Sydney Metro Western Sydney Airport (SMWSA) – Advanced & Enabling Works (AEW)

Heavy Vehicle use of Local Roads (HVLR) Application

Document Number 4022-WSA-HVLR-002
VERSION 02

Date 06 April 2023

DOCUMENT APPROVAL				PROJECT NO.	4022
VERSION	**DATE**	**DETAILS / REMARKS**	**PREPARED BY**	**REVIEWED BY**	**APPROVED BY**
A	11/04/2023	Internal version for Quickway review	Louise Casey	Tom St Vincent Welch	Des Leyden
01	14/04/2023	IFR to stakeholders	Louise Casey	Tom St Vincent Welch	Des Leyden
02	17/05/2023	Comments addressed from Rev01. Additional Swept Paths added for Luddenham Rd (Cul-de-Sac) site compound.	Louise Casey	Tom St Vincent Welch	Des Leyden
The information contained in this document form's part a number of plans and should be read in conjunction with all project documentation					

Contents

Tables

Figures

Appendices

Glossary / Abbreviations

Abbreviation	Description / Definition
AS/NZS	Australia/New Zealand Standards
CEMP	Construction Environmental Management Plan
DPIE	NSW Department of Planning, Industry and Environment
DPI (Water)	NSW Department of Primary Industries (Water) (Former Office of Water)
EIS	SMWSA Project Environmental Impact Statement (M2A Joint Venture 2020)
Environmental impact	Defined by AS/NZS ISO 14001:2015 as any change to the environment, whether adverse or beneficial, wholly, or partially resulting from an organisation's environmental aspects
EPA	NSW Environment Protection Authority
EP&A Act	*NSW Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act, 1999*
EPL	NSW Environment Protection Licence under the *Protection of the Environment Operations Act 1997*.
HVLR	Heavy Vehicle use of Local Roads (This Document)
Minister, the	NSW Minister for Planning
MCoA	NSW Minister for Planning Conditions of Approval
Non-compliance	An occurrence, set of circumstances or development that is a breach of this approval but is not an incident.
CTMP	Construction Traffic Management Plan
Principal, the	Sydney Metro
Proponent, the	The person identified as the proponent in Schedule 1 of the Infrastructure Approval (Sydney Metro)
PCC	Penrith City Council
LGA	Local Government Area
REMM	Revised Environmental Management Measure
ROLs	Road Occupancy Licences
ROPs	Road Occupancy Permits
Secretary	Secretary of the Department of Planning, Industry and Environment
SM WSA	Sydney Metro Western Sydney Airport
SSI	State Significant Infrastructure
SP	Swept Path
the Project	SM WSA Advanced Enabling Works
TC	Traffic Controller
TfNSW	Transport for NSW
TTM	Temporary Traffic Management
VMP	Vehicle Movement Plan

1. Introduction

1.1 Background

The Sydney Metro Western Sydney Airport (SMWSA) project is located within the Penrith and Liverpool local government areas and will provide a new 23km long metro railway between St Marys in the north and the Aerotropolis Core precinct in the south, via Western Sydney International. The project will provide a connection between the existing Sydney Trains suburban rail network at St Marys and six new metro stations, including two at Western Sydney International and one at the Aerotropolis. The stations would play a key role in the development of future precincts in the Western Parkland City.

To facilitate the predicted expansion of Western Sydney and surrounding areas, the New South Wales government has identified the need to progressively improve and upgrade arterial roads. An upgrade of Mamre Road would improve the link between the M4 Motorway in the north and Elizabeth Drive in the south. Mamre Road currently experiences congestion during peak traffic periods. The Project would increase the road capacity along Mamre Road, providing an additional lane in both directions, thus catering for the projected traffic increase.

The works to be carried out under this Contract involves the extension of the Stabling and Maintenance Facility (SMF) watermain, the Project interfaces with TfNSW and is split over two design cases.

Quickway have been engaged by Sydney Metro to complete Stage 2 of the watermain extension. The works are located on Luddenham Road, Mamre Road and Solander Drive in St Clair, NSW, 2759.

The works to be undertaken at these locations include:

- Install 715m of DN315 PE100 & DN250 D.I.C.L watermain (CN202961 designed by SM-WSA)
- Install 560m of DN315 PE 100 watermain (CN198065PW designed by TfNSW)

To facilitate the construction of the watermain, local roads in the vicinity of the works will be required to be accessed, which require approval from the Secretary prior to use by Heavy Vehicles in accordance with MCoA E105. All local roads identified within this HVLR are located within PCC (Penrith City Council) LGA. Refer to Figure 1 for an indicative overview of the works location.

This document assesses the local road(s) proposed for use excluding those local roads;

- Which have been assessed and approved under the EIS.
- Which are TfNSW pre-approved B-double routes (https://roads-waterways.transport.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/index.html).

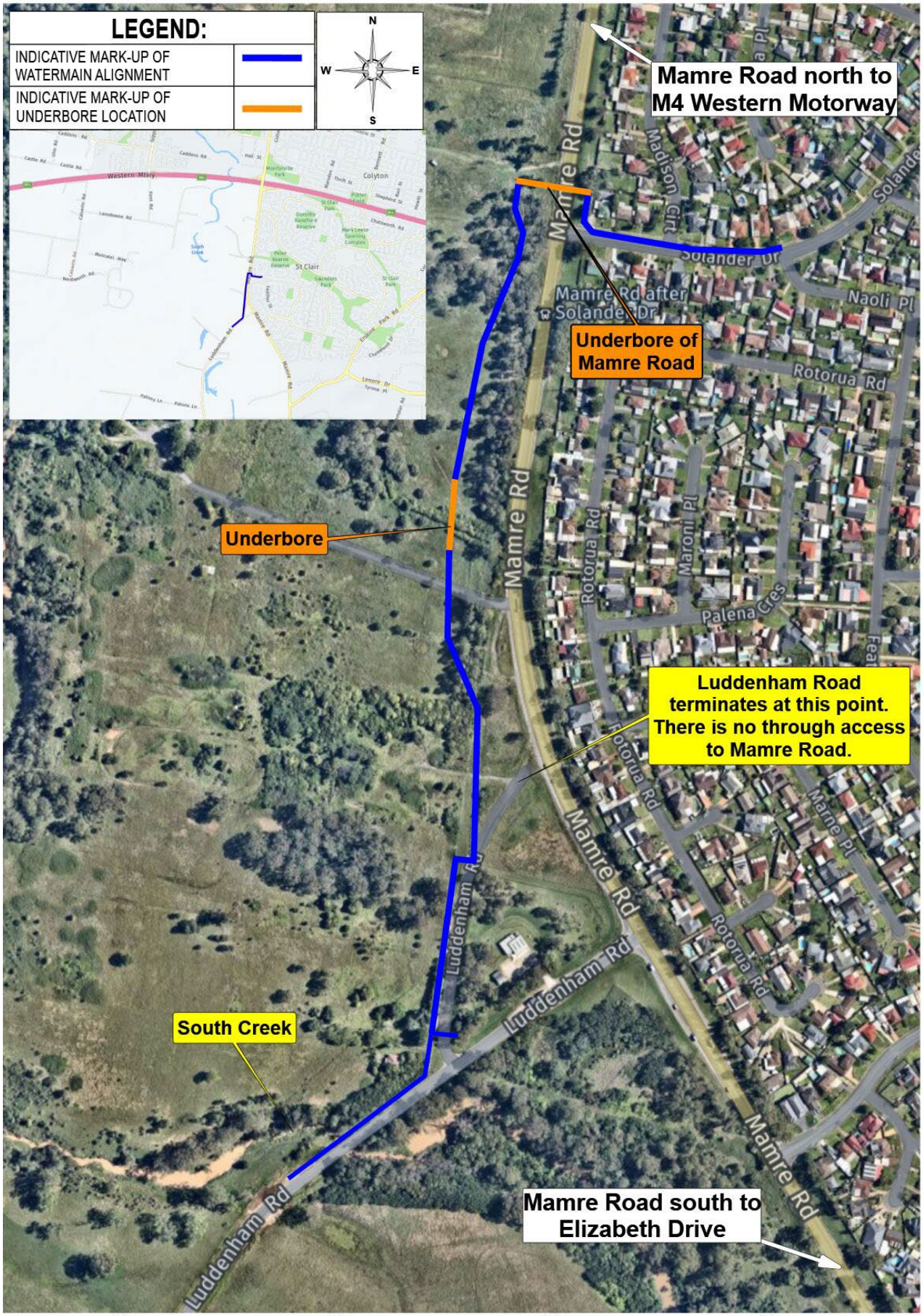


Figure 1 - Indicative Works Location Overview

1.2 Purpose

This Heavy Vehicle use of Local Road report (HVLR) has been developed to address the Ministerial Conditions of Approval related to the Critical State Significant Infrastructure of Sydney Metro – Western Sydney Airport. This HVLR identifies and assesses the heavy vehicle local road routes required to access and egress the work areas and which are not identified in the Environmental Impact Statement (EIS). The road classification and the suitability of the routes is based on the location of the works, swept path analysis, and adjacent land uses. Refer to Section 4.2 for details on all local roads impacted by the Project.

1.3 Scope of this HVLR

The scope of this application is to describe the local roads that will be required by Quickway to be used to carry out the construction of the SMWSA Advanced Enabling Works associated with the watermain installation. The application also details how Quickway are complying with the requirements of MCoA's 105, 106 and 107. These conditions are outlined as shown by the below Table 1.

Table 1 - MCoA Requirements

MCoA	Requirement	Document Reference
E105	Local roads proposed to be used by Heavy Vehicles to directly access ancillary facilities / construction sites that are not identified in the documents listed in Condition A1 must be approved by the Planning Secretary and be included in the CTMP.	This document
E106	All requests to the Planning Secretary for approval to use local roads under Condition E105 above must include the following:	
	(a) a swept path analysis;	• Summary register – Appendix B • Swept Path Analysis – Appendix C
	(b) demonstration that the use of local roads by Heavy Vehicles for the CSSI will not compromise the safety of pedestrians and cyclists of the safety of two-way traffic flow on two-way roadways;	• Section 4.4 • Section 4.5 • Appendix B and Appendix C
	(c) details as to the date of completion of the road dilapidation surveys for the subject local roads; and	• Section 4.7 • Appendix E
	(d) measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during their peak operation times; and	• Section 4.6
	(e) written advice from an appropriately qualified professional on the suitability of the proposed Heavy Vehicle route which takes into consideration items (a) to (d) of this condition.	• Appendix A
E107	Before any local road is used by a Heavy Vehicle for the purposes of construction of the CSSI, a **Road Dilapidation Report** must be prepared for the road. A copy of the **Road Dilapidation Report** must be provided to the Relevant Road Authority(s) within three (3) weeks of completion of the survey and at no later than one (1) month before the road being used by Heavy Vehicles associated with the construction of the CSSI.	• Section 4.7 • Appendix E

2. Advanced Enabling Works (Water) Project Scope

Quickway have been engaged by Sydney Metro to complete Stage 2 of the SMF watermain extension. The works are located on Luddenham Road, Mamre Road and Solander Drive in St Clair, NSW, 2759.

The works to be undertaken at these locations include:

- Install 715m of DN315 PE100 & DN250 D.I.C.L watermain (CN202961 designed by SM-WSA)
- Install 560m of DN315 PE 100 watermain (CN198065PW designed by TfNSW)

Quickway will be undertaking the following activities to perform the works:

- Mobilisation, site set-up
- Traffic control
- Service locating, potholing, investigations
- Pre-clearance survey (Ecologist)
- Site clearance
- Trench excavation, conduit installation, backfilling
- Horizontal directional drilling & pipe installation
- Spoil management
- Pipe welding
- Watermain disinfecting
- Road pavement and footpath construction
- Soft Landscaping
- Permanent restorations and handover

Table 2 - Description of Construction Activities

Works category	Description of activities
All sites (as applicable)	
Mobilisation, site set-up	• Site compound setup for site offices, amenities and material storage • Site compound setup for materials, spoil and waste management and handling – segregation of waste management bays • Environmental controls setup – chemical storage container, sediment controls etc • Site security measures • Deliveries of permanent material – i.e. pipe, fittings, spacers • Progressive removal of spoil material and importing of quarry materials.
Service locating, potholing, investigations, site preparation works	• Existing service locating and space / design proving of the alignment in pinch point locations • Locating of “challenging” excavation spots – i.e. large/ major utility crossings • Waste material sampling and classifications • Open excavations rock hammering for rock strength and level testing • Survey works • Pre-clearance inspection (Ecologist)

Works category	Description of activities
	• Tree branch trimming and removal where required. • Tree protection where required.
Traffic control, pedestrian/ cyclists management	• Traffic management – partial, full road closures, detours, shuttle flow, shoulder closures, roadworks speed limits, intermittent traffic stoppages • Parking removal • Pedestrians and cyclists management • Concurrent trenching crews operating at once. • Out of hours work required on state, regional roads due to traffic flows and road occupancy licences.
Trench excavation, water main installation, backfilling , temporary restorations	• Trenching installations and works will consist of open excavations, watermain installation, backfilling and temporary restorations and will progressively move along the trench alignment. There will be about 1.3 kilometres of trenching collectively for the project. • Trench depths ranging from 600mm to approximately 3200mm and widths ranging from 400mm out to 2800mm wide in some areas. • Trenching works will occur within footpaths, the road carriageway or road shoulder lanes, or utility easements • Open excavations when deeper than 1500mm or in poor ground conditions trenches will be shored with either vertishores or shoring boxes. • Excavation will occur to separate via material layer type – i.e. truck will be loaded with road surface material (concrete/ asphalt / roadbase) then tipped. Then loaded with any GSW material in trench (if found). Clean material/rock (VENM) will be loaded into truck separately to ensure maximisation suitable material for re-use. • Some excavations may encounter rock. This will require rock hammering methods. • Once excavation has achieved the required depth, pipe will be installed in 12m lengths and jointed with butt-fusion welding. • Pipe embedment will vary across the project depending on the composition of the trench & its location. Bedding materials to be utilised include compaction sand & cement stabilised sand. • HDPE welding will be required to connect lengths of Polyethylene Pipe (PE). Pipes are supplied in 12 metre lengths and welded together using butt-fusion and electrical fusion techniques. • Once welded, the pipe strings will be connected at ground level to the last installed pipe in the trench • Pipe shaving may be required and would be completed progressively. • Corflute caps and water-tight plugs to be used to protect the pipe while inside the trench and during welding operations. • HDPE pipes may also be joined using EF couplings and an electrofusion welder. • Electrofusion welding requires to coupling to be electronically heated which is a safer and more efficient option for joint welding. • Once installation works are complete, the watermain will be capped at both ends with flushing bends. The line will then be flushed, pressure and disinfection tests undertaken by NATA accredited specialists. • Trench backfill material will be placed, compacted and vibrated in approximately 150mm layers above the cover strip with trench compaction equipment. This process will be repeated for multiple layers until the underside of subgrade is met (approximately 350mm below surface level). Compacting testing will occur progressively during backfilling and layers. • Compaction sand or stabilised sand would be placed for backfill immediately around existing utilities crossed. Stabilised sand may require water conditioning during placement, however, does not required vibration compaction from 2ton trench roller, instead isolated handheld jumping jack leveling.

Works category	Description of activities
	• Imported DGB-20 roadbase material will make up the 300mm thick subgrade level below the road surface. Roadbase will be placed in 150mm layers, compacted and rolled with a 2ton smooth drum roller or wacker plate. Compacting testing will occur progressively during backfilling and layers. • Temporary road and footpath restorations will be made with the placement of approximately 50-75mm of AC10 or AC14 hot mix. Hotmix will be placed from excavator bucket, spread and rolled with 2ton smooth drum roller. • Any open excavations at the end of each shift within trafficable lanes to be re-opened will be road plated, pinned in accordance with TfNSW M209 temporary restorations specification, which includes pins and hotmix transition ramps on all sides. • Any open excavations within the secured site will be covered between shifts to ensure public safety of any unauthorised entry in the site. • Trenching works will progress approximately 10-30 metres per dayshift, and approximately 4-12 metres per nightshift pending ground conditions.
HDD bores	• Survey set out of bore. Utility investigation to validate locations and depths before trenchless drilling. • Excavation of entry pit and exit pits. Individual pits are approximately 3000mm long, 1200mm wide and 1500mm deep. Due to parallel bores combing these pits may be possible to aid traffic management arrangements. There will be approximately two 60 metre HDD bores at two different locations. • 'Pilot bore' drilled from the entry pit along alignment and is tracked from road surface level to ensure drill as per design alignment and depth. Pilot drill exits at exit pit. • "Reamers" are placed onto drilling rods, pulled back concentrically cutting and increasing the bore diameter of the bore profile. Increasing reamer sizes are progressively installed until the design diameter is achieved. Prior to pipe installation works the bore profile is "cleaned" with various passes of the design diameter reamer. • Concurrently to HDD boring works, high density polyethylene (HDPE) pipes are plastic butt welded together and internally de-beaded. HDPE pipes are welded into a string to match the length of the HDD bore. • Pipe will be dragged from its welding location along the alignment. It is then connected to the drilling roads before being pulled into the bore hole • Drilling fluid is pumped through the drill rods during the HDD bore to displace bore cuttings and to hydrostatic support bore annulus when being pumped, flow controlled and levels monitored. Drilling fluid is removed from entry and exit pits with a vacuum truck. • The vacuum truck will either tip the drilling fluid into a sealed liquid waste hook skin bin or bring directly to liquid waste tip. Drilling fluid is disposed offsite at licenced waste facility. • Once pipe is installed, grout will be installed via gravity pour at the entry and exit pits and pumping through a tremie line installed. • During the HDD bore, and for a set schedule after completion, road monitoring targets are monitored to ensure no road surface movement
Permanent restorations and handover	• Restore any footpath materials to pre-existing materials -i.e. concrete or pavers where appropriate • Restore disturbed areas progressively with appropriate grass seed(s)

3. Existing Approved Heavy Vehicle Routes

3.1 EIS Assessed Haulage Routes

Haulage route assesses in the EIS primarily lead to the construction of stations, tunnel and exit locations, and regional and state roads linking these major construction locations. Due to the nature of the advanced

enabling scope, and the location of the watermain installation, heavy vehicles associated with the Project are required to traverse a section of the local road network. The local roads outlined in this HVLR are unavoidable due to the Project location and scope. EIS assessed and approved haulage routes have been included in Figure 2.

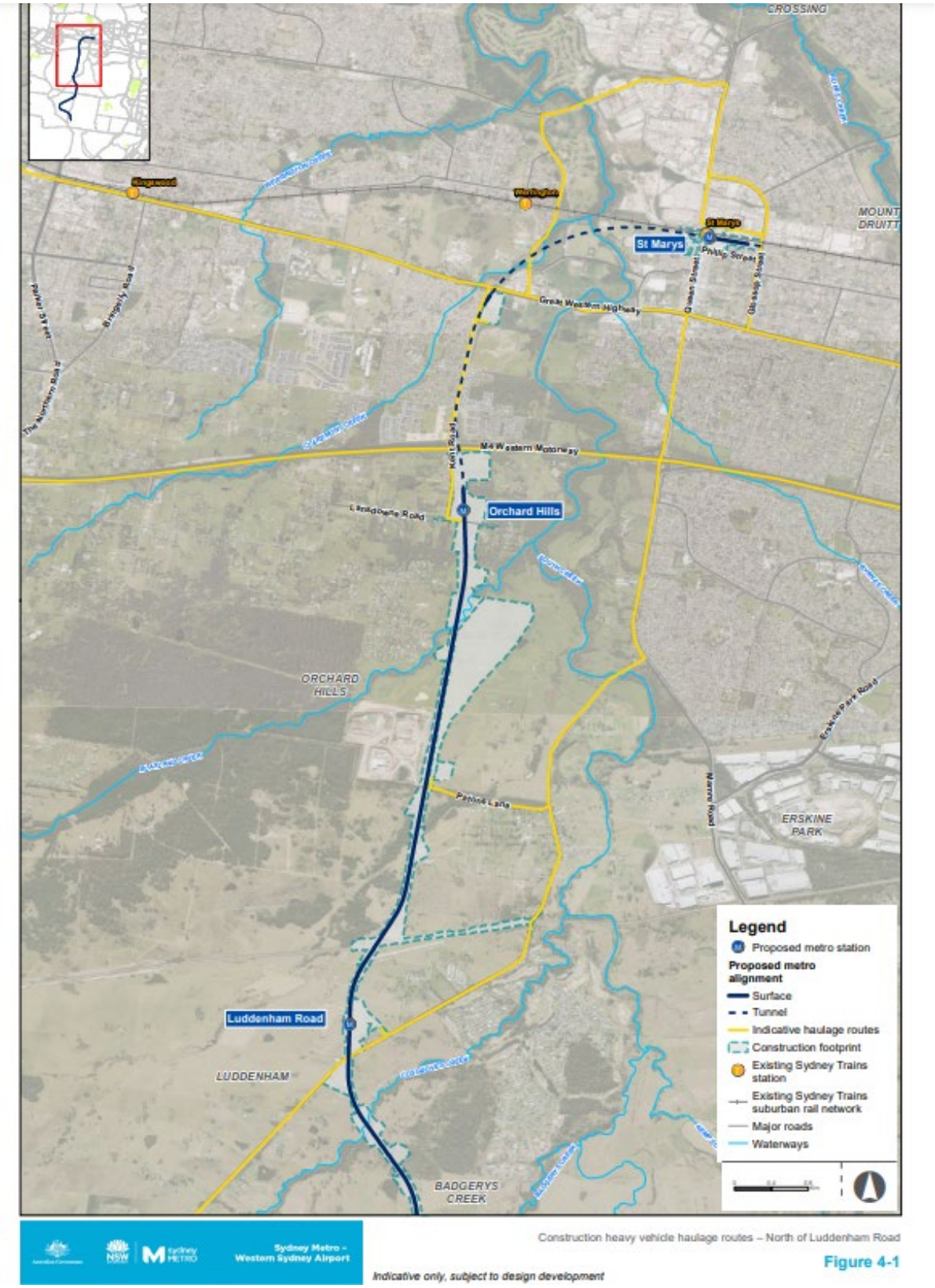


Figure 2 - EIS Figure 4-1 Haulage Routes

3.2 TfNSW Approved 25/26m B-double Routes

This surrounding road network is approved for heavy vehicle use as per TfNSW Restricted Access Vehicles (RAV) Map. View of map around proposed works sites is shown below in Figure 3. This map is shown only to indicate connecting roads linking to EIS approved routes.

