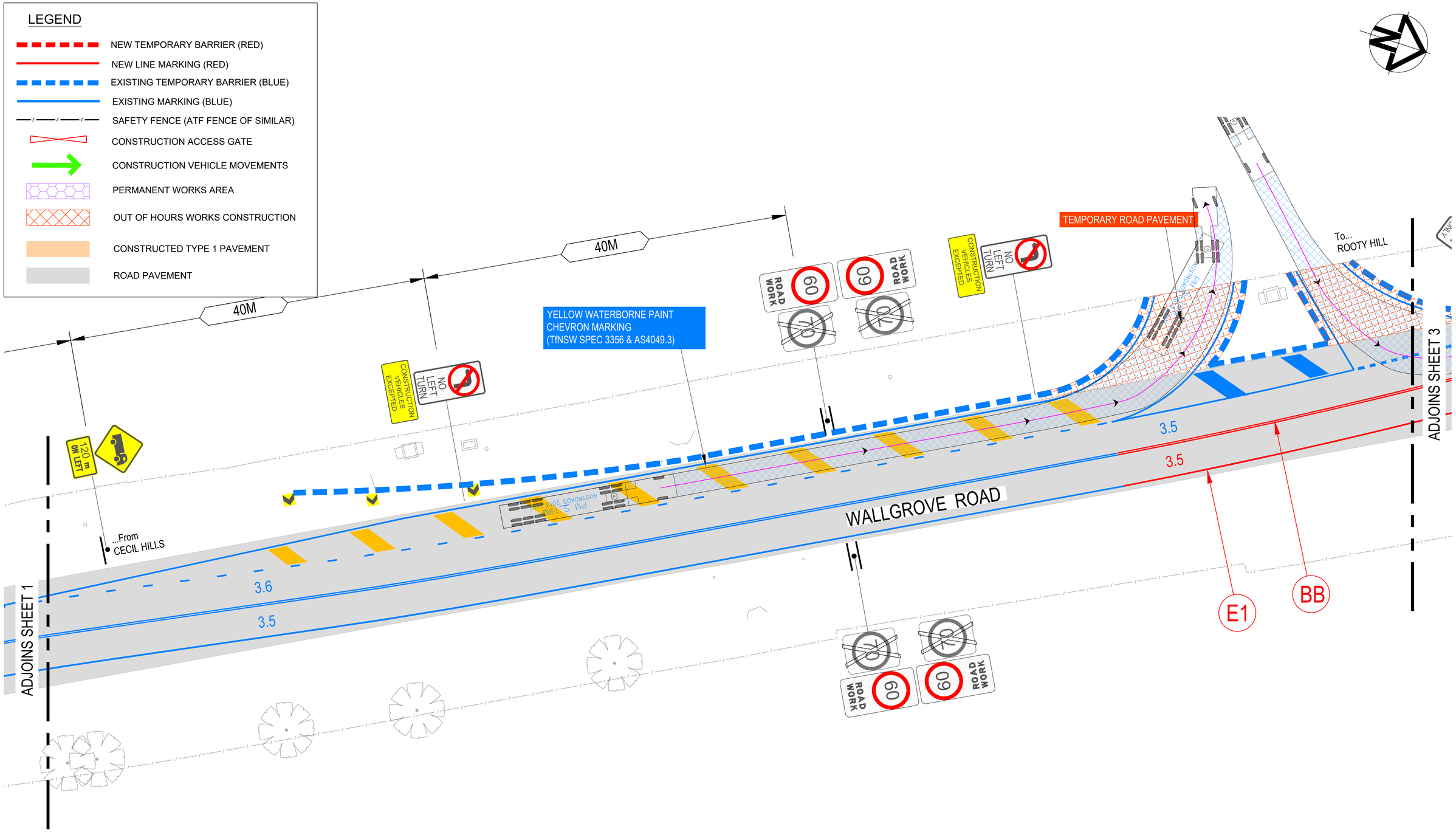
Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 1 OF 10

Drawing No.: TS03A-01

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

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

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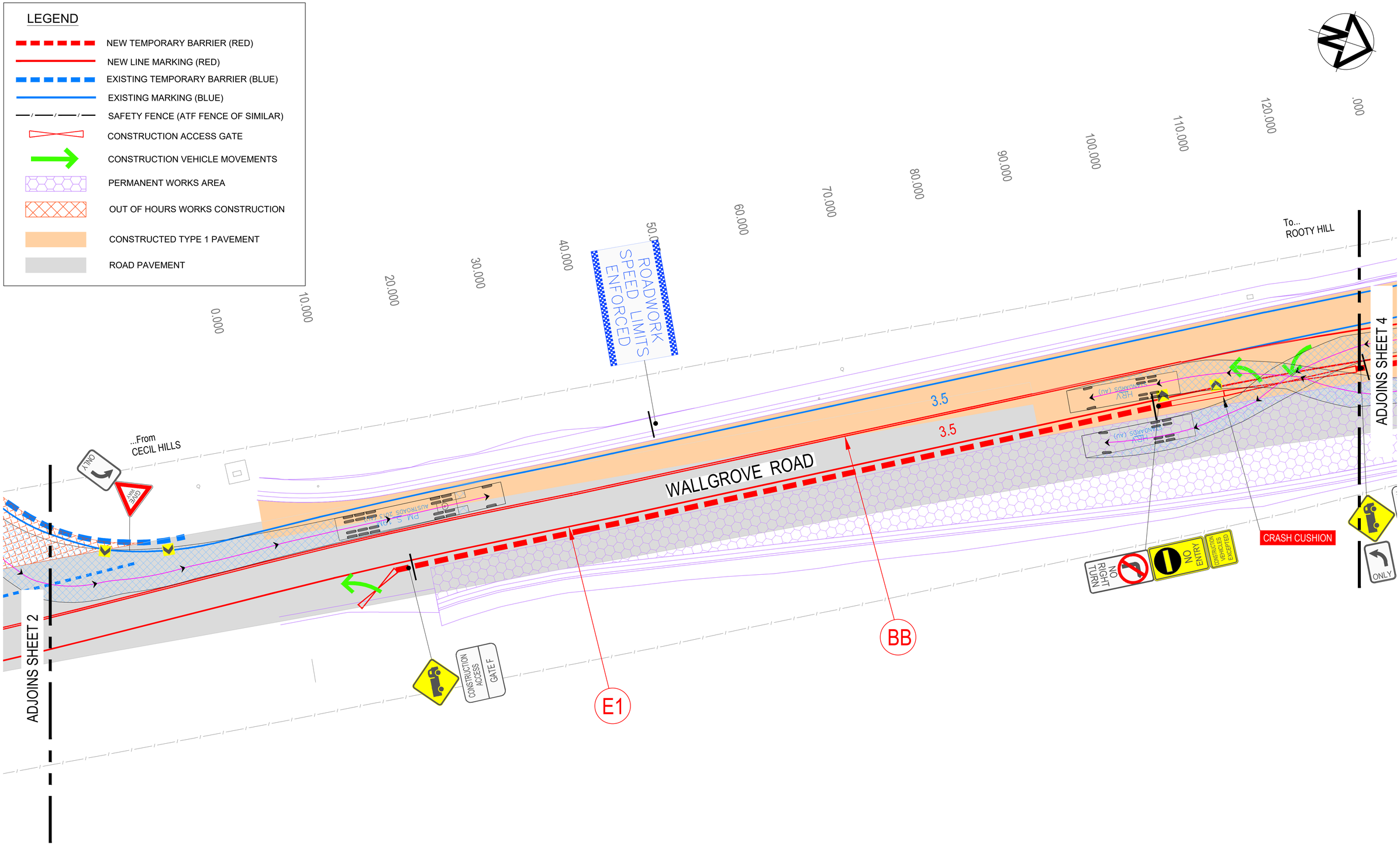
Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 2 OF 10

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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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 3A
SHEET 3 OF 10

Drawing No.: TS03A-03

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

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

TEMPORARY ROAD PAVEMENT

BB

To...
ROOTY HILL

ADJOINS SHEET 5

...From
CECIL HILLS

ADJOINS SHEET 3

WALLGROVE ROAD

3.5 3.2 3.2 3.5 3.5

E1 E5 E1 BB

60 ROAD WORK

NO RIGHT TURN

NO ENTRY
CONSTRUCTION VEHICLES EXCEPTED

CRASH CUSHION

CONSTRUCTION ACCESS GATE C

ONLY

CONSTRUCTION ACCESS GATE D

ONLY

50M

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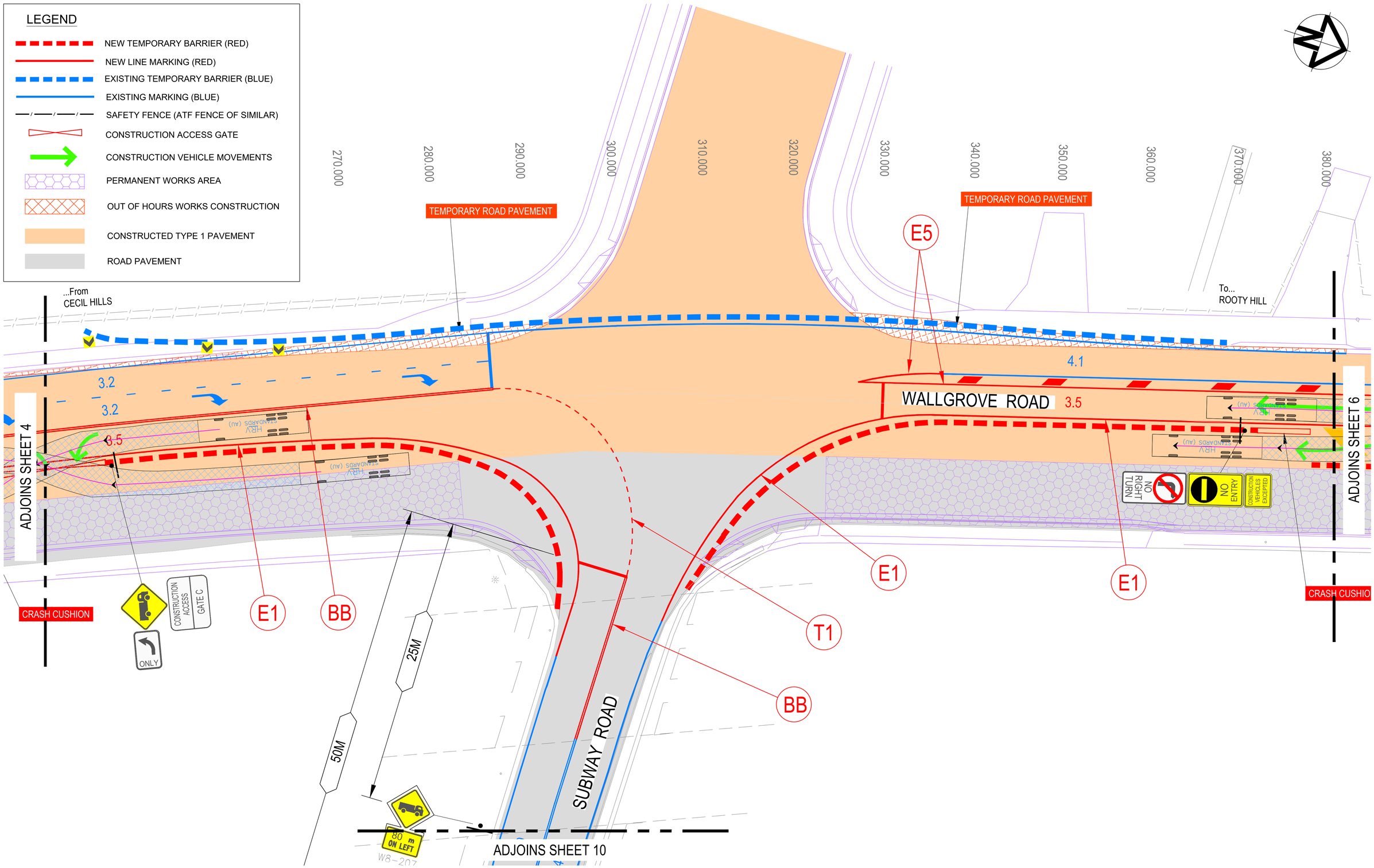
Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 4 OF 10

Drawing No. TS03A-04

Rev 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
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- EXISTING MARKING (BLUE)
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Contractor: BURTON CONTRACTORS

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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 3A
SHEET 5 OF 10

Drawing No.: TS03A-05

Rev: 5

LEGEND

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- ROAD PAVEMENT

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

ADJOINS SHEET 7

CONSTRUCTION VEHICLE EXCEPT

CRASH CUSHION

CONSTRUCTION ACCESS GATE B

E1

BB

ROAD WORK 60

ROADWORK SPEED LIMIT

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		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

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

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

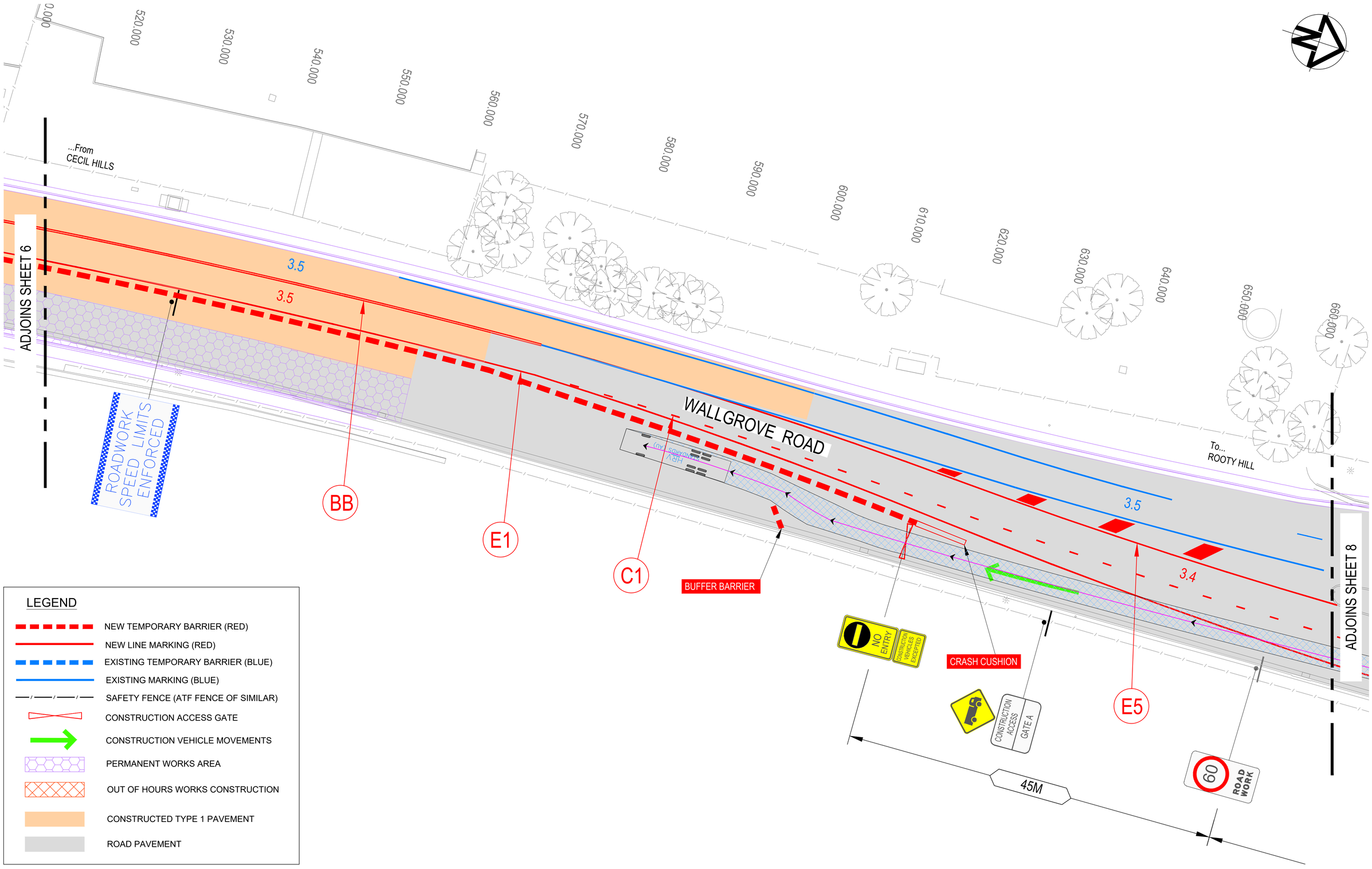
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

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

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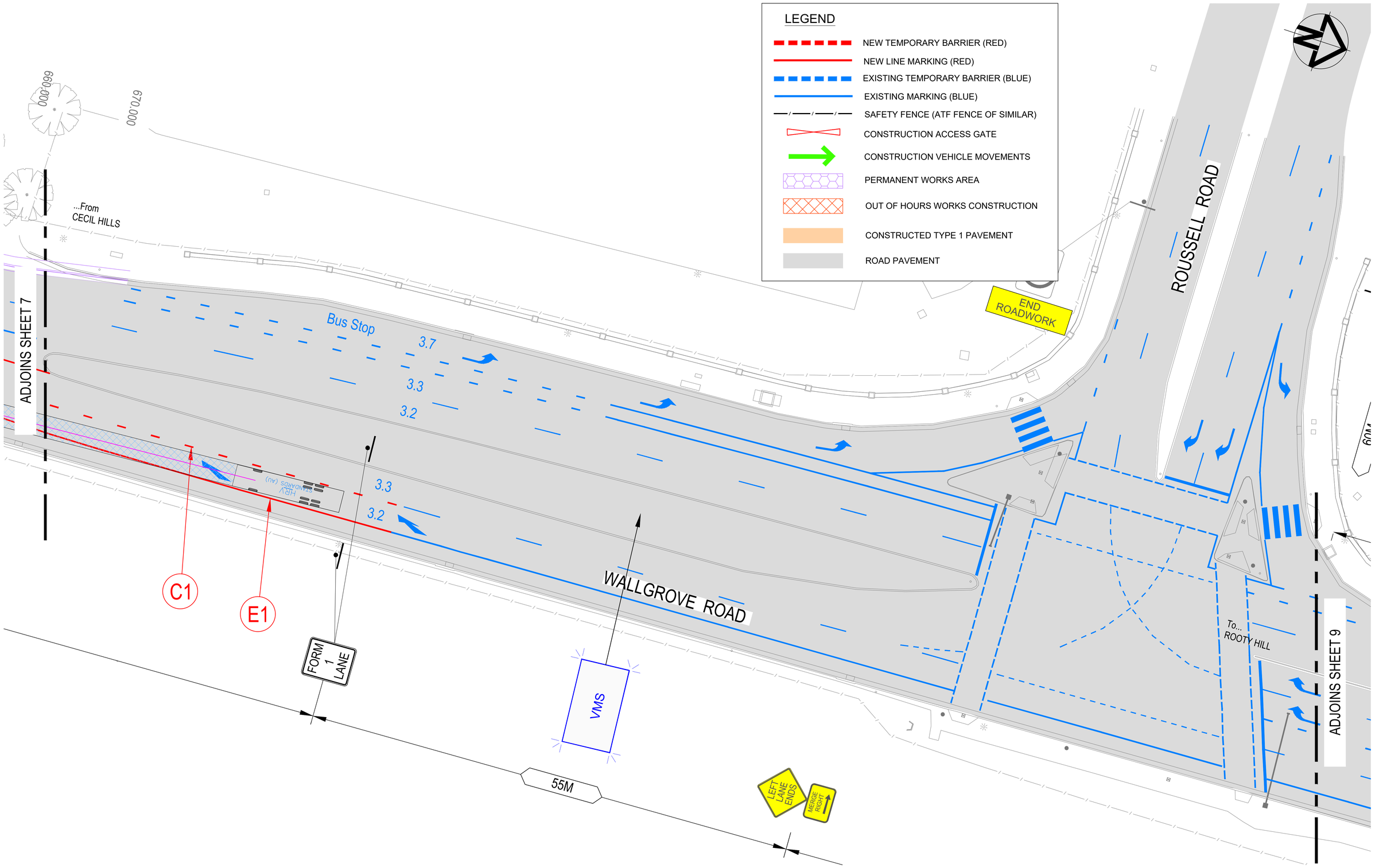
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No.: TS03A-07

Rev: 5



Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
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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)

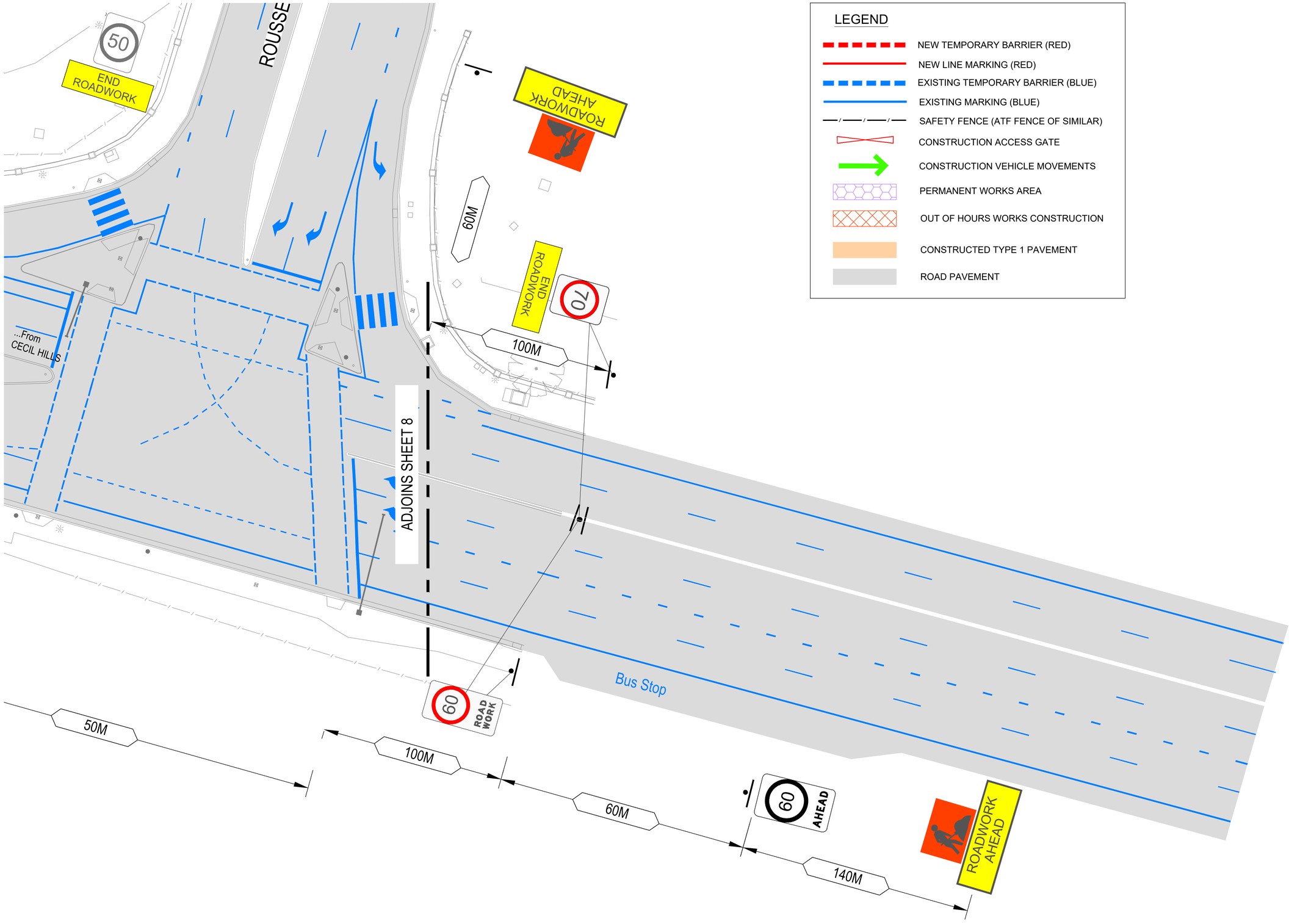
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No.: TS03A-08

Rev: 5



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
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)

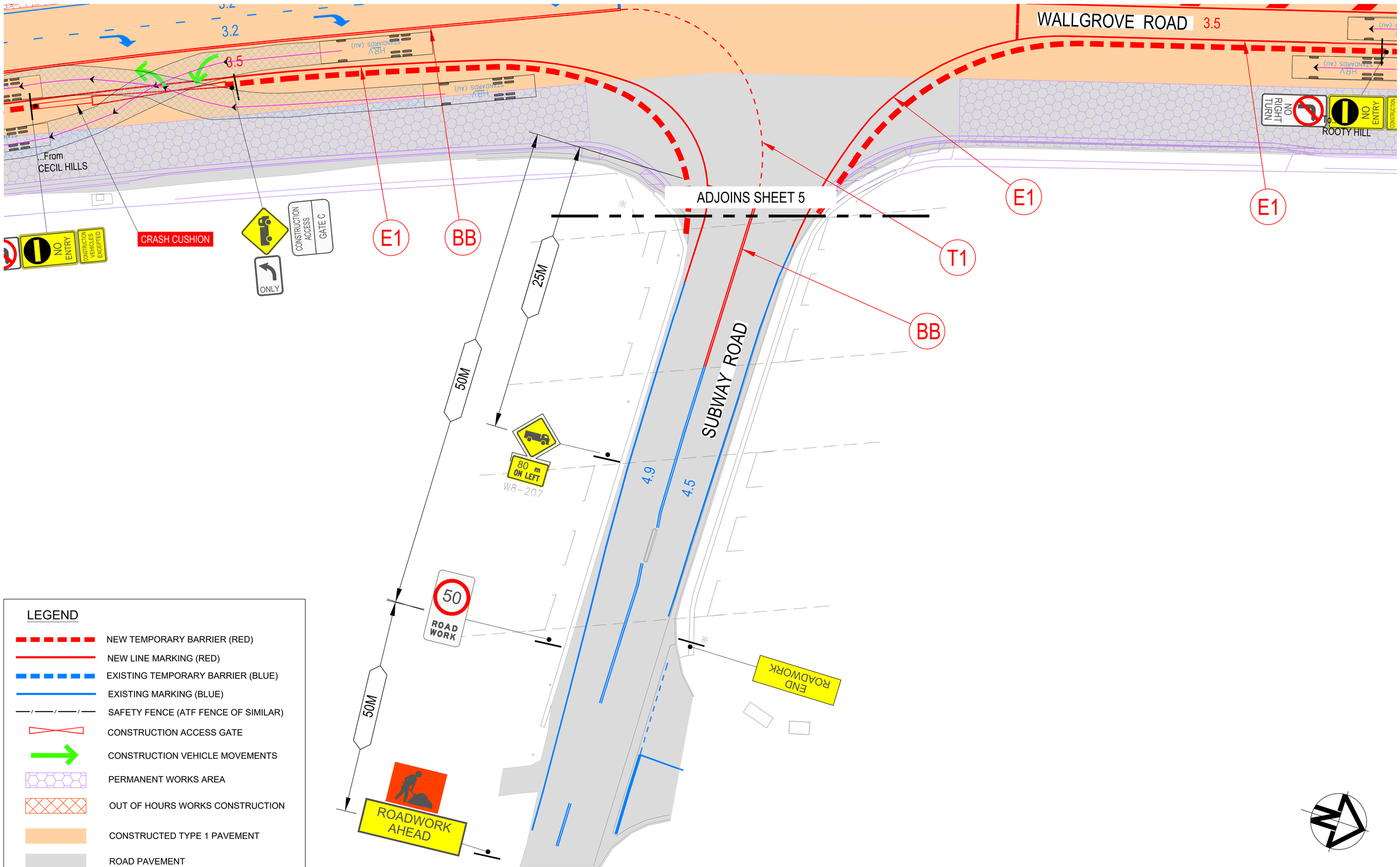
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

