This is a sub-plan to be used in conjunction with the Construction Environmental Management Plan

Southwest Metro Station Upgrade Works Package 5 & 6

(This CTMP is a combination of Package 5 & 6 and is compiled as one document)

Package 5 – Contract No. 00013/11766

Package 6 – Contract No. 00013/11767

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Document Version History			
Version No.	**Date**	**Document Status**	**Brief Description of Change(s) from Previous Version**
Rev A	10/03/2021	Issued for Review	N/A – INITIAL PLAN
Rev B	08/04/2021	Approved	Comments from Rev 0 included
Rev 1	11/05/2021	Issued for review	Updated to close out residual comments from SM

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1 PURPOSE

The purpose of this sub-plan is to describe how impacts associated with construction traffic and access for Southwest Metro Package 5 & 6 are managed throughout the duration of the project. Works are implemented in accordance with the management measures and strategies contained in this sub-plan.

This document is intended to provide consistency in terms of structure and delivery of Traffic Management. It includes the provision for the safe, efficient and effective movement of vehicular, cyclist and pedestrian traffic to keep disruption to traffic on the road network to a minimum. It also provides for the protection of workers from passing and site traffic.

It is not intended to be a comprehensive manual of all items or methods of Traffic Management and should be treated as a guide.

2 DOCUMENT SCOPE

The scope of this sub-plan applies to Downer Infrastructure Services and Engineering, Construction and Maintenance; and New Zealand, hereafter referred to as Downer.

The Project was assessed as a Critical State Significance Infrastructure (CSSI 8256) by the Minister for Planning by virtue of clause 5 of Schedule 5 of the State Environmental Planning Policy (State and regional Development) 2011 (NSW) and section 5.13 of the Environmental Planning and Assessment Act 1979 (NSW). The Minister's Conditions of Approval (CoA) under CSSI 8256 were granted on 12 December 2018 with conditions (and further updated with MOD 1 determined 22 October 2020 with accompanying consolidated REMM's modification report).

A Construction Traffic Management Plan is required in accordance with the Conditions of Approval. Additionally, a number of Revised Environmental Mitigation Measures (REMMs) relating to traffic management are applicable to the Package 5 and 6 contracts of which Downer is the Principal Contractor and have been referenced accordingly below. In addition to the planning instruments above there are a number of requirements within the Sydney Metro Construction Environmental Management Framework (CEMF) which have been referenced in the below compliance table and throughout the main document.

As per CoA-E47 this CTMP is written in accordance with the CEMF and relevant Austroads, Australian Standards and RMS requirements. This CTMP will be submitted to the RMS, GS P&P , CJP following engagement with the Sydney Coordination Office and before Construction commences at the relevant Construction site or stage. A copy of the Construction Traffic Management Plan will be submitted to the Planning Secretary for information.

This sub-plan applies to specific aspects of traffic management for Southwest Metro Station Upgrade – Works Package 5 & 6. This plan specifically complies with:

- WHS Legislation, the Roads Act 1993 (NSW)
- SafeWork NSW, Code of Practice: Construction Work
- Package 5& 6 Schedule 4 -Project Planning approval and Conditions
- Schedule 29 – Site Access Schedule
- Exhibit A – Scope of Works and Technical Criteria (SWTC)
- Exhibit D – Initial Contract Management Plans
- Exhibit E – Construction Methodology
- Exhibit F – CEMP (and CEMF)
- Minister's Conditions of Approval (CoA) CSSI-8256

The sub-plan applies to all Downer work crews and their associated civil sub-contractors and any other relevant stakeholders.

2.1 Document Compliance

This plan has been written in reference to and in compliance with Package 5 & 6 of Scope of works Technical Criteria, The Minister's Conditions of Approval (CoA), CEMF, REMM's, Site access schedule:

Table 1 Compliance Conditions of Approval (CoA) – relevant to Construction.

CoA's	Relevant Requirement	Document Compliance
E19	Work must only be undertaken during the following Construction hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; (b) 8:00am to 6:00pm Saturdays; and (c) at no time on Sundays or public holidays	9.2 -Working hours & duration
E20	Notwithstanding Conditions E19 and E24 Work may be undertaken outside the hours specified in the following circumstances: (a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or (c) where different Construction hours are permitted or required under an EPL in force in respect of the CSSI; or (d) Work approved under an Out-of-Hours Work Protocol for Work not subject to an EPL as required by Condition E25; or (e) Construction that causes LAeq(15 minute) noise levels: (i) no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and (ii) no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and (iii) continuous or impulsive vibration values, measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC 2006), and (iv) intermittent vibration values measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or (f) where a negotiated agreement has been reached with a substantial majority of sensitive receivers who are within the vicinity of and may be potentially affected by the particular Construction, and the noise management levels and/or limit for ground-borne noise and vibration (human comfort) cannot be achieved. All agreements must be in writing and a copy forwarded to the Planning Secretary at least one (1) week before the commencement of activities. Note: Section 5.24(1)(e) of the EP&A Act requires that an EPL be substantially consistent with this approval	9.2 - Working hours

CoA's	Relevant Requirement	Document Compliance
E21	On becoming aware of the need for emergency Work in accordance with Condition E20(b), the Proponent must notify the ER and the EPA (if a EPL applies) of the need for that Work. The Proponent must use best endeavours to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of those Work.	9.2 - Working hours
E22	Out-of-Hours Work that are regulated by an EPL as per Condition E20(c) or through the Out-of-Hours Work Protocol as per Condition E25 include: (a) Work which could result in a high risk to construction personnel or public safety, based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009 "Risk Management – Principles and Guidelines"; or (b) where the relevant road authority has advised the Proponent in writing that carrying out the activities could result in a high risk to road network operational performance; or (c) where the relevant utility service operator has advised the Proponent in writing that carrying out the activities could result in a high risk to the operation and integrity of the utility network; or (d) where the Transport for NSW Transport Management Centre (or other road authority) has advised the Proponent in writing that a road occupancy licence is required and will not be issued for the activities during the hours specified in Conditions E19 and E20; or (e) where Sydney Trains (or other rail authority) has advised the Proponent in writing that a Rail Possession is required. Note: Other Out-of-Hours Work can be undertaken with the approval of an EPL, or through the project's Out-of-Hours Work Protocol for Work not subject to an EPL.	Appendix F- Schedule of Possession 9.2 – working hours
E23	In order to undertake Out-of-Hours Work, the Proponent must identify appropriate respite periods for the Out-of-Hours Work in consultation with the community at each affected location on a regular basis. This consultation must include (but not be limited to) providing the community with: (a) a schedule of likely Out-of-Hours Work for a period no less than two (2) months; (b) the potential work, location and duration; (c) the noise characteristics and likely noise levels of the Work; and (d) likely mitigation and management measures. The outcomes of the community consultation, the identified respite periods and the scheduling of the likely Out-of-Hours Work must be provided to the EPA (if an EPL applies) and the Planning Secretary (for high risk activities after 9pm) upon request.	9.2 – working hours Appendix E for Schedule of likely Out-of-Hours Work.

CoA's	Relevant Requirement	Document Compliance
E46	The Proponent must establish a Traffic and Transport Liaison Group(s) (TTLGs) to inform traffic and transport management measures during Construction and Operation of the CSSI. Management measures must be coordinated with the RMS following consultation with the Sydney Coordination Office the Relevant Roads Authority. The TTLG must comprise representatives from the Relevant Road Authority(ies), transport operators (including bus and taxi operators) and emergency services as required. The TTLG must be consulted to inform preparation of the Construction Traffic Management Plan(s).	8- Communication strategy , consultation with local stakeholders
E47	Construction Traffic Management Plans (CTMPs) must be prepared for each Construction site or stage (or Low Impact Activity where required) in accordance with the CEMF and relevant Austroads, Australian Standards and RMS requirements. The CTMPs must be submitted to the RMS following engagement with the Sydney Coordination Office and before Construction commences at the relevant Construction site or stage. A copy of the Construction Traffic Management Plans must be submitted to the Planning Secretary for information.	2- Document Scope This plan
E49	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 council(s) within four (4) weeks of completion of the survey and at least two (2) weeks before the road is used by heavy vehicles associated with the Construction of the CSSI.	11.11 - Dilapidation Report
E50	If damage to local roads occurs as a result of Construction of the CSSI, the Proponent must either: (a) compensate the relevant road authority for the damage so caused. The amount of compensation may be agreed with the relevant road authority; or (b) rectify the damage to restore the road to at least the condition it was in pre- Construction as identified in the Road Dilapidation Report(s).	11.11 - Dilapidation Report
E51	During Construction, all reasonably practicable measures must be implemented to maintain pedestrian and vehicular access to, and parking in the vicinity of, businesses and affected properties. Disruptions are to be avoided, and where avoidance is not possible, minimised. Where disruption cannot be minimised, alternative pedestrian and vehicular access must be provided, and opportunities for parking arrangements must be investigated in consultation with affected businesses/properties and implemented before the disruption. Adequate signage and directions to businesses/properties must be provided before, and for the duration of, any disruption.	11.10- Access to property & business
E52	Safe pedestrian and cyclist access must be maintained around Work sites during Construction. In circumstances where pedestrian and cyclist access is restricted or removed due to Construction activities, an alternate route which complies with the relevant standards must be provided and signposted.	11.9 Cyclist Management

Table 2 Compliance with Construction Environmental Management Framework (CEMF)

Clause	Relevant Requirement	Compliance
3.7	Condition Surveys a. Prior to the commencement of construction the Principal Contractors will offer Pre-construction Building Condition Surveys, in writing, to the owners of buildings where there is a potential for construction activities to cause cosmetic or structural damage. If accepted, the Principal Contractor will produce a comprehensive written and photographic condition report produced by an appropriate professional prior to relevant works commencing. b. Prior to the commencement of construction the Principal Contractor will prepare a Road Dilapidation Report for all local public roads proposed to be used by heavy vehicles.	11.11 - Dilapidation Report
3.8	Register of Hold Points a. Principal Contractors will identify hold points, beyond which approval is required to proceed with a certain activity. Example activities include vegetation removal and water discharge. Hold points will be documented in relevant CEMPs. b. CEMF Table 1.4 provides the structure for the register of hold points as well as a preliminary list of hold points which will be implemented: i. Hold Point: use of local roads by heavy vehicles ii. Release of hold point: Road Dilapidation Report iii. By Who: Appropriate Professional nominated by Principal Contractor	11.11 - Dilapidation Report
3.9	Training, Awareness and Competence a. Principal Contractors will be responsible for determining the training needs of their personnel. As a minimum this will include site induction, regular toolbox talks, and topic specific environmental training as follows: i. The site induction will be provided to all site personnel and will include, as a minimum: • Training purpose, objectives and key issues; • Contractor's environmental policy and key performance indicators; • Due diligence, duty of care and responsibilities; • Relevant conditions of any environmental licence and/or the relevant conditions of approval; • Site specific issues and controls including those described in the environmental procedures; • Reporting procedure for environmental hazards and incidents; and • Communication protocols. ii. Toolbox talks will be held on a regular basis in order to provide a project or site wide update, including any key or recurring environmental issues; and iii. Topic specific environmental training should be based upon, but is not limited to, Issue specific subplans required under Section 3.4 (a) (i-xi). b. Principal Contractors will conduct a Training Needs Analysis which: i. Identifies that all staff are to receive an environmental induction and undertake environmental incident management training;	Refer to section 3.5 of the Project CEMP

Clause	Relevant Requirement	Compliance
	ii. Identifies the competency requirements of staff that hold environmental roles and responsibilities documented within the Construction Environmental Management Plan and sub-plans; iii. Identifies appropriate training courses/events and the frequency of training to achieve and/or maintain these competency requirements; and iv. Implements and documents as part of the CEMP a training schedule that plans attendance at environmental training events, provides mechanisms to notify staff of their training requirements, and identifies staff who do not attend scheduled training events or who have overdue training requirements.	
5.2	Principal Contractors will consider the following in the layout of construction sites: i. The location of noise intensive works and 24-hour activities in relation to noise sensitive receivers; ii. The location of site access and egress points in relation to noise and light sensitive receivers, especially for sites proposed to be utilised 24 hours per day; iii. The use of site buildings to shield noisy activities from receivers; iv. The use of noise barriers and / or acoustic sheds where feasible and reasonable for sites proposed to be regularly used outside of daytime hours; and v. Aim to minimise the requirement for reversing, especially of heavy vehicles.	14.4 Site Access/Egress Appendix D – Site Access schedule
8.1	Construction Traffic Management Objectives Construction traffic management will be managed using the following documentation, where relevant: i. Construction Traffic Management Plan;	This document which includes Package 5 & 6
	ii. Traffic Management Plan (For each work site)	Section 6, Section 10 & 14
	iii. Traffic Staging Plan (for road works);	Section 11.5
	iv. Traffic Control Plan (for road works);	Section 11.3, Appendix B
	v. Vehicle Movement Plan (internal to construction site);	Section 11.6, Appendix B
	vi. Pedestrian Management Plan (around construction sites); and	Section 11.8
	vii. Parking Management Plan (loss of parking).	Section 6.4 Section 6.13 Section 14.3

Clause	Relevant Requirement	Compliance
8.1	Principal Contractors will develop and implement a Construction Traffic Management Plan for their scope of works. The Construction Traffic Management Plan will as a minimum:	
	i. Implement the traffic and transport mitigation measures as detailed in the environmental approval documentation;	Table 1, 2 and 3 of this document Appendix A,
	ii. Be developed in consultation with the relevant road authority, CBD Coordinator General (CCO) and / or transport operator;	Coordination and consultation with Traffic & Transport Liaison Group (TTLG) and Traffic Control Group (TCG) as part of this document – approval obtained 21/04/2021
	iii. Set out the overall traffic management resources, processes and procedures for the management of traffic and transport during construction of the Project Works and Temporary Works.	Section 6, section 8, section 11 & 16. Appendix B, C, D & F
	iv. Identify types and volumes of construction vehicles and associated route and time restrictions;	Section 6 and Section 9
	v. Identify traffic generation from other major infrastructure developments, impact from construction traffic and haulage routes; and	Section 6
	vi. Identify potential activities that could result in the disruption to traffic and transport networks, including pedestrian, cyclist and public transport networks and during special events.	Section 6.14, 11.9 ,11.10, 15.0, 16.2
	The individual construction traffic plans listed in (a) are to comply with and address the requirements of RMS Traffic Control at Worksites Manual AS 1742.3, Manual of uniform traffic control devices Part 3: Traffic control for works on roads, relevant Austroads Guides, and RMS Supplements to Austroads and Australian Standards s and during special events.	Appendix B
	The process for the development of Traffic Management Plans (TMP) including the minimum requirements as detailed in Specification G10 and as required by the relevant road authorities.	Section 10 Section 11

Clause	Relevant Requirement	Compliance
8.1	The process for the development of Traffic Staging Plans (TSP) including the minimum requirements for these TSP including road design drawings showing traffic lane configurations for traffic passing through the site during various construction stages, including details of road alignment and geometry, intersection layouts, provision for buses and cyclists, work areas and pedestrian areas, drainage, signs and pavement	Section 11.5
	The process for the development of Traffic Control Plans (TCP). The TCPs will set out the specific traffic and transport management arrangements to be implemented at specific locations during the construction of the Project Works and Temporary Works.	Section 11.4
	The process for the development of Vehicle Movement Plan (VMP). The content of a VMP will include:	
	i. A diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream. A VMP may be combined with or superimposed on a TCP; and	Section 11.6, Appendix B
	ii. The vehicle entry and exit points into the work area and indicate clearly that these are the only points where interface with through traffic is permitted.	Section 14.4, Appendix C
	The process for the development of a Pedestrian Movement Plan (PMP). The content of the PMP will include:	
	i. A diagram showing the allocated travel paths for workers or pedestrian around or through a worksite. A PMP may be combined or superimposed on a TCP; and	Section 15, Appendix B
	ii. A diagram showing all signs and devices used to guide the workers or pedestrians.	Appendix B
	The process for the development of a Parking Management Plan (PkMP). The PkMP will identify:	
	i. Parking requirements and on and offsite parking arrangements and associated impacts;	Section 6.4
	ii. Remote parking arrangements and associated access between sites and public transport nodes;	Section 14.3, 14.5
	iii. Communication and parking management measures; and iv. Proposals for relocation of impacted users for any Sydney CBD kerbside use impacts during the construction period. TfNSW and its Contractors will undertake liaison with agencies and the community regarding traffic management. This may involve:	Section 16
	i. Establishment of a Traffic and Transport Liaison Group which could consist of representatives from Sydney Metro Contractors, TfNSW, CCO, WestConnex, RMS, TMC, NSW Police, relevant councils, emergency services, and bus operators. The group would review and provide feedback on:	N/A to this Construction Plan

Clause	Relevant Requirement	Compliance
	• Road Occupancy Licence (ROL) applications to monitor potential cumulative impacts from multiple ROLs operating concurrently in one area; • Be consulted on the preparation of Construction Traffic Management Plans and supporting plans; and	
	Consultation with the CCO, RMS, TMC and others in relation to the approval of Construction Traffic Management Plans, supporting Plans, or related licences for works within and external to the CBD.	Section 6.5, 10.7, 10.8, Coordination with Traffic & Transport Liaison Group (TTLG) and TRAFFIC Control Group (TCG)
8.3	Examples of traffic mitigation measures include:	
	i. Minimising heavy vehicle movements during peak traffic times;	Section 4, one of the key aims and objectives and Section 6.6. This is also managed progressively through construction planning and staging and through the Out of Hours Works Protocol as required to minimise disruption to peak traffic flows.
	ii. Avoidance of local roads for heavy vehicle routes, where feasible;	All six stations and site accesses are via local roads avoidance is not achievable but construction planning and deliveries to maximise the use of RMS roads is built into the

Clause	Relevant Requirement	Compliance
		haulage routes as per TCP's
	iii. Providing for safe pedestrian and cyclist movements around the worksites; and	Managed via TCP's on a case by case basis
	iv. Where feasible and reasonable, contractors will provide its workforce with satellite car parking and buses to transport them to the worksites.	Section 6.4

Table 3 Revised Environmental Mitigation Measures (REMM's)

Clause	Relevant Requirement	Compliance
TC3	The impacts on the surrounding road network of lane closures resulting from bridge works across the rail corridor would be assessed in detail, to identify the suite of management measures to be implemented for each closure required. This would be undertaken in consultation with Transport for NSW, Roads and Maritime Services, the Sydney Coordination Office, the Inner West and Canterbury-Bankstown councils, emergency services, and relevant bus operators. Planning for partial bridge closures would consider bus rerouting and timetabling, with the intention of minimising impacts to bus customers and bus operators.	Section 6.5
TC4	Opportunities to reduce the loss of existing on and off streetcar parking (including the amount of spaces reduced and the time associated with this reduction) would be reviewed during detailed design and construction planning.	Section 6.5, 6.13
TC5	Where parking spaces are lost or access is impeded, particularly for extended periods, alternative parking would be provided wherever feasible and reasonable. This would include consideration of other privately owned (or vacant) land within close proximity to affected stations.	Section 6.13
TC6	Further consideration of the need for intersection modifications would be undertaken, to improve intersection performance at locations most affected by the addition of construction heavy vehicles and rail replacement buses. This would be undertaken in consultation with Transport for NSW, Roads and Maritime Services, the Sydney Coordination Office, and the relevant road authority. The improvements considered would include: · modification to the existing traffic signal phasing · lane priority changes · changing lane designations (line markings and signage) · kerbside changes (such as removing on street parking or implementing no standing zones at peak times to increase lane capacity) · physical geometric changes (such as minor kerb cut-backs to enable large vehicles to safely move through intersections) · restricting turning movements where traffic demand is low.	Intersection modification is not required for either Package 5 or Package 6. Intersections affected by construction vehicles which are limited to approximately 10 per day can be suitably managed via the Project TCP's and do not require physical intersection modifications. If during

Clause	Relevant Requirement	Compliance
		construction development the traffic flows change REMM TC6 would be followed.
TC7	Where existing cycle facilities (e.g. bike parking) would be temporarily unavailable at a station, suitable replacement facilities would be provided while the facility is unavailable.	Section 11.9-Cyclist Management
TC8	A construction traffic management plan would be prepared and implemented prior to construction. The plan would be prepared in accordance with the Construction Environmental Management Framework, and would detail, as a minimum: · how traffic would be managed when construction works are being carried out · the activities proposed and their impact on the road network and on road users · how these impacts would be addressed. The plan would be prepared in consultation with the Traffic and Transport Liaison Group and would be approved by the relevant authority before construction commences.	This CTMP
TC11	Consideration of special events would be undertaken as part of construction work programming. For special events that require specific traffic and pedestrian management, measures would be developed and implemented in consultation with Transport for NSW, Sydney Coordination Office, Roads and Maritime Services, the Inner West and Canterbury-Bankstown councils, and the organisers of the event.	16.2-Special events
TC12	Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist, and motorist safety. Depending on the location, this may require manual supervision, barrier placement, temporary traffic signals, modifications to existing traffic signals, or police assistance.	14.4- Site Access/Egress
TC13	Construction vehicles (including contractor staff vehicles) would be managed to: · minimise parking or queuing on public roads · minimise use of residential streets to gain access to work sites or compounds · minimise vehicle movements near schools, particularly during school start and finish times.	Section 6.14-Transport Impacts
TC14	Directional signage and line marking would be used to direct and guide drivers, pedestrians, and other road users past construction compounds and work sites, and on the surrounding road network. This may be supplemented by variable message signs to advise drivers of potential delays, traffic diversions, speed restrictions, or alternate routes.	Appendix B -Mitigation measures
TC15	Construction sites would be managed to minimise construction worker parking on surrounding streets. A worker car parking strategy would be developed in consultation with the relevant local council to identify measures to reduce the impact on the availability of on street and off-street parking. The strategy would identify potential mitigation measures including alternative parking locations. The strategy would	Section 4- Aims & Objectives, Section 6.4 – Parking Management, Section 6.14-Transport Impacts

Clause	Relevant Requirement	Compliance
	encourage contractor staff to: · use public transport · car share · park in a designated off-site area and access construction sites via shuttle bus.	
TC16	In the event of a traffic related incident, co-ordination would be carried out with the Sydney Coordination Office and Transport Management Centre's Operations Manager.	11.20 Incident response
TC17	The community would be notified in advance of proposed road and pedestrian network changes through appropriate forms of community notification.	8- Communication strategy, consultation and local. 16.1 -Community
TC18	A condition survey would be undertaken to confirm changes to routes proposed to be used by pedestrians and/or cyclists are suitable (e.g., suitably paved and lit), with identified modification requirements discussed with the Inner West and/or Canterbury-Bankstown councils and implemented prior to use of the routes.	Section 11.9– Cyclist Management, 11.5- Traffic Staging plan, 11.8 Pedestrian Movement Plan
TC19	Pedestrian, cyclist, and motorist safety in the vicinity of the construction sites would be addressed during construction planning and development of the construction traffic management plan. Measures that may be implemented to assist in multi modal traffic management include: · speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers · a community engagement program to provide road safety education and awareness to road users about sharing the road safely with heavy vehicles · heavy vehicle training for drivers to understand route constraints, safety issues, and limiting the use of compression braking · safety technology and equipment installed on heavy vehicles to enhance vehicle visibility, eliminate vehicles' blind spots, and monitor vehicle location, speeding compliance, and driver behaviour.	11.8-Pedestrian movement plan Appendix B- Mitigation measures 11.7-Non-motorised user plan 6.1.8- People, plant and pedestrian safety interface
TC20	Access for residents, businesses, and community infrastructure would be maintained. Where disruption to access cannot be avoided, consultation would be undertaken with the owners and occupants of affected properties, to confirm their access requirements and to discuss alternatives.	Section 11.10
TC21	Access to stations and surrounding properties for emergency vehicles would be provided at all times. Emergency service providers (i.e., police and ambulance) would be consulted throughout construction to ensure they are aware of station closures, changes to access, including bridge lane closures, and changes to station or rail corridor access.	8- Communication strategy, consultation and local 16.3-Emergency services
TC22	The potential cumulative effects of construction traffic from multiple construction sites within the project would be further considered during development of the construction traffic management plan. Where there is potential for cumulative impacts across the project, these issues	Coordination with TCG & TTLG. 10.7 – Road Occupancy Licence

Clause	Relevant Requirement	Compliance
	would be addressed with the assistance of the Traffic and Transport Liaison Group.	11.13-Traffic Modelling
SO3	Access to community facilities and infrastructure would be maintained during construction, where possible. Where alternative access arrangements need to be made, these would be developed in consultation with relevant service providers, and communicated to users.	Section 11.10
NVC5	The Construction Noise and Vibration Strategy would be implemented with the aim of achieving the noise management levels where feasible and reasonable. This may include the following example mitigation measures alone or in combination, where feasible and reasonable: • The provision of noise barriers around each construction site • The coincidence of noisy plant working simultaneously close together would be avoided • Residential grade mufflers would be fitted to all mobile plant • Non-tonal reversing alarms would be fitted to all permanent mobile plant • High noise generating activities would be scheduled for less sensitive periods considering the nearby receivers, where reasonable and feasible • The layout of construction sites would consider opportunities to shield receivers from noise • Stationary noise sources would be enclosed or shielded whilst ensuring that the occupational health and safety of workers is maintained • Loading and unloading of materials/deliveries is to occur as far as possible from noise sensitive receivers • Select site access points and roads as far as possible away from noise sensitive receivers • Dedicated loading/unloading areas to be shielded if close to noise sensitive receivers wherever feasible and reasonable • Use quieter and less vibration emitting construction methods where feasible and reasonable • The noise levels of plant and equipment must have operating Sound Power Levels compliant with the criteria in the Construction Noise and Vibration Strategy • Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site • Where feasible and reasonable, the offset distance between noisy plant items and nearby noise sensitive receivers would be as great as possible	Section 14.4

Clause	Relevant Requirement	Compliance
	• Where reasonable and feasible heavy vehicle movements would be limited to daytime and evening hours, with night-time movements avoided where possible • Active community consultation and the maintenance of positive, cooperative relationships with schools, local residents and building owners and occupiers, through: – Periodic notification or work activities and progress (e.g. regular letterbox drops, e-consult) – Specific notification (letter-box drop) prior to especially noisy activities – Comprehensive website information – Project information and construction response telephone line – E-mail distribution lists.	
NCV15	The routes for construction haulage vehicles and bus services associated with the Temporary Transport Strategy would be selected based on compliance with the relevant road traffic noise criteria, where reasonable and feasible. Where compliance with the noise criteria is not possible, reasonable and feasible noise mitigation would be implemented.	Section 6.10 – haulage routes