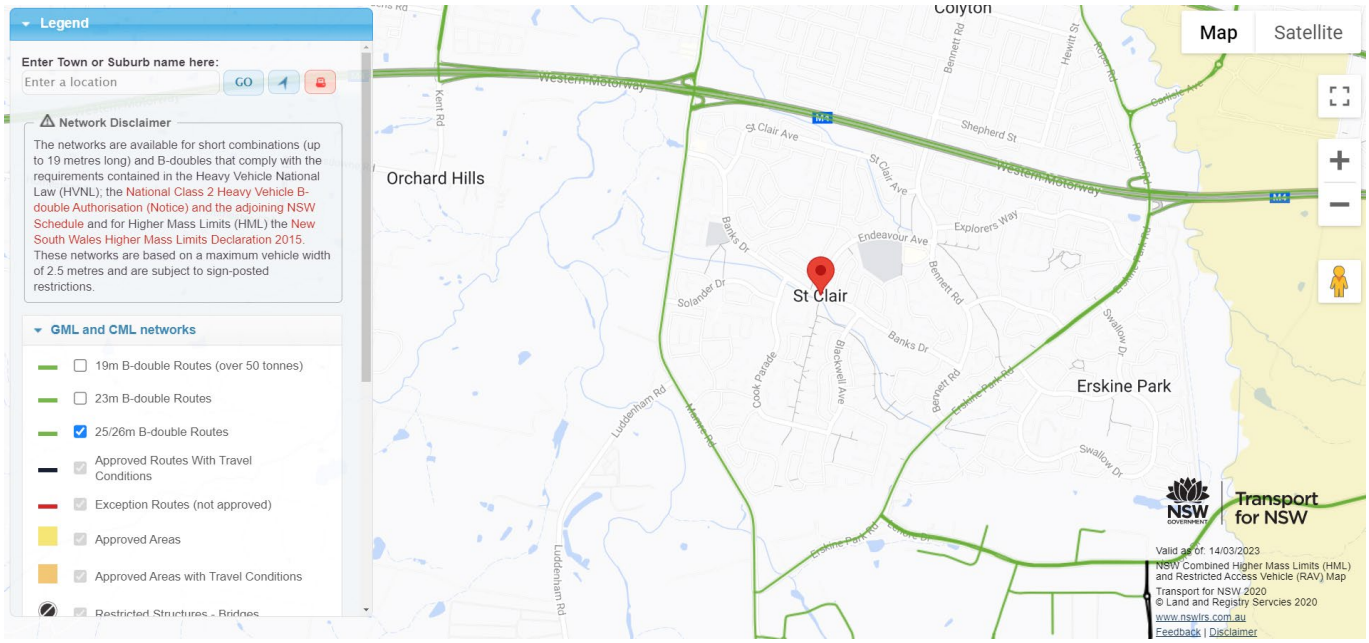


Figure 3 - TfNSW Approved 25/26m B-Double Routes

4. Heavy Vehicle Movements

4.1 Construction Plant

The project includes civil works such as excavations, pipe and pit installation, HDD under boring, requiring the use of heavy vehicle(s) (HV) and large plant, including;

- HVs – rigid trucks, crane trucks
- Excavators
- Mobile cranes – articulated and slewing.

The estimated number of heavy vehicle movements is shown in Table 3. Heavy vehicle swept path analysis register shown Appendix B identifies the vehicle size for all turn manoeuvres.

Table 3 - Estimated Construction Traffic Generated by the Project

Vehicle Type	Estimated movements per shift		
	In	Out	Total
Construction personnel (cars and private vehicles)	3	3	6
Light construction vehicles and Utes	6	6	12
Heavy Vehicles	8	8	16

4.2 Proposed Routes and Local Road Use

Although the EIS identified route of Luddenham Road and the TfNSW approved 25/26m B-Double route of Mamre Road will be the primary access/egress to the work area, other Local Roads, within PCC LGA, are required to be used to allow the works to be carried out. The below Figure 4 and Table 4 indicates the Local Roads proposed to be used that are not listed or identified in the EIS.

Figure 4 - Local Road Use Map

Table 4 - Local Roads Proposed for Use

Street/Road Name	From	To	Configuration	Parking	Speed Limit
Luddenham Road	Luddenham Road	End of Cul-de-Sac	2 lane 2 way	None	50km/h
Solander Drive	Mamre Road	Madison Circuit	2 lane 2 way	Both Sides	50km/h
Madison Circuit (loop)	Solander Drive	Solander Drive	2 lane 2 way	Both Sides	50km/h
Note: Madison Circuit is proposed as a turn around route for HV's to leave the work area, on Solander Drive, and get back to Mamre Road via the shortest possible route and to eliminate impacts on a number of other local roads if HV's were to continue to the east along Solander Drive. At all times when heavy vehicle movements are required on Solander Drive and Madison Circuit traffic controllers will be on-site to safely manage HV movements under approved TGS's and ROL's as required.					

4.3 Construction Traffic Management – Site Access and Egress

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

Dedicated construction vehicle routes have been developed with the objective of providing the shortest and safest distance to/from the work site in compliance with EIS requirements. Truck movements to and from site shall be restricted to these designated routes and movements to ensure minimal impact on local streets within the vicinity of the site.

Access points and procedures shall be identified and clearly communicated to all drivers and suppliers prior to arriving to site. Information on the approved access routes and locations for all construction vehicles shall be provided through onsite toolbox talks, pre-start meetings and project inductions prior to work commencing. All work vehicles shall:

- Enter and leave site in a forward direction using the approved truck routes where feasible and reasonable. Where this is not possible traffic management must be in place under an approved CTMP, TGS(s) and Road Occupancy approval.
- Decelerate slowly and signal their intention by indicator to leave the traffic stream.
- Activate the vehicles rotating beacon on approach to and departure from work site.
- Give way at all times to pedestrians on the footpath.
- Wait until there is a gap in traffic before leaving the construction site.
- Avoid movements through school zones during pick up and drop off times.
- Radio ahead to advise of approach to ensure work site space is available.

The arrival of trucks will be staggered to prevent the possibility of queuing of trucks at any time and minimise movements during peak periods. Construction vehicles must not continuously idle and/or queue on state, regional or local roads, and must also avoid any marshalling near sensitive land users which will be advised in inductions. It is also noted that no construction vehicles should obstruct any pedestrian crossings or footpaths, and no construction vehicles should layover/obstruct trafficable lanes without an approved ROL and/or Council Permit. The estimated number of HV movements is provided in Table 3

4.4 Cyclists

There is a Shared Path, which accommodates cyclists, as indicated in Figure 5 that extends from Madison Circuit/Solander Drive through Peter Kearns Reserve providing access to Banks Public School and Peter Kearns Memorial Oval. It is anticipated that the profile of cyclists using this shared path would be predominantly school children of 14 years and under. Although the shared path does not extend along Solander Drive it is expected that these school children will utilise the footpath during School am/pm peak periods.

The following controls will be implemented to mitigate any impacts to cyclists:

- HV equipment minimum safety requirements e.g., side under-run protection, blind spot mirrors, pedestrian, and cyclist warning signs, real-time telematic systems etc;
- Works to be performed, where possible, outside of School Peak periods i.e., 08:00-09:30am and 2:30-04:00pm. If this is not possible then footpath impacts will be minimised, where possible, during school peaks.
- The works on Solander Drive are predominantly located in the road as opposed to the footpath/verge. Where possible impacts to the footpath, which is likely to be used by cyclists, will be avoided.
- Where cyclist impacts are unavoidable traffic controllers will be positioned at either end of the worksite and will stop approaching cyclists. They will be requested to dismount and be guided through the work area whilst dismounted. Re-mounting will be advised when safe to do so.
- Cyclists using the road network will be subject to the same Temporary Traffic Management (TTM) requirements as registered road users. Where site conditions allow, the cone line or outer edge of any lane closure shall be narrowed/pulled back from the lane dividing line marking to create a road section to accommodate cyclists.

All heavy vehicle drivers are required to follow NSW driver road rules for around cyclists, including:

- Roads under 60kmh you must provide at least 1 metre of space when passing;
- Roads over 60kmh you must provide at least 1.5 metre of space when passing;
- Only pass when safe to do so;
- If not safe to pass, proceed with space, behind the cyclists until the road junction;

Heavy vehicle drivers will be reminded of these obligations during the project heavy vehicle driver induction presentation as shown in Appendix D.

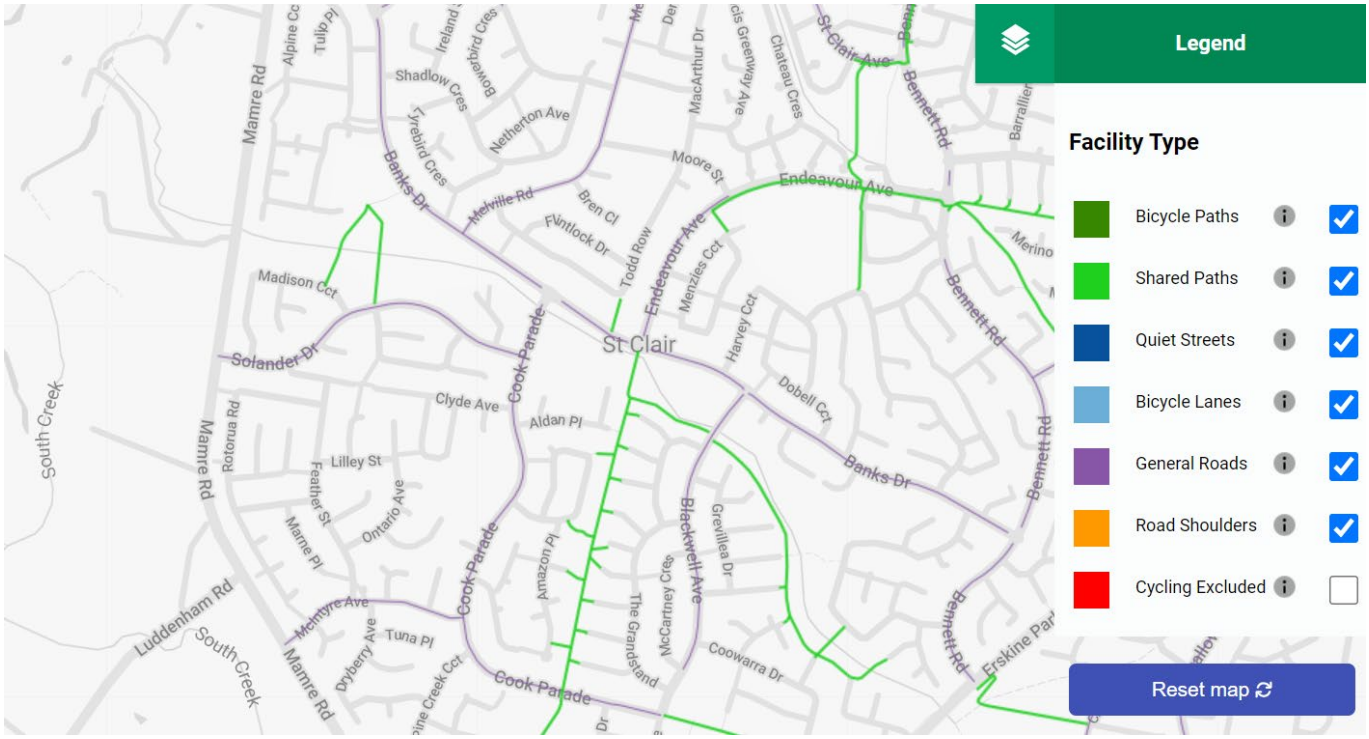


Figure 5 - TfNSW Cycleway Finder

4.5 Pedestrians

Swept paths analysis completed in Appendix C show there is no encroachment over the edge kerb lines. Therefore, there is no risk for a heavy vehicle(s) striking a pedestrian on the footpath due to vehicle turning manoeuvres.

In locations where there are no existing footpaths if a pedestrian was to approach, traffic control would stop traffic, and escort the pedestrian past the work area on the road surface. Traffic flow will not resume until the pedestrian is safely past the work area.

In locations where vehicles will need to work on the footpath, traffic, and pedestrian management as per the project CTMP and site specific TGS's will be implemented, which contain detailed information regarding traffic and pedestrian management strategies.

4.6 General Approach & Mitigation Strategies – School Zone(s) / Sensitive Receivers

Several mitigation strategies will be employed to mitigate the impact on the local roads and their users, including motorists, pedestrians, and cyclists. Specific mitigation measures for sensitive receivers (e.g., schools, childcares, aged care facilities) is described below and in the following subsections.

- Generally heavy vehicle movements in operational school zones will be avoided wherever possible. The intention is to utilise traffic management controls and the Madison Circuit local road loop to ensure heavy vehicles are eliminated from School Zones, wherever possible, along Solander Drive and Banks Drive as indicated in Figure 4.

- Heavy vehicles utilised for the project will generally be transporting carrying spoil/ quarry materials to and from the trenching location. All spoil/ quarry loads will have loads covered during heavy vehicle transportation.

- No air-breaking of any heavy vehicles passing sensitive receivers.
- Heavy vehicle requirements as per Section 5.1 implemented. A Heavy Vehicle Driver Induction will be required to be completed by all Heavy Vehicle Drivers prior to attending site. Details have been provided on the HV Driver Induction around the increased presence of school children, both on foot and cycling, during School AM/PM Peak periods. Refer to Appendix D and Figure 6.
- "Danger Look Out For Trucks" signage to be installed, during periods of Heavy Vehicle movements, as an additional reminder to pedestrians to look out prior to stepping not the roadway. Refer to Figure 6.
- Wherever possible, consideration for works on alignment near school zones will be programmed to occur outside of school peak periods / times. The NSW July School Holiday (Monday 3rd July to Friday 14th July 2023) period will be targeted for impactful works on Solander Drive where practical.
- Access will be maintained throughout works at all times when the facility is operational.
- Workforce and traffic control will be toolboxed on the sensitivity of the location, including the likely increased vehicle movement during drop off/pick up times, during works in this area.
- Wherever possible when working near schools, schedule work breaks to be at peak times (i.e., bell times) for pedestrian movements and vehicle movements.
- Ongoing communication and consultation with the facilities to minimise any potential traffic impacts.

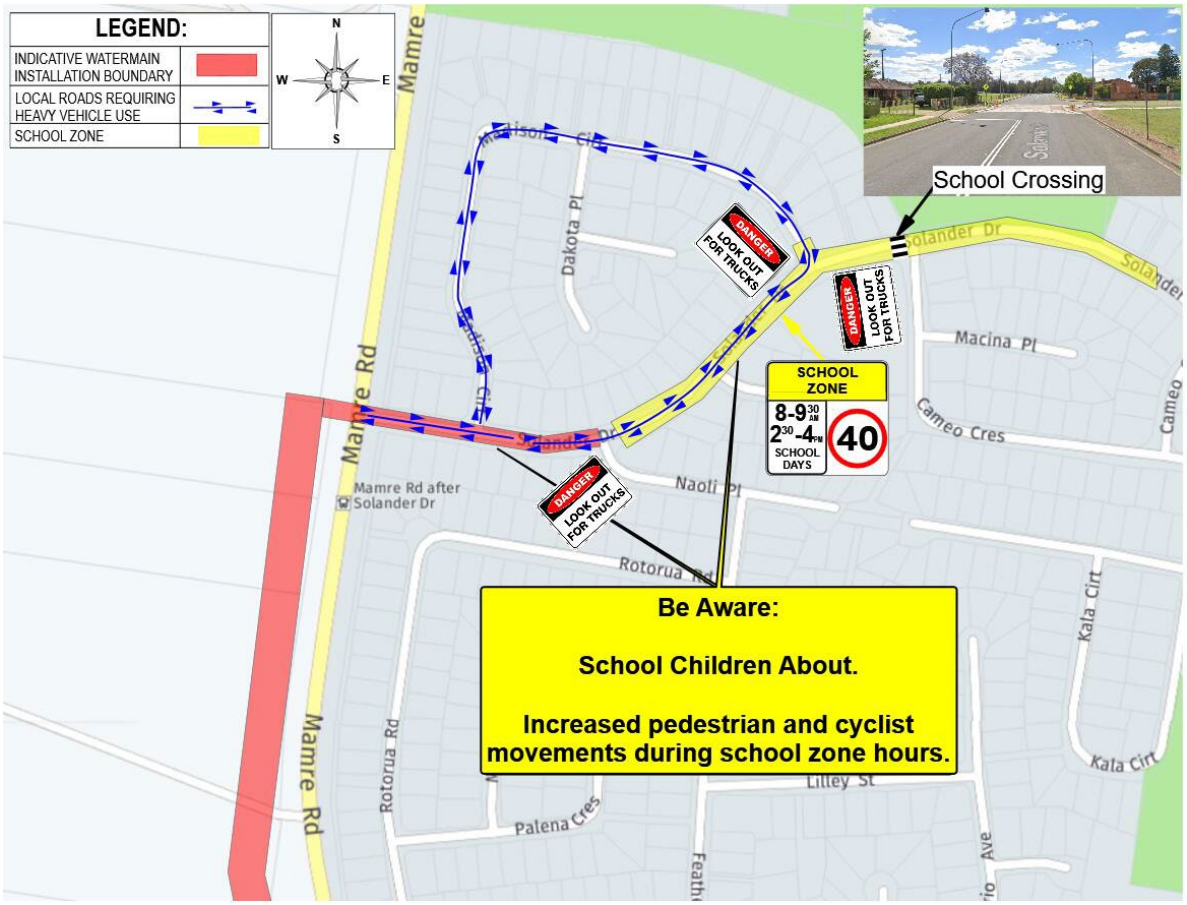


Figure 6 - Solander Drive School Children Awareness Zone

4.6.1 Banks Public School

Banks Public School is located at 182-194 Banks Drive, St Clair NSW 2759. Although the school location is not on or adjacent to the watermain alignment or within the impacted construction zones there is a School Zone on Solander Drive between Naoli Place and Cameo Crescent (eastern end). Refer to Figure 7 and Figure 8 for the location of the School Zones. 12.5m Rigid HV only work and pass through this area. Estimated maximum 0-3 movements during school zone operational periods per day.

Figure 7 - Existing Solander Drive School Zone

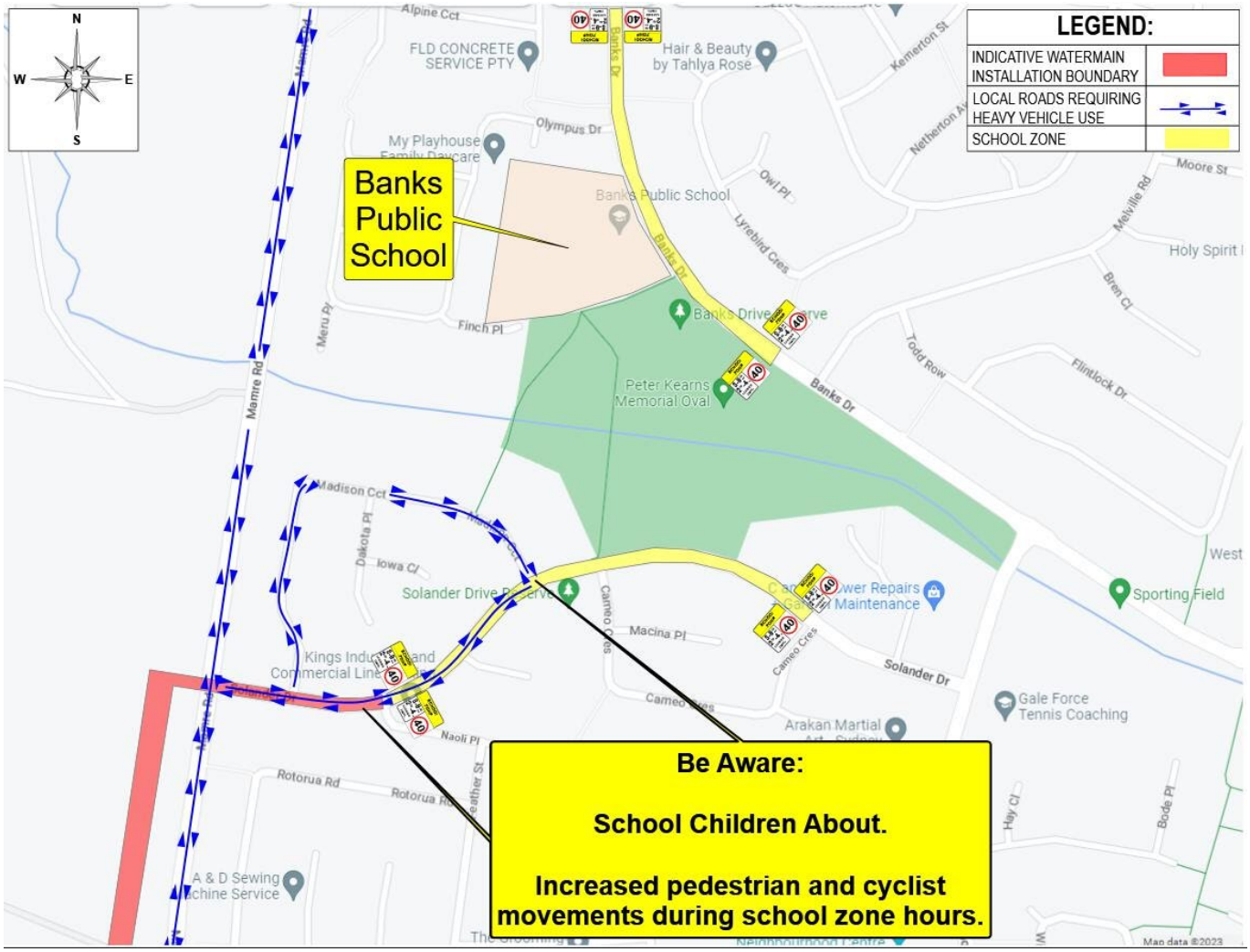


Figure 8 - Banks Public School Location

4.6.2 Aged Care and Child Care Facilities

There are no aged care, or childcare facilities along the proposed heavy vehicle route.

4.7 Pre-Construction Local Road Dilapidations

Road dilapidation surveys will be undertaken prior to commencement of use of the road by heavy vehicles for the Project, in accordance with CoA E107. Submission of pre-construction local road dilapidations at least 28 days prior to construction to the relevant local road authority.

Road dilapidation surveys for various roads have been completed and sent to Penrith City Council. Evidence of submission is shown in Appendix E.

5. Heavy Vehicle Requirements & Driver Programs

5.1 Heavy Vehicle Requirements

To ensure road safety, Table 5 outlines the requirements of heavy vehicles and heavy vehicle drivers.

Table 5 - Heavy Vehicle Requirements and Management

Requirement(s)	Purpose	How requirement is managed or enforced
Ensure all heavy vehicles and trailers are registered, roadworthy and comply with the relevant Australian Design Rules and Vehicle Standards.	Ensure compliance with legislative requirements.	Checked during plant authorisation when plant first arrives to site.
Fitted with a Telematics Monitoring System which measures and reports on vehicle: Location; Speed compliance; and Fatigue and other driver behaviour (such as harsh acceleration, braking). Haulage route compliance.	Ensure driver safety and haulage route confirmation. Compliance with MCoA E104.	Checked during plant authorisation when plant first arrives to site.
Ensure a combination of direct and/or indirect devices to eliminate or minimise front, side, and rear blind spots, including: Class V and Class VI mirrors as per ADR 14/02 where blind spots cannot be permanently eliminated; the prohibition of accessories that restrict the forward field of view, including opaque or chrome bug deflectors.	Increase visibility of blind spots for heavy vehicle drivers.	Checked during plant authorisation when plant first arrives to site.
Side-underrun protection, fitted to both sides of the vehicle (wherever practical / possible): Between the front and rear axle of all rigid (single unit) trucks; and Between the front axle/landing legs and rear axle of trailers forming part of a combination.	Increased protection for pedestrians and cyclists from being caught between heavy vehicle axles.	Checked during plant authorisation when plant first arrives to site.
Signage placed on heavy vehicle including: Rear warning signs alerting other road users to the dangers of overtaking; and Front nearside signs warning pedestrians about walking close to the front of a moving or stationary Heavy Vehicle.	Increase of warning and alert signage to pedestrians and cyclists.	Checked during plant authorisation when plant first arrives to site.
Full body line and contour conspicuity markings and reflective markings fitted to the drawbar of all trailers.	Increase visibility of heavy vehicles to other road users.	Checked during plant authorisation when plant first arrives to site.
Heavy Vehicle Operators adhere to approved construction traffic haulage routes at all times	Compliance with CEMP, Construction Traffic Management Plans	Monitored through telematic system(s) fitted to heavy vehicles
All Heavy Vehicles used for spoil haulage must be clearly marked on the sides and rear with the project name and application number to enable immediate identification by a person viewing the Heavy Vehicle standing 20 metres away.	Compliance with MCoA A46	Checked during plant authorisation when plant first arrives to site.
Site specific heavy vehicle driver induction for the Advanced and Enabling Works (Water) Project	Ensure compliance with heavy vehicle routes and driver requirements.	Induction process. Appendix D

5.2 Heavy Vehicle Driver Programs

Heavy vehicle drivers will complete a site-specific induction program. This site-specific induction will communicate safe driving practices are required to be undertaken by all drivers of construction heavy vehicles, where practical, to minimise the extent of their vehicle encroachment when undertaking turning manoeuvres in local streets and increase the awareness about making safe driving decisions prior to turning.

Heavy Vehicle Drivers shall be alerted to the increased presence of school children along Solander Drive and Madison Circuit during School Peak AM/PM periods in the HV Driver Induction.

