at&l

Construction Environmental Management Plan

Mamre and Abbotts Road Intersection Upgrade

Kemps Creek

ASPECT

June 2025

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Glossary

AARU	Aldington and Abbotts Road Upgrade
Aspect	Aspect Environmental Pty Ltd
AT&L	AT&L Australia Pty Ltd
CAQMP	Construction Air Quality Management Plan
CCSCHP	Community Consultation Strategy and Complaints Handling Procedure
CEMP	Construction Environmental Management Plan
CFFMP	Construction Flora and Fauna Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CoC	Condition(s) of Consent
CPESC	Certified Professional in Erosion and Sediment Control
CTMP	Construction Traffic Management Plan
CWMP	Construction Waste Management Plan
DCP	Development Control Plan
DDMP	Dam Decommissioning Management Plan
DPE	Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure (formerly DPE)
EIS	Environmental Impact Statement
Environmental Incident	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.
EPA	Environment Protection Authority
ER	Environmental Representative
ESCP	Erosion and Sediment Control Plan
FIP	Fill Importation Protocol
HMP	Heritage Management Plan
HSSE	Health, Safety, Security and Environmental
MAIU	Mamre and Abbotts Road Intersection Upgrade
Material Harm	Harm that involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
MRU	Mamre Road Upgrade
Non-compliance	An occurrence, set of circumstances, or development that is a breach of the SSD 10479 Development Consent.
POEO Act	Protection of the Environment Operations Act 1997

Project, the	Mamre and Abbotts Road intersection upgrade at Kemps Creek SSD-10479
RCP	Robson Civil Projects Pty Ltd
RtS	Response to Submissions
Site, the	Public road reserves located at the intersection of Mamre Road and Abbotts Road, Kemps Creek, NSW
SMP	Salinity Management Plan
SSD	State significant development
TfNSW	Transport for New South Wales
TGS	Traffic guidance scheme
UCUFP	Unexpected Contamination Finds Protocol

1 INTRODUCTION

1.1 Background

This Construction Environmental Management Plan (CEMP) has been prepared by Aspect Environmental Pty Ltd (Aspect), on behalf of AT&L Australia Pty Ltd (AT&L), to support construction works associated with the Mamre Road and Abbotts Road Intersection Upgrade (MAIU) and to provide for the development of land within the Mamre Road Precinct (the Project).

The Project is part Significant state development (SSD) approval SSD-10479 and is being delivered by the Land Owners Group – East (LOG-E), comprised of developers active in the Kemps Creek area whose developments will be serviced by the Project.

LOG-E is also delivering the Aldington and Abbots Road Upgrade (AARU) Phase 1 and Phase 2 projects. The AARU Phase 1 project adjoins the eastern boundary of the Project.

This CEMP has been prepared with reference to:

- SSD-10479 consent as Modified, dated 27 February 2024
- SSD-10479 Section 4.55(1A) Modification Application Report (Ethos Urban, 17 June 2024)
- SSD-10479 Environmental Impact Statement (Ethos Urban, 11 November 2020)
- Development Control Plan (DCP) Penrith (Penrith City Council, 2014)
- Development Control Plan: Mamre Road Precinct – Western Sydney Employment Area (NSW Department of Planning, Industry and Environment, November 2021).

The CEMP defines the environmental management framework for construction of the Project.

1.2 Project Description

The Project is located at Kemps Creek, within the Penrith Local Government Area and is zoned as 'IN1 – General Industrial' under the Penrith City Planning Certificate under section 10.7(2) of the *Environmental Planning and Assessment Act 1979*. The Project forms part of the Mamre Road Precinct which sits within both the Western Sydney Employment Area (where 850 hectares of rural land has been rezoned for industrial development and use) and the Western Sydney Aerotropolis.

Mamre Road is a key transport corridor passing through the Western Sydney Growth Area and provides connections to the Mamre Road Precinct via Abbotts Road and Aldington Road, Kemps Creek.

Construction is currently underway on several industrial and logistic estates within the Mamre Road Precinct, and the Project which includes road widening, upgrade and intersection works is required to support the overall planned industrial redevelopment, projected traffic growth in the area and typical Distributor Road Requirements.

The Project site is located at the intersection of Mamre Road and Abbotts Road, Kemps Creek, NSW (the Site). Mamre Road is a state road controlled by Transport for NSW (TfNSW) and Abbotts Road is controlled by Penrith City Council. The concept design for the upgrade of Mamre Road (for TfNSW) and Abbotts Road intersection includes widening 700m south of the intersection and 400m north of the intersection. This intersection includes widening within the western end of

Lot 10 and Lot 11 DP250002 (north of Abbotts Road), which is developer owned (by ESR). There is no widening within the private property to the south of Abbotts Road (Lot 2 DP250002).

Land surrounding the Site is generally rural in nature comprising a variety of rural dwellings, rural land, farm dams and scattered vegetation.

The Project involves:

- bulk earthworks and site preparation works including vegetation clearing
- widening the road to two lanes beyond the existing road reserve either side on Mamre Road and Abbotts Road
- upgrades to the existing intersection of Mamre Road and Abbotts Road intersection, with new turning lanes and signals
- stormwater including new and larger culverts under and adjacent to road
- relocation of services above and underground
- new services including water, power, communications
- site sheds, material storage as required for road construction
- temporary works as necessary to facilitate construction.

An aerial showing the location of the MAIU Project and AARU Phase 1 and Phase 2 Projects is shown on Figure 1-1.

TfNSW – Mamre Road Upgrade

TfNSW are undertaking a greater project, called the Mamre Road Upgrade (MRU) which extends from the M4 Motorway, St Claire to Kerrs Road, Kemps Creek. This project is being delivered by TfNSW to meet the future transport demand associated with the Western Sydney Priority Growth Area. The NSW Government is working towards completing the concept design and Review of Environmental Factors for the MRU from Erskine Park Road, Erskine Park to Kerrs Road, Kemps Creek.

To deliver the Project, LOG-E have entered a Works Authorisation Deed with TfNSW to construct the MAIU and to ensure the design is coordinated to the MRU. TfNSW have advised the scope of the MAIU to reduce the risk of abortive works.

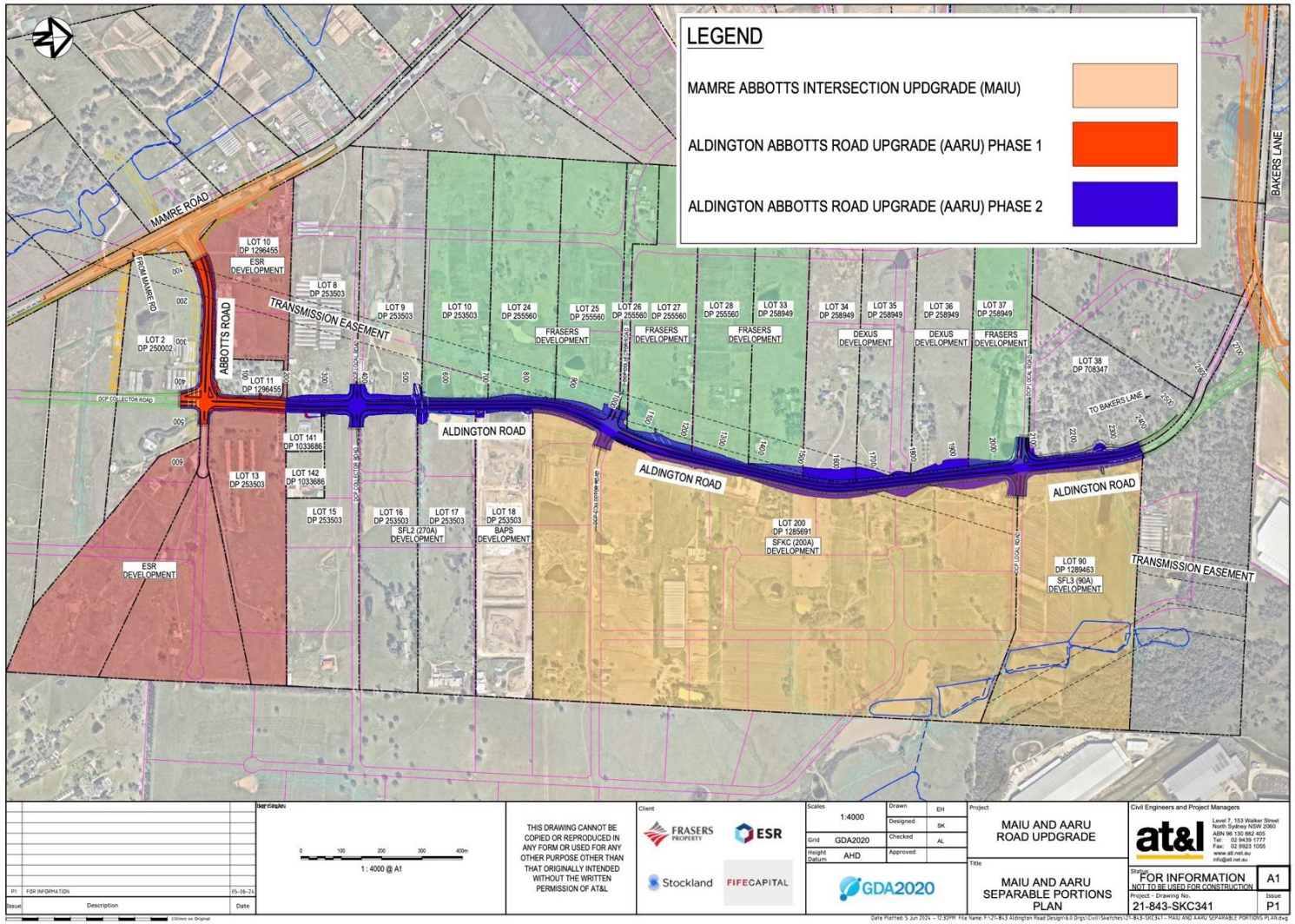


Figure 1-1 Location of MAIU Project and AARU Phase 1 and Phase 2 Projects

1.2.1 Construction Phasing

AT&L's contractors will deliver the Project in stages as identified in Table 1-1.

Forecast dates are approximate and are subject to construction planning. Note that construction phases overlap.

Table 1-1 Project construction staging

Project Phase	Proposed Construction Activities	Actual/Forecast Commencement	Forecast Duration
Stage 1	Temporary pavement construction to the west of the existing Mamre Road	Upon approval of CEMP	5 months
Stage 2	Construction of the southbound carriageway and eastern leg of the intersection	TBC	3 months
Stage 3	Construction of the northbound carriageway	TBC	4 months

1.2.2 Construction Hours

Construction hours will be in accordance with CoC F39 which are reproduced in Table 1-2.

Table 1-2 Construction hours of work

Activity	Day	Time
Construction	Monday to Friday	7 am to 6 pm
	Saturday	8 am to 1 pm

Under CoC F40, works outside of hours identified in Table 1-2 may be undertaken in the following circumstances:

a) *works that are inaudible at nearest sensitive receivers*

b) *works agreed to in writing by the Planning Secretary*

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

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

CoC F41 enables the following works to be undertaken out of hours, in accordance with the Out of Hours Works Protocol approved under CoC F32(c):

a) *installation of drainage infrastructure*

b) *asphalting*

c) *other works required to be completed at night for safety reasons, as detailed in an approved CTMP.*

For works to be undertaken out-of-hours, refer to the Construction Noise and Vibration Management Plan (CNVMP) attached as Appendix C for specific noise and vibration-related requirements.

The construction hours will be provided to all personnel and contractors as part of the site induction.

1.2.3 Key Personnel Contact Details

The emergency contact details (24 hours 7 days a week) for key project personnel are included in Table 1-3.

Table 1-3 Emergency 24-hour contact details

Role	Name	Contact Details
AT&L Representative	Stephanie Sheridan	M: 0493 049 703 E: stephanie.s@atl.net.au
RCP Project Manager	Gerard Noone	M: 0439 246 804 E: Gerard.noone@robsoncivil.com.au
RCP Safety and Environmental Coordinator	Derek Doohan	M: 0420 345 527 E: derek.doohan@robsoncivil.com.au
Communications and Community Liaison Representative	Stephanie Skordas	T: (03) 9249 9400 (Marco) E: sskordas@slrconsulting.com
ER	Carl Vincent	M: 0424 203 046 E: carl.vincent@ersed.com.au
Alternate ER	Richard Peterson	M: 0429 227 775 E: Richard.peterson-trigalana@outlook.com
CPESC	Andrew Littlewood	M: 0429 953 626 E: andrew@rubiconenvrio.com.au

All roads will be kept open for public access for the duration of construction works.

1.3 CEMP Purpose, Context and Objectives

1.3.1 CEMP Context

This CEMP has been prepared to address the specific requirements of the SSD 10479 Development Consent. As required by CoC F36, the following sub-plans have been prepared to support this CEMP:

- **Error! Reference source not found.** Erosion and Sediment Control Plan (ESCP)
- Appendix C Construction Noise and Vibration Management Plan (CNVMP)
- Appendix D Construction Air Quality Management Plan (CAQMP)
- Appendix E Construction Waste Management Plan (CWMP)
- Appendix F Unexpected Contamination Finds Protocol (UCFP)
- Appendix G Construction Flora and Fauna Management Plan (CFFMP)
- Appendix H Dam Decommissioning Management Plan (DDMP)

- Appendix I Heritage Management Plan (HMP)
- Appendix J Construction Traffic Management Plan (CTMP)
- Appendix L Fill Importation Protocol (FIP)
- Appendix M Salinity Management Plan (SMP)
- Appendix N Contingency Plan.
- Appendix O Consultation Records

In accordance with the CoC, this CEMP and relevant sub-plans must be reviewed by the ER to ensure they are consistent with requirements in or under the Development Consents and if so, make a written statement to that effect. Relevant CEMP and sub-plans are then submitted for the approval of the Planning Secretary in accordance with CoC F36.

Construction of the Project will not commence until the CEMP and relevant sub-plans are approved by the Planning Secretary.

Construction will be undertaken in accordance with the most recent, approved version of this CEMP and sub-plans.

1.3.2 CEMP Scope

The CEMP has been prepared to satisfy the SSD 10479 Development Consent. These specific requirements, together with where these requirements have been addressed in the CEMP are listed in Appendix A.

1.3.3 CEMP Objectives

The objectives of this CEMP are to:

- Identify the roles and responsibilities of key personnel.
- Provide guidelines for undertaking the construction works in compliance with the CoC and other applicable regulatory requirements.
- Demonstrate to the Department of Planning, Housing and Infrastructure (DPHI) how AT&L proposes to meet the relevant regulatory obligations including those outlined in the CoC.
- Outline the controls to be implemented by the contractor to meet those obligations.
- Prescribe project-specific performance standards and mitigation measures that aim to protect human and ecological values and manage the potential impacts of the works on the environment.
- Detail environmental management practices for the management, implementation and monitoring of the Project.

All personnel, contractors and visitors are required to comply with the requirements of this CEMP at all times.

1.4 Objectives and Targets

Environmental objectives and targets have been established as a means of assessing environmental performance during construction. The objectives and targets in Table 1-4 have been developed with consideration of the key issues identified through the environmental assessment and risk assessment process.

Table 1-4 Objectives and targets

Objective	Target	Monitoring Method
General		
Comply with all relevant environmental standards, legislation and approvals during the life of the Project	No written warnings or infringement notices	Site Inspection Checklist Site diary records ER monitoring and inspections CPESC supervision and inspections
Harm to people, the environment and property	No environmental incidents	Incident register/reports
Air Quality		
Meet NSW Environment Protection Authority (EPA) air quality criteria	No written warnings or infringement notices	Site Inspection Checklist Daily pre-start checks on plant and equipment Site diary records Site safety walk and observation
Minimise impacts from dust emissions during construction for sensitive receivers	No visible dust emissions leaving the Project site No complaints relating to air quality	Consultation Register Site diary records
Waste		
Manage waste production and resource recovery	In accordance with targets within Penrith City Council's Waste Hierarchy	Waste reporting
Noise and Vibration		
Minimise impact from construction noise and vibration for sensitive receivers	No complaints relating to noise and vibration	Noise and vibration monitoring Consultation Register
Manage construction noise	To be in accordance with EPA's interim Construction Noise Guideline (DECC, 2009)	Noise monitoring Consultation Register
Soil and Water		
Minimise adverse water quality and sedimentation impact during construction	Minimum impact on waterbodies surrounding the Project	ER monitoring and inspections CPESC supervision and monthly inspections
Minimise sediment tracking on public roads	Any sediment tracking on public roads to be actioned immediately with sweeper cart	Site Inspection Checklist Site diary records
Traffic		
Manage construction vehicles in efficient and safe manner	No accidents	Incident reports
Manage car parking and traffic disturbances on surrounding road network and public road network users	No complaints relating to car parking and traffic	Consultation Register Monthly reports to ER
Heritage		

Objective	Target	Monitoring Method
No impact to Aboriginal heritage items	Limit impacts to the scope permitted by the Development Consents	Results from implementation of Heritage Unexpected Finds Procedure
Wildlife		
Minimise impacts to biodiversity during construction	No impact to biodiversity	Site Inspection Checklist Six-monthly monitoring by suitably qualified ecologist
Minimise impacts of wildlife to Western Sydney Airport operations	Minimal occurrence of common strike species at the site	Site Inspection Checklist Six-monthly monitoring by suitably qualified ecologist

2 COMMUNITY AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Consultation

CoC F36(a) required consultation with Council during the preparation of this CEMP. The result of that consultation is included in Appendix O.

The CEMP sub-plans were produced in consultation with the relevant stakeholders identified in the CoC. During the consultation process comments received were addressed within the relevant management plan. Evidence of consultation is included in each relevant sub-plan.

2.2 Community Communication during Construction

In accordance with the CoC a CCSCHP has been prepared for the Project and submitted as a separate plan (SLR, March 2025). This strategy outlines measures to enable effective communication with the community and stakeholders throughout the construction works including:

- regular community notifications
- community updates when there are changes to construction works to those previously communicated
- interactions between workers and the community
- stakeholder and community feedback protocol
- issues management and dispute resolution
- consultation register and enquiries management
- complaints management.

A range of communications channels may be used to communicate with the community including:

- stakeholder (including the Mamre Road Precinct (MRP) Working Group) and resident meetings and briefings via video conference or in person
- the Project website – mamrealdingtonupgrades.com
- the Project hotline – 1800 960 071
- the Project email – info@mamrealdingtonupgrades.com.au
- letterbox notifications
- door knocking
- media announcements
- consultation register.

AT&L will participate in the existing MRP Working Group, with other relevant development consent holders in the MRP. Participation will commence within three months of the commencement of construction and will be ongoing until all components of the Project are constructed and operational. The purpose of the MRP Working Group is to consult and coordinate construction

works within the MRP to assist with managing and mitigating potential cumulative environmental impacts.

The MRP Working Group currently includes the developers of the following industrial estates that have received development consent:

- 200 Aldington Road Industrial Estate (SSD 10479)
- Access Logistics Park (SSD 17647189)
- Aspect Industrial Estate (SSD 10448)
- Yiribana Logistics Estate (SSD 10272349).

The implementation of the strategy will assist the team to deliver the Project with minimal disruption to the community.

2.3 Complaints Management

Complaints and enquiries will be managed in accordance with Section 6.3 (Complaints and Enquiries Handling) of the CCSCHP.

The ongoing and consistent management of Project related feedback is crucial to develop appropriate mitigation strategies in response to issues identified and experienced. As such, the Project team will document all stakeholder and community related feedback received directly, in a professional and timely manner.

Feedback is defined as any communication received from a stakeholder or community member which expresses support and/or dissatisfaction with any aspect of the Project and its delivery. As such, the proposed contact response timings for general enquiries are as follows:

- Acknowledgement of all stakeholder and community contact within 24 hours of receipt.
- Development of proposed response and issue within 48 hours by the Project team. This timeframe can be extended where complex information is required, provided an acknowledgment of the enquiry is sent, outlining the need to gather more information before a response can be sent.
- A five-business day response target for complex enquiries e.g. requires further consultation and planning with the Project team, request for meeting.
- All details will be captured and logged in the Consultation Register, and all responses will be shared with the Project team.

In accordance with SSD 10479 CoC F33, the Consultation Register will be made available to the ER on a daily basis. The ER will assist DPHI in the resolution of community complaints, as may be requested by the Planning Secretary.

3 ENVIRONMENTAL MANAGEMENT FRAMEWORK

3.1 Project Organisational Structure

AT&L is the developer of the Project and has overall responsibility for compliance with the SSD 10479 Development Consent. AT&L have engaged Robson Civil Projects Pty Ltd (RCP) as the Principal Contractor for the construction of the Project. All personnel including consultants, contractors, sub-contractors and all other personnel associated with undertaking construction works, ultimately report to the Principal Contractor (RCP*)*.

The Principal Contractor is responsible for monitoring the environmental performance of the Project and monitoring compliance with the CoC, this CEMP and sub-plans as they relate to the construction of the Project.

3.2 Roles and Responsibilities

All Project personnel are responsible for the implementation of this CEMP and have the responsibility to stop works if there is the potential for an environmental incident to occur.

Roles, and responsibilities for environmental management of the Project are outlined in Table 3-1.

Table 3-1 Project roles and responsibilities

Role	Responsibility
AT&L Representative	Environmental reporting responsibility associated with the Project.
	Overall responsibility for environmental management and compliance with the CoC and relevant legislation.
	Liaise with AT&L management to keep them informed of environmental performance and progress.
	Attend monthly contractor coordination meetings.
	Consult and engage with any contractors or interfacing contractors regarding the environmental management, including attending monthly contractor coordination meetings.
RCP Project Manager	Oversee the implementation and maintenance of the CEMP and sub-plans.
	Verify that any licence, permit and/or approval required for the Project has been obtained in the required timeframe.
	Implement the UCFP in the event of contamination being encountered onsite during construction. Submit the disposal location and results of testing to the Planning Secretary, prior to its removal.
	Monitor and report on overall environmental management performance.
	Review and acknowledge periodic environmental inspection reports.
	Initiate Project meetings as required or directed, in which environmental items are discussed as appropriate.
	Identify and allocate Project resources to implement the requirements of the CEMP and sub-plans.

Role	Responsibility
	Confirm relevant environmental expectations expressed by the client and/or regulatory authorities to the Project team.
	Record, notify, investigate and respond to any environmental incidents and, where necessary, guide the development and implementation of corrective actions.
	Provide adequate environmental inductions and training to all employees and contractors regarding their requirements of this CEMP.
	Provide the ER with all documentation requested in order for the ER to perform their functions specified below, including any assessment carried out to determine whether proposed work is consistent with the 10479 Development Consent (which must be provided to the ER before the commencement of the subject work).
RCP Safety and Environmental Coordinator	Provide advice where required in relation to environmental issues.
	Inform all personnel including sub-contractors of the requirement to conform with the CEMP and sub-plans.
	Complete fortnightly site inspections to monitor and verify mitigation measures are implemented and effective.
	Assist with the implementation of the CUFP in the event of contamination being encountered onsite during construction.
	Monitor weather conditions to prepare for high winds or other extreme weather events.
	Provide regular environmental inspection and progress reports to the RCP Project Manager.
	Monitor environmental compliance with the CEMP and sub-plans.
	Facilitate the environmental induction and training (toolbox talks) of employees and sub-contractors (as required).
	Complete and maintain all necessary environmental documentation for the contract.
	Conduct environmental incident investigations and implement corrective action responses in consultation with the RCP Project Manager.
Communications and Community Liaison Representative	Lead and manage the community involvement activities, including liaison with property owners and key stakeholders.
	Be the primary Project contact for the public, handling enquiries and complaints and managing interface issues.
	Maintain the Consultation Register and make available the Consultation Register to the ER on a daily basis.
	Be available for contact by local residents and the community at all reasonable times to answer any questions.
	Liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the Project.
	Lead the delivery of communication and community engagement strategies and plans.
	Facilitate meetings and forums and arrange interviews to address concerns raised by the community.
	Provide advice and participate with the Project team to improve and enhance the delivery of communication services to the community.
	Build and maintain collaborative and consultative working relationships with internal and external stakeholders.
	Be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback.

Role	Responsibility
ER	Be a suitably qualified and experienced person who was not involved in the preparation of the EIS, Response to Submissions, Amendment Report and any additional information for the Project, and is independent from the design and construction personnel for the Project.
	Receive and respond to communication from the Planning Secretary in relation to the environmental performance of the Project.
	Consider and inform the Planning Secretary on matters specified in the terms of the SSD 10479 Development Consent.
	Consider and recommend to RCP any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community.
	Review the CEMP and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under the SSD 10479 Development Consent and if so: • make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary) or • make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/DPHI for information or are not required to be submitted to the Planning Secretary/DPHI).
	Regularly monitor the implementation of the CEMP to be carried out in accordance with the document and the terms of the SSD 10479 Development Consent.
	As may be requested by the Planning Secretary, help plan, attend, or undertake audits of the development commissioned by DPHI including scoping audits, programming audits, briefings, and site visits.
	As may be requested by the Planning Secretary, assist DPHI in the resolution of community complaints.
	Provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the MRP in relation to construction traffic management, earthworks and sediment control and noise.
	Attend the MRP Working Group (SSD 10479 CoC C34) in a consultative role in relation to the environmental performance of the Project.
	Prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Quarterly Report providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Quarterly Reports'. The Environmental Representative Quarterly Report must be submitted within seven calendar days following the end of each quarter for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.
	Implement and comply with the requirements of this CEMP.
CPESC	Review and approve ESCPs.
	Supervise and certify delivery and operation of all construction phase erosion and sediment controls.
	Conduct monthly audits of all construction phase erosion and sediment controls.
MRP Working Group	Meet periodically throughout the year to discuss, formulate and implement measures or strategies to improve monitoring and coordination of the approved industrial developments in the MRP.
	Inform Council, TfNSW, Sydney Water and the Planning Secretary regularly of the outcomes of these meetings and actions to be undertaken by the working group.

Role	Responsibility
	Review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP.
	Review community concerns or complaints with respect to environmental management.
	Identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP.
	Provide the Planning Secretary with an update and strategies, if a review under subclauses (d) and (e) identify that additional measures and processes are required to be implemented by the working group.
	Three months prior to completion of construction of all components of the Project the Applicant is eligible to exit the working group. The Applicant must: a) consult with the Planning Secretary b) provide confirmation that all components of the development are operational c) advise on the date of the proposed exit.
All personnel	Report all environmental incidents, hazards, non-compliances and near misses to their supervisor or the RCP Project Manager immediately.
	Attend all required environmental awareness, induction and training sessions.
	Stop work or otherwise mitigate the effects of an activity that is causing significant, uncontrolled or unexpected environmental harm.
	Plant and equipment operators to complete daily pre-start inspection of plant and equipment and any leaks or excessive emissions reported to the RCP Safety and Environmental Coordinator.

3.3 Legal and Compliance Requirements

3.3.1 SSD Development Consent Compliance Matrices

The Project is part of SSD Development Consent SSD 10479. The CoC and where this CEMP and sub-plans meet those requirements is in included in Appendix A.

3.3.2 Regulatory Framework

The regulatory framework for the Project is outlined in Table 3-2, which identifies relevant legislative instruments, including legislative and voluntary obligations, permits and licences, and their key objectives and relevance to the Project.

Table 3-2 Legislative and related instruments relevant to the Project

Legislation	Key Project Requirements	Activity/Aspect
Environment Planning and Assessment Act 1979	Established a system of environmental planning and assessment of proposed developments in NSW. The Project must comply with the SSD 10479 Development Consent.	All
Environment Protection and Biodiversity Conservation Act 1999	Requirements in relation to protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places.	Threatened species and ecological environments

Legislation	Key Project Requirements	Activity/Aspect
Biodiversity Conservation Act 2016	Comply with conservation requirements for any identified threatened species.	Threatened species and ecological environments
Protection of the Environment Operations (POEO) Act 1997	The handling, storage and disposal of all waste streams on site is to be implemented in accordance with the POEO Act. Aims to aid the protection, restoration and enhancement of the quality of the NSW environment, including emissions to air. Identifies activities for which an Environment Protection Licence is required.	Construction waste management Discharges or emissions to air, land and water
Protection of the Environment Operations (Noise Control) Regulation 2017	Comply with the requirements of the POEO (Noise Control) Regulation to mitigate the impacts of noise and vibration on sensitive receivers and the environment.	Management and mitigation of noise and vibration produced during construction works
Protection of the Environment Operations (Clean Air) Regulation 2021	Identifies criteria for air quality objectives and emissions.	Management of any dust and air pollution emissions produced by works to promote air quality
Protection of the Environment Operations (Waste) Regulation 2014	Handling, storage, transport and disposal of all waste streams to be undertaken with consideration for the requirements within the POEO (Waste) Regulation. Aims to protect human health and the environment. Identifies the thresholds for Environment Protection Licences.	Management of construction waste Discharge or emissions to air, land, water in accordance with thresholds set by the regulation
Waste Avoidance and Resource Recovery Act 2001	Aims to promote waste avoidance and resource recovery by: • Encouraging efficient use of resources • Encouraging the avoidance of waste and the reuse and recycling of waste • Ensuring industry and the community share responsibility in reducing/dealing with waste • Efficiently funding waste/resource management planning, programs and service delivery.	Management of construction waste
Contaminated Land Management Act 1997	Remediation requirements for management of contaminated lands.	May be applicable in the event of any unexpected find of contaminants/ contamination
State Environmental Planning Policy (Resilience and Hazards) 2021	Remediation of contamination lands and consent requirements.	May be applicable in the event of any unexpected find of contaminants/ contamination
Heritage Act 1977 *National Parks and Wildlife Act 1974*	Protection and recording of Indigenous and non-Indigenous heritage values, relics, artefacts, places and other finds/remains.	Earthmoving /excavation works – identifying unexpected finds

Legislation	Key Project Requirements	Activity/Aspect
Managing Urban Stormwater: Soils and Construction – Volume 1 (the "Blue Book") (Landcom, March 2004)	Soil and erosion controls for managing surface water flows onsite and reducing potential for erosion and sedimentation leaving site.	Management surface water flows onsite
Technical guidance for achieving Wianamatta-South Creek stormwater management targets (DPE, September 2022)	In accordance with Water Sensitive Urban Design principles set out in the Technical Guidance.	Specific direction on what modelling to undertake, assumptions to make and which data to use to demonstrate that the stormwater management targets are being achieved
Mamre Road Stormwater Scheme Plan (Sydney Water, December 2022)	Performance of stormwater management system in accordance with Integrated Water Cycle Management Controls.	Water cycle management Irrigated street trees
Stormwater Scheme Infrastructure Design Guideline (Sydney Water, December 2022)	Irrigated street trees	Design of irrigated street trees

3.3.3 Other Licences, Permits, Approvals and Consents

The additional licences, permits, approvals and consent requirements for the Project are outlined in Table 3-3. A current list of licences, permits, approvals and consents, and their status, including any new additions as the Project progresses, will be included in monthly reports.

Table 3-3 Other licences, permits and approval requirements relevant to the Project

Requirement	Responsible	Timing	CoC
All relevant approvals from utility service providers.	RCP	Before the construction of any utility works associated with the Project	***TBC***
A Compliance Certificate for water and sewerage infrastructure servicing at the site will be obtained.	RCP	Before the commencement of operation of the Project	***TBC***

3.4 Training and Awareness

All personnel including sub-contractors are required to attend a compulsory site induction that includes an environmental component, prior to commencement of works onsite.

The environmental induction will include, but not be limited to, an overview of:

- relevant details of the CEMP including purpose and objectives
- key environmental aspects of the Project
- Project specific environmental management requirements and responsibilities as specified in CEMP and other sub-plans such as:
  - traffic management and Drivers' Code of Conduct requirements (refer SSD 10479 CoC F36). Drivers' Code of Conduct will be provided to all contractors and suppliers at the time of contract/order to provide to their drivers prior to visiting the site
  - Aboriginal cultural heritage induction outlining obligations of workers under the *National Parks and Wildlife Act 1979* and CoC D70. This material is included in Appendix I.

- incident response and reporting requirements.

All Project personnel will be suitably qualified, but individual team members may benefit from specific environmental training (e.g. erosion and sediment control and environmental auditor training) to help them better manage the environmental impacts of the Project.

Short-term visitors to site will be required to undertake a visitor's induction and be accompanied by inducted personnel.

A record of all inductions will be maintained onsite.

Toolbox talks will also be used to review management procedures and identify/discuss daily site conditions and raise environmental awareness. Site inductions and toolbox talks will highlight specific environmental requirements and activities being undertaken at the worksite each day.

The CEMP will be explained to all contractors and a controlled copy will be maintained onsite during construction works.

4 IMPLEMENTATION

4.1 Mitigation Measures

Mitigation measures to be implemented during construction to enable compliance with the SSD 10479 Development Consent, performance measures and criteria are documented in Table 4-1 and the aspect-specific CEMP sub-plans.

Table 4-1 Key mitigation measures

Mitigation Measure	Responsibility
Construction Hours	
Carry out construction activities and delivery of materials within approved construction hours.	RCP Project Manager
Construction Impacts	
Maintain and implement CEMP on site.	RCP Project Manager
All vehicles, plant and equipment used on site will be maintained and be in a proper and efficient condition and will be operated in a proper and efficient manner.	RCP Project Manager
Traffic	
See Appendix J CTMP	See plan
Erosion and Sediment Control	
See Appendix B Erosion and Sediment Control Plan	See plan
Noise and Vibration	
See Appendix C CNVMP	See plan
Biodiversity	
See Appendix G CFFMP	See plan
Site Contamination	
See Appendix F UCFP	See protocol
Air Quality	
See Appendix D CAQMP	See plan
Waste Management	
See Appendix E CWMP	See plan
Heritage Management	
See Appendix I HMP	See plan

5 MONITORING AND REVIEW

5.1 Environmental Inspections

The RCP Safety and Environmental Coordinator will complete fortnightly environmental inspections of the Project. The purpose of these inspections is to:

- verify compliance with CoC
- review the performance and effectiveness of environmental controls
- identify any non-conformances or potential non-conformances against the mitigation measures and other requirements of this CEMP and the sub-plans
- document observations and track performance.

Environmental inspections and maintenance of sediment fences, sediment basin capacity and integrity and other erosion and sediment measures will also be undertaken as follows:

- following rainfall events >10mm (daily on workdays or as soon as practical during site shutdown periods)
- prior to any major shutdown period e.g. Easter and Christmas.

Replacement of any damaged mitigation measures will be performed as soon as possible.

Environmental inspections will be documented in RCP's Site Inspection Checklist.

Any corrective actions identified will be documented and their implementation will be recorded onsite to verify that they have been being actioned and closed out.

A daily pre-start inspection of plant and equipment will be undertaken by plant and equipment operators and any leaks or excessive emissions reported to the RCP Safety and Environmental Coordinator. RCP will perform random checks as part of the Project site safety walks.

The ER will regularly monitor the implementation of the CEMP and sub-plans to determine whether the Project is being carried out in accordance with this CEMP and the SSD 10479 Development Consent.

The CPESC will supervise the delivery and operation of all construction phase erosion and sediment controls on the Site (whether constructed and maintained by RCP or other earthworks contractors), will review and approve updated ERSED plans and will also conduct monthly audits in accordance with CoC D25.

5.2 Environmental Monitoring

Environmental monitoring will be undertaken to assist in verifying the following:

- construction is in accordance with environmental approvals
- compliance with all relevant legislative requirements
- the minimisation of potential environmental incidents
- effectiveness of environmental controls
- implementation of this CEMP and the sub-plans.

Monitoring requirements are included in the relevant sub-plans. Where relevant, the sub-plan will provide detail on the following:

- responsibility for monitoring
- relevant standards applicable to the monitoring
- monitoring technique and location
- frequency of monitoring
- data management, review and distribution.

AT&L will provide the ER with all performance reporting documentation in order for the ER to perform their functions in accordance with the SSD 10479 Development Consent, including monthly and quarterly reporting to the DPHI.

5.3 Environmental Auditing

5.3.1 Internal Audits

AT&L will undertake an annual internal Health, Safety, Security and Environmental (HSSE) audit of the Project. Audits will involve a review of all environmental documents, records and reports to verify compliance with the CEMP. In addition, the ER may at any time request documents and evidence confirming implementation of the CEMP and sub-plans.

Key environmental and procedural aspects to be covered by the internal HSSE audit may include:

- environmental mitigation measures detailed in the CEMP sub-plans
- adherence to reporting procedures
- complaint and incident management
- legislative requirements.

Environmental and construction records include:

- consultation Register
- incident, non-conformance and corrective action reporting
- communications with stakeholders
- records of environmental monitoring
- monthly waste management reporting
- CEMP audit documentation.

Records of auditing and reporting will be maintained to demonstrate compliance.

5.3.2 External Audits

CoC F37 requires that within six months of the commencement of construction of the Project, and every six months thereafter, until completion of the Project, unless the Planning Secretary directs otherwise, the Project complete Independent Audits. The Independent Audits will be led and conducted by a suitably qualified, experienced and independent expert, including a specialist traffic person, whose appointment has been endorsed by the Planning Secretary. Audits will be carried out in consultation with relevant agencies and will be prepared in accordance with the Independent Audit Post Approval Requirements (Department, 2020).

The independent audits will:

- assess whether the works are complying with the CoC
- recommend measures or actions to improve the environmental performance of the Project
- be submitted to the satisfaction of the Planning Secretary within six weeks of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).

In accordance with CoC F38 and the requirements in the Independent Audit Post Approval Requirements (Department 2020), the Project will:

- review and respond to each Independent Audit Report prepared under CoC F34
- submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations
- implement the recommendations to the satisfaction of the Planning Secretary
- make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this.

5.4 Contingency Management Plan

If inspections, monitoring and/or auditing indicate that the mitigation measures listed in the sub-plans are not effective in managing environmental impacts, the actions outlined in the Contingency Plan (Appendix N) will be implemented.

The Contingency Plan (required by SSD 10479 CoC F36(i)) will manage any unpredicted impacts and their consequences. The implementation of this plan will allow the Project team to reduce ongoing impacts to levels below relevant impact assessment criteria as quickly as possible.

In addition, the cumulative environmental impacts (e.g. dust, noise, traffic and water quality impacts) of RCP and the other construction contractors working concurrently on the Project will be managed under the Contingency Plan. This will result in a coordinated response by AT&L and its construction contractors to cumulative environmental impacts that are in excess of those predicted and required for the Project.

5.5 Non-compliance and Actions

A non-compliance is defined in SSD 10479 Development Consent as an:

> *occurrence, set of circumstances or development that is in breach of this consent.*

Potential non-compliances with the CoC, this CEMP and sub-plans can be identified by anyone and are to be reported to the RCP Project Manager as a potential non-compliance. The RCP Project Manager must report non-compliances and potential non-compliances to AT&L immediately.

Non-compliances will be investigated to determine the root cause and any corrective and/or preventative actions arising from the investigation. This investigation will be documented in a Non-Compliance Report prepared by, or for, the RCP Project Manager and will include any corrective and/or preventative actions. The Non-Compliance Report will be provided to AT&L within five days of the non-compliance.

In accordance with SSD 10479 CoC E11, the Planning Secretary must be notified via the Major Projects website within seven days after the Project becomes aware of any non-compliance. The notification must identify the development and the application number for it, set out the CoC that the development is non-compliant with, the way in which it does not comply, the reasons for the non-compliance (if known), and what actions have been, or will be, undertaken to address the non-compliance.

Note that under SSD 10479 CoC E13, a non-compliance which has been notified as an environmental incident (see Section 5.6.1) does not need to also be notified as a non-compliance.

5.6 Environmental Incident and Emergency Response

5.6.1 Environmental Incidents

An environmental incident is defined in SSD 10479 Development 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.*

Material harm is defined as:

> *harm that:*
>
> *a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or*
>
> *b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).*

Environmental incidents can be identified by anyone and are to be reported to the RCP Project Manager immediately. The RCP Project Manager must report environmental incidents to AT&L immediately.

Under SSD 10479 CoC E10, AT&L must notify the Planning Secretary in writing via the Major Projects website immediately after AT&L becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development) 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 4 of SSD 10479 Development Consent.

Where a pollution incident causes or threatens material harm to the environment or human health, the following authorities must also be notified immediately under the POEO Act:

- EPA
- Penrith City Council
- The Ministry of Health (via Public Health Units)
- SafeWork NSW (formerly WorkCover)
- Fire and Rescue NSW.

Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, AT&L must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident, addressing all

requirements within Appendix 4 of SSD 10479 Development Consent, and such further reports as may be requested.

5.6.2 Environmental Emergencies

An environmental emergency is any event that causes or has the potential to cause material harm to the environment.

AT&L have nominated an emergency contact and an alternate contact that are available 24-hours a day, seven days a week. The Site Emergency Contact will have the authority to stop and direct works on site in the event of an emergency.

For reference, emergency contact details are included in Table 5-1.

Table 5-1 Emergency contact details

Contact	Phone Number/Email	Address
Ambulance	000	N/A
Fire Brigade	000	N/A
Police	000	N/A
NSW EPA Pollution Hotline	131 555	N/A
DPHI	1300 305 695	N/A
NSW Department of Health	(02) 9391 9000	N/A
SafeWork NSW	13 10 50	N/A
Penrith City Council	(02) 4732 7777	601 High St, Penrith NSW 2750
AT&L Representative ***TBC***	M: ***TBC*** E: ***TBC***	N/A
RCP Project Manager Gerard Noone	M: 0439 246 804 E: Gerard.noone@robsoncivil.com.au	N/A
RCP Safety and Environmental Coordinator Derek Doohan	M: 0420 345 527 E: derek.doohan@robsoncivil.com.au	N/A
ER Carl Vincent	M: 0424 203 046 E: carl.vincent@ersed.com.au	N/A
Alternative ER Richard Peterson	M: 0429 227 775 E: Richard.peterson-trigalana@outlook.com	N/A

5.7 Environmental Reporting

The reporting of environmental performance during construction will be undertaken as required by the CoC. Environmental reporting requirements as documented in the CEMP and sub-plans are summarised in Table 5-2.

Table 5-2 Summary of environmental reporting

Report	Timing/Frequency	Responsibility	Reference
Dilapidation Survey and Report	Before the commencement of interim road works	RCP Project Manager	CoC F43
ER Quarterly Report	Quarterly to DPHI	ER	CoC C34 (k)
Consultation/ Complaints Register	Daily	Communications and Community Liaison Representative to ER	CoC F33
CPESC Monthly Audit Reports	Monthly	CPESC	CoC D25
Environmental Review Report	Annually	RCP Project Manager	Section 5.8
Incident Report to AT&L	Within 20 days of the date on which the incident occurred	RCP Project Manager	CoC E10
Non-Compliance Report to AT&L	Within five days of the date on which the non-compliance was identified	RCP Project Manager	CoC E11
Evidence required for Compliance Report	As requested by AT&L for reporting within six months after the commencement of construction of the development, and in the same month each subsequent year	RCP Project Manager	CoC E14
Environmental inspection and progress reports	Ongoing to the RCP Project Manager	RCP Safety and Environmental Coordinator	Section 5.1
Traffic Management Plan Performance Report	Monthly	RCP Safety and Environmental Coordinator	CNVMP Section 3.2
Report on excessive dust being generated at source and dust leaving the site	When occurs, based on visual inspection	RCP Safety and Environmental Coordinator	CAQMP
Monthly Project Report (including waste management and overall environmental performance of the Project)	Monthly to AT&L	RCP Project Manager	Section 3.2
Pre-start checks on plant and equipment and reports to RCP Safety and Environmental Coordinator	Daily and randomly	Plant and Equipment Operators	Section 5.1 CAQMP
Internal HSSE Audit Report	Annually	AT&L Representative	Section 5.3

Several of these reports are required by the CoC to be prepared by individuals with certain qualifications or accreditations, as follows:

- The CPESC Report must be prepared by a CPESC.
- The ER monthly and quarterly reports must be prepared by a suitably qualified and experienced person who was not involved in the preparation of the EIS, Response to Submissions (RTS),

Amended Development Report (ADR), and any additional information for the development and is independent from the design and construction personnel for the development.

As noted in Table 5-2, the RCP Safety and Environmental Coordinator is responsible for the preparation of these reports, however if not suitably qualified, the reports will be prepared by suitably qualified consultants contracted to RCP that meet the CoC requirements.

Under CoC A36, AT&L will provide the ER with the Consultation Register (on a daily basis) and a copy of any consistency assessment for proposed works (before the commencement of the subject work).

The Compliance Reports (required by CoC E14) will review the environmental performance of the Project. The Compliance Reports will be prepared in accordance with the Compliance Reporting Post Approval Requirements (DPE, 2020) and must also:

- identify any trends in the monitoring data
- identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies
- describe what measures will be implemented over the next year to improve the environmental performance of the development.

To prepare these Compliance Reports, AT&L will request that RCP provide evidence of compliance with the requirements of the CoC, CEMP and sub-plans. The RCP Project Manager will be responsible for providing the required compliance evidence within the timeframe set by AT&L.

Under CoC E15, each Compliance Report will be made publicly available by AT&L no later than 60 days after submission to the Planning Secretary. AT&L will notify the Planning Secretary in writing seven days prior to public availability.

5.8 CEMP Review and Revision Program

To meet the requirements of CoC F36 for this CEMP and the sub-plans, RCP will implement a review program to:

- monitor and report on the:
  - Impacts and environmental performance of the Project
  - Effectiveness of the management measures included in the CEMP and sub-plans
- investigate and implement ways to improve the environmental performance of the Project over time.

This review will consider the broader management context of the CEMP and sub-plans including:

- complaints received
- issues raised by stakeholders
- non-compliances identified and reported
- incidents and the Project team response
- Project team structure and resourcing
- recommendations of environmental inspections, audits and previous review (after the initial review).

This review will be undertaken by the RCP Safety and Environmental Coordinator, in consultation with the RCP Project Manager and AT&L Representative, on an annual basis commencing one year after the commencement of construction. An Environmental Review Report recommending measures to improve the environmental performance of the Project will be produced by the review.

SSD 10479 CoC E8 also states that all strategies, plans and programs required under the SSD 10479 Development Consent will be reviewed and the Planning Secretary notified of the review within three months of:

- The submission of a Compliance Report under CoC E14
- The submission of an incident report under CoC E10
- The approval of any modification of the conditions of the SSD 10479 Development Consent
- The issue of a direction of the Planning Secretary under CoC A1(b) which requires a review.

As per CoC E9, where documents are revised under the above reviews, the revised documents will be sent to the Planning Secretary for approval within six weeks of the review (or as agreed by the Planning Secretary).

All employees and contractors will be informed of any revisions to the CEMP during toolbox talks.

Appendix A Development Consent Compliance Matrix

SSD-10479 Instrument		CEMP Section
Part C – Environmental Management, Reporting and Auditing		
C1	In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	This CEMP and associated Sub-Plans have been developed to prevent/minimise any material harm to the environment.
C2	The Stage 1 development may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) in accordance with the EIS, RTS, ADR, Additional Information and Modification Assessments. (d) in accordance with the Development Layout in Appendix 2; and (e) in accordance with the management and mitigation measures in Appendix 4.	This CEMP and associated Sub-Plans have been developed to comply with the CoC, written directions of the Secretary, EIS, RTS, ADR and additional information, Development Layout and management and mitigation measures outlined in Appendix 4 of the Development Consent.
C3	Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to: (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and (b) the implementation of any actions or measures contained in any such document referred to in condition C2(a).	Section 5.8 details when revisions of the CEMP may be undertaken including upon written direction by the Planning Secretary.
C4	The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition C2(c) or C2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition C2(c) or C2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.	Noted

SSD-10479 Instrument		CEMP Section
C5	This consent lapses five years after the date from which it operates, unless the development has physically commenced on the land to which the consent applies before that date.	Noted
C7	The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary: (a) construction; and (b) operation.	Noted
C10	If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.	This condition applies to all stages. If an update is required with subsequent stages with a consultation requirement, it will be addressed under this table at the relevant condition.
C11	If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.	Noted
C12	Before the commencement of construction of the development, the Applicant must: (a) consult with the relevant owner and provider of services that are likely to be affected by the Stage 1 development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure; (b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and (c) submit a copy of the dilapidation report to the Planning Secretary and Council	Consultation with relevant owners will be undertaken and a dilapidation report will be prepared and submitted to Secretary and Council.
C13	Unless the Applicant and the applicable authority agree otherwise, the Applicant must: (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the Stage 1 development; and (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the Stage 1 development.	Noted
C21	The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.	Section 3.4
C24	All plant and equipment used on site, or to monitor the performance of the Stage 1 development, must be: (a) maintained in a proper and efficient condition; and	Section 5 and sub plans

SSD-10479 Instrument		CEMP Section
	(b) operated in a proper and efficient manner.	
C25	The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.	Noted
C26	Prior to the issuing of: (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and (b) an Occupation Certificate, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.	Noted
C27	The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.	Noted
C28	Before the construction of any utility works associated with the Stage 1 development, the Applicant must obtain relevant approvals from service providers.	Noted
C34	The Applicant must engage an Environmental Representative (ER) to oversee construction of the Stage 1 development. Unless otherwise agreed to by the Planning Secretary, construction of the Stage 1 development must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant. The approved ER must: (a) be a suitably qualified and experienced person who was not involved in the preparation of the EIS, RTS, ADR, and any additional information for the Stage 1 Development and is independent from the design and construction personnel for the Stage 1 development; (b) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the Stage 1 development; (c) consider and inform the Planning Secretary on matters specified in the terms of this consent; (d) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; (e) review the CEMP required in Condition E2 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent and if so:	Section 1.2 and Section 3.2

SSD-10479 Instrument		CEMP Section
	(i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department); (f) regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent; (g) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings, and site visits; (h) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; (i) provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the Mamre Road Precinct in relation to construction traffic management, earthworks and sediment control and noise; (j) attend the Mamre Road Precinct Working Group (see Condition C37) in a consultative role in relation to the environmental performance of the Stage 1 development; and (k) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Quarterly Report providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Quarterly Reports'. The Environmental Representative Quarterly Report must be submitted within seven calendar days following the end of each quarter for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.	
C35	The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in condition C34, as well as: (a) the complaints register (to be to be updated within 24 hours of receipt of any complaint); and (b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).	Section 1.2 and Section 3.2
C36	The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under condition E16. The Applicant must: (a) facilitate and assist the Planning Secretary in any such audit; and	Section 3.2

SSD-10479 Instrument		CEMP Section
	(b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit	
C37	Within three months of the commencement of construction of the Stage 1 Development and until all components of the Stage 1 development are constructed and operational, the Applicant must establish and participate in a working group, or join and participate in an existing working group, with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. The working group must: (a) comprise at least one representative of the Applicant, the Applicant's ER, and relevant consent holders in the MRP; (b) meet periodically throughout the year to discuss, formulate and implement measures or strategies to improve monitoring, coordination of the approved industrial developments in the MRP; (c) regularly inform Council, TfNSW, Sydney Water and the Planning Secretary of the outcomes of these meetings and actions to be undertaken by the working group; (d) review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP; (e) review community concerns or complaints with respect to environmental management; (f) identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP; and (g) provide the Planning Secretary with an update and strategies, if a review under subclause (d) and (e) identifies additional measures and processes are required to be implemented by the working group.	Section 3.1 and Section 3.2
C38	Three (3) months prior to completion of construction of all components of the Stage 1 development, the Applicant is eligible to exit the working group required under condition C37. The Applicant must: (a) consult with the Planning Secretary; (b) provide confirmation that all components of the Stage 1 development are operational; (c) and advise on the date of the proposed exit.	Section 3.2
C39	References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.	Section 3.3

SSD-10479 Instrument		CEMP Section
C40	However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.	Section 5.8
AN1	All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.	Section 3.3.3
Part F – Road Works		
F1	The Interim Road Works and Ultimate Road Works may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) in accordance with the Modification Report and RTS for SSD-10479-Mod-3; and (d) in accordance with the plans in Appendix 6 and Appendix 7.	Noted Section 1.3.3
F2	In relation to the Ultimate Road Works, consent is not granted to the 'Future AARU Extension' shown in green on the 1000 series civil works package on the following lots: (a) Lot 2 DP 250002; (b) Lot 11 DP 1296455; and (c) Lot 38 DP 708347.	Noted
F3	The Applicant must comply with the requirements of TfNSW and Council for all construction vehicle movements, as detailed in Construction Traffic Management Plans approved as part of the Works Authorisation Deed (WAD) and Section 138 Roads Act 1993 approval processes.	Appendix J
F4	The date of commencement of each of the following phases of the Interim Road Works must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary: (a) construction of each phase of the Interim Road Works; (b) operation of the interim traffic signals at the Mamre Road / Abbotts Road intersection; (c) operation of traffic signals at each intersection on Abbotts Road and Aldington Road; and (d) operation of the traffic signals at intersection 4.	Noted

SSD-10479 Instrument		CEMP Section
F31	Weekly pavement inspections must be undertaken by the Applicant to ensure the road pavements are safe for all vehicles. Any identified potholes or pavement failures must be reported to Council immediately together with the proposed rectification method and timing for repair.	Noted
F32	All repair works required in accordance with Conditions F30 and F31 must be undertaken to the satisfaction of Council and be at no cost to Council. If Council is required to undertake any repairs to the road works to ensure a safe operating environment for all road users, the cost of such will be paid by the Applicant.	Noted
F33	The Applicant must prepare a Community Consultation Plan for the Interim Road Works to the satisfaction of the Planning Secretary. The Plan must: (a) be approved by the Planning Secretary prior to the commencement of the Interim Road Works; (b) be implemented for the duration of the Interim Road Works; (c) assign a central contact person to keep the community regularly informed throughout the works; (d) detail the mechanisms for regularly consulting with the nearest sensitive receivers and wider residential communities, to keep them informed about: (i) upcoming works, duration and any night-time or out of hours works; (ii) changes to property access and details of traffic disruptions; (iii) schedule for high noise generating works and vibration intensive activities, including details of the specific mitigation measures that would be implemented in accordance with the construction noise and vibration management plan approved under Condition F36; (iv) procedures to minimise dust impacts including details of the controls that would be implemented in accordance with the air quality management plan approved under Condition F36; (v) relocation of services including utilities and drainage; and (vi) details of environmental monitoring results; (e) include contact details for key project personnel, relevant regulatory authorities and key community stakeholders; (f) include a complaints procedure for recording, responding to and managing complaints, including: (i) website, email, toll-free telephone number and postal address for receiving complaints; (ii) advertising the contact details for complaints prior to and during the works through on-site signage;	Refer to CCSCHP

SSD-10479 Instrument		CEMP Section
	(iii) a complaints register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and (iv) procedures to resolve any disputes that may arise during the course of the Interim Road Works.	
F34	The Applicant must: (a) not commence construction of the Interim Road Works until the Community Consultation Plan is approved by the Planning Secretary; and (b) implement the approved Community Consultation Plan for the duration of the Interim Road Works.	Refer to CCSCHP
F35	The Applicant must provide details of the consultation undertaken in accordance with the Community Consultation Plan, to the Planning Secretary on a monthly basis including: (a) the outcomes of consultation, matters resolved and unresolved; and (b) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. *Note: The Community Consultation Plan may be prepared for the Aldington Road widening works component only, where the remainder of the Interim Road Works are covered by a Community Consultation Plan approved in accordance with SSD-9138102 MOD 5.*	Refer to CCSCHP
F36	Prior to the commencement of any part of the Interim Road Works, the Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of Condition C1 and to the satisfaction of the Planning Secretary. The CEMP must include the following:	This Plan
(a)	be prepared in consultation with Council;	Appendix O
(b)	a traffic management plan prepared in consultation with TfNSW and Council, detailing: (i) current cumulative construction traffic data; (ii) the measures to ensure road safety and network efficiency during the Interim Road Works; (iii) a Driver Code of Conduct; (iv) a program to monitor the effectiveness of the road safety and network efficiency measures and adherence to specified routes; (v) procedures for notifying residents and local schools of any disruptions to routes;	Appendix J
(c)	a noise and vibration management plan prepared in accordance with the Construction Noise and Vibration Guideline, TfNSW 2023 and Interim Construction Noise Guideline, DECC 2009, describing measures developed in consultation with affected residents to manage high noise	Appendix C

SSD-10479 Instrument		CEMP Section
	and vibration intensive works, and include an out of hours work protocol. Measures may include notifications, respite periods, scheduling of noisy works, temporary barriers, quieter plant or alternative construction methods, verification monitoring and/or provision of alternative accommodation;	
(d)	an air quality management plan prepared in accordance with the Good Practice Guide for the Assessment and Management of Air Pollution from Road Transport Projects, CASANZ 2023, detailing the location and duration of dust controls, details of monitoring and triggers for implementation of additional dust controls if required;	Appendix D
(e)	an erosion and sediment control plan prepared in accordance with Managing Urban Stormwater: Soils and Construction – Volume 1: Blue Book (Landcom, 2004) and detail the measures to ensure the construction phase water quality targets in the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (Technical Guidance) (NSW Government, 2022) are met;	Appendix B
(f)	mitigation measures recommended in the Biodiversity Development Assessment Report for the Mamre and Abbotts Road Intersection prepared by Fraser Ecological and dated 3 June 2024 and the Biodiversity Development Assessment Report for the Aldington and Abbotts Road Upgrade prepared by Fraser Ecological and dated 14 June 2024;	Appendix G
(g)	a cultural heritage management plan including a procedure for the collection of one isolated surface artefact and an unexpected finds protocol, prepared in consultation with Registered Aboriginal Parties;	Appendix I
(h)	an unexpected finds procedure and asbestos management plan to manage any unexpected contamination encountered during the works, including details of testing and off-site disposal in accordance with the POEO Act and associated regulations; and	Appendix F
(i)	a contingency plan detailing measures to deal with unexpected issues arising during the works, such as excessive dust, noise, traffic, water quality impacts and unfavourable weather conditions.	Appendix N
F37	The Applicant must: (a) not commence construction of the Interim Road Works until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the Interim Road Works in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time. *Note: The Construction Environmental Management Plan may be prepared for the Aldington Road widening works component only, where the remainder of the Interim Road Works are*	Noted

SSD-10479 Instrument		CEMP Section
	covered by a Construction Environmental Management Plan approved in accordance with SSD-9138102-Mod-5.	
F38	Within six months of the commencement of construction of the Interim Road Works, and every six months thereafter, until completion of the works, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the works. The audits must: (a) be prepared in accordance with the Independent Audit Post Approval Requirements (Department, 2020) (b) be led and conducted by a suitably qualified, experienced and independent expert, including a specialist traffic person, whose appointment has been endorsed by the Planning Secretary; (c) assess the environmental performance of the Interim Road Works; (d) assesses whether the works are complying with the conditions of this consent; (e) recommends measures or actions to improve the environmental performance of the works; and (f) be submitted to the satisfaction of the Planning Secretary within six weeks of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).	Section 5.3.2
F39	In accordance with the specific requirements in the Independent Audit Post Approval Requirements (Department 2020), the Applicant must: (a) review and respond to each Independent Audit Report prepared under condition F38 of this consent; (b) submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations; (c) implement the recommendations to the satisfaction of the Planning Secretary; and (d) make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done. *Note: The scope of the Independent Audit may be limited to the Aldington Road widening works, where the remainder of the Interim Road Works have been subject to an independent audit under SSD-9138102-Mod-5.*	Section 5.3.2
F40	The Interim Road Works must be undertaken during the following hours: (a) 7 am to 6 pm Monday to Friday; (b) 8 am to 1 pm Saturday; and	Section 1.2.2

SSD-10479 Instrument		CEMP Section
	(c) at no time on Sundays or public holidays.	
F41	Works outside of the hours identified in condition F40 may be undertaken in the following circumstances: (a) works that are inaudible at the nearest sensitive receivers; (b) works agreed to in writing by the Planning Secretary; (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	Section 1.2.2
F42	Notwithstanding Conditions F40 and Condition F41, the following works may be undertaken out of hours, in accordance with the Out of Hours Works Protocol approved under Condition F36(c): (a) installation of drainage infrastructure; (b) asphalting; and (c) other works required to be completed at night for safety reasons, as detailed in an approved construction traffic management plan.	Section 1.2.2
F43	Prior to the commencement of the Interim Road Works, the Applicant must: (a) undertake building condition surveys for properties located within 25 metres of the works; and (b) prepare a dilapidation survey of the heritage post adjacent to Mamre Road.	Table 5-2
F44	The Applicant must repair, or pay the full costs associated with repairing property that is damaged by carrying out the Interim Road Works.	Noted
F45	Vibration caused by the Interim Road Works at any residence or structure outside the site must be limited to: (a) for structural damage, the latest version of DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures (German Institute for Standardisation, 2016); 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).	Appendix C

SSD-10479 Instrument		CEMP Section
F46	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 F45.	Appendix C
F47	The limits in Conditions F45 and F46 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved under condition F36 of this consent.	Appendix C

Appendix B Erosion and Sediment Control Plan

Mamre Road & Abbotts Road - Signalised Intersection

Progressive Erosion & Sediment Control Plans: Stage 1.

NOTES - Administration & General

1. This progressive plan is to be read in conjunction with the requirements of the;
   a. Robson Civil Projects – 'Project Management Plan'
   b. ADE Consulting Group Pty Ltd - '*Salinity Management Plan - Mamre Road, Abbotts Road and Aldington Road Upgrade, Kemps Creek NSW*', specifically '*Section 5.1.1 – Bulk Earthworks*' – August 2024,
   c. NSW Department of Planning and Environment – '*Technical guidance for achieving Wianamatta–South Creek stormwater management targets*' - September 2022
   d. Other relevant specifications, guidelines and procedures.
2. Works programming to maximise the mitigation of erosion by the early implementation of permanent drainage measures, temporary and permanent soil surface stabilisation measures, and minimising the area and duration of soil disturbance.
3. Bureau of Meteorology weather forecasting to be monitored daily for the local 7-Day weather outlook. Site management measures to be planned for imminent storm/rainfall/flood/wind events include, but are not limited to;
   - avoiding additional soil disturbance immediately prior to an event,
   - provision of additional erosion and sediment controls in critical locations,
   - installing, repairing, and/or adjusting 'clean' (off site water) and 'dirty' (on site) water drainage measures,
   - desilting and re-instating sediment controls as required,
   - implementing stockpile protection measures,
   - stabilising and sealing disturbed soil surfaces,
   - minimising dry soil handling in windy conditions,
   - evacuating or protecting erodible materials in lower lying area.
4. The plan is to be revised as necessary (i.e., progression of works, altered site conditions or weather). **The controls depicted are subject to staging and the controls may be progressively implemented or removed according to progression of works.**
5. All erosion and sediment controls generally to be constructed in accordance with `Blue Book' specifications and standard drawings & RMS Specifications being:
   - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION - 4th EDITION, LANDCOM, MARCH 2004;
   - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION – VOLUME 2D MAIN ROAD CONSTRUCTION, DEC, 2008;
   - RMS QA SPECIFICATION G36 - ENVIRONMENTAL MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)
   - RMS QA SPECIFICATION G38 - SOIL AND WATER MANAGEMENT (EROSION AND SEDIMENT CONTROL PLAN).
6. Substitute materials may be utilised in the construction of erosion or sediment controls where functionality is not affected, i.e., compacted mulch bunds in place of sediment fences, stabilised earth berms in place of excavated drains near underground services or timber pegs in place of star pickets where electrical or gas hazards exist.
7. Personnel constructing controls to have demonstrated competence and experience. Specific awareness training and workshops to be undertaken by personnel with direct involvement with erosion and sediment control. Toolbox talks to regularly focus on erosion and sediment control for specific works, associated risks, potential impacts and mitigation measures.
8. All existing vegetated or undisturbed areas outside of the works area to be regarded as Exclusion zones and to be delineated with fencing, tape, or other markers, as required. All site personnel to be instructed to avoid Exclusion zones or damaging installed controls.

Erosion Control

9. During the process of clearing, maintain a control bund of cleared vegetation to control run-off as works progress. Boundary sediment controls to be installed as soon as practical as the clearing front advances. Maintain clearing slash and minimise disturbance of ground vegetation, where possible.
10. Prior to commencement of topsoil stripping in a catchment, install sediment basins, sediment sumps & traps, surface drains, sediment filter devices and other surface runoff control measures to control runoff onto, across, and from the works zones to prevent the loss of sediment from the site. Note topsoil stripping can be undertaken within the footprints of the controls described above.
11. Construction zones in constrained areas to be managed in smaller, defined sub-catchments to reduce slope lengths and minimise sediment loads to boundary controls.
12. Stripped topsoil to be stripped and stockpiled generally as per SD 4-1. Any viable stripped topsoil to be stored in stockpiles, preferably less than two metres in height.
13. Short term on-site stockpiles to be located away from drains and flow lines and be controlled with sediment fence or storm covers.
14. Vehicles transporting bulk materials on public roads are to correctly cover loads to prevent loss of load and/or dust generation
15. Any significant (long & steep) cut/fill batters should be progressively overlaid with Rolled Erosion Control Products (RECP's such as jute mesh, coir fibre mesh, etc), mulching, Organic Fibre Mulches (OFM's) or geobinders to reduce erosion and rilling, prior to permanent stabilisation with cover crops, mulching or other long-term surface protection.
16. Temporary controls in addition to those shown may be required at strategic locations as required by the progression of works or weather conditions

Water Management

17. Maximise the interception and diversion of 'clean' (off site water) away from works areas. The 'clean' flows to be conveyed in stabilised drainage lines to suitable discharge points. The flows to be discharged to off-site areas at non-erosive velocities with adequate diffusers, level spreaders, etc. Ensure drainage paths and controls are adjusted as required to maximise the separation of 'clean' (off site) and 'dirty' (on site) water flows through/off site.
18. Flows paths with high velocity flows over unstabilised areas to be controlled with
    - applied soil surface stabilisers i.e., geotextile lining, applied soil binders, coarse rock lining, etc.
    - suitably constructed check dams placed at intervals to maximise flow suppression and settling of coarse sediment.
19. Where possible, provide sandbag or other bunding controls at on-site collection points & pit inlets to prevent flows bypassing controls to downslope areas.
20. Protect all existing and constructed inlets to pits & culverts from sediment ingress.
21. Where practical, maintain and/or improve existing stabilised drains to assist in the diversion of 'clean' (off site) flows.
22. Flooded excavations, ponded water, etc. to be extracted where required and utilised for site purposes or treated to achieve acceptable water quality prior to discharge.

Sediment Control

23. Vegetation to be progressively cleared to minimise disturbance by area and duration. Cleared vegetation to be windrowed parallel to the contour until mulching/removal to control flows across cleared areas.
24. The installation of preliminary sediment controls such as perimeter sediment fencing, windrowed vegetation/mulch, excavated sediment traps, check dams, straw bale filters, etc, will be implemented prior to soil disturbance within the catchment.
25. Accumulated water in sediment traps/sumps cannot be pumped, discharged, or released from site without completing a dewatering checklist.
26. Appropriate sediment tracking controls such as an aggregate/geotextile apron, shaker grid, etc. will be installed at exit points from the site. Personnel to monitor roadways & tracked sediments to be removed as required.
27. Personnel to ensure visual dust monitoring is maintained during works, and dust suppression is undertaken regularly. Dust control to be regularly conducted with water carts and soil stockpiles to suitably covered. Additional dust suppression measures to be utilised to minimise dust pollution during periods of high winds.
28. Temporary 'dirty' water drainage will be adjusted progressively to maximise flows to sediment control devices.

Contamination

29. Excavation of sub-soils to be inspected and monitored as works proceeds, to identify potential contamination. Any potentially contaminated soils to be stripped or excavated separately and transported directly to the designated stockpile, treatment area or licensed waste facility.
30. Potentially contaminated soils are to be stored within an appropriately bunded area and covered with heavy grade plastic or other impermeable covers for the duration of rainfall.
31. Ground disturbance and machinery/vehicle movements in potentially contaminated areas will be minimised to essential works.

Monitoring & Reporting and Inspection & Maintenance

32. Inspections of erosion and sediment controls will occur following rainfall events >10mm (daily on workdays or as soon as practical during site shutdown periods), with any necessary repairs implemented as soon as possible.
33. Relevant checklists and records to be maintained noting details such as rainfall received, repairs to controls and amounts of sediments cleaned from controls.
34. Sediment traps, sumps and filters are to be desilted when 60% of storage capacity is reached.
35. All site personnel to report any spill, leaks, or other failure to relevant response staff as soon as possible.

Stabilisation

36. Erosion and sediment controls are to be maintained until the relevant catchments are stabilised, re-vegetated, or sealed adequately to achieve soil surface protection factors as per the 'Blue Book' and SWMP requirements.
37. Completed earthworks areas will be backfilled and compacted in a staged manner as soon as possible. Adjacent disturbed areas will be suitably trimmed and stabilised as required.
38. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.
39. Areas subject to heavy compaction and disturbance from vehicle movements and machinery to be scarified to a depth >100mm prior to topsoiling and seeding.

Statement of Compliance

This plan has been developed, and is certified by, an appropriately qualified and experienced professional in erosion and sediment control. The plan and associated documents, calculations, and drawings, have been prepared to a standard which, if properly implemented, will achieve the water quality objectives described in '*Managing Urban Stormwater – Soils & Construction*' Volumes 1 & 2 – NSW Landcom 2006 & NSW DECC 2008. The key elements of the '*Technical guidance for achieving Wianamatta–South Creek stormwater management targets*' - NSW DPHIE 2022 cannot be implemented due to Project boundary constraints, however, the approximate area of maximum disturbance is 5000m^2, and disturbed areas will be progressively stabilised within three months of disturbance. All erosion and sediment control measures are designed to be in accordance with the requirements of the aforementioned documents and the Penrith City Council Development Control Plan 2014.

Signed: _____ Andrew Littlewood - CPESC No. 5988 Date: 7th March 2025

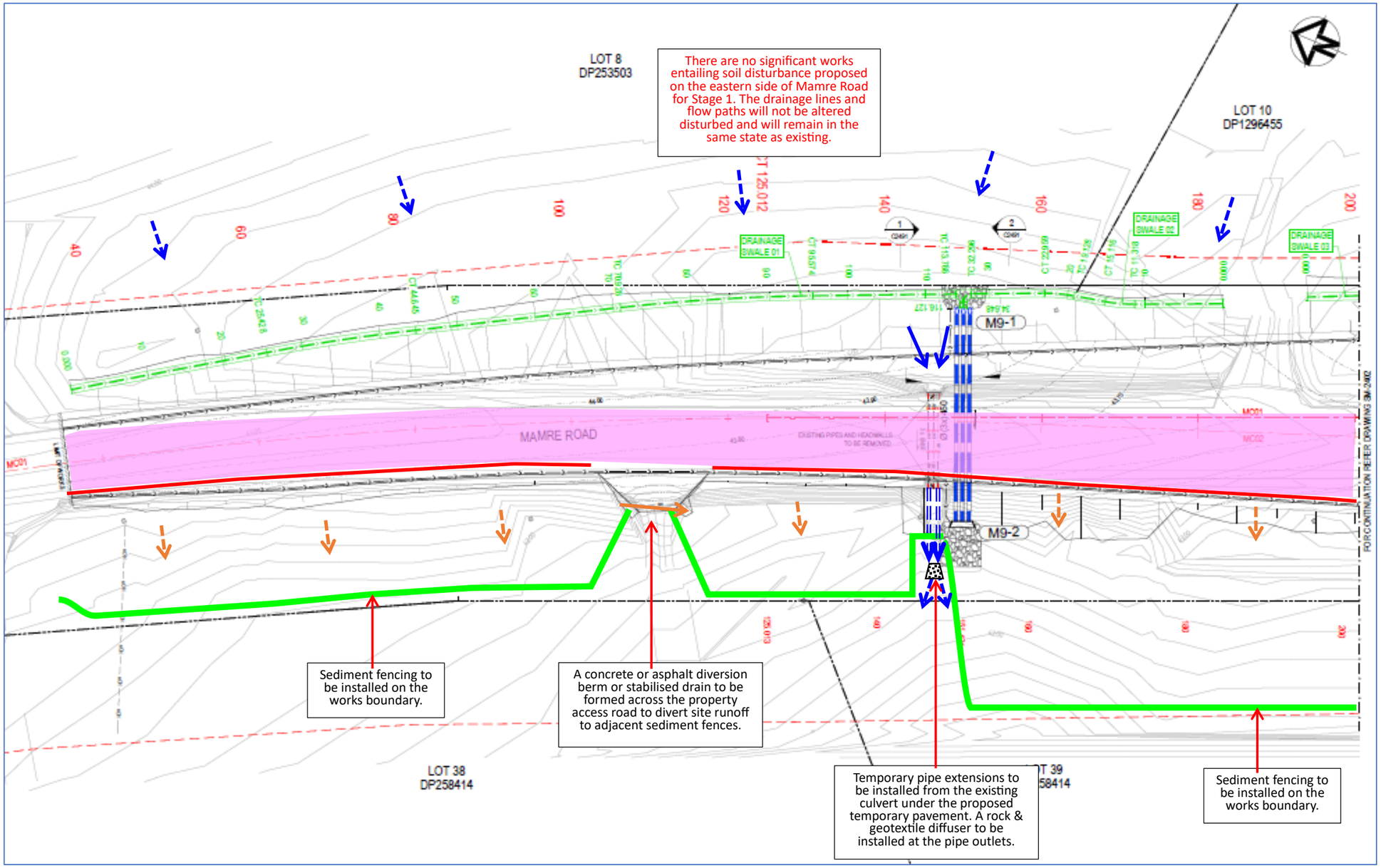
Version	Drawn by	Date	Signed	Reviewed by	Date	Version	Drawn by	Date	Signed	Reviewed by	Date
01	A. Littlewood	05/07/2024				03	A. Littlewood	07/03/2025			
02	A. Littlewood	01/11/2024									

Mamre Road & Abbotts Road - Signalised Intersection – Response to Reviewer Comments by ErSed Environmental Pty Ltd – November 2024

Plan Reference	Location/Item	Comment	Response	Action	Reviewer Comments & Date
Stage 1: Chainage 40 to 200	Existing drainage lines – eastern side of Mamre Road	*how is clean water directed to the cross over points?*	At the time of drafting the PESCP, there were no significant works entailing soil disturbance for Stage 1 proposed, and drainage lines and flow paths to remain as existing.	Noted on plan in text box.	
Stage 1: Chainage 200 to 370	Existing drainage lines – eastern side of Mamre Road	*per previous sheet - how is water managed to from sheet flow to the culvert inlets* *how is the invert protected? is sediment control required here?*	At the time of drafting the PESCP, there were no significant works entailing soil disturbance for Stage 1 proposed, and drainage lines and flow paths to remain as existing. In addition, due to the absence of soil disturbance, no sediment controls are required at the nominated location.	Noted on plan in text box.	
Stage 1: Chainage 200 to 370	Existing drainage lines – eastern side of Mamre Road	*is water entrapped in this location?*	This is not known and would likely be heavily influenced by rainfall intensity & duration. As noted above, at the time of drafting, there were no significant works entailing soil disturbance for Stage 1 proposed, and drainage lines and flow paths to remain as existing.	Noted on plan in text box.	
Stage 1: Chainage 370 to 540	Existing drainage lines – eastern side of Mamre Road	*nil disturbance/stabilization of existing drains if these are to used as clean water diversions*	At the time of drafting the PESCP, there were no significant works entailing soil disturbance for Stage 1 proposed, and drainage lines and flow paths to remain as existing. The associated text box states that flows are *'to be diverted into the existing vegetated drain flowing to the farm dam.'*	No revision or action required.	
Stage 1: Chainage 370 to 540	Existing drainage line – eastern side of Mamre Road	*is sediment control required to protect the internal clean water diversions?*	At the time of drafting the PESCP, there were no significant works entailing soil disturbance for Stage 1 proposed, and drainage lines and flow paths to remain as existing. In addition, due to the absence of soil disturbance, no sediment controls are required at the nominated location.	Noted on plan in text box.	
Stage 1: Chainage 540 to 720	Existing drainage lines – eastern side of Mamre Road	*see - comments previous comments re diversion of clean water*	At the time of drafting the PESCP, there were no significant works entailing soil disturbance for Stage 1 proposed, and drainage lines and flow paths to remain as existing.	Noted on plan in text box.	
Stage 1: Chainage 720 to 890	Existing drainage lines – eastern side of Mamre Road	*show direction of clean water diversion*	At the time of drafting the PESCP, there were no significant works entailing soil disturbance for Stage 1 proposed, and drainage lines and flow paths to remain as existing.	Noted on plan in text box.	

Mamre Road & Abbotts Road - Signalised Intersection

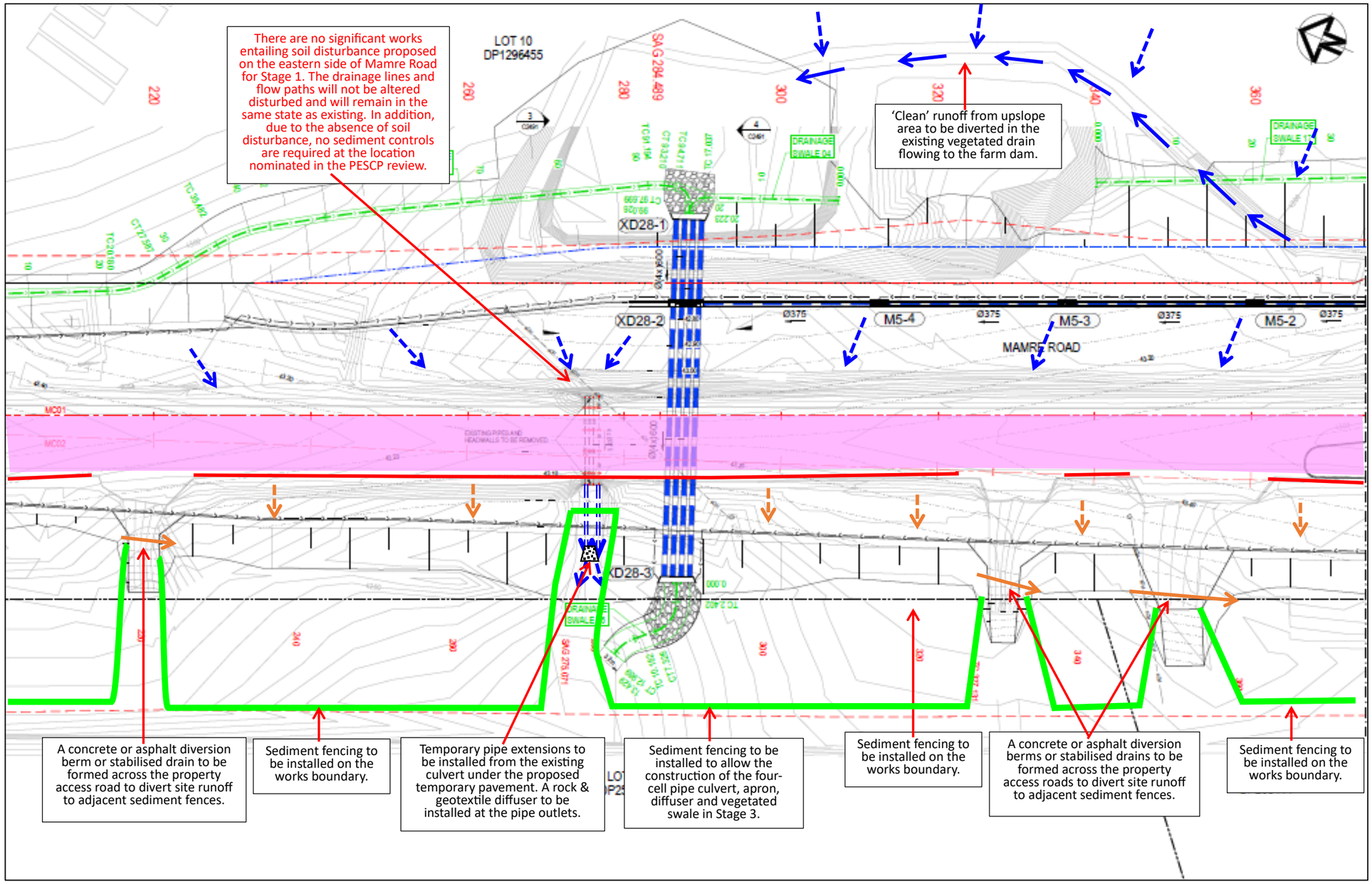
Progressive ESCP - Stage 1: Chainage 40 to 200



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		''Clean' water exclusion bank/berm		Stabilised spillway or		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

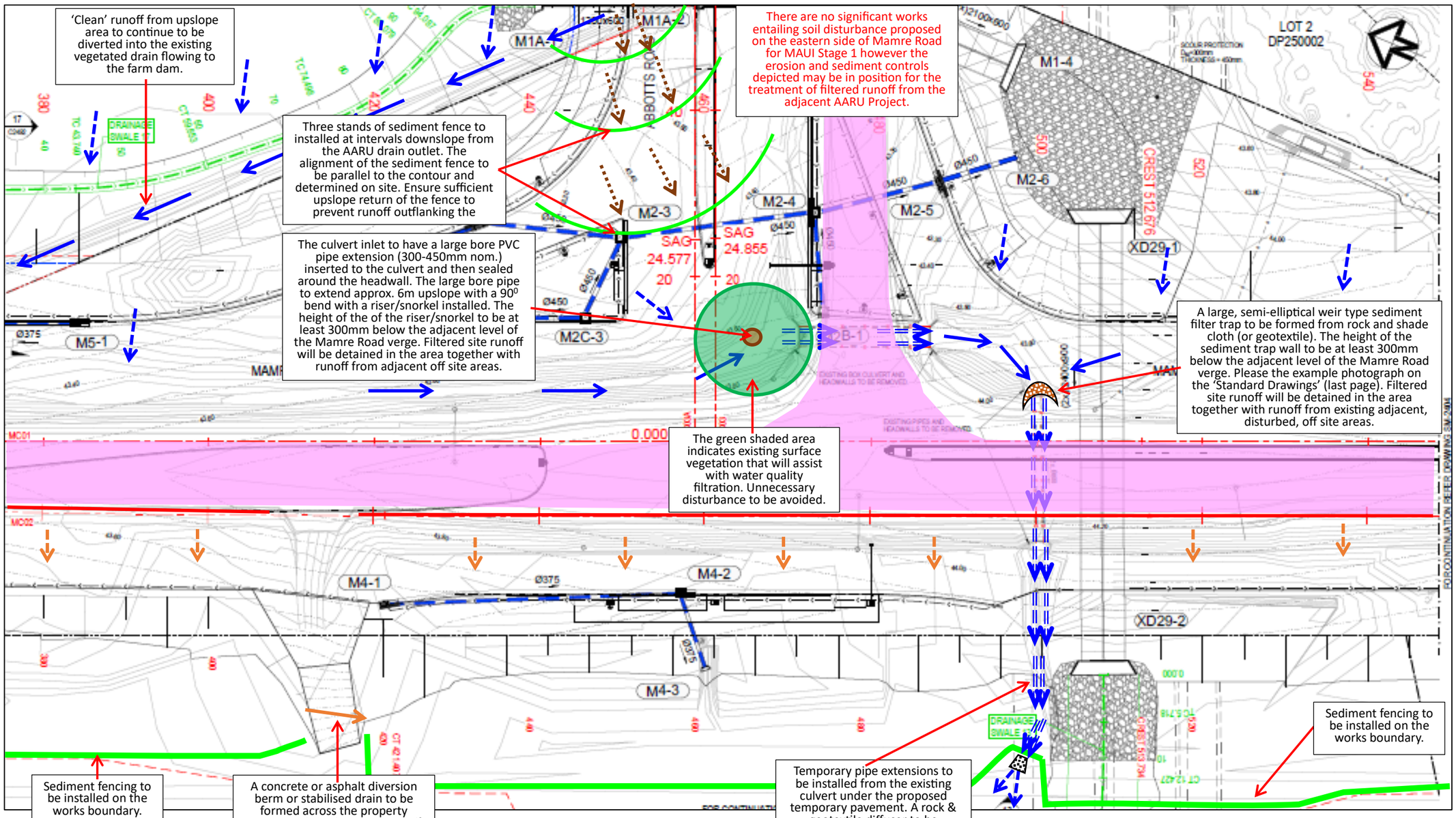
Progressive ESCP - Stage 1: Chainage 200 to 370



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		''Clean' water exclusion bank/berm		Stabilised spillway or		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

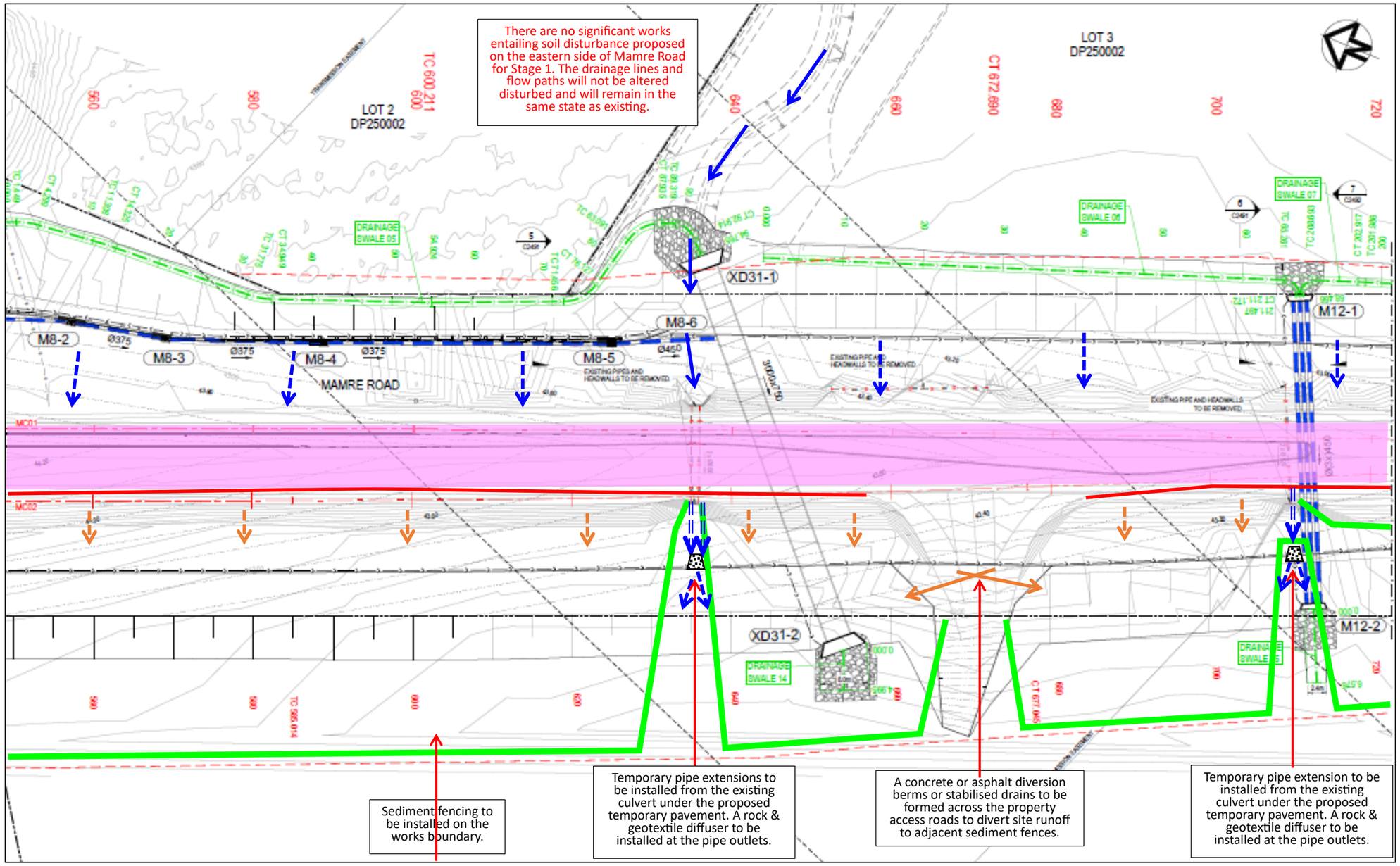
Progressive ESCP - Stage 1: Chainage 370 to 540



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		''Clean' water exclusion bank/berm		Stabilised spillway or		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

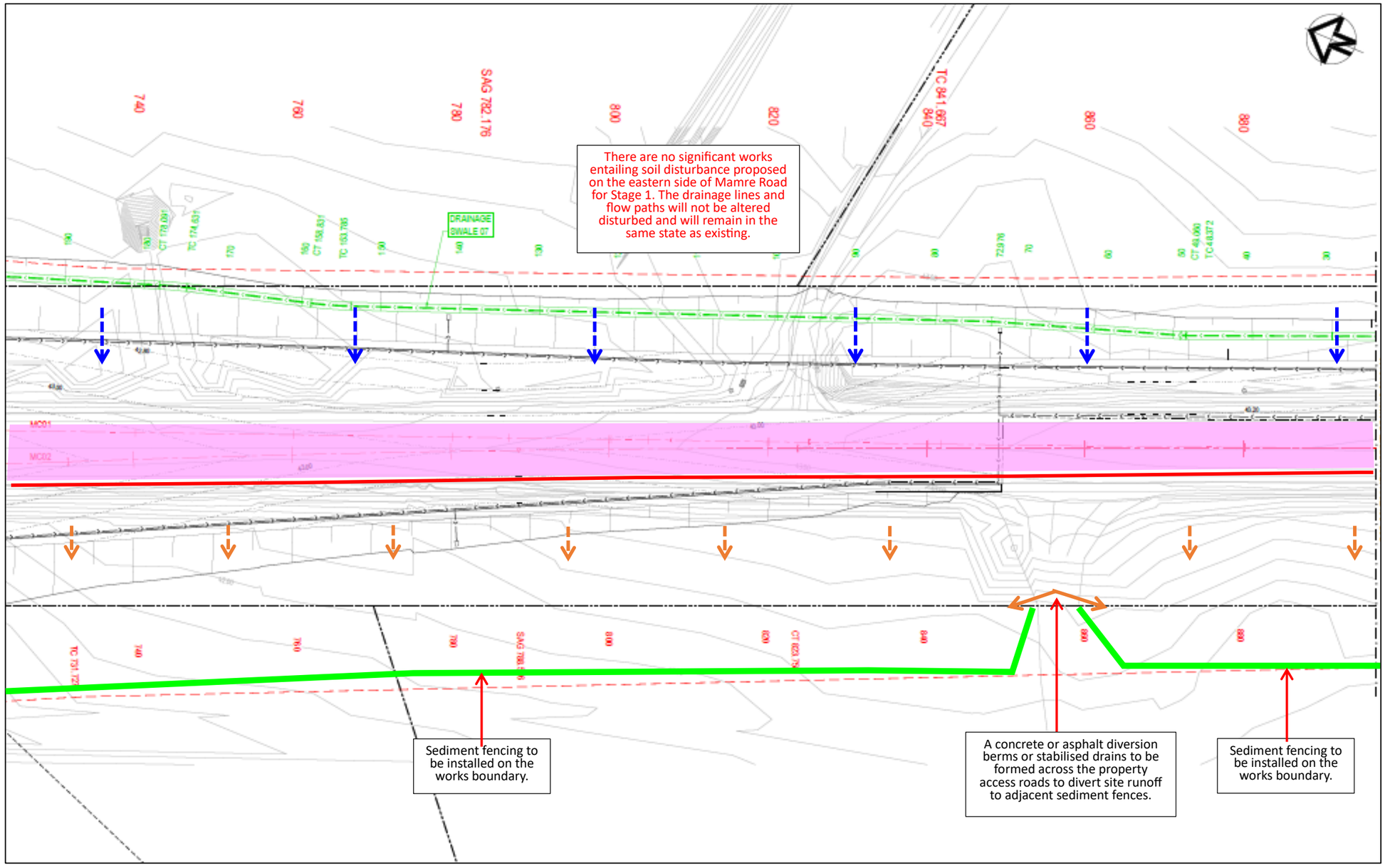
Progressive ESCP - Stage 1: Chainage 540 to 720



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		''Clean' water exclusion bank/berm		Stabilised spillway or		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

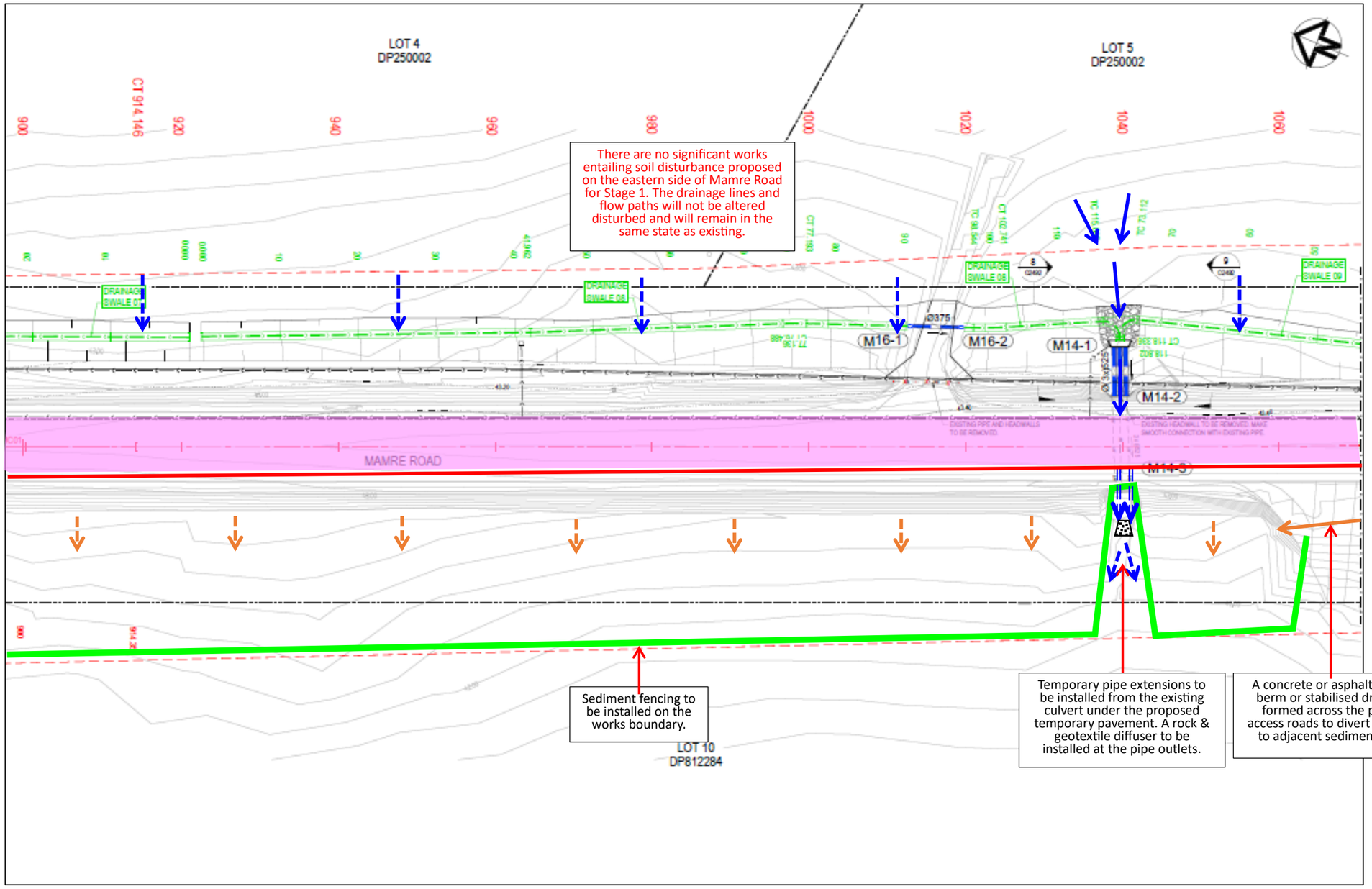
Progressive ESCP - Stage 1: Chainage 720 to 890



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		''Clean' water exclusion bank/berm		Stabilised spillway or		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

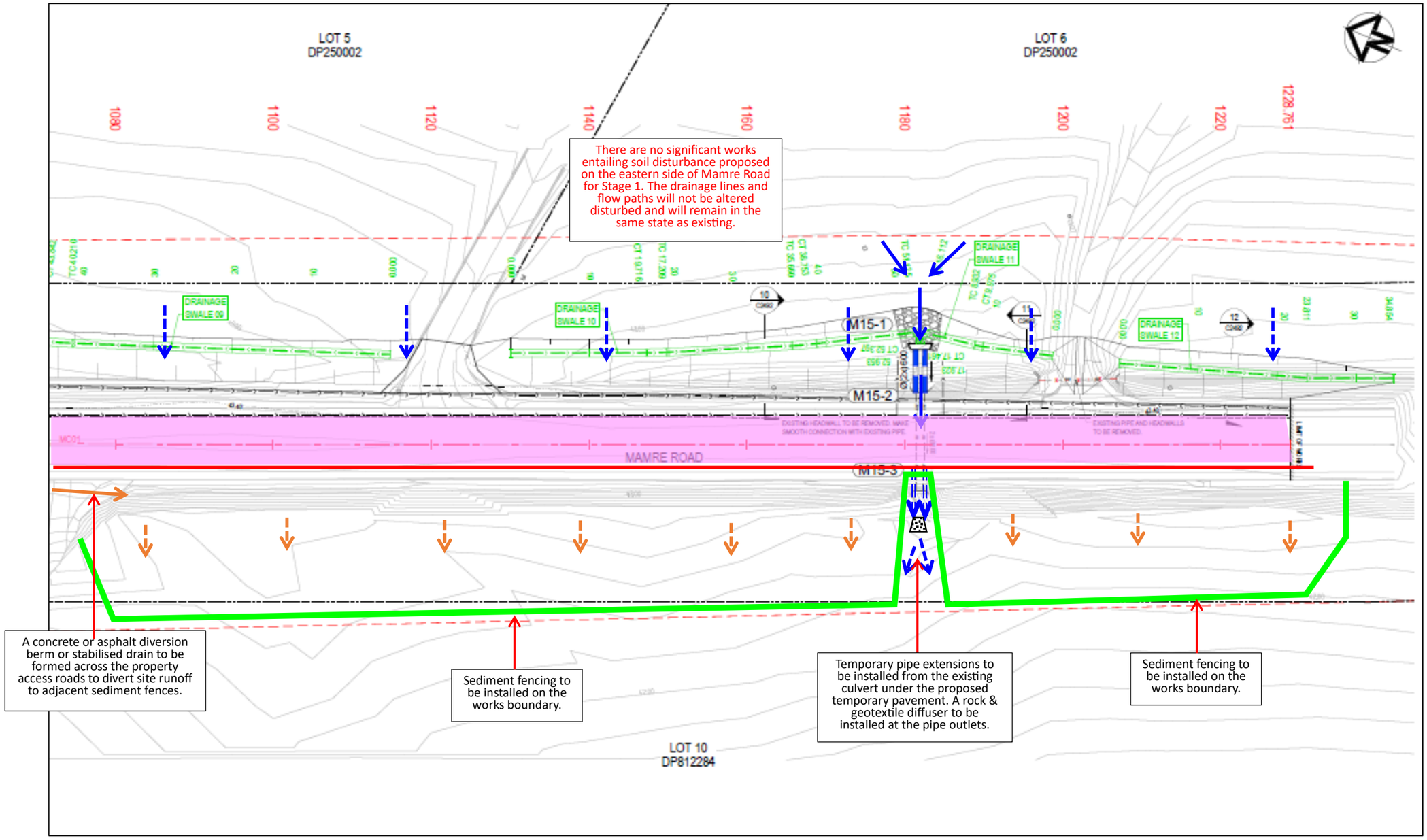
Progressive ESCP - Stage 1: Chainage 890 to 1070



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		''Clean' water exclusion bank/berm		Stabilised spillway or		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

Progressive ESCP - Stage 1: Chainage 1070 to 1240



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		''Clean' water exclusion bank/berm		Stabilised spillway or		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

Progressive Erosion & Sediment Control Plans: Stage 2.

NOTES - Administration & General

1. This progressive plan is to be read in conjunction with the requirements of the;
   a. Robson Civil Projects – 'Project Management Plan'
   b. ADE Consulting Group Pty Ltd - '*Salinity Management Plan - Mamre Road, Abbotts Road and Aldington Road Upgrade, Kemps Creek NSW*', specifically '*Section 5.1.1 – Bulk Earthworks*' – August 2024,
   c. NSW Department of Planning and Environment – '*Technical guidance for achieving Wianamatta–South Creek stormwater management targets*' - September 2022
   d. Other relevant specifications, guidelines and procedures.
2. Works programming to maximise the mitigation of erosion by the early implementation of permanent drainage measures, temporary and permanent soil surface stabilisation measures, and minimising the area and duration of soil disturbance.
3. Bureau of Meteorology weather forecasting to be monitored daily for the local 7-Day weather outlook. Site management measures to be planned for imminent storm/rainfall/flood/wind events include, but are not limited to;
   - avoiding additional soil disturbance immediately prior to an event,
   - provision of additional erosion and sediment controls in critical locations,
   - installing, repairing, and/or adjusting 'clean' (off site water) and 'dirty' (on site) water drainage measures,
   - desilting and re-instating sediment controls as required,
   - implementing stockpile protection measures,
   - stabilising and sealing disturbed soil surfaces,
   - minimising dry soil handling in windy conditions,
   - evacuating or protecting erodible materials in lower lying area.
4. The plan is to be revised as necessary (i.e., progression of works, altered site conditions or weather). **The controls depicted are subject to staging and the controls may be progressively implemented or removed according to progression of works.**
5. All erosion and sediment controls generally to be constructed in accordance with `Blue Book' specifications and standard drawings & RMS Specifications being:
   - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION - 4th EDITION, LANDCOM, MARCH 2004;
   - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION – VOLUME 2D MAIN ROAD CONSTRUCTION, DEC, 2008;
   - RMS QA SPECIFICATION G36 - ENVIRONMENTAL MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)
   - RMS QA SPECIFICATION G38 - SOIL AND WATER MANAGEMENT (EROSION AND SEDIMENT CONTROL PLAN).
6. Substitute materials may be utilised in the construction of erosion or sediment controls where functionality is not affected, i.e., compacted mulch bunds in place of sediment fences, stabilised earth berms in place of excavated drains near underground services or timber pegs in place of star pickets where electrical or gas hazards exist.
7. Personnel constructing controls to have demonstrated competence and experience. Specific awareness training and workshops to be undertaken by personnel with direct involvement with erosion and sediment control. Toolbox talks to regularly focus on erosion and sediment control for specific works, associated risks, potential impacts and mitigation measures.
8. All existing vegetated or undisturbed areas outside of the works area to be regarded as Exclusion zones and to be delineated with fencing, tape, or other markers, as required. All site personnel to be instructed to avoid Exclusion zones or damaging installed controls.

Erosion Control

9. During the process of clearing, maintain a control bund of cleared vegetation to control run-off as works progress. Boundary sediment controls to be installed as soon as practical as the clearing front advances. Maintain clearing slash and minimise disturbance of ground vegetation, where possible.
10. Prior to commencement of topsoil stripping in a catchment, install sediment basins, sediment sumps & traps, surface drains, sediment filter devices and other surface runoff control measures to control runoff onto, across, and from the works zones to prevent the loss of sediment from the site. Note topsoil stripping can be undertaken within the footprints of the controls described above.
11. Construction zones in constrained areas to be managed in smaller, defined sub-catchments to reduce slope lengths and minimise sediment loads to boundary controls.
12. Stripped topsoil to be stripped and stockpiled generally as per SD 4-1. Any viable stripped topsoil to be stored in stockpiles, preferably less than two metres in height.
13. Short term on-site stockpiles to be located away from drains and flow lines and be controlled with sediment fence or storm covers.
14. Vehicles transporting bulk materials on public roads are to correctly cover loads to prevent loss of load and/or dust generation
15. Any significant (long & steep) cut/fill batters should be progressively overlaid with Rolled Erosion Control Products (RECP's such as jute mesh, coir fibre mesh, etc), mulching, Organic Fibre Mulches (OFM's) or geobinders to reduce erosion and rilling, prior to permanent stabilisation with cover crops, mulching or other long-term surface protection.
16. Temporary controls in addition to those shown may be required at strategic locations as required by the progression of works or weather conditions

Water Management

17. Maximise the interception and diversion of 'clean' (off site water) away from works areas. The 'clean' flows to be conveyed in stabilised drainage lines to suitable discharge points. The flows to be discharged to off-site areas at non-erosive velocities with adequate diffusers, level spreaders, etc. Ensure drainage paths and controls are adjusted as required to maximise the separation of 'clean' (off site) and 'dirty' (on site) water flows through/off site.
18. Flows paths with high velocity flows over unstabilised areas to be controlled with
    - applied soil surface stabilisers i.e., geotextile lining, applied soil binders, coarse rock lining, etc.
    - suitably constructed check dams placed at intervals to maximise flow suppression and settling of coarse sediment.
19. Where possible, provide sandbag or other bunding controls at on-site collection points & pit inlets to prevent flows bypassing controls to downslope areas.
20. Protect all existing and constructed inlets to pits & culverts from sediment ingress.
21. Where practical, maintain and/or improve existing stabilised drains to assist in the diversion of 'clean' (off site) flows.
22. Flooded excavations, ponded water, etc. to be extracted where required and utilised for site purposes or treated to achieve acceptable water quality prior to discharge.

Sediment Control

23. Vegetation to be progressively cleared to minimise disturbance by area and duration. Cleared vegetation to be windrowed parallel to the contour until mulching/removal to control flows across cleared areas.
24. The installation of preliminary sediment controls such as perimeter sediment fencing, windrowed vegetation/mulch, excavated sediment traps, check dams, straw bale filters, etc, will be implemented prior to soil disturbance within the catchment.
25. Accumulated water in sediment traps/sumps cannot be pumped, discharged, or released from site without completing a dewatering checklist.
26. Appropriate sediment tracking controls such as an aggregate/geotextile apron, shaker grid, etc. will be installed at exit points from the site. Personnel to monitor roadways & tracked sediments to be removed as required.
27. Personnel to ensure visual dust monitoring is maintained during works, and dust suppression is undertaken regularly. Dust control to be regularly conducted with water carts and soil stockpiles to suitably covered. Additional dust suppression measures to be utilised to minimise dust pollution during periods of high winds.
28. Temporary 'dirty' water drainage will be adjusted progressively to maximise flows to sediment control devices.

Contamination

29. Excavation of sub-soils to be inspected and monitored as works proceeds, to identify potential contamination. Any potentially contaminated soils to be stripped or excavated separately and transported directly to the designated stockpile, treatment area or licensed waste facility.
30. Potentially contaminated soils are to be stored within an appropriately bunded area and covered with heavy grade plastic or other impermeable covers for the duration of rainfall.
31. Ground disturbance and machinery/vehicle movements in potentially contaminated areas will be minimised to essential works.

Monitoring & Reporting and Inspection & Maintenance

32. Inspections of erosion and sediment controls will occur following rainfall events >10mm (daily on workdays or as soon as practical during site shutdown periods), with any necessary repairs implemented as soon as possible.
33. Relevant checklists and records to be maintained noting details such as rainfall received, repairs to controls and amounts of sediments cleaned from controls.
34. Sediment traps, sumps and filters are to be desilted when 60% of storage capacity is reached.
35. All site personnel to report any spill, leaks, or other failure to relevant response staff as soon as possible.

Stabilisation

36. Erosion and sediment controls are to be maintained until the relevant catchments are stabilised, re-vegetated, or sealed adequately to achieve soil surface protection factors as per the 'Blue Book' and SWMP requirements.
37. Completed earthworks areas will be backfilled and compacted in a staged manner as soon as possible. Adjacent disturbed areas will be suitably trimmed and stabilised as required.
38. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.
39. Areas subject to heavy compaction and disturbance from vehicle movements and machinery to be scarified to a depth >100mm prior to topsoiling and seeding.

Statement of Compliance

This plan has been developed, and is certified by, an appropriately qualified and experienced professional in erosion and sediment control. The plan and associated documents, calculations, and drawings, have been prepared to a standard which, if properly implemented, will achieve the water quality objectives described in '*Managing Urban Stormwater – Soils & Construction*' Volumes 1 & 2 – NSW Landcom 2006 & NSW DECC 2008. The key elements of the '*Technical guidance for achieving Wianamatta–South Creek stormwater management targets*' - NSW DPHIE 2022 cannot be implemented due to Project boundary constraints, however, the approximate area of maximum disturbance is 5000m^2, and disturbed areas will be progressively stabilised within three months of disturbance. All erosion and sediment control measures are designed to be in accordance with the requirements of the aforementioned documents and the Penrith City Council Development Control Plan 2014.

Signed: _____ Andrew Littlewood - CPESC No. 5988 Date: 7th March 2025

Version	Drawn by	Date	Signed	Reviewed by	Date	Version	Drawn by	Date	Signed	Reviewed by	Date
01	A. Littlewood	05/07/2024				03	A. Littlewood	07/03/2025			
02	A. Littlewood	01/11/2024									

Mamre Road & Abbotts Road - Signalised Intersection – Response to Reviewer Comments by ErSed Environmental Pty Ltd - November

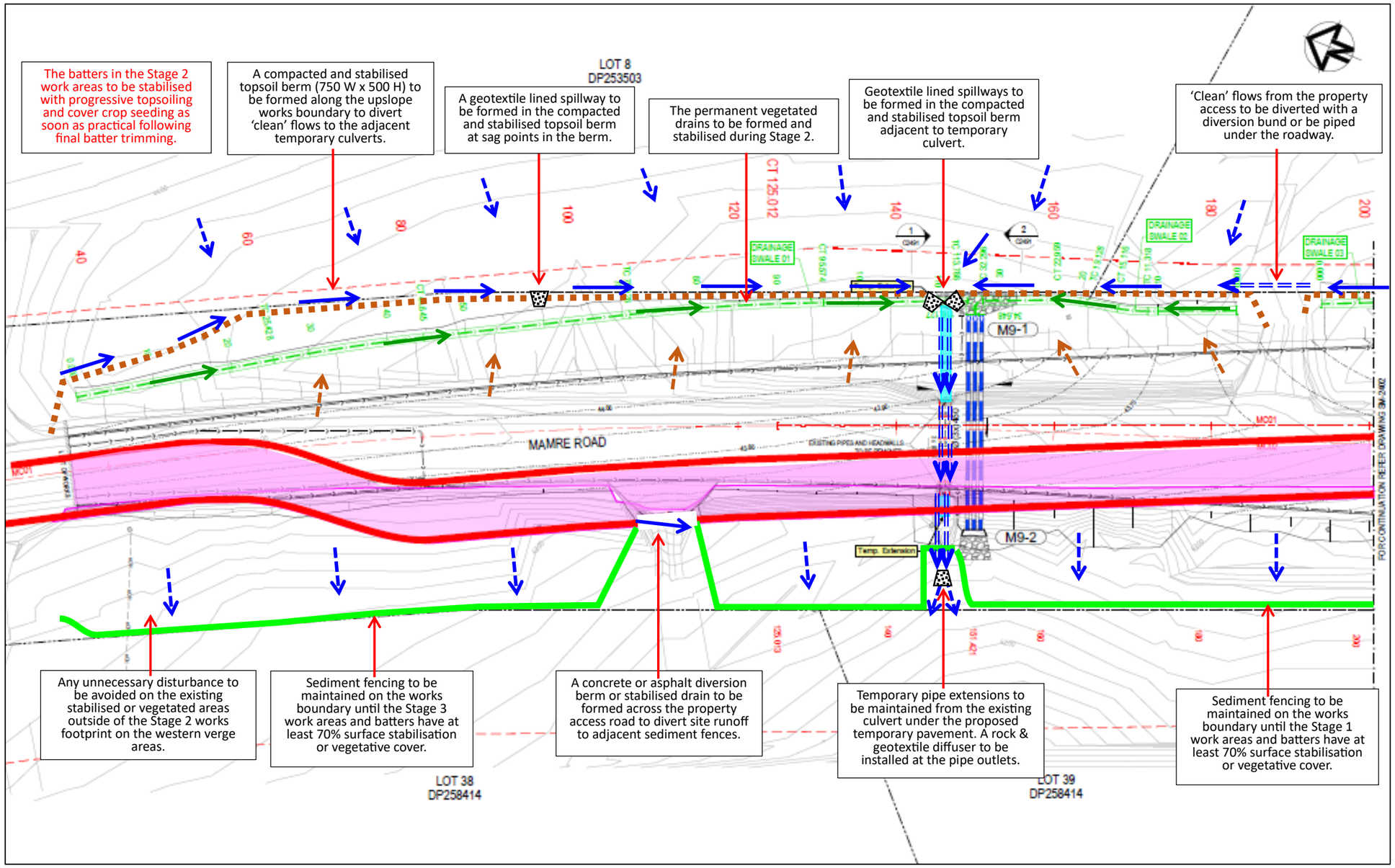
Plan Reference	Location/Item	Comment	Response	Action	Reviewer Comments & Date
Stage 1: Chainage 40 to 200	Western side of Mamre Road	*if this is to be maintained as clean or mostly clean runoff then limited disturbance this area should be noted on the plans.*	Noted.	PESCP revised with text box inserted on plans	
Stage 1: Chainage 40 to 200	Live traffic lanes for Stage 2	*indicate this as the maintained traffic lanes if this is the case?*	Noted, whilst noting that the temporary traffic barriers are shown on the plan.	PESCPs for Stage 1 & 2 have been revised showing live traffic lanes. Temporary traffic lanes for PESCP Stage 3 have been delineated and highlighted with green shading.	
Stage 1: Chainage 200 to 370	Existing farm dam at Chainage 290	*does this dam receive dirty water from the site? if so how does water exit the dam? are there existing stormwater culverts to the west? if so then treat the dam as a construction control - t appears to be receiving both blue and green/brown areas*	During early Stage 2 works a temporary pipe culvert will be installed as shown by the aqua polygon, extending from the existing dam to the road culvert at Ch 275. Runoff from the work area will be controlled with a stabilised topsoil berm with spillways, which will drain via existing vegetated areas to the dam. As noted, the dam decommissioning and associated drainage works are to be undertaken in Stage 2/Stage 3, and the controls will be detailed in a separate PESCP/EWMS. Following the completion of batters, stabilisation of permanent drains (indicated by green arrows), the runoff will be regarded as ‘clean’ and will drain to the extended culvert.	The PESCP has been revised with a text box and arrows indicating piped drainage extending from the existing dam to the road culvert at Ch 275.	
Stage 1: Chainage 370 to 540	Mamre Road – roadside verge drainage	*gradient of fall swaps at chainage 370 - please check and confirm*	Agreed. The PESCP for Ch 200-370 shows the fall away from the road, which then transitions around Ch 370 to fall toward the road.	No revision or action required.	
Stage 1: Chainage 370 to 540	Intersection construction area drainage	*is the water intended to pass under the barriers? do you intend to pass construction water over the roadway? can it not be directed to some other larger and safer control?*	The PESCP specifies that a geotextile apron will be installed as a filter control for runoff passing under the barriers, operating similarly to a sediment fence. Because of the lack of grading and the crown of the road construction water generally won’t flow over the road formation, except during extreme rain causing local or flash flooding. Construction runoff will mix with clean road runoff and drain via verge flow paths to adjacent controls, around Ch 370 and Ch 540, depending on cut/fill levels. Depending on earthworks levels, the porous apron will enable 'clean' flows to drain into the site during severe rainfall events and reduce the risk of water accumulation on the roadway and associated hydroplaning.	No revision or action required.	

Mamre Road & Abbotts Road - Signalised Intersection – Response to Reviewer Comments by ERSED – November 2024

Plan Reference	Location/Item	Comment	Response	Action	Reviewer Comments & Date
Stage 1: Chainage 370 to 540	Intersection construction area drainage	*is the water intended to pass under the barriers? do you intend to pass construction water over the roadway? can it not be directed to some other larger and safer control?*	In addition, an excavated sump or basin formed in the work area would see spill flows follow the same drainage pattern described above when its capacity is exceeded.	No revision or action required.	
Stage 1: Chainage 540 to 720	Permanent verge drainage swales – Ch 700.	*see previous comments regarding green being different from brown flows- shouldn't sediment control be provided before the inlet to the culverts?*	The PESCP text boxes state; *'The permanent vegetated drains to be formed and stabilised during Stage 2*.' Where practical, following the completion of batters, stabilisation of permanent drains (indicated by green arrows) will be progressively be completed whilst the work areas are controlled with the stabilised topsoil berms and spillways. At that stage the runoff will be regarded as 'clean' and will drain to the extended culvert when the stabilised topsoil berms are removed.	No revision or action required.	
Stage 1: Chainage 540 to 720	Existing culvert at Ch 710	*how is clean water coming to this location?*	The 'clean' runoff in that area will be local road runoff. These flows to be controlled and directed to the existing culvert inlet to exclude 'clean' flows from the culvert M12-1 work area whilst it is constructed.	No revision or action required.	

Mamre Road & Abbotts Road - Signalised Intersection

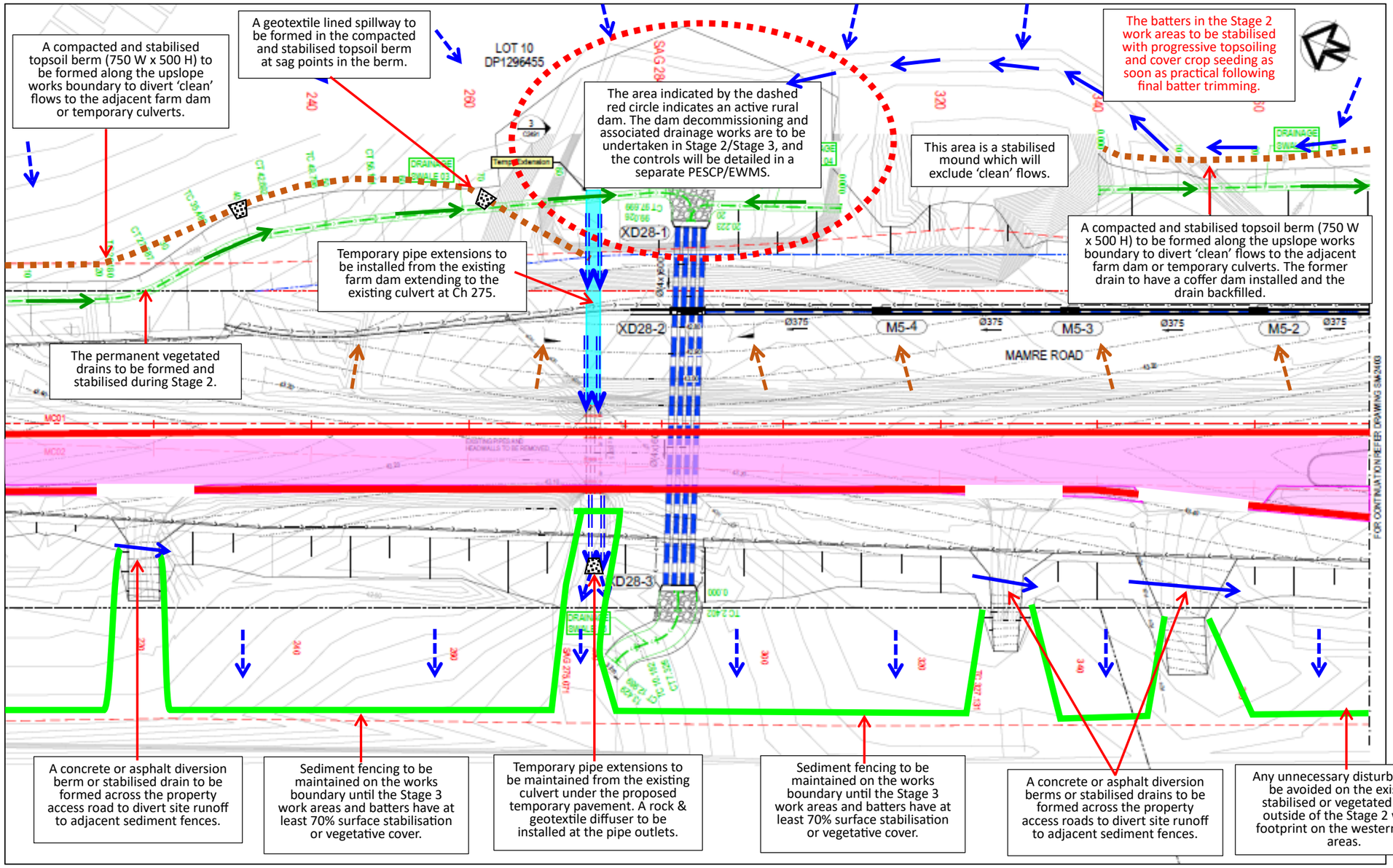
Progressive ESCP - Stage 2: Chainage 40 to 200



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

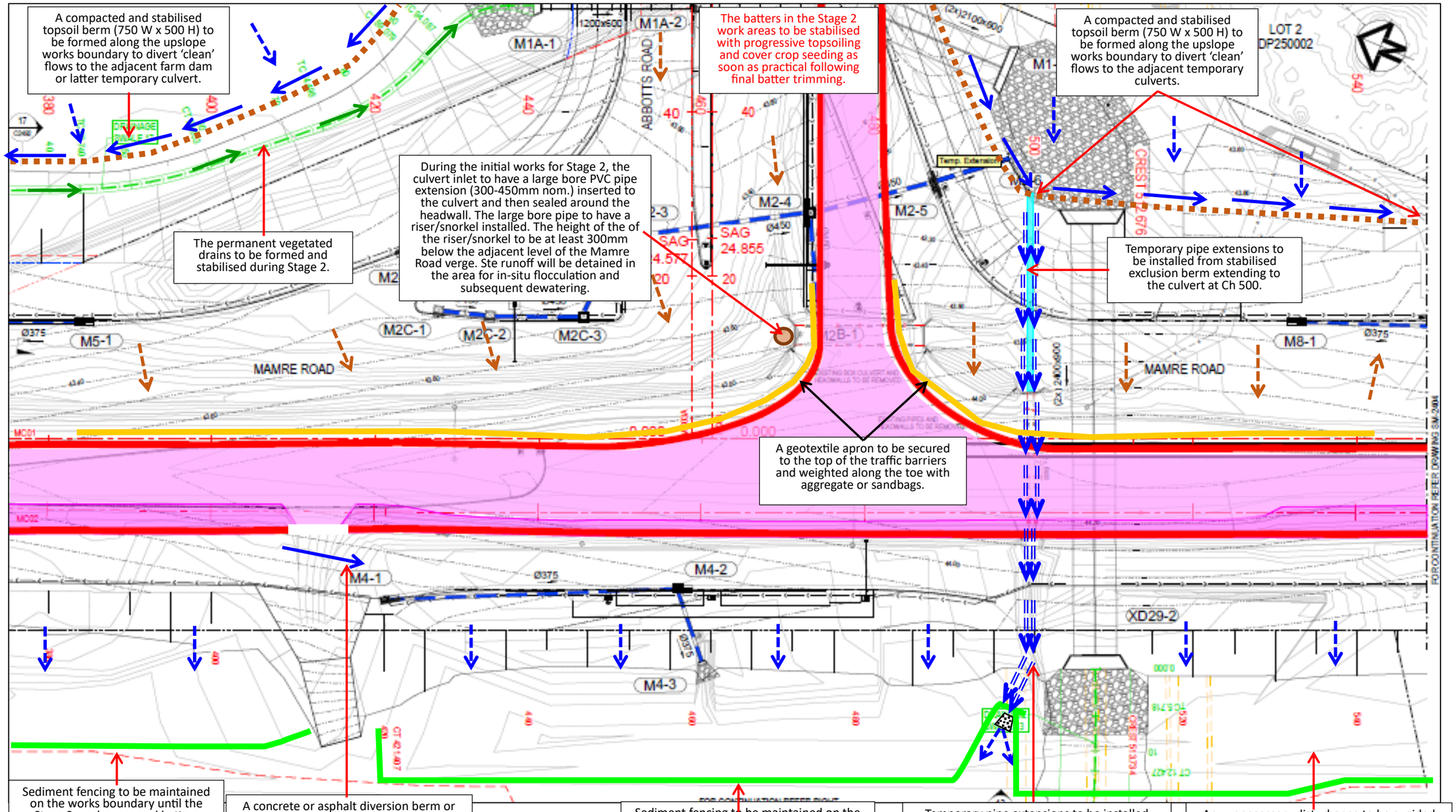
Progressive ESCP - Stage 2: Chainage 200 to 370



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
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'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

Progressive ESCP - Stage 2: Chainage 370 to 540

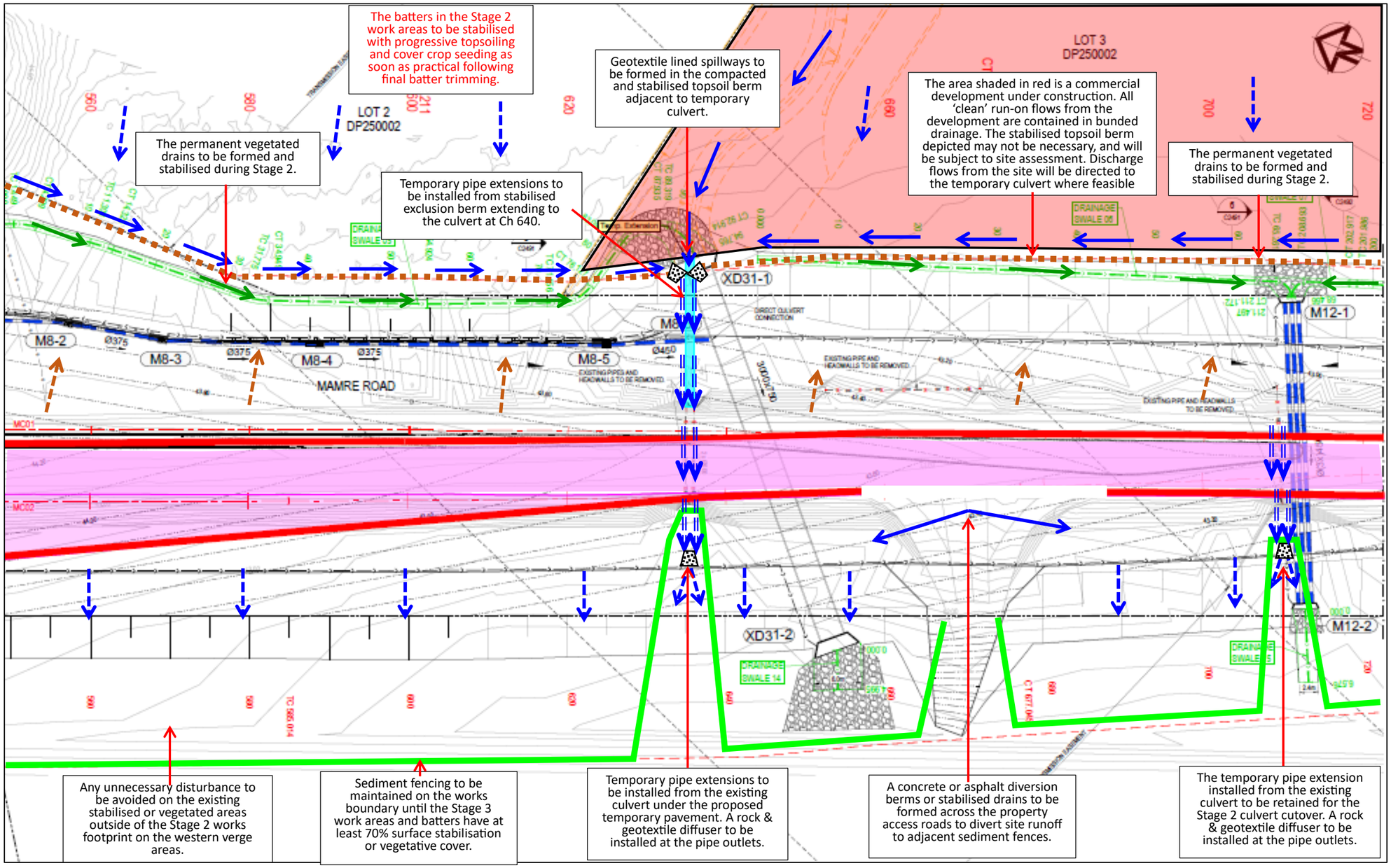


Legend

'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

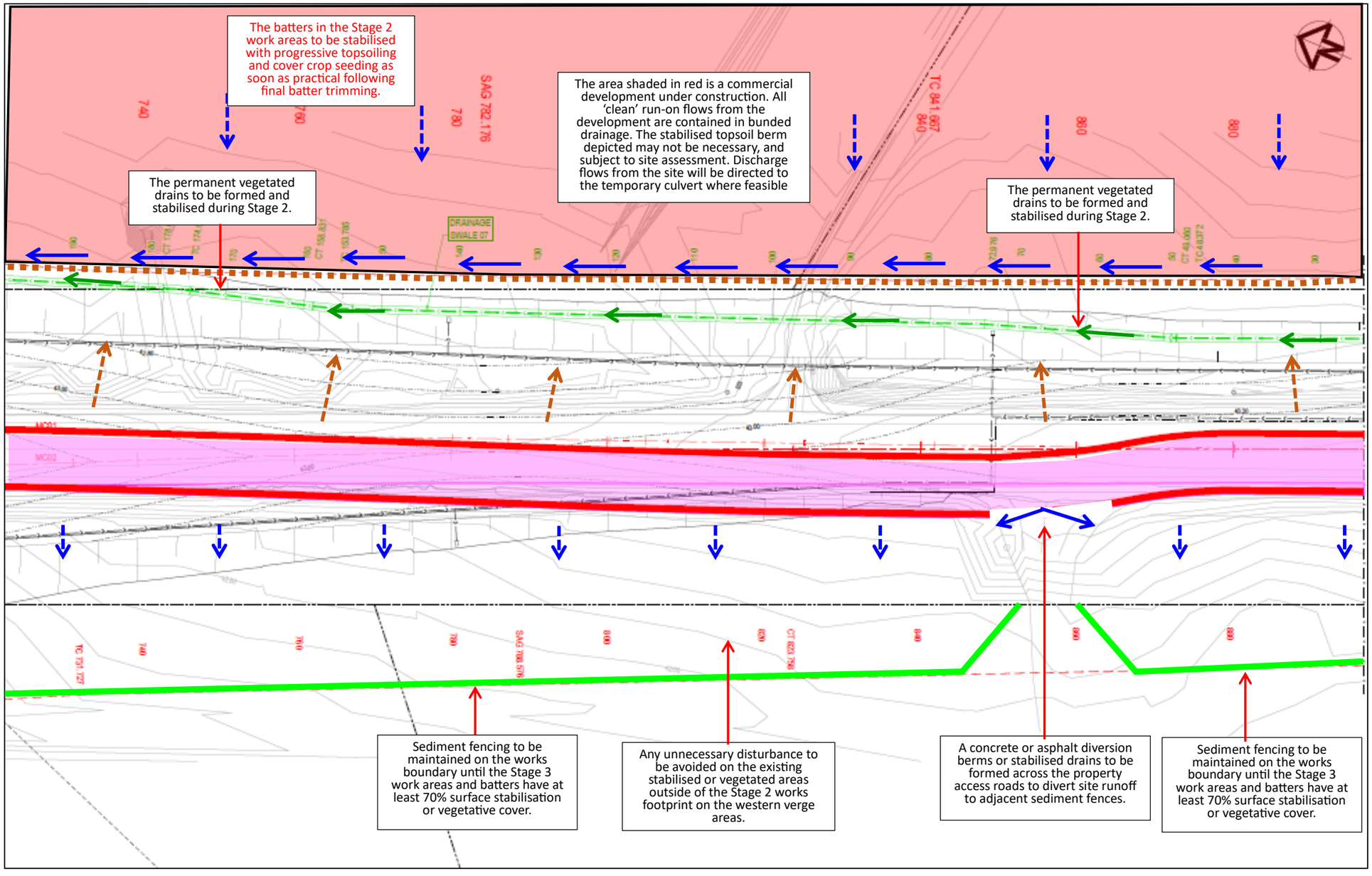
Progressive ESCP - Stage 2: Chainage 540 to 720



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
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Mamre Road & Abbotts Road - Signalised Intersection

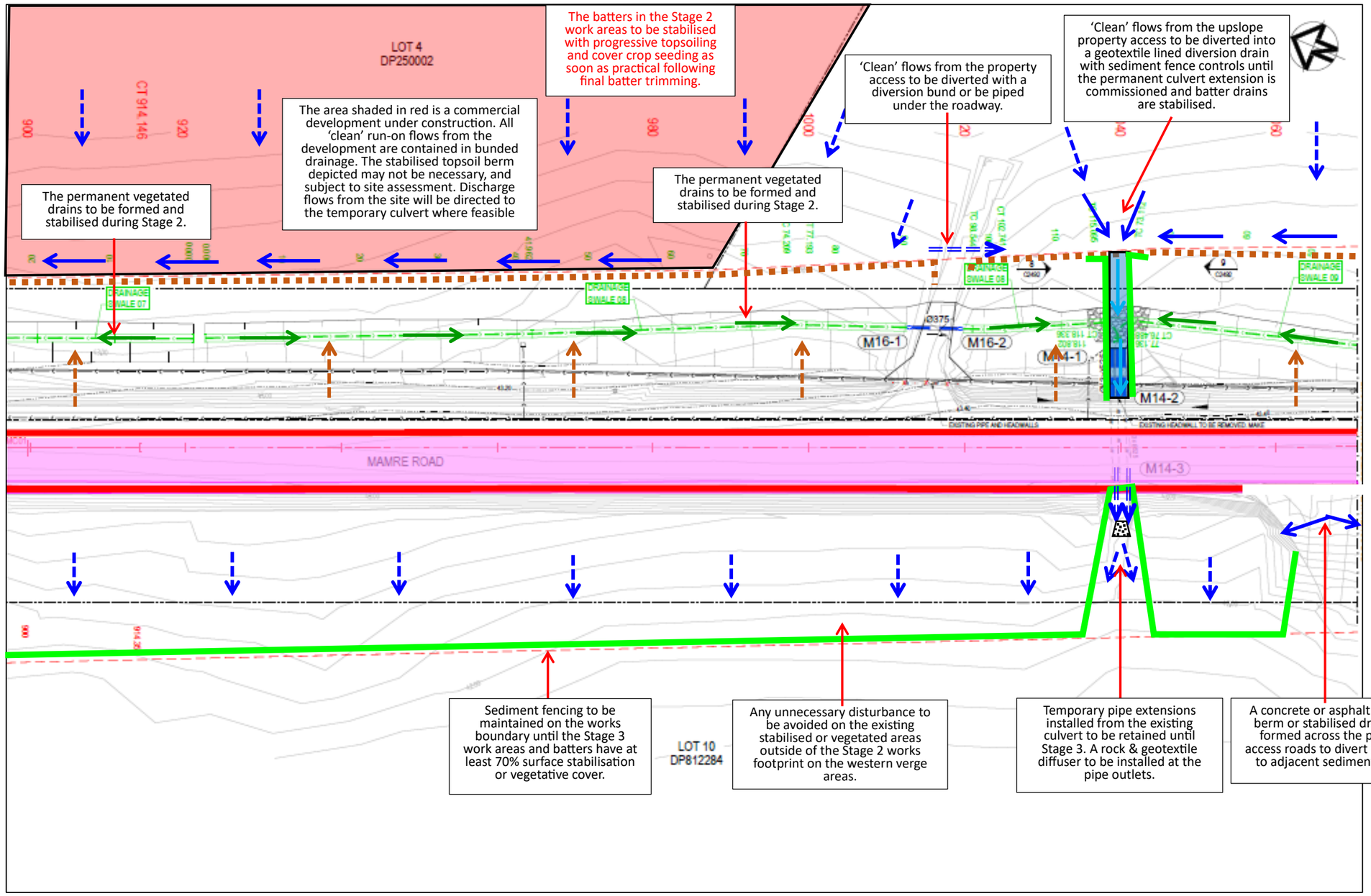
Progressive ESCP - Stage 2: Chainage 720 to 890



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
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Mamre Road & Abbotts Road - Signalised Intersection

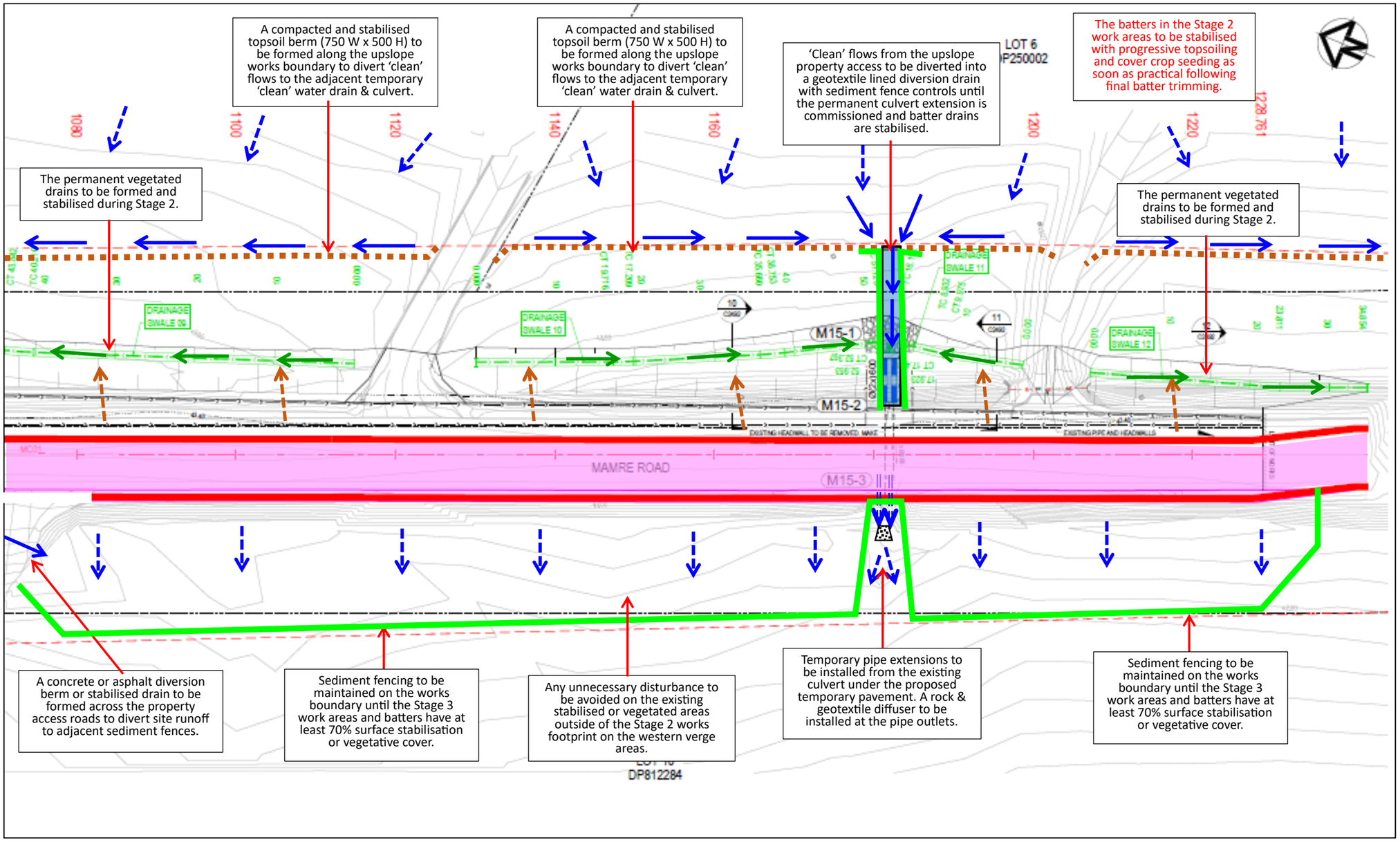
Progressive ESCP - Stage 2: Chainage 890 to 1070



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

Progressive ESCP - Stage 2: Chainage 1070 to 1240



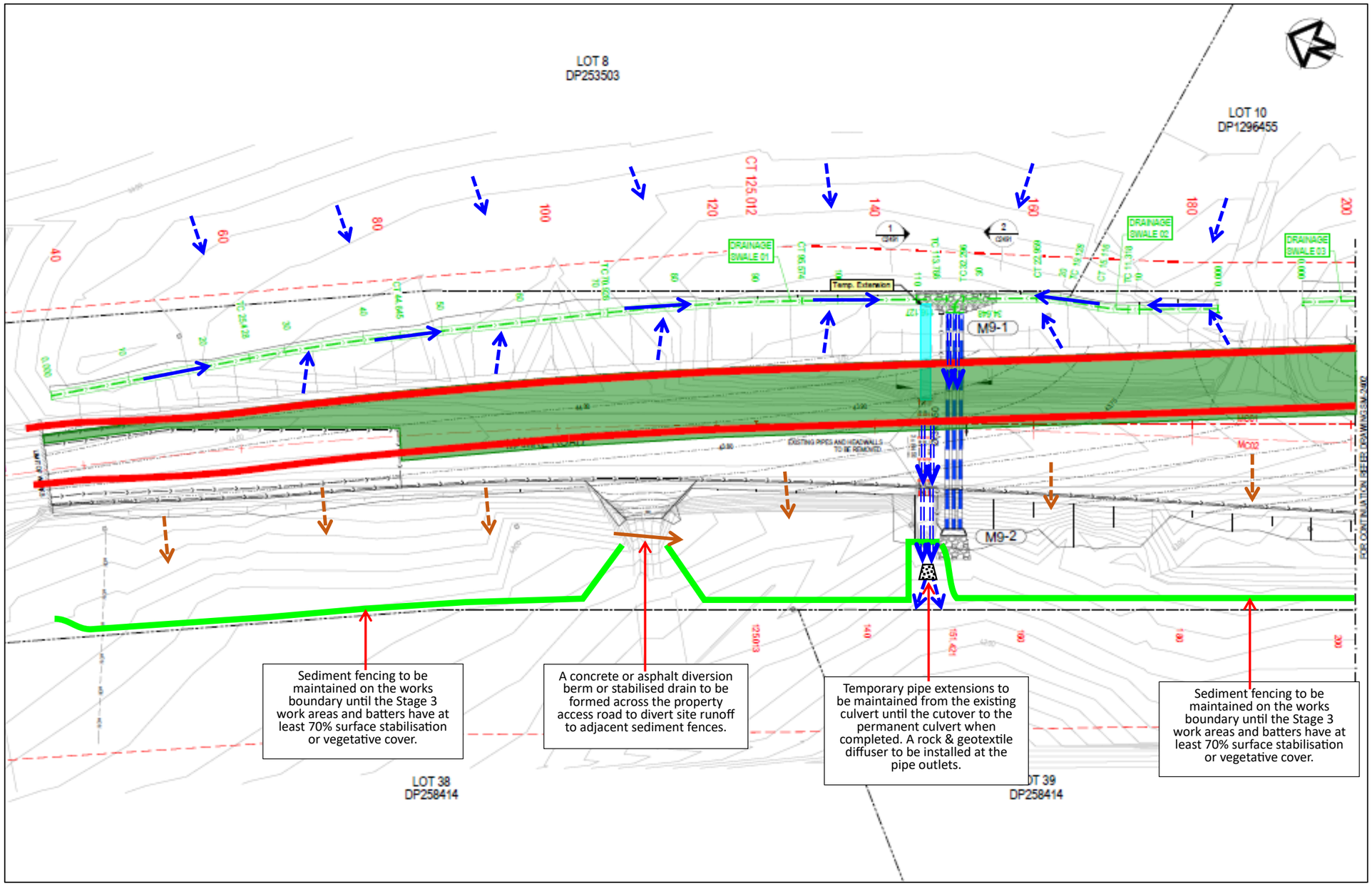
Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection – Response to Reviewer Comments by ErSed Environmental Pty Ltd – November 2024

Plan Reference	Location/Item	Comment	Response	Action	Reviewer Comments & Date
Stage 1: Chainage 40 to 200	Eastern side of Mamre Road	*what is the treatment of this area to make stable? is it temporary or perminant landscaping - this is a critical element distinguishable the two stages and should be noted on the plans.*	At the time of drafting the PESCP, the permanent landscaping plans were not finalised to our knowledge. The majority of the areas referred to will be stabilised during Stage 2 works. The Cover Page - Note 38 states '*Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks*.' The Stage 2 PESCP's describe that '*The permanent vegetated drains to be formed and stabilised during Stage 2'.* Concurrently with drain stabilisation, the batters would also be stabilised with progressive topsoiling and cover crop seeding as final batter trimming is completed in Stage 2.	Noted. The Stage 2 PESCPs have been revised with text box inserted on each plan.	