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

Drawing No.: TS03A-09

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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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 9 OF 10

Drawing No.: TS03A-10

Rev: 5

TCS Staging Plan – Stage 3A

TCS 5058

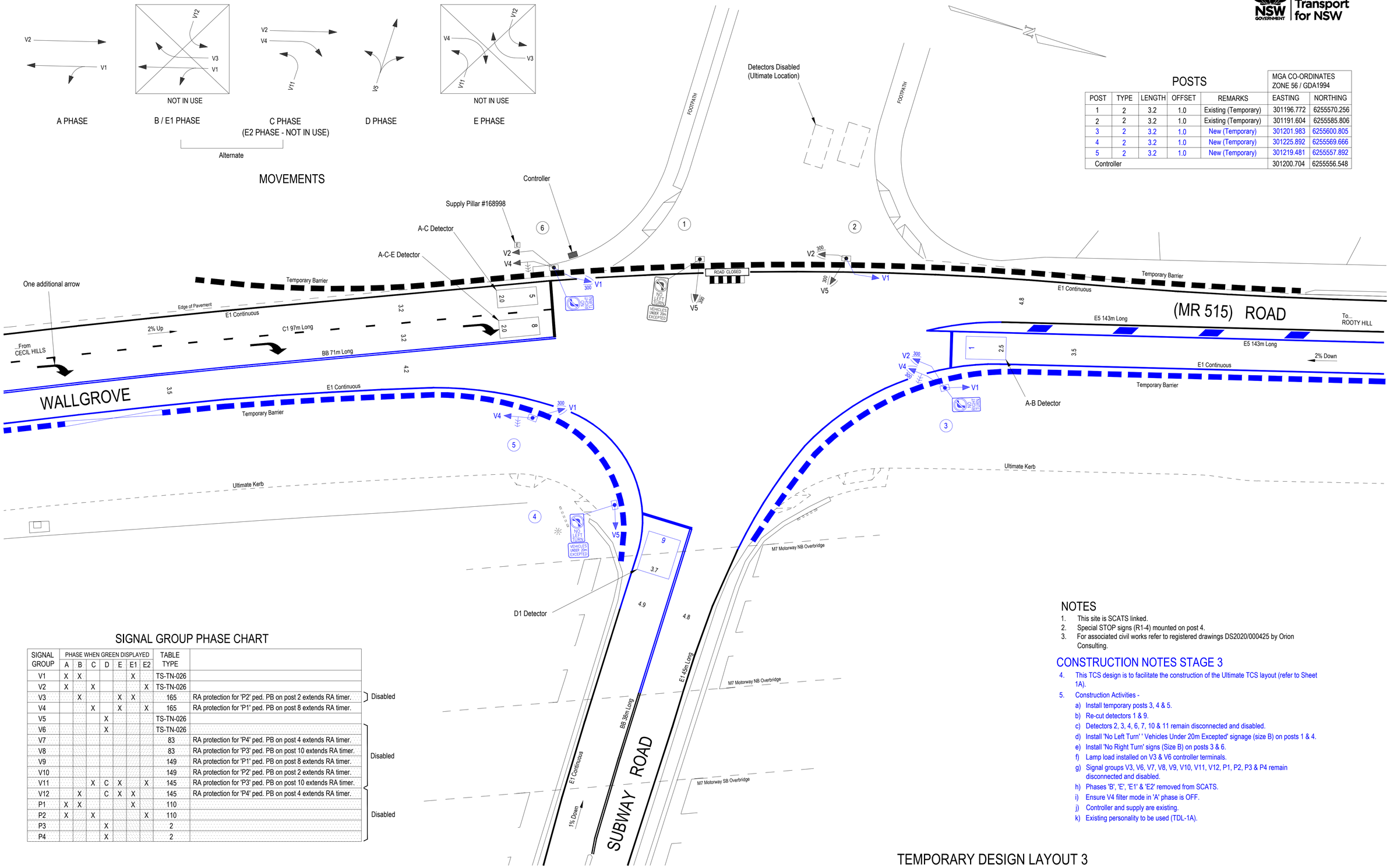
DATE IN SERVICE : 00/00/00

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

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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

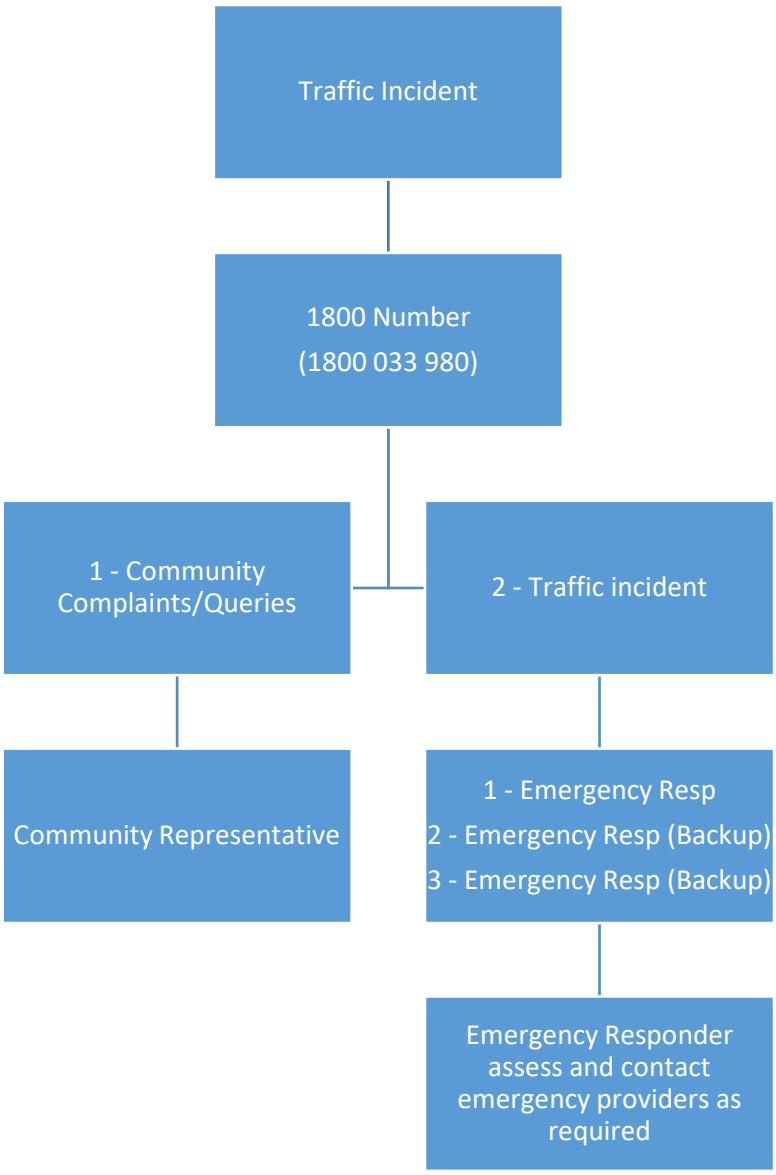
Location of the workplace		
Nearest hospital	Mt Druitt Hospital	
Nearest medical centre	Horsley Park Medical Centre	
Maximum time to medical service	5 minutes (medical centre)	
Number and composition of workers and other persons at the workplace		
Number of workers	< 20	
Number of other persons	< 5 (TfNSW 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

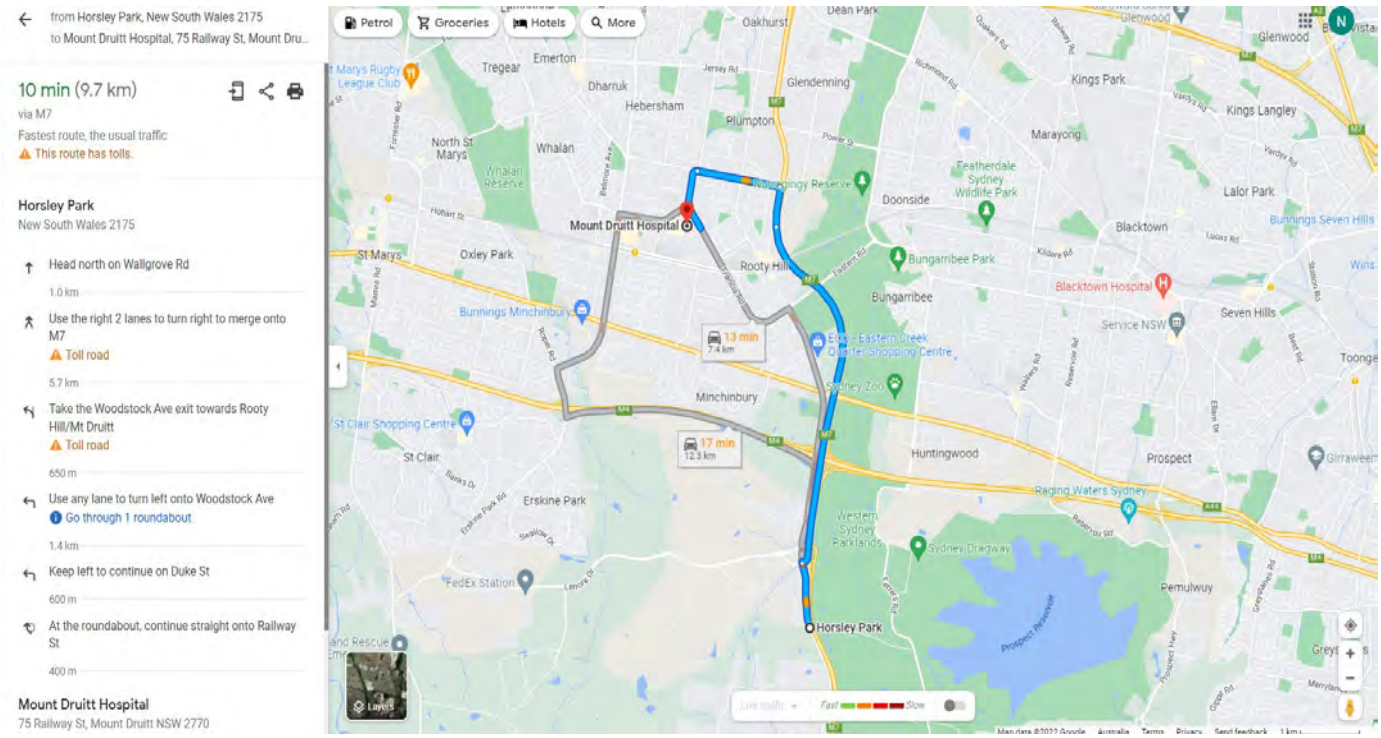
	fire or plant engine fire.
Spill kits	Container x1. Additional kits in Supervisor & Engineers vehicles.
Communication equipment	Minimum 1 set of 2-way radios
Transportation	Company Vehicle at minimum present on site
Comments	Close proximity to medical facilities and emergency services– no stretcher or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

6. TRAFFIC INCIDENT PROCEDURE

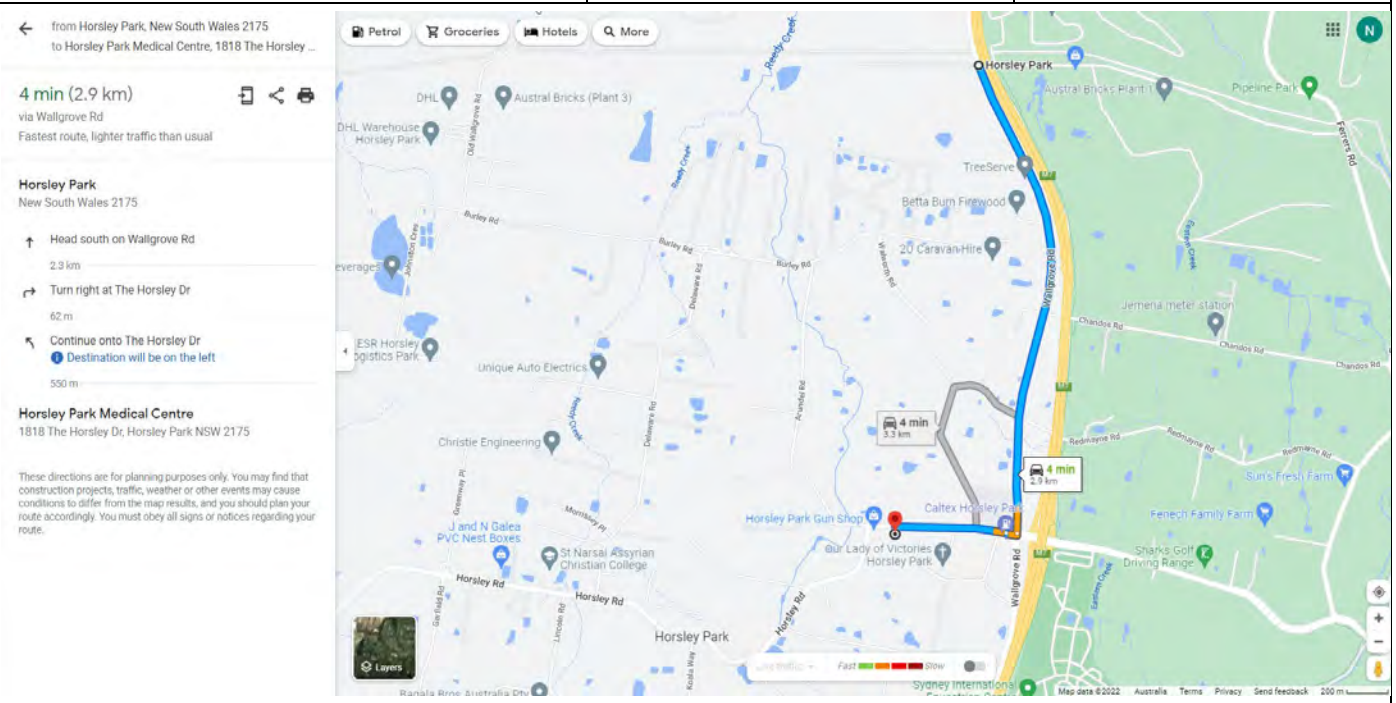


7. MEDICAL EMERGENCY LOCATION

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.

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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
>
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>
> **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
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

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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
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--

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



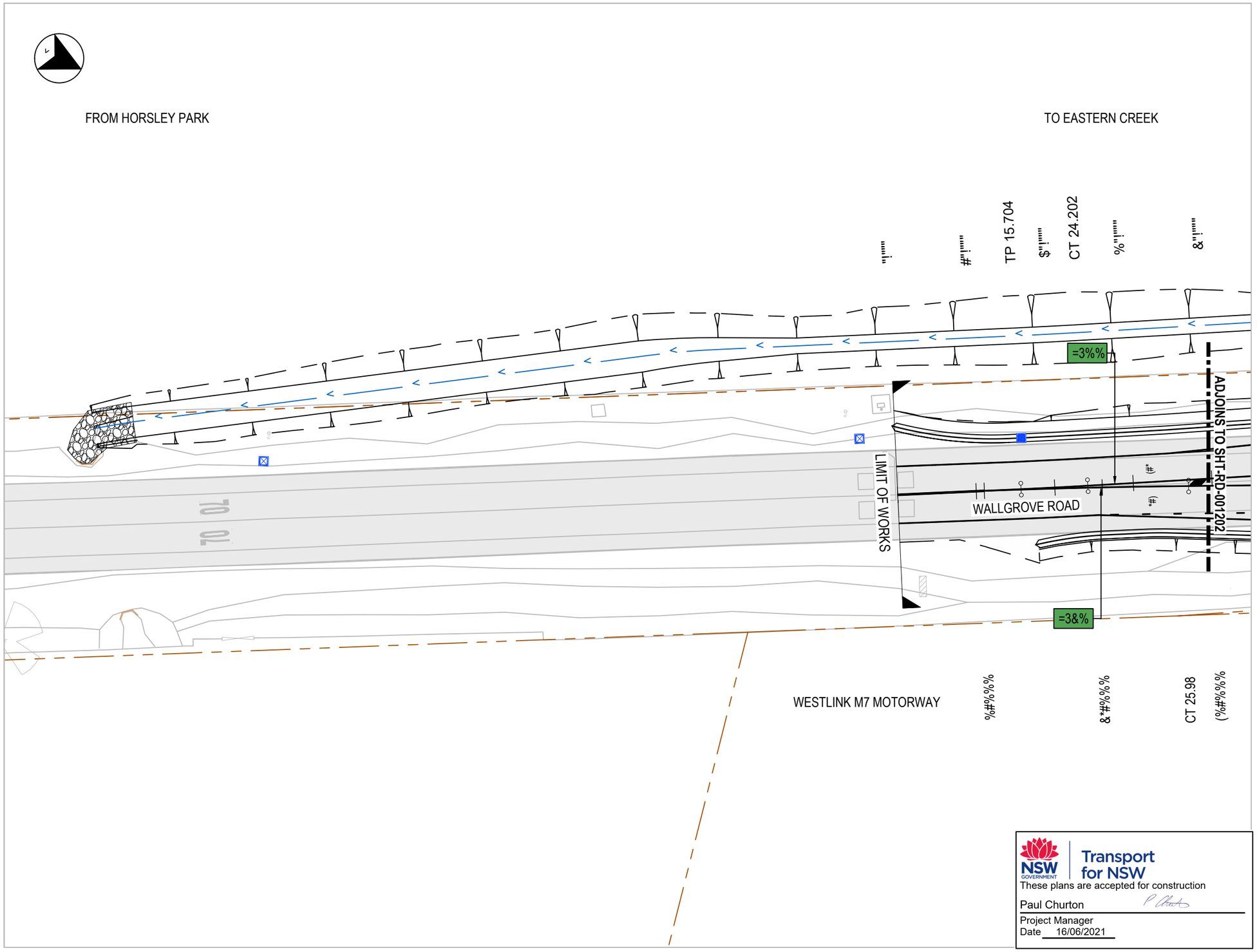
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Annexure G – Ultimate Design Civil Drawings

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FROM HORSLEY PARK

TO EASTERN CREEK



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ROAD CONTROL LINE

CADASTRAL BOUNDARY

PROPOSED DESIGN

EXISTING SURVEY

=HHH — 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

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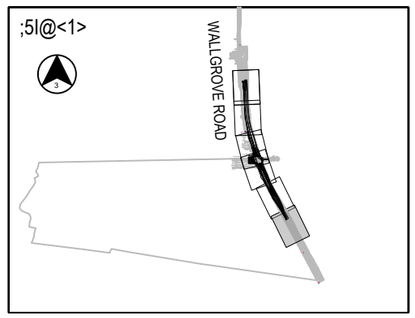
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'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO C8D"75"%%&%%+#

(# FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

)# 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.

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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
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								PROJECT MNGR	PAUL CHURTON	(&#%,#'%%

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GAZCORP

PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

SHEET 1 OF 6

1(

TfNSW REGISTRATION No. 4C'%'%$%%%)'* @1BD -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION

EDMS No. -

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FROM HORSLEY PARK

TO EASTERN CREEK

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ADJOINS TO SHT-RD-001201

ADJOINS TO SHT-RD-001203

WALLGROVE ROAD

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WESTLINK M7 MOTORWAY

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%%%%#%% ROAD CONTROL LINE

CADASTRAL BOUNDARY

PROPOSED DESIGN

EXISTING SURVEY

=HHH 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

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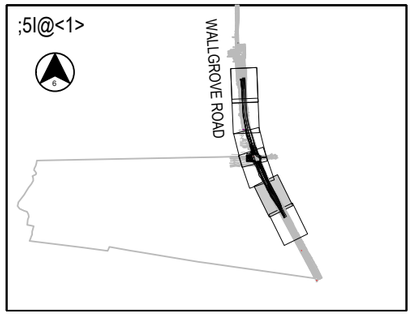
&# FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND C8D"75"%%%%"#

'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO C8D"75"%%&%%+#

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)# 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.

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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				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME		PLOT BY	3<95>D
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EXTERNAL REFERENCE FILES	B5F	41D5	AMENDMENT / REVISION DESCRIPTION	WVR No.	1@@B?F1<	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	4B1G>	JASON BOVIS	(&#%,#'%%	
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						CO-ORDINATE SYSTEM MGA Z56	HEIGHT DATUM 184	PROJECT MNGR	PAUL CHURTON	(&#%,#'%%	

Ā$ #" Consulting

$%+#5 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 0#(02) 8660 0035 '# SVQWOWYSWVNWVZ(TjSVRWNQ

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

GENERAL ARRANGEMENT

SHEET 2 OF 6

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ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. C8D"B4"%%&'%(9CCE5

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NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

FROM HORSLEY PARK

TO EASTERN CREEK

PRIVATE ACCESS ROAD

LIMIT OF WORKS

CREST 260.881

CT 337.420

EXTEND EXISTING 600Ø CULVERT AND PROVIDE NEW PRECAST HEADWALL

NEW FOOTPATH

>42'

INSTALL NEW PEDESTRIAN RAMPS, REFER TO STANDARD DRAWING R0300-11

>4&&

ADJOINS TO SHT-RD-001202

ADJOINS TO SHT-RD-001204

WALLGROVE ROAD

EXISTING RETAINING WALL TO BE RETAINED

>4'&

INSTALL NEW PEDESTRIAN RAMPS, REFER TO STANDARDS DRAWING C&)&&#"

NEW FOOTPATH

SIGNAL POST REQUIRES OFFSET FOOTING TO COORDINATE WITH EXISTING BARRIER

EXISTING SAFETY BARRIER TO BE RETAINED

WESTLINK M7 MOTORWAY

SUBWAY ROAD

LIMIT OF WORKS

>43'

INSTALL NEW PEDESTRIAN RAMPS, REFER TO STANDARD DRAWING C&)&&#"

NEW SAFETY BARRIER TO STRUCTURAL ENGINEER'S DA64:7:42E:@?

CT 325.578

=686?5

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- >III 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

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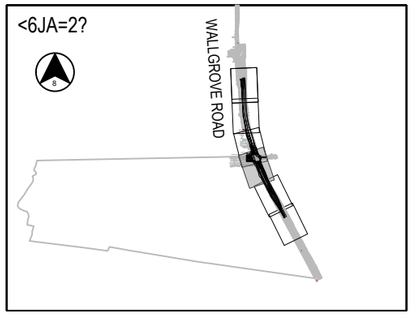
'$ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND D9E#86#&&&&(($

($ FOR DRAINAGE, REFER TO SHT-SM-001001 TO D9E#86#&&'&&,$

)$ FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

*$ 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.

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EXTERNAL REFERENCE FILES	C6G 52E6	AMENDMENT / REVISION DESCRIPTION	DRAWINGS / DESIGN PREPARED BY	
	&)'$&-$(&(&	50% DETAILED DESIGN	Ā$ #" Consulting	5C2H? JASON BOVIS)'$&-$(&(&
	' "$"$(&(&	80% DETAILED DESIGN	$%+825 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 8(02) 8660 0035 %TWRX1XZTXWOXW[UTWS$XXWZ	DRG CHECK PHILIP BYRUM)'$&-$(&(&
	(' $&($(&('	100% DETAILED DESIGN	CO-ORDINATE SYSTEM MGA Z56 HEIGHT DATUM 295	56D:8? PHILLIP STODDART)'$&-$(&(&
	) &'$&*$(&('	ACCEPTED FOR CONSTRUCTION		DESIGN CHECK PHILIP BYRUM)'$&-$(&(&
				DESIGN MNGR PHILIP BYRUM)'$&-$(&(&
				PROJECT MNGR PAUL CHURTON)'$&-$(&(&

4=:6?E

GAZCORP

PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

2)

SHEET 3 OF 6

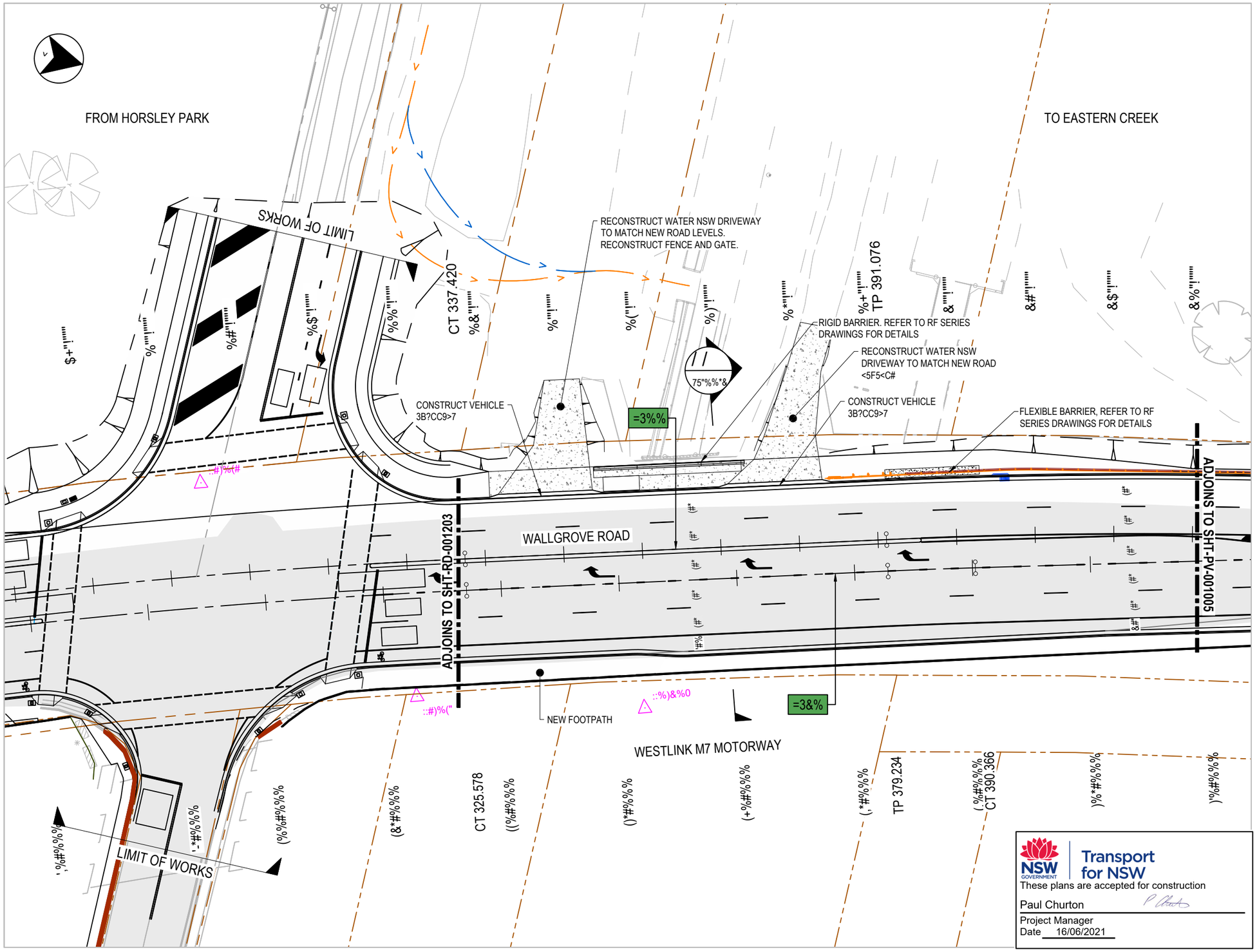
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ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D9E#C5#&&'(&) :DDF6)

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- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- =HHH — 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

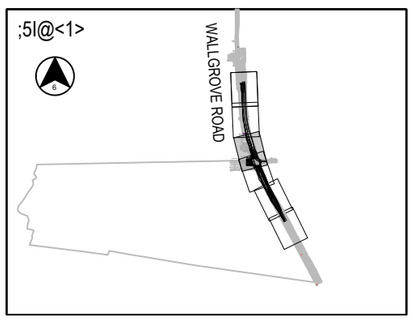
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&# FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND C8D"75"%%%%"#

'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO C8D"75"%&%%+#

(# FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

)# 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

ACCEPTED FOR CONSTRUCTION

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DRAWING FILE LOCATION / NAME				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME		PLOT BY	
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EXTERNAL REFERENCE FILES	B5F	41D5	AMENDMENT / REVISION DESCRIPTION		@#2IBE=	$!' " $!' '$!'F 1 : 500 FULL SIZE A3	Ā$ #" Consulting	4B1G>	JASON BOVIS	(&#%,#'%'%	GAZCORP
	%	(&#%,#'%'%	50% DETAILED DESIGN		@#2IBE=			DRG CHECK	PHILIP BYRUM	(&#%,#'%'%	
	&	&&#&&#'%'%	80% DETAILED DESIGN		@#2IBE=			45C97>	PHILLIP STODDART	(&#%,#'%'%	
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	(	%&#%)#'%'&	ACCEPTED FOR CONSTRUCTION		@#2IBE=	CO-ORDINATE SYSTEM MGA Z56	HEIGHT DATUM 184	DESIGN MNGR	PHILIP BYRUM	(&#%,#'%'%	
								PROJECT MNGR	PAUL CHURTON	(&#%,#'%'%	

PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

SHEET 4 OF 6

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ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. C8D"B4"%%&%) (| 9CCE5

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FROM HORSLEY PARK

TO EASTERN CREEK

TP 505.415

11
86"%%*'

00
86"%%*'

>4%%

FLEXIBLE BARRIER SYSTEM. REFER TO RF PLANS FOR DETAILS

85'%('%

)'%

)'%

WALLGROVE ROAD

ADJOINS TO SHT-RD-001204

ADJOINS TO SHT-RD-001206

BICYCLE LANE TO BE RETAINED WITH NEW PAVEMENT MARKING

>4&%

WESTLINK M7 MOTORWAY

TP 439307

CT 11.911

=686?5

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- >III — 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

?@E6D

&# FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND D9E"86"%%%%"#

'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO D9E"86"%%&%%+#

(# FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

)# 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.