A copy of heavy vehicle driver induction program is included in Appendix D

6. Additional Control Measures to Safely Navigate Turns

Where a swept path analysis has identified the vehicle cannot safely navigate a turn with existing parking and traffic controls, additional measures include:

- **Traffic management** – including shadow vehicles, temporary stop of traffic to permit safe maneuverers, pedestrian management.
- **Parking removal** – during works in area where maneuverers that require parking removal to be able to safely perform.

Where additional measures are required for manoeuvres, this has been specified on respective swept path analysis (SPA) and summarised in Appendix B

7. Consultation and Communication

Quickway and Sydney Metro has commenced consultation and communication with stakeholders in regard to traffic management. A communication strategy is being developed with stakeholders and the site-specific CTMP outlines consultation activities during the works.

A Traffic and Transport Liaison Group (TTLG) has been established to discuss with stakeholders in relation to the proposed construction activities, upcoming works and related traffic and transport implications. Quickways Senior Traffic Management Advisor is to participate in monthly TTLG meetings throughout the project, or at an agreed frequency. The Snr Traffic Management Advisor is a member of the WSA TTLG and acts as the authorised representative for the Project in matters related to traffic and transport. They provide the relevant information relating to the Project to the group.

Quickway will consult with all relevant stakeholders prior to the commencement of any works. Potential stakeholders for this Project include:

- Sydney Metro
- Transport for NSW including: CJP, CJP Transport Integration
- Department of Planning, Industry and Environment
- Emergency Services including NSW Police, NSW Fire and Rescue, NSW Ambulance
- Penrith City Council

8. Site Compound

Quickway will establish a construction site compound located at 367 Mamre Road, Orchard Hills NSW 2748. The compound access and egress will be via Luddenham Road (Cul-de-Sac). Luddenham Road is a locally classified road within Penrith City Council LGA. This compound will be utilised to service all stages of the SMF Watermain Extension Project. Indicative mark-ups for the site compound location are shown in Figure 9 and Figure 10.

Key functions of the site compound include:

- Storage of contingency / emergency steel road plate(s), road base material
- Haulage of spoil, quarry, and other materials to and from site compound to the street site work area(s).
- Provide light vehicle parking for workforce during work shifts, to reduce residential parking impacts of non-essential / non-working private vehicles.
- Provide construction heavy vehicle parking between shifts.

Given that Luddenham Road, at the site compound location, is a Cul-de-Sac site access and egress will be "Right In – Left Out" for all vehicles approaching from and departing to Luddenham Road mainline.

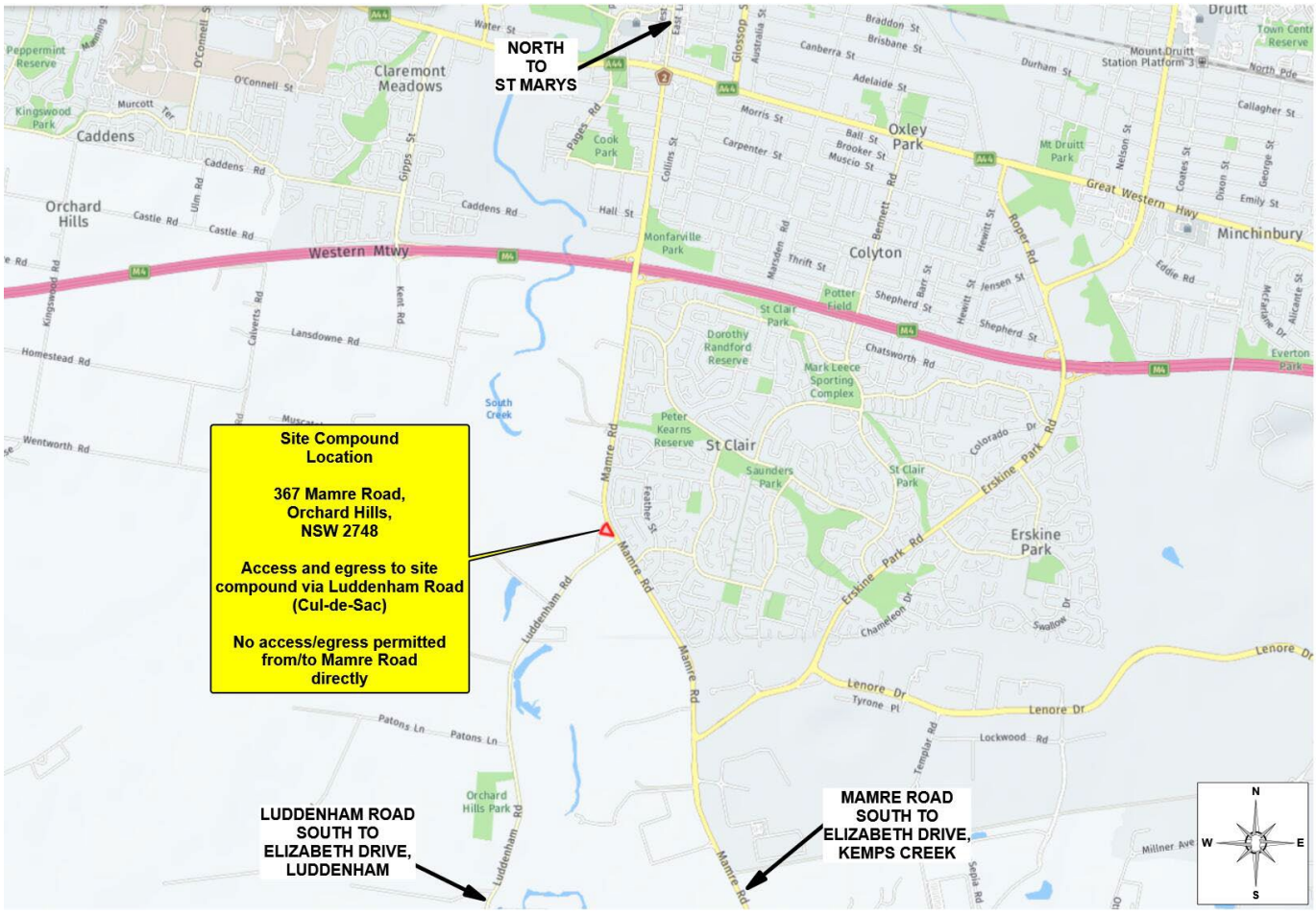


Figure 9 – Site Compound Location

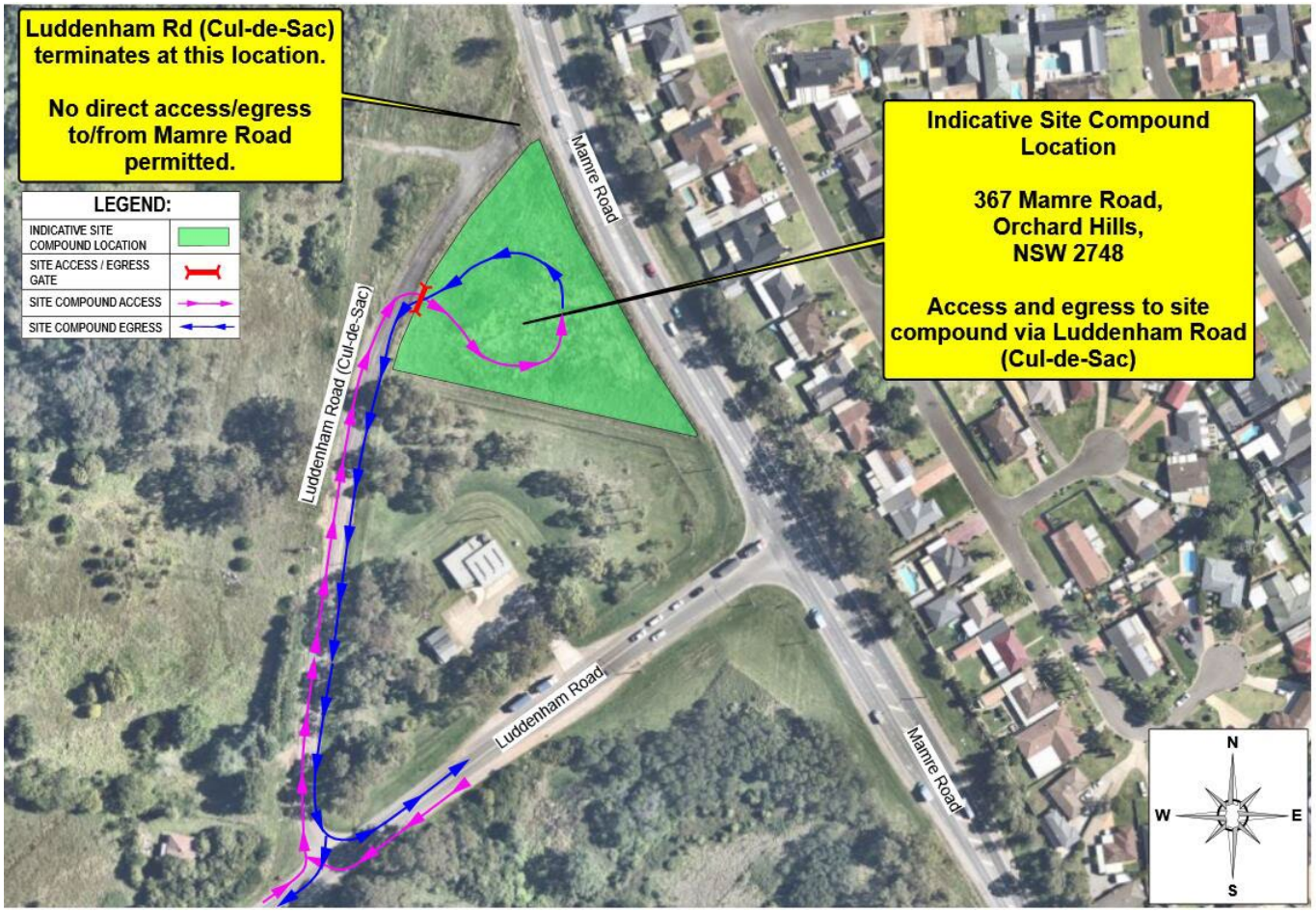


Figure 10 - Aerial Overview of Site Compound

Heavy vehicle movements will be less than 2 movements per hour, per shift, and where possible will be scheduled outside of peak traffic periods. Refer to Table 6.

Table 6 - Estimated Heavy Vehicle Movements at Site Compound

Vehicle Type	Estimated movements per shift		
	In	Out	Total per Shift
12.5m Rigid Trucks	6	6	**12**
19m Truck & Dog	2	2	**4**
Total	**8 (per 11hr shift)**	**8 (per 11hr shift)**	**16 (per 11hr shift)**
Note: Where possible Heavy Vehicle movements will be scheduled outside of peak traffic periods. The total number of heavy vehicle movements per typical 11 hour working shift equates to less than 2 movements per hour.			

Swept Path Analysis for all heavy vehicle movements to and from the site compound have been provided for in Appendix C. Refer to Swept Path Analysis SP-20 through to SP-27 for all movements to and from the site compound.

Appendix A Traffic Professional Assessment of HVLR

Includes:

- Covering letter for Traffic Professional Assessment of project proposed local roads for heavy vehicle use
- Qualifications & CV for Traffic Professionals completing the assessment

Sue Lewis Consulting
Construction Traffic Planning

CIVLINK CONSULTING

Dear Sir/Madam,

13th April 2023

We are writing to outline our advice in relation to the local road use associated with the Sydney Metro Western Sydney Airport, Advanced and Enabling Works. We have worked in road design, traffic consulting and road safety auditing for many years. Alex is currently a Level 3 Road Safety Auditor in NSW and has a bachelor's degree in engineering technology whilst Sue is a Level 2 Road Safety Auditor with over 20 years experience in traffic engineering and management.

We have reviewed the documentation provided by Quickway including a summary table of swept paths conducted.

The Ministerial Condition of Approval (MCoA E105) requires local roads proposed to be used by Heavy Vehicles to directly access ancillary facilities or construction sites that are not identified in the documents listed in Condition A1 must be approved by the Planning Secretary and be included in the CTMP.

An additional condition of approval (MCoA E106) outlines the specific requirements of local road use of local roads by Heavy Vehicles for the CSSI. The criteria requires specifically;

- Swept path analysis
- Demonstration that the use of local roads by Heavy Vehicles (HVs) for the CSSI will not compromise safety of pedestrians and cyclists or the safety of two-way traffic flow on two-way roadways
- Details as to the date of completion of the road dilapidation surveys for the subject local roads;
- Measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during their peak operation times; and
- Written advice from an appropriately qualified profession on the suitability of the proposed HV route which takes into consideration items above.

The local roads in Orchard Hills include:

- Luddenham Road, from Luddenham Road to End of Cul-de-sac
- Solander Drive, from Mamre Road to Madison Circuit
- Madison Circuit (loop), from Solander Drive to Solander Drive

The swept path analysis provided demonstrates heavy vehicles can typically utilise the roads proposed without impact on opposing lanes or crowding footpaths. Some locations will require additional controls to facilitate turns (including spotters or traffic control assistance) which is supported.

The roads proposed around Orchard Hills should be noted have limited pedestrian generating businesses and due to low density housing traffic volumes are expected to be low. Some sections of road are a dead-end and will see limited to no public traffic.

Trucks turning will be permitted to utilise more of the existing roadway to complete turns, even with some impact on opposing lanes without endangering public or traffic.

The areas impacted do not contain any signs of retirement facilities or childcare facilities. There is a school located on Banks Drive, St Clair with a school zone on Solander Drive between Naoli Place and Cameo Crescent.

Civlink Consulting Pty Ltd
ABN 64 633 194 948
Sue Lewis Consulting Pty Ltd
ABN 37 166 905 308
Telephone +61 432 544 458

Email alex@civlink-consulting.com.au
Email: siouxzie.lewis@gmail.com
Website www.civlink-consulting.com.au

It is noted that there is proposed to have between 0-3 movements during the school zone operational periods per day. Given the low volume it is seen to be acceptable.

The use of the proposed local roads is expected to have limited impact on pedestrians or impact any sensitive facilities and appear to meet the requirements outlined in MCoA E105 and 106.

Sincerely,

Alex Gosper

Director | Level 3 Road Safety Auditor
Civlink Consulting Pty Ltd

Sue Lewis

Director Level 2 Road Safety Auditor
Sue Lewis Consulting Pty Ltd

Director & Lead Road Safety Auditor

Alex Gosper

- *Masters of Engineering Practice, University of Southern Queensland (Current study)*
- *Bachelor of Engineering Technology, Infrastructure Management, University of Southern Queensland*
- *Accredited Road Safety Auditor **(Level 3**), TfNSW (2018)*
- *Accredited Senior Road Safety Auditor Victoria and QLD*
- *SafeWork NSW Training, Prepare Workzone TMP*
- *NSW General Construction Induction Training*

Alex has worked for the past ten years in Traffic Engineering roles, the past five as senior roles with Lendlease Engineering and Acciona Construction as well as heading up his own constancy. Alex has embraced the opportunity to actively manage the safe interface between road users and construction works. Providing support to constructors and developing a 'best practice' approach to traffic management while working on some of the most challenging traffic management projects in recent years and some of Australia's most congested road corridors. Alex's training and experience have left him with an uncompromising approach to the critical issues of worker and motorist safety.

Track Record & Recent Relevant Experience:

Company:	**Civlink Consulting Pty Ltd**		
Role:	**Company Director**	*Duration:*	Sept 19 – Present

Responsibilities:

- Road Safety Auditing of a variety of projects, designs and a variety of clients;
- Preparation of Traffic Management Plans for clients, including traffic analysis, traffic modelling, consultation with stakeholders and coordination of activities with public transport operators;
- Design Management duties for civil construction project works including coordination of civil and drainage design, temporary lighting, traffic signals, pavement designs and documentation of risk management strategies for project works
- Quoting for consulting works and bookkeeping for Civlink Consulting Pty Ltd.

Company:	**Acciona Construction Pty Ltd (Previously at Lendlease Engineering)**		
Role:	**Section Manager, Traffic**	*Duration:*	Aug 17 – Present

Responsibilities:

- Setting up and manage an internal design team for temporary road design in the Engineering Excellence team, providing temporary design for the following projects;
    - Westconnex M4-M5 Link Mainline Tunnels (NSW);
    - The Northern Road Bringelly Road Stage 2 Upgrade (NSW);
    - Kinsgford Smith Drive Upgrade Project (QLD);
    - NorthernConnector Project (SA);
- Providing traffic modelling support and technical support to projects (SIDRA);
- Provide and present solutions to complex construction projects and traffic arrangements; eg
    - TNR 3 – Bridge Demolition at The Northern Road (M4 extended closure);
    - TNR 3 – Lane reduction for program acceleration on The Northern Road.
- Providing ongoing support and assistance to bid teams and projects.

Project:	**CityLink to Tullamarine Freeway Widening, Melbourne**	*Value:*	$247m
Role & Company:	**Traffic Manager (Lendlease)**	*Duration:*	Feb 16 – Aug 17

Description of Project:

Design and construction of additional lanes along 8km of the Tullamarine Freeway between Melbourne Airport and Bulla Road, as well as upgrading ITS infrastructure to create a managed motorway.

Responsibilities:

- Managing a team of Traffic Engineers, Traffic Foremen and field staff to deliver all traffic management changes including line marking, barrier and signage changes;
- Overseeing the development of all temporary traffic staging design for the project;
- Managed the traffic analysis and traffic modelling to assess major impacts on the network, for planned works;
- Managed the development of all Construction Traffic Management Plans to support planned works;
- Managing budgets for key traffic-related tasks, keeping costs within forecast and tender values;
- Consulting with VicRoads project delivery team, traffic teams and management for best for project outcomes;
- Coordinating works with Transurban and neighbouring projects to ensure a consistent corridor approach;
- Communicated with key stakeholders (including Melbourne Airport) to ensure adequate warning was being provided for upcoming planned closures and changes in proximity to the airport; and
- Planned and executed one of the most significant planned freeway closures in (possibly) Australia, for the demolition of the English Street Bridge, which crossed the Tullamarine Freeway.

Outcomes & Accomplishments:

- The Tullamarine Freeway closure for the English Street bridge demolition saw the freeway closed for 46 continuous hours, displacing an estimated 110,000 vehicles in that time through the surrounding road network with no negative feedback, and some positive feedback received. Delays experienced by motorists were generally very low, with some only experiencing increased travel time of five minutes to the airport;
- This was possible through careful planning, and coordination with the VicRoads TMC, signals team, traffic team, significant preparation and monitoring and key enabling works and communications strategy; and
- Developed and maintained good relationships with the VicRoads team throughout the duration of the project.

Project:	**NorthConnex, Sydney**	*Value:*	$2.65b
Role & Company:	**Senior Traffic Engineer (Lendlease) – 2IC to Traffic Mgr**	*Duration:*	Feb 15 – Feb 16

Description of Project:

The Lendlease/Bouygues JV is responsible for the design and construction of twin 9km tunnels linking the M1 Pacific Motorway at Wahroonga to the Hills M2 Motorway at West Pennant Hills. Works include interchanges at the northern and southern end of the project as well as the provision of a new westbound lane on the Hills M2 Motorway, extending through to the Windsor Road off-ramp.

Responsibilities:

- Developing and implementing temporary traffic management strategies to an industry-leading standard, verified through independent Road Safety Audits;
- Ensuring motorist and worker safety was maximised through the careful planning, design and implementation of temporary long-term traffic alignments;
- Developing concept traffic staging sketches in AutoCAD, to be further developed by the design team;
- Managing the development and delivery of subcontractor designer temporary works packages;
- Consulting on a regular basis with stakeholders and client representatives;
- Reviewing permanent and temporary road design packages to ensure construction and motorist safety; and
- Auditing and reviewing traffic management controls to ensure safety and compliance were maintained.

Project:	**M5 West Motorway Widening, NSW**	*Value:*	$318m
Role & Company:	**Traffic Engineer (Lendlease) – 2IC to Traffic Manager**	*Duration:*	Oct 12 – Feb 15

Description of Project:

Expansion of the 22km motorway from two to three lanes in each direction, between Camden Valley Way and King Georges Road. Two existing bridges were widened, with new infill decking in the central median between existing bridges over Queen Street and Nuwarra Road. Works also included a new Motorway Control Centre at Hammondville, plus 18km of new and improved noise walls and 24 new and refurbished sedimentation basins.

Responsibilities:

- Developing and implementing temporary traffic management strategies to an industry-leading standard, verified through independent Road Safety Audits;
- Ensuring motorist and worker safety was maximised through the careful planning, design and implementation of temporary long-term traffic alignments;
- Planning and executing more than 40 traffic realignments (switches) with varying degrees of complexity;
- Managing the M5 Project Incident Response to ensure minimum delays to motorists during construction;
- Resourcing and deploying personnel and physical assets to manage all night-work activities;
- Reviewing and auditing temporary traffic management controls to ensure compliance on a regular basis;
- Attending meetings with stakeholders, including Roads and Maritime Services, Transport Management Centre and Interlink representatives on a regular basis to discuss future works;
- As Acting Traffic Manager, managing the delivery and coordination of permanent works;
- Developing traffic management strategies to facilitate a variety of works including multiple traffic switches, motorway closures and coordinating a number of on and off-ramp closures to allow critical asphalt works;
- Communicating and consulting daily with Site Engineers and Project Managers; and
- Answering access queries and providing solutions to construction work requests, with road safety a priority.

Referees:

Name & Organisation	*Project Relationship*	*Contact Details*
• Dustin Conley, Traffic Manager, BHA JV	BHA Ipswich Motorway Upgrade, Qld	0437 971 744
• Rickard Smit, Senior Project Mgr, TfNSW	NorthConnex, Sydney	0412 545 159

Sue Lewis

Company	**Sue Lewis Consulting**
Current Role	Director
Qualifications	Advanced Certificate in Traffic and Transport Management. Engineering Drafting Certificate
Skills	Comprehensive understanding of Australian Standards, AustRoads Guidelines and road authority requirements; understanding of modelling and road safety requirements; motivational leader of teams; able to think outside of the box and develop strategies to achieve construction and traffic requirements; attention to detail; ability to plan and meet multiple deadlines.

Summary

I have worked on major infrastructure projects since 2001. I commenced my career in traffic in 1990 working on the RTA's Bicycle Advisory Council Secretariat (BAC). Post the BAC I transferred across to local government (Leichhardt Council) in Sydney, transitioning to the RTA (now TfNSW) in 1996, moved to Transport for NSW in 1997 and then commenced working with the Olympic Roads and Transport Authority in 1998 moving to the Transport Management Centre as the liaison between major project teams post the Sydney 2000 Olympic Games.
I started in the construction sector in 2005 working on EastLink in Melbourne, Airport Link in Brisbane and back to Sydney in 2013. Since my return to Sydney, I have worked on Sydney Light Rail, Sydney Metro City and Southwest and Northwest Metro projects, Parramatta Light Rail Enabling Works and numerous tender projects, both interstate and within the Sydney Metropolitan area.
I am a registered Road Safety Auditor Level 2 in both NSW and Victoria.

Experience

M6 Stage 1

Traffic Consultant ***May 2021 – Present***

Engaged by CGU to facilitate traffic approvals for the Joint Venture. This also involved the permanent reconfiguration of O'Connell Street, North Parramatta and George Street, Parramatta CBD.

DELTA Group Western Tunnelling Project Demolition works

Traffic Consultant ***August 2021 – Present***

Engaged by DELTA to facilitate traffic approvals for the demolition works at Clyde, Westmead and Parramatta Sydney Metro West sites.