3 DEFINITIONS

- Management Standard – Downer specific management standard in compliance with Downer Management System
- Road Occupancy – An activity that is likely to impact on the traffic flow of the road network and may involve the closure of traffic lane(s). Road Occupancy is not a requirement, except for "Special Events" of RMS (TfNSW) delegation for a Traffic Management Plan (TMP).
- Road Occupancy Licence (ROL) – A Road Occupancy Licence allows the applicant to use or occupy a specified road space at approved times, provided that certain conditions are met.
- Road Users - anyone who uses a **road**, such as a pedestrian, cyclist or motorist.
- OPLINC – RMS on-line system for ROL applications
- Rail Safety National Law" means the Rail Safety National Law (NSW), as defined in the Rail Safety (Adoption of National Law) Act 2012 (NSW), and any associated regulations.
- Rail Transport Operator" has the meaning given to that term in the Rail Safety National Law.
- Site Access Schedule" means Schedule 29
- Sydney Metro City & Southwest" means the railway line from Chatswood to Bankstown, including: (a) the upgrade and conversion of the existing Bankstown line to metro standard, the stabling yard and maintenance depot at Marrickville, stations, tunnels, viaduct, bridges, earthworks, landscaping, equipment, systems, trackwork and support structures, rolling stock and ancillary infrastructure; and (b) the integration of Sydney Metro Northwest to form a single end to end metro system from Cudgegong Road to Bankstown.
- Traffic Control Plan (TCP/TGS) – A diagram showing signs and devices arranged to warn traffic and to guide it around, past or if necessary, through a work site or temporary hazard.
- Traffic Control Manager – Individual responsible for the overall management and delivery of traffic management procedures and processes for the project
- Vehicle Movement Plan – A diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream.
- Traffic Staging Plans – Road design drawings showing lane configurations to be provided for traffic passing through or around the work site during the various work stages.
- Non-Conformance /Corrective Action Request - An issue that is defined within the ICMS as a non-conformance, excluding that classed as a Non-Compliance.
- Non-compliance- issued by the Principal on the Contractor for failure to comply with a contractual requirement
- Peak Hours – means the hours between 0600 and 0900 and 1600 and 1800 respectively on Monday to Friday (excluding public holidays)
- Non-Motorised User - A collective term for a group of road users that include pedestrians, cyclists and equestrians
- Pedestrian Movement Plan – A plan showing the allocated travel path for workers or pedestrians around or through a work site

3.1 Abbreviations

- ICMS – Integrated Contract Management System
- ATSB - Australian Transport Safety Bureau
- ARTC - Australian Rail Track Corporation
- GS P&P – Greater Sydney Planning & Programs

- CJP -Customer Journey Planning
- MoU – Memorandum of Understanding
- MS – Management Standard (Contractor)
- NMU – Non-Motorised User
- PMP – Pedestrian Movement Plan
- RMS – Roads and Maritime Services
- ROL – Road Occupancy Licence
- ROLCOA – Road Occupancy Licence Conditions of Approval
- SZA – Speed Zone Authorisation
- SWM -Southwest Metro
- TCP – Traffic Control Plan
- TGS – Traffic Guidance Scheme (for the purpose of this plan, equivalent to TCP)
- TCM- Traffic Control Manager
- TCSM – Traffic Control Site Manager
- TCAWS – RMS Traffic Control at Work Sites Manual
- TAHE - Transport Asset Holding Entity of New South Wales
- TMC – Transport Management Centre (NSW)
- TMP – Traffic Management Plan
- VMS – Variable Message Signs
- VMP – Vehicle Movement Plan
- IWC – Inner West Council
- CBC -Canterbury Bankstown Council
- GS P&P – Greater Sydney Planning and Programs
- TCG =Traffic Control Group
- CJP -Customer Journey Planning
- TTLG – Traffic Transport & Liaison Group

3.2 Associated procedures

The following procedures must be used in conjunction with this Plan.

- DA-ZH-FM135.1Traffic Management Risk Assessment
- DG-ZH-ST107 Plant and Pedestrian Interface Standard
- RMS ROLCOA
- DA-ZH-PR006 Incident Reporting and Investigation
- DA-ZH-PR015 Emergency Preparedness and Response
- DI-PM-TP004 Safety Management Plan
- DA-ZH-PR013 Communication and Consultation
- Other relevant procedures such as emergencies and incidents management and reporting refer to Work Health and Safety Management Plan

- Urban Design and Visual Amenity, condition E57 to E67

3.3 Key reference documents

- RMS Road Design Guide – Section 6 (in relation to the use of safety barriers)
- RMS Traffic Control at Work Sites Manual
- G10 Specification
- SM PS-ST-221: Sydney Metro Principal Contractor Health and Safety Standard
- Minister's Conditions of Approval (CoA) CSSI-8256 Mod 1
- Worksite Protection Planning Diagrams (Bankstown Line -Sydenham to Birrong & Sefton Park Jct-M24.
- Construction Environmental Management Framework
- Austroads "Guide to Traffic Management" and "Guide to Road Safety"
- Australian Standards AS1742, Manual of Uniform Traffic Control Devices Parts 1-6
- AS1743 Road Sign Specifications
- AS2890 Parking Facilities Parts 1-6
- AS 4852 Variable Message Signs
- Roads Act 1993 (NSW)
- AS 1742.3-2018 Part 3 – Manual of uniform traffic control devices Traffic control for works on roads
- Refer to Construction Environment Management Plan for other reference documentation

4 AIMS AND OBJECTIVES

The aims and objectives of this Construction Traffic Management Plan are to demonstrate compliance with document requirements as per **Section 2.1**:

- Ensure the safety of the Contractor employees, contractors, the general public and Downer personnel;
- Ensure the safety of the public and maintain an accessible and efficient road network for all road users;
- Design, implement and maintain traffic control measures to enable service delivery whilst facilitating the safe and efficient movement of people and goods;
- Keep traffic delays to a minimum and maintain journey reliability;
- Minimise disruption to businesses;
- Maintain satisfactory property access;
- Meet the relevant requirements of the contract.

The Construction Traffic Management Plan will as a minimum

- Implement the traffic and transport mitigation measures as detailed in the environmental approval documentation;
- Set out the overall traffic management resources, processes and procedures for the management of traffic and transport during construction of the Project Works and Temporary Works;
- Identify types and volumes of construction vehicles and associated route and time restrictions;
- Identify traffic generation from other major infrastructure developments, impacts from construction traffic and haulage routes;
- Identify potential activities that could result in the disruption to traffic and transport networks, including pedestrian, cyclist and public transport networks and during special events;

- Minimising heavy vehicle movements during peak traffic times;
- Avoidance of local roads for heavy vehicle routes, where feasible;
- Providing for safe pedestrian and cyclist movements around the worksites; and
- Where feasible and reasonable, contractors will provide its workforce with satellite car parking and buses to transport them to the worksites.

5 TRAFFIC MANAGEMENT ORGANISATION AND GOVERNANCE

5.1 Roles and responsibilities

Covered in Section 12 of this Plan.

5.2 Emergency contact – site personnel

At least one nominated Site Contact person must always be available to receive and answer traffic/incident related inquiries. Refer to Work Health & Safety Management Plan for further information.

Table 4 Emergency Contacts

Name	Position	Phone number
Kristo Bugarija	Senior Project Manager	0428 161 912
Paul Cejka	Project Manager - Punchbowl	0407 898 215
Peter D'Costa	Project Manager -Belmore	0478 074 294
Jun Leon	Project Manager - Campsie	TBC
Minh Ngo	Project Manager – Dulwich Hill	TBC
Jesse Novley	Project Manager – Wiley Park	0436 399 670
Joel Armstrong	Project Manager -Hurlstone Park	0439 915 667
Nick De Palma	Project Superintendent	0418 555 130

6 STATIONS - PACKAGE 5& 6 (ASPECTS AND IMPACTS)

6.1 TRAFFIC MANAGEMENT

6.2 Station Access -Package 5

6.2.1.1 Dulwich Hill Station

Dulwich Hill Station is located approximately 8km south-west of the Sydney CBD is bounded by Wardell Road to the east, Ewart Lane to the south and Bedford Crescent to the north and falls within the Inner West Council area.

The existing station access is located on Wardell Road. The station shares an interface with the adjacent Dulwich Hill light rail station the entrance for which is located on Ewart Lane.

Figure 1 6.1.1.1 Dulwich Hill Station

6.2.1.2 Campsie Station

Campsie Station is located approximately 11.5km south-west of the Sydney CBD is bounded by Wilfred Avenue/North Parade to the north, Beamish Street to the east and Lilian Lane to the south and falls within the City of Canterbury Bankstown Council area.

The main station access is located on Beamish Street.

Figure 2 6.1.1.2 Campsie Station

6.2.1.3 Punchbowl Station

Punchbowl Station is located approximately 17km south-west of the Sydney CBD is bounded by The Boulevarde to the south and Punchbowl Road to the west and falls within the City of Canterbury Bankstown Council area.

The station access is available from both The Boulevarde and Railway Parade.

Figure 3 6.1.1.3 Punchbowl Station

6.3 Station Access - Package 6

6.3.1.1 Hurlstone Park Station

Hurlstone Park Station is located approximately 9km south-west of the Sydney is bounded by Floss Street to the north and Duntroon Street to the east and south and falls within the City of Canterbury Bankstown Council Area.

The station access is located on Duntroon Street.

Figure 4 6.1.2.1 Hurlstone Park Station

6.3.1.2 Belmore station

Belmore Station is located approximately 12.5km south-west of the Sydney CBD is bounded by Burwood Road to the west, Tobruk Avenue to the south and Redmond Parade to the north and falls within the City of Canterbury Bankstown Council area.

The current station access is located on Burwood Road.

Figure 5 6.1.2.2 Belmore station

6.3.1.3 Wiley Park Station

Wiley Park Station is located approximately 17km south-west of the Sydney CBD is bounded by The Boulevarde to the south, King Georges Road to the east and Stanlea Parade and falls within the City of Canterbury-Bankstown Council area. The suburb is bounded by Lakemba to the east, Punchbowl to the west, Greenacre to the north and Roselands to the south.

Station access is from King Georges Road

Figure 6 6.1.2.3 Wiley Park Station

6.3.2 Site Access

6.3.2.1 Rail access gates

Vehicle access to the rail corridor near stations is provided at existing gates as per the gates indicated in the Worksite Protection Planning Diagrams. (Bankstown Line – Sydenham to Birrong & Sefton Park Jct-M24).

Package 5

Access A – via Ewart Lane, Dulwich Hill Station

Access B – via Lilian Street, Campsie Station

Access C – via Wilfred Ave, Campsie Station

Access D – via Urunga Parade, Punchbowl Station

Package 6

Access E – via Railway Street, Hurlstone Park

Access F - via Foord Ave, Hurlstone Park

Access G – via Tobruk Ave Parking, Belmore station

Access H – via Redman Parade, Belmore Station

Access I – via Stanlea Parade, Wiley Park Station

Access J – via Shadforth Street, Wiley Park Station

Access K – via The Boulevarde, Wiley Park Station

Refer below and to Appendix E – Heavy Vehicle Access Route Details for further details of access routes

The following work sites listed will be used throughout the project

Table 5 Work sites

No.	Work Area	Access Gate	Proposed Use	Works Start	Works End
1	Area-1 A	A	Construction works in rail corridor	March 2021	January 2022
2	Area - 1B	B	Construction works in rail corridor. Primary high-rail access point for possession works.	March 2021	October 2022
3	Area - 1C	C	Construction works in rail corridor	March 2021	December 2022
4	Area-1D	D	Construction works in rail corridor. Primary high-rail access point for possession works.	March 2021	March 2022
5	Area-1E	E	Construction works in rail corridor. Primary high-rail access point for possession works	March 2021	September 2021
6	Area-1F	F	Construction works in rail corridor	March 2021	January 2022
7	Area-1G	G	Construction works in rail corridor	March 2021	January 2022
8	Area-1H	H	Construction works in rail corridor. Primary high-rail access point for possession works.	March 2021	November 2022
9	Area-1I	I	Construction works in rail corridor. Primary high-rail access point for possession works	March 2021	March 2022
10	Area-1J	J	Construction works in rail corridor	March 2021	March 2022
11	Area-1K	K	Construction works in rail corridor. Primary high-rail access point for possession works	March 2021	March 2022

6.3.2.2 Rail access gate requirement

To provide a safe entry and exit to the work site from safe access points or gates Downer will:

- Monitor the number of access points in use (from the rail corridor access points listed above)
- Ensure the access points nominated can accommodate the turning movement of the largest vehicles that will be accessing the site as required.
- Ensure all access points are clearly visible to approaching traffic and signposted accordingly
- Ensure heavy vehicles do not queue on residential streets but enter through the access gates as soon as possible after arriving.
- Vehicle arrivals will be managed to avoid any waiting outside the worksite.
- Ensure that vehicles will enter the access sites in a forward in, forward out movement.
- Ensure Traffic control will be utilised to manage interface, where required.

- Ensure Pedestrians and cyclists will be managed and will be held briefly to allow safe vehicle movements as per the where required.
- Ensure the access points used are existing railway access gates via existing driveways and easements.

6.3.2.3 Hoarding and Site Boundaries

Project boundaries and hoardings will be developed on a per-access basis as the project progresses and in accordance with the Project Visual Amenity Management Plan. Details are available below - Site Boundaries and Hoardings/Fencing. The use of hoardings/fencing for project areas on Council land/roads will require approval from council. Consultation through TCG/TTLG Hoarding and fencing would be required in and around construction areas of high pedestrian usage as well as to manage pedestrians around work sites and past work site access points. Primary locations where temporary fencing/hoarding will be used to segregate work areas from the public are as follows:

- Area 1B, Access gate B at Campsie station– Construction area to be established alongside access footpath to construct new security fence and driveway. Pedestrian access to be maintained for pubic at all times.
- Temporary fencing on Floss street at Hurlstone Park station, to be established within the carpark. No pedestrian access in this area. Adequate signs will be placed to divert the pedestrian from this area.

Council is to be approached by the construction team to arrange all necessary approvals.

Figure 7 Proposed site compound (TBC)

Figure 8

6.4 Parking Management

The upgrade work involves working within a live rail environment. This limits the type of work activities which can be carried out during standard construction hours. The project will work during available Sydney Trains (ST) rail track possession weekends. The successful delivery of the project is reliant on working with and maximising scope of work during track possessions to deliver critical activities that are constrained by working within a live rail environment. This will involve a number of plants, machinery and workforce arriving and departing site during numerous shifts.

In accordance with REMM TC15, the project is committed to reducing project vehicles travelling along local roads and causing disruption to localised parking availability and will encourage the workforce to:

- use public transport
- carpool/share
- park in a designated off-site area and access construction sites via shuttle bus.

During possession weekends, a larger number of workers than usual would travel to the work sites using personal vehicles due to reduction in available public transport due to trains not running, less frequent bus services on weekends and some bus services not operating.

There should not be more than 10 parking spaces per compound or work site for construction worker parking. For each site, additional parking options are to be investigated.

Parking may have to be removed on some streets to allow heavy vehicles to manoeuvre into sites. If required, further consultation will be undertaken with residents/businesses, and Council's approval will be obtained.

Where parking is removed, alternative parking arrangements are to be provided where practical. Ideally there is as close to zero loss in parking due to project works.

There are dedicated commuter car parks facilities at the following location

Package 5:

Dulwich Hill Station

- Commuter car Park on Ewart Lane

- Car park at Bedford Crescent

Campsie Station

- Commuter car park on Lilian Street
- Public car park on Wilfred Avenue
- Public car park on South & North Parade

Punchbowl Station

- Public car park at 206 The Boulevarde Parking

Package 6:

Hurlstone Park Station

- No Commuter car Park will be available, except for few off street parking on Floss Street. The existing car park on Floss street will be utilised as site compound for the duration of the project.

Belmore Station

- Public car park on Tobruk Avenue
- Public car park on Redman Parade
- Public car park on Bridge Road

Wiley Park Station

- Commuter car park on, The Boulevarde

6.5 Road diversions, closures and traffic control

In accordance with CoA E51, REMM TC4 and REMM TC5 Downer will engage with key stakeholders regarding road traffic management requirements and approvals, including Inner West City Council, Canterbury and Bankstown Council, TfNSW and Sydney Trains, to ensure public transport, vehicle access, taxi, drop-off points and parking are maintained throughout construction and the works are delivered safely and with minimal disruption to road users and community. Downer to ensure that property and business access are maintained wherever possible.

To mitigate traffic disruption during the works below, TCP's will be developed as the scope and timing is finalised. It is expected that road closures will be needed at the following locations:

Package 5

(A) Dulwich Hill Station

- Installation of RMS hand railing, anti-throw screen, concourse and kerb works on Wardell Road;
- Service relocation for NBN/Telstra works on Wardell road;
- Installation of walkway bridge over Sydney Train and ARTC line from Bedford Crescent;
- Metro Service building, landscaping and carpark upgrade works on Ewart Lane

(B) Campsie Station

- Demolish of existing station structure on Beamish Street & Lilian Lane;
- Installation of RMS hand railing, concourse structural element, Concourse and kerb works on Beamish Street;
- Installation of anti-throw screen and kiss & ride works on South Parade;
- Metro Service building works and service connection on Lilian Lane.

(C) Punchbowl station

- Installation of anti-throw screen and concourse works on Punchbowl Road;

- Installation of lift shaft form The Boulevarde parking area;
- Metro Service building works and service connection on Urunga Parade.

Package 6

(D) Hurlstone Park Station

- Installation of RMS hand railing, anti-throw screen, concourse and kerb works on Duntroon Street;
- Service relocation for Jemena & Sydney Water works on Duntroon Street;
- Metro Service building and service connection on Railway street.

(E) Belmore Station

- Installation of anti-throw screen, landscape, concourse and kerb works on Burwood Road;
- Metro Service building, landscaping works and service connection on Ewart Lane.

(F) Wiley Park Station

- Installation of RMS railing, anti-throw screen, concourse and kerb works on King George Road;
- Kiss and ride work on The Boulevarde;
- Metro Service building, landscaping and service connection on Urunga Parade/Cornelia Street.

Road Closure Application Process

All road closure applications will be first assessed based on whether if any traffic is impacted by work on site or if there are alternative methods that can be used such as lane closure and stop/slow. TCP's will be drawn followed by an ROL application to TMC if on a State road or within 100 metres of traffic signals. A road closure application will then be required to be submitted to council for approval, depending on council requirements. An VMS strategy may need to be installed as prior notification of the works requiring a road closure as well as a letterbox drop if required as part of the permit approval set out by council.

The council traffic committee may take 10 business days to have the approval for the work and the ROL application will also require 10 business days by TMC to assess, approve and issue an ROL.

In addition, and in accordance with REMM TC3 the impacts on the surrounding road network of lane closures resulting from bridge works across the rail corridor would be assessed in detail, to identify the suite of management measures to be implemented for each closure required. This would be undertaken in consultation with Transport for NSW, Roads and Maritime Services, the Sydney Coordination Office, the Inner West and Canterbury-Bankstown councils, emergency services, and relevant bus operators. Planning for partial bridge closures would consider bus rerouting and timetabling, with the intention of minimising impacts to bus customers and bus operators. Whilst this requirement is considered a very low risk based on likely hood the Project shall implement the above control and management measures to comply with TC3.

6.6 Main Works Guidelines

- Due to nature of the scope, most of project's works are scheduled to occur during Weekend Track Possessions where the worksite is isolated from public. Scopes such as Metro Service buildings construction have to progress during Weekdays. All the works are contained within rail corridor. As such the exposure in terms of usage of residential streets during week is general minimised. Downer will advise the Contractors and supply chain to follow this guideline to achieve:
- "minimise parking or queuing on public roads · minimise use of residential streets to gain access to work sites or compounds · minimise vehicle movements near schools, particularly during school start and finish times."
- The selected Traffic Control subcontractor will be responsible for the management of all traffic throughout the construction phase; any issues raised are to be issued to Downer, who will resolve these with the assistance of the specialist Traffic Control subcontractor.

- Due to the residential nature of some of the surrounding streets, queuing and idling of heavy vehicles will not be permitted. This shall be managed by engaging trusted suppliers and scheduling heavy vehicle movements. Vehicles may only wait inside the worksite.
- It is likely that there will be multiple work sites operating simultaneously during the project's lifespan. Where there is potential for cumulative impacts across the project, these issues would be addressed with the assistance of the Traffic and Transport Liaison Group.
- Heavy vehicle movements are to be minimised during peak times.
- Residential and local road movements by heavy vehicles are to be minimised where feasible.
- Heavy and construction vehicles are to follow the approved haulage routes.
- Workers are to avoid using private vehicles to travel to the site and are to utilise public transport where possible.
- All access gates to the site must be always either manned or locked to prevent public access into the site / Rail Corridor.

6.7 Work around Construction Traffic /Mobile Plant

Downer must have a procedure for managing the risks associated with working in and around construction traffic/mobile plant on its worksites, including laydown areas, marshalling yards and transfer sites. The procedure ensures:

- Every effort is made to eliminate SFAIRP the need for persons to work in and around mobile plant and construction traffic (including refuelling operations).
- Mobile plant/vehicle movements are documented in a Vehicle Movement Plan(s) (VMP), which are to be communicated to workers and maintained.
- Physical (solid) barriers are utilized to separate persons (workers or public) from mobile plant and construction traffic at all times, including refuelling and servicing.

Where there is no practicable alternative, one or more of the following controls are to be considered and implemented:

- Exclusion zones and delineation must be established and maintained to prevent persons from entering exclusion zone/operating zone of mobile plant.
- Engineering detection systems are to be considered and implemented where practicable.
- Where there is a need for workers to access the exclusion zone/operating zone of mobile plant, safe systems of work are established to control (i.e., halt/cease) the operation of mobile plant and ensure personnel are kept safe.
- Light and heavy vehicles to be physically separated where practicable/possible.
- Reliable communication measures are in place to manage and control mobile plant and construction traffic movements.
- All mobile plant operators have been appropriately trained and assessed as competent.

6.8 People, plant and pedestrian safety /interface

For detail of the specific measures and mitigation to be implemented in the interest of the segregation and protection of people, plant and public as well as onsite vehicle speed limits, loading bays and laydown areas as well as vehicle lines of sight please refer to the site and project specific Work Health and Safety plans and Construction and Site Management Plan.

The construction phase management of on-site traffic and public traffic will be covered under separate and task specific Traffic Control Plans. These plans are produced and managed by a separate Traffic Control company and will be provided as required after contract award.

6.9 Potential impacts

6.10 Haulage routes

In accordance with REMM NVC15 *the routes for construction haulage vehicles associated with the Temporary Transport Strategy would be selected based on compliance with the relevant road traffic noise criteria, where reasonable and feasible. Where compliance with the noise criteria is not possible, reasonable and feasible noise mitigation would be implemented.*

The routes for construction haulage vehicles (bus services managed by others) has been based on the identified routes from the SPIR Appendix B and translated into the Projects TCP's. Based on the predicted traffic volumes for the Project (an average of 10 vehicles per day) this is consistent with the EIS and Project CNVMP. In accordance with Section 6.3 of the Projects CNVMP the impacts from the Projects construction haulage vehicles is highly unlikely to exceed the road traffic levels by more than 2dB or exceed the following noise criteria:

1) 60 dB LAeq(15hour) day and 55 dB LAeq(9hour) night for existing sub-arterial roads.

2) 55 dB LAeq(1hour) day and 50 dB LAeq(1hour) night for existing local roads

However, Downer shall still implement best practise measures to minimise impact such as staggering deliveries and minimising haulage to and from site in evening and night time periods where feasible.

Refer to Appendix D for haulage routes.

6.11 Traffic

The construction traffic generated by the Project would be up to three heavy vehicles and 15 light vehicles per day during standard construction hours. During rail possessions, construction vehicle movements would increase to about 25 light vehicles and 25 heavy vehicles per day. Most construction traffic would be due to construction workers travelling to and from the Project site. These vehicles would use the local road network to access the Project site. The heavy vehicles would be required for the delivery and removal of materials, plant and equipment.

During some rail possessions, one large crane and/or up to three small cranes would be required to load and unload materials, plant and equipment and transfer them between the station platforms or underpass and delivery vehicles as applicable. A 500T of crane will be required during the installation of footbridge at Dulwich Hill and 300T crane during the installation of structural element of the concourse at Campsie station.

Most of the construction work would occur within the rail corridor. However, the works required for installation of

Dulwich Hill station - anti-throw screen, service relocation (Telstra), concourse glass façade, anti-throw screen

Campsie station – anti throw screen, kiss & ride, concourse building demolition works, concourse glass façade works

Punchbowl station– Kiss and ride, anti-throw screen, kerb works.

Hurlstone Park station – anti throw screen, service relocation works (Jemena & Sydney water), RMS railing works, Kiss & Ride.

Belmore – Anti throw screen, RMS railing, concourse glass façade works

Wiley Park – anti throw screen, kerb works, kiss and ride, lift installation works, concourse glass façade works. However, Downer will make all efforts for the work would be relatively fast and any delays on the surrounding road network would be temporary and minor.

6.12 Cyclist Management

Temporary restrictions and disruptions to bicycle access would occur. These impacts to cyclist access would mostly occur during rail possessions, when train services would be replaced by a bus service.

When there is a temporary reduction in the bicycle facilities (such as parking), replacement facilities must be provided.

Where existing bicycle routes used by cyclists are affected by construction, a condition survey would be carried out to confirm they are suitable for use (e.g., suitably paved and lit), with any necessary modifications to be carried out in consultation with Inner West Council and Canterbury-Bankstown Council.

Safe pedestrian and cyclist access must be maintained around Work sites during Construction. In circumstances where pedestrian and cyclist access are restricted or removed due to Construction activities, an alternate route which complies with the relevant standards must be provided and signposted.

6.13 Temporary removal of car Parking Spaces

In accordance with REMM TC4 and TC5 where parking spaces are lost or access is impeded, particularly for extended periods, alternative parking would be provided wherever feasible and reasonable. This would include consideration of other privately owned (or vacant) land within close proximity to affected stations.