<6JA=2?

WALLGROVE ROAD

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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	&	&&#&&#'%'%	80% DETAILED DESIGN		A#3JCF>	1 : 500 FULL SIZE A3	%&.525 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 1(02) 8660 0035 (5 TWRX1XZTXWOXW(UJTWSKOX@	56D:8?	PHILLIP STODDART	(&#%,#'%'%
	'	&#%'#'%'&	100% DETAILED DESIGN		A#3JCF>			DESIGN CHECK	PHILIP BYRUM	(&#%,#'%'%
	(	%&#%)#'%'&	ACCEPTED FOR CONSTRUCTION			CO-ORDINATE SYSTEM MGA Z56	HEIGHT DATUM 295	DESIGN MNGR	PHILIP BYRUM	(&#%,#'%'%
								PROJECT MNGR	PAUL CHURTON	(&#%,#'%'%

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SYDNEY DIVISION
NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

SHEET 5 OF 6

2(

TINSW REGISTRATION No. 5D'%'%$%%%)'* A2CE -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D9E"C5"%%&'%+ :DDF6 (

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FROM HORSLEY PARK

TO EASTERN CREEK

TP 595.511

CT 650.025
TP 654.471

CT 673.419

22
86"%%*'

>4%%

TIE INTO EXISTING

WALLGROVE ROAD

LIMIT OF WORKS

ADJOINS TO SHT-RD-001005

BICYCLE LANE TO BE RETAINED WITH NEW PAVEMENT MARKING

>4'%

WESTLINK M7 MOTORWAY

CT 11.911

=686?5

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- >III — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
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- ADJUST / MODIFY EXISTING PIT INLET
- STN — SURVEY CONTROL MARKER
- SAFETY BARRIER

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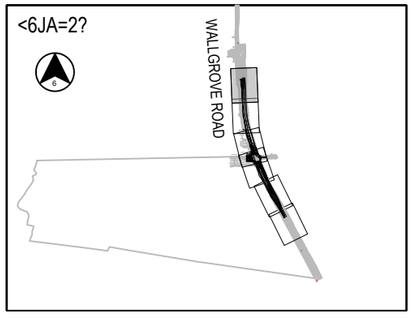
&# FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND D9E"86"%%%%"#

'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO D9E"86"%%&%%+#

(# FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

)# 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.

<6JA=2?



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
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	&	&&#&&#'%'%	80% DETAILED DESIGN		A#3JCF>	1 : 500 FULL SIZE A3		DRG CHECK	PHILIP BYRUM	(&#%,#'%%
	'	&-#%'#'%'&	100% DETAILED DESIGN		A#3JCF>			56D:8?	PHILLIP STODDART	(&#%,#'%%
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								DESIGN MNGR	PHILIP BYRUM	(&#%,#'%%
								PROJECT MNGR	PAUL CHURTON	(&#%,#'%%

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PREPARED FOR
SYDNEY DIVISION
NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

SHEET 6 OF 6

2(

TINSW REGISTRATION No. 5D'%'%$%%%)'* | A2CE -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D9E"C5"%%&'%+ (| :DDF6

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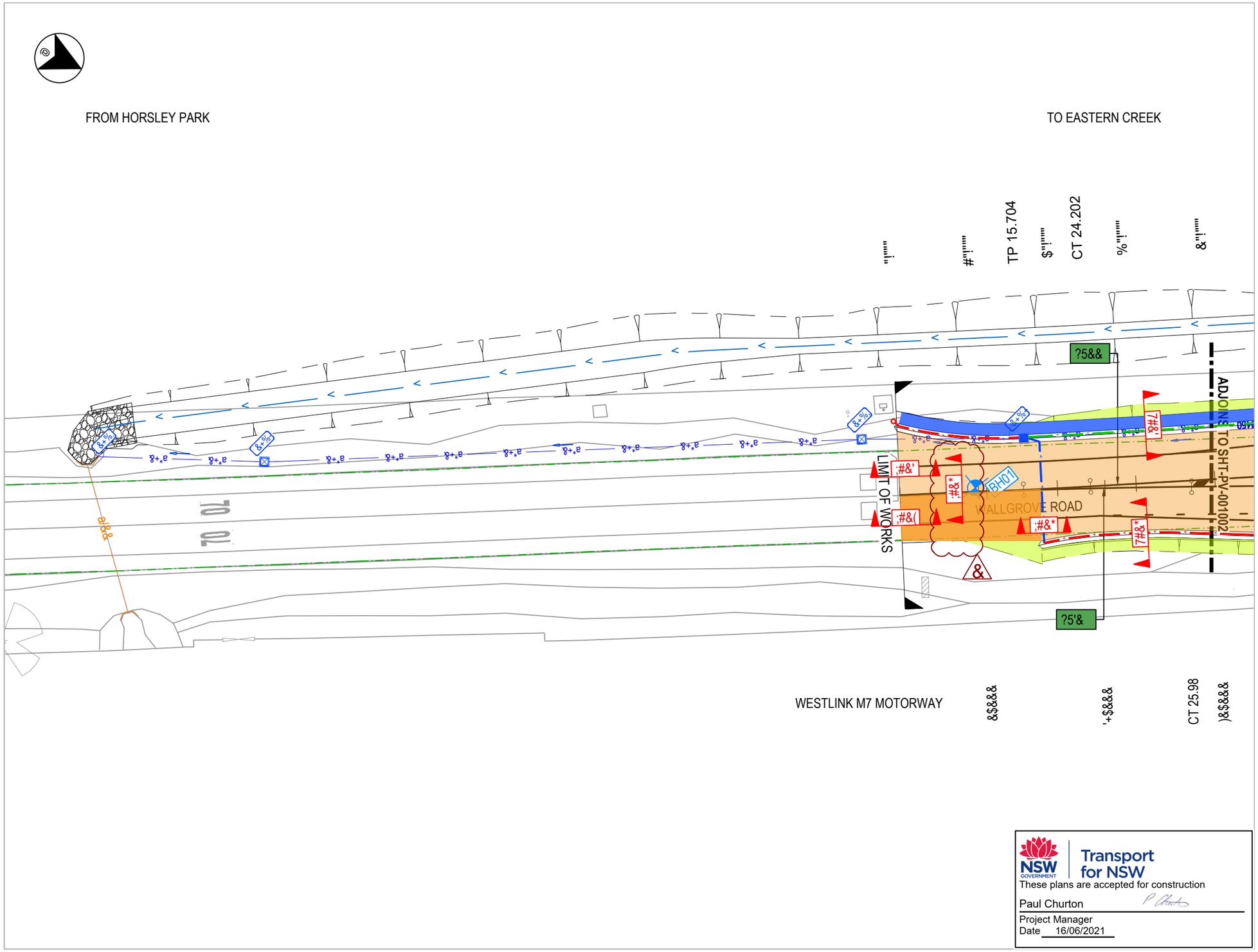
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FROM HORSLEY PARK

TO EASTERN CREEK



LEGEND FOR PAVEMENT TYPES

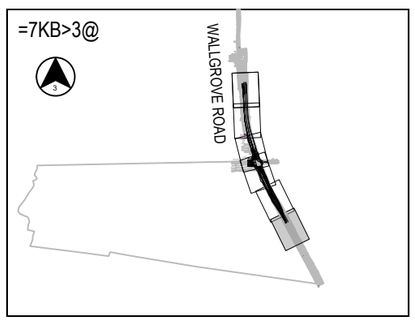
- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
- M&C - MILL AND CORRECTION
- GV - GRASSED VERGE
- CD1- CONCRETE ACCESS DRIVEWAY
- P2 - STRUCTURAL CONCRETE FOOTPATH
- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- 43FF7D

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

@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

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NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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EXTERNAL REFERENCE FILES	D7H	63F7	AMENDMENT / REVISION DESCRIPTION	WVR No.	3BBDAH3>	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	F;F>7	@377	63F7	
	&	)'$&-$(&(&	50% DETAILED DESIGN		B$4KDG?	$!' " $!' ' (!°C	Ā$ #" Consulting	6D3l@	JASON BOVIS	)'$&-$(&(&	PREPARED FOR
	'	'$"$(&(&	80% DETAILED DESIGN		B$4KDG?	1 : 500 FULL SIZE A3	#$"" 25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 ,"-(02) 8660 0035 &'UXSYZ[UVXPYX\^V]UXTSPYW	DRG CHECK	PHILIP BYRUM	)'$&-$(&(&	SYDNEY DIVISION
	(	'.$&'$(&('	100% DETAILED DESIGN		B$4KDG?			67E;9@	PHILLIP STODDART	)'$&-$(&(&	NETWORK DEVELOPMENT
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								PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&	

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

PAVEMENT PLAN

SHEET 1 OF 6 | 3)

TfNSW REGISTRATION No. 6E(&(&%&&&*(+ | B3DF -

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FROM HORSLEY PARK

TO EASTERN CREEK

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"""i
(""i)
)""i
*""i
+""i
#""i
##""i
#$"""i
TP 129.076
#%"""i
#&"""i
#'"""i
CT 158.877
#("""i
TP 164.634
#)"""i
#*"""i
#+"""i

?5&&

7#8'

BH02

BH04

BH05

BH03

F#&'

WALLGROVE ROAD

?5'&

ADJOINS TO SHT-PV-001001

ADJOINS TO SHT-PV-001003

CT 25.98
)&$&&&
*"+$&&&
,&$&&&
TP 74.919
-"+$&&&
/&$&&&
'&"+$&&&
'(&$&&&
CT 124.942
TP 124.967
')"+$&&&
'*"+$&&&
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WESTLINK M7 MOTORWAY

LEGEND FOR PAVEMENT TYPES

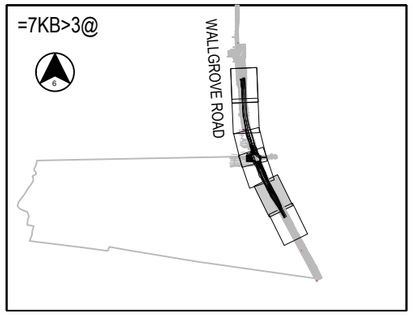
- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
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- M&C - MILL AND CORRECTION
- GV - GRASSED VERGE
- CD1- CONCRETE ACCESS DRIVEWAY
- P2 - STRUCTURAL CONCRETE FOOTPATH
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- BATTER - GEO GRID TREATMENT
- 43FF7D

- &$&&& ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- ?JJJ ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
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@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
('$ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

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NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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150mm 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: WVR No.	3BBDAH3>	DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME: F:F>7	@377	PLOT BY: 63F7	5>;7@F
EXTERNAL REFERENCE FILES	D7H	63F7	AMENDMENT / REVISION DESCRIPTION		BS4KDG?	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	6D3I@	JASON BOVIS	)'$&-$(&&	GAZCORP
	&	)'$&-$(&(&	50% DETAILED DESIGN		BS4KDG?	$!' " $!' ')"!"F		DRG CHECK	PHILIP BYRUM	)'$&-$(&&	
	'	"$"$'(&(&	80% DETAILED DESIGN		BS4KDG?	1 : 500 FULL SIZE A3	Ā$ #" Consulting	67E;9@	PHILLIP STODDART	)'$&-$(&&	
	(	.$&'$(&("	100% DETAILED DESIGN		BS4KDG?		#$"" 25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 ." (02) 8660 0035 &'UXSY2Y[UYXPYXI^Y[UXTSPY^&&	DESIGN CHECK	PHILIP BYRUM	)'$&-$(&&	
	)	&'$&"$(&("	ACCEPTED FOR CONSTRUCTION		BS4KDG?	CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: 3:6		DESIGN MNGR	PHILIP BYRUM	)'$&-$(&&	PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT
								PROJECT MNGR	PAUL CHURTON	)'$&-$(&&	

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

PAVEMENT PLAN

3)

SHEET 2 OF 6

TfNSW REGISTRATION No. 6E(&(&%&&&*(+ B3DF -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. E:F#BH#&&'&&(| :EEG7)

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Last saved by: .05363::9.:79 Â) Last Plotted: $"$# "& $$

FROM HORSLEY PARK

TO EASTERN CREEK

INSET ADJOINS BELOW

CONSTRUCT 1.2m WIDE CONCRETE FOOTPATH AT BACK OF SAFETY BARRIER. FOOTPATH TO GENERALLY MATCH EXISTING GROUND LEVELS WITH 1% CROSSFAL TO THE SAFETY BARRIER

FOOTPATH IS TO MAKE SMOOTH TRANSITION WITH EXISTING BIKE PATH. LOCALLY GRADE AS REQUIRED TO AVOID TRAPPED LOW POINTS.

SAW CUT TRENCH MINIMUM 1m WIDE. BACKFILL, COMPACT AND REINSTATE ASPHALT IN ACCORDANCE WITH THE DOUGLAS PARTNERS TRENCHING SPECIFICATIONS REPORT REF: 99735.00.R.005.REV0. MINIMUM 1.2m COVER TO SERVICES.

SUBWAY ROAD

PRIVATE ACCESS ROAD

LIMIT OF WORKS

CREST 260.881

CT 337.420

?53'

?5&&

?5'&

?54'

WALLGROVE ROAD

WESTLINK M7 MOTORWAY

SUBWAY ROAD

HIGH FRICTION ASPHALT EXTENT
MC00 CH 232.1

HIGH FRICTION ASPHALT EXTENT
MC00 CH 280.8

HIGH FRICTION ASPHALT EXTENT
MC00 CH 337.5

BH06 BH07 BH08 BH09 BH10 BH11 BH20

ADJOINS TO SHT-PV-001002

ADJOINS TO SHT-PV-001004

INSET ADJOINS ABOVE

APPROXIMATE WATERNSW T

25.578

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
- 43FF7D

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

@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

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WALLGROVE ROAD

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				DESIGN LOT CODE	DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING	PLOT DATE / TIME		PLOT BY	5>:7@F	
C:\12dS\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg						F;F>7	@37?	63F7	GAZCORP	FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA 3)
EXTERNAL REFERENCE FILES	D7H	63F7	AMENDMENT / REVISION DESCRIPTION	WVR No.	3BBDAH3>	6D3I@	JASON BOVIS	)'$&-$(&/&		19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK
	&	)'$&-$(&/&	50% DETAILED DESIGN		B$4KDG?	DRG CHECK	PHILIP BYRUM	)'$&-$(&/&		INTERSECTION UPGRADE
	'	"$"$'&(&/&	80% DETAILED DESIGN		B$4KDG?	67E:9@	PHILLIP STODDART	)'$&-$(&/&		PAVEMENT PLAN
	(	.$&'$(&/('	100% DETAILED DESIGN		B$4KDG?	DESIGN CHECK	PHILIP BYRUM	)'$&-$(&/&		SHEET 3 OF 6
	)	&'$&*$(&/('	ACCEPTED FOR CONSTRUCTION		B$4KDG?	DESIGN MNGR	PHILIP BYRUM	)'$&-$(&/&	PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT	TfNSW REGISTRATION No. 6E(&(&%&&&*(+ B3DF -
						PROJECT MNGR	PAUL CHURTON	)'$&-$(&/&		ISSUE STATUS ACCEPTED FOR CONSTRUCTION / EDMS No. - / SHEET No. E:F#BH#&&'&&) / EEG7)

$!' " $!' ')'!F
1 : 500 FULL SIZE A3

CO-ORDINATE SYSTEM MGA Z56 HEIGHT DATUM 3:6

Ã$ #" Consulting

$%.# 25 604 069 581 PO Box:7936, BAULKHAM HILLS NSW 2153 0(02) 8660 0035 'F UXSYZY[UYXPYX\^Y[UXT$PYX\^Y[UXT

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FROM HORSLEY PARK

TO EASTERN CREEK

LIMIT OF WORKS

CT 337.420

TP 391.076

HIGH FRICTION ASPHALT EXTENT
MC00 CH 337.5

WALLGROVE ROAD

ADJOINS TO SHT-PV-001003

ADJOINS TO SHT-PV-001005

APPROXIMATE EXTENT OF WATERNSW THRUST BLOCK

HIGH FRICTION ASPHALT EXTENT
MC00 CH 363.8

APPROXIMATE EXTENT OF WATERNSW THRUST BLOCK

WESTLINK M7 MOTORWAY

CT 325.578

TP 379.234

CT 390.366

LIMIT OF WORKS

BH09 BH10 BH11 BH12 BH13 BH14 BH20

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
- 43FF7D

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

@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

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WALLGROVE ROAD

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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C:\12ds\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg		WVR No. / 3BBDAH3>	SCALES ON A3 SIZE DRAWING: 1 : 500 FULL SIZE A3
EXTERNAL REFERENCE FILES	D7H / 63F7		DRAWINGS / DESIGN PREPARED BY

AMENDMENT / REVISION DESCRIPTION	
50% DETAILED DESIGN	BS4KDG?
80% DETAILED DESIGN	BS4KDG?
100% DETAILED DESIGN	BS4KDG?
ACCEPTED FOR CONSTRUCTION	BS4KDG?

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: 3:6

Ã$ #" Consulting
$%+&$ 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 (02) 8660 0035

PLOT DATE / TIME		PLOT BY
F;F>7	@377	63F7
6D3I@	JASON BOVIS	)'$&-$(&(&
DRG CHECK	PHILIP BYRUM	)'$&-$(&(&
67E;9@	PHILLIP STODDART	)'$&-$(&(&
DESIGN CHECK	PHILIP BYRUM	)'$&-$(&(&
DESIGN MNGR	PHILIP BYRUM	)'$&-$(&(&
PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&

5>;7@F

GAZCORP

PREPARED FOR
SYDNEY DIVISION
NETWORK DEVELOPMENT

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

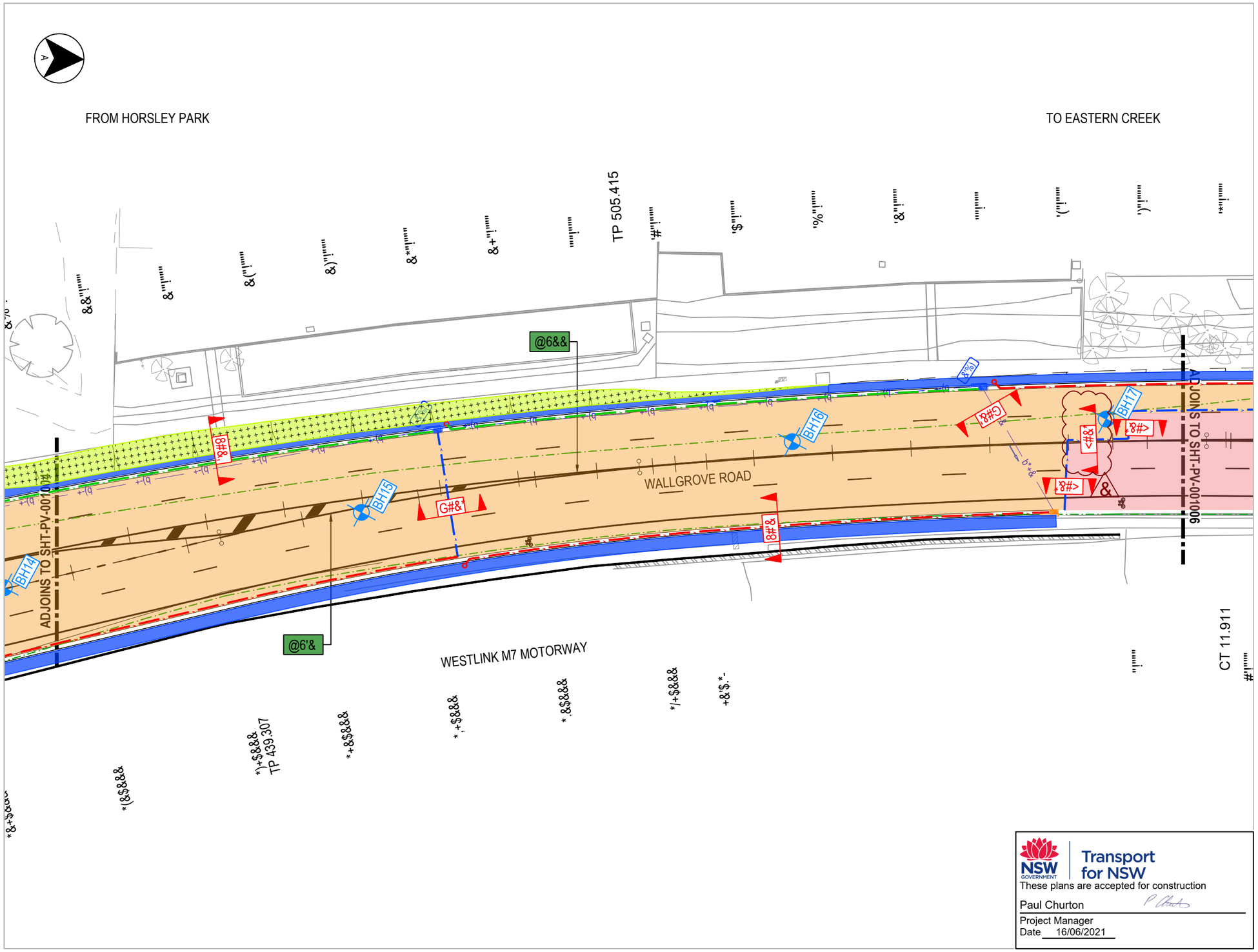
SHEET 4 OF 6

T#NSW REGISTRATION No. 6E(&(&%&&&*(+ B3DF -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION
EDMS No.: -
SHEET No.: E:F#BH#&&'&&* :EEG7)

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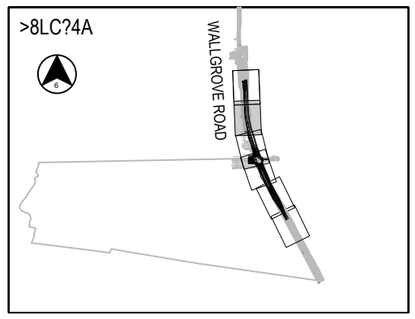
LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
- M&C - MILL AND CORRECTION
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- CD1- CONCRETE ACCESS DRIVEWAY
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- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- 54GG8E

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

ABG8F

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND F;G#:8#&&&((&
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO E7#F8E<8F$



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		67<8AG	FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA 19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE PAVEMENT PLAN	4)
EXTERNAL REFERENCE FILES	E8I	74G8	AMENDMENT / REVISION DESCRIPTION	WVR No.	4CCEBI4?	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	G<G?8	A4@8	74G8	GAZCORP		SHEET 5 OF 6
	&	)'$&-$(&(& | 50% DETAILED DESIGN | | C$5LEH@ | $!' " $!' ')'!F	Ā$ #" Consulting	7E4JA	JASON BOVIS	)'$&-$(&(&	PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT	TfNSW REGISTRATION No. 7F(&(&%&&&*(+	C4EG -
	'	'$'$(&(&	80% DETAILED DESIGN		C$5LEH@	1 : 500 FULL SIZE A3		DRG CHECK	PHILIP BYRUM	)'$&-$(&(&		ISSUE STATUS: ACCEPTED FOR CONSTRUCTION	EDMS No. -	SHEET No. F;G#CI#&&'&&+	<FFH8 *
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	)	&'$&*'$(&('	ACCEPTED FOR CONSTRUCTION		C$5LEH@			DESIGN CHECK	PHILIP BYRUM	)'$&-$(&(&			
	*	(($&*'$(&('	INTERFACE TAG UPDATED		C$5ELH@			DESIGN MNGR	PHILIP BYRUM	)'$&-$(&(&			
								PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&			

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50mm ON A3 SIZE ORIGINAL
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FROM HORSLEY PARK

TO EASTERN CREEK

')"!!!!i'

'*"!!!!i

'+"!!!!i

TP 595.511

('"!!!!i

(#"!!!!i

($"!!!!i

(%"!!!!i

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CT 650.025

TP 654.471

((!"!!!!i

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CT 673.419

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@6&&

LOCATE AND CONNECT TO
EXISTING SUBSOIL DRAINAGE LINE

WALLGROVE ROAD

BH17

BH18

BH19

LIMIT OF WORKS

ADJOINS TO SHT-PV-001005

G#&+

@6(&

WESTLINK M7 MOTORWAY

CT 11.911

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LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
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- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
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- BATTER - GEO GRID TREATMENT
- 54GG8E

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

ABG8F

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND F;G#:8#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO E7#F8E<8F$

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WALLGROVE ROAD

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

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:

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SCALES ON A3 SIZE DRAWING: $!" " $!' ')!'F — 1 : 500 FULL SIZE A3

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: 4;7

DRAWINGS / DESIGN PREPARED BY: Ā$ #" Consulting — 5%-#25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 2(02) 8660 0035 'W'VYTZSZVZYQZY(.,W"VYUSQZ>@