Constructability advisor Traffic

Traffic Consultant ***March 2021 – October 2021***

Engaged as SME for traffic to Bamser Holdings on Suburban Rail Loop Authority, Melbourne, Victoria

Various Tender and Expression of Interests

Traffic Consultant ***October 2019 – Present***

EOI and RFT include:

- Airport Gateway – Selini Impreglio
- M6 Stage 1 – CPB Ghella JV
- Gold Coast Light Rail Stage 3 – John Holland
- Sydney Metro West Central Tunnelling Package – Gamuda/ Laing O'Rourke
- Warringah Freeway – CPB Downer JV

- Sydney Metro West Western Tunnelling Package – Gamuda/ Laing O'Rourke
- Sydney Metro Western Sydney Airport SBT Package CPB Ghella JV

Parramatta Light Rail enabling Works

Traffic Consultant ***December 2018 – August 2019***

Engaged by Diona to facilitate traffic approvals for the Joint Venture. This also involved the permanent reconfiguration of O'Connell Street, North Parramatta and George Street, Parramatta CBD.

Sydney Metro City and Southwest | John Holland CPB Ghella Joint Venture

Traffic Manager ***June 2016 – December 2018***

This project involves the construction of a 30 kilometre metro transit railway tunnel from Sydney's north shore through the Sydney CBD and inner west.

Responsibilities

As part of the tender team:

- Review the construction staging and operation of the sites to meet the relevant road authority requirements

As part of the construction team:

- Liaising with external and internal stakeholders to achieve approval of the CTMP
- Implement systems to gain Road Occupancy Licenses and Local Government Permits to allow the construction team to commence works on the road
- Engaging various traffic management contractors, including traffic control providers and road safety audit practitioners
- Liaising with designers on the temporary and permanent works to maximise the construction footprint whilst ensuring that these designs were in accordance with the requirements of the road authorities.
- Ensuring any implemented CTMP are in accordance with the approvals

Western Harbour Tunnel and Beaches Link | Bamser Holdings

Traffic Constructability Advisor

The project involves a review of the reference design and identification of traffic requirements and construction options

Responsibilities

- Liaison with the constructability advisors, traffic modellers and road authorities to provide guidance to the constructability advisors on acceptable traffic measures

Sydney Light Rail | Acciona Infrastructure Australia (Construction)

Traffic Manager ***January 2015 – February 2016***

This project is a 13 kilometre light rail project in the heart of Sydney.

Responsibilities

- Liaison with the construction and utility teams to document the CTMP required to complete the works
- Overseeing traffic management for the initial construction stage
- Managing the permanent closure of George Street, Sydney, the main artery within the Sydney CBD
- The initial design of the Anzac Parade diversion road to facilitate the cut-and-cover tunnel works under this main arterial road

- Liaison with major stakeholders to ensure that their business would not be detrimentally impacted by the closure of George Street.
- The development of Local Access Plans which detailed the access requirements for individual businesses including waste removal and deliveries.

Airport Link, Brisbane Thiess John Holland Joint Venture

Traffic Manager ***January 2008 – February 2012***

This project is a 6.7 kilometre toll road and 2 km bus only roadway located between Bowen Hills and Kedron to the north and connects to the Airport flyover to the east.

Responsibilities

- Liaison with the construction and utility teams to document the CTMP required to complete the works
- Development of approximately 450 site specific Construction Traffic Management Plans and over 10,000 permits for works on roads
- Responsible for a team of 35 personnel supporting the construction task

EastLink, Melbourne \ Thiess John Holland Joint Venture

Traffic Manager ***January 2005 – August 2008***

EastLink is a 45km Motorway connecting the Eastern Freeway, Monash Freeway and Frankston Freeway with 6km of bypass roads at Ringwood and Dandenong; and twin three lane 1.6km tunnels under the Mullum Mullum Valley in Melbourne's eastern suburbs. A shared path stretching the entire length of the freeway was also constructed as part of the project.

Responsibilities

I managed traffic along the entire 45km alignment, including interchanges with three freeways and implementing detours to allow the construction of 88 bridges. Facing tight space constraints at Springvale Road, I led a solution to detour traffic via a loop road, improving productivity through opening up a large work area as well as improving safety by securely separating the workforce from traffic.

Roads and Transport Authority – Transport Management Centre

Traffic Operations Continuous Improvement Coordinator **December 2000-December 2004**

Responsible for the development of incident and operational plans with major infrastructure projects being constructed in Sydney including M5East, Cross City Tunnel, Lane Cove Tunnel and Western Sydney Orbital.
One of the key design challenges was ensuring that upon opening of these projects that changes to the road network were in place to facilitate operations. This included being a key member of the design team in the implementation and operation of the General Holmes Drive tidal flow operation which is in operation on a daily basis from the opening of the M5 East.
Another key design team was the remodelling of the Anzac Bridge traffic arrangements to facilitate the opening of the Cross City tunnel.
I was also responsible for the development of design plans to facilitate maintenance works including the Tom Ugly Bridge works which involved the implementation of a tidal flow system on the southbound bridge during the works.
I worked closely with both design and construction teams (RTA and the contractors) to ensure that the TMC's requirements were met during the construction phase and post opening of these projects.
I sat on the Australian Tunnel Operators Group and was seen in the RTA as one of the few experienced people in all tunnel systems.
Other project teams that I was involved in included the feasibility study for the upgrade of the Hume Freeway, the design review of the Tugun Bypass and a number of projects including the F3 and Princes Highway incident management requirements including standardisation of these requirements which is still in use within TfNSW (aka RMS) today.

Olympic Roads and Transport Authority

Traffic Operations Planner **April 1998- November 2000**

Responsible for the development of operational plans for the Sydney Olympics 2000. I was also responsible for the following interchanges (planning and implementation) during the games

- Lidcombe Interchange – Media, Olympic Family (International and domestic) Athletes transport
- Equestrian centre bus interchanges and park and ride facilities
- Media centres outside of venues

Transport for New South Wales

Transport Operations Planner **April 1997 - April 1998**

Within the planning department of Transport for New South Wales I was part of the team that generated the 20 year future plans for New South Wales. I also worked closely with the transport planners in the development of the first cross regional bus routes in Sydney and the identification of key Sydney growth areas and their transport requirements.

Road and Transport Authority

Transport Engineering Officer **1996 – April 1997**

Initially as part of the Sydney Blacktown office I was the RTA's representative on a number of Local Traffic Committees. These committees were responsible for the review of Local Area Traffic Management Schemes and other schemes that councils promoted.

Leichhardt Municipal Council

Assistant Traffic Engineer **1992 –1996**

Responsible for the provision of support services to the Local Traffic Committee including analysis of crash data and design development of schemes to improve road safety. I worked closely with the road safety officer, local councillors, Police and the RTA and identified solutions that would improve road safety including the installation of traffic signals at high accident intersections and the provision of cycling and pedestrian facilities.
I also worked closely with RTA in the design review process during the design and construction of City West Link and the Anzac Bridge and supported the Traffic Engineer in the development of changes to the local road network post their opening.

RTA – Bicycle Advisory Council Secretariat

Drafter and part of the Secretariat **1990 1992**

Engaged by the RTA I aided the senior engineer in the development (concept and detailed) design of the Parramatta Valley Cycleway. This involved route identification and liaison with a number of government stakeholders to allow finalisation of the route. I also aided in the drafting of legislation for the introduction of mandatory bicycle helmet wearing. Other duties included liaising with local councils and providing technical reports to the BAC on funding submissions for bicycle facilities including bike paths and development of bicycle plans.

Appendix B Register of Swept Path(s) Analysis and Identified Control Measures Required

Sydney Metro Western Sydney Airport, Advanced & Enabling Works (Watermain Extension)
Heavy Vehicle use of Local Roads not identifed in EIS documents, Swept Path Analysis Register

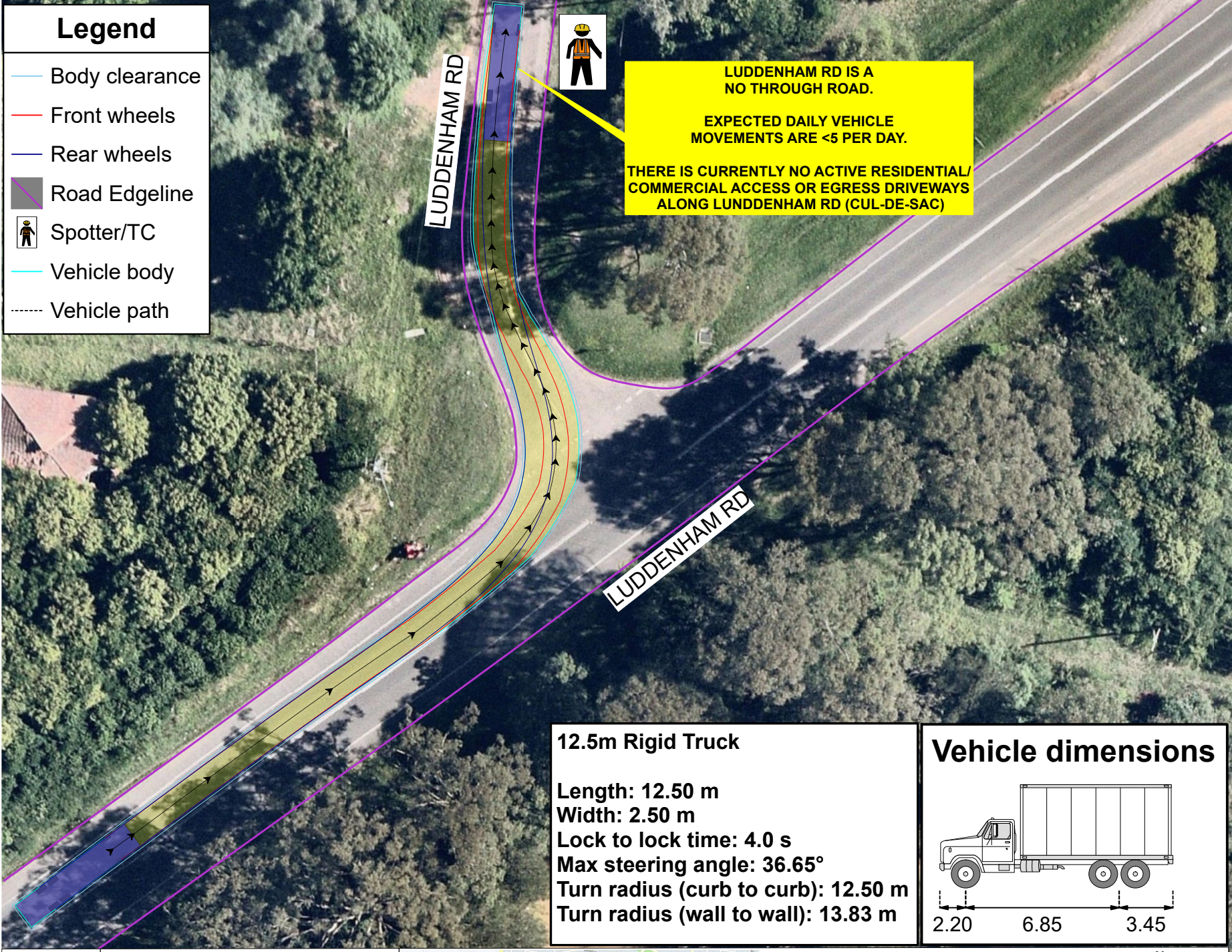
Date Updated	Rev
17/05/2023	2.0

Quickway
Transport & Utilities Infrastructure

Detailed Breakdown

	Turn Path Details						Additional measures required to to aid the turn completion (if required)			
Turn ID	Street Name From	Street Name To	Direction of Turn	Turn Restrictions (if any)	Largest Truck Size to make turn	Ability to Safely Make Turn	3 (or 5) point turn required	No. Parking Spots Removed	Traffic Controller Required	Comments (if any)
SP-01	Luddenham Road	Luddenham Road (Cul-De-Sac)	Left		12.5m Rigid Truck	Yes - with additional measures			Yes	HV's making the left turn into Luddenham Road (Cul-de-Sac) will need to occupy the full road width of Luddenham Road. This is a Cul-de-Sac with no residential/commercial access/egress driveways and vehicle movements are expected to be <5 per day. A Spotter/TC will be required at this location.
SP-02	Luddenham Road	Luddenham Road (Cul-De-Sac)	Right		12.5m Rigid Truck	Yes - with additional measures			Yes	HV's making the right turn into Luddenham Road (Cul-de-Sac) will need to occupy the full road width of Luddenham Road. This is a Cul-de-Sac with no residential/commercial access/egress driveways and vehicle movements are expected to be <5 per day. A Spotter/TC will be required at this location.
SP-03	Luddenham Road (Cul-de-Sac)	Luddenham Road (Cul-de-Sac)	Turn Around		12.5m Rigid Truck	Yes - no measures				The turn path shown on this Swept Path is within the Project Bounday
SP-04	Luddenham Road (Cul-de-Sac)	Luddenham Road	Left		12.5m Rigid Truck	Yes - with additional measures			Yes	This manoeuver can only be performed by crossing the double lane dividing lines. A TGS and approved ROL will be required for intermittent traffic stoppages to safely perform this turn.
SP-05	Luddenham Road (Cul-de-Sac)	Luddenham Road	Right		12.5m Rigid Truck	Yes - with additional measures			Yes	TC/Spotter to be positioned on the northwest corner of the intersection to monitor any vehicle access into Luddenham Road Cul-de-Sac.
SP-06	Mamre Road	Solander Drive	Right		12.5m Rigid Truck	Yes - no measures				
SP-07	Mamre Road	Solander Drive	Left		12.5m Rigid Truck	Yes - no measures				
SP-08	Solander Drive	Mamre Road	Left		12.5m Rigid Truck	Yes - no measures				
SP-09	Solander Drive	Mamre Road	Right		12.5m Rigid Truck	Yes - no measures				
SP-10	Solander Drive	Madison Circuit	Left		12.5m Rigid Truck	Yes - with additional measures			Yes	A traffic controll/spotter will be required to be positioned in Madison Cct when this movement is being performed. Works in this area will only occur under approved TGS's and ROL's.
SP-11	Madison Circuit	Madison Circuit	Right around		12.5m Rigid Truck	Yes - with additional measures			Yes	A traffic controller/Spotter will be required to be positioned on the blind corner as the turn path requires crossover into the opposing lane when making the right turn.
SP-12	Madison Circuit	Solander Drive	Right		12.5m Rigid Truck	Yes - no measures				
SP-13	Solander Drive	Madison Circuit	Left		12.5m Rigid Truck	Yes - with additional measures			Yes	A traffic controll/spotter will be required to be positioned in Madison Cct when this movement is being performed. Works in this area will only occur under approved TGS's and ROL's.
SP-14	Madison Circuit	Madison Circuit	Left around		12.5m Rigid Truck	Yes - with additional measures			Yes	A traffic controller/Spotter will be required to be positioned on the blind corner as the turn path requires crossover into the opposing lane when making the right turn.
SP-15	Madison Circuit	Solander Drive	Right		12.5m Rigid Truck	Yes - no measures				
SP-16	Mamre Road	Solander Drive	Left		12.5m Rigid Truck	Yes - with additional measures			Yes	The manoeuver will only occur under an approved TGS & ROL where all three legs of the intersection are controlled by PTCD's
SP-17	Mamre Road	Solander Drive	Right		12.5m Rigid Truck	Yes - with additional measures			Yes	The manoeuver will only occur under an approved TGS & ROL where all three legs of the intersection are controlled by PTCD's
SP-18	Solander Drive	Mamre Road	Right		12.5m Rigid Truck	Yes - with additional measures			Yes	The manoeuver will only occur under an approved TGS & ROL where all three legs of the intersection are controlled by PTCD's
SP-19	Solander Drive	Mamre Road	Left		12.5m Rigid Truck	Yes - with additional measures			Yes	The manoeuver will only occur under an approved TGS & ROL where all three legs of the intersection are controlled by PTCD's
SP-20	Luddenham Road (Cul-de-Sac)	Site Compound	Right		12.5m Rigid Truck	Yes - no measures				
SP-21	Site Compound	Luddenham Road (Cul-de-Sac)	Left		12.5m Rigid Truck	Yes - no measures				
SP-22	Luddenham Road (Cul-de-Sac)	Site Compound	Right		19m Truck & Dog	Yes - no measures				
SP-23	Site Compound	Luddenham Road (Cul-de-Sac)	Left		19m Truck & Dog	Yes - no measures				
SP-24	Luddenham Rd (mainline)	Luddenham Road (Cul-de-Sac)	Left		19m Truck & Dog	Yes - with additional measures				A traffic controller/Spotter will be required to be positioned in Luddenham Rd (Cul-de-Sac) as the turn path requires crossover into the opposing lane. Note Luddenham Rd Cul-de-Sac is expected to have minimal to no general public traffic movements.
SP-25	Luddenham Rd (mainline)	Luddenham Road (Cul-de-Sac)	Right		19m Truck & Dog	Yes - with additional measures				A traffic controller/Spotter will be required to be positioned in Luddenham Rd (Cul-de-Sac) as the turn path requires crossover into the opposing lane. Note Luddenham Rd Cul-de-Sac is expected to have minimal to no general public traffic movements.
SP-26	Luddenham Road (Cul-de-Sac)	Luddenham Rd (mainline)	Right		19m Truck & Dog	Yes - with additional measures				A traffic controller/Spotter will be required to be positioned in Luddenham Rd (Cul-de-Sac) as the turn path requires crossover into the opposing lane. Note Luddenham Rd Cul-de-Sac is expected to have minimal to no general public traffic movements.
SP-27	Luddenham Road (Cul-de-Sac)	Luddenham Rd (mainline)	Left		19m Truck & Dog	Yes - with additional measures				A traffic controller/Spotter will be required to be positioned in Luddenham Rd (Cul-de-Sac) as the turn path requires crossover into the opposing lane. Note Luddenham Rd Cul-de-Sac is expected to have minimal to no general public traffic movements.

Appendix C Swept Path Analysis

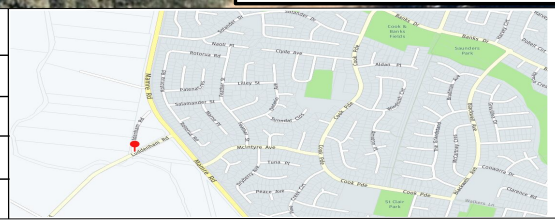


12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

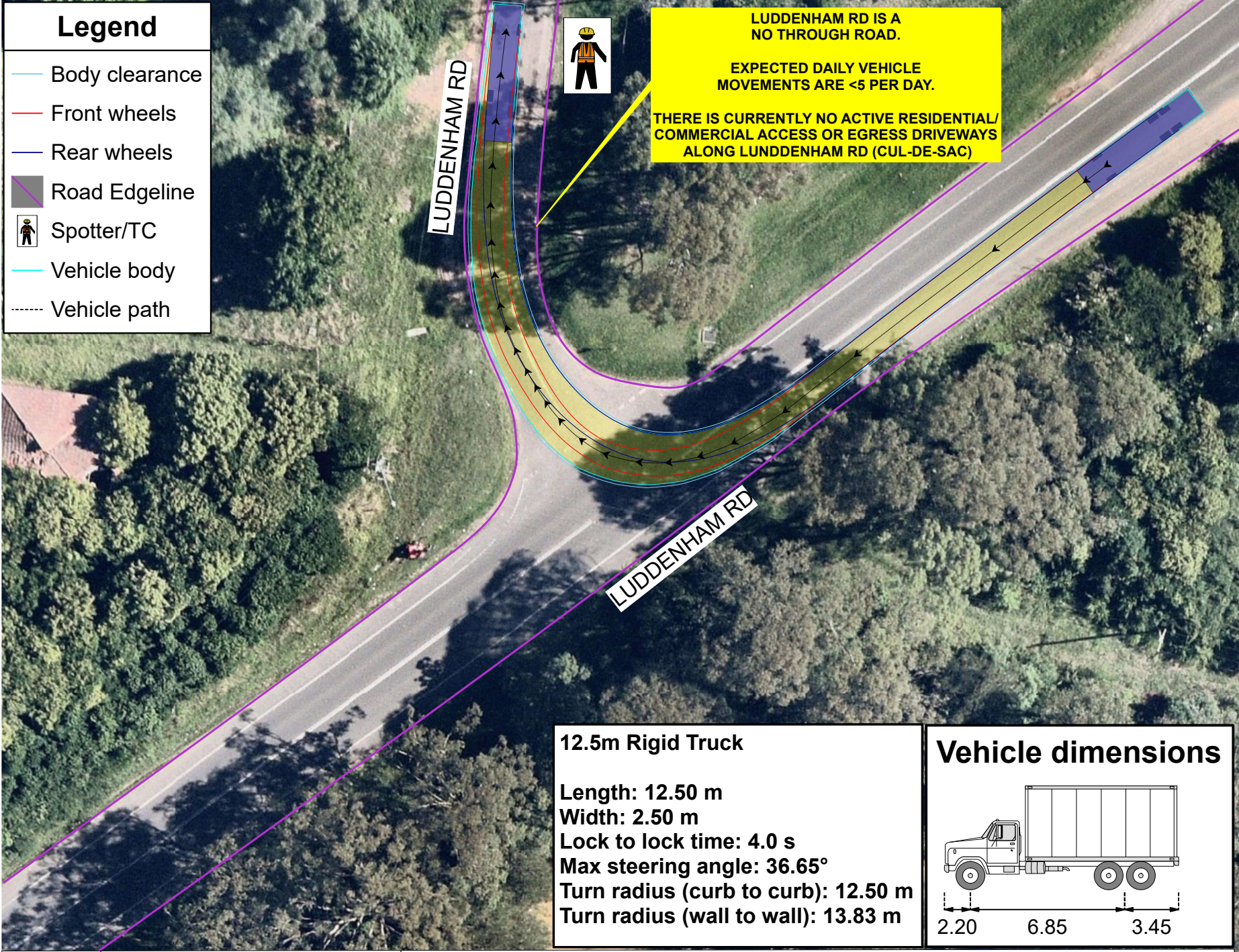
Vehicle dimensions

PLAN REF NO:	SP - 01
ROAD NAME:	LUDDENHAM RD
CROSS ST/RD:	LUDDENHAM RD
SUBURB:	ORCHARD HILLS
OPERATION:	SWEPT PATH



Quickway
Transport & Utilities Infrastructure

N
W
E
S

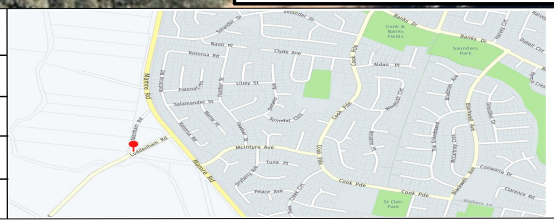


12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

Vehicle dimensions

PLAN REF NO:	**SP - 02**
ROAD NAME:	**LUDDENHAM RD**
CROSS ST/RD:	**LUDDENHAM RD**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH**



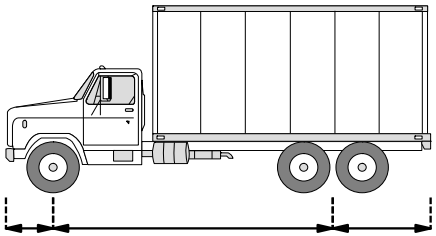
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

LUDDENHAM RD IS A NO THROUGH ROAD AND TERMINATES AT THIS LOCATION.

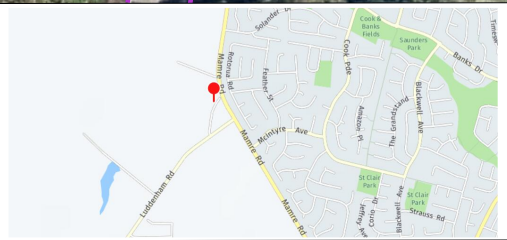
EXPECTED DAILY VEHICLE MOVEMENTS ARE <5 PER DAY.