The routes to some access gates are along residential streets with on-street parking, which restricts the road width available for heavy vehicles to manoeuvre. Overall, there will be a low quantity of parking to be removed. Parking may have to be removed on one side of the road and this may affect the parking options for residents and visitors of the street. Council's approval will be obtained and if required, further consultation will be undertaken with residents/businesses. Removal of parking spaces will be minimised as practicable for specific deliveries and work activities (generally 1 day prior to specific combined deliveries). The following parking may be affected:

- Ewart Lane Car park – It is expected that the car park will be impacted during the resurfacing works of the car park. Work will be staged in order to minimise the impact of the car park.
- On Wardell Road. It is expected that 1 kerbside parking space will be required to provide access for heavy vehicles into prescient area.
- On Bedford Crescent. It is expected that 6 car park space will be required during the construction phase of the pedestrian walkway.
- Floss Street -It is expected that the entire car park will be required during the construction phase to setup the site compound.
- On Lilian Street. It is expected that 4 Nos parking space will be required to provide access for heavy vehicles into Metro Service Building area - Area 1B, Access gate B.

Figure 9 Dulwich Hill Station -Car Park Upgrade works – Part A Staging

Figure 10 Dulwich Hill Station -Car Park Upgrade works – Part B Staging

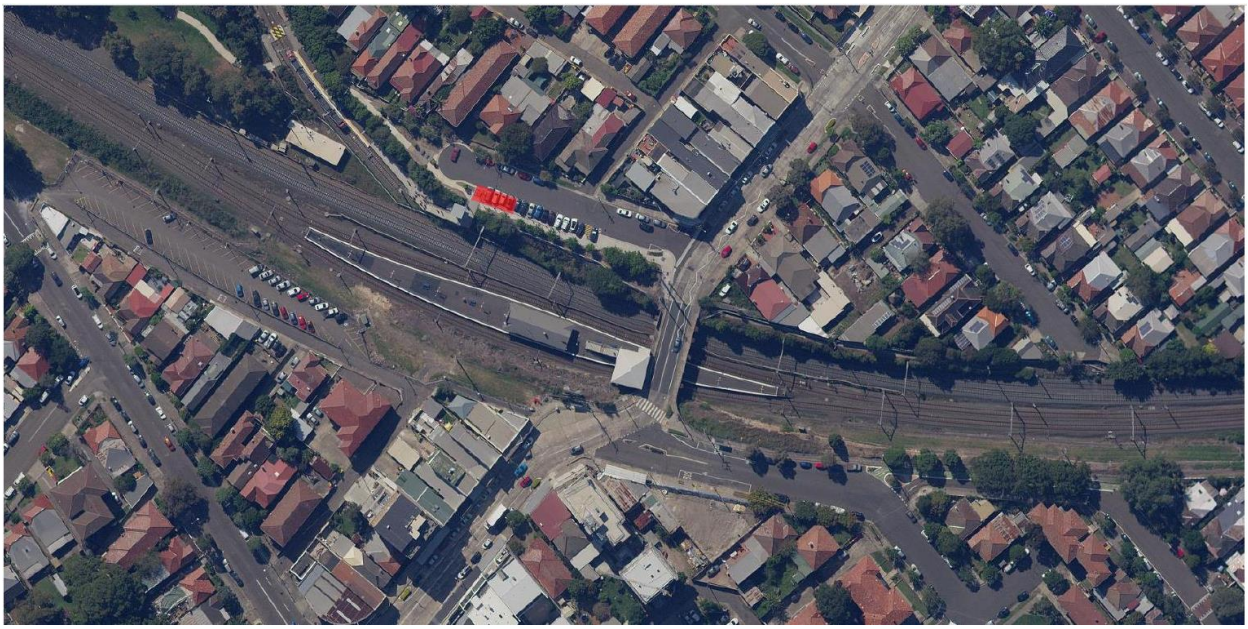


Figure 11 Dulwich Hill Station – Wardell Bedford Crescent, car park spaces (6 Nos)

Figure 12 Dulwich Hill Station- Wardell Road, car park space (1 No), No interfance to bus stop

Figure 13 Hurlstone Park Station - Floss street, car park spaces

Figure 14 Campsie Station – Lilian Street, car park spaces (4 Nos)

6.14 Transport impacts

All the Stations and the nearby bus stop would remain operational during the typical day to day construction periods to ensure no impact on these services occurs.

During possession periods, it is expected that bus replacement services would be provided to service rail customers. Public bus operation would not be affected by the proposed station upgrade works and would continue to run. No impacts are anticipated to existing bus or rail services operation during construction.

During the standard construction period, station side parking lane and bus stops may have minimal Impacts. As with general pedestrians, passengers alighting the bus may need redirection around the worksite to access the train station.

During the standard construction period, construction vehicles (including contractor staff vehicles) would be managed in order to:

Minimise parking or queuing on public roads.

Minimise use of residential streets to gain access to work sites or compound.

Minimise vehicle movements near schools and school zones particularly during school zone operation times (8:00am -9:30am & 2:30pm -4:00pm)

In order to comply with TC2, the project will assess any requirement for movement of any bus stop based on the extend of conflict:

- Clash of Bus stop location with permanent works and the type of permanent works
- The type of works (i.e. noisy, dusty, occur day and night, etc)
- How long will it take to complete the work- one weekend possession or multiple weekends?
- What are the dates and times at which the Contractor would start and finish the works?

In case a determination is made by the Principal to move a Bus Stop based on the Contractor's request, sufficient time frame will be allowed to obtain authorities approval (TCG, councils, etc.) as well as community consultation, depending on type of impact.

The pedestrian paths will be reinstated at the end of each Possession so that people can use the footpath outside of the weekend possessions.

Furthermore, the requirement is minimal as the project so far has identified one potential bus stop movement, Hurlstone Park Duntroon Bride, is identified.

6.15 Emergency Services

Access for emergency vehicles would be maintained at the Project site at all times. Emergency services would be advised of all planned changes to traffic arrangements prior to applying the changes. Advice would include information about upcoming traffic disruptions, anticipated delays to traffic, extended working hours and locations of any road shutdown periods.

6.16 Construction area and vehicle types

Pending relevant approvals (e.g., ROL's, stakeholder specific requirements) road closures will be established when strictly necessary to accommodate the use of heavy vehicles and will be specified on in the Traffic Control Plans. These are designed to minimalize the frequency of road or lane closures for commuters.

The following list of plant and equipment are expected to be required for completion of works. Note that this list is subject to availability of plant and equipment at the time of works and any changes to scope of works and/or methodology

Construction plant includes:

- Piling rig
- Generators

- Road saw
- Bogies
- Truck & Dog
- Franna/mobile cranes
- Coring machine
- Water cart
- Road Sweeper
- Vacuum trucks
- Hi-rail plant including flatbed trucks, Hiab trucks, and dump trucks
- Rail mounted elevated work platforms
- Vibrating roller/compaction plate
- Excavators of various sizes
- Cranes of various sizes
- Bobcat /Posi track
- Hi Rail Excavator/ Excavator
- Demolition saw
- Elevated work platform (EWP)
- Concrete pump, Vibrator and trucks
- Lighting towers
- Skip trucks

6.17 Heritage and Aboriginal Significance

Based on EIS, SPIR and Project Heritage Management Plan (HMP), any identified heritage and aboriginal / archaeological sites will not be impacted by Traffic Management based on proximity and the lack of any ground-breaking from any traffic related matters. Any impacts shall be managed through internal site vehicle management and exposed areas of know significance such as the Belmore PAD01 and Punchbowl PAD02 shall be physically excluded in accordance with the HMP and Project ECM's.

For more details, refer to the Construction Environmental Management Plan (CEMP) 150118-XXX-EN-PLN-00011 and Heritage Management Plan 150118-XXX-EN-PLN-00014.

7 HAZARDS, RISKS AND CONTROLS

Construction Risk Assessment: **NOTE: THIS IS A HIGH-LEVEL GENERALISED RISK ASSESSMENT; SITE SPECIFIC DETAILS ARE IDENTIFIED ON A MONTH BY MONTH BASIS AS PERT OF THE PROJECTS CONSTRUCTION RIAK ASSESSMENT WORKSHOPS IN CONSULTATION WITH SYDNEY METRO.**

Table 6 Construction Risk Assessment

Stage	Project Phase/ Primary Activity/ Aspect	Hazard	Risks /Unplanned/ Unwanted Event Potential Impact	Initial or Inherent Risk			Current Controls/ Considerations	Hierarchy of Controls						Residual Risk		
				Consequence	Likelihood	Ranking		Eliminate	Substitute	Isolate	Engineer	Administrate	PPE	Consequence	Likelihood	Ranking
1	Construction works	High volume of traffic	Vehicle collisions due to change in traffic conditions	Catastrophic	Possible	A	Post signs indicating lower speed limit through work area during construction work				I			Catastrophic	Rare	B
2	Construction works	Congested intersections	Vehicle collisions due to direct or indirect interaction between drivers, passengers or commuters with construction workers or activities	Catastrophic	Possible	A	Inform public of construction works by public notification, early warning sign and variable message signs					I		Catastrophic	Unlikely	B
3	Construction works	Long vehicles B Doubles	Delays to traffic due to traffic incidents or construction works	Medium	Possible	C	Use only single vehicular trucks	I						Low	Rare	D

Stage	Project Phase/ Primary Activity/ Aspect	Hazard	Risks /Unplanned/ Unwanted Event Potential Impact	Initial or Inherent Risk			Current Controls/ Considerations	Hierarchy of Controls						Residual Risk		
				Consequence	Likelihood	Ranking		Eliminate	Substitute	Isolate	Engineer	Administrate	PPE	Consequence	Likelihood	Ranking
4	Construction works	High Speeds (including surrounding vehicles)	Collision accessing construction site	Extreme	Possible	B	Barricades to be installed separating pedestrians and road traffic			I				Extreme	Rare	C
5	Construction works	Queuing	Property owners struck accessing through the site	Medium	Likely	C	Well established traffic control measures and plans directing vehicle and foot traffic to avoid confusion			I				Medium	Rare	D
6	Construction works	Poor visibility	Pedestrians struck by errant vehicles	Extreme	Unlikely	B	All traffic controls in place to be highly visible				I			Extreme	Rare	C
7	Construction works	Worker clearance to traffic	Pedestrian being struck by construction plants	Catastrophic	Unlikely	B	Traffic controllers to manage pedestrian during construction			I				Catastrophic	Rare	B
8	Construction works	Working from heights during bridge construction	Items falling from height, onto roadway	Extreme	Rare	C	All road works to be managed in accordance with plans and specifications, ‘clear / exclusion zones. All relevant segregation as per TCP		I					Extreme	Rare	C

Stage	Project Phase/ Primary Activity/ Aspect	Hazard	Risks /Unplanned/ Unwanted Event Potential Impact	Initial or Inherent Risk			Current Controls/ Considerations	Hierarchy of Controls						Residual Risk		
				Consequence	Likelihood	Ranking		Eliminate	Substitute	Isolate	Engineer	Administrate	PPE	Consequence	Likelihood	Ranking
9	Construction works	Foggy conditions	Low visibility of concrete barriers or other temporary traffic controls	Catastrophic	Unlikely	B	Re-assess lane closure in case of poor weather or inclement weather				I			Catastrophic	Rare	B
10	Construction works	Working in proximity of pedestrian paths at bus shelters, carparks and community centres	Driver confusion, either construction driver or pedestrian driver	Catastrophic	Unlikely	B	Turning radius to be check with qualify road designer to ensure sufficient for B-double			I				Medium	Rare	D
11	Construction works	Traffic incidents involving hazardous goods	Environmental damage outside construction boundary	Severe	Possible	B	Post signs indicating lower speed limit through work area during construction work				I			Severe	Rare	C
12	Construction works	Shoulder closures, restriction of road width	Vehicle collisions	Extreme	Unlikely	B	Post signs indicating changing road conditions during construction work				I			Extreme	Rare	C

Stage	Project Phase/ Primary Activity/ Aspect	Hazard	Risks /Unplanned/ Unwanted Event Potential Impact	Initial or Inherent Risk			Current Controls/ Considerations	Hierarchy of Controls						Residual Risk		
				Consequence	Likelihood	Ranking		Eliminate	Substitute	Isolate	Engineer	Administrate	PPE	Consequence	Likelihood	Ranking
13	Construction works	Reducing clear zones	Collision with the public due to lack of facilities	Catastrophic	Possible	A	Well established traffic control measures and plans directing vehicle and foot traffic to avoid confusion			I				Catastrophic	Rare	B
14	Construction works	Working in close proximity of Traffic Control Signals	Errant vehicle due to pavement failure	Severe	Unlikely	C	Post signs indicating lower speed limit through work area during construction work				I			Medium	Rare	D
15	Construction works	Inclement weather during the shift	ROL overrun, impacting on peak hour traffic	High	Possible	C	Plan work and pack up early to reduce risk of ROL overrun. Have backup plan to ensure road is open back on time.	I						Low	Rare	D
16	Construction works	Pedestrian congestion, access / access denial to both work zones	Overcrowding slips trips and falls, confrontation.	Medium	Possible	C	Traffic controllers to manage pedestrian during construction				I			Medium	Rare	D

Stage	Project Phase/ Primary Activity/ Aspect	Hazard	Risks /Unplanned/ Unwanted Event Potential Impact	Initial or Inherent Risk			Current Controls/ Considerations	Hierarchy of Controls						Residual Risk		
				Consequence	Likelihood	Ranking		Eliminate	Substitute	Isolate	Engineer	Administrate	PPE	Consequence	Likelihood	Ranking
17	Construction works	Reduced lane widths for vehicle & plant movements adjacent to both work zones	Limited mobility and increased congestion	Medium	Possible	C	Traffic controllers and effective planning during construction				I			Medium	Rare	D
18	Construction Works	Reduced access to neighbouring properties	Slips, trips and falls, confusion, frustration from property owners	Medium	Possible	C	Traffic controllers and effective planning during construction, community notifications				I			Medium	Rare	D

8 COMMUNICATION STRATEGY, CONSULTATION WITH LOCAL STAKEHOLDERS

Traffic specific conditions will be managed through notifications to provide early and upfront information on current and upcoming activities for stakeholders and the community.

Community Strategy Notifications

Under CoA E46, the Proponent must establish a Traffic and Transport Liaison Group(s) (TTLGs) to inform traffic and transport management measures during Construction and Operation of the CSSI. Management measures must be coordinated with the RMS following consultation with the Sydney Coordination Office the Relevant Roads Authority.

The TTLG must comprise representatives from the Relevant Road Authority(ies), transport operators (including bus and taxi operators) and emergency services as required.

The TTLG must be consulted to inform preparation of the Construction Traffic Management Plan(s). Project monthly and activity specific notifications will include details of the type and extent of work being undertaken as well as the expected impact to traffic and transport.

Any changes to conditions will be notified via notification and email at least seven days before changes to traffic and access arrangements are made.

Significant traffic management changes, detours and traffic disruptions will be advertised in local newspapers at least seven days before any change occurs.

Copies of project notifications will also be sent to Inner West Council via (council@innerwest.nsw.gov.au), and Canterbury-Bankstown (council@cbcity.nsw.gov.au). Any changes made to the public domain must be submitted to the Inner West Council, which will be referred to the Local Traffic Committee.

Table 7 Community Strategy Notifications

Notifications	Details	Timeframe
Specific notifications and/or flyers	Targeted notifications for stakeholders directly impacted by the works due to night works, noise, vibration, dust, access, traffic and visual impacts. This will include specific details including timing, dates, noticeable impacts and mitigation.	At least seven days prior to activities with the potential to cause impact.
Community signage	Advise of changes to traffic and access arrangements before making changes to pedestrian routes, changing traffic conditions and disrupting access to public transport.	Minimum of five business days prior to changes to traffic, parking and access arrangements.

Notifications	Details	Timeframe
Monthly construction update	Inform the community of project progress, key milestones and future activities with the use of photos, maps, graphics and illustrations. Advise stakeholders and the community of construction activities and include: • Scope of work; • Location of work; • Hours of work; • Duration of activity • Type of equipment used • Likely impacts including noise, vibration, traffic, access and dust • The project's 24-hour construction response line, website, postal and email address	At least seven days before the start of the month, or seven days prior to new activities or activities with the potential to cause impact.
Variable message signs (VMS)	Electronic variable message sign during major construction activities including traffic impacts to provide advanced notice to road users of traffic changes	At least seven days prior to major changes to traffic and access arrangements
Emergency works	Written notification and individual briefings to immediately adjacent or impacted properties at least two hours before commencing emergency works.	At least two hours prior to commencement of works.
Station announcements	Advise of changes to traffic and access arrangements before making changes to pedestrian routes, changing traffic conditions and disrupting access to public transport.	
Advertisements	Consider the use of newspaper or radio advertisements.	As required.
Social Media	Distributing the latest information about construction activities, generating project awareness, and providing key project updates.	Provide SWM with regular messaging for inclusion on social media, as requested.
Website	The SWM website will be the place to find information on the Project and upcoming activities.	Upload notifications following approval and additional information as required.

For complex or potentially contentious issues or works (for example major changes to access, road closures or disruption major events), Downer will develop an issue-specific communications strategy. The strategy will include the issue and objective, detailed scope, impacted stakeholders, tailored mitigation strategies and communication tools. This strategy will be submitted to SM for review and approval at least five business days prior to the implementation of the strategy, allowing time for the development of all required communications material.

Refer to Community Liaison Management Plan for further information.

9 WORKS DESCRIPTION

9.1 Scope of Works

Construction will occur in stages at different times depending on the activity.

WORKS ARE PROPOSED TO COMMENCE IN MARCH 2021 AND CONTINUE FOR APPROXIMATLY 12 MONTHS.

Refer to Table 8 for specified scope of works.

Table 8 Construction Scenarios indicative for all stations

Stage	Activities	Timing	Duration (total)
Site establishment, enabling works	○ establish site compounds and laydown areas (i.e., fencing, tree protection zones, site offices, amenities and plant/material storage areas) ○ establish temporary facilities as required (e.g., temporary access stairs, temporary toilets, temporary construction lights etc.) ○ erect temporary fencing and site hoarding as required ○ Survey set outs ○ services location and relocation ○ establish crane pads and piling rig platforms.	Standard hours	2 months
Lift works	○ excavation of lift pit (including temporary shoring if required) ○ piling works for lift ○ waterproof (as required), install reinforcement, formwork and concrete to form the lift pit ○ erect glass and steel shaft structure ○ install and commission lift, including fit-out.	Standard hours, OOHW and Rail Possessions	4 Months
Concourse & staircase work	○ Refurbish to ticket room ○ Installation of new staircase ○ erect steel framework and roof for concourse ○ Install glass at concourse ○ Public art ○ Tiling work ○ Glass installation at platform entrance	Standard hours, OOHW and Rail Possessions	Up to 12 months (intermittent)
Station building works	○ Refurbish to inside/outside of station buildings ○ Interior fit out for station buildings ○ External station building remedial works ○ reconfigure existing male and female toilets	Standard Hours, OOHW, and Rail Possessions	12 months

Stage	Activities	Timing	Duration (total)
Platform modification work	○ Demolish of existing platform as required ○ regrade platform surface and finishes ○ install CSR in platforms ○ install new platform canopy ○ install security fence as required	Standard Hours, OOHW, and Rail Possessions	Up to 12 months (intermittent)
Installation of services and infrastructure	○ install station services (SPI, CCTV, Emergency Help Points, PA system, lighting and ticketing machines) ○ Install GST, ULX ○ relocate existing platform infrastructure (e.g., seating and bins) ○ install new seating. ○ Install station lighting poles ○ Install road signs and wayfinding's	Standard Hours, OOHW, and Rail Possessions	Up to 12 months (intermittent)
Metro Service Buildings	○ Earthworks and piling work for new MSB ○ Construct new Metro Service Building ○ Install drainage for MSB ○ Install security fencing around MSB ○ Install driveways and kerb works around MSB	Standard hours, OOHW and Rail Possessions	7 -12 months
Works outside corridor	○ RMS railing works ○ Landscape works ○ Kiss and Ride area ○ Service relocation works ○ Anti-throw screen works ○ Urban design external works	Standard hours, OOHW and Rail Possessions	6 months
Demobilisation	○ remove temporary construction hoardings and reinstate platform bitumen where required ○ site clean-up.	Standard hours	2 months

9.2 Working Hours and Duration

In accordance with CSSI 8256 CoA E19 the majority of construction activities are proposed to be completed within Standard Hours (SH). In reference to CoA E20 Out of hours works (OOHW) are proposed during most construction scenarios, including during rail possessions.

Approved standard working hours as per CoA 19 are as follows:

- 7:00am to 6:00pm Mondays to Fridays, inclusive;
- 8:00am to 6:00pm Saturdays; and
- at no time on Sundays or public holidays.

It is noted that works within the rail corridor are not governed by, yet Downer has the opportunity to be undertake them in accordance with Condition O5.1 of Sydney Trains EPL 12208 and or the Sydney Metro Out of Hours Works Protocol. If works are to be undertaken in accordance with the EPL 12208 the

working hours would be limited to the below. As such Downer in general shall follow the approved working hours as per CoA E19 as stated above

- 7:00am to 6:00pm Mondays to Fridays, inclusive;
- 8:00am to 13:00pm Saturdays; and
- at no time on Sundays or public holidays (except during possessions).

In addition to the Sydney Trains EPL and in accordance with CoA E20 Downer will likely follow the pathway of E20(d) and utilise the Sydney Metro approved Out of Hours Works Protocol, during possession periods and any planned non-standard hours works. Following this pathway works may be undertaken outside the recommended standard hours following an approved Out of Hours Application. During these periods, the use of highly noise intensive equipment would generally be limited to daytime and evening periods (between 7am and 10pm), unless technical constraints exist such as:

- Works requiring a rail shut down
- Requirements of relevant road authorities, emergency services or the Sydney Coordination Office.

Timing of works relating to Road Closures (including partial/full as noted in Section 2.2.4) may occur outside of standard working hours. This will be agreed in consultation with the relevant council as part of the road closure approval. Downer will endeavour to schedule HV movements to occur outside the following periods; however, this will not be feasible in all instances:

- Weekday peak periods - morning (6am - 10am) and afternoon (3pm - 7pm)
- School Zone operating times (8am - 9:30am & 2:30 - 4pm)

Other works in accordance with CoA E20 may also be undertaken outside of the CoA E19 standard hours. CoA E20 provides details of these:

Notwithstanding Conditions E19 and E24 Work may be undertaken outside the hours specified in the following circumstances:

(a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or

(b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or

(c) where different Construction hours are permitted or required under an EPL in force in respect of the CSSI; or

(d) Work approved under an Out-of-Hours Work Protocol for Work not subject to an EPL as required by Condition E25; ***(as discussed above)*** *or*

(e) Construction that causes LAeq(15minute) noise levels:

i) no more than 5 dB(A) above the rating background level aianre silence in accordance with the Interim Construction Noise Guideline (DECC,2009), and

ii) no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and

iii) continuous or impulsive vibration values, measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and

iv) intermittent vibration values measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or

(f) where a negotiated agreement has been reached with a substantial majority of sensitive receivers who are within the vicinity of and may be potentially affected by the particular Construction, and noise management levels and/or limit for ground-borne noise and vibration (human comfort) cannot be achieved. All agreements must be in writing and a copy forwarded to the Planning Secretary at least one (1) week before the commencement of activities.

It should be noted that whilst CoAE20 (b) permits works to take place outside of standard hours in emergency situations avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm, CoA E21 is prevails and Downer must notify the ER and the EPA (if works are being undertaken through the EPL pathway) of the need for that Work. Downer must use best endeavours to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of those Work. This shall be conducted in consultation with the Projects Environment and Community teams.

Throughout the duration of the Project a number of circumstances shall prevail as described above where works are permitted once approval has been obtained, outside of standard hours. When the Project identifies works to be conducted outside of standard hours based on the pathway of CoA E20 (c) or E20 (d) the following justification categories shall be assessed to identify the most suitable selection and demonstrate Compliance to CoA E22:

Out-of-Hours Work that are regulated by an EPL as per Condition E20(c) or through the Out-of-Hours Work Protocol as per Condition E25 (d) include:

(a) Work which could result in a high risk to construction personnel or public safety, based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009 "Risk Management – Principles and Guidelines"; or

(b) where the relevant road authority has advised the Proponent in writing that carrying out the activities could result in a high risk to road network operational performance; or

(c) where the relevant utility service operator has advised the Proponent in writing that carrying out the activities could result in a high risk to the operation and integrity of the utility network; or

(d) where the Transport for NSW Transport Management Centre (or other road authority) has advised the Proponent in writing that a road occupancy licence is required and will not be issued for the activities during the hours specified in Conditions E19 and E20; or

(e) where Sydney Trains (or other rail authority) has advised the Proponent in writing that a Rail Possession is required.

Note: Other Out-of-Hours Work can be undertaken with the approval of an EPL, or through the project's Out-of-Hours Work Protocol for Work not subject to an EPL.

Once the chosen pathway has been identified Downer must undertake a variety of consultation processes to inform the community and stakeholders of the planned works which may include traffic related impacts and out of hours deliveries to facilitate the main construction works. In accordance with CoA E23 consultation must include (but not be limited to) providing the community with:

(a) a schedule of likely Out-of-Hours Work for a period no less than two (2) months;

(b) the potential work, location and duration;

(c) the noise characteristics and likely noise levels of the Work; and

(d) likely mitigation and management measures.

The outcomes of the community consultation, the identified respite periods and the scheduling of the likely Out-of-Hours Work must be provided to the EPA (if an EPL applies) and the Planning Secretary (for high risk activities after 9pm) upon request.

A detailed understanding of the traffic logistics and the planned traffic control measures for the Project shall play a key role in the above noise compliance processes and facilitate the wider delivery of works.

10 TRAFFIC MANAGEMENT

10.1 General

Traffic Management for the Projectl shall be in compliance with the requirements as stated in Section 2 Document Scope. The Contractor will also comply with any traffic direction or instruction given by a relevant Authority (including but not limited to the New South Wales Police).

All ROL applications are applied for either via OPLINC system if through the Traffic Management Centre or on-line through the Local Government Authority.

A copy of the relevant ROL is to be producible on site.