G<G?8	A4@8	74G8
7E4JA	JASON BOVIS	)'$&-$(&(&
DRG CHECK	PHILIP BYRUM	)'$&-$(&(&
78F<:A	PHILLIP STODDART	)'$&-$(&(&
DESIGN CHECK	PHILIP BYRUM	)'$&-$(&(&
DESIGN MNGR	PHILIP BYRUM	)'$&-$(&(&
PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&

6?<8AG

GAZCORP

PREPARED FOR
SYDNEY DIVISION
NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

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

SHEET 6 OF 6

4)

T#NSW REGISTRATION No. 7F(&(&%&&&*(+

C4EG -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION

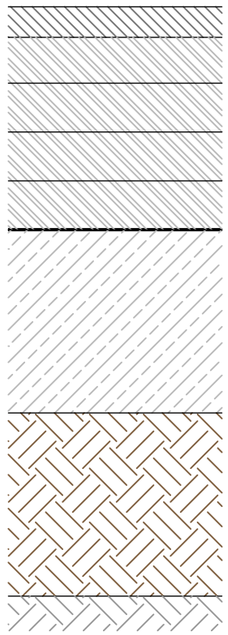
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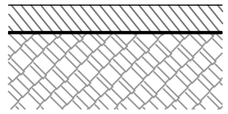
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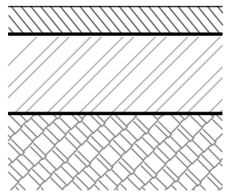
50 mm AC14 (A15E)
75 mm AC20 (C450)
80 mm AC20 (C450)
80 mm AC20 (C450)
80 mm AC20 (C450)
7 mm LOW CUTTER SEAL (C170)
300 mm SELECT MATERIAL ZONE
(MIN. CBR 30%)
300 mm LIME STABILISED SUBGRADE CBR 2%
DF49C367

PAVEMENT TYPE - T1
FULL DEPTH AC



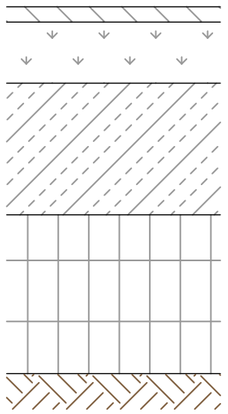
50 mm AC14 (A15E)
E35=5A3E
EXISTING PAVEMENT (REFER TO NOTE 3)

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



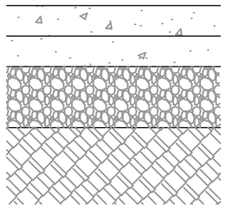
50 mm AC14 (A15E)
E35=5A3E
AC10 OR AC14 ASPHALT CORRECTION LAYER
(REFER TO NOTES 2 AND 3)
E35=5A3E
EXISTING PAVEMENT (REFER TO NOTE 5)

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



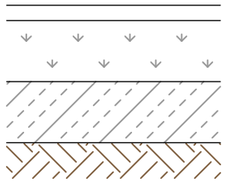
EFC8
100 mm TURF UNDERLAY
200mm MIN. CULTIVATED SUBGRADE
260 mm (AND VARIES) COMPACTED VERGE MATERIAL
DF49C367

PAVEMENT TYPE - GV
GRASSED VERGE (TfNSW R44)



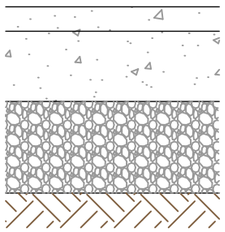
MIN. 100 mm 25MPa CONCRETE
WITH SL72 MESH AND BROOM
FINISH (REFER TO NOTE 5)
100 mm DGS20
EXISTING PAVEMENT
OR GENERAL FILL

PAVEMENT TYPE - RM1
RAISED CONCRETE MEDIAN



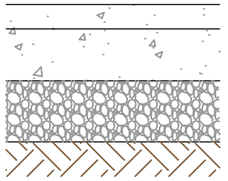
HYDROSEED TO LANDSCAPE DETAILS
100 mm VENM IMPORTED ORGANIC TOPSOIL (TfNSW
SPECIFICATION R178)
100 mm MIN. CULTIVATED SUBGRADE. REMOVE ALL
EXTRANEOUS MATERIAL FROM SITE
DF49C367

43EE7C



150 mm THICK 32MPa CONCRETE WITH SL82 MESH
WITH 40 mm TOP COVER
150 mm DGS20
EXISTING SUBGRADE OR PREPARED
8AC?3E;A@

PAVEMENT TYPE - CD1
CONCRETE ACCESS DRIVEWAY



MIN. 125 mm 25 MPa CONCRETE WITH SL72
REINFORCING MESH AND 40 mm COVER
(REFER TO NOTES 5)
100 mm DGS20
EXISTING SUBGRADE OR PREPARED
8AC?3E;A@

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



450mm CONCRETE FOOTING. REFER TO
STRUCTURAL ENGINEERING DRAWINGS BY
K.F. WILLIAMS AND ASSOCIATES (PROJECT
NUMBER KF113525, DRAWINGS S000, S100
AND S101 REV B DATED 25.01.2021)

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

@AE7D

(% ALL PAVEMENTS, FOOTPATHS AND RAISED MEDIANS ARE CONSTRUCTED TO TfNSW SPECIFICATIONS.

)% CORRECTIVE COURSE THICKNESS WILL VARY TO MATCH REVISED SURFACE LEVELS.

*% 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.

+% PEDESTRIAN FOOTWAY IS TO BE IN ACCORDANCE WITH FAIRFIELD CITY COUNCIL'S STANDARD DRAWING S-501.

,% 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

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
150mm 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		5>;7@E
EXTERNAL REFERENCE FILES	C7G	63E7	AMENDMENT / REVISION DESCRIPTION	WVR No.	3BBCAG3>	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	E;E>7	@377	63E7	GAZCORP
	'	*(%'.%)'(	50% DETAILED DESIGN		B%4JCF?	"' " "' # #' $@	Ā$ #" Consulting	6C3H@	JASON BOVIS	*(%'.%)'(	
	(	((%((%)'(	80% DETAILED DESIGN		B%4JCF?	1 : 100 FULL SIZE A3	ABN:25 604 069 581 PO Box:7936, BAULKHAM HILLS NSW 2153 %Ā(2) 8660 0035 ĀTWRXZXTXWOXW[UTWS%Ō	DRG CHECK	PHILIP BYRUM	*(%'.%)'(	
	)	(.%')%')'(	100% DETAILED DESIGN		B%4JCF?	CO-ORDINATE SYSTEM MGA Z56 HEIGHT DATUM 3:6		67D;9@	PHILLIP STODDART	*(%'.%)'(	
	*	'(%'+%)'(	ACCEPTED FOR CONSTRUCTION		B%4JCF?			DESIGN CHECK	PHILIP BYRUM	*(%'.%)'(	PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT
								DESIGN MNGR	PHILIP BYRUM	*(%'.%)'(	
								PROJECT MNGR	PAUL CHURTON	*(%'.%)'(	

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

3*

SHEET 1 OF 1

TfNSW REGISTRATION No. 6D)')'&"'+), B3CE -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D:EBG","(;DDF7 *

© Transport for New South Wales

Annexure H – Ultimate Design TCS Drawings

TCS 5058

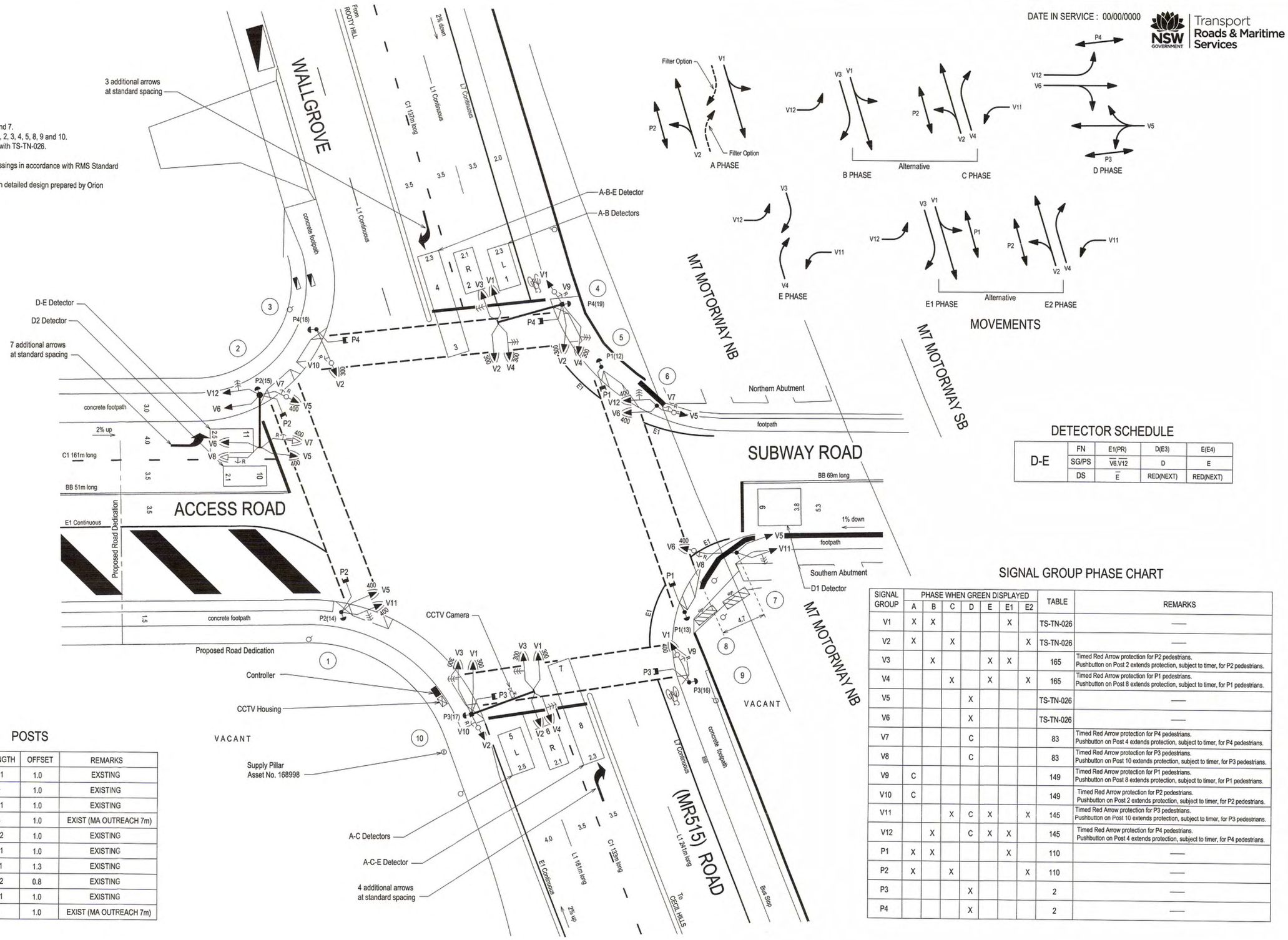
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DO NOT AMEND MANUALLY

DATE IN SERVICE : 00/00/0000

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 19.05.2021
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 Quigg
POSITION Traffic Signal Des 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 Hamad
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

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TCS 5058

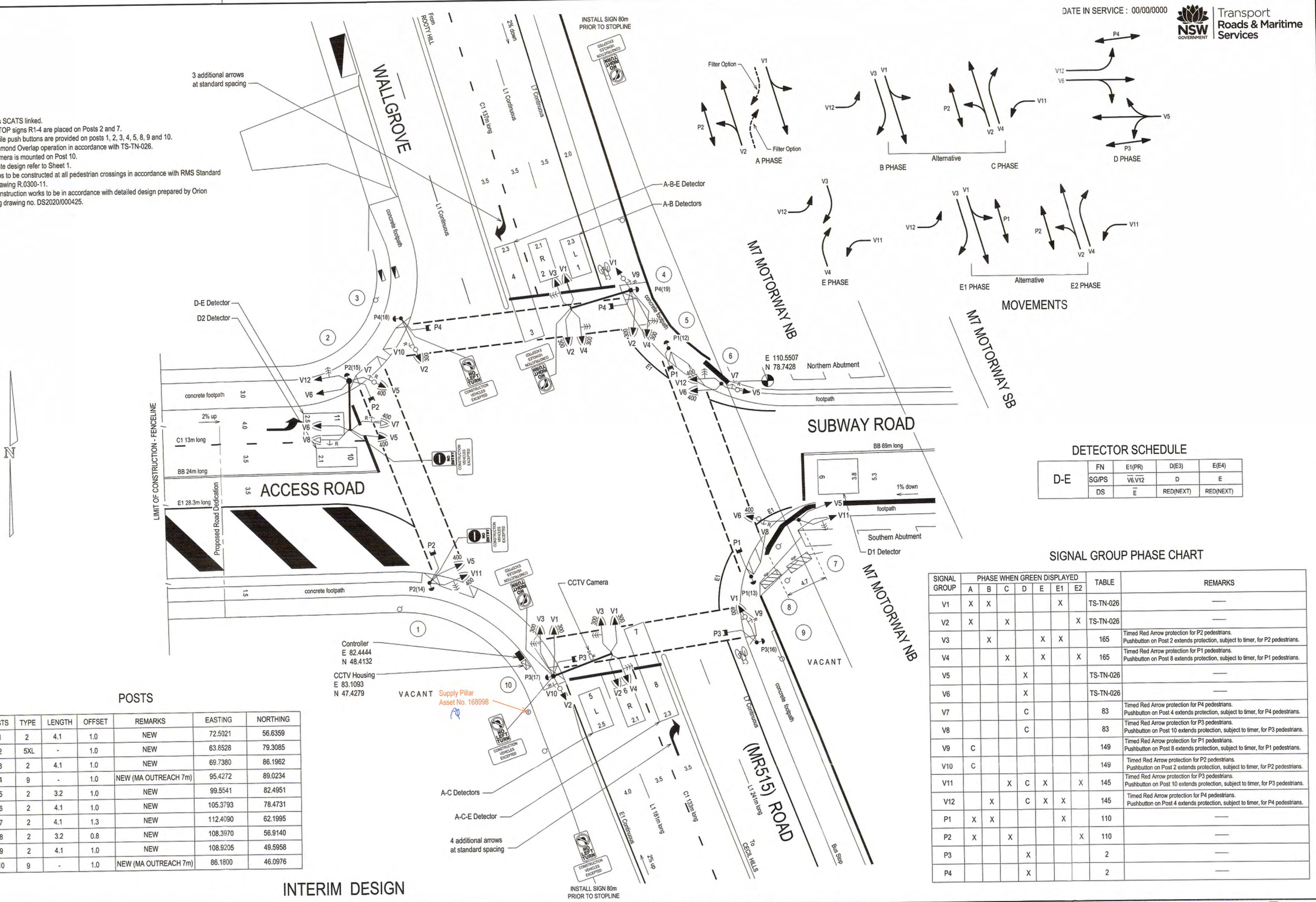
DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE : 00/00/0000

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. 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 830 912 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.S.C.L.
DATE 3.6.2021

RMS ACCEPTANCE
ACCEPTED
NAME Dilan 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

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Annexure I – Vehicle Management Plan

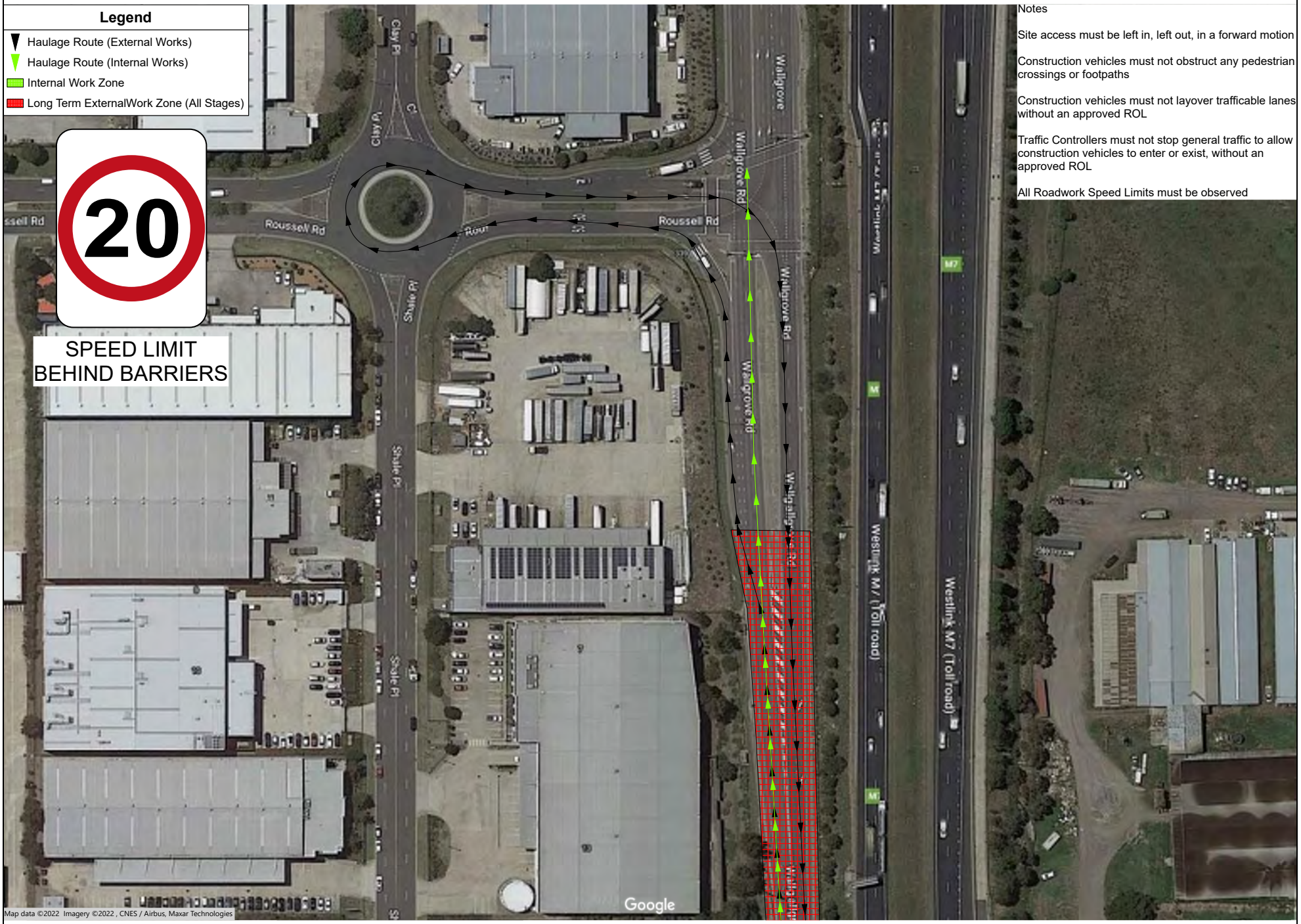
www.invarion.com

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

Legend

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



SPEED LIMIT
BEHIND BARRIERS

Notes

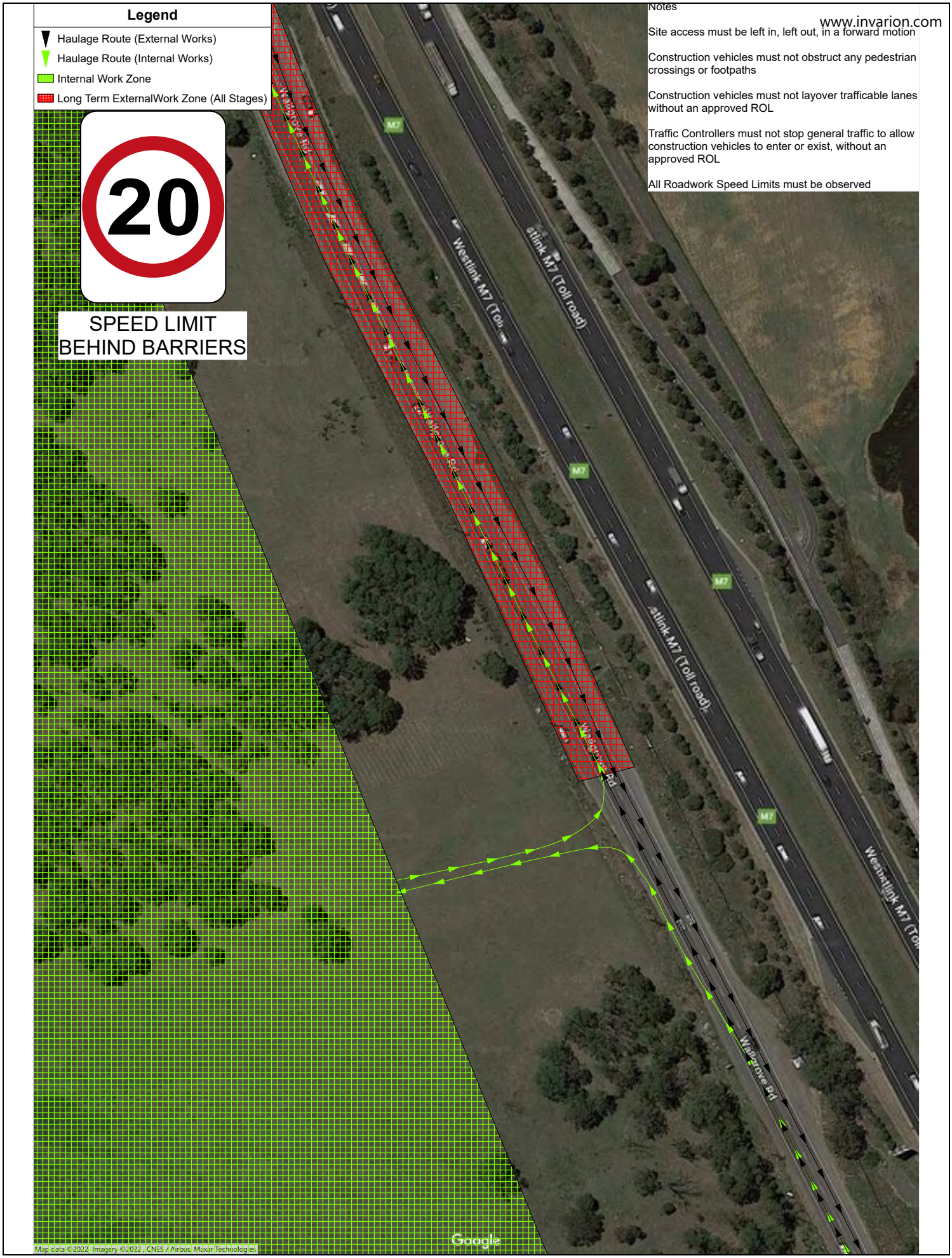
Site access must be left in, left out, in a forward motion

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


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
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
Westlink M7 (Toll road)
M7
Google


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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www.invarion.com
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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
Westlink M7 (Toll road)
M7
Wallgrove Rd
Burley 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)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
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
Wallgrove Rd
Westlink M7 (Toll road)
M7
Chandos Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies

www.invarion.com

Legend

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



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

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)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
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
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)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
Notes
www.invarion.com
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
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
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
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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
Wallgrove Rd
Westlink M7 (Toll road)
M7
Cobham St
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies

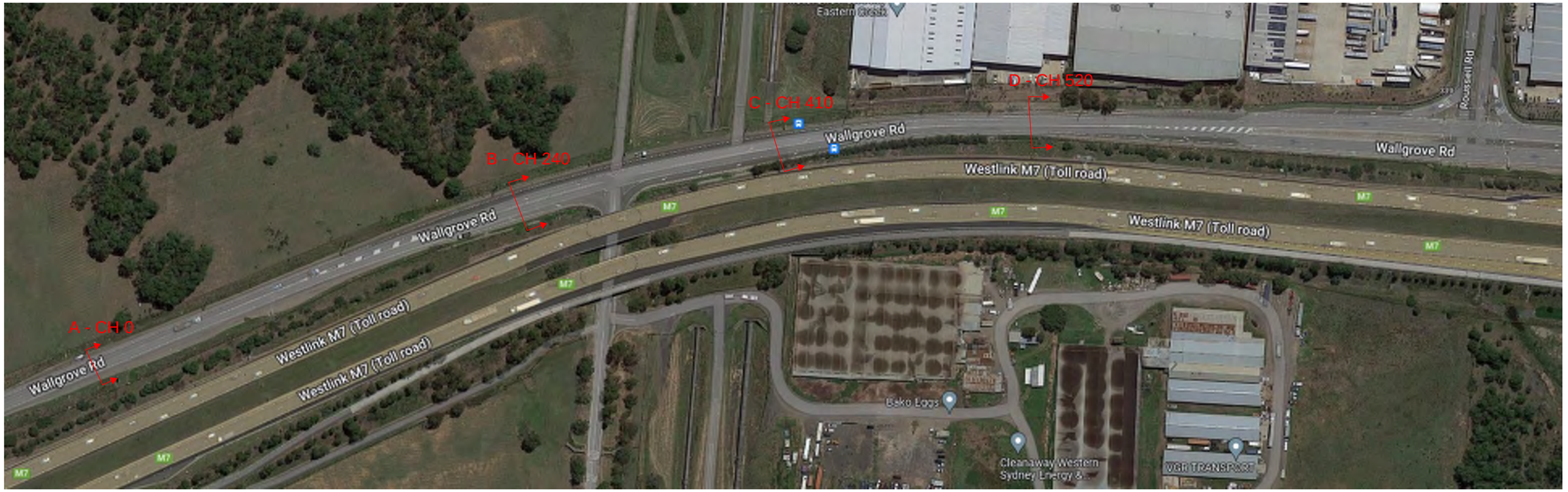
www.invarion.com



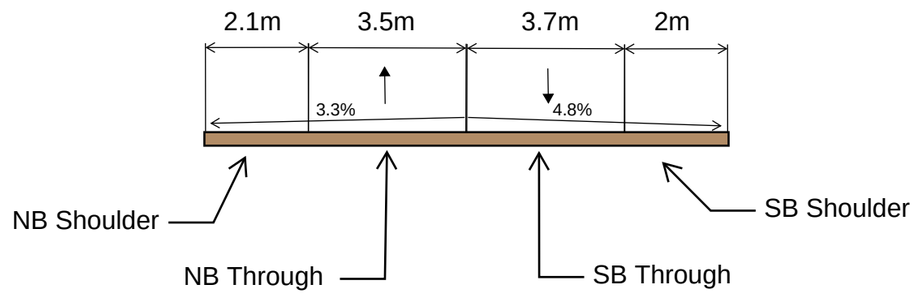

Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
Construction vehicles must not obstruct any pedestrian crossings 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
Wallgrove Rd
Westlink M7 (Toll road)
M7
Saxony Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies

Annexure J – Cross Sections

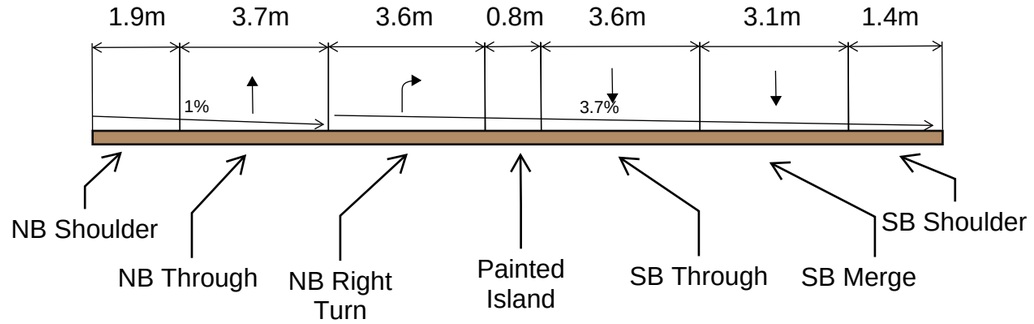
Existing Wallgrove Road Cross Sections - N.T.S.