Mamre Road & Abbotts Road - Signalised Intersection

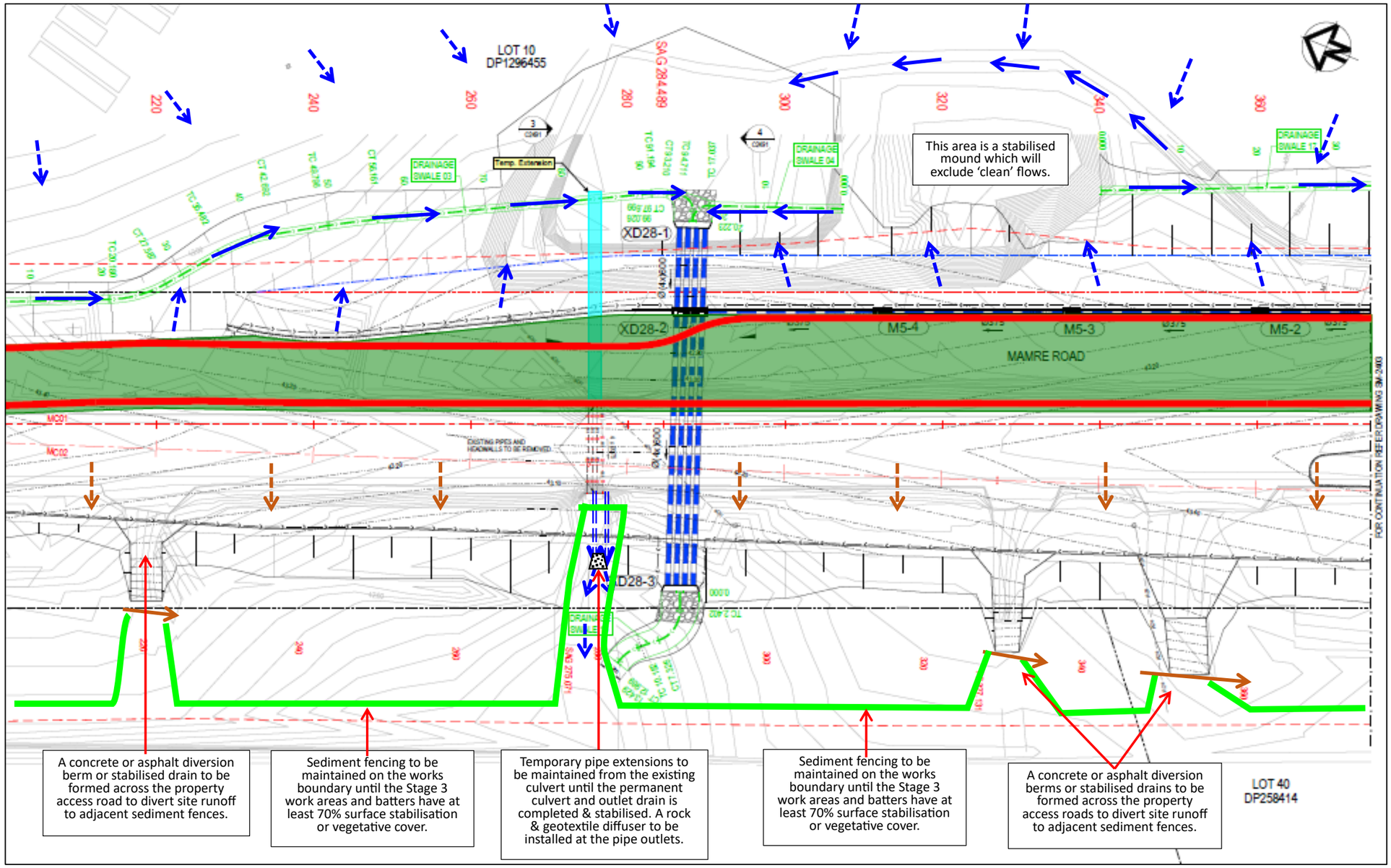
Progressive ESCP - Stage 3: Chainage 40 to 200



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

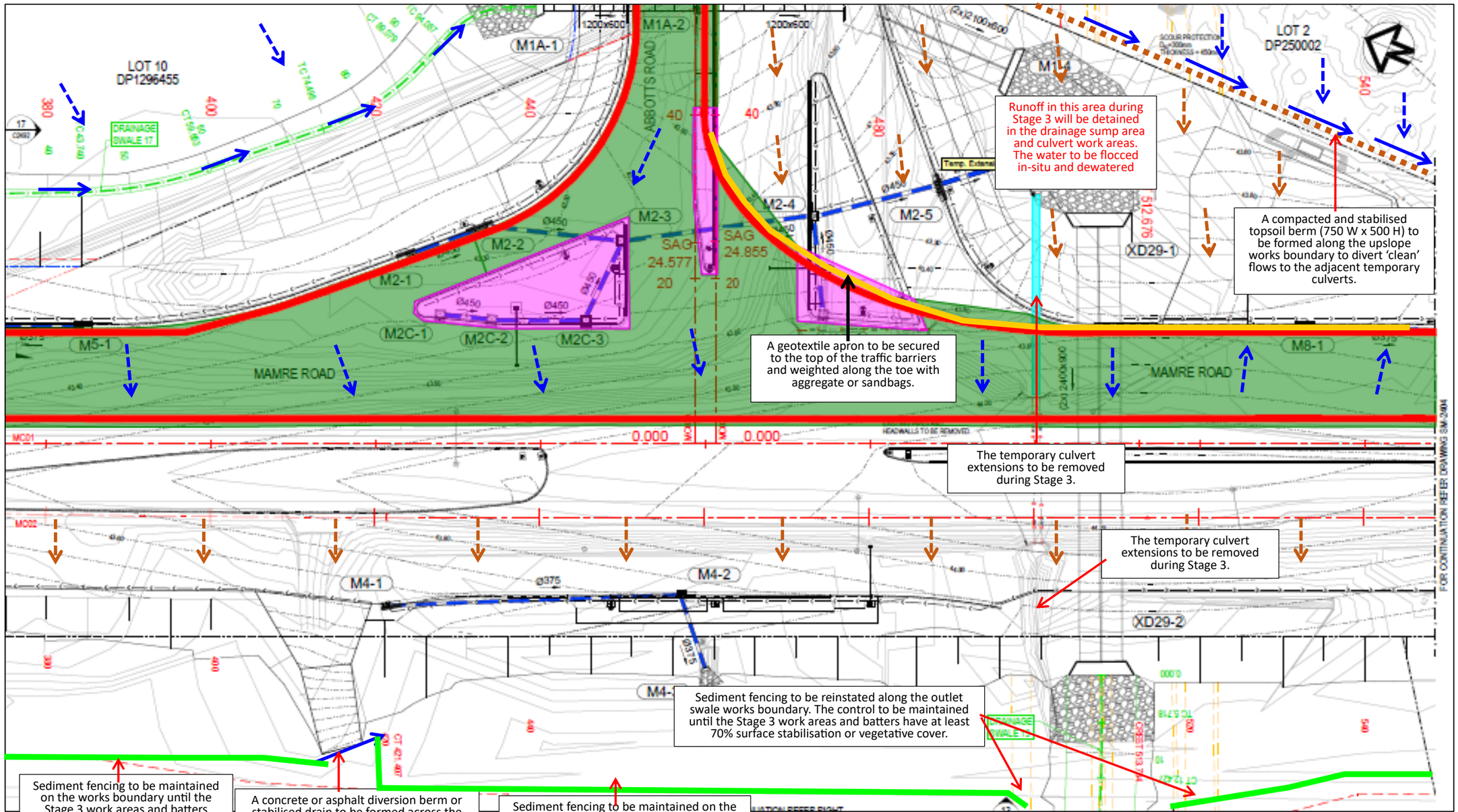
Progressive ESCP - Stage 3: Chainage 200 to 370



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

Progressive ESCP - Stage 3: Chainage 370 to 540

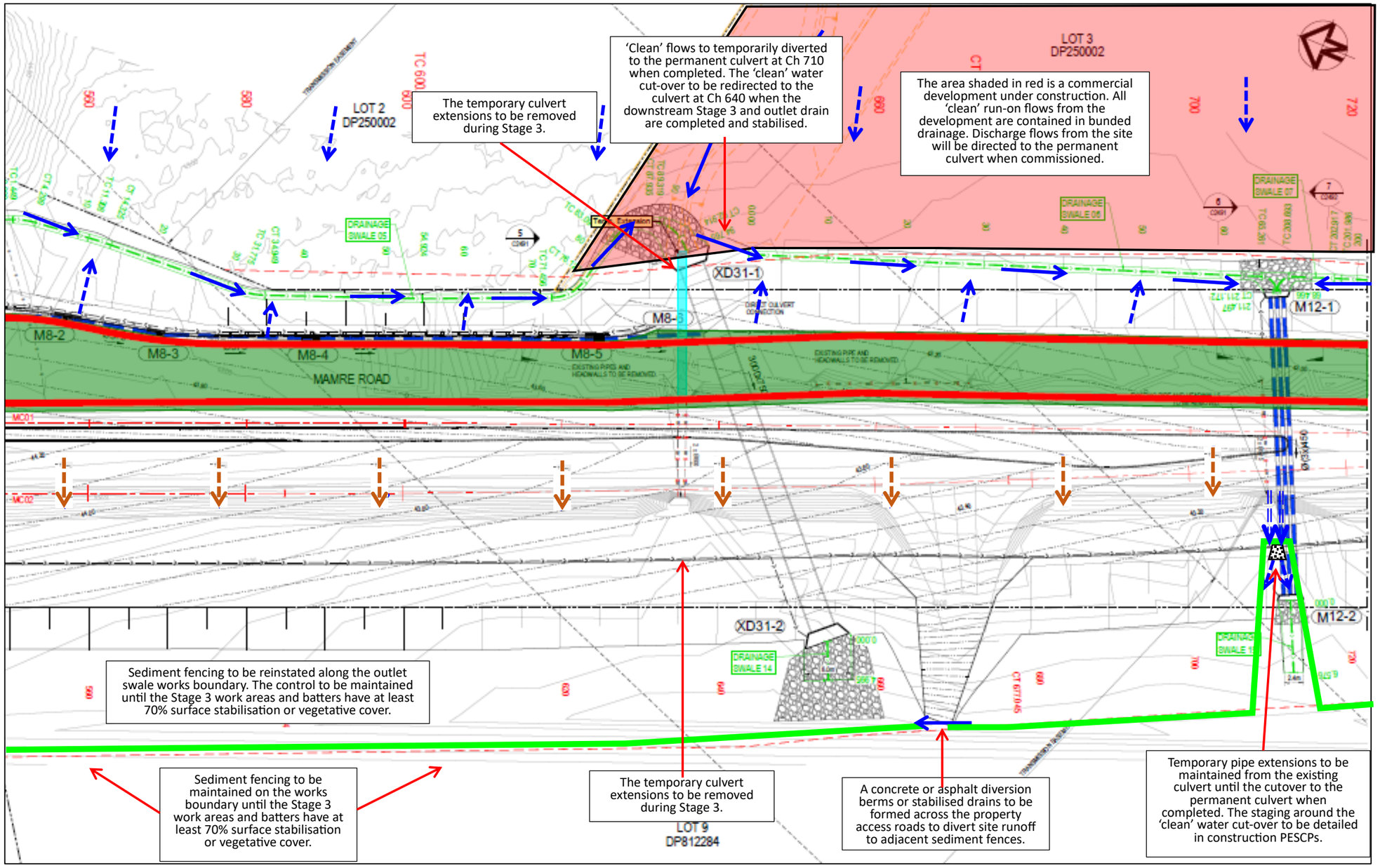


Legend

'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

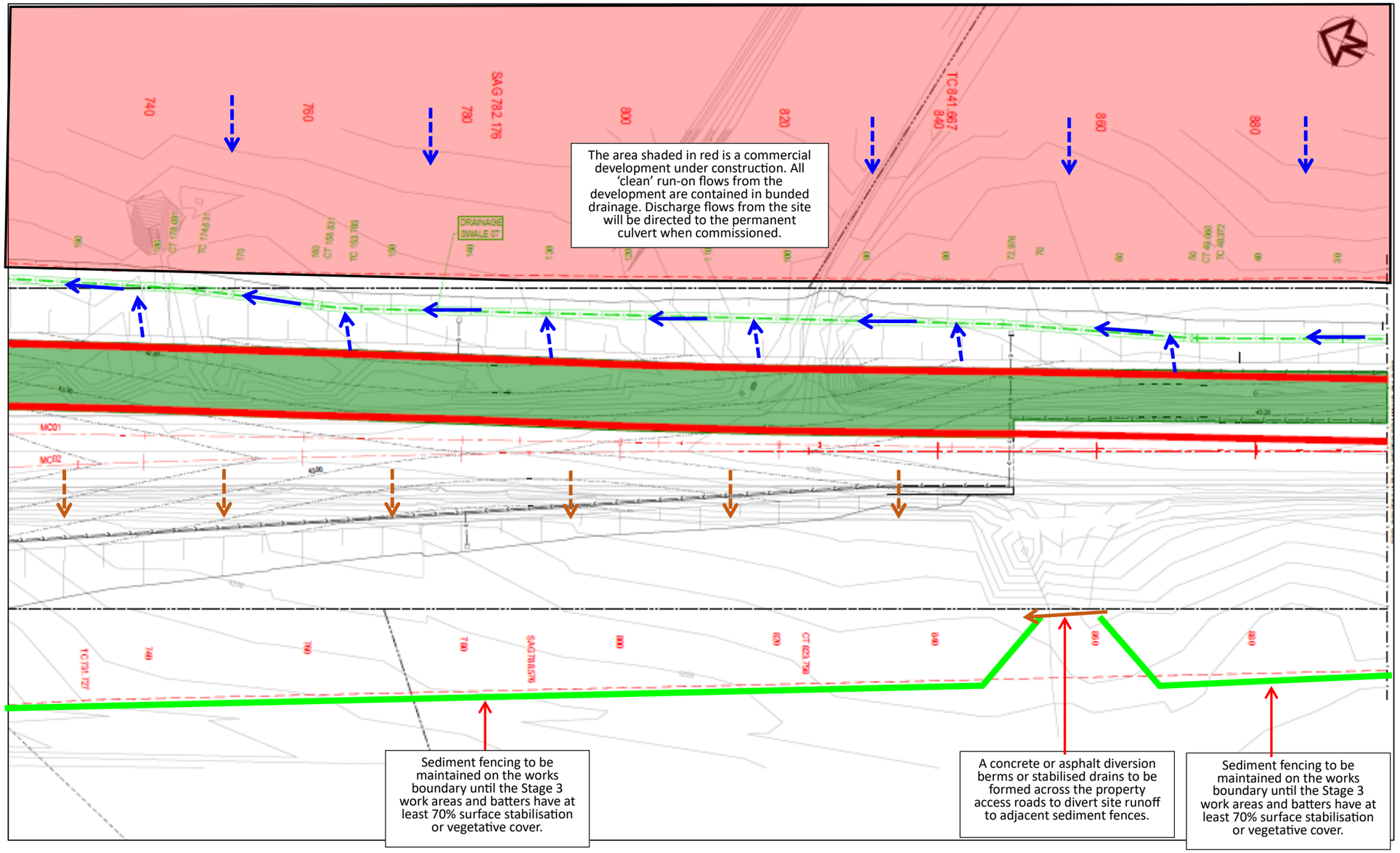
Progressive ESCP - Stage 3: Chainage 540 to 720



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

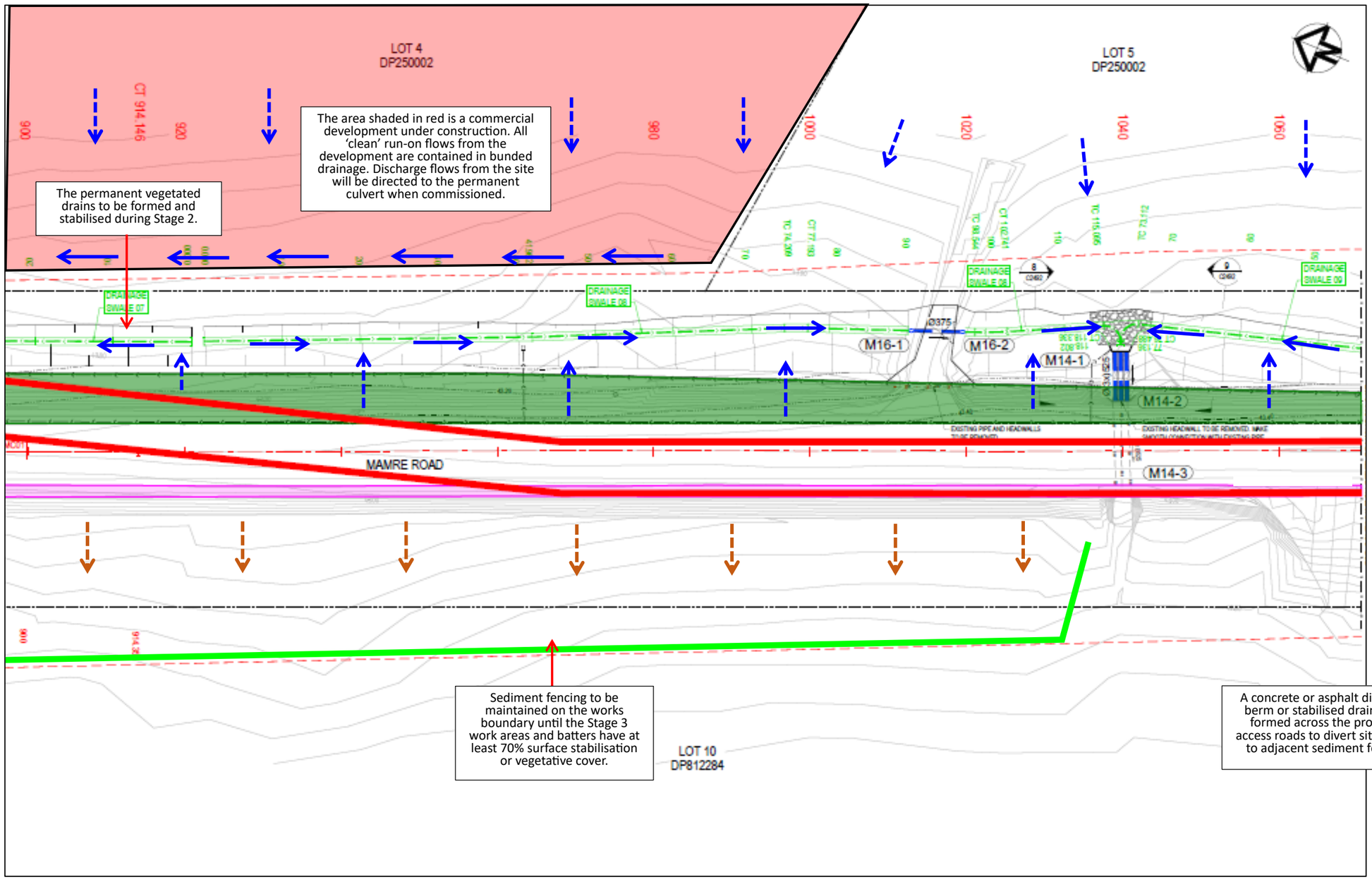
Progressive ESCP - Stage 3: Chainage 720 to 890



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

Mamre Road & Abbotts Road - Signalised Intersection

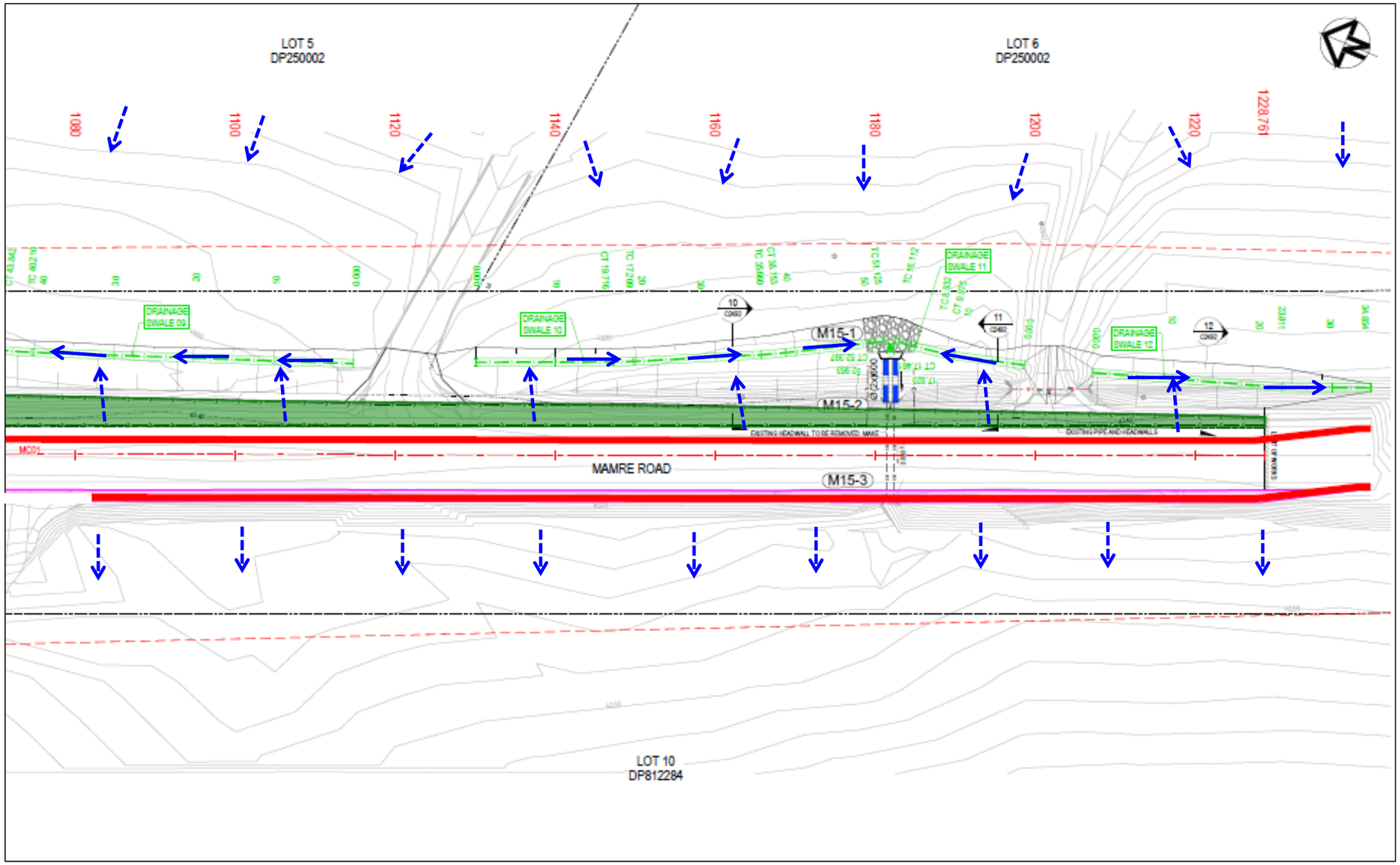
Progressive ESCP - Stage 3: Chainage 890 to 1070



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

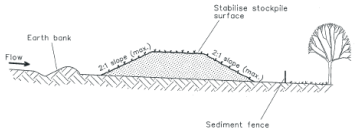
Mamre Road & Abbotts Road - Signalised Intersection

Progressive ESCP - Stage 3: Chainage 1070 to 1240



Legend											
'Clean' Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Filter bag or sediment fence inlet filter – gully pit		Controlled site access	
'Clean' Water – Concentrated Flow/Drain		Stabilised verge drain / swale		Stabilised spillway or geotextile lined spillway		Filter bag / rock & shade cloth sediment filter		Compacted mulch bund		Stabilised Haul Road/Compound/Access Track	
'Dirty' Water - Concentrated Flow/Drain		Geotextile lined drain		Vegetated drain Rock lined drain		Compacted Mulch / Rock & Geotextile / or topsoil sediment trap		Coir Log/s Straw bale or coir log filter		Traffic Barrier	
'Dirty' Water – Sheet Flows		Level Spreader / Diffuser		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Sediment Fence Geotextile Apron		Vegetated filter	

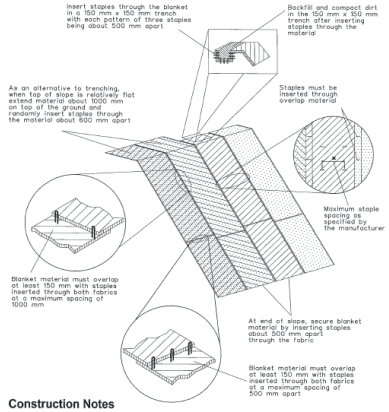
Standard Drawings



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.

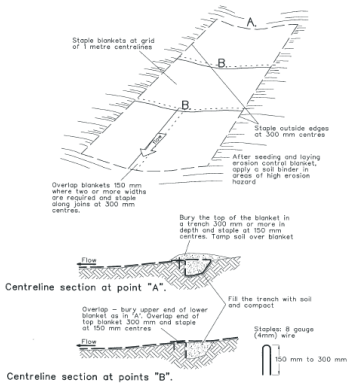
STOCKPILES **SD 4-1**



Construction Notes

1. Remove any rocks, clods, sticks or grass from the ground surface before laying the matting.
2. Spread topsoil to at least 75 mm depth.
3. Where appropriate, complete fertilising and seeding on a properly prepared seedbed (Standard Drawing 7-1) before laying the matting.
4. Ensure the fabric can be continuously in contact with the soil by grading the surface carefully first.
5. Lay the matting in "shingle-fashion" with the ends of each upstream roll overlapping the next roll downslope.
6. Ensure sufficient staples are used to maintain a good contact between the soil and the matting.

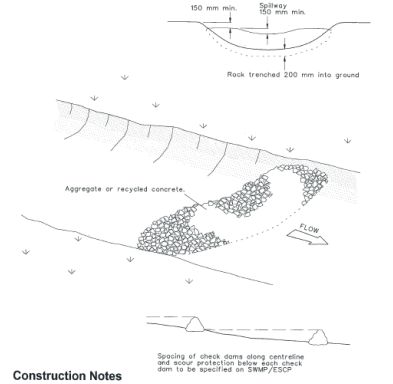
RECP : SHEET FLOW **SD 5-2**



Construction Notes

1. Remove any rocks, clods, sticks or grass from the surface before laying matting
2. Ensure that topsoil is at least 75 mm deep.
3. Complete fertilising and seeding before laying the matting.
4. Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
5. Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end (Standard Drawing 5-7b).
6. Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.
7. Divert water from the structure until vegetation is stabilised properly.

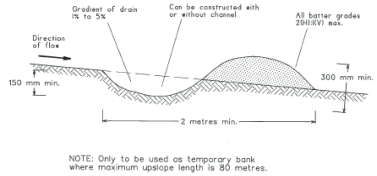
RECP : CONCENTRATED FLOW **SD 5-7**



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**

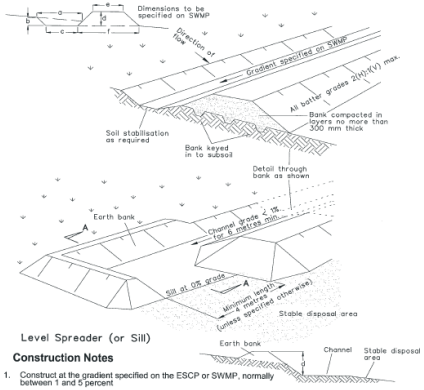


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

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**

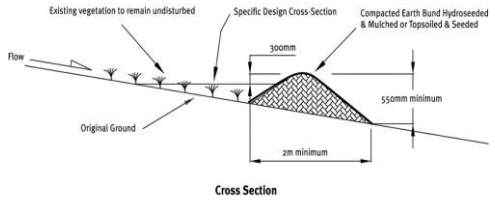


Construction Notes

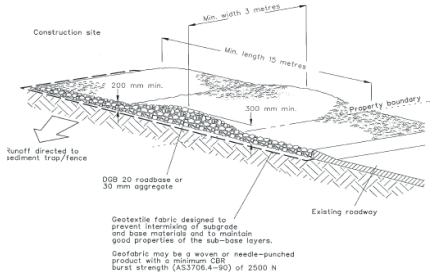
1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic 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**

Stabilised topsoil diversion bank



Cross Section

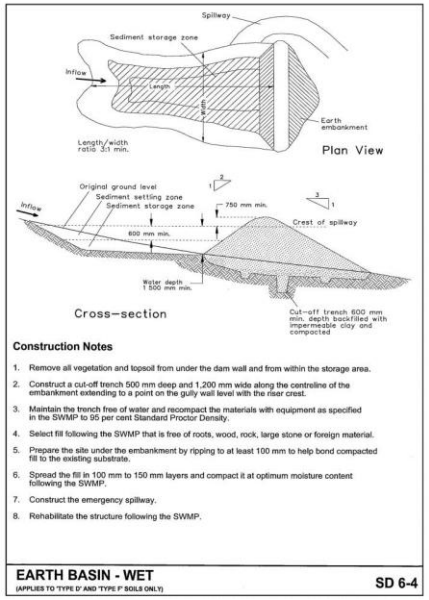


Construction Notes

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**

Standard Drawings

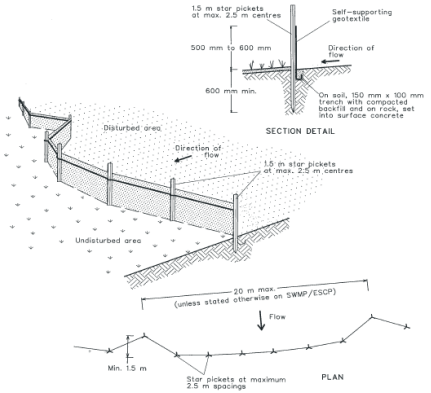


Construction Notes

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 SD 6-4

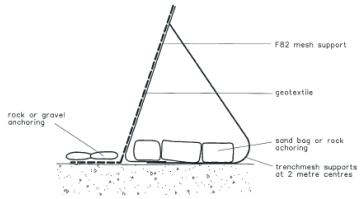
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)



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.

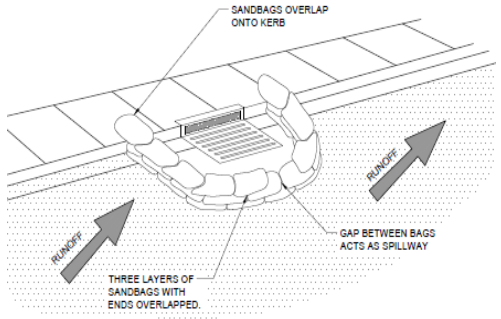
SEDIMENT FENCE SD 6-8



Construction Notes

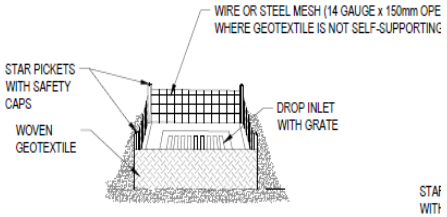
1. Install this type of sediment fence when use of support posts is not desirable or not possible. Such conditions might apply, for example, where approval is granted from the appropriate authorities to place these fences in highly sensitive estuarine areas.
2. Use bent trench mesh to support the F82 welded mesh facing as shown on the drawing above. Attach the geotextile to the welded mesh facing using UV resistant cable ties.
3. Stabilise the whole structure with sandbag or rock anchoring over the trench mesh and the leading edge of the geotextile. The anchoring should be sufficiently large to ensure stability of the structure in the design storm event, usually the 10 year event.

ALTERNATIVE SEDIMENT FENCE SD 6-9



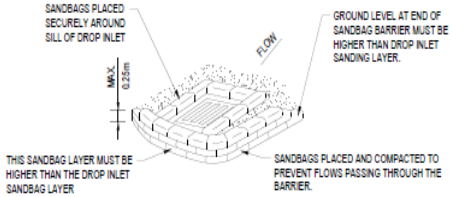
SANDBAG SEDIMENT TRAP FOR KERB INLET

N.T.S.



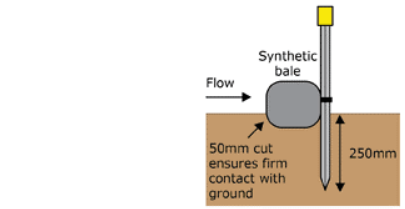
GEOTEXTILE INLET FILTER (SD 6-12) - PERSPECTIVE

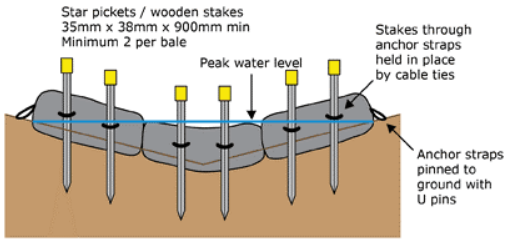
NTS

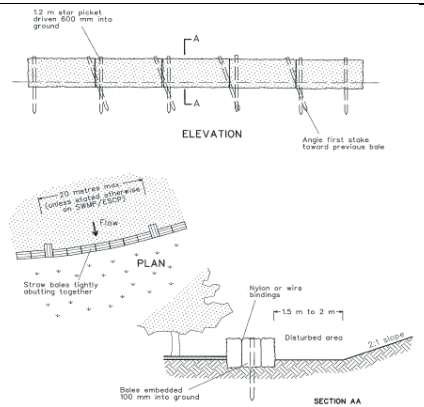


SEDIMENT BARRIER (SD 5-4) DETAIL

Coir Log Filter





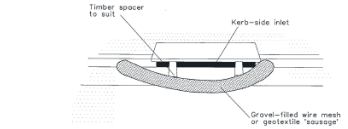


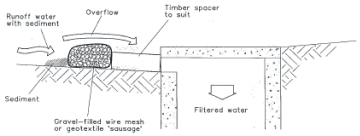
Construction Notes

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.

STRAW BALE FILTER SD 6-7

Standard Drawings





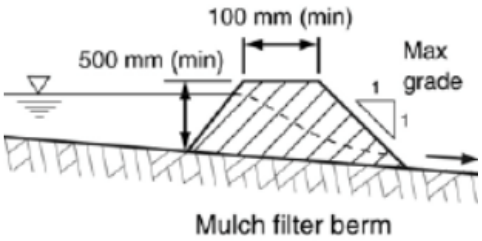
NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

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**

Mulch filter berm



Example photo of a compacted mulch berm on low grades.



Example photo of a compacted mulch berm on steeper grade with an upslope facing groyne

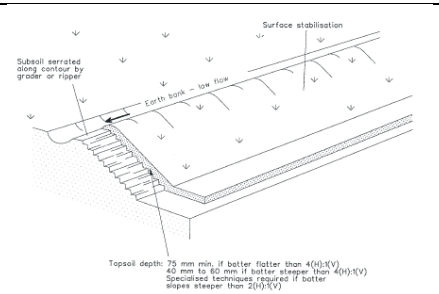


Example photo of a shadecloth and rock sediment filter.



Example photo of an excavated sediment trap with mulch filter berm.

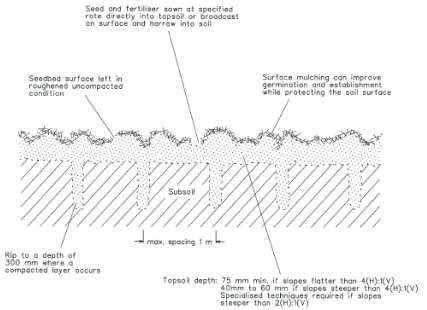




Construction Notes

1. Scarify the ground surface along the line of the contour to a depth of 50 mm to 100 mm to break up any hardsetting surfaces and to provide a good bond between the respread material and subsoil.
2. Add soil ameliorants as required by the ESCP or SWMP.
3. Rip to a depth of 300 mm if compacted layers occur.
4. Where possible, replace topsoil to a depth of 40 to 60 mm on lands where the slope exceeds 4(H):1(V) and to at least 75 mm on lower gradients.

REPLACING TOPSOIL **SD 4-2**



Construction Notes

1. Loosen compacted soil before sowing any seed. If necessary, rip the soil to a depth of 300 mm. Avoid rotary hoe cultivation.
2. Work the ground only as much as necessary to achieve the desired tilth and prepare a good seedbed.
3. Avoid cultivation in very wet or very dry conditions.
4. Cultivate on or close to the contour where possible, not up and down the slope.

SEEDBED PREPARATION **SD 7-1**

Appendix C Construction Noise and Vibration Management Plan

Mamre - Abbotts Intersection Upgrade (MAIU) and Aldington - Abbotts Road Upgrade (AARU)

Construction Noise and Vibration Management Plan

LOG-E c/o AT&L

Level 7, 153 Walker Street
North Sydney NSW 2060

Prepared by:

SLR Consulting Australia

SLR Project No.: 610.31166.00000

Client Reference No.: R07

3 June 2025

Revision: v1.8

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
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v1.5	3 February 2025	Joseph Spagnol	Steven Luzuriaga	Steven Luzuriaga
v1.4	21 January 2025	Joseph Spagnol	Steven Luzuriaga	Steven Luzuriaga
v1.3	5 December 2024	Joseph Spagnol	Steven Luzuriaga	Steven Luzuriaga
v1.2	11 October 2024	Joseph Spagnol	Steven Luzuriaga	Steven Luzuriaga
v1.1	13 August 2024	Joseph Spagnol	Steven Luzuriaga	Steven Luzuriaga
v1.0	2 August 2024	Joseph Spagnol	Steven Luzuriaga	Steven Luzuriaga

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with LOG-E c/o AT&L (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.

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Appendix B Modelling Scenarios and Equipment
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1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Land Owners Group – East (LOG-E) to prepare a Construction Noise and Vibration Management Plan (CNVMP) for construction work associated with the Mamre Road and Abbotts Road Intersection Upgrade (MAIU) and Aldington Road and Abbotts Road Upgrade (AARU) (SSD-10479).

The information and modelling detailed in the Construction Noise and Vibration Impact Assessment (CNVIA) for MAIU (*610.31166.00000-R01-v1.0-20230330*) and AARU (*610.31166.00000-R02-v1.0-20230330*) inform the assessments and mitigation advice provided in this CNVMP. Revised construction scenarios that were not discussed in the CNVIA for MAIU and AARU are presented and discussed in this CNVMP. For all construction within 200 Aldington Road Industrial Estate (SSD-10479) a separate CNVMP has been prepared (refer to *610.31010.00000-R01-v1.2-20230811*).

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in **Appendix A**.

SLR is suitably qualified to produce this CNVMP and SLR staff are members of the Australian Acoustical Society (AAS). SLR is also a member firm of the Association of Australasian Acoustical Consultants (AAAC).

1.1 Procedure for Implementing this CNVMP

This general procedure will be followed to implement this CNVMP on site:

- Review the location of the nearest sensitive receivers (refer to **Section 1.2**) and the applicable Noise Management Levels (NMLs) (refer to **Section 4.2.4**).
- Prior to commencement of construction phases/activities, confirm the assumptions regarding construction activities/locations/equipment/methodology detailed in **Section 5.1** are accurate and remain valid. Where different methodology or equipment is proposed, further validation of the predicted noise levels will be undertaken in accordance with **Section 5.1.1**.
- Review the predicted noise levels for the proposed construction activities in the CNVIAs and this CNVMP for the AARU and MAIU works to confirm the predicted impacts for each activity.
- Where the noise impacts are predicted to be:
    - Below the relevant NMLs – undertake best practice noise management measures to minimise noise impacts.
    - Above the NMLs – implement all feasible and reasonable noise mitigation and management measures relevant to that activity (refer to **Section 6.0**) to reduce the impacts (to below the NMLs where possible). Measures considered/implemented must be documented for inclusion in the Construction Contractor's Monthly Report
    - Above 75 dBA – implement mitigation and management measures for highly noise affected receivers as per **Section 6.0** and **Section 6.1**, including consideration of respite periods, duration respite, and alternative accommodation. Consultation with the individual highly noise affected residences must be undertaken to discuss the appropriate mitigation/respite solution for high noise works and must be documented for inclusion in the Construction Contractor's Monthly Report.

- Review the minimum working distances for vibration intensive plant (refer to **Section 4.4.6**) and the vibration assessment results (refer to **Section 5.5**). Where vibration intensive plant is proposed to be used within the minimum working distances of vibration sensitive structures/receivers implement feasible and reasonable mitigation and management measures as per **Section 6.0** and **Section 6.1**.
- Undertake noise and/or vibration monitoring in accordance with **Section 6.3**, where required.
- Resolve any noise/vibration issues during construction works as per the contingency plan (refer to **Section 6.6**), and document and report incidents and complaints as per the requirements in **Sections 6.6** and **6.5**, respectively.

1.2 Statutory Requirements

The development consent conditions for construction within 200 Aldington Road Industrial Estate (SSD-10479) are replicated in **Table 1**. These consent conditions were provided by the Minister for Planning and Public Spaces in dated May 2023. The consent conditions are applicable to the construction of external road works, including the upgrade of Mamre Road/Abbotts Road intersection, widening of Abbotts Road and widening a section of Aldington Road.

Table 1 also details where each of the consent conditions have been addressed in this CNVMP.

Table 1 Assessment against the Development Conditions of Consent

Condition	Conditions	Response / Section Reference
Operation of Plant and Equipment		
C24.	All plant and equipment used on site, or to monitor the performance of the Stage 1 Development, must be: a) maintained in a proper and efficient condition; and b) operated in a proper and efficient manner.	**Section 6.1**
Hours of Work		
D48.	*Table 5 Hours of Work* Activity / Day / Time Earthworks and Construction / Monday – Friday, Saturday / 7 am to 6 pm, 8 am to 1 pm Operation / Monday – Sunday / 24 hours	**Section 5.2**
D49.	Work outside of the hours identified in condition D48 may be undertaken in the following circumstances: a) works that are inaudible at the nearest sensitive receivers; b) works agreed to in writing by the Planning Secretary; c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	**Section 5.2**
Construction Noise Limits		
D50.	The Stage 1 development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC,	**Section 4.2.1** **Section 5.0**

Condition	Conditions	Response / Section Reference
	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 CNVMP required by condition D51.	**Section 6.0**
Construction Noise and Vibration Management Plan		
D51.	The Applicant must prepare a Construction Noise and Vibration Management Plan (CNVMP) for the Stage 1 development to the satisfaction of the Planning Secretary. The CNVMP must form part of a CEMP in accordance with condition E2 and must: a) be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;	This CNVMP **Section 1.0**
	b) 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);	**Section 4.2** **Section 6.0**
	c) describe the measures to be implemented to manage high noise generating works, such as piling, in close proximity to sensitive receivers;	**Section 6.0 to Section 6.8**
	d) include strategies that have been developed with the community for managing high noise generating works; and	**Section 6.4**
	e) describe the community consultation undertaken to develop the strategies in condition D51(d).	**Section 6.4**
	f) include a complaints management system that would be implemented for the duration of the development.	**Section 6.5**
D52.	The Applicant must: a) not commence construction of any relevant stage until the CNVMP required by condition D51 is approved by the Planning Secretary; and b) implement the most recent version of the CNVMP approved by the Planning Secretary for the duration of construction.	Refer to CEMP and **Section 7.0**
Vibration Criteria		
D59.	Vibration caused by construction at any residence or structure outside the site must be limited to: a) for structural damage, the criteria set in the latest version of DIN 4150-3:2016-12 Vibration in Buildings – Part 3: Effects on Structures (German Institute for Standardisation, 2016); and	**Section 4.4.3** **Section 4.4.4**
	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).	**Section 4.4.1**
D60.	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 D59.	**Section 4.4.3** **Section 4.4.6** **Section 5.5**
D61.	The limits in conditions D59 and D60 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition E2 of this consent.	Supplementary Criteria in **Section 4.4**
Environmental Management		
E1.	**Management Plan Requirements** Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: a) detailed baseline data;	**Section 3.0**

Condition	Conditions	Response / Section Reference
	b) details of: i. the relevant statutory requirements (including any relevant approval, licence or lease conditions); ii. any relevant limits or performance measures and criteria; and iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	**Section 1.2** **Section 4.0** and **Appendix B** **Section 6.0**
	c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	**Section 6.0**
	d) a program to monitor and report on the: i. impacts and environmental performance of the development; and ii. effectiveness of the management measures set out pursuant to paragraph (c) above;	**Section 6.3**
	e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	**Section 6.6**
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	**Section 7.0**
	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; and	**Section 6.6** **Section 6.5** **Section 6.4**
	h) a protocol for periodic review of the plan. ***Note**: the Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans*	**Section 7.0**
Construction Environmental Management Plan		
E2.	The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the Stage 1 development in accordance with the requirements of condition E1 and to the satisfaction of the Planning Secretary.	This CNVMP
F36.	Prior to the commencement of any part of the Interim Road Works, the Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of Condition C1 and to the satisfaction of the Planning Secretary. The CEMP must include the following: … c) a **noise and vibration management plan** prepared in accordance with the *Construction Noise and Vibration Guideline*, TfNSW 2023 and *Interim Construction Noise Guideline*, DECC 2009, describing measures developed in consultation with affected residents to manage high noise and vibration intensive works, and include an out of hours work protocol. Measures may include notifications, respite periods, scheduling of noisy works, temporary barriers, quieter plant or alternative construction methods, verification monitoring and/or provision of alternative accommodation; …	This CNVMP **Section 4.0** Criteria / Guidelines **Section 5.0** Assessment **Section 6.0, Section 6.1** Mitigation Measures
	i) a contingency plan detailing measures to deal with unexpected issues arising during the works, such as excessive dust, noise, traffic, water quality impacts and unfavourable weather conditions.	**Section 6.6**

Condition	Conditions	Response / Section Reference
Noise		
F40.	The Interim Road Works must be undertaken during the following hours: a) 7 am to 6 pm Monday to Friday; b) 8 am to 1 pm Saturday; and c) at no time on Sundays or public holidays.	**Section 5.2**
F41.	Works outside of the hours identified in condition F40 may be undertaken in the following circumstances: a) works that are inaudible at the nearest sensitive receivers; b) works agreed to in writing by the Planning Secretary; c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	**Section 5.2**
F42.	Notwithstanding Conditions F40 and Condition F41, the following works may be undertaken out of hours, in accordance with the Out of Hours Works Protocol approved under Condition F36(c): a) installation of drainage infrastructure; b) asphalting; and c) other works required to be completed at night for safety reasons, as detailed in an approved construction traffic management plan.	**Section 6.0**
Condition Surveys		
F43.	Prior to the commencement of the Interim Road Works, the Applicant must: a) undertake building condition surveys for properties located within 25 metres of the works; and b) prepare a dilapidation survey of the heritage post adjacent to Mamre Road.	**Section 6.0**
F44.	The Applicant must repair, or pay the full costs associated with repairing property that is damaged by carrying out the Interim Road Works.	**Section 6.0**
Vibration Criteria		
F45.	Vibration caused by the Interim Road Works at any residence or structure outside the site must be limited to: a) for structural damage, the latest version of DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures (German Institute for Standardisation, 2016); and	**Section 4.4.3** **Section 4.4.4**
	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).	**Section 4.4.1**
F46.	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 F45.	**Section 4.4.3** **Section 4.4.6** **Section 5.5**
F47.	The limits in Conditions F45 and F46 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved under condition F36 of this consent.	Supplementary Criteria in **Section 4.4**

2.0 Development Overview

The MAIU and AARU project works are being progressed by the developer group known as Land Owners Group – East (LOG-E) and are linked to their proposed developments which are accessed via Mamre Road and Abbotts Road intersection as well as Abbotts Road and Aldington Road.

The general location of the MAIU and AARU project construction works and surrounding receivers are provided in **Figure 1**. The development overviews for MAIU and AARU are provided in **Section 2.1** and **Section 2.2**.

2.1 Mamre Road and Abbotts Road Intersection Upgrade (MAIU)

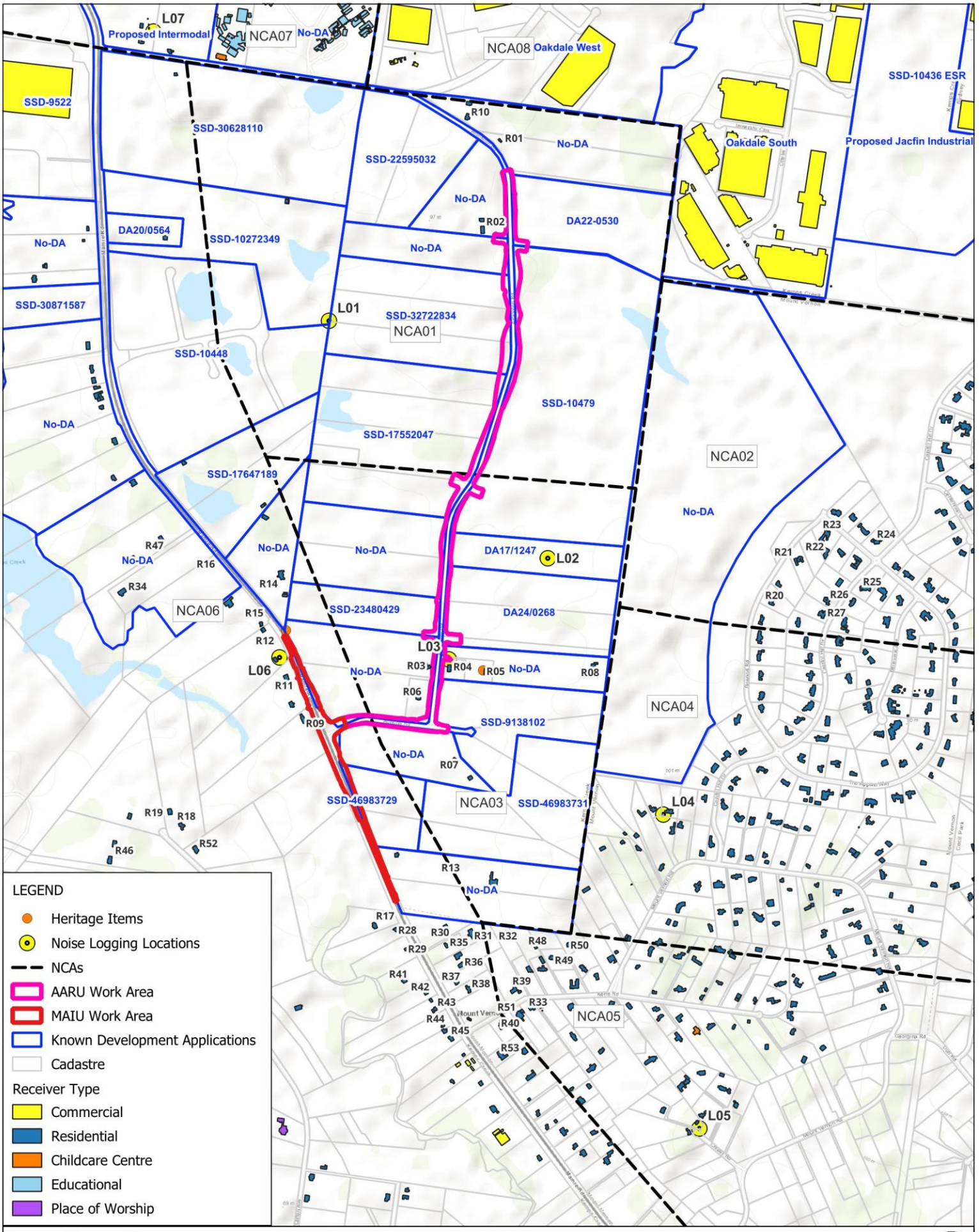
Abbotts Road is Penrith City Council controlled and Mamre Road is a state road controlled by Transport for NSW (TfNSW). The concept design for the upgrade of Mamre Road (for TfNSW) /Abbotts Road intersection is expected to include widening 700 m south of the intersection and 400 m north of the intersection. This intersection includes widening within the western end of Lot 10 and Lot 11 DP250002 (north of Abbotts Road), which is developer owned (by ESR). There is no widening within the private property to the south of Abbotts Road (Lot 2 DP250002).

2.2 Aldington Road and Abbotts Road Upgrade (AARU)

Aldington and Abbotts Roads are controlled by Penrith City Council. The dimensions of the Aldington and Abbotts Road upgrades are established in the Mamre Road Precinct DCP.

The proposed construction project is currently at detailed design stage and includes:

- widening the road beyond the existing road reserve (5-10 m either side on Aldington Road),
- signalised intersections
- earthworks including raising and lowering road,
- stormwater (new and larger culverts under and adjacent to road),
- relocation of services (above and underground),
- new services (including water, electricity, communications),
- site sheds, material storage as required for road construction project,
- temporary works as necessary to facilitate construction.


L07
Proposed Intermodal
NCA07
No-DA
NCA08
Oakdale West
SSD-10436 ESR
SSD-9522
SSD-30628110
R10
R01
No-DA
SSD-22595032
Oakdale South
Proposed Jacfin Industrial
No-DA
DA20/0564
SSD-10272349
R02
DA22-0530
No-DA
No-DA
SSD-30871587
L01
SSD-32722834
NCA01
SSD-10448
SSD-10479
No-DA
SSD-17552047
NCA02
SSD-17647189
No-DA
R47
No-DA
No-DA
DA17/1247
L02
R16
R14
R34
NCA06
SSD-23480429
DA24/0268
R15
R12
L03
L06
R03
R04
R05
No-DA
R08
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R11
R06
NCA04
R09
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No-DA
R07
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SSD-46983731
L04
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R18
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R52
R13
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R17
R28
R30
R31
R32
R48
R50
R29
R35
R49
R36
R41
R37
R38
R39
R42
R43
R51
R33
R44
R40
NCA05
R45
R53
L05
LEGEND
Heritage Items
Noise Logging Locations
NCAs
AARU Work Area
MAIU Work Area
Known Development Applications
Cadastre
Receiver Type
Commercial
Residential
Childcare Centre
Educational
Place of Worship
0
250
500 m
Scale: Scale: 1:20,000
Coordinate System: GDA2020 / MGA zone 56
Drawn Date: 04-Dec-2024
Project Number: 610.31166
SLR
Data Source:
ESRI Topographic
Site Location
FIGURE 1
H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz

2.3 Nearest Sensitive Receivers

In the CNVIAs for the MAIU and AARU construction works, sensitive receivers in the area surrounding the Project had been identified and Noise Catchment Areas (NCAs) had been defined. The NCAs reflect the existing ambient noise environment of that area, as well as the noise sensitivity of the surrounding land uses.

Receivers potentially sensitive to noise and vibration have been categorised as residential buildings, commercial/industrial buildings, or 'other sensitive' land uses which includes educational institutions, childcare centres, medical facilities, places of worship, outdoor recreation areas, etc. Receiver types, locations and NCAs are shown in **Figure 1**. The nearest sensitive residential receivers are also detailed in **Table 2**.

The area is changing rapidly with numerous Development Applications submitted in the surrounding area. This suggests that the status of the residential receivers, particularly within the Mamre Road Precinct, could be subject to change at short notice: these could be acquired by neighbouring developers, or demolished, or both during the construction works. The areas that are subject to Development Applications are also shown in **Figure 1**.

Table 2 Nearest Sensitive Residential Receivers

Label	Address	Lot/DP
R01	54-72 Aldington Road Kemps Creek NSW 2178	43/DP708347
R02	53 Aldington Road Kemps Creek NSW 2178	38/DP708347
R03	269 Aldington Road Kemps Creek NSW 2178	8/DP253503
R04	284-288 Aldington Road Kemps Creek NSW 2178	141/DP1033686
R05	282 Aldington Road Kemps Creek NSW 2178	142/DP1033686
R06	287 Aldington Road Kemps Creek NSW 2178	11/DP296455
R07	1016-1028 Mamre Road Kemps Creek NSW 2178	2/DP250002
R08	272 Aldington Road Kemps Creek NSW 2178	15/DP253503
R09	1005-1023 Mamre Road Kemps Creek NSW 2178	40/DP258414
R10	20 Aldington Road Kemps Creek NSW 2178	44/DP708347
R11	983 Mamre Road Kemps Creek NSW 2178	39/DP258414
R12	967-981 Mamre Road Kemps Creek NSW 2178	38/DP258414
R13	1066-1078 Mamre Road Kemps Creek NSW 2178	5/DP250002
R14	930-966 Mamre Road Kemps Creek NSW 2178	51/DP259135
R15	949-965 Mamre Road Kemps Creek NSW 2178	37/DP258414
R16	931 Mamre Road Kemps Creek NSW 2178	36/DP258414
R17	1097-1099 Mamre Road Kemps Creek NSW 2178	1/DP30265
R18	235-245 Clifton Avenue Kemps Creek NSW 2178	53/DP734584
R19	230-234 Clifton Avenue Kemps Creek NSW 2178	54/DP734584
R20	61 Bowood Road Mount Vernon NSW 2178	406/DP848749
R21	83-87 Bowood Road Mount Vernon NSW 2178	408/DP848749
R22	89-93 Bowood Road Mount Vernon NSW 2178	409/DP848749

Label	Address	Lot/DP
R23	95-99 Bowood Road Mount Vernon NSW 2178	410/DP848749
R24	131 Bowood Road Mount Vernon NSW 2178	131/DP803478
R25	1-5 The Appian Way Mount Vernon NSW 2178	151/DP803478
R26	143-147 Capitol Hill Drive Mount Vernon NSW 2178	136/DP803478
R27	149-153 Capitol Hill Drive Mount Vernon NSW 2178	1372/DP1137513
R28	1101-1105 Mamre Road Kemps Creek NSW 2178	2/DP30265
R29	1107-1115 Mamre Road Kemps Creek NSW 2178	3/DP30265
R30	1096-1112 Mamre Road Mount Vernon NSW 2178	31/DP30265
R31	1114 Mamre Road Mount Vernon NSW 2178	322/DP1130961
R32	30 Kerrs Road Mount Vernon NSW 2178	1182/ DP1038440
R33	226-230 Kerrs Road Mount Vernon NSW 2178	1160/DP1061191
R34	919-929 Mamre Road Kemps Creek NSW 2178	35/DP258414
R35	1116-1118 Mamre Road Mount Vernon NSW 2178	321/DP1130961
R36	1120-1126 Mamre Road Mount Vernon NSW 2178	33/DP30266
R37	1128-1132 Mamre Road Mount Vernon NSW 2178	341/DP1003059
R38	1134-1136 Mamre Road Mount Vernon NSW 2178	342/DP1003059
R39	20-29 Kerrs Road Mount Vernon NSW 2178	117/DP31924
R40	236-244 Kerrs Road Mount Vernon NSW 2178	360/DP863909
R41	1117 Mamre Road Kemps Creek NSW 2178	4/DP30265
R42	1127-1133 Mamre Road Kemps Creek NSW 2178	5/DP30265
R43	1135-1141 Mamre Road Kemps Creek NSW 2178	6/DP30265
R44	1143-1147 Mamre Road Kemps Creek NSW 2178	7/DP30265
R45	1149-1155 Mamre Road Kemps Creek NSW 2178	8/DP30265
R46	203-229 Clifton Avenue Kemps Creek NSW 2178	55/DP 734584
R47	901 Mamre Road Kemps Creek NSW 2178	33/DP258414
R48	44 Kerrs Road Mount Vernon NSW 2178	14/DP1043590
R49	45 Kerrs Road Mount Vernon NSW 2178	13/DP1043590
R50	54 Kerrs Road Mount Vernon NSW 2178	1213/DP1045425
R51	231-235 Kerrs Road Mount Vernon NSW 2178	1161/DP1061191
R52	258 Clifton Aveenue Kemps Creek NSW 2178	8/DP812284
R53	1164-1168 Mamre Road Mount Vernon NSW 2178	1/DP1175090

3.0 Existing Environment

The existing noise environment in the area is typically dominated by road traffic noise from Mamre Road, with rural ambient noise becoming dominant at distances further back from existing roads. Industrial noise from existing premises also influences the noise environment at receivers close to those premises.

As outlined in the CNVIAs for the MAIU and AARU construction works, previously measured existing noise levels from nearby noise assessments have been used for this project. The noise monitoring locations are shown in **Figure 1** and the measured levels are summarised in **Table 3**.

Table 3 Summary of Unattended Noise Monitoring Results

ID	NCA	Address	Measured Noise Levels (dBA)[1]					
			Background Noise (RBL)			Average Noise (L_{Aeq})		
			Day	Evening	Night	Day	Evening	Night
L01[2]	NCA01	141-153 Aldington Road, Kemps Creek	34	33	29	44	41	41
L02[3]	NCA02	230-242 Aldington Road, Kemps Creek	32	31	30	50	35	35
L03[4]	NCA03	286 Aldington Road, Kemps Creek	34	34	33	47	48	46
L04[5]	NCA04	62 Mount Vernon Road, Mount Vernon	36	36	33	50	44	43
L05[5]	NCA05	26 Cressy Road, Mount Vernon	42	40	35	53	48	47
L06[5]	NCA06	981 Mamre Road, Kemps Creek	48	46	34	61	59	57
L07[6]	NCA07	Bakers Lane, Kemps Creek	44	43	37	-	-	-
L08[7]	NCA08	Western boundary of Oakdale West	39	38	36	47	46	45

Note 1: The assessment periods are the daytime which is 7 am to 6 pm Monday to Saturday and 8 am to 6 pm on Sundays and public holidays, the evening which is 6 pm to 10 pm, and the night-time which is 10 pm to 7 am on Monday to Saturday and 10 pm to 8 am on Sunday and public holidays. See the NSW EPA Noise Policy for Industry.

Note 2: Measured data at L01 from SSD-10448 noise assessment (SLR report 610.19127-R02-v1.3, dated October 2020).

Note 3: Measured data at L02 from SSD-10479 noise assessment (White Noise Acoustics report 20141_200819, dated 26 August 2022). SLR deployed a logger within this catchment area as part of this assessment which was considerably affected by extraneous noise (insects). Consequently SLR has conservatively adopted the noise levels from L02 for this assessment.

Note 4: Measured data at L03 from SSD-9138102 noise assessment (RWDI report 2101343 Version B, dated February 2021).

Note 5: Measured data at L04, L05 and L06 from SSD-46983729 noise assessment (SLR Report 610.30893.00100-R02-v1.0, dated October 2022).

Note 6: Measured data at L07 from SSD-9522 noise assessment (AcousticWorks report 1018022 R01P, dated May 2019).

Note 7: Measured data at L08 from SSD-7348 noise assessment (SLR report 610.15617-R2 Revision 4, dated June 2017).

4.0 Assessment Criteria

4.1 Construction Noise and Vibration Guidelines

The standards and guidelines relevant to the development are listed in **Table 4**. These guidelines aim to protect the community and environment from excessive noise and vibration impacts during construction of projects.

Table 4 Construction Noise and Vibration Standards and Guidelines

Guideline/Policy Name	Where Guideline Used
Interim Construction Noise Guideline (ICNG) (DECC, 2009)	Assessment of airborne noise impacts on sensitive receivers
Construction Noise and Vibration Guideline (CNVG) (TfNSW, 2023)	Assessment and management protocols for noise and vibration impacts
Road Noise Policy (RNP) (DECCW, 2011)	Assessment of construction traffic impacts
BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2, BSI, 1993	Assessment of vibration impacts (structural damage) to non-heritage sensitive structures
DIN 4150:Part 3-2016 Structural vibration – Effects of vibration on structures, Deutsches Institute fur Normung, 2016	Screening assessment of vibration impacts (structural damage) to heritage sensitive structures, where the structure is found to be unsound
Assessing Vibration: a technical guideline (DEC, 2006)	Assessment of vibration impacts on sensitive receivers

4.2 Interim Construction Noise Guideline

The NSW *Interim Construction Noise Guideline* (ICNG) is used to assess and manage impacts from construction noise on residences and other sensitive land uses in NSW.

The ICNG contains procedures for determining project-specific Noise Management Levels (NMLs) for sensitive receivers based on the existing background noise in the area. The 'worst-case' noise levels from the construction of a project are predicted and then compared to the NMLs in a 15-minute assessment period to determine the likely impact of the project.

The NMLs are not mandatory limits, however, where construction noise levels are predicted or measured to be above the NMLs, feasible and reasonable work practices to minimise noise emissions are to be investigated.

4.2.1 Residential Receivers

The ICNG approach for determining NMLs at residential receivers is shown in **Table 5**.

Table 5 ICNG NMLs for Residential Receivers

Time of Day	NML $L_{Aeq(15minute)}$	How to Apply
Standard Construction Hours Monday to Friday 7:00 am to 6:00 pm Saturday 8:00 am to 1:00 pm No work on Sundays or public holidays	Noise affected RBL[1] + 10 dB	• The noise affected level represents the point above which there may be some community reaction to noise • Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly Noise Affected 75 dBA	• The Highly Noise Affected (HNA) level represents the point above which there may be strong community reaction to noise • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours that the very noisy activities can occur, taking into account: • Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools or mid-morning or mid-afternoon for works near residences • If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside Standard Construction Hours	Noise affected RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours • The proponent should apply all feasible and reasonable work practices to meet the noise affected level • Where all feasible and reasonable practises have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.

Note 1: The RBL is the Rating Background Level and the ICNG refers to the calculation procedures in the NSW Industrial Noise Policy (INP). The INP has been superseded by the NSW EPA Noise Policy for Industry (NPfI).

4.2.2 Other Sensitive' Land Uses and Commercial Receivers

The NMLs for 'other sensitive' receivers are shown in **Table 6**.

Table 6 ICNG NMLs at 'Other Sensitive' Land Uses

Land Use	Noise management level $L_{Aeq(15minute)}$ (dBA) (applied when the property is in use)	
	Internal	External
ICNG 'other sensitive' receivers		
Classrooms at schools and other educational institutions	45	55[1]
Hospital wards and operating theatres	45	65[2]
Places of worship	45	55[1]
Active recreation areas (characterised by sporting activities and activities which generate noise)	-	65
Passive recreation areas (characterised by contemplative activities that generate little noise)	-	60
Commercial	-	70
Industrial	-	75
Non-ICNG 'other sensitive' receivers		
Childcare Centres	40	50[1]

Note 1: It is assumed that these receivers have windows partially open for ventilation which results in internal noise levels being around 10 dB lower than the external noise level.

Note 2: It is assumed that these receivers have fixed windows which conservatively results in internal noise levels being around 20 dB lower than the external noise level.

4.2.3 Sleep Disturbance

A method for assessing sleep disturbance is contained in the NPfI. Although the NPfI sleep disturbance criteria relates to industrial noise, it is also considered relevant for reviewing potential impacts from construction noise as a screening criterion to identify the need for further assessment. The NPfI notes that a detailed maximum noise level assessment should be undertaken where a project results in night-time noise levels that exceed 52 dBA L_{Amax} or the prevailing background level plus 15 dB, whichever is the greater.

Work will generally be limited to the standard daytime construction hours, in accordance with ICNG and Conditions of Consent. Due to the nature of the work, some out-of-hours work (e.g., weekend or nights) will also be required (refer to **Table 12**). Where out-of-hours work does occur, the sleep disturbance screening level will be applied.

4.2.4 NML Summary

The construction NMLs are summarised in **Table 7**. Out of hours NMLs would be applicable to works undertaken outside the ICNG standard construction hours.

Table 7 Project Specific Noise Management Levels

NCA	Receiver Type	Monitoring Location	Measured RBL[1] – dBA			NML (L_{Aeq}(15minute) – dBA)				Sleep Disturbance Screening Level[2] (L_{Amax} dB)
						Standard Construction Hours (RBL+10dB)	Out of Hours (RBL+5dB)			
			Day	Eve.	Night	Day	Day	Eve.	Night	Night
NCA01	Residential	L01	35[5]	33	30[5]	45	40	38	35	52
NCA02	Residential	L02	35[5]	31	30	45	40	36	35	52
NCA03	Residential	L03	35[5]	34	33	45	40	39	38	52
NCA04	Residential	L04	36	36	33	46	41	41	38	52
NCA05	Residential	L05	42	40	35	52	47	45	40	52
NCA06	Residential	L06	48	46	34	58	53	51	39	52
NCA07	Residential	L07	44	43	37	54	49	48	42	52
NCA08	Residential[4]	L08	39	38	36	49	44	43	41	52
All	Place of Worship	n/a				External noise level 55 dBA when in use[3]				n/a
	Commercial	n/a				External noise level 70 dBA when in use[3]				n/a
	Educational	n/a				External noise level 55 dBA when in use[3]				n/a
	Childcare Centres	n/a				External noise level 50 dBA when in use[3]				n/a

Note 1: RBL = Rating Background Level.

Note 2: Sleep disturbance screening level is RBL+15 dB or 52 dBA, whichever is higher.

Note 3: The criterion is specified as an internal noise level for this receiver category. As the noise model predicts external noise levels, it has been conservatively assumed that these receiver types have openable windows and external noise levels are therefore 10 dB higher than the corresponding internal level, which is generally considered representative of windows being partially open for ventilation.

Note 4: No residential receivers have been identified in NCA08

Note 5: The NPfI minimum RBL value has been used due to the measured RBL being below the NPfI minimum value.

4.3 Construction Road Traffic Noise Guidelines

The potential impacts from construction traffic on public roads are assessed under the NSW EPA *Road Noise Policy* (RNP) and Transport for NSW (TfNSW) Construction Noise and Vibration Guideline (CNVG).

An initial screening test is first applied to evaluate if existing road traffic noise levels are expected to increase by more than 2.0 dB as a result of construction traffic. Where this is considered likely, further assessment is required using the RNP base criteria shown in **Table 8.**

The CNVIAs predicted construction traffic to result in a minimal increase (i.e. less than 2 dB) in the overall traffic noise levels along the construction haulage routes. As such, construction traffic noise impacts have not been assessed further.

Table 8 RNP Criteria for Assessing Construction Vehicles on Public Roads

Road Category	Type of Project/Land Use	Assessment Criteria (dBA)	
		Daytime (7 am – 10 pm)	Night-time (10 pm – 7 am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15hour)}$ 60 (external)	$L_{Aeq(9hour)}$ 55 (external)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	$L_{Aeq(1hour)}$ 55 (external)	$L_{Aeq(1hour)}$ 50 (external)

4.4 Vibration Guidelines

The effects of vibration from construction works can be divided into three categories:

- Those in which the occupants of buildings are disturbed (human comfort)
- Those where building contents may be affected (building contents)
- Those where the integrity of the building may be compromised (structural or cosmetic damage).

4.4.1 Human Comfort Vibration

People can sometimes perceive vibration impacts when vibration generating construction works are located close to occupied buildings.

Vibration from construction works tends to be intermittent in nature and the EPA's *Assessing Vibration: a technical guideline* (2006) provides criteria for intermittent vibration based on the Vibration Dose Value (VDV). The 'preferred' and 'maximum' VDVs for human comfort are shown in **Table 9**.

Table 9 Vibration Dose Values for Intermittent Vibration

Building Type	Assessment Period	Vibration Dose Value[1] ($m/s^{1.75}$)	
		Preferred	Maximum
Critical Working Areas (eg operating theatres or laboratories)	Day or night-time	0.10	0.20
Residential	Daytime	0.20	0.40
	Night-time	0.13	0.26
Offices, schools, educational institutions and places of worship	Day or night-time	0.40	0.80
Workshops	Day or night-time	0.80	1.60

Note 1: The VDV accumulates vibration energy over the daytime and night-time assessment periods, and is dependent on the level of vibration as well as the duration.

4.4.2 Effects on Building Contents

People perceive vibration at levels well below those likely to cause damage to building contents. For most receivers, the human comfort vibration criteria are the most stringent and it is generally not necessary to set separate criteria for vibration effects on typical building contents.

Exceptions to this can occur when vibration sensitive equipment, such as electron microscopes, are located in buildings near construction works. No such equipment has been identified in the study area.

4.4.3 Structural and Cosmetic Damage Vibration

The TfNSW *Construction Noise and Vibration Guideline* (CNVG) provides guidance regarding cosmetic damage criteria for buildings to be applied on road construction projects in NSW, and refers to:

- Australian Standard AS 2187: Part 2-2006 "*Explosives - Storage and Use - Part 2: Use of Explosives*"
- BS 7385 Part 2-1993 "*Evaluation and measurement for vibration in buildings Part 2*" (referenced in text as BS 7385-2)
- DIN 4150 Part 3–2016 (of particular reference for heritage structures) (referenced in text as DIN 4150-3)

4.4.3.1 British Standard 7385 Part 2-1993

In terms of the most recent relevant vibration damage criteria, Australian Standard AS 2187: Part 2-2006 *Explosives - Storage and Use - Part 2: Use of Explosives* recommends the frequency dependent guideline values and assessment methods given in BS 7385 Part 2-1993 *Evaluation and measurement for vibration in buildings Part 2* as they "are applicable to Australian conditions".

The standard sets guide values for building vibration based on the lowest vibration levels above which damage has been credibly demonstrated. These levels are judged to give a minimum risk of vibration-induced damage, where the minimal risk for a named effect is usually taken as a 95% probability of no effect.

Sources of vibration that are considered in the Standard include demolition, piling, ground treatments (e.g., compaction), construction equipment, tunnelling, road and rail traffic and industrial machinery.

The recommended limits (guide values) for transient vibration to ensure minimal risk of cosmetic damage to residential and industrial buildings are shown in **Table 10** and **Figure 2**.

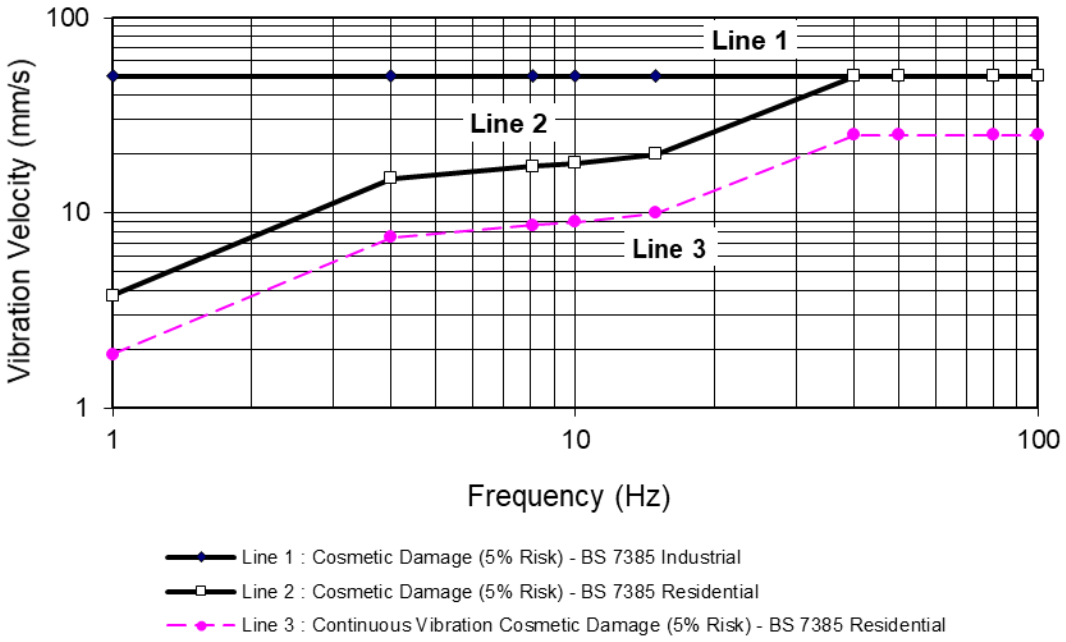
Table 10 Transient Vibration Guide Values - Minimal Risk of Cosmetic Damage

Line	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

The standard states that the guide values in **Table 10** relate predominantly to transient vibration which does not give rise to resonant responses in structures and low-rise buildings.

Where the dynamic loading caused by continuous vibration is such as to give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values in **Table 10** may need to be reduced by up to 50%. The proposed activities are considered to have the potential to cause dynamic loading in some structures (eg neighbouring commercial developments) and it may therefore be appropriate to reduce the transient values by 50%.

Figure 2 Graph of Transient Vibration Guide Values for Cosmetic Damage



In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the guide values for building types corresponding to Line 2 are reduced. Below a frequency of 4 Hz where a high displacement is associated with the relatively low peak component particle velocity value, a maximum displacement of 0.6 mm (zero to peak) is recommended. This displacement is equivalent to a vibration velocity of 3.7 mm/s at 1 Hz.

The standard goes on to state that minor damage is possible at vibration magnitudes that are greater than twice those given in **Table 10**, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the standard and it is concluded that unless calculation indicates that the magnitude and number of load reversals are significant (in respect of the fatigue life of building materials) then the guide values in **Table 10** should not be reduced for fatigue considerations.

In order to assess the likelihood of cosmetic damage due to vibration, AS 2187 specifies that vibration measured should be undertaken at the base of the building and the highest of the orthogonal vibration components (transverse, longitudinal and vertical directions) should be compared with the criteria curves presented in **Table 10**.

It is noteworthy that extra to the guide values nominated in **Table 10**, the standard states that:

> *"Some data suggests that the probability of damage tends towards zero at 12.5 mm/s peak component particle velocity. This is not inconsistent with an extensive review of the case history information available in the UK."*

Also that:

> *"A building of historical value should not (unless it is structurally unsound) be assumed to be more sensitive."*

4.4.4 Heritage Buildings or Structures

For continuous long-term vibration or repetitive vibration with the potential to cause fatigue effects, DIN 4150-3 provides a Peak Component Particle Velocity value of 2.5 mm/s for buildings of great intrinsic value (e.g. heritage listed buildings) as a safe limit (as measured at the topmost floor), below which even superficial cosmetic damage is not to be expected.

Heritage listed buildings and structures should be considered on a case-by-case basis but as noted in BS 7385-2 should not be assumed to be more sensitive to vibration, unless structurally unsound. Where a heritage building is deemed to be "structurally unsound" following an assessment from a structural engineer (or other suitably qualified person), the more stringent DIN 4150-3 limits can be considered.

Two heritage structures have been identified nearby the Project site:

- Heritage listed house at 282 Aldington Rd, Kemps Creek NSW (approximately 150 m from the Project)
- Heritage listed post at 269 Aldington Rd, Kemps Creek NSW (approximately 20 m from the Project)

It is noted that the heritage building at 282 Aldington Rd burnt down and was reconstructed in 1999 and is currently deemed structurally sound. The condition of the heritage listed post at 269 Aldington Rd has not yet been assessed. The construction vibration assessment is presented in **Section 5.5**.

4.4.5 General Vibration Screening Criteria

The Transport for NSW (TfNSW) *Construction Noise and Vibration Strategy* elaborates on the vibration criteria in the TfNSW *Construction Noise and Vibration Guideline* (CNVG) and specifies general vibration screening criteria based on BS 7385: Part 2 – 1993. It notes that for most construction activities involving intermittent vibration such as rock breakers, piling rigs, vibratory rollers, excavators and the like, vibration predominantly occurs at frequencies

greater than 4 Hz and therefore specifies the following conservative vibration damage screening levels:

- Reinforced or heavy frame structures: 25 mm/s
- Unreinforced or light frame structures: 7.5 mm/s

At locations where the predicted and/or measured vibration levels are greater than shown above, a more detailed analysis of the building structure, vibration source, dominant frequency and dynamic characteristics of the structure would be required to determine the applicable safe vibration levels.

4.4.6 Minimum Working Distances for Vibration Intensive Works

Minimum working distances for typical vibration intensive construction equipment are provided in the CNVG and are shown in **Table 11**. The minimum working distances are for both cosmetic damage (from BS 7385-2 and DIN 4150-3) and human comfort at residential receivers (from the NSW EPA *Assessing Vibration: a technical guide*). The minimum working distances are based on empirical data which suggests that where works are further from receivers than the quoted minimum distances then impacts are not considered likely.

Table 11 Recommended Minimum Working Distances from Vibration Intensive Equipment

Plant Item	Rating/Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline)
		Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	
Vibratory Roller	<50 kN (1–2 tonne)	5 m	11 m	15 m to 20 m
	<100 kN (2–4 tonne)	6 m	13 m	20 m
	<200 kN (4–6 tonne)	12 m	25 m	40 m
	<300 kN (7–13 tonne)	15 m	31 m	100 m
	>300 kN (13–18 tonne)	20 m	40 m	100 m
	>300 kN (>18 tonne)	25 m	50 m	100 m
Small Hydraulic Hammer	300 kg (5 to 12 t excavator)	2 m	5 m	7 m
Medium Hydraulic Hammer	900 kg (12 to 18 t excavator)	7 m	15 m	23 m
Large Hydraulic Hammer	1,600 kg (18 to 34 t excavator)	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	20 m
Piling Rig – Bored	≤ 800 mm	2 m (nominal)	5 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	2 m

The minimum working distances are indicative and will vary depending on the particular item of equipment and local geotechnical conditions. The distances apply to cosmetic damage of typical buildings under typical geotechnical conditions.

5.0 Construction Noise and Vibration Assessment

The potential construction noise levels from the Project have been predicted using ISO 9613:2 algorithm in SoundPLAN noise modelling software. The model includes ground topography, buildings and representative noise sources from the Project.

5.1 Construction Activities

Noise modelling scenarios have been determined based on key Project noise generating stages, supplied by the Project team. A detailed description of each work scenario is provided in **Table 12**.

The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that are likely to occur for each work scenario, as required by the ICNG. Sound power levels (L_W) and quantities of the construction equipment used for modelling are listed in **Appendix B**.

Table 12 Construction Activities

ID	Construction Scenario	Description	Assessment Period[1,2,3]
W.001	Mobilisation, Site Establishment and Traffic Switches	Delivery and placement of barriers, removal of line marking / spraying of new lines, installing reflective pavement markers, and removing / installing road signs.	Standard Hours / OOHW
W.002a	Utility Relocations & Drainage Infrastructure	Saw-cutting of asphalt, trenching, placing pits / pipes / conduits, backfilling, and pavement restoration. The sawing will be done first in OOHW Period 1, before 10 PM.	Standard Hours / OOHW1
W.002b	Utility Relocations & Drainage Infrastructure (OOHW2)	Trenching, placing pits / pipes / conduits, backfilling, and pavement restoration. The concrete saw will not operate in OOHW Period 2.	OOHW2
W.003a	Corridor clearing	A combination of excavator and chainsaw work. Material will be stockpiled for shredding / mulching / grinding during standard construction hours.	Standard Hours
W.003b	Corridor clearing (OOHW)	A combination of excavator and chainsaw work. Shredding / mulching / grinding will not occur during OOHW periods.	OOHW
W.004	Bulk earthworks	Excavation and earthwork	Standard Hours
W.005	Kerb and footpath	Saw-cutting of asphalt, placing road base, and placing concrete.	Standard Hours / OOHW
W.006	Subbase and base	Saw-cutting of asphalt, placing road base, and temporarily restoring the asphalt.	Standard Hours / OOHW
W.007	Asphalting	Delivery of raw materials. Placement of final road surface material. Saw cutting	Standard Hours / OOHW
W.008	Road furniture installation	Signposting and line marking.	Standard Hours / OOHW

Note 1: Standard Construction Hours - Mon-Fri (7am - 6pm), Saturdays (8am - 1pm)

Note 2: Out of Hours Work (OOHW) - Period 1 (OOHW1) Mon-Fri (6pm - 10pm), Saturdays (7am-8am) and (1pm- 10pm), Sundays/Public Holidays (8am-6pm)

Note 3: Out of Hours Work (OOHW) - Period 2 (OOHW2) Mon-Fri (10pm - 7am), Saturdays (10pm - 8am), Sundays/Public Holidays (6pm - 7am)

5.1.1 Confirmation of Construction Activities Prior to Commencement

Prior to commencement of the construction work, the methodology and equipment will be reviewed and confirmation provided that the assumptions in the CNVMP remain valid. Where different methodology or equipment is proposed, further validation of the predicted noise levels will be undertaken to ensure that the proposed mitigation measures are anticipated to be sufficient.

Where feasible, measurements of noise-intensive works should be conducted during standard construction hours, to confirm predicted levels prior to the commencement of out-of-hours works.

5.2 Hours of Construction

Condition F40 requires that the Interim Road Works must be undertaken during the following hours:

- Monday to Friday 7:00 am to 6:00 pm
- Saturday 8:00 am to 1:00 pm
- at no time on Sundays or public holidays.

5.3 Out of Hours Work

Condition F41 allows work outside of the hours identified above in the following circumstances:

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

b) works agreed to in writing by the Planning Secretary;

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

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

Notwithstanding the conditions above, Condition F42 states that the following works may be undertaken out of hours, in accordance with the Out of Hours Works Protocol approved under Condition F36(c):

a) installation of drainage infrastructure;

b) asphalting; and

c) other works required to be completed at night for safety reasons, as detailed in an approved Construction Traffic Management Plan (CTMP).

Note: Other works required to be completed at night for safety reasons in the CTMP include the following activities:

- Barrier placement/relocation
- Lime stabilisation
- DGB placement and compaction
- Asphalt placement
- Linemarking & signage

An OOHW Protocol has been prepared in accordance with Condition F41 and F42. Refer to **Appendix D** for further information relating to OOHW protocol.

5.4 Construction Noise Predictions

The following overview is based on the predicted impacts at the most affected receivers and is representative of the worst-case noise levels that are likely to occur during Project work.

The assessment shows the predicted impacts based on the exceedance of the management levels, as per the categories in **Table 13**.

Table 13 Exceedance Bands and Impact Colouring

Exceedance of RBL	Exceedance of Standard Hours NML	Exceedance of OOHW NML	Subjective Classification	Impact Colouring
1 to 10 dB	No exceedance	Up to 5 dB	Noticeable	
11 dB to 20 dB	1 to 10 dB	6 dB to 15 dB	Clearly Audible	
21 dB to 30 dB	11 dB to 20 dB	16 dB to 25 dB	Moderately intrusive	
>30 dB	>20 dB	>25 dB	Highly Intrusive	

Note 1: This subjective classification is indicative and follows the approach outlined in the CNVG.

A summary of the number of buildings where NML exceedances were predicted for the various work activities is shown in **Table 14** for standard construction hours, and **Table 15** for OOHW (which, as a worst-case scenario, is assumed to occur during the night-time) for both the AARU and MAIU works. **Table 14** and **Table 15** also include a summary of the buildings that are not on lots that are subject to existing development applications and are therefore more likely to be occupied. Noise impact maps of each construction scenario are presented in **Appendix C**.

The assessment is generally considered conservative as the calculations assume all items of construction equipment are in use at the same time within individual scenarios at the nearest location to each receiver. In reality, there would frequently be periods when construction noise levels are much lower than the worst-case levels predicted as well as times when no equipment is in use and no noise impacts occur.

Table 14 Overview of NML Exceedances – Day Standard Hours

Receiver Category	NCA	Number of Receivers																	
		Total[3] AARU / MAIU	Exceedance Category[1]	With NML Exceedance[2]															
				W.001		W.002a		W.003a		W.004		W.005		W.006		W.007		W.008	
				AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU
Residential	NCA01	41 / -	1-10 dB	2	-	1	-	2	-	2	-	1	-	1	-	1	-	2	-
			11-20 dB	2	-	2	-	1	-	2	-	2	-	2	-	2	-	3	-
			>20 dB	-	-	2	-	2	-	3	-	2	-	2	-	2	-	-	-
			HNA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NCA02	6 / -	1-10 dB	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-
			11-20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			>20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			HNA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NCA03	75 / 49	1-10 dB	3	-	2	7	1	7	1	3	2	7	2	7	2	5	2	6
			11-20 dB	1	-	3	-	3	-	2	5	3	-	3	-	3	2	2	-
			>20 dB	2	-	3	-	3	-	5	-	3	-	3	-	3	-	3	-
			HNA	-	-	**2**	-	**2**	-	**3**	-	**2**	-	**2**	-	**2**	-	**2**	-
	NCA04	4 / 1	1-10 dB	-	-	-	-	-	-	4	1	-	-	-	-	-	-	-	-
			11-20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			>20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			HNA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NCA05	- / 1	1-10 dB	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
			11-20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			>20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			HNA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NCA06	7 / 93	1-10 dB	-	5	1	7	-	6	2	7	1	7	1	7	2	9	-	5

Receiver Category	NCA	Number of Receivers															
		Total[3] AARU / MAIU	Exceedance Category[1]	With NML Exceedance[2]													
				W.001		W.002a		W.003a		W.004		W.005		W.006		W.007		W.008	
				AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU
			11-20 dB	-	-	-	4	-	4	-	9	-	5	-	5	-	5	-	4
			>20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			HNA	-	-	-	-	-	-	-	**4**	-	-	-	-	-	-	-	-
	NCA07	- / -	1-10 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			11-20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			>20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			HNA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Sensitive	All NCAs	- / -	1-10 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			11-20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			>20 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: HNA = Highly Noise Affected, based on ICNG definition (ie predicted $L_{Aeq(15minute)}$ noise at residential receiver is 75 dBA or greater).

Note 2: Based on worst-case predicted noise levels.

Note 3: Total values shown are the affected receivers for both AARU and MAIU projects in each NCA.

Table 15 Overview of NML Exceedances – All Receiver Types (Out-of-Hours Work)

Receiver Category	NCA	Number of Receivers														
		Total	Exceedance Category[1]	With NML Exceedance[2]												
				W.001		W.002b		W.003b		W.005		W.006		W.007		W.008	
				AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU
Residential	NCA01	74 / -	1-5 dB	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			6-15 dB	2	-	3	-	2	-	2	-	2	-	2	-	-	-
			16-25 dB	3	-	2	-	2	-	2	-	2	-	2	-	3	-
			> 25 dB	-	-	-	-	1	-	3	-	3	-	3	-	2	-
			SD	**4**	-	**3**	-	**5**	-	**5**	-	**5**	-	**5**	-	**4**	-
	NCA02	119 / 1	1-5 dB	-	-	-	-	-	-	24	-	24	-	22	1	21	-
			6-15 dB	-	-	-	-	-	-	8	-	8	-	12	-	-	-
			16-25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			> 25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			SD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NCA03	102 / 77	1-5 dB	1	4	1	5	1	2	-	1	-	1	-	-	-	1
			6-15 dB	3	2	3	1	2	5	2	5	2	5	2	6	2	7
			16-25 dB	1	-	1	-	2	-	3	2	3	2	2	2	3	-
			> 25 dB	2	-	2	-	3	-	3	-	3	-	4	-	3	-
			SD	**6**	**1**	**6**	**-**	**6**	**2**	**8**	**7**	**8**	**7**	**8**	**7**	**6**	**2**
	NCA04	111 / 46	1-5 dB	-	-	-	-	-	-	30	12	30	12	43	21	6	1
			6-15 dB	-	-	-	-	-	-	-	-	-	-	2	-	-	-
			16-25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			> 25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			SD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NCA05	16 / 128	1-5 dB	-	-	-	-	-	2	4	20	4	20	7	19	1	16

Receiver Category	NCA	Number of Receivers														
		Total	Exceedance Category[1]	With NML Exceedance[2]												
				W.001		W.002b		W.003b		W.005		W.006		W.007		W.008	
				AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU	AARU	MAIU
			6-15 dB	-	-	-	-	-	-	-	6	-	6	-	11	-	1
			16-25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			> 25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			SD	-	-	-	-	-	-	-	**9**	-	**9**	-	**9**	-	-
	NCA06	238 / 542	1-5 dB	3	11	3	8	8	17	28	22	28	22	30	28	17	16
			6-15 dB	2	8	2	7	3	13	15	28	15	28	17	30	8	22
			16-25 dB	-	8	-	8	-	5	2	8	2	8	2	7	2	9
			> 25 dB	-	-	-	-	-	4	-	8	-	8	-	9	-	5
			SD	**2**	**16**	**2**	**14**	**3**	**17**	**14**	**44**	**14**	**44**	**14**	**44**	**2**	**16**
	NCA07	- / -	1-5 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			6-15 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			16-25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			> 25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			SD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Sensitive	All NCAs	- / -	1-5 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			6-15 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			16-25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			> 25 dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1: SD = Sleep disturbance screening level (ie predicted L_{Amax} noise at residential receiver is greater than 52 dBA).

Note 2: Based on worst-case predicted noise levels.

The assessment of the predicted worst-case noise levels in **Table 14** and **Table 15** shows:

- The highest impacts are expected to occur where highly noise intensive activities are being undertaken (ie concrete sawing, hydraulic hammering and vibratory rolling). Where reasonable and feasible, these activities should be limited to the standard hours to avoid noise impacts during more sensitive out-of-hours periods (refer to **Section 6.0**).
- Highly intrusive noise levels are predicted in NCA03 during standard construction hours for scenarios W.002a, W.003a, W.004, W.005, W.006, W.007 and W.008 for the AARU project
- Highly intrusive noise levels are predicted in NCA06 during standard construction hours for scenario 'W.004 - Bulk earthworks' for the MAIU project.
- Highly intrusive noise levels are predicted in NCA01 and NCA03 during out-of-hours periods for scenarios W.003b, W.005, W.006, W.007, W.008. Additionally, it is predicted that highly intrusive noise levels occur from W.001 and W.002b during OOHW for the AARU project.
- Highly intrusive noise levels are predicted in NCA06 during out-of-hours periods for scenarios W.003b, W.005, W.006, W.007 and W.008 for the MAIU project.
- For the MAIU project, noise levels above the NMLs are predicted to occur in NCA03 and NCA06 during out of hours period for all OOW scenarios (W.001, W.002b, W.003b, W.005, W.006, W.007 and W.008). Noise levels above the NMLs are anticipated to occur in NCA05 for scenarios W.005, W.006, W.007 and W.008. It is predicted that a single receiver may experience noise levels about the NMLs in NCA02 for scenario W.007.
- For the AARU project, noise above the NMLs is predicted to occur in all NCAs except for NCA07 during out-of-hour periods. The exceedance of NMLs occurs for all scenarios in NCA01, NCA03 and NCA06 and only for W.005, W.006, W.007 and W.008 for NCA02 and NCA05.
- L_{Amax} noise levels have the potential to exceed the sleep disturbance screening level at the closest residential receivers in NCA01, NCA03 and NCA06. L_{Amax} noise levels are generally associated with highly noise intensive activities (ie concrete sawing, hydraulic hammering and vibratory rolling). Where reasonable and feasible, these activities should be limited to the less sensitive periods to avoid noise impacts during more sensitive out-of-hours periods (refer to **Section 6.0**).

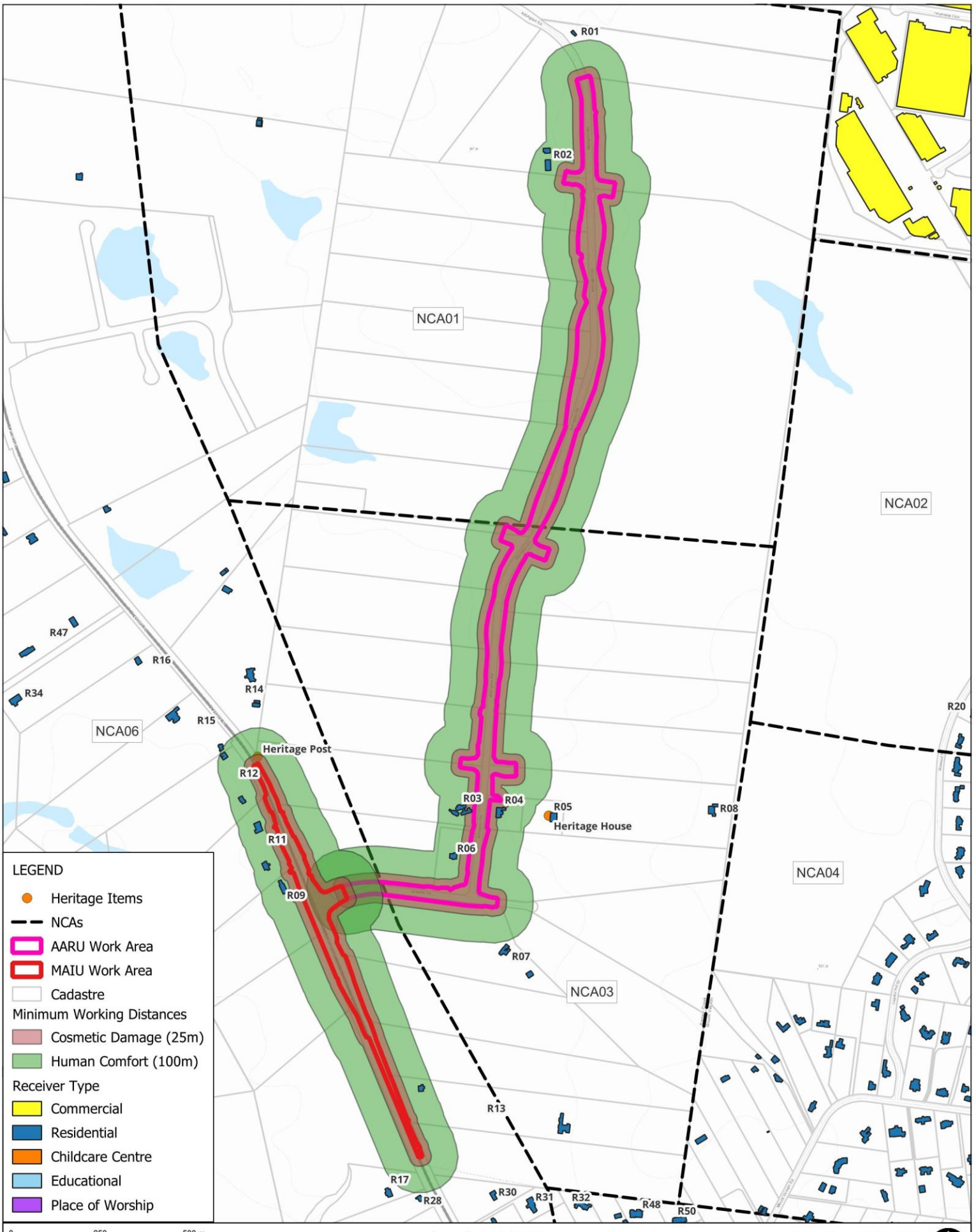
Recommended noise mitigation and management measures are discussed in **Section 6.0**.

5.5 Construction Vibration

Vibration intensive equipment required during construction include vibratory rollers and hydraulic hammers. Vibratory rollers will be used during W.006 – Subbase and base and W.008 – Road furniture installation, and the hydraulic hammers will be used during W.004 – Bulk Earthworks.

Offset distances for the vibration intensive equipment have been determined from the CNVG minimum working distances for cosmetic damage and human response (see **Table 11**). Buildings within the minimum working distances are shown in **Figure 3**.

This assessment has assumed the worst-case and considered the use of large hydraulic hammers and large vibratory rollers (i.e., greater than 18 tonne).



SLR

Data Source:
ESRI Topographic

Vibration Assessment

FIGURE 3

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz

5.5.1 Cosmetic Damage Assessment

The assessment in **Figure 3** shows that two residential building near to the AARU works have the potential to be within the minimum working distance for cosmetic damage (25 m) when vibration intensive works are being completed adjacent to this building. No residential receivers are within the minimum working distances for the MAIU works.

Offset distances from specific vibration intensive plant to the nearest receivers and building construction should be confirmed before commencing vibration intensive work during construction. Construction vibration mitigation measures are discussed in **Section 6.0**.

5.5.2 Human Comfort Vibration Assessment

The assessment shows that five receivers for the AARU works and six receivers for the MAIU works are within the human comfort minimum working distances (100 m) and occupants of affected buildings may be able to perceive vibration impacts at times when vibration intensive equipment is in use. Where impacts are perceptible, they would likely only be apparent for relatively short durations when vibration intensive equipment is nearby. Construction vibration mitigation measures are discussed in **Section 6.0**.

5.5.3 Heritage Vibration Assessment

The assessment shows that the heritage listed gateposts (Gateposts to Colesbrook) at 269 Aldington Rd, Kemps Creek (primary address 269-285 Mamre Rd, Kemps Creek) is located approximately 20 m from the Project boundary. Therefore, this heritage item has the potential to fall within the minimum working distance for cosmetic damage for structurally unsound heritage items when a greater than 18 tonne vibratory roller is used (i.e., 50 m from vibration generating activities, refer to **Table 11**).

A dilapidation/condition survey will be undertaken by a suitably qualified person (e.g., a structural engineer) prior to the vibration generating work to determine if the post is “structurally unsound”, and the more stringent criterion in accordance with DIN 4150-3 is applicable. If the post is deemed structurally sound, then the general vibration screening criterion of 7.5 mm/s (as detailed in **Section 4.4.5**) would apply. The appropriate minimum working distances can then be determined in accordance with **Table 11**; notwithstanding, the proposed activities will be within these minimum working distances.

Therefore vibration intensive works conducted near the heritage listed post must:

- Investigate different construction methods with lower source vibration levels (i.e., using smaller rollers or hydraulic hammers or where necessary, using less vibration-intensive compaction and demolition techniques).
- Undertake attended vibration monitoring at the commencement of the vibration-intensive activities to determine site-specific minimum working distances.
- Undertake continuous vibration monitoring with audible and visible alarms at the nearest sensitive receivers whenever vibration generating activities need to take place inside the safe-working distances.

With the implementation of these measures, vibration impacts are likely to comply with the cosmetic damage limits. Construction vibration mitigation measures are discussed further in **Section 6.0**.

5.6 Cumulative Impacts

Cumulative construction noise or vibration impacts can occur where multiple work activities are being completed near to a particular receiver at the same time. There is potential for cumulative construction impacts from multiple construction activities being completed in different areas of the project (ie MAIU and AARU).

Since the construction scenarios required for various stages of the proposal would generally require similar items of equipment, concurrent construction work being completed near to a particular area could theoretically increase the worst-case noise levels in this report by around 3 dB (ie a logarithmic adding of two sources of noise at the same level) particularly at some receivers located between the two project work areas.

The likelihood of worst-case noise levels being generated by two different work activities at the same time is, however, considered low and rather than increase construction noise levels, the impact of concurrent work would generally be a limited to a potential increase in the duration, and annoyance, of noise impacts on the affected receivers.

In practice, construction noise levels in any one location would vary and would be frequently much lower than the worst-case scenario assessed due to construction staging moving work around within the study area and, in many cases, only a few items of equipment being used at any one time.

The construction contractor will take feasible and reasonable steps to consult and coordinate with other construction projects when they become aware of them and if they have the potential to impact the same receivers concurrently, to minimise cumulative impacts of noise and vibration and maximise respite for affected sensitive receivers.

For OOHW, careful consideration and coordination of works between the MAIU and AARU projects are required to ensure sufficient respite is provided between out-of-hours activities, when required. This means that potential cumulative impacts from noise and vibration on sensitive receivers are to be identified and respite periods from simultaneous work activities are to be scheduled at the same time.

6.0 Mitigation and Management Measures

The ICNG acknowledges that due to the nature of construction works it is inevitable that there will be impacts where construction is near to sensitive receivers. All appropriate feasible and reasonable mitigation measures must be applied to the work to minimise the potential impacts, as far as practicable.

To minimise noise and vibration impacts during works, the construction contractor will take all reasonable and feasible measures to mitigate noise effects. Impacts from the works will be minimised and managed in accordance with the procedures detailed below in **Table 16**.

Table 16 Environmental Management Controls for Construction Noise and Vibration

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Project Planning			
Use quieter and less vibration emitting construction methods where feasible and reasonable.	Project Manager	Ongoing	Best practice
Works will be completed during standard daytime construction hours where possible, as outlined in **Section 5.2**. Some unavoidable OOHW will be required due to traffic management restrictions.			
Truck routes to site will be limited to Mamre Road. Trucks should access the site from Abbotts Road rather than Bakers Lane.			
Scheduling			
Where practicable, high noise generating activities will be limited to OOHW Period 1 (ie before 10PM).	Project Manager/ Communications and Community Liaison Representative	Ongoing	Best practice
Avoid OOHW recurring in one location over consecutive nights.	Project Manager/ Communications and Community Liaison Representative	Ongoing	Best practice
Avoid cumulative noise and vibration impacts between AARU and MAIU projects when feasible and reasonable.	Project Manager	Ongoing	Best practice
Site Layout			
Compounds and worksites will be designed to promote one-way traffic and minimise the need for vehicle reversing.	Project Manager	Ongoing	Best practice
Where practicable, work compounds, parking areas, and equipment and material stockpiles will be positioned away from noise-sensitive locations and take advantage of existing screening from local topography.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Documentation of how site layout has been considered to reduce noise impacts must be provided by the Contractor's Project Manager. This must occur any time there are significant changes to the site layout.			
Where practicable, equipment that is noisy will be started away from sensitive receivers			
Training			
Training will be provided to all personnel on noise and vibration requirements for the project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Project Manager	Ongoing	Best practice
Plant and Equipment Source Mitigation			
All plant and equipment must be maintained in a proper and efficient condition, operated in a proper and efficient manner, and feature standard noise amelioration measures where applicable.	Project Manager	Ongoing	Best practice
Where practicable, tonal reversing alarms (beepers) will be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements).			
Stationary noise sources will be sited behind structures that act as barriers, or at the greatest distance from the noise-sensitive area (where practicable).			
Noise generating equipment will be regularly checked and effectively maintained, including checking of hatches/enclosures regularly to ensure that seals are in good condition and doors close properly against seals.			
Noise monitoring spot checks of equipment will be completed to ensure individual items are operating as expected			
Dropping materials from a height will be avoided.			
Loading and unloading will be carried out away from noise sensitive areas, where practicable.			
Trucks will not queue outside residential properties. Truck drivers will avoid compression braking as far as practicable.			
Truck movements will be kept to a minimum, ie trucks are fully loaded on each trip.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Screening			
Where possible, install purpose-built screening or enclosures will be used around long-term fixed plant that has the potential to impact nearby receivers	Project Manager	Ongoing	Best practice
The layout of the site will take advantage of existing screening from local topography, where possible. Site huts, maintenance sheds and/or containers will be positioned between noisy equipment and the affected receivers.			
Implementation of temporary noise barriers for highly intensive noise activities, such as saw cutting or rock breaking	Project Manager	Ongoing	Best practice
Community Consultation			
Before work commences, work practices will be reviewed and feasible and reasonable practices implemented to minimise impacts.	Communications and Community Liaison Representative	Ongoing	Best practice
Early engagement with neighbouring stakeholders to discuss likely noise and vibration impacts	Communications and Community Liaison Representative	Ongoing	Best practice
Community Consultation Strategy and Complaints Handling Procedure (CCSCHP) will be used to guide community liaison in response to complaints and works notification	Communications and Community Liaison Representative	Ongoing	Best practice
Monitoring			
Noise and/or vibration monitoring will be conducted (as appropriate) when noise/vibration intensive works are being undertaken in close proximity to sensitive receivers.	Environmental Coordinator	Ongoing	Best practice
Noise and/or vibration monitoring will be conducted (as appropriate) in response to any complaints received to verify that levels are not substantially above the predicted levels.			
Vibration			
Notification will be provided to all receivers identified within the minimum working distances for vibration generating activities. Notification will include information about the construction activities (eg date, location, duration).	Environmental Coordinator	Ongoing	Best practice
If vibration generating works are required within the minimum cosmetic damage working distances and considered likely to exceed the criteria:			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
• Different construction methods with lower source vibration levels will be investigated and implemented, where feasible. • Attended vibration measurements will be undertaken at the start of the works to determine actual vibration levels of the item. Works will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.			
Where works are required within the cosmetic damage minimum working distances, building condition surveys will be completed before and after the works to ensure no cosmetic damage has occurred.			
Prepare a dilapidation survey of the heritage post adjacent to Mamre Road.			
Where damage occurs due to construction vibration, LOG-E must repair, or pay the full costs associated with repairing property that is damaged by carrying out the External Road Works.			

6.1 Measures Identified Through Community Consultation

In accordance with Condition F36(c), consultation with affected sensitive land users has been initiated to identify additional mitigation and management measures for managing high noise and vibration-intensive works.

This consultation process aligns with the Community Consultation Strategy and Complaints Handling Procedure (CCSCHP) and formally commenced on 16 May 2024 where Stockland Fife Kemp Creeks Pty Limited (SKFC) with ESR undertook door knocking to affected residents.

In December 2024 targeted community and stakeholder letters were provided to affected residences. These communications invited affected residents to stay informed throughout the project and receive updates about upcoming works as construction progresses.

Targeted stakeholder and community engagement will begin early 2025, providing opportunities for residents to raise concerns or suggest specific mitigation measures tailored to their needs.

Feedback and suggestions gathered through ongoing consultation will be carefully reviewed, and any additional measures identified will be documented and incorporated into the project.

Community consultation follows a structured approach outlined in the CCSCHP, which identifies key risks and community concerns related to the project, including:

- Requests for information about construction activities
- Concerns about construction noise and vibration
- Concerns about potential property damage
- Cumulative impacts from nearby projects.

To address these issues, a range of proposed community consultation and management measures has been developed, including:

- Early engagement with neighbouring stakeholders to discuss likely noise and vibration impacts
- Minimising noise through the use of appropriate plant, tools, techniques and programming
- Staging high-impact noise works with respite periods, as required by the Project Environment Protection Licence and CSSI Approval
- Conducting vibration monitoring for adjoining heritage structures, as advised by the acoustic advisor.

These measures are outlined in **Table 16.** They aim to proactively manage noise and vibration impacts while maintaining open and ongoing communication with the community and stakeholders, to adapt and refine strategies as required.

6.2 Additional Mitigation Measures

Where the 'mitigated' construction noise levels remain above the noise management levels (NMLs), the Additional Mitigation Measures Matrix (AMMM) identified in the CNVG is to be implemented. The approach, guided by the AMMM, is primarily aimed at pro-active engagement with affected sensitive receptors rather than additional noise reducing mitigation.

The AMMM applies to all receptor types where these receptors are in-use. The types of additional mitigation measures are listed in **Table 17**. The AMMM for construction noise are identified in **Table 18**.

Table 17 Additional Noise Mitigation Measures

Mitigation / Management Measure	Abbreviation
Alternative Accommodation	AA
Respite offers	RO
Respite Period 1	R1
Respite Period 2	R2
Duration Respite	DR
Notification (letterbox drop or equivalent)	N
Specific notifications	SN
Phone calls	PC
Individual briefings	IB
Verification Monitoring	V

Note 1: Refer to the CNVG for further details on additional noise mitigation measures.

Table 18 Additional Mitigation Measures Matrix - Construction Noise

Construction Hours	Receiver Perception	Noise Level above RBL (dBA)	Noise Level above NML (dBA)	Additional Measures
Standard Hours Mon-Fri (7am - 6pm) Saturdays (8am - 1pm)	Noticeable	5 to 10	0	-
	Clearly Audible	>10 to 20	<10	-
	Moderately intrusive	>20 to 30	>10 to 20	N, V
	Highly Intrusive	>30	>20	N, V
	75 dBA or greater[1]	N/A	N/A	N, V, PC, RO
Out-of-Hours Work (OOHW) Period 1 Mon-Fri (6pm - 10pm) Saturdays (7am-8am) and (1pm- 10pm) Sundays/Public Holidays (8am-6pm)	Noticeable	5 to 10	<5	-
	Clearly Audible	>10 to 20	5 to 15	N, R1, DR
	Moderately intrusive	>20 to 30	>15 to 25	V, N, R1, DR
	Highly Intrusive	>30	>25	V, IB, N, R1, DR, PC, SN
Out-of-Hours Work (OOHW) Period 2 Mon-Fri (10pm - 7am) Saturdays (10pm - 8am) Sundays/Public Holidays (6pm - 7am)	Noticeable	0 to 10	<5	N
	Clearly Audible	>10 to 20	5 to 15	V, N, R2, DR
	Moderately intrusive	>20 to 30	>15 to 25	V, IB, N, PC, SN, R2, DR
	Highly Intrusive	>30	>25	AA, V, IB, N, PC, SN, R2, DR

Note 1: Only applies at residential receivers.

What this means in practice is:

- The Notification (N) mitigation measure should be applied to all receivers that have noise impacts greater than 10 dB above the NML during the daytime.
- The Verification (V) mitigation measure should be applied for each of the activities. Measurements of the sound power level of each item shown in **Table 12** should be undertaken upon commencement of the use of that item of equipment. Monitoring should also be undertaken at the nearest sensitive receiver to the work upon the commencement of new activities and the measured levels compared with the predicted impacts in **Table 14** and **Table 15,** as well as **Appendix C**.
- Phone calls (PC) and Respite offers (RO) should be provided for receivers where noise levels are predicted at 75 dBA or greater. As a guide, work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of and amenity at nearby receivers.

Where OOHW is required, additional measures would be required as outlined in **Table 18**. For example, highly intrusive noise levels during OOHW period 1 would require the following: V, IB, N, R1, DR, PC, SN. Further detail and guidance on the implementation of these management measures is provided the CNVG, but importantly:

- Works during the evening periods of OOHW Period 1 can only occur for three consecutive evenings before a four day break is required (unless there is an agreement for Duration Respite).
- Works during OOHW Period 2 can only occur for two consecutive nights before a five day break is required (unless there is an agreement for Duration Respite).
- The receivers that are subjected to at least “moderately intrusive” impacts during the night-time, or “highly intrusive” during the evening period would require specific community consultation measures such as individual briefings, specific notifications and phone calls.
- The receivers that are subjected to “highly intrusive” impacts during the night-time will require the consideration of Alternative Accommodation. Whether Alternative Accommodation is reasonable and feasible should be determined on a case-by-case basis.
- The receivers that are subjected to at least “moderately intrusive’ noise impacts during the night-time are mostly located within the Mamre Road precinct, with the exception of some receivers on the western side of Mamre Road. Whether community consultation or Alternative Accommodation is required will depend on whether the receiver is occupied at the time of the works. As noted in **Section 2.3**, the status of residential receivers could change at short notice. It is expected that most of the receivers on lots subject to existing Development Applications are unoccupied, and that more receivers in the Mamre Road precinct will become unoccupied in the future due to land acquisitions and subsequent development. Consequently the extent of additional mitigation measures will depend heavily on the timing of the works.

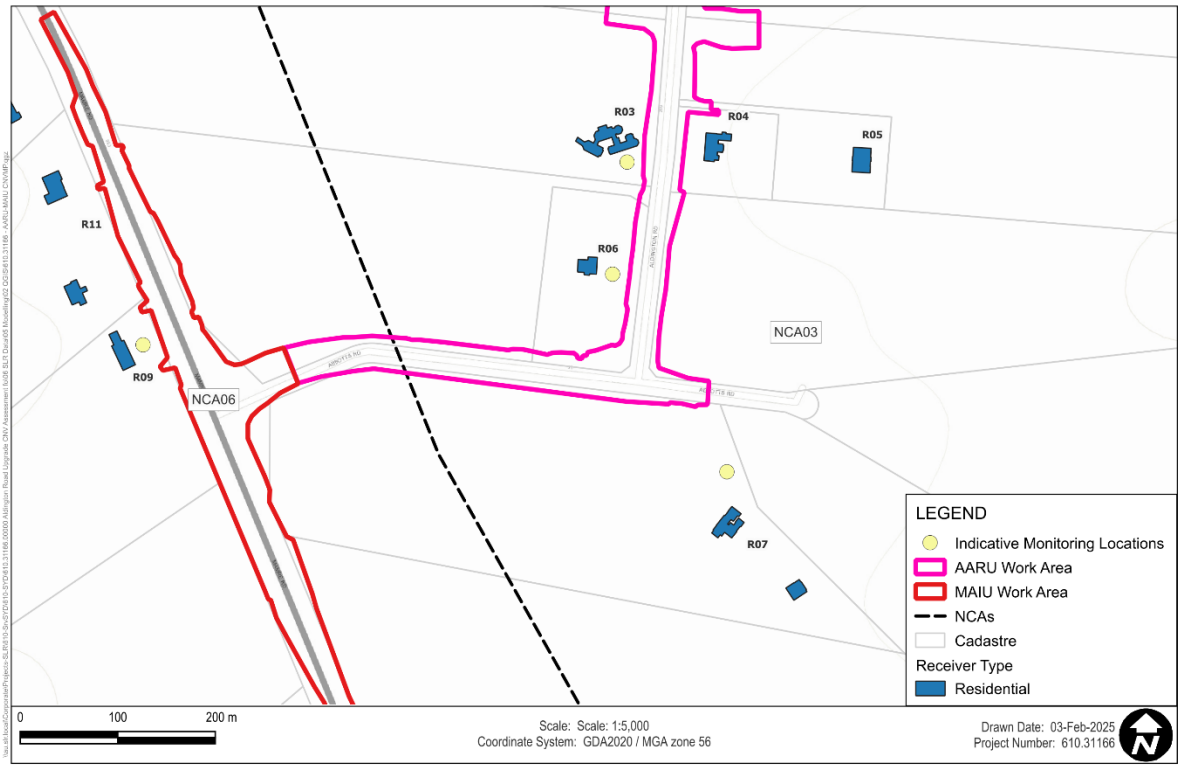
6.3 Monitoring

6.3.1 Construction Noise Monitoring

Unattended noise monitoring will be undertaken at locations representative of the closest, potentially most affected residences, such as the locations presented in **Figure 4**. These monitoring locations are indicative and should be determined based on the location of construction activities being undertaken at the time.

Each monitoring location will use statistical noise loggers (eg SiteHive) that are real-time enabled with an online portal, allowing the project team to investigate the noise impacts of work either at as it happens or immediately afterward. Exceedance notifications (SMS / email) of the established trigger levels will be enabled.

Figure 4 Indicative Real-Time Noise Monitoring Locations



This monitoring would be supplemented by attended monitoring (where necessary) in order to differentiate between construction noise sources and other sources (such as road traffic) and also in order to observe and identify any unusually noisy equipment or operations.

During attended monitoring, typical maximum noise levels associated with particular operations and/or plant items will be noted. Extraneous noise events such as road traffic noise will be excluded from the results or highlighted in accompanying notes.

Attended noise monitoring (where necessary) will be undertaken by suitably qualified specialists. Equipment and methods will comply with AS 1055:2018. The statistical parameters to be measured will be the L_{Amin}, L_{A90}, L_{A10}, L_{A1}, L_{Amax} and L_{Aeq} evaluated over consecutive 15 minute periods.

Noise monitoring data will be analysed and reported monthly, except for complaints which would be analysed separately and reported in an incident report.

All items of acoustic instrumentation utilised will be designed to comply with AS/NZS *IEC 61672.1-2004 Electroacoustics – Sound level meters* (AS IEC 61672) and carry current calibration certificates.

6.3.2 Construction Vibration Monitoring

6.3.2.1 Structural Damage Monitoring

Where vibration intensive works (such as vibratory rolling and rockbreaking) are required within the minimum working distances of sensitive receivers or structures (refer to **Table 11**), vibration will be monitored continuously for the duration of works within the minimum working distances. Real-time enabled vibration monitors with an online portal will be used (eg SiteHive). This will allow the project team to monitor construction vibration levels and ensure

acceptable levels of vibration are satisfied. Exceedance notifications (SMS / email) of the established trigger levels will be enabled.

Vibration monitoring will be undertaken at the closest points of the sensitive structure to the vibration intensive works to continuously monitor vibration for the duration of the works. Should the works location change, the monitors will be relocated to remain at the closest point of the structure to the works.

The vibration monitoring system will be configured to record the peak vibration levels and to trigger an alarm when predetermined vibration thresholds are exceeded. The thresholds correspond to an “Operator Warning Level” and an “Operator Halt Level”, where the Warning Level is 75% of the Halt Level.

Exceedance of the “Operator Warning Level” does not require construction activity to cease but rather alerts the construction contractor to proceed with caution at reduced force or load.

An exceedance of the “Operator Halt Level” requires construction activity to cease and the construction contractor to undertake a detailed analysis of the vibration monitoring data and a visual inspection of the building structure. An analysis of the vibration source, dominant frequencies and dynamic characteristics of the structure will determine the applicable safe vibration level. Where the applicable safe vibration level is exceeded, the construction contractor would be required to implement an alternative construction technique. Actions to be carried out if the exceedance alarms are triggered are detailed in **Section 6.6**.

Attended vibration monitoring will also be carried out in response to complaints or to structural damage criterion exceedances. This monitoring will provide direct feedback to the operators in order to allow appropriate modification of construction techniques. Attended vibration monitoring (where necessary) will be undertaken by suitably qualified specialists.

All items of vibration instrumentation will be designed to comply with applicable guidelines and carry current calibration certificates.

6.3.2.2 Human Comfort Monitoring

As outlined above, where vibration intensive works (such as vibratory rolling and rockbreaking) are required within the minimum working distances of sensitive receivers (refer to **Table 11**), vibration will be monitored continuously at the most affected receivers for the duration of works within the minimum working distances. Real-time enabled vibration monitors with an online portal will be used (eg SiteHive). This will allow the project team to monitor construction vibration levels and ensure acceptable levels of vibration are satisfied. Exceedance notifications (SMS / email) of the established trigger levels will be enabled.

Attended vibration monitoring will also be carried out in response to complaints. This monitoring will provide direct feedback to the operators in order to allow appropriate modification of construction techniques. Attended vibration monitoring (where necessary) will be undertaken by suitably qualified specialists.

All items of vibration instrumentation will be designed to comply with applicable guidelines and carry current calibration certificates.

6.3.2.3 Monitoring Reports

Noise and/or vibration monitoring reports will be provided to the relevant regulatory authorities after review, unless otherwise agreed by the relevant regulatory authorities. Monitoring reports would include the following details, as a minimum:

- Noise/vibration monitoring/measurement locations

- Date, time and length of noise monitoring/measurements
- Weather conditions during the measurements
- Name and position of personnel undertaking measurements
- Serial number of monitoring/measurement equipment
- Construction activities being undertaken during measurements
- Locations of construction equipment and distance from monitoring location
- Measured L_{Aeq} and L_{Amax} noise levels during construction works (for each activity) along with a comparison to the predicted noise levels and notes identifying the noise levels from individual construction sources should be included (noise monitoring only)
- Measured L_{A90} background noise level in absence of the construction works along with notes on the noise sources driving the levels (noise monitoring only)
- Measured vibration levels during construction works (for each activity) along with a comparison to the relevant vibration criteria together with notes identifying the principal vibration sources (vibration monitoring only)
- Measured background vibration level in absence of the construction works (vibration monitoring only)
- Operator observations noting any extraneous noise/vibration sources or other points of relevance.

6.4 Community Consultation

Sensitive receivers and affected stakeholders will be informed prior to actions likely to generate high levels of noise or vibration in accordance with Section 3 of the Community Consultation Strategy and Complaints Handling Procedure (CCSCHP) for the MAIU and AARU projects. Refer to the CCSCHP for further detail on the community consultation undertaken to date.

The CEMP and this CNVMP contain specific measures to manage these impacts. These management plans have been informed by commitments contained within the SSD approvals package, EPA standards and guidelines.

6.5 Complaints Management

Complaints can be made via phone and email. Contact details will be included on site signage.

Information recorded in the complaints register with respect to each complaint will include:

- Date and time of complaint
- Name, address and telephone number of complainant
- Nature of complaint
- Response actions taken to date.

A report of complaints will be provided to the relevant regulatory authorities as agreed by the relevant regulatory authorities.

Preliminary investigations into the complaint will commence within 48 hours of the complaint receipt and adequate measures to identify and manage will be considered and implemented. Where required, noise/vibration monitoring will be undertaken as per **Section 6.3**.

Further information regarding complaints management can be found in the CCSCHP for the project.

6.6 Contingency Plan

The following contingency management plan, shown in **Table 19**, would be used to manage noise and vibration impacts that are higher than expected.

In the event of an incident, response will be carried out as detailed below. All Condition Amber and Condition Red occurrences will be recorded in the Construction Contractor's Monthly Report to the Principal and discussed during the toolbox talks.

The following events constitute an incident in terms of noise and vibration:

- Trigger of Condition Red for noise impacts during the standard daytime construction hours
- Any works occurring outside the standard daytime construction hours, where those works have not been agreed in writing by the relevant regulatory authority
- Trigger of Condition Red for vibration impacts at sensitive receivers.

Table 19 Contingency Management Plan

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Noise impacts at sensitive receiver locations	Trigger	Noise levels do not exceed applicable NMLs	Noise levels exceed applicable NMLs	Noise levels exceed Highly Noise Affected criteria (75 dBA for residential receivers)
	Response	On-going best practice management measures to minimise noise emissions	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts (aiming to achieve NMLs)	Works exceeding the Highly Noise Affected criteria will be managed in accordance with the strategies for high-noise generating works determined through community consultation.
Vibration impacts at sensitive receiver locations	Trigger	Vibration intensive works undertaken outside minimum working distance for the specific equipment in use	Vibration intensive works undertaken within minimum working distance for the specific equipment in use	Vibration levels exceed applicable vibration limits
	Response	On-going best practice management measures to minimise vibration emissions	Undertake vibration monitoring for the duration of the works to confirm vibration levels.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below applicable limits. If vibration levels cannot be kept below applicable limits then a different construction method or equipment must be utilised.

6.7 Internal Audits

Periodic internal audits will be conducted to ensure that the commitments and environmental management controls outlined in this CNVMP are being properly implemented. Audit reports will be used to inform of any corrective actions.

6.8 Roles and Responsibilities

The key responsibilities specifically for noise and vibration management are as follows:

6.8.1 Contractor's Project Manager

- Ensuring appropriate resources are available for the implementation of this CNVMP
- Reviewing and update of this CNVMP, where necessary
- Commissioning unattended monitoring systems (or suitably qualified consultants, where necessary) to complete noise and vibration monitoring. Ensuring environmental coordinators appropriately undertake attended noise and vibration measurements required by this CNVMP
- Assessing and (as required) mitigating risks of high noise and vibration levels before commencing works and ensuring that the appropriate controls are implemented
- Ceasing works in the event of excessive noise and vibration generation in the event that a noise or vibration complaint is received, implementing the procedure outlined in **Section 6.6**.

6.8.2 Contractor's Environmental Coordinator

- Assessing data from inspections and providing project-wide advice to ensure a consistent approach and outcomes are achieved
- Providing necessary training for project personnel to cover noise and vibration management
- Coordinating noise and/or vibration monitoring program, where required
- Review control measures in accordance with the CNVMP
- Identifying and reporting any high or non-compliant noise and vibration emissions.

6.8.3 All Workers on Site

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

7.0 Review and Improvement of Noise Management Plan

This CNVMP will be reviewed, and if necessary, updated in the following circumstances:

- Significant changes to the equipment, machinery and plant operated within the site
- Where it is identified via monitoring that the performance of the project is not meeting the objectives of the CNVMP
- At the request of the relevant regulatory authority or other relevant government agency.

All employees and contractors will be informed of any revisions to the CNVMP by Site Management during toolbox talks. The most recent version of the CNVMP as approved by the Planning Secretary, will be implemented for the duration of construction works.

Appendix A Acoustic Terminology

Mamre - Abbotts Intersection Upgrade (MAIU) and Aldington - Abbotts Road Upgrade (AARU)

Construction Noise and Vibration Management Plan

LOG-E c/o AT&L

SLR Project No.: 610.31166.00000

3 June 2025

1. Sound Level or Noise Level

The terms 'sound' and 'noise' are almost interchangeable, except that 'noise' often refers to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure. The human ear responds to changes in sound pressure over a very wide range with the loudest sound pressure to which the human ear can respond being ten million times greater than the softest. The decibel (abbreviated as dB) scale reduces this ratio to a more manageable size by the use of logarithms.

The symbols SPL, L or LP are commonly used to represent Sound Pressure Level. The symbol LA represents A-weighted Sound Pressure Level. The standard reference unit for Sound Pressure Levels expressed in decibels is 2×10^{-5} Pa.

2. 'A' Weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an 'A-weighting' filter. This is an electronic filter having a frequency response corresponding approximately to that of human hearing.

People's hearing is most sensitive to sounds at mid frequencies (500 Hz to 4,000 Hz), and less sensitive at lower and higher frequencies. Different sources having the same dBA level generally sound about equally loud.

A change of 1 dB or 2 dB in the level of a sound is difficult for most people to detect, whilst a 3 dB to 5 dB change corresponds to a small but noticeable change in loudness. A 10 dB change corresponds to an approximate doubling or halving in loudness. The table below lists examples of typical noise levels.

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely noisy
110	Grinding on steel	
100	Loud car horn at 3 m	Very noisy
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

Other weightings (eg B, C and D) are less commonly used than A-weighting. Sound Levels measured without any weighting are referred to as 'linear', and the units are expressed as dB(lin) or dB.

3. Sound Power Level

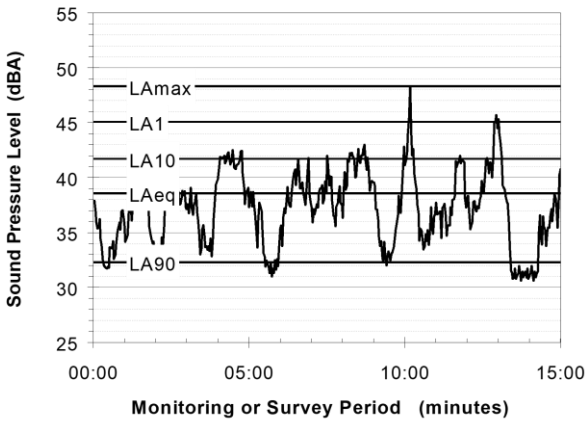
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit 10^{-12} W.

The relationship between Sound Power and Sound Pressure is similar to the effect of an electric radiator, which is characterised by a power rating but has an effect on the surrounding environment that can be measured in terms of a different parameter, temperature.

4. Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels LAN, where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

- L_{A1} The noise level exceeded for 1% of the 15 minute interval.
- L_{A10} The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.
- L_{A90} The noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.
- L_{Aeq} The A-weighted equivalent noise level (basically, the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.
- L_{Amax} The A-weighted maximum sound pressure level of an event measured with a sound level meter.

5. Frequency Analysis

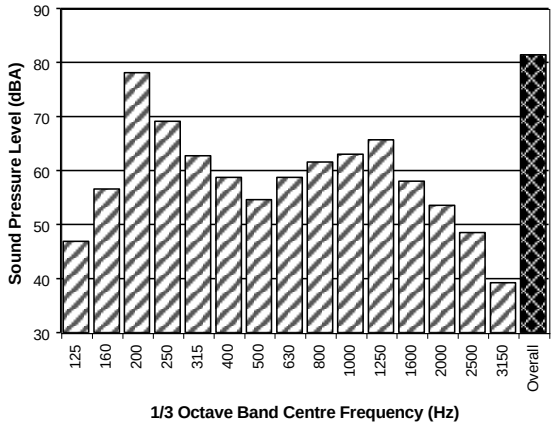
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

The units for frequency are Hertz (Hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (three bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)

The following figure shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands.



6. Annoying Noise (Special Audible Characteristics)

A louder noise will generally be more annoying to nearby receivers than a quieter one. However, noise is often also found to be more annoying and result in larger impacts where the following characteristics are apparent:

- **Tonality** - tonal noise contains one or more prominent tones (ie differences in distinct frequency components between adjoining octave or 1/3 octave bands), and is normally regarded as more annoying than 'broad band' noise.
- **Impulsiveness** - an impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.
- **Intermittency** - intermittent noise varies in level with the change in level being clearly audible. An example would include mechanical plant cycling on and off.
- **Low Frequency Noise** - low frequency noise contains significant energy in the lower frequency bands, which are typically taken to be in the 10 to 160 Hz region.

7. Vibration

Vibration may be defined as cyclic or transient motion. This motion can be measured in terms of its displacement, velocity or acceleration. Most assessments of human response to vibration or the risk of damage to buildings use measurements of vibration velocity. These may be expressed in terms of 'peak' velocity or 'rms' velocity.

The former is the maximum instantaneous velocity, without any averaging, and is sometimes referred to as 'peak particle velocity', or PPV. The latter incorporates 'root mean squared' averaging over some defined time period.

Vibration measurements may be carried out in a single axis or alternatively as triaxial measurements (ie vertical, longitudinal and transverse).

The common units for velocity are millimetres per second (mm/s). As with noise, decibel units can also be used, in which case the reference level should always be stated. A vibration level V, expressed in mm/s can be converted to decibels by the formula 20 log (V/Vo), where Vo is the reference level (10^{-9} m/s). Care is required in this regard, as other reference levels may be used.

8. Human Perception of Vibration

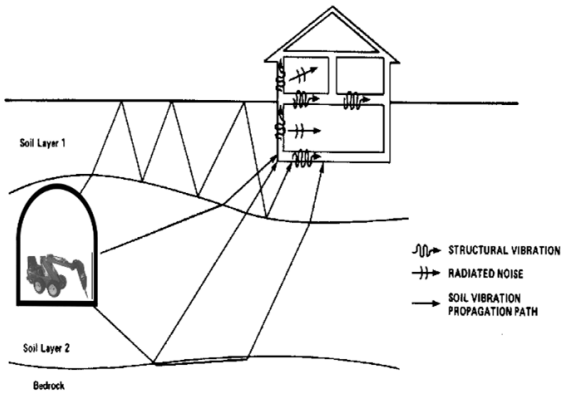
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience and expectations, and on other connotations associated with the perceived source of the vibration. For example, the vibration that a person responds to as 'normal' in a car, bus or train is considerably higher than what is perceived as 'normal' in a shop, office or dwelling.

9. Ground-borne Noise, Structure-borne Noise and Regenerated Noise

Noise that propagates through a structure as vibration and is radiated by vibrating wall and floor surfaces is termed 'structure-borne noise', 'ground-borne noise' or 'regenerated noise'. This noise originates as vibration and propagates between the source and receiver through the ground and/or building structural elements, rather than through the air.

Typical sources of ground-borne or structure-borne noise include tunnelling works, underground railways, excavation plant (eg rockbreakers), and building services plant (eg fans, compressors and generators).

The following figure presents an example of the various paths by which vibration and ground-borne noise may be transmitted between a source and receiver for construction activities occurring within a tunnel.



The term 'regenerated noise' is also used in other instances where energy is converted to noise away from the primary source. One example would be a fan blowing air through a discharge grill. The fan is the energy source and primary noise source. Additional noise may be created by the aerodynamic effect of the discharge grill in the airstream. This secondary noise is referred to as regenerated noise.