THERE IS CURRENTLY NO ACTIVE RESIDENTIAL/ COMMERCIAL ACCESS OR EGRESS DRIVEWAYS ALONG LUNDDENHAM RD (CUL-DE-SAC)

LUDDENHAM RD

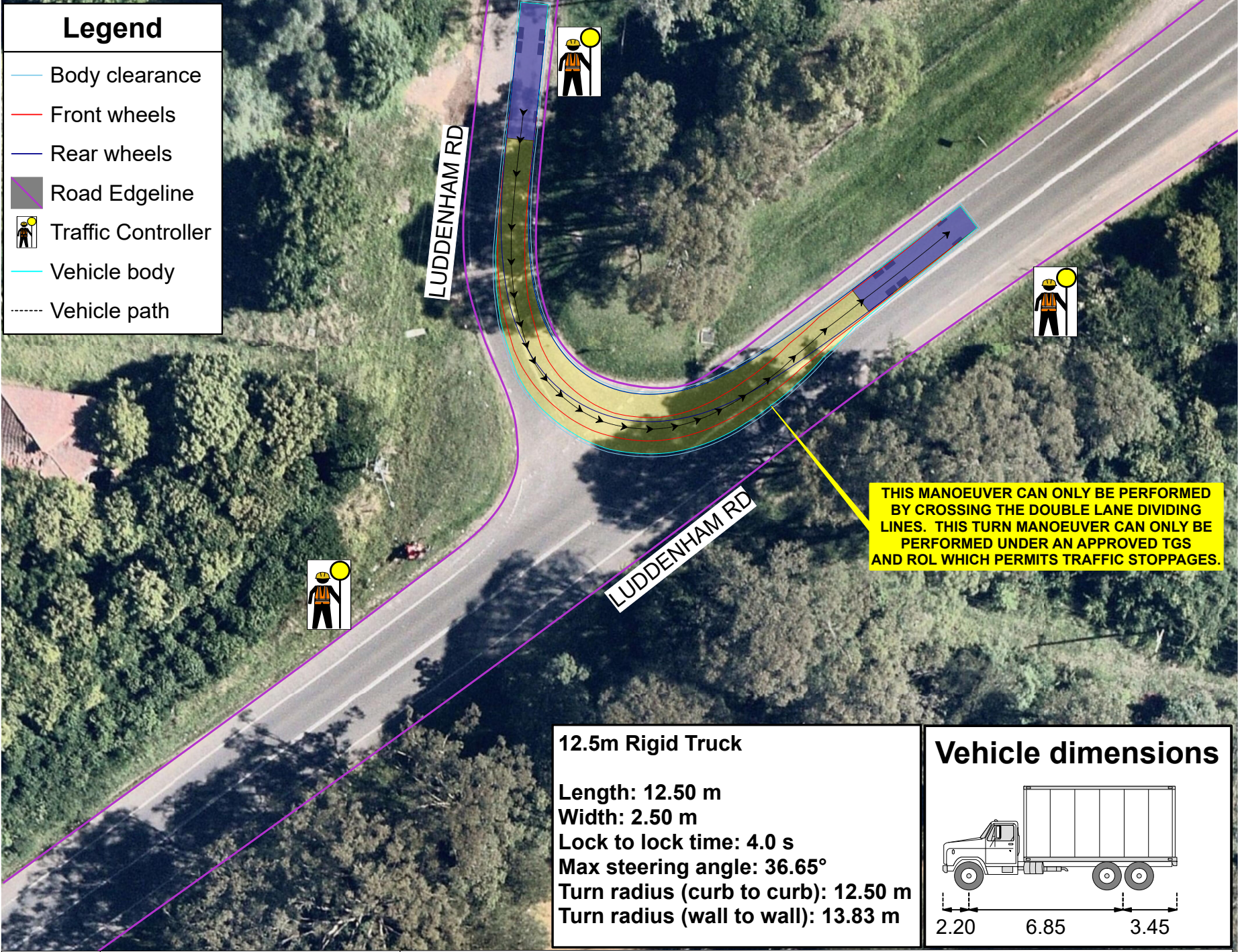
MAMRE RD

PLAN REF NO:	**SP - 03**
ROAD NAME:	**LUDDENHAM RD (CUL-DE-SAC)**
CROSS ST/RD:	**LUDDENHAM RD (CUL-DE-SAC)**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH (TURN AROUND)**



Quickway
Transport & Utilities Infrastructure

N
W
E
S

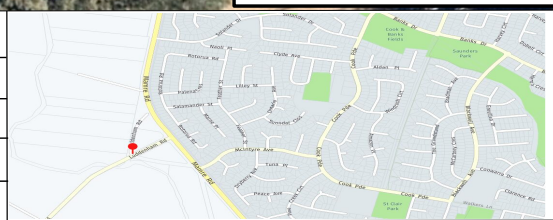


12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

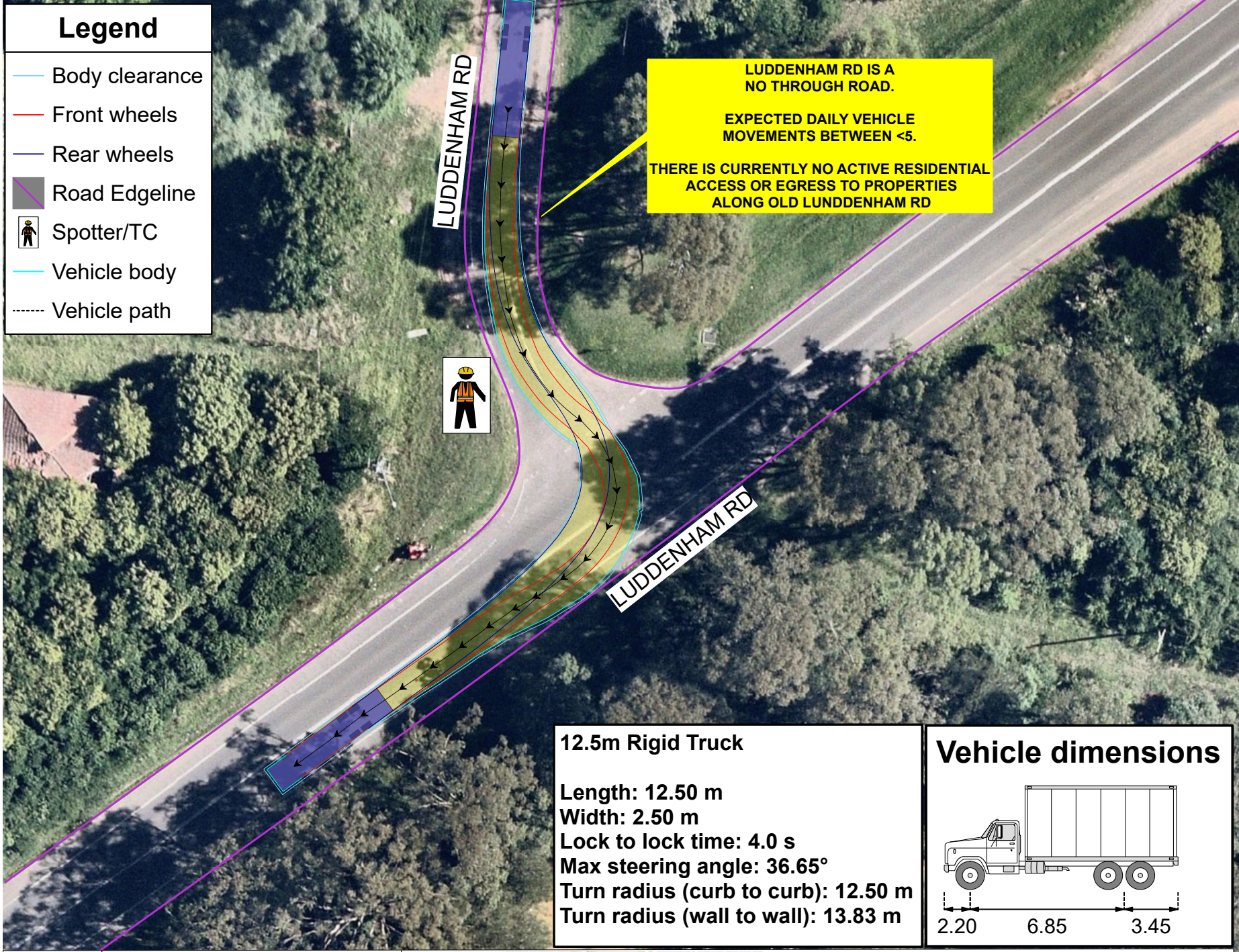
Vehicle dimensions

PLAN REF NO:	**SP - 04**
ROAD NAME:	**LUDDENHAM RD (CUL-DE-SAC)**
CROSS ST/RD:	**LUDDENHAM RD**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH**



Quickway
Transport & Utilities Infrastructure

N
W E
S

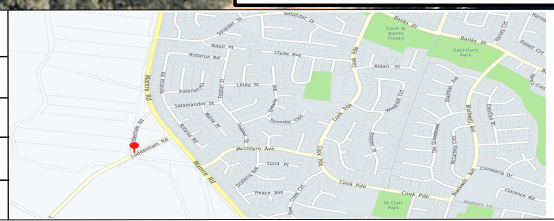


12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

Vehicle dimensions

PLAN REF NO:	**SP - 05**
ROAD NAME:	**LUDDENHAM RD (CUL-DE-SAC)**
CROSS ST/RD:	**LUDDENHAM RD**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH**



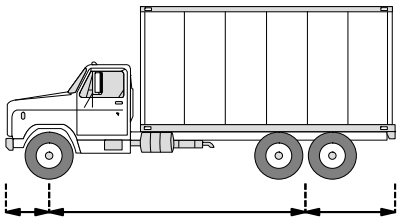
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



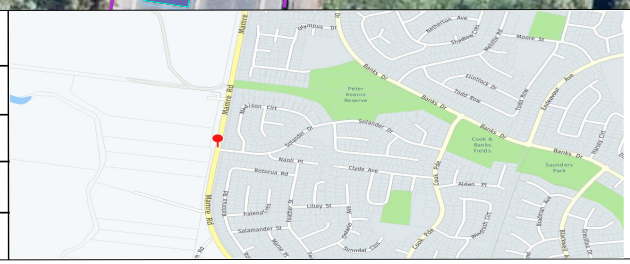
12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MAMRE RD

SOLANDER DR

PLAN REF NO:	SP - 06
ROAD NAME:	MAMRE RD
CROSS ST/RD:	SOLANDER DR
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



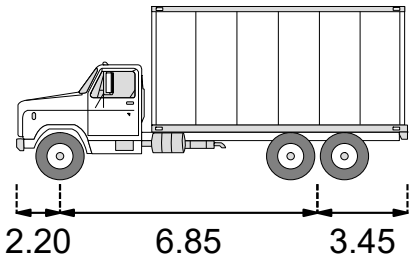
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



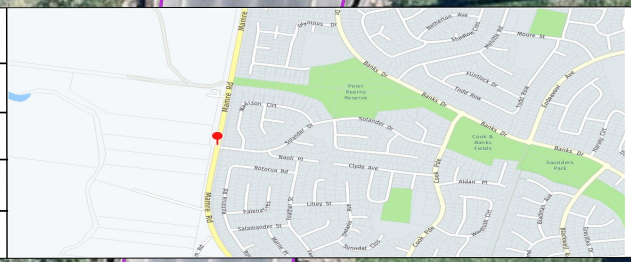
12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MAMRE RD

SOLANDER DR

PLAN REF NO:	SP - 07
ROAD NAME:	MAMRE RD
CROSS ST/RD:	SOLANDER DR
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



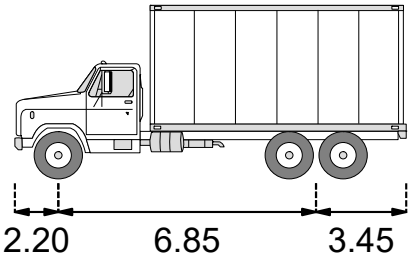
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



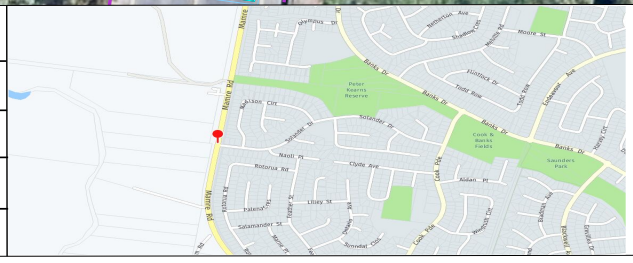
12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MAMRE RD

SOLANDER DR

PLAN REF NO:	SP - 08
ROAD NAME:	SOLANDER DR
CROSS ST/RD:	MAMRE RD
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



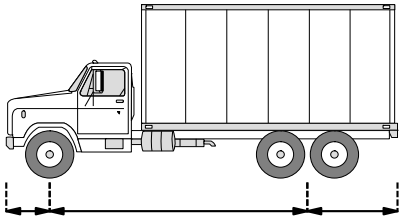
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



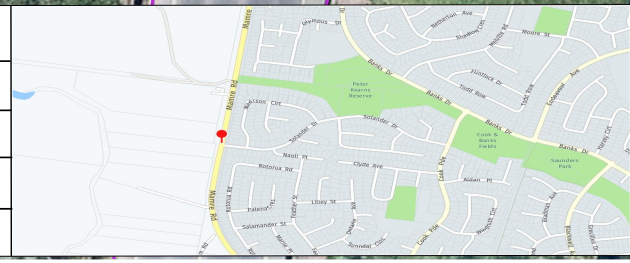
12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MAMRE RD

SOLANDER DR

PLAN REF NO:	SP-09
ROAD NAME:	SOLANDER DR
CROSS ST/RD:	MAMRE RD
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



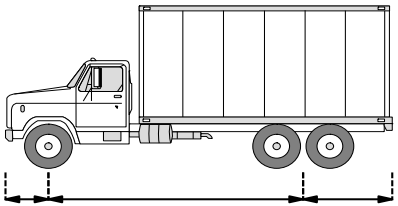
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- TC/Spotter
- Vehicle body
- Vehicle path

Vehicle dimensions



12.5m Rigid Truck

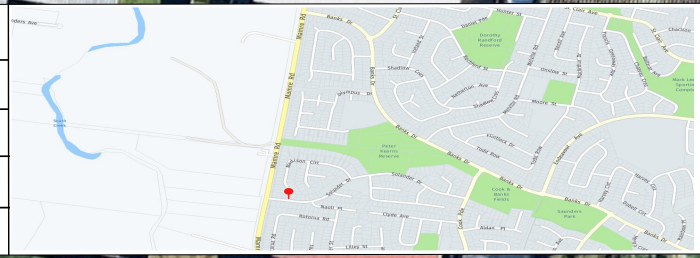
Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MADISON Cct

SOLANDER DR

TRAFFIC CONTROLLER/SPOTTER REQUIRED FOR MOVEMENT

PLAN REF NO:	SP - 10
ROAD NAME:	SOLANDER DR
CROSS ST/RD:	MADISON Cct
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

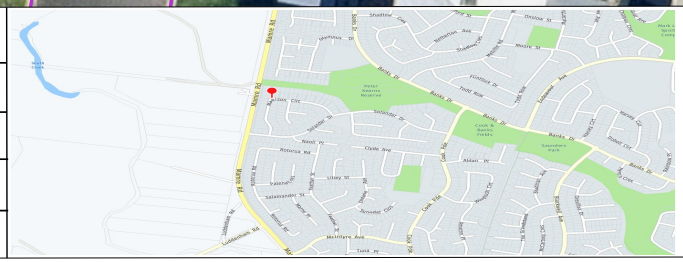
- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- TC/Spotter
- Vehicle body
- Vehicle path

Vehicle dimensions

12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

PLAN REF NO:	SP - 11
ROAD NAME:	MADISON Cct
CROSS ST/RD:	MADISON Cct
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



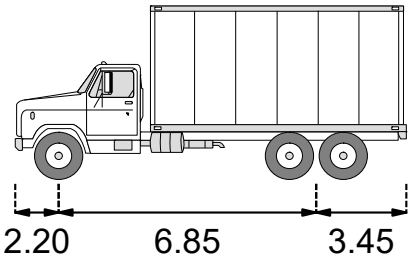
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



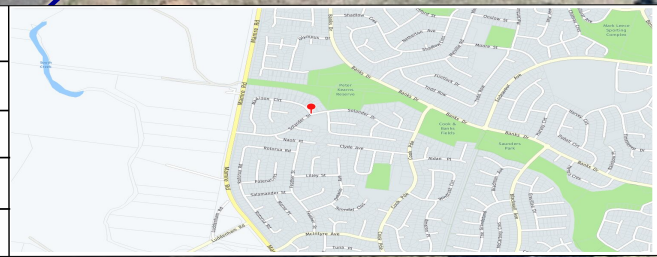
12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MADISON Cct

SOLANDER DR

PLAN REF NO:	SP - 12
ROAD NAME:	MADISON Cct
CROSS ST/RD:	SOLANDER DR
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

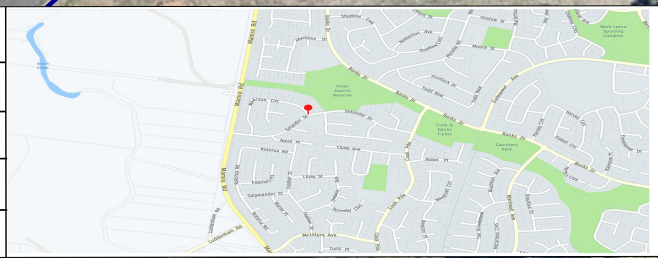
- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- TC/Spotter
- Vehicle body
- Vehicle path

Vehicle dimensions

12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

PLAN REF NO:	SP - 13
ROAD NAME:	SOLANDER DR
CROSS ST/RD:	MADISON Cct
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



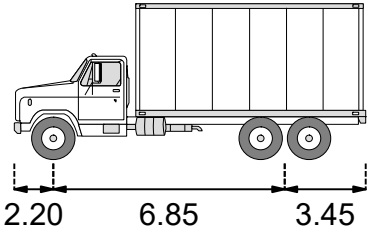
Quickway
Transport & Utilities Infrastructure

N
W E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- TC/Spotter
- Vehicle body
- Vehicle path

Vehicle dimensions



12.5m Rigid Truck

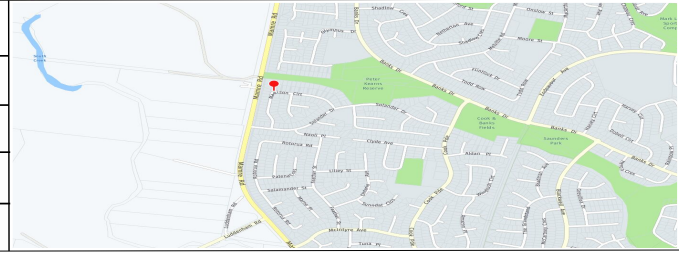
Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MADISON Cct

MADISON Cct

TRAFFIC CONTROLLER/SPOTTER REQUIRED FOR MOVEMENT

PLAN REF NO:	SP - 14
ROAD NAME:	MADISON Cct
CROSS ST/RD:	MADISON Cct
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



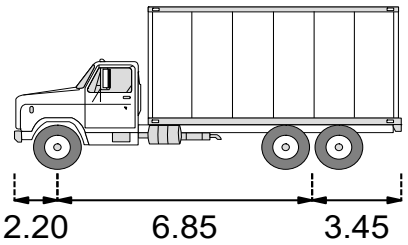
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



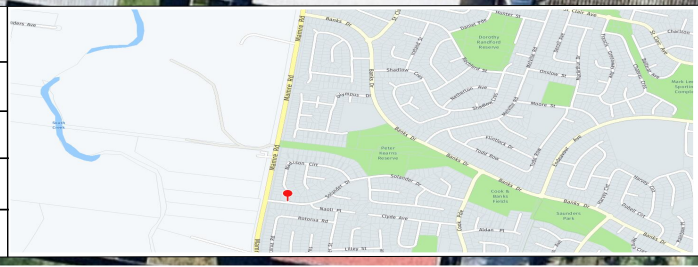
12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MADISON Cct

SOLANDER DR

PLAN REF NO:	SP - 15
ROAD NAME:	MADISON Cct
CROSS ST/RD:	SOLANDER DR
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH



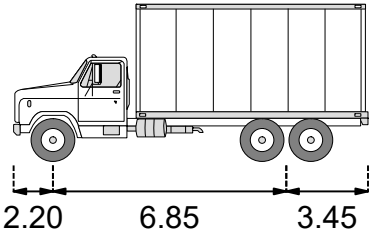
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Cone
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path
- Work Area

Vehicle dimensions



12.5m Rigid Truck/Bus

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

MAMRE RD

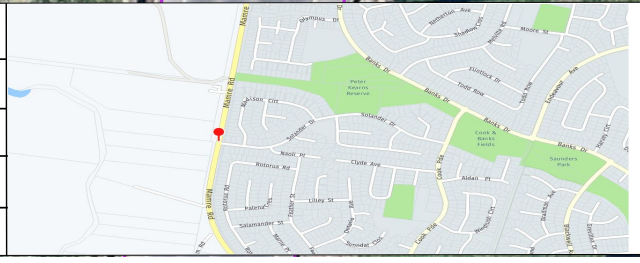
SOLANDER DR

THIS SWEPT PATH INDICATES THE ABILITY FOR 12.5M RIGID TRUCK/BUS TO SUCESSFULLY MAKE THE TURN DURING A SHUTTLE FLOW ARRANGEMENT.

ALL THREE LEGS OF THE INTERSECTION WOULD BE CONTROLLED VIA THE USE OF PTCD'S UNDER AN APPROVED TGS & ROL.

WHERE ROL HOURS PERMIT THESE WORKS WILL BE PERFORMED OUTSIDE OF PEAK TRAFFIC PERIODS AND/OR AT NIGHT.

PLAN REF NO:	**SP - 16**
ROAD NAME:	**MAMRE RD**
CROSS ST/RD:	**SOLANDER DR**
SUBURB:	**ST CLAIR**
OPERATION:	**SWEPT PATH - SHUTTLE FLOW ON SOLANDER DR**



Quickway
Transport & Utilities Infrastructure

N
W E
S

Legend

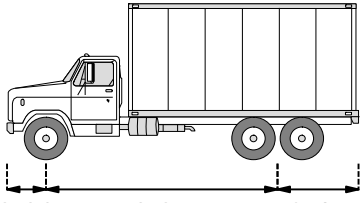
- Body clearance
- Cone
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path
- Work Area

THIS SWEPT PATH INDICATES THE ABILITY FOR 12.5M RIGID TRUCK/BUS TO SUCESSFULLY MAKE THE TURN DURING A SHUTTLE FLOW ARRANGEMENT.

ALL THREE LEGS OF THE INTERSECTION WOULD BE CONTROLLED VIA THE USE OF PTCD'S UNDER AN APPROVED TGS & ROL.

WHERE ROL HOURS PERMIT THESE WORKS WILL BE PERFORMED OUTSIDE OF PEAK TRAFFIC PERIODS AND/OR AT NIGHT.