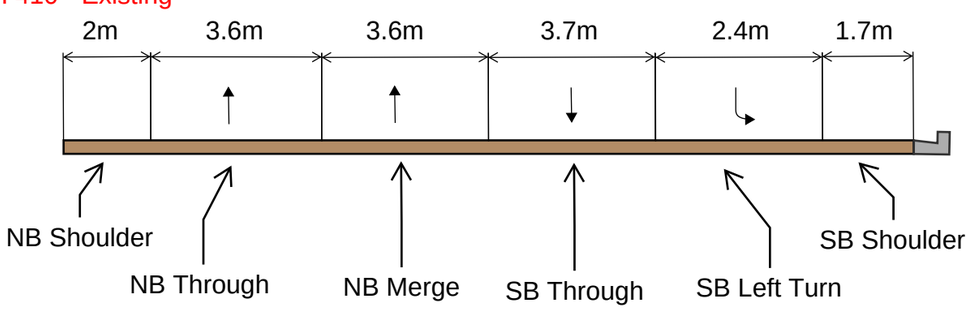
A - CH 0 - Existing



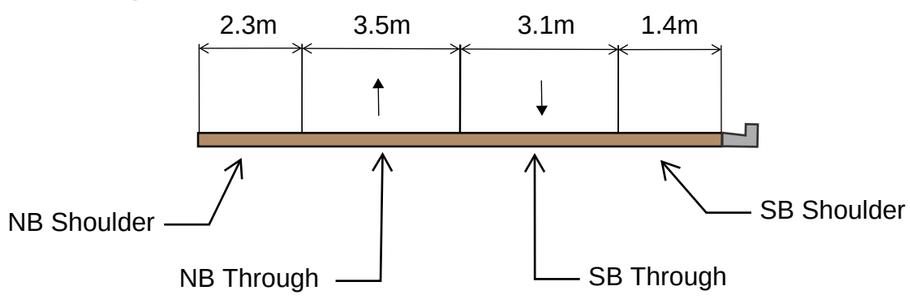
B - CH 240 - Existing



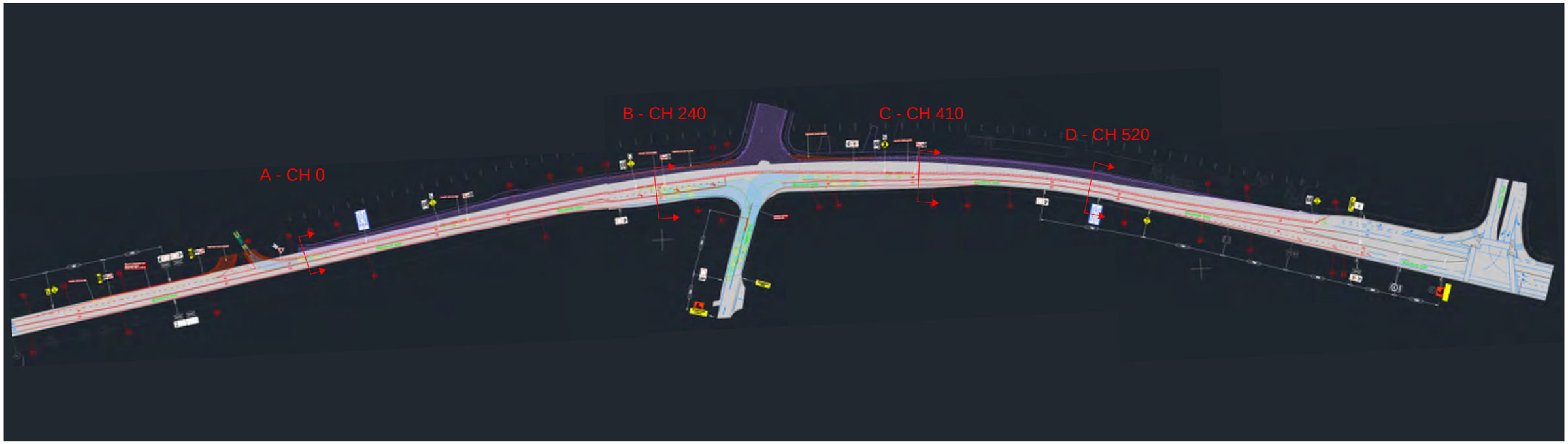
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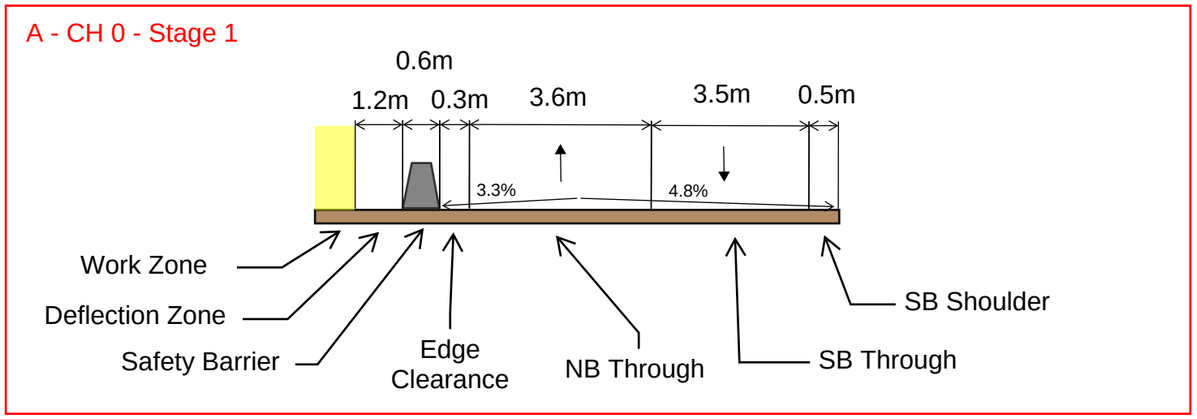


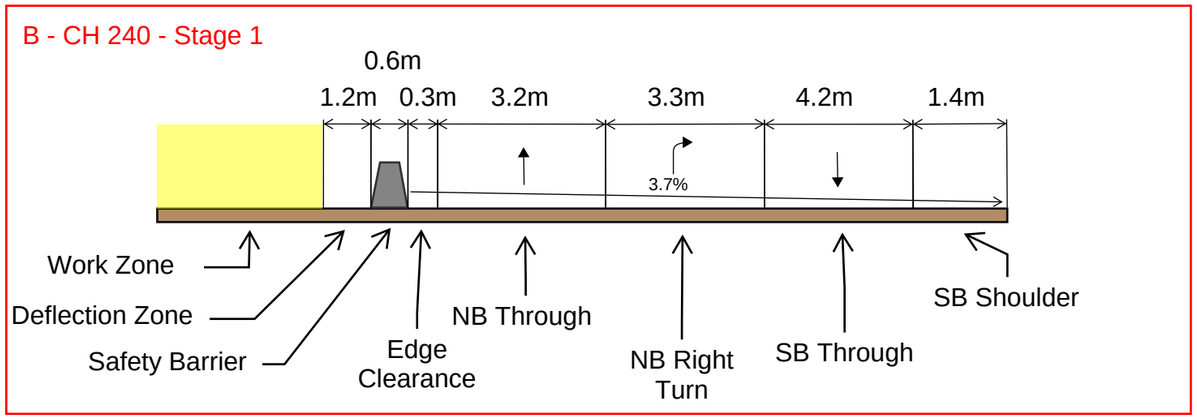
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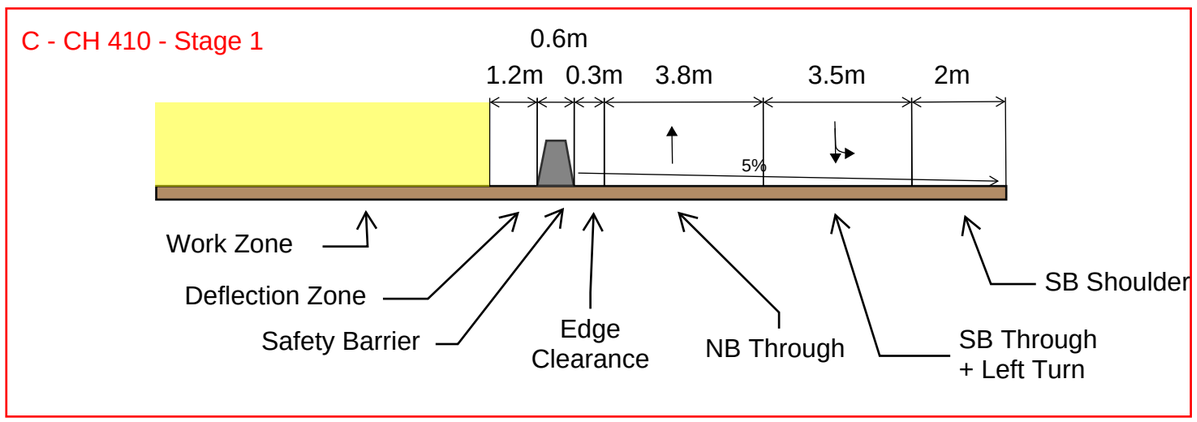


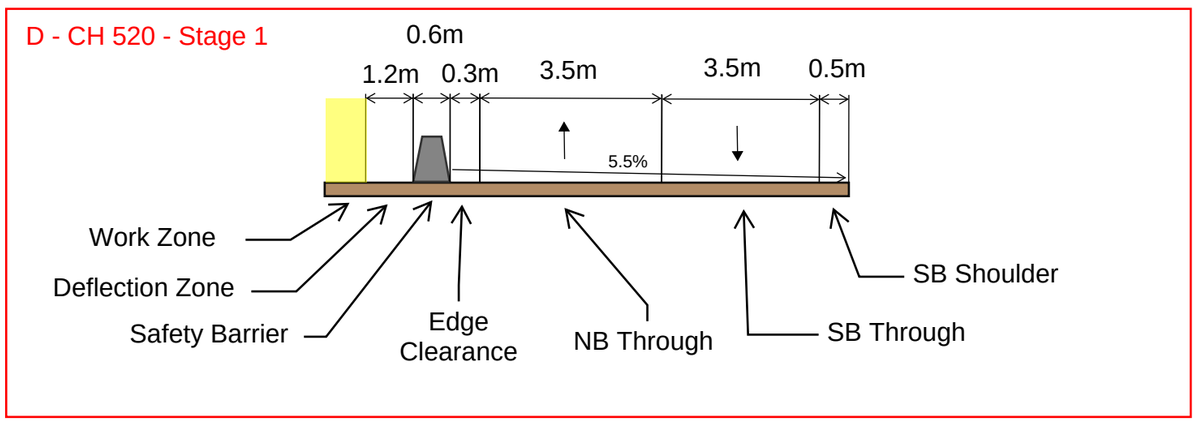
Stage 1 Wallgrove Road Cross Sections - N.T.S.



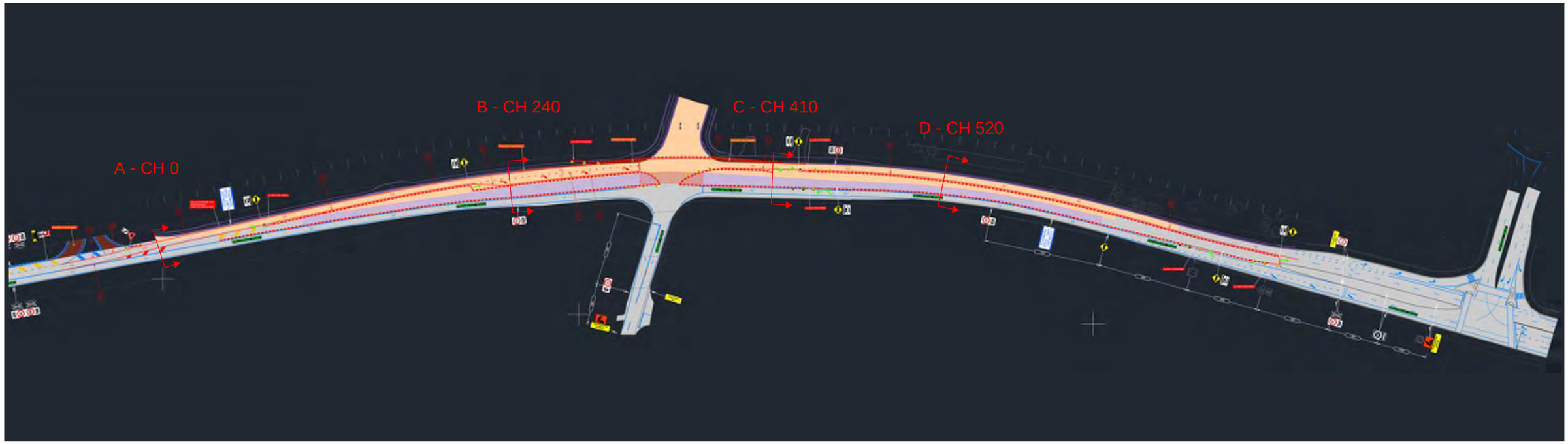




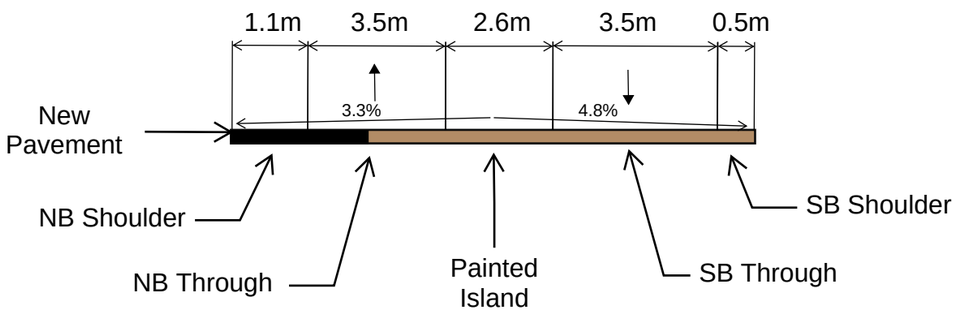




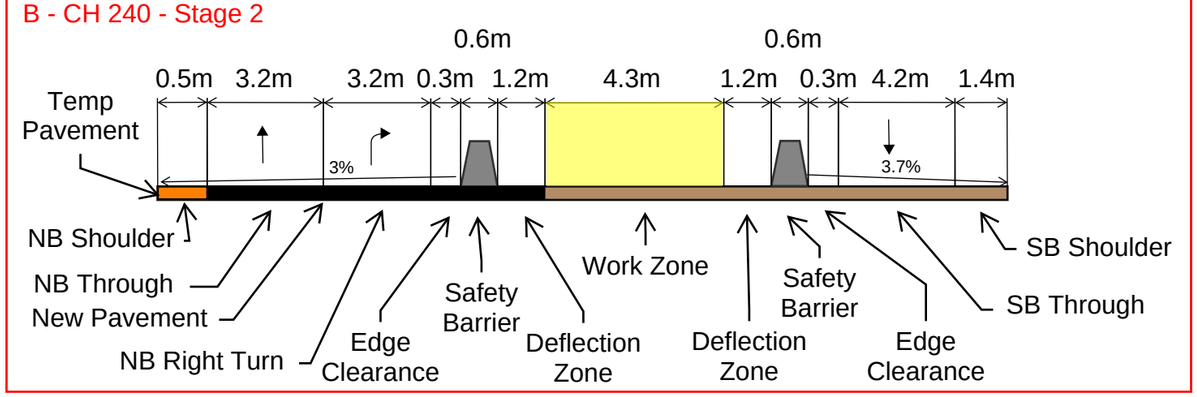
Stage 2 Wallgrove Road Cross Sections - N.T.S.



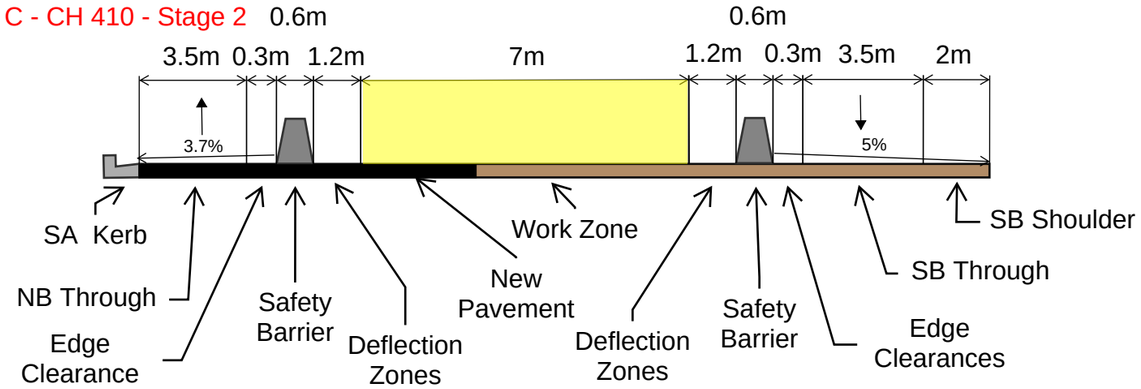
A - CH 0 - Stage 2



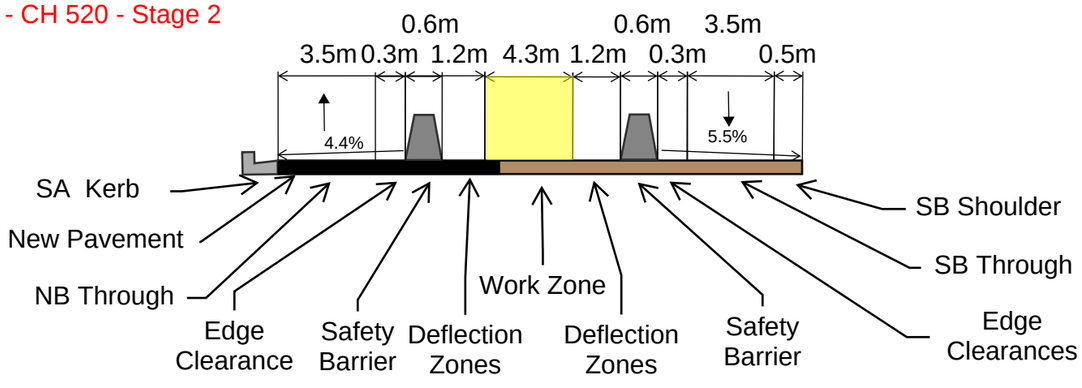
B - CH 240 - Stage 2



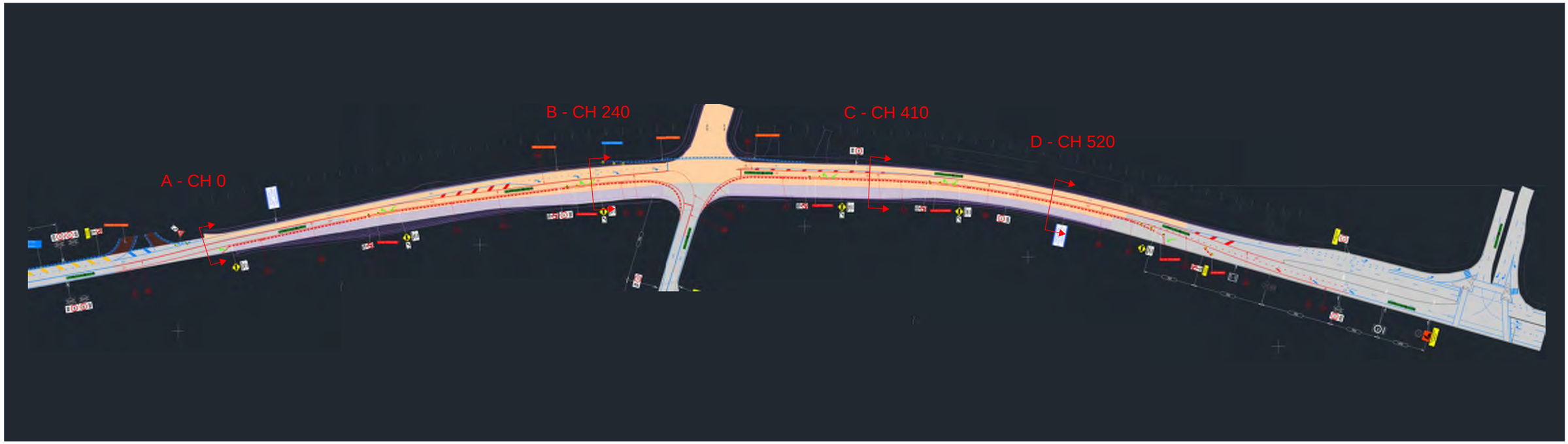
C - CH 410 - Stage 2



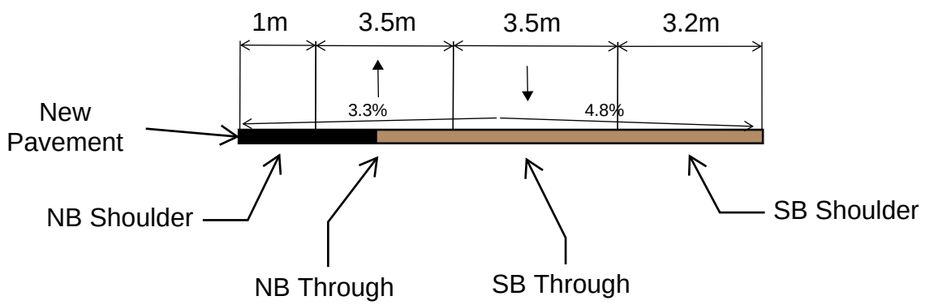
D - CH 520 - Stage 2



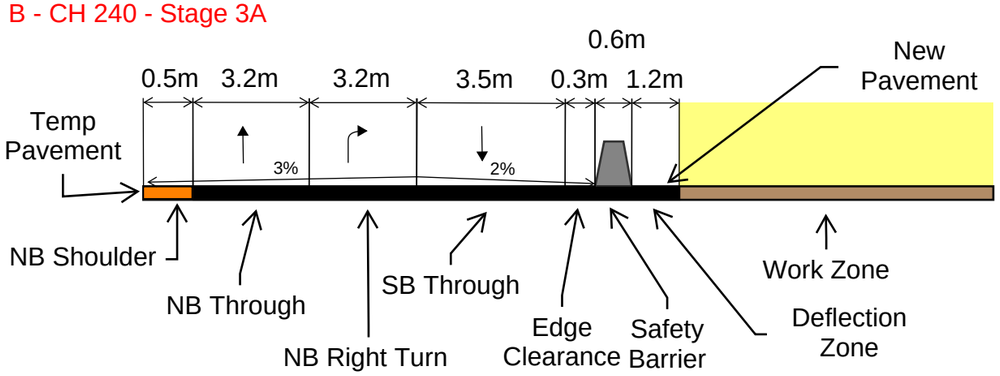
Stage 3A Wallgrove Road Cross Sections - N.T.S.



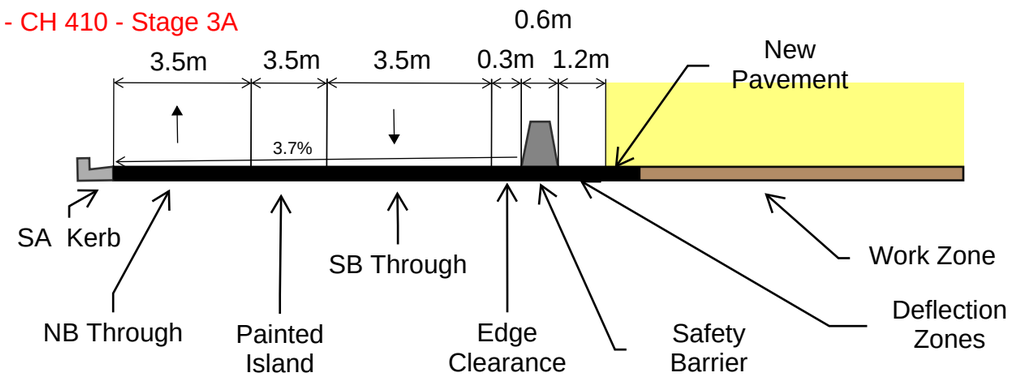
A - CH 0 - Stage 3A



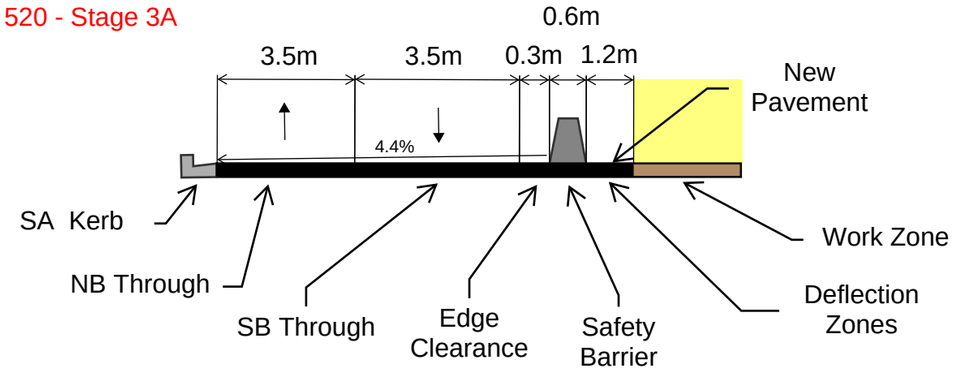
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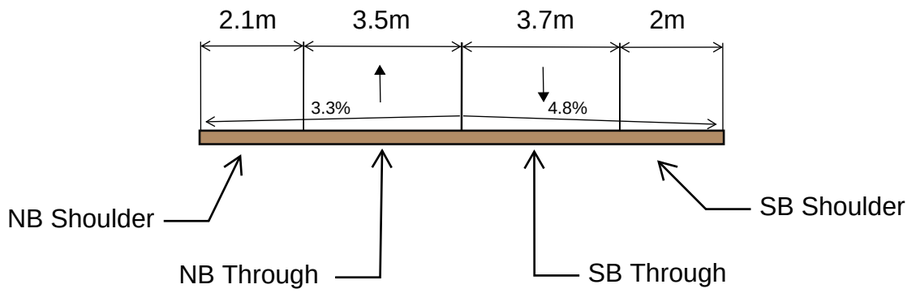
C - CH 410 - Stage 3A