Appendix B Modelling Scenarios and Equipment

Mamre - Abbotts Intersection Upgrade (MAIU) and Aldington - Abbotts Road Upgrade (AARU)

Construction Noise and Vibration Management Plan

LOG-E c/o AT&L

SLR Project No.: 610.31166.00000

3 June 2025

Equipment		Total Lw (dBA)	Articulated Dump Truck	Chainsaw[1]	Compactor	Concrete Agitator Truck	Dozer (CAT D9)	Elevated Work Platform	Excavator - Tracked (20T)	Excavator - Tracked (30T)	Excavator 20-30T + Hammer[1]	Grader	Lighting Tower	Line Marking Truck	Pavement Laying Machine	Roller - large pad foot	Roller - smooth drum	Roller - Vibratory[1]	Saw - Concrete[1]	Scraper	Truck - Medium Rigid (20T)	Truck - (30T)	Tub Grinder/Mulcher[1]	Water Cart
Sound Power Level (Lw)[2]			109	105	106	109	116	97	105	110	122	113	80	108	114	109	107	109	118	113	103	108	116	107
Estimated utilisation (%)			25	50	50	100	50	25	100	100	30	100	100	100	100	100	100	100	30	100	25	25	30	50
ID	**Construction Scenario**																							
W.001	Mobilisation, Site Establishment and Traffic Switches	**109**											2	1							2			
W.002a	Utility Relocations & Drainage Infrastructure	**118**			1				1				1						1		1			
W.002b	Utility Relocations & Drainage Infrastructure (OOHW2)	**108**			1				1				1								1			
W.003a	Corridor clearing	**117**	1	1						1			2								1		1	
W.003b	Corridor clearing (OOHW)	**112**		1						1			2								1			
W.004	Bulk Earthworks	**124**	1		1		1				1	1				1				1				1
W.005	Kerb and footpath	**119**			1	1			1				1						1		1			
W.006	Subbase and Base	**119**							1				1					1	1		1			1
W.007	Asphalting	**120**													1		1		1			1		
W.008	Road furniture installation	**116**						1	1					1				1			1	1		1

Note 1: Equipment classed as ‘annoying’ in the ICNG and requires a 5 dB correction.
Note 2: Sound power level data is taken from the DEFRA Noise Database, AS2436, TfNSW CNVG

Appendix C Noise Impact Maps

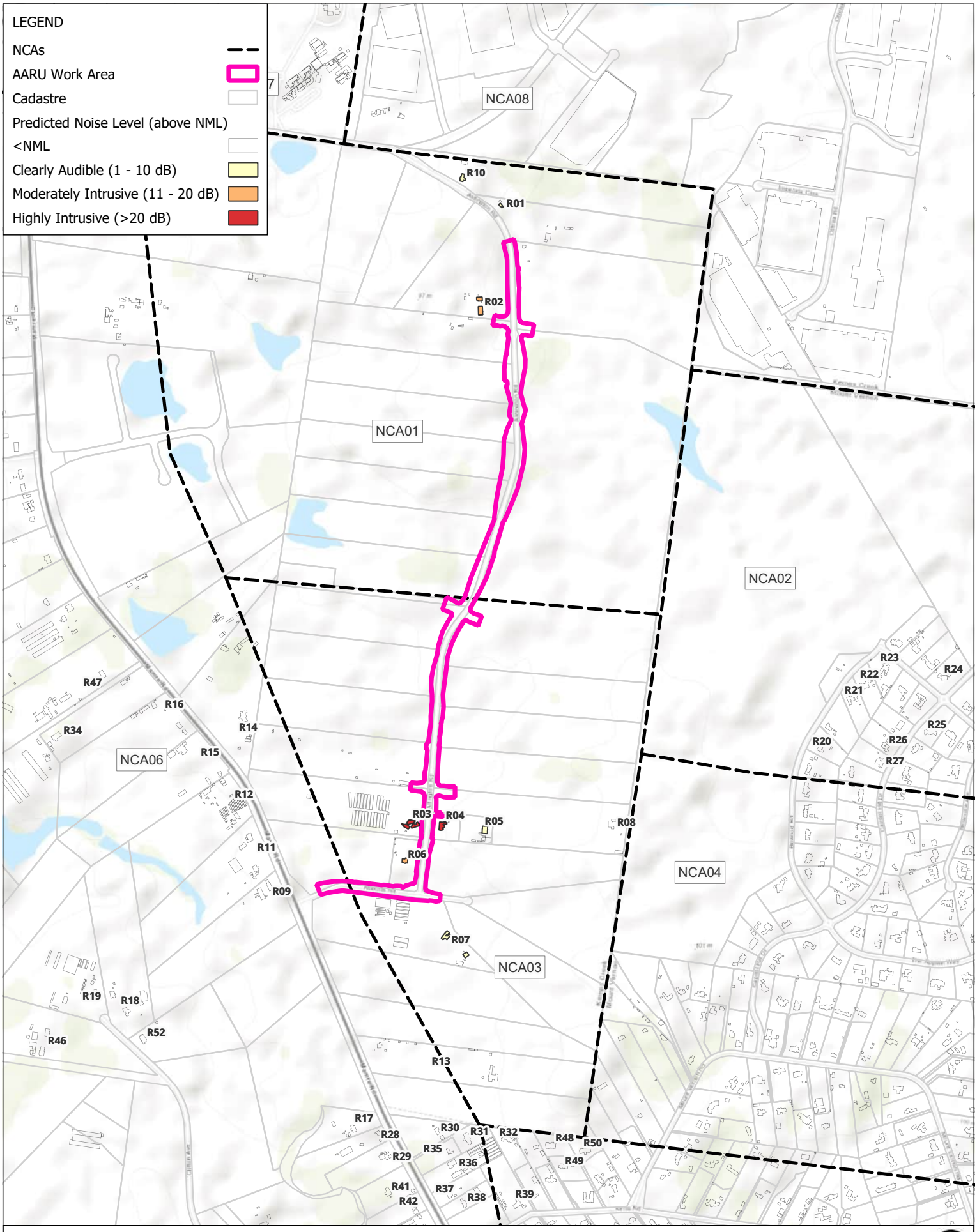
Mamre - Abbotts Intersection Upgrade (MAIU) and Aldington - Abbotts Road Upgrade (AARU)

Construction Noise and Vibration Management Plan

LOG-E c/o AT&L

SLR Project No.: 610.31166.00000

3 June 2025



0 250 500 m

Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

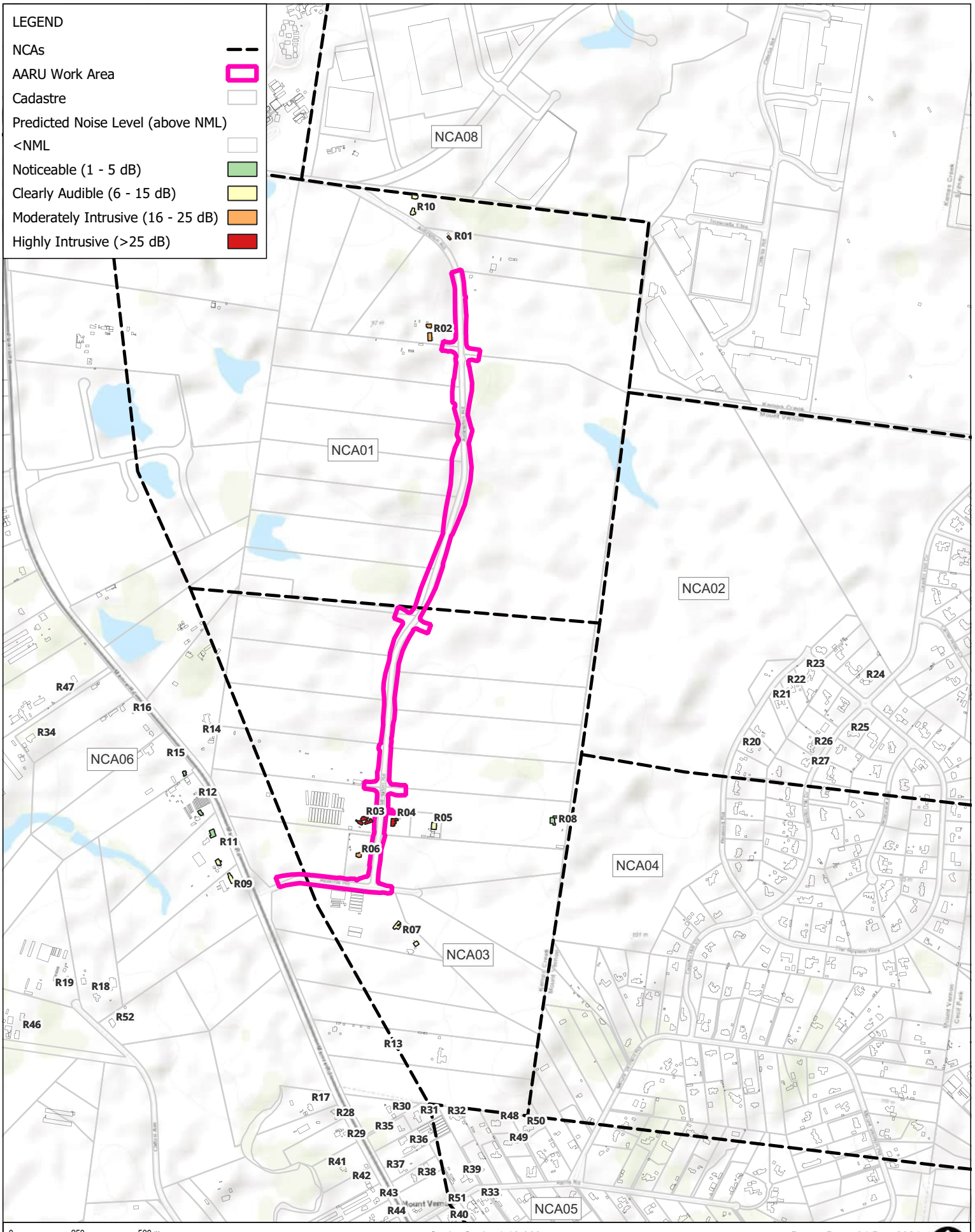
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.001 - Mobilisation, Site Establishment and Traffic Switches - Approved Daytime Hours

Appendix C-1

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

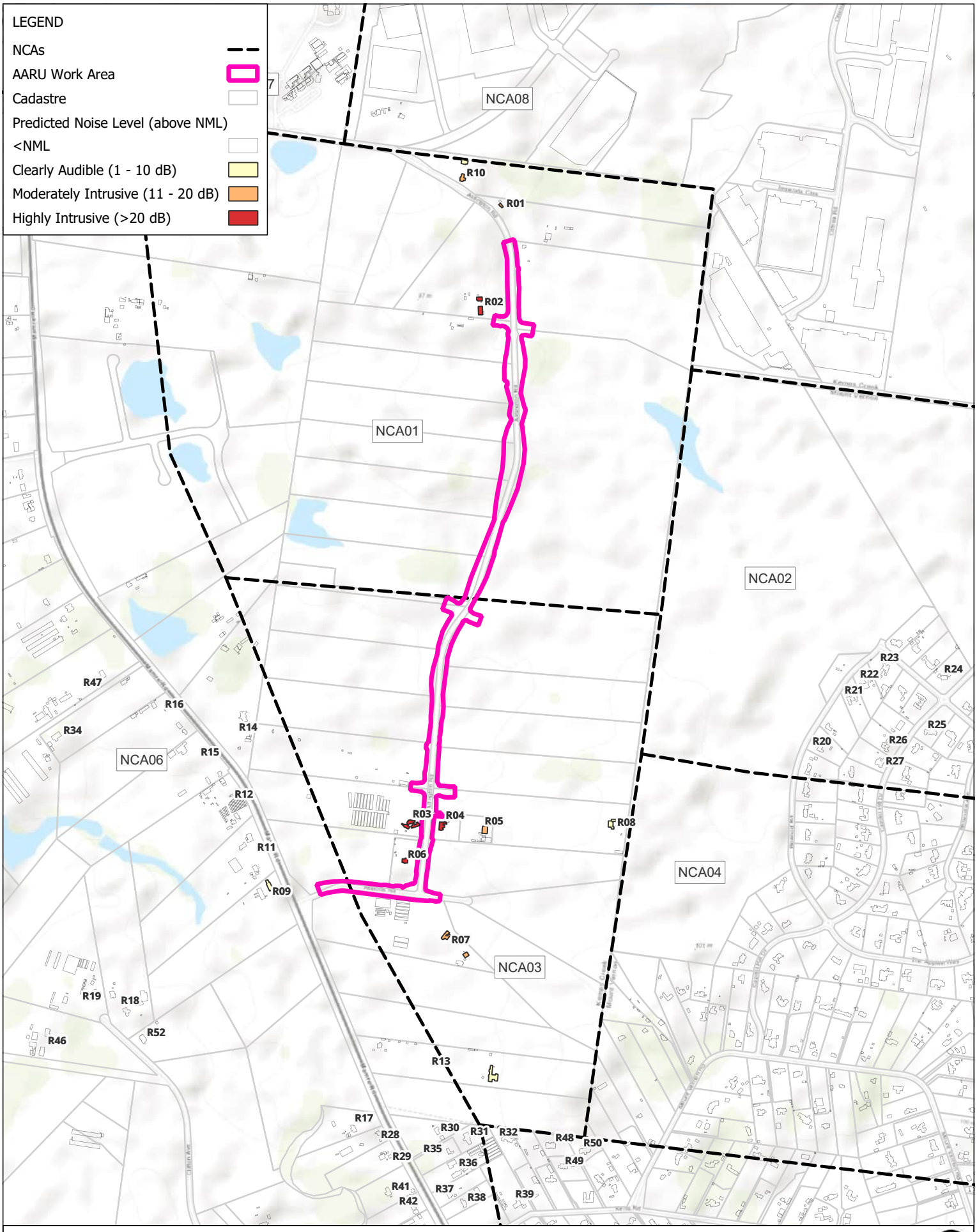
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.001 - Mobilisation, Site Establishment and Traffic Switches - Out of Hours Night-time

Appendix C-2

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

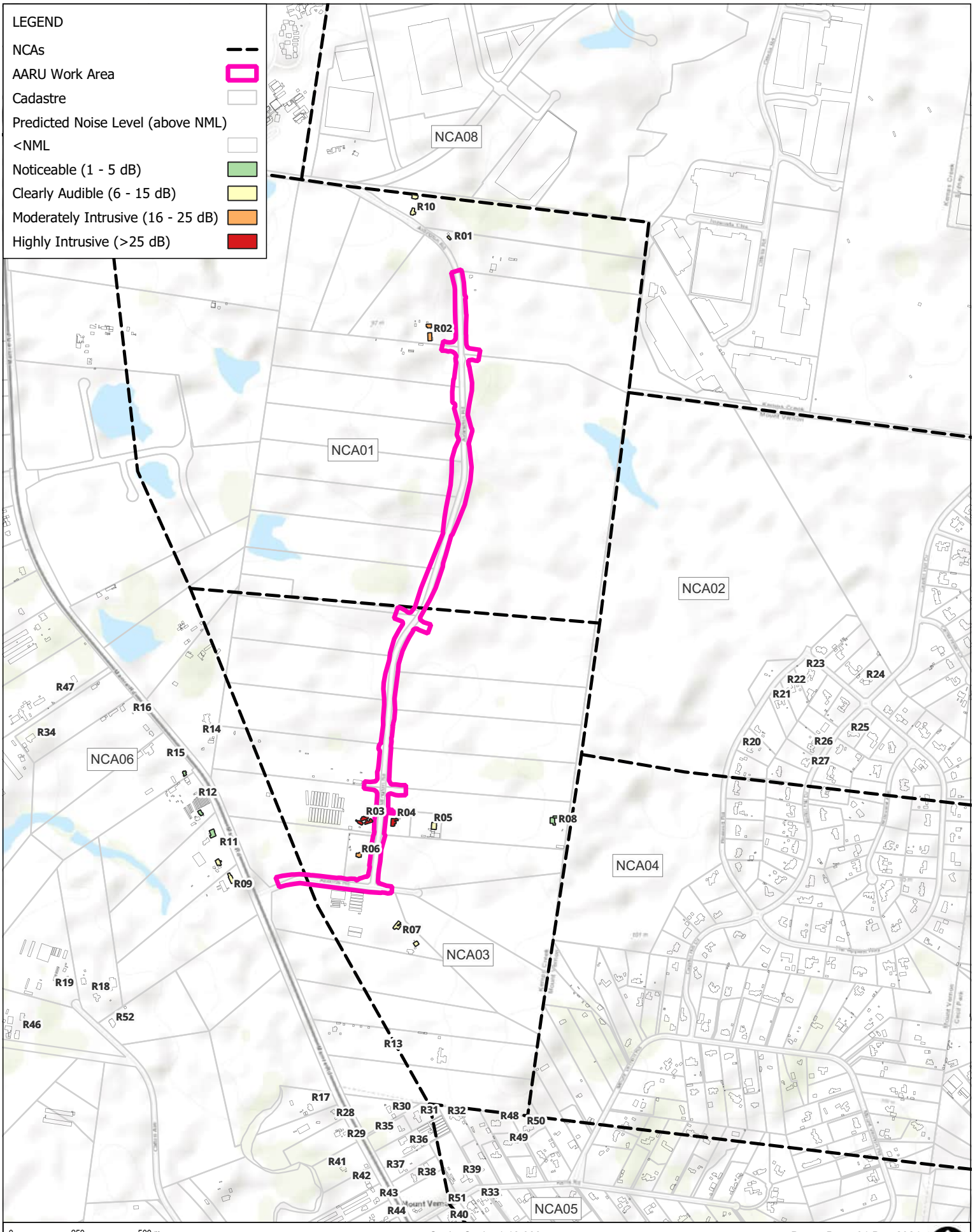
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.002a - Utility Relocations & Drainage Infrastructure - Approved Daytime Hours

Appendix C-3

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

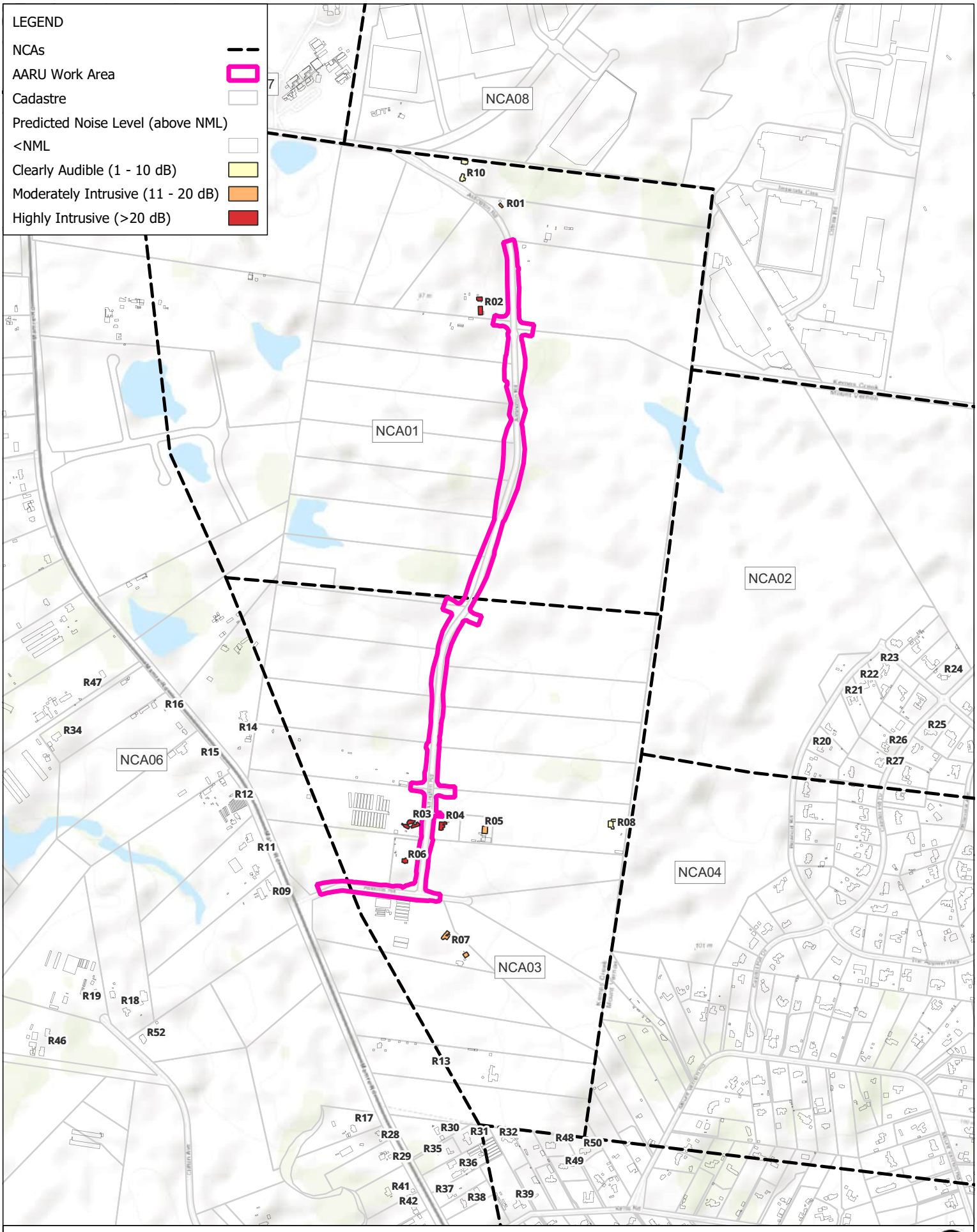
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.002b - Utility Relocations & Drainage Infrastructure (OOHW2) - Out of Hours Night-time

Appendix C-4

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

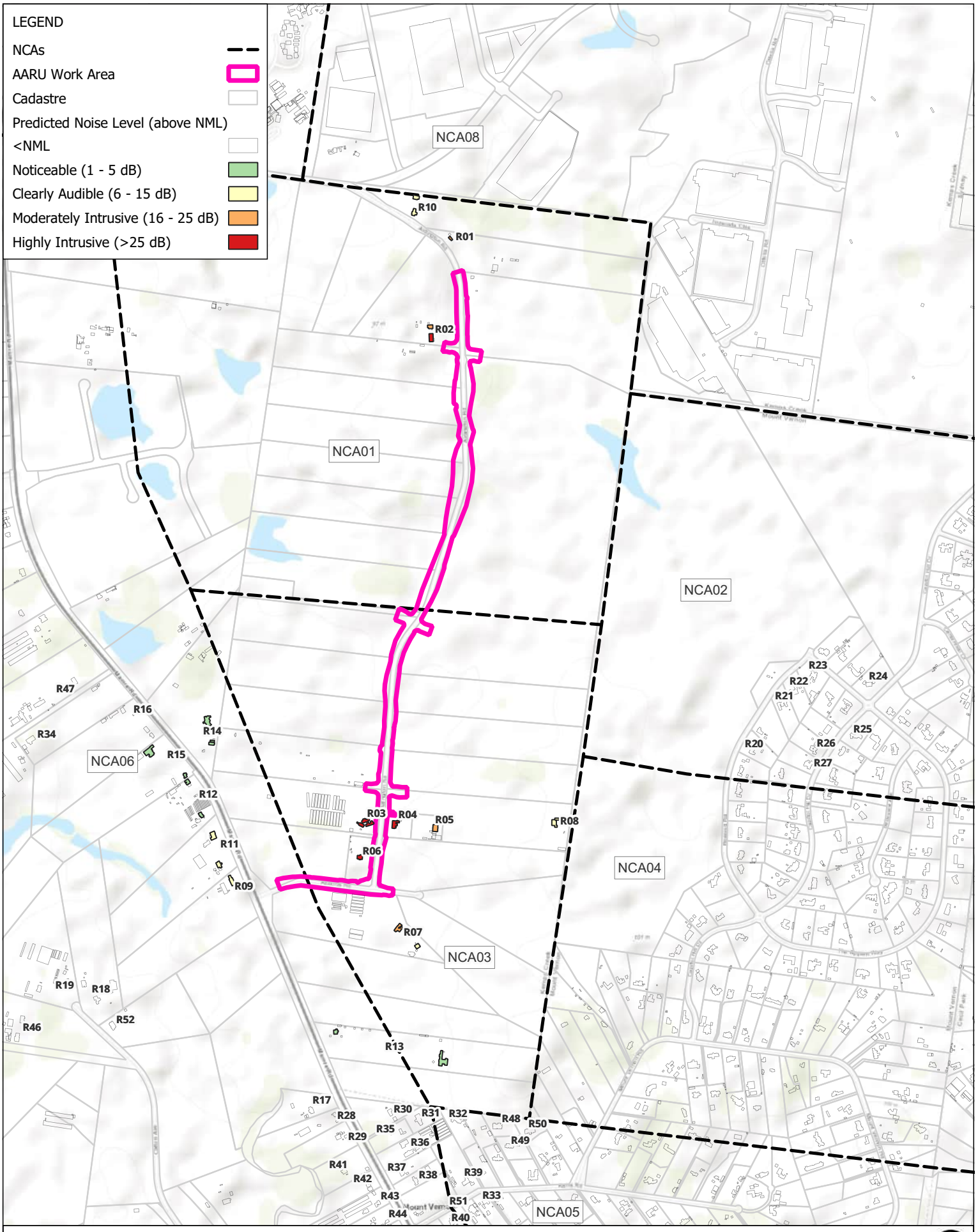
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.003a - Corridor clearing - Approved Daytime Hours

Appendix C-5

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

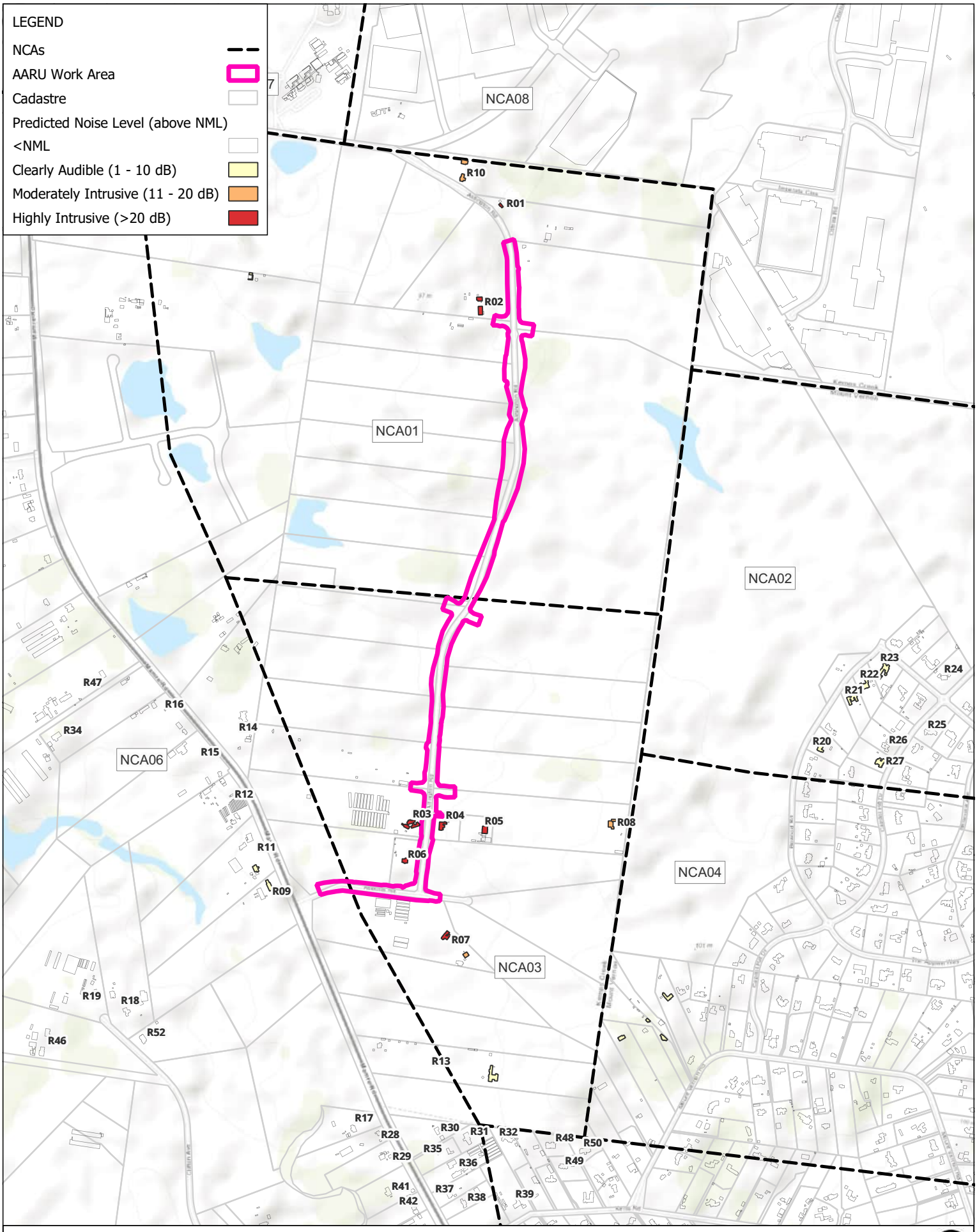
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.003b - Corridor clearing (OOHW) - Out of Hours Night-time

Appendix C-6

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

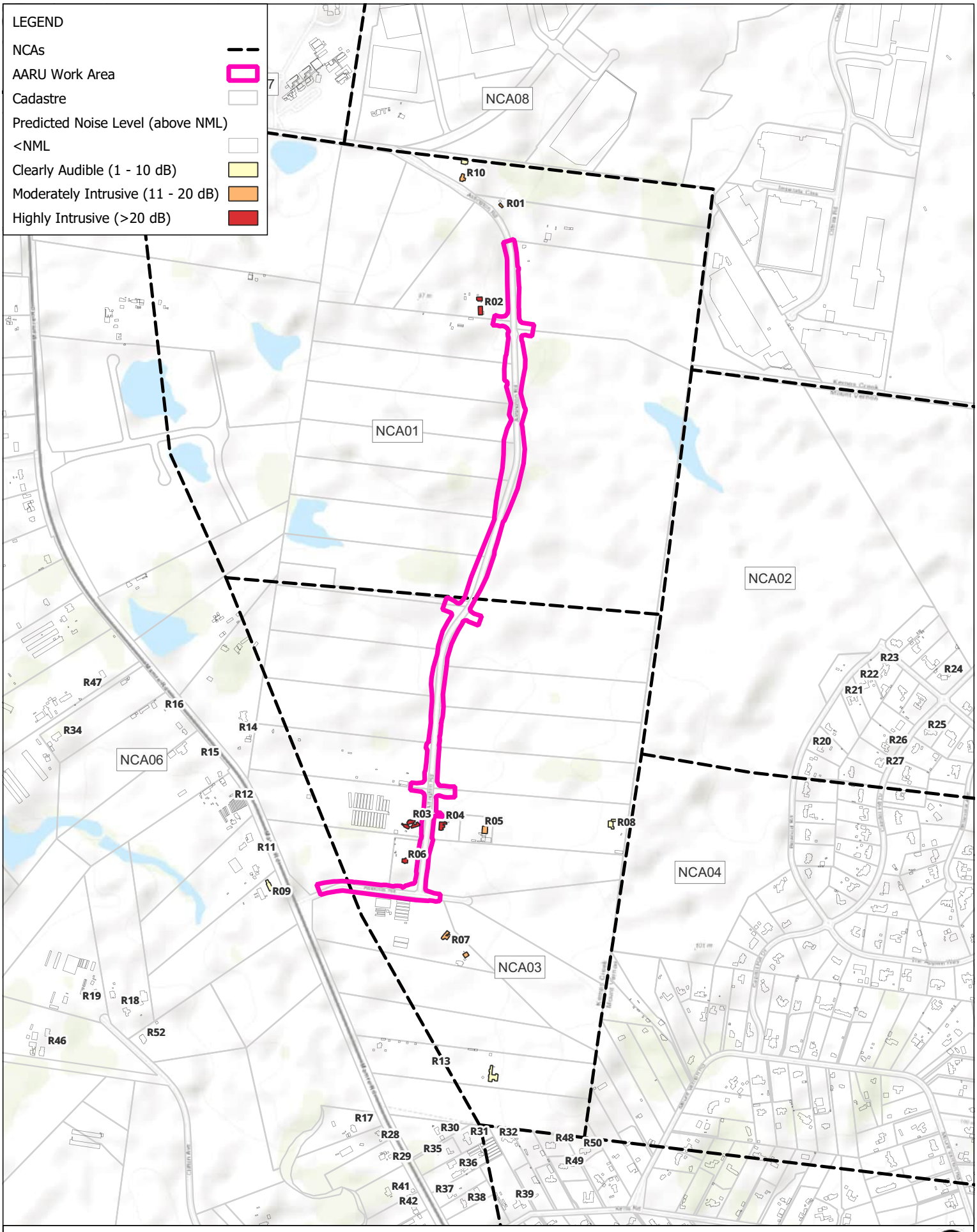
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.004 - Bulk earthworks - Approved Daytime Hours

Appendix C-7

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

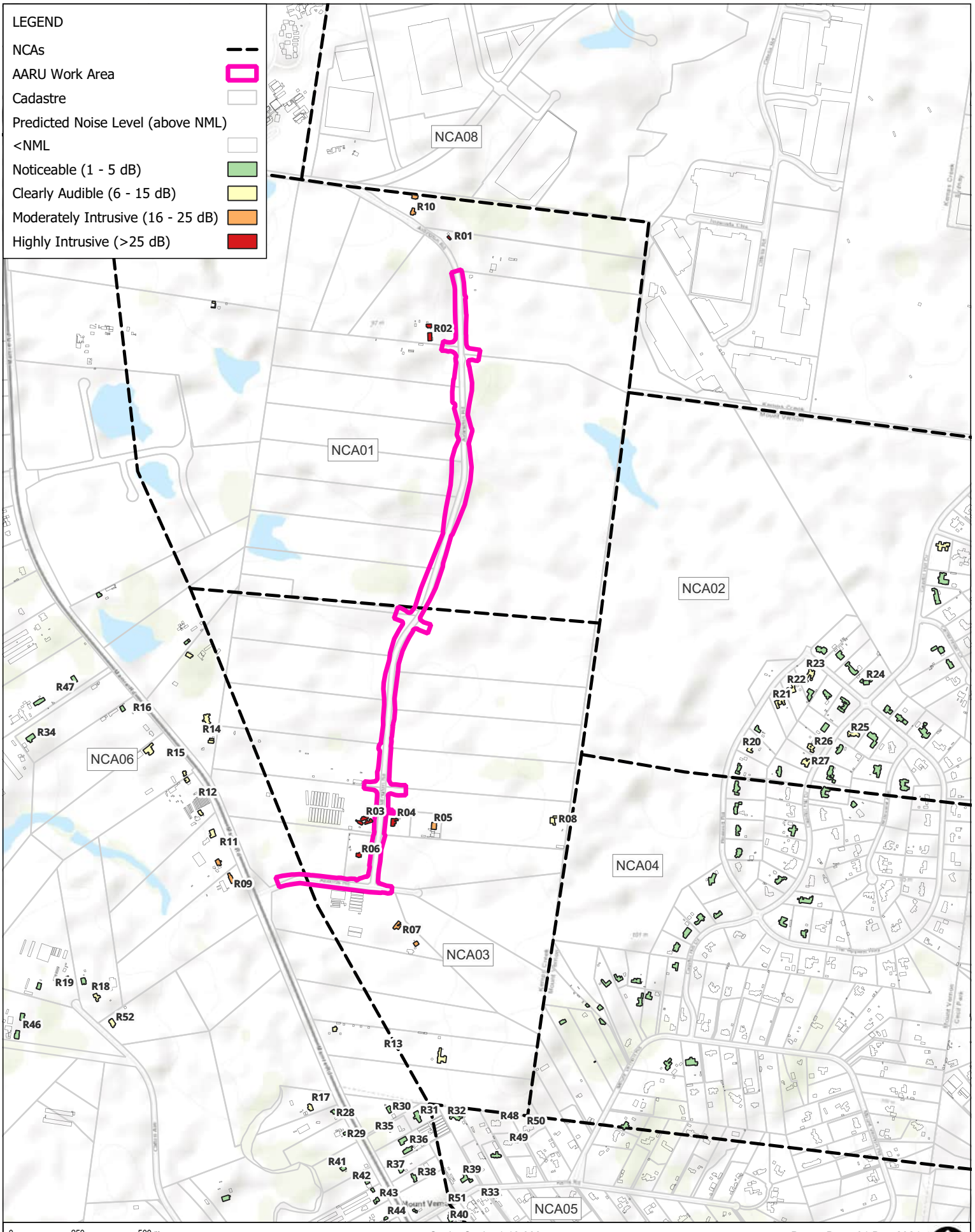
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.005 - Kerb and footpath - Approved Daytime Hours

Appendix C-8

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

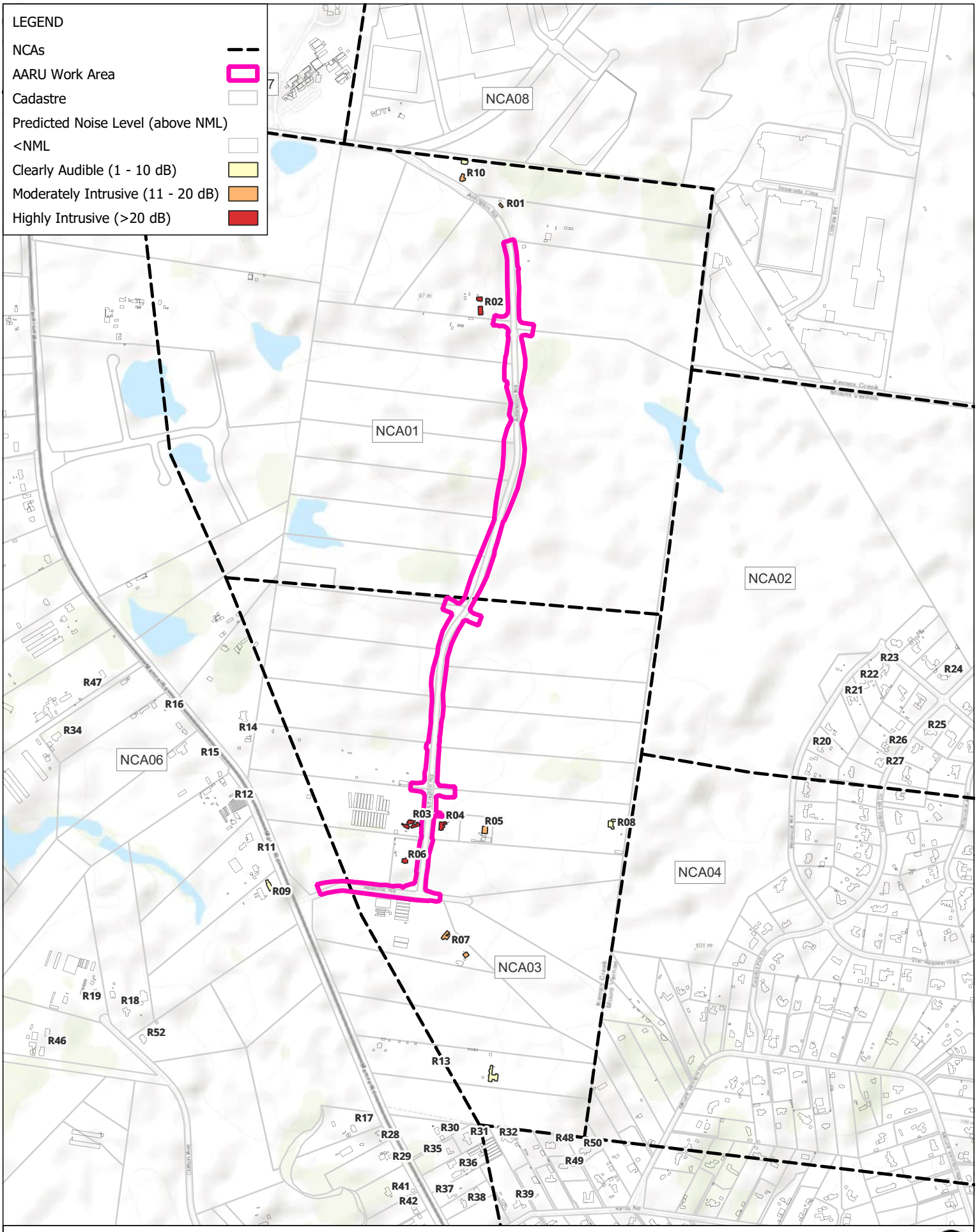
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.005 - Kerb and footpath - Out of Hours Night-time

Appendix C-9

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment for\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

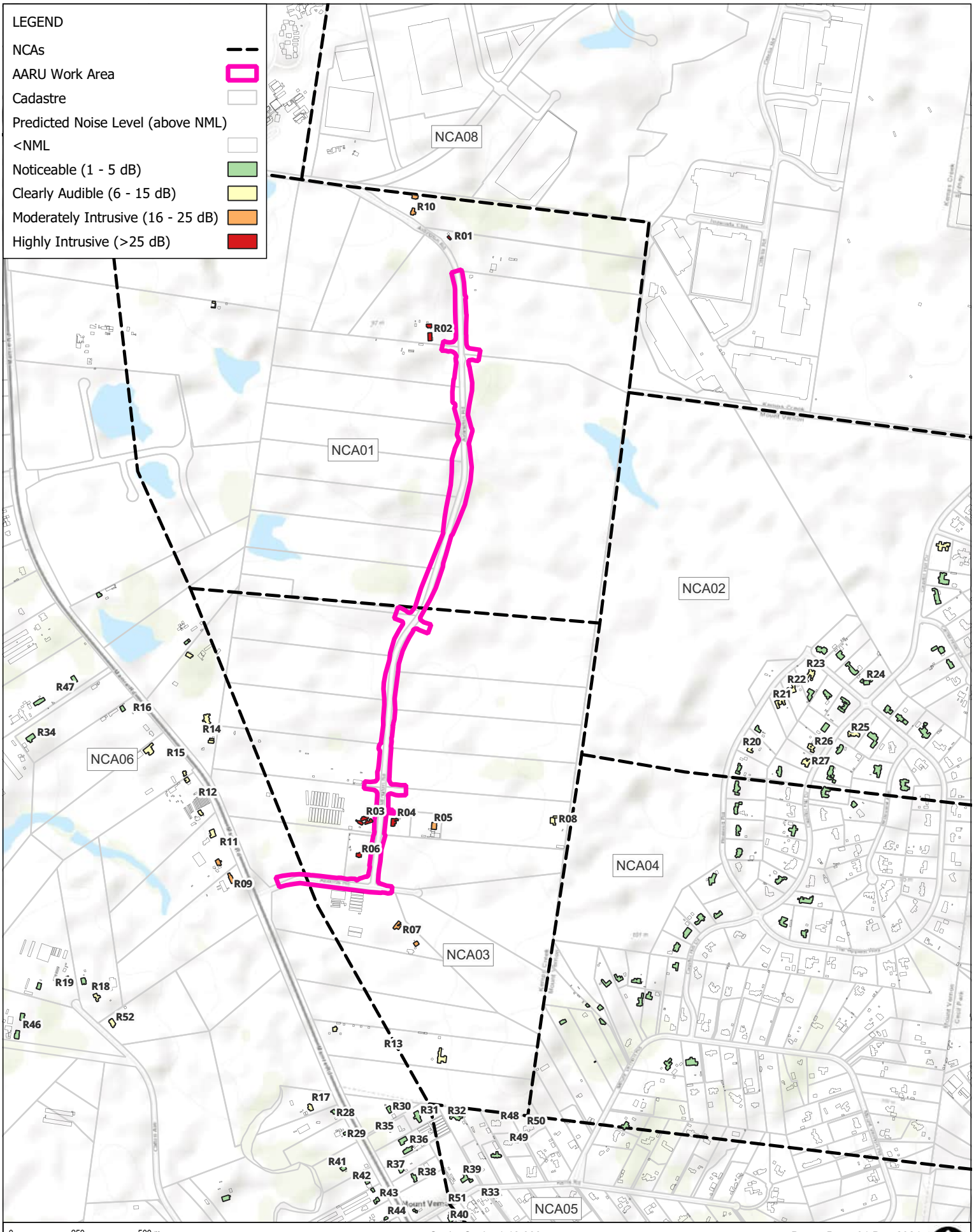
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.006 - Subbase and base - Approved Daytime Hours

Appendix C-10

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

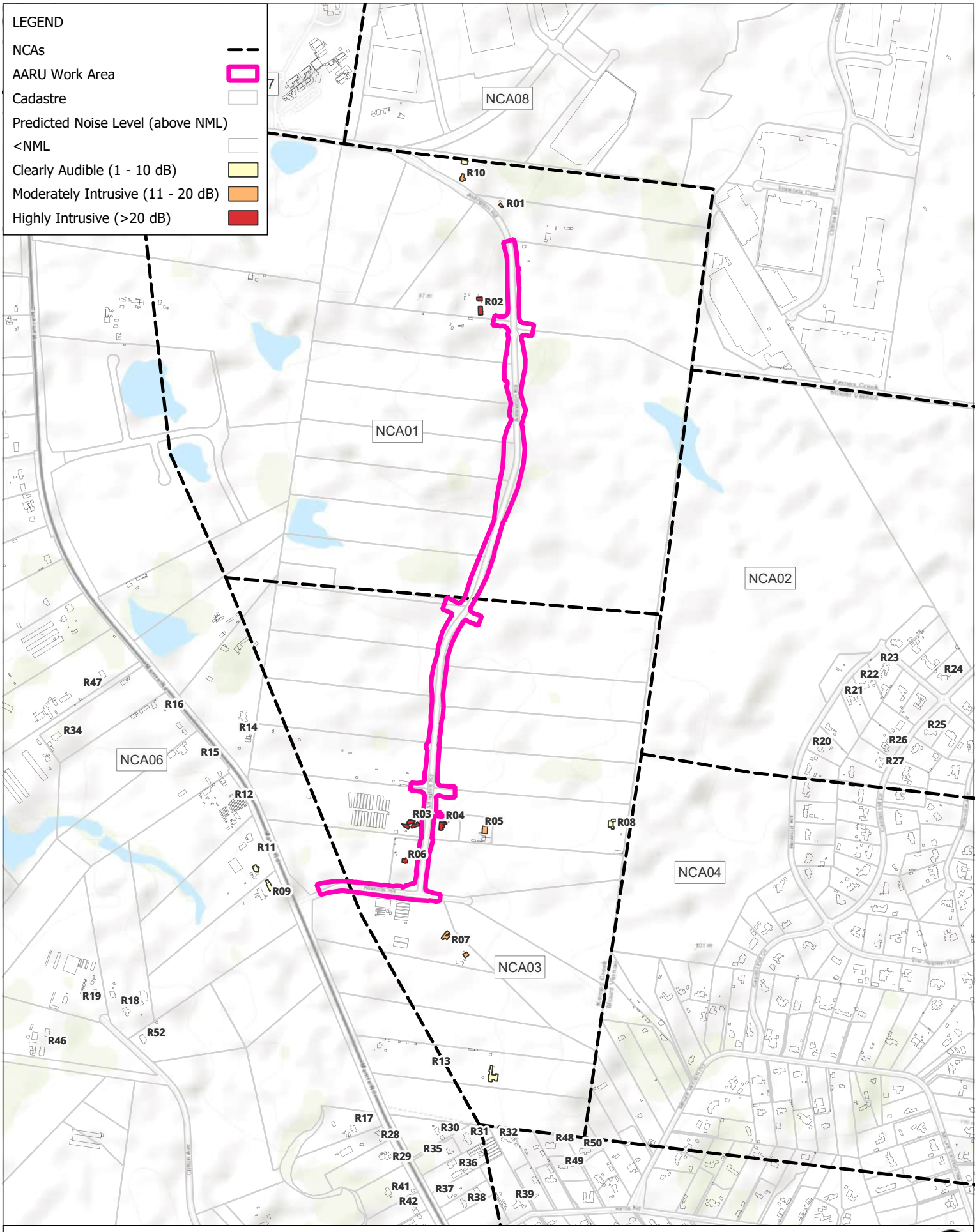
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.006 - Subbase and base - Out of Hours Night-time

Appendix C-11

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

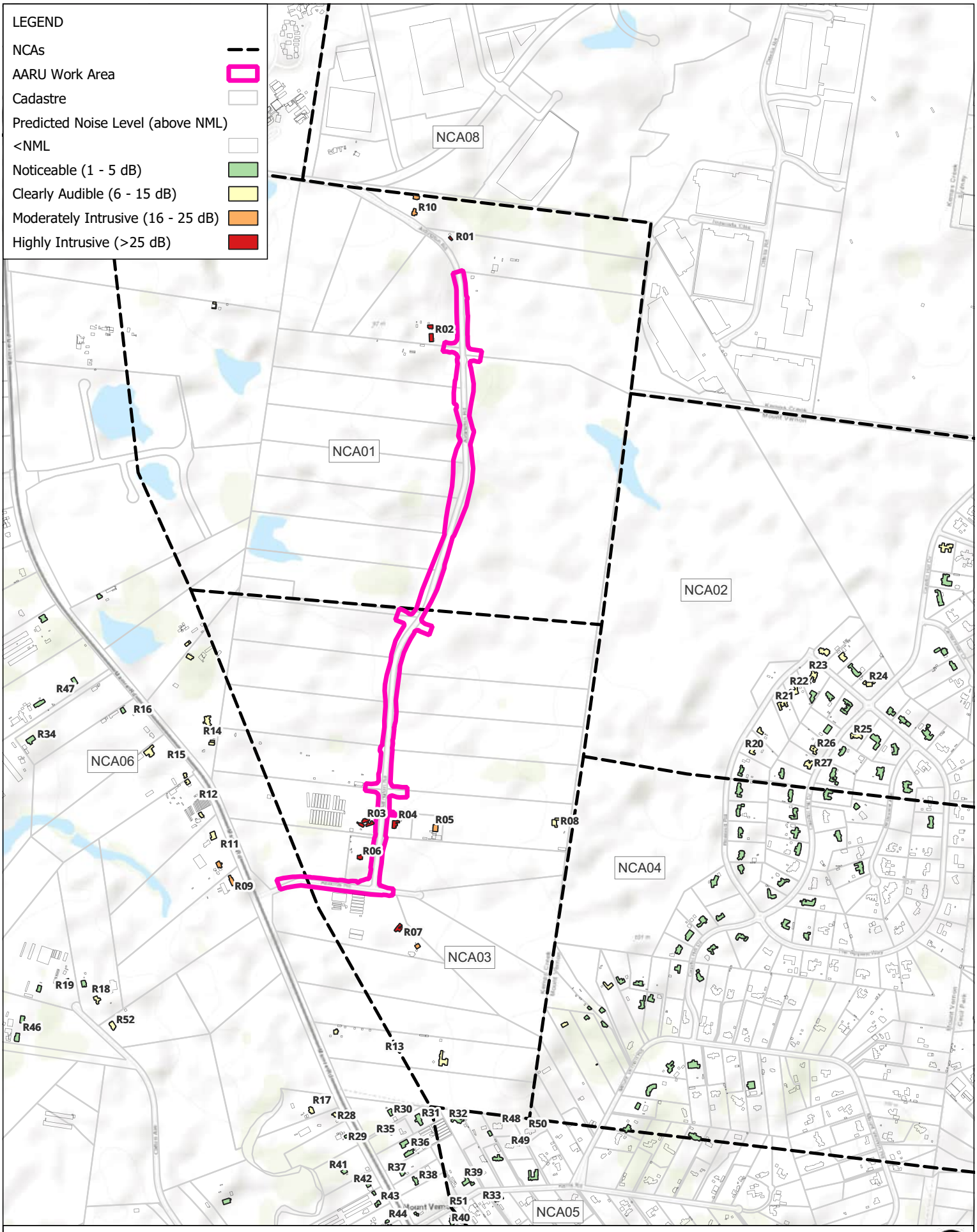
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.007 - Asphalting - Approved Daytime Hours

Appendix C-12

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

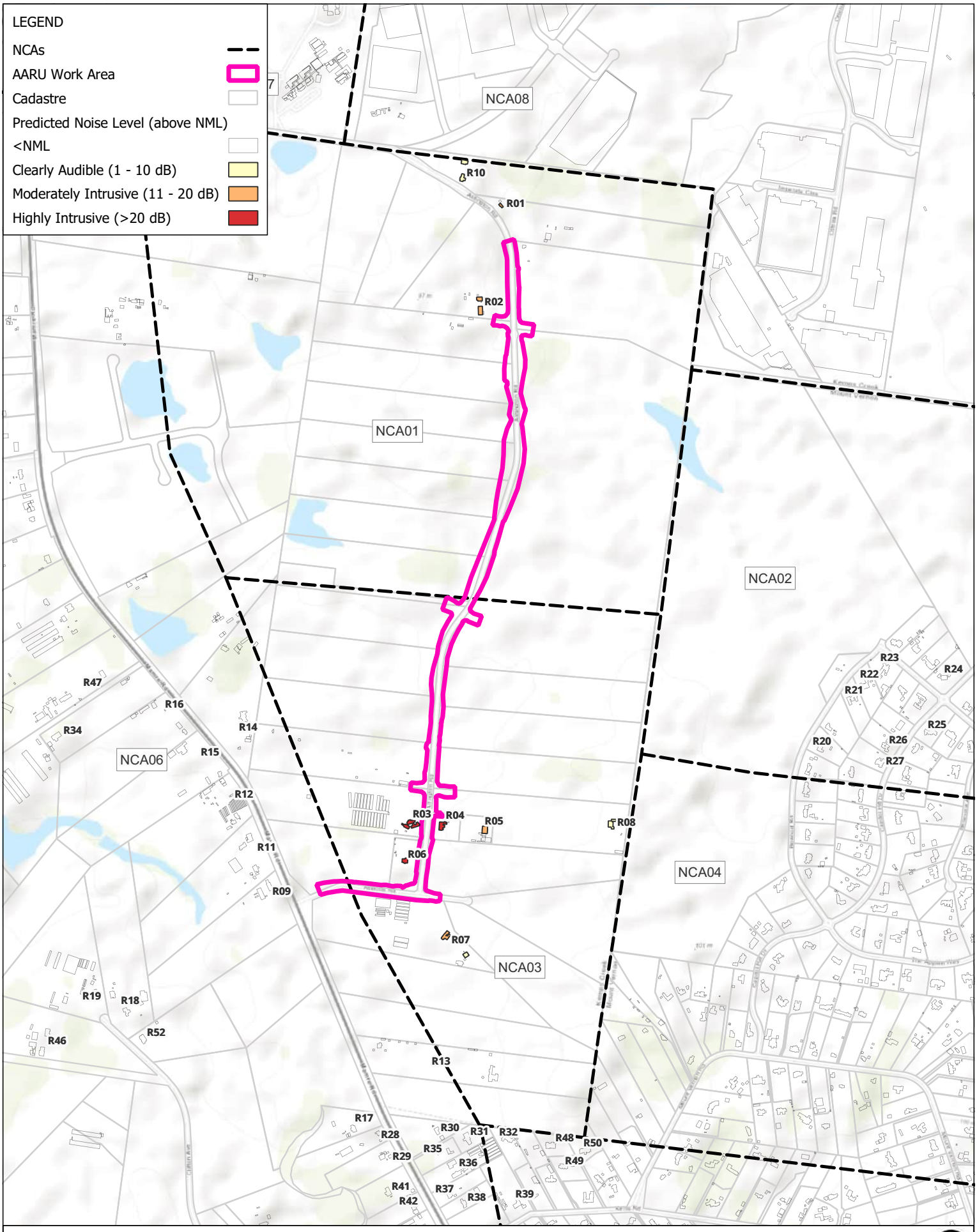
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.007 - Asphalting - Out of Hours Night-time

Appendix C-13

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

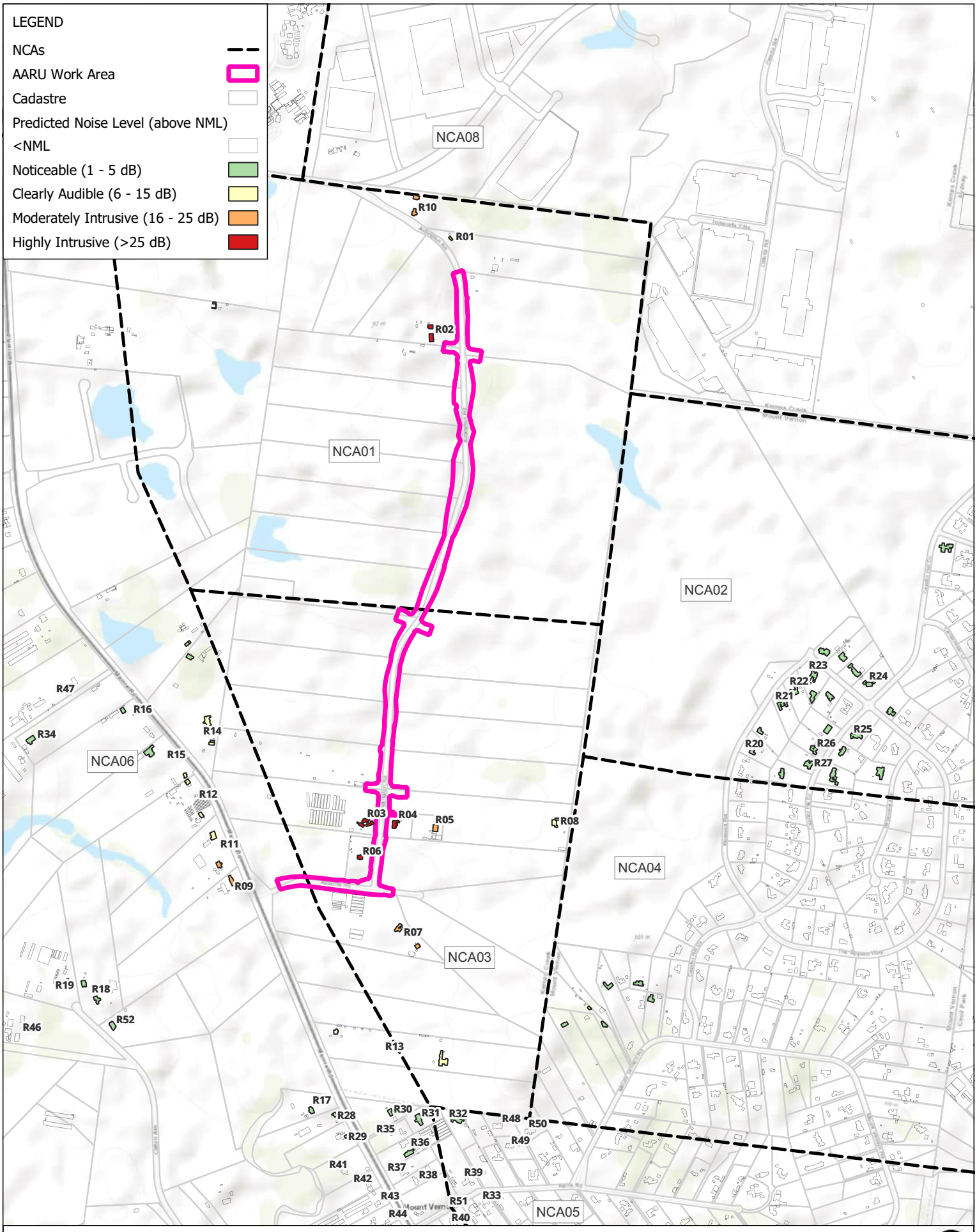
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.008 - Road furniture installation - Approved Daytime Hours

Appendix C-14

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

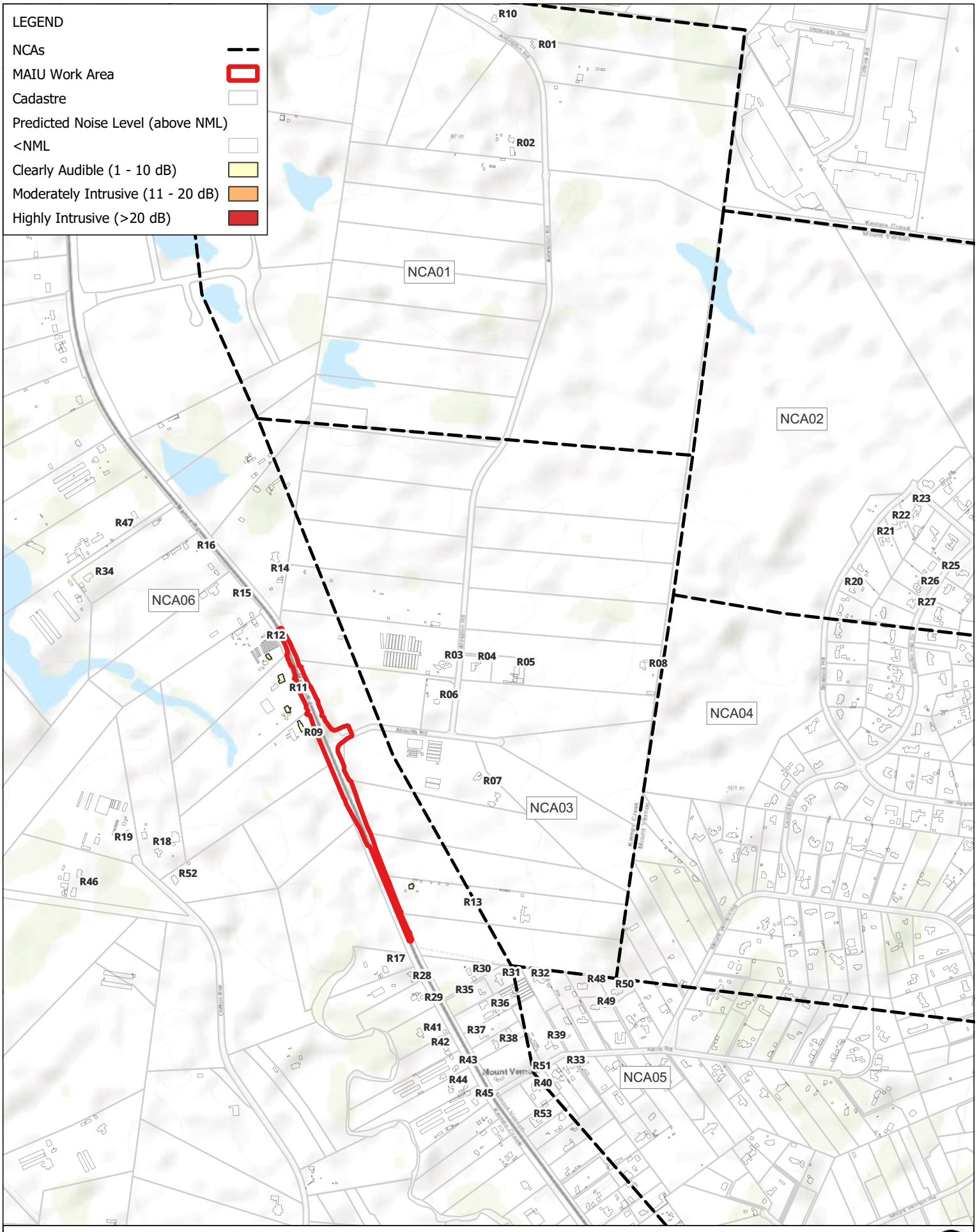
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.008 - Road furniture installation - Out of Hours Night-time

Appendix C-15

H:\Projects-SLR\610-SrvSYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

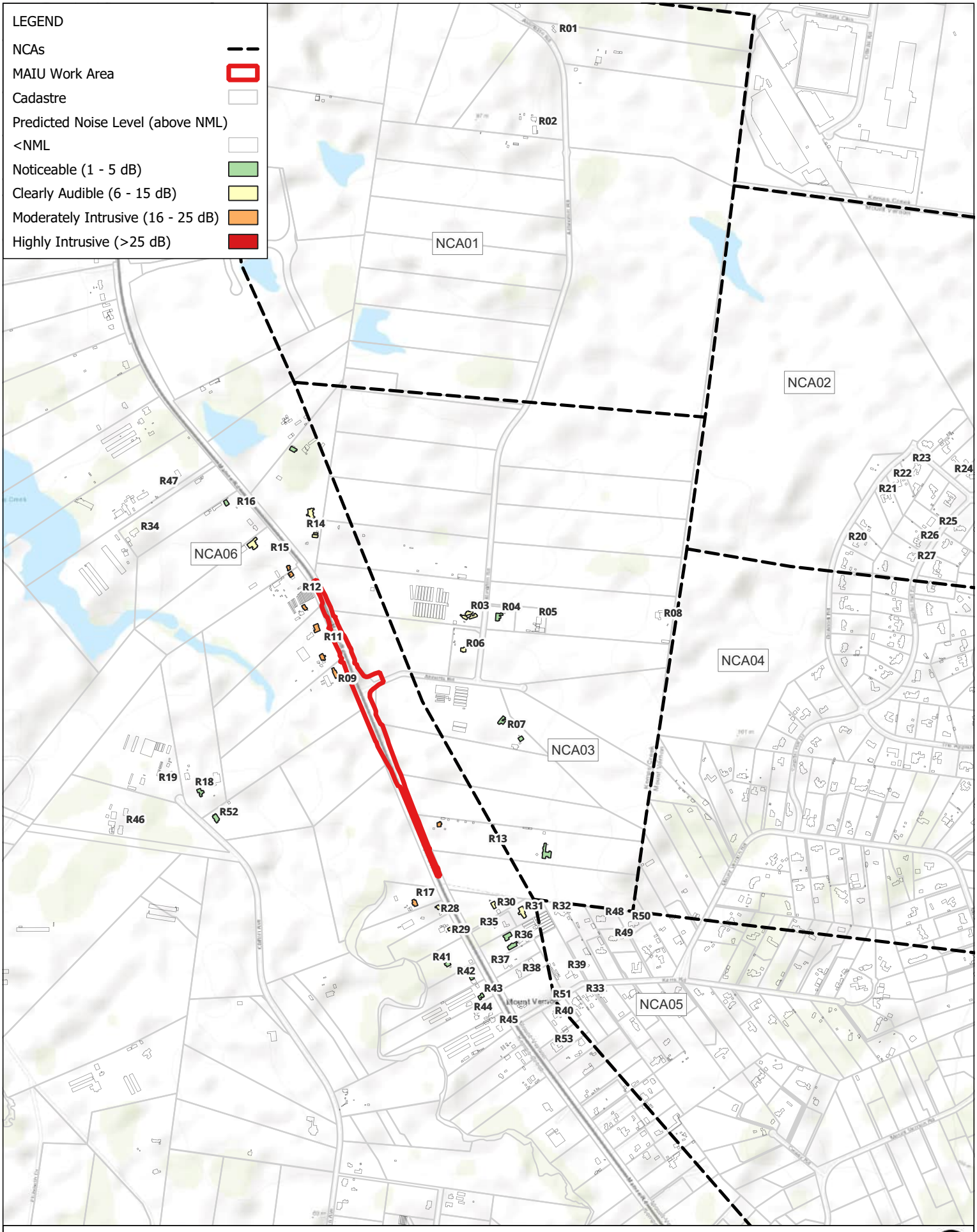
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.001 - Mobilisation, Site Establishment and Traffic Switches - Approved Daytime Hours

Appendix C-16

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

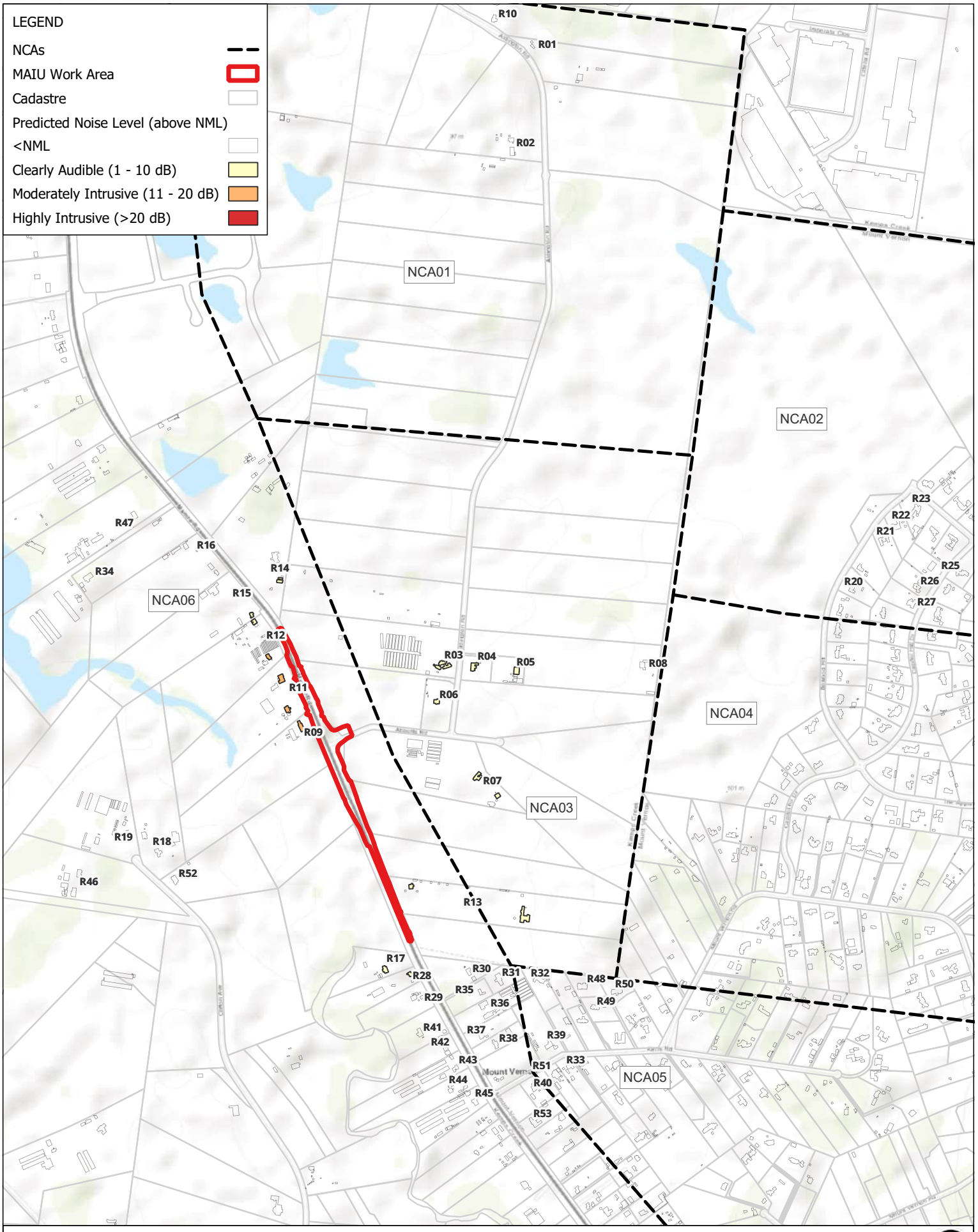
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.001 - Mobilisation, Site Establishment and Traffic Switches - Out of Hours Night-time

Appendix C-17

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

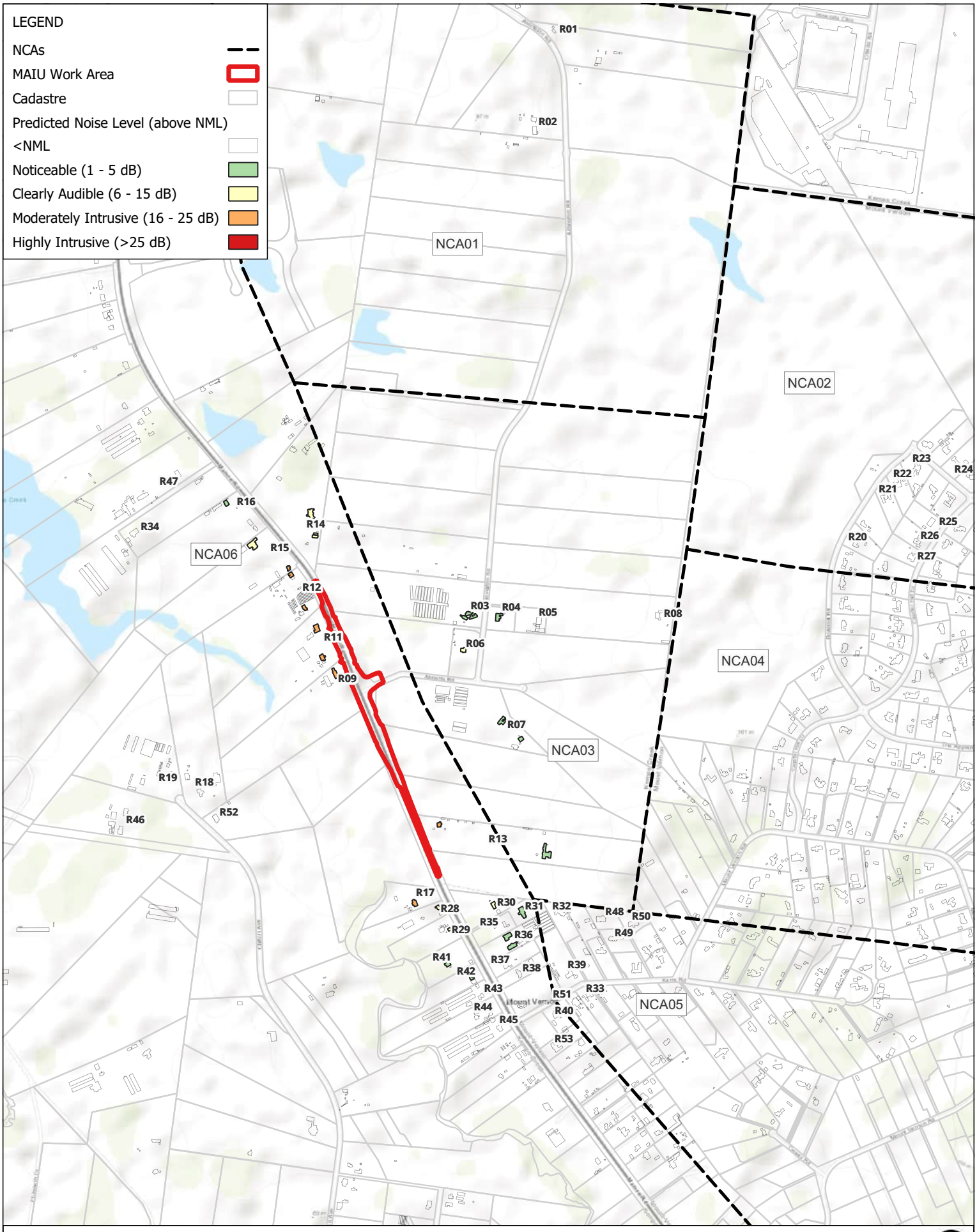
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.002a - Utility Relocations & Drainage Infrastructure - Approved Daytime Hours

Appendix C-18

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

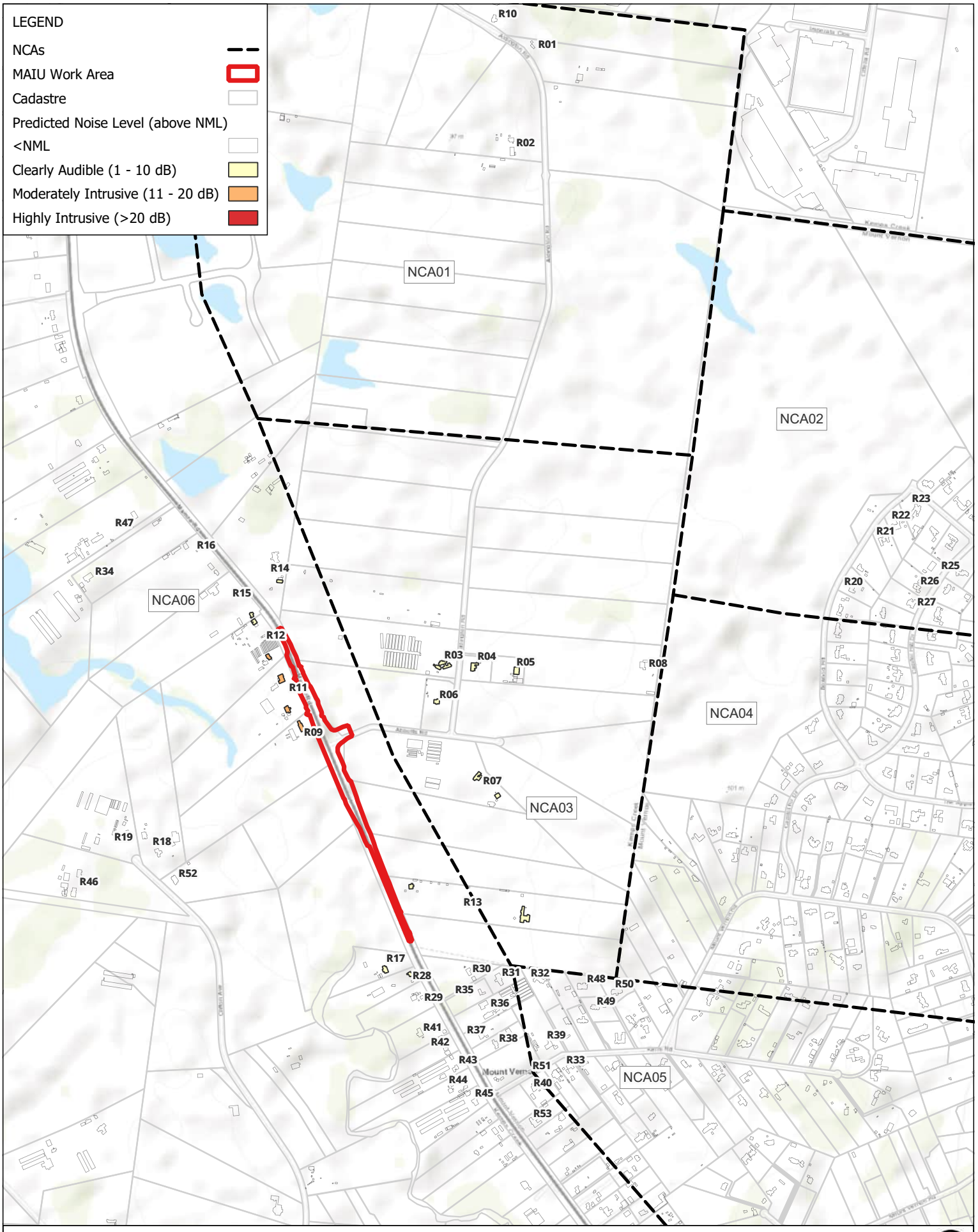
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.002b - Utility Relocations & Drainage Infrastructure (OOHW2) - Out of Hours Night-time

Appendix C-19

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fol\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

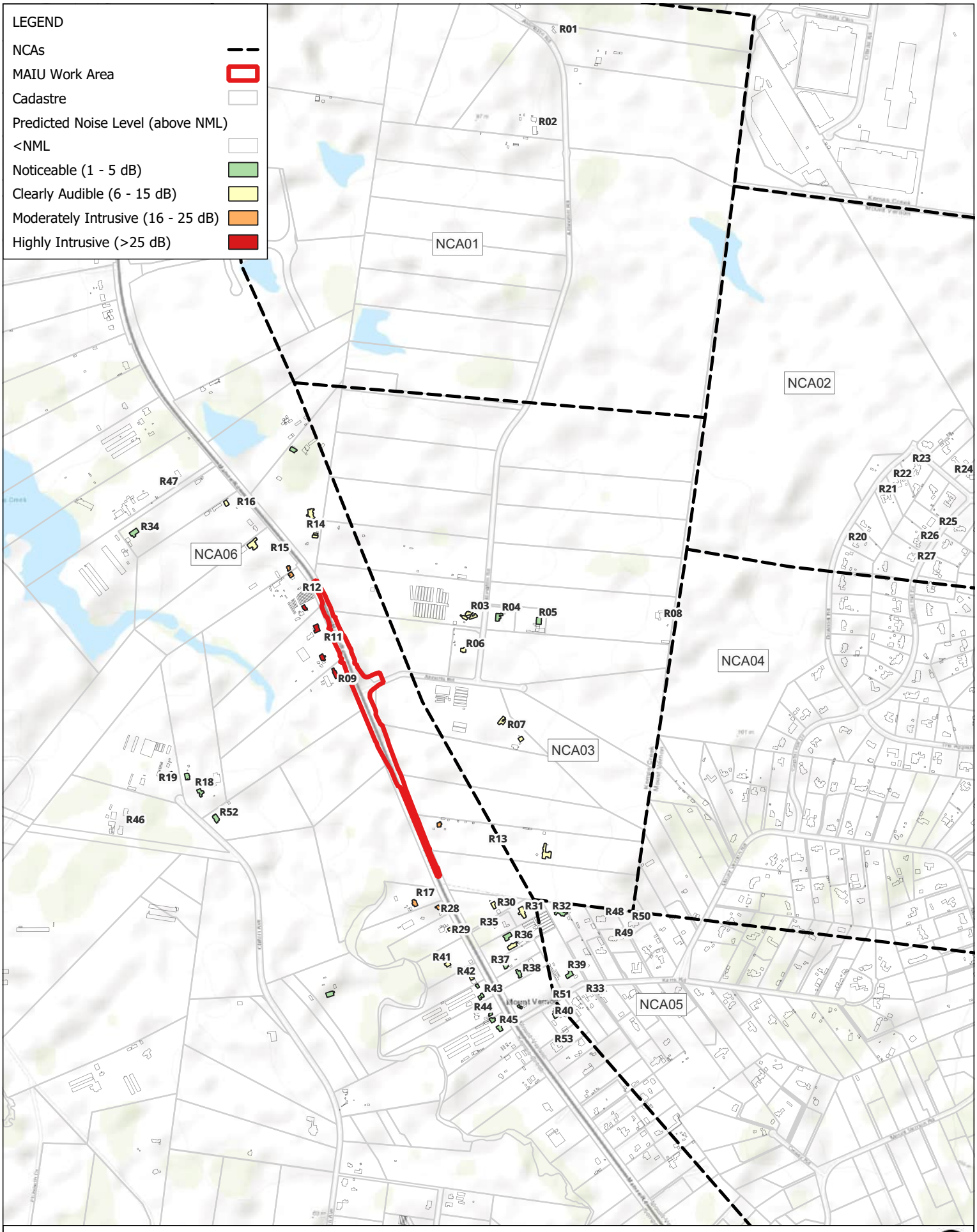
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.003a - Corridor clearing - Approved Daytime Hours

Appendix C-20

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

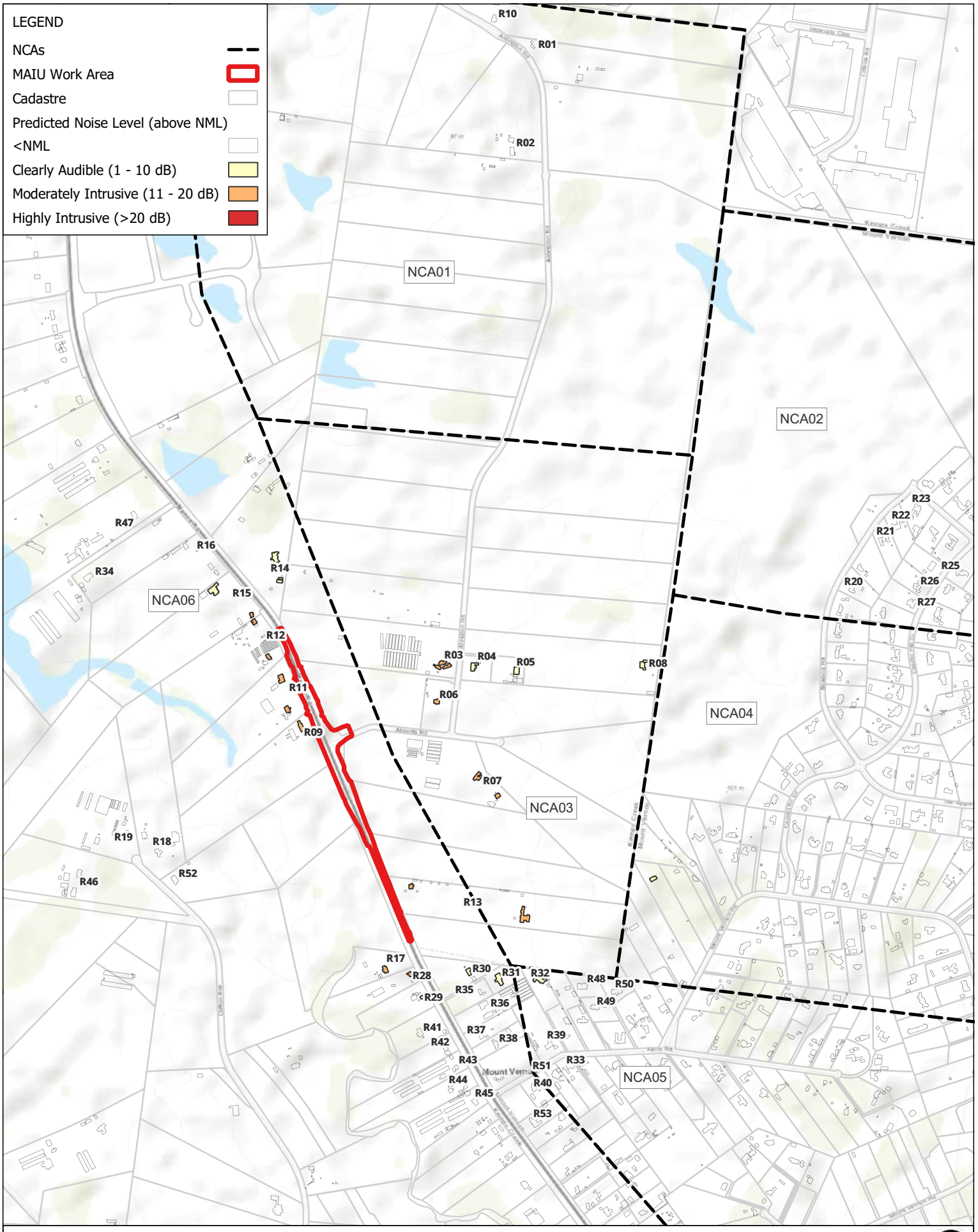
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.003b - Corridor clearing (OOHW) - Out of Hours Night-time

Appendix C-21

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment for\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

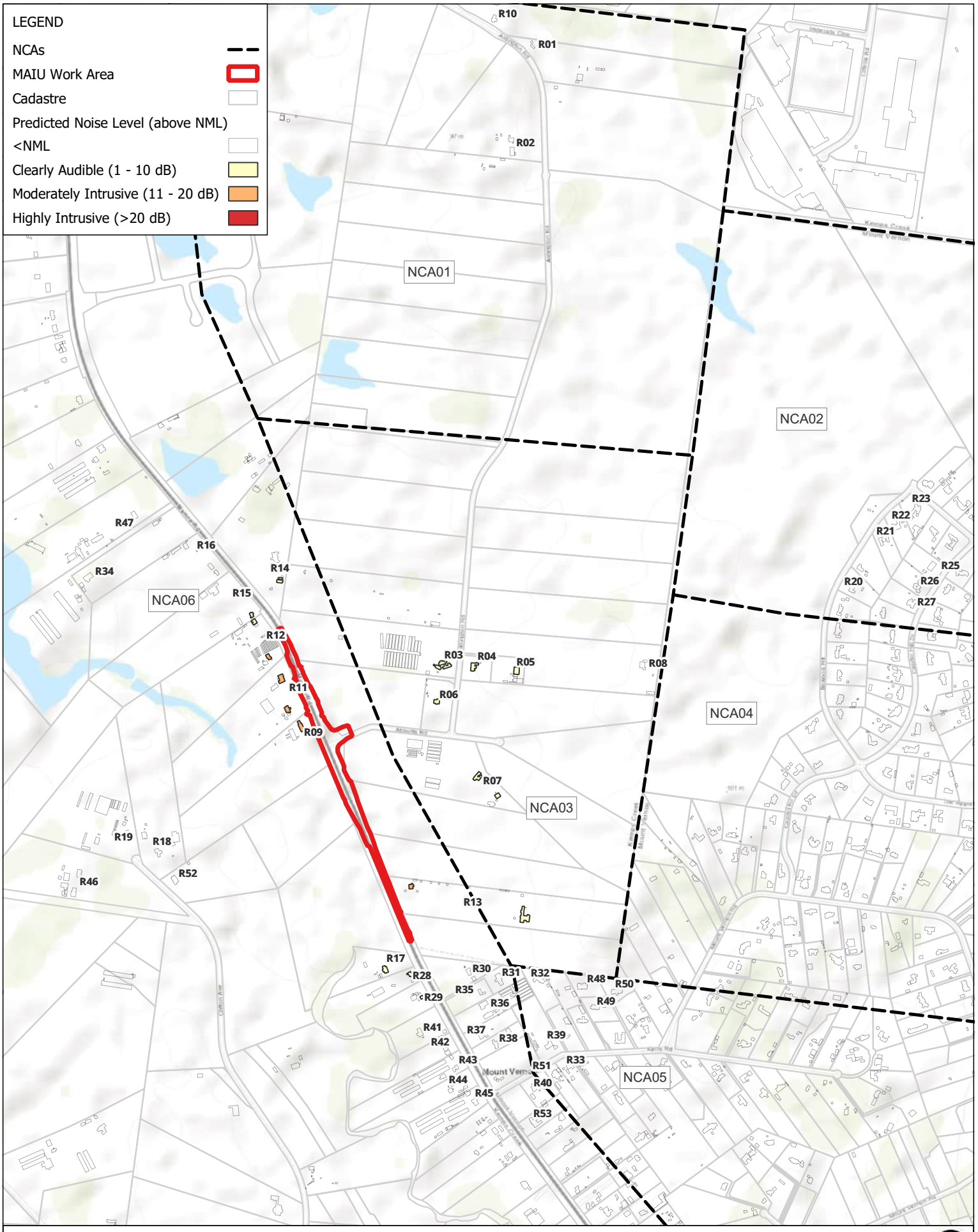
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.004 - Bulk earthworks - Approved Daytime Hours

Appendix C-22

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

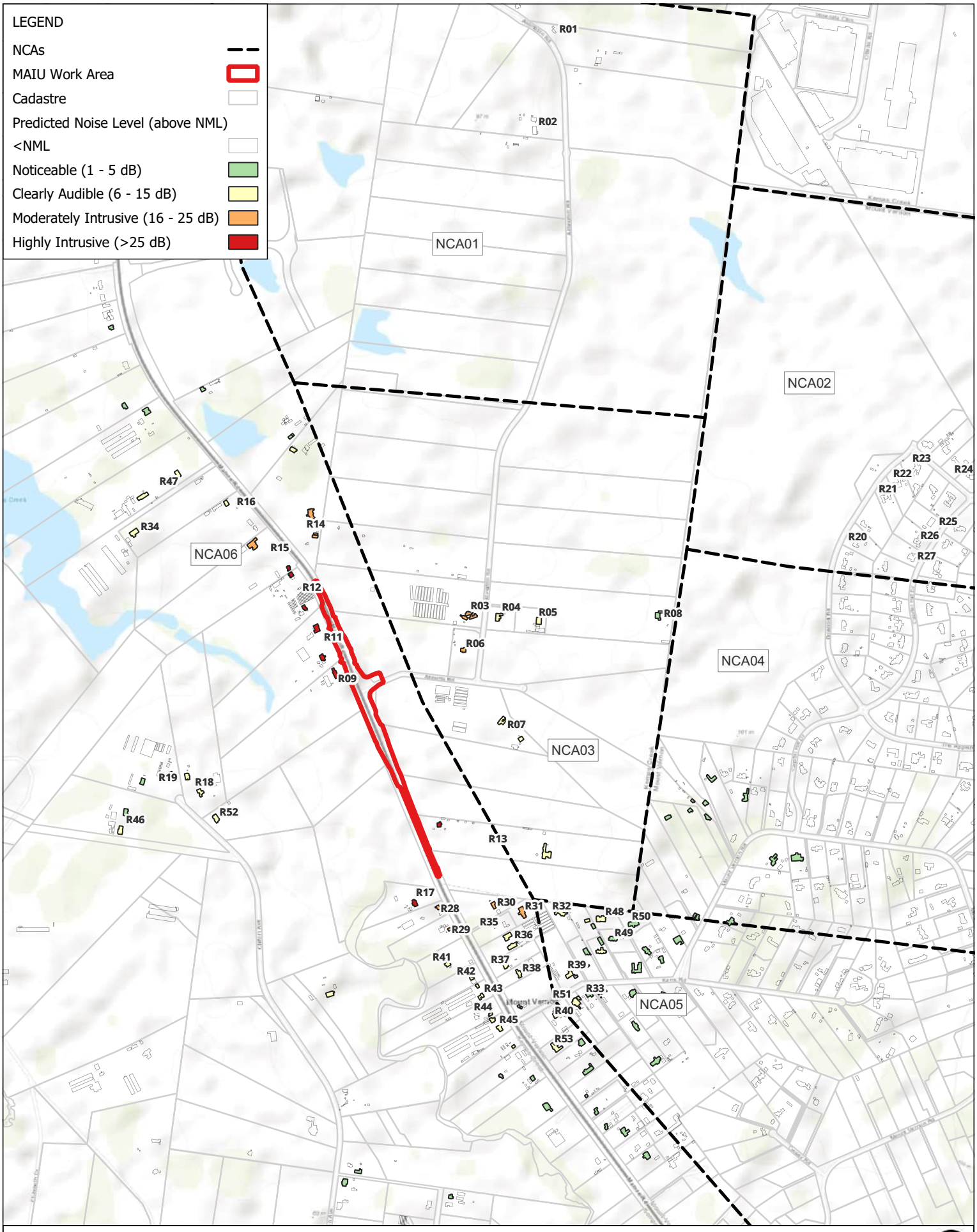
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.005 - Kerb and footpath - Approved Daytime Hours

Appendix C-23

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

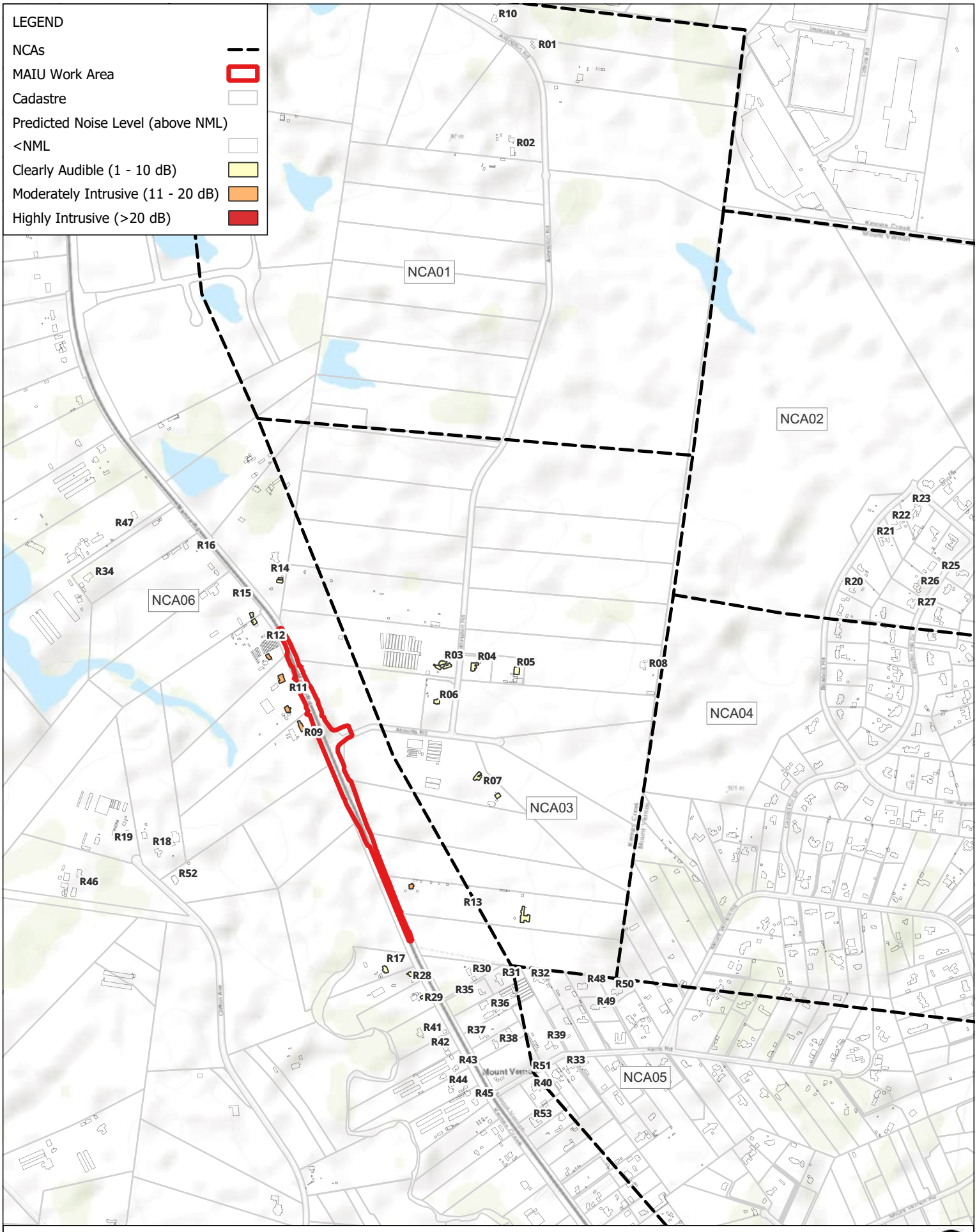
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.005 - Kerb and footpath - Out of Hours Night-time

Appendix C-24

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment for\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

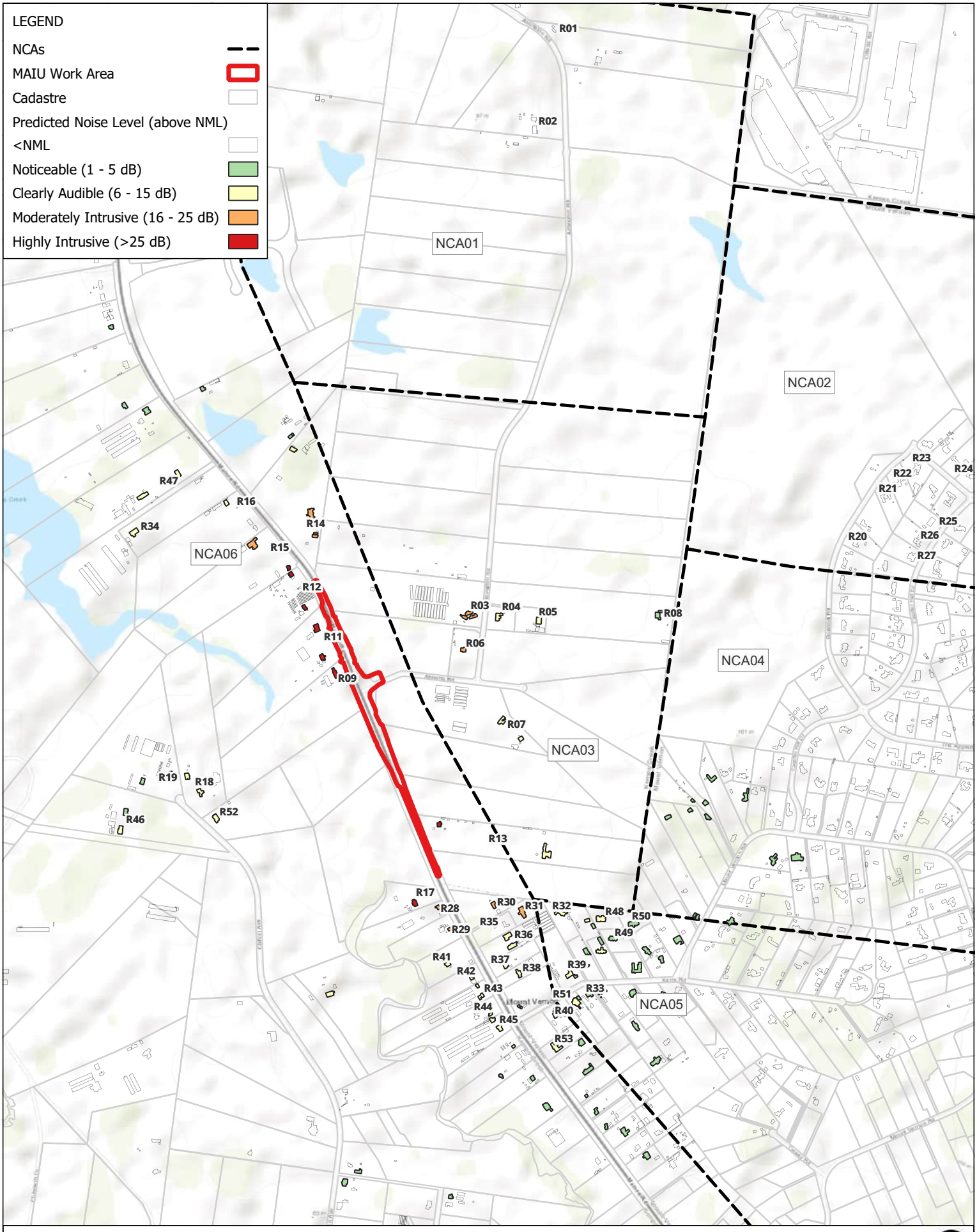
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.006 - Subbase and base - Approved Daytime Hours

Appendix C-25

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

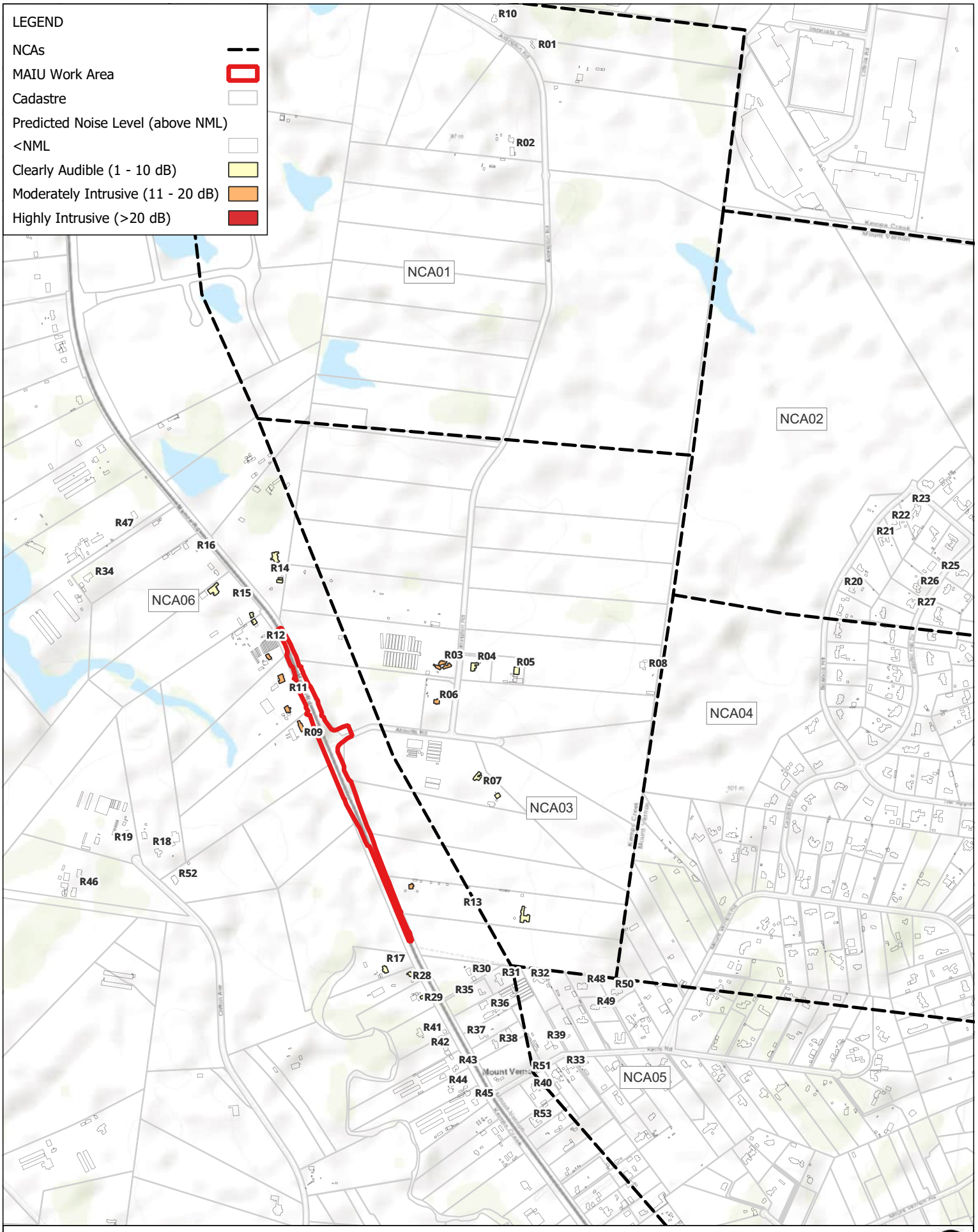
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.006 - Subbase and base - Out of Hours Night-time

Appendix C-26

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fol\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



Scale: Scale: 1:17,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

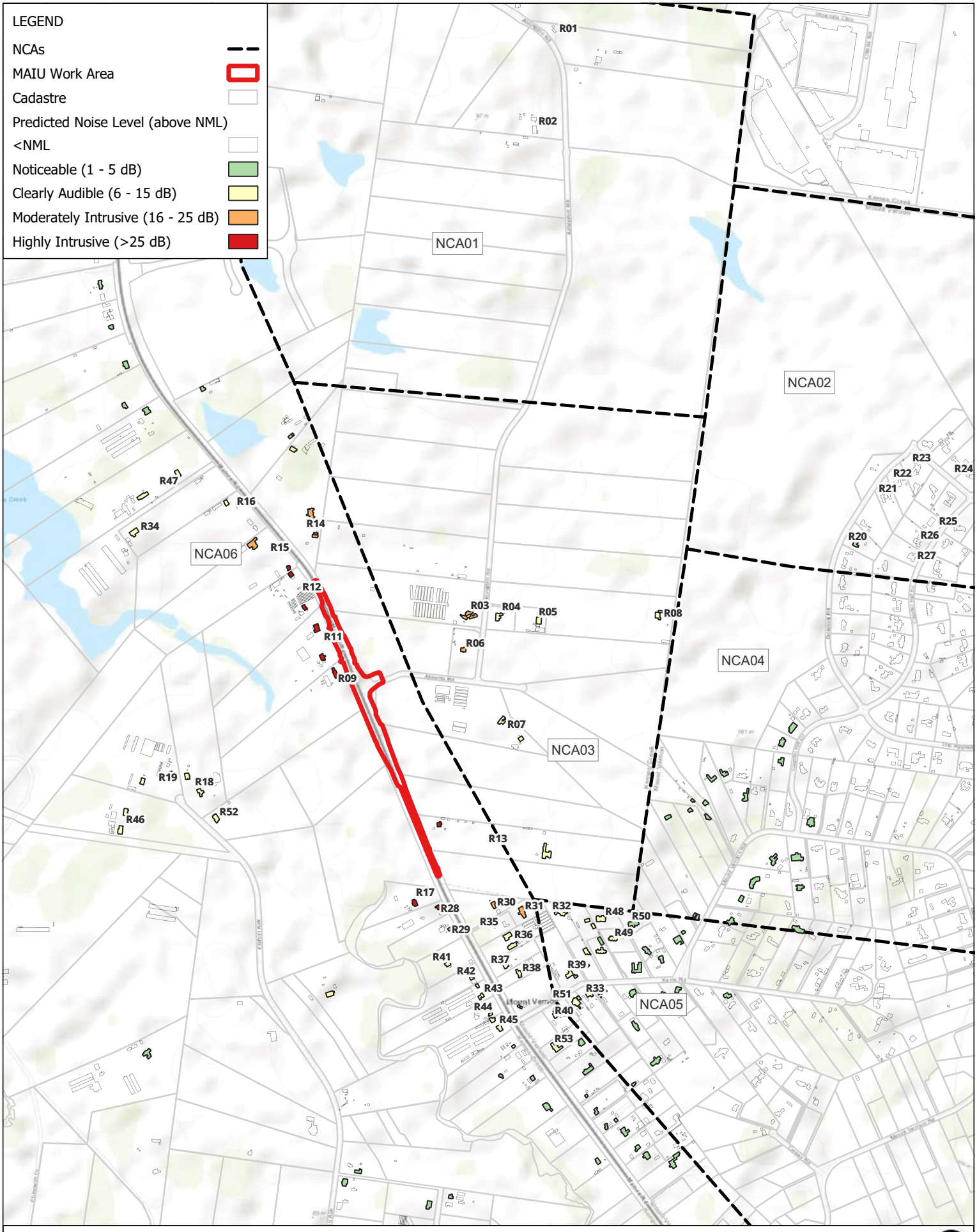
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.007 - Asphalting - Approved Daytime Hours

Appendix C-27

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fo\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



0 250 500 m

Scale: Scale: 1:18,000
Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

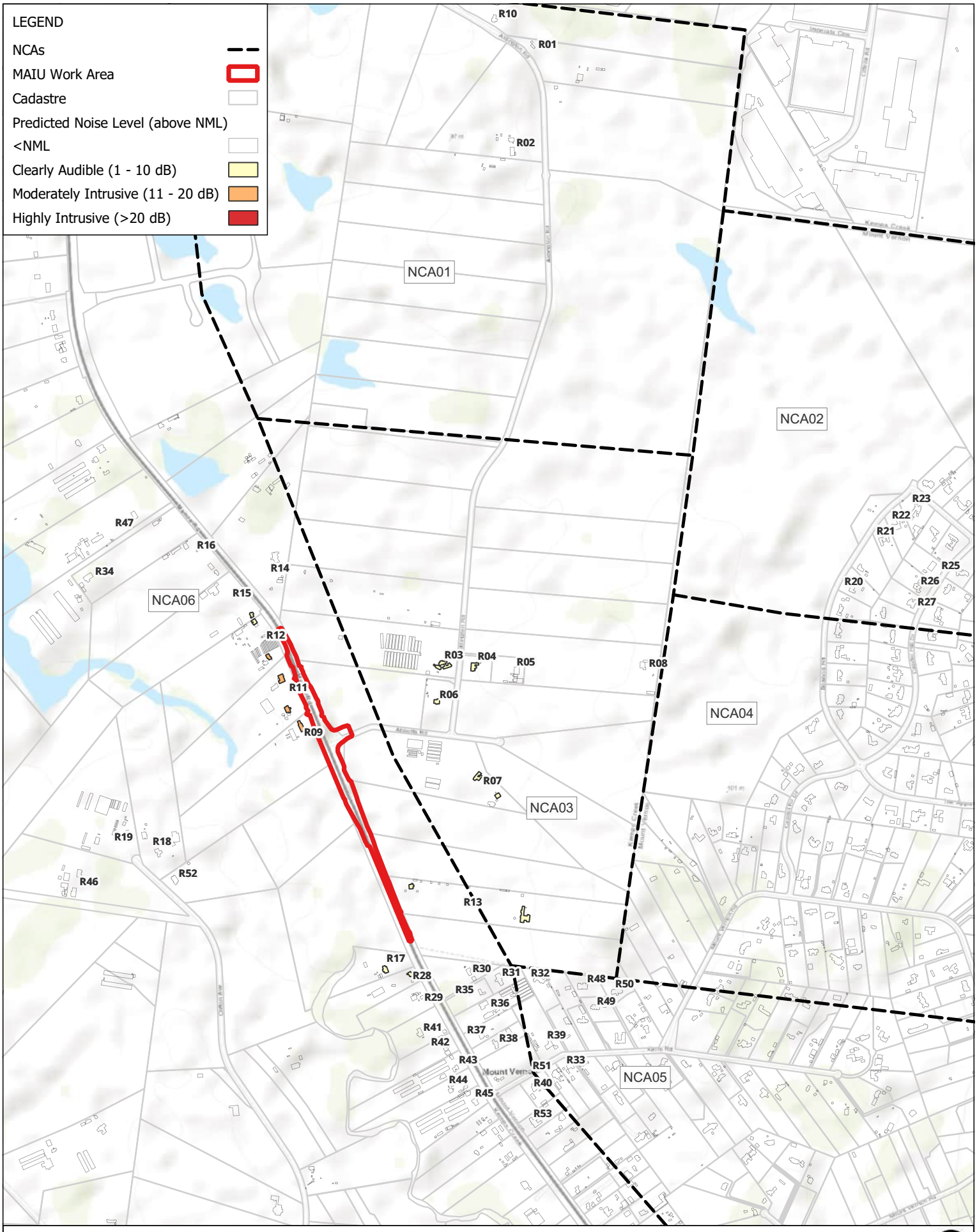
SLR

Data Source:
ESRI Topographic

Noise Impacts: W.007 - Asphalting - Out of Hours Night-time

Appendix C-28

H:\Projects-SLR\610-SrvSYD\610-SYD\610.31166.00000 Aldington Road Upgrade CNV Assessment fol\06 SLR Data\05 Modelling\02 QGIS\610.31166 - AARU-MAIU CNVMP.qgz



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Drawn Date: 04-Dec-2024
Project Number: 610.31166

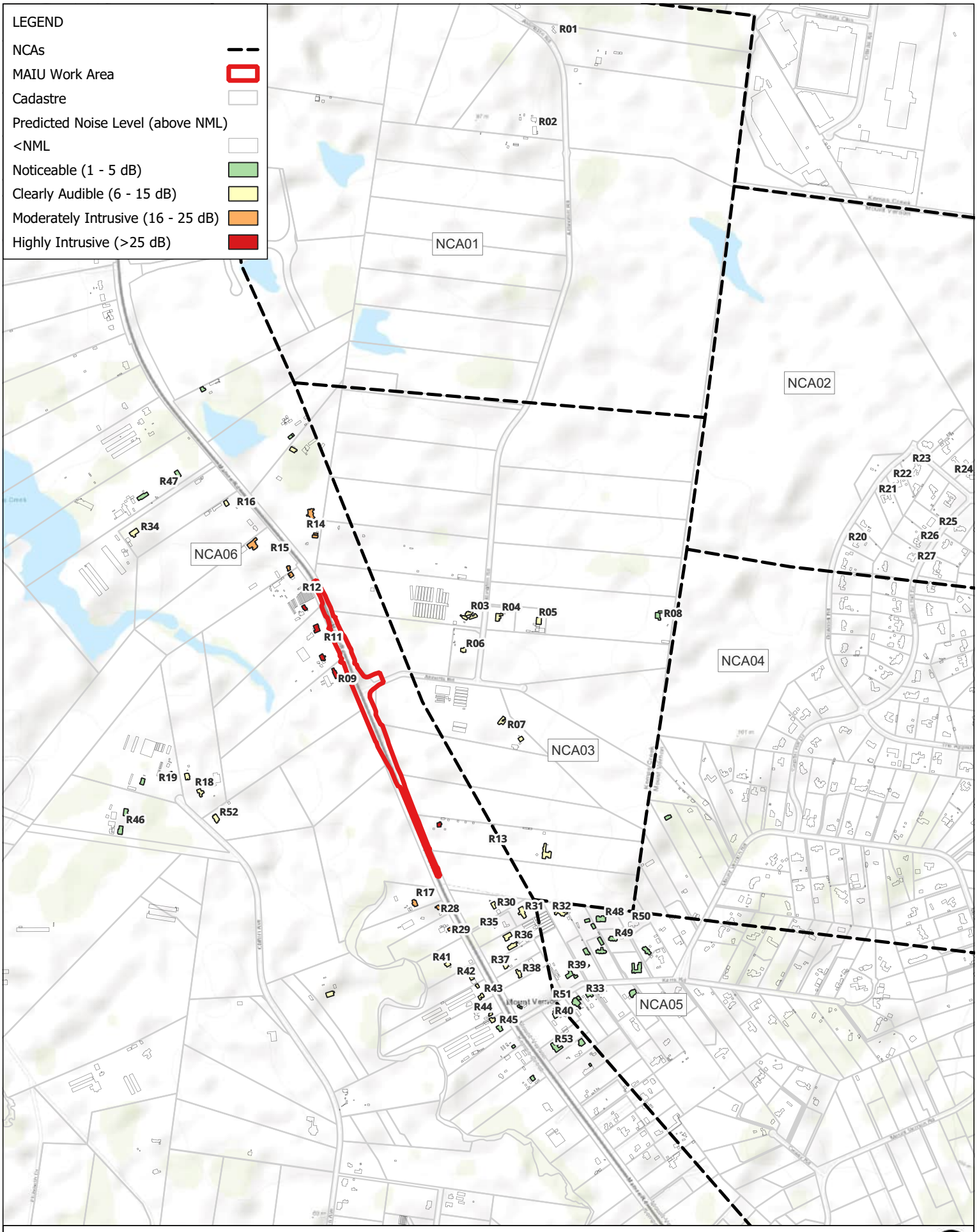
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Data Source:
ESRI Topographic

Noise Impacts: W.008 - Road furniture installation - Approved Daytime Hours

Appendix C-29

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Coordinate System: GDA2020 / MGA zone 56

Drawn Date: 04-Dec-2024
Project Number: 610.31166

SLR

Data Source:
ESRI Topographic

Noise Impacts: W.008 - Road furniture installation - Out of Hours Night-time

Appendix C-30

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Appendix D OOHW Protocol

Mamre - Abbotts Intersection Upgrade (MAIU) and Aldington - Abbotts Road Upgrade (AARU)

Construction Noise and Vibration Management Plan

LOG-E c/o AT&L

SLR Project No.: 610.31166.00000

3 June 2025

D.1 Relevant Conditions of Consent

Condition F41 allows work outside of the hours identified above in the following circumstances:

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

b) works agreed to in writing by the Planning Secretary;

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

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

Notwithstanding the conditions above, Condition F42 states that the following works may be undertaken out of hours:

a) installation of drainage infrastructure;

b) asphalting; and

c) other works required to be completed at night for safety reasons, as detailed in an approved Construction Traffic Management Plan (CTMP).

Note: Other works required to be completed at night for safety reasons in the CTMP include the following activities:

- Barrier placement/relocation
- Lime stabilisation
- DGB placement and compaction
- Asphalt placement
- Linemarking & signage

Condition F32 requires that the Applicant must prepare a Community Consultant Plan (CCP) for the Road Works to the satisfaction of the Planning Secretary. The plan must detail the mechanisms for regularly consulting with the nearest sensitive receivers and wider residential communities, to keep them informed above upcoming works, duration and any night-time or out of hours works. The Community Consultation Strategy and Complaints Handling Procedure (CCSCHP) for the MAIU and AARU projects is to be referred to for guidance on developing a CCP for OOHW.

D.2 Justification of Out-of-Hours Work

Due to the nature of the work, around 20 out-of-hours work (OOHW) shifts (e.g., weekend or nights) will also be required for the OOHW scenarios in **Table 12** of the CNVMP.

All work on or adjacent to roads would be carried out in accordance with a relevant Traffic Control Plan (TCP) and/or Road Occupancy Licence (ROL) to facilitate safe work near live traffic.

Where an ROL cannot be obtained for the approved Standard Construction Hours (refer **Section 5.2** of the CNVMP) and/or proposed works cannot be undertaken safely during these hours, some works will be required to be undertaken outside of standard hours.

D.3 Out-of-Hours Work Approval

Only works listed under Condition F41 and F42 are permissible during out-of-hours. For activities under Condition F41 and F42, implementation of mitigation measures as outlined in **Section 6.0** of the CNVMP will be required for all project work, including OOHW. Where residual noise impacts have been identified, additional mitigation measures will be implemented as per guidance provided in **Section 6.1** of the CNVMP.

For OOHW not permissible under Condition F41 and F42, the following approval process below must be followed:

1. LOG-E's Environmental Coordinator (EC) must prepare an OOHW Approval Request Form (see example provided in the attachment, below). The OOHW Approval Request Form requires details regarding the proposed OOHW activity and require justification for the OOHW works.
2. The completed OOHW Approval Request Form is to be provided to the Environmental Representation (ER) for review and the risk profile of the OOHW are to be confirmed; details regarding the OOHW risk profiles are outlined below.
3. Once the OOHW Approval Request Form is reviewed and risk factors confirmed by the ER, the OOHW Approval Request Form and Community Consultation Plan will be provided to the Planning Secretary for review and approval.
4. An approved OOHW Permit from the Planning Secretary is to be provided to the relevant construction team by the EC.

Following the OOHW, LOG-E should review any collected noise and vibration monitoring data, mitigation measures and lessons learned to minimise future risk and impacts.

D.4 Out-of-Hours Work Risk Profiles

The factors relating to the risk profiles for OOHW detailed in the CNVG are replicated in **Table D1**.

Table D1 Risk Profiles for OOHW

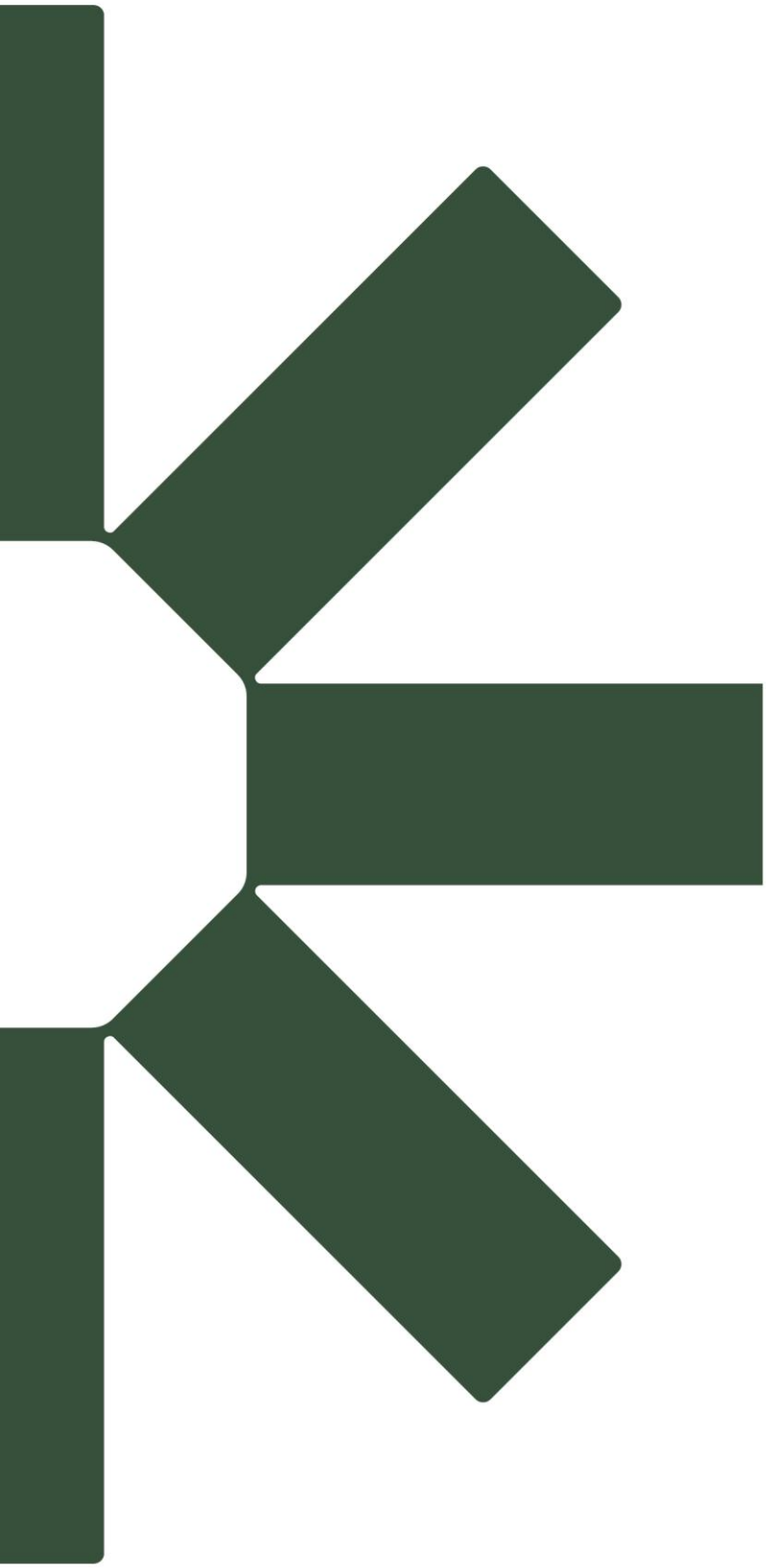
Low Risk Factors	Medium Risk Factors	High Risk Factors
• No sleep disturbance • 6 pm to 10 pm on weekdays • 1 pm to 10 pm on Saturdays • 8 am to 6 pm on Sundays and public holidays • 1 or 2 OOHW occurrences • No impulsive or tonal noise vibration	• Sleep disturbance risk • 10 pm to 7 am on weekday nights • 10 pm to 8 am on Saturday nights • 6 pm to 7 am Sunday and public holiday nights	• Prolonged work (ie greater than 1 week) • Sleep disturbance possible • Impulsive noise or vibration likely (eg vibratory rolling or rock breaking)

Attachment - Out of Hours Work Approval Request Form

Out of Hours Work (OOHW) Approval Request Form Mamre-Abbots Intersection Upgrade (MAIU) or Aldington Abbotts Road Upgrade (AARU)			
Project name	Notification date	Approval date	
Position	Name	Mobile number and email	
Contractor Environment Coordinator			
Contractor Construction Manager			
Contractor Foreman/Site Supervisor			
Contractor Project Engineer			
Details of work			
Location			
Affected NCAs			
Justification of works			
Typical plant and equipment to be used			
Plant and equipment list checked by construction personnel ordering plant/equipment	Name	Signature	Date checked
Traffic control measures required			
Lighting required			
Proposed mitigation measures			
Proposed date of works			
Proposed timings			

Risk factor category	
Low/Medium/High?	
Evidence of risk confirmation from the ER	
Details of noise or vibration assessment completed	
Provide details of quantitative assessments for all proposed works, including predicted noise levels, potential noise exceedances against relevant NMLs, potentially affected sensitive receivers and proposed management measures in accordance with ICNG and CNVG. Where alternative accommodation or other agreed mitigation is triggered, include details of and offers made to qualifying residents	
Review/Endorsements	
TfNSW and Sustainability Manager (or delegate) notified?	Yes/No – Date:
	Comments
Project Manager notified?	Yes/No – Date:
	Comments
Environment Representative notified?	Yes/No – Date:
	Comments
Community notified?	Yes/No – Date:
	Comments
Community and Community Liaison Representative	Provide details of consultation with affected receivers, in accordance with Community Consultation Strategy and Complaints Handling Procedure
	Have the works been reviewed and endorsed by Planning Secretary? Yes/No
	Comments

<table>
<tr><th colspan="4">Approvals</th></tr>
<tr><td>Environment Representative reviewed/approved?</td><td colspan="3">Yes/No
Attach approval letter or evidence of approval</td></tr>
<tr><td>Planning Secretary reviewed/approved?</td><td colspan="3">Yes/No
Attach approval letter or evidence of approval</td></tr>
<tr><td rowspan="4">Contractor Project Manager</td><td colspan="3">Are the works approved for commencement? Yes/No</td></tr>
<tr><td>Name</td><td>Signature</td><td>Date</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td colspan="3">Comments</td></tr>
</table>



Making Sustainability Happen

Appendix D Construction Air Quality Management Plan

Mamre Abbotts Intersection Upgrade (MAIU) and Aldington and Abbott's Road Upgrade (AARU)

Construction Air Quality Management Plan

LOG-E c/- AT&L

Level 7 153 Walker Street
North Sydney NSW 2060

Prepared by:

SLR Consulting Australia Pty Ltd

Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street, North Sydney NSW 2060, Australia

SLR Project No.: 610.31166.00000

4 March 2025

Revision: V2.3

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
V2.3	4 March 2025	F Jafarigol	Varun Marwaha	Varun Marwaha
V2.2	14 February 2025	Danny Echeverri	Varun Marwaha	Varun Marwaha
V2.1	20 January 2025	Danny Echeverri	Varun Marwaha	Varun Marwaha
V2.0	4 December 2024	Sahar Bagheri	Varun Marwaha	Varun Marwaha
V1.0	31 July 2024	Sahar Bagheri	Varun Marwaha	Varun Marwaha
	Click to enter a date.			
	Click to enter a date.			

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 LOG-E c/- AT&L (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.

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Appendix D **Air Quality Notification Form**
Appendix E **Curriculum Vitae of Author**

1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by AT&L on behalf of the LOG-E to prepare a Construction Air Quality Management Plan (CAQMP) for the proposed Mamre Abbotts Intersection Upgrade (MAIU) and Aldington and Abbott's Road Upgrade (AARU) Project (the Project).

The Project involves upgrade and widening of Aldington and Abbotts Roads and upgrades to the Mamre Road and Abbotts Road intersection and aims to provide for the development of land within the Mamre Road Precinct. The upgrade is being progressed by the developer group known as the Landowners Group – East (LOG-E) and is linked to their proposed developments which are accessed via Mamre Road, Abbotts Road and Aldington Road (the Project site).

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.

1.2 Statutory Requirements

The Development Consents' requirements stipulated for the construction of the Project site (SSD-10479) and where they have been addressed in this CAQMP are shown in **Table 1**.

Table 1 Assessment against the Development Consents' Conditions

Condition Number SSD-10479	Conditions	Response / Section Reference
Construction Air Quality Management Plan		
F36d)	(a) an air quality management plan prepared in accordance with the Good Practice Guide for the Assessment and Management of Air Pollution from Road Transport Projects, CASANZ 2023, detailing the location and duration of dust controls, details of monitoring and triggers for implementation of additional dust controls if required;	This CAQMP

The risk assessment and management framework outlined in Good Practice Guide for the Assessment and Management of Air Pollution from Road Transport Projects (CASANZ 2023) (from here on 'Good Practice Guide') was prepared in accordance with those prescribed by the Institute of Air Quality Management (IAQM). This CAQMP has completed the following in accordance with the IAQM and the Good Practice Guide:

- assessed the construction air quality impacts,
- listed the air quality management measures and

- listed the triggers for implementation of additional dust controls (if required)

2.0 Project Overview

2.1 The Project

The concept design for the upgrade and widening of Aldington and Abbotts Roads is expected to include approximately 2,300 m of Aldington Rd and approximately 400 m of Abbotts Road. The upgrade of Mamre Road (for TfNSW) /Abbotts Road intersection is expected to include widening 600 m south of the intersection and 200 m north of the intersection. The upgrade includes widening within the western end of Lot 1 DP250002 (north of Abbotts Road). There is no widening within the private property to the south of Abbotts Road (Lot 2 DP250002). These areas are defined as the subject Area of this CAQMP. The overall project includes land acquisition by Penrith City Council or dedication by landowners, to accommodate for the upgrade and widening. The subject area of this CAQMP is shown in **Figure 1**.

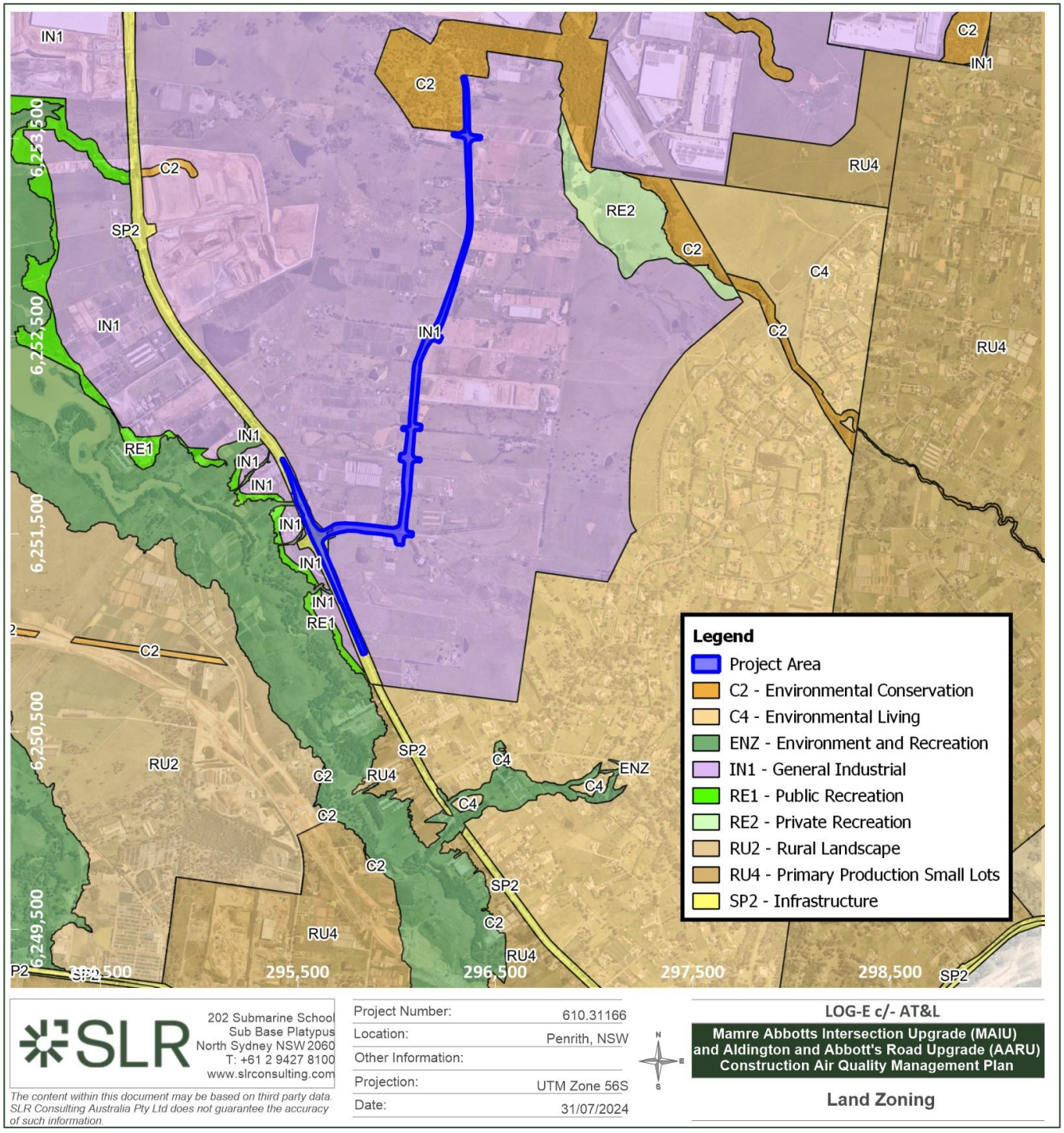
Figure 1 Project Layout



2.2 Surrounding Land Uses

As illustrated in **Figure 2**, the areas subject to AARU and MAIU are respectively zoned as General Industrial (IN1) and Infrastructure (SP2). The land to the west of the Project is zoned as IN1, with some Public Recreational (RE1) and Environment and recreation (ENZ) beyond the industrial lands. At the southeast of the project there is some Rural Landscape (RU2) and most of the land on its east is zoned as IN1.

Figure 2 Surrounding Land Uses



2.3 Sensitive Receptors

The closest receptors to Aldington Road are residential receptors approximately 50 m and industrial receptors approximately 80 m from its kerbside, the closest receptors to Abbotts Road are residentials receptors approximately 115 m and industrial receptors approximately 25 m from its kerbside, and the closest receptors to Mamre Road are residentials receptors approximately 30 m and industrial receptors approximately 80 m from its kerbside. The identified sensitive receptors including residential and industrial/commercial receptors are shown in **Figure 2**.

Figure 2 Surrounding Sensitive Receptors



2.4 Construction Activities

At the time of writing this report, the construction of the Project is currently at detailed design stage and includes:

- Widening the road beyond the existing road reserve.
- Signalised intersections.
- Earthworks including raising and lowering road.
- Stormwater.
- Relocation of services (above and underground).
- New services (incl water, electricity, and communications).
- Site sheds, material storage as required for road construction project.
- Temporary works as necessary to facilitate construction.

2.5 Construction Hours

Construction hours will be in accordance with condition F39 of SSD10479. The hours of operation have been outlined below in **Table 2**.

Table 2 Hours of Work

Activity	Day	Time
Earthworks and construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm

No work Sundays or Public Holidays.

2.6 Construction Contact Details

Table 3 lists the key contacts during the Development.

Table 3 Construction Contact List

Role	Name	Company	Contact Details
Tim Dillon	Project Manager	Robson Civil Projects	tim.dillon@robsoncivil.com.au

3.0 Potential Sources of Air Emissions

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 construction works, the 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; and
- 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 construction works, and the relative risk ratings, are addressed in **Section 6.0**.

4.0 Relevant Pollutants and Air Quality Criteria

4.1 Pollutants of Concern

As identified in **Section 3.0**, potential air pollutants of interest for the 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 4.2** outlines relevant air quality assessment criteria.

4.1.1 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.

4.1.2 Deposited Dust

Section 4.1.1 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.

4.2 Ambient Air Quality Criteria

State air quality guidelines specified by the NSW Environmental Protection Agency (EPA) for the pollutants identified in **Section 4.1** are published in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA 2022) [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 risks to human health. 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.

The impact assessment criteria listed in the Approved Methods for particulate matter and nuisance dust are shown in **Table 4**. A summary of the relevant impact assessment criteria for products of combustion is provided in **Table 7**.

Table 4 NSW EPA Impact Assessment Criteria for Particulate Matter and Nuisance Dust

Pollutant	Averaging Period	Assessment Criteria
Total Suspended Particulate (TSP)	Annual	90 (µg/m^3)
Particulate Matter (PM_{10})	Annual	50 (µg/m^3)
	24-hour	25 (µg/m^3)
Particulate Matter ($PM_{2.5}$)	Annual	25 (µg/m^3)
	24-hour	8 (µg/m^3)
Deposited Dust	Annual	2 (µg/m^3) (maximum increase in deposited dust level)
		4 (µg/m^3) (maximum total deposited dust level)

Source: (DEC 2022)

Table 5 NSW EPA Impact Assessment Criteria for Combustion Gases

Pollutant	Averaging Period	Assessment Criteria
CO	1 hour	25 (ppm)
	8 hours	9 (ppm)
NO_2	1 hour	8 (pphm)
	Annual	1.5 (pphm)
SO_2	1 hour	10 (pphm)
	24 hours	2 (pphm)

Source: (DEC 2022)

[a] For assessments performed prior to January 2025

4.3 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.

5.0 Existing Environment

5.1 Local Meteorology

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording hourly wind speed and wind direction data is the Horsley Park Equestrian Centre Automatic Weather Station (AWS), which is located approximately 6.0 km east-northeast of the Project. Considering the distance between the Project and Horsley Park Equestrian Centre AWS, for the purpose of this assessment it has been assumed that the wind conditions recorded at the Horsley Park Equestrian Centre AWS are a reasonable representation of the wind conditions experienced at the Project site. Annual and seasonal wind roses for the years 2019 – 2023 inclusive, compiled from data recorded by the Horsley Park Equestrian Centre AWS, are presented in **Appendix A**.

5.2 Background Air Quality

Air quality monitoring is performed by the NSW Environment Protection Authority (EPA) at a number of monitoring stations across NSW. The nearest EPA-operated air quality monitoring stations (AQMS) to the Project is located at St Marys. The St Marys AQMS was commissioned in 1992, and is located on a residential property 8.4 km northwest of the Project at an elevation of 29 m, and monitors the concentration levels of following air pollutants:

- Oxides of nitrogen (NO, NO_2 and NO_X)
- Fine particles ($PM_{2.5}$ and PM_{10})

Due to unavailability of ambient concentrations for CO and SO_2 from St Marys AQMS, data is being sought from Liverpool AQMS. The Liverpool AQMS is located 13 km to the southeast of the Project. It was commissioned in 1991 and is located on Rose St at an elevation of 22 m.

The available air monitoring data from the St Marys AQMS are summarised in **Table 6** (red font indicates an exceedance of the relevant criterion) and presented graphically in **Figure 3** to **Figure 5**. Air monitoring data from the Liverpool AQMS are summarised in **Table 7** and presented graphically in **Figure 6** to **Figure 9**.

In summary, a review of the ambient air quality data presented in the following tables and graphs shows:

- In regard to the short-term averages, the 24-hour average PM_{10} and $PM_{2.5}$ concentrations recorded by the St Marys 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 PM_{10} and $PM_{2.5}$ guidelines. A review of the available compliance monitoring reports indicates that the intermittent exceedance days recorded during other years were also primarily due to exceptional events such as bushfire emergencies, dust storms and hazard reduction burns.
- In regard to the long-term averages, no exceedances of the annual average PM_{10} criterion were recorded at St Marys during the five years investigated, however the annual average $PM_{2.5}$ criterion was exceeded in 2019 due to the bushfire event that started in November 2019.

- Ambient concentrations of the gaseous pollutants NO_2, CO and SO_2 were all well below the relevant criteria for all years investigated.