10.2 Categories of Traffic Management

Traffic Management for the above Services is divided into the following two main categories:

- Static
    - Short-term – work requiring traffic control, but where roadway conditions are returned to normal at the end of the shift.
    - Long-term – work requiring traffic control, but where some form of traffic control must remain in place. This may comprise of lane closures, road work speed zones, detours, shoulder closures etc.
- Mobile
    - Work which entails vehicles moving along the roadway continually and at a speed significantly lower than other traffic and obstructing or partially obstructing traffic lanes. Work which also entails periodic short duration stops, such as pothole repairs.

10.3 Traffic Management Operations

Traffic management operations will be carried out in accordance with the following Zero Harm documents:

- Construction Traffic Management Plan, task specific TCP's, requirements as per document scope in Section 2 and relevant project approvals
- DA-ZH-FM135.1 – Traffic Management Risk Assessment (Section 7)

All personnel working in close proximity to traffic will Downer's Personal Protective Equipment guidelines that can be found on Work Health and Safety Management Plan.

10.4 Traffic Routing

There are a number of mobility restrictions in and around the project site, including localised weight limits, headroom clearance, one-way streets and banned turns. Some exemptions to these may be needed to allow construction vehicle access to the work sites.

The identified restrictions include:

One-way streets:

- In the eastbound direction on Lilian Lane.

Headroom Clearance:

- 2.9m headroom clearance in the underbridge on Foord Avenue;
- No right turn from Wardell Road to Ewart Street;
- No right turn from Charles Street to Canterbury Road;
- No right turn from Loch Street to Lilian Lane
- No right turn from Lilian Lane to Beamish Street
- No right turn from Canterbury Road to Beamish Street.

These restrictions have been considered in planning heavy vehicle movements given in Appendix E – Heavy Vehicle Access Route Details.

10.5 Deliveries for work

Deliveries are classed as either Light Vehicles (e.g., site utes and crew trucks less than 4.5 tonnes), Material Delivery or removal (e.g., galvanised steel trough, import fill, export spoil) or Construction Plant Deliveries (e.g., piling rigs, excavators, cranes). Refer to Appendix E for a summary of expected delivery vehicles.

Considerations for Deliveries are as follows:

- Plant and material deliveries and removal may require traffic control at site access locations;
- 12.5m HRV and 8.8 MRV with 5m trailer are the largest vehicles that will need to access site.;
- All deliveries shall be coordinated with the relevant Site Contact in advance of the delivery;
- Out of Hours Work (OOHW) notifications will be organised in advance of the delivery if required;
- Appropriate licences for oversized loads will be in place prior to delivery.

10.6 Road Closures

Specific partial or entire road closures will be refined as design, construction and traffic control plans are finalised. All works must ensure that property and business access is maintained wherever possible. Railway overbridges and underbridges may need to be partially or entirely closed for construction works. These closures will require relevant traffic control plans and diversion routes. TCP's will be developed as the scope and timing of the bridge works is finalised and attached to this document.

It is expected that road closures will be needed for the following locations:

Package 5

Dulwich Hill station

- Wardell Road – Partial road closure (maintaining 2-way traffic if possible)
- Ewart Lane- Road closure (maintaining traffic with traffic controllers)
- Ewart Street- Partial road closure (maintaining 2-way traffic if possible)
- Bedford Crescent - Partial road closure (maintaining traffic with traffic controllers)

Campsie Station

- Lilian Lane between Beamish street and Dewar Street - Road closure (maintaining traffic with traffic controllers)
- Lilian Street - Partial road closure (maintaining traffic with traffic controllers)
- South Parade between Beamish street and Harold street - Partial road closure (maintaining 2-way traffic if possible)
- Beamish street - Partial road closure (maintaining 2-way traffic if possible)

Punchbowl Station

- Punchbowl Road - Partial road closure (maintaining 2-way traffic if possible)
- The Boulevarde - Partial road closure (maintaining 2-way traffic if possible)
- Urunga Parade - Partial road closure (maintaining 2-way traffic if possible)

Package 6

Hurlstone Park Station

- Duntroon Street - Partial road closure (maintaining 2-way traffic if possible)
- Floss Street -- Road closure (maintaining traffic with traffic controllers)
- Railway Street - - Partial road closure (maintaining 2-way traffic if possible)

Belmore Station

- Redman Parade - Partial road closure (maintaining 2-way traffic if possible)
- Tobruk Avenue - Partial road closure (maintaining 2-way traffic if possible)
- Burwood Road - Partial road closure (maintaining 2-way traffic if possible)
- Bridge Road - Partial road closure (maintaining 2-way traffic if possible)

Wiley Park

- King George Road - Partial road closure (maintaining 2-way traffic if possible)
- The Boulevarde - Partial road closure (maintaining 2-way traffic if possible)
- Shadforth Street - Partial road closure (maintaining 2-way traffic if possible)
- Stanlea Parade - Road closure (maintaining traffic with traffic controllers)

Where possible, a single lane of traffic movement would be maintained. At Dulwich Hill, Wardell road on the bridge during the service relocation works a full closure may be required due to width of road, sight lines and reduced manoeuvrability.

An overview of these road closures is shown in the figures below.

Traffic Control Plan are provided in Appendix C

10.7 Road Closure Process:

All road or lane closure applications will be assessed based on the site conditions and alternative methods; such as lane closure, stop/slow or D-tours. A TCP to be drawn followed by an ROL application to TMC if on a state road or within 100 metres of traffic signals. A road closure application will then be submitted to council for approval, depending on council requirements. A VMS strategy may need to be installed for prior notification of the works requiring a road closure as well as a letterbox drop if required as part of the permit approval set out by council.

The council traffic committee may take up to month to have the approval for the works and the ROL application to take up to 10 business days for TMC to assess and approve.

10.8 Road Occupancy Licence

Road Occupancy Licences (ROL) will be required to undertake traffic control restricting flow of traffic in locations listed.

This will be applied for before works starting using RMS Online Planned Incident System (OPLINC). ROLs must be obtained at least 10 working days prior to work commencement. ROLs must be approved before undertaking any works. ROLs are to be approved by the by the Inner West Council & Canterbury-Bankstown Council (depending on location). The Traffic and Transport Liaison Group (TTLG) is to review and provide feedback on ROL applications to monitor potential cumulative impacts from multiple ROLs operating concurrently in one area.

At the current stage of the project, ROLs that may be required have been identified as follows:

- Wardell & Ewart Street at Dulwich Hill
- Beamish Street and South Parade at Campsie
- Punchbowl road and The Boulevarde at Punchbowl
- Burwood Road at Belmore
- The Boulevarde and King George road at Wiley Park

11 PLANNING

11.1 General

Traffic control measures will be designed and planned to cause the least possible disruption to traffic. These measures will include Traffic Control Plans and Vehicle Movement Plans as required and will encompass vehicle movement and pedestrian movement for both site and the general public. Individual Traffic Staging Plans will be developed for complex sites/works.

11.2 Planning Interface

All necessary approvals for temporary traffic management arrangements, including ROLs will be obtained from the relevant authorities (TMC, RMS, Sydney Metro etc.).

11.3 Standard Traffic Control Plans

All Traffic control plans have been drawn by certified Traffic control plan designer who holds a work zone TMP ticket. The Traffic control plans are prepared based on the current version of Traffic Control at Worksite, Version 6, October 2020.

Standard TCPs as contained in the TCWS will be used for the works. Appropriate, minor modifications will be made on site by authorised person, to suit specific work condition.

Minor modifications to standard TCPs could include the following:

- The inclusion of any road work speed zones;
- Adding additional signs for safety reasons;
- Adding additional signs where a minor side street joins a worksite;
- Varying sign positions/spacing within required tolerances.

11.4 Project Specific Traffic Control Plans

Where standard TCPs, including TCPs with minor modifications are not appropriate for the work being planned, or where major modifications to a standard TCP are required, a project-specific TCP will be designed. The Principals for designing such TCPs will be based on those detailed in Section 5.2 of the TCAWS.

The design of new TCPs will only be carried out by a person who is qualified in the “Prepare a Work Zone TMP” course (formally the Orange Card).

TCP shall be submitted to both TfNSW and relevant roads authority for endorsement prior to works.

11.5 Traffic Staging Plans

Traffic Staging Plans (individual TGSs) will be developed for each individual phase of works as required. For each stage/phase the Traffic Staging Plans will show the following where appropriate:

- Lane configurations;
- Intersection layouts and any temporary traffic signal arrangements;
- Working zones, pedestrian and cyclist paths;
- Access to residential and commercial properties;
- Pavement markings.
- Drainage system, both temporary and permanent, including any pollution control measures;
- Utilities and their impact on the Works.

TCP’s shall be submitted to both TfNSW and relevant roads authority for endorsement prior to works.

11.6 Vehicle Movement Plans

Standard VMPs show arrangements necessary to ensure that the general public can travel safely around, past or through work sites. It is also essential that arrangements are planned and implemented for vehicles associated with the works. This mainly involves vehicles entering and leaving the traffic stream at work zones, accesses and side roads, or turning around. Depending on the scale and complexity of a site, more than one VMP may be required. Current TCPs cover these NMU as the working and storage areas and marked up as well as the pedestrian paths for each stage of the work.

11.7 Non-Motorised User Plans

Non-motorised users (NMU) include pedestrians, cyclists. The safety and convenience of NMUs will be considered during the planning process and appropriate arrangements made. Where required, a separate NMU Plan will be developed showing and temporary route detours, crossing points, holding areas etc. Examples of difficulties that may arise for NMUs during the works include:

- Lack of continuity of routes;
- Inadequate crossing facilities;
- Inconsistent width/headroom of routes;
- Inadequate lighting;
- Obstruction of routes.

Any task specific risks such as those identified above shall be updated and included on the Project's month look ahead Construction Risk Assessment Workshop and detailed in Possession packs or work specific packs.

11.8 Pedestrian Movement Plans

Pedestrian Movement Plans (PMPs) are required for each instance where changes to pedestrian routes will be required, such as closing footpaths. PMPs are to be developed in accordance with

Additional enhancements for pedestrian, cyclist and motorist safety in the vicinity of the construction sites would be implemented during construction. This would include measures such as:

- Use of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers
- Community educational events that allow pedestrians, cyclists or motorists to sit in trucks and understand the visibility restrictions of truck drivers, and for truck drivers to understand the visibility from a bicycle; and a campaign to engage with local schools to educate children about road safety and to encourage visual contact with drivers to ensure they are aware of the presence of children
- Specific construction driver training to understand route constraints, expectations, safety issues, human error and its relationship with fitness for work and chain of responsibility duties, and to limit the use of compression braking
- Use of In Vehicle Monitoring Systems (telematics) to monitor vehicle location and driver behaviour
- Safety devices on construction vehicles that warn drivers of the presence of a vulnerable road user located in the vehicles' blind spots and warn the vulnerable road user that a vehicle is about to turn.

Where existing footpath routes used by pedestrians and/or cyclists are affected by construction, a condition survey would be carried out to confirm they are suitable for use (e.g. suitably paved and lit), with any necessary modifications to be carried out in consultation with Inner West Council and Canterbury-Bankstown Council.

Where applicable, PMP's will be overlayed on the corresponding Traffic Control Plans for the site. The following locations have been identified as locations where specific PMPs are required:

Package 5

Dulwich Hill station

- Wardell Road, pedestrian crossing opposite the station
- Bedford Crescent, pedestrian access to Light rail

Campsie Station

- Lilian Lane between Beamish street and Dewar Street
- South Parade between Beamish street and Harold street
- Beamish street

Punchbowl Station

- The Boulevarde car park, pedestrian access from South side of station
- Punchbowl road, pedestrian access from North side of station

Package 6

Hurlstone Park Station

- Duntroon Street, pedestrian crossing opposite the station

Belmore Station

- Redman Parade – pedestrian movement from Redman Parade public parking to station
- Tobruk Ave- pedestrian movement from Tobruk Ave parking to station

Wiley Park

- The Boulevarde – pedestrian movement from The Boulevarde to the station
- Shadforth Street & Wiley Lane – pedestrian movement from Shadforth Street & Wiley Lane to the station.

11.9 Cyclist Management

When there is a temporary reduction in the bicycle facilities (such as parking), replacement facilities must be provided. Where existing bicycle routes used by cyclists are affected by construction, a condition survey would be carried out to confirm they are suitable for use (e.g., suitably paved and lit), with any necessary modifications to be carried out in consultation with Inner West Council and Canterbury-Bankstown Council.

Safe pedestrian and cyclist access must be maintained around Work sites during Construction.

In circumstances where pedestrian and cyclist access are restricted or removed due to Construction activities, an alternate route which complies with the relevant standards must be provided and signposted.

11.10 Access to Property and Businesses

Downer identifies that there is limited impact to existing properties, businesses and buildings as most of the works is confined within the railway corridors and small amount of works in the adjacent areas.

In accordance with CoA E51, REMM TC20 and REMM SO3 considering that there could be still a small section of works that may require interface with the properties, businesses, community facilities, infrastructure and buildings; Downer will ensure access and parking to these existing properties, businesses, community facilities, infrastructure and buildings would be maintained at all times and any temporary changes or closures only implemented in consultation with and following agreement from property owners and relevant service providers. Where access cannot be maintained or is disrupted, some of the mitigation measures include:

- Proactively advising the community of upcoming work to ensure they are fully informed of potential impacts; This can include adequate signage and directions to the businesses and properties before, and for the duration of any disruption
- Providing early notification of changes and one on one meetings if required;
- Ensuring the community understands how they can find out more information and who to contact in case they have an enquiry or complaint;
- Develop communication and way finding strategies for people with reduced visibility, people from non-English speaking backgrounds and for people with a disability;
- Provide traffic management signage to safely direct vehicles and pedestrians around the construction site;
- Provide timely and effective responses to complaints and enquiries;
- Use of social media for long term / permanent changes.
- Provide alternative service providers, owner, community facility, infrastructure, businesses, pedestrian and vehicle access if required
- Additional opportunities for parking arrangements following consultation with affected businesses / property owners.

The EIS states that Transport for NSW (Sydney Metro) would undertake an extensive community awareness and information campaign before changes to public transport services are implemented. This would include a range of communication activities such as:

- Information at stations
- Clearly marked bus stop location Letter box drops
- Information via 131 500
- Advertising in local papers
- Email information bulletins.
- Letter box drops

11.11 Dilapidation Report

In Accordance with CoA E49 One of the hold points for this project is the use of local roads by heavy vehicles. The release of the hold point is the road dilapidation report, completed by a professional nominated by the principal contractor. 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 council(s) within four (4) weeks of completion of the survey and at least two (2) weeks before the road is used by heavy vehicles associated with the Construction of the CSSI.

In accordance with CoA E50, if damage to local roads occurs as a result of implementation of this CTMP, the below remedial methods will be adopted.

(a) compensate the relevant road authority for the damage so caused. The amount of compensation may be agreed with the relevant road authority; or

(b) rectify the damage to restore the road to at least the condition it was in pre- Construction as identified in the Road Dilapidation Report(s); and

(c) rectify damage without delay to restore the road where the damage compromises road safety, or

(d) Downer to agree and pay council the cost of doing urgent safety related road repairs after mutual agreement.

11.12 TCP/TGS Design

The project specific TGSs will show the following:

- Types and locations of permanent regulatory and advisory signs;
- Types and locations of temporary signs, including advance warning signs, Variable Message Signs (VMS) and speed zone signs;
- Pavement marking details, including types of delineation required, turning arrows, stop/holding lines and other road markings, types and positions of raised pavement markers and other delineation devices;
- Locations of permanent and temporary traffic signals;
- Locations and lengths of tapers and buffer zones;
- Locations of any required Traffic Controllers;
- Locations of entry and exit gates to the working areas, individually numbered and signposted;
- Pedestrians and cyclists' paths;
- Details of side roads and access for adjoining properties and parking;
- Locations of any safety barriers, barrier systems and end terminals;
- Locations of temporary lighting.
- TGSs will be designed using computer aided drafting software and not hand drawn.

11.13 Traffic Modelling

Traffic modelling would only be necessary when long-term changes to the road network are due required due to project works. Traffic modelling can also be used to assess modifications to signal timing or phases in order to optimise the road network performance due to construction vehicles and rail replacement buses. Any modifications to signals will require consultation and approval from RMS and TTLG.

11.14 Traffic Control and Delineation Devices

11.15 General

Traffic Control and Delineation Devices will be used where necessary and if appropriate. These include but are not limited to the following:

11.16 Cones and Bollards

Traffic cones will comply with RMS QA Specification RMS 3352:

11.17 Temporary Safety Barriers

Temporary safety barriers may be used to protect work zones and pedestrians from traffic. Safety barrier types and their end treatments will be in accordance with Section 6 of the RMS Road Design Guide and only products from the RMS accepted list will used.

11.18 Temporary Traffic Signals/Porta-Boom

Temporary traffic signals or portable boom gates may be used to eliminate the risk of having authorised traffic controllers on the road to control traffic. If required and where appropriate, they will be used in accordance with TCAWS and RMS Specifications.

11.19 Portable Variable Message Signs

Portable 24hrs VMS will be installed if required to provide early notification of road works/ night works and to keep road users informed of changes to road conditions and of possible delays as a result of the work

The VMS must be portable, Type C size, and solar powered, complying with AS 4852.2.

11.20 Incident Response

Dower will notify the principal immediately after the proponent becomes aware of an incident.

In this instance a notification will be sent to the principal which will identify the Project as CSSI-8256 and set out the location and nature of the incident. A subsequent notification will be given, and reports submitted in accordance with the requirements of the Conditions of Approval: Written Incident Notification and Reporting Requirements.

In accordance with REMM TC16, in the event of a traffic related incident, Downer will notify the Principal safety representative who would then co-ordinate with the Sydney Coordination Office and Transport Management Centre's Operations Manager.

The critical success factor for effective injury and incident management are:

1. Prompt notification and reporting of all incidents
2. Incident investigations identify root causes and prevent recurrences.
3. Sharing of lessons learned vis timely significant incident reports.
4. Timely and thorough reporting on serious incident to management
5. All opportunities for improvement from incidents, audits and suggestions are implemented.

12RESPONSIBILITIES

12.1 Project Manager

The Project Manager is responsible for (As per Traffic control at work sites Technical Manual, 2018)

- Ensuring that satisfactory arrangements are planned and implemented for vehicles associated with works
- Considering the need for VMPs at work sites and truck turning areas or other extenuating circumstances
- Where a VMP is required, approving it and making it available before work begins.
- Ensuring sufficient resources (people, plant, materials, supply chain);
- Ensuring works are carried out in accordance with the Contractors Policies and Procedures;
- At least one day prior to the intended date of opening the temporary roadways to traffic, notify the Principal in writing that the work, including pavement markings, is conforming and ready for inspection by the Principal.
- Review and approval of training requirements;
- Carry out periodic site inspections;
- Attending meetings as required;
- Relevant reporting.

12.2 Project Engineer

The Project Engineer is responsible for:

- Day-to-day management of works;
- Ensuring that drivers of work vehicles are familiar with arrangements for traffic control
- Instructing drivers how to enter and exit work sites safely and the routes to follow between work sites, depots and material sources etc
- Implementing written VMPs where they are provided.
- Ensuring works are carried out in accordance with the Contractor Policies and Procedures;
- Carry out periodic site inspections;
- Attending meetings as required;
- Relevant reporting.

12.3 Site Supervisor

The Supervisor is responsible for:

- Day-to-day organising and supervision of works;
- Planning arrangements for vehicles associated with works
- Ensuring works are carried out in accordance with the Contractor Policies and Procedures;
- Provision and maintenance of suitable traffic management plant and equipment;
- Carry out periodic site inspections;
- Identifying and arranging training needs;
- Attending meetings as required;

- Relevant reporting.

12.4 Traffic Controllers

The Project shall source and employee specialist Traffic Controllers via a sub-contractor agreement. The subcontracted company must be accredited by RMS for the “G” accreditation. The Traffic Controllers are responsible for:

- Completing relevant Contractor Zero Harm documentation;
- Compliance with all requirements as stated by the Local Government Authority
- Implementing and maintaining TGSs on site;
- Ensuring traffic management is carried out in accordance with TCWS;
- Contacting the TMC / relevant roads authority to notify of traffic management implementation and removal;
- Report faulty or defective traffic management devices to the Supervisor;
- Ensuring the safe passage of traffic and pedestrians;
- Must wear the traffic controllers vest as an outer garment only when controlling traffic for the purposes of the Contract, and not at other times.
- Relevant reporting.

12.5 All other Persons

All other persons carrying out work activities on or immediately adjacent to the site shall:

- Always take reasonable care for their safety and that of those around them.
- Follow the applicable requirements contained in this document.
- Prior to proceeding with any work, contact their supervisor or a Downer Site Management
- Team member for clarification of any requirement applicable in this document, and any other relevant permits, plans or approvals.
- Provide appropriate notification of deliveries to the nominated Site Contact.
- Wear high visibility vest or shirt where required under this document.
- Always obey the applicable road rules for pedestrians, riders, and drivers.
- Always follow safe driving practices, including using the correct thoroughfare in accordance with any posted speed limits and safety requirements in a manner that does not put at risk their safety or that of any other persons (e.g. passengers, fellow workers, or members of the public).
- Always avoid creating any form of safety hazard or unreasonable delays when parking or parked. Any workers associated with the site must park their vehicles wholly within the site boundaries. Workers associated with the site will not occupy public on-street parking spaces.

13 PLANT AND EQUIPMENT

All vehicles used in traffic control operations will be registered (when operating on public roads) or have a construction permit and be equipped with the appropriate vehicle mounted warning devices in accordance with guidelines.

14TRAFFIC MANAGEMENT AREA PROTOCOLS AND RESTRICTIONS

14.1 Site rules

Site Rules are as follows:

- All workers are to be inducted prior to accessing the worksite;
- No private vehicles allowed on site except those that are necessary to perform the works and have been approved by the Contractor. When approved visitor vehicles will be allowed to enter the main compound and park within in designated parking areas;
- Never walk directly behind or in the path of a reversing vehicle
- Seat belts to be worn always;
- Orange amber flashing light to be activated within the work site, vehicle hazard lights are not permitted in the absence of amber flashing lights and must be declared / identified during mandatory plant checks.
- Strictly no use of mobile phones while plant/vehicle is in operation;
- Drivers and operators shall be fully and currently licensed and/or certified as required by the appropriate statutory authority to operate the vehicle/plant they are using;
- Drivers/operators shall always obey all state laws and site signage;
- All traffic, safety and security regulations currently in force on the Site and as amended from time to time, shall be adhered to strictly;
- No vehicles are to be left unattended with the engine running;
- No vehicles or plant to be parked in such a manner to obstruct access ways unless necessary to complete the works;
- All active work areas are restricted and calls up protocols are to be followed without exception. Entry is restricted to operations personnel including Supervisors, Soil Testers, Surveyors, Engineers and Personnel strictly approved by the Superintendent. All other personnel must be escorted into the area if access is required;

14.2 Speed Limits

- The maximum speed Limit for outside site is as posted on local roads;
- Roads within site limited to 10km/h;
- Shared zones (pedestrians) limited to 10km/h;
- Drivers are always required to drive to conditions. Where visibility of road conditions is poor, drivers shall reduce the speed of their vehicle to extent necessary to enable them to maintain effective safe control;
- Drivers of all vehicles are required to reduce their speeds should excessive dust be produced. Dust which blocks vision in the rear-view mirror is considered excessive.
- Risk assessment of travel routes will assess risks and speed limits.
- Reversing Heavy Vehicle to have spotter at all time.

14.3 Parking Facilities

Parking requirements for all Contractor employees and others:

- Comply with VMP

- Limited parking is provided at the site compound for selected personnel;
- Where parking limitations exist, or the construction workforce exceeds parking availability, employees will be encouraged to use public transport and/or vehicle sharing;

14.4 Site Access/Egress and Noise Mitigation

In accordance with TC12 Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist, and motorist safety. Depending on the location, this may require manual supervision, barrier placement, temporary traffic signals, modifications to existing traffic signals, or police assistance.

During non-working hours each access point into the site will be secured with locked fences.

Site egress will be via the nominated Site egress gates. All vehicles exiting the site are to ensure the following to mitigate safety risks and noise impacts (in accordance with REMM NVC5):

- Excessive mud and dirt collected on the wheels and undercarriage is removed by responsible driver or site labour;
- Vehicles must not leave the site with flashing lights still in operation, unless specifically required for the type of plant (e.g. Franna) or whilst merging into traffic. Once safely merged, lights to be switched off as no longer required.
- Vehicles either accessing or egressing from the sites will aim to minimise reversing where possible, especially heavy vehicles to minimise the noise impacts from reversing squawkers and reduce collision and safety risks
- The provision of noise barriers around each construction site
- The coincidence of noisy plant working simultaneously close together would be avoided
- Residential grade mufflers would be fitted to all mobile plant
- High noise generating activities would be scheduled for less sensitive periods considering the nearby receivers, where reasonable and feasible
- The layout of construction sites would consider opportunities to shield receivers from noise
- Stationary noise sources would be enclosed or shielded whilst ensuring that the occupational health and safety of workers is maintained
- Loading and unloading of materials/deliveries is to occur as far as possible from noise sensitive receivers
- Select site access points and roads as far as possible away from noise sensitive receivers
- Dedicated loading/unloading areas to be shielded if close to noise sensitive receivers wherever feasible and reasonable
- Use quieter and less vibration emitting construction methods where feasible and reasonable (where specific to traffic for the purposes of this plan)
- The noise levels of plant and equipment must have operating Sound Power Levels compliant with the criteria in the Construction Noise and Vibration Strategy
- Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site
- Where feasible and reasonable, the offset distance between noisy plant items and nearby noise sensitive receivers would be as great as possible
- Where reasonable and feasible heavy vehicle movements would be limited to daytime and evening hours, with night-time movements avoided where possible
- Active community consultation and the maintenance of positive, cooperative relationships with schools, local residents and building owners and occupiers, through:

– Periodic notification or work activities and progress (e.g. regular letterbox drops, e-consult)

– Specific notification (letter-box drop) prior to especially noisy activities

– Comprehensive website information

– Project information and construction response telephone line

- E-mail distribution lists.

All active work areas are to be signed with no entry, call up signs and access is for authorised personnel only subject to the following call up protocol's signs for all entry point to inform personnel the requirements to proceed past that point.