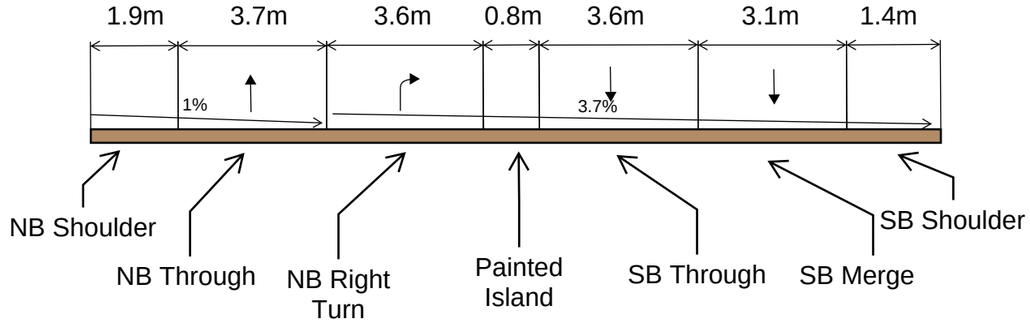
D - CH 520 - Stage 3A



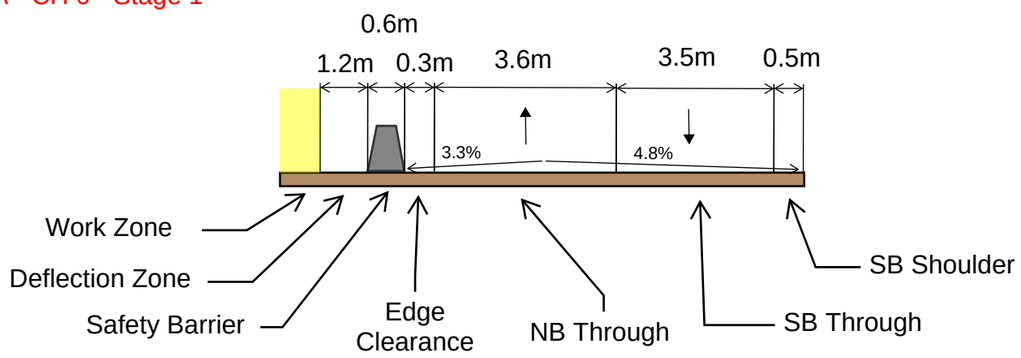
A - CH 0 - Existing



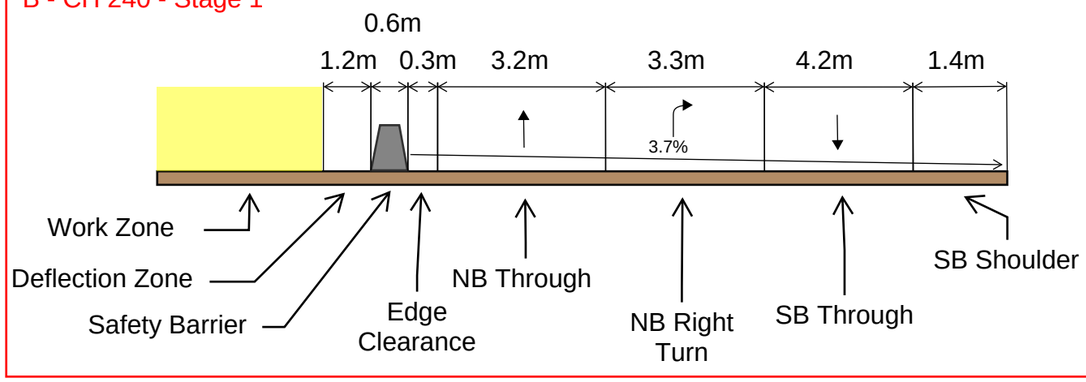
B - CH 240 - Existing



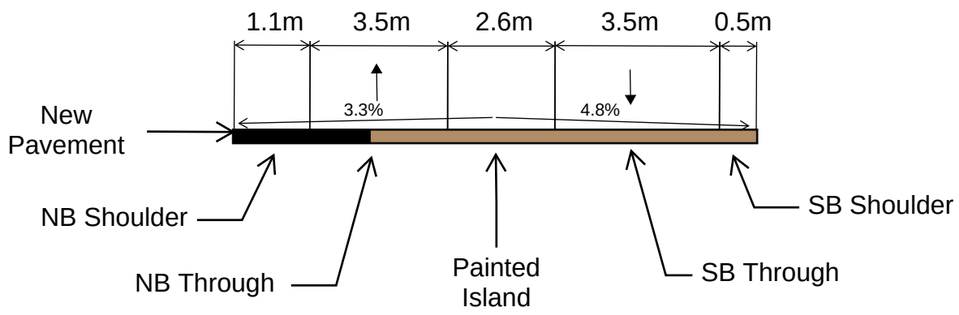
A - CH 0 - Stage 1



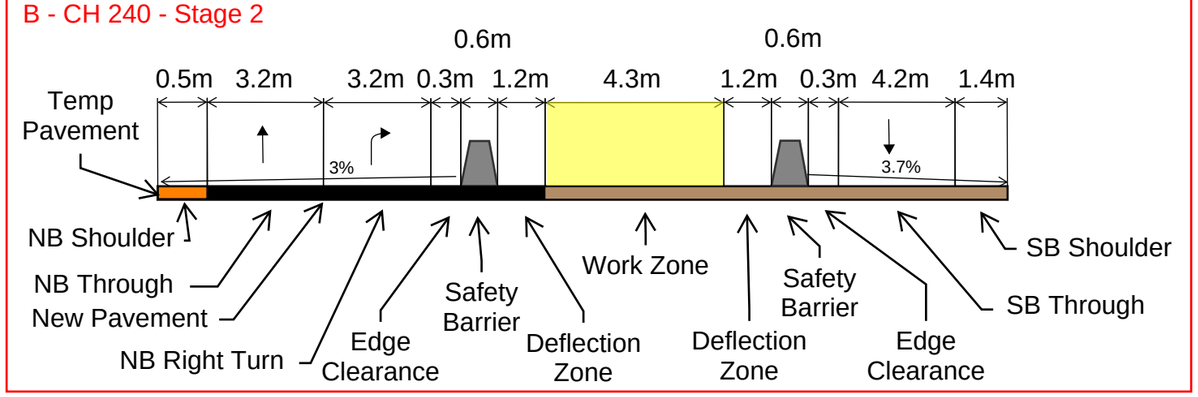
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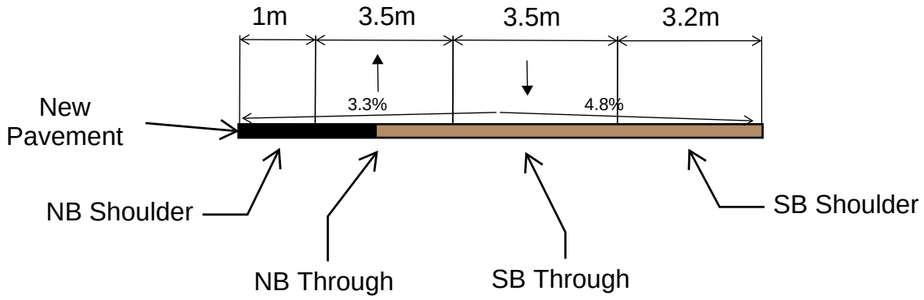
A - CH 0 - Stage 2



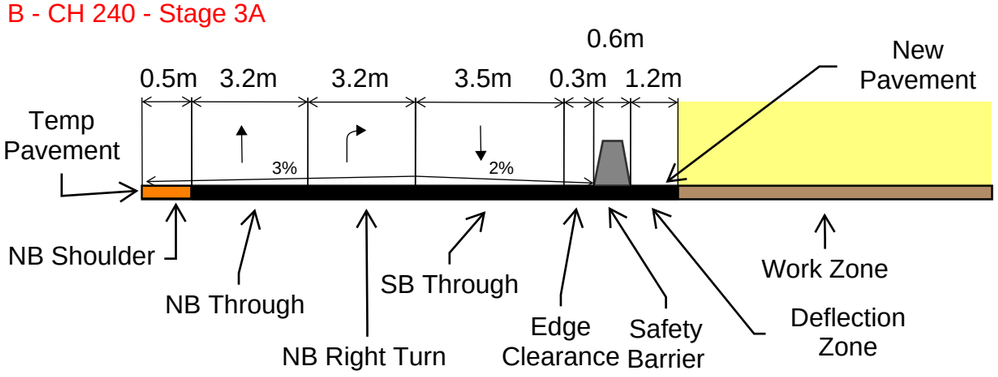
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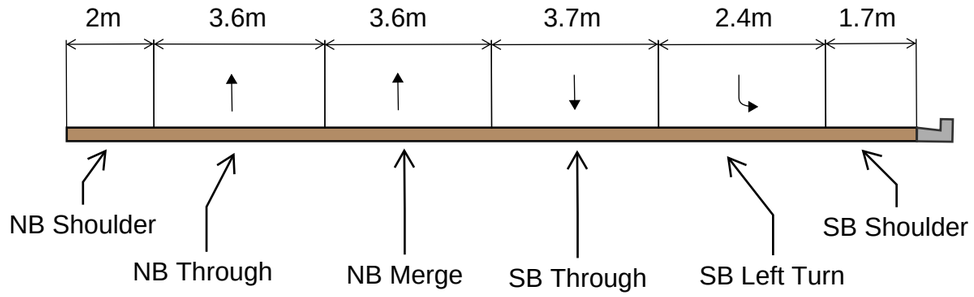
A - CH 0 - Stage 3A



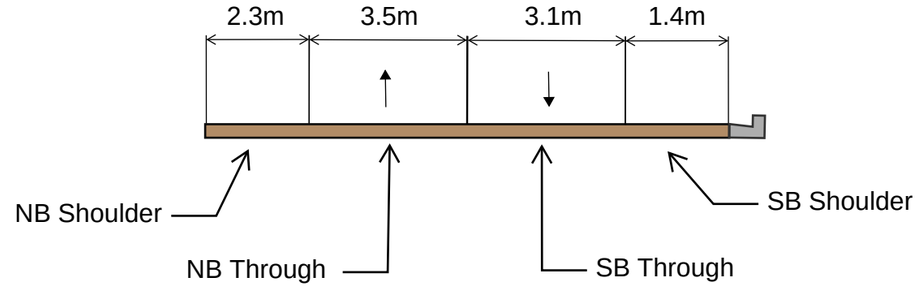
B - CH 240 - Stage 3A



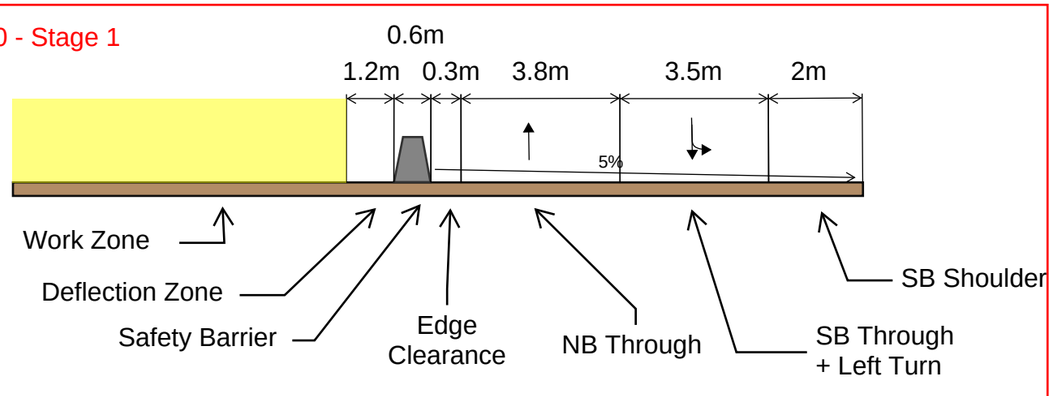
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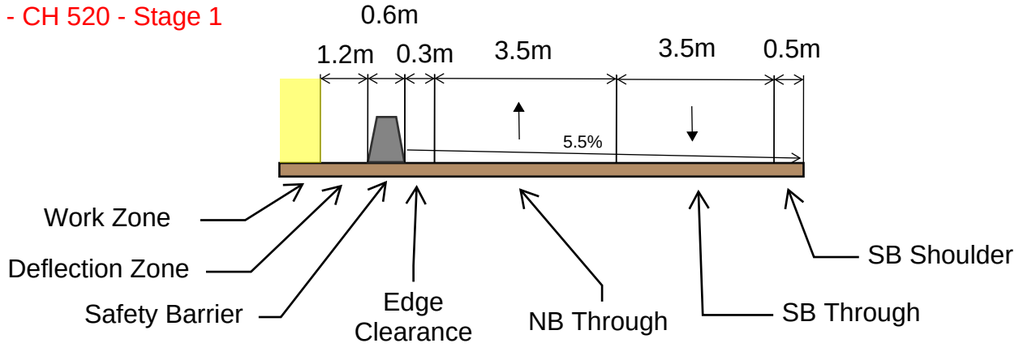
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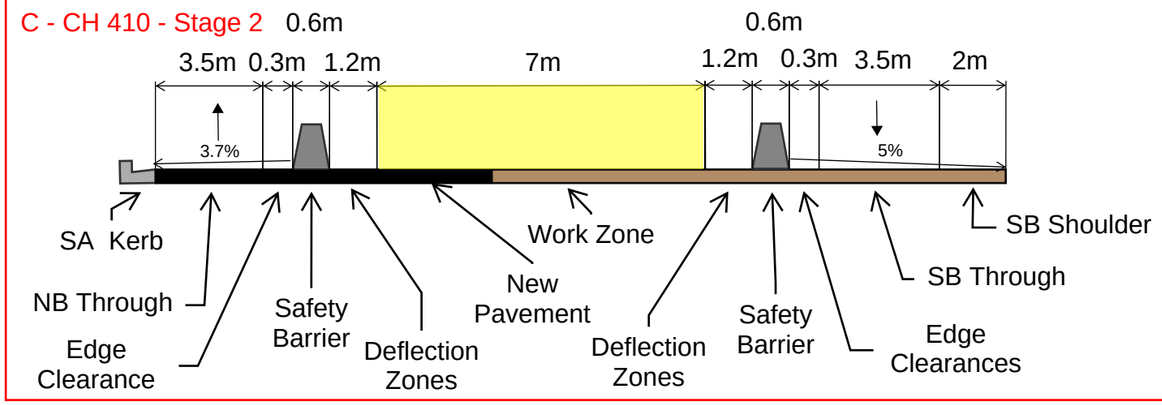
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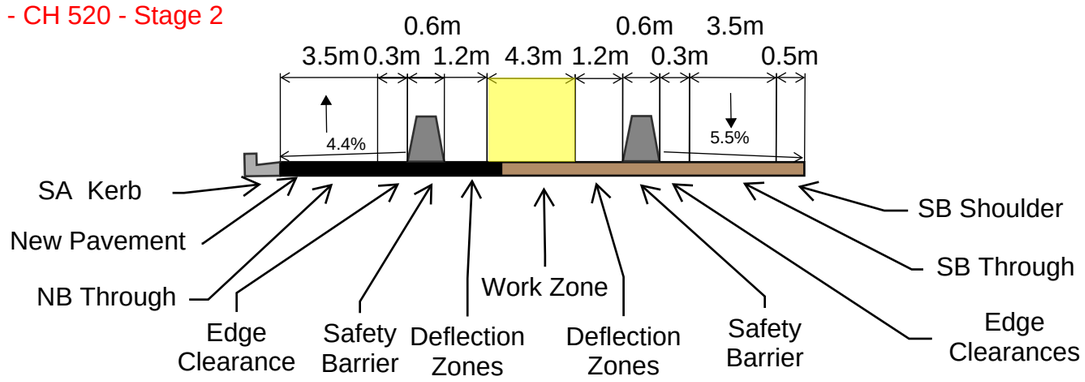
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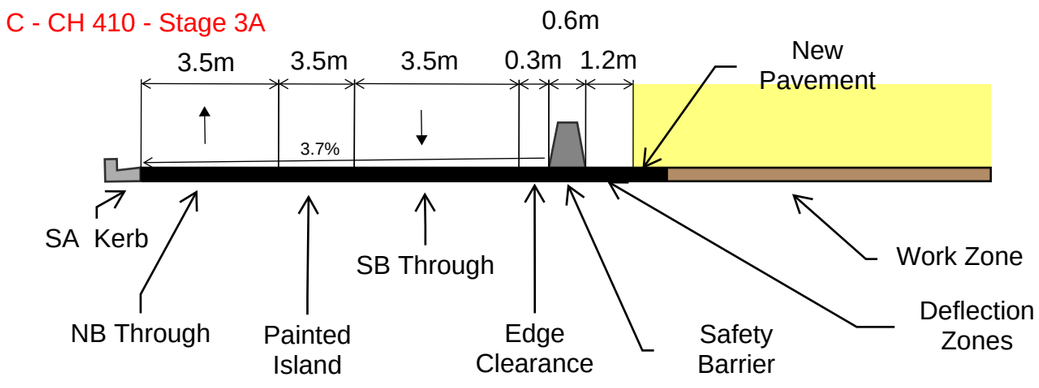
C - CH 410 - Stage 2



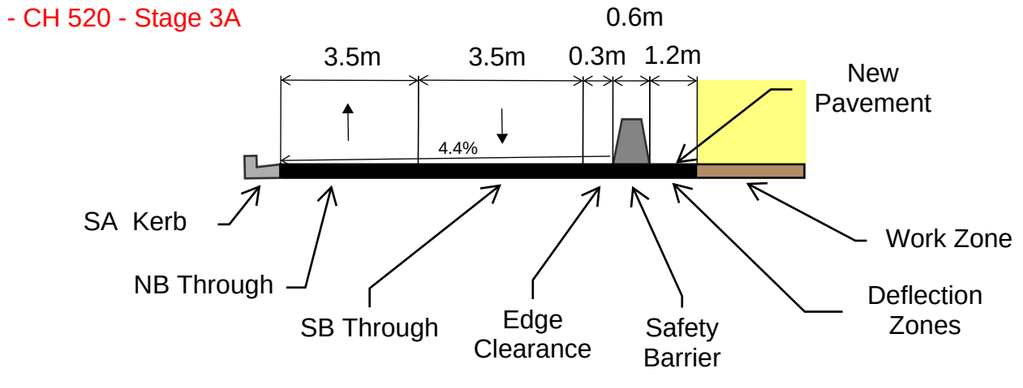
D - CH 520 - Stage 2



C - CH 410 - Stage 3A



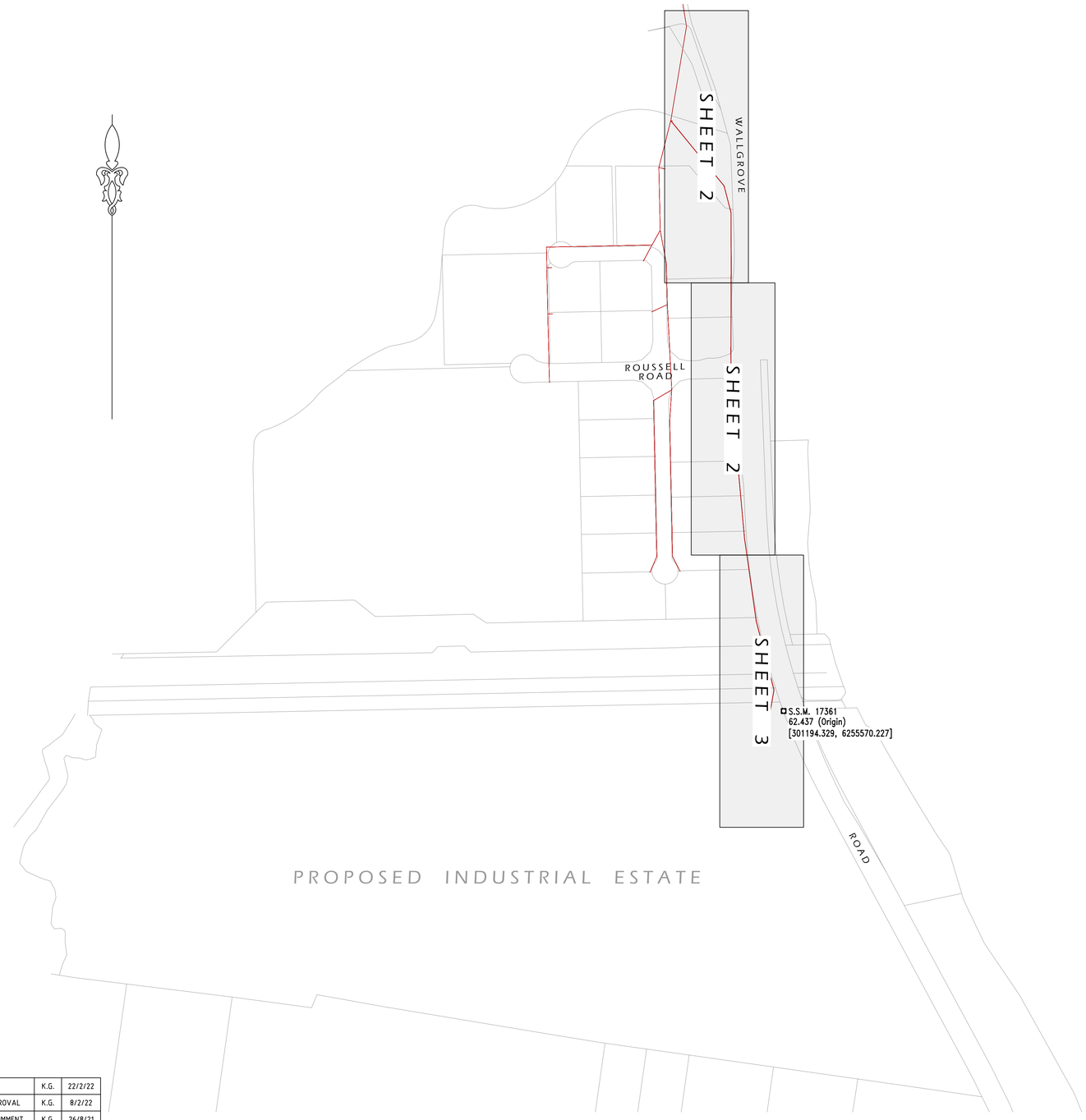
D - CH 520 - Stage 3A



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

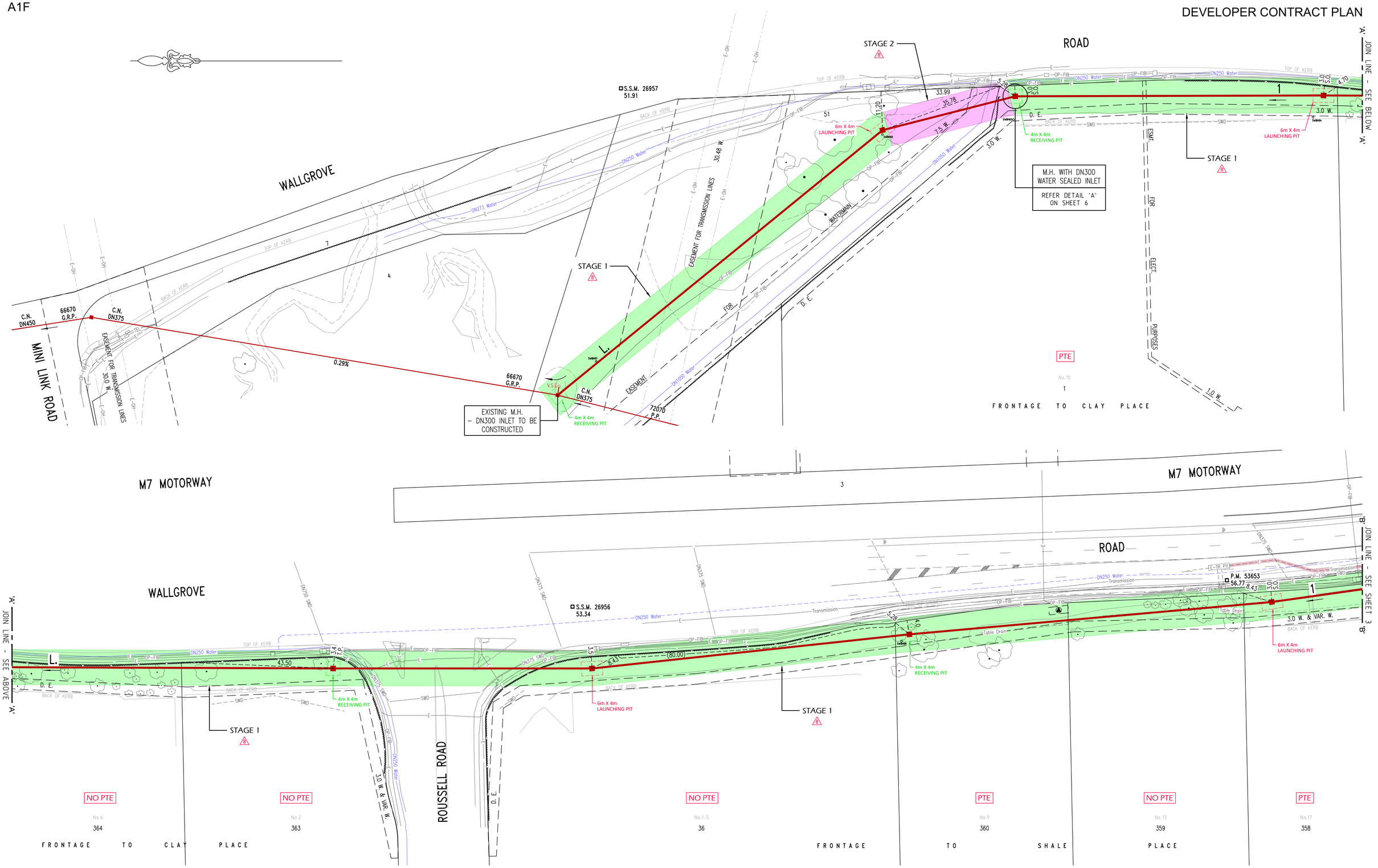
BLACKTOWN SEWERAGE
DRAINS TO
SPS 259 VIA EASTERN CREEK SUB'N SEC.2
QUAKERS HILL S.T.W.

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



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

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

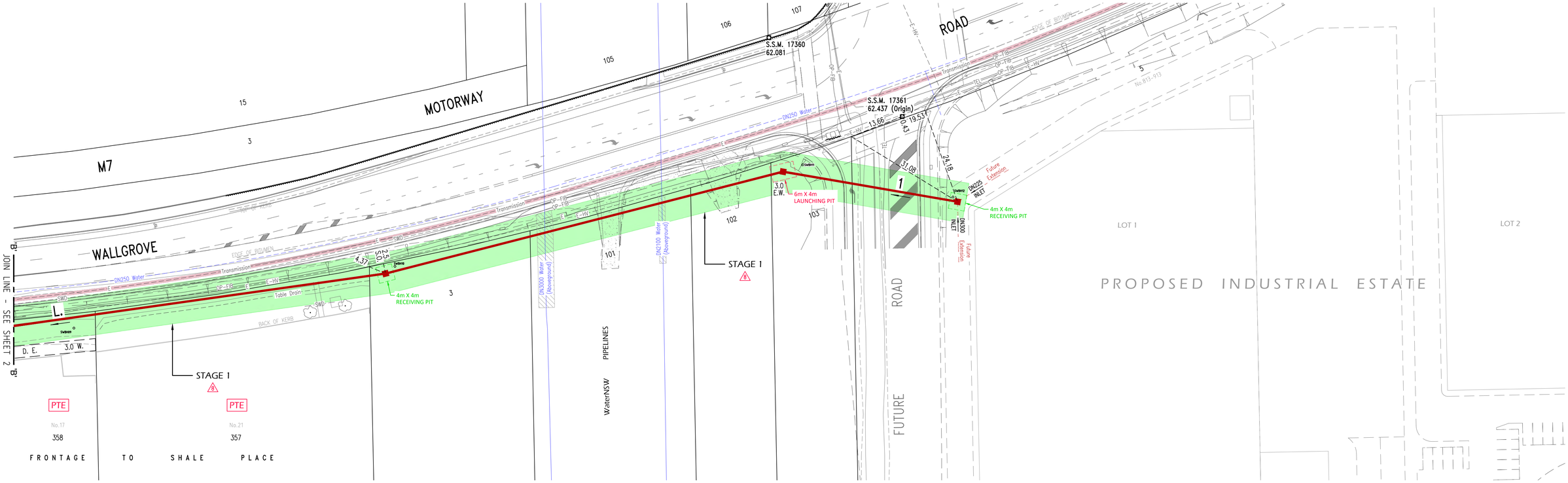
Case No. 181159ww | SHT 2 OF 10 SHTS.