Table 6 Summary of Ambient PM_{10}, $PM_{2.5}$ and NO_2 Data - St Marys AQMS (2019 – 2023)

Pollutant	PM_{10}			$PM_{2.5}$			NO_2		
Averaging Period	Maximum 24-hour	Annual	90th percentile 24-hour	Maximum 24-hour	Annual	90th percentile 24-hour	Maximum 1-hour	Annual	90th percentile 1-hour
Units	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	pphm	pphm	pphm
2019	159.8	24.7		88.3	9.8		3.3	0.4	
2020	260.3	18.9		82.5	7.6		3.4	0.4	
2021	54.9	16.2	29.5	40.3	5.8	10.7	3.3	0.4	20.5
2022	29.7	12.0		12.6	3.9		3.0	0.4	
2023	42.5	16.1		36.8	5.8		3.6	0.6	
Average	**96.9**	**15.8**	**29.5**	**43.1**	**5.8**	**10.7**	**3.3**	**0.4**	**20.5**
Criterion	**50**	**25**	-	**25**	**8**	-	**8**	**1.5**	-

Figure 3 Measured 1-Hour Average NO_2 Concentrations at St Marys AQMS (2019 – 2023)

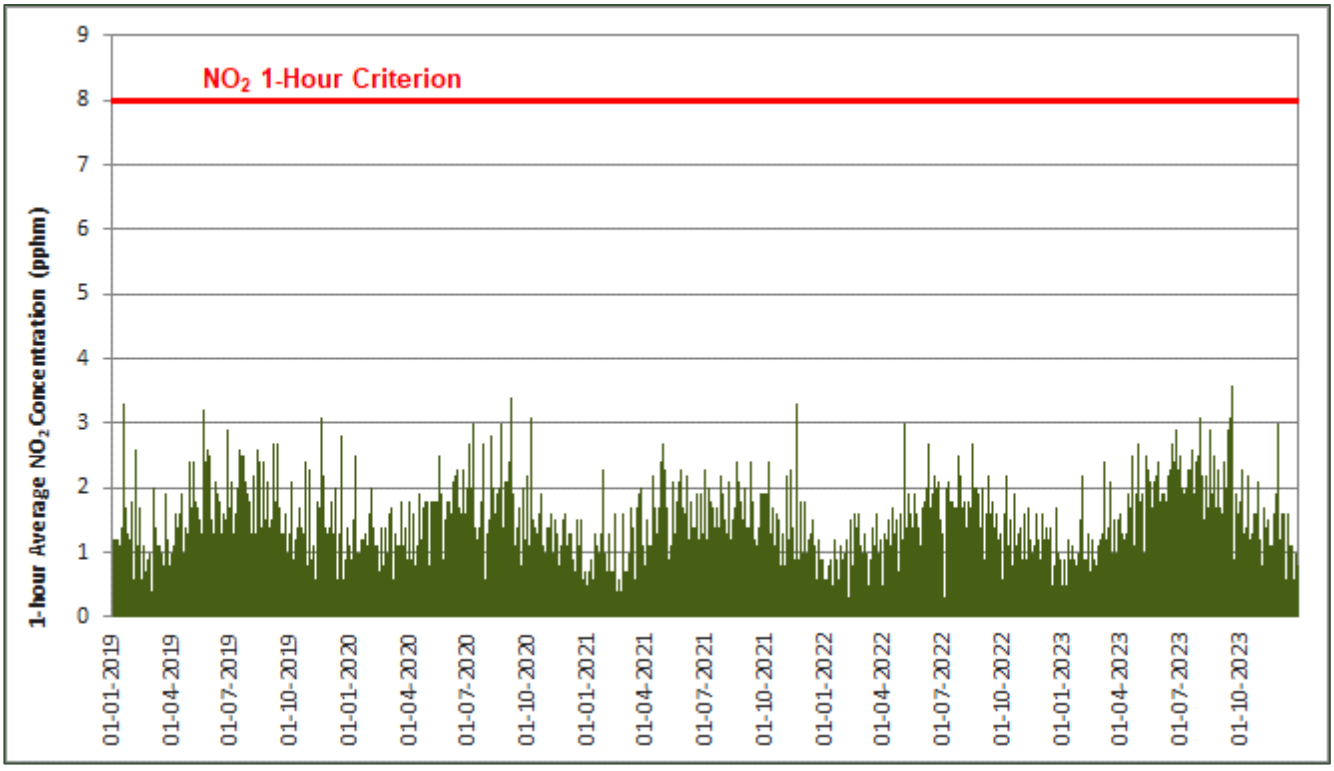


Figure 4 Measured 24-Hour Average PM_{10} Concentrations at St Marys AQMS (2019 – 2023)

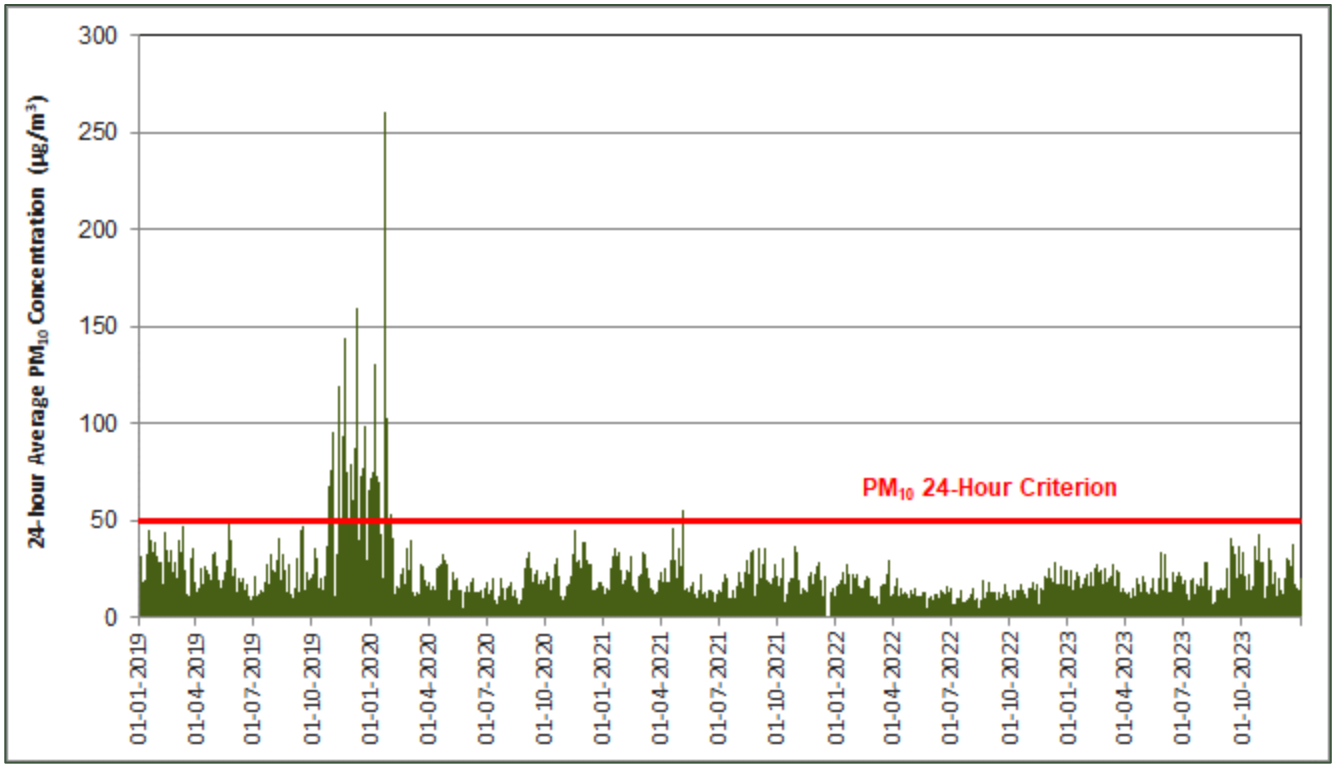


Figure 5 Measured 24-Hour Average $PM_{2.5}$ Concentrations at St Marys AQMS (2019 – 2023)

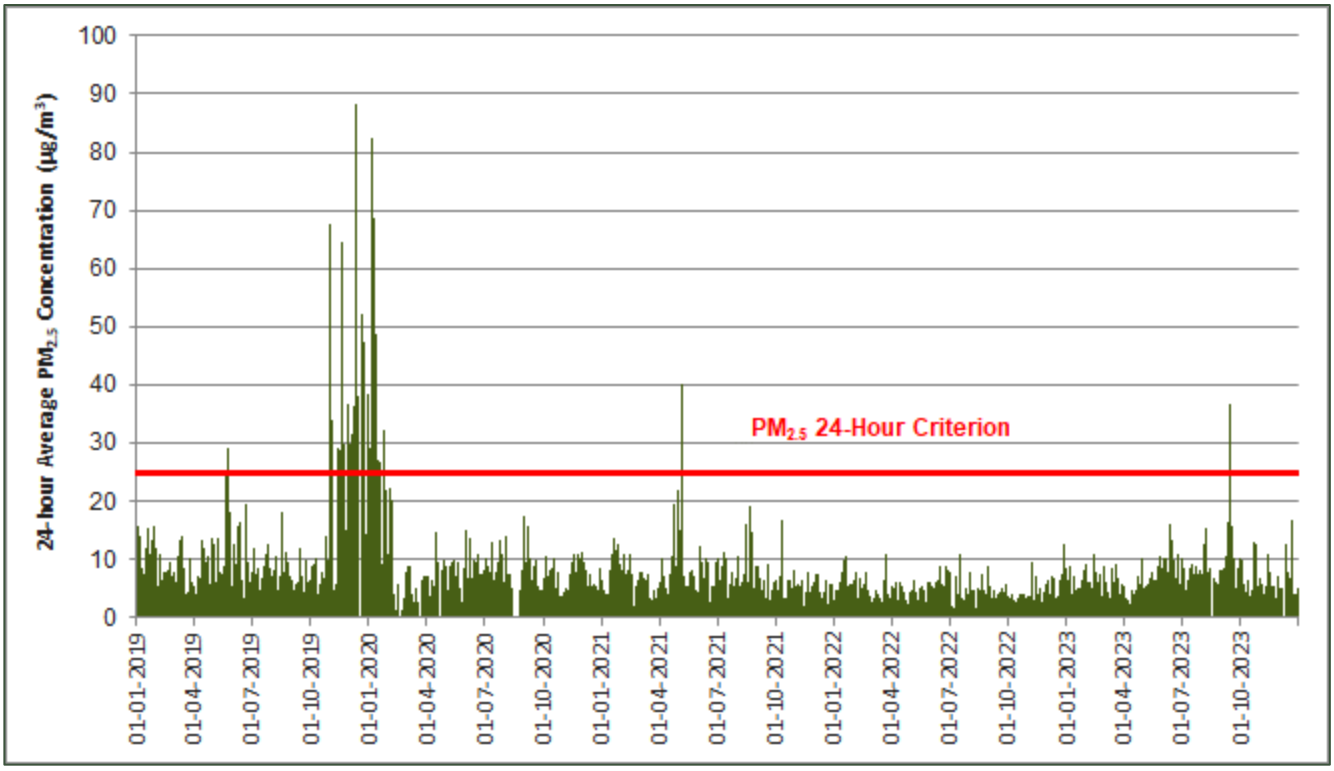


Table 7 Summary of Air Quality Monitoring Data at Liverpool AQMS (2019-2023)

Pollutant	SO_2			CO			
Averaging Period	Maximum 1-hour	Maximum 24-hour	90th percentile 1-hour	Maximum 1-hour	Maximum 8-hour	90th percentile 1-hour	90th percentile 8-hour
Units	pphm	pphm	pphm	ppm	ppm	ppm	ppm
2019	1.6	0.4	2.9	3.7	1.8	0.4	0.4
2020	1.5	0.3		2.4	2.1		
2021	1.7	0.3		2.1	1.2		
2022	1.3	0.2		1.4	1.1		
2023	2.4	0.4		1.6	1.3		
Average	1.7	0.3	2.9	2.2	1.5	0.4	0.4
Criterion	**10**	**2**	-	**25**	**9**	-	-

Figure 6 Measured 1-Hour Average CO Concentrations at Liverpool AQMS (2019-2023)

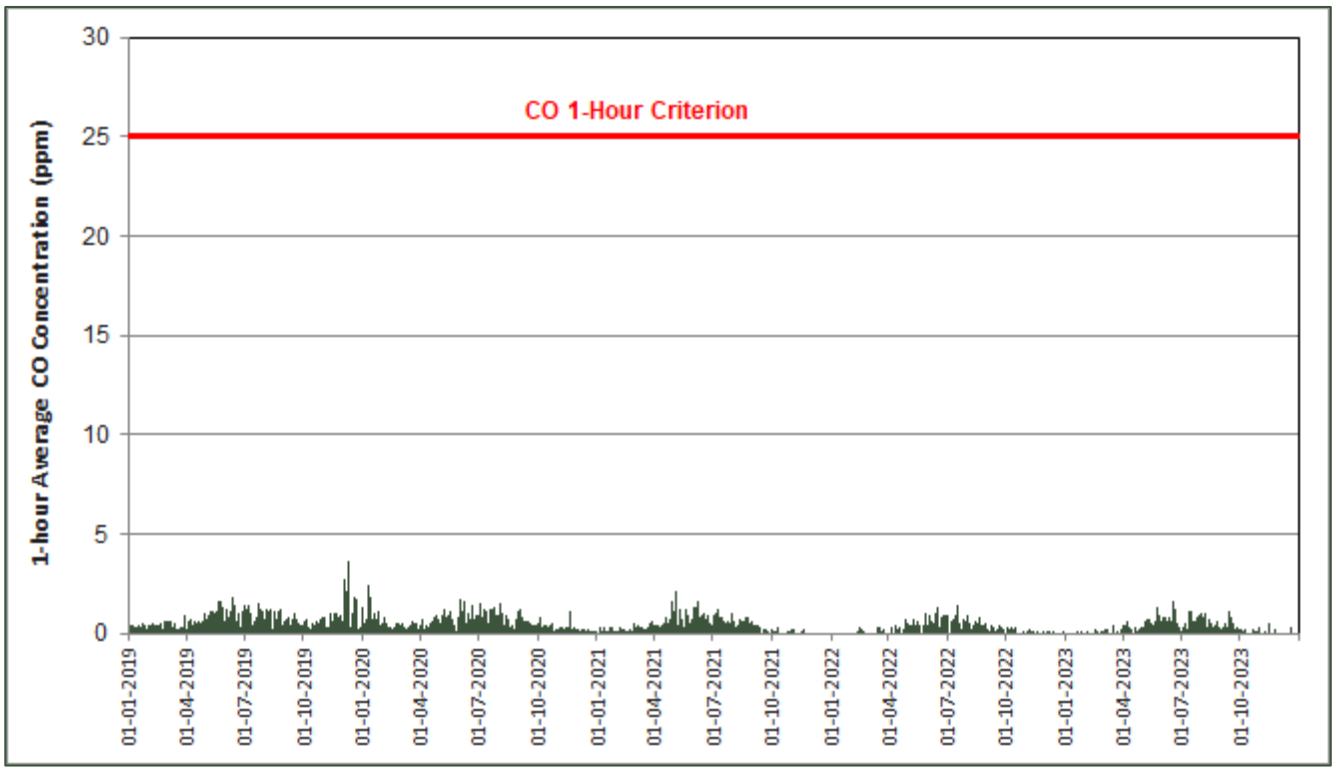


Figure 7 Measured 8-Hour Average CO Concentrations at Liverpool AQMS (2019-2023)

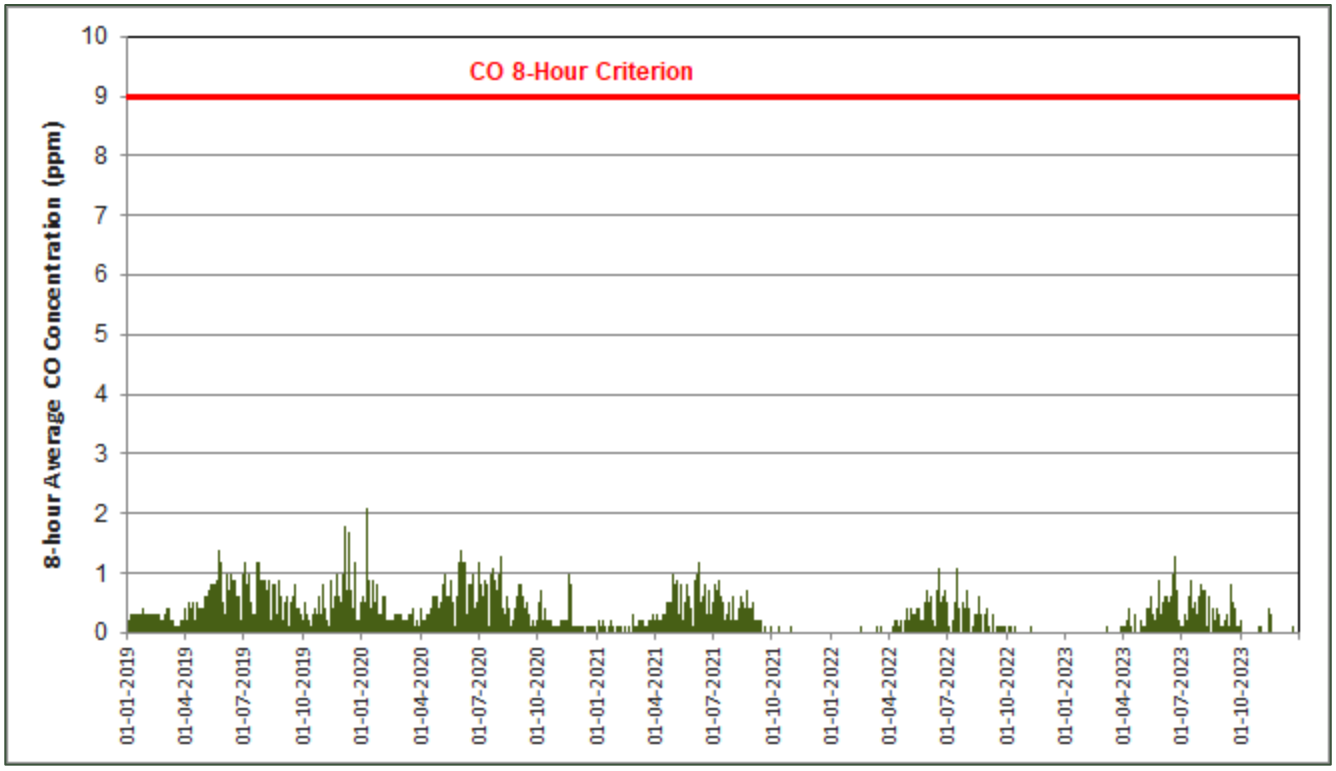


Figure 8 Measured 1-Hour Average SO_2 Concentrations at Liverpool AQMS (2019-2023)

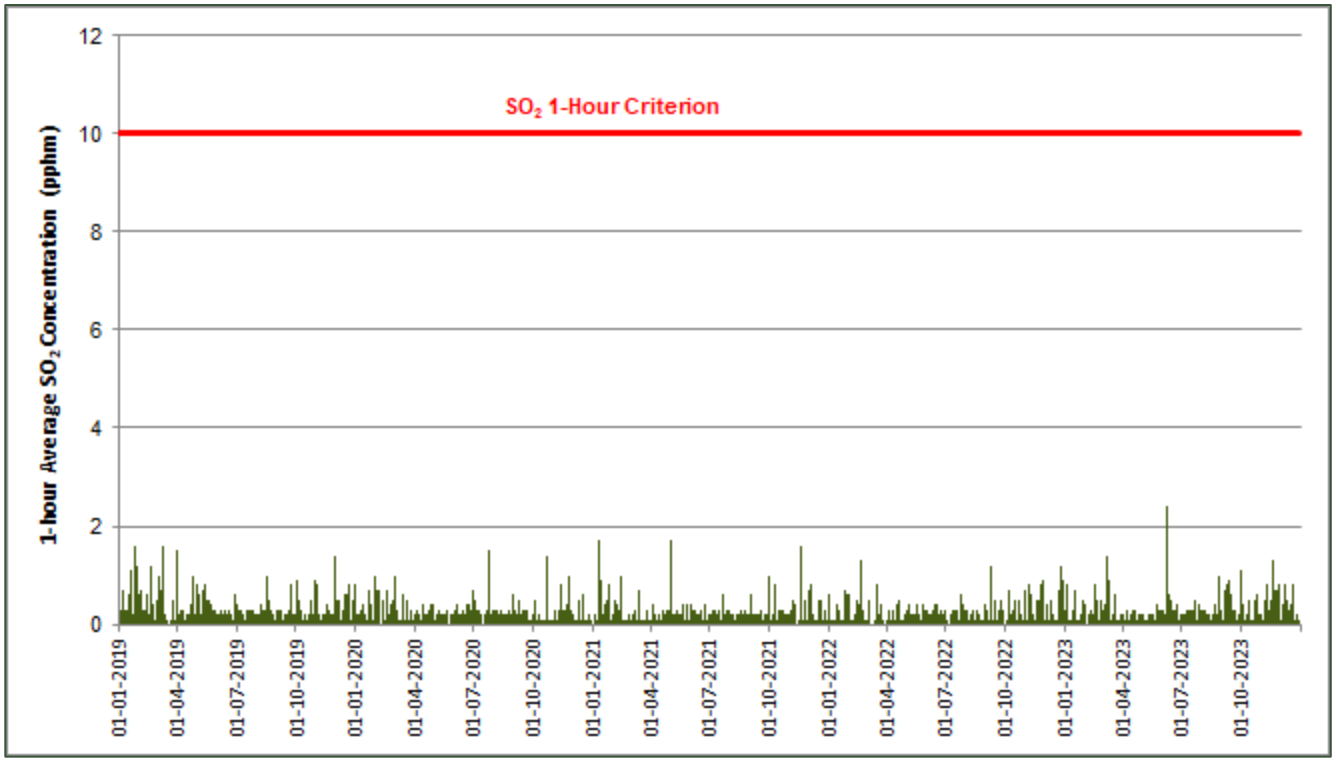
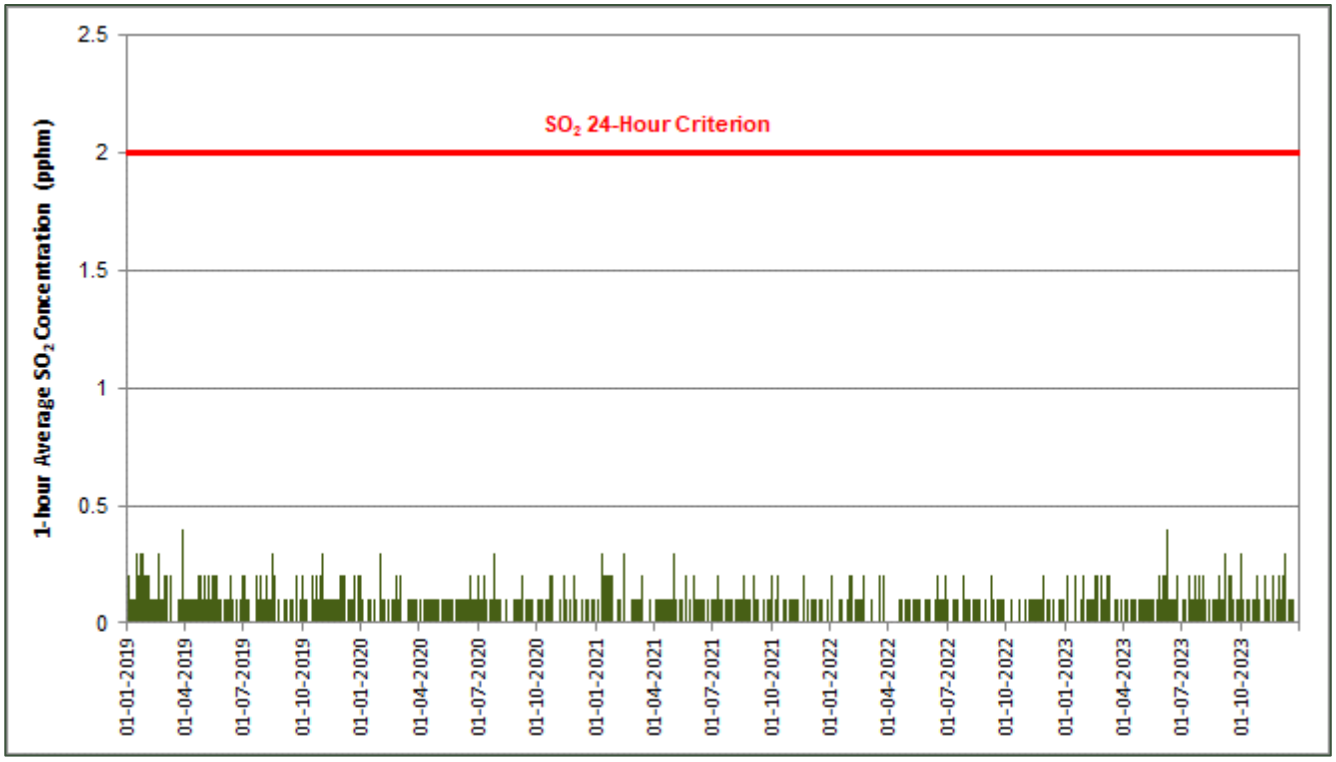


Figure 9 Measured 24-Hour Average SO_2 Concentrations at Liverpool AQMS (2019-2023)



The monitoring data for CO, NO_2 and SO_2 indicate that the respective air quality criteria (short term and long term) for these pollutants are achieved at the St Marys AQMS and the Liverpool AQMS. Other points to note are:

- Exceedances of the 24-hour average PM_{10} criterion were recorded by the St Marys AQMS in all years except 2022 and 2023,
- Exceedances of the 24-hour average $PM_{2.5}$ criterion were recorded in all years except 2022,

A review of these recorded exceedances indicate that they were associated with natural events such as bushfires or dust storms, or hazard reduction burns.

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

6.0 Assessment of Dust Emissions during Construction

The key potential air pollution and amenity issues associated with fugitive dust emissions from the construction of the Project are:

- Annoyance due to dust deposition (soiling of surfaces) and visible dust plumes
- Elevated suspended particulate concentrations (PM_{10}).

A quantitative modelling assessment of potential dust emissions associated with the construction activities would require a number of assumptions to be made to enable the estimation of particulate emission rates for input into the models. The uncertainty associated with the output of such studies means it would be of limited value and would not (in itself) assist with the identification of air quality control measures to actively manage the risks.

SLR will therefore perform a qualitative (risk-based) assessment of construction impacts, based on the information available, to identify those activities that have the potential for off-site air quality impacts if not adequately controlled, so that appropriate mitigation measures can be identified.

For the assessment of construction phase impacts, the *IAQM Guidance on the Assessment of Dust from Demolition and Construction,* developed in the United Kingdom by the Institute of Air Quality Management (IAQM 2024), has been used to provide a qualitative assessment method (see **Appendix B** for full methodology). The IAQM method uses a four-step process for assessing potential dust impacts from construction activities:

- **Step 1** is to screen the requirement for a more detailed assessment. No further assessment is required if there are no receptors within a certain distance of the works.
    - As a 'human receptors' are located within 250 m of the boundary of the Project site, further assessment is required. For the purpose of this assessment, the number of residential/recreational receptors is estimated to be 10-100 within 50 m and the number of industrial/commercial receptors is estimated to be between 10-100 within 100 m of the Project site boundary (see **Figure 10**).
- **Step 2** is to assess the risk of dust impacts. This is done separately for each of the four activities (demolition, earthworks, construction, and trackout) and take account of:
    - Potential dust emission magnitude (**Step 2A**)
        - Based upon the IAQM definitions presented in **Appendix B**, the dust emission magnitudes for each phase of the construction works have been categorised as presented in **Table 8**. It should be noted that although no demolition is planned as part of the construction, it is conservatively considered to be of small magnitude.
    - The sensitivity of the area (**Step 2B**)
        - Based on the classifications shown in **Table B2** and **Table B3** in **Appendix B**, the sensitivity of the area to dust soiling may be classified as ***medium*** for residential/recreational receptors and ***low*** for industrial/commercial receptors. The sensitivity of the area to human health effects is classified as ***low*** for both types of receptors. This categorisation has been made taking into account the individual receptor sensitivities (high for residential/recreational receptors and medium for industrial/commercial receptors), the 5-year mean background PM_{10} concentration of 15.8 µg/m^3 recorded at St Marys AQMS (see **Section 5.2**) and the existing number of sensitive receptors present in the vicinity of the site (i.e. between 10-100 residential/recreational receptors within 50 m and between 10-100 industrial/commercial receptors within 100 m of the Project site).
            - Define the risk of impacts (**Step 2C**)

    - Based on the IAQM methodology, the overall air quality risk from the project construction activities is rated as ***medium*** for residential/recreational receptors and ***low*** for both industrial/commercial receptors (refer **Table 9**).

- **Step 3** is to determine site-specific mitigation (in addition to basic project controls) for each of the four potential activities in **Step 2**.
    - **Table 10** provides the mitigation measures targeting the potential impacts from earthworks, construction, and trackout. Implementing these measures may reduce the risk of these impacts from ***medium*** to ***low*** for residential/recreational receptors and from ***low*** to ***negligible*** for industrial/commercial receptors. These measures are designated as highly recommended (H) or desirable (D) by the dust IAQM method. Refer **Section 8.0** for general mitigation measures.
- **Step 4** is to examine the residual effects and to determine whether these are significant.
    - The mitigated dust soiling impacts are anticipated to be ***low*** and ***negligible*** respectively for residential/recreational and industrial/commercial receptors. For both industrial/commercial and residential/recreational receptors, the mitigated human health impacts are anticipated to be ***negligible*** with the implementation of the recommended management measures.

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. Trackout
3. Construction
4. Demolition

Figure 10 Density of Sensitive Receptors in the Vicinity of the Site

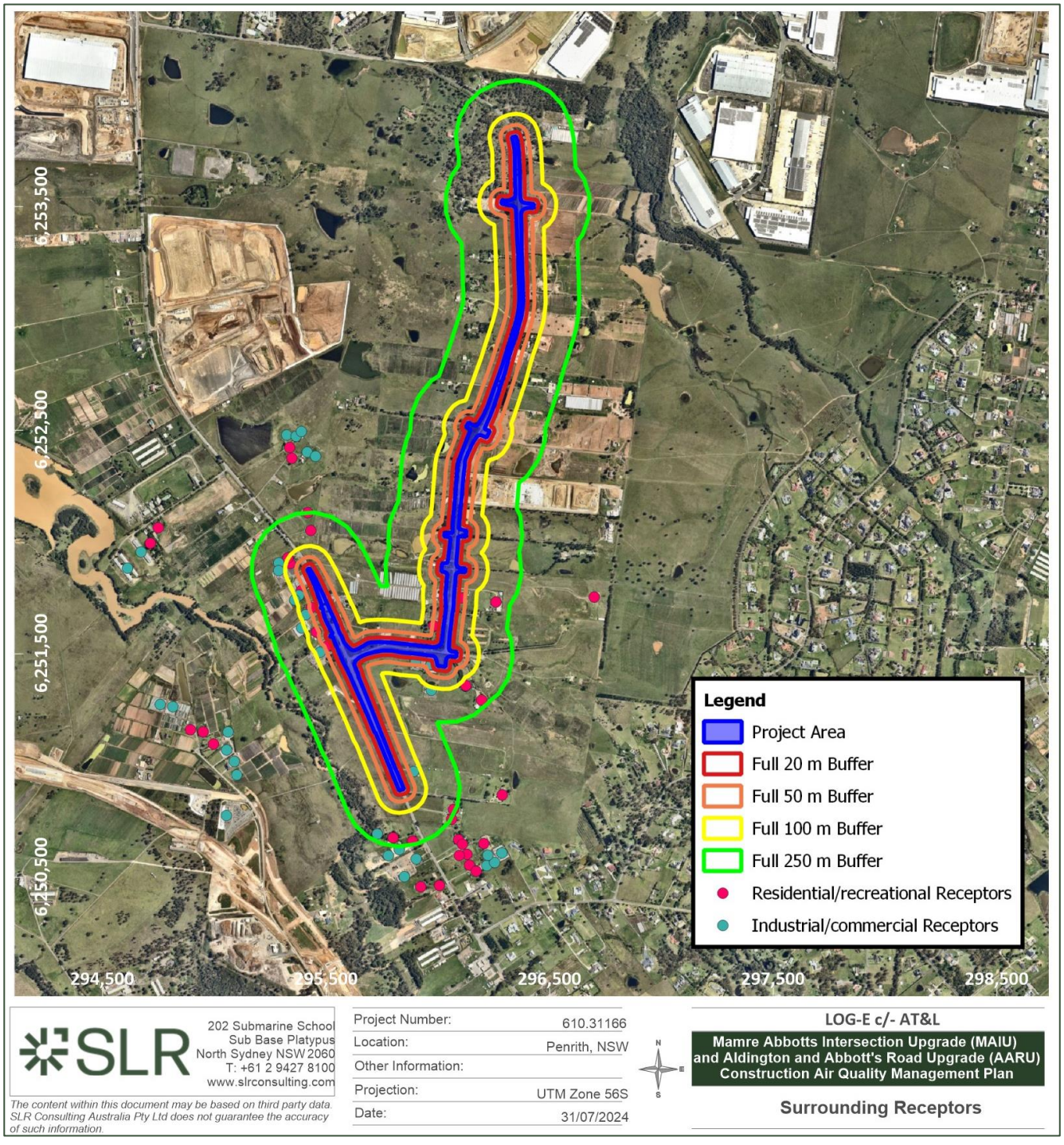


Table 8 Categorisation of Dust Emission Magnitude

Activity	Dust Emission Magnitude	Basis
Demolition	Small	**IAQM Definition:** Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months. **Relevance to this Project:** No major demolition is planned as part of the Project construction.
Earthworks	Large	**IAQM Definition:** Total site area >110,000 m^2, potentially dusty soil type (e.g., clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height. **Relevance to this Project:** *Total area of the Project is estimated to be approximately 190,000 m^2.*
Construction	Small	**IAQM Definition:** Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber). **Relevance to this Project:** *Minor construction of sheds and material storage is planned as part of the Project.*
Trackout	Large	**IAQM Definition:** >50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g., high clay content), unpaved road length >100 m **Relevance to this Project:** *It is estimated that more than 50 heavy vehicles movements per day will occur during the peak construction period.*

Table 9 Preliminary Risk of Air Quality Impacts from Construction Activities (Uncontrolled)

Receptor Type	Impact	Sensitivity of Area	Dust Emission Magnitude				Preliminary Risk with no mitigation				
			Demolition	Earthworks	Construction	Trackout	Demolition	Earthworks	Construction	Trackout	Maximum
Industrial or Commercial	Dust Soiling	Medium	Small	Large	Small	Large	Low	Medium	Low	Medium	Medium
	Human Health	Low					Negligible	Low	Negligible	Low	Low
Residential or recreational	Dust Soiling	Low					Negligible	Low	Negligible	Low	Low
	Human Health	Low					Negligible	Low	Negligible	Low	Low

Table 10 Construction Specific Mitigation Measures

Mitigation Measure	Industrial Commercial	Residential Recreational
Earthworks		
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D
Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	N	D
Only remove the cover in small areas during work and not all at once, where practical.	N	D
Construction		
Avoid scabbling (roughening of concrete surfaces) if possible.	D	D
Ensure sand and other aggregates are stored in bunded areas and covered in high winds. Stockpiles are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	D	H
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	N	D
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D
Trackout		
Use water-assisted dust sweeper(s) and rumble grids on the access and local roads to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use, rumble grids properly installed, and stabilised site access.	D	H
Avoid dry sweeping of large areas.	D	H
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H
Record all inspections of haul routes and any subsequent action in a site log book.	D	H
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H
Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	N	H
Access gates to be located at least 10 m from receptors where possible.	N	H

7.0 Assessment of Odour Emissions During Construction

To assess the odour nuisance risk, a qualitative odour assessment methodology has been adopted for this assessment. The following broad risk-based approach prescribed by the Institute of Air Quality Management (IAQM 2018) has been adopted:

- **Nature of Impact**: does the impact result in an adverse or beneficial environment?
- **Receptor Sensitivity**: how sensitive is the receiving environment to the anticipated impacts? This may be applied to the sensitivity of the environment in a regional context or specific receptor locations.
- **Magnitude**: what is the anticipated scale of the impact?

The integration of sensitivity with impact magnitude is used to derive the predicted **significance** of that change. Full details of the methodology can be found in **Appendix C**.

In regard to the odour nuisance impacts, by addressing the FIDOL (Frequency, Intensity, Duration, Offensiveness and Location) factors, the potential for odour impacts from this source at the sensitive receptors may be evaluated.

- **Frequency** - the surrounding sensitive receptors located to the west, east, and south of the Project site (see **Section 2.3**) have a low potential to experience odour impacts since no obvious odour sources are available within the Project site. Furthermore, easterly, westerly, and northerly winds occur less than 6% of the time, therefore there is a low likelihood that the surrounding receptors would experience frequent potential odour impacts from the Project site.
- **Intensity** – based on the activities within the Project site, the odour emissions from the Project site are expected to be negligible. Given this, odours from the Project site at the surrounding receptors are likely to be of low intensity and generally of intermittent/infrequent nature.
- **Duration** - Given that conducive wind directions only occur approximately 6% of the time and that there are no notable odour emission sources on Project site, the potential duration of any odour impacts is concluded to be low.
- **Offensiveness** – Given the nature of the activities held at the Project site, the very low intensity odours that may be detectable beyond the boundary of the Project site would be expected to have a low level of offensiveness.
- **Location** - the impact of location on the acceptability of odours from the Project site has been accounted for by the surrounding receptors sensitivity classifications detailed above in this section (high).

Given the above, the potential impact of odour emissions from the Project site is considered to be ***negligible*** (ie Impact is predicted to cause no significant consequences) for the Project site (see **Table 11**).

Table 11 Impact Significance – Odour from Project Site

Potential Odour Exposure Impact	Receptor Sensitivity		
	Low	Medium	High
Very Large	Moderate adverse	Substantial adverse	Substantial adverse
Large	Slight adverse	Moderate adverse	Substantial adverse
Medium	Negligible	Slight adverse	Moderate adverse
Small	Negligible	Negligible	Slight adverse
Negligible	Negligible	Negligible	Negligible

In line with the IAQM method, it is concluded that the overall effect is **'negligible'**.

8.0 General Mitigation Measures

As per **Section 6.0**, construction works at the Project 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 construction works to minimise dust emissions.

Table 12 lists the mitigation measures to be adopted during the construction works.

Table 12 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.	CCLR Project Manager		
The Project hotline information will be displayed on site signage.			
Site Management			
All dust and air quality incidents will be undertaken as per **Section 10.0** of this CAQMP.	Contractor's Project Manager	Ongoing	**Section 10.0** of this document
All dust and air quality complaints will be undertaken as per **Section 10.0** 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.	Contractor's Project Manager	Ongoing	Best practice
Exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.			
Land stabilisation works will be carried out in such a way on site to minimise exposed surfaces.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Dust generating activities in areas close to receptors will be closely monitored and additional mitigation applied as required to best manage potential dust emissions			
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.			
Operating Vehicle/Machinery and Sustainable Travel			
Trucks associated with construction works will not track dirt off site and onto the public road network.	Contractor's Project Manager	Ongoing	Best practice
Project access roads used by delivery trucks will be kept clean.			
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.			
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.	Contractor's Project Manager	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.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Water carts will be used on all stripped or exposed surfaces and unsealed roads to minimise dust emissions.	Contractor's Project Manager	Ongoing	
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.			
Works will be assessed during strong winds or in weather conditions where high levels of airborne particulates may potentially impact the sensitive receivers. Works should be stopped if excessive airborne particulates are generated. 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.	Contractor's Project Manager	Ongoing	Best practice
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 stripped	Contractor's Project Manager	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 Contractor's 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.	Contractor's Project Manager	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.	Contractor's Project Manager	Ongoing	Best practice

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Record all regular inspections and maintenance undertaken of site haul routes and project related access roads in a site log book or similar.			
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.			

9.0 Performance Objectives

As required by condition B76 (e), **Table 13** summarises the performance objectives identified to assess the effectiveness of the control measures shown in **Section 8.0**.

Table 13 Summary of Parameters to Assess the Effectiveness of Control Measures

Parameter	Visible Dust	Dust Deposition	PM_{10}	Complaints
Key Performance Indicator	No visible dust leaving the Project site Boundary	<4g/m²/month	200 µg/m³ 1 hour average 60 µg/m³ 24 hour average	No complaints related to dust or other air quality issues
Monitoring Method	Visual inspection/observations	Dust Deposition gauges	Real-time monitor (appropriate to construction dust monitoring)	-
Location, frequency, and duration of monitoring	Daily onsite inspection	**Section 11.0**	Section 11.0	-
Record keeping		In a logbook (or similar)		
Response Procedures		**Section 12.0**		
Compliance Monitoring	-	-		**Section 11.0**

10.0 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.

11.0 Proposed Air Quality Monitoring Program

As discussed in **Section 6.0**, 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 8.0**).

Air quality monitoring program is recommended to start 3 months prior to the start of construction works to get a baseline regarding air quality in the vicinity of the Project 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 4.2**. 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 Project site is recommended.

Real-time PM_{10} monitoring is recommended at the sensitive receptors located nearest to construction on the northeast of the road construction. The real-time monitor should be installed in compliance with the AS/NZS 3580.1.1:2016 and monitored by a suitably qualified individual. The results will be compared against NSW EPA criterion stated in **Section 4.2**.

A summary of the proposed on-site air quality monitoring programme at the Project site is shown in **Table 14**.

Table 14 Summary of On-Site Monitoring Programme

Pollutant	Equipment Used	Number of Monitoring Sites	Criterion (Averaging Period)
Deposited dust	Dust Deposition Gauges (DDGs)	5	4 g/m^2/month (annual average)
PM_{10}	Real-time monitor	Multiple monitors will be provided by the contractor to suit various stages of works being completed at the time	200 µg/m^3 (1 hour average) 60 µg/m^3 (24 hour average)

It is noted that the probable locations of the air quality monitors will be dependent on a range of factors such as (but not limited to) site access, equipment security and staging/location of the actual construction works. For example, the location of the real time monitor may have to be moved periodically to capture the downwind impacts of the construction works.

The locations and numbers of the probable locations of the air quality monitors are shown in **Figure 11**.

Figure 11 Air Quality Monitoring Locations for the Project Site



12.0 Contingency Management Plan

The air quality contingency management plan for the construction activities is shown in **Table 15**. As noted in **Section 11.0**, data from the ongoing monitoring program will be utilised to inform the appropriate contingency response for the development.

Table 15 Air Quality Contingency Management Plan for the Construction in the Project site

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.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
	Response	Continue monitoring program as normal.	**LOG-E c/- AT&L** 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.	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.
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.	Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate.	Consider including real time monitors to measure PM_{10} and $PM_{2.5}$. Review real-time monitoring data at the continuous monitors to investigate the likelihood of onsite activities contributing to the complaints (see **Appendix D**).

13.0 Roles and Responsibilities

The key responsibilities specifically for dust management are as follows:

13.1 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;
- 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, it is registered in the complaints register in accordance with **Section 10.0** of this CAQMP.

13.2 Contractor's Environmental Coordinator

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

13.3 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.

14.0 Review and Improvement of the CAQMP

The review of the CAQMP will be undertaken in accordance with the requirements of the development consent and will include participation by AT&L. 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.

15.0 References

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Appendix A Wind Roses and Rainfall Data Analysis

Mamre Abbotts Intersection Upgrade (MAIU) and Aldington and Abbott's Road Upgrade (AARU)

Construction Air Quality Management Plan

LOG-E c/- AT&L

SLR Project No.: 610.31166.00000

4 March 2025

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) affects the degree of mechanical turbulence, which also influences the rate of dispersion of air pollutants.

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording hourly wind speed and wind direction data is the Horsley Park Equestrian Centre Automatic Weather Station (AWS), which is located approximately 6.0 km east of the Project. Considering the distance between the Project and Horsley Park Equestrian Centre AWS, for the purpose of this assessment it has been assumed that the wind conditions recorded at the Horsley Park Equestrian Centre AWS are a reasonable representation of the wind conditions experienced at the Project site. Annual and seasonal wind roses for the years 2019 – 2023 inclusive, compiled from data recorded by the Horsley Park Equestrian Centre AWS, are presented in **Figure A1**.

The 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.

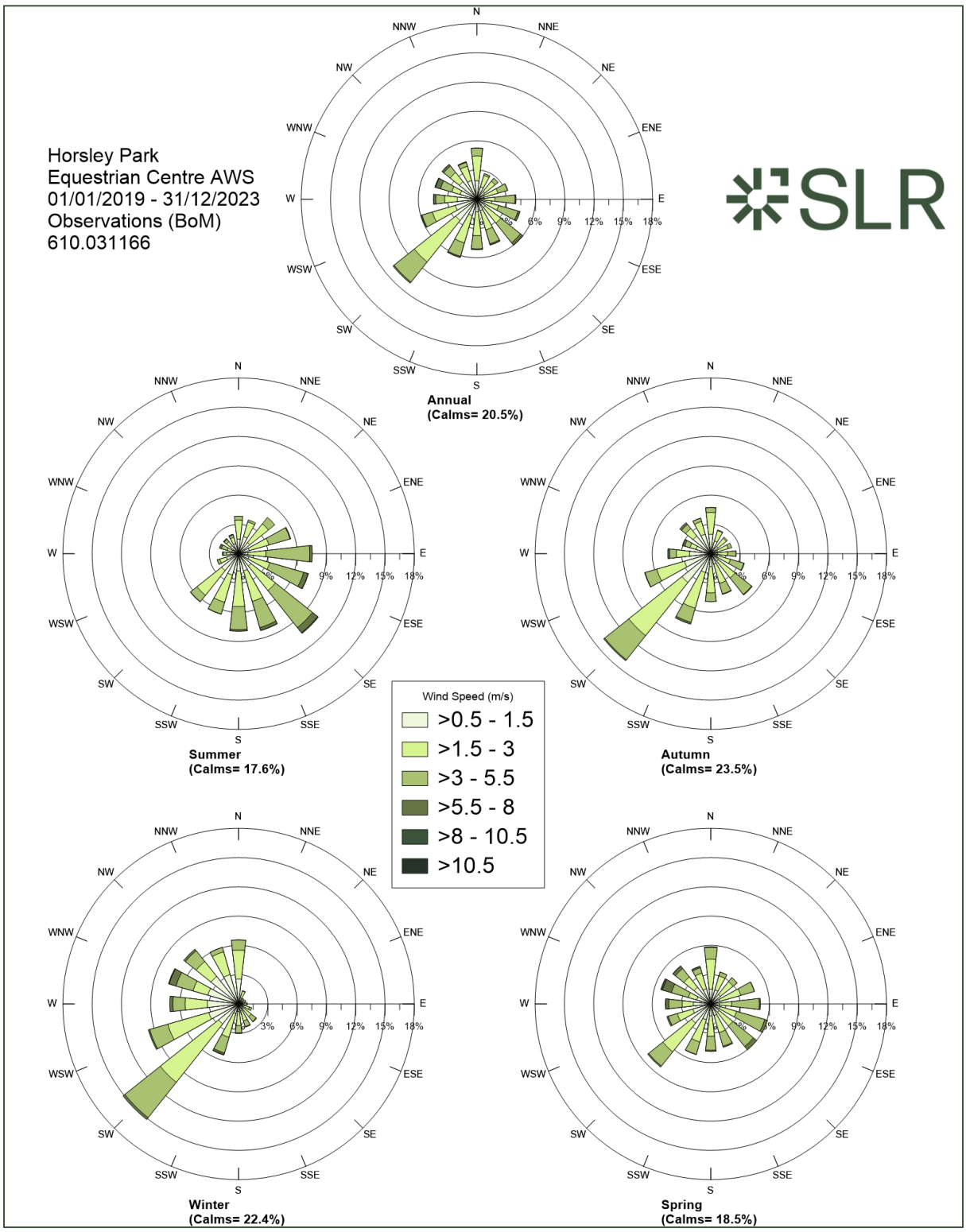
The annual wind roses for the years 2019 – 2023 (**Figure A1**) indicate that the predominant wind directions in the area are from the southwest direction. The annual average frequency of calm wind conditions was recorded to be approximately 20.5% for the 2018 – 2022 period.

The seasonal wind roses for the years 2019 – 2023 indicate that:

- In summer, the majority of winds blew from eastern and southern quadrants, with very few winds from the north-western quadrant. Calm wind conditions were observed to occur approximately 17.6% of the time during summer.
- In autumn and winter, the majority of winds blew from southwest direction with very few winds from north-eastern quadrant. Calm wind conditions occur approximately 23.5% and 22.4% of the time during autumn and winter respectively.
- In spring, the winds blew almost evenly from all directions. Calm wind conditions occur approximately 18.5% of the time during spring.

The nearest sensitive receptors identified in **Section 2.3** are the west and south of Aldington Road and Abbotts Road respectively. Winds from the east and north directions, which would blow air emissions from the Project towards the nearest sensitive receptors occur less than 6% of the time annually.

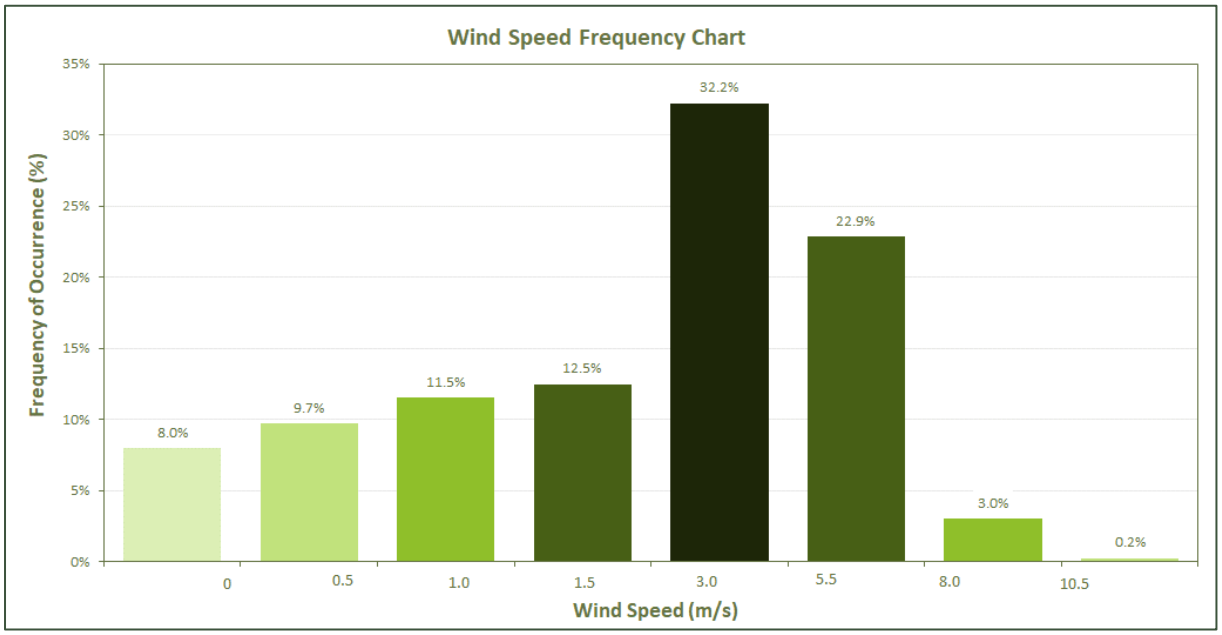
Figure A1 Annual and Seasonal Wind Roses – Horsley Park Equestrian Centre AWS (2019 – 2023)



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 2019 – 2023 is presented in **Figure A2**. The plot showed that the frequency of wind speeds exceeding 5 m/s for the period 2018-2022 at Horsley Park AWS was approximately 4.9%.

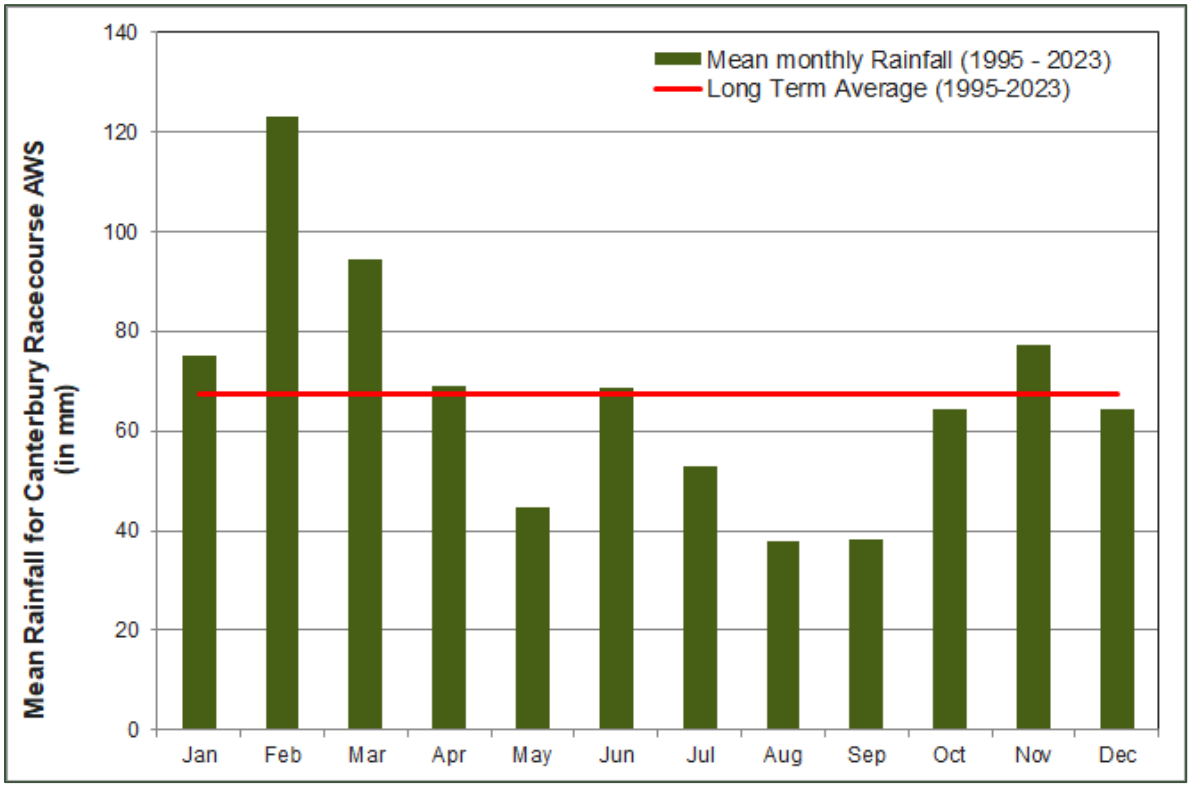
Figure A2 Wind Speed Frequency Chart for Horsley Park AWS – 2019 – 2023



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 A3**. 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 Project site have the greatest potential to impact on receptors for the period of late autumn to early spring.

Figure A3 Long term Mean Rainfall for Horsley Park AWS – 1995 to 2023



Appendix B Construction Phase Risk Assessment Methodology

Mamre Abbotts Intersection Upgrade (MAIU) and Aldington and Abbott's Road Upgrade (AARU)

Construction Air Quality Management Plan

LOG-E c/- AT&L

SLR Project No.: 610.31166.00000

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Step 1 – Screen the Need for a Detailed Assessment

The Step 1 screening criteria provided by the IAQM guidance suggests screening out any assessment of impacts from construction activities where sensitive receptors are located more than 250 m from the boundary of the site, more than 50 m from the route used by construction vehicles on public roads up to 250 m from the site entrance. This step is noted as having deliberately been chosen to be conservative and will require assessments for most projects.

Step 2a – Define the Potential Dust Emission Magnitude

The dust emission magnitude is based on the scale of the anticipated works and should be classified as Small, Medium, or Large. The following are examples of how the potential dust emission magnitude for different activities can be defined. Note that, in each case, not all the criteria need to be met, and that other criteria may be used if justified in the assessment. Where relevant, multiple screening assessments may be completed for different development phases (or even sub-phases where demolition may be brief or there is a very short period of intense activity, for example). This may particularly be the case for linear schemes (i.e. new roads, railways).

Example definitions for Demolition are as follows. Alternative screening values may be used here this is justified based on a particular scheme:

- ***Large***: Total building volume >75,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level
- ***Medium***: Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12 m above ground level
- ***Small***: Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months.

Earthworks will primarily involve excavating material, haulage, tipping and stockpiling. This may also involve levelling the site and landscaping. Example definitions for earthworks are:

- ***Large***: Total site area >110,000 m^2, potentially dusty soil type (e.g., clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height
- ***Medium***: Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g., silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3 m – 6 m in height
- ***Small***: Total site area <18,000 m^2, soil type with large grain size (e.g., sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height.

Construction: The key issues when determining the potential dust emission magnitude during the construction phase include the size of the building(s)/infrastructure, method of construction, construction materials, and duration of build. Example definitions for Construction are:

- ***Large:*** Total building volume >75,000 m^3, on site concrete batching, sandblasting
- ***Medium:*** Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g., concrete), on site concrete batching
- ***Small:*** Total building volume <12,000 m^3, construction material with low potential for dust release (e.g., metal cladding or timber).

Trackout: Factors which determine the dust emission magnitude are vehicle size, vehicle speed, vehicle numbers, geology and duration. As with all other potential sources, professional judgement must be applied when classifying trackout into one of the dust emission magnitude categories. Example definitions for trackout are:

- ***Large:*** >50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g., high clay content), unpaved road length >100 m
- ***Medium:*** 20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g., high clay content), unpaved road length 50 m – 100 m
- ***Small:*** <20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m.

Step 2b – Define 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 of receptors in the area
- the proximity and number of those receptors
- in the case of PM10, the local background concentration
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

The type of receptors at different distances from the site boundary or, if known, from the dust generating activities, should be included. Consideration also should be given to the number of ‘human receptors’. Exact counting of the number of ‘human receptors’, is not required. Instead, it is recommended that judgement is used to determine the approximate number of receptors (a residential unit is one receptor) within each distance band. For receptors which are not dwellings professional judgement should be used to determine the number of human receptors for use in the tables, for example a school is likely to be treated as being in the >100 receptor category.

The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in STEP 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

A number of attempts have been made to categorise receptors into high, medium and low sensitivity categories; however, there is no unified sensitivity classification scheme that covers the quite different potential effects on property, human health and ecological receptors.

Table B1 provides guidance on the sensitivity of different types of receptors to dust soiling, health effects, and ecological effects.

Table B1 IAQM Guidance for Categorising Receptor Sensitivity

Value	High Sensitivity Receptor	Medium Sensitivity Receptor	Low Sensitivity Receptor
Dust Soiling	Users can reasonably expect enjoyment of 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 a 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 a 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 a to be present only for limited periods of time as part of the normal pattern of use of the land.
	Indicative examples include dwellings, museums, and other culturally important collections, medium- and long-term car parks and car showrooms.	Indicative examples include parks and places of work.	Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads.
Health Effects	Locations where members of 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
	Indicative examples include residential properties. Hospitals, schools, and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	Indicative examples include office and shop workers but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.	Indicative examples include public footpaths, playing fields, parks, and shopping streets.

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.
- duration of the potential impact, as a receptor may become more sensitive over time.
- any known specific receptor sensitivities which go beyond the classifications given in this document.

The IAQM guidance for assessing the sensitivity of an area to dust soiling is shown in **Table B2**. The sensitivity of the area should be derived for each of activity relevant to the project (ie construction and earthworks).

Table B2 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 B3**. 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 the IAQM method has been modified slightly.

Table B3 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/m³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	21-25 µg/m³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	17-21 µg/m³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<17 µg/m³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>25 µg/m³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	21-25 µg/m³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	17-21 µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<17 µg/m³	>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.

Step 2c – Define the Risk of Impacts

The dust emission magnitude from Step 2a and the receptor sensitivity from Step 2b are then used in the matrices shown in **Table B4** (Demolition), **Table B5** (earthworks and construction) and **Table B6** (track-out) to determine the risk category with no mitigation applied.

Table B-4 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

Table B-5 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 B-6 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

Appendix C Odour Risk Assessment Methodology

Mamre Abbotts Intersection Upgrade (MAIU) and Aldington and Abbott's Road Upgrade (AARU)

Construction Air Quality Management Plan

LOG-E c/- AT&L

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Nature of Impact

Predicted impacts may be described in terms of the overall effect upon the environment:

- **Beneficial:** the predicted impact will cause a beneficial effect on the receiving environment.
- **Neutral:** the predicted impact will cause neither a beneficial nor adverse effect.
- **Adverse:** the predicted impact will cause an adverse effect on the receiving environment.

Receptor Sensitivity

Sensitivity may vary with the anticipated impact or effect. A receptor may be determined to have varying sensitivity to different environmental changes, for example, a high sensitivity to changes in air quality, but low sensitivity to noise impacts. Sensitivity may also be derived from statutory designation which is designed to protect the receptor from such impacts.

Sensitivity terminology may vary depending upon the environmental effect, but generally this may be described in accordance with the following broad categories - Very high, High, Medium and Low.

Table C1 outlines the methodology used in this study to define the sensitivity of receptors to air quality impacts.

Table C1 Receptor Sensitivity to Odours

Sensitivity	Criteria
High	Surrounding land where: • users can reasonably expect enjoyment of a high level of amenity; and • people would reasonably be expected to be present here continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Examples may include residential dwellings, hospitals, schools/education and tourist/cultural.
Medium	Surrounding land where: • users would expect to enjoy a reasonable level of amenity, but wouldn't reasonably expect to enjoy the same level of amenity as in their home; or • people 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. Examples may include places of work, commercial/retail premises and playing/recreation fields.
Low	Surrounding land where: • the enjoyment of amenity would not reasonably be expected; or • there is transient exposure, where the people 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 may include industrial use, farms, footpaths and roads.

Magnitude

Magnitude describes the anticipated scale of the anticipated environmental change in terms of how that impact may cause a change to baseline conditions. Magnitude may be described quantitatively or qualitatively. Where an impact is defined by qualitative assessment, suitable justification is provided in the text.

Table C2 Magnitude of Impacts

Magnitude	Description
Very Large	Impact is predicted to cause significant consequences on the receiving environment (may be adverse or beneficial)
Large	Impact is predicted to possibly cause statutory objectives/standards to be exceeded (may be adverse)
Medium	Predicted impact may be tolerated for most of the days, but maybe intolerable for some days.
Small	Predicted impact may be tolerated.
Negligible	Impact is predicted to cause no significant consequences.

Significance

The risk-based matrix provided below illustrates how the definition of the sensitivity and magnitude interact to produce impact significance.

Table C3 Impact Significance Matrix

Potential Odour Exposure Impact	Receptor Sensitivity		
	Low	Medium	High
Very Large	Moderate adverse	Substantial adverse	Substantial adverse
Large	Slight adverse	Moderate adverse	Substantial adverse
Medium	Negligible	Slight adverse	Moderate adverse
Small	Negligible	Negligible	Slight adverse
Negligible	Negligible	Negligible	Negligible

Where the overall effect is greater than “slight adverse”, the effect is likely to be considered significant. Note that this is a binary judgement: either it is “significant”, or it is “not significant”. Concluding that an effect is significant should not mean, of itself, that a development proposal is unacceptable, and the planning application should be refused; rather, it should mean that careful consideration needs to be given to the consequences, scope for securing further mitigation, and the balance with any wider environmental, social and economic benefits that the proposal would bring.

Appendix D Air Quality Notification Form

Mamre Abbotts Intersection Upgrade (MAIU) and Aldington and Abbott's Road Upgrade (AARU)

Construction Air Quality Management Plan

LOG-E c/- AT&L

SLR Project No.: 610.31166.00000

4 March 2025

Upgrade and widening of Aldington & Abbotts Roads and Mamre & Abbotts Roads

Air Quality Notification Form 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	
LOG-E c/- AT&L 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 E Curriculum Vitae of Author

Mamre Abbotts Intersection Upgrade (MAIU) and Aldington and Abbott's Road Upgrade (AARU)

Construction Air Quality Management Plan

LOG-E c/- AT&L

SLR Project No.: 610.31166.00000

4 March 2025

Sahar Bagheri, MSc, BS

Associate Consultant | Air Quality | Asia-Pacific



Sahar is an associate Consultant working within the Air Quality team. She has over five years of environmental engineering experience.

Sahar has acquired broad environmental experience including air quality and odour, impact assessments, emission inventories (including National Pollutant Inventory and National Greenhouse and Energy Reporting), air quality dispersion modelling (including GRAL, CALPUFF and AERMOD), air quality and odour monitoring, meteorological monitoring, meteorological modelling (TAPM & CALMET), greenhouse gas assessments, and greenhouse gas management plans.

Education

- Master's in Mechanical Engineering, Sharif University of Technology, Iran (2016)
- Bachelor of Science (Mechanical Engineering), Sharif University of Technology, Iran (2014)

Project Experience

North Richmond Residential Development (2021)
Lead air quality consultant to conduct an OIA for the proposed North Richmond Residential Development and assess odour impacts from neighbouring sources and identify any opportunities for a staged development.

South Creek West Rezoning (2022)
Project manager to provide a detailed quantitative assessment of the potential air quality impacts of the Bringelly Brickworks operations on the Northwest Precinct within the South Creek West Land Release Area. The assessment has been modelled using a combination of the TAPM, CALMET and CALPUFF models.

Momentum M7 Development (2022)
The project involved details of all emissions from all construction activities due to the development of Momentum M7. It also included a program capable of evaluating the performance of the construction and determining compliance with key performance indicators, identification of control measures that may be suitable for emission sources, air quality management commitments and responsibilities, and potential contingency measures in the event of an air quality criterion exceedance.

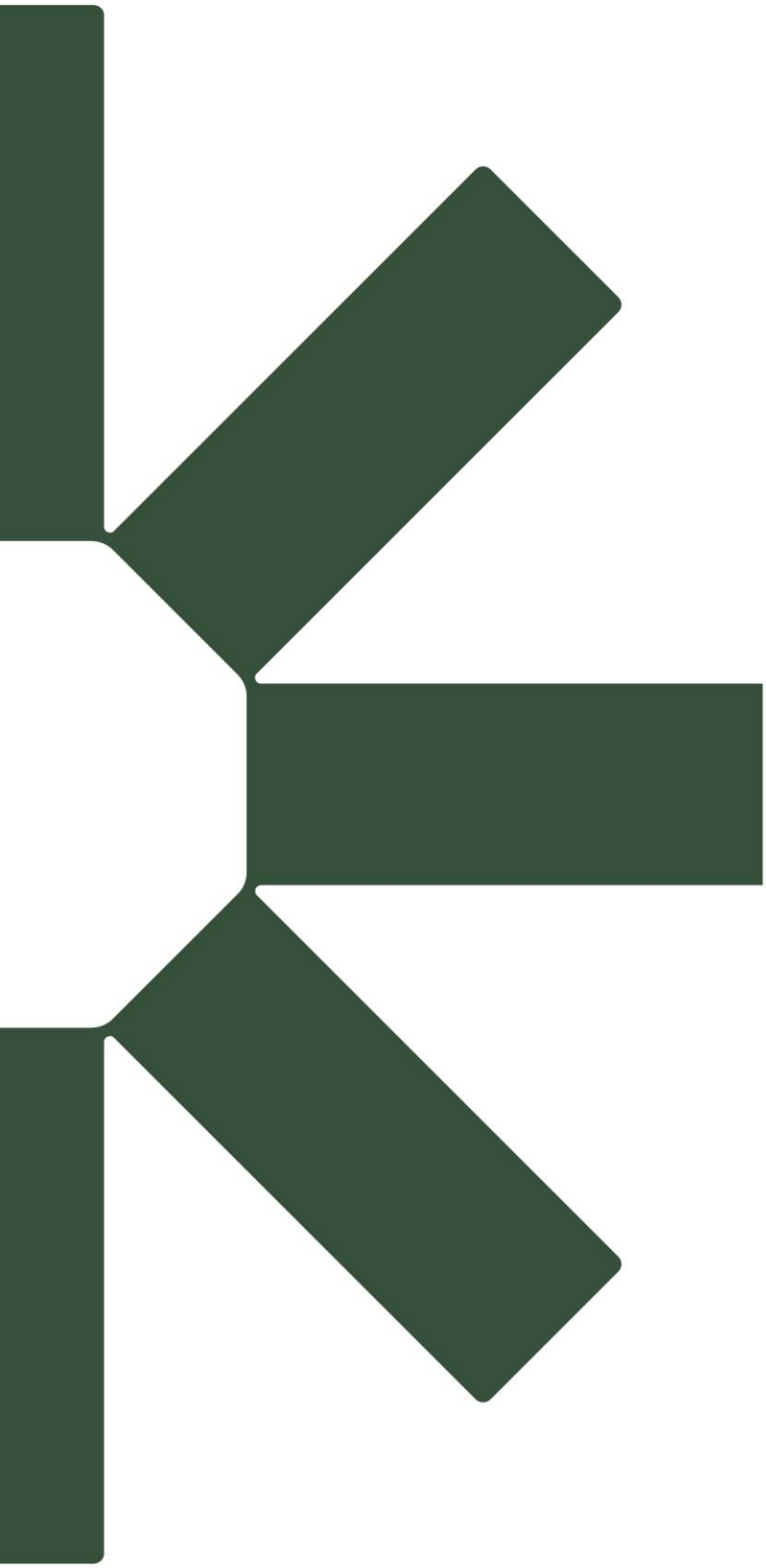
Aspect Industrial Estate (2021-2022)
Air quality specialist engaged by Mirvac to prepare a Construction Air Quality Management Plan (CAQMP) for the Aspect Industrial Estate (AIE) to maintain acceptable levels of amenity for surrounding residents during construction activities and ensure compliance with relevant ambient air quality criteria for particulate matter at surrounding receptor locations.

Moss Vale Sewage Treatment Plant Upgrade (2022)
Lead air quality consultant to undertake a detailed odour impact assessment for the proposed upgrade of the Moss Vale STP using the CALMET/CALPUFF modelling software.

Anzac Parade Air Quality Assessment (2021)
Air quality specialist to model the emissions from the closest main road using the GRAMM/GRAL modelling system and predict the incremental impact of these emissions across the proposed development of a mixed-use building.

Memberships and Associations

- Clean Air Society of Australia and New Zealand (CASANZ)
- Emerging Air Quality Professionals (EAQP)



Making Sustainability Happen

Appendix E Construction Waste Management Plan

at&l

Construction Waste Management Plan

Mamre and Abbotts Road Intersection Upgrade

Kemps Creek

ASPECT

March 2025

Limitations on use and reliance

Aspect Environmental Pty Ltd has prepared this report solely for the use of the Client and those parties with whom a warranty / end-user agreement or licence has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Aspect Environmental Pty Ltd; a charge may be levied against such approval.

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a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and

b) the use of, or reliance on, this document by any third party with whom an agreement has not been formally executed.

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client).

Should additional information become available which may affect the opinions expressed in this report, Aspect Environmental Pty Ltd reserves the right to review such information and, if warranted, to modify the opinions accordingly.

Authors

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Checker Rob Salisbury

Approver Mathew Williams

Date 05/03/2025

Report No. J1968250305.01

Revision Rev 01

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Jovi Highman-Smith	
BEnvSc	3 years' experience in regional strategic planning. Experience in environmental assessment and management across construction, including State significant development and Commonwealth approvals.
Mathew Williams	
BSc	Mat has 24+ years of experience in planning, auditing, compliance and construction environmental management both in Australia and internationally.

Revisions

Revision	Date	Description	Prepared by	Approved by
Rev 01	05/03/2025	Draft issued to client for review	J. Highman-Smith	M. Williams

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Glossary

AARU	Aldington and Abbotts Road Upgrade
Aspect	Aspect Environmental Pty Ltd
AT&L	AT&L Australia Pty Ltd
CEMP	Construction Environmental Management Plan
CoC	Condition(s) of consent
CWMP	Construction Waste Management Plan
DCP	Development Control Plan
ENM	Excavated Natural Material
Environmental Incident	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.
EPA	Environment Protection Authority
ER	Environmental Representative
MAIU	Mamre and Abbotts Road Intersection Upgrade
MRP	Mamre Road Precinct
POEO Act	*Protection of the Environment Operations Act 1997*
Project, the	Road upgrades to Mamre and Abbotts Road intersection Kemps Creek under SSD-10479
Site, the	Public road reserves located at Mamre Road and Abbotts Road intersection, Kemps Creek, NSW
SSD	State significant development
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*

1 INTRODUCTION

1.1 Background

This Construction Waste Management Plan (CWMP) has been prepared by Aspect Environmental Pty Ltd (Aspect) on behalf of AT&L Australia Pty Ltd (AT&L), to support construction works associated with the Mamre Road and Abbotts Road Intersection Upgrade (MAIU) and to provide for the development of land within the Mamre Road Precinct (the Project).

The Project is part Significant state development (SSD) approval SSD-10479 and is being delivered by the Land Owners Group – East (LOG-E), comprised of developers active in the Kemps Creek area whose developments will be serviced by the Project.

LOG-E is also delivering the Aldington and Abbots Road Upgrade (AARU) Phase 1 and Phase 2 projects. The AARU Phase 1 project adjoins the eastern boundary of the Project.

This CWMP has been prepared with reference to:

- SSD-10479 consent as Modified, dated 27 February 2024
- SSD-10479 Section 4.55(1A) Modification Application Report (Ethos Urban, 17 June 2024)
- SSD-10479 Environmental Impact Statement, Ethos Urban, 11 November 2020
- Detailed Site Investigation, Mamre Road and Abbotts Road, ADE Consulting Group, 9 May 2023
- Development Control Plan (DCP) Penrith, Penrith City Council, 2014
- Development Control Plan: Mamre Road Precinct – Western Sydney Employment Area, NSW Department of Planning, Industry and Environment, November 2021
- State Environmental Planning Policy (SEPP) Western Sydney Aerotropolis 2020.

This CWMP is a sub-plan of the Construction Environmental Management Plan (CEMP).

1.2 Project Description

The Project is located at Kemps Creek, within the Penrith Local Government Area and is zoned as 'IN1 – General Industrial' under the Penrith City Planning Certificate under section 10.7(2) of the *Environmental Planning and Assessment Act 1979*. The Project forms part of the Mamre Road Precinct which sits within both the Western Sydney Employment Area and the Western Sydney Aerotropolis.

The Project site is located at the intersection of Mamre Road and Abbotts Road, Kemps Creek, NSW (the Site). Mamre Road is a state road controlled by Transport for NSW (TfNSW) and Abbotts Road is controlled by Penrith City Council. The concept design for the upgrade of Mamre Road (for TfNSW) and Abbotts Road intersection includes widening 700m south of the intersection and 400m north of the intersection. This intersection includes widening within the western end of Lot 10 and Lot 11 DP250002 (north of Abbotts Road), which is developer owned (by ESR). There is no widening within the private property to the south of Abbotts Road (Lot 2 DP250002).

Land surrounding the Site is generally rural in nature comprising a variety of rural dwellings, rural land, farm dams and scattered vegetation.

The Project involves:

- bulk earthworks and site preparation works including vegetation clearing
- widening the road to two lanes beyond the existing road reserve either side on Mamre Road and Abbotts Road
- upgrades to the existing intersection of Mamre Road and Abbotts Road intersection, with new turning lanes and signals
- stormwater including new and larger culverts under and adjacent to road
- relocation of services above and underground
- new services including water, power, communications
- site sheds, material storage as required for road construction
- temporary works as necessary to facilitate construction.

An aerial showing the location of the MAIU Project and AARU Phase 1 and Phase 2 Projects is shown on Figure 1-1.

TfNSW – Mamre Road Upgrade

TfNSW are undertaking a greater project, called the Mamre Road Upgrade (MRU) which extends from the M4 Motorway, St Claire to Kerrs Road, Kemps Creek. This project is being delivered by TfNSW to meet the future transport demand associated with the Western Sydney Priority Growth Area. The NSW Government is working towards completing the concept design and Review of Environmental Factors for the MRU from Erskine Park Road, Erskine Park to Kerrs Road, Kemps Creek.

To deliver the Project, LOG-E have entered a Works Authorisation Deed with TfNSW to construct the MAIU and to ensure the design is coordinated to the MRU. TfNSW have advised the scope of the MAIU to reduce the risk of abortive works.

1.3 Purpose of this Plan

This CWMP defines the waste management framework for construction. The CWMP has been prepared to address conditions of the SSD-10479 Development Consent related to waste and to provide methods to monitor and manage impacts from waste during the construction of the Project.

Construction is to be undertaken in accordance with the most recent, approved version of this CWMP.

Roles and responsibilities for environmental management of the Project are outlined in Section 3.2 of the CEMP.

1.4 Objectives and Targets

Waste management objectives and targets have been established as a means of assessing environmental performance during construction. The objectives and targets in Table 1-1 have been developed with consideration of the key issues identified through the environmental assessment and risk assessment process.

Table 1-1 Waste management objectives and targets

Objective	Target	Monitoring Method
Enable compliance with relevant legislation, CoC, requirements and guidelines	No written warnings or infringement notices	• Daily site inspection checklist • Daily logbook • Environmental Representative (ER) monitoring, inspections and audits
Manage waste generated during construction	In accordance with targets within Penrith City Council's Waste Hierarchy	• Waste reporting
Manage contaminated and hazardous waste	Remove all contaminated or hazardous materials from site to an appropriate licensed facility	• Qualified and certified contractors

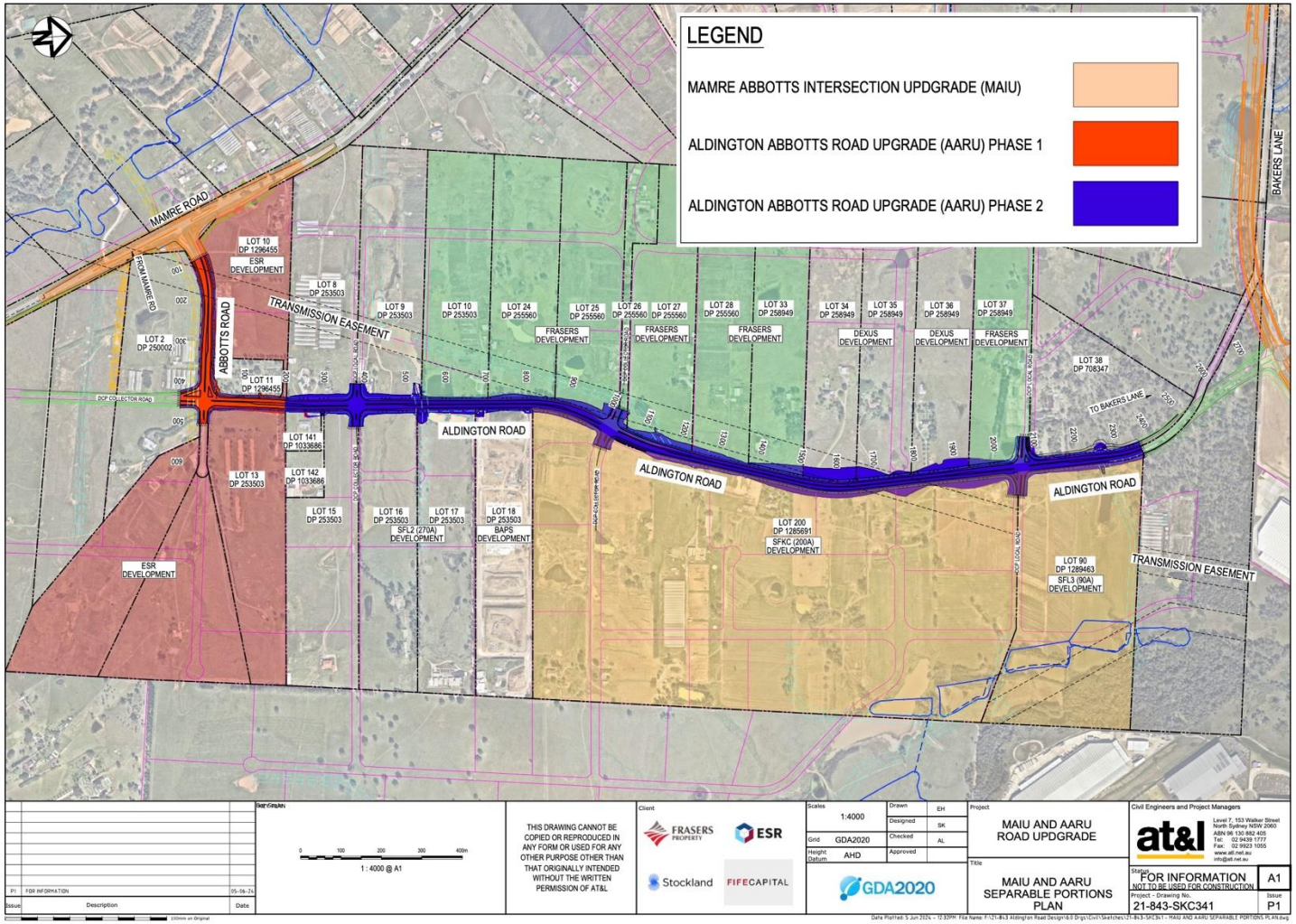


Figure 1-1 Location of MAIU Project and AARU Phase 1 and Phase 2 Projects

2 LEGAL AND OTHER OBLIGATIONS

2.1 Legislation

The regulatory framework for the Project is summarised in Section 3.3.2 of the CEMP, which identifies relevant legislative instruments, including legislative and voluntary obligations, permits and licences, and their key objectives and relevance to the Project.

Relevant legislative instruments for management of waste are summarised in Table 2-1. Additional details on the waste management requirements of these instruments and the requirements of guidelines are provided in the following sections.

Table 2-1 Legislative and related instruments relevant to the Project

Legislation	Key Project Requirements	Applicability
Environment Planning and Assessment Act 1979	Establishes a system of environmental planning and assessment of proposed developments in NSW The Project must comply with the requirements of the SSD-10479 Development Consent	All works
	Mamre Road Precinct Development Control Plan 2021: Reducing Penrith's ecological footprint by encouraging the diversion of waste from landfill	Management and reuse/ diversion of construction waste on site from landfill
Protection of the Environment Operations Act 1997 (POEO Act)	Aims to aid the protection, restoration and enhancement of the quality of the NSW environment Identifies activities for which an Environment Protection Licence is required	Pollution incidents that have caused or give rise to material harm The handling, storage and disposal of all construction waste
Waste Avoidance and Resource Recovery Act 2001	Waste exemptions under the POEO Act administration regulation	Management of construction waste on site

Where updated or revised versions of guidelines, protocols, standards or policies, or a replacement of them are available, the most recent versions should be applicable to this CWMP.

2.1.2 Protection of the Environment Operations Act 1997

All material to be removed from the site, including associated activities such as classification, are to be undertaken in strict accordance with the requirements of the POEO Act. Such requirements include:

- ensuring waste is classified appropriately and in accordance with relevant guidelines
- waste materials are disposed of at appropriately licensed facilities
- other materials are removed to facilities lawfully able to accept such materials.

2.1.3 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) establishes the waste hierarchy to ensure that resource management options are considered against the following priorities:

1. Avoidance – actions to reduce the amount of waste generated and undertaking activities.
2. Resource Recovery – which includes reuse, reprocessing, recycling and energy recovery, consistent with the most efficient use of the recovered resources.
3. Disposal – an "end-of-pipe" option that must be carefully undertaken to minimise any negative environmental outcomes.

The objectives of the WARR Act include:

- encouraging the avoidance of waste and the reuse and recycling of waste
- ensure that industry shares with the community the responsibility for reducing and dealing with waste
- ensure the efficient funding of waste and resource management planning, programs and service delivery
- achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis
- to assist in the achievement of the objectives of the POEO Act.

2.1.4 Protection of the Environment Operations (Waste) Regulation 2014

The Regulation encourages the recovery of resources from waste by issuing both general and specific resource recovery exemptions. Where no general exemption is available for the intended use, a specific exemption may be issued after an application is made to the NSW EPA. Specific exemptions are not publicly available.

The Regulation makes requirements relating to non-licensed waste activities and waste transporting. The proposed works on the site will not require to be licensed. Section 48 of the Regulation requires that wastes are stored in an environmentally safe manner. It also stipulates that vehicles used to transport waste must be covered when loaded.

The Regulation exempts certain waste streams from the full waste tracking and record keeping requirements. Waste tracking is required only for industrial and hazardous wastes.

2.1.5 Better Practice Guidelines 2012

The NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities promotes efficient waste minimisation and resource recovery for commercial and industrial facilities and is used as a benchmark document when assessing waste production rates within Australia.

Better practice waste management systems in commercial buildings may incorporate any, or all, of the following:

- Garbage services to manage residual wastes (those not collected by a dedicated recycling or organics collection service).

- Recycling services to manage dry recyclable materials. These materials may vary from building to building, but generally cover recyclable materials generated in a typical business, including office paper, cardboard, plastic film, metals and recyclable containers.
- Organics services to manage garden and food organics, which may include a bin-based collection system or onsite composting.
- Bulky waste services to manage bulky items, such as furniture and fit-out materials.
- Special waste services for items such as toner cartridges, batteries, fluorescent lights, mobile phones and chemicals.

2.1.6 NSW Waste and Sustainable Materials Strategy 2041

As well as waste reduction and recycling, Stage 1: 2021-2027 of NSW Waste and Sustainable Materials Strategy 2041, focuses on the environmental benefits and economic opportunities in how we manage our waste.

The main targets of the Strategy are as follows:

1. Reduce total waste generated by 10% per person by 2030.
2. Have an 80% average recovery rate from all waste streams by 2030.
3. Significantly increase the use of recycled content by governments and industry.
4. Phase out problematic and unnecessary plastics by 2025.
5. Halve the amount of organic waste sent to landfill by 2030.

The Strategy also includes the following recycling targets (as relevant to the Project):

- plastic litter reduction target of 30% by 2025
- introduce a new overall litter reduction target of 60% by 2030.

2.1.7 Waste Classification Guidelines 2014

All wastes generated and proposed to be disposed offsite will be assessed, pre-classified or classified, and managed in accordance with the NSW EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste.

2.1.8 Mamre Road Precinct Development Control Plan 2021

In accordance with Section 4.5 (Waste Minimisation and Management) of the MRP DCP, one of the objectives of the MRP DCP is to assist in reducing Penrith's ecological footprint by encouraging the diversion of waste from landfill.

The MRP DCP has been prepared in accordance with the WARR Act 2001 and came into effect in November 2021.

2.1.9 Approvals, Licences and Permits

No additional approvals, licences and permits for waste management during the construction of the Project are expected to be required.

2.2 Project Consent Conditions

The Project is to be constructed in accordance with the SSD-10479 Development Consent. The conditions which apply to waste management are identified in Appendix A.

2.3 Training and Awareness

As detailed in Section 3.4 of the CEMP, all Project personnel will be made aware of the site-specific waste management requirements through a site induction and prestart meetings/toolbox talks prior to the commencement of construction.

All Project personnel will be suitably qualified, but individual team members may benefit from specific waste management training to help them better manage the environmental impacts of the Project, where they will be made aware of:

- waste and resource requirements
- legislation requirements
- roles and responsibilities
- control measures
- incident management and response.

The copy of the approved version of the CWMP is to be maintained on site during construction.

Short-term visitors to the Project site will be required to undertake a visitor's induction and be accompanied by inducted personnel.

Incident and Non-compliance Response and Handling Procedure, Sections 5.5 and 5.6 of the CEMP, details the procedures that will be implemented for the:

- classification of incidents, including pollution incidents
- handling of incidents and non-compliances
- implementation of corrective actions
- notification of incidents including material harm pollution incidents and non-compliances to regulatory agencies
- reporting of incidents and non-compliance.

These procedures will be implemented for any incidents and non-compliances related to waste management during construction of the Project.

3 IMPLEMENTATION

This section outlines the management measures to be implemented to manage waste generated during the construction of the Project. Elements covered include:

- waste classification
- waste reduction
- beneficial reuse
- waste storage
- waste removal.

Waste management measures are detailed in the following sub-sections. A Contingency Plan has been prepared (see CEMP) which details response to ineffective waste management during construction of the Project.

The applicable controls required in the MRP DCP have been incorporated into the relevant sub-plans as required.

CoC D87 requires the details of the type and quantity of waste to be generated during construction and operation of the development.

3.1 Estimated Construction Waste Generation

The construction of the Project is anticipated to generate moderate volumes of waste. Estimated construction waste quantities for the Project are summarised in Table 3-1.

Table 3-1 Estimated construction waste quantities

Waste Type	Estimated Quantity	Reuse	Recycle	Dispose	Method
Stripped topsoil (Excavated Natural Material (ENM))	9,000m^3	✓	-	-	Re-used for re-vegetation works on the Project, and on other projects via existing resource recovery orders and exemptions.
Milled / excavated pavement materials	7,500m^3	✓	-	-	Re-used for earthworks / pavement material on the Project, or other projects via existing resource recovery orders and exemptions.
Felled trees	150m^3	✓	-	-	Mulched onsite. Re-used for re-vegetation works on the Project, and on other projects via existing resource recovery orders and exemptions.
Concrete	<500t	-	✓	-	Recycled offsite at licensed facility
Metals / cable	<50t	-	✓	-	Recycled offsite at licensed facility
Conduits / Pipes	<2t	-	✓	-	Recycled offsite at licensed facility
Timber	<2t	-	✓	-	Recycled offsite at licensed facility

Waste Type	Estimated Quantity	Reuse	Recycle	Dispose	Method
Pallets	<100 Units	✓	-	-	Return to supplier / distributor for re-use
Cardboard packaging	<5t	-	✓	-	Recycled offsite at licensed facility
Non-recyclable waste from offices / lunchrooms	<5t	-	✓	-	Recycled offsite at licensed facility
Non-recyclable waste from offices / lunchrooms	<5t	-	-	✓	Disposed offsite at licensed facility by licenced waste collection contractor.
Waste from ablutions	<100,000L	✓	✓	✓	Waste tanks pumped out weekly by licenced contractor. Treated offsite at licenced liquid waste treatment facility. Combination of reused / recycled and waste bi-products.

3.2 Waste Classification

The construction of the Project will generate the following core waste streams:

- site preparation waste
- general construction waste
- construction plant maintenance waste
- packaging waste
- work compound waste from onsite employees.

A summary of waste types that may be generated by construction activities, along with their waste classifications and typical management measures, is provided in Table 3-2.

The NSW EPA website (https://www.epa.nsw.gov.au/your-environment/waste) provides further information on managing construction waste and classifying waste types. All wastes generated during construction works will be classified in accordance with the requirements of NSW EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste.

Table 3-2 Potential waste types and their management measures

Waste Source and Types	NSW EPA Waste Classification	Typical Management Measures
Site Preparation		
Clean fill	ENM/ Virgin Excavated Natural Material	Onsite reuse
Contaminated fill	To be classified subject to the results of testing	Offsite treatment or disposal to landfill
Excavated natural material or virgin excavated natural material	General solid waste (non-putrescible)	Onsite reuse of topsoil for landscaping of the site, offsite beneficial reuse or send to landfill site
Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Recycle offsite for filling, levelling or road base
Sand or soil	General solid waste (non-putrescible)	Offsite recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Offsite recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Offsite recycling
Timber	General solid waste (non-putrescible)	Offsite recycling, chip for landscaping, sell for firewood Treated: reused for formwork, bridging, blocking, propping or second-hand supplier Untreated: reused for floorboards, fencing, furniture, mulched second-hand supplier Remainder to landscape supplies
Glass	General solid waste (non-putrescible)	Offsite recycling, glazing or aggregate for concrete production
Asbestos	Special waste	Offsite disposal at a licensed landfill facility
Plant Maintenance		

Waste Source and Types	NSW EPA Waste Classification	Typical Management Measures
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups	Hazardous waste: Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid waste (non-putrescible): Containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for offsite recycling or disposal at licensed facility
Air filters and rags	General solid waste (non-putrescible)	Offsite disposal
Batteries	Hazardous waste	Offsite recycling, the Australian batteryrecycling.org.au provides more information
Tyres	Hazardous waste	Offsite disposal
Packaging		
Packaging materials, including wood, plastic, cardboard, metals and stretch wrap made of Linear Low-Density Polyethylene (LLPE)	General solid waste (non-putrescible)	Offsite recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or offsite recycling businessrecycling.com.au provides more information
Work Compound and Associated Offices		
Food waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Recyclable beverage containers including glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Co-mingled recycling at offsite licensed facility or deliver to local NSW container deposit scheme ‘Return and Earn’ facility
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at offsite licensed facility
General domestic waste generated by workers such as soiled paper and cardboard and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

3.3 Waste Reduction

Waste-type-specific reduction measures are to be employed during construction, with the measures detailed in Table 3-3 implemented.

Table 3-3 Waste reduction measures

ID	Management Measure	Responsibility	Timing/ Frequency
WM 1	Apply practical construction techniques	Construction Contractor	Construction
WM 2	Appropriate sorting and segregation of construction wastes to ensure efficient recycling of wastes	Construction Contractor	Construction
WM 3	Select construction materials taking into consideration their long lifespan and potential for reuse	Construction Contractor	Construction
WM 4	Order materials to size and order pre-cut and prefabricated materials	Construction Contractor	Construction
WM 5	Reuse formwork (where possible)	Construction Contractor	Construction
WM 6	Planned work staging	Construction Contractor	Construction
WM 7	Reduce packaging waste on-site by returning packaging to suppliers where possible, 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.	Construction Contractor	Construction
WM 8	Careful on-site storage and source separation	Construction Contractor	Construction
WM 9	Subcontractors informed of site waste management procedures	Construction Contractor	Construction
Wm 10	Coordination and sequencing of various trades	Construction Contractor	Construction

3.4 Beneficial Reuse

The anticipated beneficial reuses of construction waste are detailed in Table 3-4.

Table 3-4 Beneficial reuse measures

ID	Management Measure	Responsibility	Timing/ Frequency
WM 11	All solid waste timber, concrete and 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.	Construction Contractor	Construction
WM 12	All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with SafeWork Authority and NSW EPA requirements.	Construction Contractor	Construction

ID	Management Measure	Responsibility	Timing/ Frequency
WM 13	Portable, self-contained toilet and washroom facilities will be provided at the site and will be regularly emptied and serviced by a suitably qualified contractor.	Construction Contractor	Construction
WM 14	Provision for the collection of batteries, fluorescent tubes and other recyclable resources will be provided onsite to enable offsite recycling.	Construction Contractor	Construction
WM 15	Drink container recycling should be provided onsite or these items sorted offsite for recycling at an appropriately licensed facility.	Construction Contractor	Construction
WM 16	All garbage will be disposed of via a council approved system.	Construction Contractor	Construction
WM 17	Opportunities for materials exportation and reuse with other local construction operations will be investigated.	Construction Contractor	Construction

3.5 Waste Storage

Waste will be stored and managed on site during construction as detailed in Table 3-5.

Table 3-5 Waste storage measures

ID	Management Measure	Responsibility	Timing/ Frequency
WM 18	Waste storage locations will be accessible and allow sufficient space for storage and servicing requirements. These locations will also be flexible in order to cater for change of use throughout construction.	Construction Contractor	Construction
WM 19	Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting. The positions of the designated waste holding areas on site will change according to construction works and their progression, but must consider visual amenity, OH&S and accessibility in their selection.	Construction Contractor	Construction
WM20	All waste placed in stockpile areas/skips for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site.	Construction Contractor	Construction
WM 21	Appropriate siting of waste stockpile locations will take into account slope and drainage factors to avoid contamination of stormwater drains during rain events.	Construction Contractor	Construction
WM 22	Waste/recycling storage locations will be assigned during the construction works and will provide adequate space to accommodate all waste and recycling bins associated with the construction.	Construction Contractor	Construction
WM 23	Recycling bins will be accessible to all construction employees and must be clearly sign-posted and colour coded to ensure segregation of waste and recycling is effective. See Figure 3-1 for standard NSW EPA signage.	Construction Contractor	Construction
WM 24	Waste containers will be kept clean and in a good state of repair.	Construction Contractor	Construction

Figure 3-1 NSW EPA waste management signage



3.6 Waste Removal

Waste will be removed and disposed of during construction as detailed in Table 3-6.

Table 3-6 Waste removal measures

ID	Management Measure	Responsibility	Timing/ Frequency
WM 25	All wastes removed from the site shall be transported in accordance with relevant road and transportation regulatory requirements and in accordance with the existing Construction Traffic Management Plan. Where required (depending on the classification of the wastes), appropriately licensed transport contractors shall be used.	Construction Contractor	Construction
WM 26	The appointed transporters shall be responsible for ensuring they are appropriately licensed to: • carry the particular type of waste • transport the materials to an appropriately licensed facility.	Construction Contractor / Waste Disposal Transporter	Construction
WM 27	Where the waste is classified as restricted waste or hazardous waste, the transporter is required to carry (subject to a number of exceptions) appropriately completed waste data forms with each load and provide a copy to the waste facility to which the waste is taken.	Construction Contractor / Waste Disposal Transporter	Construction

4 MONITORING AND REVIEW

4.1 Environmental Inspections

Regular site inspections will be undertaken as described in Section 5.1 of the CEMP. Inspections are to be completed to:

- verify compliance with CoC
- determine conformance with the reuse, recycle and disposal measures detailed within this CWMP
- review the effectiveness of waste management controls
- document observation and track performance.

Site inspection checklists and logs are to be documented and reported to the Construction Contractor. Any corrective actions undertaken are to be documented and maintained onsite.

4.2 Environmental Monitoring

As described in Section 5.2 of the CEMP, monitoring will be undertaken to evaluate the effectiveness of the implementation of this CWMP, and to address any legal and compliance requirements. The ER will be advised of any construction phase non-compliance from monitoring, and details reported in accordance with the environmental incident reporting process.

Where a non-compliance is detected or monitoring results are outside of the expected range and are directly attributable to the Project (influenced by factors under the direct control of the Project, e.g. construction waste disposal), the process described in Section 5.5 of the CEMP will be implemented.

Waste monitoring will be undertaken to assist in the management of the waste and to obtain accurate waste generation records. Monitoring includes:

- recording waste generated and disposal methods
- reviewing past waste disposal receipts
- recording waste volumes recycled, reused or contractor removed in accordance with Penrith DCP.

Waste audits may be periodically completed to gauge the effectiveness and efficiency of waste segregation procedures and recycling and reuse initiatives.

4.3 Records, Compliance Reporting and Auditing

All Project documentation and records related to waste management and compliance reporting will be completed as described in Section 5.3 of the CEMP.

The Project will undertake an internal Health, Safety, Security and Environment audit of the Project annually (Section 5.3 of the CEMP). Audits will involve a review of all environmental documents, records and reports to verify compliance with the CEMP and this CWMP. In addition, the ER may at any time request documents and evidence confirming implementation of the CEMP and sub-plans.

Key environmental and procedural aspects to be covered by the audit may include:

- environmental mitigation measures detailed in this CWMP
- adherence to reporting procedures
- complaint and incident management
- legislative requirements.

Records of auditing and reporting will be maintained to demonstrate compliance.

4.4 Contingency Management Plan

If inspections, monitoring and/or auditing indicate that the mitigation measures listed in this CWMP are not effective in managing environmental impacts, the flora and fauna mitigation measures detailed in the Contingency Management Plan are to be implemented. The Contingency Management Plan is included as Appendix O of the CEMP.

These responses manage any unpredicted impacts and their consequences. The Contingency Management Plan would check that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible.

4.5 Non-compliances and Actions

Section 5.5 of the CEMP details the Project team's response following the identification of a non-compliance with the CoC, the CEMP and sub-plans. This includes the reporting, investigation and notification of non-compliances. Non-compliances with this CWMP will be addressed as required by the CEMP.

4.6 Environmental Incident and Emergency Response

Section 5.6 of the CEMP details environmental incidents and the response to environmental emergencies for the Project. This includes the reporting, notification and investigation of environmental incidents. Emergency contact details are also provided.

In the event of an environmental incident or emergency related to the implementation of this CWMP, the responses detailed in the CEMP are to be implemented.

4.7 Environmental Reporting

Environmental reporting for the Project is described in Section 5.7 of the CEMP.

4.8 CWMP Review and Revision Program

As described in Section 5.8 of the CEMP, the Project will annually review the adequacy of the environmental mitigation measures within the CEMP and sub-plans (including this CWMP), as well as the effectiveness of their implementation to determine whether they are still applicable to the activities being carried out onsite.

All employees and contractors are to be informed of any revisions to the CWMP during toolbox talks.

Appendix A Development Consent Compliance Matrix

SSD-10479 Instrument		CWMP Section
D87	Prior to the commencement of construction of the Stage 1 development, the Applicant must update the Waste Management Plan included in the EIS for the development. The Plan must: (a) detail the type and quantity of waste to be generated during construction and operation of the Stage 1 development; (b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014 and the Waste Classification Guideline (Environment Protection Authority, 2014); and (c) detail the materials to be reused or recycled, either on or off site.	This Plan a) Table 3-1 b) Section 3 c) Table 3.4
D88	The Applicant must implement the Waste Management Plan for the duration of construction and operation.	Noted
D90	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.	Section 3
D91	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 waste management facility or premises lawfully permitted to accept the waste.	Section 3.2

Appendix F Unexpected Contamination Finds Protocol

Unexpected Contamination Finds Protocol

Mamre Road, Abbotts Road and Aldington Road Upgrade, Kemps Creek NSW

Prepared for: Land Owners Group – East C/O AT&L

A101024.0241.00 | UCFP_V5f | Date: 11 March 2025

ADE CONSULTING GROUP

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For and on behalf of
ADE Consulting Group Pty Ltd
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1 Introduction

ADE Consulting Group Pty Ltd (ADE) was engaged by the Land Owners Group – East or LOG-E (the 'client') to complete an unexpected contamination finds protocol (UCFP) to support the implementation of a construction environmental management plan (CEMP) for the proposed road upgrade being performed on Mamre Road, Abbotts Road and Aldington Road (AARU and MAIU), Kemps Creek, New South Wales (NSW) (the 'site').

The term 'unexpected find' relates to the following being potentially exposed or encountered during the proposed construction activities:

- Unexpected materials / substances.
- Potential hazardous materials or substances (i.e., asbestos).
- Unidentified contamination including but not limited to odorous soils or visually contaminated materials.

As unexpected finds can occur at any stage of the bulk earthworks program, all site personnel should be informed of their obligations to report unexpected finds and provided examples of what are unexpected finds and those that may be likely to occur on the project. The information can be delivered in the form of training and awareness programs such as site inductions, toolbox talks, safety audits and alerts.

This sub-management plan is considered to be a supplemental document and is to be read and reviewed in conjunction within the requirements of the CEMP.

1.1 Developmental Consent

A development application (DA) is a formal application for development that requires consent under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). The conditions of Development Consent (SSD 10479 MOD 3) include:

- (D83) – Prior to the commencement of earthworks, the Applicant must prepare an unexpected contamination finds procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with condition C2 and must ensure any material identified as contaminated is disposed of in accordance with the POEO Act and its associated regulations. Details of the final disposal location and the results of any associated testing must be submitted to the Planning Secretary prior to removal of the contaminated material from the site.
- (F35) – Prior to the commencement of any part of the Interim Road Works, the Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of Condition C1 and to the satisfaction of the Planning Secretary. The CEMP must include the following:
    - (H) – an unexpected finds procedure and asbestos management plan to manage any unexpected contamination encountered during the works, including details of testing and off-site disposal in accordance with the POEO Act and associated regulations

1.2 Proposed Development

It is understood that the proposed road upgrade or 'proposed development' comprises of a 4 kilometre (km) stretch of road from the intersection of Mamre Road and Abbotts Road, extending up Aldington Road, Kemps Creek. The site has an approximate length of 4 km and is situated within the local government area (LGA) of Penrith City Council.

1.3 Objectives

This UCFP outlines the following steps in identifying and responding to unexpected finds:

- Identification of the unexpected find encountered.
- Stop work/isolation procedures.
- Assessment of the find.
- Requirements for remediation, validation, or removal of the unexpected find (UXF).
- Development of "below the line" controls to respond to UCFP incidents such as incident registers, internal notification procedures, and New South Wales Environment Protection Authority (NSW EPA) notification procedures.

1.4 Legislative Requirements

In NSW, there are multiple regulatory frameworks for managing chemical contaminants and asbestos in soils and a regulatory framework for managing contaminants in the workplace. The unexpected find protocol has been developed in conjunction with local, state, and national environmental regulations and planning guidelines including:

- Environmental Planning and Assessment Act 1979 (NSW).
- Work Health and Safety Act (2011).
- Work Health and Safety Regulation (2017).

This report has been developed in accordance with the following guidelines and regulations:

- SafeWork NSW (2022a). Code of Practice: How to manage and control asbestos in the workplace.
- SafeWork NSW (2022b). Code of Practice: How to safely remove asbestos.
- SafeWork Australia (2024). Workplace exposure standards for airbourne contaminants.
- Workcover NSW (2014). Managing asbestos in, or on, soil.

2 Unexpected Finds Protocol

This UCFP has been developed to provide guidance on processes to follow if an unexpected find is encountered during proposed construction activities occurring within the site. The recommended protocol is summarized as a flowchart in **Appendix A – Unexpected Finds Protocol**. Al unexpected finds must be recorded within the unexpected finds register and held in record for a minimum of 5 years by the site owner or manager (refer to **Appendix B – Unexpected Finds Register**).

2.1 Worker Response

In the event of an unexpected find occurring, work in the area should cease and the process of assessment and management be implemented. A minimum 10 metre square exclusion zone must be established around the affected area using appropriate barriers or signage.

Works are not to recommence in the affected area until appropriate advice has been obtained from the environmental consultant and relevant information has been provided to all parties e.g., site supervisor / project manager / principal contractor to issue notification to recommence. If it is deemed safe to do so by the suitably qualified person, works may resume in the affected area.

2.2 Potential Types of Unexpected Finds

Three general classes of potential unexpected finds which are maybe encountered within the project, including:

- Unexpected materials / substances. (e.g., fibrous materials or unidentified liquids)
- Potential hazardous materials or substances (i.e., asbestos).
- Unidentified contamination including but not limited to odorous soils or visually contaminated materials.

Radiological hazards are not addressed in this UCFP, given the site's history and the low on-site risk of the radiological components.

All unexpected finds must be managed in accordance with the unexpected finds flowchart detailed within **Appendix A – Unexpected Finds Protocol**. The following sub-sections outline the various procedures to be implemented for unexpected finds scenarios above.

2.2.1 Unexpected Materials/Substances

Unexpected materials and or substances may be encountered throughout the project which may exist in varying forms of media (e.g., solid, liquid or gas). Any suspected material potentially containing asbestos must be considered as containing asbestos or a 'positive' detection until otherwise verified by a NATA accredited laboratory.

Upon identification, all work must cease within the area and the unexpected find notified immediately to the site manager. The affected area must be isolated with a suitable safety barrier or perimeter and appropriate signage erected. If it is safe to do so, all efforts must be made to contain or prevent the spread of potential contamination. This may be in the form of physical barriers, absorbents, or spill kits. All unexpected finds must be inspected by a suitably qualified environmental consultant prior to work recommencing.

2.2.2 Potential Hazardous Materials (i.e. Asbestos)

If ACM is encountered within areas previously classified as not containing ACM, the contractor shall stop work and inform the environmental consultant, who will re-evaluate the site assessment. Any incidents that may potentially arise shall be managed in accordance with **Appendix A**. Remediation works shall be undertaken under the supervision of a competent person appointed by the contractor or the client or be performed in accordance with an approved remedial works plan (RWP).

Any ACM found within the soil should be dealt with in accordance with the methods outlined within NEPC (2013) and other relevant NSW EPA endorsed guidelines. Further soil sampling for delineation and validation shall be undertaken until the soils are deemed clear of asbestos.

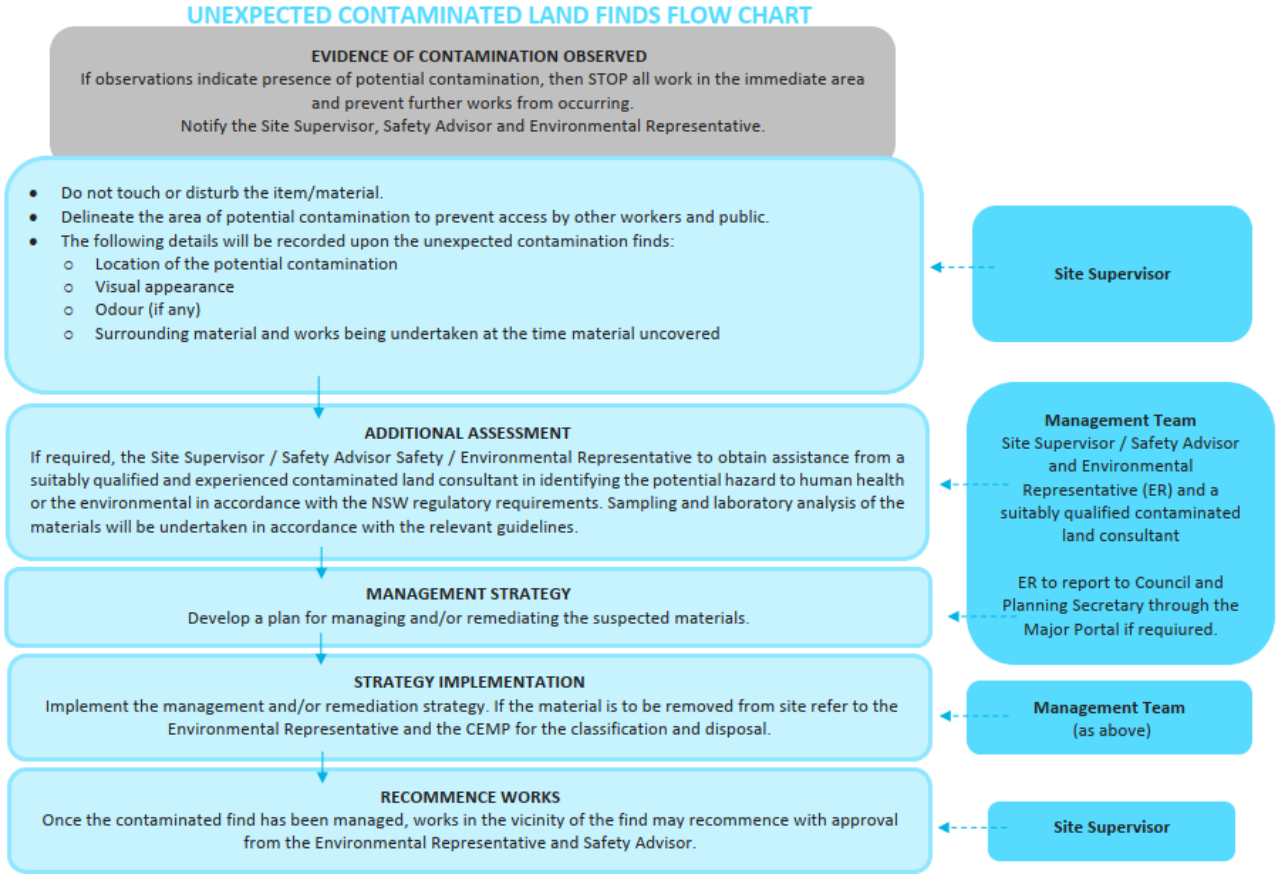
The following asbestos management procedures will be implemented if the soil suspected of containing asbestos is encountered during excavation works:

- An independent licensed asbestos assessor or competent person will determine and establish a restricted zone.
- The area will be demarcated, all works withing the zone will cease, and workers will be notified accordingly.
- The projects' Safety and Environmental representatives will be notified without delay.
- The soil and any potential asbestos-containing materials (ACM) will be maintained in a damp state using appropriate dust suppression techniques, such as the application of water and wetting agents. In areas where water access is not feasible, the restricted zone will be securely covered to prevent the dispersion of airborne asbestos fibres.

- Preparation of an asbestos removal control plan (ARCP) for the site which will remain in place for the duration of the development works.
- Disturbance of suspected contaminated soil will be kept to a minimum until all asbestos management procedures are fully implemented.
- The work site will be secured using appropriate signage and physical barriers to prevent unauthorised access.
- Appropriate PPE will be provided to workers, based on the level of contamination and the control measures in place.
- Suspected asbestos-containing materials (ACM) will be sampled and tested, and air monitoring will be conducted by accredited consultants to ensure compliance with regulatory standards.
- Consultation with environmental consultant prior to any material being removed off-site ensuring it is classified in accordance with the NSW EPA Waste Classification requirements.
- A licensed asbestos removalists will assess and manage the ACM area, providing recommendations as required
- The Licenced Asbestos Removal Contractor, engaged by the client, will notify Safework NSW at least five days prior to commencement of removal activities.
- Following asbestos removal, an environmental consultant will inspect the restricted area to verify compliance with remediation requirements.
- A clearance certificate will be issued by the environmental consultant to confirm that the area has been rendered safe.
- Education and training for workers on hazard and safe work practices will be provided to minimise air borne dust exposure.
- Implementation of decontamination procedures for the workers and the equipment.

All removal works will be performed in accordance with the project's asbestos management procedures (as shown in **section 2.2.2.1** below), asbestos removal control plan (ARCP) and other relevant legislation and planning requirements.

2.2.2.1 Asbestos Management Procedure



2.2.3 Unidentified Contamination

Visual/olfactory indicators of potential contamination include:

- Hydrocarbon odours.
- Staining or discoloured soils.
- Sulfidic odours, seashells, or other signs of acid sulfate soils.
- Paint chips.

A summary of potential unexpected find characteristics is provided in **Section 2.3**. If potential contamination is found during excavation works, the following controls will ensue:

- Upon discovery of further Areas of Environmental Concern (AECs), the site manager is to be notified and the area physically isolated with appropriate signage.
- Visual identification of the nature of the issue and the likely extent of the AEC by the environmental consultant.
- The environmental consultant is to conduct appropriate investigations with a view to identifying the nature and extent of the contamination.

2.3 Potential Unexpected Find Characteristics

Based on findings of previous investigations and site history, unexpected finds which maybe encountered within the site are summarised in **Table 1**.

Table 1. Summary of Non-specific Unexpected Finds.

Potential Unexpected Find	Observed Characteristics	Type of Potential Contaminants
Buried dry waste materials	May include a variety of waste materials including wood, plastic, metal fragments, building rubble (e.g. concrete, brick, asphalt, forms of asbestos etc.).	Asbestos, heavy metals
Buried putrescible wastes	Putrescible waste materials typically comprise decomposed organic waste materials intermixed within the fill materials on site, with an associated characteristic rotten egg type odour. Such materials should not be confused with decomposed plant matter found within the natural sandy soils.	Various
Structures or conduits containing deleterious materials	Could be identified as follows: A buried tank, or cess pit, or former process pipelines; Deeper sand fill sometimes with visual/olfactory indications of contamination. Presence of small concrete footings surrounding by odorous of visually impacted soils and/or groundwater.	TRH, BTEX, PAH, asbestos
Ash or slag deposits	Ash materials typically light weight, grey and white sand and gravel sized (1mm to 10mm) particles. Slag materials can be varied in consistency and colour and may comprise pale grey to blue/green/grey and be loose or cemented. Slag gravels can be very angular and appear to have a vesicular (i.e. 'honeycomb') texture.	Heavy metals, PAHs, alkalinity
Buried or surface bonded ACM, Asbestos fines/friable asbestos	Fibre cement-ACM (e.g. compressed cement sheeting) may be present in building waste or pipes. Friable forms of asbestos including lagging and insulation, textured coatings and vinyl floor tiles may also contain asbestos. Fines and fibres are not typically visible to the unaided eye. Laboratory analysis is required to identify asbestos in soil.	Asbestos

Potential Unexpected Find	Observed Characteristics	Type of Potential Contaminants
Hydrocarbon Compounds	Identifiable by either odour and/or visual indications of contamination. Characteristic petrol, diesel or 'oily' odours (e.g. hydraulic oil) which may vary in strength from weak (just detectable) to very strong (easily detectable at a distance from the source). In soils, the odour may or may not be accompanied by specific areas of dark staining (black grey) or larger scale discolouration of strata from a previously identified 'natural colour' (e.g. staining of orange and brown clay to dark grey and green.) May also be visible as a distinct coloured sheen on water within an excavation.	TRH, BTEX, PAH
Landfill type material	Could include a combination of the other categories along with domestic (e.g. clothing), clinical (e.g. human tissue or hair, laboratory specimens etc.), and/or putrescible waste (e.g. food scraps, nappies, etc.).	Heavy metals
Other unusual odours	Other unusual odours that a different from surrounding soils, such as a sweet odour could indicate the presence of chlorinated hydrocarbon contamination.	Various e.g., Solvent odour, Acetone odour, Alcohol odour, Caustic odour, Acidic odour, Ammonia odour, Sulfur odour (possibly associated with acid sulfate soil)

Notes to Table 1
*TRH: Total recoverable hydrocarbons
**BTEX: Benzene, toluene, ethylbenzene, xylenes
***PAH: Polycyclic Aromatic Hydrocarbons

2.4 Off-Site Disposal of Waste

Soil materials destined for off-site disposal must be chemically assessed to determine its current classification status in accordance with relevant NSW EPA publications and legislative requirements. Consideration should be made if any of the soil materials have the potential to meet a NSW EPA resource recovery order (RRO) exemption such as virgin excavated natural material (VENM) or excavated natural material (ENM).

If material does not meet RRO requirements, the analytical data collected during the investigation will be compared against the criteria within the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (NSW EPA, 2014) and Addendum to the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (2016).

2.4.1 Regulatory Requirements

The remediation strategy is to limit the offsite disposal of waste and maximise the offsite beneficial reuse of materials such as metal.

Where material is required to be transported off the site and to another part of the Base for treatment or remediation, The transport and disposal of waste will be undertaken in accordance with POEO (Waste) Regulation 2014 and NSW EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste. If not using an approved, on-line tracking system the Site Contractor must also keep copies of the waste transport

certificates for at least four years. The use of the EPA on-line tracking system removes the requirement to maintain these records.

Waste will be disposed of offsite at a facility licensed to receive the materials. The handling, transport, and disposal of waste will be undertaken in accordance with POEO (Waste) Regulation 2014. The principal contractor must ensure that prior notice has been given to the receiving facility before transporting the materials to the site.

Waste pertaining to the demolition of existing buildings or remediation of soils will be disposed of at a facility licensed to receive the waste. The movement of waste offsite will be tracked using material tracking to collect the following information per load:

- Reference name
- The date the materials were moved offsite
- The material classification (only relevant for soil materials)
- The name of the company undertaking the transportation and disposal
- The registration of the vehicle
- Tip dockets collected at the receiving facility
- The weight per tonne of the materials
- The name of the receiving facility (destination).

Details of the material tracking will be reconciled and included in the site validation report and are required to form part of the site audit report.

3 Implementation, Monitoring and Review

3.1 Roles and Responsibilities

In the event of any unexpected find, the site manager shall be notified immediately. The worker response protocol shall be undertaken as soon as reasonably practical to contain the suspected contamination and a suitability qualified consultant engaged to investigate. All appropriate preventative measures shall be implemented to avoid any potential risks that may pose environmental harm. **Table 2** details the relevant roles and responsibilities associated with the implementation of the UCFP.

Table 2. Relevant Roles and Responsibilities for the implementation of the UCFP.

Role	Responsibility
Site Owner	The site owner must ensure that the UCFP is attached as a sub-management plan to the construction environmental management plan (CEMP) and any other relevant documentation.
Site Manager	The site manager must implement all administrative and physical controls to ensure that any works being carried out on the site are as per the UCFP. The site owner must provide a copy of this UCFP to any worker or contractor who may have reason to disturb the current conditions within the site. The site manager must ensure that all workers/contractors operating within the site are aware of this UCFP and are inducted to an appropriate level of environmental and emergency procedures. The site manager must demonstrate that any workers/contractors working within the site are fully trained in the management of the risks and hazards associated with asbestos and other potential sources of contamination
Site Workers/Contractors	Site workers/contractors who undertake intrusive works at the site must review this UCFP and implement the procedures provided within this plan. It is the responsibility of all workers/contractors to raise any safety concerns or report any unexpected finds immediately to the site manager upon identification.
Environmental Consultant	It is the responsibility of the environmental consultant to ensure that any supervision and/or remediation works are undertaken as per the UCFP and CEMP. The environmental consultant must ensure that all supervision, sampling and/or investigative methodologies are completed in accordance with relevant legislation and codes of practice. The environmental consultant is responsible for reporting all findings of the subsequent investigations to the site owner or manager within a reasonable timeframe. All reporting must comply with the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land or as per relevant legislative requirements.
Qualified Asbestos Supervisor / Removalist	The qualified asbestos supervisor/removalist must ensure that all appropriate controls outlined within the UCFP. A suitable asbestos removal control plan (ARCP) must be developed and be specific to the removal process to appropriately manage any potential human health related risk associated with asbestos. The asbestos supervisor/removalist shall ensure that adequate asbestos controls are in place, e.g., exclusion zone, before the commencement of any disturbance works. The asbestos supervisor/removalist will act as a site controller, ensuring that all personnel entering the exclusion zone have signed onto the appropriate documentation, wear the required PPE and where practical, abide by all asbestos management protocols.
Remediation Contractor (if applicable)	The remediation contractor is responsible for performing all remediation works in accordance with an approved RWP (i.e., the projects Remediation Action Plan or RAP). The remediation contractor must ensure all relevant approvals have been obtained from relevant third parties prior to commencing work. The remediation contractor is to contain or hold the necessary qualifications or experience to perform the required task.

3.2 Worker and Contractor Training

All personnel and contractors engaged in intrusive activities at the site must undergo comprehensive training to understand their roles and responsibilities as outlined within the UCFP. This training should cover environmental responsibilities and associated risks, particularly when dealing with potentially contaminated soils which may represent a salinity risk. Training requirements include:

- Site induction.
- Understanding the UCFP, including how to identify and respond to unexpected finds.
- Environmental emergency response training.
- Specific environmental training tailored to job roles.

Records of all training sessions must be maintained properly. The site manager is responsible for identifying the need for additional or updated training and ensuring its implementation. Workers should be briefed on the minimum PPE requirements for the project.

3.3 Audit and Review Process

The UCFP is a dynamic document that requires periodic review and amendments to align with site changes and evolving legislative requirements, enhancing its effectiveness. It remains applicable as long as potential to uncover potential unexpected finds during the construction stage.

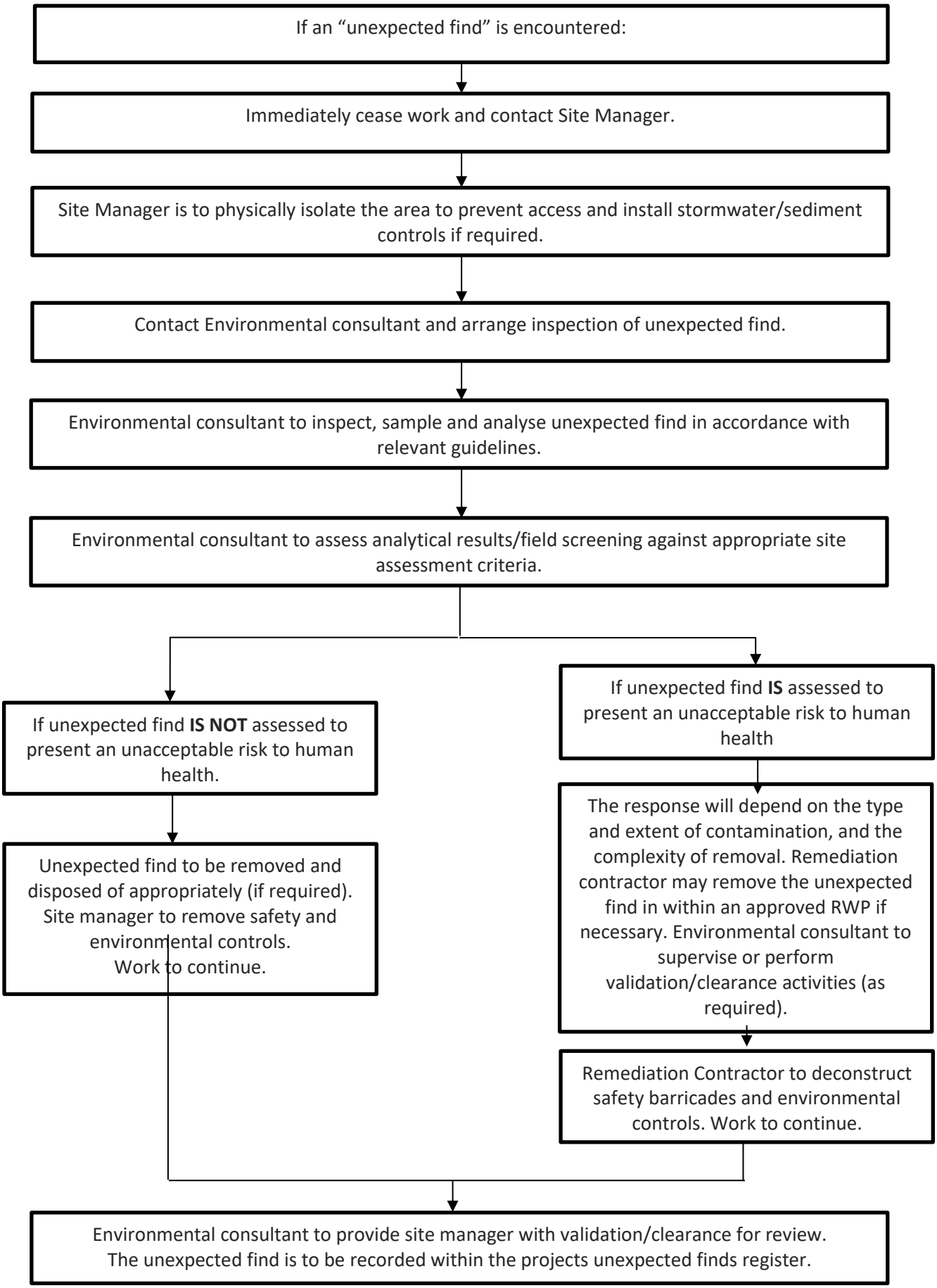
The site manager, along with a suitably qualified individual (e.g., environmental consultant), must conduct an UCFP review at least once every five years or in response to specific triggers, including:

- Changes in land use.
- Identification of significant environmental or health and safety issues.
- Discovery of unexpected incidents or finds.
- Completion of an environmental audit.

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Appendix A – Unexpected Finds Protocol



Appendix B – Unexpected Finds Register

Date	Area Reference (Chainage/Co-ordinates)	Description of Unexpected Find	Assessment Methodology	How was the UXF managed?	How was the UXF disposed?	Recorded / Closed off by:

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Appendix G Construction Flora and Fauna Management Plan

at&l

Construction Flora and Fauna Management Plan

Mamre and Abbotts Road Intersection Upgrade

Kemps Creek

ASPECT

March 2025

Limitations on use and reliance

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The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client).

Should additional information become available which may affect the opinions expressed in this report, Aspect Environmental Pty Ltd reserves the right to review such information and, if warranted, to modify the opinions accordingly.

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Date	10/03/2025
Report No.	J1968250310.1
Revision	Rev 01

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Revisions

Revision	Date	Description	Prepared by	Approved by
Rev 01	10/03/2025	Draft issued to client	J. Highman-Smith	M. Williams

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Glossary

AARU	Aldington and Abbotts Road Upgrade
Aspect	Aspect Environmental Pty Ltd
AT&L	AT&L Australia Pty Ltd
BDAR	Biodiversity Development Assessment Report
BD Act	*Biodiversity Act 2016*
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
CFFMP	Construction Flora and Fauna Management Plan
CoC	Condition(s) of Consent
DP	Deposited Plan
Environmental Incident	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.
ER	Environmental Representative
MAIU	Mamre and Abbotts Road Intersection Upgrade
Project, the	Road upgrades to Mamre and Abbotts Road intersection Kemps Creek, under SSD-10479
Site, the	Public road reserves located at Mamre Road and Abbotts Road intersection, Kemps Creek, NSW
SSD	State significant development

1 INTRODUCTION

1.1 Background

This Construction Flora and Fauna Management Plan (CFFMP) has been prepared by Aspect Environmental Pty Ltd (Aspect), on behalf of AT&L Australia Pty Ltd (AT&L), to support construction works associated with the Mamre Road and Abbotts Road Intersection Upgrade (MAIU) and to provide for the development of land within the Mamre Road Precinct (the Project).

This CFFMP has been prepared with reference to:

- SSD-10479 consent as Modified, dated 27 February 2024
- SSD-10479 Section 4.55(1A) Modification Application Report (Ethos Urban, 17 June 2024)
- Biodiversity Development Assessment Report (BDAR), Fraser Ecological, 03 June 2024, Mamre and Abbotts Road Intersection
- Flora and Fauna Assessment Report, Narla Environmental, March 2024, Mamre Road and Abbotts Road
- Development Control Plan (DCP) Penrith, Penrith City Council, 2014
- Development Control Plan: Mamre Road Precinct – Western Sydney Employment Area, NSW Department of Planning, Industry and Environment, November 2021
- State Environmental Planning Policy (SEPP) Western Sydney Aerotropolis 2020.

This CFFMP is a sub-plan of the Construction Environmental Management Plan (CEMP).

1.2 Project Description

The Project is located at Mamre, within the Penrith Local Government Area and is zoned as 'IN1 – General Industrial' under the Penrith City Planning Certificate under section 10.7(2) of the *Environmental Planning and Assessment Act 1979*. The Project forms part of the Mamre Road Precinct which sits within both the Western Sydney Employment Area and the Western Sydney Aerotropolis.

The Project site is located at the intersection of Mamre Road and Abbotts Road, Kemps Creek, NSW (the Site).

Mamre Road is a state road controlled by Transport for NSW (TfNSW) and Abbotts Road is controlled by Penrith City Council. The concept design for the upgrade of Mamre Road (for TfNSW) and Abbotts Road intersection includes widening 700m south of the intersection and 400m north of the intersection. This intersection includes widening within the western end of Lot 10 and Lot 11 DP250002 (north of Abbotts Road), which is developer owned (by ESR). There is no widening within the private property to the south of Abbotts Road (Lot 2 DP250002).

Land surrounding the Site is generally rural in nature comprising a variety of rural dwellings, rural land, farm dams and scattered vegetation.

The Project involves:

- bulk earthworks and site preparation works including vegetation clearing

- widening the road to two lanes beyond the existing road reserve either side on Mamre Road and Abbotts Road
- upgrades to the existing intersection of Mamre Road and Abbotts Road intersection, with new turning lanes and signals
- stormwater including new and larger culverts under and adjacent to road
- relocation of services above and underground
- new services including water, power, communications
- site sheds, material storage as required for road construction
- temporary works as necessary to facilitate construction.

An aerial showing the location of the MAIU Project and AARU Phase 1 and Phase 2 Projects is shown on Figure 1-1.

TfNSW – Mamre Road Upgrade

TfNSW are undertaking a greater project, called the Mamre Road Upgrade (MRU) which extends from the M4 Motorway, St Claire to Kerrs Road, Kemps Creek. This project is being delivered by TfNSW to meet the future transport demand associated with the Western Sydney Priority Growth Area. The NSW Government is working towards completing the concept design and Review of Environmental Factors for the MRU from Erskine Park Road, Erskine Park to Kerrs Road, Kemps Creek.

To deliver the Project, LOG-E have entered a Works Authorisation Deed with TfNSW to construct the MAIU and to ensure the design is coordinated to the MRU. TfNSW have advised the scope of the MAIU to reduce the risk of abortive works.

1.3 Purpose of this Plan

This CFFMP has been prepared to address the conditions of the SSD-10479 Development Consent related to flora and fauna and to provide methods to monitor and manage potential impacts to flora and wildlife strike risk during the construction of the Project.

Construction is to be undertaken in accordance with the most recent, approved version of this CFFMP.

Roles and responsibilities for environmental management of the Project are outlined in Section 3.2 of the CEMP.

1.4 Objectives and Targets

Flora and fauna management objectives and targets have been established as a means of assessing environmental performance during construction. The objectives and targets in Table 1-1 have been developed with consideration of the key issues identified through the environmental assessment and risk assessment process.

Table 1-1 Flora and fauna objectives and targets

Objective	Target	Monitoring Method
Enable compliance with relevant legislation, CoC, requirements and guidelines	No written warnings or infringement notices	• Environmental inspection checklist • Daily logbook • Environmental Representative (ER) monitoring, inspections and audits
Minimise impacts to flora and fauna during construction	No measurable impact to flora and fauna	• Environmental inspection checklist • Six-monthly monitoring by suitably qualified ecologist
Minimise impacts of wildlife to Western Sydney Airport operations	Minimal occurrence of common strike species at the site	• Environmental inspection checklist • Six-monthly monitoring by suitably qualified ecologist

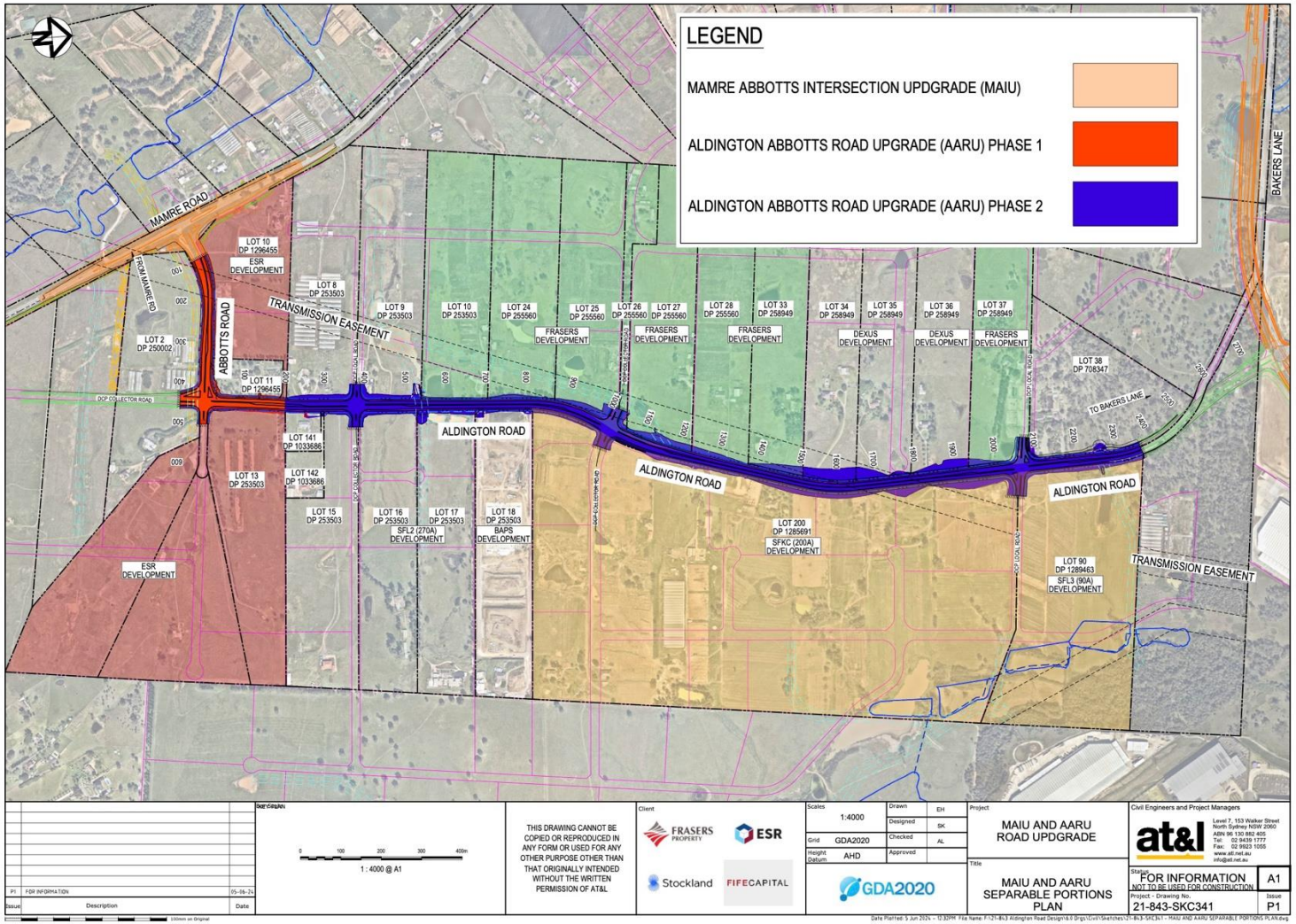


Figure 1-1 Location of MAIU Project and AARU Phase 1 and Phase 2 Projects

2 LEGAL AND OTHER OBLIGATIONS

2.1 Legislation

The regulatory framework for the Project is summarised in Section 3.3.2 of the CEMP, which identifies relevant legislative instruments, including legislative and voluntary obligations, permits and licences, and their key objectives and relevance to the Project.

Relevant legislative instruments for management of flora and fauna are summarised in Table 2-1.

Table 2-1 Legislative and related instruments relevant to the Project

Legislation	Key Project Requirements	Applicability
Environment Planning and Assessment Act 1979	Establishes a system of environmental planning and assessment of proposed developments in NSW The Project must comply with the requirements of the SSD-10479 Development Consent	All works
Protection of the Environment Operations Act 1997	Aims to aid the protection, restoration and enhancement of the quality of the NSW environment Identifies activities for which an Environment Protection Licence is required	Pollution incidents that have caused or give rise to material harm Discharges or emissions to air, land and water
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	Requirements in relation to protection and management of nationally and internationally important flora, fauna, ecological communities and heritage places.	Threatened species and ecological environments
Biodiversity Conservation Act 2016	Comply with conservation requirements for any identified threatened species.	Threatened species and ecological environments
Biosecurity Act 2015	Manages diseases and pests that may cause harm to human, animal or plant health or the environment	Priority weeds must be managed in accordance with the Act
Water Management Act 2000	This Act aims to manage the State's water resources including rivers and groundwater in a sustainable way.	As the Project intersects a mapped water course this Act applies Controlled activity approval maybe required

Where updated or revised versions of guidelines, protocols, standards or policies, or a replacement of them are available, the most recent versions should be applicable to this CFFMP.

2.2 Project Consent Conditions

The Project is to be constructed in accordance with the SSD-10479 Development Consent. The conditions which apply to flora and fauna and where the CFFMP address them is included in Appendix A.

2.3 Training and Awareness

As detailed in Section 3.4 of the CEMP, all Project personnel will be made aware of the site-specific flora and fauna management requirements through a site induction and prestart meetings/toolbox talks prior to the commencement of construction.

All Project personnel will be suitably qualified, but individual team members may benefit from specific flora and fauna management training to help them better manage the environmental impacts of the Project, where they will be made aware of:

- flora and fauna management measures
- legislation requirements
- roles and responsibilities
- control measures
- incident management and response.

The copy of the approved version of the CFFMP is to be maintained on site during construction.

Short-term visitors to the Project site will be required to undertake a visitor's induction and be accompanied by inducted personnel.

Incident and Non-compliance Response and Handling Procedure, Section 5.5 and 5.6 of the CEMP, details the procedures that will be implemented for the:

- classification of incidents, including pollution incidents
- handling of incidents and non-compliances
- implementation of corrective actions
- notification of incidents including material harm pollution incidents and non-compliances to regulatory agencies
- reporting of incidents and non-compliance.

These procedures will be implemented for any incidents and non-compliances related to waste management during construction of the Project.

3 EXISTING ENVIRONMENT

Fraser Ecological (June 2024) completed a BDAR for the Project. The BDAR was prepared in accordance with the Office of Environment and Heritage (OEH) (2020) Biodiversity Assessment Method. In addition to field validated surveys, the assessment report also incorporated the findings of the Flora and Fauna Assessment completed by Narla Environmental (March 2024).

Field surveys validated two vegetation zones of uniform condition within the Site:

- PCT 3320 - Cumberland Shale Plains Woodland (remnant trees or derived native grassland) equating to 0.2ha
- Exotic Vegetation (not classifiable as a PCT) equating to 4.29 ha.

No threatened plant species were recorded on the Site.

Due to the poor condition of the Cumberland Shale Plains Woodland vegetation and the relatively small area of impact the Project, no retirement of ecosystem credits is required.

One dam is located within the Site, however, it is located on ‘Certified Urban Capable Land’ and did not require assessment under the BDAR.

It was determined that there is no potential for significant impact upon any of the potentially occurring EPBC Act listed threatened species. Therefore, no assessment under the Significant Impact Guidelines for Matters of National Environmental Significance was required.

It was deemed that the Project is unlikely to result in a significant impact such that a local viable population or occurrence of any of the threatened fauna species would be placed at risk of extinction.

4 IMPLEMENTATION

4.1 Mitigation Measures

The measures for the management of flora and fauna during the construction of the Project are detailed in Table 4-1.

These are inclusive of the measures recommended in the BDAR for the Mamre and Abbotts Road Intersection prepared by Fraser Ecological dated 03 June 2024.