14.5 Traffic Routes

Traffic routes are to:

- Comply with VMP
- Separate pedestrian walkways;
- Minimise the need for reversing operations through use of one-way systems and turning points;
- Be designed for expected traffic flow;
- Have a firm surface, adequate drainage and appropriate profiles to allow for controlled movement;
- Have target gradients not exceeding 10%;
- Have a curve radius not less than equipment minimums;
- Avoid hazards such as excavation, edges of structures;
- Be clearly signed;
- Indicate speed limits and speed controls measures specific for site conditions; and
- Separate light vehicles from heavy vehicle circuits where possible.

14.6 Deliveries

Prior to arriving to site and as part of supply / procurement process the appropriate / applicable VMP should be provided. All delivery vehicles are to report to Site Office for identification. Deliveries are classified into two categories with each having separate controls. Roads will not be used as a waiting area for trucks delivering to or awaiting pick up of materials

14.6.1 Authorised drivers:

- Authorised drivers are to report to Site Office for identification
- To minimise confusion and potential hazards, site plans with access points clearly identified will be distributed to all suppliers and updated as required;
- Authorised drivers must comply with minimum site PPE requirements.

14.6.2 Un-inducted drivers:

- Un-inducted drivers are to park their vehicle up where practical as not to obscure local traffic or access into work site;
- Un-inducted drivers are to report to Site Office for identification verification;
- Un-inducted drivers are to be directed to required material laydown area by an authorised Contractor representative;
- Delivery drivers to use designated mobile for communications and must remain in contact with the authorised Contractor Representative;
- All delivery drivers must comply with minimum site PPE requirements; and
- To minimise confusion and potential hazards, site plans with access points clearly identified will be distributed to all suppliers and updated as required.

Roads will not be used as a waiting area for trucks delivering to or awaiting pick up materials

15 WORK ON FOOTPATH

15.1 Pedestrian Considerations

Due consideration to pedestrians shall be given before proceeding with Downer works on or next to footpaths. By definition, catering for pedestrians means catering for the different modes of travel used such as walking, cycling or for people with different characteristics such as disabilities. It also means Downer shall consider that pedestrians are often distracted or in a hurry. Vulnerable road users will be specifically targeted with safety measures as per the Sydney Metro Principal Contractor Health and Safety Standard to minimise the road safety risks to pedestrians, cyclists and motorcyclists in the vicinity of the construction sites. Measures specific, but are not limited to:

- Heavy vehicles equipped with systems to improve vehicle safety, visibility and the detection of vulnerable road users;
- Mandatory completion of South West Metro project specific Heavy Vehicle Driver Introduction Training for frequent deliveries. It is expected that for the Southwest Metro early works, pedestrian interactions will be minimal.

Any instances of interfacing between construction vehicles and vulnerable road users will be managed by traffic controllers as required. Pedestrians and cyclists will be held by traffic controllers to allow single movements only and then released. Consideration of this will be taken in any design and plan for travel paths. When there is a temporary reduction in the bicycle facilities (such as parking), replacement facilities must be provided. In circumstances where pedestrian and cyclist access are restricted or removed due to Construction activities, an alternate route which complies with the relevant standards must be provided and signposted.

Note that pedestrian management will be included in individual TCPs for ROL applications and Council approval. The Disability Discrimination Act 1992 will be adopted with kerb ramps or other measures provided at road crossings in the works areas. Footpath widths are to be enough to provide for two-way pedestrian traffic. Prams, strollers and wheelchairs are to be able to pass each other without requiring temporary widening of the footpath from its existing condition before construction start. If narrowing of footpath width is required, it is to be approved by the relevant authorities.

15.2 Pedestrian Safety Points

The following pedestrian safety points should be included in the final control measures by the Downer supervisor. These points should be observed before the work is commenced. This is not an exhaustive list and should be updated by the supervisor according to the circumstances at the work site.

All Pedestrian -

- Always look at the pedestrian's route
- Routes are free of any slip or trip hazards
- Pedestrians safely negotiate the work site
- Pedestrians can safety negotiate any “squeeze” points in and around the work site.
- Check that the pedestrians’ routes are continuous through/next to the work site
- Determine the most applicable time of the day to conduct the works considering both normal and peak hour times
- Determine what is the most appropriate means for pedestrians to negotiate (through, past or around) the worksite
- Where applicable ensure any barriers erected do not force pedestrians to cross at an inappropriate location.

Elderly Pedestrian-

- Travel path is relatively smooth and clear of overhanging foliage
- The work site adequately illuminated.
- Barriers have been erected to guide children past or through the work site
- Travel paths remain continuous through the scheme
- Ensure no road signs/devices obstruct the vision of or visibility to younger pedestrians
- Manage parking of Downer vehicles to maximise the sight lines

Disabilities or pram user-

- Ensure the work site be identified by visually impaired people
- The travel path must be enough to cater for wheelchairs, prams, etc.

16 CONSULTATION WITH RELEVENT STAKEHOLDERS

Communication with community, commuters and community stakeholders will be undertaken as per the Interface Management Plan. Sydney Metro (SM) will maintain responsibility for liaison and consultation with Government elected representatives, if required for the purpose of traffic management. Consultation with the relevant stakeholders listed below is to be undertaken on a monthly frequency for the duration of works. Before undertaking any work associated with partial closure of any road or footpath or any other interaction with transport infrastructure, the following stakeholders must be appropriately consulted with

to ensure all requirements are addressed. Coordination meetings with representatives from these projects will be held regularly to minimise cumulative impacts and avoid conflicting activities.

16.1 Community

The community would be notified in advance of proposed road and pedestrian network changes through appropriate forms of community notification.

Several communications tools will be used to notify the community of any upcoming changes to traffic conditions that have the potential to impact them, including:

- Monthly and specific notifications
- Advertisements
- Sydney Metro website
- Doorknocks and other meetings.

Access to existing properties and buildings would always be maintained and any temporary changes or closures only implemented in consultation with and following agreement from property owners. Some of the mitigation measures include:

- Proactively advising community of upcoming work to ensure they are fully informed of potential impacts
- Providing early notification of changes and one on one meetings if required
- Ensuring the community understands how they can find out more information and who to contact in case they have an enquiry or complaint
- Develop communication and way finding strategies for people with reduced visibility, people from non-English speaking backgrounds and for people with a disability
- Provide traffic management signage to safely direct vehicles and pedestrians around the construction site
- Provide timely and effective responses to complaints and enquiries
- Use of social media for long term / permanent changes.

16.2 Special Events

Due to the large scope of the project, there is potential that there may be conflicts between special events and project work. Downer will liaise with Inner West Council and Canterbury-Bankstown Council to coordinate work around events. If any special events are planned, works will be coordinated with those events and any specific road closures.

For special events that require specific traffic and pedestrian management, measures would be developed and implemented in consultation with Transport for NSW, Sydney Coordination Office, Roads and Maritime Services, the Inner West and Canterbury-Bankstown councils, and the organisers of the event.

16.3 Emergency Services

Emergency vehicle access to stations and surrounding properties would always be provided.

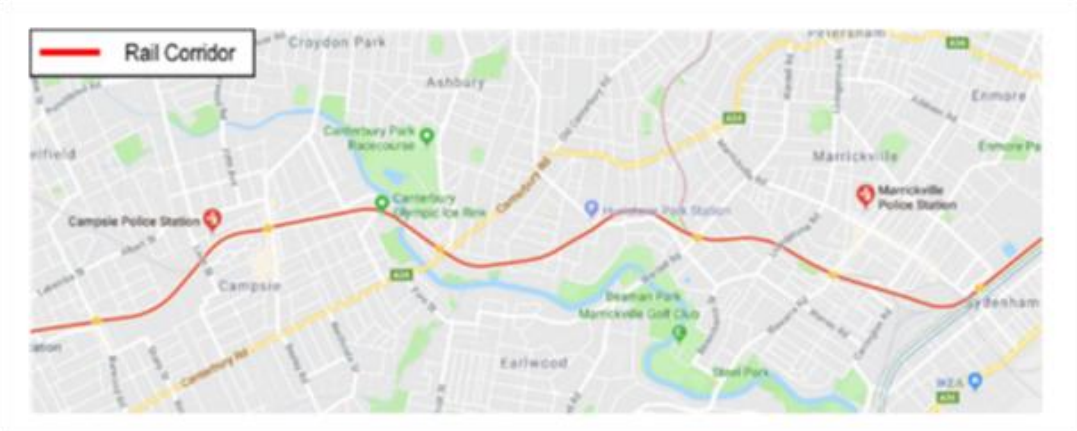
Emergency service providers (i.e. police and ambulance) would be consulted throughout construction to ensure they are aware of station closures, changes to access, including bridge lane closures, and changes to station or rail corridor access.

It is expected that outside of full road closures, project works would have negligible impact on emergency services.

Police Stations near the works zone are:

- Campsie PAC – 58 Campsie Street Campsie
- Inner West PAC – 89-101 Despointes Street Marrickville.

A map of these police stations is shown below.



APPENDIX A – MITIGATION MEASURES

Project Mitigation Measures

Nos.	Description	Pre-Construction	Construction	Post-Construction	Relevant Location/ Activity	Accountability	Measurement/monitoring of controls
1	Prior to the commencement of construction, a Construction Traffic Management Plan would be prepared as part of the CEMP and would include at a minimum: • ensuring adequate road signage at construction work sites to inform motorists and pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised • maximising safety and accessibility for pedestrians and cyclists • ensuring adequate sight lines to allow for safe entry and exit from the site • ensuring access to Stations, local centres, local business and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made) • managing impacts and changes to on and off-street parking and requirements for any temporary replacement provision • ensuring parking locations for construction workers away from Stations, local centres and details of how this will be monitored for compliance • designating routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses • details for temporarily relocating the taxi rank and bus stop as required, including appropriate signage to direct patrons, in consultation with the relevant bus/taxi operators. Particular provisions would also be considered for the accessibility impaired	■			Project wide and Surrounding Areas	Project Manager Environmental Advisor	CEMP 150118-XXX-EN-PLN-00011 TMP **Evidence of consultation as per attachment in (TBC)**

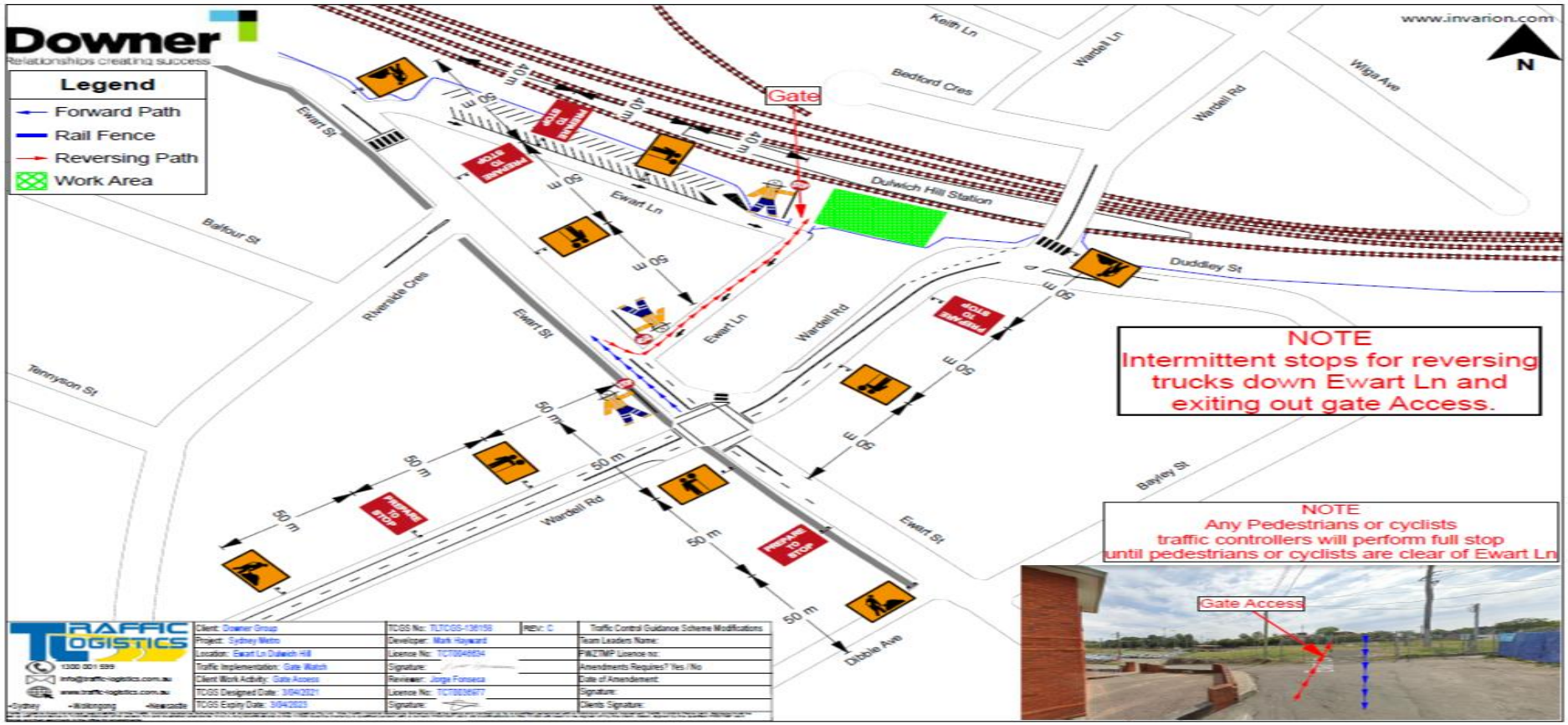
Nos.	Description	Pre-Construction	Construction	Post-Construction	Relevant Location/ Activity	Accountability	Measurement/monitoring of controls
	• measures to manage traffic flows around the area affected by the Projectl, including as required regulatory and direction signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the Construction Traffic Management Plan. Consultation with Inner West City Council and Canterbury Bankstown Council would be undertaken during preparation of the Construction Traffic Management Plan. The performance of all project traffic arrangements would be monitored during construction.						
2	Communication would be provided to the community and local residents via notifications and signage to inform them of changes to parking, pedestrian access and/or traffic conditions including vehicle movements and anticipated effects on the local road network relating to site work.		■		Project wide and Surrounding Areas	Project Manager Environmental Advisor Community & Stakeholder Manager	CEMP 150118-XXX-EN-PLN-00011
3	Road occupancy licences for temporary road closures would be obtained, where required.		■		Project -wide	Project Manager Site Supervisor Safety Officer	Traffic management sub plan, TMP 150118-XXX-EN-PLN-00016 TCP
4	Suitable pedestrian provisions would be made to ensure that pedestrian connectivity between bus stops is not impacted as a part of the works and that suitable and safe paths are provided.	■			Project and surrounding area	Project Manager Site Supervisor Environmental Advisor	Traffic management sub plan, TMP 150118-XXX-EN-PLN-00016 CEMP 150118-XXX-EN-PLN-00011

Nos.	Description	Pre-Construction	Construction	Post-Construction	Relevant Location/ Activity	Accountability	Measurement/monitoring of controls
5	Qualified traffic controllers would be used during construction work to ensure safe and efficient movement of vehicle and pedestrian traffic around the work site as well as in and out of construction compounds and laydown areas and in and out of the rail corridor.		■		Project and surrounding area	Project Manager Site Supervisor Safety Officer	Traffic management sub plan, TMP 150118-XXX-EN-PLN-00016 CEMP 150118-XXX-EN-PLN-00011 ROLS
6	Fencing and barriers would be installed between the construction site and outside the construction zone to ensure safe and easy navigation of pedestrians and cyclists.	■			Project area	Project Manager Site Supervisor Safety Officer	Traffic management sub plan, TMP 150118-XXX-EN-PLN-00016 ECM
7	All work with the potential to impact pedestrian movements such a lifting should be carried out during scheduled weekend rail possessions.		■		Project and surrounding area	Project Manager Site Supervisor Safety Officer Environmental Advisor	Possession packs and lift plans
8	South West Metro would work with Inner West Council and Canterbury Bankstown Council to investigate potential locations where new parking spaces could be created to offset the permanent loss of parking spaces at Stations. These investigations would focus on Hurlstone Park, where car spaces are loss on Floss Street.	■			Surrounding Areas	Project Manager South West Metro	Offset parking consultation

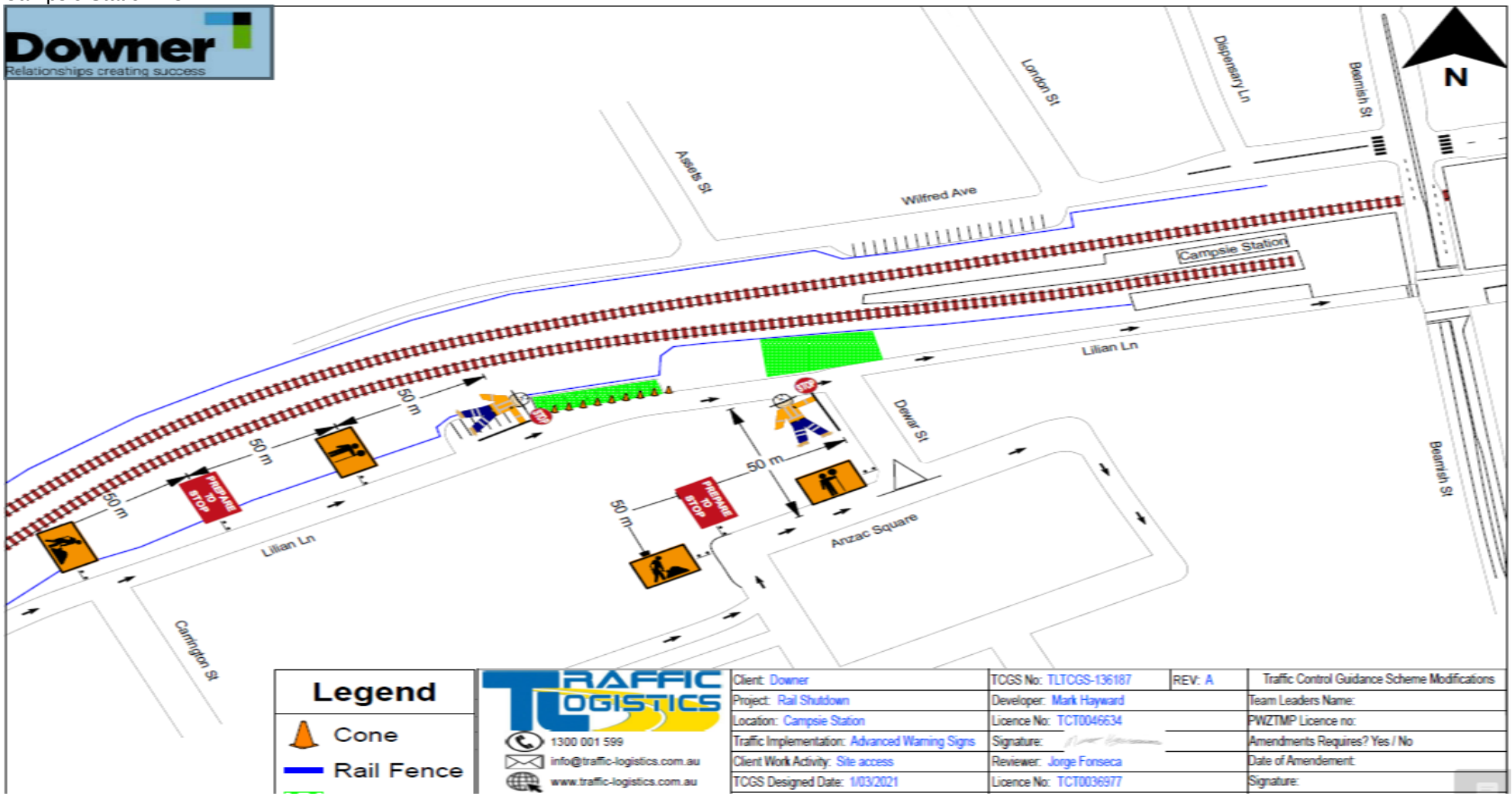
APPENDIX B – STATIONS TCP SITE LAYOUT PLAN

The TCP's below are for site setup and preliminary works. Additional TCP's for further works will be developed and attached in the updated plan.