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:

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

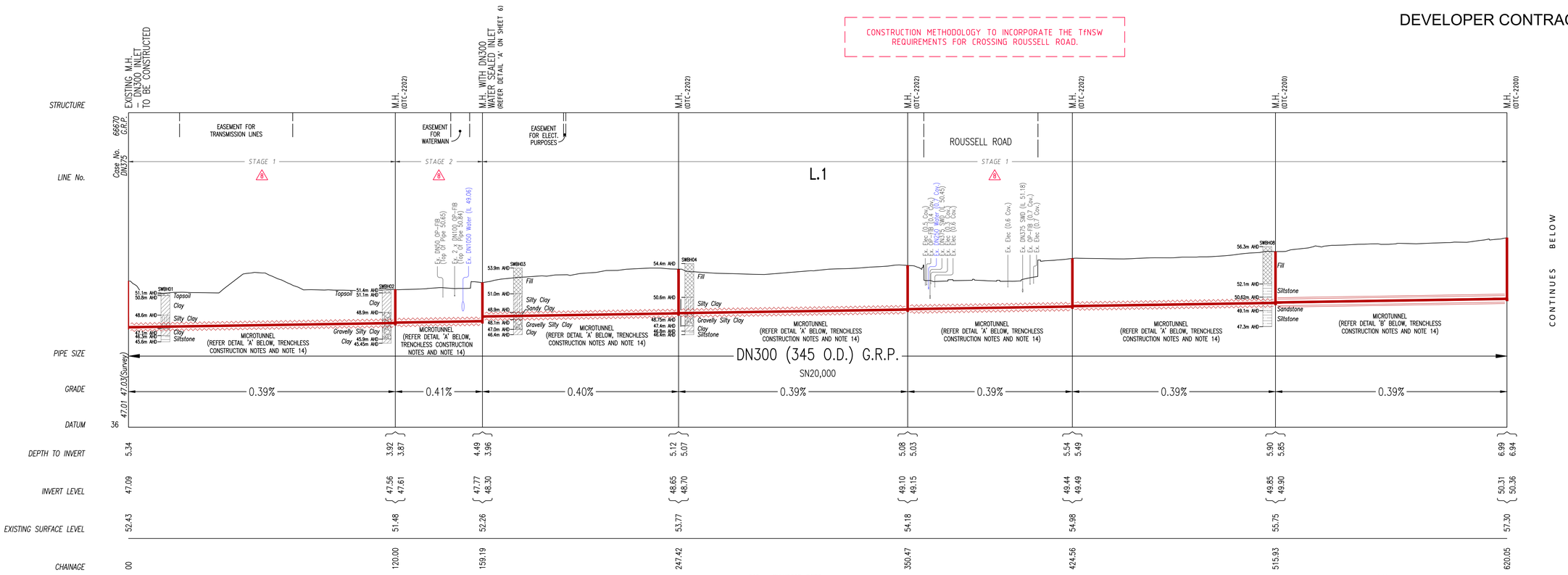
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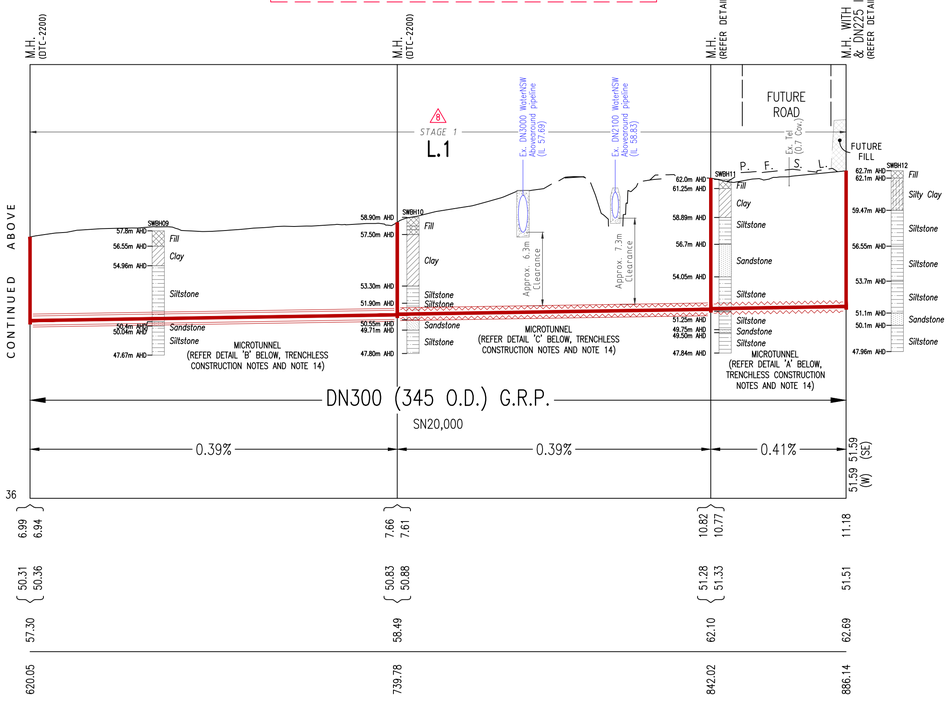
PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 3 OF 10 SHEETS

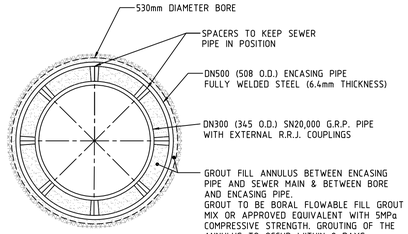
A1F

DEVELOPER CONTRACT PLAN

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

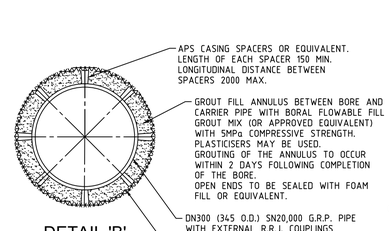






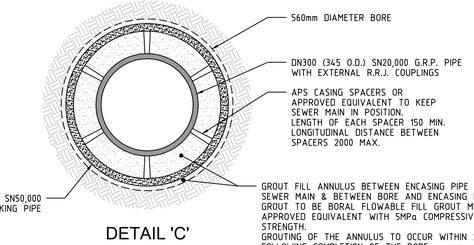
DETAIL 'A'
DN300 SEWER
STEEL ENCASING PIPE
MICROTUNNEL SECTION

(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	
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

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 4 OF 10 SHEETS

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

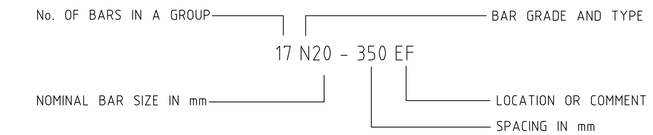
SD3. CONCRETE EXPOSURE CLASSIFICATION: D (AS3735)

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.

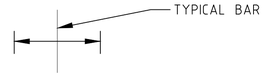
R3. DESIGNATION OF REINFORCEMENT BARS AS IN EXAMPLE:



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

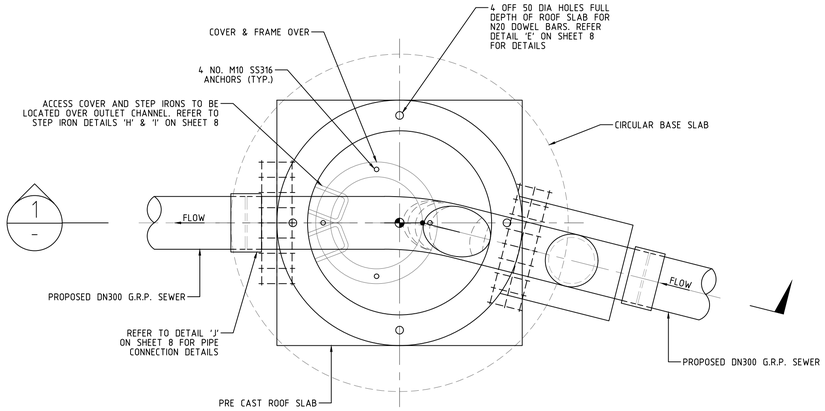
R7. REINFORCEMENT SHALL BE SUPPORTED ON APPROVED PLASTIC OR PLASTIC TIPPED WIRE STOOLS AT NOT MORE THAN 600mm CENTRE BOTHWAYS IN SLABS AND AT 1000mm CENTRES IN BEAMS.

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.	Case No. 181159ww | SHT 5 OF 10 SHTS.
CONSTRUCTOR	
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

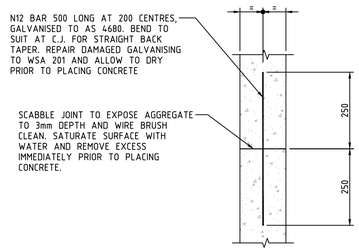


● DENOTES CENTRE OF M.H.

● DENOTES INTERSECTION POINT OF SEWERS

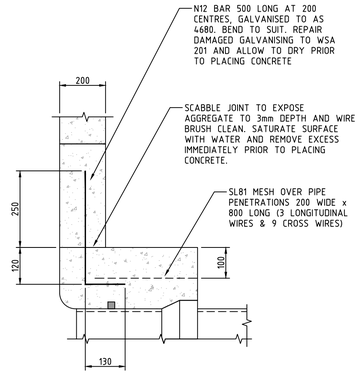
DETAIL 'A'
WATER SEALED M.H. DETAIL - PLAN

SCALE: 1:20



CONSTRUCTION JOINT (C.J.1)

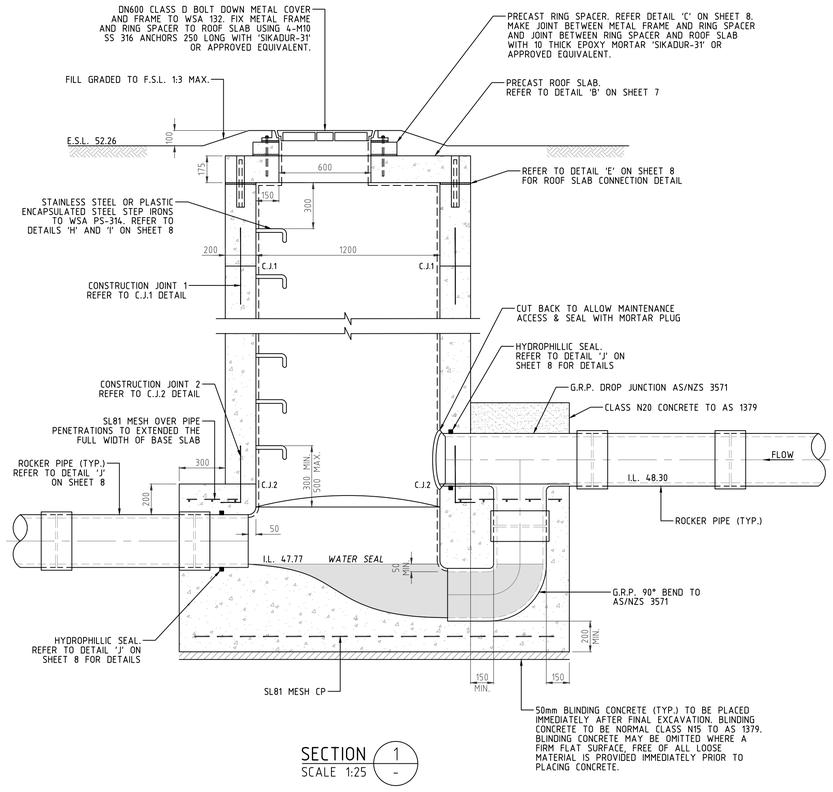
NOT TO SCALE



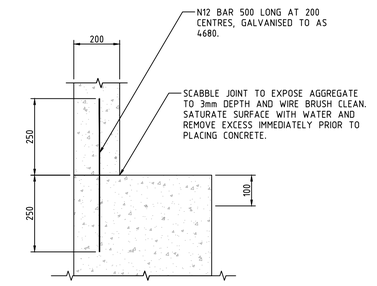
CONSTRUCTION JOINT (C.J.2)

(AT PIPE PENETRATIONS)

NOT TO SCALE



SECTION 1 - SCALE 1:25



CONSTRUCTION JOINT (C.J.2)

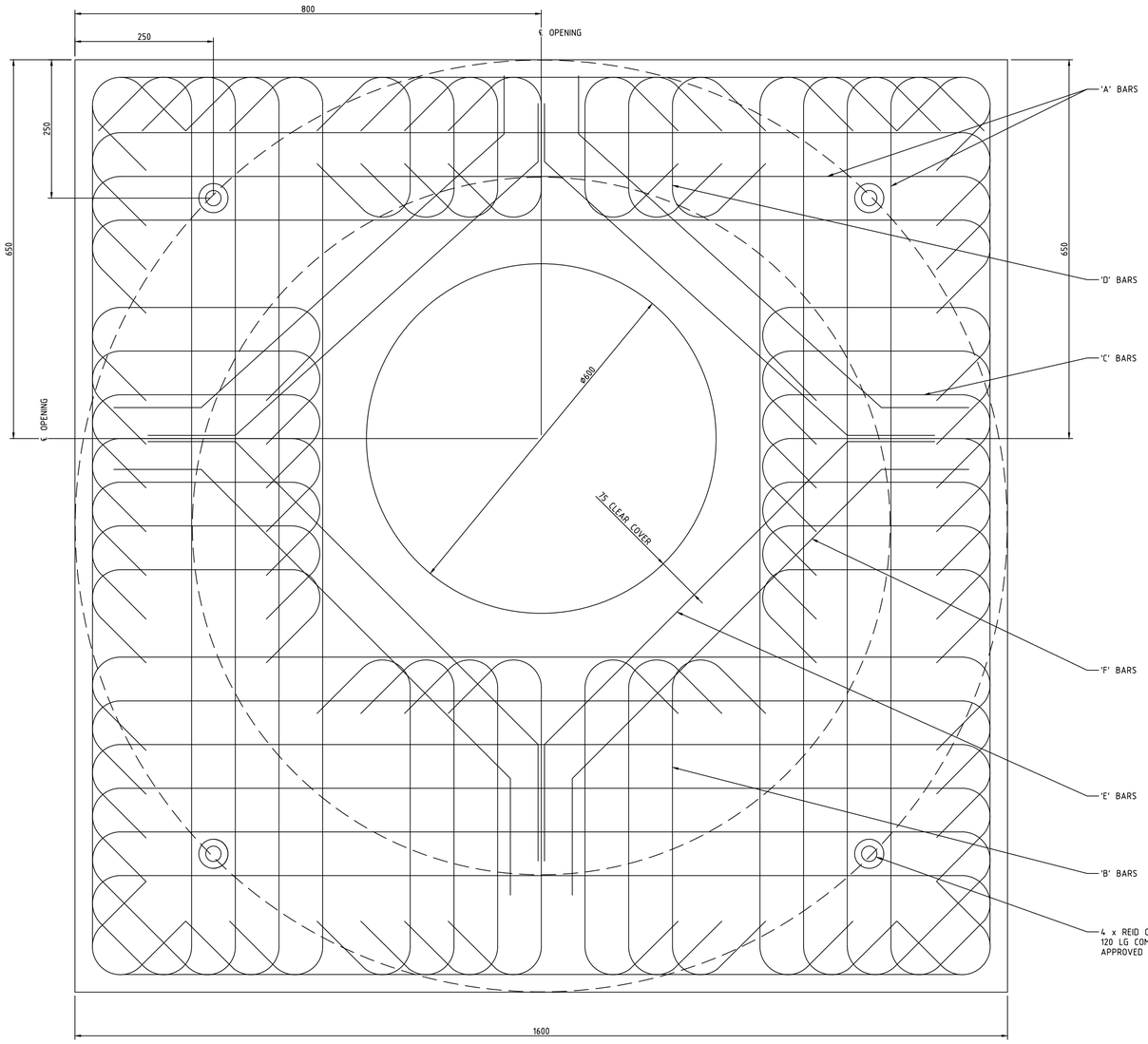
(WITHOUT PIPE PENETRATIONS)

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	Case No. 181159ww — SHT 6 OF 10 SHTS. SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 6 OF 10 SHEETS

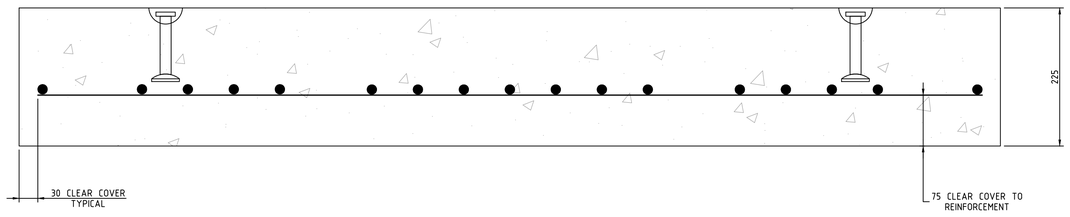
R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:



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

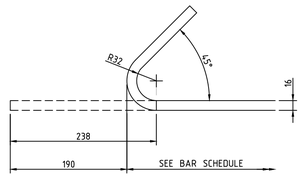


DETAIL 'B'

WATER SEALED M.H. ROOF SLAB

APPROXIMATE WEIGHT - 1.3 TONNE

NOT TO SCALE



N16 HOOK BENDING DETAILS

(NOT TO SCALE)

ROOF SLAB NOTES:

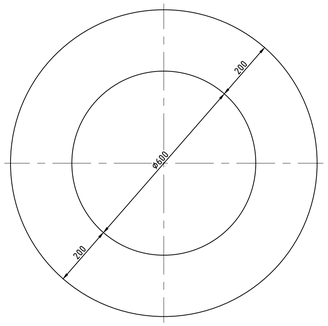
RS1. PRECAST CONCRETE ROOF SLAB SHALL HAVE A MINIMUM STRENGTH OF 25MPa AT TIME OF LIFTING.

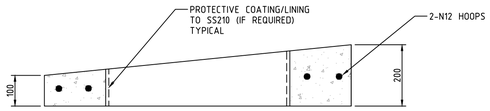
RS2. SPREADER BARS MUST BE USED DURING LIFTING TO ENSURE LIFT FORCE IS VERTICAL.

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

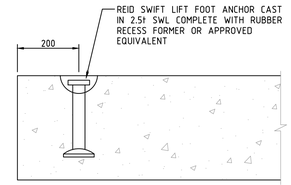
TYPE 3

TYPE 2

TYPE 1

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

(NOT TO SCALE)

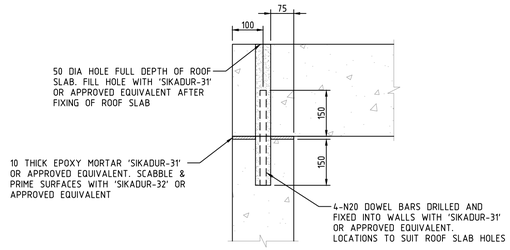


DETAIL 'D'
WATER SEALED M.H.
PRECAST ROOF CASTING DETAIL (TYP.)

(NOT TO SCALE)

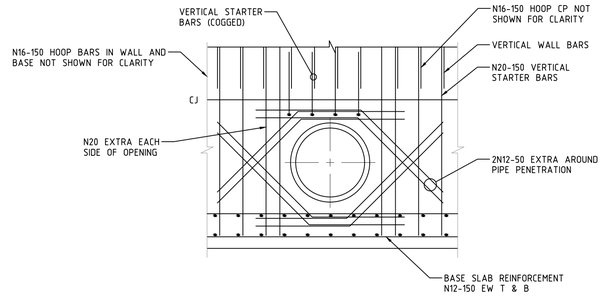
NOTES:

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



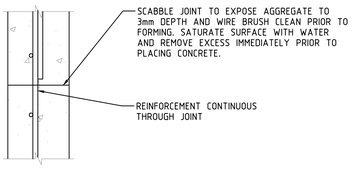
DETAIL 'E'
WATER SEALED M.H.
PRECAST ROOF CONNECTION DETAIL (TYP.)

(NOT TO SCALE)



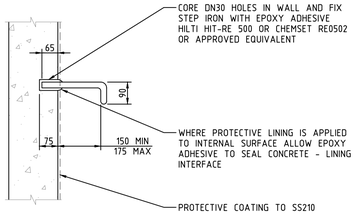
DETAIL 'F'
WATER SEALED M.H.
PENETRATION DETAIL IN BASE SLAB (TYP.)

(NOT TO SCALE)



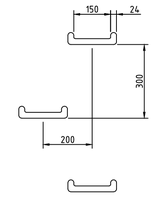
DETAIL 'G'
WATER SEALED M.H.
CONSTRUCTION JOINT DETAIL (TYP.)

(NOT TO SCALE)



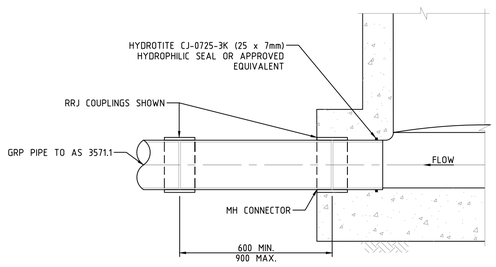
DETAIL 'H'
WATER SEALED M.H.
STEP IRON FIXING DETAIL (TYP.)

(NOT TO SCALE)



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

(NOT TO SCALE)



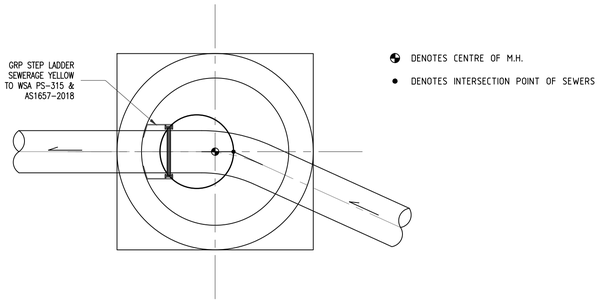
DETAIL 'J'
WATER SEALED M.H.
TYPICAL M.H. BASE FOR G.R.P. SLEEVE COUPLED PIPE

(NOT TO SCALE)

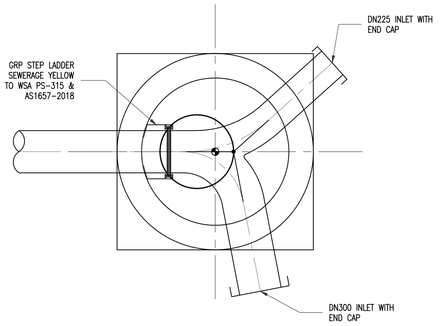
WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	Case No. 181159ww — SHT 8 OF 10 SHTS. SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES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

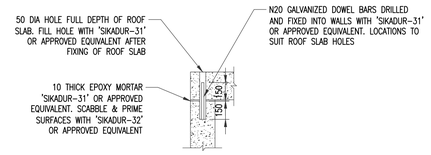
PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 8 OF 10 SHEETS



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



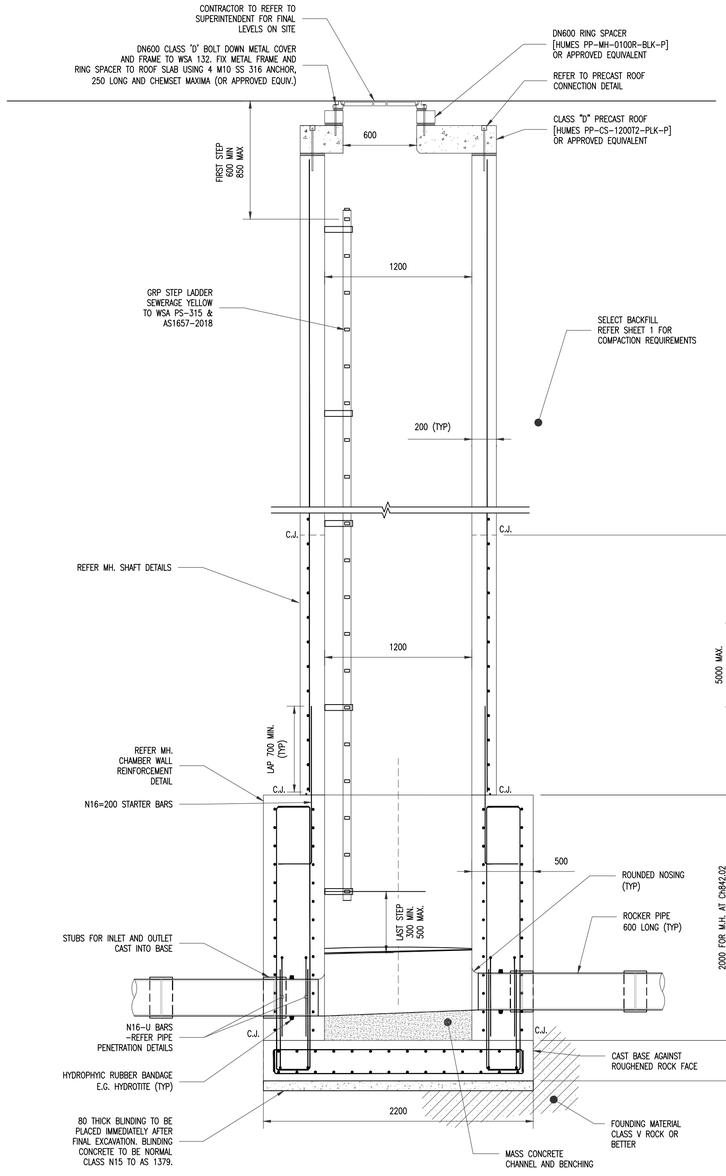
DETAIL 'L'
DEEP M.H. DETAIL - PLAN (Ch886.14)
SCALE 1:20



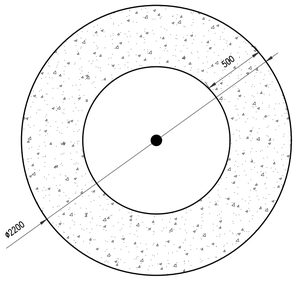
PRECAST ROOF CONNECTION DETAIL
SCALE: 1:20



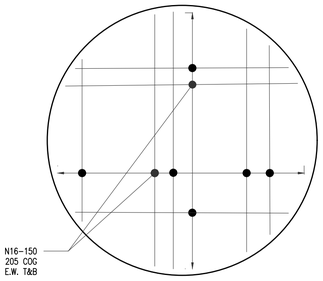
CONSTRUCTION JOINT DETAIL
SCALE: 1:20



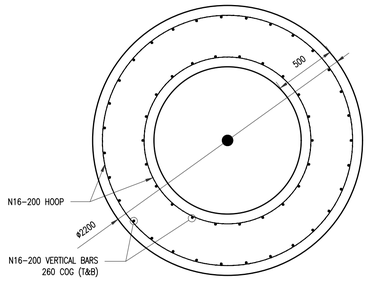
MH DEPTH >10m DETAIL
SCALE 1:20



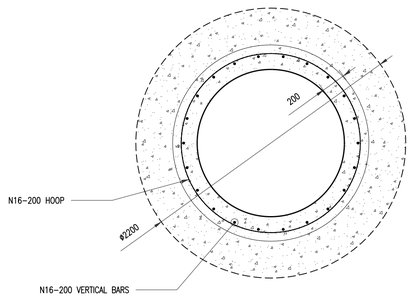
MH BASE FRAMING PLAN
SCALE 1:20



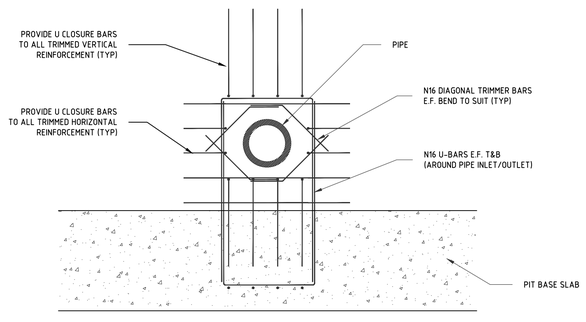
MH BASE REINFORCEMENT PLAN
SCALE 1:20



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

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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