Table 4-1 Flora and fauna management measures

ID	Management Measure	Responsibility	Timing
FF 1	Commission the services of a qualified and experienced Ecologist. The Ecologist must be licensed with a current Department of Primary Industries Animal Research Authority permit and New South Wales Scientific Licence issued under the BC Act. The Ecologist is to: • Undertake any required targeted searches for threatened flora prior to vegetation clearing • Undertake an extensive pre-clearing survey which includes targeted searches for threatened fauna, threatened flora and priority weeds, and delineate habitat-bearing trees and shrubs • Undertake an additional targeted survey for the threatened Cumberland Land Snail • Undertake a pre-clearing survey which includes targeted searches for threatened fauna (including potential *Litoria aurea* [Green and Golden Bell Frog] within soaks prior to removal) • Supervise the clearing/modification of any aquatic habitat including creeks or dams to capture, treat and/or relocate any displaced fauna.	Construction Contractor/ Ecologist	Prior to construction
FF 2	Tree protection fencing is to be installed around all trees proposed for retention in the immediate vicinity of the Project.	Construction Contractor / Arborist	Prior to construction
FF 3	Temporary barriers e.g. flagging tape are to be erected around retained native vegetation that may incur indirect impacts on biodiversity values due to the construction works.	Construction Contractor	Prior to construction
FF 4	Appropriate erosion and sediment control must be installed and maintained during construction to avoid the potential of incurring indirect impacts on biodiversity values. An Erosion and Sediment Control Plan is to be developed to the Soils and Construction Managing Urban Stormwater Standards (Landcom 2004).	Construction Contractor	Prior to and during construction
FF 5	Implement hygiene protocols to minimise the spread of weeds or pathogens between infected areas and uninfected areas. Vehicles, machinery and building refuse should remain only within the Project site. Washdown protocols for vehicles should be observed to prevent the entry of soil borne pathogens.	Construction Contractor	Prior to and during all clearing works
FF 6	Building refuse to be disposed of at an appropriate waste management facility in accordance with measures outlined in the Construction Waste Management Plan.	Construction Contractor	Construction
FF 7	Any roadside revegetation/landscape works are to utilise tree species representative of the Cumberland Plain Woodland.	Construction Contractor	Construction

ID	Management Measure	Responsibility	Timing
FF 8	Manage pest, vermin, and declared priority weeds on the site. The following priority weeds were identified within the Project site: • *Lantana camara* (Lantana) • *Lycium ferocissimum* (African Boxthorn) • *Olea europaea subsp.* cuspidata (African Olive) • *Opuntia stricta* (Common Prickly Pear) • *Rubus fruticosus species aggregata* (Blackberry) • *Senecio madagascariensis* (Fireweed). All priority weeds are to be removed in accordance with the *Biosecurity Act 2015* and NSW WeedWise (DPI 2023). Environmental weeds should be managed with best practice techniques to improve the condition of the native vegetation within the Project site.	Construction Contractor	Construction
FF 9	Allocate all storage, stockpile, and laydown sites away from any native vegetation that is planned to be retained. Avoid importing any soil from outside the site as this can introduce weeds and pathogens to the site.	Construction Contractor	Construction

5 MONITORING AND REVIEW

5.1 Environmental Inspections

Regular site inspections will be undertaken as described in Section 5.1 of the CEMP. Inspections are to be completed by the Construction Contractor to:

- verify compliance with CoC
- determine conformance with the measures detailed within this CFFMP
- review the effectiveness of flora and fauna management controls
- document observation and track performance.

Site inspection checklists and logs are to be documented by the Construction Contractor and provided to the Environmental Representative (upon request). Any corrective actions undertaken are to be documented and maintained onsite.

5.2 Environmental Monitoring

As described in Section 5.2 of the CEMP, monitoring will be undertaken to evaluate the effectiveness of the implementation of this CFFP, and to address any legal and compliance requirements. The ER will be advised of any construction phase non-compliance from monitoring, and details reported in accordance with the environmental incident reporting process.

Where a non-compliance is detected or monitoring results are outside of the expected range and are directly attributable to the Project (influenced by factors under the direct control of the Project), the process described in Section 5.5 of the CEMP will be implemented.

Monitoring required for this CFFMP is summarised in Table 5-1.

Table 5-1 CFFMP monitoring requirements

Monitoring	Timing	Responsibility	Reference
Inspect Project site (focused on cleared areas) for the establishment of priority weeds and weeds of national significance.	Monthly	Construction Contractor	CoC D92
Inspect entire site to determine vermin and pest species are not present in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.	Monthly	Construction Contractor	CoC D92
Inspect security (bins lids closed and secured, waste store wholly with the receptacle) of waste storage areas, particularly relating to putrescible waste items.	Daily	Construction Contractor	CoC D90
Inspect site for general housekeeping relating to improper disposal of food stuffs and packaging.	Weekly	Construction Contractor	CoC D90

Monitoring	Timing	Responsibility	Reference
Inspection of sediment control measures (sediment fencing) to ensure all measures are intact and functioning properly, to avoid indirect impacts on adjoining vegetated areas.	Weekly, prior to and soon as practical following rainfall. Monthly CPESC inspections	Construction Contractor CPESC	CoC D25

5.3 Records, Compliance and Auditing

All Project documentation related to environmental management, including flora and fauna management records, are to be maintained as described in Section 5.3 of the CEMP.

Environmental auditing is described in Section 5.3 of the CEMP. The Project will undertake an internal Health, Safety, Security and Environment audit of the Project annually. Audits will involve a review of all environmental documents, records and reports to verify compliance with the CEMP and this CFFMP. In addition, the ER may at any time request documents and evidence confirming implementation of the CEMP and sub-Plans.

Key environmental and procedural aspects to be covered by the audit may include:

- environmental mitigation measures detailed in this CFFMP
- adherence to reporting procedures
- complaint and incident management
- legislative requirements.

Records of auditing and reporting will be maintained to demonstrate compliance.

5.4 Contingency Management Plan

If inspections, monitoring and/or auditing indicate that the mitigation measures listed in this CFFMP are not effective in managing environmental impacts, the flora and fauna mitigation measures detailed in the Contingency Management Plan are to be implemented. The Contingency Management Plan is included as Appendix O of the CEMP.

These responses manage any unpredicted impacts and their consequences. The Contingency Management Plan would check that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible.

5.5 Non-compliances and Actions

Section 5.5 of the CEMP details the Project team's response following the identification of a non-compliance with the CoC, the CEMP and sub-plans. This includes the reporting, investigation and notification of non-compliances. Non-compliances with this CFFMP will be addressed as required by the CEMP.

5.6 Environmental Incident and Emergency Response

Section 5.6 of the CEMP details environmental incidents and the response to environmental emergencies for the Project. This includes the reporting, notification and investigation of environmental incidents. Emergency contact details are also provided.

In the event of an environmental incident or emergency related to the implementation of this CFFMP, the responses detailed in the CEMP will be implemented.

5.7 Environmental Reporting

Environmental reporting for the Project is described in Section 5.7 of the CEMP.

5.8 CFFMP Review and Revision Program

As described in Section 5.8 of the CEMP, the Project will annually review the adequacy of the environmental mitigation measures within the CEMP and sub-plans (including this CFFMP), as well as the effectiveness of their implementation to determine whether they are still applicable to the activities being carried out onsite. This review will be undertaken by the Construction Contractor, in consultation with the Project Manager.

All employees and contractors will be informed of any revisions to the CFFMP during toolbox talks.

Appendix A Development Consent Compliance Matrix

SSD-10479 Instrument		CFFMP Section
D74	Prior to, and during, construction works the Applicant must implement the mitigation measures recommended in Table 27 of the Biodiversity Development Assessment Report prepared by Eco Logical Australia Pty Ltd, dated 22 June 2022.	Section 4
D78	The Applicant must protect retained vegetation on site with fencing to avoid impacts during construction and operation of the development.	Section 4
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	Section 5.1
(a)	detailed baseline data;	Section 5.4
(b)	details of: the relevant statutory requirements (including any relevant approval, licence or lease conditions); any relevant limits or performance measures and criteria; and the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 5.8
(c)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4.1
(d)	a program to monitor and report on the: impacts and environmental performance of the Stage 1 development; and effectiveness of the management measures set out pursuant to paragraph (c) above;	Section 5.8
(e)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.4
(f)	a program to investigate and implement ways to improve the environmental performance of the Stage 1 development over time;	Section 5.8
(g)	a protocol for managing and reporting any: incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); complaint; failure to comply with statutory requirements; and	Section 5.5 and 5.6
(h)	a protocol for periodic review of the plan.	Section 5.8
Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for management plans		Noted

Appendix H Dam Decommissioning Management Plan

at&l

Dam Decommissioning Management Plan

Mamre and Abbotts Road Intersection Upgrade

Kemps Creek

ASPECT

March 2025

Limitations on use and reliance

Aspect Environmental Pty Ltd has prepared this report solely for the use of the Client and those parties with whom a warranty / end-user agreement or licence has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Aspect Environmental Pty Ltd; a charge may be levied against such approval.

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a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and

b) the use of, or reliance on, this document by any third party with whom an agreement has not been formally executed.

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client).

Should additional information become available which may affect the opinions expressed in this report, Aspect Environmental Pty Ltd reserves the right to review such information and, if warranted, to modify the opinions accordingly.

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Date 06/03/2025

Report No. J1968250306.01

Revision Rev 01

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Revisions

Revision	Date	Description	Prepared by	Approved by
Rev 01	06/03/2025	Draft issued to client for review	J. Highman-Smith	M. Williams

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Glossary

AARU	Aldington and Abbotts Road Upgrade
Aspect	Aspect Environmental Pty Ltd
AT&L	AT&L Australia Pty Ltd
CEMP	Construction Environmental Management Plan
CoC	Condition(s) of Consent
DDMP	Dam Decommissioning Management Plan
DP	Deposited Plan
ENM	Excavated natural material
Environmental Incident	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.
ER	Environmental Representative
MAIU	Mamre and Abbotts Road Intersection Upgrade
NHMRC	National Health and Medical Research Council
NEPM	National Environmental Protection Measure
NSW EPA	NSW Environment Protection Agency
POEO Act	*Protection of the Environment Operations Act 1997*
Project, the	Road upgrades to Mamre and Abbotts Road intersection Kemps Creek, under SSD-10479
Site, the	Public road reserves at Mamre Road and Abbotts Road Intersection, Kemps Creek, NSW
SSD	State significant development
VENM	Virgin excavated natural material

1 INTRODUCTION

1.1 Background

This Dam Decommissioning Management Plan (DDMP) has been prepared by Aspect Environmental Pty Ltd (Aspect) on behalf of AT&L Australia Pty Ltd (AT&L), to support construction works associated with the Mamre Road and Abbotts Road Intersection Upgrade (MAIU) and to provide for the development of land within the Mamre Road Precinct (the Project).

The Project is part Significant state development (SSD) approval SSD-10479 and is being delivered by the Land Owners Group – East (LOG-E), comprised of developers active in the Kemps Creek area whose developments will be serviced by the Project.

LOG-E is also delivering the Aldington and Abbots Road Upgrade (AARU) Phase 1 and Phase 2 projects. The AARU Phase 1 project adjoins the eastern boundary of the Project.

This DDMP has been prepared with reference to:

- SSD-10479 consent as Modified, dated 27 February 2024
- SSD-10479 Section 4.55(1A) Modification Application Report (Ethos Urban, 17 June 2024)
- SSD-10479 Environmental Impact Statement, Ethos Urban, 11 November 2020
- Development Control Plan (DCP) Penrith, Penrith City Council, 2014
- Development Control Plan: Mamre Road Precinct – Western Sydney Employment Area, NSW Department of Planning, Industry and Environment, November 2021
- State Environmental Planning Policy (SEPP) Western Sydney Aerotropolis 2020.

This DDMP is a sub-plan of the Construction Environmental Management Plan (CEMP).

1.2 Project Description

The Project is located at Kemps Creek, within the Penrith Local Government Area and is zoned as 'IN1 – General Industrial' under the Penrith City Planning Certificate under section 10.7(2) of the *Environmental Planning and Assessment Act 1979*. The Project forms part of the Mamre Road Precinct which sits within both the Western Sydney Employment Area and the Western Sydney Aerotropolis.

The Project site is located at the intersection of Mamre Road and Abbotts Road, Kemps Creek, NSW (the Site). Mamre Road is a state road controlled by Transport for NSW (TfNSW) and Abbotts Road is controlled by Penrith City Council. The concept design for the upgrade of Mamre Road (for TfNSW) and Abbotts Road intersection includes widening 700m south of the intersection and 400m north of the intersection. This intersection includes widening within the western end of Lot 10 and Lot 11 DP250002 (north of Abbotts Road), which is developer owned (by ESR). There is no widening within the private property to the south of Abbotts Road (Lot 2 DP250002).

Land surrounding the Site is generally rural in nature comprising a variety of rural dwellings, rural land, farm dams and scattered vegetation.

The Project involves:

- bulk earthworks and site preparation works including vegetation clearing

- widening the road to two lanes beyond the existing road reserve either side on Mamre Road and Abbotts Road
- upgrades to the existing intersection of Mamre Road and Abbotts Road intersection, with new turning lanes and signals
- stormwater including new and larger culverts under and adjacent to road
- relocation of services above and underground
- new services including water, power, communications
- site sheds, material storage as required for road construction
- temporary works as necessary to facilitate construction.

An aerial showing the location of the MAIU Project and AARU Phase 1 and Phase 2 Projects is shown on Figure 1-1.

TfNSW – Mamre Road Upgrade

TfNSW are undertaking a greater project, called the Mamre Road Upgrade (MRU) which extends from the M4 Motorway, St Claire to Kerrs Road, Kemps Creek. This project is being delivered by TfNSW to meet the future transport demand associated with the Western Sydney Priority Growth Area. The NSW Government is working towards completing the concept design and Review of Environmental Factors for the MRU from Erskine Park Road, Erskine Park to Kerrs Road, Kemps Creek.

To deliver the Project, LOG-E have entered a Works Authorisation Deed with TfNSW to construct the MAIU and to ensure the design is coordinated to the MRU. TfNSW have advised the scope of the MAIU to reduce the risk of abortive works.

1.3 Purpose of this Plan

This DDMP has been prepared to address the conditions of the SSD-10479 Development Consent related to dam decommissioning. The purpose of this DDMP is to set out the environmental processes for managing the decommissioning of the four farm dams during the construction phase of the Project.

Construction is to be undertaken in accordance with the most recent, approved version of this DDMP.

Roles and responsibilities for environmental management of the Project are outlined in Section 3.2 of the CEMP.

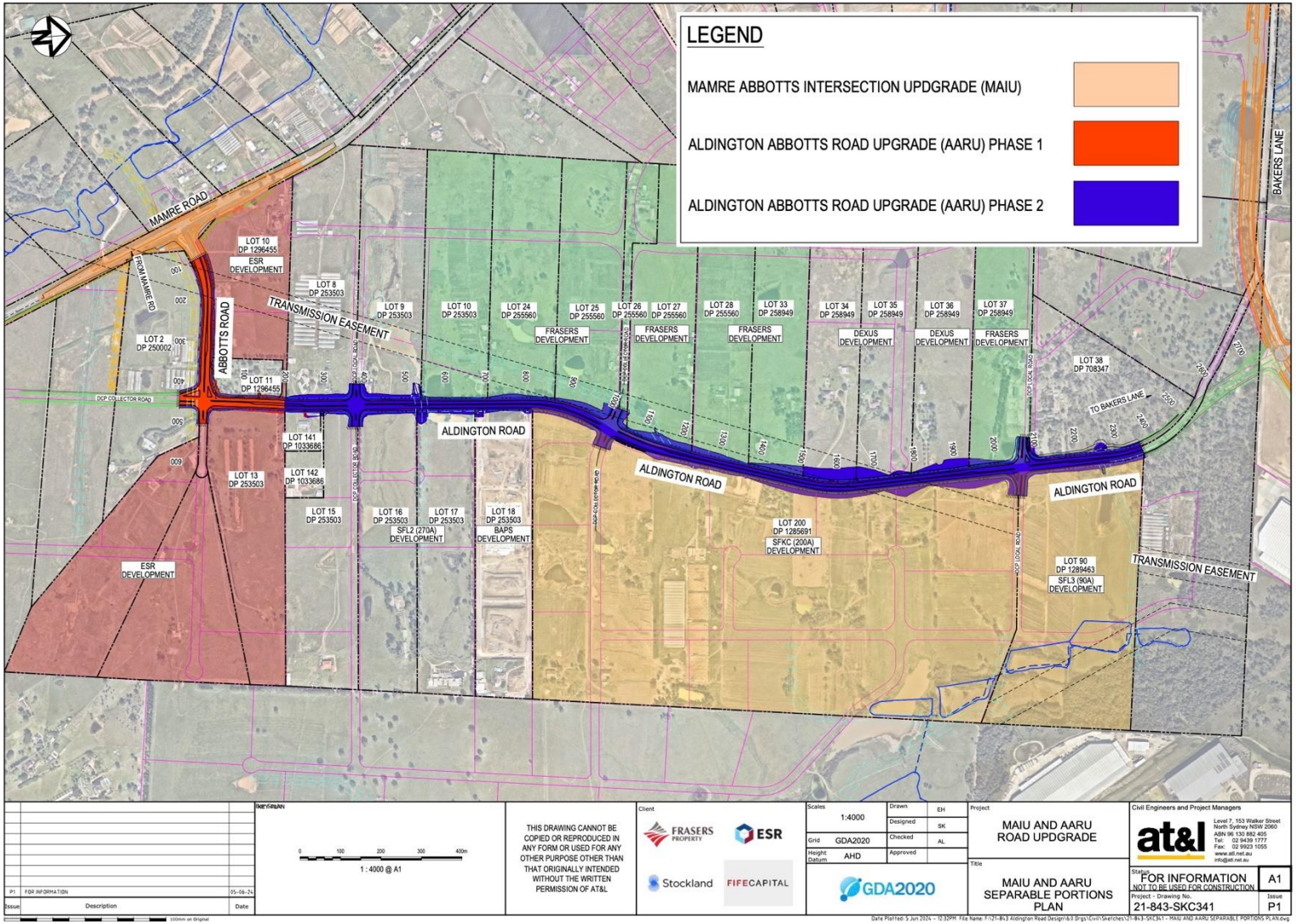


Figure 1-1 Location of MAIU Project and AARU Phase 1 and Phase 2 Projects

2 SITE DESCRIPTION

2.1 General

The Project is located on gently undulating terrain within a rural setting, in the Penrith Local Government Area and is approximately 38km west of the Sydney central business district and approximately 5km north-east of the Western Sydney Airport, which is currently under construction.

2.2 Topography

The Project has a moderate to steep sloping surface ranging from 44-74m Australian Height Datum (ADE, 2024, *Abbotts Road and Aldington Road Upgrade)*. The lowest point on-site is in the south-western portion of the Site, with the highest point found at the northern part of the Site. As such, the Site is considered to have a moderate to steep gradient towards the south-west.

2.3 Geology and Soils

The site is a mixture of Luddenham soils and potentially Blacktown soils. Section 1 is a mixture of both soils whilst Section 2 has only Blacktown soils. These soils are described in the Soil Landscapes of the Penrith 1:100,000 sheets (Bannerman and Hazelton 2011).

The Luddenham landscape is characterised by undulating to rolling hills underlain by Wianamatta Group Ashfield Shale and Bringelly Shale formations, with local relief 50-80m and slopes 5-20%. The Ashfield Shale consists of laminite and dark grey shale. Bringelly Shale consists of shale, calcareous claystone, and laminite. Between these two shale members is the Minchinbury Sandstone consisting of fine to medium-grained lithic quartz sandstone. Soils are shallow (<100cm) consisting of dark Podzolic Soils or massive Earthy Clays on crests, moderately deep (70-150cm) Red Podzolic Soils on upper slopes and moderately deep (<150cm) Yellow Podzolic Soils on lower slopes and drainage lines. These soils are typically moderately reactive, with a high soil erosion hazard, and localised impermeable highly plastic subsoil.

The Blacktown soil landscape is characterised by gently undulating rises on Wianamatta Group shales, with local relief to 30m and slopes usually >5%. The geology consists of Wianamatta Group—Ashfield Shale comprising of laminite and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminite and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone.

2.4 Hydrology and Hydrogeology

There is no surface water body on the Site. The closest surface water body is a portion of Kemps Creek located approximately 350m west of the Site.

The Site contains two 1st order watercourses and one 2nd order watercourse along with their associated riparian buffer zones (Figure 4-1). Two mapped hydro areas (dams) also overlap with the Project Site.

Most of the Project Site is not sealed, with exposed soils and landscaping areas within the residential premises on the eastern and western boundaries of the Site. In these areas, surface water is presumed to infiltrate into the sub-soil profile. Groundwater is expected to emulate the Site

topography and proceed relatively slowly (due to the low hydraulic gradient characteristic of the underlying clays) in an easterly direction towards Parramatta River.

3 LEGAL AND OTHER REQUIREMENTS

3.1 Legislation

Water NSW is responsible for managing dam safety for all dams across NSW, including the decommissioning of farm dams.

The Project is to be constructed in accordance with applicable legislative instruments, permits, licences and guidelines as required. The instruments relevant to the management of the dam decommissioning across the Project are outlined in Table 3-1.

Table 3-1 Legislative and related instruments relevant to the Project

Instrument	Key Project Requirements	Applicability
Environment Planning and Assessment Act 1979	Establishes a system of environmental planning and assessment of proposed developments in NSW. The Project must comply with the requirements of SSD 9138102 and SSD 10479 Development Consents	All works
Protection of the Environment Operations Act 1997 (POEO Act)	Part 5.4 of the POEO Act requires operators to: (a) maintain plant in an efficient condition, or (b) operate plant in a proper and efficient manner. The Act also creates obligations for dealing with raw materials and emissions of particulates and odours which cause air pollution outside the premises.	Dam decommissioning/ earthworks Materials management Stockpile management Operation and maintenance of plant and equipment
Water Act 1912	This Act governs water licences.	Dam dewatering and decommissioning activities
Water Management Act 2000	This Act aims to manage the State's water resources including rivers and groundwater in a sustainable way.	Dam dewatering and decommissioning activities
Commonwealth Environmental Protection and Biodiversity Conservation Act 1999	This Act promotes the protection of threatened ecological communities.	Possible threatened communities under the EPBC Act in the Project area that do not meet the minimum condition thresholds for EPBC listing

Where updated or revised versions of guidelines, protocols, standards or policies, or a replacement of them are available, the most recent versions should be applicable to this DDMP.

3.2 Water Quality Assessment Guidelines

The dam water quality is to be screened against the following guidelines as part of the dewatering and decommissioning process:

- Australian and New Zealand Guidelines for Fresh Water Quality (ANZG, 2018) – 95% species protection guidelines
- Guidelines for Managing Risks in Recreational Water (NHMRC, 2008) – Primary contact recreation guidelines.

In addition, the following criteria are consistent with industry best practice and are to be used immediately before and during dewatering to determine suitability for onsite re-use or discharge:

- pH between 6.5 and 8.5
- total suspended solids < 50 mg/L
- no visible oil and grease.

The dam sediment and embankment soil is to be screened against the following National Environmental Protection Measure (NEPM) guidelines to determine the on site reuse or off site disposal process:

- NEPM – Guideline on Investigation Levels for Soil and Groundwater (2013) – Health investigation levels for soils contaminants for commercial/industrial sites (HIL-D)
- NEPM – Guideline on Investigation Levels for Soil and Groundwater (2013) – Health screening levels commercial/industrial sites (HSL-D).

3.3 Project Consent Conditions

The Project is to be constructed in accordance with SSD-10479 Development Consent. The conditions which apply to dam decommissioning and where they have been addressed are identified in Appendix A.

4 DAM DECOMMISSIONING STRATEGY

The decommissioning of the dams is to align with the progression of earthworks on site. The timing of the earthworks and seasonal weather conditions can influence the water levels of the dams, and this is to be taken into consideration when sequencing the decommissioning activities.

The recommended procedure for the decommissioning of the existing farm dams is summarised in the following sections. The dam decommissioning process is to be completed under appropriate supervision. Supervision is to include the implementation of a permit system whereby the Project Manager approves dam dewatering and use or discharge of water, including the adequacy of downstream controls.

4.1 Background

The four farm dams to be decommissioned as part of the Project are shown in Figure 4-1 and Figure 4-2. All four dams are located on private property adjacent to existing roads. They have generally been formed with earthen embankments and are fed by rainfall runoff.

Three of the dams are located adjacent to Aldington Road and are to be managed under SSD-10479. Parts of these three dams are located outside the construction boundary (Figure 4-1). Condition D37 of SSD-10479 Development consent allows for the decommissioning and removal of these dams as part of the construction works.

The fourth dam is adjacent to Mamre Road, north of the intersection with Abbotts Road (Figure 4-2). This dam is located entirely within the construction boundary.

4.2 Dam Water Analysis

Management of the dam waters requires an understanding of the water quality and approximate water volumes to assess reuse or disposal options. On site reuse is the preferred option and is discussed in Section 4.4.

4.2.1 Dam Water Quality

Water quality sampling of the dam water is required prior to dewatering to determine if the water is suitable for onsite reuse. The water quality is to be assessed against the relevant guidelines in Section 3.2 for the proposed reuse of the water. The number of water quality samples for analysis is to be determined by a suitably qualified specialist.

The specialist is to determine whether there is stratification within the dam. Stratification is the formation of layers of water with different properties (parameters) – oxygenation, density, temperature, pH and salinity.

Figure 4-1 Location of three farm dams to be decommissioned

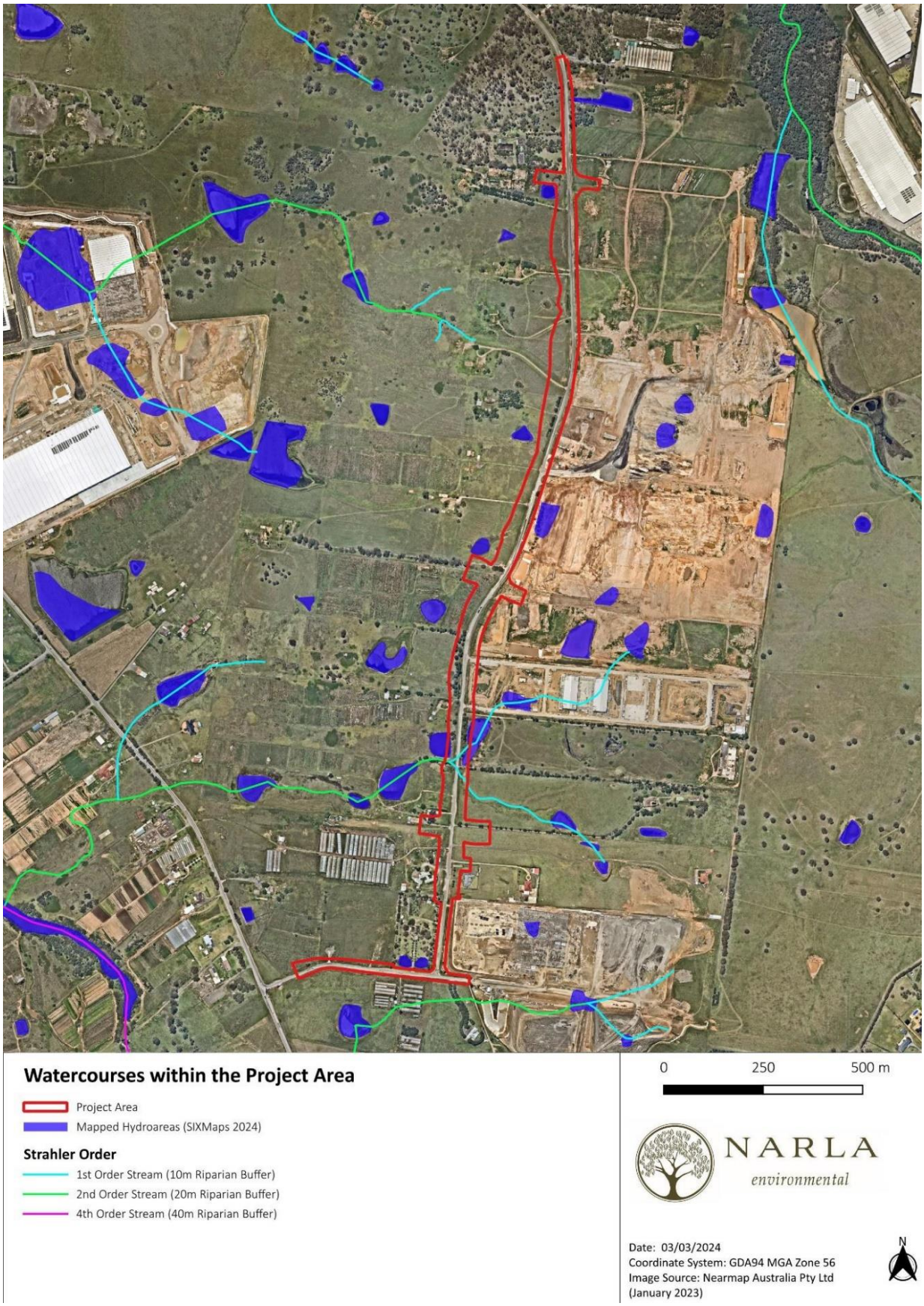
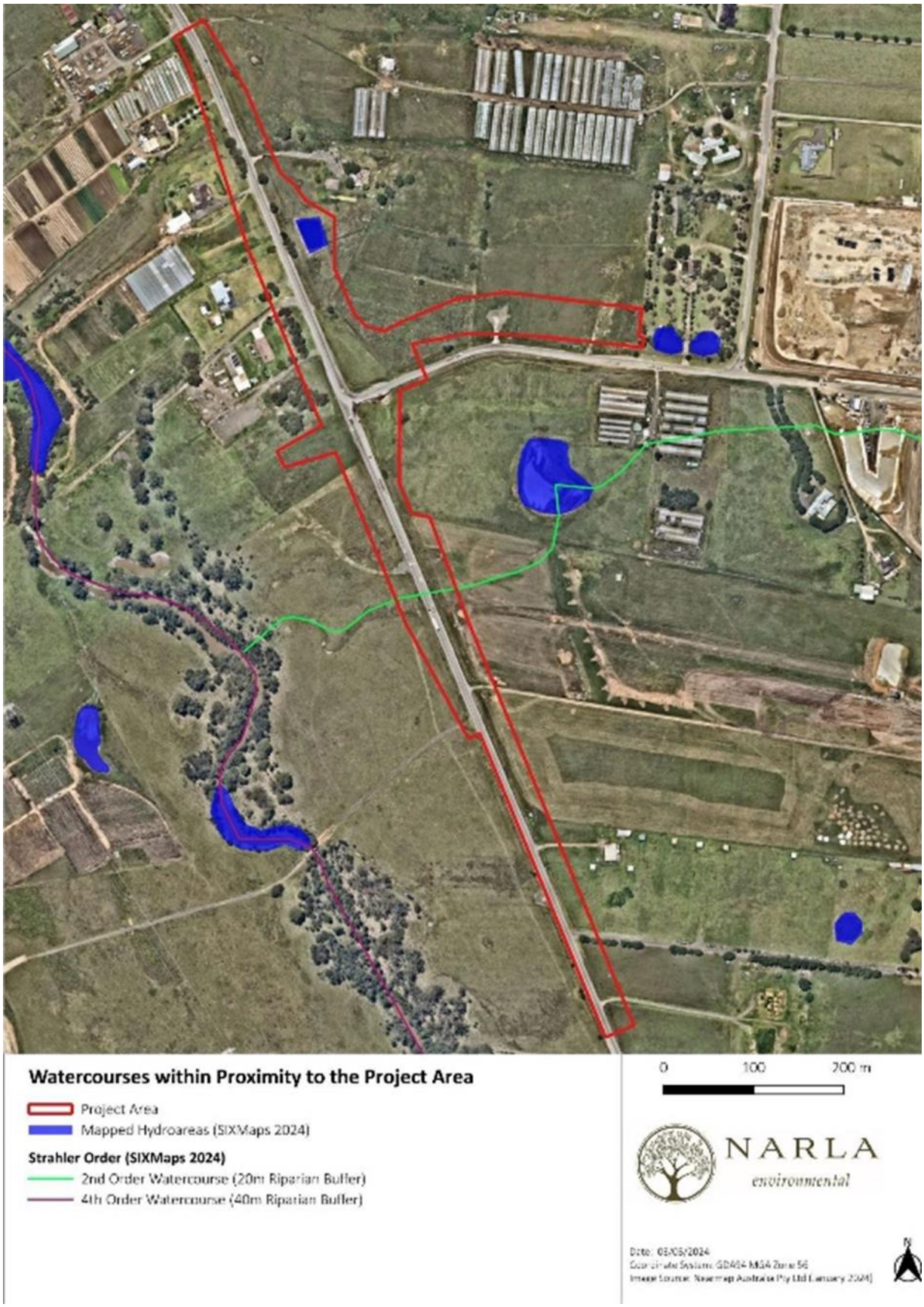


Figure 4-2 Location of one farm dam within the construction boundary to be decommissioned



Stratification

To determine stratification, in-situ testing (utilising a multi-meter) across the surface area of the dam is carried out at approximately one location every 5m^2 of water surface. This can vary based on dam characteristics such as size, depth and gradient.

At each testing location water quality measurements are recoded at the surface using the multi-meter. The multi-meter electrodes are then lowered slowly to the bottom of the dam. Whilst lowering the electrodes, if there are changes in parameters noted (5-10%), stratification might be occurring. If stratification of the dam is suspected, record the multi-meter measurements and take a water sample at the depth for comparison to the surface water sample.

Note: Stratification can result in different water quality from one layer to the next. This is more likely to occur in warmer months and in deeper dams. There may also be biological influences on water quality including algal blooms.

Visual Indicators

There may be other visual indicators of poor health of dam waters including cloudy or murky (green colour), decaying plants, organic acid sheen or algal blooms. If these indicators are observed, stratification of the dam must be determined.

No Stratification

Where it is determined that no stratification is occurring across the dam, one surface sample is required per dam.

During the dewatering process, it is recommended that the water is drawn from as close to the surface as possible to avoid turbid water on the bottom of the dam. To maintain water quality, filter through a screen on the pump inlet (or similar), to remove solids and debris.

4.2.2 Dam Water Volume

An estimate of the volume of water in each dam is needed to quantify the volume of water that requires management across the Project as part of the decommissioning process. The total volume of the dam water influences the reuse or disposal options. Where the total volume of dam water exceeds the reasonable reuse rate on site, then alternate storage or disposal may be required.

The NSW Office of Water (2010) has provided a methodology of estimating dam capacity. The following formula allows the capacity of each dam to be calculated:

- Volume (m^3) = 0.4 x surface area (m^2) x maximum depth (m)

The maximum depth of a dam can be obtained by taking a measurement from the centre of the dam using a graduated staff or a weighted rope lowered from a kayak or canoe. In the case of larger dams, multiple measurements may be required to attain an accurate depth.

The surface area of the dam can be obtained using up-to date aerial photography and confirmed by site inspection.

4.3 Ecological Clearance

Prior to dam dewatering and removal of dam structures, a suitably qualified ecologist is to inspect the dam to identify the presence or likely presence of aquatic species of flora and fauna.

The ecologist is to determine whether the dam water is suitable for the proposed water reuse option and whether additional actions are required prior to or during the dam dewatering process e.g. relocation of native aquatic species or destruction and disposal of weed or pest species.

The ecologist is to be on site to anaesthetise any fish remaining in the dam after the dewatering process.

4.4 Water Reuse Options

The reuse of dam water on site is the preferred approach. Discharging water offsite to the environment is a high-risk activity. The water reuse options are outlined in Table 4-1.

Table 4-1 Onsite water reuse options

Reuse Option	Description
Dust suppression	Water pumped from the dams can be used as dust suppression on site during earthworks and construction. This can either be via a water cart or directly from the dam via a sprinkler system or similar.
On site irrigation	Water pumped from the dams can be used for irrigation purposes where construction sequencing permits.
Vehicle wheel wash	Water pumped from dams can be used to maintain a wheel wash facility or to spray down trucks as they leave the site to reduce the tracking of mud and dirt off site.
Topping up neighbouring dams	Water pumped from the onsite dams can be pumped to dams on neighbouring properties, subject to the landowner's approval and the water quality meeting the Australian and New Zealand Guidelines for Fresh Water Quality 95% species protection.
Discharge to an onsite sediment basin	As a contingency, if there is excess dam water, water to be flocculated, and water quality would be monitored. If the water quality meets the Australian and New Zealand Guidelines for Fresh Water Quality 95% species protection the water can be discharged off site or to an onsite sediment basin.

The multiple reuse options are to be considered throughout the decommissioning process based on the progression of earthworks, seasonal conditions and the Project requirements.

4.5 Removal of Dam Structures

After dewatering each dam, the dam void is to be bunded to direct rainfall run-off around the dam and into a drainage line, directing surface water in accordance with the site erosion and sediment control plan avoiding down gradient construction areas. Bunding is to be constructed in accordance with Managing Urban Stormwater: Soils and Construction (known as the 'Blue Book', Landcom 2004).

Following ecological clearance from a suitably qualified ecologist, the dam structure can be removed and back filled. Any soil and sediments to be excavated and removed would be sampled and classified in accordance with the NSW Environment Protection Agency (EPA) Waste Classification Guidelines (2014) to guide disposal options and assess if soils are suitable for onsite reuse. The preferred approach would be to use any embankment soils to partially infill the dam voids.

4.5.1 Dam Embankment Soils

It is likely that, where present, dam embankment soils would have been sourced locally (if not from the immediate vicinity) pushed up from the void during the construction of the dam, and therefore,

would be compatible with the other soils on site. Where suitable and in accordance with the NSW Environment Protection Agency (EPA) Waste Classification Guidelines (2014) and the requirements of the Construction Waste Management Plan, embankment soils are to be reused on site to fill the dam voids following dewatering.

If the embankment soils fail to meet the relevant reuse guideline criteria, they would be classified under the NSW EPA Waste Classification Guidelines (2014) and disposed of to an appropriately licensed facility in accordance with Section 3.6 of the Construction Waste Management Plan.

4.5.2 Dam Sediments

It is anticipated that the sediments excavated from the dams would be saturated and the excess water would need to be removed. This is to be completed by spreading the saturated sediments out, either in the dam void or adjacent to the dam. Where possible, the sediments are to be located so that any runoff re-enters the excavated dam. This is to reduce the potential for the spread of any contamination at the Project site.

Once dry, the sediment is to be sampled against the relevant guidelines and if suitable, blended with embankment soils to be reused as fill material.

If the sediments fail to meet the relevant guideline criteria, they would be classified under the NSW EPA Waste Classification Guidelines (2014) and disposed of to an appropriately licensed facility.

4.5.3 Dam Voids

Following dewatering, the dam voids are to be infilled and any embankments and sediments removed in accordance with the options detailed in Table 4-2.

Table 4-2 Options for the infill of dam voids

Option	Description
Use of dam embankment soils and sediments	If the dam embankment soils and/or sediments meet the criteria for reuse on site, they can be reused in the dam voids as fill material.
Other material generated by excavation works on site – Virgin Excavated Natural Material (VENM) and/or Excavated Natural Material (ENM)	If the dam embankment soils and/or sediments are unsuitable for reuse, or insufficient in volume, then other material generated by excavation works on site can be used to infill the voids.

The voids would be infilled and integrated into the earthworks specification for the entire site.

Appendix A Development Consent Compliance Matrix

SSD-10479 Instrument		DDMP Section
D37	Prior to commencement of construction of the Stage 1 Development, the Applicant must prepare a Dam Decommissioning Strategy to the satisfaction of the Planning Secretary. The Dam Decommissioning Strategy must form part of the CEMP required by condition E2. The Applicant must implement the most recent version of the Dam Decommissioning Strategy for the duration of construction.	This Plan

Appendix I Heritage Management Plan (Unexpected Finds)



Aldington and Abbotts Road, and Mamre and Abbotts Road Intersection Upgrades, Kemps Creek

Heritage Management Plan

FINAL REPORT

Prepared for AT&L

3 June 2025

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- Alex Lohrisch: AT&L.

Biosis acknowledges the Aboriginal and Torres Strait Islander peoples as Traditional Custodians of the land on which we live and work.

We pay our respects to the Traditional Custodians and Elders past and present and honour their connection to Country and ongoing contribution to society.

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Abbreviations

ACHA	Aboriginal cultural heritage assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
CEMP	Construction Environmental Management Plan
Cth DCCEEW	Australian Commonwealth Department of Climate Change, Energy, the Environment and Water
DP	Deposited Plan
DPI	Department of Primary Industries
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
Heritage NSW	Heritage NSW, NSW Department of Climate Change, Energy, the Environment and Water
HHA	Historic Heritage Assessment
HMP	Heritage Management Plan
ICOMOS	International Council on Monuments and Sites
NPW Act	*National Parks and Wildlife Act 1974*
RAP	Registered Aboriginal Party
SEPP	State Environmental Planning Policy
study area	Defined as Aldington Road, Abbotts Road, and the intersection of Mamre Road and Abbotts Road in Kemps Creek, NSW
SoHI	Statement of Heritage Impact
the Code	*The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010a)
WHS	Work Health and Safety

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1 Introduction

1.1 Project background

Biosis Pty Ltd (Biosis) was commissioned by AT&L, on behalf of the developer, to undertake a Heritage Management Plan (HMP) for the proposed upgrades to Aldington Road, Abbotts Road, and the intersection of Mamre Road and Abbotts Road in Kemps Creek, New South Wales (NSW) (the study area) (Figure 1 and Figure 2). These proposed upgrades were assessed as a State Significant Development (SSD) application, under Part 4.63 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act).

To inform the SSD application, Biosis completed an Aboriginal Cultural Heritage Assessment (ACHA) conducted by Biosis (2024). Due to the presence of Aboriginal and non-Aboriginal heritage values within the study area, the ACHA recommended a HMP be prepared. The HMP would manage any impacts to Aboriginal and non-Aboriginal heritage during the upgrades to Aldington Road, Abbotts Road, and the intersection of Mamre Road and Abbotts Road. This HMP has been prepared to supplement the Construction Environmental Management Plan (CEMP) prepared for the project and was also a consent condition of SSD-10479-Mod-3.

The ACHA prepared for the project (Biosis 2024) was sent to the Registered Aboriginal Parties (RAPs) for review and comment. This was done as part of Stage 4 of the consultation process, as outlined the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010b) (consultation requirements).

The ACHA identified three existing Aboriginal Heritage Information Management System (AHIMS) sites (Figure 3) within the boundaries of the study area which require management, including:

- AHIMS 45-5-5747/270 Aldington Road AS02.
- AHIMS 45-5-5692/Aldington Road IF01.
- AHIMS 45-5-5607/Aldington Road 01.

This HMP details the management and mitigation measures for these three AHIMS sites, in addition to any unexpected Aboriginal or non-Aboriginal heritage objects found during the project. This HMP has been prepared in accordance with the EP&A Act and the *National Parks and Wildlife Act 1974* (NPW Act).

The Statements of Heritage Impact prepared for the project (Biosis 2023a and Biosis 2023b) identified two non-Aboriginal heritage items located partially within the study area (Figure 3). This HMP details the management and mitigation measures for these items.

1.2 Study area

The study area is located within the Penrith Local Government Area (LGA), Parish of Melville, County of Cumberland (Figure 1). The study area incorporates Aldington Road, Abbotts Road, and the intersection of Mamre Road and Abbotts Road, and is bounded by private property to the north, south, east, and west (Figure 2).

1.3 Project works

The proposed development for the project involves upgrades to Aldington Road, Abbotts Road, the intersection of Mamre Road and Abbotts Road (Figure 4). This includes earthworks comprising cutting and

filling along the existing road corridor, refining and reinforcing the new infrastructure and installation of road signage.

1.4 Purpose and objectives

The purpose of this HMP is to describe how Aboriginal and non-Aboriginal heritage will be protected and managed by the developer during the operational life of the project. The key objective of the HMP is to ensure that impacts to Aboriginal and non-Aboriginal heritage are minimised and within the scope permitted by the project approval. The HMP will supplement the CEMP that is being prepared for the project.

Specific objectives include:

- A description of the measures that would be implemented for:
  - Managing the discovery of human remains or previously unidentified heritage items.
  - Conducting further archaeological and heritage assessment in any disturbance areas where this assessment has not already been carried out.
  - Ensuring any workers on site receive suitable heritage inductions prior to carrying out any work on site.

The HMP must include a description of the measures for the management of Aboriginal heritage that would be implemented to:

- Protect the heritage items outside the project disturbance area.
- Minimise and manage the impacts of the project on heritage items within the disturbance area, including:
  - Any proposed archaeological investigations and/or salvage measures.
  - A strategy for the long-term management of any items or material that are collected during any of these archaeological or works.
- Monitor and report on the effectiveness of any mitigation measures and any heritage impacts of the project.
- Maintain and manage reasonable access for Aboriginal stakeholders to heritage items on site.
- Provide for ongoing consultation with Aboriginal stakeholders in the conservation and management of Aboriginal cultural heritage on site.

The HMP must include a description of the measures that would be implemented for the management of non-Aboriginal heritage to:

- Protect the heritage items outside the project disturbance area.
- Minimise and manage the impacts of the project on heritage items within the disturbance area, including:
  - Archaeological test excavations or salvage of all sites of local significance in accordance with the NSW Heritage Manual.
  - Photographic and archival recording of all heritage items that would be affected by the project.
- Monitor and report on the effectiveness of these measures and any heritage impacts of the project.

This HMP should be read in conjunction with the following document:

- *Aldington and Abbotts Road, and Mamre and Abbotts Road Intersection Upgrades: Aboriginal Cultural Heritage Assessment* (Biosis 2024).
- *Aldington Road and Abbotts Road Upgrades, Kemps Creek, NSW: Statement of Heritage Impact* (Biosis 2023a).
- *Upgrades to the Abbotts Road and Mamre Road Intersection, Kemps Creek, NSW: Statement of Heritage Impact* (Biosis 2023b).

1.5 Heritage Management Plan conditions

Following an SSD approval, this HMP will be updated (if required) to ensure that it satisfies the conditions within the SSD approval conditions. The conditions provided in the SSD approval will be added to this HMP, indicating the corresponding section of this HMP that addresses the condition.

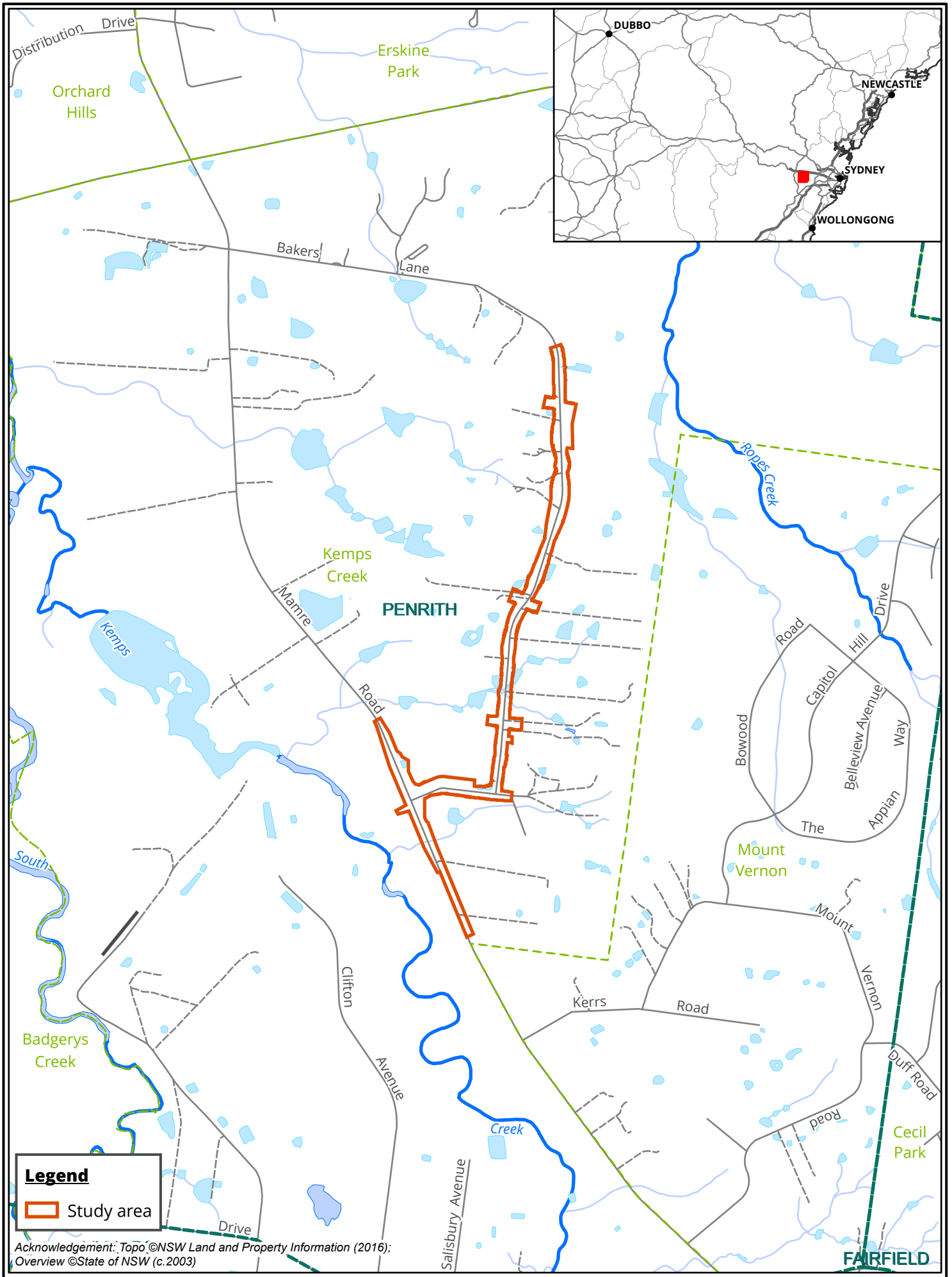
1.6 Contributors

This HMP was prepared by Crystal Garabedian (Heritage Consultant) at Biosis. This report has been reviewed by Mathew Smith (Senior Heritage Consultant) at Biosis. A summary of their professional experience can be seen in Table 1 below.

Table 1 Project team experience summary

Name	Experience summary	Role in project
Mathew Smith **BA/BSc (Hons)** Senior Heritage Consultant	Mathew is an archaeologist with over eight years' experience in the consulting industry. Mathew is currently based out of Wollongong and has extensive experience in Western NSW and the South Coast. Mathew has also managed and completed a range of Aboriginal cultural heritage and historical heritage projects across NSW, including the Sydney Basin, Hunter Valley, Central and Northern NSW regions. Mathew focuses on Aboriginal archaeology and has successfully obtained project approvals for Aboriginal Heritage under the NPW Act, including Aboriginal Heritage Impact Permits and State Significant Development approvals. As part of these approvals Mathew has authored a range of report types including due diligence assessments, Aboriginal cultural heritage assessments, heritage management plans and letters of advice which have supported review of environmental factors, Environmental Impact Statements and development applications. Mathew's key areas of expertise include project management, field surveys, archaeological excavation, Aboriginal community consultation, and preparation of technical reports. Mathew is also recognised by the Australian Association of Consulting Archaeologists Inc., as a specialist in the recording and analysis of Aboriginal artefacts.	• Quality assurance • Technical advice
Charlotte Allen **BA (Hons)** Senior Heritage Consultant	Charlotte has over six years' archaeological consulting experience, and is skilled in historical research, report preparation and project management. Prior to consulting, Charlotte had an established career in administrative, project management and data management support in the heritage, health and transport sectors. Charlotte has broad experience working as an archaeologist on Aboriginal and European heritage projects across New South Wales. Charlotte has strong technical skills in research, archaeological field surveys and excavation, artefact analysis, and technical report writing, with a focus	• Quality assurance

Name	Experience summary	Role in project
	on detail and accuracy. Charlotte has managed a range of projects for a variety of client bases, including Aboriginal Due Diligence Assessments, Aboriginal Cultural Heritage Assessments, Historical Heritage Assessments, Historical Archaeological Assessments, Statements of Heritage Impact, Conservation Management Plans, Heritage Interpretation Strategies and Plans, Constraints Analyses and Letters of Advice. Charlotte has also had numerous successful permit applications under the Heritage Act 1977 and National Parks and Wildlife Act 1974, with minimal comments from government regulators.	
Crystal Garabedian **BSc/BA (Hons)** Heritage Consultant	Crystal completed her Bachelor of Science and Bachelor of Arts with Honours in 2018, where she developed specialist skills in the identification of marine zooarchaeological material. Prior to her time at Biosis, Crystal was a research assistant at Macquarie University and La Trobe University. She was part of a project team who developed field recording software and gained experience in artefact cataloguing and report writing. Crystal was also a subcontracting archaeologist and undertook cataloguing, photography, and detailed analyses of faunal, ceramics, building materials and glass artefacts. Since joining Biosis, Crystal has gained experience in Aboriginal community consultation, project management, research, report writing, field surveys, test and salvage excavations. She has managed Historical Heritage Assessments, Aboriginal due diligence Assessments and Aboriginal Cultural Heritage Assessments for a variety of projects throughout New South Wales.	• Project management • Report preparation • Aboriginal community consultation



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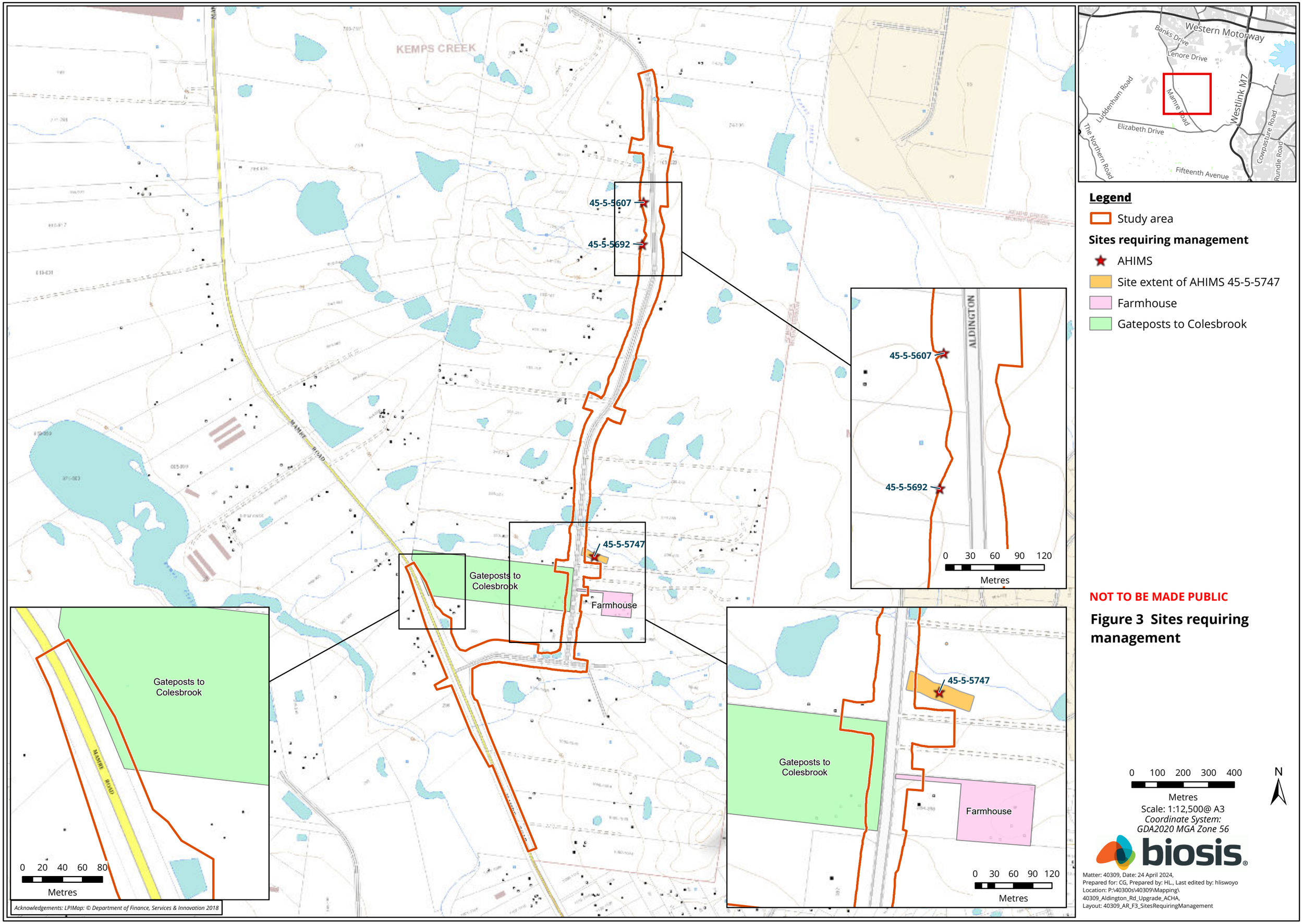
Figure 1 Location of the study area

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Figure 2 Study area detail

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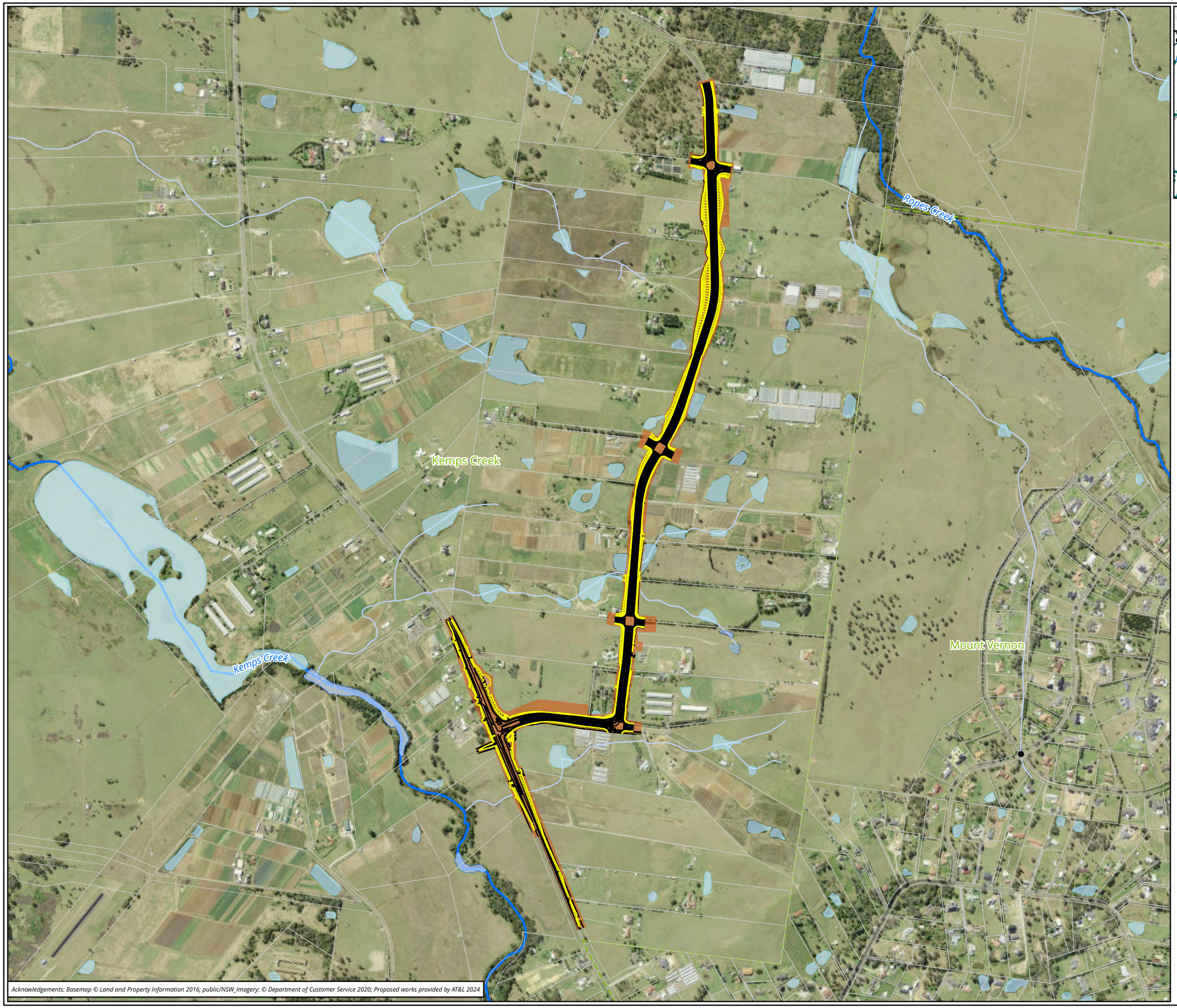


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Figure 3 Sites requiring management

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Legend

Study area

Proposed works (AT&L 2024)

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Proposed works

Figure 4.1 Proposed works

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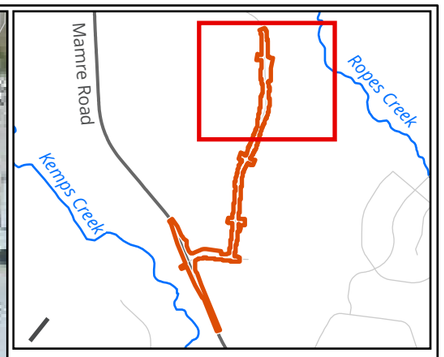
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Study area

Proposed works (AT&L 2024)

Batter

Proposed works

Figure 4.2 Proposed works

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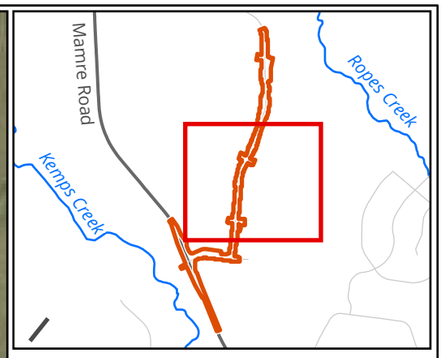
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Legend

Study area

Proposed works (AT&L 2024)

Batter

Proposed works

Figure 4.3 Proposed works

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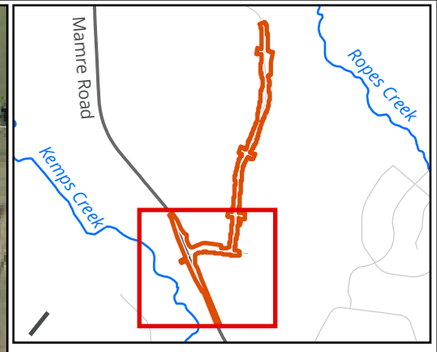
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Matter: 40309, Date: 12 April 2024,
Prepared for: CG, Prepared by: HL., Last edited by: hliswoyo
Location: P:\40300s\40309\Mapping\
40309_Aldington_Rd_Upgrade_ACHA,
Layout: 40309_F3_ProposedWorks1





Legend

Study area

Proposed works (AT&L 2024)

Batter

Proposed works

Figure 4.4 Proposed works

0 40 80 120 160

Metres

Scale: 1:4,100@ A3

Coordinate System: GDA2020 MGA Zone 56

N

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Acknowledgements: Basemap © Land and Property Information 2016; public/NSW_Imagery: © Department of Customer Service 2020; Proposed works provided by AT&L 2024

2 Environmental requirements

The following section outlines the environmental requirements of the project including relevant legislation and guidelines that have been used to assist in the formulation of this HMP.

2.1 Relevant legislation and guidelines

Legislation relevant to heritage management includes:

- EP&A Act.
- NPW Act.
- *Heritage Act (NSW) 1977* (Heritage Act).

The main guidelines, specifications and policy documents relevant to this HMP include:

- Aboriginal Cultural Heritage Consultation Requirements.
- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS 2013).
- *The Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (the Code) (DECCW 2010a).

2.2 Commitment to cultural heritage preservation

According to Allen and O'Connell (2003), Aboriginal people have inhabited the Australian continent for the last 50,000 years. New evidence out of the Northern Territory has pushed this date back with the Malakanunja II rock shelter dated at around 65,000 years before present (BP) (Clarkson et al. 2017). In NSW, according to Bowler et al. (2003), Aboriginal people have occupied the land for over 42,000 years. However, preliminary evidence presented by Biosis (2016) from a subsurface testing program in south-western NSW suggests Aboriginal people may have occupied the semi-arid zone of the region for 50,000 years. Within the Sydney Basin, Aboriginal occupation of the region extends well back into the Pleistocene period (i.e., prior to 10,000 years BP). This is evidenced by radiocarbon dates retrieved from excavated sites at Shaw's Creek K2 (14,700 years BP) (Attenbrow 2010, p. 18), at Windsor with 33,000 BP (Karskens et al. 2019) as well as sites in Parramatta (approximately 25,000–30,000 BP and 14,000 BP) (Jo McDonald Cultural Heritage Management 2005, 2005, Williams et al. 2021).

Without being part of the Aboriginal culture, and the productions of this culture, it is not possible for non-Aboriginal people to fully understand their meaning to Aboriginal people—only to move closer towards understanding this meaning with the help of the Aboriginal community. Similarly, definitions of Aboriginal culture and cultural heritage without this involvement constitute outsider interpretations.

With this preface, Aboriginal cultural heritage broadly refers to things that relate to Aboriginal culture and hold cultural meaning and significance to Aboriginal people (DECCW 2010b). Aboriginal people have a strong connection to place and there is an understanding in Aboriginal culture that everything is interconnected. In essence, Aboriginal cultural heritage can be viewed as potentially encompassing any part of the tangible and/or intangible landscape, that is, 'Country' (DECCW 2010b).

Aboriginal people's interpretation of cultural value is based on their 'traditions, observance, lore, customs, beliefs and history' (DECCW 2010b). The things associated with Aboriginal cultural heritage are continually and actively being defined by Aboriginal people (DECCW 2010b). These things can be associated with traditional, historical or contemporary Aboriginal culture (DECCW 2010b).

2.2.1 Tangible Aboriginal cultural heritage

Three categories of tangible Aboriginal cultural heritage may be defined as:

- Things that have been observably modified by Aboriginal people.
- Things that may have been modified by Aboriginal people, but no discernible traces of that activity remain.
- Things never physically modified by Aboriginal people (but associated with Dreamtime Ancestors who shaped those things).

2.2.2 Intangible Aboriginal cultural heritage

It is imperative to consider intangible values when assessing Aboriginal cultural heritage, as these can aid in understanding the deep connections and thus the significance of sites and landscapes in Aboriginal culture. Examples of intangible Aboriginal cultural heritage would include memories of stories and 'ways of doing', which would include language and ceremonies (DECCW 2010b). Aboriginal community consultation aids in identifying intangible Aboriginal cultural heritage values.

2.2.3 Statutory

Currently Aboriginal cultural heritage, as statutorily defined by the NPW Act, consists of objects and places.

Aboriginal objects are defined as:

> *'any deposit, object or material evidence…relating to the Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.'*

Aboriginal places are defined as a place that is or was of special Aboriginal cultural significance. Places are declared under Section 84 of the NPW Act.

2.2.4 Values

Aboriginal cultural heritage is broadly valued by Aboriginal people as it is used to define their identity as both individuals and as part of a group (DECCW 2010b). More specifically it is used:

- to provide a:
  - 'Connection and sense of belonging to Country' (DECCW 2010b).
  - Link between the present and the past (DECCW 2010b).
- As a learning tool to teach Aboriginal culture to younger Aboriginal generations and the general public (DECCW 2010b).
- As further evidence of Aboriginal occupation prior to European settlement for people who do not understand the magnitude to which Aboriginal people occupied the continent (see also (DECCW 2010b)).

The NSW government and all of its entities are committed the protection and preservation of Aboriginal and non-Aboriginal cultural heritage in NSW and for the project.

3 Existing environment

The following sections summarise what is known about Aboriginal and non-Aboriginal heritage within and adjacent to the study area based on information provided in:

- *Aldington and Abbotts Road, and Mamre and Abbotts Road Intersection Upgrades: Aboriginal Cultural Heritage Assessment* (Biosis 2024).
- *Aldington Road and Abbotts Road Upgrades, Kemps Creek, NSW: Statement of Heritage Impact* (Biosis 2023a).
- *Upgrades to the Abbotts Road and Mamre Road Intersection, Kemps Creek, NSW: Statement of Heritage Impact* (Biosis 2023b).

3.1 Aboriginal cultural heritage

The Aboriginal cultural heritage values were subject to assessment through the following processes:

- Literature and database review.
- Archaeological survey.
- Aboriginal consultation.
- Assessment of significance and proposed impacts.

Based upon these tasks, three Aboriginal heritage sites have been identified, these are detailed in Table 2 and their locations are identified in Figure 3. All Aboriginal heritage sites have been recorded in accordance with the Code, submitted to the Heritage NSW, NSW Department of Climate Change, Energy, the Environment and Water (Heritage NSW) and listed within the AHIMS database.

Table 2 Aboriginal heritage sites associated with the project

AHIMS site	Description	Significance	Recommendations (Biosis 2024)
AHIMS 45-5-5747/270 Aldington Road AS02	AHIMS 45-5-5747/270 Aldington Road AS02 is a subsurface, low density artefact scatter that was identified during a program of test excavations conducted by Biosis (2023b). The site is located within a lower slope landform in the western portion of the assessment area. The site extent of AHIMS 45-5-5747/270 Aldington Road AS02 overlaps the current study area so that a small portion of it is within. It contained 31 lithic artefacts recovered across the PAD area, of which 25 were silcrete, three were IMT and three were chert. The artefact forms consisted of 15 angular fragments, five distal flakes, four complete flakes, three proximal flakes, two medial flakes, one multidirectional core and one manuport. Disturbances observed within the area relate to low intensity agriculture.	Low	• Development of an CHMP • Unexpected finds procedure
AHIMS 45-5-5692/Aldington Road IF01	AHIMS 45-5-5692/Aldington Road IF01 was identified during an archaeological survey as part of a ADDA being completed by Biosis (2023c). The site was located on the	Low	• Development of an CHMP

AHIMS site	Description	Significance	Recommendations (Biosis 2024)
	mid-slope of a sloped landform, within a disturbed landscape. It consisted of a single, silcrete multi-platform core with two complete flake scars. The artefact measured 34.18 millimetres in length, 28.36 millimetres in width and 22.01 millimetres in thickness. The artefact was found within vehicle tracks, on top of the topsoil layer, approximately 206 metres from the closest water source.		• Unexpected finds procedure
AHIMS 45-5-5607/Aldington Road 01	AHIMS 45-5-5607/Aldington Road 01 is an isolated artefact identified during a program of test excavations conducted by Austral Archaeology (2022). The site is located in an upper slope landform and contained a single silcrete proximal flake.	Low	• Development of an CHMP • Unexpected finds procedure • Community collection

3.2 Non-Aboriginal heritage

The assessment of non-Aboriginal heritage values within the study area was undertaken through the completion of the following tasks:

- Literature and database review.
- Archaeological survey.
- Assessment of proposed impacts.

The proposed works for the project will be undertaken within the curtilage of two items of local heritage significance listed on the *State Environmental Planning Policy (Industry and Employment) 2021* (SEPP) (Brick Farmhouse (Item No. I4) and Gateposts to Colesbrook (Item No. I3)). These sites are detailed in Table 3 and their locations are identified in Figure 3.

It was determined during the SoHIs that the proposed works will have no adverse visual impact on the items (Biosis 2023a and Biosis 2023b). The significant heritage elements of the items are set back from the location of the proposed works and the road corridor. Therefore, the proposed works were deemed unlikely to adversely impact any items of heritage significance within the study area.

Table 3 Non-Aboriginal heritage sites associated with the project

Site	Statement of significance	Significance	Recommendations (Biosis 2023a and Biosis 2023b)
Brick Farmhouse (I4)	*The farmhouse is of local significance and demonstrates the emergence of small farmsteads in the area following the subdivision of the Fleurs estate in the 1880s. Albeit altered the building remains a substantial and elaborate farmhouse of its era prominently set on a hillside overlooking the South Creek floodplain. The house and surrounding cleared hillside evoke a rural setting. The house is best of the late-nineteenth century and early- to mid-twentieth century residences in this historically sparsely settled area. This significance is enhanced by its historic association with the Fleurs estate subdivision* (NSW Government 2006).	Local	• Works may proceed with caution • Heritage induction • Unexpected finds procedure

Site	Statement of significance	Significance	Recommendations (Biosis 2023a and Biosis 2023b)
Gateposts to Colesbrook (I3)	*Significant as evidence of the prosperity of the larger rural properties in the late-19th and early-20th Century, and the subsequent decline leading to the present day subdivision of the area into 10ha allotments. (Fox Associates 1987: KC-4)** (NSW Government 2000) *No further detail was available on the SHR.	Local	• Works may proceed with caution • Heritage induction • Unexpected finds procedure

4 Environmental aspects and impacts

The key construction activities and the associated potential impacts to heritage values (both Aboriginal and non-Aboriginal) were identified through a risk management approach. The consequence and likelihood of each activity's impact on the environment was assessed to prioritise its significance.

4.1 Aboriginal heritage impacts

The potential impacts on Aboriginal heritage recordings include:

- Direct impacts and disturbance to the entire site or most of a site containing Aboriginal objects due to the construction of the project, this can be complete or partial.
- Indirect impacts to Aboriginal objects or cultural values, such as from development related changes to the landscape or scenic context of a site or item.

The proposed works include includes earthworks including cutting and filling along the existing road corridor, refining and reinforcing the new infrastructure and installation of road signage. These works all have the potential to heavily impact ground surfaces through excavation and will result in direct impacts to Aboriginal sites AHIMS 45-5-5747/270 Aldington Road AS02, AHIMS 45-5-5692/Aldington Road IF01 and AHIMS 45-5-5607/Aldington Road 01. A summary of impacts is provided below in Table 4.

Table 4 Impacts to Aboriginal heritage sites

AHIMS site no.	Site name	Significance	Type of harm	Degree of harm	Consequence of harm
AHIMS 45-5-5747	270 Aldington Road AS02	Low	Direct	Partial	Partial loss of value
AHIMS 45-5-5692	Aldington Road IF01	Low	Direct	Total	Total loss of value
AHIMS 45-5-5607	Aldington Road 01	Low	Direct	Total	Total loss of value

In the event that additional disturbance is anticipated to occur outside of the areas explicitly surveyed in Biosis 2024, then these disturbances will need to undergo additional heritage assessment and impact mitigation processes prior to the commencement of any associated works. It is likely that any additional impacts outside of the areas surveyed in Biosis 2024 would need to be assessed as a modification to the existing approval.

4.2 Non-Aboriginal heritage impacts

The potential impacts of the project on non-Aboriginal heritage can be categorised as follows:

- A whole or complete degree of direct impact to a heritage item resulting in the physical loss of the item.
- Partial or minor direct impact to heritage item(s).
- Indirect impacts, such as to the contextual and landscape values associated with an item.
- Indirect impact to items of heritage which could be moved to avoid direct impact and as a consequence lose contextual integrity.

- No significant impact (this category involves instances where the development would either not pose an impact to a heritage item [direct or indirect] or any impacts would be insignificant and would not reduce the heritage value or significance of the item).

During the completion of the SoHIs (Biosis 2023a and Biosis 2023b), two non-Aboriginal heritage items were located. The impacts of the ground disturbing works caused by the proposed development within the curtilage of the heritage items on the heritage items was considered to be acceptable. The impacts are indirect, as they will occur within fringes of the items' curtilages and are set back from their significant elements. The consequences of harm of will result in no loss of value. Impacts to non-Aboriginal heritage items are presented in Table 5.

Table 5 Impacts to non-Aboriginal heritage items

Listing	Item name	Significance	Type of harm	Degree of harm	Consequence of harm
SEPP (Industry and Employment) 2021	Brick Farmhouse (I4)	Local	Indirect	No harm	No loss of value
SEPP (Industry and Employment) 2021	Gateposts to Colesbrook (I3)	Local	Indirect	No harm	No loss of value

5 Environmental mitigation measures

5.1 Operational related measures

Specific mitigation measures to address impacts on Aboriginal and non-Aboriginal heritage are outlined in Table 6. Where required, further details of the proposed mitigation measures are provided in Section 5.2. These measures define the unexpected finds protocol

Table 6 Operational related measures

Strategy	Requirement	Personnel
1	Heritage inductions for all employees, contractors and sub-contractors working in the study area.	Project manager/ Heritage consultant
2	Community collection of AHIMS 45-5-5607/Aldington Road 01.	Heritage consultant/Aboriginal community
3	Procedure to follow in the event of unexpected Aboriginal finds.	Construction contractor
4	Procedure to follow in the event of unexpected human remains.	Construction contractor
5	Procedure to follow in the event of unexpected non-Aboriginal finds.	Heritage consultant/ Construction contractor/Aboriginal community
6	Long term management of Aboriginal heritage items discovered in the ACHA or during ground disturbing works in the land outside of the ACHA.	Project manager/Heritage consultant/Aboriginal community
7	Ongoing consultation with Aboriginal stakeholders and Heritage NSW regarding the management and conservation of Aboriginal cultural heritage throughout the operational life of the project.	Heritage consultant/Aboriginal community

5.2 Heritage protection management strategies

5.2.1 Strategy 1: Heritage inductions for all employees, contractors and sub-contractors working in the study area

All contractors and staff involved in construction activities on site will undergo site induction training (or be supervised by a staff member that has had the relevant training) relating to Aboriginal and non-Aboriginal heritage management issues. The induction training will address elements related to heritage management including:

- Requirements of this HMP and relevant legislation.
- Roles and responsibilities for heritage management.
- Proposed heritage management and protection measures.
- Basic identification skills for Aboriginal artefacts, non-Aboriginal artefacts and human remains.
- Procedure to follow in the event of an unexpected heritage item find during construction works.
- Procedure to follow in the event of discovery of human remains during construction works.
- Penalties and non-compliance with this HMP.

Opportunity for Aboriginal community members to be involved in delivering the Aboriginal cultural heritage inductions should also be provided.

Training records for all contractors and staff involved in construction activities will be kept and maintained in a register detailing names, dates, content and type of training undertaken. This HMP should always be kept on site and be readily accessible. The requirements of the HMP and the unexpected finds protocols should be incorporated into toolbox talks, and the mapping presented in this report should be reviewed and management measures assessed to ensure no impacts beyond the project approval are likely to take place.

Further details of a heritage induction package have been provided in Section 7 and Appendix 1 of this HMP.

5.2.2 Strategy 2: Community collection of AHIMS 45-5-5692/Aldington Road IF01

The ACHA identified one Aboriginal surface artefact (AHIMS 45-5-5692/Aldington Road IF01), for which an attempt at community collection must be permitted (Biosis 2024). Community collection of AHIMS 45-5-5692/Aldington Road IF01 will conform to the following methodology:

- Surface artefact will be collected under the supervision of a nominated RAP and heritage consultant.
- A GPS point for the artefact will be taken.
- A photographic record will be compiled.
- The cultural material will be collected, bagged, and clearly labelled.
- The artefact will be temporarily stored in a secured location at the Biosis Sydney office (14/17–27 Power Avenue, Alexandria NSW), until the completion of the project.
- An AHIMS Site Impact Recording form will be completed and submitted to the AHIMS Registrar for the site salvaged via community collection.

If the attempt at community collection is unsuccessful and the artefact cannot be relocated, an update will be sent to the RAPs for the ACHA (Biosis 2024) and works can proceed in line with the other management strategies of this HMP.

5.2.3 Strategy 3: Procedure to follow in the event of unexpected Aboriginal finds

Should any Aboriginal sites be identified during the development works, the following process should be followed:

- Works must cease in the vicinity and the find should not be moved until assessed by a qualified heritage consultant.
- A 10 meter wide buffer area around the find must be established, and the object must be cordoned off. The boundaries of all unexpected Aboriginal finds that are located within the project disturbance area will be clearly marked with star pickets or pegs and high visibility flagging tape to ensure that no impacts can occur to these finds.
- The heritage consultant will investigate and assess the find to determine the nature, extent and significance of the find. This will enable recommendations to be provided on how work can proceed and whether any further archaeological assessment is required. The heritage consultant must supply written advice to the Project Manager providing:
  - A determination of whether the find is an Aboriginal object.

  - Advice on how the project is to proceed and whether the establishment of any no-go areas is necessary.
  - Recommendations regarding further works that may be required and timeframe for completion of these works.
- Any Aboriginal finds will be registered on AHIMS. Where sites are impacted, a site impact form will be completed and lodged with AHIMS prior to impact.
- Create a no-go area around the find based upon the advice of the heritage consultant.
- If the unexpected find is determined to be an Aboriginal object, the heritage consultant's written advice will be supplied to Heritage NSW, the client and RAPs for their review. This will include a statement concerning the find, management measures implemented and notification of any further works arising. RAPs are to be involved in any further assessments or works as required. Any comments made by Heritage NSW and the RAPs will be incorporated into the written advice prior to finalisation and works proceeding.
- Should any previously unidentified Aboriginal finds be identified, this will trigger a review of this ACHMP in accordance with Section 8. Please note that Appendix 1 contains guidelines around the identification of Aboriginal objects and site types.

5.2.4 Strategy 4: Procedure to follow in the event of the discovery of human remains

If any suspected human remains are discovered within the study area, all activity must cease. The following process must be undertaken:

- Immediately cease all work at that location and not further move or disturb the remains.
- Notify the NSW Police, Planning and Infrastructure and Heritage NSW Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
- Establish an appropriate no-go area. This will need to be established in consultation with NSW Police, Heritage NSW and if necessary, a qualified heritage consultant.
- Works will not be able to recommence within the location of the find until confirmation from NSW Police and Heritage NSW is obtained. If the remains are confirmed as not being human, then works may recommence. If remains are human then consultation with NSW Police, Heritage NSW and the Aboriginal stakeholders will be required to establish a plan of management.
- Works in the vicinity of the find will only be able to commence once the plan of management has been established and approval has been obtained from all relevant parties.
- Should any human remains be identified, this will trigger a review of this ACHMP in accordance with Section 8.

5.2.5 Strategy 5: Procedure to follow in the event of unexpected non-Aboriginal finds

Where non-Aboriginal items are identified, an assessment will need to be made as to the significance of the item. Non-Aboriginal heritage items may include archaeological 'relics' or other non-Aboriginal items (i.e. works, structures, buildings or movable objects). The Heritage Act defines a relics as *'...any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and is of State or local heritage significance...'.*

The following process should be followed with respect to unexpected items:

- Should any suspected non-Aboriginal items be encountered during works, works must cease in the vicinity and the find should not be moved until assessed by a qualified heritage consultant.
- A 10 meter wide buffer area around the find must be established, or the object must be cordoned off. The boundaries of all unexpected non-Aboriginal finds that are located within the project disturbance area will be clearly marked with star pickets or pegs and high visibility flagging tape to ensure that no impacts can occur to these finds.
- The heritage consultant will investigate and assess the non- Aboriginal item to determine the nature, extent, and significance of the find. This will enable recommendations to be provided on how work can proceed and whether any further work is required. The heritage consultant must supply written advice to the Project Manager stating:
  - Determination of whether the find is a relic.
  - Advice on how the project is to proceed and whether the establishment of any no-go areas is necessary.
  - Recommendations regarding further works that may be required and timeframe for completion of these works.
- Should the item be determined that it is a relic, Heritage NSW may need to be notified. This will include a statement concerning the find, management measures implemented and notification of any further works arising.

5.2.6 Strategy 6: Long term management of Aboriginal heritage items recovered during community collection or discovered during ground disturbing works

Following the successful community collection of AHIMS 45-5-5692/Aldington Road IF01 a long term management strategy will need to be established to outline the treatment of this cultural material. This will be done in consultation with the RAPs for the ACHA conducted for the study area (Biosis 2024), following the retrieval of any cultural material. If during ground disturbing works Aboriginal objects are discovered, the long term management strategy will need to be revisited with the RAPs to accommodate any additional finds.

Following an SSD approval, this HMP will be updated (if required) to ensure that it satisfies the conditions within the SSD approval conditions. After the commencement of works and subsequent destruction of AHIMS 45-5-5747/270 Aldington Road AS02, AHIMS 45-5-5692/Aldington Road IF01 and AHIMS 45-5-5607/Aldington Road 01, an Aboriginal Site Impact Recording Form will be prepared and submitted to AHIMS.

5.2.7 Strategy 7: Ongoing consultation with Aboriginal stakeholders and Heritage NSW regarding the management and conservation of Aboriginal cultural heritage throughout the operational life of the project

Heritage NSW and the RAPs should be continuously consulted throughout the project on matters regarding the management and conservation of any known and unexpected Aboriginal cultural heritage. It is recommended that:

- RAPs are provided a copy of this HMP within 14 days of finalisation of this report.
- This HMP be provided to RAPs after any major revision to the report, for 14 days to review and comment.
- A copy of the HMP be provided to RAPs after minor revisions; however, no comment is required in accordance with Section 8 for minor revisions.

- In the event of any Aboriginal unexpected finds, RAPs should be advised in accordance with Strategy 3 (Section 5.2.4).

6 Compliance management

6.1 Roles and responsibilities

The developers are responsible for ensuring all activities in this management plan are carried out during operation of the project, along with reporting any incidents to Heritage NSW. The developer may appoint a Project Manager or Project Management Company to act on their behalf.

Construction site personnel and contractors must comply with the activities outlined in this plan and any deviation to activities outlined in this plan must be reported to the developer (or appointed Project Manager). Roles and responsibilities are outlined in Table 7.

Table 7 Roles and responsibilities and contact details

Name	Role	Contact details
Gerard Noone	Project Manager	0439 246 804 gerard.noone@robsoncivil.com.au
Alasdair Cameron	Developer/Project Manager	0402 458 226 alasdair.cameron@esr.com
Heritage NSW	Regulator/Compliance	(02) 9873 8500 heritagemailbox@environment.nsw.gov.au
Crystal Garabedian	Heritage Consultant (Biosis)	0456 625 253 cgarabedian@biosis.com.au

6.2 Record keeping

Records of the identified heritage items on AHIMS standard documentation records must be kept by the heritage consultant, site personnel, contractors, and the developer. Biosis have developed a strategy for consultation with Aboriginal stakeholders regarding the ongoing management and conservation of Aboriginal cultural heritage within the study area for the operational life of the project. This can be seen in Section 5.2.7.

6.3 Incidents

If an incident occurs that results in actual or potential impacts on known heritage items and/or archaeological items that are discovered unexpectedly, the Heritage NSW will be informed immediately.

The report to Heritage NSW should also be sent to the developer and the Heritage Consultant, and include:

- Any contravention to the strategies outlined in the HMP.
- The nature of the incident.
- The actual or likely impact of the incident on Aboriginal objects and/or Aboriginal places.
- The nature and location of the Aboriginal objects and/or places, referring to and providing maps and photos where appropriate.
- The measures which have been taken or will be taken to prevent a recurrence of the incident.

7 Training and awareness

All site personnel must comply with all Work Health and Safety (WHS) manuals and procedures relevant to the project, as will be outlined in the CEMP. As part of the operation of the project, site personnel must undertake a cultural heritage induction which will include:

- A description of Aboriginal cultural heritage in Australia.
- A description of Aboriginal cultural heritage in the Kemps Creek area.
- A description of the tangible and intangible aspects of Aboriginal heritage and why it is important.
- An overview of the NPW Act and the Heritage Act and the implications and fines applicable for breaching the Acts.
- A general overview of historic heritage in the Kemps Creek area.
- A description of all historic heritage site types within the study area.
- The process for reporting unknown cultural heritage sites.
- The process for reporting damage to cultural heritage sites.
- The process for reporting human remains.

In addition to the above, Biosis will provide an overview of each recorded Aboriginal heritage site which has been identified on the project. This will include:

- The site boundaries and how they have been marked.
- The content of the site.
- Whether any salvage works have taken place.

8 Review and improvement

8.1 Continuous improvement

Opportunities for the improvement of this HMP will be found through the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets. The purpose of this is to:

- Identify opportunities for the improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Development and implementation of a plan of corrective and preventative actions to address any non-conformances and deficiencies in this HMP.
- Corroborate the efficiency of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Revise the objectives and targets of this HMP accordingly.

8.2 HMP update and amendment

Updates and amendments to this HMP will occur as needed. A copy of the updated HMP and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure. The HMP will also be updated and resubmitted for approval in the event that any previously unidentified heritage items are found.

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Appendices

Appendix 1 Heritage induction material

Identifying Aboriginal objects and site types

Tangible Aboriginal heritage items take several forms, including:

- Lithic (stone) artefacts.
- Faunal remains (shell and animal bone).
- Culturally modified trees.
- Human burials.
- Hearths.
- Aboriginal resourcing gathering locations.

Aboriginal sites can consist of single items and high density archaeological deposits. Examples of Aboriginal heritage items are shown in photographs below:



Isolated stone artefact

Stone artefacts are any items of stone material made or modified by people, including any debris left behind when such tools were made. Materials used to make stone artefacts may be found locally, or traded across long distances.



Stone artefact scatter

Stone artefact scatter sites comprise groups of stone tools, debris and the tools used in manufacture (i.e. stone anvils and hammerstones). Artefact scatters can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds.



Shell midden

Shell middens are the remains of food production and processing areas, where people would have sat down to eat, cook or prepare food. Shell middens occur commonly in coastal areas, however they also occur near inland watercourses where freshwater mussels and other edible mollusc species may be present.



Modified tree

A modified tree is any tree from which the back has been cut or harvested for the manufacture of containers (coolamon), canoes, shields, weapons and medicines. Scarring also occurred where toeholds were cut to allow people to climb trees to hunt possums, reptiles, birds or harvest wild honey.



Burial

Burials comprise any traditional Aboriginal human skeletal remains, intact or fragmentary. If any suspected human remains are encountered, the procedure set out in ACHMP must be followed.



Hearth

A hearth is the remains of a campfire, an oven or other food cooking and processing areas. Hearths commonly contain baked clay, termite mound fragments broken up and used as 'heat retainers', small stones used in cooking, charcoal, burnt bone, shell and other food remnants.



Aboriginal gathering and resource location

Resource gathering locations are places where food, medicines and plant material used as twine, in weaving or tool making by Aboriginal people exist. Many such locations are still accessed by contemporary Aboriginal people.

Identifying historical heritage items

If any historical relics are identified then the unexpected finds process must be followed. As stated above, non-Aboriginal heritage items may include archaeological 'relics' or other historical items (i.e. works, structures, buildings or movable objects).

Historical heritage items/objects can consist of the following materials:

- Ceramic.
- Glass.
- Organic material.
- Leather.
- Metal.
- Synthetic.

Historical relics can consist of single items, dense archaeological deposits, built structures and landscapes. Examples of heritage items are shown in photographs below.



Ceramic plate fragments



Glass artefacts



Ceramic artefacts



Cesspit filled with ash



A drainage system



Wall footings



Dense artefact deposits





Historic well

Appendix 2 Resume of report authors

Curriculum vitae

Mathew Smith

Senior Heritage Consultant



Qualifications

- Bachelor of Arts, University of New England
- Bachelor of Science (Honours), University of New England

Other qualifications and training

- Provide First Aid (HLTAID011)
- General Construction Induction (white card)
- Four Wheel Drive, Driver Training and Recovery
- AACAI usewear and residue analysis professional development workshop
- Working with children check

Professional experience

Mathew is a senior heritage consultant with eight years' experience in the consulting industry. Mathew has been with Biosis since 2016 and has extensive experience in Aboriginal archaeology. He has successfully obtained project approvals for Aboriginal heritage under both the *National Parks and Wildlife Act 1974* and the *Environmental Planning and Assessment Act 1979* for a wide range of project types including large scale water infrastructure, linear projects including road upgrades, urban development of all sizes, renewable and non-renewable energy projects, and mineral resource projects.

Mathew's key areas of expertise include Aboriginal archaeological and cultural heritage management advice, archaeological excavation and survey, Aboriginal community consultation, artefact analysis, technical report writing and review of technical reports. He has completed Aboriginal Due Diligence Assessments, Aboriginal Cultural Heritage Assessments, Constraints Analysis, and Heritage Impact permits for a range of projects. Mathew has also served as an expert witness for section 34 conciliation conferences, and a Land and Environment Court hearing.

Mathew is currently recognized by the Australian Association of Consulting Archaeologists Inc (AACAI), as a specialist in the recording and analysis of Aboriginal artefacts. He has undertaken full scale lithic analysis for small and large scale projects in accordance with project approval requirements.

Key project experience

Project manager/Senior Heritage Consultant

Great Artesian Basin Drought Resilience Schemes Keelendi, Brewon and Oreel Aboriginal heritage assessments for Department of Planning and Environment.

Mathew managed Aboriginal heritage assessments for three schemes totaling approximately 130 kilometres of pipeline. Assessments were completed and submitted as part of REFs for each scheme and included field survey. Due to comprehensive field surveys undertaken, each scheme was able to commence without additional permit requirements by avoiding impacts to identified Aboriginal heritage sites.

Project manager/Senior Heritage Consultant

North Beach Seawall, Wollongong Aboriginal Cultural Heritage Assessment for Wollongong City Council.

Mathew undertook and managed an Aboriginal Cultural Heritage Assessment inclusive of Aboriginal community consultation, field survey and test excavations to accompany a REF for seawall upgrades. This included excavations of a known shell midden under a testing AHIP which allowed works to commence without the need for an additional impact AHIP.

Project manager/Senior Heritage Consultant

Tallawarra Lands East-West Link Road, Yallah. Aboriginal Cultural Heritage Assessment for Stantec on behalf of Bridgehill Group.

Mathew managed an Aboriginal Cultural Heritage Assessment inclusive of Aboriginal community consultation, field survey and test excavations to accompany a Development Application for a high density residential development. These included test excavations, consultation, preparation of a CHMP and AHIP application for the project.

Project manager/Senior Heritage Consultant

Brooklyn Fields and Lipsett Sewer extensions Albury Aboriginal Cultural Heritage Assessment for Albury City Council.

Mathew undertook and managed an Aboriginal Cultural Heritage Assessment inclusive of Aboriginal community consultation, field survey and test excavations. Mathew also applied for an AHIP and undertook required compliance works for Albury City Council as part of the approved AHIP requirements.

Project manager/Senior Heritage Consultant

Kulkurna Station Conservation Reserve Cultural Heritage Management Plan for Department of Planning and Environment.

Mathew undertook a gap analysis review of the Reserves 2012 management plan and prepared an updated Cultural Heritage Management Plan as part of The Living Murray Project. This included consultation with community members and development of policies for the protection and management of Aboriginal Heritage in the Reserve.

Project manager/Senior Heritage Consultant

Bald Hill Cobalt deposits, Broken Hill Aboriginal and Historical heritage assessment on behalf of Rimfire Pacific Mining Ltd.

Mathew managed the Aboriginal and historical assessments for explorative activities across mining lease EL5958, Bald Hill NSW. This included field investigations and detailed historical research.

Curriculum vitae

Charlotte Allen

Senior Heritage Consultant



Qualifications

- Bachelor of Arts – Archaeology (Hons), University of Leicester

Other qualifications and training

- General Construction Induction (white card)
- Current first aid certificate
- Current NSW driver's licence
- MS Access 2010 2-Day Workshop
- PRINCE2 Foundation Qualification
- Rail Industry Worker Card
- Working With Children Check
- 4WD Certificate

Professional experience

Charlotte has over six years' archaeological consulting experience, and is skilled in historical research, report preparation and project management. Prior to consulting, Charlotte had an established career in administrative, project management and data management support in the heritage, health and transport sectors. Charlotte has broad experience working as an archaeologist on Aboriginal and European heritage projects across New South Wales.

Charlotte has strong technical skills in research, archaeological field surveys and excavation, artefact analysis, and technical report writing, with a focus on detail and accuracy. Charlotte has managed a range of projects for a variety of client bases, including Aboriginal Due Diligence Assessments, Aboriginal Cultural Heritage Assessments, Historical Heritage Assessments, Historical Archaeological Assessments, Statements of Heritage Impact, Conservation Management Plans, Heritage Interpretation Strategies and Plans, Constraints Analyses and Letters of Advice. Charlotte has also had numerous successful permit applications under the *Heritage Act 1977* and *National Parks and Wildlife Act 1974*, with minimal comments from government regulators.

Charlotte is a confident project manager and field team leader, having worked across various environments, working collaboratively with senior staff and in a team throughout her working life. With experience in both Aboriginal and non-Aboriginal heritage projects in NSW, as well as excavation and field survey experience from the UK, Charlotte is able to consider heritage values and impacts from varying aspects and perspectives.

Key project experience

Heritage Consultant/Project Manager

Aboriginal Cultural Heritage Assessment and AHIP application – Sewer Vacuum Renewal Project, Davistown. For Central Coast Council.

This project involved the assessment of hundreds of sewer infrastructure locations within the suburb of Davistown to determine the impacts of proposed refurbishment works to the local sewer network. A methodology was developed following discussions with Heritage NSW which allowed for a two-stage approach to excavations which balanced cost and timeframe needs of the client while ensuring that Aboriginal heritage could be managed effectively. This methodology was approved as part of an Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974*.

Heritage Consultant/Project Manager

Historical Heritage Assessment, Statement of Heritage Impact, Historical Archaeological Assessment and Aboriginal Cultural Heritage Assessment – Fennell Bay Rezoning, Fennell Bay. For Landcom.

This project involved the preparation of historical and Aboriginal heritage constraints assessments including Archaeological Research Design and Excavation Methodology and Aboriginal Test Excavation Methodology for the proposed rezoning of land in Fennell Bay. The methodology prepared was undertaken in consultation with Heritage NSW and involved consideration of both Aboriginal and non-Aboriginal archaeology, along with the potential for unrecorded burials. Biosis was successful in gaining an Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974* and an Excavation Permit under the *Heritage Act 1977*.

Heritage Consultant/Project Manager

Historical Archaeological Impact Assessment and Aboriginal Cultural Heritage Assessment – 197 Church Street, Parramatta. For Heritage 21 on behalf of Holdmark Property Group

This project required the assessment of Aboriginal and non-Aboriginal archaeology in a highly sensitive location within the Parramatta central business district. Following consultation with the Aboriginal community, Biosis developed a complex test excavation methodology with advice from Heritage NSW, which allowed for investigation of archaeological deposits which could have heritage significance at a State level. This methodology was approved under an Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974* and an Excavation Permit under the *Heritage Act 1977*.

Heritage Consultant/Project Manager

Heritage Interpretation Plan – 15-19 Crown Street, Wollongong. For Traders in Purple.

Following completion of historical archaeological excavations for a mixed-use multistorey residential building in Wollongong, Biosis prepared a Heritage Interpretation Plan for the site. This document had to account for significant disturbance which had removed archaeology which had the potential for heritage significance, and accounting for limited publicly accessible spaces for the presentation of heritage interpretation of the site. Wollongong City Council endorsed the proposed Heritage Interpretation Plan with minimal comments.

Key publications

Understanding The Cumulative Impact of Development on 'Convict Hut' Sites Across the Parramatta CBD, Charlotte Allen, Maggie Butcher, Lauren Harley and Joshua Madden - Sydney Historical Archaeology Practitioners' Workshop (SHAP) 2022

Professional affiliations and memberships

International Conference on Monuments and Sites (ICOMOS)

Curriculum vitae

Crystal Garabedian



Heritage Consultant
Business Development Lead (NSW)

Qualifications

- Bachelor of Arts (Honours)—Archaeology, University of Sydney
- Bachelor of Science—Geology and Geophysics, University of Sydney

Other qualifications and training

- Provide First Aid (HLTAID003 and -009)
- General Construction Induction (white card)

Professional experience

Crystal has been a member of the New South Wales Heritage team since September 2021. She completed her Bachelor of Science and Bachelor of Arts with Honours, with a focus on marine zooarchaeology, and hunter-gatherer economies.

Prior to her role in Biosis, Crystal worked as a research assistant at Macquarie and La Trobe Universities, where she was part of a software development project for field data collection. During this time Crystal also worked as a subcontracting archaeologist, undertaking cataloguing, photography, and detailed analyses of historic artefacts and marine invertebrate remains. Since 2020, she has also been a copyeditor for the Australasian Society for Historical Archaeology and their annual journal, *Australasian Historical Archaeology*.

Crystal has experience in Aboriginal community consultation, artefact analysis, background research, field surveys, project management, technical report writing, and test and salvage excavations throughout New South Wales. During her time with Biosis she has completed several Aboriginal Cultural Heritage Assessments, Statement of Heritage Impact reports, Heritage Interpretation Plans, Heritage Impact Statements and Heritage Management Plans, on time and within budget.

Crystal's capability stems from a thorough understanding of relevant legislation, which has aided her consulting on a range of projects, including residential developments and subdivisions, road infrastructure, industrial developments, mining projects, and renewable energy developments. She is also skilled in the provision of heritage advice and services, having provided such for Integrated Development Applications (IDAs), State Significant Infrastructure (SSI) and State Significant Development (SSD) projects, and for projects involving items of Local and Stage heritage significance.

Key project experience

Project Manager/Heritage Consultant

Historical Archaeological Assessment and Aboriginal Cultural Heritage Assessment. For Morrison Design Partnership Architects.

This SSD project involved the preparation of heritage reports in response to the Secretary's Environmental Assessment Requirements (SEARs). This included a Historical Archaeological Assessment and Aboriginal Cultural Heritage Assessment, which aided the consultation for the Connecting with Country component of the development.

Project manager/Heritage Consultant

Statement of Heritage Impact and Aboriginal Cultural Heritage Assessment—270 Aldington Road, Kemps Creek. For AT&L, Fife Capital, and Stockland.

This project involved Aboriginal community consultation, preparation of a Statement of Heritage Impact, Aboriginal Cultural Heritage Assessment and Archaeological Report, and Aboriginal test excavations across the site. Completion of the impact assessment resulted in the need to obtain an Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974* to commence works.

Project manager/Heritage Consultant

Aboriginal Due Diligence Assessment—Callan Park, Lilyfield. For Greater Sydney Parklands Trust.

An Aboriginal Due Diligence Assessment including an archaeological survey with Aboriginal community participation was conducted within State Heritage Listed Callan Park. Heritage advice in the form of a constraints assessment informed the proposed vegetation clearance and maintenance works proposed to be undertaken.

Project manager/Heritage Consultant

Aboriginal Cultural Heritage Assessment—Picnic Island, Windang. For Endeavour Energy.

Emergency electrical works located in proximity to an Aboriginal midden site triggered the need for an Aboriginal Cultural Heritage Assessment. This project involved extensive Aboriginal community consultation, test excavations and the successful application of an Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974*

Project manager/Heritage Consultant

Aboriginal Cultural Heritage Assessment and Heritage Management Plan—34–44 Park Road, Leppington. For Enspire Solutions.

An Aboriginal Cultural Heritage Assessment resulted in a program of test excavations that uncovered Aboriginal objects. An Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974* was required and granted. Following an Integrated Development Application lodged by the client, the General Terms of Approval required a Heritage Management Plan, which was prepared and accepted by Liverpool City Council.

Project manager/Heritage Consultant

Aboriginal Cultural Heritage Assessment—Towradgi Point, Towradgi. For Wollongong City Council.

An unexpected find of an Aboriginal Midden at Towradgi Point, Towradgi initiated an Aboriginal Cultural Heritage Assessment, and the need for an Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974* to complete the works. This project also included monitoring and extensive Aboriginal community consultation.

Appendix 3 Aboriginal consultation log

The draft HMP was sent out to all RAPs on 7 May 2024. The RAPs were given 28 days to review the document and provide comments, with a closure date of 4 June 2024. In total three responses were received. A copy of this correspondence can be found in Appendix 4.

Table 8 Draft HMP responses

No.	Organisation	Date and type of contact	Date of response and type of contact	Response details
1	A1 Indigenous Services	07/05/2024: email	-	-
2	Amanda Hickey Cultural Services	07/05/2024: email	-	-
3	Bariyan Cultural Connections	07/05/2024: email	-	-
4	Barraby Cultural Services	07/05/2024: email	-	-
5	Bill Trewlynn	07/05/2024: email	-	-
6	Butucarbin Aboriginal Corporation	07/05/2024: email	-	-
7	Confidential Party 1	07/05/2024: email	-	-
8	Confidential Party 2	07/05/2024: email	-	-
9	Damo digs	07/05/2024: email	-	-
10	Deerubbin Local Aboriginal Land Council	07/05/2024: email	-	-
11	Didge Ngunawal Clan	07/05/2024: email	-	-
12	Goobah Development PTY LTD (Murrin Clan/Peoples)	07/05/2024: email	-	-
13	Goobah Development PTY LTD (Murrin Clan/Peoples)	07/05/2024: email	-	-
14	Guntawang Aboriginal Resources Incorporated	07/05/2024: email	28/05/2024: email	*Hi Crystal,* *I have read this report through, what I would like to say is that any aboriginal artefact that is of significance should be recorded and protected. The Aboriginal Clans from the mountains travelled through these lands to meet with the other clan groups, due to the distance they travelled*

No.	Organisation	Date and type of contact	Date of response and type of contact	Response details
				they must have stopped along the way and camped overnight or for a few days. I know that the land has been used for farming and gardening so the artefacts or remanence may not be on the surface they could be under layers of soil that has been transferred to this land. *I have lived in this area for over 45 years so I know what this land has been used for.* *I am not sure will help? I just wanted to let you know that we belong to the land.* *GARI would like to be involved in this project if there is any excavation. Our sites officer Brad Maybury has years of experience to offer.*
15	Kamilaroi Yankuntjatjara Working Group	07/05/2024: email	-	-
16	Konanggo Aboriginal Cultural Heritage Services	07/05/2024: email	-	-
17	Long Gully Cultural Services	07/05/2024: email	-	-
18	Muragadi Heritage Indigenous Corporation	07/05/2024: email	-	-
19	Ninnum	07/05/2024: email	-	-
20	Pearl Depoma	07/05/2024: email	20/05/2024: email	*Hello Crystal,* *Thank you for allowing me to register for the Aldington Road, Kemps Creek project.* *I have read and reviewed the Heritage Management Plan (HMP) for the project and at this stage do not wish to add any additional information or make any changes.* *I support the current HMP.* *Regards,* *Pearl Depoma*

No.	Organisation	Date and type of contact	Date of response and type of contact	Response details
21	Waawaar Awaa Aboriginal Corporation	07/05/2024: email	-	-
22	Wailwan Aboriginal Group	07/05/2024: email	-	-
23	Wallanbah Aboriginal Site Conveyancing	07/05/2024: email	-	-
24	Widescope Indigenous Group	07/05/2024: email	-	-
25	Yulay Cultural Services	07/05/2024: email	-	-
26	Yurrandaali	07/05/2024: email	-	-
27	Nattai Aboriginal Culture & Heritage Consultation Service	07/05/2024: email	24/05/2024: email	*Hi Crystal,* *Nattai Aboriginal Culture & Heritage Consultation Service has viewed the ACHA draft document including the HMP and have no issue to raise.* *What I am somewhat confused by is the reference to "Dharawal" people/clan in context of the area. The area is Cabrogal/Dharug. With this in mind, I am curious to understand why this reference is in the draft document?* *Kind Regards,* *Alan Medhurst.*
28	Thomas Dahlstrom Offers ACH value by using 3D Laser and Drone technology	07/05/2024: email	-	-
29	Murra Bidgee Mullangari Aboriginal Corporation	07/05/2024: email	-	-
30	Darug Custodian Aboriginal Corporation	07/05/2024: email	-	-

Appendix 4 Aboriginal consultation

Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:39 PM
To: ngunduwaa@live.com.au
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

Good afternoon,

You are receiving this email following on from your registration in the Aldington Road, Kemps Creek, New South Wales Aboriginal Cultural Heritage Assessment (ACHA). The project has identified Aboriginal cultural heritage and historical sites in need of management consideration. The management strategies of these sites have been detailed in a Heritage Management Plan (HMP). You can follow the link below to access the draft HMP:

https://spaces.hightail.com/space/z3XAelliro

Please provide any feedback on the HMP before 5:00 pm Tuesday 4 June 2024.

Please do not hesitate to contact me if you require additional information or have any issues accessing the draft reports.

Kind regards,
Crystal Garabedian

Crystal Garabedian She/Her
Heritage Consultant and Business Development Lead (NSW)

0456 625 253
CGarabedian@biosis.com.au
www.biosis.com.au

Leaders in Ecology, Heritage and Environmental Approvals

Biosis acknowledges the Aboriginal and Torres Strait Islander people as Traditional Custodians of the country on which we live an
We pay our respects to the Traditional Custodians and Elders past, present and future, and honour their connection to the land and

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Crystal Garabedian She/Her

Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:39 PM
To: yurrandaali_cs@hotmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

Good afternoon,

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Crystal Garabedian She/Her

Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:39 PM
To: yulayculturalservices@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

Good afternoon,

You are receiving this email following on from your registration in the Aldington Road, Kemps Creek, New South Wales Aboriginal Cultural Heritage Assessment (ACHA). The project has identified Aboriginal cultural heritage and historical sites in need of management consideration. The management strategies of these sites have been detailed in a Heritage Management Plan (HMP). You can follow the link below to access the draft HMP:

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Kind regards,
Crystal Garabedian

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Crystal Garabedian She/Her

Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:38 PM
To: Widescope.group@live.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

Good afternoon,

You are receiving this email following on from your registration in the Aldington Road, Kemps Creek, New South Wales Aboriginal Cultural Heritage Assessment (ACHA). The project has identified Aboriginal cultural heritage and historical sites in need of management consideration. The management strategies of these sites have been detailed in a Heritage Management Plan (HMP). You can follow the link below to access the draft HMP:

https://spaces.hightail.com/space/z3XAelliro

Please provide any feedback on the HMP before 5:00 pm Tuesday 4 June 2024.

Please do not hesitate to contact me if you require additional information or have any issues accessing the draft reports.

Kind regards,
Crystal Garabedian

Crystal Garabedian She/Her
Heritage Consultant and Business Development Lead (NSW)

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Crystal Garabedian She/Her

Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:38 PM
To: kelvingoogieboney@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

Good afternoon,

You are receiving this email following on from your registration in the Aldington Road, Kemps Creek, New South Wales Aboriginal Cultural Heritage Assessment (ACHA). The project has identified Aboriginal cultural heritage and historical sites in need of management consideration. The management strategies of these sites have been detailed in a Heritage Management Plan (HMP). You can follow the link below to access the draft HMP:

https://spaces.hightail.com/space/z3XAelliro

Please provide any feedback on the HMP before 5:00 pm Tuesday 4 June 2024.

Please do not hesitate to contact me if you require additional information or have any issues accessing the draft reports.

Kind regards,
Crystal Garabedian

Crystal Garabedian She/Her
Heritage Consultant and Business Development Lead (NSW)

0456 625 253
CGarabedian@biosis.com.au
www.biosis.com.au

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Crystal Garabedian She/Her

Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:38 PM
To: waarlan12@outlook.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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To: Waawaar.awaa@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Crystal Garabedian
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To: pearl-depoma@hotmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian She/Her

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From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:38 PM
To: ninnum_group@outlook.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:37 PM
To: muragadi@yahoo.com.au
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:37 PM
To: Ethan3trewlynn@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:37 PM
To: konanggo_consultancy@hotmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:37 PM
To: wenlissa01@hotmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:37 PM
To: bunjil.smith@gmail.com
Subject: FW: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:36 PM
To: goobahchts@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:33 PM
To: didgengunawalclan@yahoo.com.au
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Please do not hesitate to contact me if you require additional information or have any issues accessing the draft reports.

Kind regards,
Crystal Garabedian

Crystal Garabedian She/Her
Heritage Consultant and Business Development Lead (NSW)

0456 625 253
CGarabedian@biosis.com.au
www.biosis.com.au



Leaders in Ecology, Heritage and Environmental Approvals

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:33 PM
To: srandall@deerubbin.org.au
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

Good afternoon,

You are receiving this email following on from your registration in the Aldington Road, Kemps Creek, New South Wales Aboriginal Cultural Heritage Assessment (ACHA). The project has identified Aboriginal cultural heritage and historical sites in need of management consideration. The management strategies of these sites have been detailed in a Heritage Management Plan (HMP). You can follow the link below to access the draft HMP:

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:33 PM
To: damomorrison781@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:33 PM
To: butuheritage@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:33 PM
To: wtrewlynn@hotmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:33 PM
To: barrabyculturalservices@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:32 PM
To: bariyan.culturalconnections@gmail.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:32 PM
To: amandahickey@live.com.au
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian

From: Crystal Garabedian
Sent: Tuesday, 7 May 2024 3:31 PM
To: cazadirect@live.com
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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From: Pearl Depoma
To: Crystal Garabedian
Subject: Re: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)
Date: Monday, 20 May 2024 9:08:34 PM

Hello Crystal,

Thank you for allowing me to register for the Aldington Road, Kemps Creek project.

I have read and reviewed the Heritage Management Plan (HMP) for the project and at this stage do not wish to add any additional information or make any changes.

I support the current HMP.

Regards

Pearl Depoma
Managing Director
M: 0404 158 006
A: Parramatta
E: pearl-depoma@hotmail.com

Lives & Works on Dharug Country

Proud Kamilaroi and Torres Strait Islander Women.

I acknowledge the traditional custodians of country and recognise their continuing connection to land, waters, and community on which I am greatful to live, work and visit. I pay my respects to them, their cultures, and traditions. I honor our Elders both past and present and encourage our future generations to strive.

It always was and always will be, Aboriginal land. Our Ancestors live on, within us.

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Please consider the environment before printing this email.

On 7 May 2024 3:37 pm, Crystal Garabedian <CGarabedian@biosis.com.au> wrote:

> Good afternoon,
>
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From:	Wendy Morgan
To:	Crystal Garabedian
Subject:	Re: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)
Date:	Tuesday, 28 May 2024 4:10:21 PM
Attachments:	image862025.png image908868.png image488797.png image105237.png image691356.png image304044.png image687612.png image189031.png

Hi Crystal,

I have read this report through, what I would like to say is that any aboriginal artefact that is of significance should be recorded and protected. The Aboriginal Clans from the mountains travelled through these lands to meet with the other clan groups, due to the distance they travelled they must have stopped along the way and camped overnight or for a few days. I know that the land has been used for farming and gardening so the artefacts or remanence may not be on the surface they could be under layers of soil that has been transferred to this land.

I have lived in this area for over 45 years so I know what this land has been used for.

I am not sure will help? I just wanted to let you know that we belong to the land.

GARI would like to be involved in this project if there is any excavation. Our sites officer Brad Maybury has years of experience to offer.

kind regards

Wendy Morgan
CEO GARI
0414 964 657

From: Crystal Garabedian <CGarabedian@biosis.com.au>
Sent: Tuesday, May 7, 2024 3:36 PM
To: wenlissa01@hotmail.com <wenlissa01@hotmail.com>
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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Crystal Garabedian She/Her
Heritage Consultant and Business Development Lead (NSW)

From:	Alan Medhurst
To:	Crystal Garabedian
Subject:	Re: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)
Date:	Friday, 24 May 2024 8:54:27 AM
Attachments:	image862025.png image908868.png image488797.png image105237.png image177718.png image681677.png image608050.png image515764.png

Hi Crystal,

Nattai Aboriginal Culture & Heritage Consultation Service has viewed the ACHA draft document including the HMP and have no issue to raise.

What I am somewhat confused by is the reference to "Dharawal" people/clan in context of the area. The area is Cabrogal/Dharug. With this in mind, I am curious to understand why this reference is in the draft document?

Kind Regards,

Alan Medhurst.

Nattai Aboriginal Culture & Heritage Consultation Service.

"Acknowledging Our Elders Past & Present"

From: Crystal Garabedian <CGarabedian@biosis.com.au>
Sent: Tuesday, 7 May 2024 3:39 PM
To: ngunduwaa@live.com.au <ngunduwaa@live.com.au>
Subject: Aldington Road, Kemps Creek - Draft Heritage Management Plan (40309)

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You are receiving this email following on from your registration in the Aldington Road, Kemps Creek, New South Wales Aboriginal Cultural Heritage Assessment (ACHA). The project has identified Aboriginal cultural heritage and historical sites in need of management consideration. The management strategies of these sites have been detailed in a Heritage Management Plan (HMP). You can follow the link below to access the draft HMP:

https://spaces.hightail.com/space/z3XAelliro

Please provide any feedback on the HMP before 5:00 pm Tuesday 4 June 2024.

Please do not hesitate to contact me if you require additional information or have any issues accessing the draft reports.

Kind regards,
Crystal Garabedian

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Heritage Consultant and Business Development Lead (NSW)

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Leaders in Ecology, Heritage and Environmental Approvals

Biosis acknowledges the Aboriginal and Torres Strait Islander people as Traditional Custodians of the country on which we live and work.
We pay our respects to the Traditional Custodians and Elders past, present and future, and honour their connection to the land and ongoing contribution to society.

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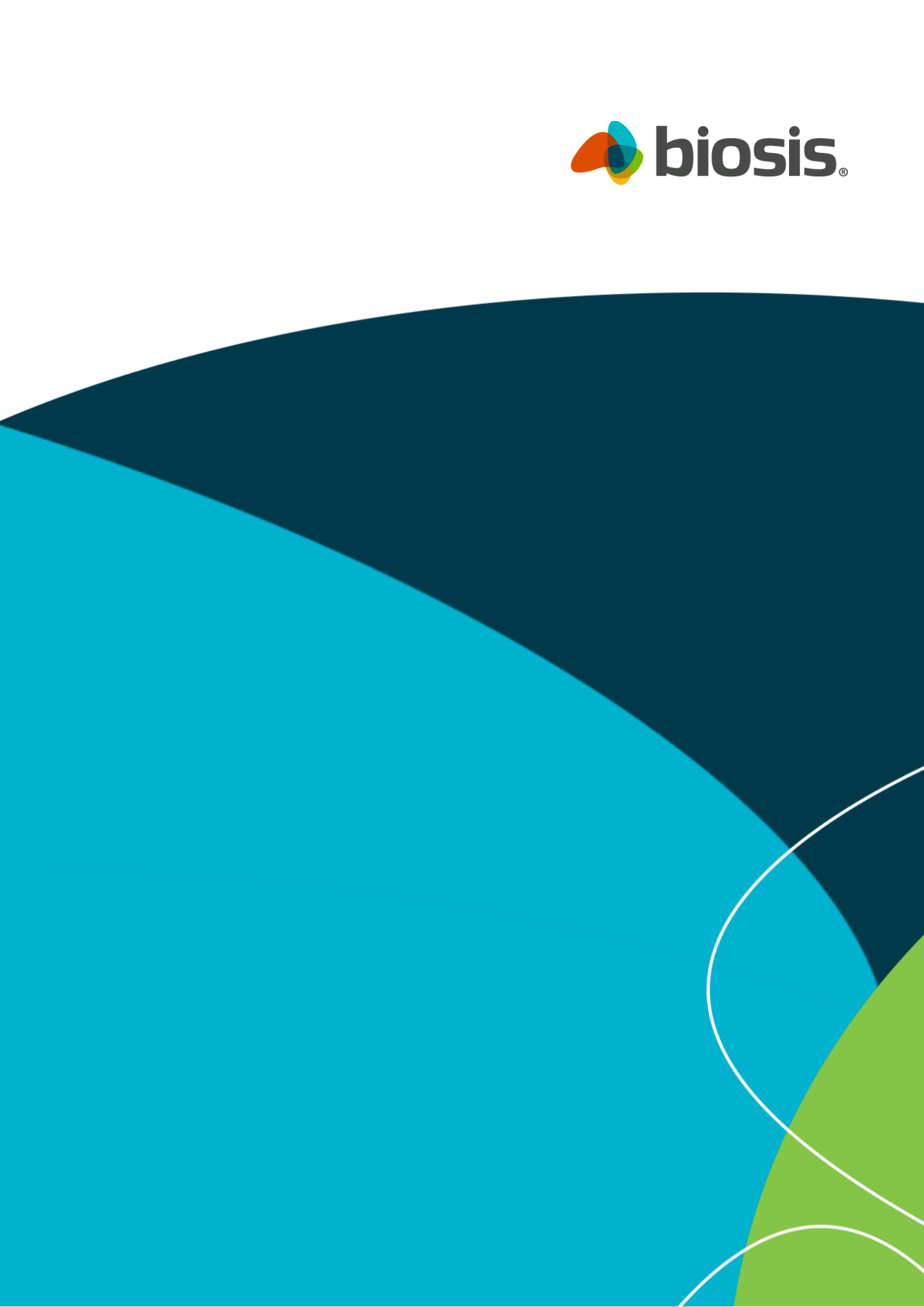
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Appendix J Construction Traffic Management Plan



Construction Traffic Management Plan

Mamre Road, Abbotts Road and Aldington Road Upgrade

Mamre Road Precinct
4/02/2025
P2264r03

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Document Control

Project No	P2264
Project	Mamre Rd, Abbotts Rd and Aldington Rd Upgrade
Client	Land Owners Group East
File Reference	P2264r03v07 CTMP_Mamre Rd, Abbotts Rd and Aldington Rd Upgrade, Issue VII

Revision History

Revision No.	Date	Details	Author	Approved by
-	31/07/2024	Draft	E. Duan	J. Laidler
01	30/08/2024	Issue I	E. Duan	J. Laidler
02	17/09/2024	Issue II	E. Duan	J. Laidler
03	18/10/2024	Issue III	E. Duan	E. Duan
04	06/12/2024	Issue IV	E. Duan	J. Laidler
05	14/01/2025	Issue V	J. Laidler	J. Laidler
06	20/01/2025	Issue VI	J. D. Wu	J. D. Wu
07	04/02/2025	Issue VII	E. Duan	E. Duan

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APPENDICES

Appendix A. Driver Code of Conduct

Appendix B. Risk Assessment

Appendix C. Traffic Guidance Scheme

Appendix D. Verification Checklist

Appendix E. Evidence of Consultation

Glossary

Acronym	Description
AV	Articulated Vehicle (as defined by AS2890.2:2018)
AARU	Abbotts Road and Aldington Road corridor upgrades
CCLR	Communications and Community Liaison Representative
CEMP	Construction Environmental Management Plan
Council	Penrith City Council
CTMP	Construction Traffic Management Plan
DPHI	Department of Planning, Housing and Infrastructure (formerly Department of Planning and Environment, DPE)
EIS	Environmental Impact Statement
ER	Environmental Representative
LOG-E	Land Owners Group East
MAIU	Mamre Road and Abbotts Road Intersection Upgrade
MRPWG	Mamre Road Precinct Working Group
RAV	TfNSW Restricted Access Vehicles
ROP	Road Occupancy Permit
SSD	State Significant Development
TCAWS	Transport for NSW Traffic Control at Work Sites Technical Manual
TfNSW	Transport for New South Wales
TGS	Traffic Guidance Scheme
TRRO	Temporary Road Reserve Occupancy
TTM	Temporary Traffic Management
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)
VMS	Variable Message Sign
VOC	Verification of Competency
VRU	Vulnerable Road Users
WHS	Work, Health and Safety

1 Introduction

1.1 Overview

Ason Group has been engaged by AT&L on behalf of Land Owners Group East (LOG-E) to prepare a Construction Traffic Management Plan (CTMP) in regard to the proposed road for both Mamre Road and Abbotts Road Intersection Upgrade (MAIU) and Abbotts Road and Aldington Road Upgrade (AARU). Both pieces of construction are located at Mamre Road, Abbotts Road and Aldington Road, Kemps Creek (the Site).

This CTMP details the proposed construction management strategies which would provide for the safe and efficient completion of the proposed works while minimising construction traffic impacts on the surrounding road network and public road network users.

1.2 Project Representatives & Stakeholders

This report has been prepared by consultants who hold a SafeWork NSW Work Health & Safety Traffic (WHS) Control Work card, accredited for the 'Prepare a Work Zone Traffic Management Plan'. Details of the accredited consultants are provided below:

- James Laidler Ticket No. TCT0031686
- Emily Duan Ticket No. TCT1054771

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) (TCAWS)*.

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
Ignacio Vazquez Hume	AT&L	Civil Engineer / Superintendent
James Laidler	Ason Group	Principal Traffic Engineer
Emily Duan	Ason Group	Traffic Engineer

1.3 Project History

LOG-E are represented by ESR Australia, Fife Kemps Creek, and Frasers Property Industrial, who are each developing parcels of land within the Mamre Road Precinct (MRP).

The relevant LOG-E sites within the MRP are shown below, in **Figure 1**.

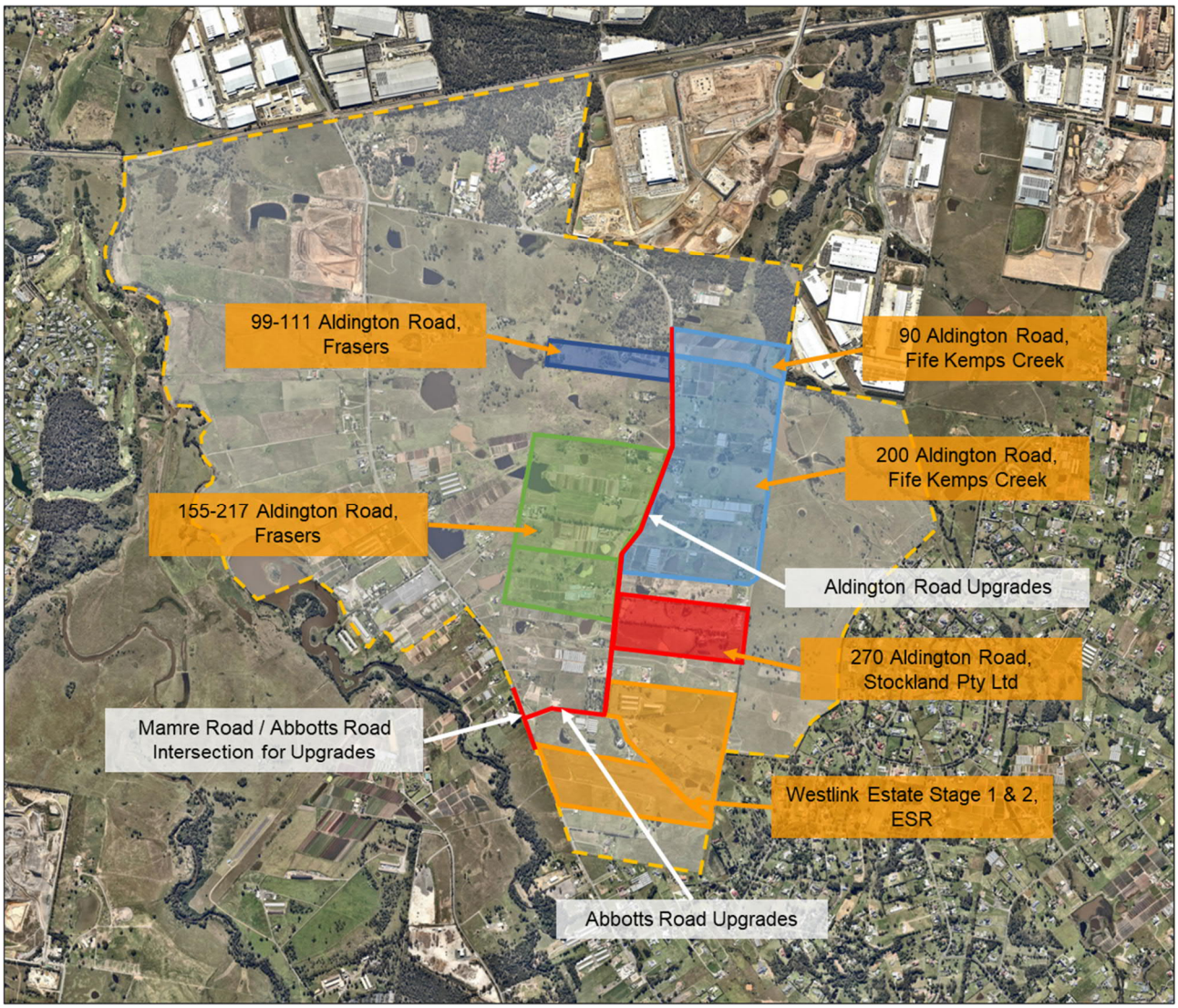


Figure 1: LOG-E Development Sites

Ason Group has worked on behalf of LOG-E to deliver the modelling assessment of the proposed road network which forms part of the relevant applications. The results of this operational modelling assessment have been documented within the following report:

- Ason Group, *P1815 – Mamre Road Precinct – LOG East – Revised Modelling,* P1815m02_v4 MRP_LOG East 2026 Revised Modelling, 19 September 2022 (LOG-E Modelling Memo).

Transport for New South Wales (TfNSW) endorsed this modelling assessment and, on 21 April 2023, Stage 1 of the Westlink Estate (SSD-9138102[1]) was approved by DPHI.

Ason Group had also prepared 2 Construction Traffic Impact Assessments (CTIA) in support of the Development Application (DA) required. The traffic impact assessment have been documented within the following reports:

- Ason Group, *P2264r01v6 CTIA Abbotts Rd_Aldington Rd Upgrade,* 14 June 2024 (LOG-E AARU CTIA)
- Ason Group, *P2264r02v2 CTIA Mamre Rd_Abbotts Rd Upgrade*, 30 January 2024 (LOG-E MAIU CTIA)

[1] https://www.planningportal.nsw.gov.au/major-projects/projects/westlink-industrial-estate-stage-1

1.4 Project Details

1.4.1 Project Description

The breakdown for the construction works for the Site is as follows:

- Construction of external road upgrades including Mamre Road and Abbotts Road intersection works,
- Widening of Abbotts Road from the Mamre Road intersection, and
- Widening of a section of Aldington Road.

The separable portions plan prepared by AT&L is shown below at a reduced scale**.**

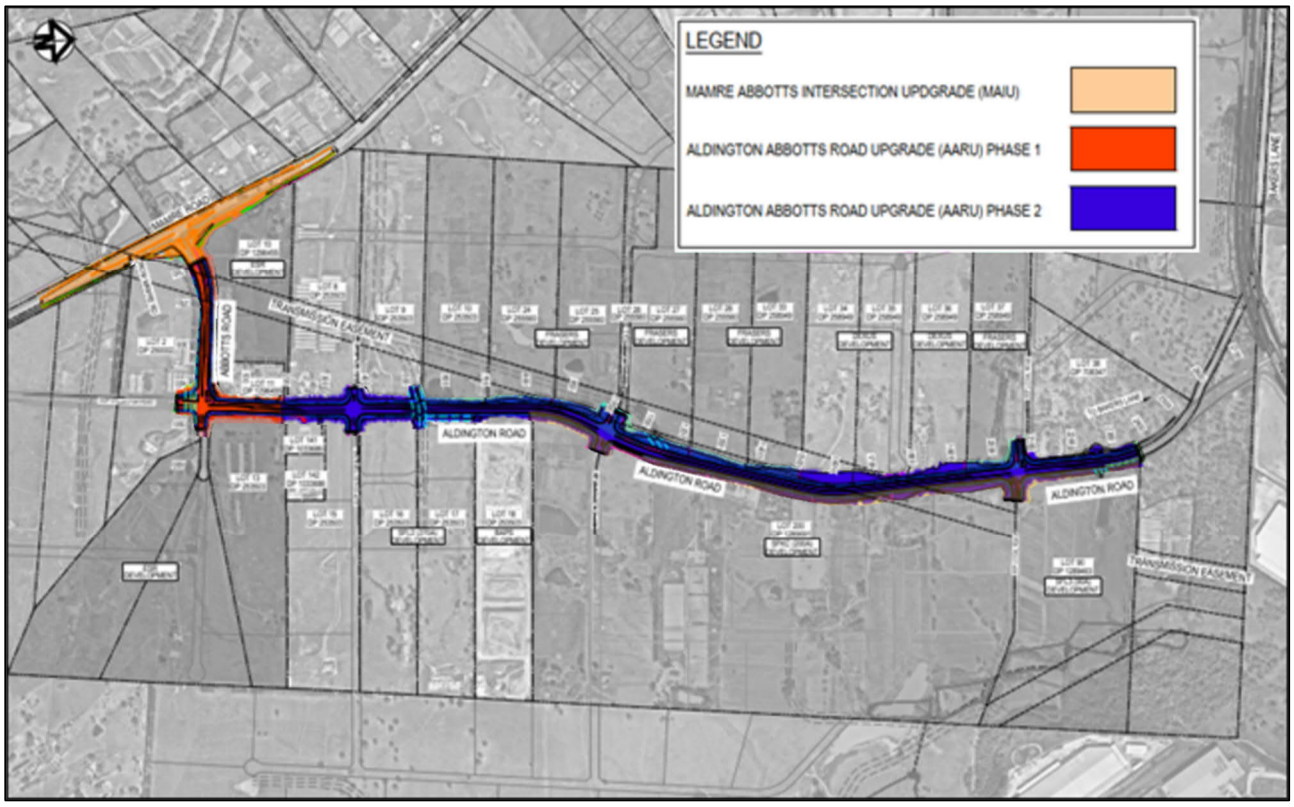


Figure 2: Site Overview

1.4.2 Site Location

The Site is located at Mamre Road / Abbotts Road intersection, Abbotts Road and Aldington Road, Kemps Creek and is legally known as Lots 111, 112, 113, 114 and 115 DP 1296469 and Lot 10 DP 1296455.

The Site is located approximately 4 km north-west of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13 km south-east of the Penrith CBD and 40 km west of the Sydney CBD.

The location of the Site is presented in **Figure 3**.

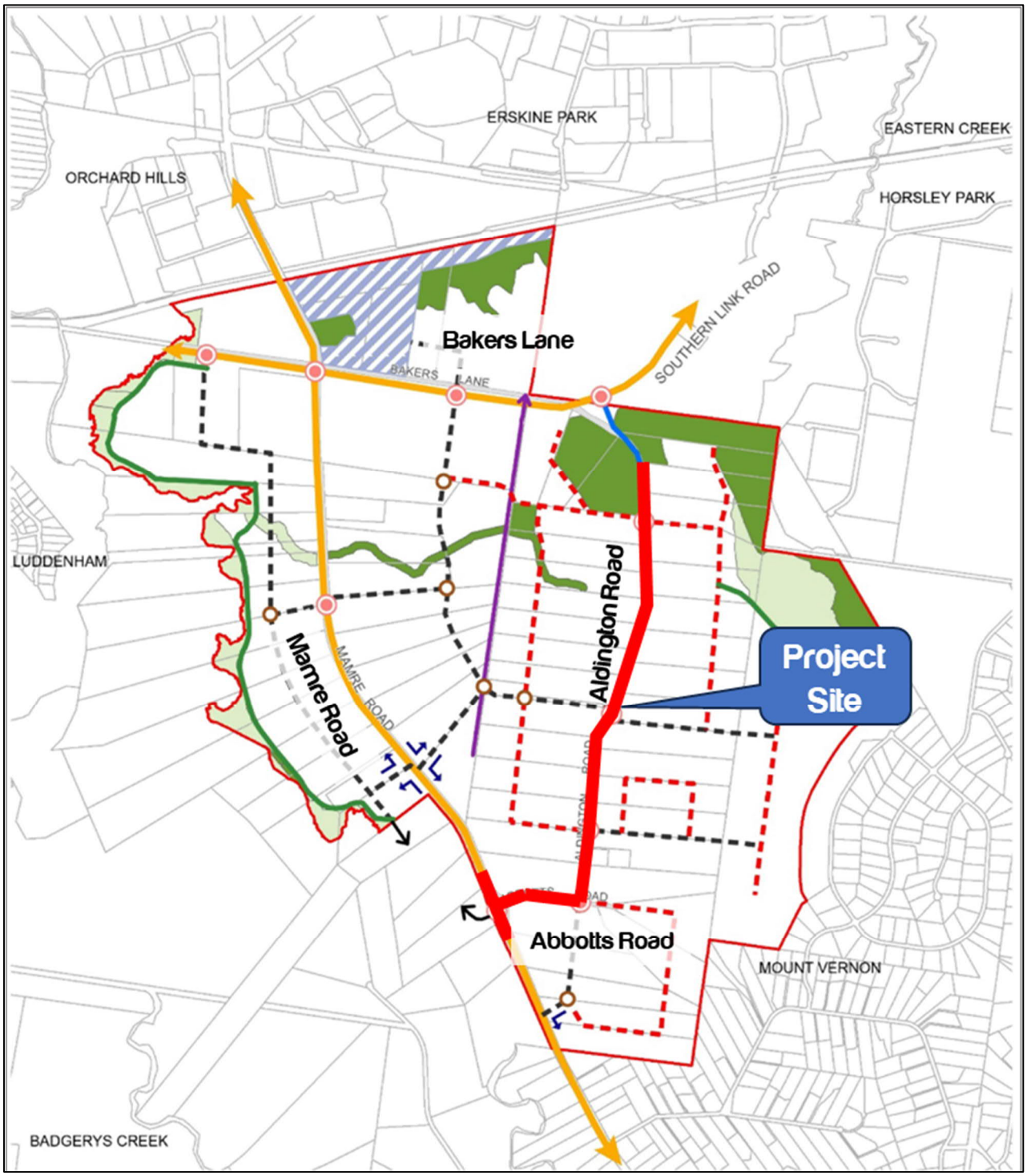


Figure 3: Site Location

1.4.3 Proposed Construction Activity / Works

The duration of proposed construction works is provided in **Table 2**. The separable portions plan is outlined in **Figure 2**. Construction shall not commence until the CTMP required by Condition A1 is approved.

TABLE 2: STAGING AND DURATION OF WORKS

Works	Phase	Duration	Description
MAIU	-	12 months	Construction of Mamre Road and Abbotts Road intersection
AARU	1	12 months	Construction of Abbotts Road and a segment of Aldington Road
AARU	2	19 months	Construction of Aldington Road

1.5 Authority Requirements

The planning requirements include the conditions, and the mitigation / management measures outlined in the EIS. The planning requirements and the corresponding traffic and access management measures applicable to Traffic Management for the Project are listed below in **Table 3**.

Legislative and other requirements applicable to all aspects of the project are included in the Construction Environmental Management Plan.

1.5.1 Conditions of Consent

Conditions of Consent (CoC) for the LOG-E Development Sites have been provided and are applicable to the Site. The Conditions relevant to this CTMP are reproduced in **Table 3** with responses to each provided.

TABLE 3: CONDITION REQUIREMENTS

Condition No.	Requirement	Response
Part D	Construction Environmental Management Plan	
D25 (b)	a traffic management plan prepared in consultation with TfNSW and Council, detailing the measures to ensure road safety and network efficiency during the External Road Works, a Driver Code of Conduct, a program to monitor the effectiveness of the measures and adherence to specified routes, and procedures for notifying residents and local schools of any disruptions to routes;	This Construction Traffic Management Plan has been prepared to satisfy this condition.
Part B	Construction Traffic Management Plan	
B1	Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:	-
(a)	be prepared by a suitably qualified and experienced person(s);	Consultants from Ason Group are suitably qualified Traffic Engineers, with relevant "Prepare a Work Zone Traffic Management

		Plan" accreditation. Refer to **Section 1.2** for relevant qualifications.
(b)	be prepared in consultation with Council and TfNSW;	TfNSW and Council shall be consulted following preparation of this plan, with relevant updates (if required) made following the consultation. Proof of this consultation will be provided within **Appendix E** of the report.
(c)	detail the measures that are to be implemented to ensure road safety and network efficiency during construction works to: (i) ensure access to the site and road safety and network efficiency is maintained, (ii) manage cumulative construction traffic from other concurrent construction works within the Mamre Road Precinct, and (iii) address necessary interim traffic safety controls and management measures, including consideration of any traffic control measures required to manage traffic entering Mamre Road in the period before Mamre Road/Abbotts Road intersection construction is complete;	**Section 3** details the traffic management measures which will ensure site and road safety, and network efficiency is maintained. The cumulative construction traffic impact assessment has been undertaken separately, and included within the following reports: • Ason Group, *P2264r01v6 CTIA Abbotts Rd_Aldington Rd Upgrade*, 14 June 2024 (LOG-E AARU CTIA). • Ason Group, *P2264r02v2 CTIA Mamre Rd_Abbotts Rd Upgrade*, 30 January 2024 (LOG-E MAIU CTIA) Traffic Guidance Schemes have been prepared and provided within **Appendix C**.
(d)	detail heavy vehicle routes, access and parking arrangements;	The Site access arrangements and vehicle routes are outlined in **Section 2.3** and **Section 2.3**. The parking arrangements is outlined in **Section 3.3** and **Section 3.4**.
(e)	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, including entering and exiting Mamre Road via Abbotts Road and not Bakers Lane;	A Driver Code of Conduct is a requirement of and included within this CTMP. The Drivers Code of Conduct (included in **Appendix A**) addresses ways to minimise the impacts on the road network, with other road users, ensure truck routes are utilised and to manage pedestrian movements. Construction vehicles will not utilise Bakers Lane for access or egress.
(f)	include a program to monitor the effectiveness of these measures; and	The Contractor shall include a program to monitor the effectiveness of the measures proposed to minimise impacts to the public road network. These programs will be completed in accordance with **Section 4.1** and **Table 19**.
(g)	if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.	LOG-E will notify the community liaison representative when traffic conditions are expected to exceed parameters with within Condition Green of **Table 21**. Measures that may be included within the strategy have been identified within **Section 4.1** and **Section 4.4**.