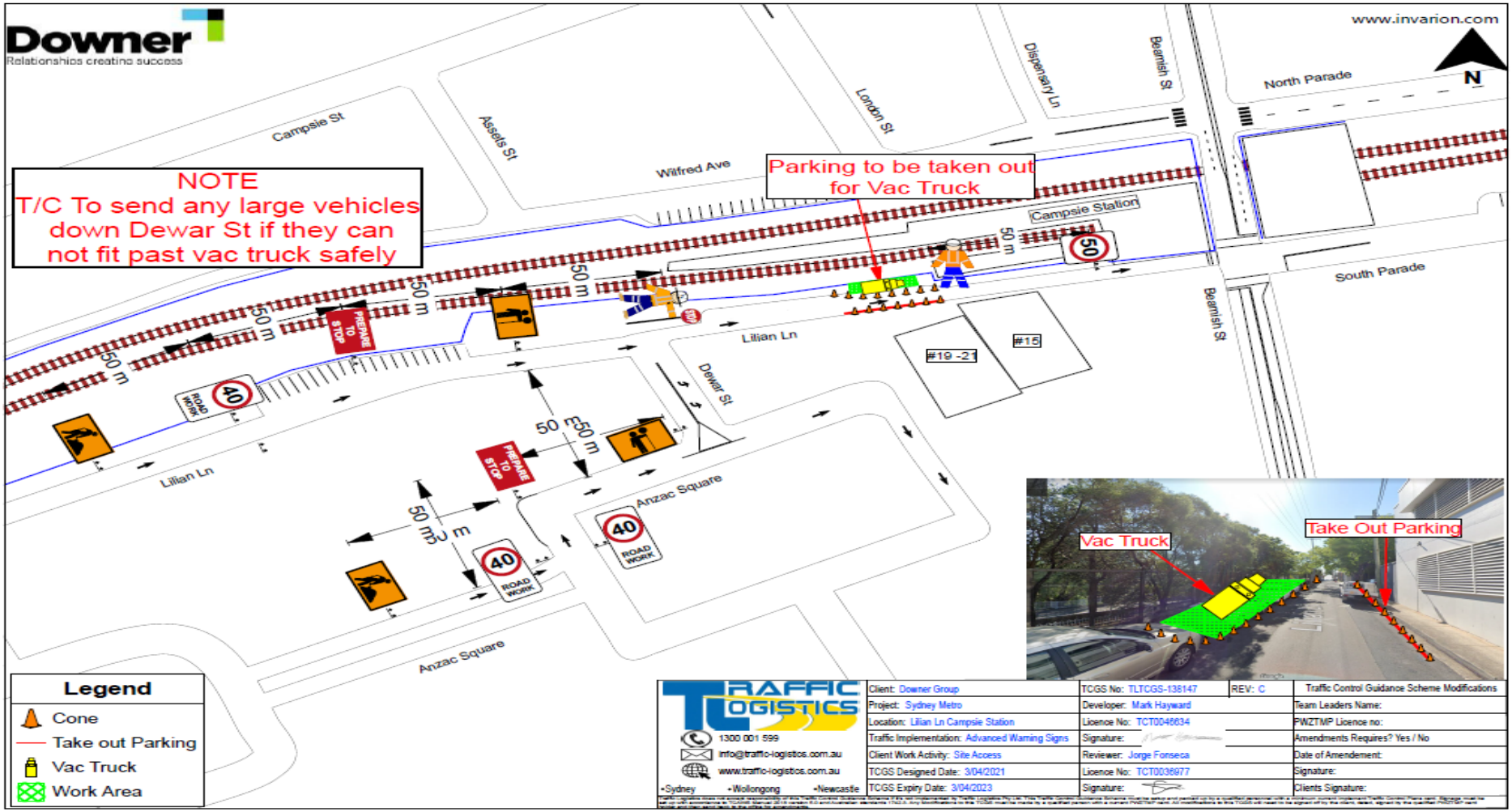
Dulwich Hill Station TCP



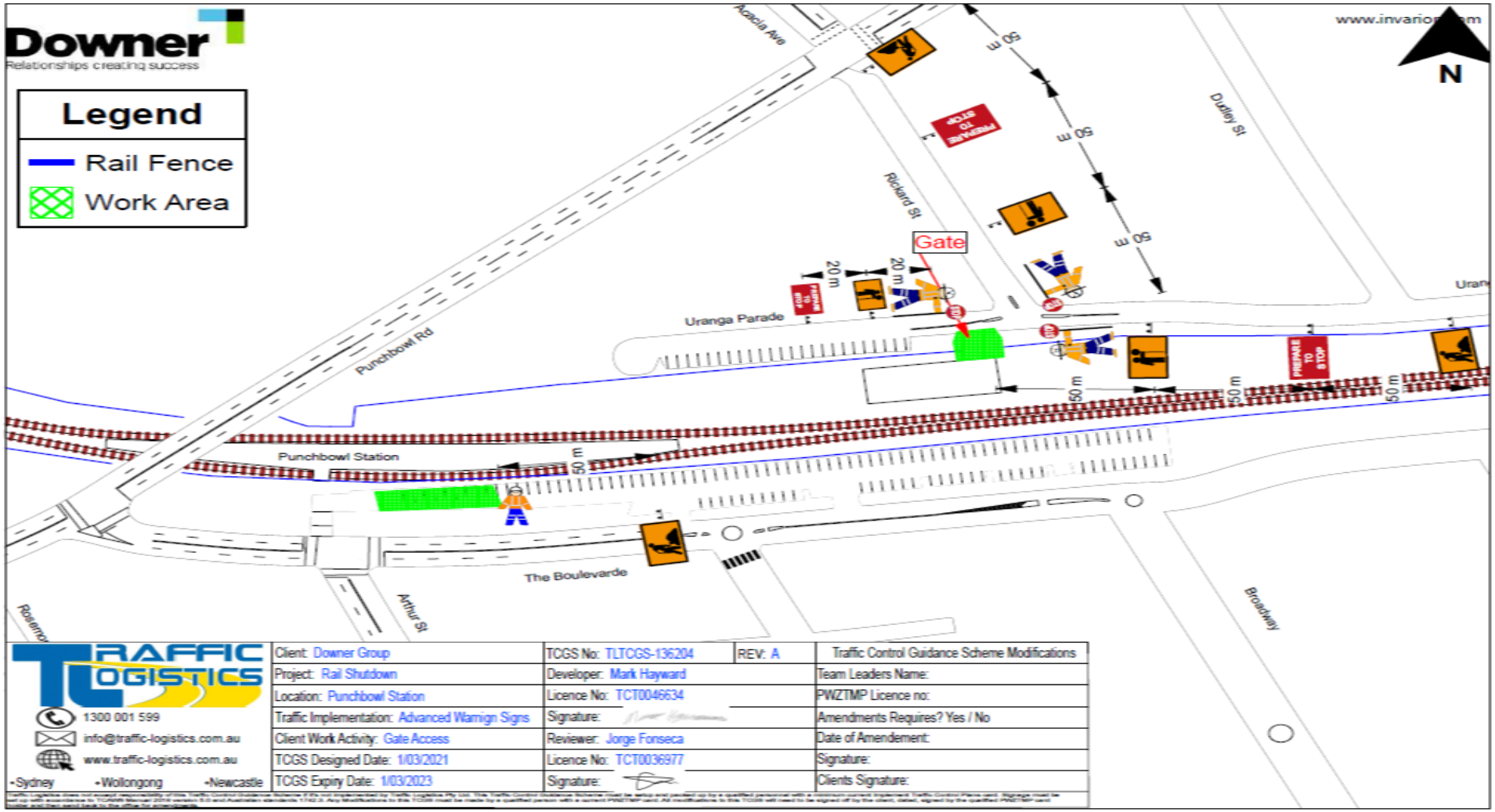
Campsie Station TCP -1A



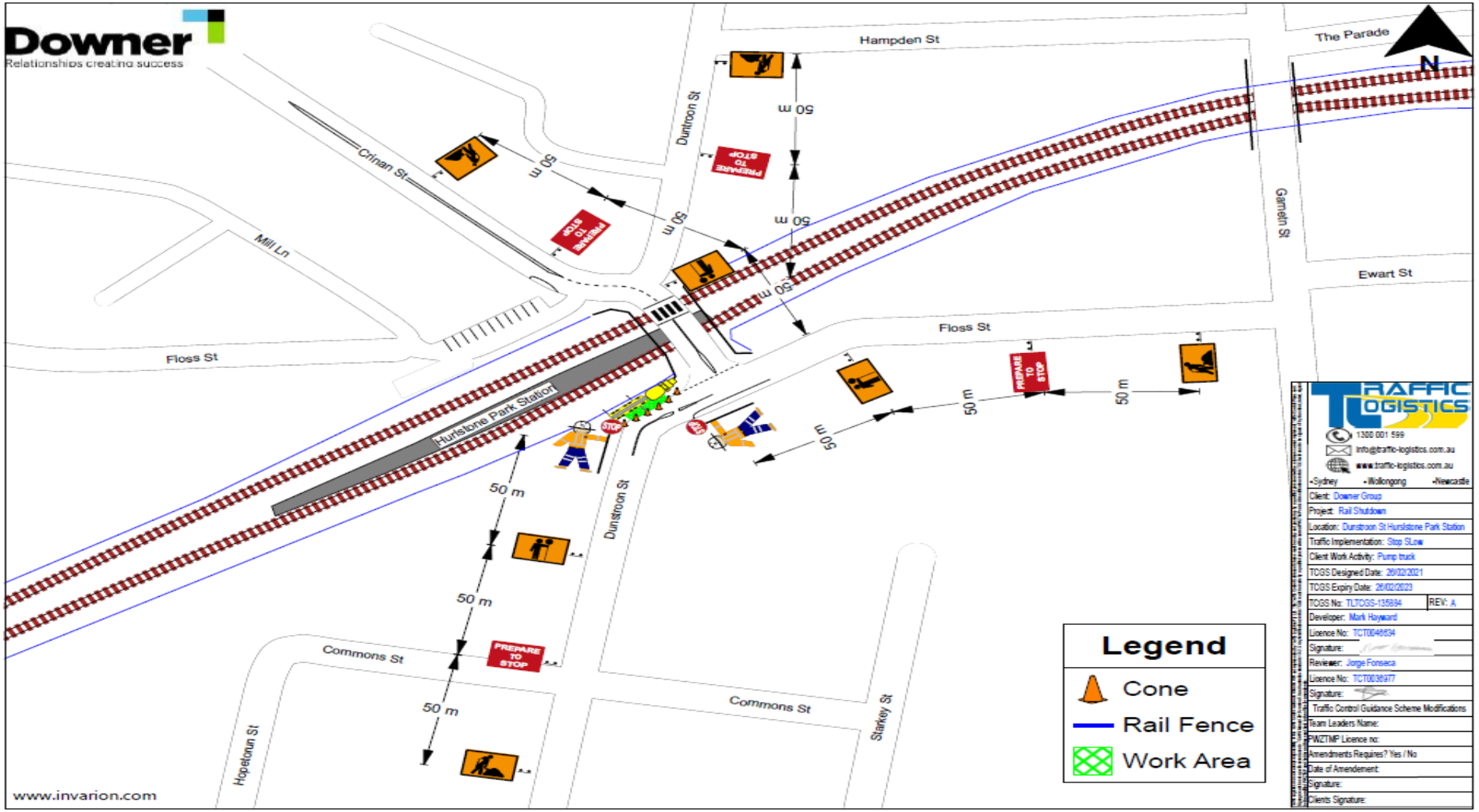
Campsie Station TCP -1B



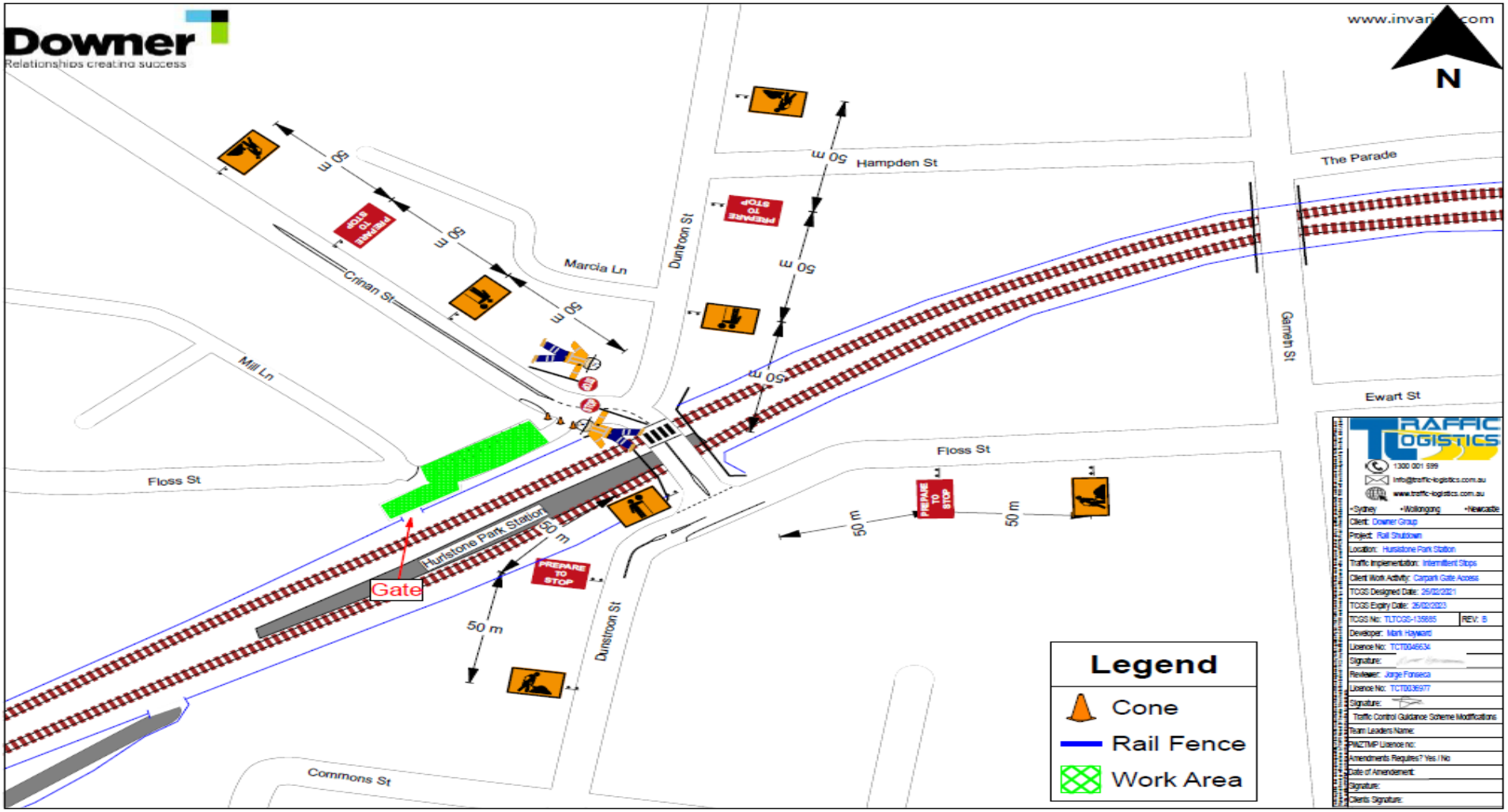
Punchbowl Station TCP



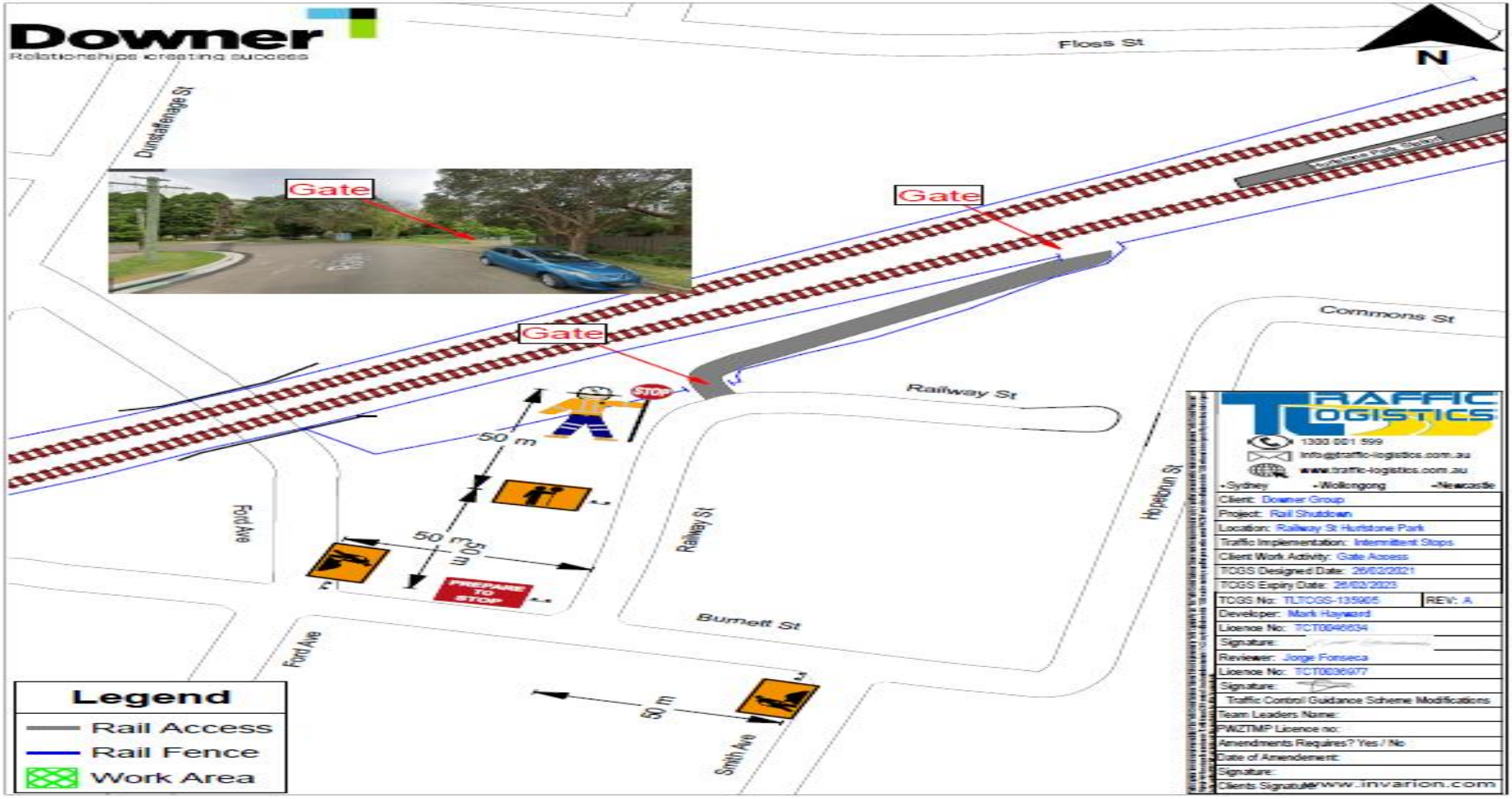
Hurlstone Park Station – TCP 1A



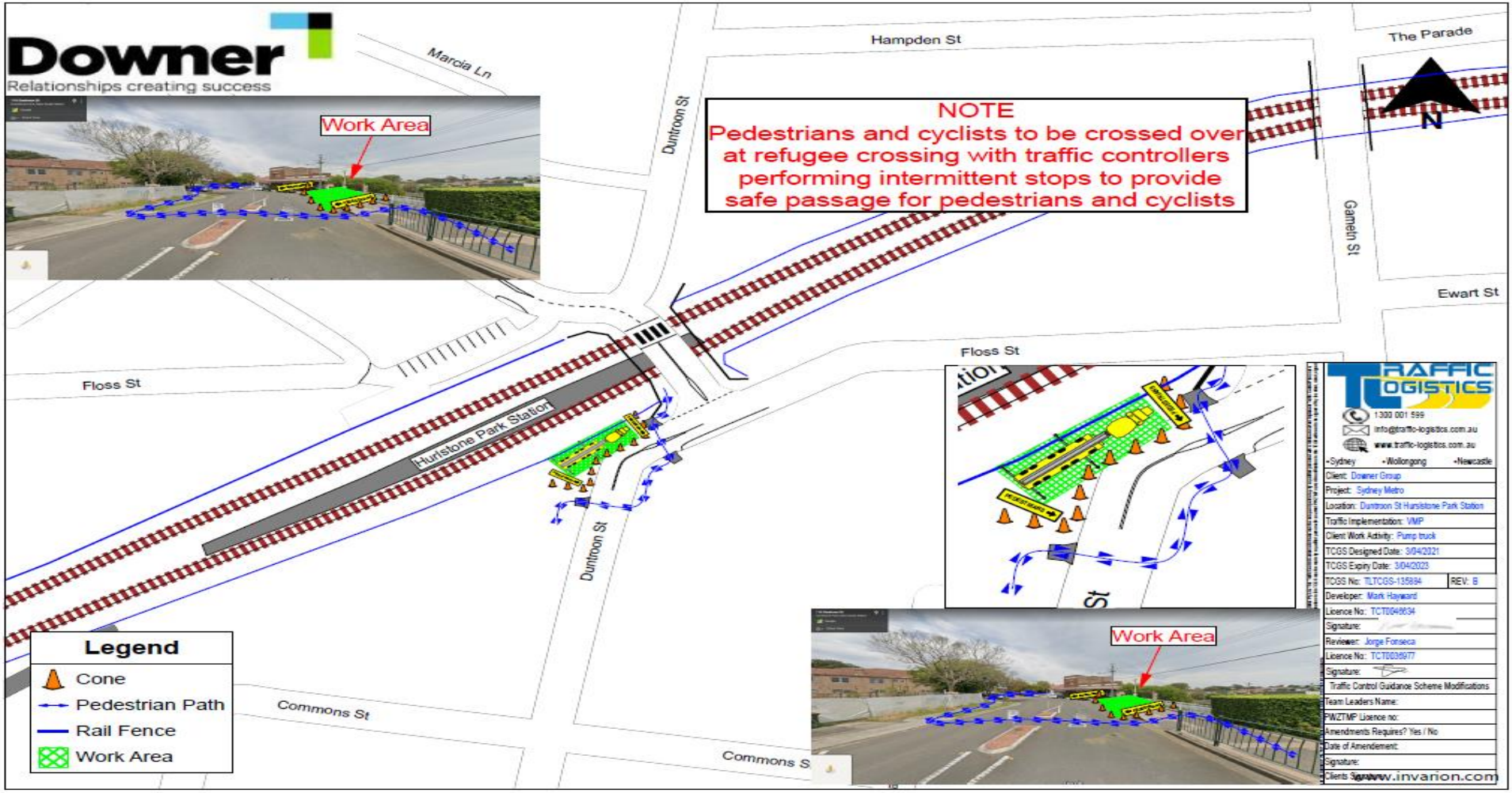
Hurlstone Park Station -TCP 1B



Hurlstone Park Station – TCP 1C

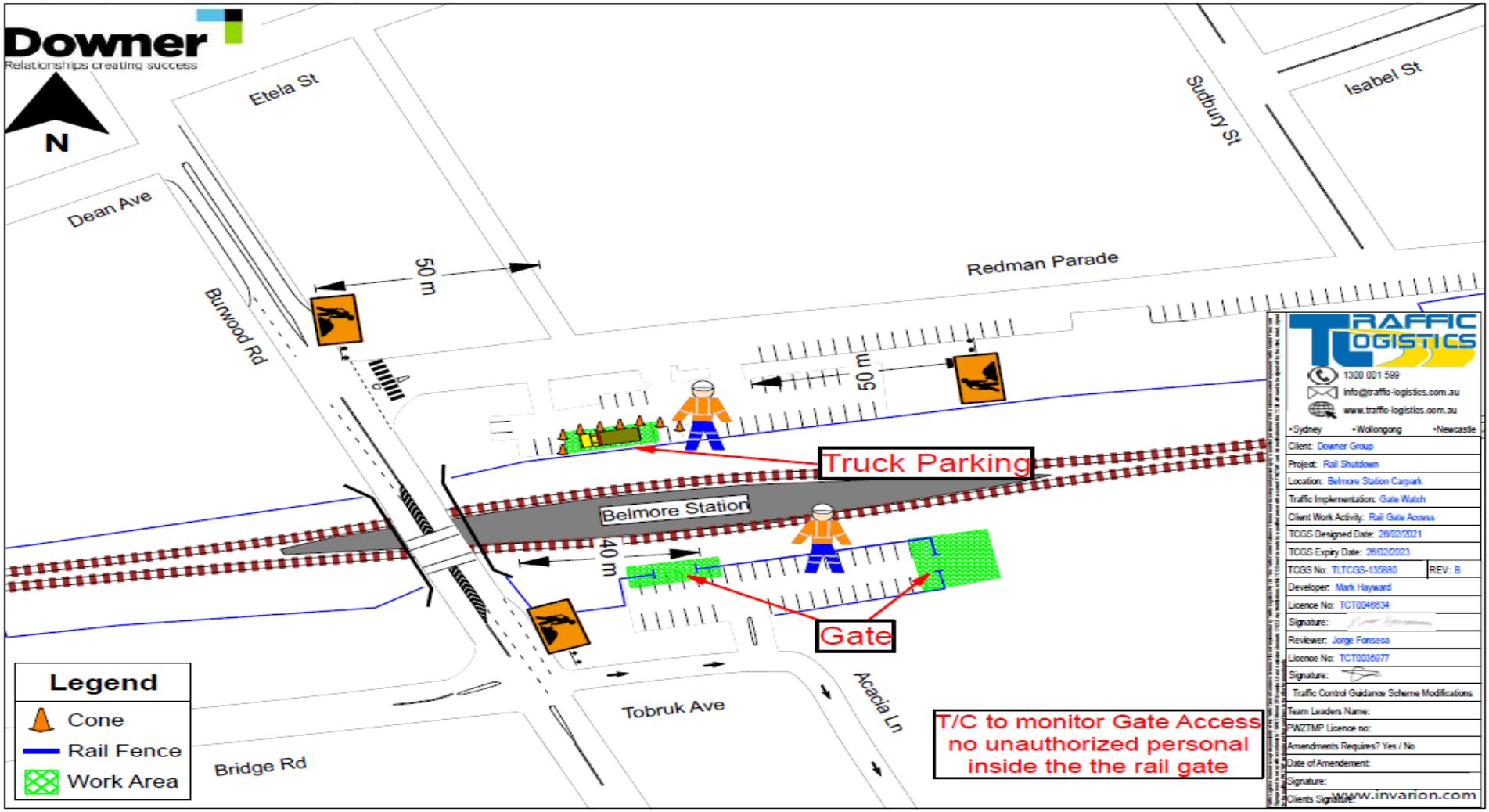


Hurlstone Park Station – PMP

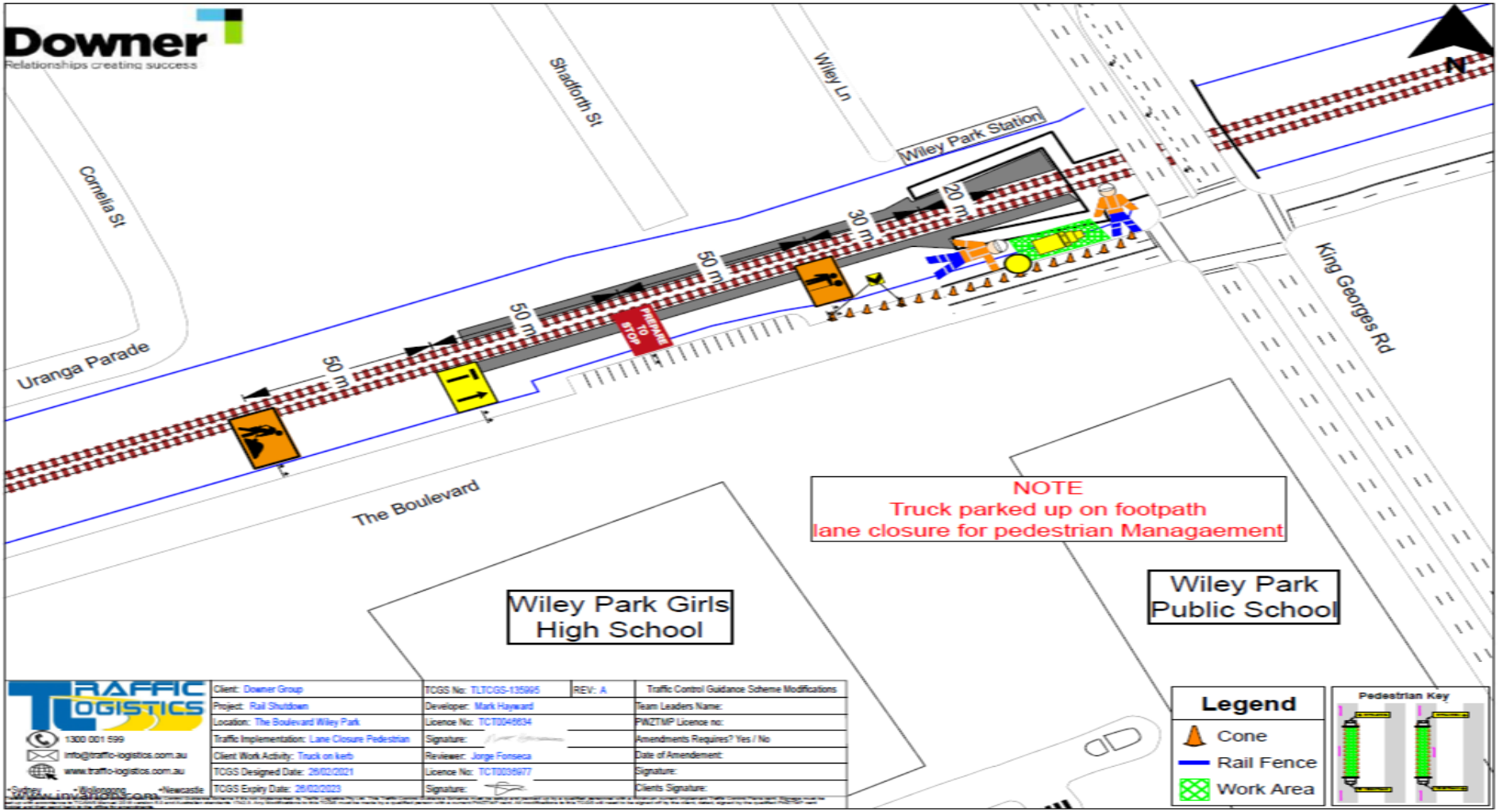


Belmore Station TCP 1A

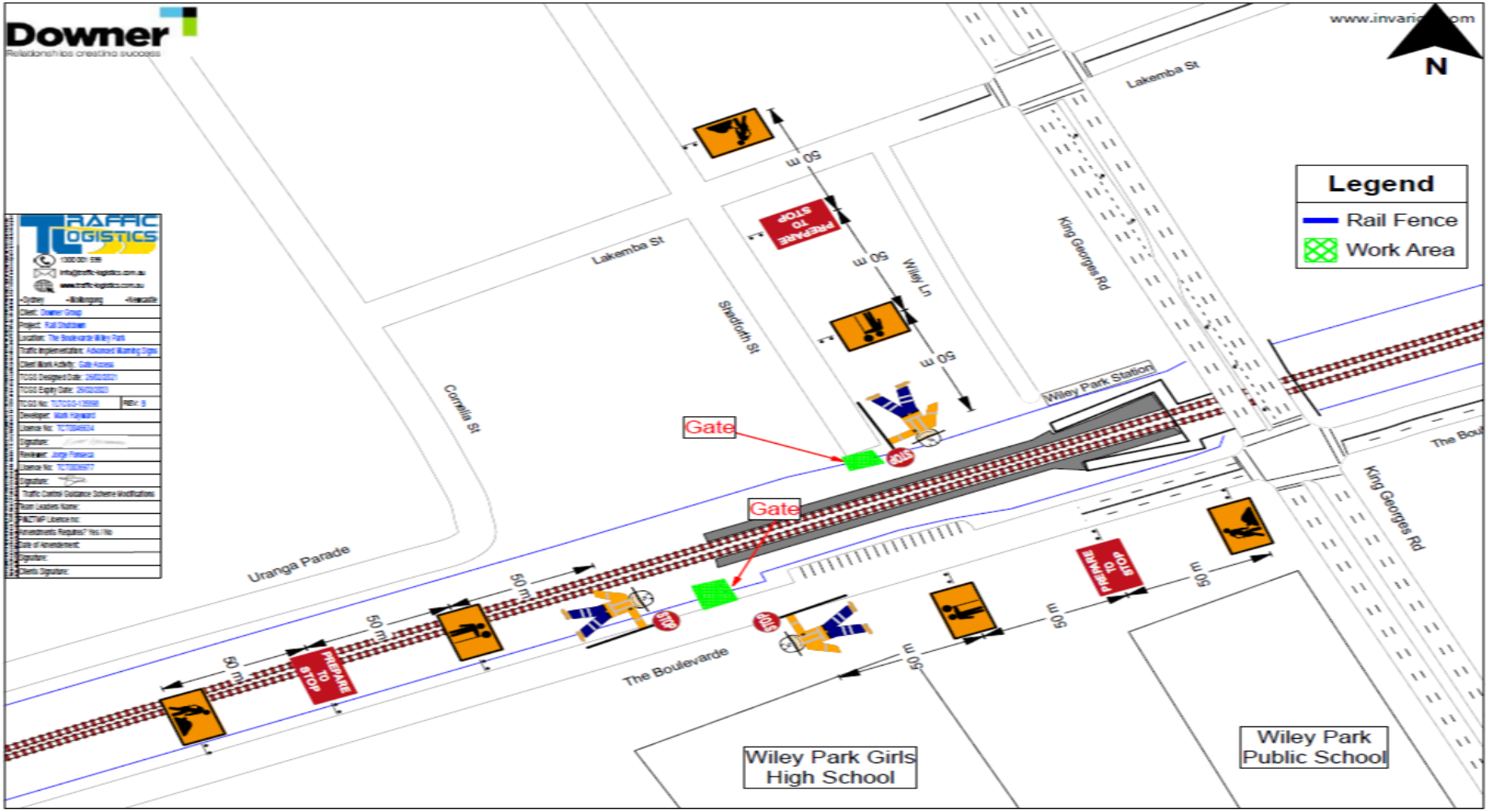
Belmore station TCP -1B



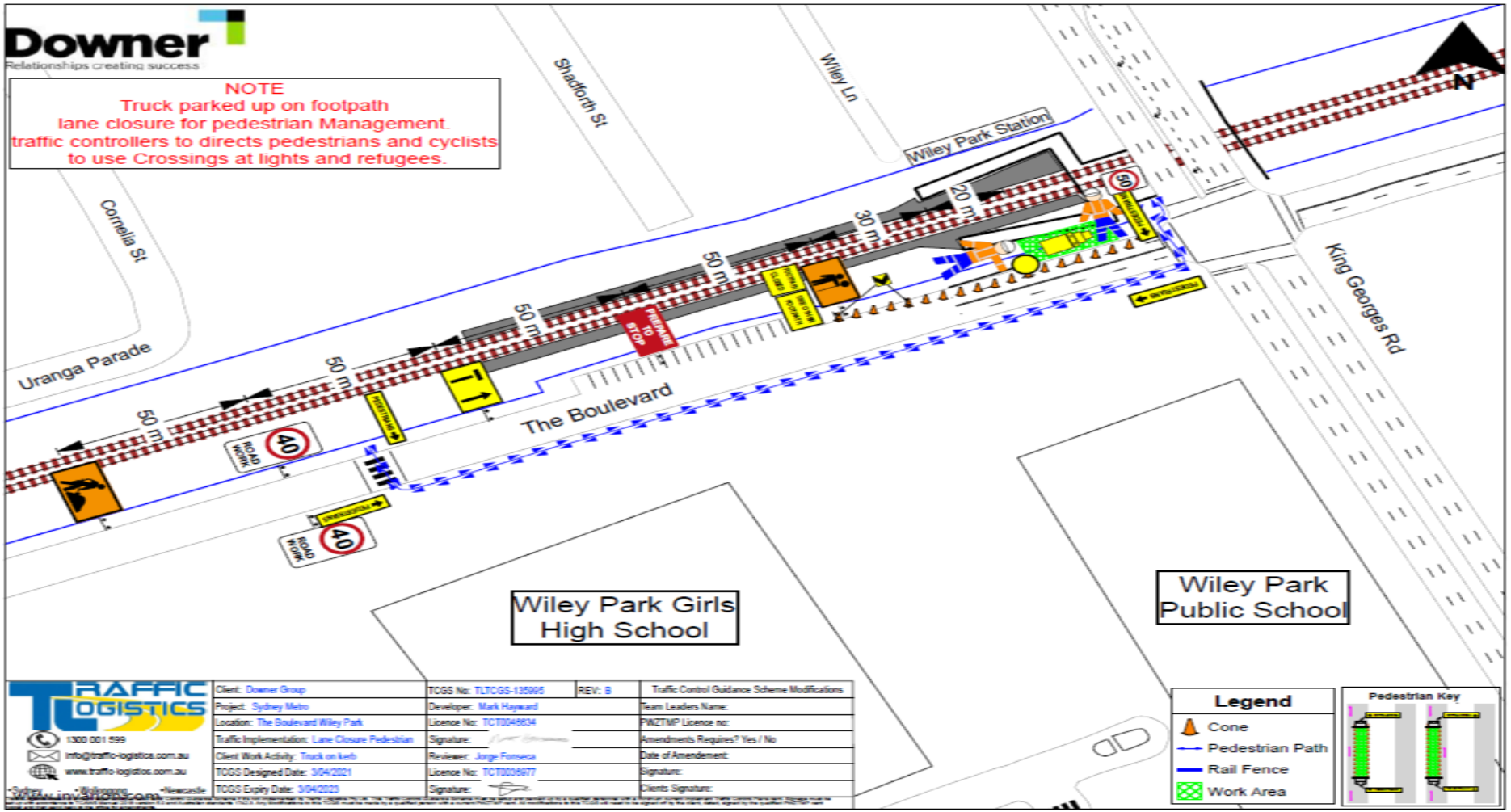
Wiley Park Station TCP -1A



Wiley Park Station TCP -1B

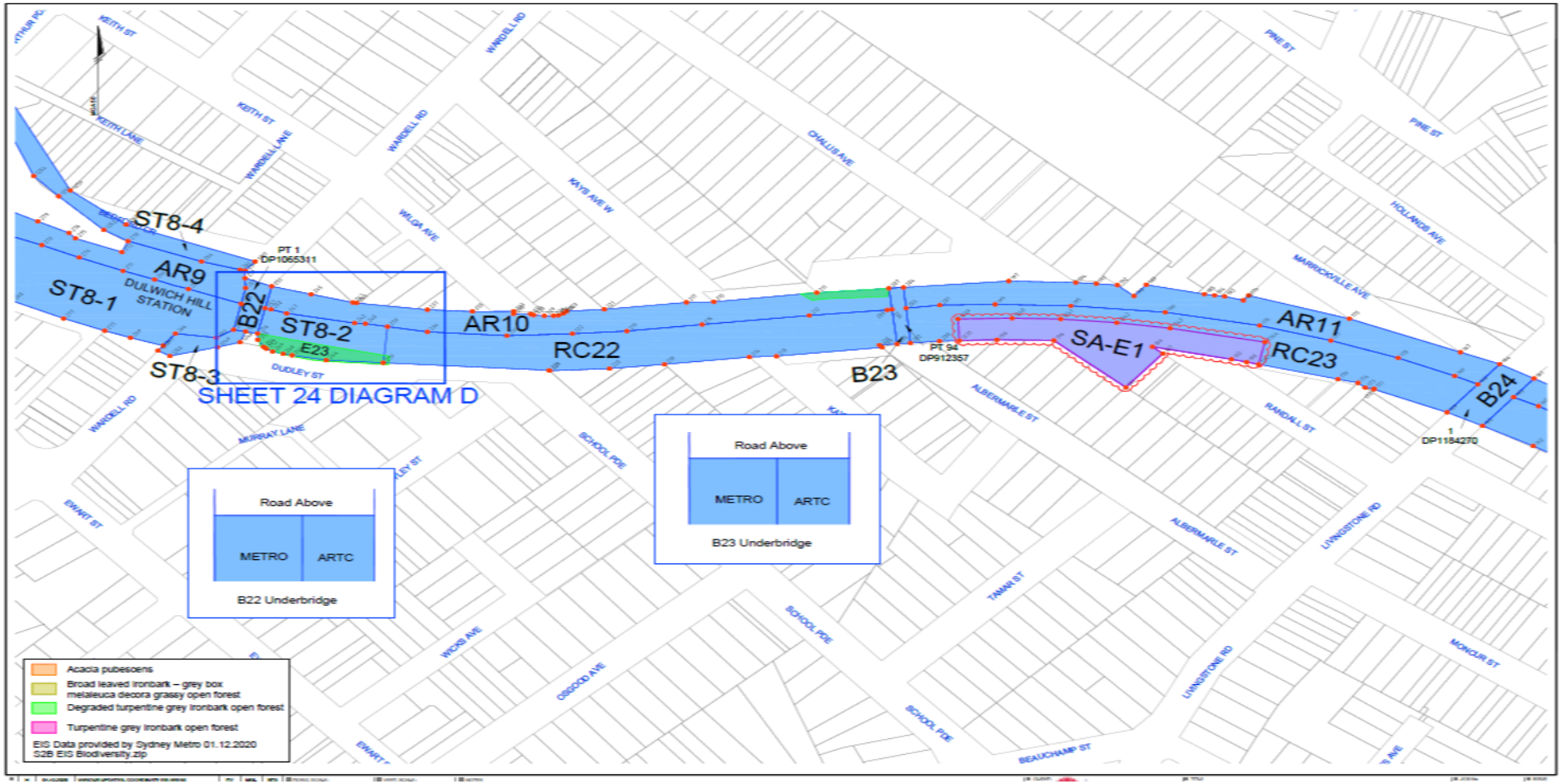


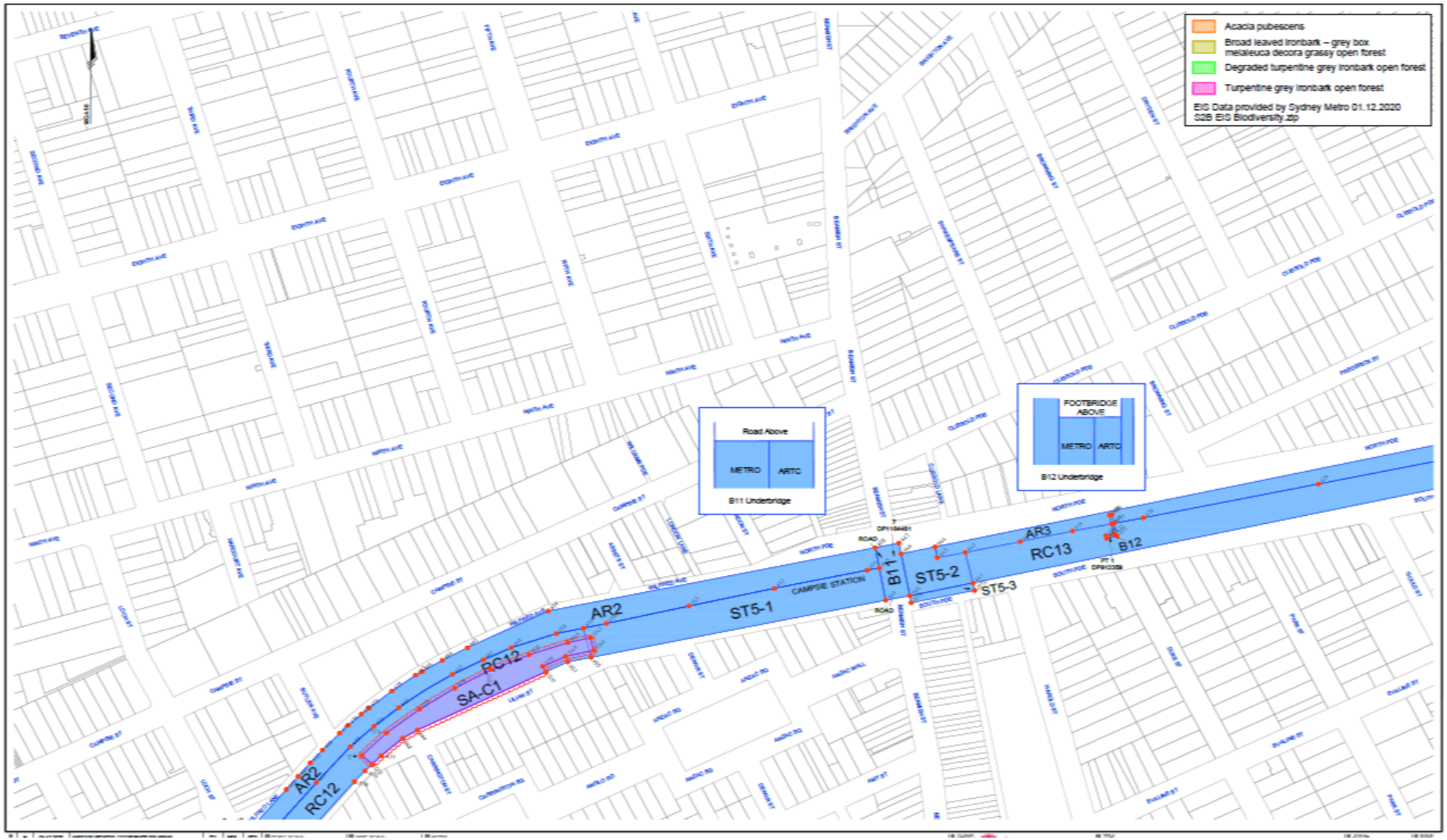
Wiley Park Station PMP

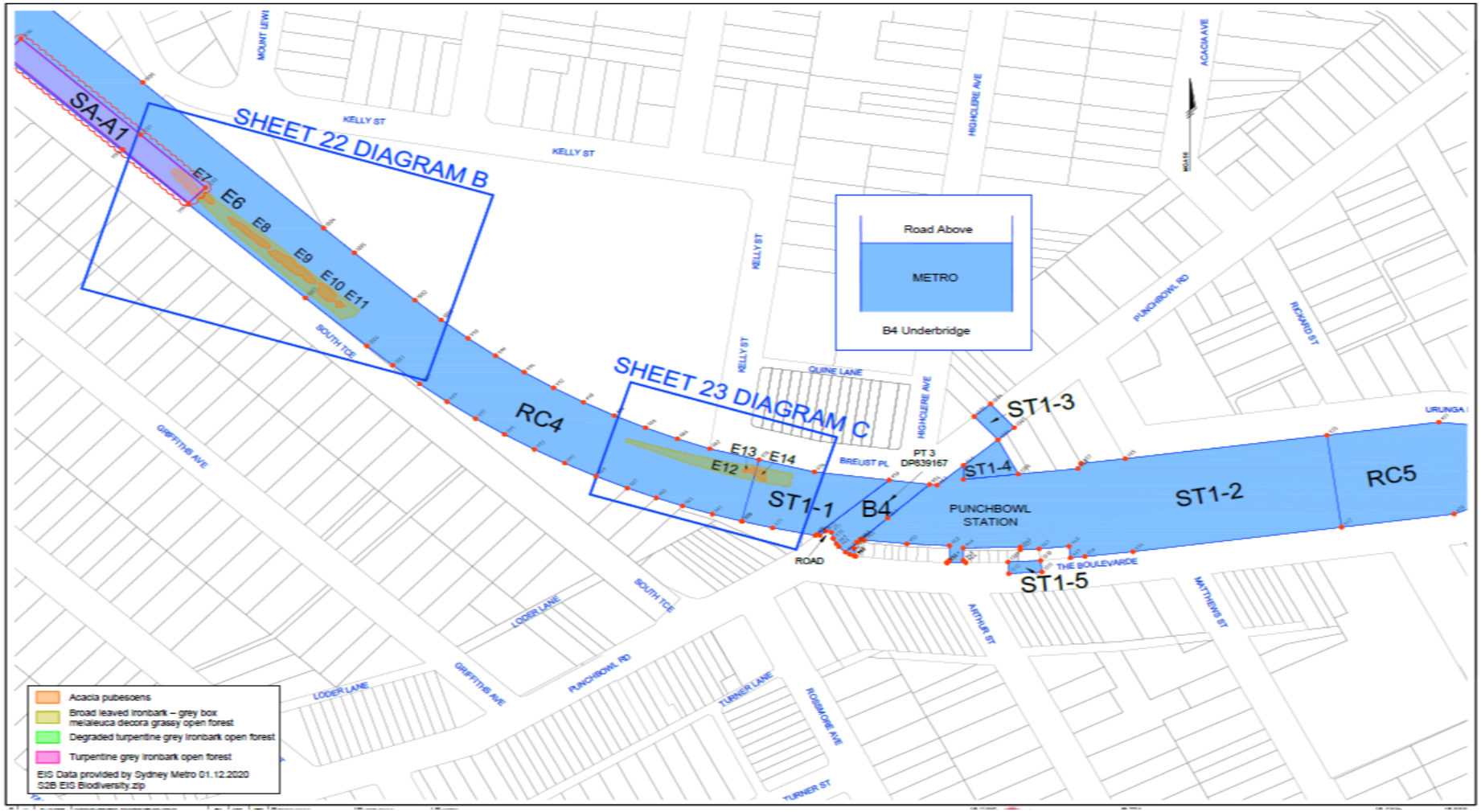


APPENDIX C – SITE ACCESS SCHEDULE

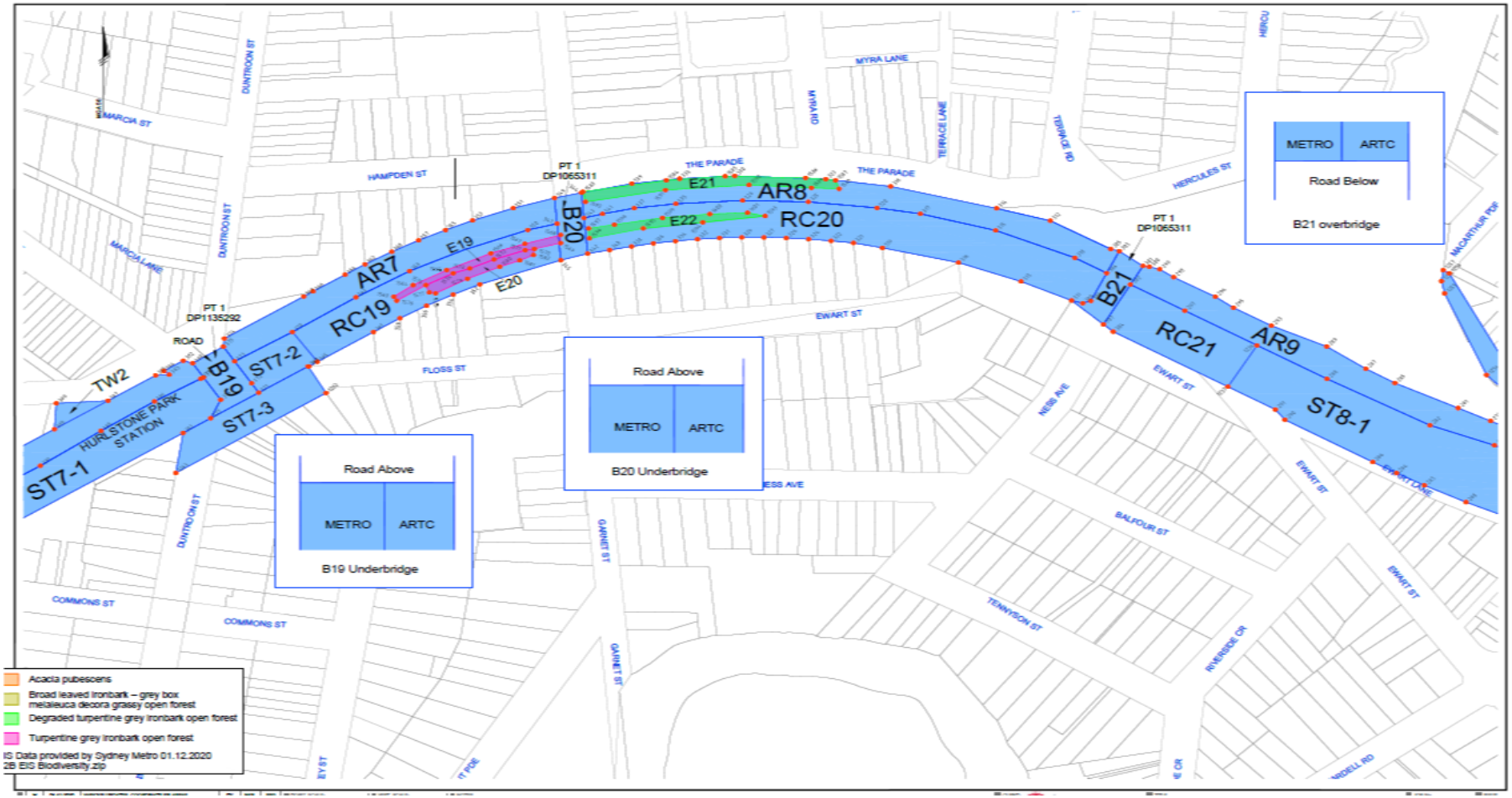
PACKAGE 5

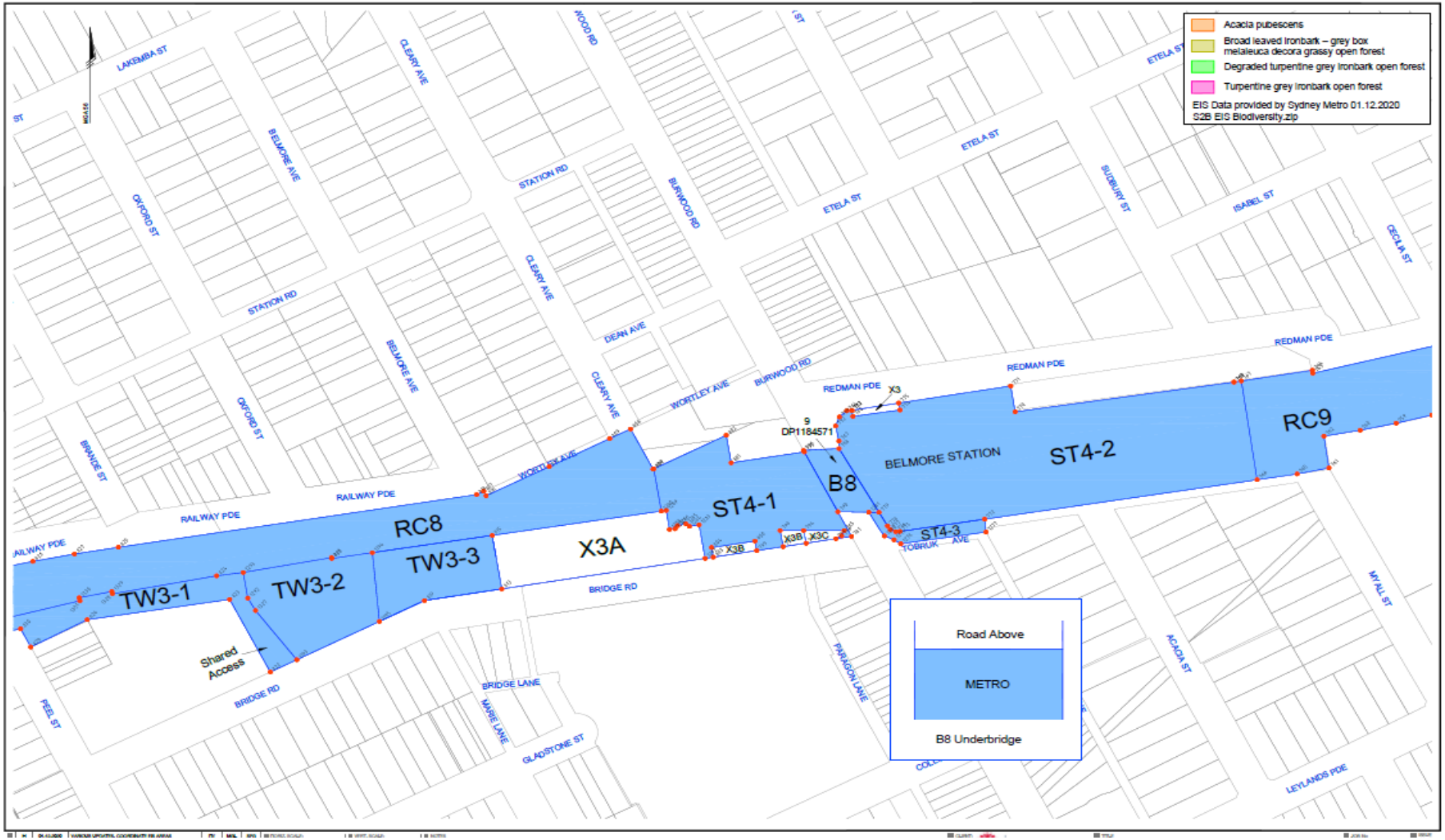




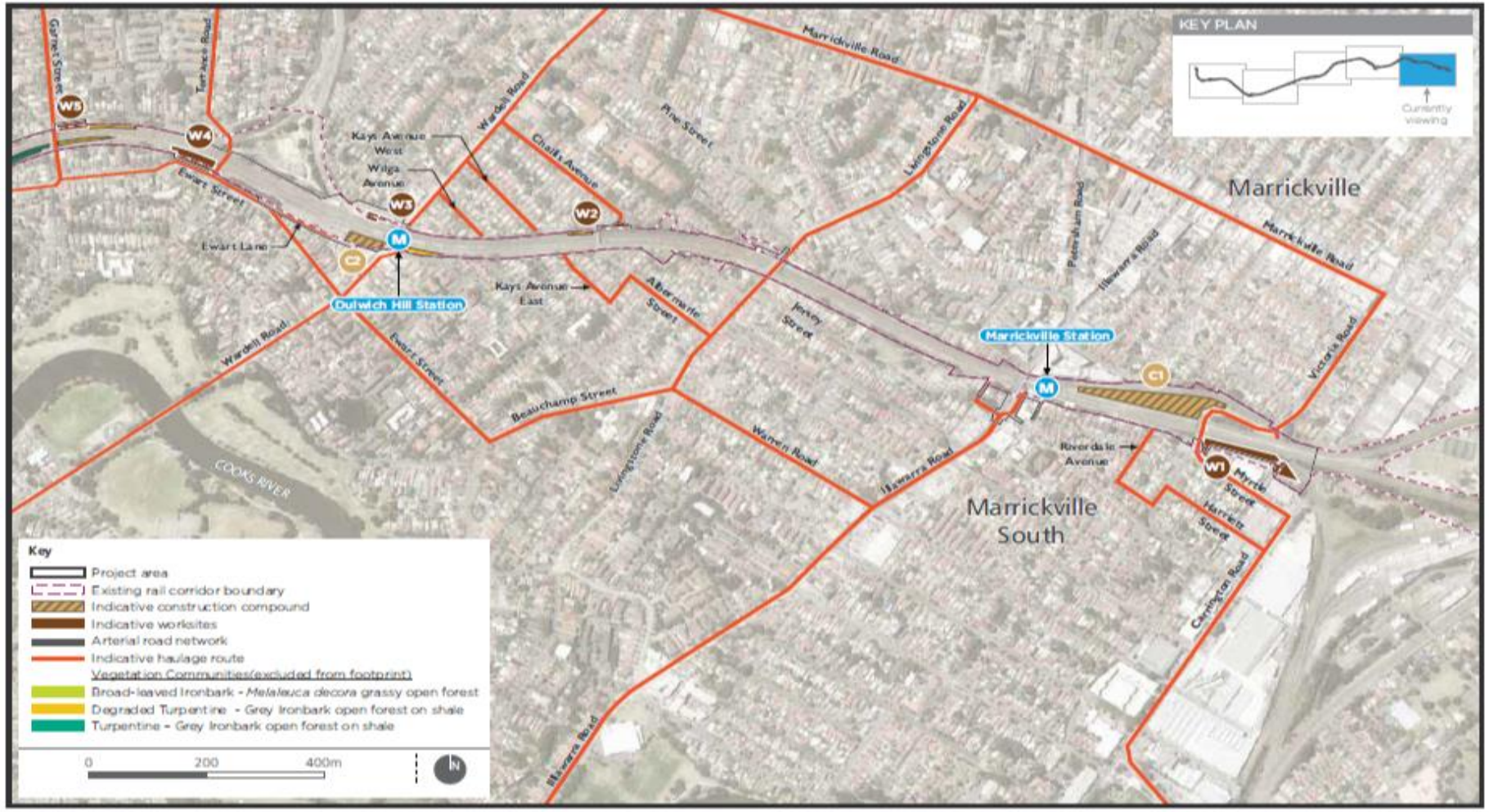


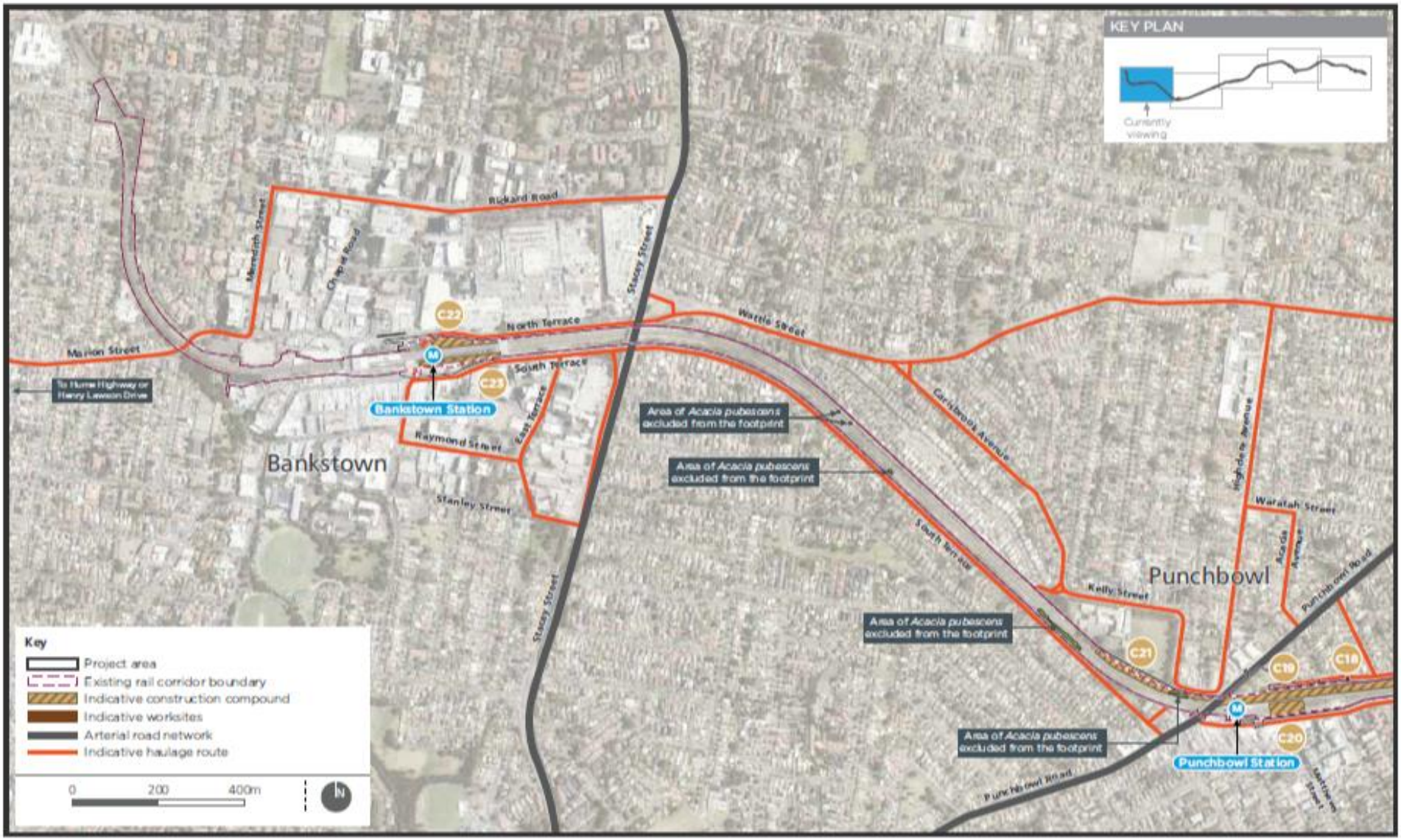
PACKAGE 6

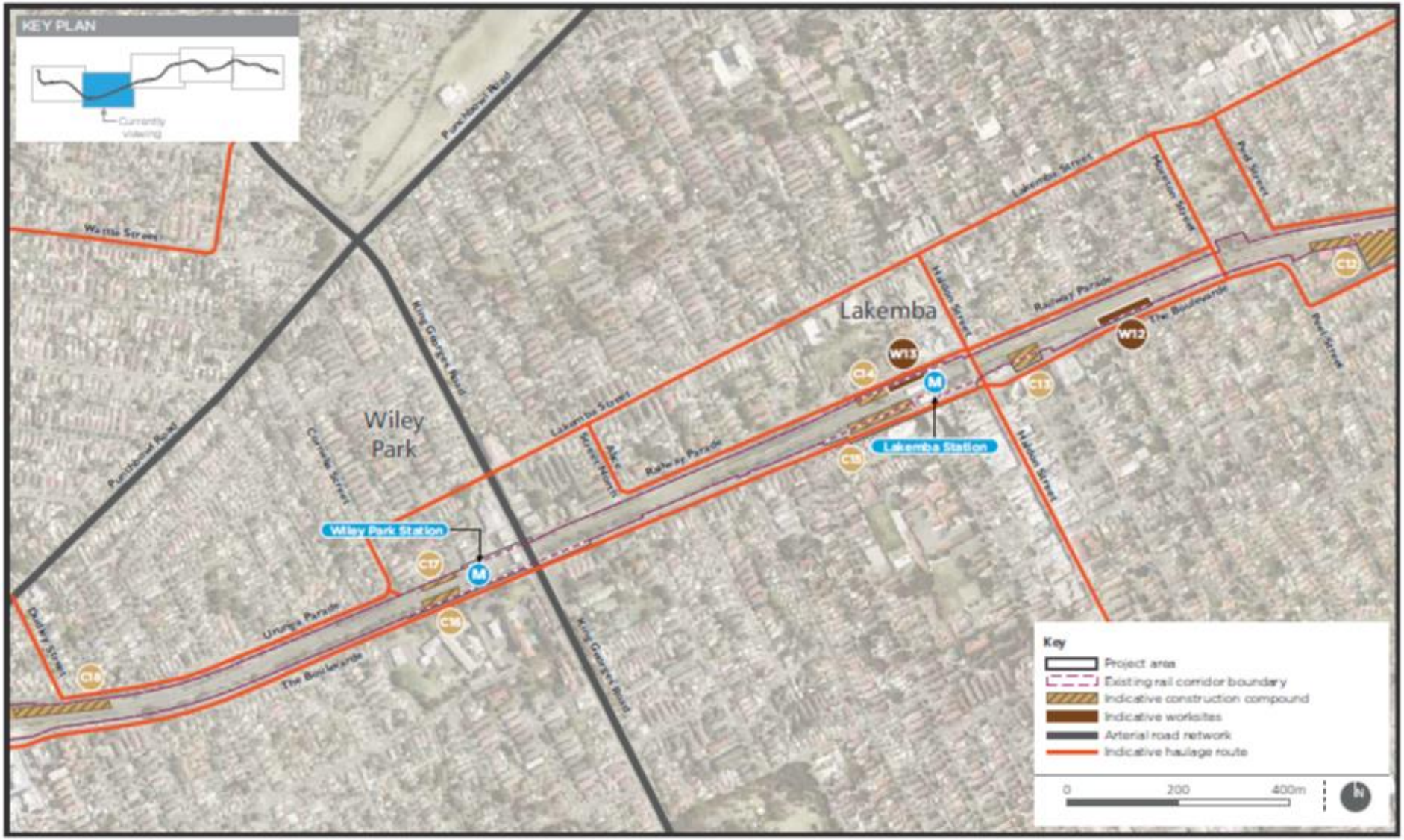




APPENDIX D – HAULAGE ROUTES







APPENDIX E – SCHEDULE OF POSSESSIONS AND POTENTIAL OUT OF HOURS WORKS AS DICTATED BY SYDNEY TRAINS

Downer
Relationships creating success

Legend	
Working	(green)
No Works	(grey)

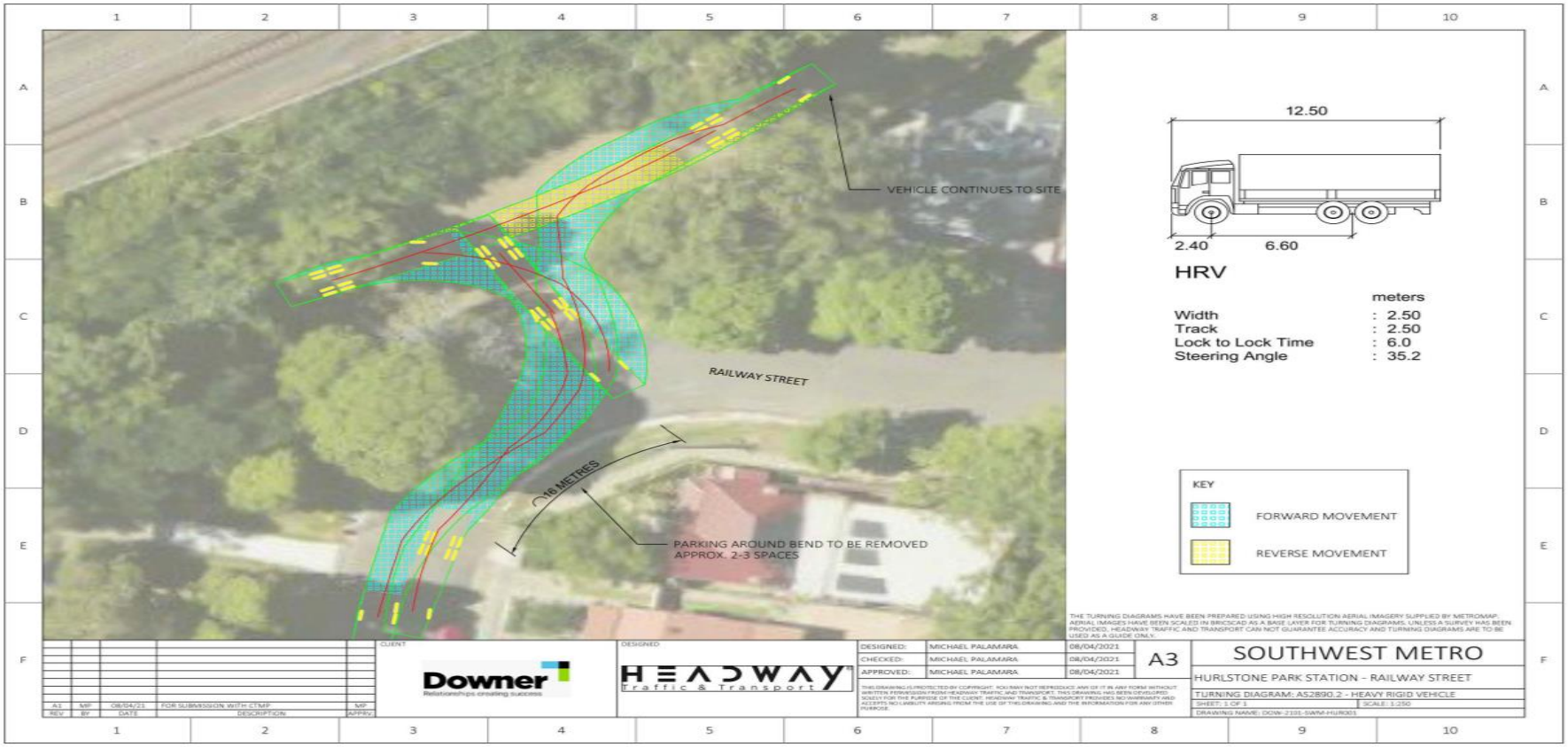
Note: Dates taken from Sydney Trains Weekend Possession Configuration Matrix 2020-21 & 2021-22 Version No. 3

Sydney Metro Package 5 & 6

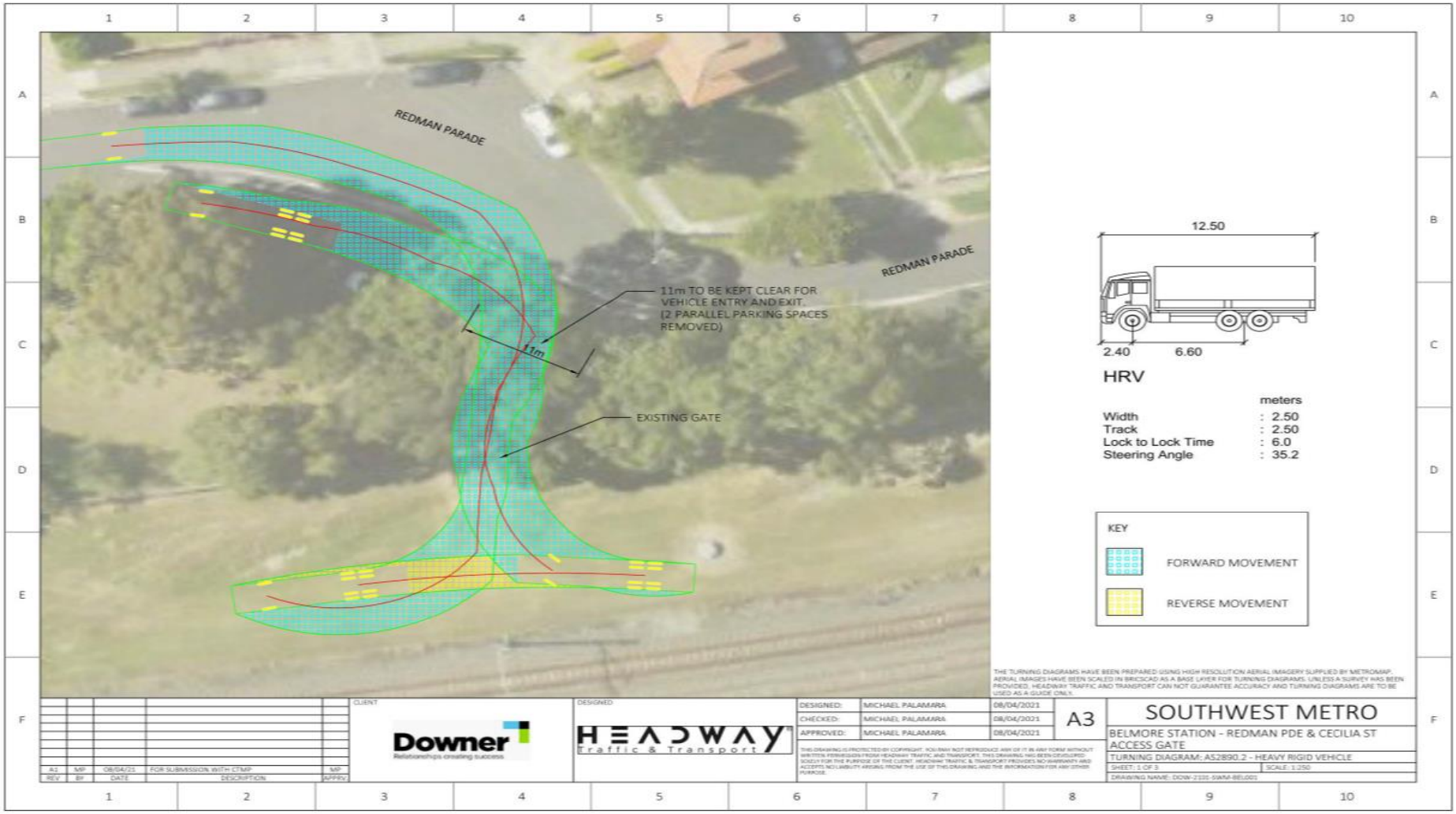
Year	Weekend #:	Configuration:	Possession Dates:	Package 5 Punchbowl	Package 5 Dulwich Hill	Package 5 Campsie	Package 6 Hurlsone Park	Package 6 Belmore	Package 6 Wiley Park
2020-21	WE38	BL + 10	Saturday, 20 March 2021	Working	Working	Working	Working	Working	Working
			Sunday, 21 March 2021	Working	Working	Working	Working	Working	Working
	WK42	BL	Monday, 19 April 2021	Working	Working	Working	Working	Working	Working