Vehicle dimensions



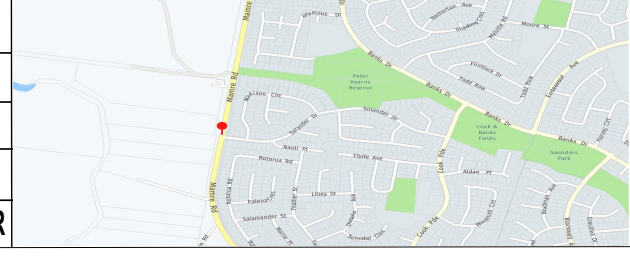
12.5m Rigid Truck/Bus

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

SOLANDER DR

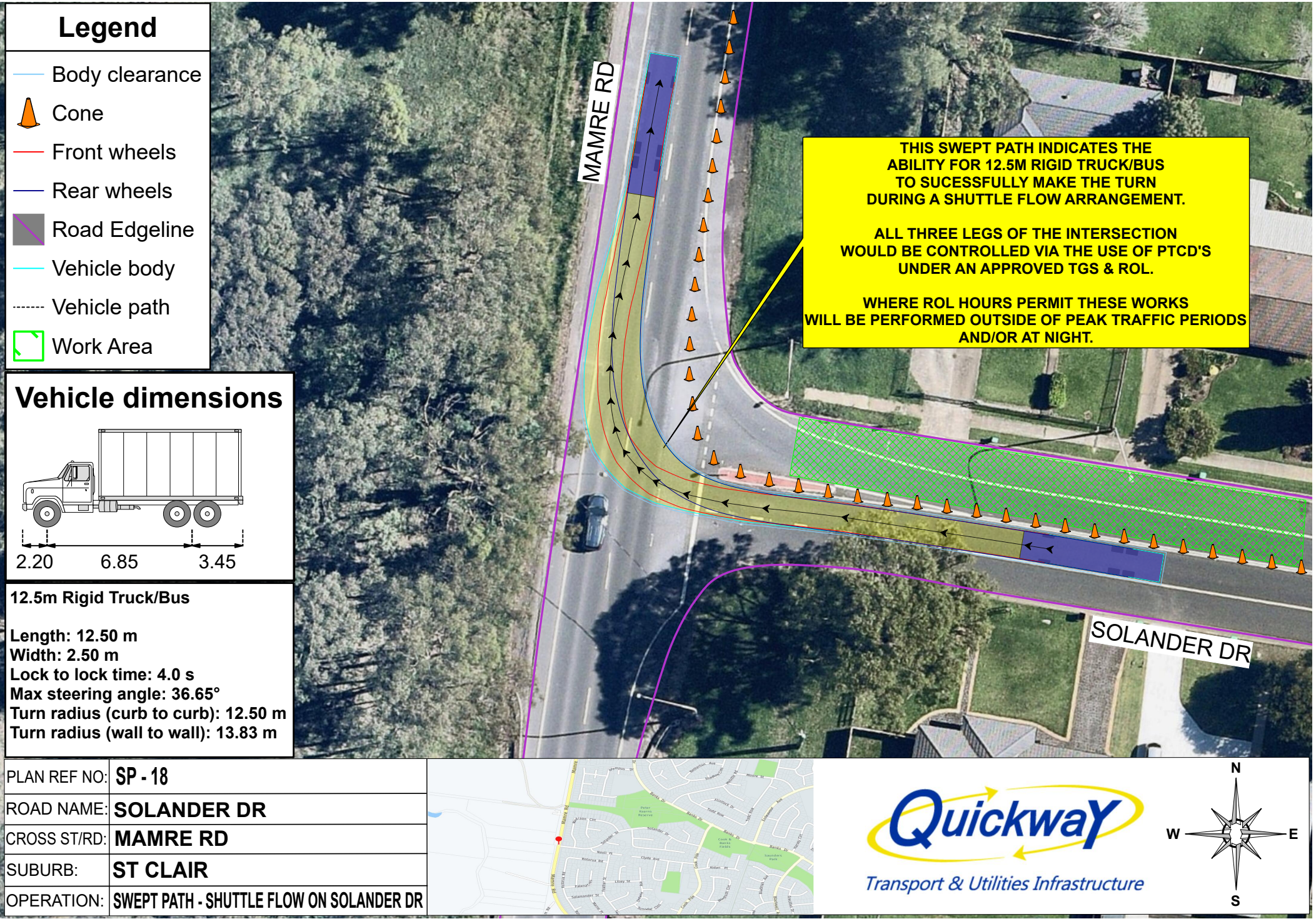
MAMRE RD

PLAN REF NO:	SP - 17
ROAD NAME:	MAMRE RD
CROSS ST/RD:	SOLANDER DR
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH - SHUTTLE FLOW ON SOLANDER DR



Quickway
Transport & Utilities Infrastructure

N
W E
S



Legend

- Body clearance
- Cone
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path
- Work Area

Vehicle dimensions

12.5m Rigid Truck/Bus

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

PLAN REF NO:	SP - 18
ROAD NAME:	SOLANDER DR
CROSS ST/RD:	MAMRE RD
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH - SHUTTLE FLOW ON SOLANDER DR

Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Cone
- Front wheels
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path
- Work Area

THIS SWEPT PATH INDICATES THE ABILITY FOR 12.5M RIGID TRUCK/BUS TO SUCESSFULLY MAKE THE TURN DURING A SHUTTLE FLOW ARRANGEMENT.

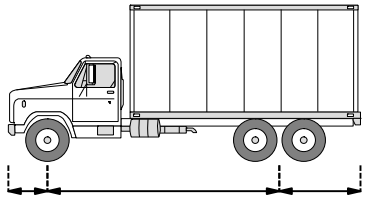
ALL THREE LEGS OF THE INTERSECTION WOULD BE CONTROLLED VIA THE USE OF PTCD'S UNDER AN APPROVED TGS & ROL.

WHERE ROL HOURS PERMIT THESE WORKS WILL BE PERFORMED OUTSIDE OF PEAK TRAFFIC PERIODS AND/OR AT NIGHT.

MAMRE RD

SOLANDER DR

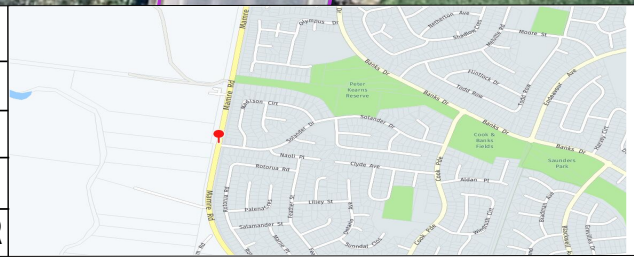
Vehicle dimensions



12.5m Rigid Truck/Bus

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

PLAN REF NO:	SP - 19
ROAD NAME:	SOLANDER DR
CROSS ST/RD:	MAMRE RD
SUBURB:	ST CLAIR
OPERATION:	SWEPT PATH - SHUTTLE FLOW ON SOLANDER DR



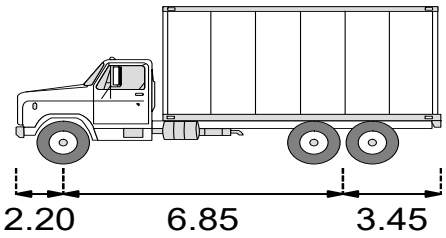
Quickway
Transport & Utilities Infrastructure

N
W E
S

Legend

- Body clearance
- Front wheels
- Indicative Site Compound
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

LUDDENHAM RD IS A NO THROUGH ROAD AND TERMINATES AT THIS LOCATION.

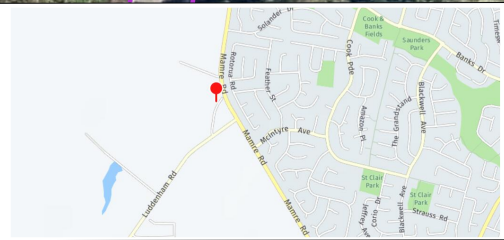
EXPECTED DAILY VEHICLE MOVEMENTS ARE <5 PER DAY.

THERE IS CURRENTLY NO ACTIVE RESIDENTIAL/ COMMERCIAL ACCESS OR EGRESS DRIVEWAYS ALONG LUNDDENHAM RD (CUL-DE-SAC)

LUDDENHAM RD

MAMRE RD

PLAN REF NO:	**SP - 20**
ROAD NAME:	**LUDDENHAM RD (CUL-DE-SAC)**
CROSS ST/RD:	**SITE COMPOUND**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH (RIGHT IN)**



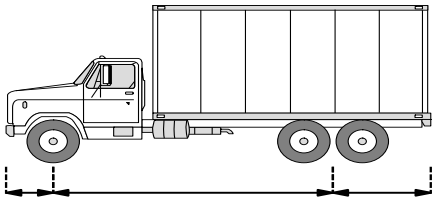
Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Indicative Site Compound
- Rear wheels
- Road Edgeline
- Vehicle body
- Vehicle path

Vehicle dimensions



12.5m Rigid Truck

Length: 12.50 m
Width: 2.50 m
Lock to lock time: 4.0 s
Max steering angle: 36.65°
Turn radius (curb to curb): 12.50 m
Turn radius (wall to wall): 13.83 m

LUDDENHAM RD IS A NO THROUGH ROAD AND TERMINATES AT THIS LOCATION.

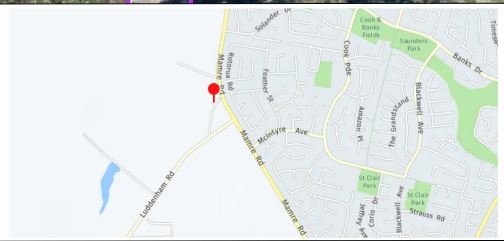
EXPECTED DAILY VEHICLE MOVEMENTS ARE <5 PER DAY.

THERE IS CURRENTLY NO ACTIVE RESIDENTIAL/ COMMERCIAL ACCESS OR EGRESS DRIVEWAYS ALONG LUNDDENHAM RD (CUL-DE-SAC)

LUDDENHAM RD

MAMRE RD

PLAN REF NO:	**SP - 21**
ROAD NAME:	**SITE COMPOUND**
CROSS ST/RD:	**LUDDENHAM RD (CUL-DE-SAC)**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH (LEFT OUT)**



Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Indicative Site Compound
- Road Edgeline
- Vehicle body
- Vehicle path

LUDDENHAM RD IS A NO THROUGH ROAD AND TERMINATES AT THIS LOCATION.

EXPECTED DAILY VEHICLE MOVEMENTS ARE <5 PER DAY.

THERE IS CURRENTLY NO ACTIVE RESIDENTIAL/ COMMERCIAL ACCESS OR EGRESS DRIVEWAYS ALONG LUNDDENHAM RD (CUL-DE-SAC)

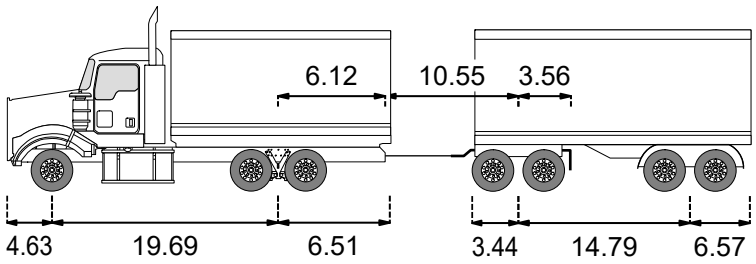
LUDDENHAM RD

MAMRE RD

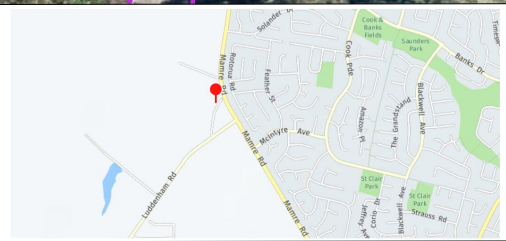
19m Truck and Dog

Length: 62.34 ft
Max width: 8.20 ft
Lock to lock time: 4.0 s
Max steering angle: 31.70°
Turn radius (curb to curb): 41.01 ft
Turn radius (wall to wall): 43.42 ft

Vehicle dimensions



PLAN REF NO:	**SP - 22**
ROAD NAME:	**LUDDENHAM RD (CUL-DE-SAC)**
CROSS ST/RD:	**SITE COMPOUND**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH (RIGHT IN)**



Quickway
Transport & Utilities Infrastructure

N
W
E
S

Legend

- Body clearance
- Front wheels
- Indicative Site Compound
- Road Edgeline
- Vehicle body
- Vehicle path

LUDDENHAM RD IS A NO THROUGH ROAD AND TERMINATES AT THIS LOCATION.

EXPECTED DAILY VEHICLE MOVEMENTS ARE <5 PER DAY.

THERE IS CURRENTLY NO ACTIVE RESIDENTIAL/ COMMERCIAL ACCESS OR EGRESS DRIVEWAYS ALONG LUNDDENHAM RD (CUL-DE-SAC)

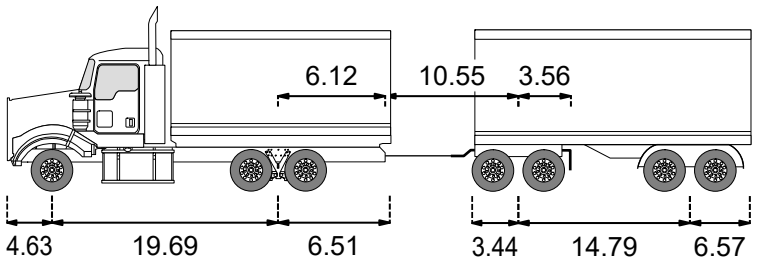
LUDDENHAM RD

MAMRE RD

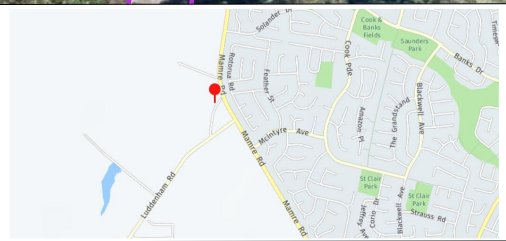
19m Truck and Dog

Length: 62.34 ft
Max width: 8.20 ft
Lock to lock time: 4.0 s
Max steering angle: 31.70°
Turn radius (curb to curb): 41.01 ft
Turn radius (wall to wall): 43.42 ft

Vehicle dimensions

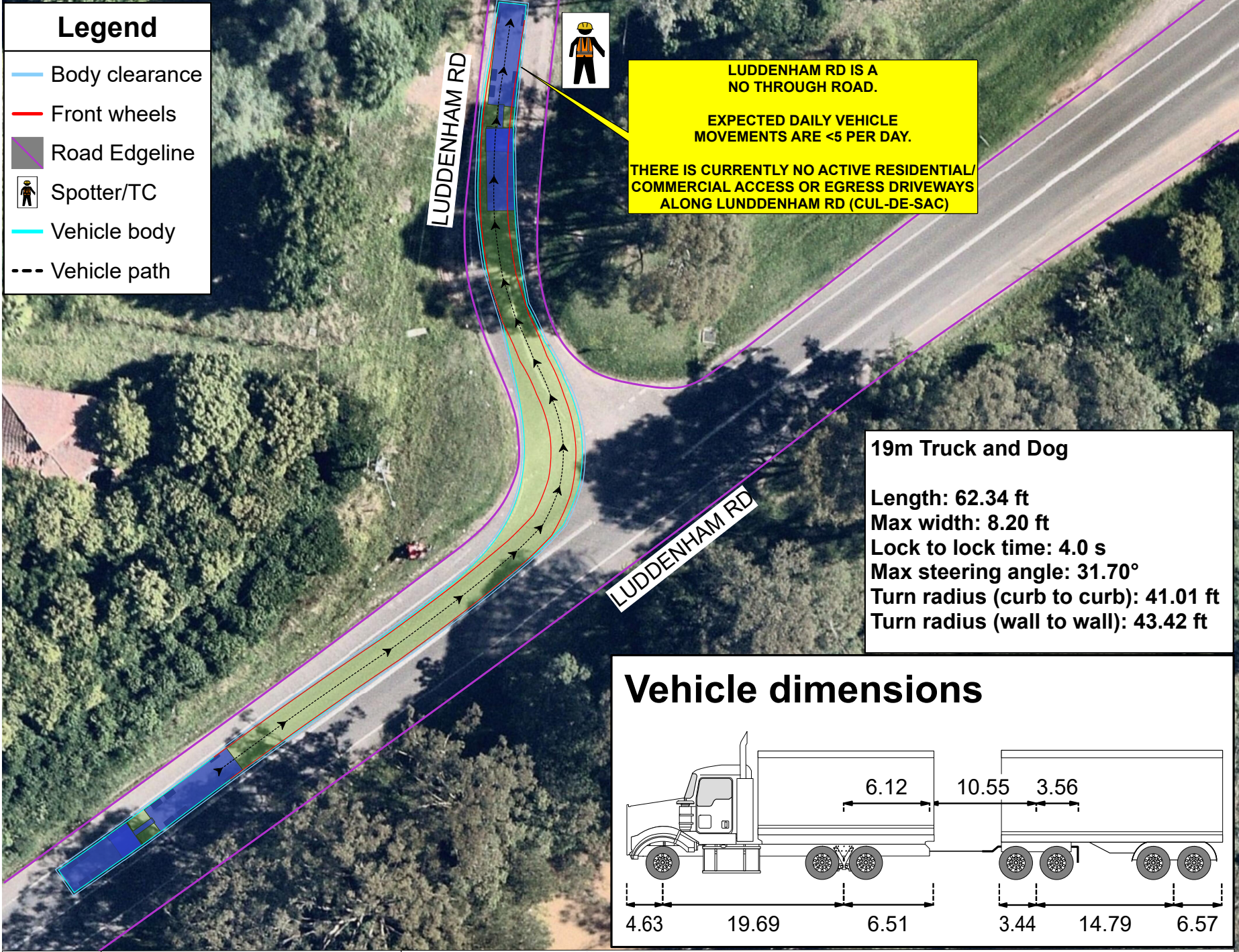


PLAN REF NO:	**SP - 23**
ROAD NAME:	**SITE COMPOUND**
CROSS ST/RD:	**LUDDENHAM RD (CUL-DE-SAC)**
SUBURB:	**ORCHARD HILLS**
OPERATION:	**SWEPT PATH (LEFT OUT)**



Quickway
Transport & Utilities Infrastructure

N
W
E
S

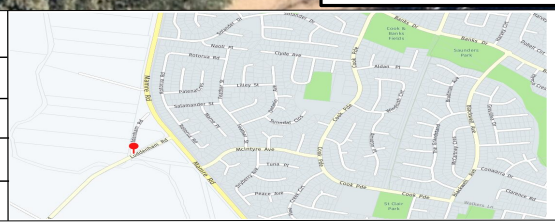


19m Truck and Dog

Length: 62.34 ft
Max width: 8.20 ft
Lock to lock time: 4.0 s
Max steering angle: 31.70°
Turn radius (curb to curb): 41.01 ft
Turn radius (wall to wall): 43.42 ft

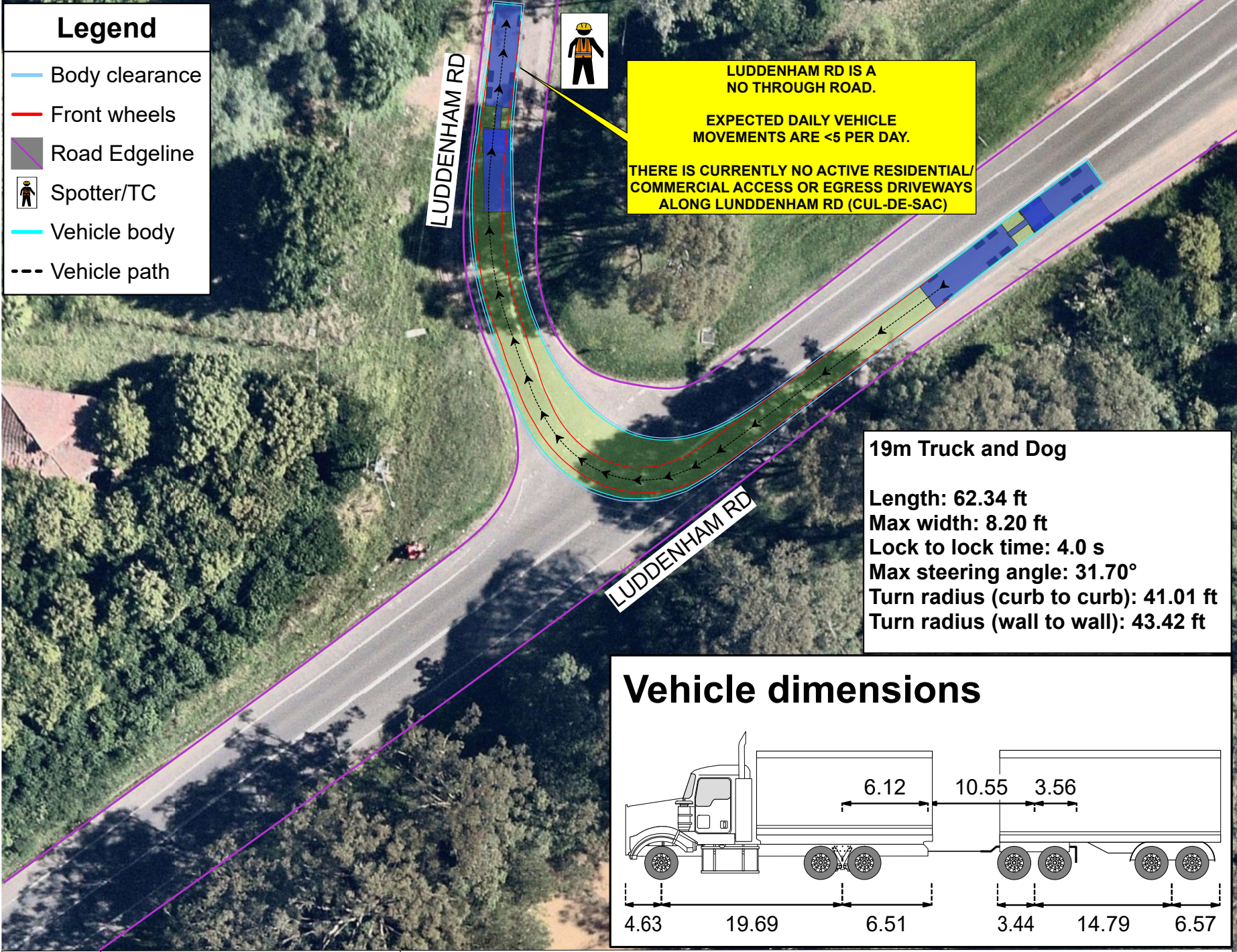
Vehicle dimensions

PLAN REF NO:	SP - 24
ROAD NAME:	LUDDENHAM RD
CROSS ST/RD:	LUDDENHAM RD (Cul-De-Sac)
SUBURB:	ORCHARD HILLS
OPERATION:	SWEPT PATH



Quickway
Transport & Utilities Infrastructure

N
W
E
S

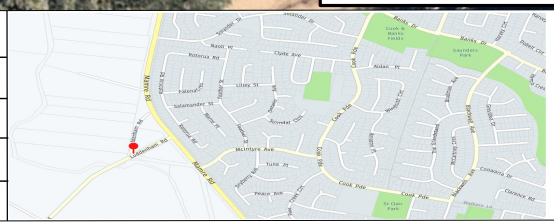


19m Truck and Dog

Length: 62.34 ft
Max width: 8.20 ft
Lock to lock time: 4.0 s
Max steering angle: 31.70°
Turn radius (curb to curb): 41.01 ft
Turn radius (wall to wall): 43.42 ft