		Meetings are to be undertaken on a regular basis to keep key stakeholders informed of any upcoming events.
B2	The Applicant must:	-
(a)	not commence construction until the Construction Traffic Management Plan required by condition A1 is approved by the Planning Secretary; and	Noted and reiterated in **Section 1.4.3**.
(b)	implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.	Refer **Section 4.1** of this Plan which outlines requirement for this Plan to be updated regularly.

1.6 Site Related Data

1.6.1 Road Details

The key roads surrounding the Site are as identified within **Figure 3** and summarised in **Table 4**.

TABLE 4: LOCAL ROAD NETWORK

Road Name	Section	Speed Limit	Parking	Traffic Volumes and Peak Times	Urban / Rural
Mamre Road	Great Western Highway and M4 & Elizabeth Dr	60-80 km/hr	No	AM Peak: 1,391[1] veh/hr PM Peak: 1,541[1] veh/hr	Urban
Aldington Road	Abbotts Rd & Bakers Ln	60 km/hr	No	-	Urban
Abbotts Road	Mamre Rd & Aldington Rd	60 km/hr	No	-	Urban
Elizabeth Drive	M7 & The Northern Rd, Hume Highway & Mamre Rd	80 km/hr	No	2021 ADT: 26,516[2] veh/day	Urban
Bakers Lane	Mamre Rd & Aldington Rd	60 km/hr (40 km/hr during school peaks)	No	-	Urban
Erskine Park Road	Mamre Rd & M4	70 km/hr	No	-	Urban

Notes: 1) According to Ason Group surveys conducted in 2018 on Mamre Road north of Bakers Lane
2) Transport for NSW Traffic Volume Viewer

1.6.2 Crash History

A review of TfNSW crash database has been undertaken to establish the crash history in the vicinity of the Site; the crash history for the 5-year period 2018 to 2022 (inclusive) is outlined below in **Table 5** and **Figure 4**. No discernible patterns relating to a trend or incident type were observed for crashes and suggests there are no inherent safety issues within the Section of Mamre Road, Abbotts Road or Aldington Road, near the Site.

TABLE 5: CRASH HISTORY

Year	Location	RUM Code	Injury/Death
2018	Aldington Road	71 – Off rd right => obj	1 x moderate injury
2018	Mamre Road, 100m north of Mamre Rd x Abbots Rd intersection	20 – Head On	1x serious injury 1 x minor injury
2022	Mamre Rd, 100m south of Mamre Rd x Abbots Rd intersection	73 – Off rd right => obj	1 x serious Injury

Source: TfNSW Crash Statistics Website

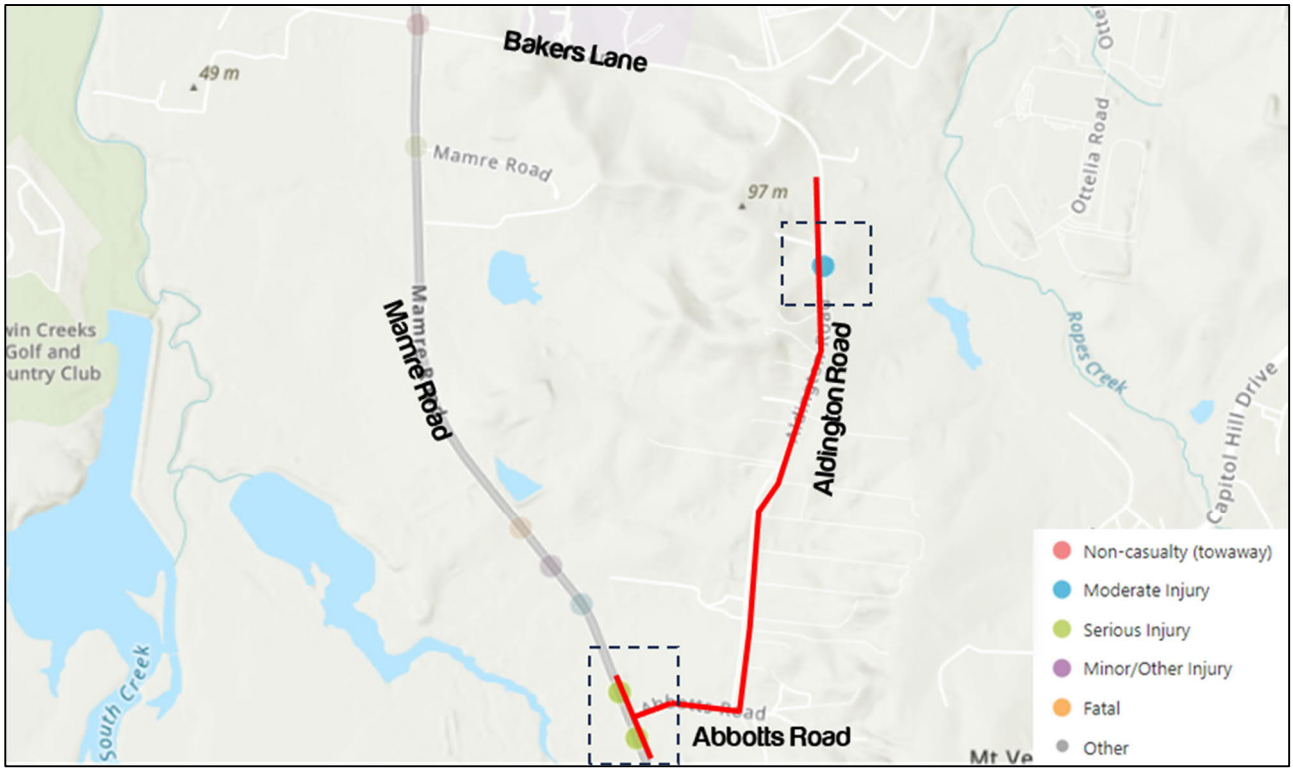


Figure 4: Crash Location and Type (2018-2022)

1.6.3 Vulnerable Road Users

Vulnerable road users (VRU) are road users not in a car, bus or truck. In the event of a crash, VRUs have little to no protection from crash forces, therefore, need to be addressed within this CTMP. The table below provides context to VRUs surrounding the Site.

TABLE 6: PUBLIC AND ACTIVE TRANSPORT VULNERABLE ROAD USERS (VRU'S)

Road Name	Pedestrian	Cycling	Public Transport
Mamre Road	No	Yes Within shoulder	None close to Site
Aldington Road	No	No	No
Abbotts Road	No	No	No
Elizabeth Drive	No	Yes Within shoulder	Yes Bus Stops
Bakers Lane	No	Yes Within shoulder	No

1.7 Stakeholder Engagement

1.7.1 Stakeholder Engagement Plan

Prior to commencement of construction, LOG-E will consult with any relevant stakeholders regarding construction schedules and truck routes during construction. Any identified conflicts or issues that arise will be promptly raised with stakeholders at the earliest opportunity. In particular, the Mamre Road Precinct Working Group (MRPWG) serves as a dedicated forum to consult with key stakeholders, providing a platform to discuss construction programs, potential impacts, and outcomes from previous engagements.

Proof of this consultation will be provided within **Appendix E** of the report. Furthermore, LOG-E commits to adhering to the actions and procedures outlined in **Section 1.7.2**.

TABLE 7: STAKEHOLDER CONSULTATION ACTIONS

Stakeholder	Action
TfNSW	LOG-E to submit CTMP to stakeholder. LOG-E to liaise with stakeholder to address comments and re-submit final CTMP.
Penrith City Council	LOG-E to submit CTMP to stakeholder. LOG-E to liaise with stakeholder to address comments and re-submit final CTMP.
Transport Management Centre (TMC)	Tied to consultation with TfNSW. Any consultation will be undertaken in tandem with TfNSW.

1.7.2 Stakeholder Notification

In the event that any disruptions (unexpected or in advance) to roadways / footpath occur as a result of construction works, the procedure outlined below is to be followed:

- If any future disruptions to roadways / footpaths are required, Council / TfNSW is to be notified first and depending on the extent of the disruption, the Contractor is to notify affected property occupiers using letter drops and Variable Message Sign (VMS).
- If any unforeseen disruptions to roadways / footpaths occur, Council / TfNSW is to be notified first and depending on the extent of the disruption the contractor is to notify affected property occupiers via traffic controllers and VMS.
- In the event that heavy vehicle damage to Council / TfNSW assets / infrastructure, contractors will notify Penrith Council's Traffic & Transport team and / or Assets Branch.

1.7.3 Transport for New South Wales

A copy of the CTMP was submitted to TfNSW for their review and feedback on 31 August 2024. Any subsequent comments from TfNSW will be documented as necessary.

1.7.4 Department of Planning, Housing and Infrastructure Comments - 22 November 2024

The Department of Planning, Housing, and Infrastructure (DPHI) was provided a copy of the CTMP as part of the consultation process. DPHI provided comments on 22 November 2024 which are shown and addressed in **Table 8**.

TABLE 8: DPHI COMMENTS – DATED 22 NOVEMBER 2024

Item No.	DPHI Comments	Ason Group Responses
1	*Condition D25(b) requires the CTMP to be prepared in consultation with TfNSW and Council. The evidence of consultation provided in Table 7 and Appendix E of the CTMP is unclear whether TfNSW or Council provided any feedback on the plan and how this was responded to.*	Noted. The details of consultation with TfNSW and Council have been provided in **Section 1.7.3** and **Section 1.7.6** and **Appendix E**.
2	*Figures 6 to 11 and in the Code of Conduct refer to 'the Mirvac site'. Please update to refer to the correct site.*	The Project Site has been clearly identified (and highlighted blue) in these figures. The commentary relating to the '*Mirvac site'* – now labelled as 'Aspect Industrial Estate' within figures 6 to 11 – provides additional commentary around turning restrictions from Mamre Road to the neighbouring Mirvac site and does not refer to the Site as being the Mirvac Site.
3	*Clarify the location of the work compound and parking area, especially for Phase 1, and how this will be accessed.*	Noted. The AARU Phase 1 site compound will be located within the ESR development area and be accessed from Abbotts Road, as outlined in

		Figure 15. The site compound has adequate area to accommodate the parking requirements for all construction workers, and will shift as construction progresses.
4	*Section 4 of the CTMP states that the plan will be subject to a monthly review, while Table 16 states it will be 'bi-monthly'. Please clarify.*	Noted. This CTMP shall be subject to a review every 2 months. **Section 4** has been updated for clarity.
5	*Clarify who are the 'stakeholders' referred to in Table 20 and the timing for notification of planned traffic disruptions.*	The details of the stakeholders and the timing for notification of planned traffic disruptions have been outlined within the *Community Consultation Strategy and Complaints Handling Procedure, Appendix K of the CEMP.*
6	*For ease of use, it is recommended that the Driver Code of Conduct document (particularly truck routes) be updated for each phase of works, rather than providing drivers with multiple routes in one document.*	The truck routes provided in the Driver Code of Conduct are for 3 stages of the same work package, even though they may request separate approvals. Each route has been shown on one single page in **Appendix A** Driver Code of Conduct.
7	*The notes on TGS plans at Appendix C refer to Castlereagh Road.*	Noted. The TGS has been updated to refer to Mamre Road.
8	*In Appendix C, the Phase 1 - Detour Layout (sheet AG10) diverts traffic on to Bakers Lane. Please clarify if this is local traffic or if it also includes construction traffic for the road works or other construction projects that utilising Abbotts and Aldington Roads. Construction or operational traffic is not permitted to use Bakers Lane.*	Noted. - Abbotts Road will not be closed at any point, hence there is no detour needed. The TGS has been updated, refer to **Appendix C** for details. - Vehicles should not use Bakers Lane to access the Site. Refer to Section 2.3 for details.

1.7.5 Department of Planning, Housing and Infrastructure Comments - 31 January 2025

The Department of Planning, Housing, and Infrastructure (DPHI) was provided a copy of the updated CTMP (P2264r03v06), in response to their comments provided on 22 November 2024. Following that DPHI provided additional comment on 31 January 2025 which is shown and addressed in **Table 9**.

TABLE 9: DPHI COMMENTS – DATED 31 JANUARY 2025

Item No.	DPHI Comments	Ason Group Responses
1	*Condition D31 identifies works permitted to be undertaken in accordance with the Out of Hours Works Protocol. D31(c) refers to 'other works required to be completed at night for safety reasons, **as detailed in an approved CTMP**.' It is noted that the CTMP, including section 2.2, does not clearly detail any specific works to be completed at night for safety reasons.*	Noted. The details of the works to be completed at night has been provided in **Section 2.2**.

1.7.6 Penrith City Council Comments

Penrith City Council (the Council) was provided a copy of the CTMP as part of the consultation process. The Council provided comments on 29 November 2024 which are shown and addressed in **Table 10**.

TABLE 10: PENRITH CITY COUNCIL COMMENTS – DATED 29 NOVEMBER 2024

Item No.	Council Comments	Ason Group Responses
1 (a)	*It is noted that the CTMP refers to the largest vehicle as truck and dog accessing the site. It would be appropriate for this CTMP to also make reference to the OTMP prepared for Warehouse 1 (Toll) as larger vehicles may be required to access the site to service Warehouse 1.*	Noted. Larger vehicles may access Warehouse 1 - Westlink Toll Facility during its operation has been demonstrated in **Section 2.1.4**.
1 (b)	*Further, Appendix C – TGS – has a plan on page 74 showing a detour route along Aldington Road and Bakers Lane. Can you please clarify the intention of this plan noting that no construction or heavy vehicles are permitted to use Bakers Lane?*	Noted. - Abbotts Road will not be closed at any point, hence there is no detour needed. The TGS has been updated, refer to **Appendix C** for details. - Vehicles should not use Bakers Lane to access the Site. Refer to **Section 2.3** for details.

2 Proposed Works and Staging

2.1 Overview of Works

2.1.1 Construction Programme and Activities - MAIU

The details of the construction work relating to the MAIU are shown in **Table 11**. It is estimated that the total duration of the works will be approximately 12 months from the commencement date.

TABLE 11: CONSTRUCTION WORKS – MAMRE RD X ABBOTTS RD

Criteria	Response
Description of Key Activities	Construction of the signalised intersection of Mamre Road and Abbotts Road intersection
Max. Vehicle Size	Truck and dog
Work Zones	N
Crane (if yes, provide further details)	N
Truck Access Requirements	All trucks shall access via the dedicated site access on Mamre Rd.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y - On site parking provided
Pedestrian Control	Traffic barriers to separate works and public traffic. No pedestrian access.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	Y - Council/TfNSW approval required prior to commencement of the construction works.
Lane or Footpath Closures (If yes, provide further details)	Y - Lane closures no existing footpath
Verge Works	Y - full extend of work zone
Traffic Guidance Scheme	**Appendix C**

2.1.2 Construction Programme and Activities – AARU Phase 1

The details of the construction work Phase 1 of AARU are shown in **Table 12**. It is estimated that the total duration of the Phase 1 works will be approximately 12 months from the commencement date.

TABLE 12: AARU CONSTRUCTION WORKS – PHASE 1

Criteria	Response
Description of Key Activities	Duplication works of Abbotts Road Duplication works of Aldington Road
Max. Vehicle Size	Truck and dog
Work Zones	N
Crane **(if yes, provide further details)**	N
Truck Access Requirements	All vehicles shall access the Site via a dedicated access on Abbotts Rd
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y - On site parking provided
Pedestrian Control	Traffic barriers to separate works and public traffic. No pedestrian access.
Public Transport Services Affected	N
Road Occupancy Requirements **(If yes, provide further details)**	Y - Council/TfNSW approval required prior to commencement of the construction works.
Lane or Footpath Closures **(If yes, provide further details)**	Y - Lane closures no existing footpath
Verge Works	Y - full extent of work zone
Traffic Guidance Scheme	**Appendix C**

2.1.3 Construction Programme and Activities – AARU Phase 2

The details of the construction work Phase 2 of AARU are shown in **Table 13**. It is estimated that the total duration of the Phase 2 works will be approximately 19 months from the commencement date.

TABLE 13: AARU CONSTRUCTION WORKS – PHASE 2

Criteria	Response
Description of Key Activities	Duplication of Aldington Road
Max. Vehicle Size	Truck and dog
Work Zones	N
Crane **(if yes, provide further details)**	N
Truck Access Requirements	All vehicles shall access the Site via a dedicated access on Abbotts Rd
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y - On site parking provided
Pedestrian Control	Traffic barriers to separate works and public traffic. No pedestrian access.
Public Transport Services Affected	N
Road Occupancy Requirements **(If yes, provide further details)**	Y - Council/TfNSW approval required prior to commencement of the construction works.
Lane or Footpath Closures **(If yes, provide further details)**	Y - Lane closures no existing footpath
Verge Works	Y - full extent of work zone
Traffic Guidance Scheme	**Appendix C**

2.1.4 Overall Construction Timeline

Construction of the MAIU is planned to commence in December 2024, with the total period of construction works anticipated to be approximately 12 months.

Construction of the AARU is planned to commence in October 2024, with the total period of construction works anticipated to be approximately 22 months.

The indicative construction programme (subject to relevant approvals) for the MAIU and AARU is indicated in **Table 14** below.

TABLE 14: PROJECT CONSTRUCTION PROGRAMME

Site / Corridor Upgrade	Stage	Estimated Commencement	Estimated Completion	Duration
MAIU	Stage 1	December 2024	February 2025	3 months
	Stage 2	March 2025	June 2025	4 months
	Stage 3	July 2025	October 2025	4 months
	Stage 4	November 2025	November 2025	1 month
AARU Phase 1	Stage 1	October 2024	February 2025	5 months
	Stage 2	March 2025	May 2025	3 months
	Stage 3	June 2025	September 2025	4 months
AARU Phase 2	Early Works	January 2025	May 2024	5 months
	Stage 1	January 2025	December 2025	12 months
	Stage 2	January 2026	July 2026	7 months

The largest construction vehicle accessing the Site is a Truck and Dog. However, larger vehicles may access Warehouse 1 - Westlink Toll Facility (290-308 Aldington Road, Kemps Creek) during its operation.

2.2 Construction Hours

Based on the information provided to Ason Group, a summary of the construction hours is shown in **Table 15** which is in accordance with the construction hours of the condition D29:

TABLE 15: HOURS OF WORK

Activity	Day	Time
Construction works	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm

Notwithstanding, a number of stages throughout the construction process will require works to be undertaken at night. It is expected that these works will primarily be undertaken at night to minimise the impacts to the broader road network.

There is a large volume of Construction traffic operating in the Mamre road precinct specifically within Abbotts and Aldington Road. If the proposed works cannot be undertaken safely during the normal operating hours, outlined above, then some works may be required to be undertaken outside of standard hours.

It is anticipated that any works being undertaken outside the hours outlined above, an out of work hours work permit would be required from TfNSW and/or Penrith City Council will be obtained prior to commencement of construction works and be subject to separate Road Occupancy Licences (ROL). A separate TGS shall also be developed and approved for these additional works.

TABLE 16: STAGE 2 & 3 HOURS OF WORK (NIGHT SHIFT)

Activity	Day	Time
Construction works	Monday – Friday Saturday	8 pm to 5 am

Condition D30 allows that works outside of the hours identified 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.

Notwithstanding the conditions above, Condition D31 states that the following works may be undertaken out of hours, in accordance with the Out of Hours Works Protocol approved under relevant condition:

- installation of drainage infrastructure;
- asphalting; and
- other works required to be completed at night for safety reasons, as detailed in an approved CTMP. As advised by the Project Team, this includes the follows:
  - Phase 1 - Temporary Pavement Works
    - The construction of temporary asphalt pavement is necessary to support the completion of the permanent works. These temporary improvements will widen and enhance the existing pavement geometry, facilitating safer traffic movements.
    - To ensure the safety for both workers and road users, a single-lane (stop-slow) traffic control should be implemented. Based on the construction traffic volumes during the day outlined in the Construction Traffic Impact Assessment (Ason Group, *P2264r01v6 CTIA Abbotts Rd_Aldington Rd Upgrade*, 14 June 2024), it is safer to implement these works at night. This approach will also reduce the impact on local traffic, as the work will be completed in a shorter period.
    - A Traffic Guidance Scheme (TGS) will be approved by Penrith City Council and is included in **Appendix C**.
    - This scope will involve the following activities:
      - Preparation for asphalt pavement works
      - Temporary pavement construction
      - Asphalt pavement construction
      - Stormwater infrastructure
      - Line marking & signage
      - Barrier placement/relocation

– Phase 1 - Permanent Works

  - Implementation of traffic staging. Given the need to occupy part of the existing roadway to re-sequence traffic management measures, it is safer to complete these works at night when traffic flow is lower.

  - Activities during these works include:

    - Barrier placement/relocation

    - Asphalt placement

    - Line marking & signage

The details of the Out of Hours Works Protocol have been prepared and provided within Section 5.3 of *Mamre – Abbotts Intersection Upgrade (MAIU) and Aldington – Abbotts Road Upgrade (AARU), Construction Noise and Vibration Management Plan*, prepared by SLR, dated 03 February 2025.

2.3 Truck Routes

It is expected that all heavy vehicles will access the Site via the approved TfNSW Restricted Access Vehicles (RAV) Map, regardless of vehicles size. Any oversized or over-mass vehicles, which would be required to arrive from Mamre Road and Abbotts Rd, travelling to the Site will be required to obtain a permit from the NHVR.

As can be shown in **Figure 5**, the RAV Map illustrates that B-doubles are capable of traveling to and from the Site within approved routes (Although it is not expected that vehicles larger than 20m Articulated Vehicles will access the Site during the bulk earthworks phase of works).

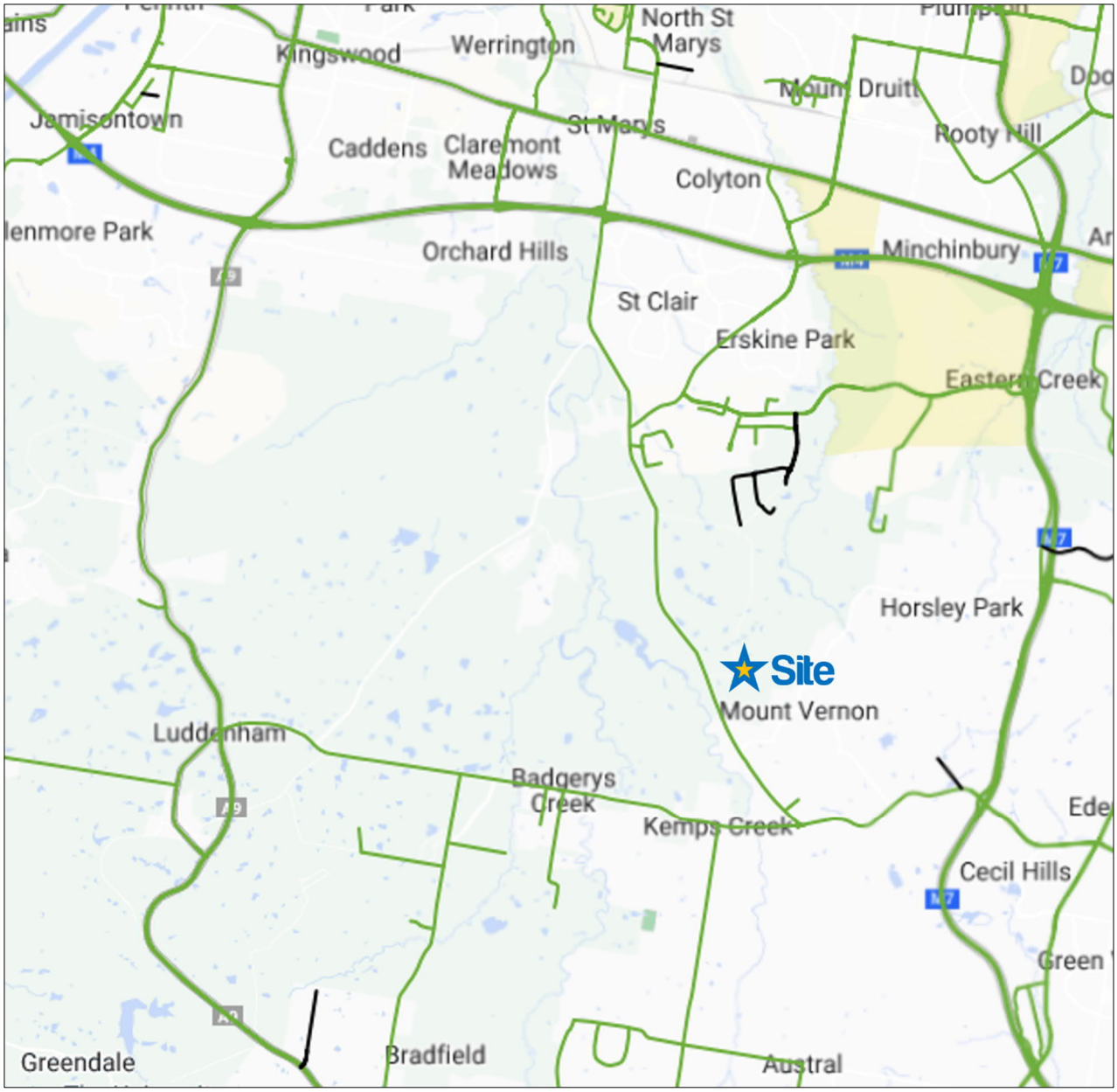


Figure 5: TfNSW Approved 25/26m B-Double Routes

2.3.1 Truck Routes – MAIU

All vehicles relating to construction shall adhere to the following.

- The construction access shall be via the dedicated site access on Mamre Road.
- Vehicles should not use Bakers Lane to access the Site.
- It is noted that vehicles are not allowed to make U-turn at all times.
- It is noted that vehicles are not allowed to make right turns at Mamre Road and Abbotts Road intersection at Stage 1 and 2. The access route for MAIU construction works is shown in **Figure 6**.
- It is allowed to have full movements after the signal be installed at Mamre Road and Abbotts Road intersection at Stage 3 and 4. The access route for MAIU construction works is shown in **Figure 7**.

- Cameras installed at the intersection to record all traffic movements and capture/report any illegal traffic movements.

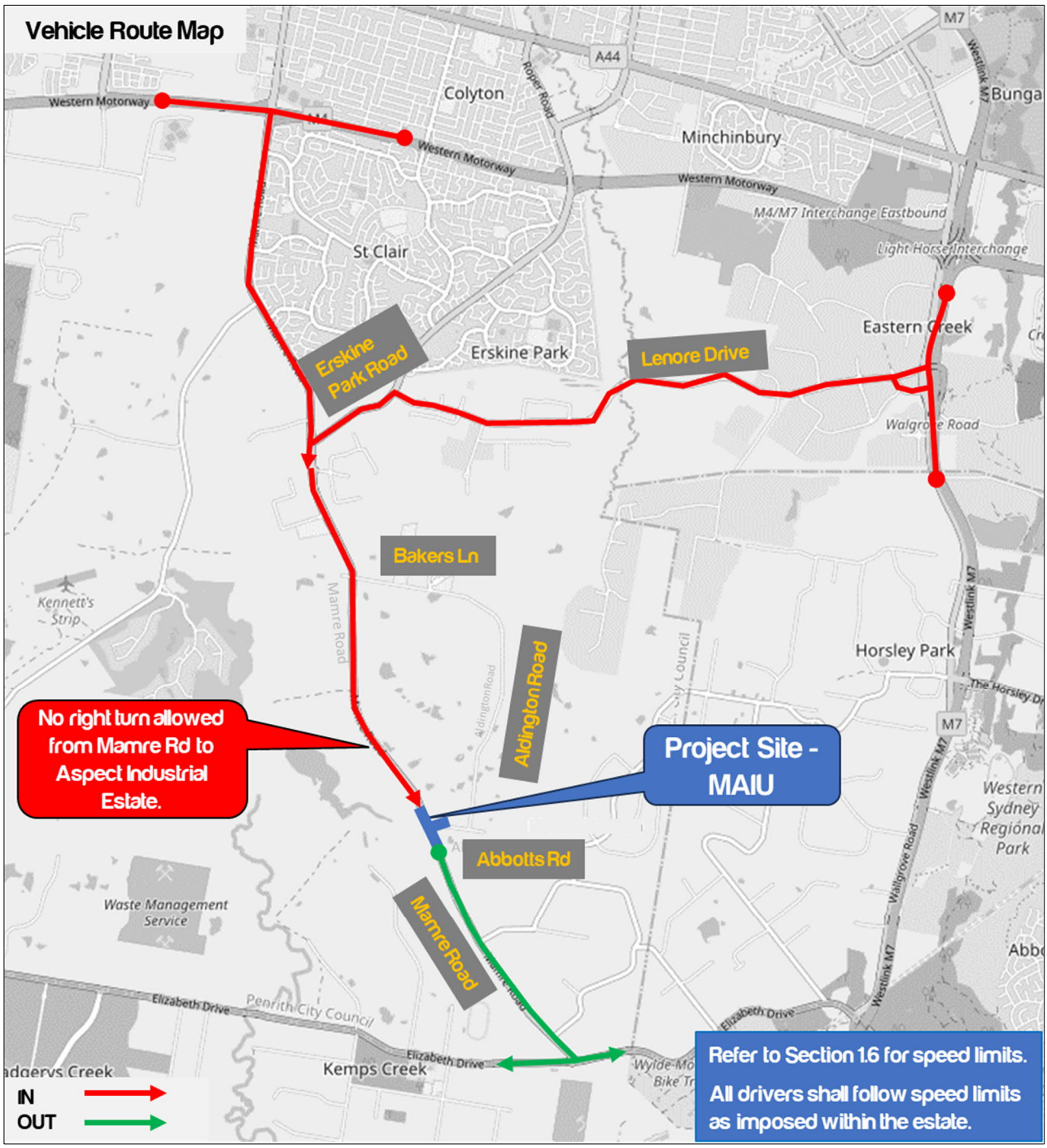


Figure 6: Construction Vehicle Route Plan - MAIU Stage 1 and 2 - Prior to Signal Installation

As discussed, all construction vehicles will enter the Site via Mamre Road. It is anticipated that all heavy vehicles will access Site via the following routes:

- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site.

- Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site.

- Departure Trips:
  - Route 1: From the Site, onto Mamre Road then south to Elizabeth Drive and left to the Westlink M7 and sub-regional routes to the east.
  - Route 2: From the Site, onto Mamre Road then south to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

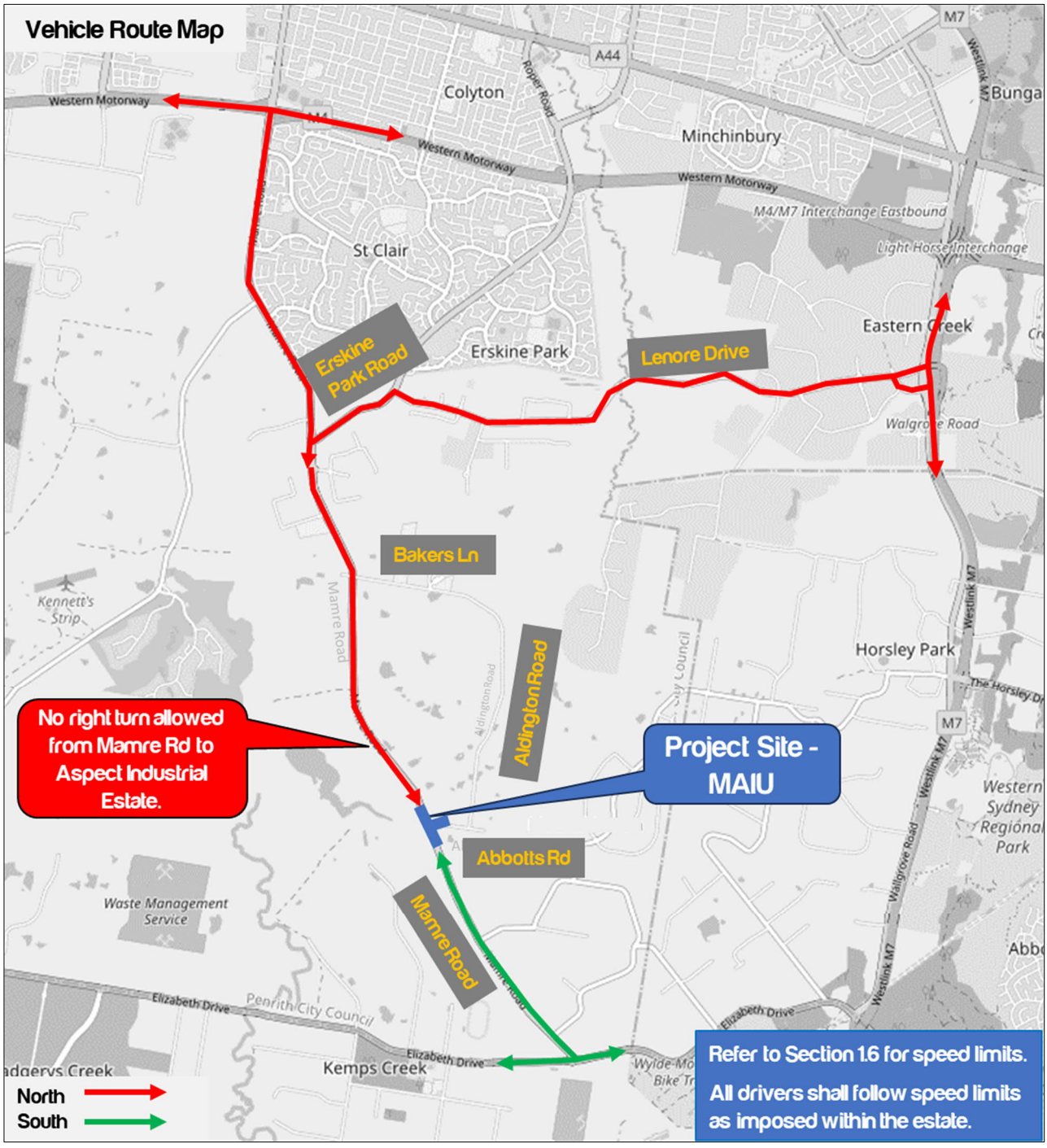


Figure 7: Construction Vehicle Route Plan - MAIU Stage 3 and 4 - After Signal Installation

As discussed, all construction vehicles will enter the Site via Mamre Road. It is anticipated that all heavy vehicles will access Site via the following routes:

- Vehicles from North:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site, and departure from the Site by the same route.
- Vehicles from South:
  - Route 1: From Westlink M7 and sub-regional routes to the east, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Badgerys Creek and The Northern Road to the west, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.

A copy of the approved routes will be distributed by the Contractor to all drivers before their arrival to Site. 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.

2.3.2 Truck Routes – AARU Phase 1

All vehicles relating to construction shall adhere to the following.

- The construction access shall be via the dedicated site access on Abbotts Road.
- Vehicles should not use Bakers Lane to access the Site.
- It is noted that vehicles are not allowed to make U-turn at all times.
- It is noted that vehicles are not allowed to make right turns at Mamre Road and Abbotts Road intersection prior to signal be installed at the intersection. The access route for AARU Phase 1 construction works is shown in **Figure 8**.
- It is allowed to have full movements after the signal be installed at Mamre Road and Abbotts Road intersection. The access route for AARU Phase 1 construction works is shown in **Figure 9**.
- Cameras installed at the intersection to record all traffic movements and capture/report any illegal traffic movements.

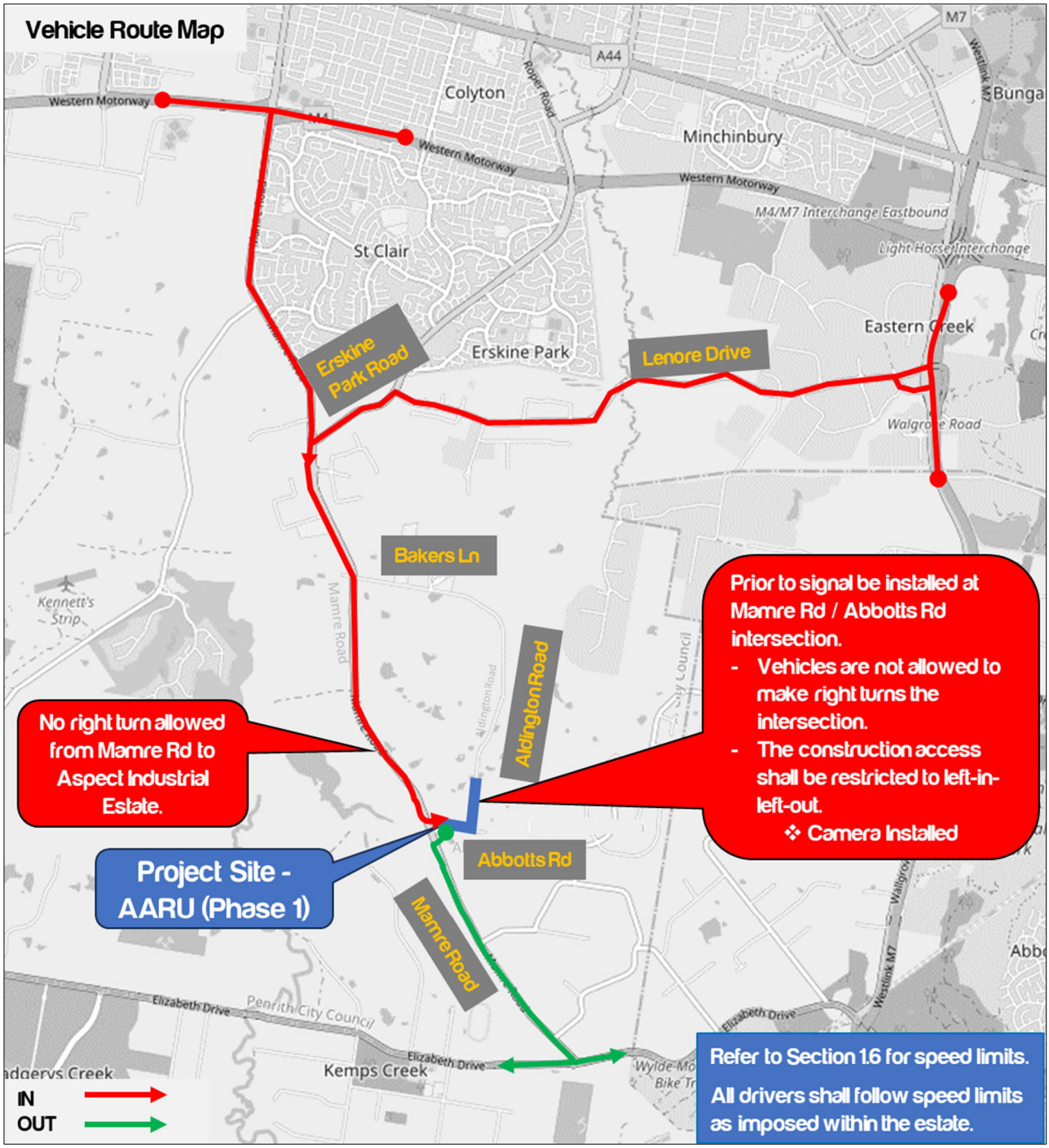


Figure 8: Construction Vehicle Route Plan - AARU Phase 1 - Prior to Signal Installation

As discussed, all construction vehicles will enter the Site via Abbotts Road. It is anticipated that all heavy vehicles will access Site via the following routes:

- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and left into Abbotts Road.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and left into Abbotts Road.

- Departure Trips:
  - Route 1: From the Site, onto Abbotts Road then south on Mamre Road to Elizabeth Drive and left to the Westlink M7 and sub-regional routes to the east.
  - Route 2: From the Site, onto Abbotts Road then south on Mamre Road to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

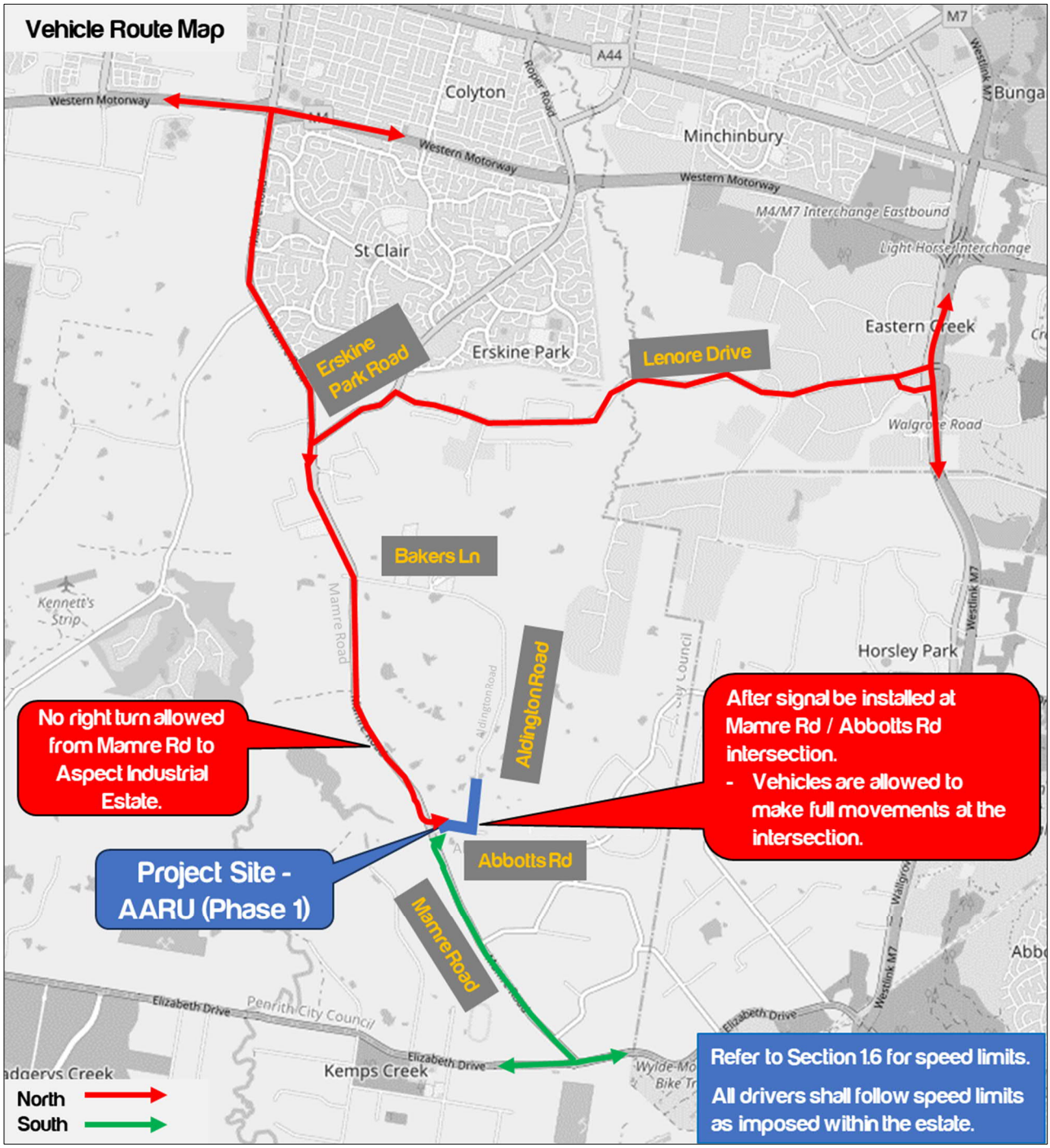


Figure 9: Construction Vehicle Route Plan - AARU Phase 1 - After Signal Installation

As discussed, all construction vehicles will enter the Site via Mamre Road. It is anticipated that all heavy vehicles will access Site via the following routes:

- Vehicles from North:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site, and departure from the Site by the same route.
- Vehicles from South:
  - Route 1: From Westlink M7 and sub-regional routes to the east, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Badgerys Creek and The Northern Road to the west, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.

A copy of the approved routes will be distributed by the Contractor to all drivers before their arrival to Site. 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.

2.3.3 Truck Routes – AARU Phase 2

All vehicles relating to construction shall adhere to the following.

- The construction access shall be via the dedicated site access on Aldington Road.
- Vehicles should not use Bakers Lane to access the Site.
- It is noted that vehicles are not allowed to make U-turn at all times.
- It is noted that vehicles are not allowed to make right turns at Mamre Road and Abbotts Road intersection prior to signal be installed at the intersection. The access route for AARU Phase 2 construction works is shown in **Figure 10**.
- It is allowed to have full movements after the signal be installed at Mamre Road and Abbotts Road intersection. The access route for AARU Phase 2 construction works is shown in **Figure 11**.
- Cameras installed at the intersection to record all traffic movements and capture/report any illegal traffic movements.

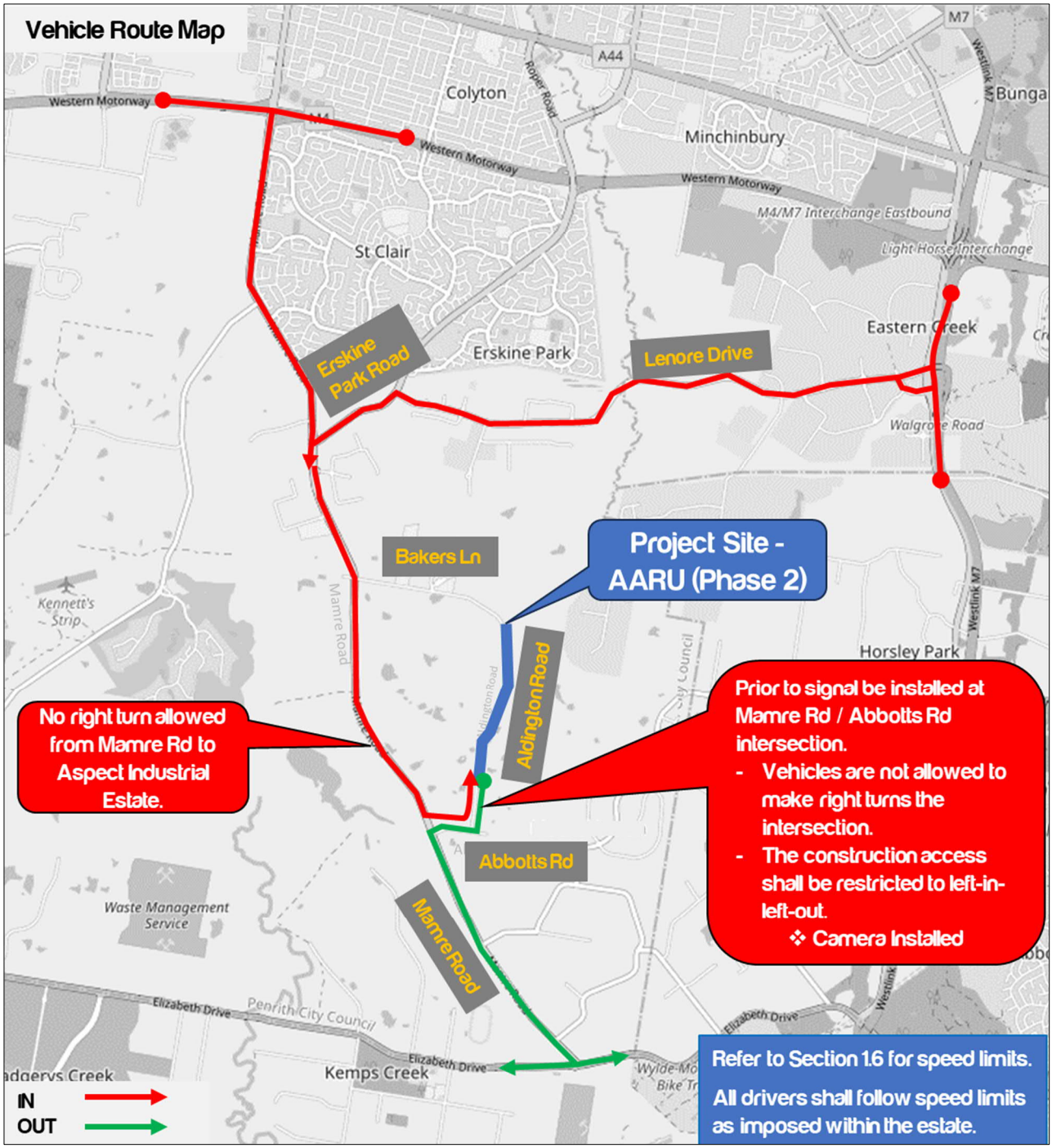


Figure 10: Construction Vehicle Route Plan - AARU Phase 2 - Prior to Signal Installation

As discussed, all construction vehicles will enter the Site via Aldington Road. It is anticipated that all heavy vehicles will access Site via the following routes:

- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road, left into Abbotts Road, and left into Aldington Road.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road, left into Abbotts Road, and left into Aldington Road.

- Departure Trips:
  - Route 1: From the Site, onto Aldington Road, then onto Abbotts Road then south on Mamre Road to Elizabeth Drive and left to the Westlink M7 and sub-regional routes to the east.
  - Route 2: From the Site, onto Aldington Road, then onto Abbotts Road then south on Mamre Road to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

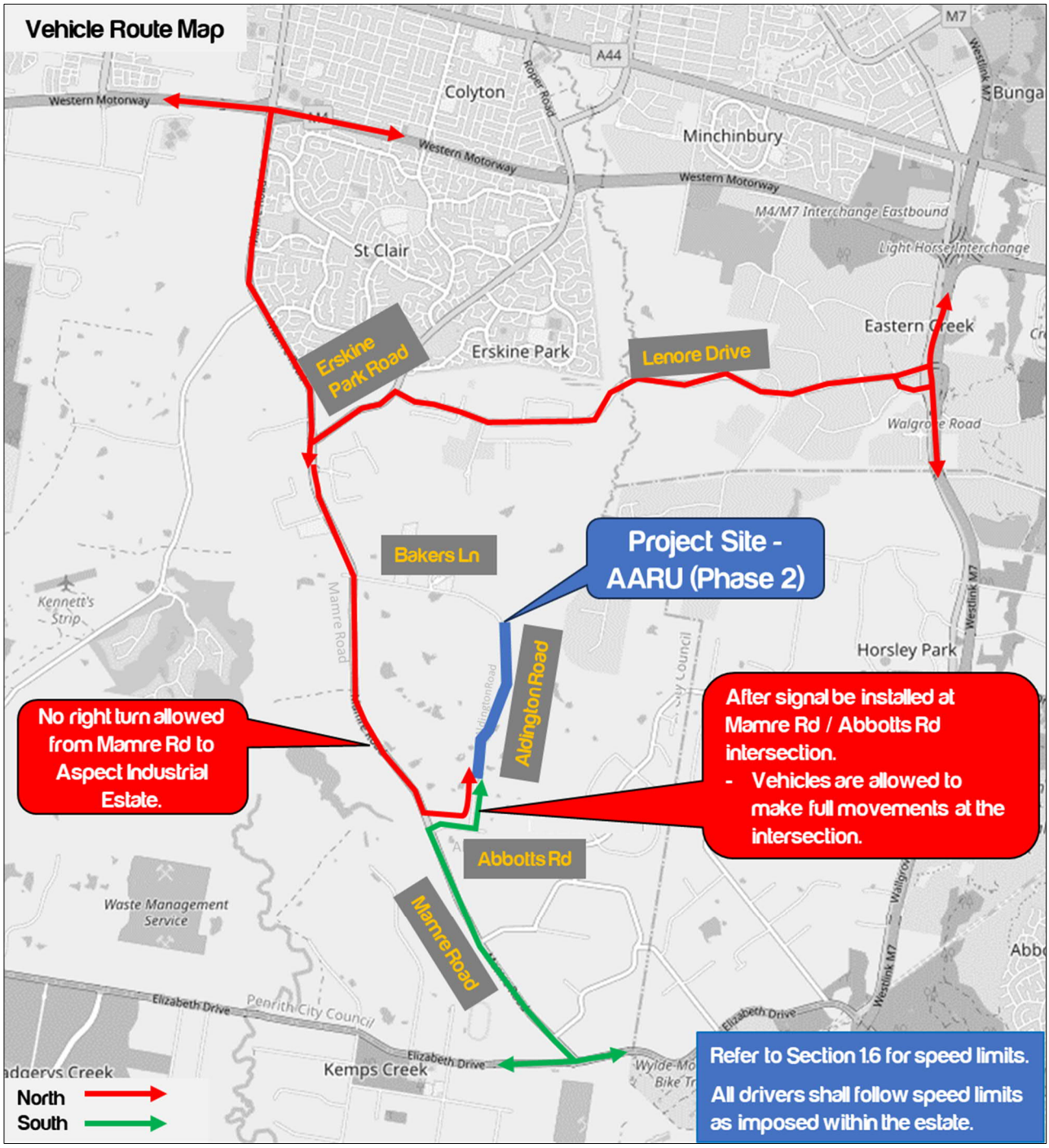


Figure 11: Construction Vehicle Route Plan - AARU Phase 2 - After Signal Installation

As discussed, all construction vehicles will enter the Site via Mamre Road. It is anticipated that all heavy vehicles will access Site via the following routes:

- Vehicles from North:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site, and departure from the Site by the same route.
- Vehicles from South:
  - Route 1: From Westlink M7 and sub-regional routes to the east, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Badgerys Creek and The Northern Road to the west, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.

A copy of the approved routes will be distributed by the Contractor to all drivers before their arrival to Site. 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.

2.4 Construction Site Access

Access location will vary by construction works and stages, which has been detailed in following sections.

An on-site turning area shall be provided so that movement across the Site is in a forward direction at all times. The location of this turning area will vary during the course of construction and shall be managed on-site by the contractor through standard on-site protocols.

The largest vehicle that will access the Site during construction would be a truck and dog combination, which the existing Mamre Road and Abbotts Road and Aldington Road will accommodate. Further, construction management protocols will require that any vehicle entering the Site access road will have right of way in order to ensure that there is no queuing on Mamre Road.

Access to emergency vehicles shall be maintained at all times. An emergency vehicle parking space will be maintained at all times and left vacant unless occupied by an emergency vehicle.

2.4.1 Site Access - MAIU

All access to the Site by construction personnel will be to/from the dedicated site access on Mamre Road. Access location is demonstrated in **Figure 12** and **Figure 13**.

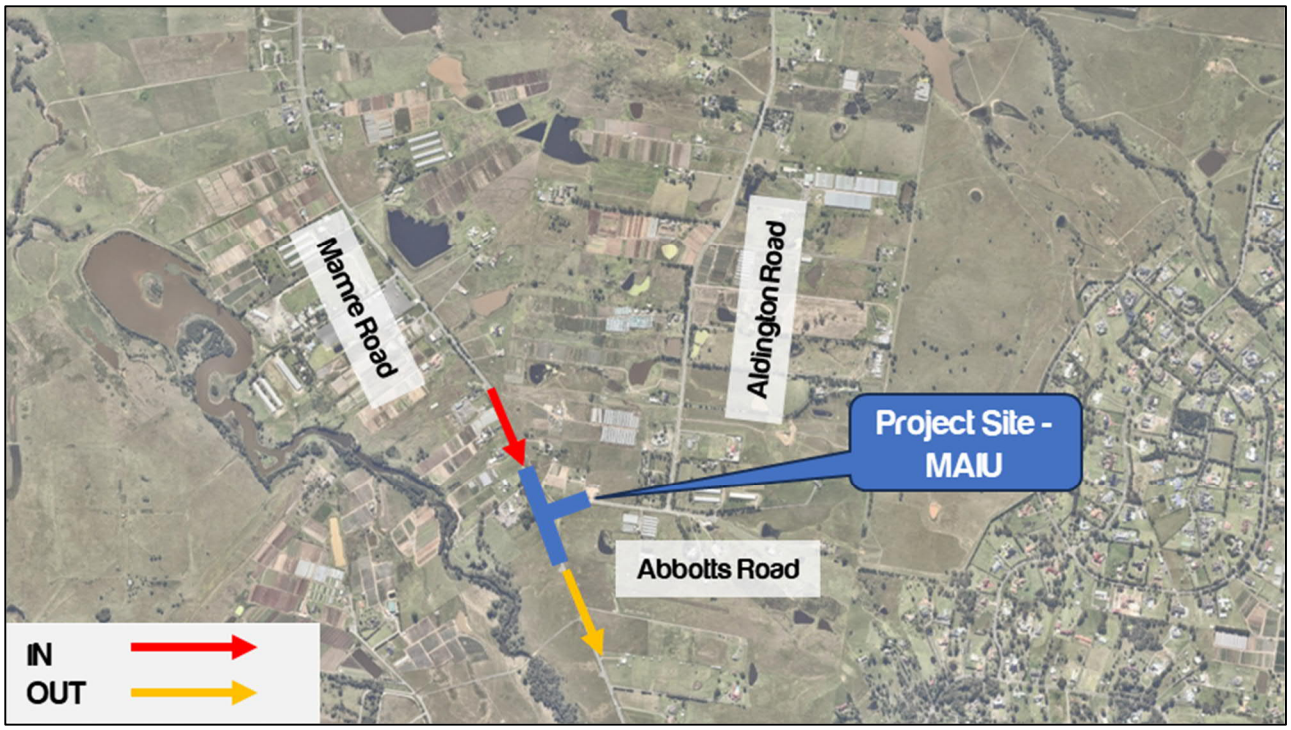


Figure 12: Site Access - MAIU Stage 1 and 2 - Prior to Signal Installation

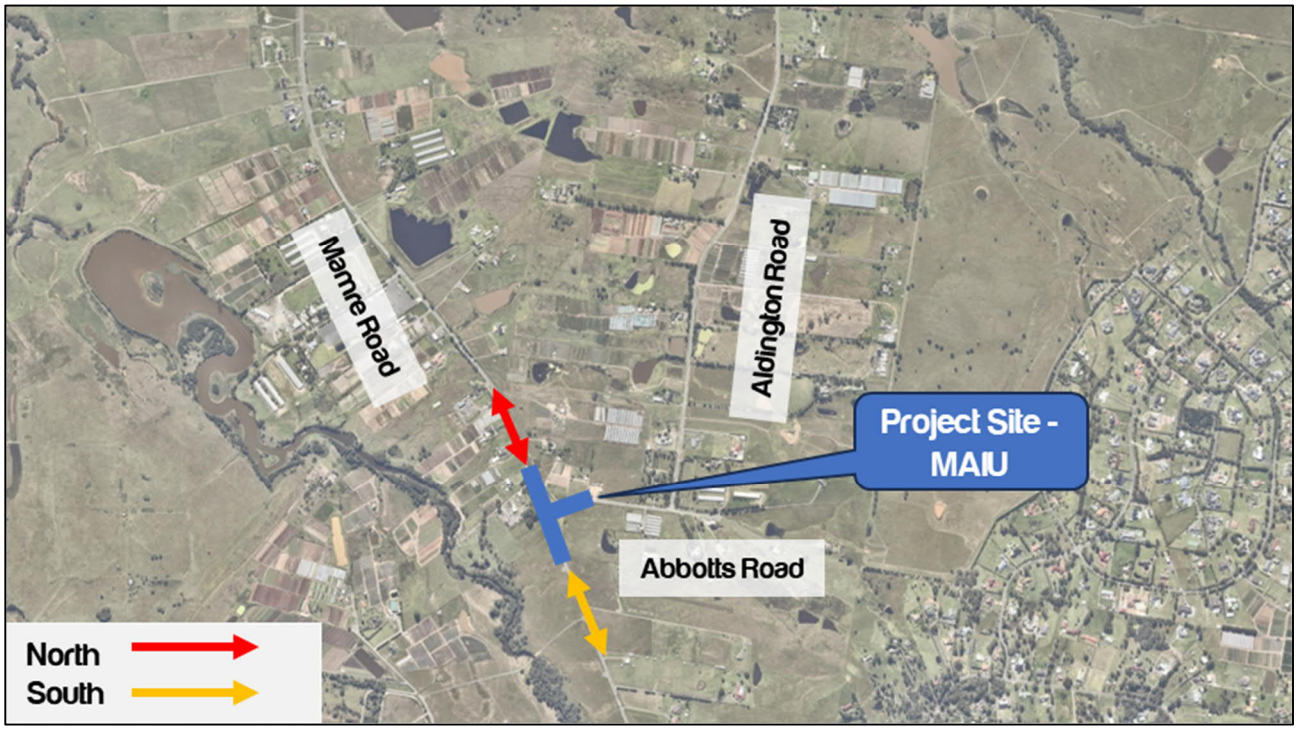


Figure 13: Site Access - MAIU Stage 3 and 4 - After Signal Installation

2.4.2 Site Access – AARU Phase 1

All access to the Site by construction personnel will be to/from the dedicated site access on Mamre Road. Access location is demonstrated in **Figure 14**.



Figure 14: Site Access - AARU Phase 1

The AARU Phase 1 construction work compound area will be located within the ESR development area and access from Abbotts Road, as outlined in **Figure 15**.

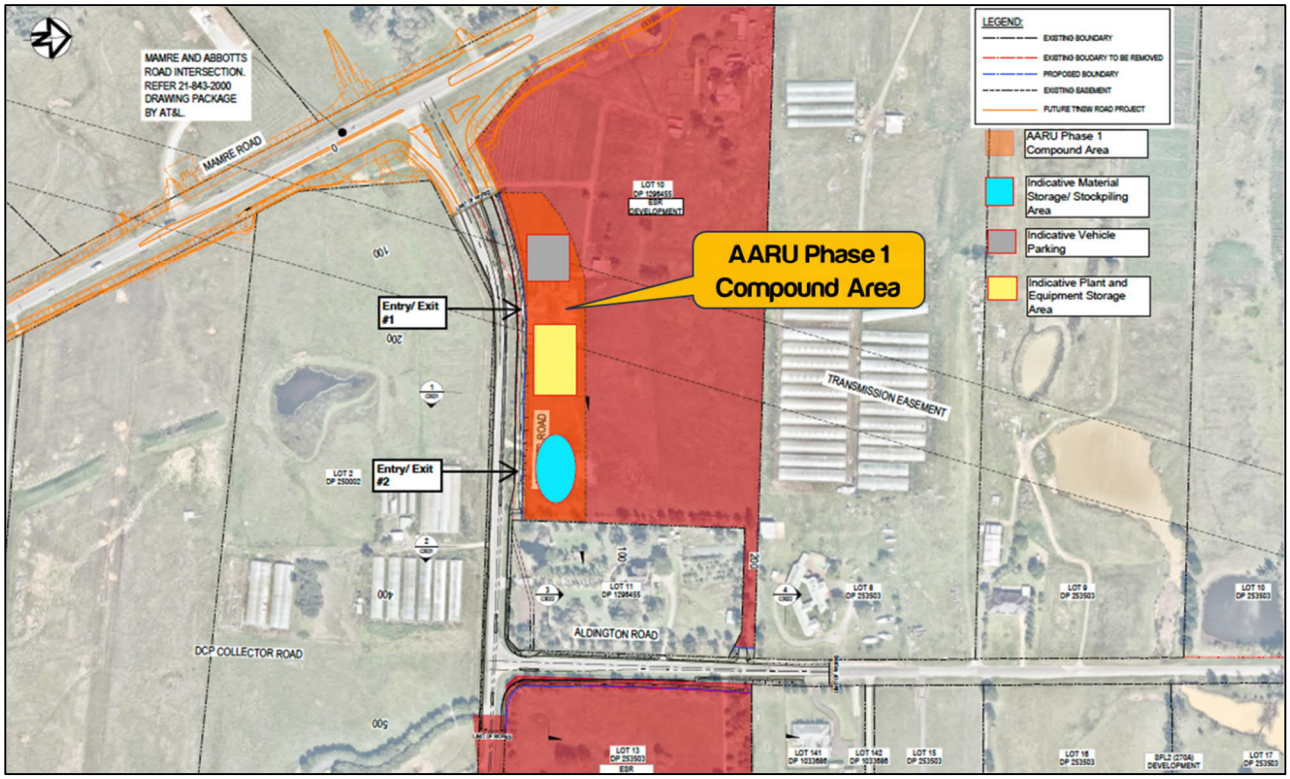


Figure 15: Construction Work Compound Area - AARU Phase 1

2.4.3 Site Access – AARU Phase 2

All access to the Site by construction personnel will be to/from the dedicated site access on Mamre Road. Access location is demonstrated in **Figure 16**.

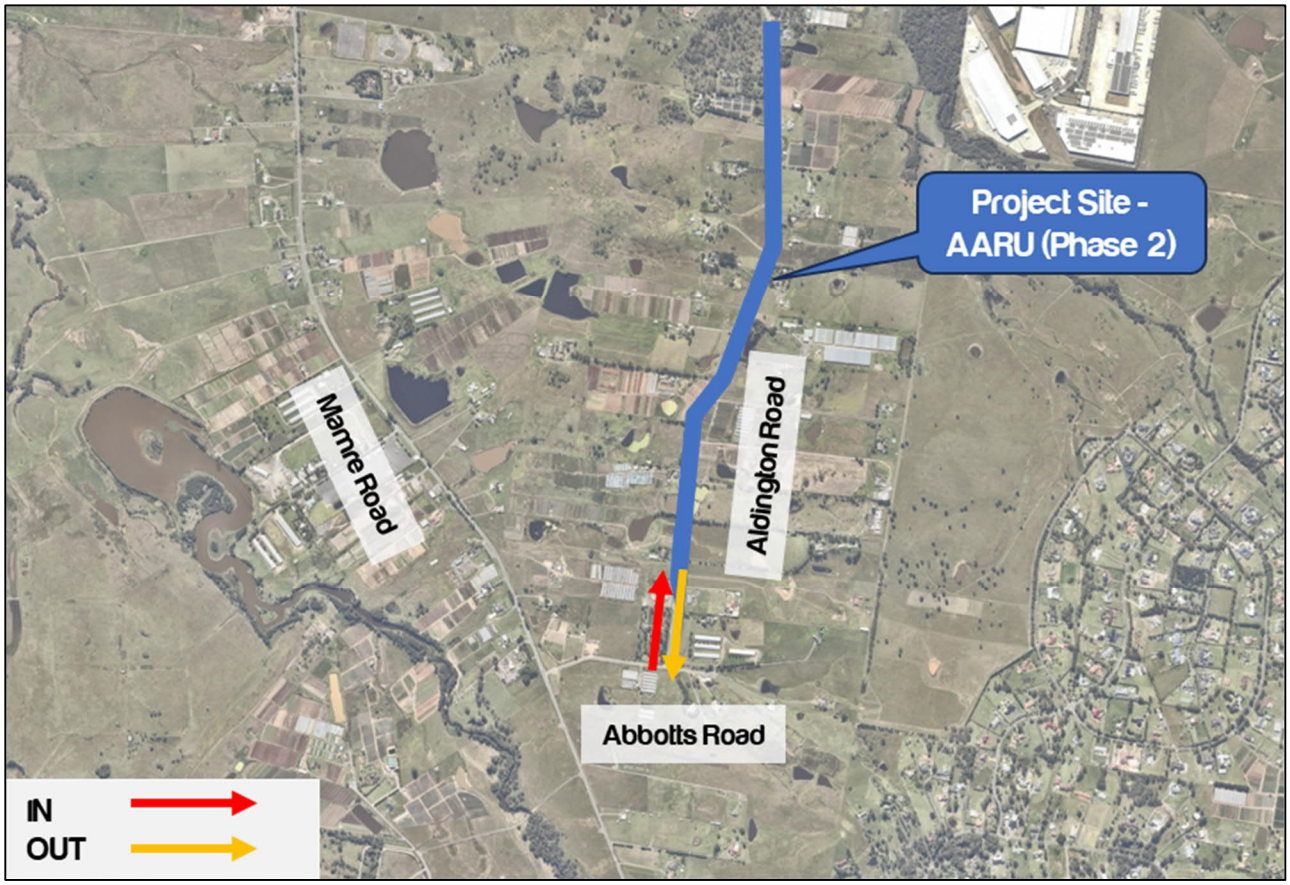
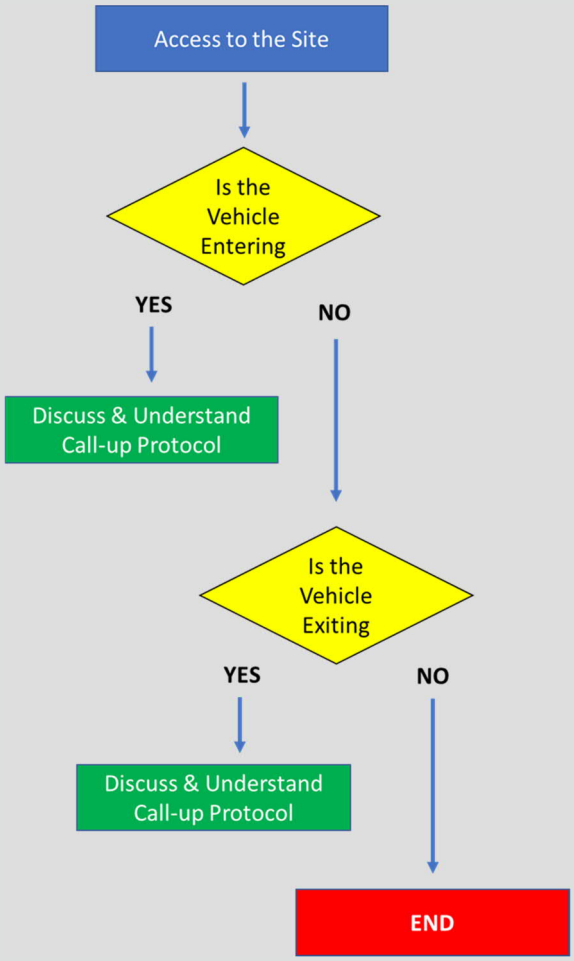


Figure 16: Site Access - AARU Phase 2

2.5 Temporary Traffic Management Method

Traffic management shall be undertaken in accordance with the methodology outlined within the Traffic Guidance Scheme (TGS), **Table 17** and attached within **Appendix C**. All road users are expected to be directed around the worksite to physically separate the road user from any hazards within the worksite.

TABLE 17: ACCESS PROTOCOLS & METHODOLGY

Procedure	Responsibility	Notes
	Site Manager / Foreman / Traffic Controller	**ENTRY PROTOCOL:** Via UHF radio, channel agreed at pre-start 1. Vehicle to advise gate controller when 200m from gate via UHF — vehicle to ensure flashing lights are on 2. Vehicle advises of metres from gate in 50m lots (i.e., 150 m from gate 100m from gate). 3. Gate Controller advises safe to enter, vehicle enters site and decelerates behind barriers 4. If not safe to enter, vehicle is to continue driving and not stop / queue on the public roadway 5. Vehicle uses road network to return and make another attempt at entering site
	Site Manager / Foreman / Traffic Controller	**EXIT PROTOCOL:** Via UHF radio, channel agreed at pre-start 1. Vehicle driver to radio Gate Controller to ensure exit is possible – vehicle to ensure flashing lights are on 2. If no issues, driver to proceed to exit gate and merge with traffic. 3. If driver cannot exit, Gate Controller to order vehicle to hold until gate is clear. **Gate Controller is not to stop traffic on the public road network**

2.6 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**.

2.7 Site Contact

The key contact for the Site during Construction have been outlined below. This list is considered a live document; therefore, any changes/additions shall be made at the time.

TABLE 18: CONSTRUCTION CONTACT

Contact	MAIU and AARU Community Consultation Liaison Representative
Names/s	The Community Consultation and Liaison Representative role will be managed by the following team: • Esther Diffey – Technical Director +61 423 686 002 • Marco Biamonti – Senior Consultant +61 457 075 133 • Stephanie Skordas – Senior Consultant +61 434 279 633
Email	info@mamrealdingtonupgrades.com.au
Phone	1800960071
Website	mamrealdingtonupgrades.com

Moreover, the Site shall be clearly posted with a sign erected in a prominent position on the site perimeter, it is to be maintained & removed at the completion of works.

- The sign must contain the following information, Name, address, contractor licence number and telephone number of the principal contractor, including a telephone number at which the person may be contacted outside working hours, or owner-builder permit details.
- A statement stating that 'unauthorised entry to the work site is prohibited".
- A notice with contact names and mobile phone numbers of site supervisors be displayed at the entrance to the Site for community to make contacts regarding work activities.



2.8 Works Zone

No Work Zone is required as all construction works will occur within the Site boundary. In the event that there is a need for a Works Zone, it will be subject to its own approval.

A Road Occupancy Licence (ROL) from Council / TfNSW will be required for the entire construction duration. It is the responsibility of the Contactor to obtain the ROL.

3 Traffic Management

3.1 Cumulative Construction Vehicle Traffic Generation

The detailed construction staging, and programme has been provided in **Section 2.1**.

The cumulative construction traffic impact assessment has been undertaken and approved. The traffic impact assessment has been documented within the following report:

- Ason Group, P2264r01v6 CTIA Abbotts Rd_Aldington Rd Upgrade, 14 June 2024 (LOG-E AARU CTIA)
- Ason Group, P2264r02v2 CTIA Mamre Rd_Abbotts Rd Upgrade, 30 January 2024 (LOG-E MAIU CTIA)

These LOG-E CTIAs have been prepared using the information available at the time of its preparation. Any new construction activities will subject to further cumulative construction traffic impact assessment.

The conclusion of the LOG-E CTIAs is that the Mamre Road / Abbotts Road intersection will be able to satisfactorily accommodate the cumulative construction traffic associated with the infrastructure upgrade and LOG-E development within vicinity of the AARU, during all stages of construction.

Following that, the construction traffic management measures are detailed in this CTMP to be implemented at the time of construction.

3.2 Minimising Traffic Impacts on Surrounding Network

The impacts of construction traffic and the mitigating measures to be implemented are outlined below.

- **Construction Traffic in Mamre Road, Abbotts Road and Aldington Road**: Construction traffic will use the existing Mamre Road / Abbotts Road intersection to access the work area for the works, connecting to the wider network via Mamre Road.

  ANY CONSTRUCTION TRAFFIC MUST UNDERTAKE LEFT-IN, LEFT-OUT FROM THE MAMRE ROAD / ABBOTTS ROAD INTERSECTION ONLY UNTIL SIGNALS ARE INSTALLED AT MAMRE ROAD, ABBOTTS ROAD INTERSECTION FOR STAGE 3 & 4 OF MAIU CONSTRUCTION WORKS.

  To ensure the impacts to motorists within the area are kept to a minimum, construction traffic will be contained with the prescribed volumes.
- **Management of deliveries**: The Contractor will manage deliveries to ensure that construction vehicles, particularly heavy vehicles, will not exceed approved limits.
- **Safety During Construction**: Safety to motorists and pedestrians throughout the area will be maintained during construction through the preparation and execution of TGS's. A range of TGS's are to be implemented by the contractor CTMPs, for each access throughout construction, to identify all reasonably foreseeable hazards, assess the hazards, and manage the hazards as best possible by either eliminating or minimising the risks. TGS's shall be monitored and updated accordingly throughout the project.
- **Reporting**: Reporting and monitoring of movements during peak periods are to be undertaken to ensure that drivers are adhering to restricted times, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved.

3.3 Vehicle Management

In accordance with TfNSW requirements and the Conditions of Consent, all drivers are to be familiar with the Driver Code of Conduct before attending the Site. A copy of the Code is included in **Appendix A**.

All vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the Site. Public roads used by construction vehicles are to be kept clean at all times. All vehicles enter and exit the Site in a forward direction.

All subcontractors must be inducted by the lead contractor to ensure that the procedures are met for all vehicles entering and exiting the construction site. The lead contractors will monitor the roads leading to and from the Site and take all necessary steps to rectify any road deposits caused by the Site vehicles.

Vehicle movements to, from and within the Site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads, without prior approvals. Public roads, access points and internal parking areas will not be obstructed by any materials, unapproved vehicles, refuse skips or the like, under any circumstances. At no time shall heavy vehicles and bins associated with the development park on local roads or footpaths in the vicinity of the Site.

Prior to accessing the Site, heavy vehicles may stop and wait, as necessary, away from the Site. If this is the case then all vehicles must abide by all traffic, road and environmental legislations. All vehicles are wholly contained on site before being required to stop. At no stage shall queuing occur on the public road network. A schedule for deliveries of goods and materials will be established prior to that day, with Traffic Controllers to maintain radio contact with construction vehicles at all times. The anticipated deliveries will be made known to site personnel at daily prestart meetings.

3.4 Contractor & Heavy Vehicle Parking

Contractors will likely drive since there is no easily accessible public transport in close proximity to the Site. Onsite parking will be available. Suitable pedestrian connectivity shall be maintained between the work areas and this contractor parking at all times.

A dedicated area for the parking of contractor and heavy vehicles shall be developed and updated / relocated as the project progresses. The number of parking spaces provided within the Site throughout the construction will change as construction progresses, which will likely increase as construction progresses.

During each iteration of car parking location, there shall be enough parking to accommodate the expected maximum for that particular stage.

It is expected that the location of dedicated light and heavy vehicle parking areas shall change as the construction of the internal road network progresses, therefore the location of parking spaces shall be outlined within the Driver Code of Conduct and outlined within the regular toolbox meetings. Parking will be regularly monitored to ensure that no queuing onto roadway.

3.5 Pedestrian and Cyclist Management

Abbotts Road and Aldington Road does not have any footpaths, bicycle paths or shared paths fronting the Site.

However, in the unlikely event that there are pedestrians or cyclists needing to cross an access driveway they will be halted by an accredited Traffic Controller while construction vehicles are entering or exiting the Site. Once the construction vehicles are clear, the Traffic Controller can allow pedestrians/cyclists to continue along their journey.

3.6 Fencing Requirements

Fencing requirements will consist of fencing with shade cloth to the site boundary.

(Temporary exclusion fencing (chain mesh fencing) will be erected along the entire boundary of the Site and will be maintained for the duration of the construction program.)

The fencing is to ensure unauthorised persons are kept out of the Site.

3.7 Traffic Control

A site-specific TGS is provided in **Appendix C** for the Site access following the completion of the temporary access.

It should be noted that an accredited Traffic Controller shall be on-site to supervise construction vehicles passing general traffic.

3.8 Authorised Traffic Controller

There is a requirement for authorised traffic controllers to be present throughout the construction. The responsibilities include:

- Implementation of the TGS.
- Pedestrian and cyclist management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur.
- Supervision of all vehicle movements across pedestrian footpaths at all times, and
- Supervision of all loading and unloading of construction materials during the deliveries in the construction phase of the project.

Refer to **Appendix C** for the TGS for details of the proposed work zone, location of traffic controllers and associated traffic management measures.

3.9 Driver Awareness & Code of Conduct

All drivers shall be made aware and adhere to the Driver Code of Conduct, outlined in **Appendix A**.

3.10 Worker Induction

All workers and subcontractors engaged on-site would be required to complete a site induction. The induction will include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain must be suitably trained and covered by adequate and appropriate insurances.

4 Monitoring and Review

4.1 Monitoring Program

This CTMP will be subject to a review every 2 months and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator during implementation and execution of this CTMP. Monitoring of this CTMP shall also be picked up in the Environmental checklists, with any incidents being reported within the weekly site meeting. The monitoring shall be undertaken in accordance with Condition A1(f), and Condition A1(g).

All and any reviews undertaken should be documented, however key considerations regarding the review of the CTMP shall be:

- To ensure the implementation of the CTMP and TGS's are consistent with the intent of this report, and that the most recent version of the CTMP and TGS (as approved by the Planning Secretary) is being implemented.
- 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.
- It is expected the Contractor will undertake a truck and car count/review to ensure volumes are within Condition Green of **Table 21**, and will be undertaken once a month. In addition, the Contractor is required to retain a log of all vehicles accessing the Site on a daily basis.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (Parking and access issues)
- To regularly monitor the approved truck routes as outlined within this CTMP.
- To ensure TGS's 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 to ensure all loads are entering and leaving site covered as outlined within this CTMP.
- A Dilapidation report shall be undertaken periodically to assess the condition of the road and note whether there has been any reduction in quality of the road as result of construction vehicles. Any defects identified within the road reserve must be forwarded via Council's Portal for maintenance, when reasonably practicable.

As such the table below provides triggers to monitor and review this CTMP.

TABLE 19: MONITORING & REVIEWS OF CTMP

Type of Review	Frequency	Considerations
Scheduled	The scheduled CTMP review must be undertaken bi-monthly (every 2 months) or as specified otherwise	The scheduled CTMP review must consider the following: • CTMP and TGS are approved; • Identify required variations to the TGS, and ensure that they are updated, recorded, and approved; • Review any departures or variations of the CTMP and/or TGS to ensure they have been documented and approved; • Speed control effectiveness; and • Construction vehicle entry/egress suitability, with no queuing on the public road network at any time. • Construction vehicle daily / peak hour movements are compliant with approved volumes, with bi-monthly reviews of the contractor's daily logbook of vehicles required.

		• Periodic checks to ensure that heavy vehicles are using the correct access route • Refer to Noise and Vibration Management Plan for checks of noise generating items.
Change Generated Review	The change generated review must be undertaken when implementing new traffic stages, switches, or other construction-based activities.	The change generated CTMP review must consider the following: • The work site is operating safely; • Delineation is effective with appropriate signage installed for changed conditions; • Safe passage is provided for all road users; • Road Safety Audits are arranged or confirmed as required • Accountability for approval and inspection is well understood and documented
Non-Compliance, Post Incident or Near Miss Review	The Non-Compliance, post-incident or near miss review must be undertaken following an incident or near miss.	Any non-compliance must be reported to immediately to the supervisor. A non-compliance is anything other than 'Condition Green' as outlined within Table 21. All workplace incidents must be reported immediately to the supervisor, who is to determine responsibility for investigating the incident. The incident and investigation must also be recorded in the incident reporting system of Transport. The post incident or near miss CTMP review must consider: • Causal factors; • Contributory factors or changes required; and • Identified changes to TGS are completed, approved, recorded, and communicated. For any incidents or near miss (where required) a safety alert must also be prepared and distributed by the Transport project manager to share learnings with other work sites.

This monitoring process is expected to form part of the monitoring plan required to be included as part of the overarching CEMP of which this CTMP forms a part.

The roadway (including footpath) must be kept in a serviceable condition for the duration of construction. At the direction of Council, undertake remedial treatments such as patching at no cost to Council.

4.2 Work Site Inspections, Recording and Reporting

Recording and reporting of the monitoring programs shall be done in accordance with Section E.3, E.4 and E.5 of the TCAWS Manual. As such, the structure, schedule, and frequency of these activities have been considered and identified.

To inspect, review and audit the temporary traffic management (TTM) arrangements implemented on site, the following actions are to be undertaken by suitably qualified personnel in accordance with TCAWS 6.1 requirement during all phases of construction, being:

TABLE 20: EXAMPLE REVIEW OF ACTIVITIES

Activity			Frequency or Details
Shift Inspections	☐ Yes	☐ No	

Regular Inspections	☐ Yes	☐ No	
TMP Review	☐ Yes	☐ No	
Road Safety Audit	☐ Yes	☐ No	
Other	☐ Yes	☐ No	
Comments			

Given that the length of construction and that no regular works have been proposed outside of the Site, bi-monthly TTM inspections is considered to be sufficient.

4.2.1 Incident Management

For the purposes of this CTMP, an 'incident' is 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. Furthermore, a 'non-compliance' is an occurrence, set of circumstances or development that is a breach of the consent.

All incidents related to traffic, including those of the Principal Contractor, subcontractors, and/or visitors that occur during construction works will be managed in conjunction with the requirements outlined in LOG-E's Incident and Non-compliance Response and Handling Procedure.

Whilst it is noted that key Contractors will be implementing their own environmental management system procedures and processes, LOG-E will be responsible for ensuring that these systems and processes satisfy the requirements of the CEMP, including the incident management components. The Contractor will be responsible for providing all necessary documentation with regards to the incident investigation and close-out actions where required. The timing of the provision of this documentation is to align with LOG-E requirements.

LOG-E's Project Manager must be notified immediately of any environmental incident or near miss related to traffic. Such incidents may include, but not limited to:

- Vehicle crash or injury resulting from construction traffic related to the project.
- Failure to correctly implement required traffic controls for planned activities.
- Queuing onto Abbotts Road, in breach of the requirements set out under this CTMP.
- Spill of any dangerous goods or hazardous substance to ground or water.
- Substantiated complaints received from members of the community or regulatory authorities relating to traffic management.
- Land-based off-site sediment loss to the environment, including sediment tracking onto the roadway.

LOG-E's Project Principal will be responsible for all notifiable environmental incidents in line with the regulatory notification requirements as per the CEMP.

All environmental incidents will be reported immediately to DPHI in writing via the Major Projects website after LOG-E becomes aware of the incident. Any notification to DPHI must identify the development, including the application number, and set out the location and nature of the incident.

In the event of a notifiable non-compliance incident arising, LOG-E will notify DPHI in writing (via the Planning Portal) within 7 days. Any notification to DPHI must

- identify the development, including the application number,
- set out the condition of approval that the development is non-compliant with,

- the way in which it does not comply,
- the reasons for the non- compliance (if known) and
- what actions have been taken, or will be taken, to address the non-compliance.

4.3 Contingency Plan

A contingency plan shall be established by the Contractor and is to be included in the overarching CEMP, in accordance with Condition C1(e). Notwithstanding, **Table 21** 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. Please refer to the Noise and Vibration Management Plan for any applicable contingency plans for noise and/or vibration management.

TABLE 21: CONTINGENCY PLAN

Risk		Condition Green	Condition Amber	Condition Red
Construction Movements	Trigger	Both peak hour and daily Construction traffic volumes are in accordance with volume and time constraints as outlined within **Section 2.1** and **Section 2.1.4**.	Construction traffic volumes exceed programmed Peak volumes but is within permissible volume constraints.	Construction traffic volumes exceed permissible volume and time constraints.
	Response	No response required	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: • Review CTMP and update where necessary • Provide additional training.	As with Condition Amber, plus; • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report or non-compliance report to government agencies and to the Environmental Representative (ER). • Stop all transportation into and out of the Site.
Queuing	Trigger	No queuing identified	Queuing identified within site, but not on to public road	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	As with Condition Amber, plus • Review and investigate construction activities.

			and an extra copy of the Driver Code of Conduct	• If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report nor non-compliance report to government agencies and to the ER. • Temporary halting of activities and resuming when conditions have improved. • Stop all transportation into and out of the Site. • Review CTMP and update where necessary, provide additional training.
Traffic Guidance Scheme	Trigger	No observable issues (TGS implements according to plan)	Minor inconsistencies with TGS to onsite operations (such as covered signs, missing signs, fallen cones, etc.)	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	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

			ensure they are functioning correctly. • Temporary halting of activities and resuming when conditions have improved	avoid such occurrence in future.

4.4 Communications Strategy

A communications strategy shall be established by the Head Contractor and is included in the overarching CEMP (refer to the community consultation strategy prepared separately).

A Communications and Community Liaison Representative (CCLR) shall be elected and shall be responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint.

All employees who are made aware of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager, who will then contact the CCLR. Upon becoming aware of a complaint, the protocol outlined below will be followed.

TABLE 22: RESPONSE STRATERGY

Ref	Protocol	Action
1	Record and acknowledge	Any employee who takes 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. 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, will 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 CCLR will prioritise all complaints by severity for the risk to health and safety and will attempt to provide an immediate response via phone or email.
3	Investigate	An on-site investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any monitoring information and/or 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 CCLR 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.
5	Respond to Complainant	The CCLR will oversee the rectification of the issue and 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 assessment of the situation is carried out and documented to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the Community Correspondence Register. A copy of the completed form will be maintained for at least five years.
7	Preventative Action	Once the complaint has been suitably handled, appropriate measures will be identified and implemented to negate the possibility of re-occurrence. The Community Correspondence Register is not finalised until the preventative actions are completed and recorded on the form.

In addition to the above, the CCLR is to notify the community liaison representative when traffic is expected to exceed the parameters set within "Condition Green" of **Table 21**. Notwithstanding, **Table 23** outlines an indicative communication strategy to ensure that adequate communication with key stakeholders have been met.

TABLE 23: COMMUNICATIONS STRATERGY

Risk	Impact	Comms Channel
Wider Traffic Disruption	Wider community and stakeholders informed through local and wider advertising and notification	Stakeholder Meetings Stakeholder email blast
Construction related traffic	Ensure construction crews use traffic routes identified in the Traffic Management Plan, and Ensure residents in area are notified in advance to any traffic changes that may affect them	

Furthermore, ongoing communication will be undertaken so that all stakeholders are kept up to date of works and potential impacts.

Appendix A. Driver Code of Conduct

Drivers Code of Conduct

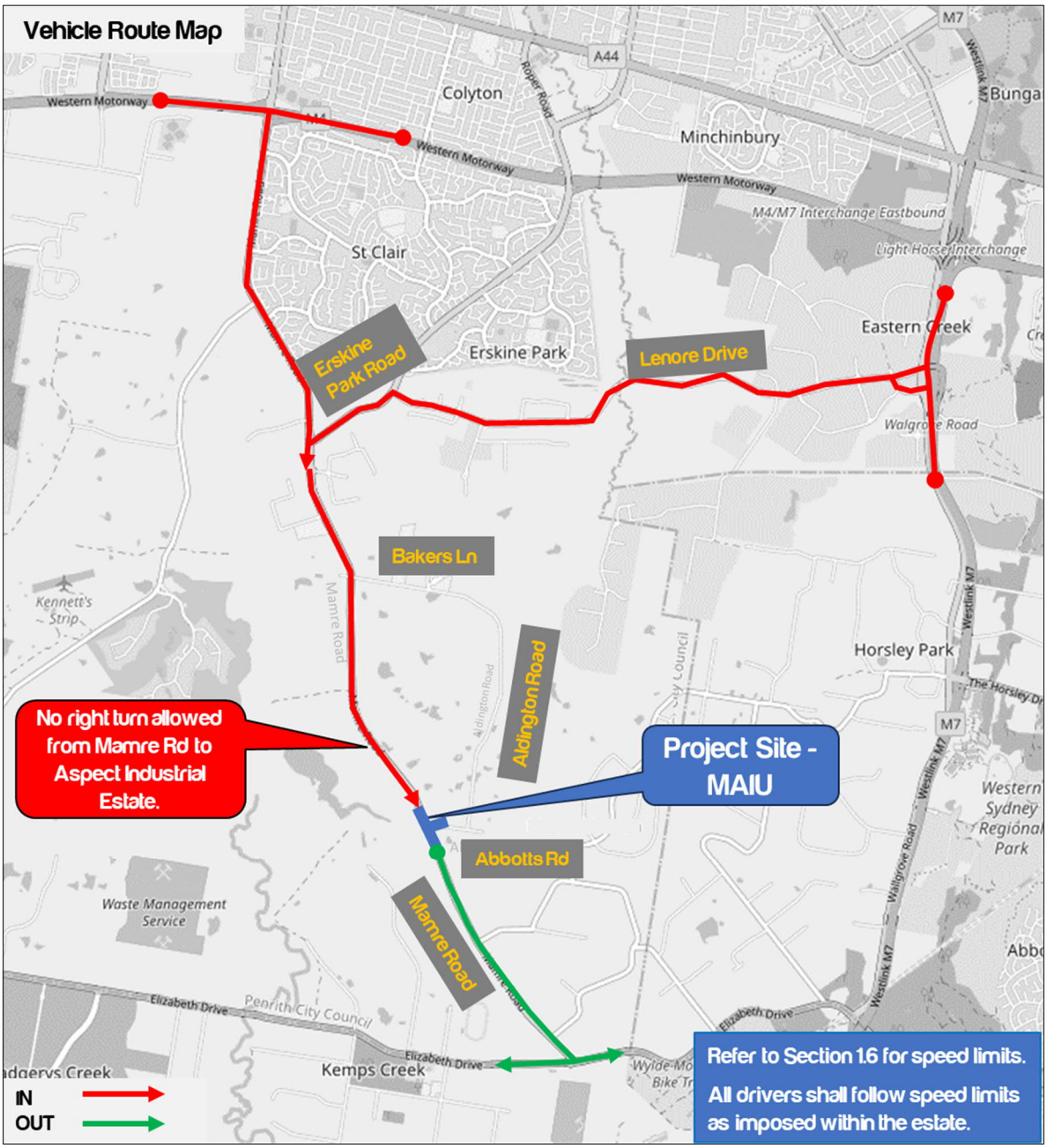
Safe Driving Policy for Mamre Road, Abbotts Road and Aldington Road Upgrade.

Construction Vehicle Routes

All Drivers MUST follow the approved routes to and from the Site, as shown and discussed below.

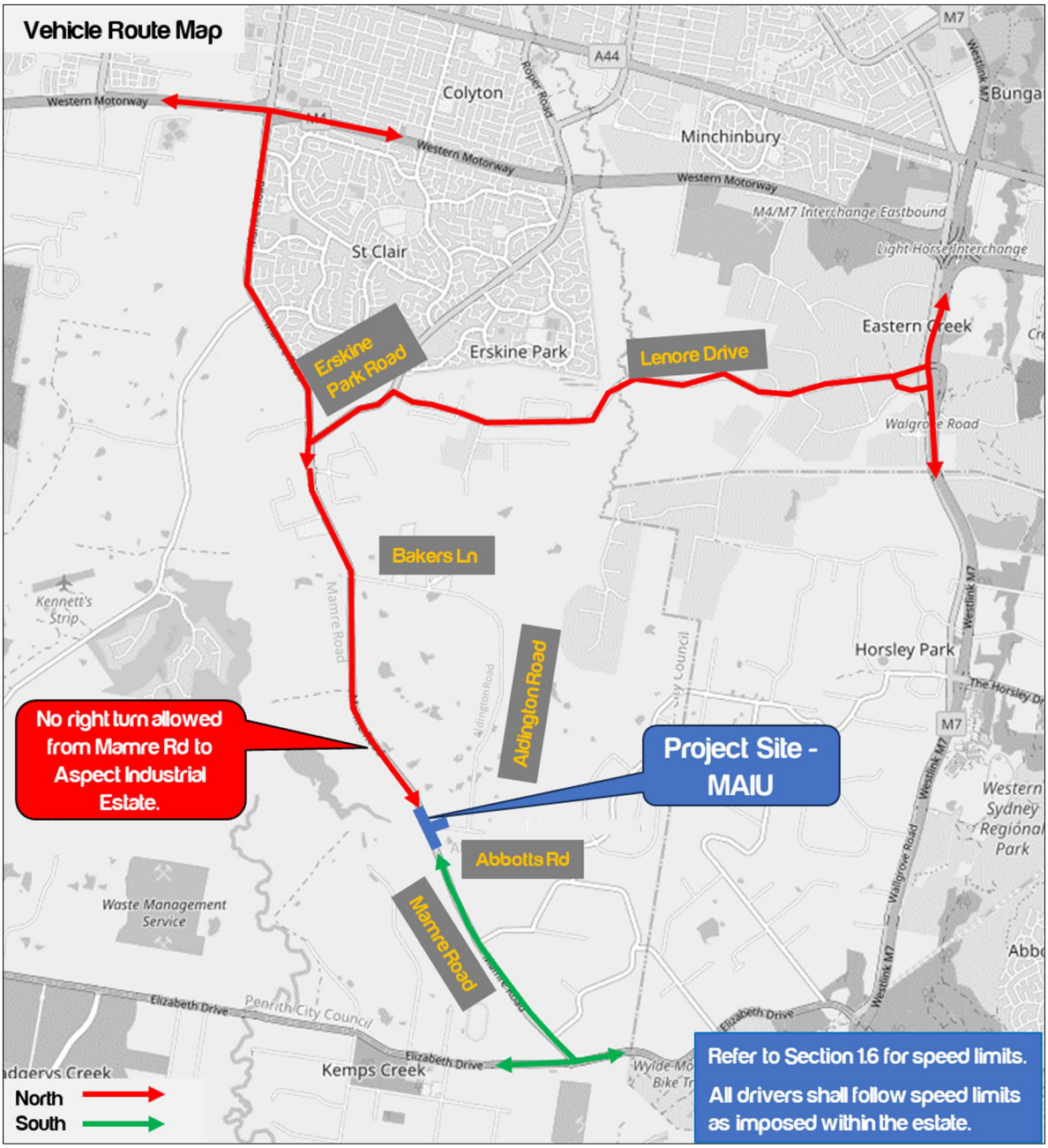
Truck Routes – MAIU

Stage 1 and 2 - Prior to Signal Installation at Mamre Rd and Abbotts Rd Intersection



- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site.
- Departure Trips:
  - Route 1: From the Site, onto Mamre Road then south to Elizabeth Drive and left to the Westlink M7and sub-regional routes to the east.
  - Route 2: From the Site, onto Mamre Road then south to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

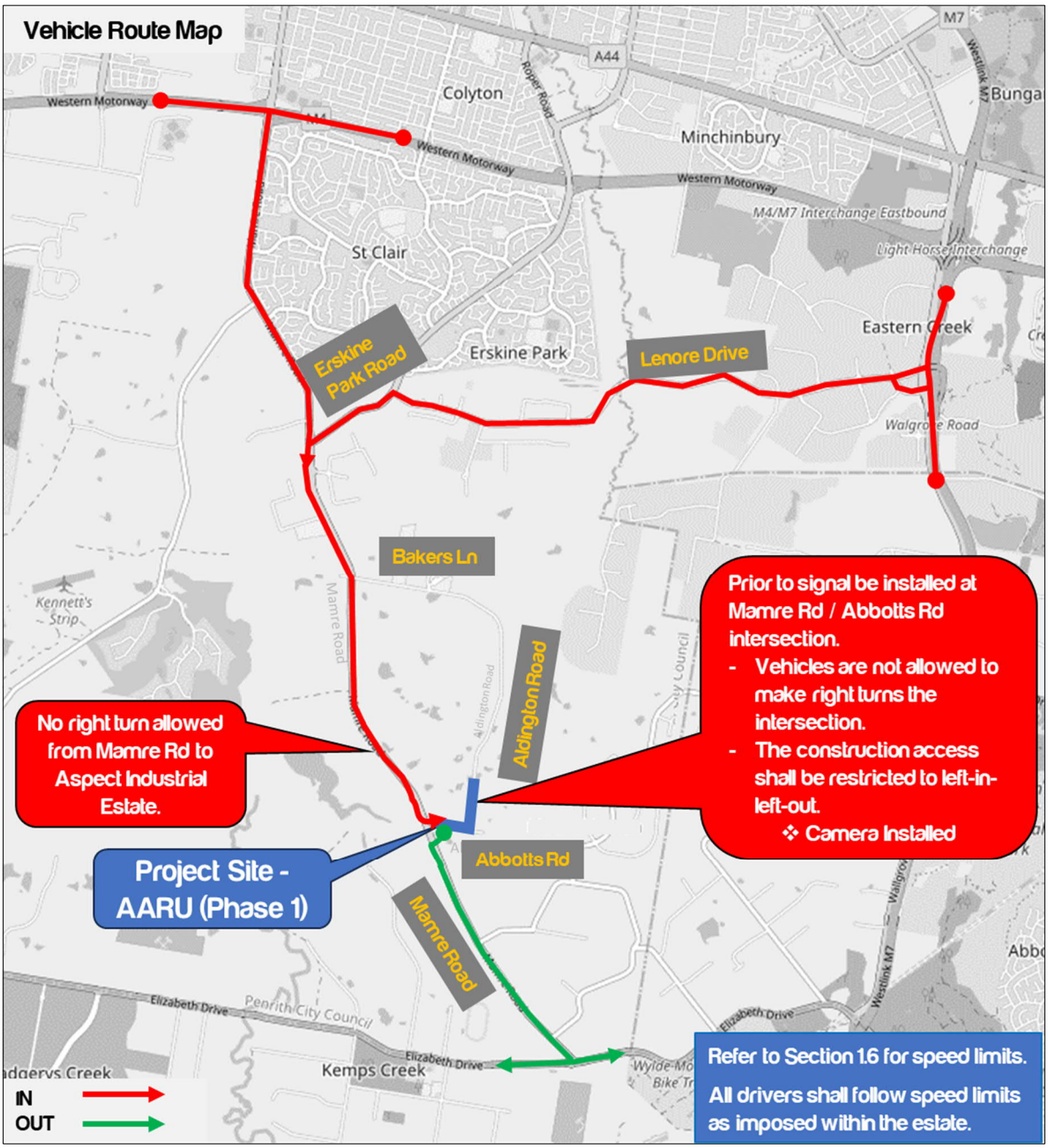
Stage 3 and 4 - After Signal Installation at Mamre Rd and Abbotts Rd Intersection



- Vehicle from North:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site, and departure from the Site by the same route.
- Vehicles from South:
  - Route 1: From Westlink M7 and sub-regional routes to the east, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Badgerys Creek and The Northern Road to the west, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.

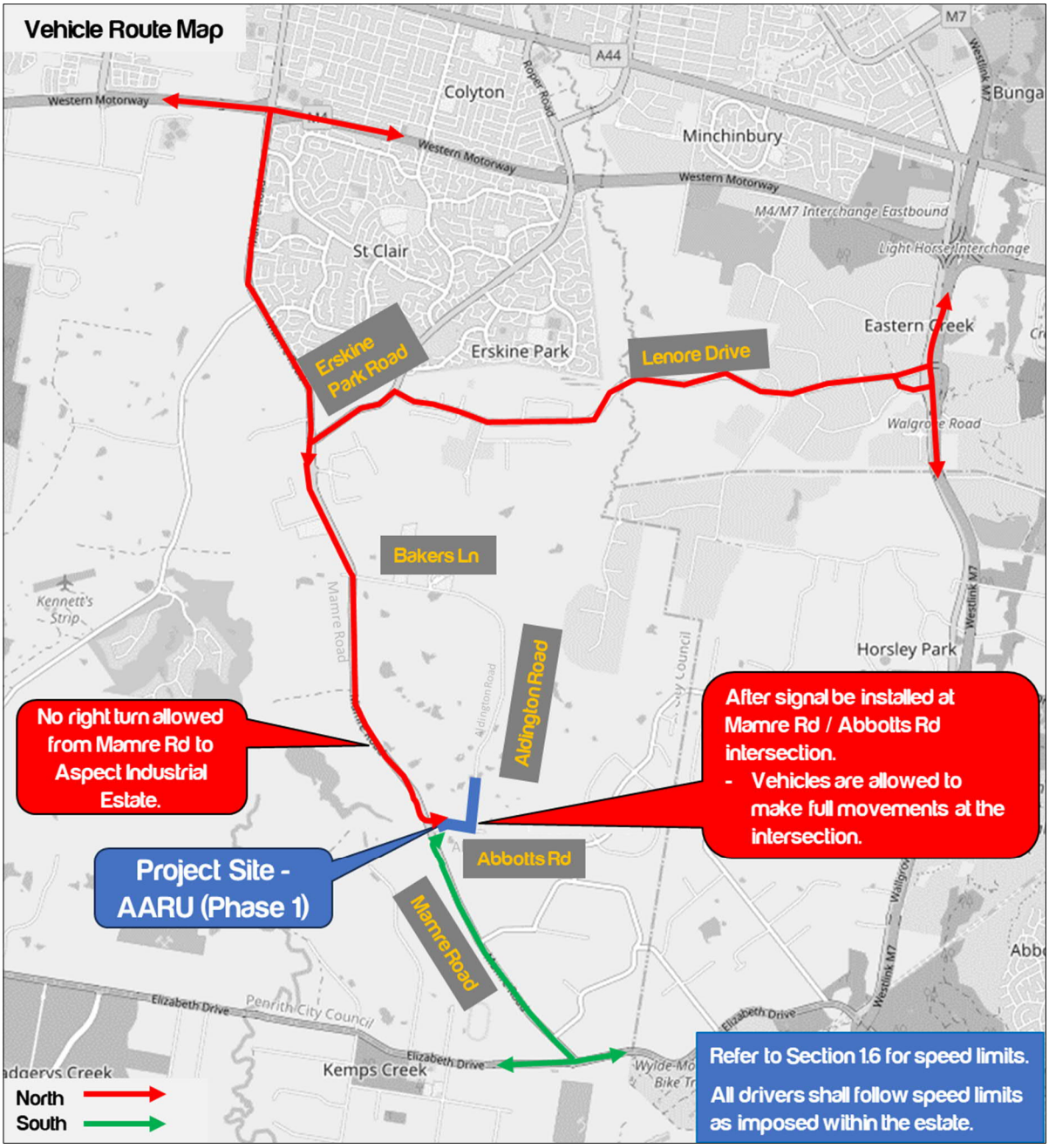
Truck Routes – AARU Phase 1

Prior to Signal Installation at Mamre Rd and Abbotts Rd Intersection



- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and left into Abbotts Road.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and left into Abbotts Road.
- Departure Trips:
  - Route 1: From the Site, onto Abbotts Road then south on Mamre Road to Elizabeth Drive and left to the Westlink M7 and sub-regional routes to the east.
  - Route 2: From the Site, onto Abbotts Road then south on Mamre Road to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

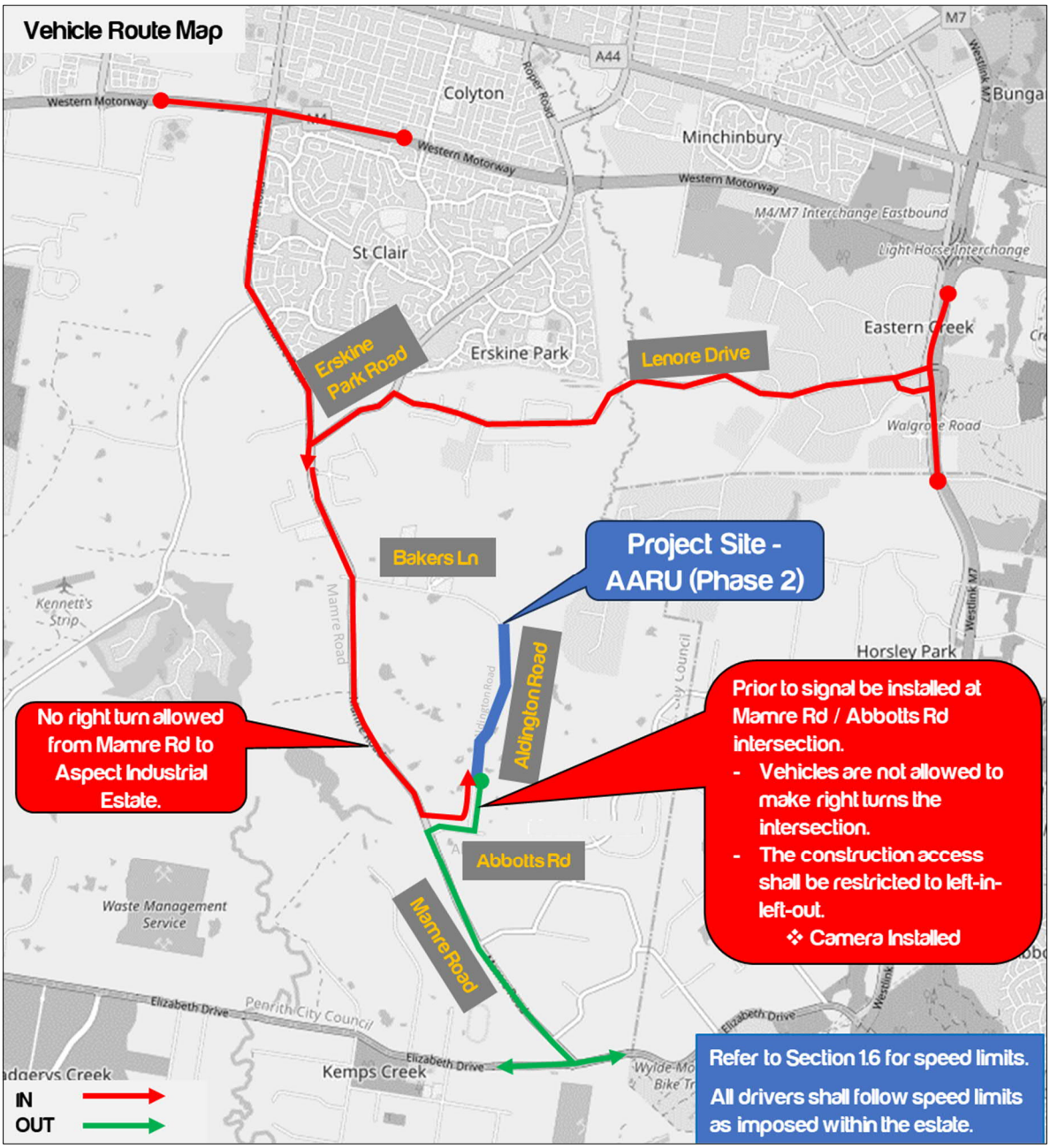
After Signal Installation at Mamre Rd and Abbotts Rd Intersection



- Vehicle from North:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site, and departure from the Site by the same route.
- Vehicles from South:
  - Route 1: From Westlink M7 and sub-regional routes to the east, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Badgerys Creek and The Northern Road to the west, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.

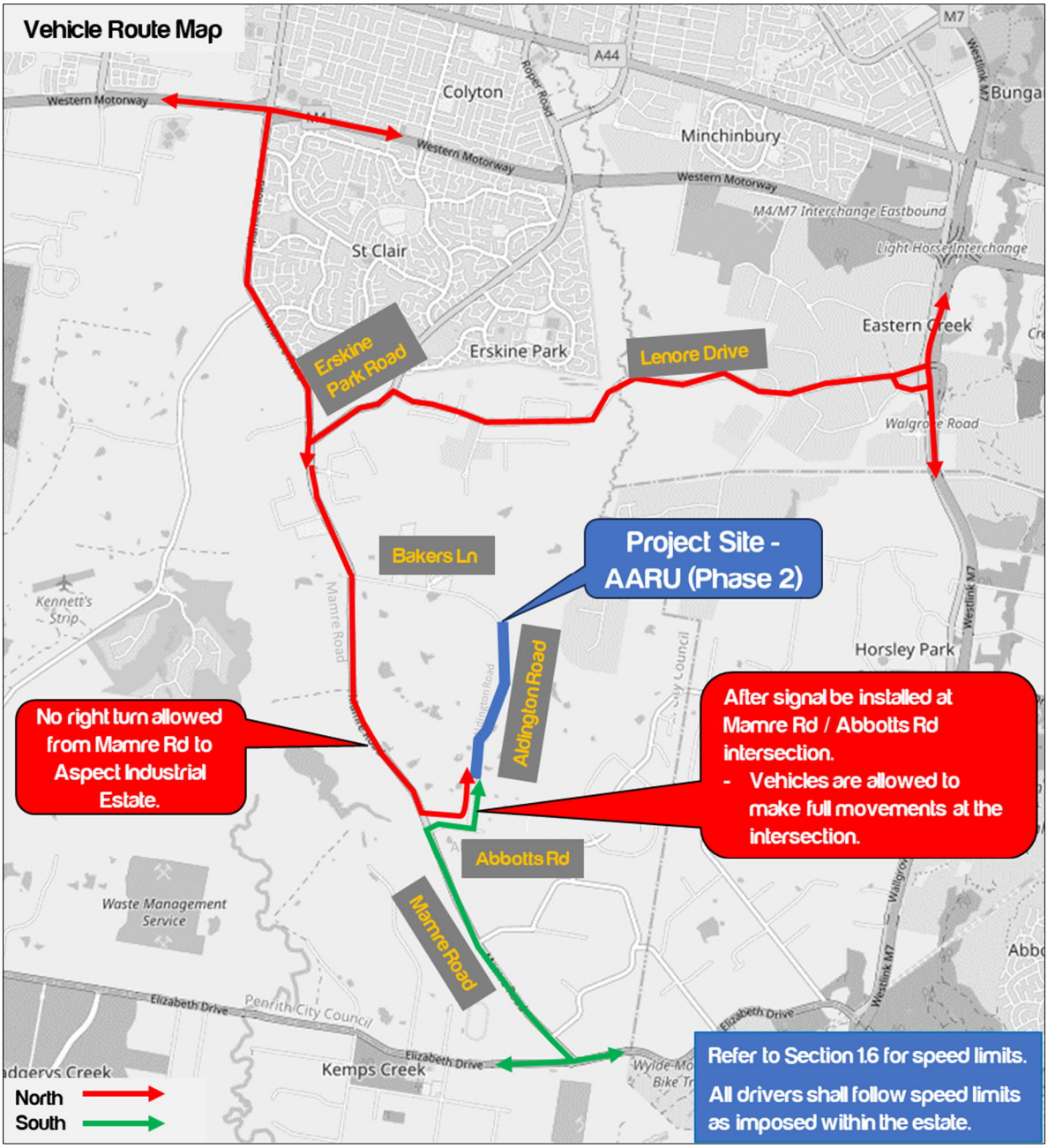
Truck Routes – AARU Phase 2

Prior to Signal Installation at Mamre Rd and Abbotts Rd Intersection



- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road, left into Abbotts Road, and left into Aldington Road.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road, left into Abbotts Road, and left into Aldington Road.
- Departure Trips:
  - Route 1: From the Site, onto Aldington Road, then onto Abbotts Road then south on Mamre Road to Elizabeth Drive and left to the Westlink M7 and sub-regional routes to the east.
  - Route 2: From the Site, onto Aldington Road, then onto Abbotts Road then south on Mamre Road to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

After Signal Installation at Mamre Rd and Abbotts Rd Intersection



- Vehicle from North:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then southbound along Mamre Road and into the Site, and departure from the Site by the same route.
- Vehicles from South:
  - Route 1: From Westlink M7 and sub-regional routes to the east, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.
  - Route 2: From Badgerys Creek and The Northern Road to the west, then northbound along Mamre Road and into the Site, and departure from the Site by the same route.

It should be noted that vehicles are **NOT** allowed to:

- Using Bakers Lane to access the Site.
- Illegal U-turn event or right turns at Mamre Road and Abbotts Road intersection until signal be installed at the intersection. **Cameras installed at the intersection to record all traffic movements and capture/report any illegal traffic movements.**

Consequences of Non-Conformance

The below activities in any vehicles will be considered as a breach of conduct:

- 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.
- Undertaking traffic illegal U-turn event or right turns at Mamre Road and Abbotts Road intersection.

Any above-mentioned activities will result in removal from site. All vehicles blacklisted from accessing sites when captured in an illegal traffic event.

Any breaches of the CTMP and Driver Code of Conduct may be considered a breach of development consent and penalties such as fines and/or prosecution may apply.

Objectives of Drivers Code of Conduct

- To minimise the impact of earthworks and construction on the local and regional road network; and
- Minimise conflict with other road users; and
- Minimise road traffic noise; and
- Ensure truck drivers use specified routes.

Purpose of Drivers 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 Site via the approved entry and exit points and travel routes.

Driver Responsibilities

All Drivers on site must:

- 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 selected routes.
- Be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW/ Australian 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 speed limits as imposed within the estate.
- Keep loads covered at all times.
- Park in dedicated light vehicle or heavy vehicle parking spaces.

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:

- 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 and that illegal use is not undertaken.
- 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.

Vulnerable Users

- Be mindful of private residences that live and access directly onto Mamre Road and private vehicles use these surrounding roads.

Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately 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.

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.

Appendix B. Risk Assessment

Proposed Warehouse Development

Risk Assessment and Communication Tool

Project Number	P2264r03
Project Name	Mamre Road, Abbotts Road and Aldington Road Upgrade
Site Location	Mamre Road, Abbotts Road and Aldington Road, Kemps Creek
Date of Assessment	18/10/2024
Revision	Issue III

Name	Company	Title
E. Duan	Ason Group	Traffic Engineer
J. Laidler	Ason Group	Principal Traffic Engineer

Document Control

Date Issued	Revision	Issued By	Checked By
18/07/2024	Draft	E. Duan	J. Laidler
26/08/2024	Issue I	E. Duan	J. Laidler
17/09/2024	Issue II	E. Duan	J. Laidler
18/10/2024	Issue III	E. Duan	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 sometime 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	Exclusion barriers will be provided as part of the main works. The design provides a defined separation between construction and work areas.	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	Dedicated footpath, pedestrian crossings and additional signage shall be provided to separate vehicles and pedestrians as best possible.	Design Solution	Main Contractor	B	2	Low
3	Potential vehicle conflict points	Vehicles can crash with each other while manoeuvring through the site	Entire Site & Access Roads	Nil	B	3	Medium	Roadways are capable of two-way flow. Nonetheless, Traffic Controllers shall limit movements within disrupted areas to limit any safety issues. Low speeds throughout the site also reduce potential for crashes	Design Solution	Main Contractor	B	1	Low

4	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
5	Fall risks	Injury due to falls (in general)	Entire Site	Nil	E	3	High	Ensuring level changes across the site to be minimised as best possible, with additional black & yellow hazard tape/marking being installed where appropriate. Installation of handrails where level changes / ramps grades are significant.	Design Solution	Main Contractor	C	2	Medium
6	Misdirected access into 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	Design Solution	Main Contractor	B	2	Low
7	Conflicting Traffic Management	Coordinating Traffic Controllers could create misleading and wrong advice	Entire Site	Nil	C	3	High	Toolbox meetings, regular liaison with all construction teams and review of signage plans on site in order to minimise contradicting signage.	Design Solution	Main Contractor	C	2	Medium
8	Unsafe Right-Turn Movements at Intersection	The risk of vehicle collisions due to right-turn	Mamre Rd/ Abbotts Rd Intersection	- Give-Way control - Restrictions on right turns for vehicles	D	3	High	Implementation of LILO configuration, line marking and signage to prohibit all right-turn movements	Design Solution	Main Contractor	B	3	Medium

		movements at the intersection		over 5t from Abbotts Road into Mamre Road				in and out of Abbotts Road, reducing the risk of collisions. This is in accordance with the Driver Code of Conduct based on a requirement from DPHI, prohibiting right turns by construction vehicles at this intersection.					

Appendix C. Traffic Guidance Scheme

7.1.1 Stage 1

Stage 1	
Duration:	3 Months
Construction Works:	• Setup of DBK150 Concrete Barriers along Western edge of Mamre Road – 3 Nights • Relocation of existing utilities – 5 Nights • Construction of Western Shoulder/ Temporary Pavement • Works will include services relocation and property adjustments, bulk earthworks, drainage and pavement construction including components of road crossings (stormwater, services etc) required to connect to future stages.
Traffic Management:	**Barrier Installation** • Stop/Slow (PTCD) **ARG 24-0475 TGS** **ARG 24-0808 TGS** **Stage 1 Works behind the barriers** • Lateral Shift **ARG 24-0476 TGS** • Vehicle Movement Plan **ARG 24-0478 TGS**
Delineation Device:	Standard (700mm) cones, PTCD, Lighting Towers
Temp. Safety Barrier:	DB80k150 Concrete Safety Barrier - Temporary
Speed Zone Reduction:	40km/h Barrier Installation (Nights only) 60km/h during Stage 1
Pedestrian Management:	N/A
Cyclists Management:	N/A

Table 17 - Stage 1 Overview

If the PTCD (Portable Traffic Control Device) stops working while conducting stop-slow operations at the intersection, immediate action must be taken to ensure the safety and smooth flow of traffic. The traffic controller should:
Quickly assess the situation and determine the extent of the malfunction.
Use hand signals and/or a stop/slow paddle to manually control traffic if necessary.
Alert nearby motorists and pedestrians about the malfunctioning PTCD.
Notify the relevant authorities or supervisor about the issue for further assistance or repair.
If feasible, attempt to troubleshoot and resolve the issue with the PTCD following proper safety protocols.
If unable to restore functionality promptly, consider deploying alternative traffic control measures, such as temporary traffic lights or additional traffic controllers.

NOTES:
1. DISTANCE D = 80m.
2. ON SITE RISK ASSESSMENT TO BE UNDERTAKEN PRIOR TO SETTING UP TGS.
3. THIS SHORT TERM TGS TO BE IMPLEMENTED BY A PERSON WITH CURRENT TfNSW IMPLEMENT TRAFFIC CONTROL PLAN.
4. WORKS NOT TO COMMENCE UNTIL THE T HAS BEEN FULLY IMPLEMENTED.
5. SIGNS TO BE MIN 2.5m ABOVE FOOTPATHS, ELSE MIN 200mm ABOVE ROAD SURFACE
6. SIGNS TO BE BETWEEN 0.6 & 2.0m FROM EDGE OF TRAFFIC
7. ALL WORKER SYMBOLIC SIGNS TO BE REMOVED OR COVERED WHEN WORKERS HAVE LEFT THE SITE.
8. ALL TRAFFIC CONTROLLER (T.C.) AND PREPARE TO STOP SIGNS TO BE REMOVED OR COVERED WHEN T.C.'s ARE NOT ON DUTY.
9. SIGN LOCATIONS MAY BE VARIED TO SUIT SITE CONSTRAINTS WITHIN TOLERANCE IN TCAWS MANUAL
10. CONES / BOLLARDS SHALL BE MAX 4m SPACING ALONG THE ROAD.
11. PROVIDE A MINIMUM 3.5m WIDE LANE WIDTH FOR ONE LANE SHUTTLE FLOW
12. COVER OR REMOVE ANY CONFLICTING SIGNS
13. BUSINESS AND PROPERTY ACCESS TO BE MAINTAINED AT ALL TIMES.
14. BUSES TO BE PRIORITISED THROUGH THE WORKS AT ALL TIMES
15. PTCD ARE TO BE PLACED AT LEAST 5M AWAY FROM THE TRAFFIC SIGNALS
16. LIGHTING TOWERS WILL BE DEPLOYED IN AREAS LACKING SUFFICIENT STREET LIGHTING



Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role: Planning & Design Manager		Role: Planning & Delivery Manager	
Signature: R.H.Gandhi		Signature:	
Implementer Name:		Implementer Qualification No: TCT.....	

Legend:
- 3x Light Towers
- 6x Traffic Controller
- Cones
- Safety Buffer Zone
- Work Area

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3
3. Sign spacing Austroads TTM, Part 3: Table 2.2
4. Recommended sight distances to devices Austroads TTM, Part 3: Table 2.3
5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13
6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6
7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2

REVISION	REV	Description
	00	sent to client
	01	

Review Date: 22/07/2024
North Code:
Sign Type: Swing Stand

Type of TTM: Static Works
Duration: Multiple Shifts
TTM Set-up: Stop/ Slow
Shift TTM Inspections: before during & pre-closedown
Existing Speed Limit: 80km/h & 50 km/h
Map Reference: NSW Imagery
Scale: 1:500
Issue Date: 22/07/2024
Page No.: 01 of 02

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1a - Barriers Installation

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0475 TGS
TMP No: ARG 24-026 TMP



Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role: Planning & Design Manager		Role: Planning & Delivery Manager	
Signature: R.H.Gandhi		Signature:	
Implementer Name:		Implementer Qualification No: TCT.....	

Legend:
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- 6x Traffic Controller
- Cones
- Safety Buffer Zone
- Work Area

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REVISION	REV	Description
	00	sent to client
	01	

Review Date: 22/07/2024

North Code:

Sign Type: Swing Stand

Type of TTM: Static Works	Duration: Multiple Shifts
TTM Set-up: Stop/ Slow	
Shift TTM Inspections: before during & pre-closedown	
Existing Speed Limit: 80km/h & 50 km/h	
Map Reference: NSW Imagery	Scale: 1:500
Issue Date: 22/07/2024	Page No.: 02 of 02

Client: ROBSON CIVIL PROJECTS

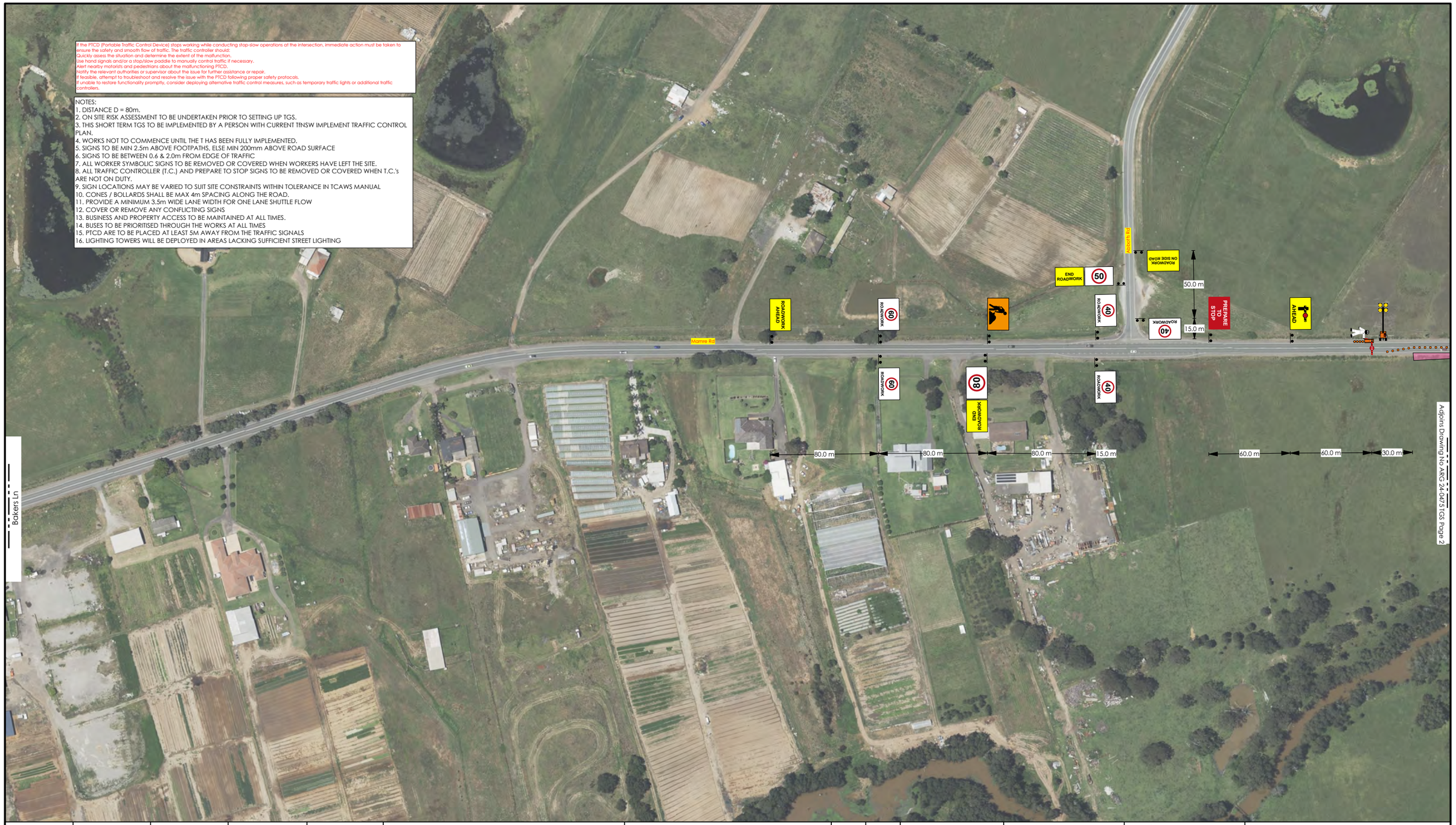
Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1a - Barriers Installation

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No:	TMP No:
ARG 24-0475 TGS	ARG 24-026 TMP

If the PTCD (Portable Traffic Control Device) stops working while conducting stop-slow operations at the intersection, immediate action must be taken to ensure the safety and smooth flow of traffic. The traffic controller should:
Quickly assess the situation and determine the extent of the malfunction.
Use hand signals and/or a stop/slow paddle to manually control traffic if necessary.
Alert nearby motorists and pedestrians about the malfunctioning PTCD.
Notify the relevant authorities or supervisor about the issue for further assistance or repair.
If feasible, attempt to troubleshoot and resolve the issue with the PTCD following proper safety protocols.
If unable to restore functionality promptly, consider deploying alternative traffic control measures, such as temporary traffic lights or additional traffic controllers.

NOTES:
1. DISTANCE D = 80m.
2. ON SITE RISK ASSESSMENT TO BE UNDERTAKEN PRIOR TO SETTING UP TGS.
3. THIS SHORT TERM TGS TO BE IMPLEMENTED BY A PERSON WITH CURRENT TfNSW IMPLEMENT TRAFFIC CONTROL PLAN.
4. WORKS NOT TO COMMENCE UNTIL THE T HAS BEEN FULLY IMPLEMENTED.
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16. LIGHTING TOWERS WILL BE DEPLOYED IN AREAS LACKING SUFFICIENT STREET LIGHTING



Adjoins Drawing No ARG 24-0475 TGS Page 2

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:
- 3x Light Towers
- Cones
- Safety Zone
- Work Area - Part 2

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
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7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2

REVISION	REV	Description
	00	sent to client
	01	

Review Date: 22/07/2024
North Code:
Sign Type: Swing Stand

Type of TTM: Static Works
Duration: Multiple Shifts
TTM Set-up: Stop/ Slow
Shift TTM Inspections: before during & pre-closedown
Existing Speed Limit: 80km/h & 50 km/h
Map Reference: NSW Imagery
Scale: 1:500
Issue Date: 22/07/2024
Page No.: 01 of 02

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1a - Barriers Installation

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0475 TGS
TMP No: ARG 24-026 TMP



Adjpins Drawing No ARG 24-0475 TGS Page 1

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:
- 3x Light Towers
- Cones
- Safety Zone
- Work Area - Part 2

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
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7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2

REVISION	REV	Description
	00	sent to client
	01	

Review Date:	22/07/2024		
North Code:			
Sign Type:	Swing Stand		
Type of TTM:	Static Works	Duration:	Multiple Shifts
TTM Set-up:	Stop/ Slow		
Shift TTM Inspections:	before during & pre-closedown		
Existing Speed Limit:	80km/h & 50 km/h		
Map Reference:	NSW Imagery	Scale:	1:500
Issue Date:	22/07/2024	Page No.:	02 of 02

Client: ROBSON CIVIL PROJECTS

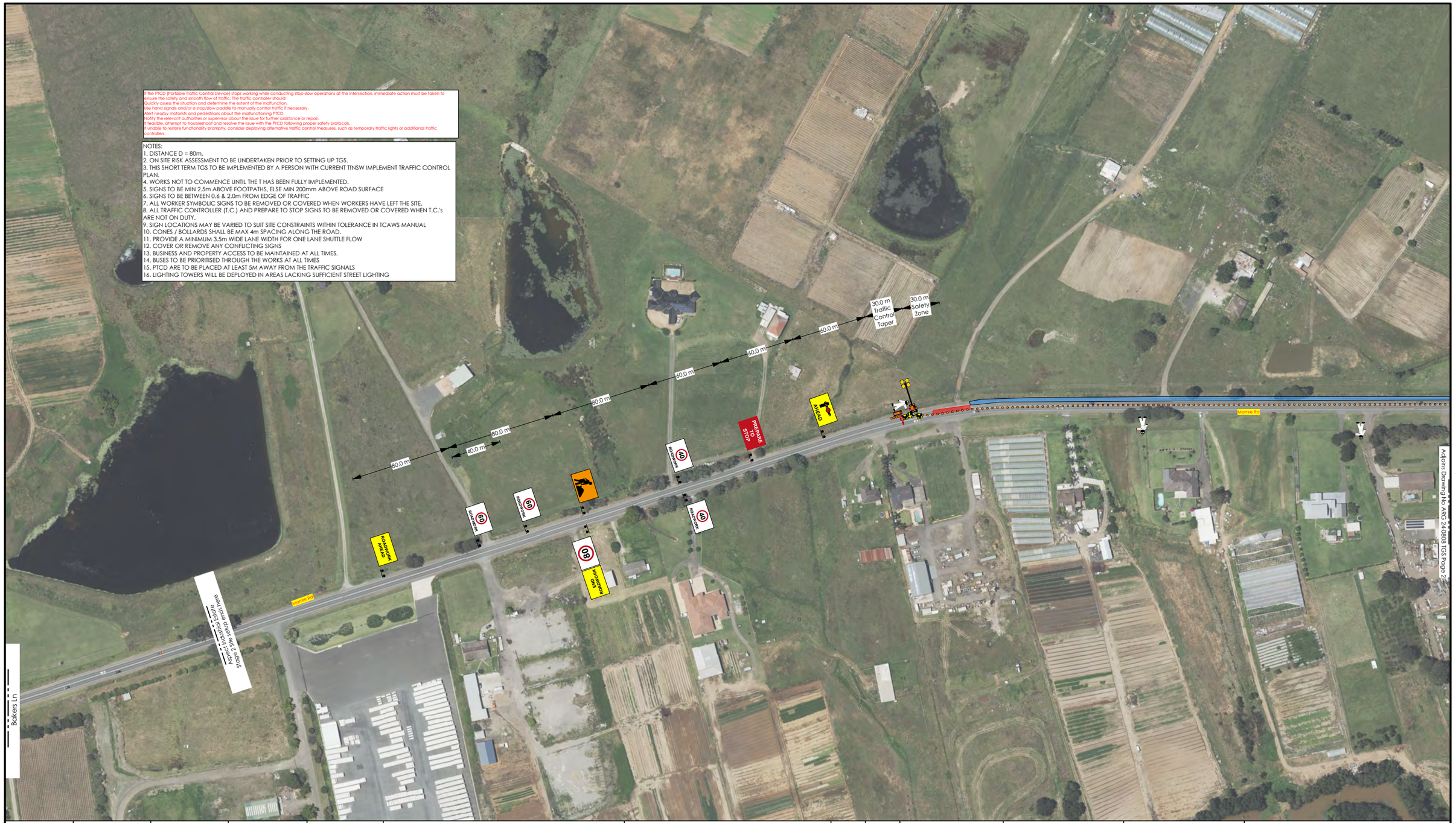
Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1a - Barriers Installation

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No:	TMP No:
ARG 24-0475 TGS	ARG 24-026 TMP

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If unable to restore functionality promptly, consider deploying alternative traffic control measures, such as temporary traffic lights or additional traffic controllers.

NOTES:
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16. LIGHTING TOWERS WILL BE DEPLOYED IN AREAS LACKING SUFFICIENT STREET LIGHTING



Adjoins Drawing No ARG-24-0808 TGS Page 2

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller	
Qualification No:	TCT0063633	Qualification No:	TCT0024272	
Role: Planning & Design Manager		Role: Planning & Delivery Manager		
Signature: R.H.Gandhi		Signature:		
Implementer Name:		Implementer Qualification No: TCT.....		

Allroad Group Pty Ltd

Legend:
- 3x Light Towers
- 6x Traffic Controller
- Cones
- Safety Buffer Zone
- Work Area - Service Relocation

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
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REVISION

REV	Description
00	sent to client
01	for RSA Com.

Review Date: 22/07/2024
North Code:
Sign Type: Swing Stand

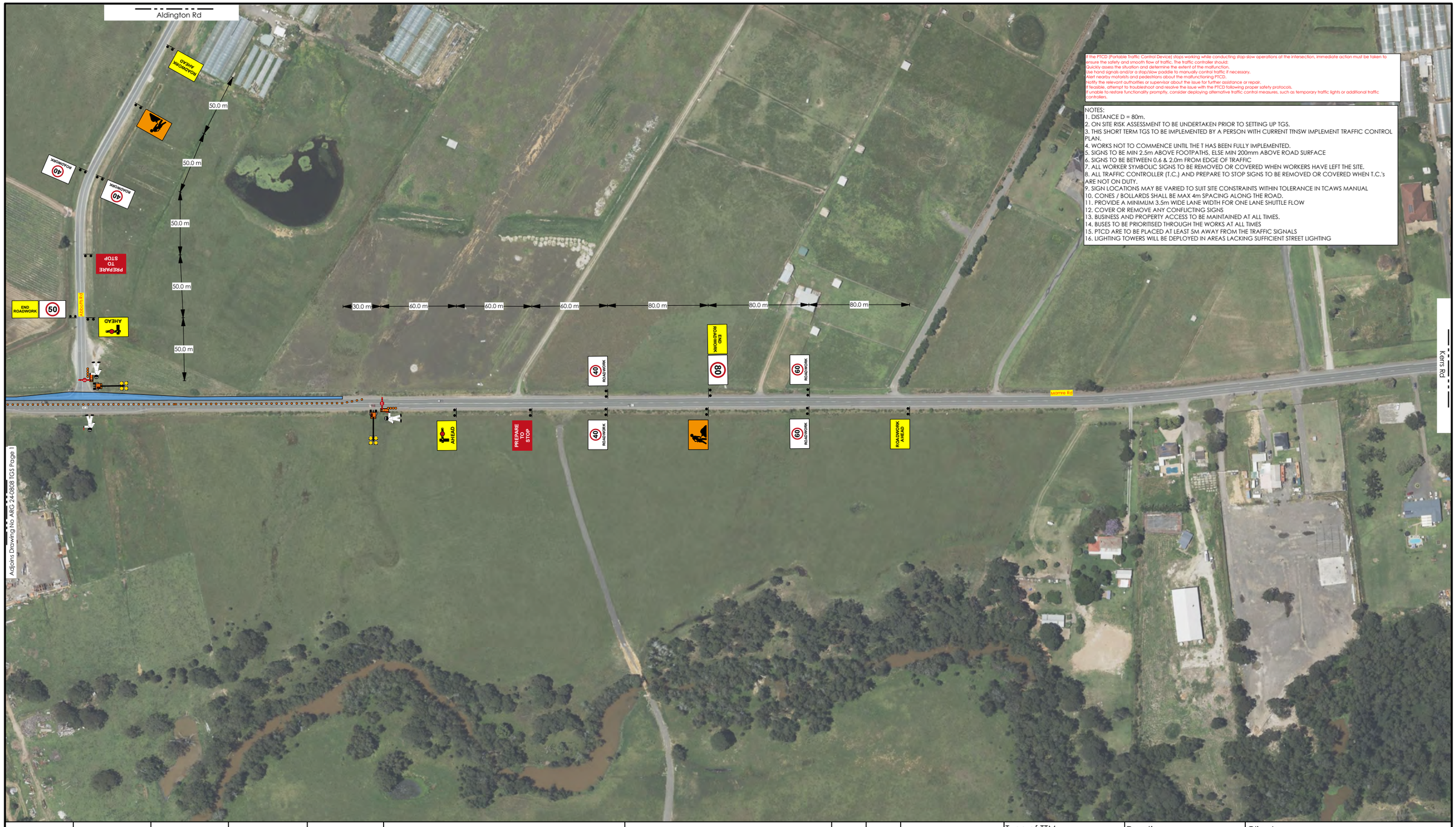
Type of TTM: Static Works
Duration: Multiple Shifts
TTM Set-up: Stop/ Slow
Shift TTM Inspections: before during & pre-closedown
Existing Speed Limit: 80km/h & 50 km/h
Map Reference: NSW Imagery
Scale: 1:500
Issue Date: 22/07/2024
Page No.: 01 of 02

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1a - Service Relocation

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0808 TGS
TMP No: ARG 24-026 TMP



If the PTCD (Portable Traffic Control Device) stops working while conducting stop-slow operations at the intersection, immediate action must be taken to ensure the safety and smooth flow of traffic. The traffic controller should:
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Alert nearby motorists and pedestrians about the malfunctioning PTCD.
Notify the relevant authorities or supervisor about the issue for further assistance or repair.
If feasible, attempt to troubleshoot and resolve the issue with the PTCD following proper safety protocols.
If unable to restore functionality promptly, consider deploying alternative traffic control measures, such as temporary traffic lights or additional traffic controllers.

NOTES:
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16. LIGHTING TOWERS WILL BE DEPLOYED IN AREAS LACKING SUFFICIENT STREET LIGHTING

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:
- 3x Light Towers
- 6x Traffic Controller
- Cones
- Safety Buffer Zone
- Work Area - Service Relocation

Compliance Notes:
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REVISION

REV	Description
00	sent to client
01	for RSA Com.

Review Date:	22/07/2024		
North Code:			
Sign Type:	Swing Stand		
Type of TTM:	Static Works	Duration:	Multiple Shifts
TTM Set-up:	Stop/ Slow		
Shift TTM Inspections:	before during & pre-closedown		
Existing Speed Limit:	80km/h & 50 km/h		
Map Reference:	NSW Imagery	Scale:	1:500
Issue Date:	22/07/2024	Page No.:	02 of 02

Client: ROBSON CIVIL PROJECTS

Project Description:
Mamre Rd and Abbott Rd
Intersection Upgrade
Stage 1a - Service Relocation

Work Location:
Mamre Road & Abbott Road
Intersection, Kemps Creek NSW 2178

TGS No:	TMP No:
ARG 24-0808 TGS	ARG 24-026 TMP



Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role: Planning & Design Manager		Role: Planning & Delivery Manager	
Signature: R.H.Gandhi		Signature:	
Implementer Name:		Implementer Qualification No: TCT.....	