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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

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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

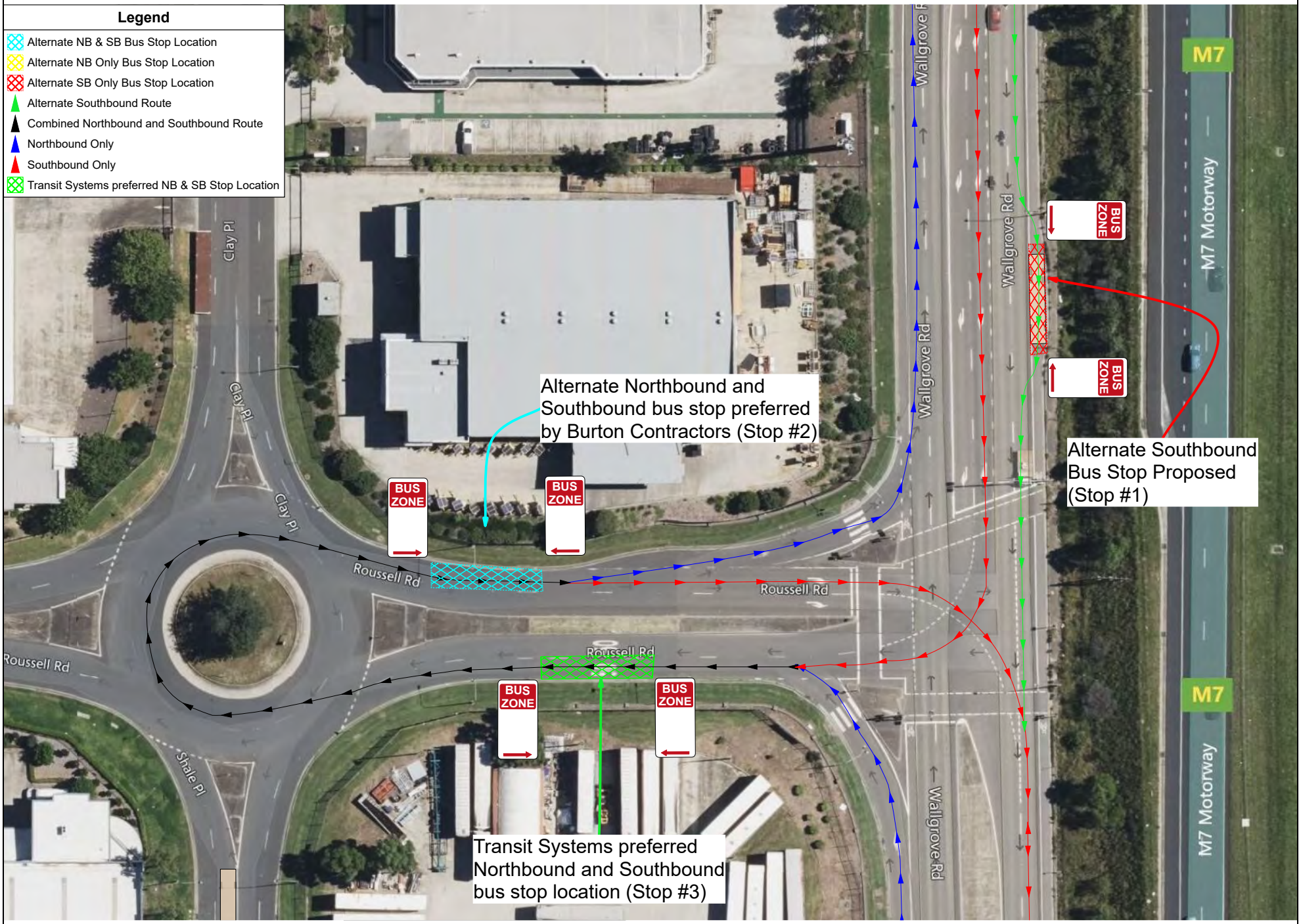
Hannah – Can you please advise if any of the bus stop locations are not acceptable?

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.

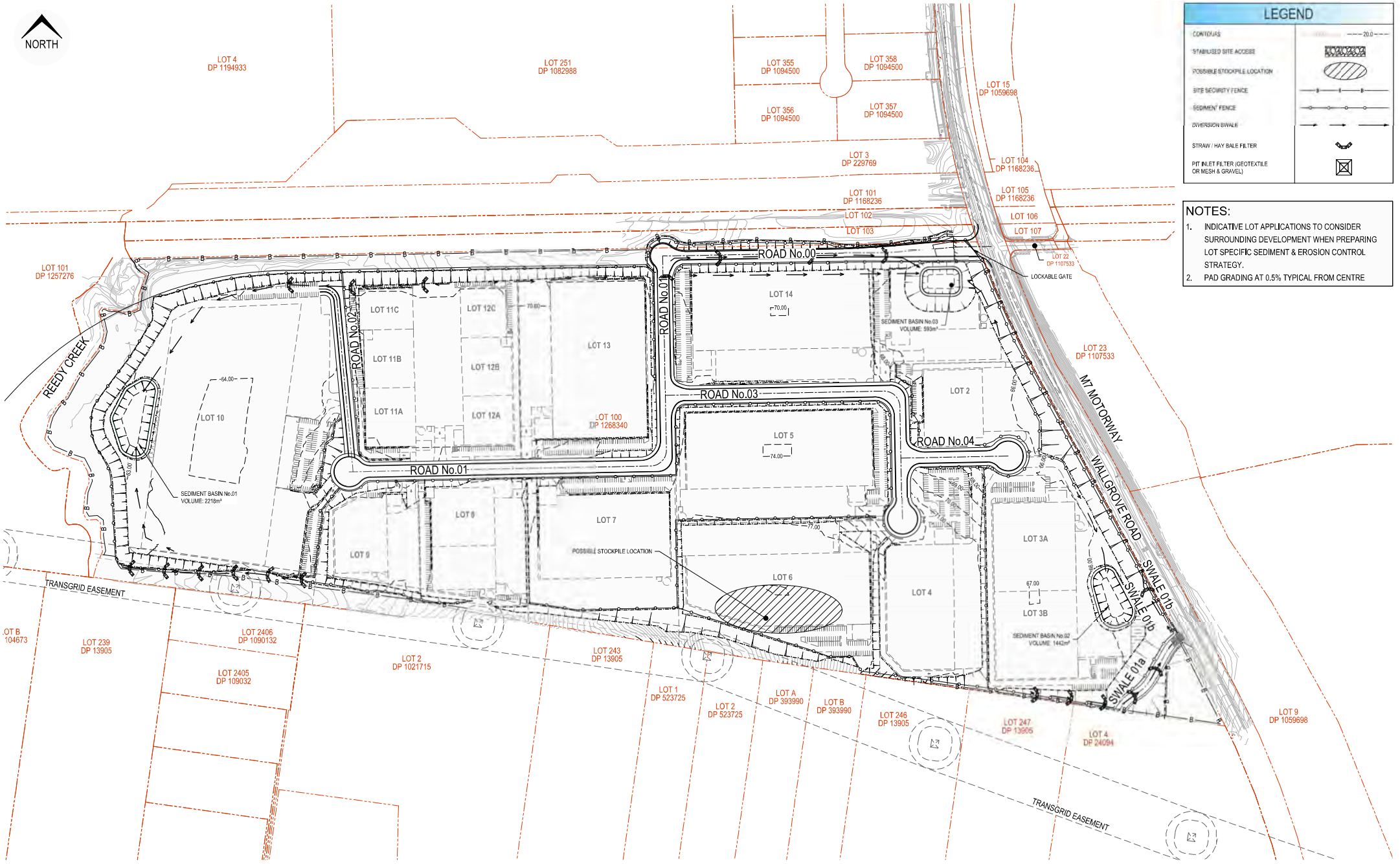
Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

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

Appendix F Erosion and Sediment Control Plans (Civils and Lot 10)



ISSUED FOR **SUBDIVISION WORKS CERTIFICATE**

Rev	Drawn	Design	Appd.	Date	Revision Description
A	MG	AS	PB	25/01/2022	ISSUED FOR SUBDIVISION WORKS CERTIFICATE APPROVAL

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Scale: 0 20 40 60 80 100 120 140 160 180 200
SCALE 1:2000 (A1) SCALE 1:4000 (A3)

For: GAZCORP

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

Project: 813 WALLGROVE ROAD INDUSTRIAL SITE BULK EARTHWORKS

Title: SEDIMENT & EROSION PLAN

Project No.	Set No.	Milestone	Plan	Revision
19-0108	08	CC	100	A

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "ENVIRONMENT PROTECTION AUTHORITY" AND "DEPT OF LAND AND WATER CONSERVATION". MEASURES OUTLINED IN THE SEDIMENT & EROSION CONTROL PLAN MUST BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS.

2. TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.

3. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.

4. ALL TAIL-OUT DRAINS SHALL BE GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.

5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.

6. DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.

7. ALL DISTURBED AREAS SHALL BE REVEGETATED WITHIN 14 WORKING DAYS FROM THE CONCLUSION OF LAND SHAPING.

8. MINIMISE DUST BY WATERING WHEN REQUIRED.

STOCKPILE NOTES:

9. SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.

10. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.

11. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE.

12. ALL STOCKPILES TO BE (MAX) 2m HIGH AND PROTECTED WITH SILT FENCE.

SPECIAL NOTES:

13. LOCATION AND EXTENT OF SOIL AND WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE.

14. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE GUIDELINES SET OUT IN "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION " -4TH EDITION AND THE ACCOMPANYING ROAD AND DRAINAGE PLANS.

15. CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT.

16. MANAGEMENT DEVICES SHALL BE MAINTAINED ON A REGULAR BASIS. WHERE CLEANING IS REQUIRED, THE SEDIMENT SHALL BE REMOVED TO A POINT NOMINATED BY THE ENGINEER.

17. PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS, AND AFTER THE ROAD CENTRELINES HAVE BEEN PEGGED AND/OR PERMANENTLY MARKED, THE SITE MUST BE INSPECTED BY COUNCIL'S REPRESENTATIVE AND THE APPLICANT'S REPRESENTATIVE TO IDENTIFY AND APPROPRIATELY MARK:-
a) THE TREES TO BE RETAINED.
b) ALL TREES TO BE LEFT UNDISTURBED AND TO BE CORDONED OFF.

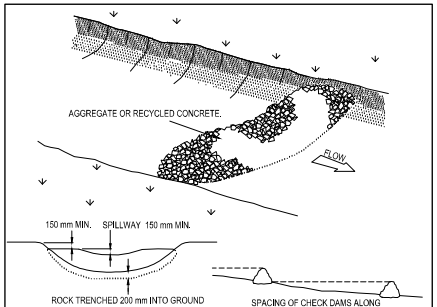
18. NO TREES SHALL BE REMOVED WITHOUT COUNCIL'S CLEARANCE.

19. MANAGEMENT DEVICES TO REMAIN UNTIL THE END OF THE MAINTENANCE PERIOD.

SEDIMENTATION CONTROL DEVICES:

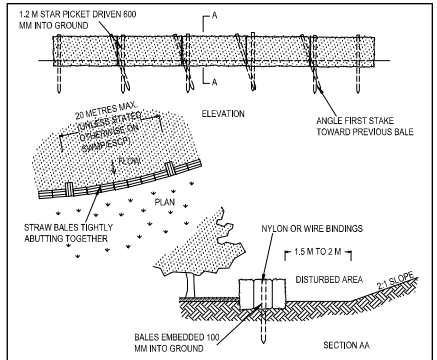
20. ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCATED ON THE BALE CENTRE LINE.

21. SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m (3m MAX) CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.



CONSTRUCTION NOTES:
1. CHECK DAMS CAN BE BUILT WITH VARIOUS MATERIALS, INCLUDING ROCKS, LOGS, SANDBAGS AND STRAW BALES. THE MAINTENANCE PROGRAM SHOULD ENSURE THEIR INTEGRITY IS RETAINED, ESPECIALLY WHERE CONSTRUCTED WITH STRAW BALES. IN THE CASE OF BALES, THIS MIGHT REQUIRE THEIR REPLACEMENT EACH TWO TO FOUR MONTHS.
2. TRENCH THE CHECK DAM 200 mm INTO THE GROUND ACROSS ITS WHOLE WIDTH. WHERE ROCK IS USED, FILL THE TRENCHES TO AT LEAST 100 MM ABOVE THE GROUND SURFACE TO REDUCE THE RISK OF UNDERCUTTING.
3. NORMALLY, THEIR MAXIMUM HEIGHT SHOULD NOT EXCEED 600 mm ABOVE THE GULLY FLOOR. THE CENTRE SHOULD ACT AS A SPILLWAY, BEING AT LEAST 150 mm LOWER THAN THE OUTER EDGES.
4. SPACE THE DAMS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM.

ROCK CHECK DAM SD 5-4



CONSTRUCTION NOTES:
1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE.DRIVE THEM 600 mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER SD 6-7

1. Erosion Hazard and Sediment Basins

Site Name: Industrial SEK

Site Location: Wallgrove Road

Precinct/Stage:

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	1	2	3	4			
Total area of catchment (ha)	22	14.3	5.66	1.7			
Disturbed catchment area (ha)	22	14.3	5.66	1.7			

Soil analysis (refer soil/texture type E known, or laboratory particle size data)

Soil Hydrol Type (C, F or G) if known:	D	D	D	D			From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Table 5 in percentages of < 2 mm soil fraction. Eg. enter 10 for 10%
% silt (fraction 0.002 to 0.06 mm)							
% clay (fraction less than 0.002 mm)							
Dispersion percentage							E.g. enter 90 for dispersion of 90%
% of whole soil dispersible							See Section 5.3.5(c). Pull-calculated
Soil Texture Group	E	E	D	D			Refer soil classification form above

Rainfall data

Design rainfall depth (for 5-days)	5	5	5	5			See Section 5.3.5 etc, particularly, refer 5.3 on pages 6-24 and 6-25.
Design rainfall depth (pre-rainfall)	75	75	75	75			
5-day, exceedance rainfall event (mm)	19	19	19	19			
Rainfall R-factor (if known)							Data need to be from one or the other here
IFD: 5-year, 6-hour rainfall (if known)	10.1	10.1	10.1	10.1			

RUSLE Factors

							Each filled with a zone
Rainfall erosivity (R-factor)	2250	2250	2250	2250			
Soil erodibility (K-factor)	0.028	0.028	0.028	0.028			
Slope length (m)	80	80	80	80			
Slope gradient (%)	2	2	2	2			R-USLE LS factor calculated for a high life soil basis.
Length-gradient (LS-factor)	0.61	0.61	0.61	0.61			
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (C-factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

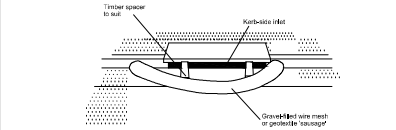
Storage bank size design (no of months)	2	2	2	2			Soil Hydrol Type E, F or G
Cv (Vanlier's runoff coefficient)	0.2	0.5	0.5	0.5			See Table F3, page F-4 in Appendix F

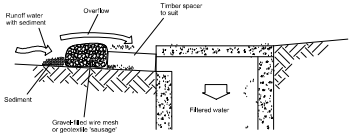
Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	45	45	45	45			
Soil Loss Class	4	4	4	4			See Table 4.3, page 4-15
Soil loss (m³/yr)	99	64	25	26			Conversion to cubic metres
Sediment basin design (soil) volume (m³)	198	83	84	19			See Section 6.3.4(f) for calculations
Sediment basin settling (water) volume (m³)	2250	1350	675	152			See Section 6.3.4(f) for calculations
Sediment basin total volume (m³)	2298	1443	909	172			

NB for sizing, a Type C (coarse) sediment basin, see Worksheet 5 (if required).

STOCKPILES SD 4-1

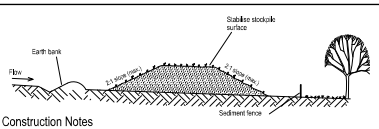




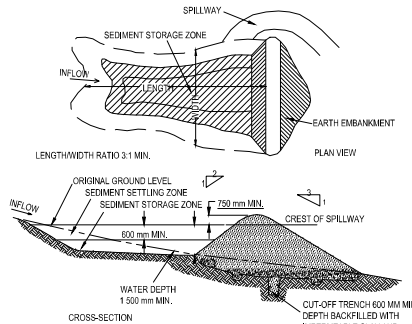
NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes
1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

MESH AND GRAVEL INLET FILTER SD 6-11

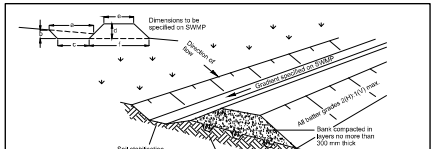


Construction Notes
1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.



CONSTRUCTION NOTES:
1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500 MM DEEP AND 1,200 MM WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100 MM TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100 MM TO 150 MM LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY. 8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

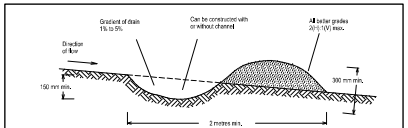
EARTH BASIN - WET
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY) SD 6-4



Level Spreader (or Sill)

Construction Notes
1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

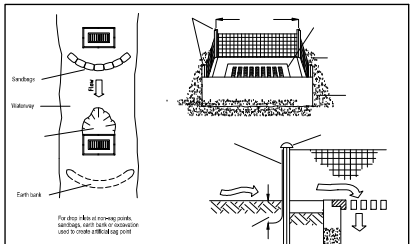
EARTH BANK (HIGH FLOWS) SD 5-6



NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

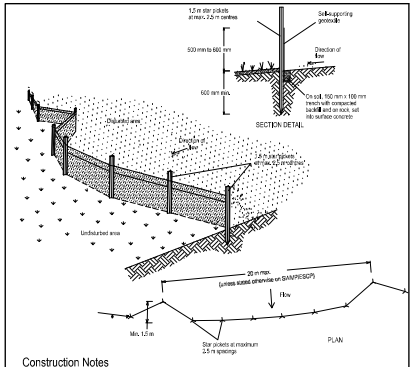
Construction Notes
1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) SD 5-5



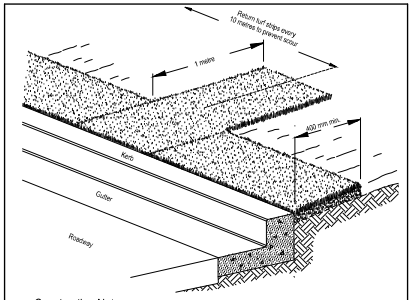
Construction Notes
1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-8 for installation procedures for geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER SD 6-12



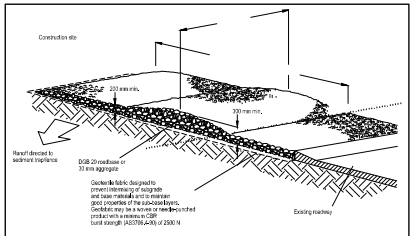
Construction Notes
1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE SD 6-8



Construction Notes
1. Install a 400 mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the turf strip following the ESCP/SWMP.

KERBSIDE TURF STRIP SD 6-13



Construction Notes
1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200 mm thick pad over the geotextile using road base or 30 mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS SD 6-14

ISSUED FOR SUBDIVISION WORKS CERTIFICATE

Rev	Drawn	Design	Appd.	Date	Revision Description
A	MG	AS	PB	25/01/2022	ISSUED FOR SUBDIVISION WORKS CERTIFICATE APPROVAL

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Scale:

For: GAZCORP

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

Project: 813 WALLGROVE ROAD INDUSTRIAL SITE BULK EARTHWORKS

Title: SEDIMENT & EROSION CONTROL NOTES & DETAILS

Project No.	Set No.	Milestone	Plan	Revision
19-0108	08	CC	101	A

Plotted: Monday, 30 March 2020 2:57:15 PM | By: Name | C:\Users\Name\Desktop\Industrial Site.dwg

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

PROPOSED LOT 11 AND 12 DEVELOPMENT. REFER TO ORION CONSULTING PLANS FOR DETAILS. REFERENCE 23-0162-02-DA REV A

PROVIDE BARRIER FENCE. REFER TO DETAILS.

PROVIDE STABILISED SITE ACCESS, SITE ACCESS SUBJECT TO CONTRACTOR'S REQUIREMENTS

PROVIDE SEDIMENT FENCE. REFER TO DETAILS.

ROAD 01

LOT 09

LOT 10
WAREHOUSE
F.F.L ± 64.00
± 500mm

PROVIDE MESH AND GRAVEL INLET FILTER (TYP.)

FUTURE SOUTHERN LINK ROAD

PROVIDE GEOTEXTILE FILTER PIT SURROUND (TYP.)

STANCHION

FOR CONTINUATION REFER TO 23-1167-C1301

Issue	Description	Date
A	ISSUE FOR TENDER	29-02-24
P5	ISSUE FOR COORDINATION	19-02-24
P4	ISSUE FOR COORDINATION	16-02-24
P3	ISSUE FOR COORDINATION	14-02-24
P2	ISSUE FOR COORDINATION	07-02-24
P1	ISSUE FOR INFORMATION	29-01-24

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

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Client: GAZCORP

Scales: 1: 500

Grid: GDA2020

Height Datum: AHD

Drawn	JCA
Designed	JCA
Checked	JCh
Approved	AM

Project: GAZCORP LOT 10
813-913 WALLGROVE ROAD
EASTERN CREEK, NSW

Title: EROSION AND SEDIMENT CONTROL PLAN SHEET 1

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
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Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR COORDINATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1167-C1300

Issue: A

100mm on Original

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FOR CONTINUATION REFER TO 23-1167-C1300

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

LOT 10
WAREHOUSE
F.F.L ± 64.00
± 500mm

PROVIDE GEOTEXTILE FILTER PIT SURROUND (TYP.)

STANCHION

PROVIDE MESH AND GRAVEL INLET FILTER (TYP.)

FUTURE SOUTHERN LINK ROAD

PROVIDE BARRIER FENCE. REFER TO DETAILS.

PROVIDE SEDIMENT FENCE. REFER TO DETAILS.

60.0 FUTURE FREIGHT CORRIDOR

REEDY CREEK

Issue	Description	Date
A	ISSUE FOR TENDER	29-02-24
P5	ISSUE FOR COORDINATION	19-02-24
P4	ISSUE FOR COORDINATION	16-02-24
P3	ISSUE FOR COORDINATION	14-02-24
P2	ISSUE FOR COORDINATION	07-02-24
P1	ISSUE FOR INFORMATION	29-01-24

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

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Client: GAZCORP

Scales	1: 500
Grid	GDA2020
Height Datum	AHD
Drawn	JCA
Designed	JCA
Checked	JCh
Approved	AM

Project: GAZCORP LOT 10
813-913 WALLGROVE ROAD
EASTERN CREEK, NSW

Title: EROSION AND SEDIMENT CONTROL PLAN SHEET 2

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info@atl.net.au

Status: FOR COORDINATION
NOT TO BE USED FOR CONSTRUCTION

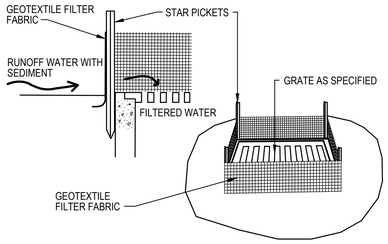
A1

Project No. - Drawing No.: 23-1167-C1301

Issue: A

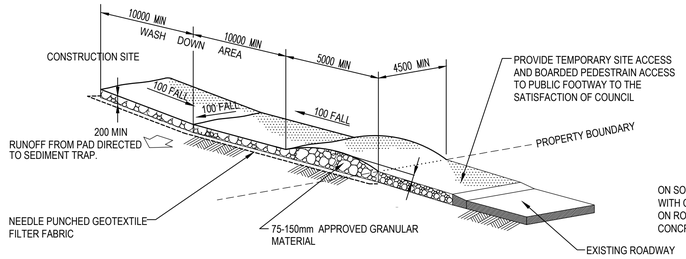
100mm on Original

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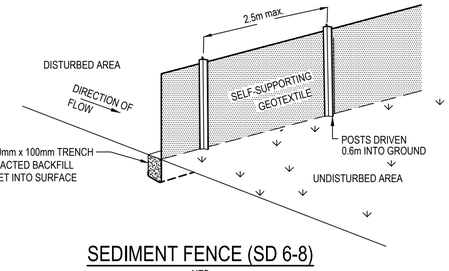
GEOTEXTILE FILTER PIT SURROUND (SD 6-12)

NTS



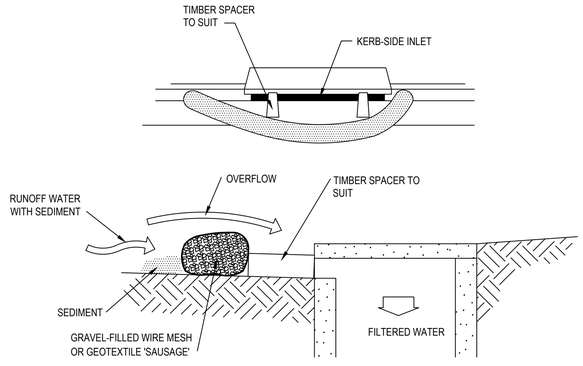
STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)

NTS



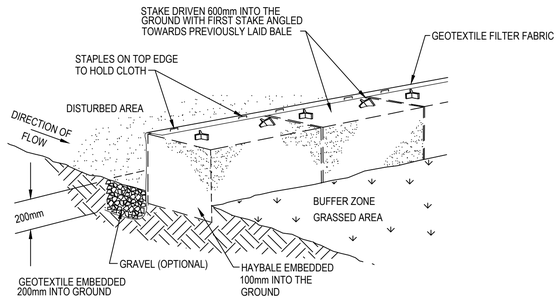
SEDIMENT FENCE (SD 6-8)

NTS



MESH AND GRAVEL INLET FILTER (SD 6-11)

NTS



HAYBALE AND GEOTEXTILE SEDIMENT FILTER (SD 6-7)

NTS

Issue	Description	Date
A	ISSUE FOR TENDER	29-02-24
P3	ISSUE FOR COORDINATION	14-02-24
P2	ISSUE FOR COORDINATION	07-02-24
P1	ISSUE FOR INFORMATION	29-01-24

Bar Scales

100mm on Original

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Client

GAZCORP

Scales	NTS	Drawn	JCA
		Designed	JCA
Grid	GDA2020	Checked	JCh
Height Datum	AHD	Approved	AM

Project

GAZCORP LOT 10
813-913 WALLGROVE ROAD
EASTERN CREEK, NSW

Title

EROSION AND SEDIMENT CONTROL DETAILS

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Status
FOR COORDINATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1167-C1310

Issue
A

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