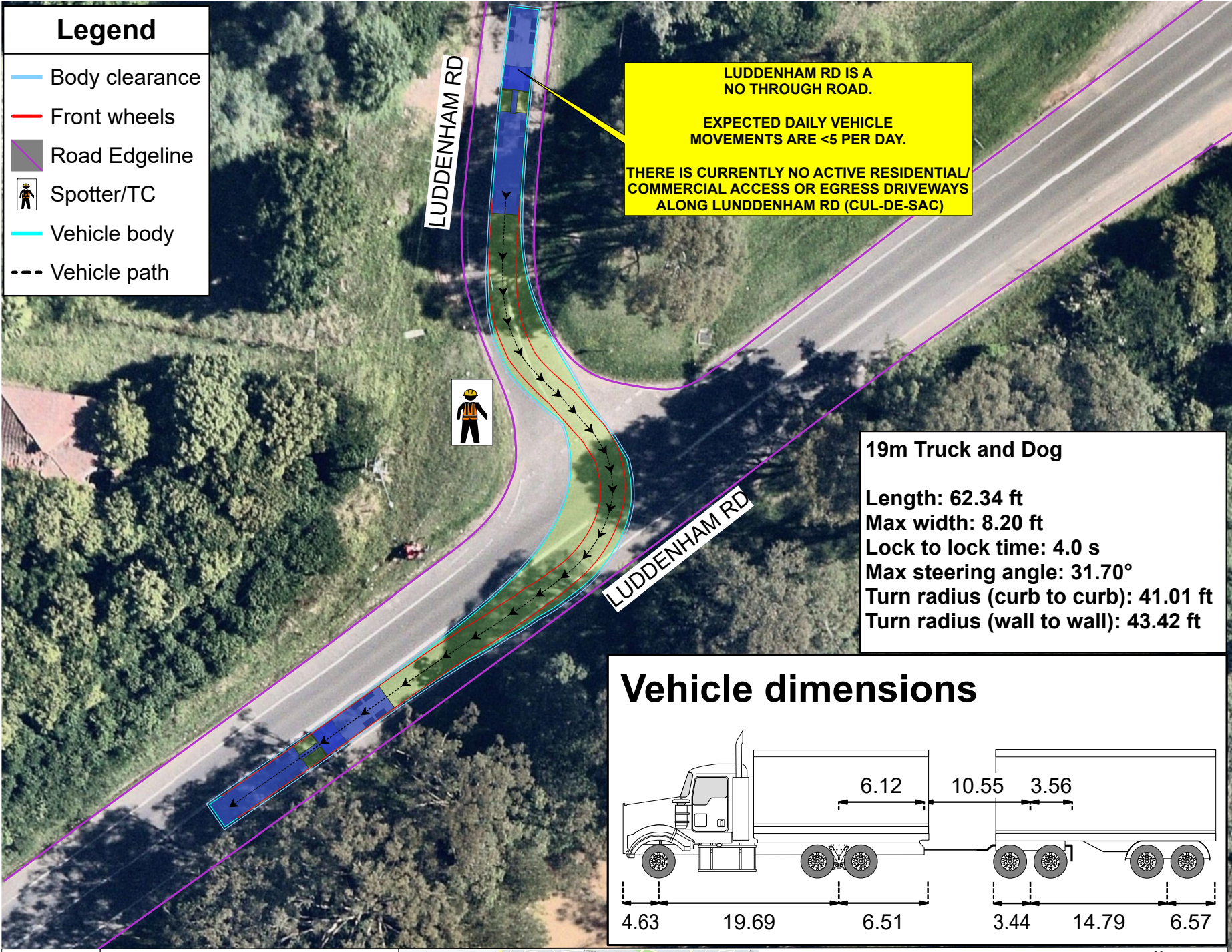
Vehicle dimensions

PLAN REF NO:	SP - 25
ROAD NAME:	LUDDENHAM RD
CROSS ST/RD:	LUDDENHAM RD (Cul-De-Sac)
SUBURB:	ORCHARD HILLS
OPERATION:	SWEPT PATH

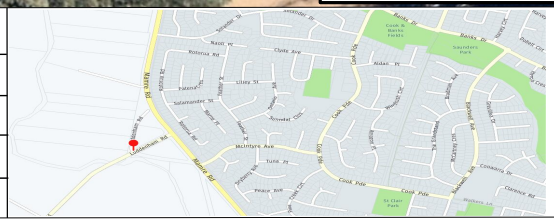


Quickway
Transport & Utilities Infrastructure

N
W
E
S

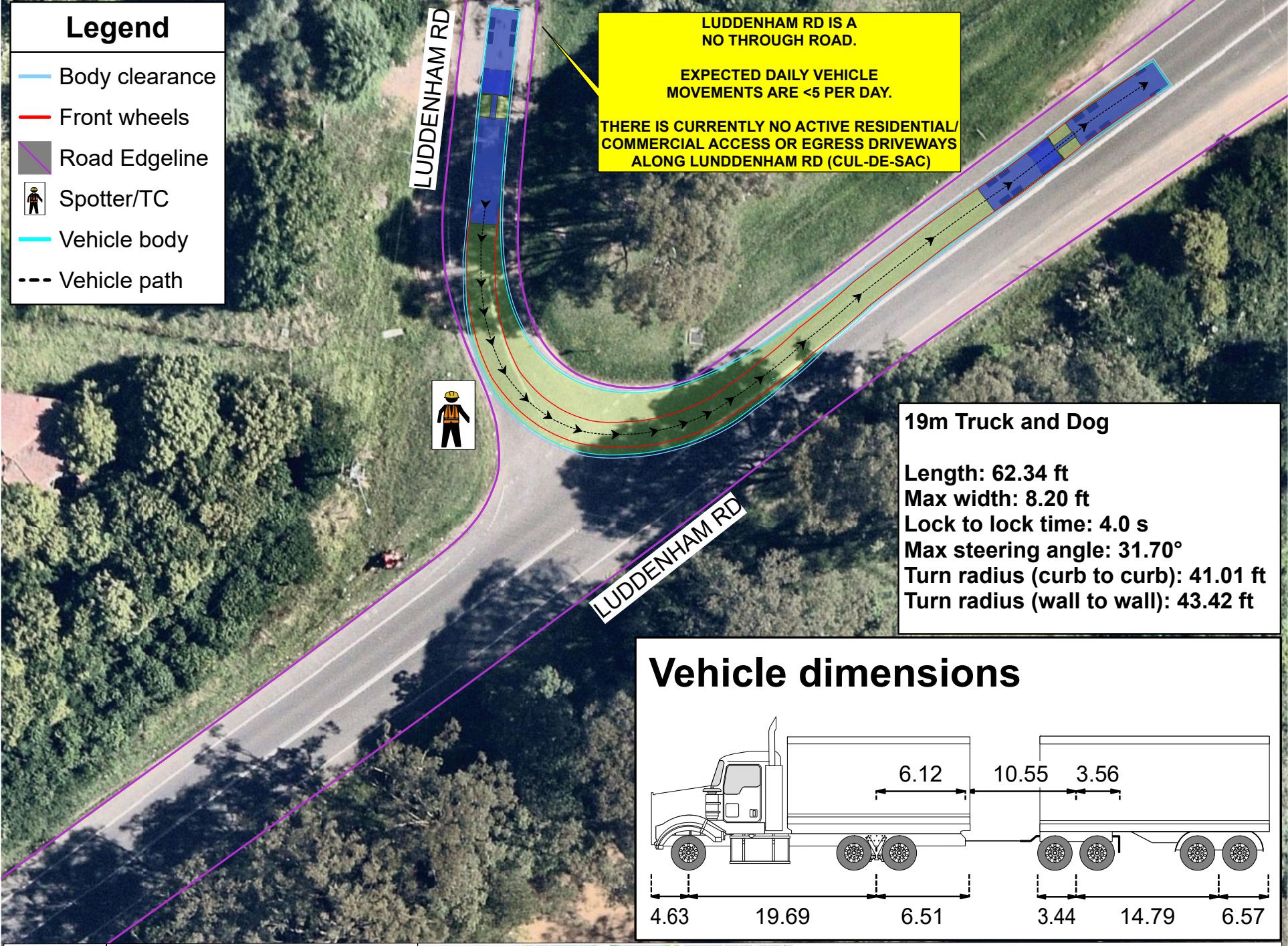


PLAN REF NO:	SP - 26
ROAD NAME:	LUDDENHAM RD (Cul-De-Sac)
CROSS ST/RD:	LUDDENHAM RD
SUBURB:	ORCHARD HILLS
OPERATION:	SWEPT PATH

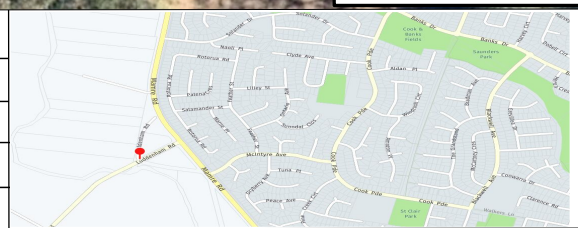


Quickway
Transport & Utilities Infrastructure

N
W
E
S



PLAN REF NO:	SP - 27
ROAD NAME:	LUDDENHAM RD (Cul-De-Sac)
CROSS ST/RD:	LUDDENHAM RD
SUBURB:	ORCHARD HILLS
OPERATION:	SWEPT PATH



Quickway
Transport & Utilities Infrastructure

N
W
E
S

Appendix D Heavy Vehicle Driver Project Induction

Transport & Utilities Infrastructure

ACKNOWLEDGEMENT OF COUNTRY

Quickway Constructions would like to begin by acknowledging the Traditional Custodians of the land on which we conduct work on today, and pay our respects to their Elders past and present.

Quickway extend that respect to Aboriginal and Torres Strait Islander peoples here today, no matter where you come from.

Transport & Utilities Infrastructure

PROJECT HEAVY VEHICLE DRIVER INDUCTION

Sydney Metro Western Sydney Airport, Advanced & Enabling Works (Water)

Quickway
Transport & Utilities Infrastructure

LEGISLATIVE REQUIREMENTS

Chain of Responsibility

- **All Vehicles over 4.5tonne GVM** are governed by the Heavy Vehicle National Law (HVNL) and Chain of Responsibility (CoR).
- CoR aims to make sure everyone in the supply chain shares equal responsibility for ensuring breaches of the Heavy Vehicle National Laws (HVNL) do not occur.
- If named as a party in a CoR breach, and you exercise (or have the capability of exercise) control or influence over any transport task, you need to be aware and ensure that HVNL are complied with.
- A person in the Chain of Responsibility includes, but is not limited to, Employers, Contractors, Operators of Vehicles, Loaders and Unloaders of Vehicles.
- You may be liable for breaches of the HVNL even though you may not have had a direct role in driving or operating a heavy vehicle, i.e. Overloaded a vehicle, made unreasonable requests to the driver that made him/her drive longer than the hours allowed.

Transport & Utilities Infrastructure

HEAVY VEHICLE REQUIREMENTS

All Heavy Vehicles must be compliant and inducted to Quickway's site for the Sydney Metro Western Sydney Airport – Advanced & Enabling Works.

All vehicles must be serviced and maintained as per the manufacturers specifications.

All frequent Heavy Vehicles must be fitted with:

- Side-underrun protection fitted on both sides.
- Class V and Class VI mirrors as per ADR 14/02.
- Signage – Warning drivers of dangers of overtaking trucks and warning pedestrians about walking close to the front of a moving or stationary Heavy Vehicles

If your vehicle is not fitted with one of the above, please notify the Site Supervisor

Transport & Utilities Infrastructure

HEAVY VEHICLE & PLANT REQUIREMENTS

The Project strictly follows the Sydney Metro Western Sydney Airport – Principal Contractor Health and Safety Standard.

Outlined within this plan is:

- Pre-site arrival plant project onboarding
- Plant authorisation when first arrives to site
- Pre-start inspection are completed prior to use.
- Heavy vehicles, and trailers are registered for use.
- Ensure all heavy vehicles and trailers do not exceed prescribed mass and dimension requirements
- Ensure loads are restrained to prevent any load from falling or becoming dislodged.

Authorised plant & heavy vehicles will receive an authorisation sticker and identification number

Quickway
Transport & Utilities Infrastructure

HEAVY VEHICLE TRACKING REQUIREMENTS

The Project strictly follows the Sydney Metro Western Sydney Airport – Principal Contractor Health and Safety Standard.

Outlined within this plan is:

Telematic tracking on all heavy vehicles to report on:

1. Location
2. Speed Compliance
3. Fatigue and other driver behaviour (harsh acceleration, braking).

Telematics tracking units will be used to ensure compliance with nominated haulage routes.

Quickway
Transport & Utilities Infrastructure

CoR REQUIREMENTS

The Project strictly follows the Sydney Metro Western Sydney Airport – Principal Contractor Health and Safety Standard.

Outlined within this plan is:

All loaded heavy vehicles must have the weight of their truck and trailer recorded before leaving site

Quickway will have weigh pads at the compound on Roberts Street. A yard man will be present at all times to record the trucks weight before leaving site.

Onboard axle weigh measurement systems are also permitted.

Quickway

Transport & Utilities Infrastructure

HAULAGE ROUTES

The project is through both residential and rural areas. There is a school zone along Solander Drive which must be considered when scheduling Heavy Vehicle movements – refer to the attached haulage route plans.

Try and avoid school zones during peak hours and take note of uncontrolled pedestrian crossings.

Quickway have developed haulage routes with swept path analysis of each turn to ensure the safety of the crews, operators and public.

Quickway
Transport & Utilities Infrastructure

HAULAGE ROUTES APPROVAL

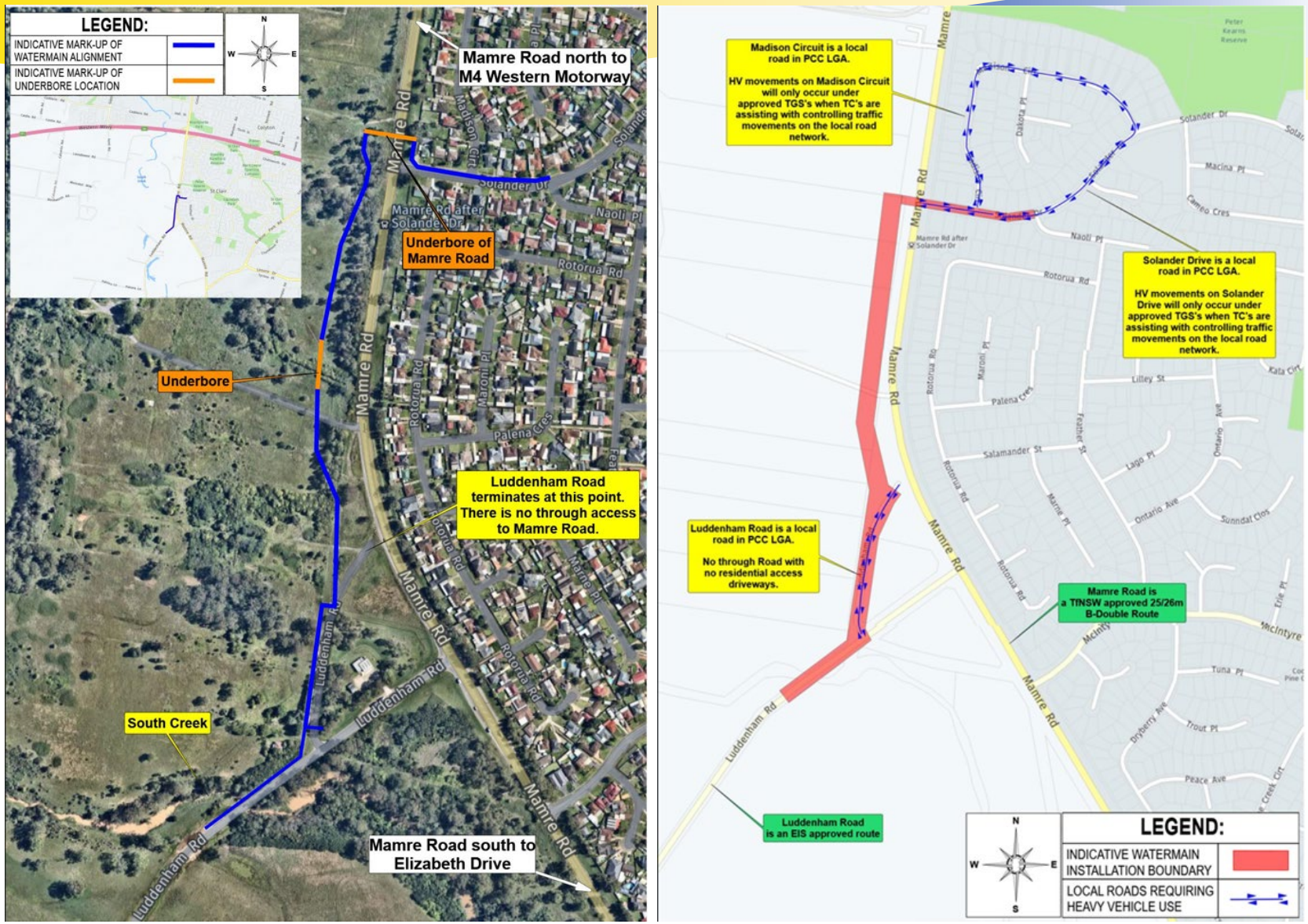
Designated Heavy Vehicle haulage routes have been **approved by NSW Department of Planning and Environment** in accordance with Approval Condition *E105* which states:

MCoA E105: "Local roads proposed to be used by Heavy Vehicles to directly access ancillary facilities / construction sites that are not identified in the documents listed in Condition A1 must be approved by the Planning Secretary and be included in the CTMP."

Drivers must only drive on designated and approved haulage routes.

If you are ever unaware of the haulage route to be used, contact the site supervisor.