Legend:
- Safety Zone
- Work Area - Stage 1

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3
3. Sign spacing Austroads TTM, Part 3: Table 2.2
4. Recommended sight distances to devices Austroads TTM, Part 3: Table 2.3
5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13
6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6
7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2

REVISION	REV	Description
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Review Date: 09/05/2024		Type of TTM: Static Works	Duration: Multiple Shifts
North Code:		TTM Set-up: Work Behind the Barriers	
Sign Type: Permanent		Shift TTM Inspections: before during & pre-closedown	
		Existing Speed Limit: 80km/h & 50 km/h	
		Map Reference: NSW Imagery	Scale: 1:500
		Issue Date: 09/04/2024	Page No.: 01 of 03

Client: ROBSON CIVIL PROJECTS

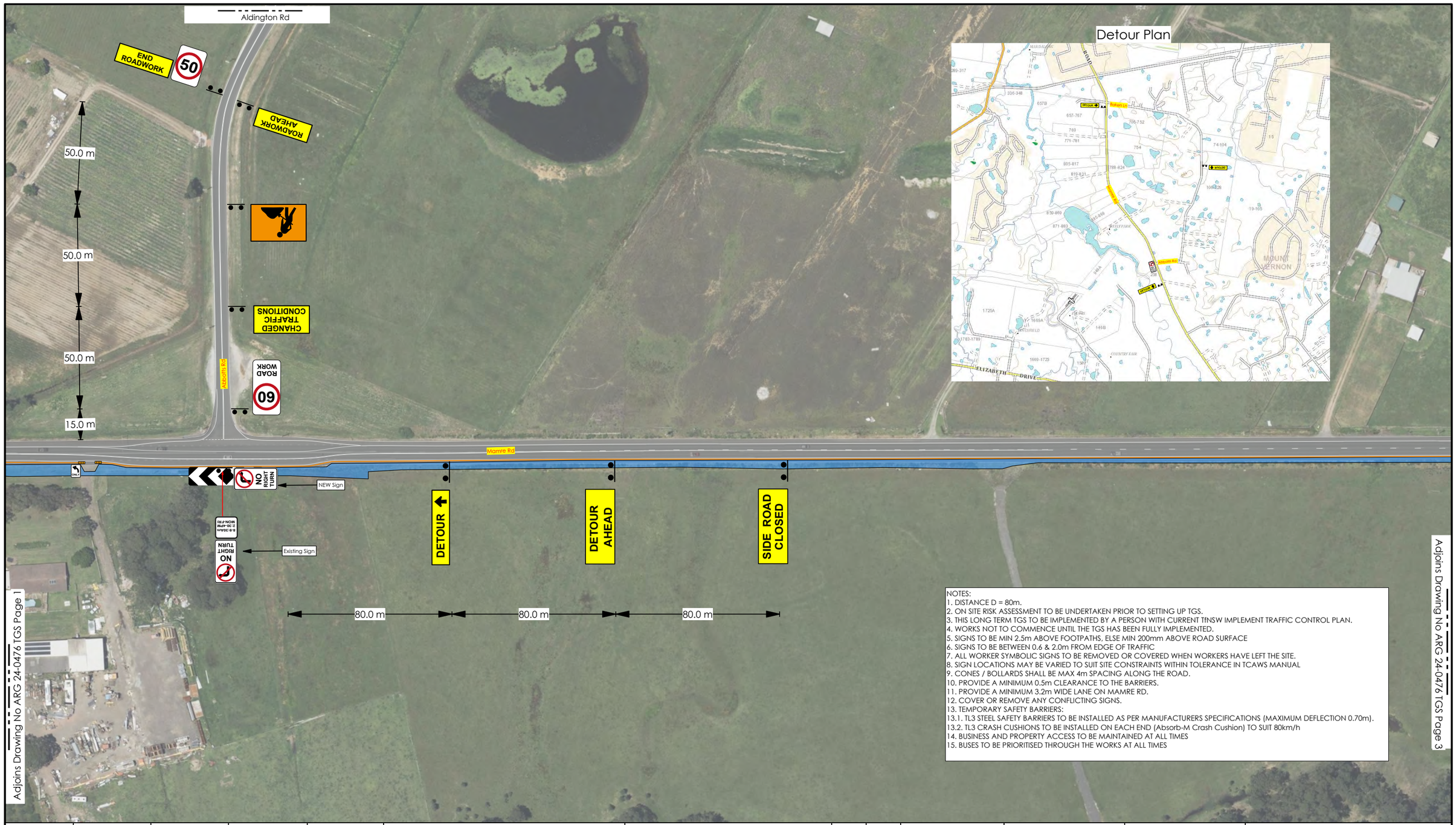
Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0476 TGS

TMP No: ARG 24-026 TMP

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NOTES:
1. DISTANCE D = 80m.
2. ON SITE RISK ASSESSMENT TO BE UNDERTAKEN PRIOR TO SETTING UP TGS.
3. THIS LONG TERM TGS TO BE IMPLEMENTED BY A PERSON WITH CURRENT TfNSW IMPLEMENT TRAFFIC CONTROL PLAN.
4. WORKS NOT TO COMMENCE UNTIL THE TGS HAS BEEN FULLY IMPLEMENTED.
5. SIGNS TO BE MIN 2.5m ABOVE FOOTPATHS, ELSE MIN 200mm ABOVE ROAD SURFACE
6. SIGNS TO BE BETWEEN 0.6 & 2.0m FROM EDGE OF TRAFFIC
7. ALL WORKER SYMBOLIC SIGNS TO BE REMOVED OR COVERED WHEN WORKERS HAVE LEFT THE SITE.
8. SIGN LOCATIONS MAY BE VARIED TO SUIT SITE CONSTRAINTS WITHIN TOLERANCE IN TCAWS MANUAL
9. CONES / BOLLARDS SHALL BE MAX 4m SPACING ALONG THE ROAD.
10. PROVIDE A MINIMUM 0.5m CLEARANCE TO THE BARRIERS.
11. PROVIDE A MINIMUM 3.2m WIDE LANE ON MAMRE RD.
12. COVER OR REMOVE ANY CONFLICTING SIGNS.
13. TEMPORARY SAFETY BARRIERS:
13.1. TL3 STEEL SAFETY BARRIERS TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS (MAXIMUM DEFLECTION 0.70m).
13.2. TL3 CRASH CUSHIONS TO BE INSTALLED ON EACH END (Absorb-M Crash Cushion) TO SUIT 80km/h
14. BUSINESS AND PROPERTY ACCESS TO BE MAINTAINED AT ALL TIMES
15. BUSES TO BE PRIORITISED THROUGH THE WORKS AT ALL TIMES

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role: Planning & Design Manager		Role: Planning & Delivery Manager	
Signature: R.H.Gandhi		Signature:	
Implementer Name:		Implementer Qualification No: TCT.....	

Legend:
- Safety Zone
- Work Area - Stage 1

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
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REVISION

REV	Description
00	sent to client
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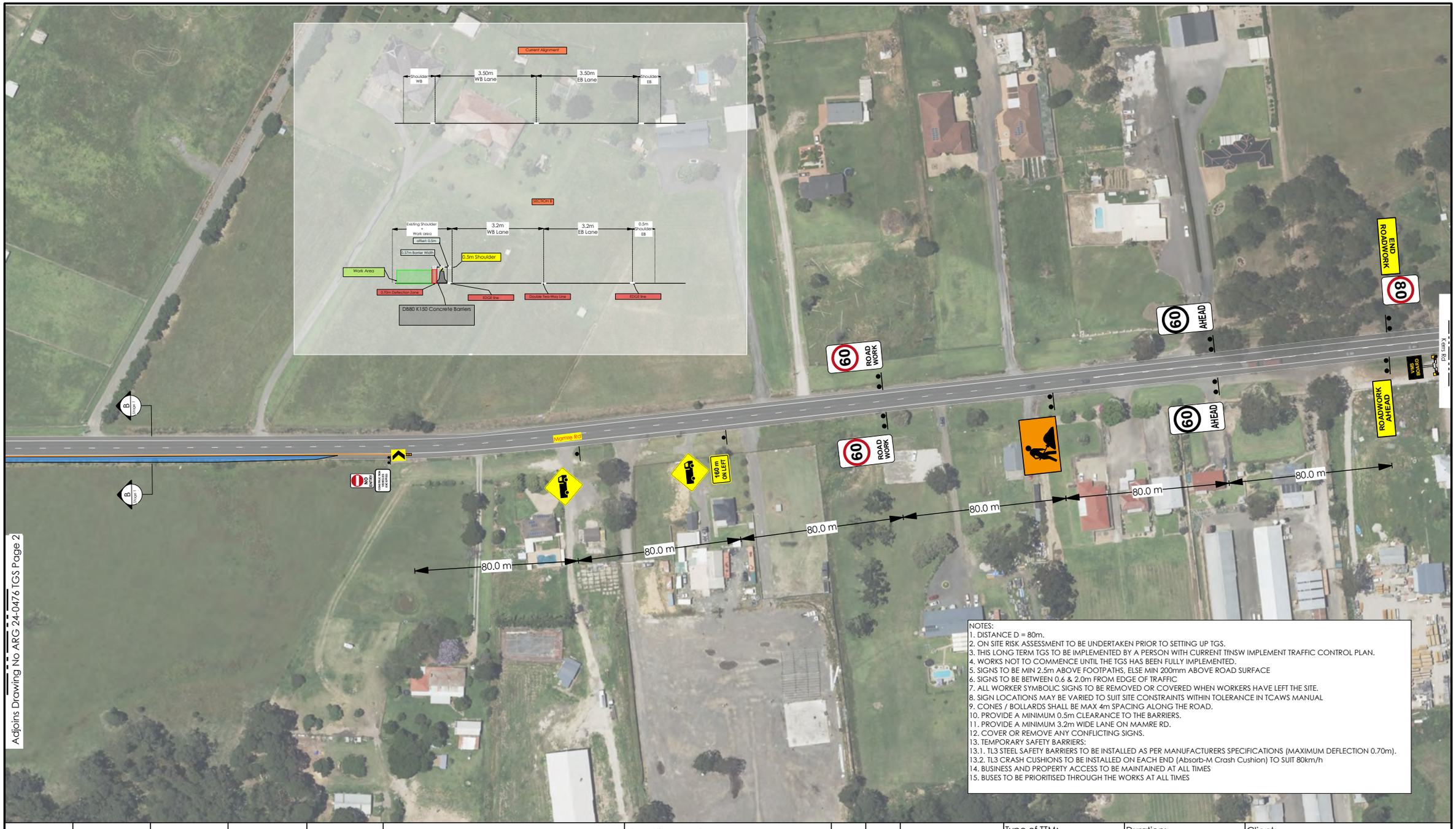
Review Date: 09/05/2024		Type of TTM: Static Works	Duration: Multiple Shifts
North Code:		TTM Set-up: Work Behind the Barriers	
Sign Type: Permanent		Shift TTM Inspections: before during & pre-closedown	
Issue Date: 09/04/2024	Page No.: 01 of 03	Existing Speed Limit: 80km/h & 50 km/h	
Map Reference: NSW Imagery	Scale: 1:500		

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No:	TMP No:
ARG 24-0476 TGS	ARG 24-026 TMP



NOTES:
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14. BUSINESS AND PROPERTY ACCESS TO BE MAINTAINED AT ALL TIMES
15. BUSES TO BE PRIORITISED THROUGH THE WORKS AT ALL TIMES

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:		Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:
- Safety Zone
- Work Area - Stage 1

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
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REVISION	REV	Description
	00	sent to client
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Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM:	Static Works
Duration:	Multiple Shifts
TTM Set-up:	Work Behind the Barriers
Shift TTM Inspections:	before during & pre-closedown
Existing Speed Limit:	80km/h & 50 km/h
Map Reference:	NSW Imagery
Scale:	1:500
Issue Date:	09/04/2024
Page No.:	01 of 03

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0476 TGS

TMP No: ARG 24-026 TMP



Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role: Planning & Design Manager		Role: Planning & Delivery Manager	
Signature:		Signature:	
Implementer Name:		Implementer Qualification No: TCT.....	

Legend:
- Vehicle Egress
- Vehicle Ingress
- Work Area - Stage 1

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
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REVISION	REV	Description
	00	sent to client
	01	

Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM: Static Works

Duration: Multiple Shifts

TTM Set-up: Construction Vehicle Movement Plan

Shift TTM Inspections: before during & pre-closedown

Existing Speed Limit: 80km/h & 50 km/h

Map Reference: NSW Imagery

Scale: 1:500

Issue Date: 09/04/2024

Page No.: 01 of 03

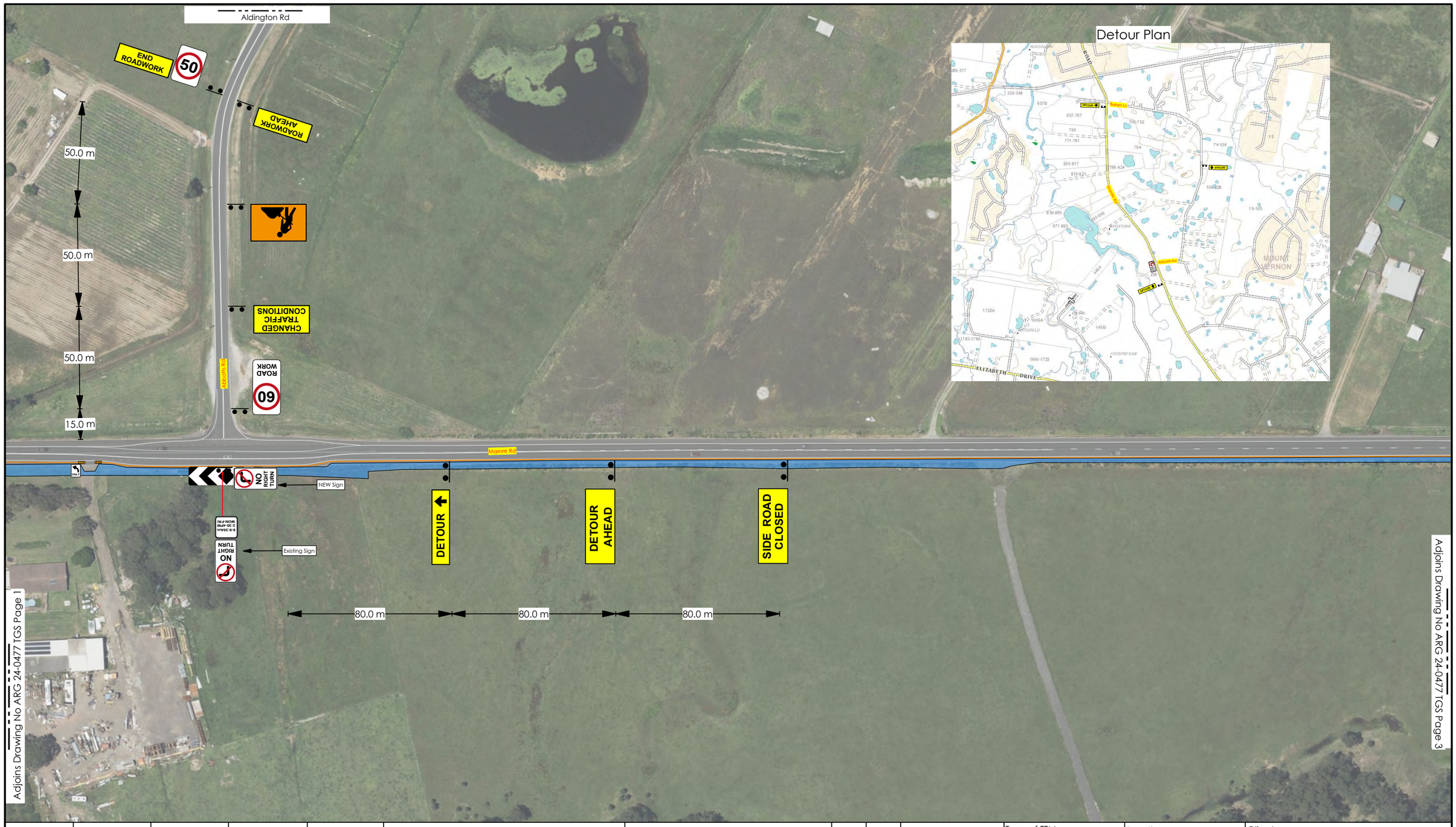
Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0477 TGS

TMP No: ARG 24-026 TMP



Detour Plan

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role: Planning & Design Manager		Role: Planning & Delivery Manager	
Signature: R.H.Gandhi		Signature:	
Implementer Name:		Implementer Qualification No: TCT.....	

Legend:
- Vehicle Egress
- Vehicle Ingress
- Work Area - Stage 1

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
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REVISION

REV	Description
00	sent to client
01	

Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM: Static Works

Duration: Multiple Shifts

TTM Set-up: Construction Vehicle Movement Plan

Shift TTM Inspections: before during & pre-closedown

Existing Speed Limit: 80km/h & 50 km/h

Map Reference: NSW Imagery

Scale: 1:500

Issue Date: 09/04/2024

Page No.: 01 of 03

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 1

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0477 TGS

TMP No: ARG 24-026 TMP

7.2 Stage 2 Overview – Dates & Times

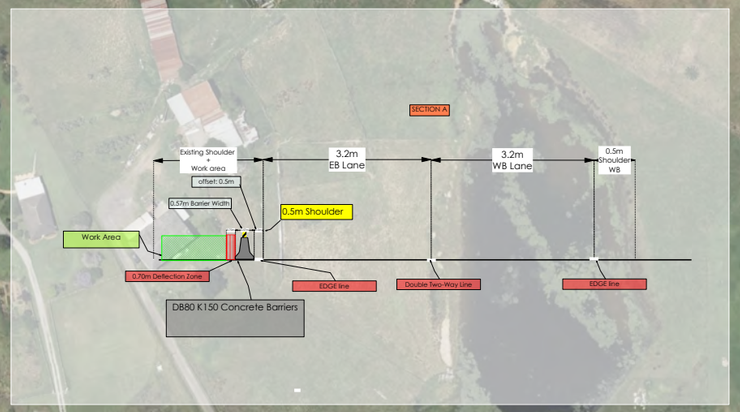
Stage 2 – Eastern Pavement incl Shoulder	
Start Date:	September 2024
Finish Date:	March 2025
Hours of Work:	Mo – Fr: 7am – 6pm
	Sa: 8am – 1pm, if required

Table 18 - Stage 2 Overview - Dates & Times

7.2.1 Stage 2

Stage 2	
Duration:	7 Months
Construction Works:	• Construction of Eastern Pavement including Shoulders
Traffic Management:	**Stage 2 Works behind the barriers** • Lateral Shift **ARG 24-0478 TGS** • Vehicle Movement Plan **ARG 24-0479 TGS**
Temp. Safety Barrier:	DB80k150 Concrete Safety Barrier - Temporary
Delineation Device:	Standard (700mm) cones, PTCD, Lighting Towers – Barrier Relocations to be done only at night.
Speed Zone Reduction:	40km/h Barrier Relocation (Nights only) 60km/h during Stage 2
Pedestrian Management:	N/A
Cyclists Management:	N/A

Table 19 - Stage 1.2 Overview



NOTES:
1. DISTANCE D = 80m.
2. ON SITE RISK ASSESSMENT TO BE UNDERTAKEN PRIOR TO SETTING UP TGS.
3. THIS LONG TERM TGS TO BE IMPLEMENTED BY A PERSON WITH CURRENT TfNSW IMPLEMENT TRAFFIC CONTROL PLAN.
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14. BUSINESS AND PROPERTY ACCESS TO BE MAINTAINED AT ALL TIMES
15. BUSES TO BE PRIORITISED THROUGH THE WORKS AT ALL TIMES

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:
- Safety Zone
- Temp Pavement
- Work Area - Stage 2

Compliance Notes:
1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3
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7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2

REVISION	REV	Description
	00	sent to client
	01	

Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM:	Static Works
Duration:	Multiple Shifts
TTM Set-up:	Work Behind the Barriers
Shift TTM Inspections:	before during & pre-closedown
Existing Speed Limit:	80km/h & 50 km/h
Map Reference:	NSW Imagery
Scale:	1:500
Issue Date:	09/04/2024
Page No.:	01 of 03

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 2

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No:	TMP No:
ARG 24-0478 TGS	ARG 24-026 TMP

Aldington Rd

END ROADWORK

ROADWORK AHEAD

50.0 m

50.0 m

50.0 m

CHANGED TRAFFIC CONDITIONS

ROAD WORK

60

Abbotts Rd

NEW Sign

NEW Sign

KEEP RIGHT

Mamre Rd

NO RIGHT TURN

NEW Sign

Existing Sign

DETOUR

DETOUR AHEAD

SIDE ROAD CLOSED

Light Tower to be used at night

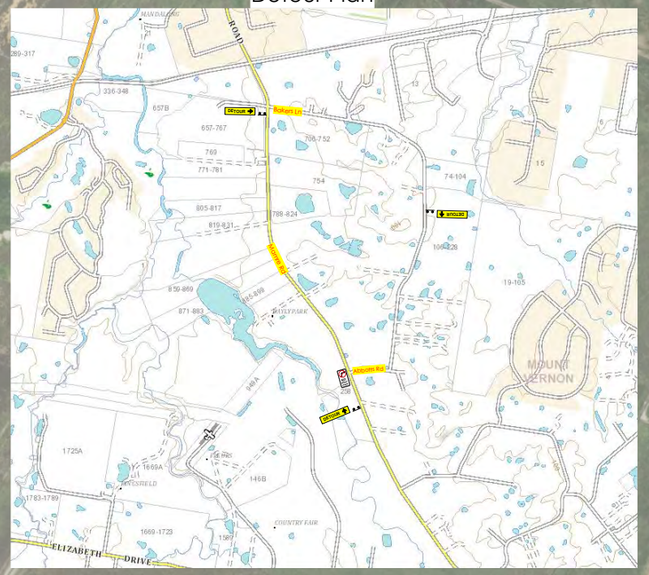
40

80.0 m

80.0 m

80.0 m

Detour Plan



NOTES:
1. DISTANCE D = 80m.
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Adjoins Drawing No ARG 24-0478 TGS Page 1

Adjoins Drawing No ARG 24-0478 TGS Page 3

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:
- Safety Zone
- Temp Pavement
- Work Area - Stage 2

Compliance Notes:
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REVISION

REV	Description
00	sent to client
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Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM:	Static Works
Duration:	Multiple Shifts
TTM Set-up:	Work Behind the Barriers
Shift TTM Inspections:	before during & pre-closedown
Existing Speed Limit:	80km/h & 50 km/h
Map Reference:	NSW Imagery
Scale:	1:500
Issue Date:	09/04/2024
Page No.:	01 of 03

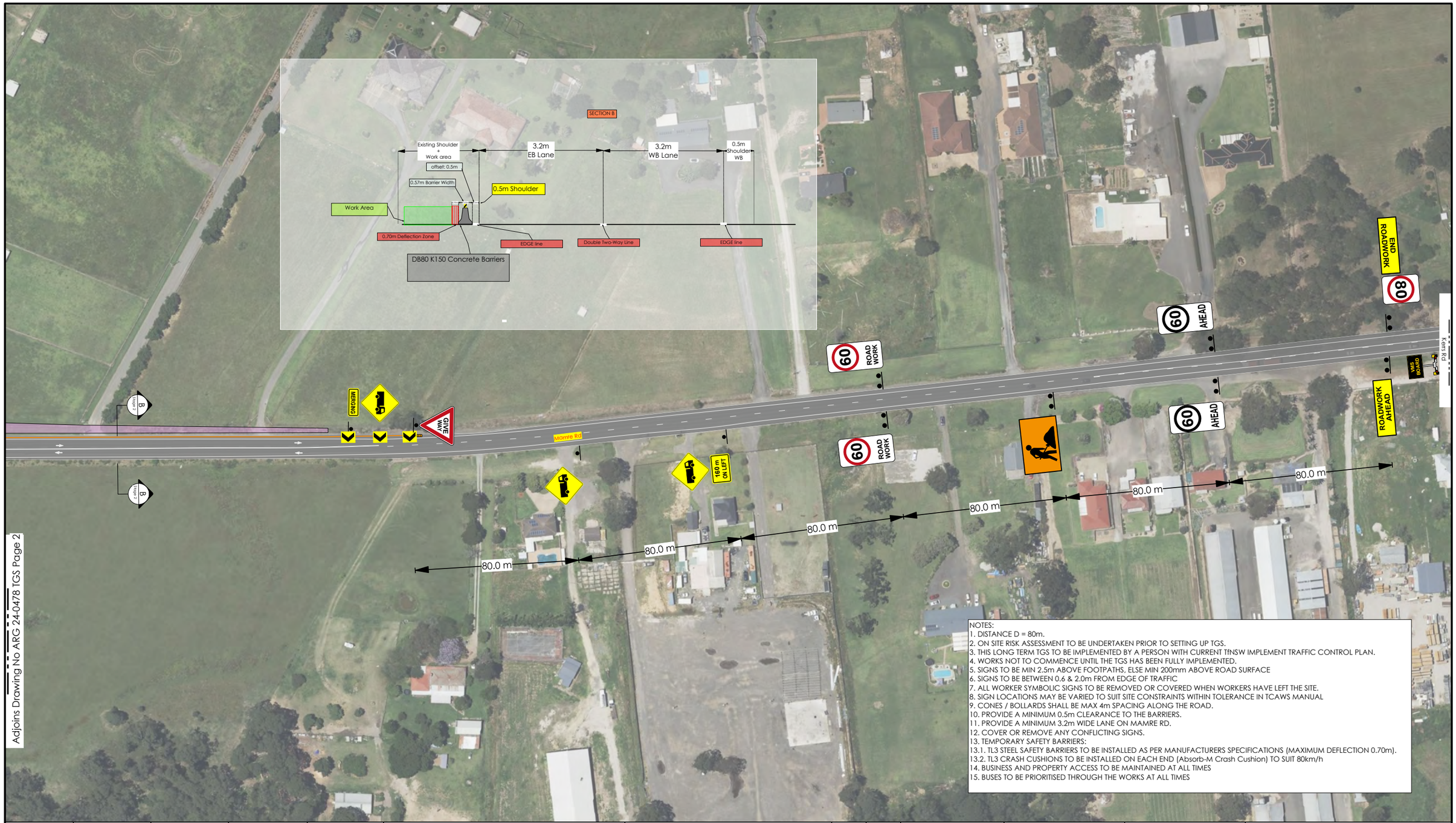
Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 2

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0478 TGS

TMP No: ARG 24-026 TMP



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Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:
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- Temp Pavement
- Work Area - Stage 2

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Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM: Static Works

Duration: Multiple Shifts

TTM Set-up: Work Behind the Barriers

Shift TTM Inspections: before during & pre-closedown

Existing Speed Limit: 80km/h & 50 km/h

Map Reference: NSW Imagery

Scale: 1:500

Issue Date: 09/04/2024

Page No.: 01 of 03

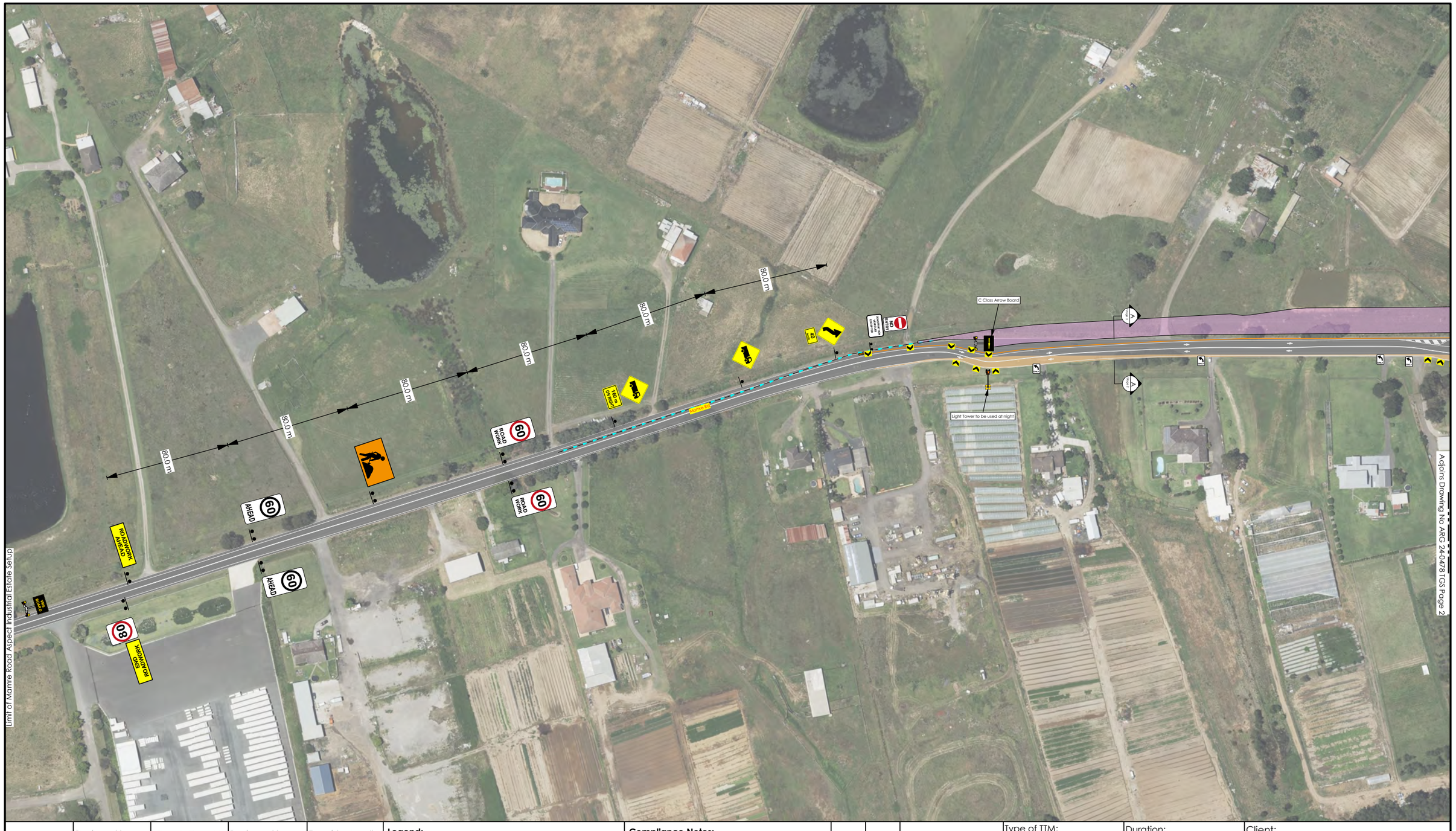
Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 2

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0478 TGS

TMP No: ARG 24-026 TMP



Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:

- Vehicle Egress
- Vehicle Ingress
- Work Area - Stage 2

Compliance Notes:

1. All TGSs are in accordance with TfNSW - TCAWS V6.1 & Austroads Guide to Temporary Traffic Management 2019
2. Recommended taper lengths TfNSW - TCAWS V6.1, Table 7-3
3. Sign spacing Austroads TTM, Part 3: Table 2.2
4. Recommended sight distances to devices Austroads TTM, Part 3: Table 2.3
5. Traffic controller min. sight distance TfNSW - TCAWS V6.1, Table 5-13
6. End-of queue management TfNSW - TCAWS V6.1, Sec 4.6
7. Spacing of cones and bollards TfNSW - TCAWS V6.1, Table 6-2

REVISION

REV	Description
00	sent to client
01	

Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM: Static Works

Duration: Multiple Shifts

TTM Set-up: Construction Vehicle Movement Plan

Shift TTM Inspections: before during & pre-closedown

Existing Speed Limit: 80km/h & 50 km/h

Map Reference: NSW Imagery

Scale: 1:500

Issue Date: 09/04/2024

Page No.: 01 of 03

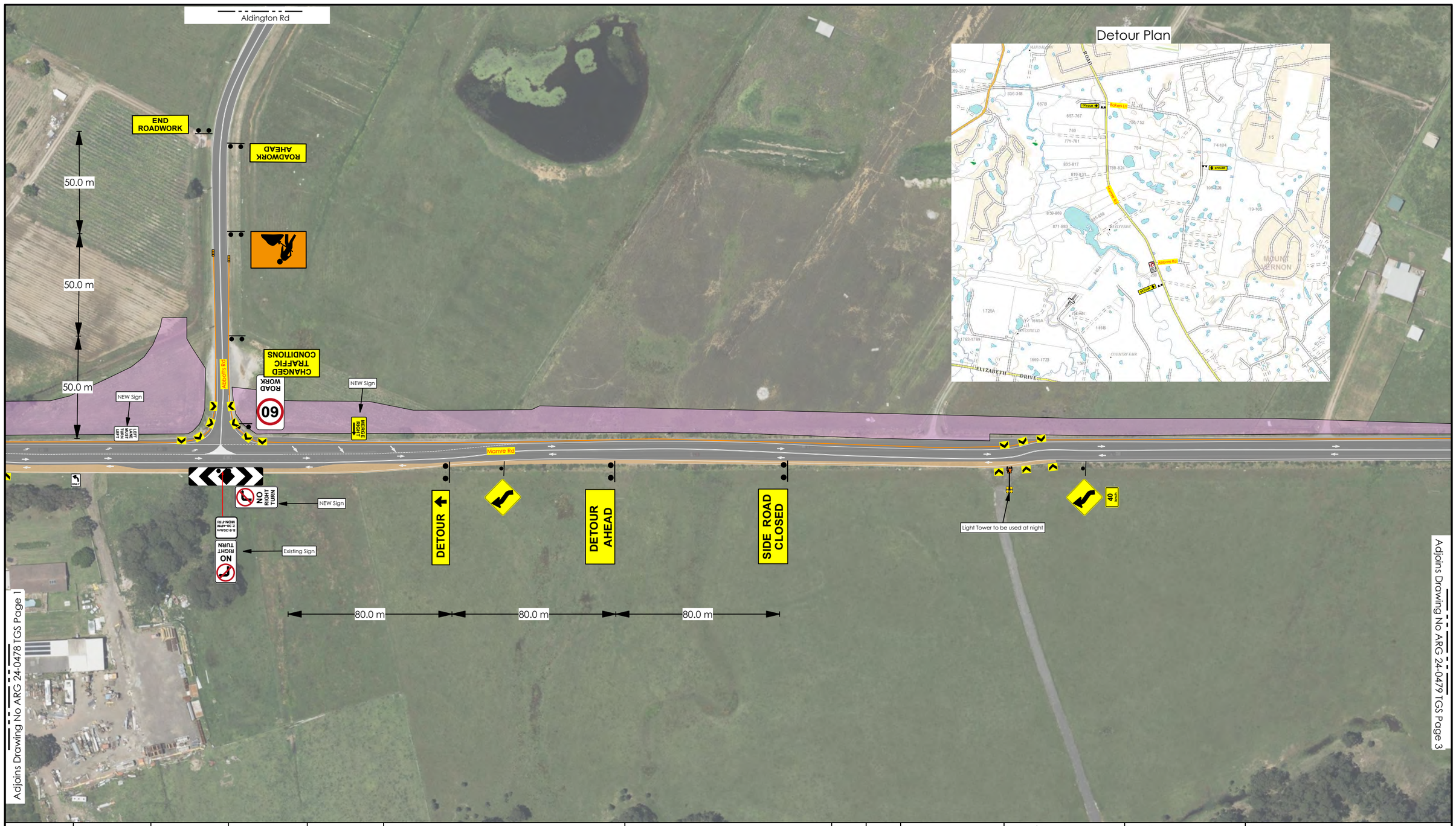
Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 2

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0479 TGS

TMP No: ARG 24-026 TMP



Detour Plan

Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role: Planning & Design Manager		Role: Planning & Delivery Manager	
Signature: R.H.Gandhi		Signature:	
Implementer Name:		Implementer Qualification No: TCT.....	

Legend:
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- Vehicle Ingress
- Work Area - Stage 2

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REVISION	REV	Description
	00	sent to client
	01	

Review Date: 09/05/2024

North Code:

Sign Type: Permanent

Type of TTM: Static Works	Duration: Multiple Shifts
TTM Set-up: Construction Vehicle Movement Plan	
Shift TTM Inspections: before during & pre-closedown	
Existing Speed Limit: 80km/h & 50 km/h	
Map Reference: NSW Imagery	Scale: 1:500
Issue Date: 09/04/2024	Page No.: 01 of 03

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 2

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No:	TMP No:
ARG 24-0479 TGS	ARG 24-026 TMP



Allroad Group Pty Ltd

Designed by:	Ronak Gandhi	Reviewed by:	Franziska Mueller
Qualification No:	TCT0063633	Qualification No:	TCT0024272
Role:	Planning & Design Manager	Role:	Planning & Delivery Manager
Signature:	R.H.Gandhi	Signature:	
Implementer Name:	.....	Implementer Qualification No:	TCT.....

Legend:

- Vehicle Egress
- Vehicle Ingress
- Work Area - Stage 2

Compliance Notes:

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	00	sent to client
	01	

Review Date: 09/05/2024

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TTM Set-up: Construction Vehicle Movement Plan

Shift TTM Inspections: before during & pre-closedown

Existing Speed Limit: 80km/h & 50 km/h

Map Reference: NSW Imagery

Scale: 1:500

Issue Date: 09/04/2024

Page No.: 01 of 03

Client: ROBSON CIVIL PROJECTS

Project Description: Mamre Rd and Abbott Rd Intersection Upgrade Stage 2

Work Location: Mamre Road & Abbott Road Intersection, Kemps Creek NSW 2178

TGS No: ARG 24-0479 TGS

TMP No: ARG 24-026 TMP

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SET A

SET B

TGS GENERAL NOTES

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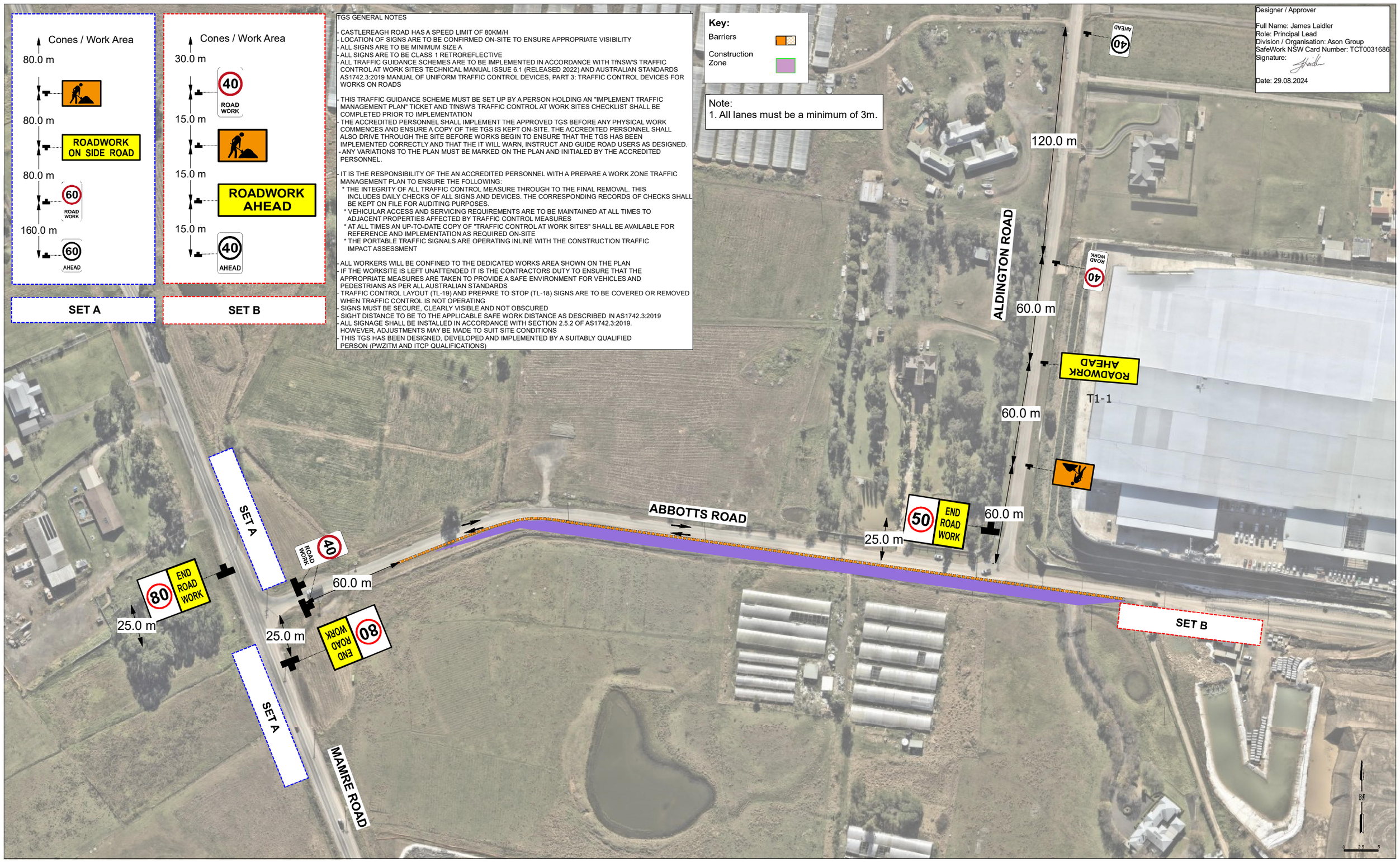
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- ANY VARIATIONS TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL.

- 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.
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- THIS TGS HAS BEEN DESIGNED, DEVELOPED AND IMPLEMENTED BY A SUITABLY QUALIFIED PERSON (PWZITM AND ITCP QUALIFICATIONS)

Key:
Barriers
Construction Zone

Note:
1. All lanes must be a minimum of 3m.



Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:
Date: 29.08.2024

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 1 Abbotts Road Construction	JL	JL	JL

GENERAL NOTES

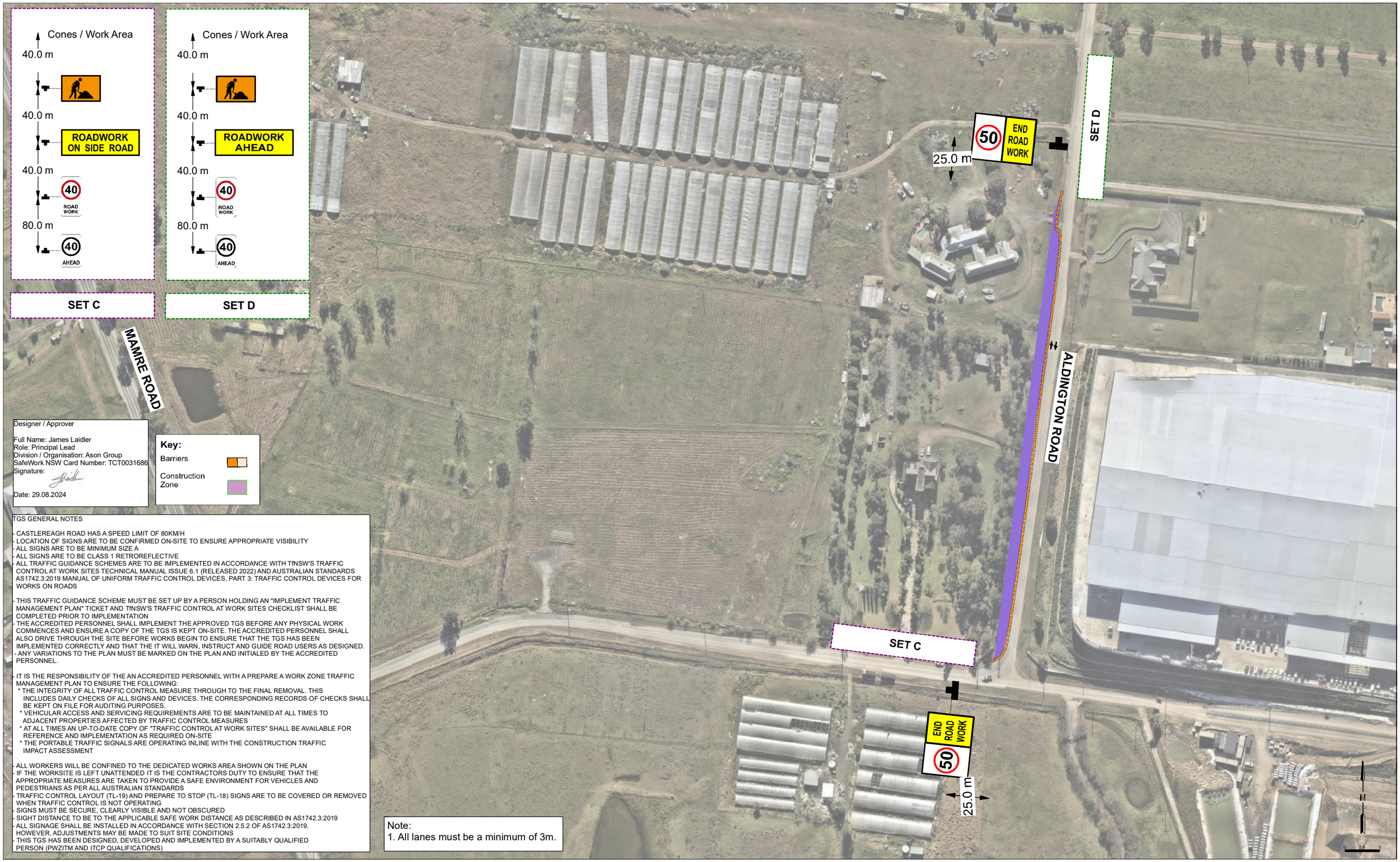
DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT
Land Owners Group East

PROJECT
P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 1 - Stage 1 Abbotts Road Construction
DRAWING STATUS: For Approval
FILE NAME: P22264d01 Phase 1 TGS
SHEET: AG01

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au



Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date: 29.08.2024

Key:

Barriers

Construction Zone

TGS GENERAL NOTES

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Note:
1. All lanes must be a minimum of 3m.

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 1 Aldington Road Construction	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT
Land Owners Group East

PROJECT
P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 1 - Stage 1 Aldington Road Construction

DRAWING STATUS: For Approval
FILE NAME: P22264d01 Phase 1 TGS
SHEET: AG02

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

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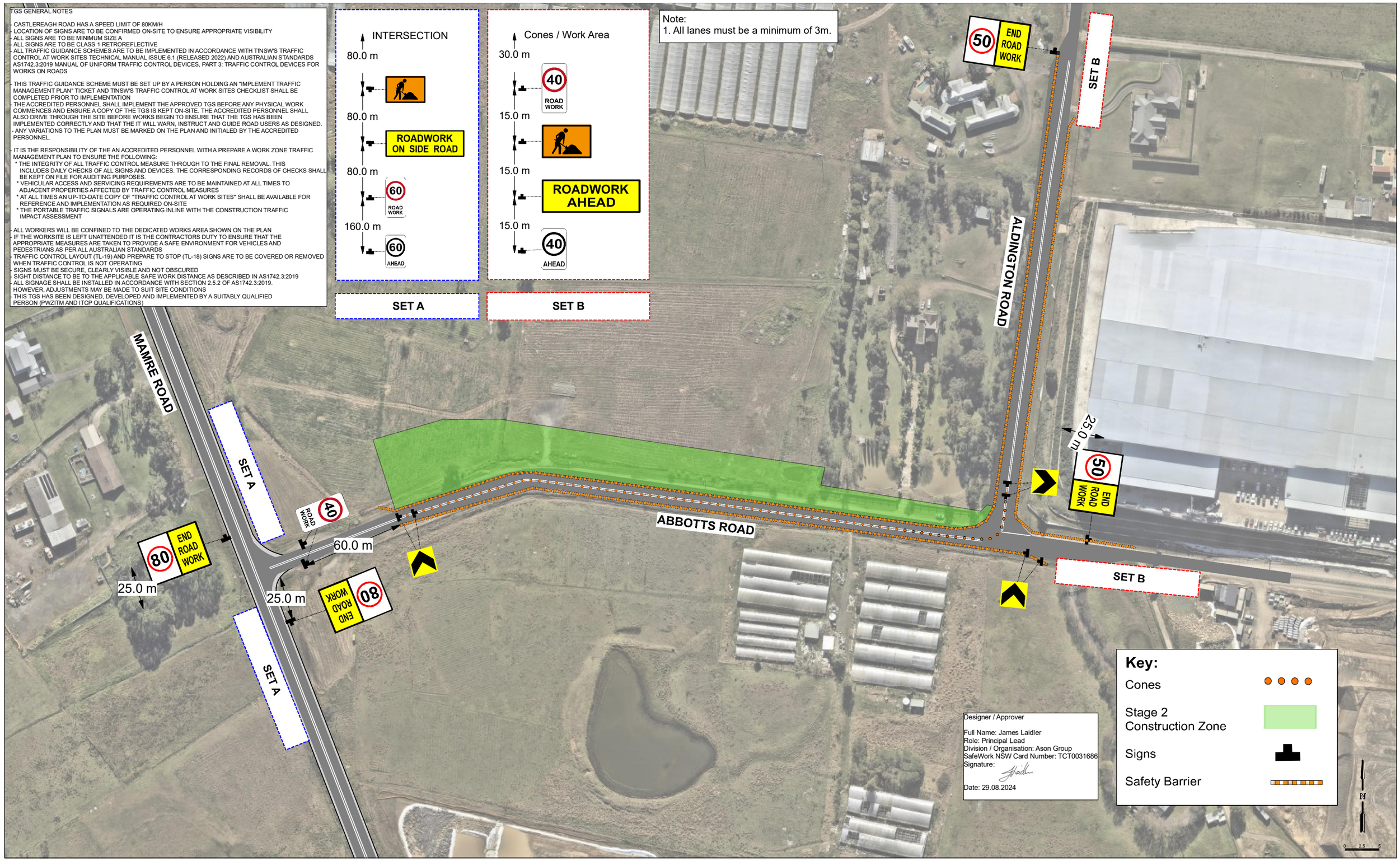
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SET A

SET B

Note:
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Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:
Date: 29.08.2024

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 2 Abbotts Road	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT: Land Owners Group East

PROJECT: P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 1 - Stage 2 Abbotts Road Construction

DRAWING STATUS: For Approval
FILE NAME: P22264d01 Phase 1 TGS
SHEET: AG03

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

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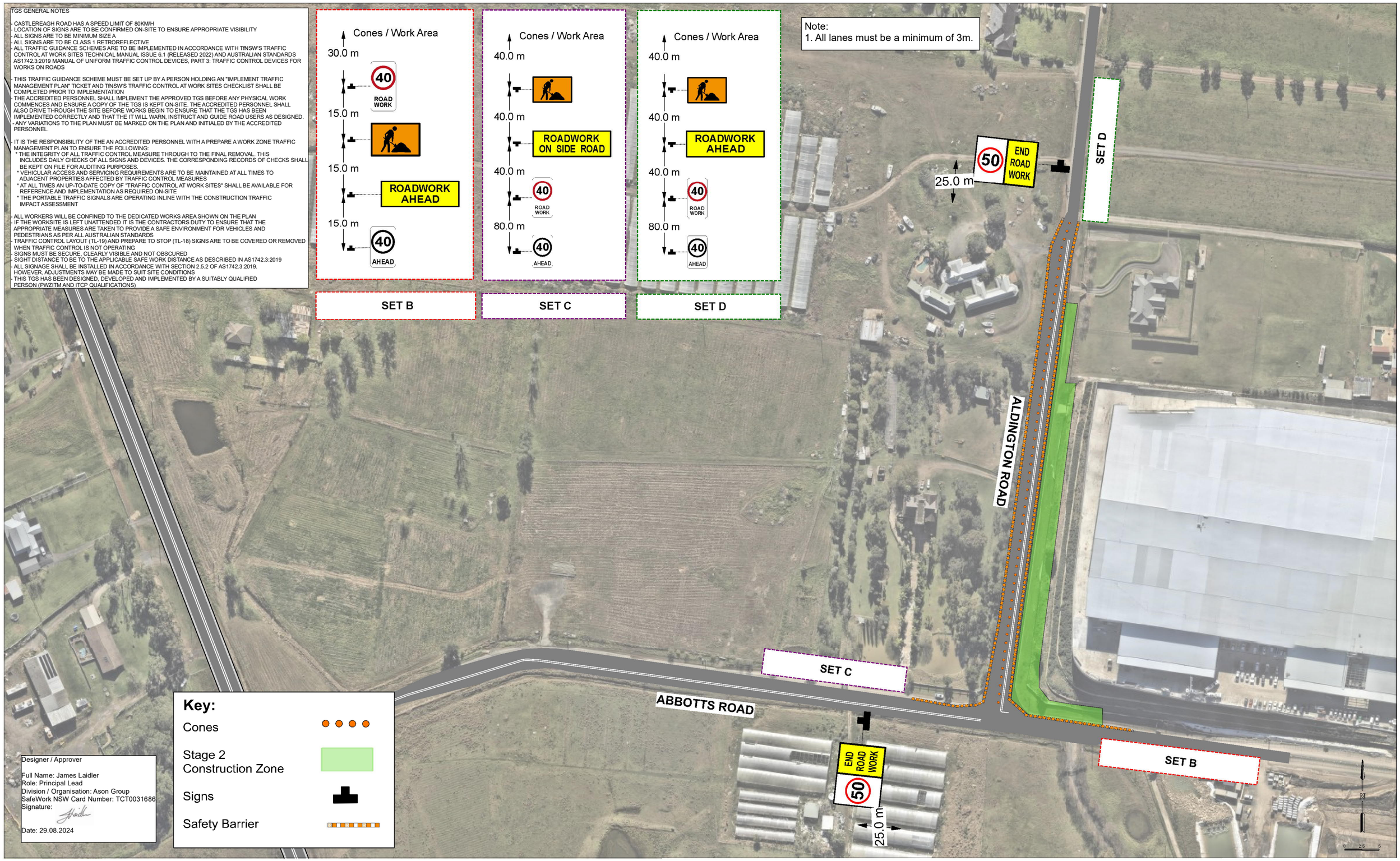
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SET B

SET C

SET D

Note:
1. All lanes must be a minimum of 3m.



Key:

Cones

Stage 2 Construction Zone

Signs

Safety Barrier

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date: 29.08.2024

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 2 Aldington Road Construction	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT: Land Owners Group East

PROJECT: P2264

Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION

Traffic Management

Phase 1 - Stage 2 Aldington Road Construction

DRAWING STATUS: For Approval

FILE NAME: P22264d01 Phase 1 TGS

SHEET: AG04

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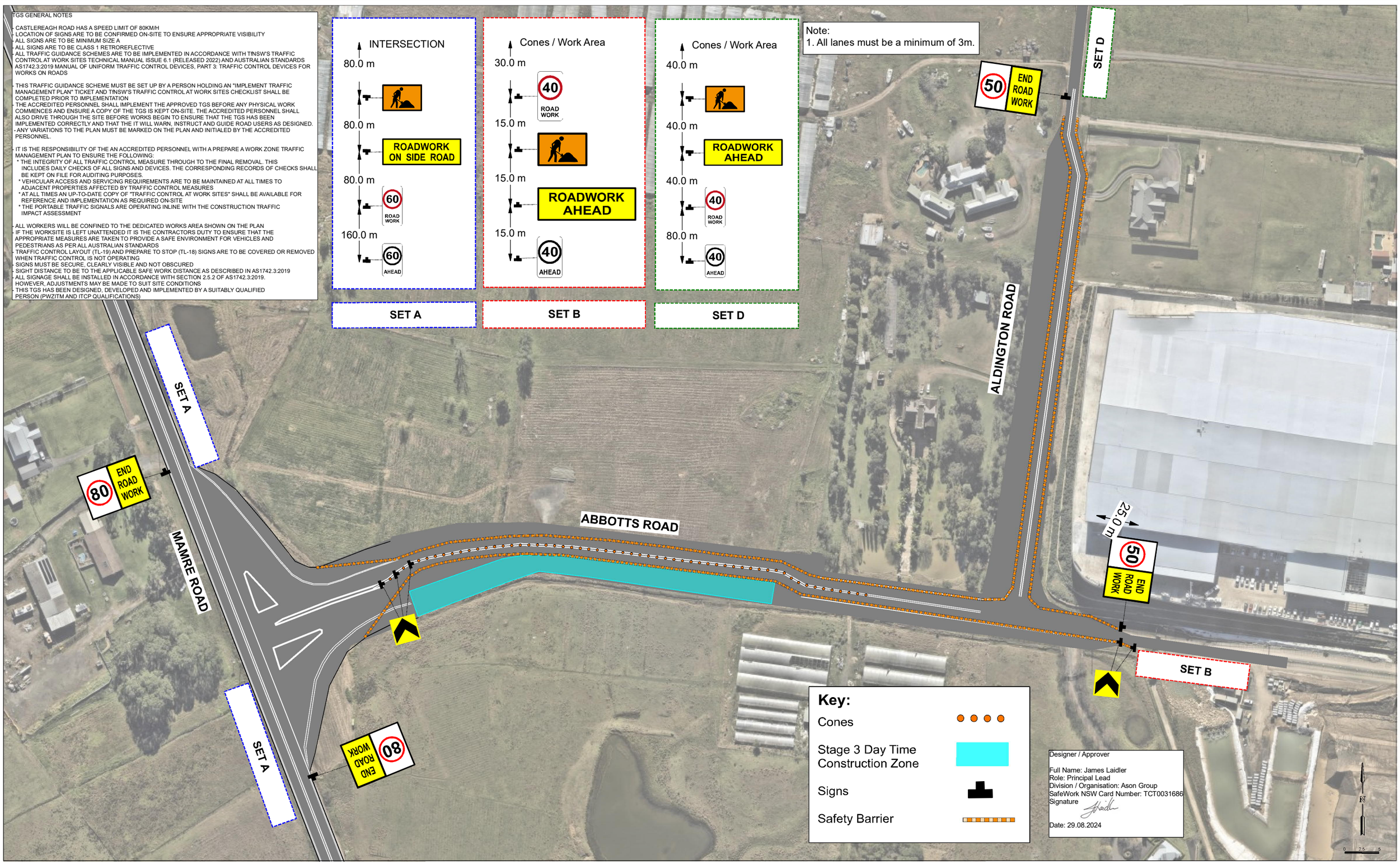
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SET A

SET B

SET D

Note:
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Key:

Cones

Stage 3 Day Time Construction Zone

Signs

Safety Barrier

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature

Date: 29.08.2024

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 3 Abbotts Rd Day Time Construction	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT: Land Owners Group East

PROJECT: P2264

Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION

Traffic Management

Phase 1 - Stage 3 Abbotts Road Day Time Construction

DRAWING STATUS: For Approval

FILE NAME: P22264d01 Phase 1 TGS

SHEET: AG05

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info@asongroup.com.au

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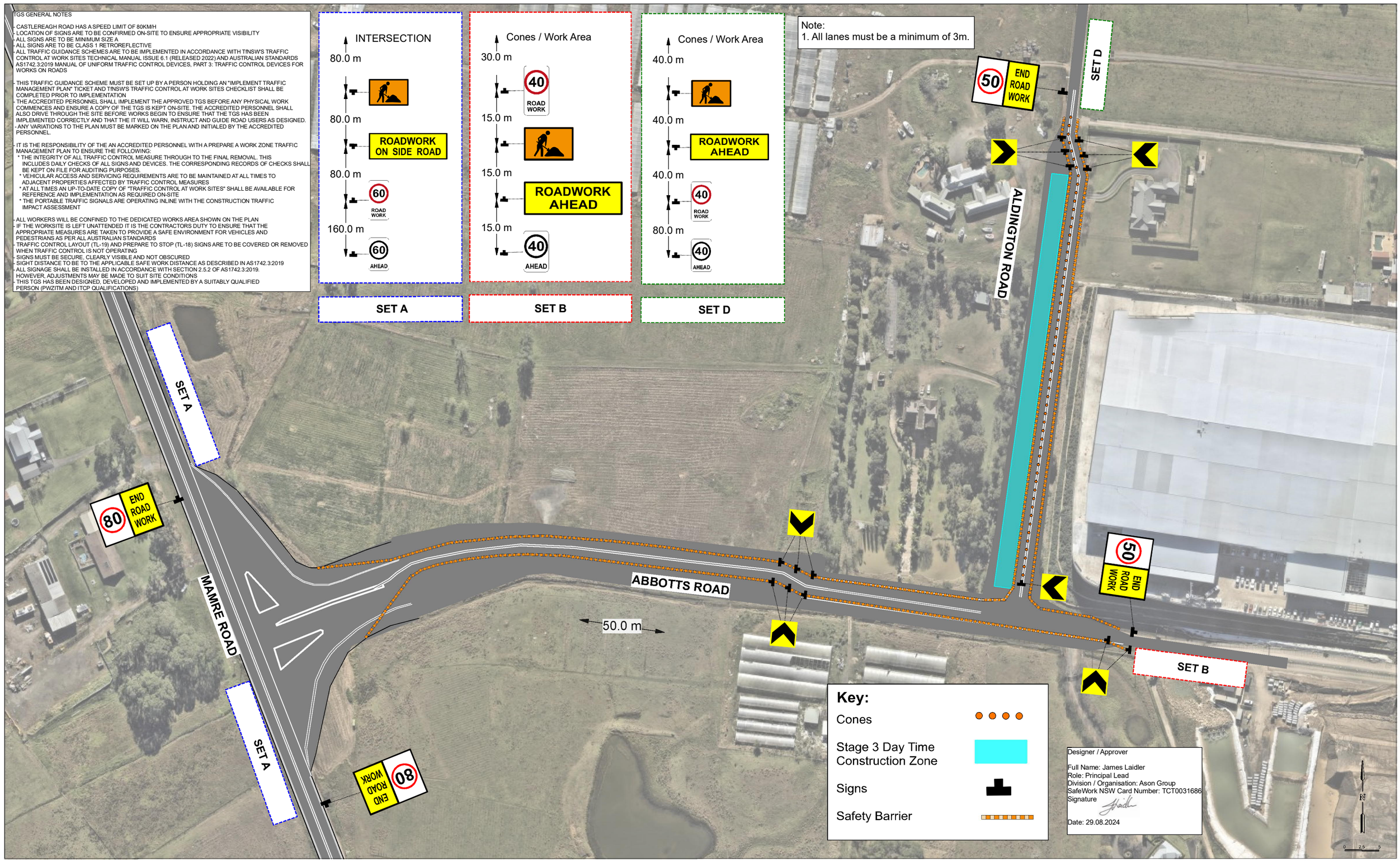
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SET A

SET B

SET D

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Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature

Date: 29.08.2024

AMENDMENTS					
01	29.08.2024	Phase 1 Stage 3 Aldington Rd Day Time Construction	JL	JL	JL
REV	DATE	DESCRIPTION	DRW	CHK	APP

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT: Land Owners Group East

PROJECT: P2264

Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION

Traffic Management

Phase 1 - Stage 3 Aldington Road Day Time Construction

DRAWING STATUS: For Approval

FILE NAME: P22264d01 Phase 1 TGS

SHEET: AG06

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Sydney NSW 2000
info@asongroup.com.au

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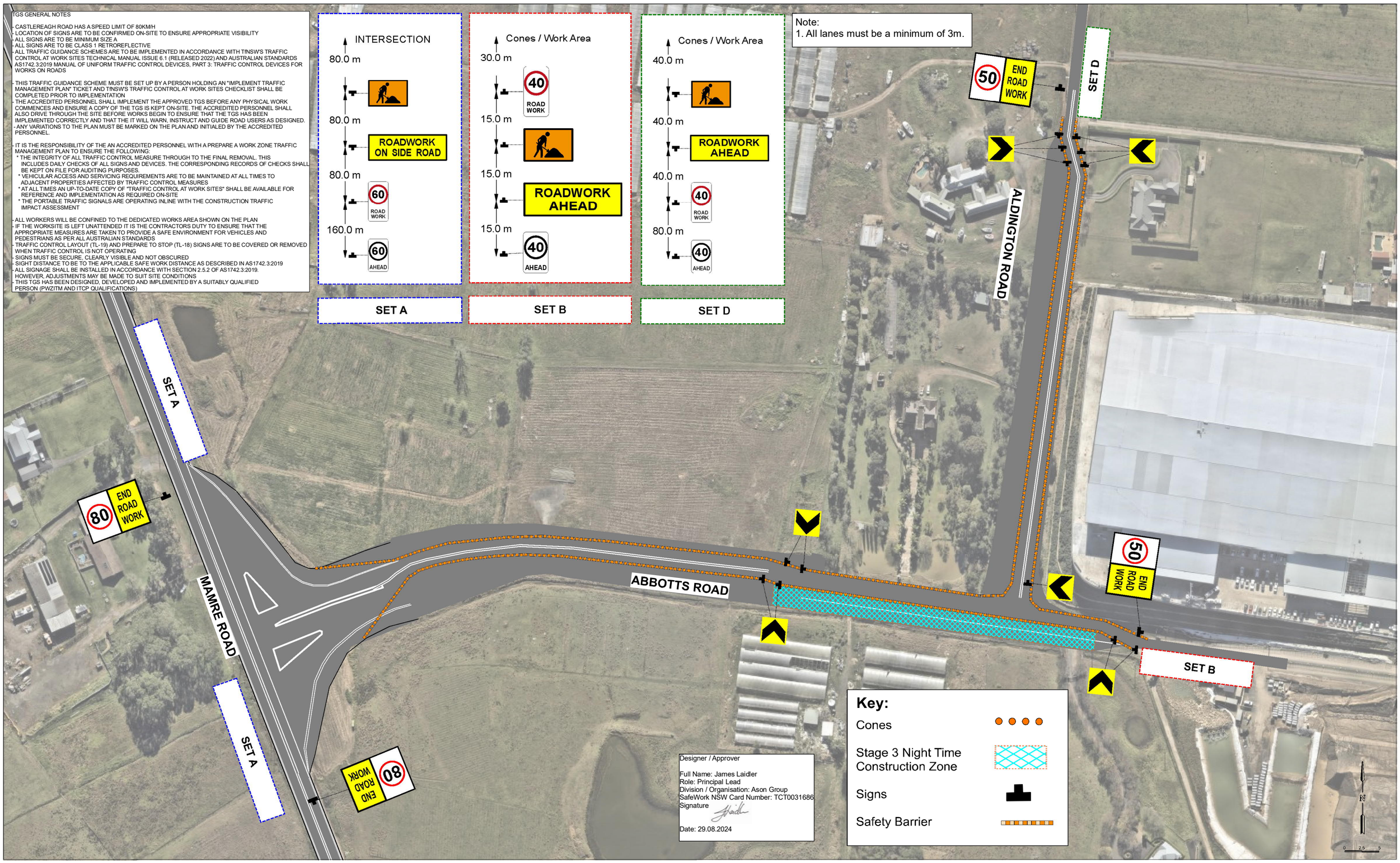
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SET A

SET B

SET D

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Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature

Date: 29.08.2024

Key:

- Cones
- Stage 3 Night Time Construction Zone
- Signs
- Safety Barrier

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 3 Abbotts Rd Night Time Construction	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT: Land Owners Group East

PROJECT: P2264

Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION

Traffic Management

Phase 1 - Stage 3 Abbotts Road Night Time Construction

DRAWING STATUS: For Approval

FILE NAME: P22264d01 Phase 1 TGS

SHEET: AG07

asongroup
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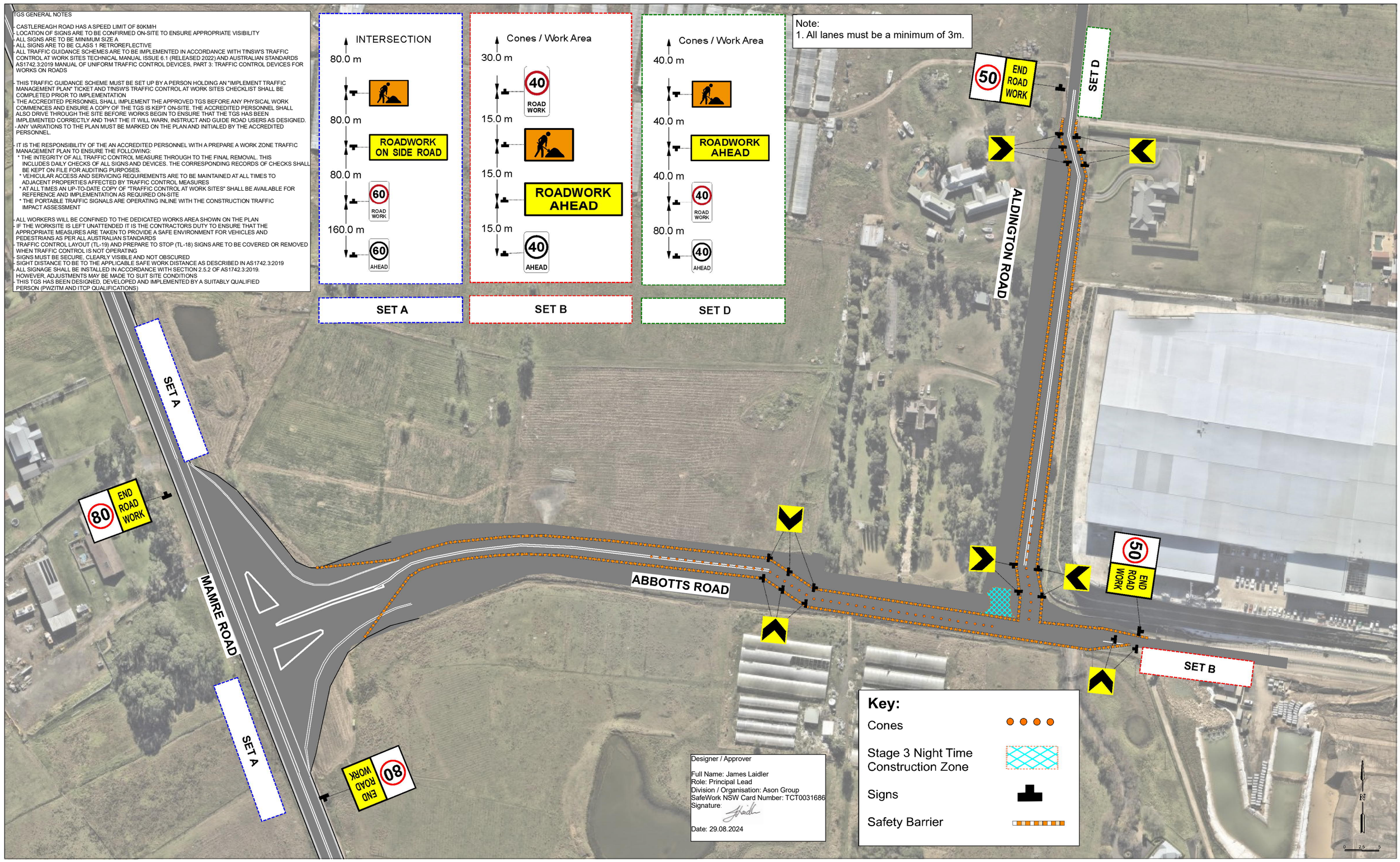
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SET A

SET B

SET D

Note:
1. All lanes must be a minimum of 3m.



Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:
Date: 29.08.2024

Key:

- Cones
- Stage 3 Night Time Construction Zone
- Signs
- Safety Barrier

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 3 Aldington Rd Night Time Construction	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT
Land Owners Group East

PROJECT
P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 1 - Stage 3 Aldington Road Night Time Construction

DRAWING STATUS: For Approval
FILE NAME: P22264d01 Phase 1 TGS
SHEET: AG08

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TGS GENERAL NOTES

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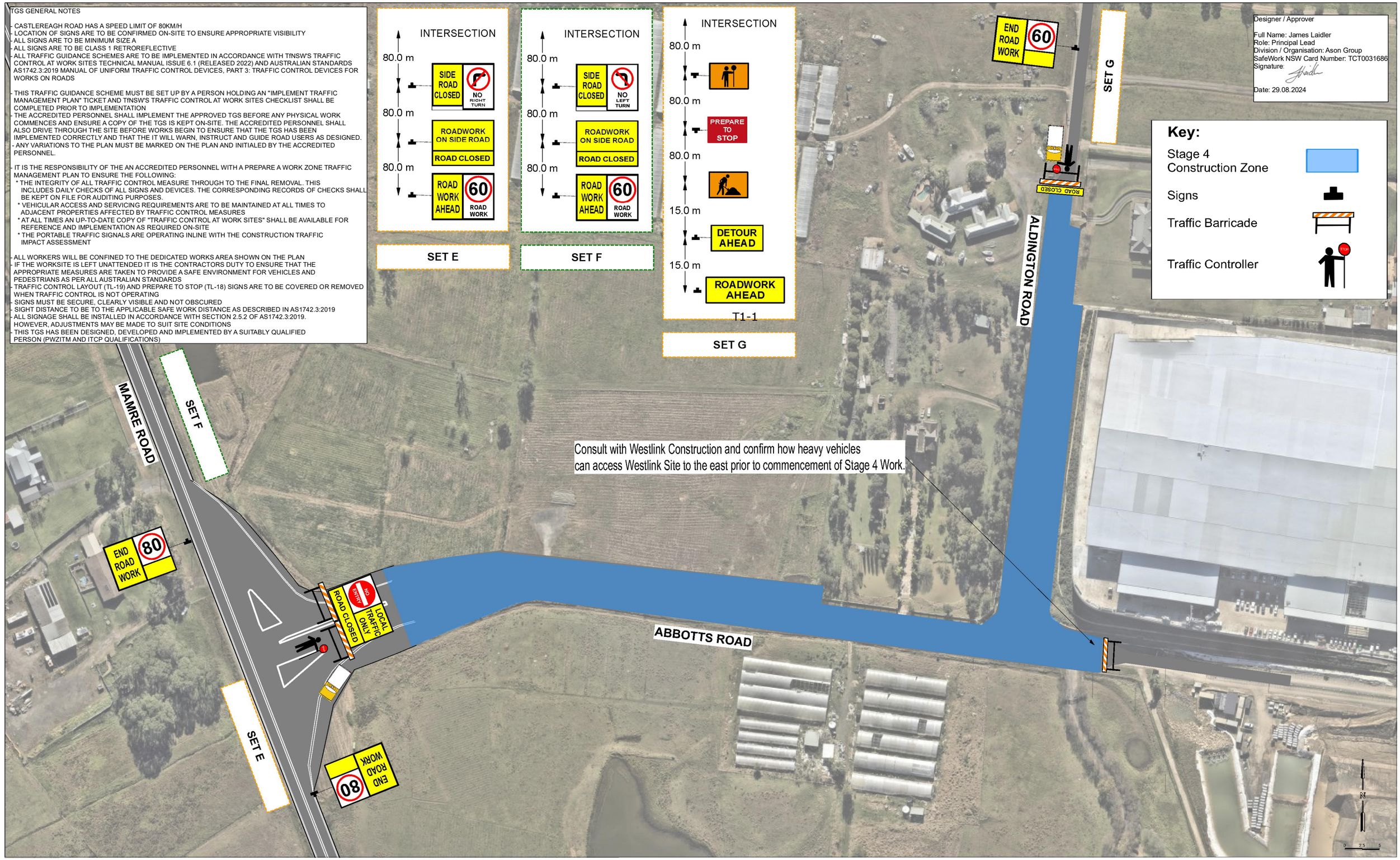
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SET E

SET F

SET G



Consult with Westlink Construction and confirm how heavy vehicles can access Westlink Site to the east prior to commencement of Stage 4 Work.

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date: 29.08.2024

Key:

- Stage 4 Construction Zone
- Signs
- Traffic Barricade
- Traffic Controller

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 1 Stage 4 Construction	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:5000

CLIENT: Land Owners Group East

PROJECT: P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 1 - Stage 4 Construction

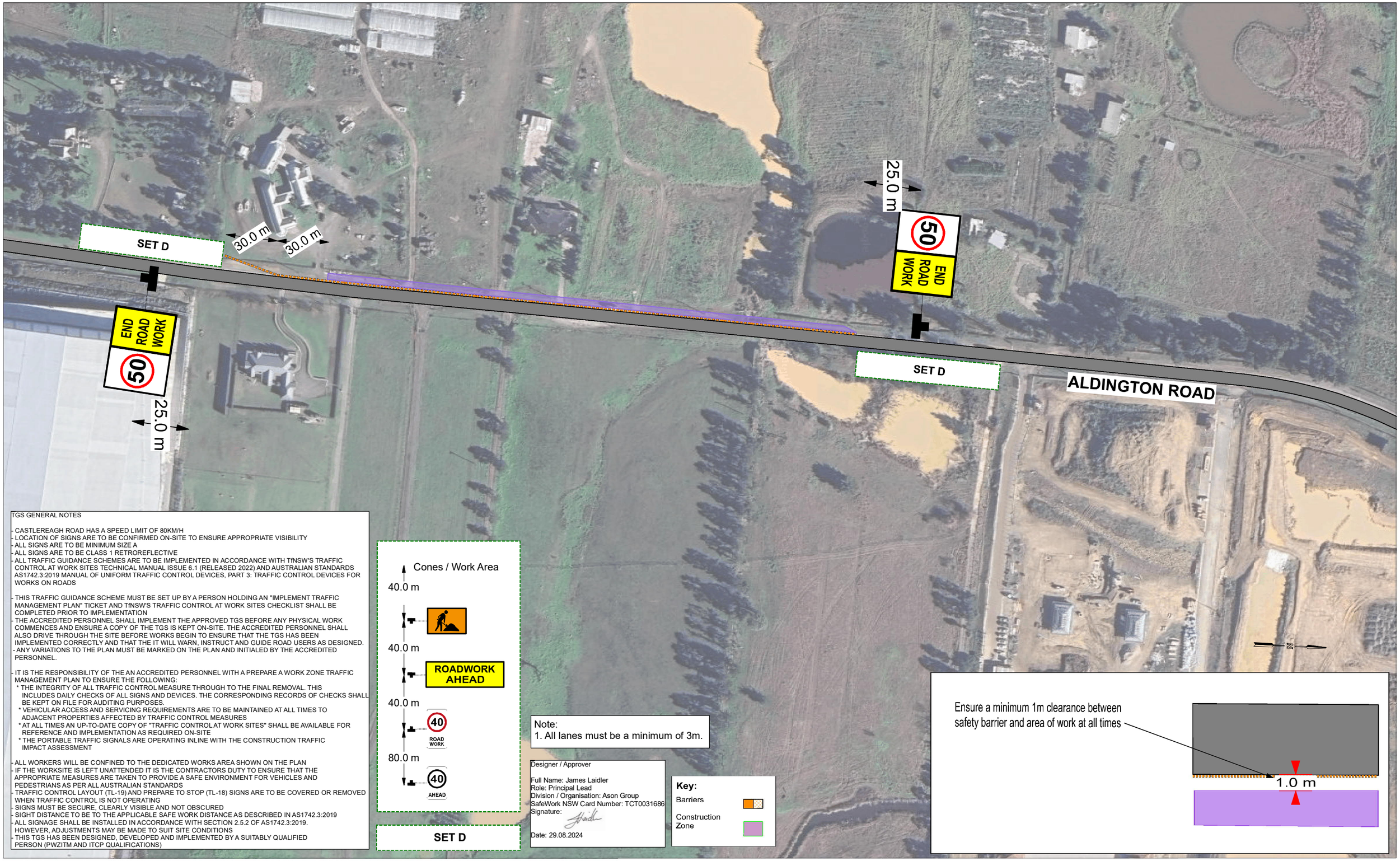
DRAWING STATUS: For Approval
FILE NAME: P22264d01 Phase 1 TGS
SHEET: AG09

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SET D

Note:
1. All lanes must be a minimum of 3m.

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date: 29.08.2024

Key:
Barriers
Construction Zone

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 2 Stage 1 South Aldington Road	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:2000

CLIENT

Land Owners Group East

PROJECT

P2264

Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION

Traffic Management

Phase 2 Stage 1 South Aldington Road

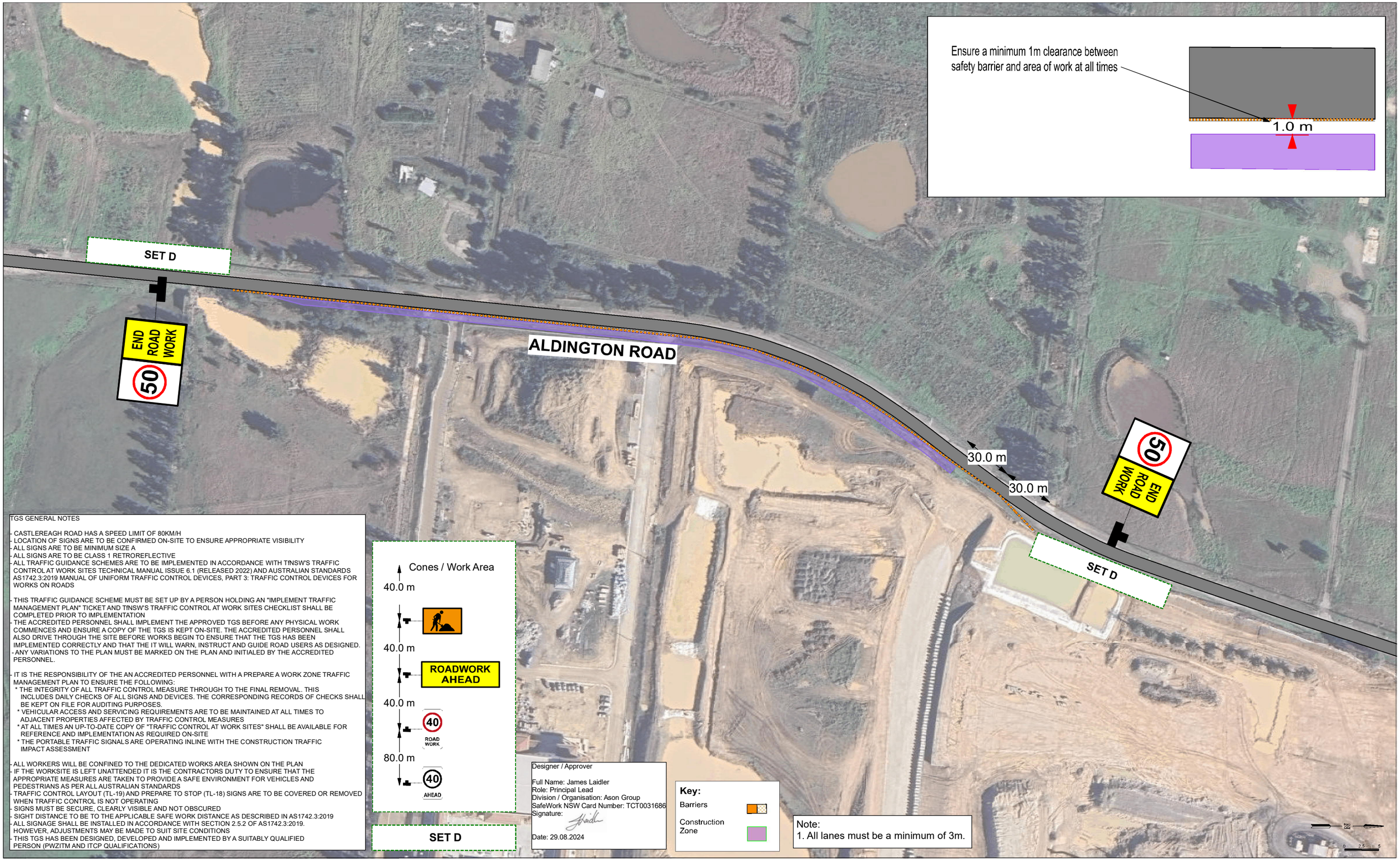
DRAWING STATUS: For Approval

FILE NAME: P22264d02 Phase 2 TGS

SHEET: AG01

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Sydney NSW 2000
info@asongroup.com.au

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Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date: 29.08.2024

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 2 Stage 1 North Aldington Road	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:2000

CLIENT: Land Owners Group East

PROJECT: P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 2 Stage 1 North Aldington Road

DRAWING STATUS: For Approval
FILE NAME: P22264d02 Phase 2 TGS
SHEET: AG02

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Sydney NSW 2000
info@asongroup.com.au

PLOT DATE: 11/01/2021 8:58:38 AM | CAD REFERENCE: C:\Users\James Laidler\Downloads\AG TGS Template WIP (2).dwg | James Laidler |

CLOSURE

80.0 m

PREPARE TO STOP

80.0 m

80.0 m

DETOUR AHEAD

80.0 m

SIDE ROAD CLOSED

SET G

SET G

SET G

SIDE ROAD CLOSED

DETOUR AHEAD

PREPARE TO STOP

END ROAD WORK 60

ALDINGTON ROAD

TGS GENERAL NOTES

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Key:

Stage 1b Construction Zone

Signs

Traffic Barricade

Traffic Controller

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:
Date: 29.08.2024

Note:
1. All lanes must be a minimum of 3m.

0 2.5 5

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 2 Stage 1b Aldington Road	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:7500

CLIENT: Land Owners Group East

PROJECT: P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 2 Stage 1b Aldington Road

DRAWING STATUS: For Approval

FILE NAME: P22264d02 Phase 2 TGS

SHEET: AG03

asongroup
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Sydney NSW 2000
info@asongroup.com.au

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Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:
Date: 29.08.2024

Note:
1. All lanes must be a minimum of 3m.

Key:

- Cones
- Stage 2 Construction Zone
- Signs
- Safety Barrier

0 2.5 5

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 2 Stage 2 North Aldington Road	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:7500

CLIENT: Land Owners Group East

PROJECT: P2264
Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION
Traffic Management
Phase 2 Stage 2 North Aldington Road

DRAWING STATUS: For Approval
FILE NAME: P22264d02 Phase 2 TGS
SHEET: AG05

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
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PLOT DATE: 11/10/2021 9:58:38 PM | CAD FILE: J:\2021\P22264\Civil\Drawings\AG TGS Template.dwg | USER: Jaidler

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ABBOTTS ROAD

ALDINGTON ROAD

SET D

END ROAD WORK 60

SET D

END ROAD WORK 60

Key:

- Cones
- Stage 2 Construction Zone
- Signs
- Safety Barrier

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date: 29.08.2024

Note:
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Cones / Work Area

40.0 m

40.0 m

ROADWORK AHEAD

40.0 m

40 ROAD WORK

80.0 m

40 AHEAD

SET D

0 2.5 5

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 2 Stage 3 East Aldington Road	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:3000

CLIENT: Land Owners Group East

PROJECT: P2264

Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION

Traffic Management

Phase 2 Stage 3 East Aldington Road

DRAWING STATUS: For Approval

FILE NAME: P22264d02 Phase 2 TGS

SHEET: AG06

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Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

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ABBOTTS ROAD

ALDINGTON ROAD

SET D

END ROAD WORK 60

60 END ROAD WORK

SET D

Key:

Cones

Stage 2 Construction Zone

Signs

Safety Barrier

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date: 29.08.2024

Note:
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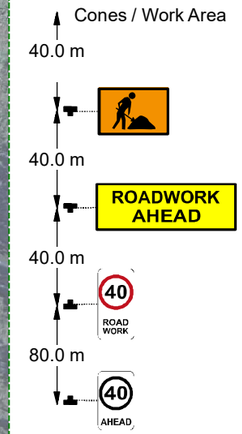
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SET D

0 2.5 5

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	29.08.2024	Phase 2 Stage 3 West Aldington Road	JL	JL	JL

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:3000

CLIENT

Land Owners Group East

PROJECT

P2264

Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION

Traffic Management

Phase 2 Stage 3 West Aldington Road

DRAWING STATUS: For Approval

FILE NAME: P22264d02 Phase 2 TGS

SHEET: AG07

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
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Key:

Stage 4 Construction Zone

Full Road Closure

Traffic Barricade

Traffic Controller

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:
Date: 29.08.2024

Note:
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- SIGNS MUST BE SECURE, CLEARLY VISIBLE AND NOT OBSCURED
- SIGHT DISTANCE TO BE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL SIGNAGE SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, ADJUSTMENTS MAY BE MADE TO SUIT SITE CONDITIONS
- THIS TGS HAS BEEN DESIGNED, DEVELOPED AND IMPLEMENTED BY A SUITABLY QUALIFIED PERSON (PWZITM AND ITCP QUALIFICATIONS)

ALDINGTON ROAD

CLOSURE

80.0 m
PREPARE TO STOP
80.0 m
80.0 m
DETOUR AHEAD
80.0 m
SIDE ROAD CLOSED

SET G

INTERSECTION

80.0 m
PREPARE TO STOP
80.0 m
15.0 m
DETOUR AHEAD
15.0 m
ROADWORK AHEAD

T1-1

SET E

SET G

SET G

AMENDMENTS					
01	29.08.2024	Phase 2 Stage 4 Construction	JL	JL	JL
		DESCRIPTION	DRW	CHK	APP

GENERAL NOTES

DESIGNED: James Laidler	PAPER SIZE: A3
PWZTMP No.: TCT0031686	DATE: 29.08.2024
APPROVED BY: James Laidler	SCALE: 1:3000

CLIENT: Land Owners Group East

PROJECT: P2264 — Aldington Rd / Abbots Rd / Mamre Rd Road

DOCUMENT INFORMATION: Traffic Management — Phase 2 Stage 4 Construction

DRAWING STATUS: For Approval

FILE NAME: P22264d02 Phase 2 TGS

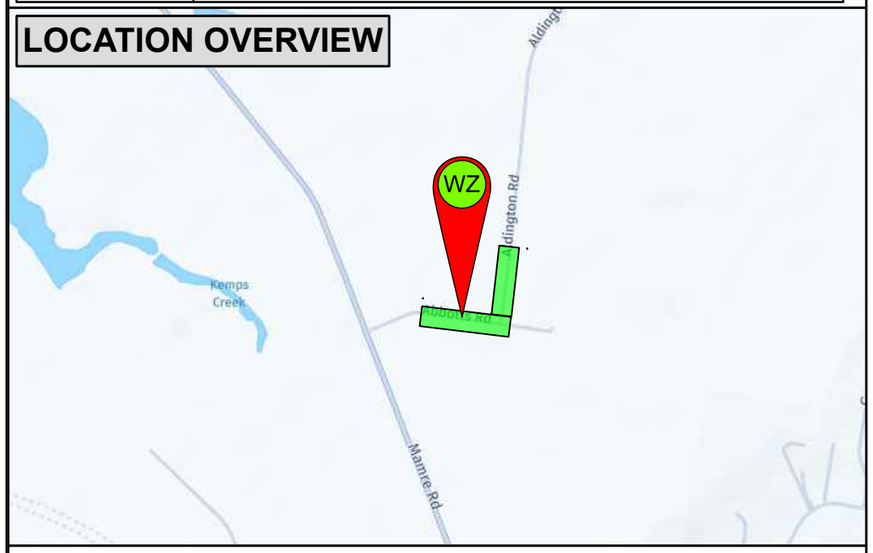
SHEET: AG08

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

TABLE OF CONTENTS

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SHEET 2	GENERAL NOTES - Legend and Altus Group specific notes. Provided so TC Lead does not have to change between documents for critical controls.
SHEET 3 TO 9	TGS PAGES - TGS broken in Pages for onsite use or to layout at a larger scale.
SHEET 10	COMPLETE TGS OVERVIEW - Enhanced TGS Pages for ease of view or printed media usage where zooming digitally is not available.

LOCATION OVERVIEW

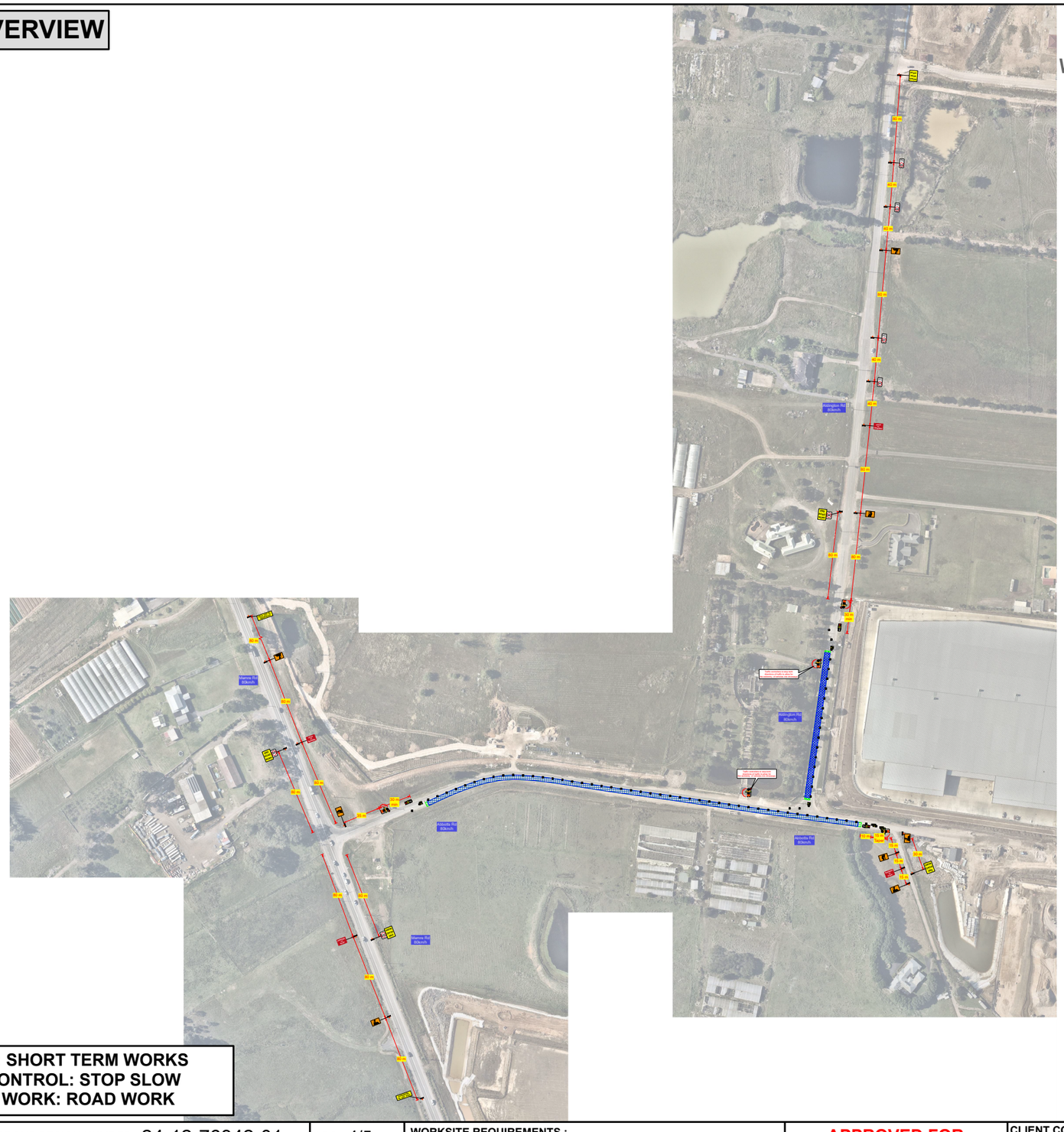


SIGNS MANIFEST

5 x T1-5 WORKERS AHEAD
4 x T1-18 PREPARE TO STOP
3 x T1-34 TRAFFIC CONTROLLER AHEAD
2 x T1-25 ROADWORK ON SIDE ROAD
2 x R4-212 (60) SPEED LIMIT 60 ROAD WORK
2 x R4-212 (40) SPEED LIMIT 40 ROAD WORK
1 x T1-31 ROAD WORK AHEAD
4 x T2-17 END ROAD WORK
3 x R4-1 (80) SPEED LIMIT 80

WHEN PRINTING ENSURE SITE SETUP & RISK ASSESSMENT IS PRINTED WITH THIS TGS

TGS OVERVIEW



DURATION: SHORT TERM WORKS
TYPE OF CONTROL: STOP SLOW
REQUIRED WORK: ROAD WORK

BEST VIEWED DIGITALLY
NOT TO SCALE
PRINT A3

DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

ALTUS GROUP DESIGN NUMBER: 24-12-76342-01 **ARS:** 4/5

CLIENT REFERENCE NUMBER: TBC

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
ESTIMATED JOB TIME : 19:00 - 05:00
GARBAGE COLLECTION DAY : TUESDAY

ISSUE	DESG	DATE	AMENDMENT DESCRIPTION
A			
B			
C			

GENERAL DISCLAIMER:
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WORKSITE REQUIREMENTS :

TRAFFIC CONTROLLERS : 5
TRAFFIC CONTROLLERS - BREAKS : 2
TRAFFIC CONTROL UTE : 3

SPECIALIST VEHICLE REQUIREMENTS :

VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

TOTAL CONES : 73 | TOTAL SIGNS : 26 | BARRIER BOARDS : 0
PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

APPROVED FOR IMPLEMENTATION
WHEN USED WITH ROAD AUTHORITY APPROVAL

APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722

REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012

APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 1 OF 10

CLIENT CONTACT :
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SITE MARKER COMMON LEGEND

- WORK AREA
- SPECIFIC WORKS LOCATION
- SAFETY BUFFER
- EQL — ESTIMATED QUE LENGTH
- ISOLATION/NO GO ZONE
- PLANT/ EQUIPMENT LAYDOWN
- B — TEMPORARY BUS STOP ZONE
- PEDESTRIAN PATH

DEVICE COMMON LEGEND

- TRAFFIC CONTROLLER
- POLICE OFFICER
- WORKER / SPOTTER / MARSHALL
- CONES - 700MM OR HIGHER
- BARRIER BOARD
- THM - TEMPORARY HAZARD MARKER OR CHEVRONS
- BOX EDGE / MMS - SIGN FRAME/STAND
- VMS TRAILER / PTAB - PORATABLE TRAILER ARROW BOARD
- PTCD- PORTABLE TRAFFIC CONTROL DEVICE

COMMON VEHICLE LEGEND

- UTE *(SIGNAGE VEHICLE)*
- VMS UTE *(VARIABLE MESSAGING SYSTEM VEHICLE)*
- POLICE SERVICES *(POLICE VEHICLE)*
- DDV *(DROP DECK VEHICLE)*
- TMA/IPV *(TRUCK MOUNTED ATTENUATOR/ IMPACT PROTECTION VEHICLE)*

CLIENT VEHICLES

- WV UTE *(WORK VEHICLE)*
- *(ELEVATED WORKING PLATFORM)*

ALTUS GROUP GENERAL NOTES - LIMITED TO NECESSARY NOTATIONS

GENERAL

- TTM MEASURES SHALL BE INSTALLED, MAINTAINED AND REMOVED IN A PLANNED AND SAFE MANNER. BEFORE COMMENCING, THE IMPLEMENTER SHALL CHECK AND REVIEW THE APPROVED TMP/TGS, THE WORKSITE AND THE PROPOSED ACTIVITIES TO ENSURE THEY ARE COMPLEMENTARY AND ARE APPROPRIATE.
- THE ITCP SHALL CHECK THE ROAD ENVIRONMENT, ESPECIALLY THE "ON THE DAY" TRAFFIC FLOWS, TO ENSURE THAT IT IS AT AN APPROPRIATE LEVEL FOR THE TTM INTENDED.
- A 5-MINUTE COUNT OF TRAFFIC SHOULD PROVIDE AN APPROPRIATE ESTIMATE OF VOLUMES TO REFERENCE AGAINST VALUES RECORDED IN THE TMP/TGS.
- IF THE WORKSITE AND THE APPROVED TMP ARE NOT COMPLEMENTARY, BEFORE OCCUPYING THE WORKSITE, THE IMPLEMENTER SHALL DETERMINE WHETHER THEY CAN:
  - * MAKE COMPLIANT ADJUSTMENTS (E.G., LENGTHEN TAPER WITHIN TOLERANCES) TO THE TMP/TGS
  - * CONTACT PERSONS WITH THE RELEVANT ACCREDITATION TO APPROVE MODIFICATIONS TO THE TMP/TGS (E.G., ADDITIONAL SIGNS OR DISTANCES OUTSIDE OF TOLERANCES)
  - * CONTACT THE RELEVANT ROAD INFRASTRUCTURE MANAGER TRAFFIC CONTROL FACILITY TO INITIATE ACTIONS IDENTIFIED ON THE TMP/TGS TO BE TAKEN (E.G., CHANGE IN THE VMS, VARIABLE SPEED LIMIT SIGNS OR LANE USAGE SIGNAGE).
- WHERE THE TMP/TGS CANNOT BE SUITABLY ADJUSTED OR MODIFIED, THE IMPLEMENTER SHOULD ADVISE ROBSON CIVIL THAT THEY ARE NOT APPROPRIATE, AND THE WORKS SHOULD BE POSTPONED.
- ALL SITE INFORMATION WORK HOURS, INSTALLATIONS, ADJUSTMENTS AND AUTHORISED MODIFICATIONS ARE TO BE DOCUMENTED ON THE TMP AND TGS AS WELL AS AN APPROVED ON-SITE/WORKS RECORD.
- A COPY OF THE APPROVED TMP/TGS SHALL BE KEPT ON-SITE AT ALL TIMES.

PRE-START REQUIREMENT/S

- ALL PERSONS INVOLVED WITH TTM ACTIVITIES SHALL BE BRIEFED/INDUCTED BY THE ITCP AND HAVE THIS DOCUMENTED ON THE SITE RECORDS.
- THE TOOLBOX TALK FOR TTM STAFF IS USED TO EXPLAIN THE:
  - *KEY ASPECTS OF THE TGS/TMP
  - *IDENTIFIED HAZARDS
  - *TTM REQUIREMENTS FOR THE WORKSITE
  - *SAFETY ZONE REQUIREMENTS AND LIMITS
  - *COMMUNICATION PROCESSES

INCIDENT MANAGEMENT

- IF A DRIVER DISOBEYS A TRAFFIC CONTROL INSTRUCTION:
  - * PRIORITISE PERSONAL SAFETY.
  - * USE THE PREDETERMINED ESCAPE ROUTE, IF NECESSARY.
  - * WARN OTHER MEMBERS OF THE CREW AS EARLY AS POSSIBLE. A WARNING SYSTEM MUST BE AGREED UPON BEFOREHAND, SUCH AS RADIOS, WHISTLES, SHOUTING ETC.
- THE FIRST PREFERENCE IS TO USE THE TWO-WAY RADIO TO COMMUNICATE WHERE AVAILABLE.

- TAKE THE FOLLOWING ACTIONS IF AN INCIDENT OCCURS WITHIN THE TRAFFIC CONTROLLER'S DESIGNATED WORKSITE OR TRAFFIC CONTROL OPERATIONAL AREA:
  - * FIRST AID RESPONSE (WHERE POSSIBLE).
  - * CALL FOR ASSISTANCE (IF NEEDED).
  - * EMERGENCY SERVICES CONTACT (IF REQUIRED)
  - * NOTIFY THE WORKSITE SUPERVISOR OR TEAM LEADER AND ALTUS GROUP OFFICE/SUPERVISOR
  - * MAINTAIN EFFECTIVE TRAFFIC CONTROL.
  - * MOVE THE TRAFFIC CONTROL STATION TO A SUITABLE LOCATION THAT INCLUDES THE ACCIDENT SITE WITHIN THE TRAFFIC CONTROL (IF NECESSARY)
  - * OPERATIONAL AREA.
  - * RECORD SUFFICIENT NOTES OF THE INCIDENT, INCLUDING THEIR OBSERVATIONS, TO COMPLETE AN INCIDENT REPORT.
  - * CLEAR THE INCIDENT AREA OF ANY ITEMS NOT PRESENT PRIOR TO WORKS INSTALLATION

DUTY OF CARE

-ROBSON CIVIL ENSURES A COMMITMENT TO RESPONSIBILITY OF IMPLEMENTATION AND EXERCISING A DUTY OF CARE TO THE WORKS AND ALL ROAD USERS.
- ALTUS GROUP COMMITMENT AND OHS PROCEESES CONTAINED WITHIN THIS LINK : HSEQ-SODC LINK AND SWMS
- RESPONSIBILITIES SHALL BE HELD IN ACCORDANCE WITH THE AS1742.3 & TCAWS v6.1

TRAFFIC CONTROLLERS

- ONLY COMPETENT PERSONS WITH APPROPRIATE CERTIFICATION SHALL BE APPOINTED AS TRAFFIC CONTROLLERS.
- SPEED SHALL BE 60 KM/H MAXIMUM. PROVIDE A TEMPORARY SPEED LIMIT OF 60 KM/H OR LESS ON THE APPROACH TO A TRAFFIC CONTROLLER IF THE SPEED IS HIGHER (SEE SECTION 5.4.3 FROM TCAWS V6.1).
- AN ESCAPE ROUTE SHALL BE IDENTIFIED FOR EACH TRAFFIC CONTROLLER FROM THEIR TRAFFIC CONTROL POSITION.
- TRAFFIC CONTROLLERS SHALL CONDUCT DUTIES WITH A CLEAR SIGHT DISTANCE FROM APPROACHING ROAD USERS.
- ENSURE A WORK VEHICLE IS NOT PARKED IN A WAY THAT IMPACTS THE VISIBILITY OF THE SITE OR TRAFFIC CONTROLLER OR LIMITS THE TRAFFIC CONTROLLER'S ESCAPE ROUTE.
- ENSURE THAT TRAFFIC CONTROLLERS ARE VISIBLE AT ALL TIMES OF THE DAY, PARTICULARLY AT DAWN, DUSK, AGAINST LOW MORNING OR EVENING SUN, WHEN IN THE SHADE ON A SUNNY DAY OR WORKING IN DUSTY CONDITIONS.
- ENSURE THAT TRAFFIC CONTROLLERS ARE WELL ILLUMINATED AT NIGHT. WHERE CONTROL POINTS IDENTIFY LIMITED VISIBILITY, PCBU IS TO BE ENGAGED TO PROVIDE ADDITIONAL LIGHTING.
- RELIEVE TRAFFIC CONTROLLERS FROM TRAFFIC CONTROLLER DUTIES AT LEAST EVERY 2 HOURS FOR AT LEAST 15 MINUTES.
- WHERE CONE TAPERS ARE USED DURING SHUTTLE FLOW OPERATIONS, POSITION THE TRAFFIC CONTROLLER 6 M IN FRONT OF THE TAPER ON THE LEFT-HAND SHOULDER OR EDGE OF THE ROAD AND FACING APPROACHING TRAFFIC.
- PLACE FOUR TRAFFIC CONES SPACED 4 M APART, ON THE CENTER-LINE 6 M IN FRONT OF THE TRAFFIC CONTROLLER POSITION WHERE RISK MANAGEMENT ALLOWS INSTALLATION TO OCCUR.
- IF THERE IS A QUEUE OF 2 OR MORE VEHICLES, WHEN SAFE TO DO SO, TRAFFIC CONTROLLERS CAN MOVE INTO THE CENTER OF THE ROAD AND INLINE WITH THE DRIVER'S SIDE OF THE FIRST VEHICLE TO REMAIN VISIBLE TO ALL ROAD USERS AND AVOID OVERTAKING MANEUVERS OCCURRING IN ONCOMING TRAFFIC.
- UNDER NO CIRCUMSTANCES ARE TRAFFIC CONTROLLERS TO STAND OR OPERATE UNPROTECTED IN A LANE CARRYING TRAFFIC.
- TRAFFIC CONTROLLERS ARE TO ONLY COMMUNICATE WITH A ROAD USER ONCE THE VEHICLE HAS STOPPED AND IS SAFE TO DO SO.
- ENSURE A SINGLE TRAFFIC CONTROLLER NEVER CONTROLS MORE THAN ONE LANE OF TRAFFIC OR MORE THAN ONE APPROACH. A SINGLE TRAFFIC CONTROLLER CAN OPERATE TWO PTSS AT ONE TIME WHERE TRAINED TO DO SO, AND TGS IDENTIFIES THE REQUIREMENT TO OCCUR.
- SOME INTERSECTIONS REQUIRE THREE OR MORE TRAFFIC CONTROLLERS. WHERE MULTIPLE TRAFFIC CONTROLLERS ARE USED, THEY ARE REQUIRED TO:
  *ENSURE THAT ROAD USERS DO NOT SEE CONFLICTING MESSAGES
  *BE IN CONTINUOUS RADIO CONTACT WITH EACH OTHER WHEN THEY ARE NOT VISIBLE TO EACH OTHER.
- TRAFFIC CONTROLLERS ARE TO MONITOR END OF QUE SUITABILITY BY PLACING TRAFFIC CONES AT THE ESTIMATED END OF QUE SHOWN ON THE PLAN; WHERE QUES EXCEED THIS PLACEMENT, THEY ARE THEN REQUIRED TO CONTACT PWZTMP TO RE-EVALUATE SIGNAGE POSITIONS.

VULNERABLE ROAD USERS

- SITE-SPECIFIC RISK ASSESSMENT SHALL BE PERFORMED ON SITE BEFORE IMPLEMENTATION TO HELP IDENTIFY TGS COMPLIANCE AND VALUE TO THE PROTECTION OF WORKS, CONTROLLERS AND VULNERABLE ROAD USERS.
- SPECIFIC CONTROLS IDENTIFIED FOR PEDESTRIANS AND CYCLISTS AT THE DESIGN STAGE AND SHOWN ON ATP ANALYSIS.

- MOTORCYCLISTS POSE A UNIQUE PROBLEM TO THE DESIGN PHASE OF WORKS AS THERE IS NO IDENTIFIABLE DIFFERENCE IN FREQUENCY OF USE ON ROAD NETWORKS.
- VULNERABLE ROAD USER CONFIRMATION OF INSTALLATION ISSUES TO CONSIDER REGARDING THE IMPACT OF WORKS ON MOTORCYCLISTS AND THEIR SAFETY INCLUDE:
  - *HAS THE LOCATION OF TRAFFIC CONTROL DEVICES THAT MIGHT DESTABILISE A MOTORCYCLE BEEN AVOIDED ON THEIR TRAVEL PATH?
  - *IS THERE SUFFICIENT CLEARANCE OF OBSTRUCTIONS (E.G., SIGNS, DELINEATION) SO THAT MOTORCYCLISTS CAN LEAN INTO CURVES?
  - *IS THE ADVANCE WARNING AND DELINEATION ADEQUATE FOR MOTORCYCLISTS?
  - *IS THE ROAD SURFACE SAFE FOR MOTORCYCLISTS?

ORIENTATION OF SIGNS AND DEVICES

- SIGNS ARE TO FACE TOWARDS APPROACHING TRAFFIC APPROXIMATELY AT RIGHT ANGLES TO THE LINE OF SIGHT FROM THE DRIVER.
- AT CURVED RIGHT ALIGNMENTS, THE SIGN SHOULD BE PLACED APPROXIMATELY AT RIGHT ANGLES TO THE LINE OF SIGHT OF A MOTORIST 50M IN ADVANCE OF THE SIGN

PURPOSE:

THE PURPOSE OF THIS DOCUMENT IS TO OUTLINE A DESIRABLE TEMPORARY TRAFFIC MANAGEMENT ARRANGEMENT APPLICABLE TO THE FOLLOWING SCOPE, ENSURING ALL IDENTIFIED VULNERABLE ROAD USERS ARE CONSIDERED AND THE HIGHEST POSSIBLE LEVEL OF SAFETY OUTCOMES FOR ALL INVOLVED ARE ACHIEVED.

POSITIONING OF SIGNS AND DEVICES

- SIGNS AND DEVICES ARE TO BE POSITIONED AND ERECTED SO THAT:
  - *THEY ARE PROPERLY DISPLAYED AND SECURELY MOUNTED.
  - *THEY ARE WITHIN THE LINE OF SIGHT OF THE INTENDED ROAD USER.
  - *THEY CAN NOT BE OBSCURED FROM VIEW (E.G., BY VEGETATION OR PARKED CARS).
  - *THEY DO NOT OBSCURE OTHER DEVICES FROM THE LINE OF SIGHT OF THE INTENDED ROAD USER.
  - *THEY DO NOT BECOME A POSSIBLE HAZARD TO WORKERS, PEDESTRIANS, CYCLISTS OR VEHICLES.
  - *THEY DO NOT DEFLECT TRAFFIC OR VULNERABLE ROAD USERS INTO AN UNDESIRABLE PATH.
  - *THEY DO NOT RESTRICT SIGHT DISTANCE FOR DRIVERS ENTERING FROM SIDE ROADS, STREETS OR PRIVATE DRIVEWAYS.
  - *THEY ARE NOT INSTALLED USING SUPPORTS THAT COULD BE A HAZARD IF STRUCK BY A VEHICLE.
  - *TRAFFIC CONES AND BOLLARDS SHALL BE FITTED WITH RETRO-REFLECTIVE BANDS BE STABLE TO REDUCE THE RISK OF DISPLACEMENT FROM AIR TURBULENCE FROM PASSING TRAFFIC OR MINOR IMPACT.
  - *TRAFFIC CONES AND BOLLARDS SHALL BE SECURELY FIXED OR WEIGHED DOWN WHEN ROAD WORKERS ARE NOT PRESENT ON SITE.
  - *STANDARD TRAFFIC CONES/BOLLARDS (700 MM OR HIGHER) SHALL BE USED FOR ALL OTHER ROAD APPLICATIONS WHERE THE SPEED IS MORE THAN 70 KM/H.
- EDGE OF TRAFFIC LANE TO LINE OF TRAFFIC CONES, BOLLARDS OR LONGITUDINAL CHANNELISING DEVICES:
  - *0.5M OFFSET FOR POSTED SPEED LIMIT DURING ROADWORKS UP TO AND INCLUDING 60 KM/H.
  - *1.0M OFFSET FOR POSTED SPEED LIMIT DURING ROADWORKS OVER 60 KM/H.
- EDGE OF TRAFFIC LANE TO ROAD WORK DELINEATORS OR TEMPORARY HAZARD MARKERS – 1.0m

EMERGENCY ARRANGEMENTS

- ALL EMERGENCY SERVICES VEHICLES SHALL BE GIVEN PRIORITY ACCESS.
* CEASE ALL WORK IMMEDIATELY, TURN MACHINERY AND VEHICLES OFF AND CLEAR THE AREA OF PERSONNEL.
* NOTIFY EMERGENCY SERVICES OF THE PROPOSED WORKS NATURE, LOCATION, DATE AND TIMES, AS WELL AS CONTACT DETAILS FOR THE SITE SUPERVISOR
* ITCP TO INSTALL A SITE-SPECIFIC DETOUR ROUTE AND/OR ROAD CLOSURE POINT, IN A MANNER WHICH CATERS FOR ALL TYPES OF VEHICLES REQUIRED TO USE THEM (WHERE INCIDENTS ARE SERIOUS ENOUGH TO WARRANT CLOSURE AND DIVERSION OF ROADWAYS)

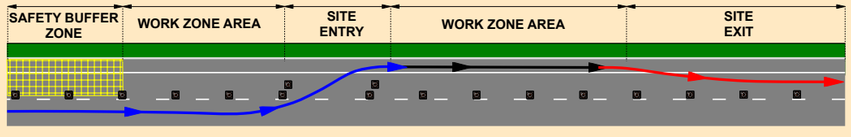
TOLERANCES

- IF SIGNS AND DEVICES ARE REQUIRED TO BE MOVED DUE TO OBSTRUCTIONS AND RELOCATION EXCEEDS TOLERANCES, THE INSTALLER SHALL CONTACT THE DESIGNER FOR INSTRUCTION ON ALTERNATE INSTALLATION METHODS OR OPTIONS.
- JUDGEMENT WILL BE NECESSARY TO PLACE SIGNS AND DEVICES AS CLOSE AS POSSIBLE TO THE LOCATIONS / SPACINGS INDICATED.
- SHOULD VARIATIONS TO THE RECOMMENDED SPACING BE REQUIRED, THEN IT IS GENERALLY PREFERABLE TO INCREASE THE SPACING WITHIN TOLERANCES.
- TOLERANCES FOR PLACEMENT OF SIGNS AND DEVICES (SECTION 7.10.3 FROM TCAWS V6.1) ARE:
  - * UP TO 10% LESS THAN THE DISTANCES GIVEN FOR SIGNS AND DEVICES WITH NO MINIMUM DISTANCE FOR CONES/ BOLLARD INSTALLATION.
  - * UP TO 25% MORE THAN THE DISTANCES GIVEN.
- ADJUSTMENTS TO A TTM INSTALLATION:
  - * ANY CHANGES THAT EXCEED TOLERANCES ARE CLASSED AS A MODIFICATION/VERIATION AND SHALL BE AUTHORISED AND ENDORSED BY AN APPROPRIATELY QUALIFIED INDIVIDUAL.

DESIGN FACTORS/OUTCOMES

- NATIONAL COMPLIANCE: AS1742.3
- LOCAL COMPLIANCE: TCAWS v6.1
- LOCAL ROAD INFRASTRUCTURE REQUIREMENTS: PENRITH CITY COUNCIL
- SITE IMPACT / TRAVEL TIME:
- INNOVATIVE TREATMENTS:
- REVIEW PERFORMED: 04/12/2024 08:29
- OH&S ITEMS ARE HELD IN THE ALTUS GROUP SWMS.
- REGISTERS: KEY PERSONNEL - HELD ON TITLEBLOCK, INCIDENTS/VARIATIONS/COMPLIANCE/DAILY INSPECTIONS REGISTERS - HELD IN ALTUS GROUP DAILY RECORDS AND INCIDENT MANAGEMENT PROCESSES.
  CONSULTATION REGISTER - CONTAINS PRIVATE CONTACT DETAILS AND IS HELD SEPARATE FROM GENERAL-USE DOCUMENTS.
- CONTINGENCY PLANNING: RESTORATION OF THE ROUTE IN EXISTENCE BEFORE IMPLEMENTATION OF THE TEMPORARY TRAFFIC ROUTE ALTERATION UNTIL SUCH TIME THAT ALTERNATIVE ARRANGEMENTS CAN BE DEVELOPED/DESIGNED.

PREFERRED SITE ENTRY AND EXIT PROCESS



- HIGHLIGHT SITE ENTRY POINT WITH DOUBLE CONES AND LEAVING A SMALL BREAK TO PULL IN SAFELY.
- PRIOR ENTERING WORKSITE:
  TURN ON THE FLASHING LIGHTS
  RADIO THE TRAFFIC CONTROLLER A MINIMUM 100M PRIOR
- IF MISS OR FAIL ABOVE PROCEDURES, TRAFFIC CONTROLLERS ARE TO DIRECT THE VEHICLE TO LOOP AROUND AND ATTEMPT REENTRY.
- TRAFFIC CONTROLLERS ARE TO ENSURE THAT NO LOCAL TRAFFIC FOLLOWS WORK VEHICLES IN THE WORK AREA
- FLIP THE SETUP FOR FAST LANE CLOSURES

SIGN COVERS

SIGN COVER — ALL PERMANENT SPEED SIGNS SHOULD BE SHOWN ON TGS WITH NOTE COVERING WHEN REQUIRED

TOLERANCES IN DISTANCES - (ALL VALUES ARE IN METERS)

MEASUREMENT	- 10%	+ 25%
15	13	18
20	18	25
30	27	37
45	41	56
60	54	75
90	81	112

BEST VIEWED DIGITALLY
NOT TO SCALE
PRINT A3

DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

ALTUS GROUP DESIGN NUMBER: 24-12-76342-01 ARS: 4/5

CLIENT REFERENCE NUMBER: TBC

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
ESTIMATED JOB TIME : 19:00 - 05:00
GARBAGE COLLECTION DAY : TUESDAY

ISSUE	DESG	DATE	AMENDMENT DESCRIPTION
A			
B			
C			

TRAFFIC LOGISTICS
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VMS UTE : 0 TMA REQUIRED : 0 DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:
TOTAL CONES : 73 TOTAL SIGNS : 26 BARRIER BOARDS : 0
PTCD : 0 1.8m STOP BAT/S : 5
PTAB : 0 THM'S / CHEVRON: 0

APPROVED FOR IMPLEMENTATION
WHEN USED WITH ROAD AUTHORITY APPROVAL

APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722
REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012
APPROVAL DATE: 04/12/2024
ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334
SHEET NO : 2 OF 10

CLIENT CONTACT :
ROBSON CIVIL
GERARD NOONE
04 39 246 804

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Call Altus Group
Toll Free (Australia)
1300TRAFFIC (872 334)
ABN 84 102 768 061

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
ESTIMATED JOB TIME : 19:00 - 05:00
GARBAGE COLLECTION DAY : TUESDAY

ISSUE	DESG	DATE	AMENDMENT DESCRIPTION
A			
B			
C			

ALTUS GROUP DESIGN NUMBER: 24-12-76342-01 **ARS:** 4/5

CLIENT REFERENCE NUMBER: TBC

GENERAL DISCLAIMER:
- THE TGS/TMP HAS BEEN PREPARED IN ACCORDANCE WITH THE INFORMATION SUPPLIED BY ALL STAKEHOLDERS.
- TECHNICAL DUE CARE HAS BEEN APPLIED IN THE COLLATION OF THE RELEVANT INFORMATION ON WHICH THIS TGS/TMP IS BASED.
- TRAFFIC AND SITE CONDITIONS AT THE TIME OF THE WORKS MAY VARY FROM THOSE ESTABLISHED AT THE POINT OF DESIGN.
- ROBSON CIVIL IS RESPONSIBLE FOR UNDERTAKING AN EVALUATION OF THE SITE AND TRAFFIC CONDITIONS AGAINST THE 'ON-SITE APPLICATION CONSTRAINTS' OUTLINED WITHIN THE TGS/TMP.
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- DAILY RECORD KEEPING SHALL BE PERFORMED, INCLUDING RELEVANT SITE INSPECTIONS, DURING WORKS.
- THIS TGS/TMP SHALL REMAIN VALID FOR 12 MONTHS FROM THE DESIGN APPROVAL DATE OR WHERE STATE-SPECIFIC GOVERNANCE IS CHANGED.
  AT THIS POINT, THE TGS/TMP WILL NEED TO BE REVIEWED ON CURRENCY OF COMPLIANCE.

WORKSITE REQUIREMENTS :

TRAFFIC CONTROLLERS : 5
TRAFFIC CONTROLLERS - BREAKS : 2
TRAFFIC CONTROL UTE : 3

SPECIALIST VEHICLE REQUIREMENTS :

VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

TOTAL CONES : 73 | TOTAL SIGNS : 26 | BARRIER BOARDS : 0
PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

APPROVED FOR IMPLEMENTATION
WHEN USED WITH ROAD AUTHORITY APPROVAL

APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722

REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012

APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 3 OF 10

CLIENT CONTACT :
ROBSON CIVIL
GERARD NOONE
04 39 246 804

ROBSON CIVIL PROJECTS





CLIENT CONTACT:
ROBSON CIVIL
GERARD NOONE
04 39 246 804

ROBSON CIVIL PROJECTS

FOR ALL DESIGN INFORMATION/ REQUIRMENTS AND SPECIALIST VEHCILE / DEVICES REFER TO MAIN COVER PAGE (PG 1)

DRAWING NUMBER:
24-12-76342-01

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APPROVED BY - DESIGNER :
SA HAMDAN – TCT1024722

REVIEW OR DEPARTURE APPROVED BY:
CRAIG RUMING - TCT0016012

APPROVAL DATE:
04/12/2024

ALTUS NOMINATED CONTACT:
24Hr Contact - 1800 872 334

SHEET NO: 4 OF 10

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TRAFFIC LOGISTICS

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SA HAMDAN – TCT1024722

REVIEW OR DEPARTURE APPROVED BY:
CRAIG RUMING - TCT0016012

APPROVAL DATE:
04/12/2024

ALTUS NOMINATED CONTACT:
24Hr Contact - 1800 872 334

SHEET NO: 5 OF 10

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK

BETWEEN ROADS : ALDINGTON RD & MAMRE RD

WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL

ESTIMATED JOB DATE : 05/01/2025 -

ESTIMATED JOB TIME : 19:00 - 05:00

GARBAGE COLLECTION DAY : TUESDAY

ISSUE	DESG	DATE	AMENDMENT DESCRIPTION
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B			
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CLIENT REFERENCE NUMBER: TBC

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WORKSITE REQUIREMENTS :

TRAFFIC CONTROLLERS : 5
TRAFFIC CONTROLLERS - BREAKS : 2
TRAFFIC CONTROL UTE : 3

SPECIALIST VEHICLE REQUIREMENTS :

VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

TOTAL CONES : 73 | TOTAL SIGNS : 26 | BARRIER BOARDS : 0
PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

APPROVED FOR IMPLEMENTATION
WHEN USED WITH ROAD AUTHORITY APPROVAL

APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722

REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012

APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 6 OF 10

CLIENT CONTACT :
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GERARD NOONE
04 39 246 804

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
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SPECIALIST VEHICLE REQUIREMENTS :

VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

TOTAL CONES : 73 | TOTAL SIGNS : 26 | BARRIER BOARDS : 0
PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

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REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012

APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 7 OF 10

CLIENT CONTACT :
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REVIEW OR DEPARTURE APPROVED BY:
CRAIG RUMING - TCT0016012

APPROVAL DATE:
04/12/2024

ALTUS NOMINATED CONTACT:
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SHEET NO: 9 OF 10

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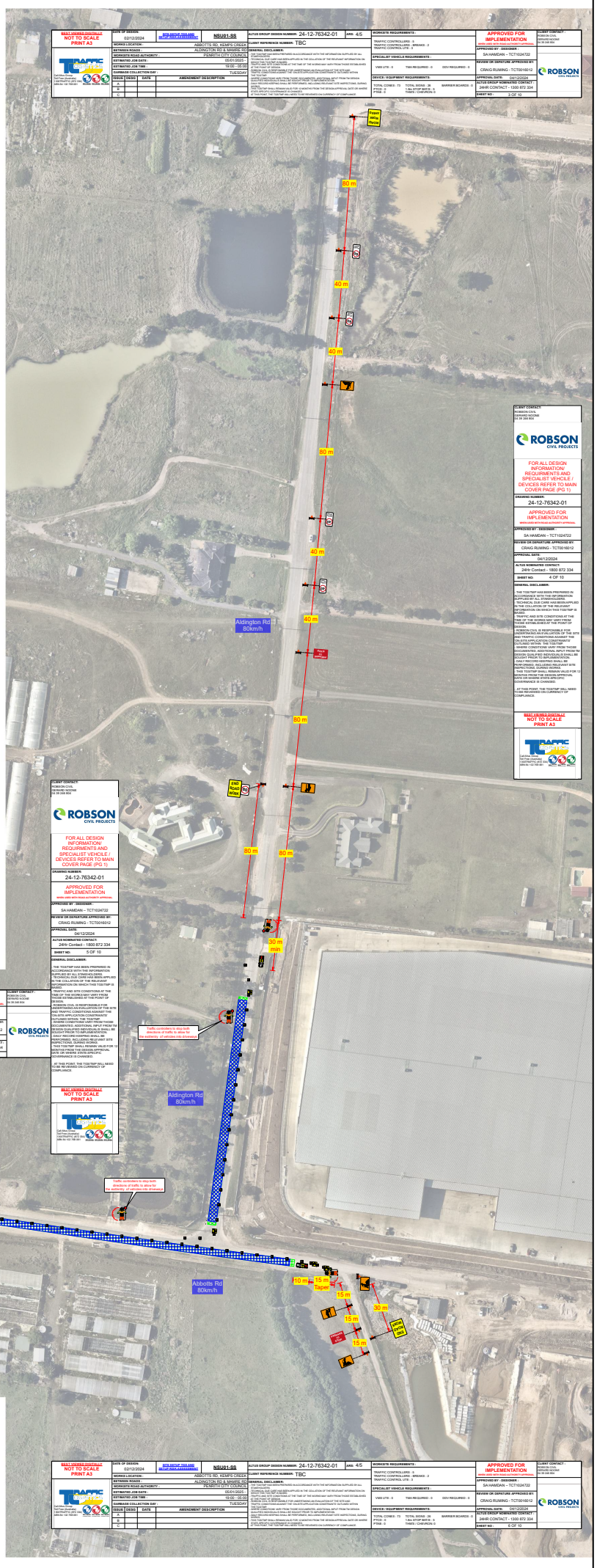
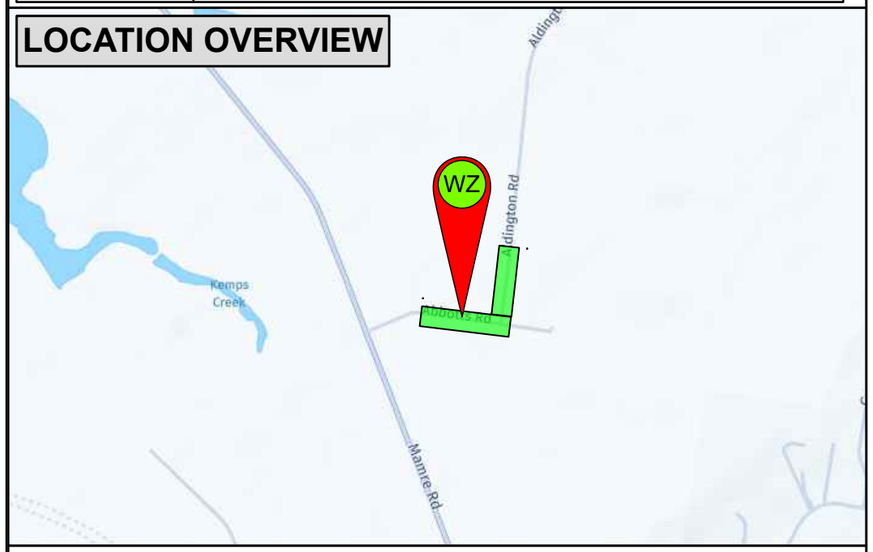


TABLE OF CONTENTS

SHEET 1	MAIN COVER PAGE - Used for an "At a glance" reference of the site, works, requirements, installation and contacts.
SHEET 2	GENERAL NOTES - Legend and Altus Group specific notes. Provided so TC Lead does not have to change between documents for critical controls.
SHEET 3 TO 9	TGS PAGES - TGS broken in Pages for onsite use or to layout at a larger scale.
SHEET 10	COMPLETE TGS OVERVIEW - Enhanced TGS Pages for ease of view or printed media usage where zooming digitally is not available.

LOCATION OVERVIEW

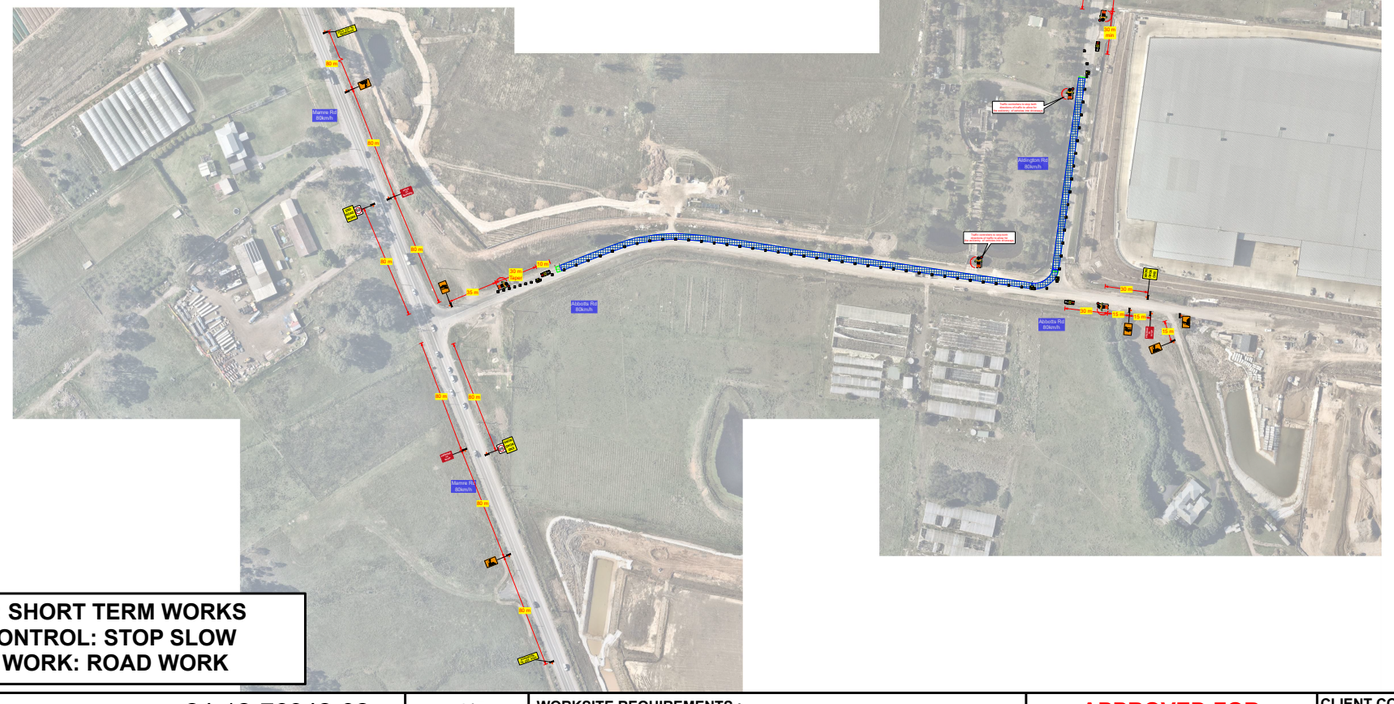


SIGNS MANIFEST

5 x T1-5 WORKERS AHEAD
3 x T1-34 TRAFFIC CONTROLLER AHEAD
2 x R4-212 (60) SPEED LIMIT 60 ROAD WORK
1 x T1-31 ROAD WORK AHEAD
4 x T2-17 END ROAD WORK
4 x T1-18 PREPARE TO STOP
2 x T1-25 ROADWORK ON SIDE ROAD
2 x R4-212 (40) SPEED LIMIT 40 ROAD WORK
3 x R4-1 (80) SPEED LIMIT 80

WHEN PRINTING ENSURE SITE SETUP & RISK ASSESSMENT IS PRINTED WITH THIS TGS

TGS OVERVIEW



DURATION: SHORT TERM WORKS
TYPE OF CONTROL: STOP SLOW
REQUIRED WORK: ROAD WORK

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

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A			
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ALTUS GROUP DESIGN NUMBER: 24-12-76342-02 **ARS:** 4/5

CLIENT REFERENCE NUMBER: TBC

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VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

TOTAL CONES : 69 | TOTAL SIGNS : 26 | BARRIER BOARDS : 0
PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

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APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722

REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012

APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 1 OF 10

CLIENT CONTACT :
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SITE MARKER COMMON LEGEND

- WORK AREA
- SPECIFIC WORKS LOCATION
- SAFETY BUFFER
- EQL — ESTIMATED QUE LENGTH
- ISOLATION/NO GO ZONE
- PLANT/ EQUIPMENT LAYDOWN
- B — TEMPORARY BUS STOP ZONE
- PEDESTRIAN PATH

DEVICE COMMON LEGEND

- TRAFFIC CONTROLLER
- POLICE OFFICER
- WORKER / SPOTTER / MARSHALL
- CONES - 700MM OR HIGHER
- BARRIER BOARD
- THM - TEMPORARY HAZARD MARKER OR CHEVRONS
- BOX EDGE / MMS - SIGN FRAME/STAND
- VMS TRAILER / PTAB - PORATABLE TRAILER ARROW BOARD
- PTCD- PORTABLE TRAFFIC CONTROL DEVICE

COMMON VEHICLE LEGEND

- UTE *(SIGNAGE VEHICLE)*
- VMS UTE *(VARIABLE MESSAGING SYSTEM VEHICLE)*
- POLICE SERVICES *(POLICE VEHICLE)*
- DDV *(DROP DECK VEHICLE)*
- TMA/IPV *(TRUCK MOUNTED ATTENUATOR/ IMPACT PROTECTION VEHICLE)*

CLIENT VEHICLES

- WV UTE *(WORK VEHICLE)*
- *(ELEVATED WORKING PLATFORM)*

ALTUS GROUP GENERAL NOTES - LIMITED TO NECESSARY NOTATIONS

GENERAL

- TTM MEASURES SHALL BE INSTALLED, MAINTAINED AND REMOVED IN A PLANNED AND SAFE MANNER. BEFORE COMMENCING, THE IMPLEMENTER SHALL CHECK AND REVIEW THE APPROVED TMP/TGS, THE WORKSITE AND THE PROPOSED ACTIVITIES TO ENSURE THEY ARE COMPLEMENTARY AND ARE APPROPRIATE.
- THE ITCP SHALL CHECK THE ROAD ENVIRONMENT, ESPECIALLY THE "ON THE DAY" TRAFFIC FLOWS, TO ENSURE THAT IT IS AT AN APPROPRIATE LEVEL FOR THE TTM INTENDED.
- A 5-MINUTE COUNT OF TRAFFIC SHOULD PROVIDE AN APPROPRIATE ESTIMATE OF VOLUMES TO REFERENCE AGAINST VALUES RECORDED IN THE TMP/TGS.
- IF THE WORKSITE AND THE APPROVED TMP ARE NOT COMPLEMENTARY, BEFORE OCCUPYING THE WORKSITE, THE IMPLEMENTER SHALL DETERMINE WHETHER THEY CAN:
  - * MAKE COMPLIANT ADJUSTMENTS (E.G., LENGTHEN TAPER WITHIN TOLERANCES) TO THE TMP/TGS
  - * CONTACT PERSONS WITH THE RELEVANT ACCREDITATION TO APPROVE MODIFICATIONS TO THE TMP/TGS (E.G., ADDITIONAL SIGNS OR DISTANCES OUTSIDE OF TOLERANCES)
  - * CONTACT THE RELEVANT ROAD INFRASTRUCTURE MANAGER TRAFFIC CONTROL FACILITY TO INITIATE ACTIONS IDENTIFIED ON THE TMP/TGS TO BE TAKEN (E.G., CHANGE IN THE VMS, VARIABLE SPEED LIMIT SIGNS OR LANE USAGE SIGNAGE).
- WHERE THE TMP/TGS CANNOT BE SUITABLY ADJUSTED OR MODIFIED, THE IMPLEMENTER SHOULD ADVISE ROBSON CIVIL THAT THEY ARE NOT APPROPRIATE, AND THE WORKS SHOULD BE POSTPONED.
- ALL SITE INFORMATION WORK HOURS, INSTALLATIONS, ADJUSTMENTS AND AUTHORISED MODIFICATIONS ARE TO BE DOCUMENTED ON THE TMP AND TGS AS WELL AS AN APPROVED ON-SITE/WORKS RECORD.
- A COPY OF THE APPROVED TMP/TGS SHALL BE KEPT ON-SITE AT ALL TIMES.

PRE-START REQUIREMENT/S

- ALL PERSONS INVOLVED WITH TTM ACTIVITIES SHALL BE BRIEFED/INDUCTED BY THE ITCP AND HAVE THIS DOCUMENTED ON THE SITE RECORDS.
- THE TOOLBOX TALK FOR TTM STAFF IS USED TO EXPLAIN THE:
  - *KEY ASPECTS OF THE TGS/TMP
  - *IDENTIFIED HAZARDS
  - *TTM REQUIREMENTS FOR THE WORKSITE
  - *SAFETY ZONE REQUIREMENTS AND LIMITS
  - *COMMUNICATION PROCESSES

INCIDENT MANAGEMENT

- IF A DRIVER DISOBEYS A TRAFFIC CONTROL INSTRUCTION:
  - * PRIORITISE PERSONAL SAFETY.
  - * USE THE PREDETERMINED ESCAPE ROUTE, IF NECESSARY.
  - * WARN OTHER MEMBERS OF THE CREW AS EARLY AS POSSIBLE. A WARNING SYSTEM MUST BE AGREED UPON BEFOREHAND, SUCH AS RADIOS, WHISTLES, SHOUTING ETC.
- THE FIRST PREFERENCE IS TO USE THE TWO-WAY RADIO TO COMMUNICATE WHERE AVAILABLE.