			Tuesday, 20 April 2021	Working	Working	Working	Working	Working	Working
			Wednesday, 21 April 2021	Working	Working	Working	Working	Working	Working
			Thursday, 22 April 2021	Working	Working	Working	Working	Working	Working
	WE48	BL	Saturday, 29 May 2021	Working	Working	Working	Working	Working	Working
			Sunday, 30 May 2021	Working	Working	Working	Working	Working	Working
	WE49	BL	Saturday, 5 June 2021	Working	Working	Working	Working	Working	Working
			Sunday, 6 June 2021	Working	Working	Working	Working	Working	Working
2021-22	BL Shutdown	BL	Monday, 28 June 2021	Working	Working	Working	Working	Working	Working
			Tuesday, 29 June 2021	Working	Working	Working	Working	Working	Working
			Wednesday, 30 June 2021	Working	Working	Working	Working	Working	Working
			Thursday, 1 July 2021	Working	Working	Working	Working	Working	Working
			Friday, 2 July 2021	Working	Working	Working	Working	Working	Working
			Saturday, 3 July 2021	Working	Working	Working	Working	Working	Working
			Sunday, 4 July 2021	Working	Working	Working	Working	Working	Working
			Monday, 5 July 2021	Working	Working	Working	Working	Working	Working
			Tuesday, 6 July 2021	Working	Working	Working	Working	Working	Working
			Wednesday, 7 July 2021	Working	Working	Working	Working	Working	Working
			Thursday, 8 July 2021	Working	Working	Working	Working	Working	Working
			Friday, 9 July 2021	Working	Working	Working	Working	Working	Working
			Saturday, 10 July 2021	Working	Working	Working	Working	Working	Working
			Sunday, 11 July 2021	Working	Working	Working	Working	Working	Working
	WE06	BL	Saturday, 7 August 2021	Working	Working	Working	Working	Working	Working
			Sunday, 8 August 2021	Working	Working	Working	Working	Working	Working
	WE07	BL + 10	Saturday, 14 August 2021	Working	Working	Working	Working	Working	Working
			Sunday, 15 August 2021	Working	Working	Working	Working	Working	Working
	WE16	BL + 10	Saturday, 16 October 2021	Working	Working	Working	Working	Working	Working
			Sunday, 17 October 2021	Working	Working	Working	Working	Working	Working