HAULAGE ROUTE MAP



Quickway

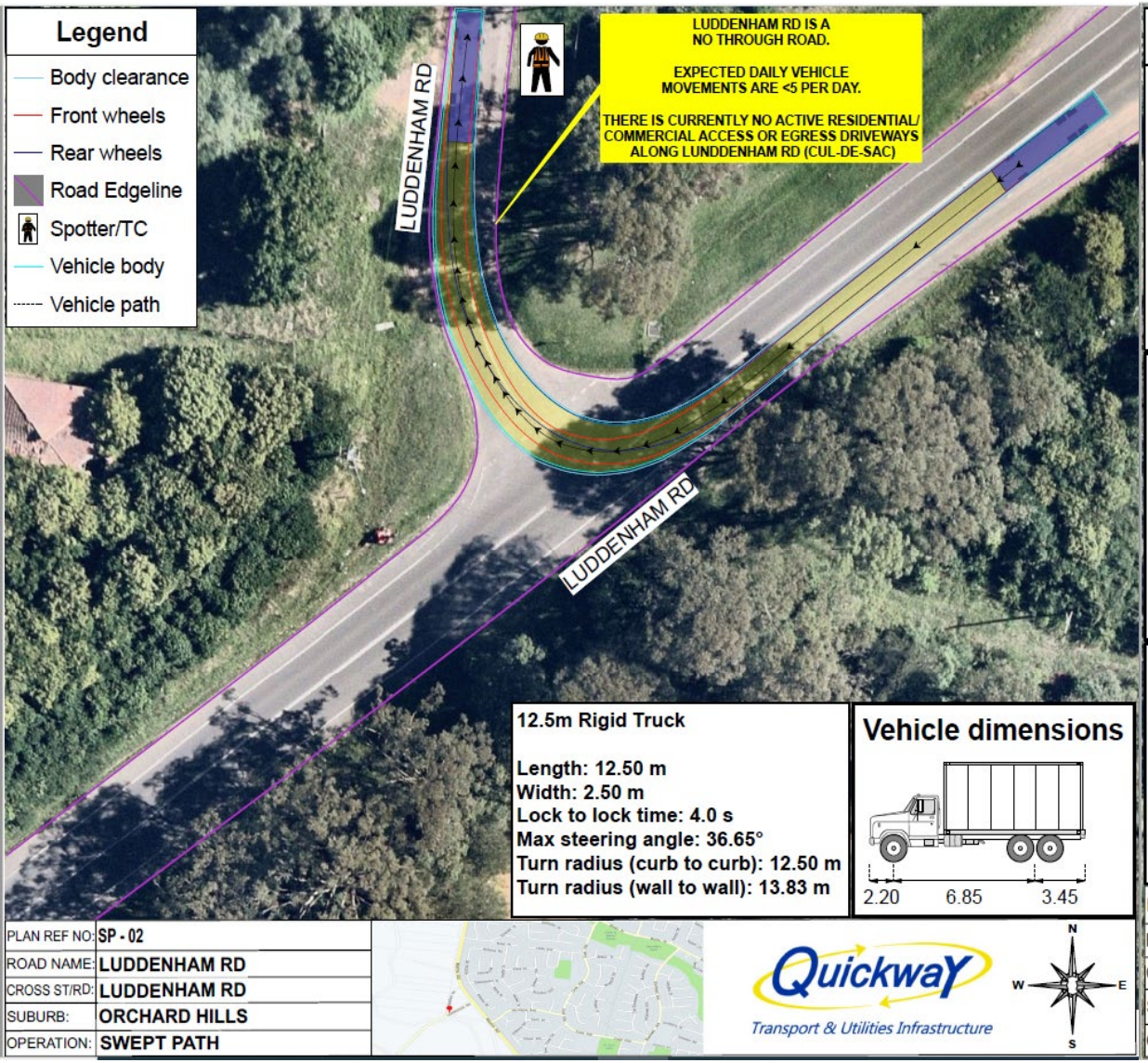
Transport & Utilities Infrastructure

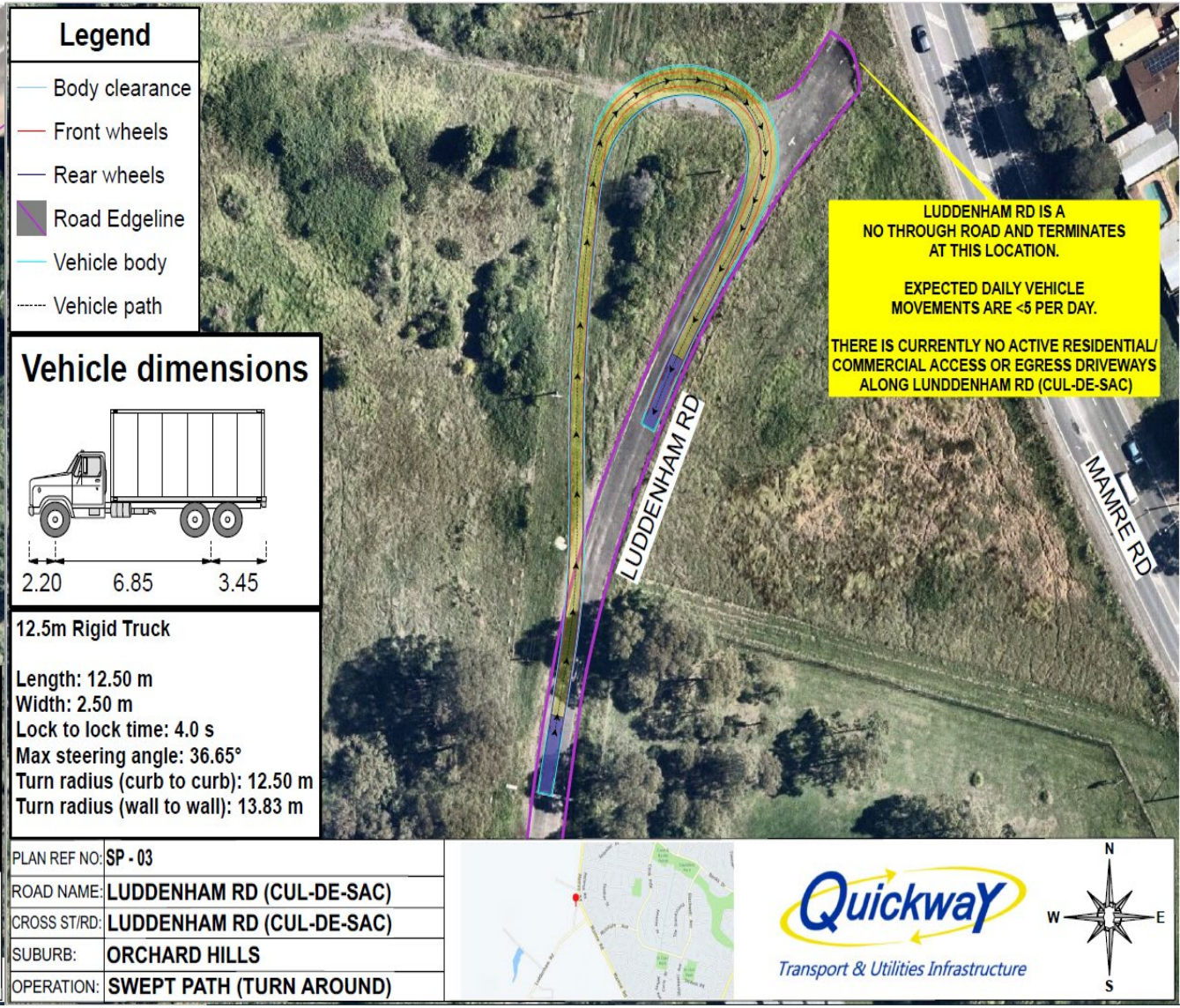
Approved Routes

- Luddenham Road
- Mamre Road
- Solander Drive
- Madison Circuit

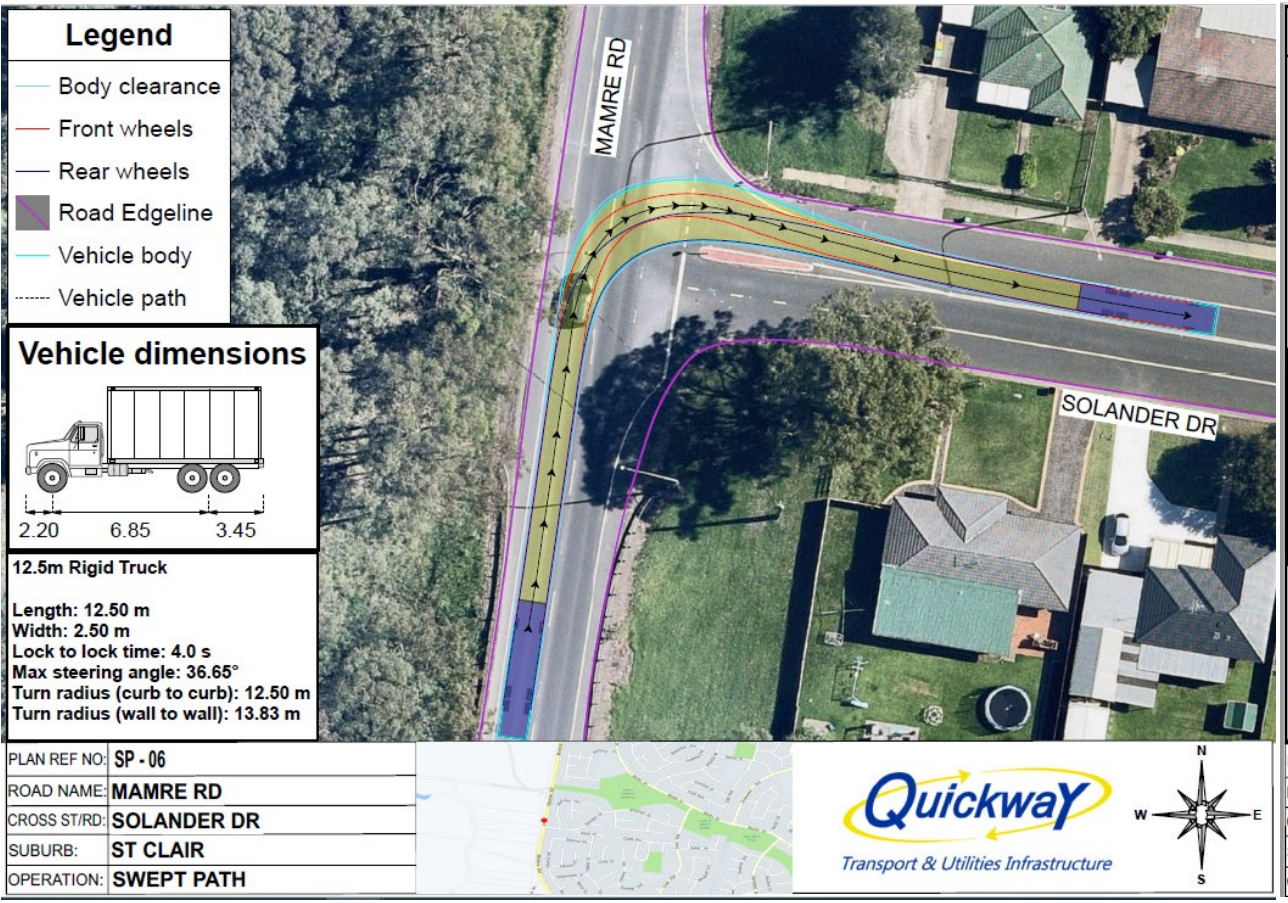
***Note: No access permitted on Solander Drive east of Madison Circuit. HV's will turn around, under Traffic Control assistance, to depart the work area back onto Mamre Road.**

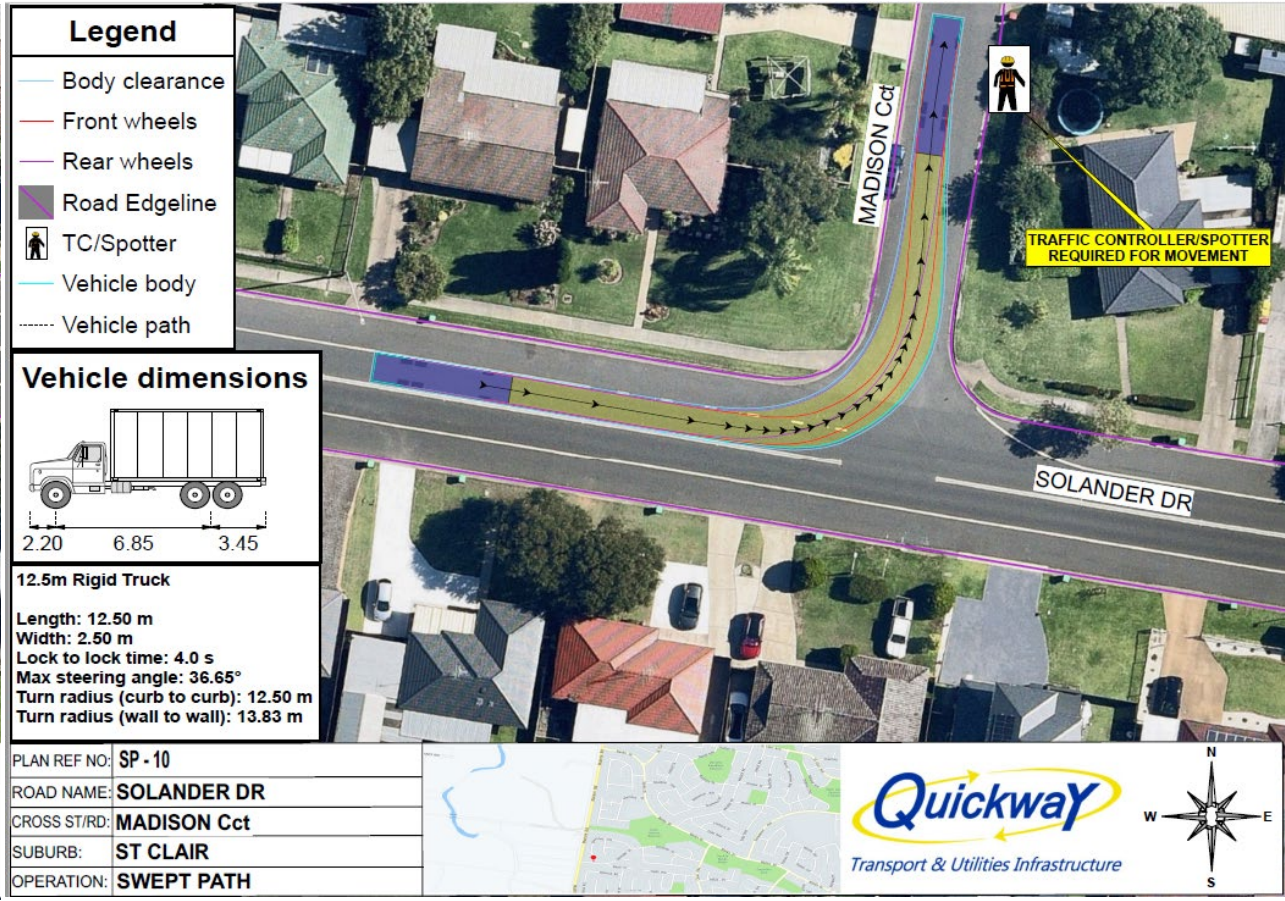
SWEPT PATH – TURN WHEN SAFE ONLY (BOTH DIRECTIONS)





SWEPT PATH – TURN WHEN SAFE ONLY (BOTH DIRECTIONS)





Transport & Utilities Infrastructure

FIT TO WORK

Driving Under Fatigue

When operating a heavy vehicle, the operator has the responsibility to ensure they are well rested and not endanger them selves and other by working why under duress or tired.
Quickway will actively monitor drivers to ensure that drivers, subcontractors and suppliers are abiding by the Heavy Vehicle National Law and Chain of Responsibility.

Drugs and Alcohol

All heavy vehicle operators must not operate a vehicle if they are under the influence of drugs or alcohol.
Quickway will complete random drug and alcohol testing on site.
Heavy vehicle operators must inform Quickway on their site induction form if the are taking any prescription medication.

SAFE DRIVING

Mobile Phones

It is Illegal to use your mobile phone while driving in NSW.

Drivers must ensure they are not operating any vehicle on site while on the phone.

If the call must be taken the driver must find a safe place to pull over and take the call.

If the driver requires a phone as a GPS it must be held in a hands-free apparatus.

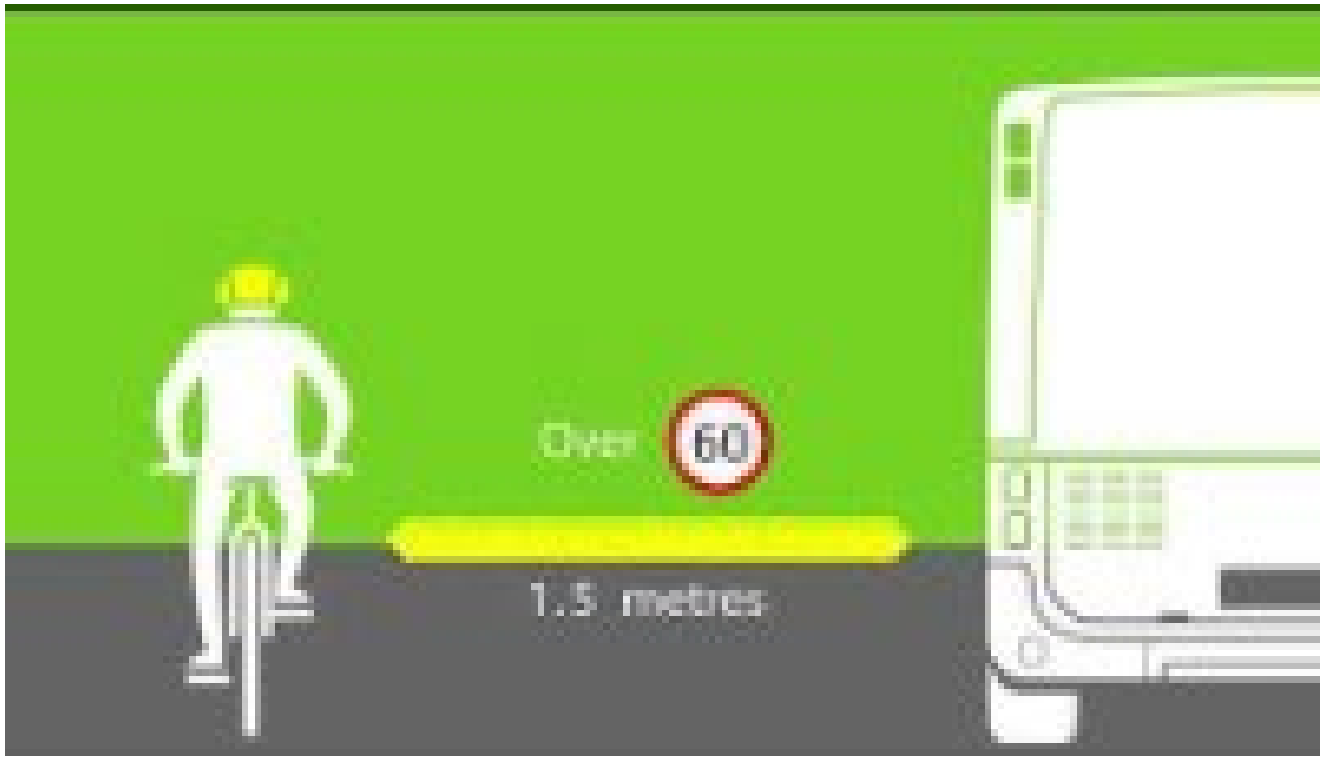
SAFE DRIVING

Cyclists

All of the local roads have share the traffic lane with cyclists.

You must follow NSW driver road rules for around cyclists:

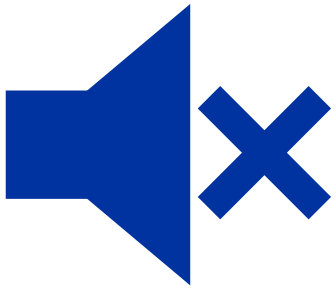
- Roads under 60kmh you must provide at least 1 metre of space when passing
- Roads over 60kmh you must provide at least 1.5 metre of space when passing
- Only pass when safe to do so
- If not safe to pass, proceed with space, behind the cyclists until the road junction



Quickway
Transport & Utilities Infrastructure

RESPECTFUL DRIVING

- Turn off plant, equipment and trucks when they are not in use. Do not keep them idling when not required.
- No compression breaking in residential areas, near school zones or childcares.
- DO NOT PARKING in community parking areas.
- NO marshaling near sensitive receivers (e.g. schools, childcare, churches, etc)
- NO idling or queuing on state or regional roads



Quickway

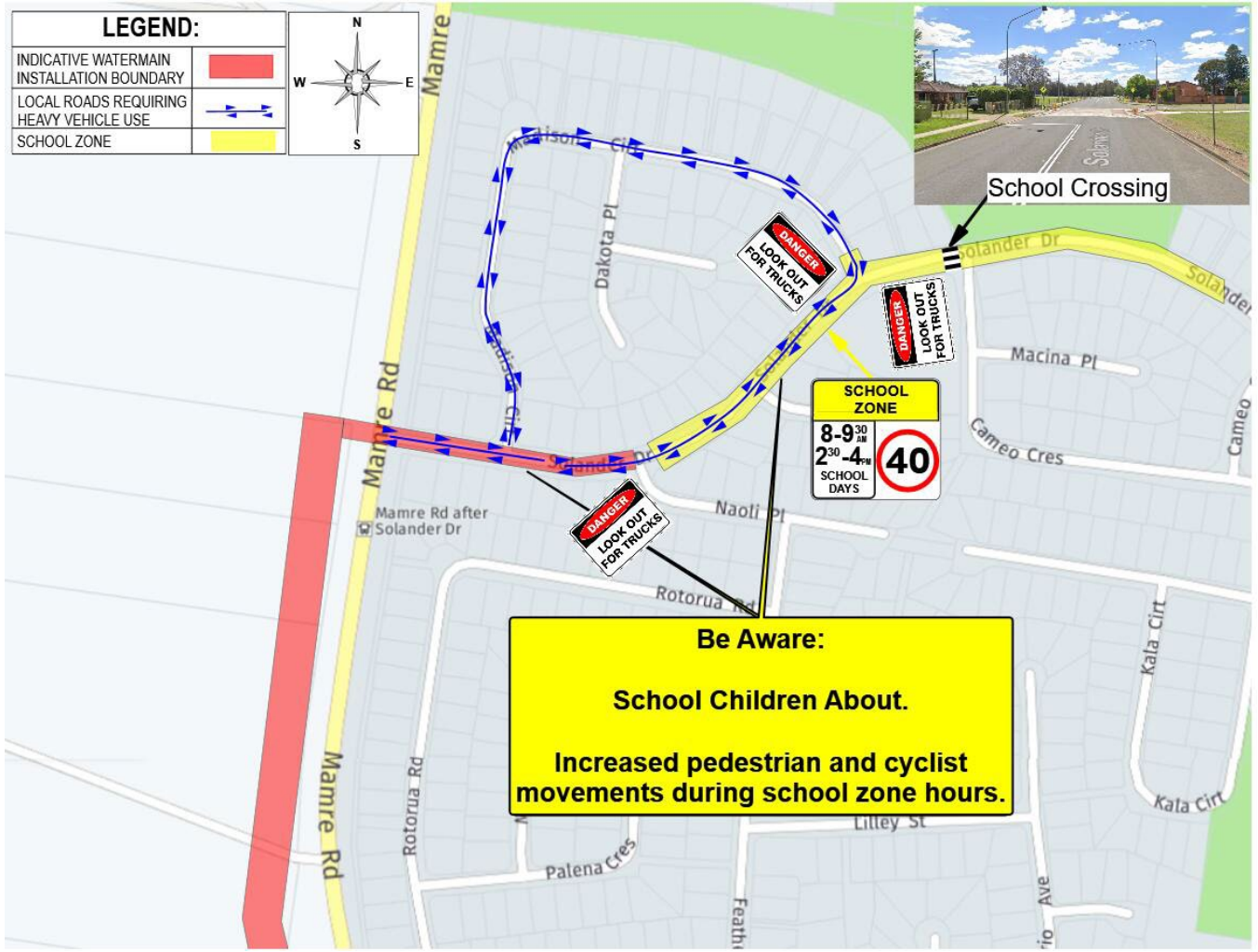
Transport & Utilities Infrastructure

WORKING NEAR SCHOOLS

Be aware of School Zones along Solander Dr.

During morning and evening school periods expect increased movements of school children both on foot and cycling.

Exercise additional caution during these periods.



Transport & Utilities Infrastructure

WORKING NEAR SCHOOLS (Cont..)

- **Schedule work breaks (i.e. no plant movements) at school's specific bell times where there is peak pedestrian and vehicle movements times**
- **Ensure all pedestrian management delineation is setup and checked regularly**
- **Avoid and limit driving through school zones (8am to 9:30am & 2:30pm to 4pm) wherever possible**
  - If unavoidable, ensure that all school zone speed limits are followed at all times
  - Show additional caution for increased pedestrian and vehicle movements during these periods

Quickway
Transport & Utilities Infrastructure

QUESTIONS & DISCUSSIONS

Appendix E Dilapidation Submission to Penrith City Council

Includes:

- SMWSAASP1-QWY-TX-000045 – Initial transmittal for Luddenham Road, Solander Drive and Madison Circuit. Submitted 14/04/2023.

Louise Casey

From: Des Leyden via InEight Document <system@teambinder.com>
Sent: Friday, 14 April 2023 8:36 AM
To: Louise Casey
Subject: WSA AEW Penrith City Council (PCC) LGA - Pre-Construction Dilapidation Reports (SMF Stage 2 Watermain)

Document Transmittal

Transmittal No:	SMWSAASP1-QWY-TX-000045
Contract No:	ASP1 - SM0013/12033 - Construction Power
Sub Contract:	
Date:	14 April 2023, 08:35 AM

Issued	Name
By	Des Leyden (Quickway)
To	Yasadi Peiris (Sydney Metro) ; Mark Barabas (Sydney Metro)
Cc	Paul Rogers (Sydney Metro) ; Elizabeth Low (Sydney Metro) ; Ella Somerset (Sydney Metro) ; Tommy Kelly (Quickway) ; Louise Casey (Quickway) ; Daniel Mutkins (Quickway)

Reason for Issue	
Subject	**WSA AEW Penrith City Council (PCC) LGA - Pre-Construction Dilapidation Reports (SMF Stage 2 Watermain)**

Hi Yasadi,

Re: Penrith City Council (PCC) LGA - Pre-Construction Dilapidation Reports

In accordance with MCoA E108, Quickway attaches pre-construction road dilapidation reports for purposes of;

- SMF Stage 2 watermain alignment work areas
- Local roads proposed to be utilised for construction heavy vehicles.

Date Recorded	Document No.	Rev	Title
14-04-2023			
14-04-23 08:02 AM	SMWSAASP1-QWY-OHE-PC-RPT-000031	-	Pre-construction Dilapidation Report - Soland
14-04-23 08:09 AM	SMWSAASP1-QWY-OHE-PC-RPT-000032	-	Pre-construction Dilapidation Report - Ludder
14-04-23 08:15 AM	SMWSAASP1-QWY-OHE-PC-RPT-000033	-	Pre-construction Dilapidation Report - Mamre
14-04-23 08:17 AM	SMWSAASP1-QWY-OHE-PC-RPT-000034	-	Pre-construction Dilapidation Report - Madiso

Can you please provide these to Penrith City Council, and confirm receipt of this transmittal from PCC?

Should you have any queries please let me know.
Thankyou.

Regards,

Click here to download all Transmittal files.

Item	Document No	Title	Rev	Sts	Type	Design Lots	Alt Doc No
1	SMWSAASP1-QWY-OHE-PC-RPT-000032	Pre-construction Dilapidation Report - Luddenham Road	-.01	S2	RPT		4022-SMWSA-PreDLP-002-Luddenham Rd-rev1.0

TeamBinder Transmittal Reference: {83C71A32-0A6F-4D91-BB86-925C06C76E3D}

Appendix F Sydney Metro and Penrith City Council Review Comments

REVIEW COMMENTS SHEET

DOCUMENT NO.	TITLE	VER	STATUS	NO.	DATE	COMPANY	RAISED BY	REVIEW DOC. NO.*	DOCUMENT REF*	DEED REF*	COMMENTS / RESPONSE	COMMENT CATEGORY*	CLOSED OUT
SMWSAASP1-QWY-1NL-PC-RPT-000003	**SMWSA Advanced & Enabling Works (AEW) - Heavy Vehicle use of Local Roads (HVLR) Request 002**	00.01	S3	01	28/04/2023	PCC	LVALLEJO	SMWSAASP1-QWY-1NL-PC-RPT-000003	General	NA	Heavy vehicles shall not travel within school zones during school zone hours.	Observation	N
								SMWSAASP1-QWY-1NL-PC-RPT-000003	General	NA	**Quickway Response:** Where possible construction vehicle movements will be restricted during school zone hours. However there shall be instances where the first 150m western section of the School Zone on Solander Drive is required to be utilised to facilitate the Madison Cct loop proposed turn around movements to access back onto Mamre Road. This activity will only occur when the site is being controlled by authorised Traffic Controllers who will be present to assist school children and parents safely past/around/through the work area.	Observation	N
				02	28/04/2023	PCC	LVALLEJO	SMWSAASP1-QWY-1NL-PC-RPT-000003	General	NA	Residents on local roads along the proposed heavy vehicle routes shall be notified prior to heavy vehicles using the local roads.	Observation	N
								SMWSAASP1-QWY-1NL-PC-RPT-000003	General	NA	**Quickway Response:** Noted. Community notifications will occur in line with Sydney Metro's Comms Strategy. Residents along Solander Drive & Madison Cct will be notified progressively of the works and the presence of Heavy Vehicles.	Observation	N
				03	12/05/2023	TFN	LWILBY	SMWSAASP1-QWY-1NL-PC-RPT-000003	4.4 Cyclists	NA	Please consider adding driver training to the list of controls being implemented to reduce the impacts for cyclists.	Observation	N
								SMWSAASP1-QWY-1NL-PC-RPT-000003	4.4 Cyclists	NA	**Quickway Response:** The Heavy Vehicle Driver Induction has a slide dedicated to safe driving around cyclists and the NSW Road Rules. This is located on page 15 of the induction provided in Appendix D.	Observation	N
				04	12/05/2023	TFN	LWILBY	SMWSAASP1-QWY-1NL-PC-RPT-000003	4.6 General approach and mitigation strategies	NA	Please consider adding HV driver training and site specific awareness on the possible presence of school children walking and cycling. Further to this consider Be Truck Aware decals either side of the northern intersection of Solander Dr and Madison Circuit as a final reminder to pedestrians to look out before stepping into the roadway.	Observation	N
								SMWSAASP1-QWY-1NL-PC-RPT-000003	4.6 General approach and mitigation strategies	NA	**Quickway Response:** Section 4.6 has been updated and a Figure Reference added to include "Danger Look Out For Trucks" warning signage. This figure reference has also been added to the HV Driver Induction to provide additional driver awareness.	Observation	N
				05	12/05/2023	TFN	LWILBY	SMWSAASP1-QWY-1NL-PC-RPT-000003	5.2 Heavy vehicle driver programs	NA	Please consider including in this section and on the haulage routes slide on page 60 specific information on "the presence of school children walking and cycling along these streets".	Observation	N
								SMWSAASP1-QWY-1NL-PC-RPT-000003	5.2 Heavy vehicle driver programs	NA	**Quickway Response:** An additional note has been added to Section 5.2 relating to alerting HV Drivers of the presence of school children along Solander Drive. Additional slide (No:17) added to the HV Driver Induction in Appendix D.	Observation	N