- TAKE THE FOLLOWING ACTIONS IF AN INCIDENT OCCURS WITHIN THE TRAFFIC CONTROLLER'S DESIGNATED WORKSITE OR TRAFFIC CONTROL OPERATIONAL AREA:
  - * FIRST AID RESPONSE (WHERE POSSIBLE).
  - * CALL FOR ASSISTANCE (IF NEEDED).
  - * EMERGENCY SERVICES CONTACT (IF REQUIRED)
  - * NOTIFY THE WORKSITE SUPERVISOR OR TEAM LEADER AND ALTUS GROUP OFFICE/SUPERVISOR
  - * MAINTAIN EFFECTIVE TRAFFIC CONTROL.
  - * MOVE THE TRAFFIC CONTROL STATION TO A SUITABLE LOCATION THAT INCLUDES THE ACCIDENT SITE WITHIN THE TRAFFIC CONTROL (IF NECESSARY)
  - * OPERATIONAL AREA.
  - * RECORD SUFFICIENT NOTES OF THE INCIDENT, INCLUDING THEIR OBSERVATIONS, TO COMPLETE AN INCIDENT REPORT.
  - * CLEAR THE INCIDENT AREA OF ANY ITEMS NOT PRESENT PRIOR TO WORKS INSTALLATION

DUTY OF CARE

-ROBSON CIVIL ENSURES A COMMITMENT TO RESPONSIBILITY OF IMPLEMENTATION AND EXERCISING A DUTY OF CARE TO THE WORKS AND ALL ROAD USERS.
- ALTUS GROUP COMMITMENT AND OHS PROCEESES CONTAINED WITHIN THIS LINK : HSEQ-SODC LINK AND SWMS
- RESPONSIBILITIES SHALL BE HELD IN ACCORDANCE WITH THE AS1742.3 & TCAWS v6.1

TRAFFIC CONTROLLERS

- ONLY COMPETENT PERSONS WITH APPROPRIATE CERTIFICATION SHALL BE APPOINTED AS TRAFFIC CONTROLLERS.
- SPEED SHALL BE 60 KM/H MAXIMUM. PROVIDE A TEMPORARY SPEED LIMIT OF 60 KM/H OR LESS ON THE APPROACH TO A TRAFFIC CONTROLLER IF THE SPEED IS HIGHER (SEE SECTION 5.4.3 FROM TCAWS V6.1).
- AN ESCAPE ROUTE SHALL BE IDENTIFIED FOR EACH TRAFFIC CONTROLLER FROM THEIR TRAFFIC CONTROL POSITION.
- TRAFFIC CONTROLLERS SHALL CONDUCT DUTIES WITH A CLEAR SIGHT DISTANCE FROM APPROACHING ROAD USERS.
- ENSURE A WORK VEHICLE IS NOT PARKED IN A WAY THAT IMPACTS THE VISIBILITY OF THE SITE OR TRAFFIC CONTROLLER OR LIMITS THE TRAFFIC CONTROLLER'S ESCAPE ROUTE.
- ENSURE THAT TRAFFIC CONTROLLERS ARE VISIBLE AT ALL TIMES OF THE DAY, PARTICULARLY AT DAWN, DUSK, AGAINST LOW MORNING OR EVENING SUN, WHEN IN THE SHADE ON A SUNNY DAY OR WORKING IN DUSTY CONDITIONS.
- ENSURE THAT TRAFFIC CONTROLLERS ARE WELL ILLUMINATED AT NIGHT. WHERE CONTROL POINTS IDENTIFY LIMITED VISIBILITY, PCBU IS TO BE ENGAGED TO PROVIDE ADDITIONAL LIGHTING.
- RELIEVE TRAFFIC CONTROLLERS FROM TRAFFIC CONTROLLER DUTIES AT LEAST EVERY 2 HOURS FOR AT LEAST 15 MINUTES.
- WHERE CONE TAPERS ARE USED DURING SHUTTLE FLOW OPERATIONS, POSITION THE TRAFFIC CONTROLLER 6 M IN FRONT OF THE TAPER ON THE LEFT-HAND SHOULDER OR EDGE OF THE ROAD AND FACING APPROACHING TRAFFIC.
- PLACE FOUR TRAFFIC CONES SPACED 4 M APART, ON THE CENTER-LINE 6 M IN FRONT OF THE TRAFFIC CONTROLLER POSITION WHERE RISK MANAGEMENT ALLOWS INSTALLATION TO OCCUR.
- IF THERE IS A QUEUE OF 2 OR MORE VEHICLES, WHEN SAFE TO DO SO, TRAFFIC CONTROLLERS CAN MOVE INTO THE CENTER OF THE ROAD AND INLINE WITH THE DRIVER'S SIDE OF THE FIRST VEHICLE TO REMAIN VISIBLE TO ALL ROAD USERS AND AVOID OVERTAKING MANEUVERS OCCURRING IN ONCOMING TRAFFIC.
- UNDER NO CIRCUMSTANCES ARE TRAFFIC CONTROLLERS TO STAND OR OPERATE UNPROTECTED IN A LANE CARRYING TRAFFIC.
- TRAFFIC CONTROLLERS ARE TO ONLY COMMUNICATE WITH A ROAD USER ONCE THE VEHICLE HAS STOPPED AND IS SAFE TO DO SO.
- ENSURE A SINGLE TRAFFIC CONTROLLER NEVER CONTROLS MORE THAN ONE LANE OF TRAFFIC OR MORE THAN ONE APPROACH. A SINGLE TRAFFIC CONTROLLER CAN OPERATE TWO PTSS AT ONE TIME WHERE TRAINED TO DO SO, AND TGS IDENTIFIES THE REQUIREMENT TO OCCUR.
- SOME INTERSECTIONS REQUIRE THREE OR MORE TRAFFIC CONTROLLERS. WHERE MULTIPLE TRAFFIC CONTROLLERS ARE USED, THEY ARE REQUIRED TO:
  *ENSURE THAT ROAD USERS DO NOT SEE CONFLICTING MESSAGES
  *BE IN CONTINUOUS RADIO CONTACT WITH EACH OTHER WHEN THEY ARE NOT VISIBLE TO EACH OTHER.
- TRAFFIC CONTROLLERS ARE TO MONITOR END OF QUE SUITABILITY BY PLACING TRAFFIC CONES AT THE ESTIMATED END OF QUE SHOWN ON THE PLAN; WHERE QUES EXCEED THIS PLACEMENT, THEY ARE THEN REQUIRED TO CONTACT PWZTMP TO RE-EVALUATE SIGNAGE POSITIONS.

VULNERABLE ROAD USERS

- SITE-SPECIFIC RISK ASSESSMENT SHALL BE PERFORMED ON SITE BEFORE IMPLEMENTATION TO HELP IDENTIFY TGS COMPLIANCE AND VALUE TO THE PROTECTION OF WORKS, CONTROLLERS AND VULNERABLE ROAD USERS.
- SPECIFIC CONTROLS IDENTIFIED FOR PEDESTRIANS AND CYCLISTS AT THE DESIGN STAGE AND SHOWN ON ATP ANALYSIS.

- MOTORCYCLISTS POSE A UNIQUE PROBLEM TO THE DESIGN PHASE OF WORKS AS THERE IS NO IDENTIFIABLE DIFFERENCE IN FREQUENCY OF USE ON ROAD NETWORKS.
- VULNERABLE ROAD USER CONFIRMATION OF INSTALLATION ISSUES TO CONSIDER REGARDING THE IMPACT OF WORKS ON MOTORCYCLISTS AND THEIR SAFETY INCLUDE:
  - *HAS THE LOCATION OF TRAFFIC CONTROL DEVICES THAT MIGHT DESTABILISE A MOTORCYCLE BEEN AVOIDED ON THEIR TRAVEL PATH?
  - *IS THERE SUFFICIENT CLEARANCE OF OBSTRUCTIONS (E.G., SIGNS, DELINEATION) SO THAT MOTORCYCLISTS CAN LEAN INTO CURVES?
  - *IS THE ADVANCE WARNING AND DELINEATION ADEQUATE FOR MOTORCYCLISTS?
  - *IS THE ROAD SURFACE SAFE FOR MOTORCYCLISTS?

ORIENTATION OF SIGNS AND DEVICES

- SIGNS ARE TO FACE TOWARDS APPROACHING TRAFFIC APPROXIMATELY AT RIGHT ANGLES TO THE LINE OF SIGHT FROM THE DRIVER.
- AT CURVED RIGHT ALIGNMENTS, THE SIGN SHOULD BE PLACED APPROXIMATELY AT RIGHT ANGLES TO THE LINE OF SIGHT OF A MOTORIST 50M IN ADVANCE OF THE SIGN

PURPOSE:

THE PURPOSE OF THIS DOCUMENT IS TO OUTLINE A DESIRABLE TEMPORARY TRAFFIC MANAGEMENT ARRANGEMENT APPLICABLE TO THE FOLLOWING SCOPE, ENSURING ALL IDENTIFIED VULNERABLE ROAD USERS ARE CONSIDERED AND THE HIGHEST POSSIBLE LEVEL OF SAFETY OUTCOMES FOR ALL INVOLVED ARE ACHIEVED.

POSITIONING OF SIGNS AND DEVICES

- SIGNS AND DEVICES ARE TO BE POSITIONED AND ERECTED SO THAT:
  - *THEY ARE PROPERLY DISPLAYED AND SECURELY MOUNTED.
  - *THEY ARE WITHIN THE LINE OF SIGHT OF THE INTENDED ROAD USER.
  - *THEY CAN NOT BE OBSCURED FROM VIEW (E.G., BY VEGETATION OR PARKED CARS).
  - *THEY DO NOT OBSCURE OTHER DEVICES FROM THE LINE OF SIGHT OF THE INTENDED ROAD USER.
  - *THEY DO NOT BECOME A POSSIBLE HAZARD TO WORKERS, PEDESTRIANS, CYCLISTS OR VEHICLES.
  - *THEY DO NOT DEFLECT TRAFFIC OR VULNERABLE ROAD USERS INTO AN UNDESIRABLE PATH.
  - *THEY DO NOT RESTRICT SIGHT DISTANCE FOR DRIVERS ENTERING FROM SIDE ROADS, STREETS OR PRIVATE DRIVEWAYS.
  - *THEY ARE NOT INSTALLED USING SUPPORTS THAT COULD BE A HAZARD IF STRUCK BY A VEHICLE.
  - *TRAFFIC CONES AND BOLLARDS SHALL BE FITTED WITH RETRO-REFLECTIVE BANDS BE STABLE TO REDUCE THE RISK OF DISPLACEMENT FROM AIR TURBULENCE FROM PASSING TRAFFIC OR MINOR IMPACT.
  - *TRAFFIC CONES AND BOLLARDS SHALL BE SECURELY FIXED OR WEIGHED DOWN WHEN ROAD WORKERS ARE NOT PRESENT ON SITE.
  - *STANDARD TRAFFIC CONES/BOLLARDS (700 MM OR HIGHER) SHALL BE USED FOR ALL OTHER ROAD APPLICATIONS WHERE THE SPEED IS MORE THAN 70 KM/H.
- EDGE OF TRAFFIC LANE TO LINE OF TRAFFIC CONES, BOLLARDS OR LONGITUDINAL CHANNELISING DEVICES:
  - *0.5M OFFSET FOR POSTED SPEED LIMIT DURING ROADWORKS UP TO AND INCLUDING 60 KM/H.
  - *1.0M OFFSET FOR POSTED SPEED LIMIT DURING ROADWORKS OVER 60 KM/H.
- EDGE OF TRAFFIC LANE TO ROAD WORK DELINEATORS OR TEMPORARY HAZARD MARKERS – 1.0m

EMERGENCY ARRANGEMENTS

- ALL EMERGENCY SERVICES VEHICLES SHALL BE GIVEN PRIORITY ACCESS.
- * CEASE ALL WORK IMMEDIATELY, TURN MACHINERY AND VEHICLES OFF AND CLEAR THE AREA OF PERSONNEL.
- * NOTIFY EMERGENCY SERVICES OF THE PROPOSED WORKS NATURE, LOCATION, DATE AND TIMES, AS WELL AS CONTACT DETAILS FOR THE SITE SUPERVISOR
- * ITCP TO INSTALL A SITE-SPECIFIC DETOUR ROUTE AND/OR ROAD CLOSURE POINT, IN A MANNER WHICH CATERS FOR ALL TYPES OF VEHICLES REQUIRED TO USE THEM (WHERE INCIDENTS ARE SERIOUS ENOUGH TO WARRANT CLOSURE AND DIVERSION OF ROADWAYS)

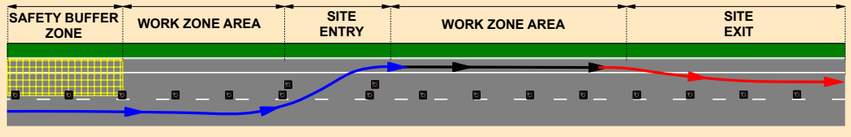
TOLERANCES

- IF SIGNS AND DEVICES ARE REQUIRED TO BE MOVED DUE TO OBSTRUCTIONS AND RELOCATION EXCEEDS TOLERANCES, THE INSTALLER SHALL CONTACT THE DESIGNER FOR INSTRUCTION ON ALTERNATE INSTALLATION METHODS OR OPTIONS.
- JUDGEMENT WILL BE NECESSARY TO PLACE SIGNS AND DEVICES AS CLOSE AS POSSIBLE TO THE LOCATIONS / SPACINGS INDICATED.
- SHOULD VARIATIONS TO THE RECOMMENDED SPACING BE REQUIRED, THEN IT IS GENERALLY PREFERABLE TO INCREASE THE SPACING WITHIN TOLERANCES.
- TOLERANCES FOR PLACEMENT OF SIGNS AND DEVICES (SECTION 7.10.3 FROM TCAWS V6.1) ARE:
  - * UP TO 10% LESS THAN THE DISTANCES GIVEN FOR SIGNS AND DEVICES WITH NO MINIMUM DISTANCE FOR CONES/ BOLLARD INSTALLATION.
  - * UP TO 25% MORE THAN THE DISTANCES GIVEN.
- ADJUSTMENTS TO A TTM INSTALLATION:
  - * ANY CHANGES THAT EXCEED TOLERANCES ARE CLASSED AS A MODIFICATION/VERIATION AND SHALL BE AUTHORISED AND ENDORSED BY AN APPROPRIATELY QUALIFIED INDIVIDUAL.

DESIGN FACTORS/OUTCOMES

- NATIONAL COMPLIANCE: AS1742.3
- LOCAL COMPLIANCE: TCAWS v6.1
- LOCAL ROAD INFRASTRUCTURE REQUIREMENTS: PENRITH CITY COUNCIL
- SITE IMPACT / TRAVEL TIME:
- INNOVATIVE TREATMENTS:
- REVIEW PERFORMED: 04/12/2024 08:29
- OH&S ITEMS ARE HELD IN THE ALTUS GROUP SWMS.
- REGISTERS: KEY PERSONNEL - HELD ON TITLEBLOCK, INCIDENTS/VARIATIONS/COMPLIANCE/DAILY INSPECTIONS REGISTERS - HELD IN ALTUS GROUP DAILY RECORDS AND INCIDENT MANAGEMENT PROCESSES.
  CONSULTATION REGISTER - CONTAINS PRIVATE CONTACT DETAILS AND IS HELD SEPARATE FROM GENERAL-USE DOCUMENTS.
- CONTINGENCY PLANNING: RESTORATION OF THE ROUTE IN EXISTENCE BEFORE IMPLEMENTATION OF THE TEMPORARY TRAFFIC ROUTE ALTERATION UNTIL SUCH TIME THAT ALTERNATIVE ARRANGEMENTS CAN BE DEVELOPED/DESIGNED.

PREFERRED SITE ENTRY AND EXIT PROCESS



- HIGHLIGHT SITE ENTRY POINT WITH DOUBLE CONES AND LEAVING A SMALL BREAK TO PULL IN SAFELY.
- PRIOR ENTERING WORKSITE:
  TURN ON THE FLASHING LIGHTS
  RADIO THE TRAFFIC CONTROLLER A MINIMUM 100M PRIOR
- IF MISS OR FAIL ABOVE PROCEDURES, TRAFFIC CONTROLLERS ARE TO DIRECT THE VEHICLE TO LOOP AROUND AND ATTEMPT REENTRY.
- TRAFFIC CONTROLLERS ARE TO ENSURE THAT NO LOCAL TRAFFIC FOLLOWS WORK VEHICLES IN THE WORK AREA
- FLIP THE SETUP FOR FAST LANE CLOSURES

SIGN COVERS

SIGN COVER — ALL PERMANENT SPEED SIGNS SHOULD BE SHOWN ON TGS WITH NOTE COVERING WHEN REQUIRED

TOLERANCES IN DISTANCES - (ALL VALUES ARE IN METERS)

MEASUREMENT	- 10%	+ 25%
15	13	18
20	18	25
30	27	37
45	41	56
60	54	75
90	81	112

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

ALTUS GROUP DESIGN NUMBER: 24-12-76342-02 ARS: 4/5

CLIENT REFERENCE NUMBER: TBC

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
ESTIMATED JOB TIME : 19:00 - 05:00
GARBAGE COLLECTION DAY : TUESDAY

ISSUE	DESG	DATE	AMENDMENT DESCRIPTION
A			
B			
C			

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GENERAL DISCLAIMER:
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WORKSITE REQUIREMENTS :
TRAFFIC CONTROLLERS : 5
TRAFFIC CONTROLLERS - BREAKS : 2
TRAFFIC CONTROL UTE : 3

SPECIALIST VEHICLE REQUIREMENTS :
VMS UTE : 0 TMA REQUIRED : 0 DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:
TOTAL CONES : 69 TOTAL SIGNS : 26 BARRIER BOARDS : 0
PTCD : 0 1.8m STOP BAT/S : 5
PTAB : 0 THM'S / CHEVRON: 0

APPROVED FOR IMPLEMENTATION
WHEN USED WITH ROAD AUTHORITY APPROVAL

APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722
REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012
APPROVAL DATE: 04/12/2024
ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334
SHEET NO : 2 OF 10

CLIENT CONTACT :
ROBSON CIVIL
GERARD NOONE
04 39 246 804

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
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TRAFFIC CONTROLLERS - BREAKS : 2
TRAFFIC CONTROL UTE : 3

SPECIALIST VEHICLE REQUIREMENTS :

VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

TOTAL CONES : 69 | TOTAL SIGNS : 26 | BARRIER BOARDS : 0
PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

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APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 3 OF 10

CLIENT CONTACT :
ROBSON CIVIL
GERARD NOONE
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CLIENT CONTACT:
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FOR ALL DESIGN INFORMATION/ REQUIRMENTS AND SPECIALIST VEHCILE / DEVICES REFER TO MAIN COVER PAGE (PG 1)

DRAWING NUMBER:
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APPROVED BY - DESIGNER :
SA HAMDAN – TCT1024722

REVIEW OR DEPARTURE APPROVED BY:
CRAIG RUMING - TCT0016012

APPROVAL DATE:
04/12/2024

ALTUS NOMINATED CONTACT:
24Hr Contact - 1800 872 334

SHEET NO: 4 OF 10

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REVIEW OR DEPARTURE APPROVED BY:
CRAIG RUMING - TCT0016012

APPROVAL DATE:
04/12/2024

ALTUS NOMINATED CONTACT:
24Hr Contact - 1800 872 334

SHEET NO: 5 OF 10

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
ESTIMATED JOB TIME : 19:00 - 05:00
GARBAGE COLLECTION DAY : TUESDAY

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ALTUS GROUP DESIGN NUMBER: 24-12-76342-02 **ARS:** 4/5

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WORKSITE REQUIREMENTS :

TRAFFIC CONTROLLERS : 5
TRAFFIC CONTROLLERS - BREAKS : 2
TRAFFIC CONTROL UTE : 3

SPECIALIST VEHICLE REQUIREMENTS :

VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

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PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

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APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722

REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012

APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 6 OF 10

CLIENT CONTACT :
ROBSON CIVIL
GERARD NOONE
04 39 246 804

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DATE OF DESIGN: 02/12/2024

SITE SETUP TGS AND SETUP RISK ASSESSMENT

NSU01-SS

WORKS LOCATION : ABBOTTS RD, KEMPS CREEK
BETWEEN ROADS : ALDINGTON RD & MAMRE RD
WORKSITE ROAD AUTHORITY : PENRITH CITY COUNCIL
ESTIMATED JOB DATE : 05/01/2025 -
ESTIMATED JOB TIME : 19:00 - 05:00
GARBAGE COLLECTION DAY : TUESDAY

ISSUE	DESG	DATE	AMENDMENT DESCRIPTION
A			
B			
C			

ALTUS GROUP DESIGN NUMBER: 24-12-76342-02 **ARS:** 4/5

CLIENT REFERENCE NUMBER: TBC

GENERAL DISCLAIMER:
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- DAILY RECORD KEEPING SHALL BE PERFORMED, INCLUDING RELEVANT SITE INSPECTIONS, DURING WORKS.
- THIS TGS/TMP SHALL REMAIN VALID FOR 12 MONTHS FROM THE DESIGN APPROVAL DATE OR WHERE STATE-SPECIFIC GOVERNANCE IS CHANGED. AT THIS POINT, THE TGS/TMP WILL NEED TO BE REVIEWED ON CURRENCY OF COMPLIANCE.

WORKSITE REQUIREMENTS :

TRAFFIC CONTROLLERS : 5
TRAFFIC CONTROLLERS - BREAKS : 2
TRAFFIC CONTROL UTE : 3

SPECIALIST VEHICLE REQUIREMENTS :

VMS UTE : 0 | TMA REQUIRED : 0 | DDV REQUIRED : 0

DEVICE / EQUIPMENT REQUIREMENTS:

TOTAL CONES : 69 | TOTAL SIGNS : 26 | BARRIER BOARDS : 0
PTCD : 0 | 1.8m STOP BAT/S : 5
PTAB : 0 | THM'S / CHEVRON: 0

APPROVED FOR IMPLEMENTATION
WHEN USED WITH ROAD AUTHORITY APPROVAL

APPROVED BY - DESIGNER : SA HAMDAN – TCT1024722

REVIEW OR DEPATURE APPROVED BY: CRAIG RUMING - TCT0016012

APPROVAL DATE: 04/12/2024

ALTUS GROUP NOMINATED CONTACT : 24HR CONTACT - 1300 872 334

SHEET NO : 7 OF 10

CLIENT CONTACT :
ROBSON CIVIL
GERARD NOONE
04 39 246 804

ROBSON CIVIL PROJECTS



CLIENT CONTACT:
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GERARD NOONE
04 39 246 804

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APPROVED BY - DESIGNER :
SA HAMDAN – TCT1024722

REVIEW OR DEPARTURE APPROVED BY:
CRAIG RUMING - TCT0016012

APPROVAL DATE:
04/12/2024

ALTUS NOMINATED CONTACT:
24Hr Contact - 1800 872 334

SHEET NO: 8 OF 10

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APPROVED BY - DESIGNER :
SA HAMDAN – TCT1024722

REVIEW OR DEPARTURE APPROVED BY:
CRAIG RUMING - TCT0016012

APPROVAL DATE:
04/12/2024

ALTUS NOMINATED CONTACT:
24Hr Contact - 1800 872 334

SHEET NO: 9 OF 10

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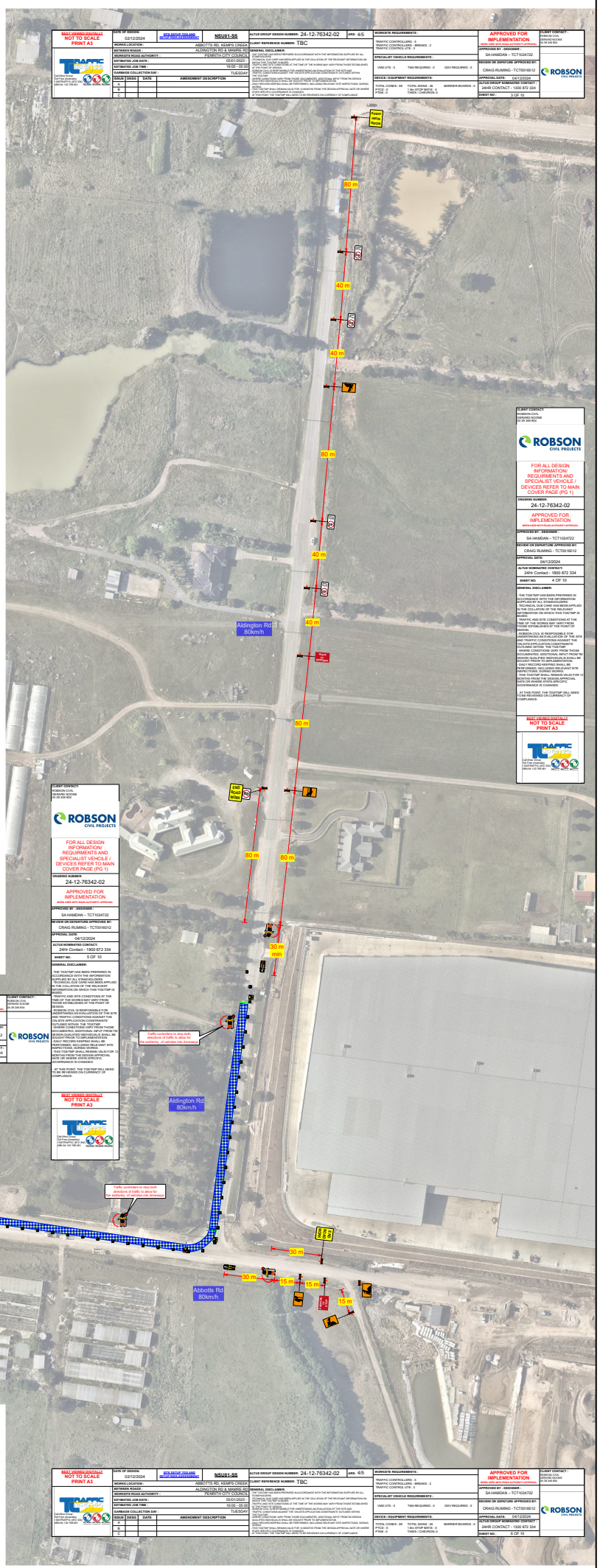
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Appendix D. Verification Checklist

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:	Emily Duan	**Signature:**		
Qualification	Traffic Engineer Ticket No. TCT1054771			
TGS details:				
TMP Reference:	P2264r03v03 CTMP_Mamre Rd, Abbotts Rd and Aldington Rd Upgrade, Issue III	**TGS Reference:**		
18	18/10/2024	**Review type**	☐ Site Inspection	☑ Desktop Review
Sources used for desktop review	Near Map, Dated 16/07/2024.			
Site details				
Street name:	Mamre Road	**Confirmed posted speed limits:**	80km/h	
Street name:	Abbotts Road	**Confirmed posted speed limits:**	60km/h	
Street name:	Aldington Road	**Confirmed posted speed limits:**	60km/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 Abbotts Road, Mamre Road, and Aldington Road.
Predicted queue length	☑ Yes	☐ No	☐ N/A	**Details**	As Abbotts Road has low traffic movements, there is sufficient distance available to manage any potential internal queuing without disrupting traffic flow on the main road - Mamre Road.
Shoulder widths	☐ Yes	☐ No	☑ N/A	**Details**	Abbotts Road and Aldington Road have no formed road shoulder.
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 in the immediate area. Electrical pole on the corner of Abbott Road and Aldington Road, however not in the vicinity of the Site access.
Transport services	☑ Yes	☐ No	☐ N/A	**Details**	There is no bus stop directly fronting the Site and will not be affected by the construction works.
Pedestrian generators	☑ Yes	☐ No	☐ N/A	**Details**	Pedestrians are given right of way as far as possible, however no footpaths are located within the vicinity of the Site.
Appropriate site access	☑ Yes	☐ No	☐ N/A	**Details**	Appropriate site access for largest vehicle.
Appropriate escape route for traffic controllers	☑ Yes	☐ No	☐ N/A	**Details**	Traffic controllers will be positioned away from the road and have a 6m-wide verge area adjacent to Abbotts Road as an escape route in case of an incident, ensuring their safety. Furthermore, a service vehicle will be placed next to the traffic controller to maximise safety.

Appendix E. Evidence of Consultation

[redacted]

From: [redacted]
Sent: Wednesday, 2 October 2024 4:56 PM
To: [redacted]
Cc:
Subject: Re: MAIU & AARU - CEMP
Attachments: 610.31166.00000-R07-v1.1-20240813 (RP Comments).pdf; AARU and MAIU_Contingency Plan (ER comments).pdf; AARU and MAIU_DDMP_Rev 03 (Rp comments).pdf

Hi [redacted]

No comments on the following documents:

- Salinity Management Plan
- Fill Management Plan
- Waste Management Plan
- Unexpected Finds Contamination Procedure
- Construction Flora and Fauna Management Plan
- Heritage Management Plan

Comments on the:

- Construction Traffic Management Plan (attached)
- Contingency Management Plan (attached)
- Dam Dewatering (attached)

I think this is it for AARU

I will have a look at the next batch shortly

[redacted] Director
Trigalana Environmental Pty Ltd
[redacted]

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From: [redacted]
Sent: Wednesday, 2 October 2024 12:11 PM
[redacted]
Subject: Re: MAIU & AARU - CEMP

Hi [redacted]

Comments on the comms plan is attached.

Cheers

[redacted] Director
Trigalana Environmental Pty Ltd
[redacted]

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From: [redacted]
Sent: Monday, 30 September 2024 5:15 PM
[redacted]
Subject: RE: MAIU & AARU - CEMP

Thanks [redacted]

I'll be addressing your comments with the sub consultants and updating the documents in the same live folder.

Kind regards,

[redacted]



Cordeaux Dam
Photo by our Senior Project Manager - Andrew Byrne

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North Sydney NSW 2060

[redacted]

From: [redacted]
Sent: Monday, 30 September 2024 4:38 PM
[redacted]
Subject: Re: MAIU & AARU - CEMP

Hi [redacted]

I will send these one by one to keep the ball rolling.

There are a lot of documents.

- CEMP, CNVMP and AQMP comments attached
-

[redacted] Director
Trigalana Environmental Pty Ltd
[redacted]

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From: [redacted]
Sent: Monday, 30 September 2024 11:09 AM
[redacted]
Subject: RE: MAIU & AARU - CEMP

Hi [redacted]

Just following up on the email below. Have you had a chance to review the plans?

Please let me know.

Kind regards,

[redacted]

at&l

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Level 7, 153 Walker Street
North Sydney NSW 2060

[redacted]



Cordeaux Dam
Photo by our Senior Project Manager - Andrew Byrne

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From: [redacted]
Sent: Monday, 23 September 2024 5:07 PM
[redacted]
Subject: Re: MAIU & AARU - CEMP

Thank you [redacted]

I will have a look at this and discuss with Carl tomorrow.

If any questions will give you a call.

Cheers

[redacted] Director
Trigalana Environmental Pty Ltd

[redacted]

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From: [redacted]
Sent: Monday, 23 September 2024 8:56 AM
[redacted]
Subject: MAIU & AARU - CEMP

Hi [redacted]

I hope this email finds you well.

I'm reaching out to seek your consultation on the CEMP for the External Road Works associated with MOD 5 to SSD-9138102 (MAIU and AARU). This is part of our compliance with the requirements under Condition D25, which mandates the preparation of the CEMP in consultation with relevant stakeholders before commencement.

To provide context, there will be three separate overarching CEMPs for the following projects:

- MAIU
- AARU Phase 1
- AARU Phase 2

All three CEMPs will utilize the same set of sub-reports, which cover the scope of these projects. This approach ensures consistency in managing traffic, environmental monitoring, and other key aspects while addressing the specific requirements of each phase. AARU Phase 2 overarching CEMP report is still to be drafted.

Please find the link below to the CEMP's folders for your review, which contain the Construction Traffic Management Plan for all three projects. We would appreciate your feedback and any recommendations within the next week to help us stay on schedule and comply with the consent conditions.

AARU CEMP
(See Annexure J - CTMP)
MAIU CEMP
(See Annexure J - CTMP)

If there is any additional information you require or if you would like to arrange a meeting to discuss further, please feel free to reach out.

Thank you for your attention, and I look forward to your response.

Kind regards,

[redacted]

at&l

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Level 7, 153 Walker Street
North Sydney NSW 2060

[redacted]



Lake Parramatta, Parramatta

Photo by our Associate | WSC Team Lead - Samantha Bennett

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[redacted]

From: [redacted]
Sent: Wednesday, 25 September 2024 1:51 PM
To: [redacted]
Cc:
Subject: RE: MAIU & AARU - CEMP

Hi [redacted]

Thank you for the chat earlier. As discussed, I have forwarded the submitted CEMP documents to our Environmental team for their review and to provide me with feedback. I will keep you updated as soon I receive their comments.

Please feel free to contact me if you have any questions.

Kind Regards,

[redacted]
Senior Engineer - Major Developments
Engineering Services

[redacted]
www.visitpenrith.com.au
www.penrithcity.nsw.gov.au

PENRITH CITY COUNCIL

Follow us



From: [redacted]
Sent: Monday, September 23, 2024 8:50 AM
[redacted]
Subject: MAIU & AARU - CEMP

EXTERNAL EMAIL: This email was received from outside the organisation. Use caution when clicking any links or opening attachments.

Hi [redacted]

I am writing to seek Council's consultation on the Construction Environmental Management Plan (CEMP) for the External Road Works associated with the Mamre and Abbotts Intersection Upgrade (MAIU) and Aldington and Abbotts Road Upgrade (AARU). This is in accordance with Condition D25(a) of SSD-9138102 MOD5, which requires the CEMP to be prepared in consultation with Council prior to the commencement of the External Road Works.

To provide context, there will be three separate overarching CEMPs for the following projects:

- MAIU
- AARU Phase 1
- AARU Phase 2

All three CEMPs will utilize the same set of sub-reports, which cover the scope of these projects. This approach ensures consistency in managing traffic, environmental monitoring, and other key aspects while addressing the specific requirements of each phase.

Please find the link below to the CEMP's folders for your review, which contain the Construction Traffic Management Plan for all three projects. We would appreciate your feedback and any recommendations within the next week to help us stay on schedule and comply with the consent conditions.

AARU CEMP
(See Annexure J - CTMP)
MAIU CEMP
(See Annexure J - CTMP)

If there is any additional information you require or if you would like to arrange a meeting to discuss further, please feel free to reach out.

Thank you for your attention, and I look forward to your response.

Kind regards,

[redacted]

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[redacted]



Lake Parramatta, Parramatta

Photo by our Associate | WSC Team Lead - Samantha Bennett

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[redacted]

From: [redacted]
Sent: Wednesday, 25 September 2024 9:53 AM
To: [redacted]
Cc:

Subject: RE: MAIU - CEMP and Community Consultation
Attachments: 630.031625.00001_CCSCHP v.03 Final.pdf; FW: Council's Advice on TGS Plans Prepared for Stage 1 Works of AARU; 2024-09-09 Distribution register.xlsx; 2024.07.09_Comments from TfNSW on TMP ATL 24-09-25.docx

Hi [redacted]

Please find attached:

- the TMC review comments with responses updated
- PCC endorsement of the TMP including the RT ban at Abbotts Rd
- Copy of the Community Consultation Strategy which includes a copy of the consultation letters issued regarding the construction traffic management and the RT ban proposal
- Copy of the Community Consultation distribution register

I also provide a copy of the CEMP which includes the CTMP and CCS. MAIU CEMP

We already have a number of responses from stakeholders and will compile all responses once the consultation is completed.

Regards,

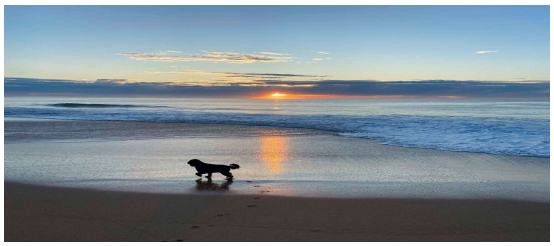
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From: [redacted]
Sent: Wednesday, 25 September 2024 8:00 AM
To: [redacted]

[redacted]

[redacted]

Subject: RE: MAIU - CTMP

Hi [redacted]

Could you please send me the comments sheet with responses to TMC's comments.

Regards

[redacted]
Project–Contract Manager
Developer Works
Greater Sydney
Transport for NSW

[redacted]

transport.nsw.gov.au

129a Orchardleigh Street
Yennora NSW 2161

Transport for NSW

OFFICIAL

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From: [redacted]
Sent: Tuesday, September 24, 2024 5:30 PM

[redacted]

Subject: MAIU - CTMP

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.

Hi [redacted]

Please find attached the revised CTMP from ASON which addresses the issue of traffic volumes generation for the intersection during construction. Should you have any questions please let us know.

P2264r03v02 CTMP_Mamre Rd, Abbotts Rd and Aldington Rd Upgrade, Issue II (with TGS).pdf

Regards,

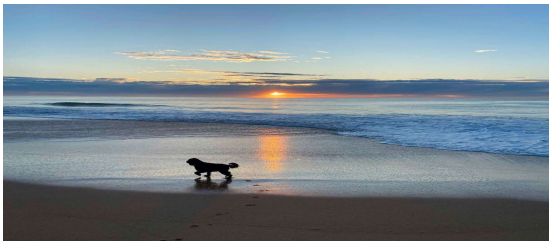
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Appendix L Fill Importation Protocol

Fill Management Plan (FMP)

Mamre Road, Abbotts Road and Aldington Road Upgrade, Kemps Creek NSW

Prepared for: Land Owners Group – East c/o AT&L

A101024.0241.00 | FMP.V1f | Date: 7 August 2024

Document Information

Report Title: Fill Management Plan
Prepared for: Land Owners Group – East c/o AT&L
Project Address: Mamre Road, Abbotts Road and Aldington Road Upgrade, Kemps Creek NSW
File Reference: A101024.0241.00
Report Reference: FMP.v1f
Date: 7 August 2024

Document Control

Version	Date	Author	Revision description	Reviewer
V1d	31/05/2024	Zahra Derakhshan	Draft for client review	Junaid Riaz
V1f	7/08/2024	Zahra Derakhshan	Update following client review	Junaid Riaz

For and on behalf of

ADE Consulting Group Pty Ltd

Prepared by:



Dr. Zahra Derakhshan
Senior Environmental Consultant

Reviewed by:

Junaid Riaz
Associate Environmental Consultant
CEnvP - 1317

Issued by:

Nicholas Maricic
Environmental Consultant

T. 1300 796 922| E. info@ade.group
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Appendices

Appendix A - Figure

Appendix B – Activities Including PFAS: National Environmental Management Plan

Appendix C – Excavated Natural Material Order 2014

Appendix D – Proposed Check Sampling Densities

Tables

Table 1. Reference contaminants values for VENM apply to imported natural materials. 9

Abbreviations

Abbreviation	Definition
ACM	Asbestos Containing Material
ADE	ADE Consulting Group Pty Ltd
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CLM	Contaminated Land Management
CoC	Chain of Custody
CoPCs	Contaminants of Potential Concern
EPA	Environment Protection Authority
ENM	Excavated Natural Material
ERM	Environmental Resources Management
FMP	Fill Management Plan
LOG-E	Land Owners Group- East
m BGL	meters Below Ground Level
NATA	National Association of Testing Authorities
NEPC	National Environmental Protection Council
NEMP	PFAS National Environmental Management Plan
NEPM	National Environmental Protection Measure
NSW	New South Wales
NSW EPA	New South Wales Environment Protection Authority
OPPs	Organophosphorus Pesticides
OCPs	Organochlorine Pesticides
OEH	Office of Environment and Heritage
PAHs	Polycyclic Aromatic Hydrocarbons
PFAS	Per-fluoroalkyl substances
POEO	Protection of Environmental Operations
SSRRE	Site-Specific Resource Recovery Exemption
SSRRO	Site Specific Resource Recovery Orders
VENM	Virgin Excavated Natural Material

1 INTRODUCTION & BACKGROUND

1.1 Introduction

ADE Consulting Group Pty Ltd (ADE) was commissioned by Land Owners Group – East (LOG-E) (the Client) to prepare a Fill Management Plan (FMP) for the assessment of imported fill material at Mamre Road, Abbotts Road and Aldington Road Upgrade (AARU and MAIU), Kemps Creek NSW (hereafter referred to as 'the site'). The FMP is applicable for assessing the suitability of soil/rock materials to be imported onto the site as part of the development works.

The purpose of the FMP is to set out the requirements for imported fill materials with respect to contamination. Application of this FMP to all soil / rock materials will provide a consistent approach to the management of imported materials with respect to their suitability for use as part of the site rehabilitation works. The site is currently accepting fill material classified as virgin excavated natural material (VENM), excavated natural material (ENM) and any Site-Specific Resource Recovery Exemption / Order (SSRRE) as granted by the New South Wales Environmental Protection Authority (NSW EPA).

ADE considers that it is the responsibility of Land Owners Group – East (LOG-E) and/or their nominated representative to ensure compliance with this FMP. It is recommended that the filling material suppliers are issued with a copy of this FMP. The suppliers will be requested to provide supporting information and evidence to verify that the imported material complies with this FMP. Land Owners Group – East (LOG-E) has the right to make the final decision on the suitability of the material imported onto the Site. This FMP may be updated from time to time to reflect changes to industry standards or site requirements.

1.2 Background

ADE understands that the proposed development location comprises an approximate 2.8 kilometre (km) for AARU and 1.2 km on Mamre Road stretch of road from the intersection of Mamre Road and Abbotts Road, extending up Aldington Road, Kemps Creek. The Site has a length of 4 km, located within the Penrith City Council Local Government Area (LGA). The proposed works are for the purpose of complying with the client's development application (DA) and includes various cut and fill activities and road widenings along the project area.

ADE has not been provided with detailed earthworks plans by the client.

1.3 Site Identification

A previous detailed site investigation (DSI) had been undertaken by ADE (ADE, 2023) and the contents are summarised as follows:

- The site comprises public road reserves and private land across multiple residential properties located at Abbotts and Mamre Road, Kemps Creek, NSW. The site comprises Abbotts Road reserve from the western end to Abbotts / Aldington intersection, Aldington Road reserve from the junction to the north, and 5-10 metres (m) extension to private land of both roadsides with the total route length 2.8 km.
- The site is situated within the Local Government Area (LGA) of Penrith City Council and is zoned as 'IN1 – General Industrial' under the Penrith City Planning Certificate under section 10.7(2) of the Environmental Planning and Assessment Act 1979.

- The site has a moderate to steep sloping surface towards southwest, ranging from 44-74 m Australian Height Datum (AHD). The lowest point (44 m) on-site is in the southwestern portion of the site, with the highest point is located at the northern end of the Site.
- Immediately north of the site is an environmental conservation area. Industrial development is underway approximately 300m to the north of the Site. The site is predominantly surrounded by agricultural land, vacant grassland/ paddocks, public road reserves and rural residential properties to the east, south and west.
- 4 dams are identified on-site. The closest surface water body to the site is Kemps Creek. The closest portion of Kemps Creek is located approximately 350m west of the Site.

Please refer to Figure 1 in Appendix A – Figures for site location.

2 LEGISLATION, GUIDELINES and DEFINITIONS

Importation of materials onto the Site must fully abide by the provisions of relevant legislative framework and guidelines that have been issued and/or endorsed by the NSW Environmental Protection Authority (EPA) under the following Acts/Regulations:

- Environmental Planning and Assessment (EPA) Act 1979;
- Protection of the Environment Operations (POEO) Act 1997;
- Contaminated Land Management (CLM) Act 1997; and
- Schedule 3 of the State Environmental Planning Policy (State and Regional Development) 2011.

The relevant guidelines issued under the provisions of the aforementioned Acts/Regulations include:

- Australian Standards AS3798: Guidelines on Earthworks for Commercial & Residential Developments (1998) [AS3798];
- Department of Land and Water conservation (DLWC) (2002). *Site Investigations for Urban Salinity*;
- National Environment Protection Council (NEPC) (2013). National Environmental Protection (Assessment of Site Contamination) Measure Amended 2013. (ASC NEPM, 2013).
- NSW EPA (2014). *Excavated Natural Material Order 2014*;
- NSW EPA (2014a). *Waste Classification Guidelines Part 1: Classifying Waste;*
- NSW EPA (2015). *Guidelines on the duty to report contamination under the contaminated land management Act 1997*;
- NSW EPA (2017). *Guidelines for the NSW Site Auditor Scheme (3rd edition)*;
- NSW EPA (2020). *Guidelines for consultants reporting on contaminated land*;
- NSW EPA (2022). *Contaminated Land Guidelines, Sampling design part 1 – application*.
- The Heads of EPAs Australia and New Zealand [HEPA] (2020). *PFAS National Environmental Management Plan (NEMP*); and
- Protection of the Environment Operations (Waste) Regulation 2014 (NSW) – Relevant associated resource recovery orders and exemptions issued under part 9, Clause 91 and 92.

2.1 Definitions

2.1.1 VENM Definition

The Protection of the Environment Operations Act (POEO Act) defines Virgin Excavated Natural Material (VENM) as:

Natural material (such as clay, gravel, sand, soil or rock fines):

a) That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and

b) That does not contain any sulfidic ores or soils or any other waste and excludes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.

2.1.1 ENM Definition

Excavated Natural Material (ENM) is naturally occurring rock and soil (including material such as sandstone, shale, clay and soil) that has:

a) Been excavated from the ground;

b) Contains at least 98 per cent (by weight) natural material; and

c) Does not meet the definition of VENM.

ENM does not include material that has been processed or contains acid sulfate soils or potential acid sulfate soils.

2.1.2 Site Specific Resource Recovery Exemptions (SSRRE)

SSRRE contain the conditions that consumers must meet to use the resource recovery waste for application to land as fill. These conditions may include requirements regarding how to reuse or apply the waste, as well as record keeping, reporting and other requirements.

2.1.3 Site Specific Resource Recovery Orders (SSRRO)

SSRRO contain the conditions that generators and processors of waste must meet to legally supply the resource recovery waste material for land application. These conditions may include material specifications, processing specifications, record keeping, reporting and other requirements.

3 IMPORTED MATERIAL ACCEPTANCE CRITERIA

Materials imported to the site must satisfy the minimum requirements detailed below. All materials to be imported must be accompanied by appropriate reports from qualified Environmental Consultants verifying the status of the material with respect to contamination.

All imported soil / rock material must be verified to be either VENM, ENM or other SSRRE as defined by the NSW EPA (2014) *Waste Classification Guidelines* (NSW EPA, 2014), current general resource recovery exemptions/orders (exemptions contain the conditions that consumers must meet to use the resource recovery waste for application to land as fill) or specific exemptions granted by the EPA, as defined above, or certified top soil for use in landscape designated areas.

As the NSW EPA has no specific VENM assessment criteria, VENM material should be reviewed on the basis of the source site history, "observation" and property of material and should meet the relevant background ranges for metals and BTEX adopted from Berkman 1989 and ANZECC 1992 (whichever is higher). Details of the source site address, history, environmental setting (geology, potential acid sulfate soil, salinity) and potential impact from surrounds, including consideration of per- and poly-fluoroalkyl substances (PFAS), should be addressed within the corresponding waste classification report.

As per HEPA 2020 NEMP 2.0 (2020), screening for PFAS contaminated materials should be screened if:

- sourced from locations that historically or currently use or store PFAS-containing products, noting that all PFAS formulations should be considered (refer to **Appendix A** – Activities Including PFAS: National Environmental Management Plan);
- identified as a point source (e.g., firefighting training facilities, foam installations, metal plating works, electricity generation and/or distribution facilities); and
- identified as a secondary source (e.g., landfill, wastewater treatment facility and/or biosolids use site).

3.1 Material Generator Requirements

The generator of the material must provide details on the source of the material prior to the material being imported onto Site. The details must include information such as suppliers' details, source site details, environmental/geotechnical details, and general information on the soil.

3.2 VENM Acceptance Criteria

For VENM to be accepted, the concentrations of contaminants of potential concern (CoPCs) are to meet the relevant background ranges for metals adopted from The Field Geologists' Manual (3rd ed.) (Berkman, 1989) and with respect to organic analytes, their analytical practical quantitation limits (see extract in **Appendix B– Table 4**). All VENM must be accompanied by an assessment report from a suitably qualified Environmental Consultant. The assessment should include appropriate levels of sample analyses conducted at the acceptable sampling density.

3.2.1 VENM Sampling Density and Analysis

Samples for the assessment of VENM for both stockpiles and in-situ material must be collected at the density specified within **Appendix B– Table 1 & 2**. Samples for in-situ material must be collected from the surface, and

at depths where contamination is suspected. Additional samples should be collected if there is uncertainty in the data obtained and if further assessment is required.

Discrete samples must be collected and submitted to a National Association Testing Authorities (NATA) accredited laboratory for the analysis of the following contaminants of potential concern:

- Heavy Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc);
- Total Recoverable Hydrocarbons (TRHs);
- Benzene, Toluene, Ethyl-benzene, Xylene (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs);
- Organochlorine Pesticides / Organophosphorus Pesticides (OCPs/OPPs);
- PFAS;
- Potential Hydrogen (pH); and
- Asbestos (presence/absence).

3.2.2 VENM Criteria

VENM criteria are provide in **Table 1** below.

Table 1. Reference contaminants values for VENM apply to imported natural materials.

Contaminants*	Berkman[1] (mg/kg)	ANZECC[2]
TPH[3, 4] **C_6-C_{10}** **C_{10}-C_{36}** **C_{16}-C_{34}** C_{34}-C_{40}	For all organic analytes, the analytical practical quantitation limits are used as the reference levels for VENM Assessment.	
BTEX[3] **Benzene** **Toluene** **Ethylbenzene** **Xylene** **m.p Xylene**	For all organic analytes, the analytical practical quantitation limits are used as the reference levels for VENM Assessment.	 0.05-1 0.1-1 - - -
Metals **Arsenic** **Cadmium** **Chromium (III)** **Copper** **Lead** **Mercury** **Nickel** **Zinc**	 1-50 1 5-1000 2-100 2-200 0.03 5-500 10-300	 0.2-30 0.04-2 0.5-110 1-190 <2-200 0.001-0.1 2-400 1-180
PAHs[3, 5] **Total PAHs** **Benzo(a)pyrene**	For all organic analytes, the analytical practical quantitation limits are used as the reference levels for VENM Assessment.	
PCBs[3]		
OCP / OPP[3] **Aldrin + Dieldrin** **Chlordane** **DDD, DDE, DDT** **Heptachlor**		

Contaminants*	Berkman[1] (mg/kg)	ANZECC[2]
Chlorpyrifos		
Asbestos	No presence of asbestos	
PASS	No sulfidic ores or indicators of potential acid sulfate soils	
pH[6]	4.5-10	6-8
PFAS[7]	The analytical practical quantitation limits are used as the reference levels for VENM Assessment.	

Notes:
[1] Berkman (1989) Field Geologists' Manual;
[2] Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council (ANZECC/NHMRC): Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (1992), Environmental Soil Quality Guidelines Background A [ANZECC A].
[3] For all organic analytes the practical quantitation limit (PQL) must be low enough to meet the applicable land use criteria (HIL/HSL D).
[4] Some sources of natural shale rock may contain low level concentrations of TPH; in this instance it is at the discretion of Land Owners Group – East (LOG-E) or their nominated representative to accept the material as VENM.
[5] Some soils may contain natural concentrations of PAHs; in this instance it is at the discretion of Land Owners Group – East (LOG-E) or their nominated representative to accept the material as VENM.
[6] pH criteria (absolute maximum concentration) adopted from ***The ENM Order*** (2014).
[7] PFAS screening only required from source locations deemed as high risk during the initial assessment.
* Other CoPCs may need to be analysed if there is the potential for the contaminant to occur in or adjacent to the source site.

3.3 ENM Acceptance Criteria

The ENM acceptance criteria has been adopted directly from the ENM Order (2014) which has been provided in **Appendix B**. The sampling requirements including sampling density and analysis are provided in **Tables 1, 2** and **3** of the ENM Order in **Appendix B**. Additional samples should be collected if there is uncertainty in the data obtained, if the source location is deemed at risk of PFAS contamination and if further assessment is required.

3.4 Site Specific Resource Recovery Orders and Exemptions

Material defined under a SSRRE/O granted by the EPA are required to meet the conditions defined therein prior to being accepted into the Land Owners Group – East (LOG-E) project. The importation of exempt material is subject to approval by Land Owners Group – East (LOG-E) at its absolute discretion.

3.5 Topsoil Acceptance Criteria

Topsoil may be proposed in areas of landscaping to promote healthy vegetation growth. The topsoil may be imported from a specialised supplier or from an approved site in accordance with the VENM criteria outlined in **Table 1** above.

3.6 Unsuitable Materials

The materials are not, or do not contain any of the unsuitable materials listed below:

- Acid Sulfate Soils
- Asbestos
- Biocides
- Chemical Storage Containers
- Contaminated Material
- Demolition Rubble
- Excessively Wet Soils
- Explosives
- Fibro
- Food Waste
- Fungicides
- Herbicides
- Vegetative Waste
- Household Domestic Waste
- Large Rock Fragments
- Liquid Waste
- Metals
- Non-validated Material
- Oil Filters and Rags
- Paint
- Pesticides
- Plastics and PVC
- Radioactive Waste
- Sanitary Waste
- Timber (inc. Treated)
- Tyres

4 APPROVAL and ASSESSMENT

4.1 Approval of Source Site

Materials will be judged as suitable or otherwise by LOG-E and/or their representative based on the provided documentation, and the apparent reliability or otherwise of the documentation and its conformance with this FMP.

1. An initial validation/classification report is submitted to LOG-E's nominated environmental representative, assigned unique identifier number, and screened against the requirements of this document, "FMP" (ADE, 2024)
    a. For VENM, if material is deemed compliant with the FMP (ADE, 2024) and the subject material is deemed low risk, no check sampling will be required unless otherwise requested by LOG-E. Proceed to step 2.
    b. For ENM or if the subject material is deemed moderate to high risk, check sampling must be collected, unless otherwise requested by LOG-E, by LOG-E's nominated environmental representative and analysed, via a NATA accredited laboratory, in accordance with the sample densities and analytes specified within **Table A1** in **Appendix C**. Proceed to step 2.
2. A site inspection is to be conducted by LOG-E or their nominated representative to document and visually assess the source materials and site conditions.
    a. Where the site inspection notes differing material descriptions or site conditions with potential for contamination, LOG-E may request a site inspection/check sampling be carried out by their nominated environmental representative.
3. Should the source site inspection and check sample results (if collected) be found to comply with the FMP, a Memorandum of Review (MOR) including details of the initial classification, source site inspection(s), check sampling results and any conditions of approval will be provided to LOG-E as an approval to accept the material for import.

In certain circumstances, LOG-E may elect not to proceed with check sampling for any site at its discretion.

Material deemed compliant with this FMP via the initial classification report then, source site will be provided with a unique identifier No. (i.e. approval number). In addition, an upfront site inspection of the source materials and check samples will be collected and analysed against either VENM, ENM or other SSRRE criteria, via a NATA accredited laboratory, in accordance with the sample densities and analytes specified within **Table A1** in **Appendix C**.

If material being imported does not match the description within the approved classification report, then importation of material from source site will be stopped and deemed rejected until source site can verify/classify/justify material as being suitable for this FMP.

Any materials deemed 'not to comply' or 'yet to comply' with this protocol should not be imported onto the Site. If doubt arises with respect to any materials already imported onto the site, the materials shall remain stockpiled, fenced and signposted in a clearly defined area pending final assessment. If materials at the Site are deemed unacceptable for use for the development works, a specific management plan for these materials should be developed by a suitably qualified Environmental Consultant.

4.2 Truck Movement Records

A record of truck movements should be maintained for trucks carrying material imported to the site providing the following information:

- The date and time of truck arrival;
- The source location of the material;
- Source site approval number (unique identification number confirming approved source);
- The truck registration details;
- Material type;
- The approximate volume/tonnage of material per load;
- Visual assessment of material at gate; and
- Record of load acceptance / rejection.

Materials not deemed consistent with the supporting documentation will be rejected from entering the site. Similarly, materials will be rejected if the volume exceeds that stated in the supporting documentation. A supplementary assessment may be made by the source site's consultant to allow for the additional volume; however, this must be submitted for review to LOG-E prior to acceptance.

4.3 Non-Compliance

Any material imported to site that is found to be non-compliant (discovered during check testing or during general site activities), or subject to be, will be isolated and assessed by LOG-E and/or their representative. If the non-compliant material is found to be incompatible with the Site, it will be removed at the cost of the source site and/or the importing contractor. The cost of remediation and validation will be borne by the source site and/or the importing contractor

5 LIMITATIONS

This report has been prepared for use by LOG-E who have commissioned the works in accordance with the project brief only and has been based on information provided by the client. The advice herein relates only to this project and contents should be reviewed by a competent and experienced person with experience in said reports, before being used for any other purpose. ADE 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 or amended in any away without prior approval by the client or ADE and should not be relied upon by any other party, who should make their own independent enquiries.

This report does not provide an assessment of the environmental status of the site, and it is limited to the scope defined herein. ADE's professional opinions are based upon its professional judgment, experience, and training.

ADE has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the Environmental Industry within Australia. No other warranty, expressed or implied, is made or intended.

6 References

Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council (ANZECC/NHMRC): Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (1992), Environmental Soil Quality Guidelines Background A [ANZECC A].

Australian Standards AS3798: Guidelines on Earthworks for Commercial & Residential Developments (1998) [AS3798].

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D.A Berkman. (1989) Field Geologist's Manual (D.A. Berkman, 1989).

Department of Land and Water conservation (DLWC) (2002). *Site Investigations for Urban Salinity.*

National Environment Protection Council (NEPC) (2013*). National Environmental Protection (Assessment of Site Contamination) Measure Amended 2013.* (ASC NEPM, 2013).

NEPC (1999). National Environmental Protection (Assessment of Site Contamination) Measure Schedule B(1) Guidelines on the Investigation Levels for Soil and Groundwater, Background Ranges.

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NSW EPA (2014a). *Waste Classification Guidelines Part 1: Classifying Waste.*

NSW EPA (2015). *Guidelines on the duty to report contamination under the contaminated land management Act 1997.*

NSW EPA (2017). *Guidelines for the NSW Site Auditor Scheme (3rd edition).*

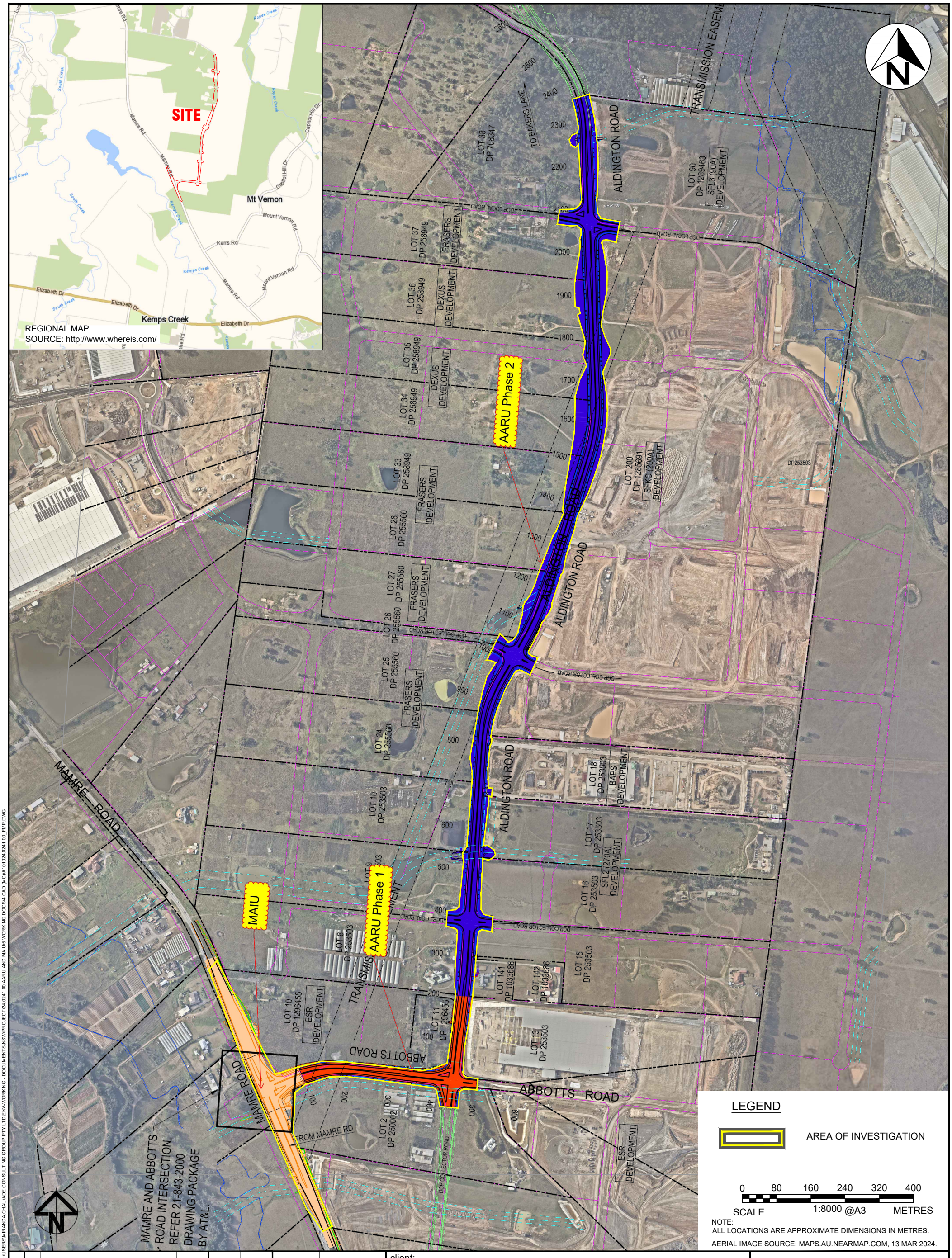
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Protection of the Environment Operations (Waste) Regulation 2014 (NSW) – Relevant associated resource recovery orders and exemptions issued under part 9, Clause 91 and 92.

Appendix A - Figure



LEGEND

AREA OF INVESTIGATION

0 80 160 240 320 400

SCALE 1:8000 @A3 METRES

NOTE:
ALL LOCATIONS ARE APPROXIMATE DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 13 MAR 2024.

revision	no.	description	drawn	approved	date
	A	FIRST ISSUE	MC	LL	02/08/24

drawn	MC
approved	NM
date	02/08/2024
scale	AS SHOWN
original size	A3

client: LAND OWNER'S GROUP - EAST

project: FILL MANAGEMENT PLAN
MANRE ROAD, ALDINGTON AND ABBOTTS ROAD
KEMPS CREEK, NSW

title: FILL MANAGEMENT PLAN

project no: A101024.0241.00 | figure no: FIGURE 1 | rev: A

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PLOT DATE: 2/08/2024 10:37:16 AM DWG FILE: C:\USERS\MIRANDA.CHAU\ADE CONSULTING GROUP PTY LTD\ENV-WORKING - DOCUMENTS\NSWPROJECT\24.0241.00 AARU AND MAIU\5.WORKING DOCS\4.CAD (MC)\A101024.0241.00_FMP.DWG

Appendix B – Activities Including PFAS: National Environmental Management Plan

Appendix B. Activities associated with point sources of PFAS contamination

Tables B1 and B2 identify activities associated with PFAS contamination, with a focus on primary and secondary sources.

Table B1. Activities associated with PFAS contamination due to a risk of fire

Activity	Description
Airports and aviation infrastructure	On-site firefighting - see also further information below
Aluminium production	On-site firefighting
Battery production	On-site firefighting- see also further information below
Bitumen production	Kerosene use and storage
Brewing, distilling and refining	Ethanol production
Coal works	On-site firefighting
Dangerous goods production	On-site firefighting - likely to use specialised firefighting products and systems due to the presence of a range of hydrocarbons, polar solvents etc.
Explosives production	On-site firefighting - explosions
Food production	On-site firefighting associated with use of bulk oils and solvents - see also further information below
Fuel exploration, assessment, production, transport and storage including petrochemicals, other fossil fuels and renewable liquid fuels	On-site firefighting, also used as a surfactant for gas well stimulation
General chemical storage	On-site firefighting - likely to use a range of hydrocarbons, polar solvents etc.
Generation of electrical power	On-site firefighting - see also further information below
Hardware retailers	Firefighting foam deluge systems - see also further information below on the construction industry
Mining	On-site firefighting
Paints, polishes, adhesives production	On-site firefighting- see also further information below
Petroleum products other than fuels	On-site firefighting, potential use in processing
Underground infrastructure including car parks and tunnels	Firefighting foam deluge systems

Table B2. Activities associated with PFAS contamination more broadly

Activity	Description
Agriculture	Potentially used as an adjuvant or active ingredient in fertilisers and pesticides, firefighting foam used in the poultry industry to destroy infected flocks
Automotive industry including retailing, detailing and car wash facilities	Surface treatments including polishing, cleaning, stain and water protection products, lubricants, hydraulic fluids, tubing, oil pan, head gaskets, sealant, wire and cabling, fire retardant and metal plating applications
Aviation, aerospace and defence	As for automotive industry plus aviation-specific products, articles and activities, such as aviation hydraulic fluid
Battery use and disposal	Used in batteries, particularly for high-end use such as lithium-style batteries
Boating and marine supply industry	As for automotive industry plus marine-specific products, articles and activities, such as awnings, painting, waterproofing and sealant applications, and shipboard firefighting
Chrome/metal plating industry	High concentration PFAS mist suppressants used to reduce chromium exposure to workers
Commercial laundries and dry cleaners	Effluent from cleaning of fabrics containing or treated with PFAS
Construction industry	Tile coatings, stone coatings, paints, varnishes, sealants, other architectural coatings for films, facades and infrastructure, rigid foams, silicone rubber, thread sealant tapes and pastes and PPE
Electricity, telecommunication and information technologies	Wireless devices, hard drives, fibre optic cables, dirt-repellent coatings on glass surfaces such as smartphone screens, flame-resistant devices, fittings, coatings and wrappings, semiconductor etching, firefighting at electricity generation sites and in electricity distribution networks with oil-containing equipment such as transformers, reactors, large regulators, circuit breakers, pipe-type cable systems and bulk storage tanks, reported to be in high-end lithium batteries
Firefighting and fire protection sales and services	Storage and disposal of large quantities of firefighting foam associated with formulation, transport, sale and servicing of firefighting and fire protection products and services including refurbishment of deluge systems and fire extinguishers at fire protection retailers, rural supply stores, council depots and outstation service centres
Manufacturing of building products	As for construction industry
Manufacturing of chemicals, fertilisers and pesticides	Equipment and fittings including pipes, tanks and valves, use as an intermediate in the production of other substances, potentially used as an adjuvant in fertilisers and pesticides

Manufacturing of food, food packaging and food preparation products	Baking paper, aluminium foil, fast food wrappers, non-stick equipment including food processing facility surfaces, pipes, tanks and valves, and firefighting especially at facilities where bulk oil is used
Manufacturing of healthcare products	Surface protection for medical garments, small quantities in X-ray film, charged-coupled devices (CCDs), artificial blood, flexible tubing, needle coatings, denture cleaners, potentially in contact lenses
Manufacturing of household appliances	Heaters, heat lamps, irons, stoves, refrigerators, other flammable components, and high-end (lithium) batteries
Manufacturing of personal care products	Cosmetics, shampoo, shaving cream, dental floss, sunscreen, nail polish, talc, lotions
Manufacturing of textiles, leather, upholstery, carpets, clothing, shoes, outdoor gear	Widespread use of fluorinated compounds to provide stain, water and fire protection
Manufacturing of safety gear	Widespread use of fluorinated compounds to provide stain, water and fire protection for Personal Protective Equipment (PPE) and bulletproof clothing
Manufacturing of paints, polishes, coatings and adhesives	Historically used in sealants, adhesive products, coatings, paint and varnishes
Manufacturing of paper or pulp	Used in internal and surface sizing agents for paper manufacturing
Printing, packaging and merchandising	Used to apply grease, oil and water resistance to packaging product, also used in inks particularly for inkjet and photo printing
Recovery of waste oil	Collection and processing of PFAS-containing waste oil
Soap and detergents production	Household goods such as shampoos and cosmetics, commercial and industrial cleaning products such as floor polishes and vehicle cleaning agents
Solar energy	Used in photovoltaic solar cells to repel dirt and in lithium batteries
Sporting goods manufacturers and suppliers and sports facilities	Ski wax, high performance textiles including outdoor clothing, water-resistant treatments
Waste processing and disposal	PFAS-containing solid and liquid waste and leachate in landfill, high temperature incineration, chemical and other treatment regimes
Waste storage - hazardous, restricted solid, liquid, clinical, asbestos waste	On- and off-site storage and/or collection of waste PFAS-containing products
Wastewater treatment	Inputs from domestic sewage and commercial and industrial wastewater and outputs applied to land or discharged to the environment

Appendix C – Excavated Natural Material Order 2014

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The excavated natural material order 2014

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of excavated natural material to which 'the excavated natural material exemption 2014' applies. The requirements in this order apply in relation to the supply of excavated natural material for application to land as engineering fill or for use in earthworks.

1. Waste to which this order applies

1.1. This order applies to excavated natural material. In this order, excavated natural material means naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:

a) been excavated from the ground, and
b) contains at least 98% (by weight) natural material, and
c) does not meet the definition of Virgin Excavated Natural Material in the Act.

Excavated natural material does not include material located in a hotspot; that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this order applies

2.1. The requirements in this order apply, as relevant, to any person who supplies excavated natural material, that has been generated, processed or recovered by the person.

2.2. This order does not apply to the supply of excavated natural material to a consumer for land application at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Duration

3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Generator requirements

The EPA imposes the following requirements on any generator who supplies excavated natural material.

Sampling requirements

4.1. On or before supplying excavated natural material, the generator must:

4.1.1. Prepare a written sampling plan which includes a description of sample preparation and storage procedures for the excavated natural material.

4.1.2. Undertake sampling and testing of the excavated natural material as required under clauses 4.2, 4.3, and 4.4 below. The sampling must be carried out in accordance with the written sampling plan.

4.2. The generator must undertake sampling and analysis of the material for ASS and PASS, in accordance with the NSW Acid Sulfate Soil Manual, Acid Sulfate Soils Management Advisory Council, 1998 and the updated Laboratory Methods Guidelines version 2.1 – June 2004 where:

4.2.1. the pH measured in the material is below 5, and/or

4.2.2. the review of the applicable Acid Sulfate Soil Risk Maps (published by the former Department of Land and Water Conservation and available at http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm) indicates the potential presence of ASS.

4.3. For stockpiled material, the generator must:

4.3.1. undertake sampling in accordance with Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent);

4.3.2. undertake characterisation sampling by collecting the number of samples listed in Column 2 of Table 1 with respect to the quantity of the waste listed in Column 1 of Table 1 and testing each sample for the chemicals and other attributes listed in Column 1 of Table 4. For the purposes of characterisation sampling the generator must collect:

4.3.2.1. composite samples for attributes 1 to 10 and 18 in Column 1 of Table 4.

4.3.2.2. discrete samples for attributes 11 to 17 in Column 1 of Table 4.

4.3.2.3. The generator must carry out sampling in a way that ensures that the samples taken are representative of the material from the entire stockpile. All parts of the stockpile must be equally accessible for sampling.

4.3.2.4. for stockpiles greater than 4,000 tonnes the number of samples described in Table 1 must be repeated.

4.3.3. store the excavated natural material appropriately until the characterisation test results are validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 4 and the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 1

Sampling of Stockpiled Material		
Column 1	**Column 2**	**Column 3**
Quantity (tonnes)	**Number of samples**	**Validation**
<500	3	Required
500 – 1,000	4	
1,000 – 2,000	5	
2,000 – 3,000	7	
3,000 – 4,000	10	

4.4. For in situ material, the generator must:

4.4.1. undertake sampling by collecting discrete samples. Compositing of samples is not permitted for in-situ materials.

4.4.2. undertake characterisation sampling for the range of chemicals and other attributes listed in Column 1 of Table 4 according to the requirements listed in Columns 1, 2 and 3 of Table 2. When the ground surface is not comprised of soil (e.g. concrete slab), samples must be taken at the depth at which the soil commences.

4.4.3. undertake sampling at depth according to Column 1 of Table 3.

4.4.4. collect additional soil samples (and analyse them for the range of chemicals and other attributes listed in Column 1 of Table 4), at any depth exhibiting discolouration, staining, odour or other indicators of contamination inconsistent with soil samples collected at the depth intervals indicated in Table 3.

4.4.5. segregate and exclude hotspots identified in accordance with Table 2, from material excavated for reuse.

4.4.6. subdivide sites larger than 50,000 m² into smaller areas and sample each area as per Table 2.

4.4.7. store the excavated natural material appropriately until the characterisation test results are validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 4 and the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 2

***In Situ* Sampling at surface**				
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
Size of *in situ* area (m^2)	**Number of systematic sampling points recommended**	**Distance between two sampling points** (m)	**Diameter of the hot spot that can be detected with 95% confidence** (m)	**Validation**
500	5	10.0	11.8	Required
1000	6	12.9	15.2	
2000	7	16.9	19.9	
3000	9	18.2	21.5	
4000	11	19.1	22.5	
5000	13	19.6	23.1	
6000	15	20.0	23.6	
7000	17	20.3	23.9	
8000	19	20.5	24.2	
9000	20	21.2	25.0	
10,000	21	21.8	25.7	
15,000	25	25.0	28.9	
20,000	30	25.8	30.5	
25,000	35	26.7	31.5	
30,000	40	27.5	32.4	
35,000	45	27.9	32.9	
40,000	50	28.3	33.4	
45,000	52	29.3	34.6	
50,000	55	30.2	35.6	

Table 2 has been taken from NSW EPA 1995, *Contaminated Sites Sampling Design Guidelines*, NSW Environment Protection Authority.

Table 3

***In Situ* Sampling at Depth**	
Column 1	**Column 2**
Sampling Requirements *	**Validation**
1 soil sample at 1.0 m bgl from each surface sampling point followed by 1 soil sample for every metre thereafter. From 1.0 m bgl, sample at the next metre interval until the proposed depth of excavation of the material is reached. If the proposed depth of excavation is between 0.5 to 0.9 m after the last metre interval, sample at the base of the proposed depth of excavation.	Required if the depth of excavation is equal to or greater than 1.0 m bgl

* Refer to Notes for examples

Chemical and other material requirements

4.5. The generator must not supply excavated natural material waste to any person if, in relation to any of the chemical and other attributes of the excavated natural material:

4.5.1. The chemical concentration or other attribute of any sample collected and tested as part of the characterisation of the excavated natural material exceeds the absolute maximum concentration or other value listed in Column 3 of Table 4:

4.5.2. The average concentration or other value of that attribute from the characterisation of the excavated natural material (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 4.

4.6. The absolute maximum concentration or other value of that attribute in any excavated natural material supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 4

Column 1	Column 2	Column 3
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	1
2. Cadmium	0.5	1
3. Lead	50	100
4. Arsenic	20	40
5. Chromium (total)	75	150
6. Copper	100	200
7. Nickel	30	60
8. Zinc	150	300
9. Electrical Conductivity	1.5 dS/m	3 dS/m
10. pH *	5 to 9	4.5 to 10
11. Total Polycyclic Aromatic Hydrocarbons (PAHs)	20	40
12. Benzo(a)pyrene	0.5	1
13. Benzene	NA	0.5
14. Toluene	NA	65
15. Ethyl-benzene	NA	25
16. Xylene	NA	15
17. Total Petroleum Hydrocarbons C_{10}-C_{36}	250	500
18. Rubber, plastic, bitumen, paper, cloth, paint and wood	0.05%	0.10%

* The ranges given for pH are for the minimum and maximum acceptable pH values in the excavated natural material.

Test methods

4.7. The generator must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.

4.8. The generator must ensure that the chemicals and other attributes (listed in Column 1 of Table 4) in the excavated natural material it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be equal to or less than that nominated for the given method below.

4.8.1. Test methods for measuring the mercury concentration.

4.8.1.1. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum concentration in Column 3 of Table 2 (i.e. < 0.20 mg/kg dry weight).

4.8.1.2. Report as mg/kg dry weight.

4.8.2. Test methods for measuring chemicals 2 to 8.

4.8.2.1. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils (or an equivalent analytical method).

4.8.2.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated absolute maximum concentration in Column 3 of Table 2, (e.g. 10 mg/kg dry weight for lead).

4.8.2.3. Report as mg/kg dry weight.

4.8.3. Test methods for measuring electrical conductivity and pH.

4.8.3.1. Sample preparation by mixing 1 part excavated natural material with 5 parts distilled water.

4.8.3.2. Analysis using Method 103 (pH) and 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.3.3. Report electrical conductivity in deciSiemens per metre (dS/m).

4.8.4. Test method for measuring Polynuclear Aromatic Hydrocarbons (PAHs) and benzo(a)pyrene.

4.8.4.1. Analysis using USEPA SW-846 Method 8100 Polynuclear Aromatic Hydrocarbons (or an equivalent analytical method).

4.8.4.2. Calculate the sum of all 16 PAHs for total PAHs.

4.8.4.3. Report total PAHs as mg/kg dry weight.

4.8.4.4. Report benzo(a)pyrene as mg/kg.

4.8.5. Test method for measuring benzene, toluene, ethylbenzene and xylenes (BTEX).

4.8.5.1. Method 501 (Volatile Alkanes and Monocyclic Aromatic Hydrocarbons) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.5.2. Report BTEX as mg/kg.

4.8.6. Test method for measuring Total Petroleum Hydrocarbons (TPH).

4.8.6.1. Method 506 (Petroleum Hydrocarbons) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.6.2. Report as mg/kg dry weight.

4.8.7. Test method for measuring rubber, plastic, bitumen, paper, cloth, paint and wood.

4.8.7.1. NSW Roads & Traffic Authority Test Method T276 Foreign Materials Content of Recycled Crushed Concrete (or an equivalent method).

4.8.7.2. Report as percent.

Notification

4.9. On or before each transaction, the generator must provide the following to each person to whom the generator supplies the excavated natural material:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the excavated natural material exemption, or a link to the EPA website where the excavated natural material exemption can be found; and
- a copy of the excavated natural material order, or a link to the EPA website where the excavated natural material order can be found.

Record keeping and reporting

4.10. The generator must keep a written record of the following for a period of six years:

- the sampling plan required to be prepared under clause 4.1.1;
- all characterisation sampling results in relation to the excavated natural material supplied;
- the volume of detected hotspot material and the location;
- the quantity of the excavated natural material supplied; and
- the name and address of each person to whom the generator supplied the excavated natural material.

4.11. The generator must provide, on request, the characterisation and sampling results for that excavated natural material supplied to the consumer of the excavated natural material.

5. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

Bgl means below ground level, referring to soil at depth beneath the ground surface.

composite sample means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

consumer means a person who applies, or intends to apply excavated natural material to land.

discrete sample means a sample collected and analysed individually that will not be composited.

generator means a person who generates excavated natural material for supply to a consumer.

hotspot means a cylindrical volume which extends through the soil profile from the ground surface to the proposed depth of excavation, where the level of any contaminant listed in Column 1 of Table 2 is greater than the absolute maximum concentration in Column 3 of Table 2.

***in situ* material** means material that exists on or below the ground level. It does not include stockpiled material.

***in situ* sampling** means sampling undertaken on *in situ* material.

N/A means not applicable.

stockpiled material means material that has been excavated from the ground and temporarily stored on the ground prior to use.

systematic sampling means sampling at points that are selected at even intervals and are statistically unbiased.

transaction means:

- in the case of a one-off supply, the supply of a batch, truckload or stockpile of excavated natural material that is not repeated.
- in the case where the supplier has an arrangement with the recipient for more than one supply of excavated natural material, the first supply of excavated natural material as required under the arrangement.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the generator and processor to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on ' www.epa.nsw.gov.au

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies excavated natural material should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of excavated natural material remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet. Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.

Examples

In situ sampling at depth

Example 1.

If the proposed depth of ENM excavation is between 1 m bgl and 1.4 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- No further depth sampling after 1 m bgl, unless required under section 4.4.4.

Example 2.

If the proposed depth of ENM excavation is at 1.75 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- 1 sample at 1.75 m bgl.
- No further depth sampling after 1.75 m bgl, unless required under section 4.4.4.

Example 3.

If the proposed depth of ENM excavation is at 2.25 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- 1 sample at 2 m bgl.
- No further depth sampling after 2 m bgl, unless required under section 4.4.4.

Appendix D – Proposed Check Sampling Densities

Table A1. Source Site Check Sampling and Analytical Requirements for ENM, VENM and SSRRM[4]

Filling/Material	Minimum sample number / frequency[4]	Minimum analyte suite to include[1,2]	Additional Analysis Required[2,3]
VENM	$0m^3$ – $15,000m^3$ = 3 samples $15,001m^3$ – $50,000m^3$ = 5 sample For sites >$50,000\ m^3$ and for sites which are irregular in shape (i.e., not a square site, a sampling program will be adopted on a case-by-case basis. With approval from the client prior to commencement of validation in such circumstances.	Heavy metals[2] PAHs TRH BTEX PCBs OCP / OPPs Asbestos (if present above VENM layer) Field oxidation and/or Chromium Reducible Sulphur (CRS) (if within area of Potential Acid Sulfate Soils) pH PFAS	Any contaminant considered to be potentially present in the material based on site information
ENM	30% of sampling density outlined within the NSW *ENM Order 2014* – refer to **Appendix B**	Heavy metals[2] Electrical conductivity pH PAHs TRH BTEX PCBs OCP / OPPs Asbestos Foreign materials (rubber, plastic, bitumen, paper, cloth, paint and wood) Field oxidation and/or CRS (if within area of Potential Acid Sulfate Soils) PFAS	Any contaminant considered to be potentially present in the material based on site information
SSRRM	Stockpiles: 30% of sampling density outlined within the VIC *EPA's Industrial Waste Resource Guidelines – Soil Sampling* (IWRG702-2009) In-situ: 30% of sampling density outlined within the NSW EPA's (2022), *Contaminated Land Guidelines, Sampling design part 1 – application*.	Heavy metals[2] PAHs TRH BTEX PCBs OCP / OPPs Asbestos Field oxidation and/or Chromium Reducible Sulfur (CRS) (if within area of Potential Acid Sulfate Soils) PFAS	Any contaminant considered to be potentially present in the material based on site information

Note:
[1] not all samples necessarily require testing for all analytes.
[2] Heavy metals = arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc. BTEX = benzene, toluene, ethylbenzene, xylenes. OCPs = organochlorine pesticides (a scheduled chemical). OPPs = organophosphate pesticides. PAH = polycyclic aromatic hydrocarbons. PCBs = polychlorinated biphenyls. TRH = total recoverable hydrocarbons. CRS = Chromium Reducible Sulfur. PFAS = per- and poly-fluoroalkyl substances.
[3] Based on advice from a suitably qualified environmental consultant.
[4] For special alignments such as large infrastructure tunnels, Land Owners Group – East (LOG-E) and their nominated Environmental Consultant will consider the sampling density on a case-by-case basis**.**

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Appendix M Salinity Management Plan

Salinity Management Plan

Mamre Road, Abbotts Road and Aldington Road Upgrade, Kemps Creek NSW

Prepared for: Land Owners Group – East c/o AT&L

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1 Introduction and Background

1.1 Introduction

ADE Consulting Group Pty Ltd (ADE) has been requested by Land Owners Group – East (LOG-E) (the Client) to provide a salinity management plan (SMP) for the Mamre Road, Abbotts Road and Aldington Road Upgrade (AARU and MAIU) project located within Kemps Creek, New South Wales (NSW) ('the site'). The location of the site and the physical boundaries which apply to this SMP are defined in **Figure 1**, ***Appendix A – Figures***.

A previous salinity assessment was completed as a part of a geotechnical investigation by ADE in 2022 (ADE, 2022a), the results of which will form the SMP. This SMP will outline the existing site conditions, assess potential impacts to construction and the environment and outline the key strategies for managing potential risks associated with urban salinity.

This plan is considered to involve 'passive' management protocols and is considered to be supplemental document which must be read in conjunction with the construction environmental management plan (CEMP).

1.2 Developmental Consent

A development application (DA) is a formal application for development that requires consent under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). The conditions of Development Consent (SSD 10479 200A) include:

- (D38) – The Applicant must prepare a Salinity Management Plan, which must form part of the CEMP, that addresses all aspects of the development plan. The Applicant must implement the most recent revision of the Salinity Management Plan for the duration of construction.

This SMP has been prepared to accompany a CEMP for the MOD to State Significant Development (SSD-10479) occurring at the site. The proposed development is considered to be an ancillary requirement to facilitate the client's DA.

The Development Consent SSA10479-MOD3 is to construct road works including Mamre Road and Abbots Road intersection works, widening of abbots Road and widening of Aldington Road. This report has been updated to reflect the modification.

1.3 Proposed Development

It is understood that the proposed road upgrade will involve upgrading a 4 kilometre (km) stretch of road from the intersection of Mamre Road and Abbotts Road, extending up Aldington Road, Kemps Creek. The road upgrade is expected to involve bulk earthwork activities including cut and fill activities and road widening along which may result in the excavation of soils impacted by urban salinity.

As defined by the SSA10479 MOD 3, the development is defined as the following:

- 200 Aldington Road Industrial Estate including:
  - a Concept Proposal for staged development of an industrial estate comprising 13 buildings and associated offices covering 340,540 square metres (m2) of gross floor area for industrial, warehouse and distribution uses and interim and ultimate road works
  - a Stage 1 development comprising clearing and bulk earthworks across the estate, interim and ultimate road works, construction of internal roads, utilities and stormwater infrastructure, construction, fit-out and operation of one warehouse building and subdivision of the site into 15 lots.

1.4 Objectives

The objective of the SMP is to outline the outline the management protocols required to manage urban salinity and minimise its impact on the proposed development. All works are to conform with the Western Sydney Regional Organisation of Councils Ltd (2023). *Western Sydney Salinity Code of Practice March 2003 (amended January 2004)*.

2 Site Identification

The site is located within nominated areas on Mamre Road, Abbotts Road and Aldington Road, Kemps Creek NSW. The proposed development is expected to encompass a length of 4 km and is situated within the Penrith City Council Local Government Area (LGA).

Table 1. Summary of site identification details and information.

Site Project Details	
Site Owner:	Multiple owners
Site Address:	Mamre Road, Abbotts Road intersection, Abbotts Road and Aldington Road, Kemps Creek NSW
Site Area:	~8.9 ha
Local Government Authority:	Penrith City Council
Consent Authority:	Minister for Planning and Public Open Spaces
Title Identification:	**106-228 Aldington Road, Kemps Creek** • Lot 200 in Deposited Plan (DP) 1285691 **Road works** • Lots 8, 9, 10, 15, 16, 17 and 18 in DP255560 • Lots 33 and 37 in DP 258949 • Lots 134, 135 and 136 in DP 258949 • Lot 90 in DP 1289463 • Lots 141 and 142 in DP1033686 • Lots 113 and 115 in DP 1296469 • Lot 10 in DP 1296455
Current Land Zoning:	'IN1 – General Industrial'
Local Environmental Plan:	Penrith City Council Local Environmental Plan 2010
Current Land Use:	**106-228 Aldington Road, Kemps Creek** • Commercial/industrial Road reserves: • From the western end of Abbotts Road to the Abbotts / Aldington intersection. • From the Abbotts/Aldington intersection continuing north along Aldington Road.

3 Site Condition and Surrounding Environment

3.1 Geology

A desktop review was conducted using the Penrith Penrith 1:100 000 Soil Landscape Series Sheet 9030 map to evaluate the site's existing geological conditions. The site was identified to intersect multiple geological formations which could be broadly categorised by the stage of development. These are further outlined below.

3.1.1 MAIU Staging

The MAIU stage lies on the western side of the Sydney Basin before the Blue Mountains. The stage was identified to overlie the Triassic period Bringelly Shale (Rwb) formation. The Bringelly Shale is described as shale and carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal, and tuff.

The border of an area of Quaternary period Alluvial sediments (Qal) lies approximately 100 m west of Mamre Road and 350 m east of Aldington Road. These sediments typically comprise fine-grained sand, silt, clay, alluvial & estuarine sediments. To the west the Kemps Creek tributary of South Creek flows into the Hawkesbury River while Ropes Creek flows north to South Creek.

3.1.2 AARU Phase I

The AARU phase which primarily covers Abbotts Road lies within the Blacktown (bt) soil landscape group. The landscape is comprises of gently undulating rises on Wianamatta Group Shales, broad rounded crests, and ridges with gently inclined slopes.

3.1.3 AARU Phase II

Aldington Road mostly lies in the Luddenham (lu) soil landscape group (which generally comprises undulating to rolling low hills on Wianamatta Group Shales and extensively cleared tall open forest) and occasionally lies on the border between the Blacktown and Luddenham soil landscape groups. Approx. 50-100 m to the east of Mamre Road lies Kemps Creek and the south creek (sc) soil landscape group comprising floodplains, valley flats and drainage depressions of channels on the Cumberland Plain. Ropes Creek lies approx. 1.5 km east of the south end of Aldington Road and 500m east at the northern end.

3.2 Topography

The site has a moderate to steep sloping surface ranging from 44-74 m Australian Height Datum (AHD). The lowest point (44 m) on-site is in the southwestern portion of the site, with the highest point found at the northern part of the site. As such, the site is considered to have a moderate to steep gradient towards the southwest. Based on the data collected during the Geological Investigation (ADE, 2022), two samples exhibited high sodicity levels. This highlights the importance of recognising that high sodicity can lead to surface pooling if adequate drainage measures are not implemented.

3.3 Hydrology and hydrogeology

No surface water body was identified on-site. The closest surface water body to the site is Kemps Creek. The closest portion of Kemps Creek is found approximately 350 m west of the Site. Multiple surface water drains were noted to be scattered throughout the various properties on-site, predominantly within artificial drainage lines, or along the road and curbing.

Due to the topography of the site and proximity to Kemps Creek, it is inferred that the local groundwater flow is in a south westerly direction towards Kemps Creek, a freshwater ecological system. As the future use of the

site will primarily feature a local road upgrade, a moderate to high level of surface water run-off is expected to be captured within local stormwater systems which commonly discharge into local ecological communities.

Geotechnical investigations (ADE, 2022a) indicated groundwater was encountered at depths of 1.5 to 2.1 meters below ground level (BGL). This suggests that groundwater interactions may occur if bulk earthworks extend to these depths.

High sodicity levels in some soil samples further emphasise the need for proper drainage to prevent surface pooling. Considering these factors, there is a potential for groundwater interactions, especially in areas with perched or raised water tables. These interactions should be carefully managed to avoid negative impacts on both the construction process and the surrounding ecological systems.

3.4 Naturally occurring contaminants

A review of the Atlas of Australian Acid Sulfate Soils outlined within the Land Insight Report (ADE, 2022b) identified the site situated within a 'extremely low' (1-5%) probability of encountering acid sulfate soils. The site is however, situated within an area which is classified as having a 'moderate hazard or risk' for dryland salinity to occur for years up to and including 2050 as per the National Assessment for Dryland Salinity. This is discussed within the **Section 4.**

4 Current Salinity Conditions

4.1 Salinity Mapping

From the map of salinity potential in Western Sydney (Department of Infrastructure, Planning and Natural Resources, 2002), the site has an inferred 'moderate' salinity potential. It is noted that the mapping is based on soil type, surface level and general groundwater considerations and, as such is approximate only.

Based on the salinity map reported in ADE's Abbotts Aldington Geotech investigation report (ADE, 2022a) it is noted that the proximity to Kemps Creek and Ropes Creek is not determined to be a high-risk area.

4.2 Historical Environmental Investigations

4.2.1 ADE Consulting Group NSW (2022a), Geotechnical Investigation Report, Proposed Mamre Road Upgrade, Kemps Creek NSW 2178.

In September 2022, ADE undertook a Geotechnical Investigation for proposed road upgrade and widening works for the Mamre Road and Abbotts Road intersection, along Mamre Road extending to approximately 350m north and 650m south of the intersection and approximately 80 m along Abbotts Road. The investigation was commissioned by Land Owners Group-EAST.

The fieldwork comprised drilling of 10 boreholes identified as BH01 to BH10 inclusive. The drilling was generally carried out by a 5 tonne (t) excavator with 200mm diameter auger attachment with extensions. Based on the data and evidence collected during the investigation, the following conclusions were drawn regarding the salinity, aggressivity and sodicity of the site:

- Of the 10 samples collected, 7 were classified as non-saline and 3 as slightly saline.
- Soils were identified to be non-aggressive to concrete and non-aggressive to steel.
- One sample was analysed for sodicity (BH03/1.0-1.1m), which was characterized as sodic.
- The salinity, aggressivity, and sodicity levels are considered naturally occurring features of the local landscape. Provided that appropriate management techniques are utilised, they are not considered to be significant impediments to the proposed development.

- Topsoils observed on site ranged from 0.15-0.3 m BGL, which consisted mostly of silty clays and medium clays with an estimated saturated hydraulic conductivity of 0.36 to 36 mm/hr.
- The underlying natural strata consisted of medium to heavy clays with an estimated saturated hydraulic conductivity of 0.0036 to 3.6 mm/hr.
- Based on a review of the available information, ADE did not consider that the proposed development will adversely impact soil salinity and sodicity.

As per information provided on geotechnical aspects (ADE, 2022a), earthworks and subgrade preparation should be carried out in accordance with the Road Controlling Authority's (TfNSW) specification and Australian Standard 3798-2007. However, a general procedure is provided below for the proposed upgrade and widening areas.

Fill materials, topsoil and unsuitable materials should be removed from the site.

- Excavated materials for reuse as engineering fill should be carefully stockpiled separately.
- After excavation, the exposed surface should be treated to not vary more than 2% from the Optimum Moisture Content (OMC) and then compacted using a vibrating compactor of at least 12 tonnes to the design density.
- The exposed surface should be tested with appropriate density testing and proof rolling should be carried out under the supervision of a geotechnical engineer with a smooth drum roller.
- Any soft or loose areas should be identified and excavated i.e., ripped and recompacted or otherwise replaced with appropriate imported fill material.

Every layer of fill area and the final surface in cut areas should be suitably compacted to the required design parameters. Recommendations for fill layer compaction are listed below:

- Fill material moisture content should be treated to ±2% OMC of the material.
- All placed material should have a minimum density ratio of 98% of the maximum dry density.
- Placement of loose thickness of fill layers should not exceed 200 mm during compaction.

Imported materials for fill layers should be clean (i.e., free of contaminants, deleterious or organic material), free of oversize material, of suitable moisture content, and otherwise satisfy Australian Standard AS 3798-2007 and the Road Controlling Authorities specification.

4.2.2 ADE Consulting Group NSW (2022b), Geotechnical Investigation Report, Proposed Abbotts and Aldington Road Upgrade, Kemps Creek NSW 2178.

In October 2022, ADE undertook a Geotechnical Investigation for proposed road upgrade and widening works for Abbotts Road (CH 0.0 – CH 447.527) and Aldington Road from its south connection to Abbotts Road to 74 Aldington Road, Kemps Creek (approx. CH 0.0 - CH 2250). The existing culverts were also proposed to be upgraded at locations on Aldington Road. The investigation was commissioned by Land Owners Group-EAST.

The fieldwork comprised drilling of 15 boreholes identified as BH11 to BH25 inclusive. The drilling was generally carried out by a 5-tonne excavator with 300mm diameter auger attachment with extensions and a tracked drill rig with 100m diameter auger was used for the boreholes adjacent to proposed culverts (BH15-16, BH21-24 inclusive).

Standard Penetration Tests (SPT) were undertaken during drilling of BH15, BH21-24 inclusive, in accordance with Australian Standard AS 1289.6.3.1-2004 at regular intervals of 1.5m to provide an assessment of soil strength. The tests were completed to help correlate the soil consistency and obtain soil samples for laboratory testing.

Piezometric wells were installed within boreholes BH23 and BH24 to a maximum depth of 5.3m below ground level (m BGL) to monitor groundwater levels. Installation was carried out using a PVC standpipe at the completion of the borehole drilling.

Based on the data and evidence collected during the investigation, the following conclusions were drawn regarding the salinity, aggressivity and sodicity of the site:

- Of the 17 samples collected, 5 were classified as non-saline, 9 as slightly saline and 3 as moderately saline.
- Soils were identified to be non-aggressive to concrete and non-aggressive to steel.
- Two samples were analysed for sodicity (BH17/0.4-0.5m and BH24/0.4-0.5m), with both characterized as highly sodic.
- The salinity, aggressivity, and sodicity levels are considered naturally occurring features of the local landscape. Provided that appropriate management techniques are utilised, they are not considered to be significant impediments to the proposed development.
- Topsoils observed on site ranged from 0.1-0.3 m BGL, which consisted mostly of silty clays and medium clays with an estimated saturated hydraulic conductivity of 0.36 to 36 mm/hr.
- The underlying natural strata consisted of medium to heavy clays with an estimated saturated hydraulic conductivity of 0.0036 to 3.6 mm/hr.
- Based on a review of the available information, ADE did not consider that the proposed development will adversely impact soil salinity and sodicity.

4.3 Sodic Soils

Sodicity is expressed as the amount of exchangeable sodium as a percentage of the Cation Exchange Capacity (CEC), or Exchangeable Sodium Percentage (ESP %). Sodic soils may be affected by very severe surface crusting, very low infiltration and hydraulic conductivity, very hard and dense subsoils as well as high susceptibility to gully and tunnel erosion. Sodicity also affects the shrink – swell properties of a soil.

Based on the Geotechnical Investigation by ADE (ADE, 2022a), 2 samples were analysed for sodicity (BH17/0.4-0.5m and BH24/0.4-0.5m), with both characterized as highly sodic. Given the high sodic conditions detected in above mentioned locations, it is important to recognise the potential for excessive swelling of clays when wet, reduced water infiltration, and subsequent waterlogging issues. These conditions can result in the deposition of surface salts, which further degrade soil quality.

To mitigate these issues, additional soil conditioning may be required. For example, applying gypsum can help displace sodium ions and improve soil structure, thereby enhancing water infiltration and reducing waterlogging (see **Table 2**). Proper soil management practices, including the use of soil conditioners, are essential to maintain soil health and support the intended land use.

Table 2. Gypsum Application Rate with respect to soil ESP.

Enchantable Sodium percentage (ESP%) of cut area	Gypsum application rate (t/ha)
Greater than 5, less than 10	2-5
Greater than 10	5

5 Management Activities and Procedures

This SMP addresses the components of the proposed development at construction stage for the permanent works.

Salinity management regarding the following development components are provided in the following sections:

- Earthworks.
- Imported soil.
- Gardens and landscaped areas.
- Roads and footpaths.

- Surface water, stormwater and drainage.
- Durability of concrete structures in contact with the ground.
- Durability of steel structures in contact with the ground.

5.1 Management Strategies

5.1.1 Bulk Earthworks

As per earthworks plans provided by the client (ADE, 2022a and 2022b) the construction of the earthworks should in general consider the following strategies:

- Importation of soil as per **Section 5.2** of this report.
- Vegetation cover should be estimated and maintained on permanent batters upon completion to control erosion.
- The final surface of all areas of the development should be graded to prevent the ponding of surface water.
- Erosion control of temporary batters, stockpiles and disturbed areas should be planned prior to undertaking the earthworks and implemented during the earthworks. Consideration should be given to:
- Grading and sealing partially completed surfaces.
- Installation of clearly visible fencing and traffic control measures to prevent unnecessary trafficking of areas and ensuring site disturbance.
- Establishing set vehicular access points and roads.
- Protecting stockpiles (temporary vegetation or mulching) where these are to be left in place for long durations.
- Managing disturbance of the soil – focus on capping of the soil surface, both exposed when excavated and filling, with more permeable material which will prevent ponding and reduce capillary rise. This will also act as a drainage layer and reduce potential erosion.
- Minimising cut and fill – where possible use excavation soils in fill areas with similar salinity characteristics and place back in the original order.
- Minimising water infiltration – ensuring cut and fill areas are compacted well.
- Maintain vegetation where possible and plant salt tolerant species – plants will also reduce soil erosion and should be considered in areas of disturbance soil.
- Ensure the site is well drained.
- Sediment control shall be implemented by means of sediment traps and silt fencing where considered necessary.
- Dust suppression using water carts will avoid over-watering and only use sufficient water to manage dust rise (i.e., avoid surface ponding).
- Water used for construction purposes (e.g. to achieve adequate compaction rates) will be applied sparingly.

5.1.2 Gardens and Landscaped Areas

The proposed development will result in the majority of the site comprising hardstand roads and footpaths. Garden and landscaped areas are likely to be limited to nominated areas only, such as the road verge. The construction of the gardens and landscaped areas should consider the following:

- Irrigation of rehabilitated or landscaped areas will utilize low-water-use fixtures such as drippers, sub-surface irrigation or similar. Water will be applied sparingly and only in sufficient quantities to promote plant growth.
- Subsoil moisture will be physically checked (through visual observation) regularly during irrigation to ensure watering rates are not excessive.
- Selection of plant species should consider the soil conditions, including moderate salinity, relatively poor fertility, and clayey low permeability soil profiles. An indicative species list is provided in Section

11.3 of the Western Sydney Salinity Code of Practice (2004). Promotion of successful revegetation is likely to require use of nutrient rich topsoil. Saline topsoils should not be imported to site.

- For saline soils, the pH range can vary, but typically, saline soils are alkaline due to the presence of soluble salts:
- Moderately saline Soils: pH ranges from 7.5 to 8.5
- Strongly Saline Soils: pH ranges from 8.5 to 10.
- Potential for water logging should be minimised by:
- Adopting plant species with minimal watering requirements.
- Adopting 'waterwise' gardening principles.
- Minimising use of potable water in landscaped areas.
- Properly designed and implemented irrigation systems.
- Establishment of perennial species and deep-rooted trees.

Note: Given the high sodic conditions detected in site, it is important to recognise the potential for excessive swelling of clays when wet, reduced water infiltration, and subsequent waterlogging issues. These conditions can result in reduced water infiltration thus results in waterlogging and poor drainage, which further degrade soil quality.

5.1.3 Roads and Footpaths

The construction of roads and footpaths should consider the following measures:

- Roads and footpaths surfaces should be graded, and the grades maintained at all times to prevent ponding of surface water at locations where this can result in infiltration into the underlying soils (e.g. pavement joints).
- Connections between the roads and footpath surfaces and the surface water and stormwater drainage infrastructure should be designed, constructed, and maintained to restrict infiltration into underlying soils.
- Services that are to be located below the roads and footpath surfaces should be installed, where practical, at the time of construction.

5.1.4 Surface Water, Stormwater and Drainage

The design and construction of surface water, stormwater and drainage measures should consider the following:

- Disturbance of natural drainage patterns should be reduced. Where these are disturbed or altered appropriate artificial drainage should be installed. Swales and basins will be incorporated as temporary measures to minimise disturbance to natural drainage patterns.
- Stormwater and surface water should be managed to restrict infiltration. Two lined on-site detention basins will collect stormwater.
- Temporary water retaining structures used during construction should be managed to restrict infiltration. Basins will collect runoff to manage sediment discharge.
- Stormwater and surface water infrastructure should be designed and constructed to minimise the likelihood of leakage. Two on-site detention basins will collect stormwater to control runoff.
- Surface water runoff should be directed around all exposed surfaces, temporary stockpiles and landscaped areas.
- Swales and basins will be incorporated as temporary erosion and sediment control (ESC) measures to direct surface water around all exposed and temporary stockpiles.
- Disturbance to the natural hydrological system shall be minimised by maintaining good surface drainage and reducing water logging on the site.
- Groundwater recharge is to be minimised to the extent it does not adversely impact groundwater dependent ecosystems downstream.
- Trunk drainage channels shall be lined were subject to frequent inundation in accordance with Sydney Water requirements.

5.1.5 Durability of Concrete Structures in Contact with the Ground

In designing structural concrete elements in contact with the ground the design should consider the results of the salinity assessment and the durability requirements in AS2159:2009 Piling “Design and Installation” and AS3600:2018 “Concrete Structures”.

Both these standards provide guidance on minimum concrete grade/strength and minimum cover requirements. Based on the salinity and aggressivity test results (ADE, 2022c), it is recommended:

- The design of structural concrete members in contact with the ground (excluding piles) adopt a “A2” exposure classification as defined in AS3600:2009.
- The design of concrete cast in situ piles adopt a “mild” classification as defined in AS2159:2009.

5.2 Importation and Sampling Requirements

5.2.1 Importation Requirements

It may be required to import soil onto site. All soil/landscaping materials which are imported to site for application within the site boundaries must be either classified as Virgin Excavated Material (VENM) or meet an NSW approved resource recovery order. Materials to be imported to site should be assessed for suitability for the intended use. Very high (>1.6 dS/m) to high saline (0.8-1.6 dS/m) soils shall not be imported to site.

5.2.2 Minimum Sampling Requirements

Salinity testing shall be undertaken on imported soil and in accordance with Department of Land and Water Conservation (DLWC) (2002), *Site Investigations for Urban Salinity*. These guidelines are essential for ensuring the suitability of imported soil and preventing the introduction of soil with excessively high salinity levels onto the site. Material with electrical conductivity (ECe) > 8 decisiemens per cm (dS/cm); i.e. very high to high saline shall not be imported.

When conducting salinity testing, it is crucial to employ comprehensive sampling techniques that capture the full range of salinity variations within the soil profile. This includes sampling at multiple depths and locations across the proposed importation area to obtain representative samples that accurately reflect the overall salinity characteristics of the soil.

The DLWC guidelines, although valuable, may lack specificity regarding the exact sampling requirements for salinity testing. Therefore, it is recommended to supplement these guidelines with best practices in soil sampling and analysis. This may involve:

1. **Depth-Specific Sampling:** Collecting soil samples at various depths, especially in areas where the soil profile exhibits significant changes in salinity levels. This depth-specific sampling provides a more comprehensive understanding of salinity variations within the soil profile.
2. **Spatial Sampling:** Ensuring that soil samples are collected from multiple locations across the importation area, considering factors such as topography, soil type variability, and historical land use practices. Spatially distributed sampling helps capture spatial heterogeneity in salinity distribution.
3. **Laboratory Analysis:** Utilizing accredited laboratories with expertise in soil salinity analysis. The laboratory analysis should include measurements of electrical conductivity (ECe) to accurately quantify the salinity levels in the soil samples.
4. **Quality Assurance/Quality Control (QA/QC):** Implementing rigorous QA/QC measures during sample collection, handling, transportation, and analysis to minimize potential errors and ensure data reliability.

By combining the DLWC guidelines with industry best practices in soil sampling and analysis, stakeholders can effectively assess and manage soil salinity risks associated with imported soil, thereby promoting sustainable land use practices and environmental stewardship.

5.3 Contingency/Incident Response Protocol

As a contingency if unexpected finds, such as visible crystal salts on surface or future signs of concrete degradation, the following steps can be followed as an incident response protocol:

- Notify site owner.
- Site owner to contact environmental consultant.
- Consultant to inspect site and advise on further controls of protocols required.

6 Implementation, Monitoring and Review

6.1 Management Structure and Responsibilities

Table 3 outlines the main parties involved and responsible for the application and implementation of this SMP.

Table 3. Key Roles and Responsibilities.

Role	Responsibility
Site Owner	The site owner must ensure that the SMP is attached to and implemented as a sub-management plan to the CEMP and is transferred to the site manager for implementation and review.
Site Manager	The site manager must implement all administrative and physical controls to ensure that any work being carried out in the site are as per the SMP. The site manager must provide a copy of this SMP to any worker or contractor who may have reason to disturb or exacerbate the current salinity conditions. The site manager must ensure that all workers/contractors operating within the site are aware of this SMP and are inducted to an appropriate level of environmental and emergency procedures. The site manager must demonstrate that any workers/contractors working within the site are fully trained in the management of the risks and hazards associated with urban salinity. The site manager is responsible for ensuring all works are undertaken as per the CEMP, SMP and other relevant sub-management plans.
Site Workers/Contractors	Site workers/contractors who undertake intrusive works at the site must review this SMP and implement the procedures provided within **Section 5** of this report. It is the responsibility of all workers/contractors to raise any safety concerns or report any unexpected finds to the site manager upon identification.
Environmental Consultant	The environmental consultant must ensure that all supervision, sampling and/or investigative methodologies are completed in accordance with relevant legislation and codes of practice. The environmental consultant is responsible for reviewing and updating the SMP under certain circumstances as deemed necessary by the site manager. Reviewing and updating the SMP will be required during changes in land use or in response to unexpected finds. All amendments and/or any environmental reports shall be issued to the site manager in a timely manner.

6.2 Worker and Contractor Training

All personnel and contractors engaged in intrusive activities at the site must undergo comprehensive training to understand their roles and responsibilities as outlined within the SMP. This training should cover environmental responsibilities and associated risks, particularly when dealing with potentially contaminated soils which may represent a salinity risk. Training requirements include:

- Site induction.
- Understanding the SMP, including how to identify indicators of potential urban salinity (e.g., surface salt deposits).
- Environmental emergency response training.
- Specific environmental training tailored to job roles.

Records of all training sessions must be maintained properly. The site manager is responsible for identifying the need for additional or updated training and ensuring its implementation. Workers should be briefed on the minimum PPE requirements for the project.

6.3 Audit and Review Process

The SMP is a dynamic document that requires periodic review and amendments to align with site changes and evolving legislative requirements, enhancing its effectiveness. It remains applicable as long as potential salinity risks exist on-site.

The site manager, along with a suitably qualified individual (e.g., environmental consultant), must conduct an SMP review at least once every five years or in response to specific triggers, including:

- Changes in land use.
- Identification of significant environmental or health and safety issues.
- Discovery of unexpected incidents or finds.
- Completion of an environmental audit.

7 Conclusion and Closure

On the basis that the area has been classified low risk, the nature of the development and following the incorporating of the management strategies outlined within this document, further monitoring or remediation of identified issues associated with urban salinity are not considered warranted.

It is considered that the implementation of this SMP within the overall site CEMP will ensure impacts of this development on urban salinity will be minimised to a safe level.

8 Bibliography

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- Department of Land and Water Conservations (2002), Site Investigations for Urban Salinity.
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-
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Appendix A – Site Figure



LEGEND

AREA OF INVESTIGATION

0 80 160 240 320 400

SCALE 1:8000 @A3 METRES

NOTE:
ALL LOCATIONS ARE APPROXIMATE DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 13 MAR 2024.

revision	no.	description	drawn	approved	date
	A	FIRST ISSUE	MC	NM	28/03/24

drawn	MC
approved	NM
date	28/03/2024
scale	AS SHOWN
original size	A3

client: LAND OWNER'S GROUP - EAST

project: SALINITY MANAGEMENT PLAN
MAMRE ROAD, ABBOTTS ROAD AND
ALINGTON ROAD UPGRADE, KEMPS CREEK NSW

title: SITE LAYOUT AND SITE LOCATION PLAN

project no: A101024.0241.00 | figure no: FIGURE 1 | rev: A

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PLOT DATE: 28/03/2024 3:10:47 PM DWG FILE: C:\USERS\MIRANDA.CHAU\ADE CONSULTING GROUP PTY LTD\ENV-WORKING - DOCUMENTS\NSW\PROPOSAL\24.0241.00 AARU AND MAIU\6 CAD_MCP1\101024.0241.00_SMP.DWG

BH/MW24	0.2-0.3	0.4-0.5	0.9-1.0	1.4-1.5	1.9-2.0
SALINITY	2.8	<2	2.5	3.5	5.8

BH20	0.4-0.5	0.9-1.0	1.4-1.5	1.7-1.8
SALINITY	2.5	4.0	3.1	3.1

BH17	0.2-0.3	0.4-0.5	0.9-1.0
SALINITY	<2	<2	2.6

BH14	0.3-0.4	0.4-0.5	0.9-1.0	1.4-1.5	1.9-2.0
SALINITY	<2	<2	2.6	7.2	5.6

BH/MW24
BH/MW23
BH22
BH21
BH20
BH19
BH25
BH18
BH17
BH16
BH15
BH14
BH11
BH12

LEGEND

- AREA OF INVESTIGATION
- BH — BORE HOLE LOCATION
- BH/MW — BORE HOLE / GROUNDWATER MONITORING WELL

BH	DEPTH IN METERS
SALINITY	CONCENTRATION (ECe µs/cm)

- NS — NON-SALINE
- SS — SLIGHTLY-SALINE
- MS — MODERATELY SALINE

0 80 160 240 320 400
SCALE 1:8000 @A3 METRES

NOTE:
ALL LOCATIONS ARE APPROXIMATE DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 13 MAR 2024.

revision	no.	description	drawn	approved	date
	A	FIRST ISSUE	MC	NM	30/05/24

drawn	MC
approved	NM
date	30/05/2024
scale	AS SHOWN
original size	A3

client: LAND OWNER'S GROUP - EAST

project: SALINITY MANAGEMENT PLAN
MANRE ROAD, ALDINGTON AND ABBOTTS ROAD
KEMPS CREEK, NSW

title: SALINITY ANALYTICAL RESULT PLAN

project no: A101024.0241.00 | figure no: FIGURE 2 | rev: A

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PLOT DATE: 30/05/2024 3:40:25 PM DWG FILE: C:\USERS\MIRANDA.CHAU\ADE CONSULTING GROUP PTY LTD\ENV-WORKING - DOCUMENTS\NSW\PROJECT\24.0241.00 AARU AND MAU\5 WORKING DOCS\4 CAD (MC)\A101024.0241.00_SMP.DWG



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Appendix N Contingency Plan

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Traffic Management Plan				
Traffic Guidance Scheme (TGS)	Trigger	No observable traffic issues caused by construction traffic.	Minor inconsistencies with TGS to onsite operations (e.g. covered signs, missing signs and fallen cones).	Near miss or incident occurring regardless of/ as a result of TGS being implemented.
	Response	No response required. Continue monitoring TGS implementation under CTMP.	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. Amend the TGS to ensure that the safety of all workers and community members are addressed.
Construction Movements	Tigger	Both peak hour and daily Construction traffic volumes are in accordance with volume and time constraints as outlined within Section 2.1 and Section 2.1.4 of the CTMP.	Construction traffic volumes exceed programmed peak volumes but are within the permissible volume constraints.	As for Condition Amber, plus: • If it is concluded that construction activities were directly responsible for the exceedance, submit a non-compliance report to government agencies and the ER. • Stop all transportation into and out of the site.
	Response	No response required.	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: • Review CTMP and update where necessary. • Provide additional training.	As for Condition Amber, plus: • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies and the ER. • Stop all transportation into and out of the site.
Queuing	Trigger	No queuing identified.	Queuing identified within Project Site, but not on to the public road.	Queuing identified on the public road.

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Continue monitoring program.	Review the delivery schedule prepared by the contractor. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Drivers' 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 • Stop all transportation into and out of the Project site • Review CTMP and update where necessary, provide additional training.
Dust Generated by Traffic	Trigger	No observable dust.	Minor quantities of dust in the air and/or tracking on to the road.	Large quantities of dust in the air and/or 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, plus: • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies and the ER. • Implement relevant responses and undertake immediate review to avoid such occurrence in future.

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Air Quality				
Dust Emissions	Trigger	Inspections show that there is no visible dust leaving the site.	Inspections show that there is visible dust leaving the site.	Inspections show that there is visible dust leaving the site multiple times during a day OR from multiple locations within the site.
	Response	Monitor weather conditions and stop works if dust generation is excessive. Continue implementation measures of the CAQMP.	During periods of unsuitable weather (high winds and high temperatures), avoid or minimise dust generating activities where possible, or increase frequency of dust suppression activities. Remove, suppress, stabilise or cover materials that have a potential to produce dust as soon as possible, unless being used on site. Impose 30km/h speed limits on haul routes to minimise dust generated from vehicle movements.	Where possible, locate high dust generating activities away from sensitive receivers. Record any exceptional events that cause dust and/or air emissions on or off site and note action taken to resolve situation.
Dust Complaints	Trigger	No complaints received during construction.	An air-quality related complaint is received from a nearby resident.	Further complaints are received after the additional mitigation measures have been implemented.
	Response	Continue monitoring program and implementing CAQMP.	Record all air quality related complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record measures taken. Make Consultation Register available to relevant authorities (Council, EPA, DPHI). Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate.	Provide ESR with details of construction activities undertaken on site at the time of complaint. Communicate with ESR if actions are required.

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Noise and Vibration				
Noise Impacts at Sensitive Receiver	Trigger	Noise levels do not exceed noise management levels.	Noise levels exceed applicable noise management levels.	Noise levels exceed Highly Noise Affected threshold at a sensitive receiver. Noise complaints received.
	Response	Continue implementing existing measures in accordance with the CNVMP.	Implement every practical and logical mitigation and management strategy to keep noise levels below the Highly Noise Affected (75dBA) threshold.	Implement every practical and logical mitigation and management strategy to reduced noise levels below the Highly Noise Affected threshold. If noise levels cannot be kept below the imposed restrictions, an alternative construction method or equipment will be used.
Vibration Impacts at Sensitive Receivers	Trigger	Vibration-intensive tasks carried out beyond the equipment's recommended working distance.	Vibration intensive works undertaken within minimum working distance for the specific equipment in use.	Vibration levels exceed applicable vibration limits.
	Response	Continue to implement existing measures in accordance with CNVMP.	Undertake vibration monitoring for the duration of the works to confirm vibration levels.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below applicable limits. If vibration levels cannot be kept below applicable limits, then a different construction method or equipment will be utilised.
Unexpected Finds				
Unexpected Contamination Find	Trigger	No contamination uncovered during earthworks.	Areas of possible contamination uncovered during earthworks.	Areas of potentially hazardous substance identified during earthworks.
	Response	Continue to implement existing measures in accordance with CEMP.	Implement CUFP (Appendix F of CEMP).	Implement CUFP (Appendix F of CEMP).

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Unexpected Heritage Find	Trigger	No Aboriginal or historical artefacts found.	Unanticipated archaeological items uncovered.	Potential human remains discovered.
	Response	Continue to implement existing measures in accordance with HMP.	Implement Heritage Unexpected Finds Procedure in HMP (Appendix I).	Implement Heritage Unexpected Finds Procedure in HMP (Appendix I).
Waste Management				
Waste	Trigger	Inspections identified no waste from construction generated outside of dedicated bins and stockpiles.	Inspections identified minimal waste from construction generated outside of dedicated bins and stockpiles.	Inspections identified large quantities of waste from construction generated outside of dedicated bins and stockpiles. Complaints received regarding waste management.
	Response	Continue to implement existing measures in accordance with CWMP.	Clean up the waste immediately and dispose according to CWMP requirements. Toolbox talk with all workers to discuss waste management requirements.	Clean up the waste immediately and dispose according to CWMP requirements. Toolbox talk with all workers to discuss waste management requirements.
Water Quality and Civil Infrastructure				
Erosion	Trigger	No evidence of erosion.	Minor gully or tunnel erosions or rilling onsite. Sediment has potential to leave the site.	Significant gully or tunnel erosions present or rolling. Evidence of sediment leaving site.
	Response	Continue to implement existing measures in accordance with ESCP.	RCP Safety and Environmental Coordinator will inspect the site after every rainfall event and at least fortnightly. Construct additional erosion and sediment control works to ensure desired protection.	Suitably trained person to inspect the site. Review of erosion and sediment structures and ESCP. Remediate as soon as practical.
Water Management Structures	Trigger	Water management structures have been designed, constructed and managed in accordance with the Mamre Road Precinct DCP.	Inspections identify that water management structures are in minor non-compliance with ESCP and Mamre Road Precinct DCP.	Inspections identify a failure of the water management structures (discharging outside of site of boundary and/or water quality does not meet required criteria).

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	Continue to implement existing measures in accordance with ESCP.	A suitably trained person to inspect the site and review adequacy of water management structures.	A suitably trained person to inspect the site. Remediate as soon as practical. Review of engineering design and ESCP.
Community				
Submission	Trigger	General feedback/comment (no complaint or query).	Enquiry made by formal or informal channels.	Complaint made by formal or informal channels.
	Response	Implement Communication Procedure and Protocols (CCS&CHP).	Implement Communication Procedure and Protocols (CCS&CHP).	Implement Communication Procedure and Protocols (CCS&CHP).
Wildlife				
Biodiversity Management	Trigger	No impacts to biodiversity identified.	Minor biodiversity impacts identified on site.	Significant biodiversity impacts identified.
	Response	No response required.	Review effectiveness of management measures. Implement additional measures to manage impacts.	Stop works causing biodiversity impact. As for Condition Amber.
Wildlife Management	Trigger	Minimal occurrence of common strike species at the site.	Common strike species occur regularly at the site.	Common strike species occurring at the site in large numbers.
	Response	No response required.	Review effectiveness of management measures. Consider implementing additional measures to manage species.	As for Condition Amber.
Weather				
Unfavourable Weather Conditions	Trigger	Weather monitoring does not indicate any unfavourable weather conditions predicted for the Project site.	Weather monitoring indicates unfavourable weather (e.g. imminent storm, high rainfall, flood, strong wind) is forecast for the Project site.	Unfavourable weather conditions are predicted/ occurring that may result in actual or potential non-compliance with SSD CoC if controls are not adequate.

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	Continue to monitor weather conditions.	Communicate unfavourable weather prediction to Site Supervisor to coordinate appropriate response. Implement Condition Amber response for environmental impact of concern.	Communicate to Site Supervisor to coordinate appropriate response. Implement Condition Red response for environmental impact of concern.
Cumulative Impacts				
Cumulative Impacts of Multiple Construction Contractors	Trigger	Cumulative environmental impacts (e.g. dust, noise, traffic and water quality impacts) of the Project in accordance with predicted/required impacts.	Inspections, monitoring or auditing indicate cumulative environmental impacts of the Project above those predicted/required. Community enquiry made by formal or informal channels.	Inspections, monitoring or auditing indicate cumulative environmental impacts of the Project above those predicted/required. Community complaint made by formal or informal channels.
	Response	Continue implementing CEMP and sub-plans.	Coordinate construction activities with other construction contractors to avoid or minimise cumulative environmental impacts. Implement Condition Amber response for cumulative environmental impact of concern.	Coordinate construction activities with other construction contractors to avoid or minimise cumulative environmental impacts. Implement Condition Red response for cumulative environmental impact of concern.

Appendix O Consultation Records

[redacted]

From: [redacted]
Sent: Thursday, 13 February 2025 2:26 PM
To: [redacted]
Cc:
Subject: FW: Council Advice RE: MAIU & AARU - CEMP

[EXTERNAL EMAIL**]**

[redacted]

TfNSW Land Use Assessment have reviewed the submitted documentation and has no objections or further comments on the CTMP for the approved road works in Abbots Road, Kemps Creek.

Please ensure that any necessary ROL's for works affecting the classified road network are obtained from TMC.

Regards

[redacted]
Land Use Planner
Transport Planning
Planning, Integration and Passenger
Transport for NSW

[redacted]

Please note that I do not work on Wednesdays

Transport for NSW

OFFICIAL

From: [redacted]
Sent: Monday, 10 February 2025 2:02 PM
To: [redacted]
Subject: FW: Council Advice RE: MAIU & AARU - CEMP

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[redacted]

ESR

ESR Australia & New Zealand
Level 13, 39 Martin Place, Sydney 2000 | au.esr.com

[redacted]

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Any views expressed in this e-mail are those of the individual sender, except where specifically stated to be the view of ESR or its subsidiaries.

From: [redacted]
Sent: Friday, 29 November 2024 9:56 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Council Advice RE: MAIU & AARU - CEMP

[EXTERNAL EMAIL**]**

Hi [redacted]

I reviewed the prepared CTMP and I can advise that in principle Council has no objections on the proposed CTMP for MAIU and Phase 1 upgrade for AARU. Phase 2 of AARU will be assessed following the development approval for these works.

It is noted that the CTMP refers to the largest vehicle as truck and dog accessing the site. It would be appropriate for this CTMP to also make reference to the OTMP prepared for Warehouse 1 (Toll) as larger vehicles may be required to access the site to service Warehouse 1. Further, Appendix C – TGS – has a plan on page 74 showing a detour route along Aldington Road and Bakers Lane. Can you please clarify the intention of this plan noting that no construction or heavy vehicles are permitted to use Bakers Lane?

Kind Regards,

[redacted]
Senior Engineer - Major Developments

[redacted]
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www.penrithcity.nsw.gov.au

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From: [redacted]
Sent: Monday, 25 November 2024 1:34 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Council Advice RE: MAIU & AARU - CEMP

Hi [redacted]

Thanks for closing all comments on the environmental management plans of the CEMP. However, we haven't yet received your feedback on the CTMP, which is included in Annexure J of the CEMP.

Here is a direct link to it.

P2264r03v03 CTMP_Mamre Rd, Abbotts Rd and Aldington Rd Upgrade, Issue III.pdf

I'd appreciate your prompt response on this.

Kind regards,

[redacted]

at&l

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[redacted]



Yarra River, Melbourne
Photo by our Associate | Manager - Kunjan Patel

AT&L Christmas Closure
23rd December 2024 - 3rd January 2025

Please note I currently work based on a 9-day fortnight schedule with every second Friday as my designated day off. As a result, I may not be contactable on those days. If you require urgent assistance, one of my colleagues will be available to assist you.
Thank you for your understanding

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INFRASTRUCTURE PLANNERS AND ADVISERS | CONSTRUCTION PHASE SERVICES

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From: [redacted]
Sent: Thursday, 7 November 2024 8:00 AM
To: [redacted]
Subject: RE: Council Advice RE: MAIU & AARU - CEMP

[redacted]

This addresses Council's comment.

Kins Regards,

[redacted]
Senior Engineer - Major Developments
Engineering Services

[redacted]
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From: [redacted]
Sent: Thursday, 31 October 2024 4:04 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Council Advice RE: MAIU & AARU - CEMP

Hi [redacted]

Here is the revised plan - Appendix F (UCFP) - to close out all comments.

Thanks

Kind regards,

[redacted]

at&l

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www.atl.net.au

Level 7, 153 Walker Street
North Sydney NSW 2060

[redacted]



The Three Sisters, Katoomba
Photo by our Associate | WSC Team Lead - Samantha Bennett

Please note I currently work based on a 9-day fortnight schedule with every second Friday as my designated day off. As a result, I may not be contactable on those days. If you require urgent assistance, one of my colleagues will be available to assist you.
Thank you for your understanding

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From: [redacted]
Sent: Wednesday, 30 October 2024 7:21 AM
To: [redacted]
Cc: [redacted]
Subject: Council Advice RE: MAIU & AARU - CEMP

Hi [redacted]

My apologies for the delay in reviewing the CEMP. I just received the comments from our Environmental team raising no objections to the CEMP but noted the following:

Appendix C is the Construction Noise and Vibration Management Plans. Noise in the Mamre Road Precinct is assessed by DPHI and so therefore has not formed part of Council's review. Also, in Appendix F (UCFP) within the flow chart for unexpected contamination finds there is some missing text from a box on the lower right-hand side. The chart still makes sense; however, this missing text should be included.

Please feel free to contact me if you have any questions.

Kind Regards,

[redacted]
Senior Engineer - Major Developments
Engineering Services

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From: [redacted]
Sent: Wednesday, 16 October 2024 7:53 AM
To: [redacted]
Cc: [redacted]
Subject: RE: MAIU & AARU - CEMP

Hi [redacted]
I wanted to check in to see if there has been any feedback from your team yet. I'm aiming to close out the consultation this week and would like to request endorsement from the ER soon.
Let me know if there's any update.

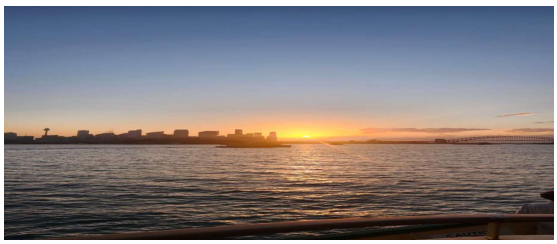
Kind regards,

[redacted]

at&l

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Circular Quay, Sydney
Photo by our Civil Engineer | Superintendent - Ignacio Vazquez Hume

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From: [redacted]
Sent: Sunday, 13 October 2024 9:06 PM
To: [redacted]
Cc: [redacted]
Subject: Re: MAIU & AARU - CEMP

Thanks [redacted], let's talk on Tuesday.

Obtener Outlook para Android
Kind regards,

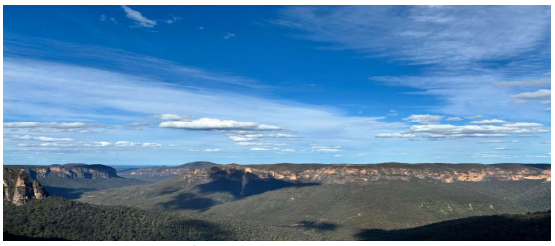
[redacted]

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[redacted]



Blue Mountains, NSW
Photo by our People & Culture Administrator - Nicola Jordan

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From: [redacted]
Sent: Sunday, October 13, 2024 8:24:03 PM
To: [redacted]
Cc: [redacted]
Subject: RE: MAIU & AARU - CEMP

Hi [redacted]

Apologies for the delay in providing Council's comments on the CEMP. I have sent a follow up request to our Environmental team last week for an update on their review and I'm waiting on their feedback. I will contact them again Tuesday if I don't hear back by then and keep you updated.

Kind Regards,

[redacted]
Senior Engineer - Major Developments
Engineering Services

[redacted]
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From: [redacted]
Sent: Wednesday, 2 October 2024 6:35 PM
To: [redacted]
Cc: [redacted]
Subject: RE: MAIU & AARU - CEMP

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Hi [redacted]

Just checking in—have you received any feedback from your Environmental team yet on the submitted CEMP documents? It would be great to get an update on their comments so we can stay on track.

Thanks!

Kind regards,

[redacted]

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[redacted]



Cordeaux Dam
Photo by our Senior Project Manager - Andrew Byrne

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From: [redacted]
Sent: Wednesday, 25 September 2024 1:51 PM
To [redacted]

Cc: [redacted]

Subject: RE: MAIU & AARU - CEMP

Hi [redacted]

Thank you for the chat earlier. As discussed, I have forwarded the submitted CEMP documents to our Environmental team for their review and to provide me with feedback. I will keep you updated as soon I receive their comments.

Please feel free to contact me if you have any questions.

Kind Regards,

[redacted]
Senior Engineer - Major Developments
Engineering Services

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From: [redacted]
Sent: Monday, September 23, 2024 8:50 AM
To: [redacted]
Cc: [redacted]
Subject: MAIU & AARU - CEMP

EXTERNAL EMAIL: This email was received from outside the organisation. Use caution when clicking any links or opening attachments.

Hi [redacted]

I am writing to seek Council's consultation on the Construction Environmental Management Plan (CEMP) for the External Road Works associated with the Mamre and Abbotts Intersection Upgrade (MAIU) and Aldington and Abbotts Road Upgrade (AARU). This is in accordance with Condition D25(a) of SSD-9138102 MOD5, which requires the CEMP to be prepared in consultation with Council prior to the commencement of the External Road Works.

To provide context, there will be three separate overarching CEMPs for the following projects:

- MAIU
- AARU Phase 1
- AARU Phase 2

All three CEMPs will utilize the same set of sub-reports, which cover the scope of these projects. This approach ensures consistency in managing traffic, environmental monitoring, and other key aspects while addressing the specific requirements of each phase.

Please find the link below to the CEMP's folders for your review, which contain the Construction Traffic Management Plan for all three projects. We would appreciate your feedback and any recommendations within the next week to help us stay on schedule and comply with the consent conditions.

AARU CEMP
(See Annexure J - CTMP)
MAIU CEMP
(See Annexure J - CTMP)

If there is any additional information you require or if you would like to arrange a meeting to discuss further, please feel free to reach out.

Thank you for your attention, and I look forward to your response.

Kind regards,

[redacted]

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[redacted]



Lake Parramatta, Parramatta

Photo by our Associate | WSC Team Lead - Samantha Bennett

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[redacted]

From: [redacted]
Sent: Wednesday, 2 October 2024 4:56 PM
To: [redacted]
Cc:
Subject: Re: MAIU & AARU - CEMP
Attachments: 610.31166.00000-R07-v1.1-20240813 (RP Comments).pdf; AARU and MAIU_Contingency Plan (ER comments).pdf; AARU and MAIU_DDMP_Rev 03 (Rp comments).pdf

Hi [redacted]

No comments on the following documents:

- Salinity Management Plan
- Fill Management Plan
- Waste Management Plan
- Unexpected Finds Contamination Procedure
- Construction Flora and Fauna Management Plan
- Heritage Management Plan

Comments on the:

- Construction Traffic Management Plan (attached)
- Contingency Management Plan (attached)
- Dam Dewatering (attached)

I think this is it for AARU

I will have a look at the next batch shortly

[redacted] Director
Trigalana Environmental Pty Ltd
[redacted]

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From: [redacted]
Sent: Wednesday, 2 October 2024 12:11 PM
[redacted]
Subject: Re: MAIU & AARU - CEMP

Hi [redacted]

Comments on the comms plan is attached.

Cheers

[redacted] Director
Trigalana Environmental Pty Ltd
[redacted]

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From: [redacted]
Sent: Monday, 30 September 2024 5:15 PM
[redacted]
Subject: RE: MAIU & AARU - CEMP

Thanks [redacted]

I'll be addressing your comments with the sub consultants and updating the documents in the same live folder.

Kind regards,

[redacted]



Cordeaux Dam
Photo by our Senior Project Manager - Andrew Byrne

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[redacted]

From: [redacted]
Sent: Monday, 30 September 2024 4:38 PM
[redacted]
Subject: Re: MAIU & AARU - CEMP

Hi [redacted]

I will send these one by one to keep the ball rolling.

There are a lot of documents.

- CEMP, CNVMP and AQMP comments attached
-

[redacted] Director
Trigalana Environmental Pty Ltd
[redacted]

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From: [redacted]
Sent: Monday, 30 September 2024 11:09 AM
[redacted]
Subject: RE: MAIU & AARU - CEMP

Hi [redacted]

Just following up on the email below. Have you had a chance to review the plans?

Please let me know.

Kind regards,

[redacted]

at&l

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North Sydney NSW 2060

[redacted]



Cordeaux Dam
Photo by our Senior Project Manager - Andrew Byrne

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From: [redacted]
Sent: Monday, 23 September 2024 5:07 PM
[redacted]
Subject: Re: MAIU & AARU - CEMP

Thank you [redacted]

I will have a look at this and discuss with Carl tomorrow.

If any questions will give you a call.

Cheers

[redacted] Director
Trigalana Environmental Pty Ltd

[redacted]

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From: [redacted]
Sent: Monday, 23 September 2024 8:56 AM
[redacted]
Subject: MAIU & AARU - CEMP

Hi [redacted]

I hope this email finds you well.

I'm reaching out to seek your consultation on the CEMP for the External Road Works associated with MOD 5 to SSD-9138102 (MAIU and AARU). This is part of our compliance with the requirements under Condition D25, which mandates the preparation of the CEMP in consultation with relevant stakeholders before commencement.

To provide context, there will be three separate overarching CEMPs for the following projects:

- MAIU
- AARU Phase 1
- AARU Phase 2

All three CEMPs will utilize the same set of sub-reports, which cover the scope of these projects. This approach ensures consistency in managing traffic, environmental monitoring, and other key aspects while addressing the specific requirements of each phase. AARU Phase 2 overarching CEMP report is still to be drafted.

Please find the link below to the CEMP's folders for your review, which contain the Construction Traffic Management Plan for all three projects. We would appreciate your feedback and any recommendations within the next week to help us stay on schedule and comply with the consent conditions.

AARU CEMP
(See Annexure J - CTMP)
MAIU CEMP
(See Annexure J - CTMP)

If there is any additional information you require or if you would like to arrange a meeting to discuss further, please feel free to reach out.

Thank you for your attention, and I look forward to your response.

Kind regards,

[redacted]

at&l

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Level 7, 153 Walker Street
North Sydney NSW 2060

[redacted]



Lake Parramatta, Parramatta

Photo by our Associate | WSC Team Lead - Samantha Bennett

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[redacted]

From: [redacted]
Sent: Wednesday, 25 September 2024 1:51 PM
To: [redacted]
Cc:
Subject: RE: MAIU & AARU - CEMP

Hi [redacted]

Thank you for the chat earlier. As discussed, I have forwarded the submitted CEMP documents to our Environmental team for their review and to provide me with feedback. I will keep you updated as soon I receive their comments.

Please feel free to contact me if you have any questions.

Kind Regards,

[redacted]
Senior Engineer - Major Developments
Engineering Services

[redacted]
www.visitpenrith.com.au
www.penrithcity.nsw.gov.au

PENRITH CITY COUNCIL

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From: [redacted]
Sent: Monday, September 23, 2024 8:50 AM
[redacted]
Subject: MAIU & AARU - CEMP

EXTERNAL EMAIL: This email was received from outside the organisation. Use caution when clicking any links or opening attachments.

Hi [redacted]

I am writing to seek Council's consultation on the Construction Environmental Management Plan (CEMP) for the External Road Works associated with the Mamre and Abbotts Intersection Upgrade (MAIU) and Aldington and Abbotts Road Upgrade (AARU). This is in accordance with Condition D25(a) of SSD-9138102 MOD5, which requires the CEMP to be prepared in consultation with Council prior to the commencement of the External Road Works.

To provide context, there will be three separate overarching CEMPs for the following projects:

- MAIU
- AARU Phase 1
- AARU Phase 2

All three CEMPs will utilize the same set of sub-reports, which cover the scope of these projects. This approach ensures consistency in managing traffic, environmental monitoring, and other key aspects while addressing the specific requirements of each phase.

Please find the link below to the CEMP's folders for your review, which contain the Construction Traffic Management Plan for all three projects. We would appreciate your feedback and any recommendations within the next week to help us stay on schedule and comply with the consent conditions.

AARU CEMP
(See Annexure J - CTMP)
MAIU CEMP
(See Annexure J - CTMP)

If there is any additional information you require or if you would like to arrange a meeting to discuss further, please feel free to reach out.

Thank you for your attention, and I look forward to your response.

Kind regards,

[redacted]

at&l

Sydney | Melbourne | Brisbane
www.atl.net.au

Level 7, 153 Walker Street
North Sydney NSW 2060

[redacted]



Lake Parramatta, Parramatta

Photo by our Associate | WSC Team Lead - Samantha Bennett

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[redacted]

From: [redacted]
Sent: Wednesday, 25 September 2024 9:53 AM
To: [redacted]
Cc:

Subject: RE: MAIU - CEMP and Community Consultation
Attachments: 630.031625.00001_CCSCHP v.03 Final.pdf; FW: Council's Advice on TGS Plans Prepared for Stage 1 Works of AARU; 2024-09-09 Distribution register.xlsx; 2024.07.09_Comments from TfNSW on TMP ATL 24-09-25.docx

Hi [redacted]

Please find attached:

- the TMC review comments with responses updated
- PCC endorsement of the TMP including the RT ban at Abbotts Rd
- Copy of the Community Consultation Strategy which includes a copy of the consultation letters issued regarding the construction traffic management and the RT ban proposal
- Copy of the Community Consultation distribution register

I also provide a copy of the CEMP which includes the CTMP and CCS. MAIU CEMP

We already have a number of responses from stakeholders and will compile all responses once the consultation is completed.

Regards,

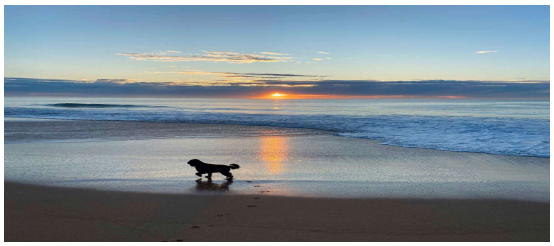
[redacted]

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From: [redacted]
Sent: Wednesday, 25 September 2024 8:00 AM
To: [redacted]

[redacted]

[redacted]

Subject: RE: MAIU - CTMP

Hi [redacted]

Could you please send me the comments sheet with responses to TMC's comments.

Regards

[redacted]
Project–Contract Manager
Developer Works
Greater Sydney
Transport for NSW

[redacted]

transport.nsw.gov.au

129a Orchardleigh Street
Yennora NSW 2161

Transport for NSW

OFFICIAL

OFFICIAL

From: [redacted]
Sent: Tuesday, September 24, 2024 5:30 PM

[redacted]

Subject: MAIU - CTMP

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.

Hi [redacted]

Please find attached the revised CTMP from ASON which addresses the issue of traffic volumes generation for the intersection during construction. Should you have any questions please let us know.

P2264r03v02 CTMP_Mamre Rd, Abbotts Rd and Aldington Rd Upgrade, Issue II (with TGS).pdf

Regards,

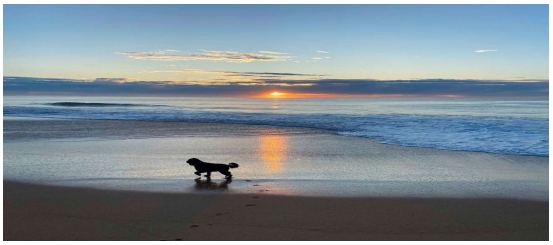
[redacted]

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