	WE19	BL	Saturday, 6 November 2021	Working	Working	Working	Working	Working	Working
			Sunday, 7 November 2021	Working	Working	Working	Working	Working	Working
	BL Shutdown	BL (+ 10 on 8-9 Jan)	Sunday, 26 December 2021	Working	Working	Working	Working	Working	Working
			Monday, 27 December 2021	Working	Working	Working	Working	Working	Working
			Tuesday, 28 December 2021	Working	Working	Working	Working	Working	Working
			Wednesday, 29 December 2021	Working	Working	Working	Working	Working	Working
			Thursday, 30 December 2021	Working	Working	Working	Working	Working	Working
			Friday, 31 December 2021	Working	Working	Working	Working	Working	Working
			Saturday, 1 January 2022	Working	Working	Working	Working	Working	Working
			Sunday, 2 January 2022	Working	Working	Working	Working	Working	Working
			Monday, 3 January 2022	Working	Working	Working	Working	Working	Working
			Tuesday, 4 January 2022	Working	Working	Working	Working	Working	Working
			Wednesday, 5 January 2022	Working	Working	Working	Working	Working	Working
			Thursday, 6 January 2022	Working	Working	Working	Working	Working	Working
			Friday, 7 January 2022	Working	Working	Working	Working	Working	Working
			Saturday, 8 January 2022	Working	Working	Working	Working	Working	Working
			Sunday, 9 January 2022	Working	Working	Working	Working	Working	Working
			Monday, 10 January 2022	Working	Working	Working	Working	Working	Working
	WE32	BL	Saturday, 5 February 2022	Working	Working	Working	Working	Working	Working
			Sunday, 6 February 2022	Working	Working	Working	Working	Working	Working
	WE39	BL + 10	Saturday, 26 March 2022	Working	Working	Working	Working	Working	Working
			Sunday, 27 March 2022	Working	Working	Working	Working	Working	Working
	WE43	BL	Saturday, 23 April 2022						
			Sunday, 24 April 2022						
	WE45	BL + 10	Saturday, 7 May 2022						
			Sunday, 8 May 2022						

APPENDIX F – SWEPT PATH ANALYSIS, SITE LAYOUT PLAN

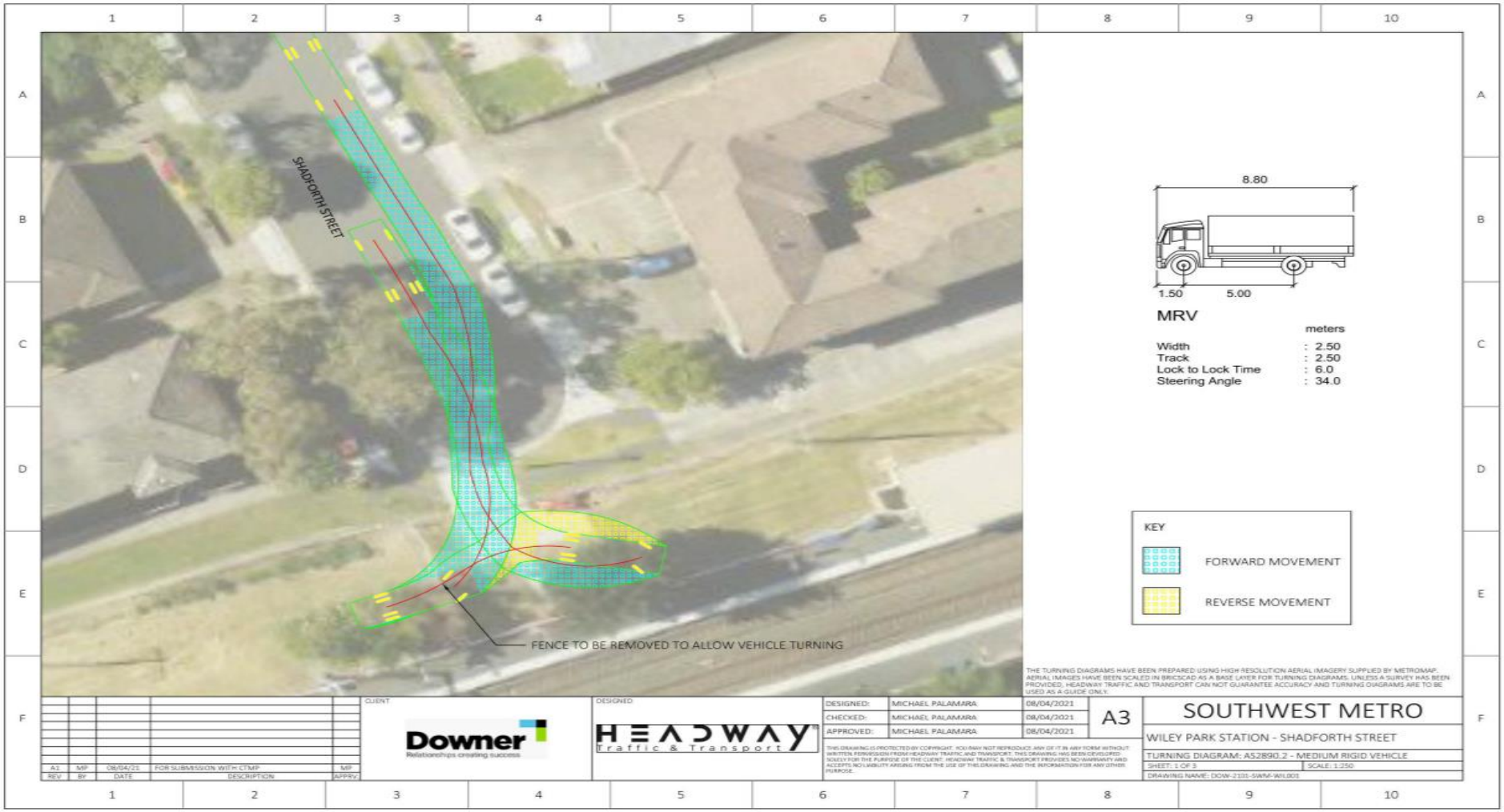
Hurlstone Park - Swept Path Analysis



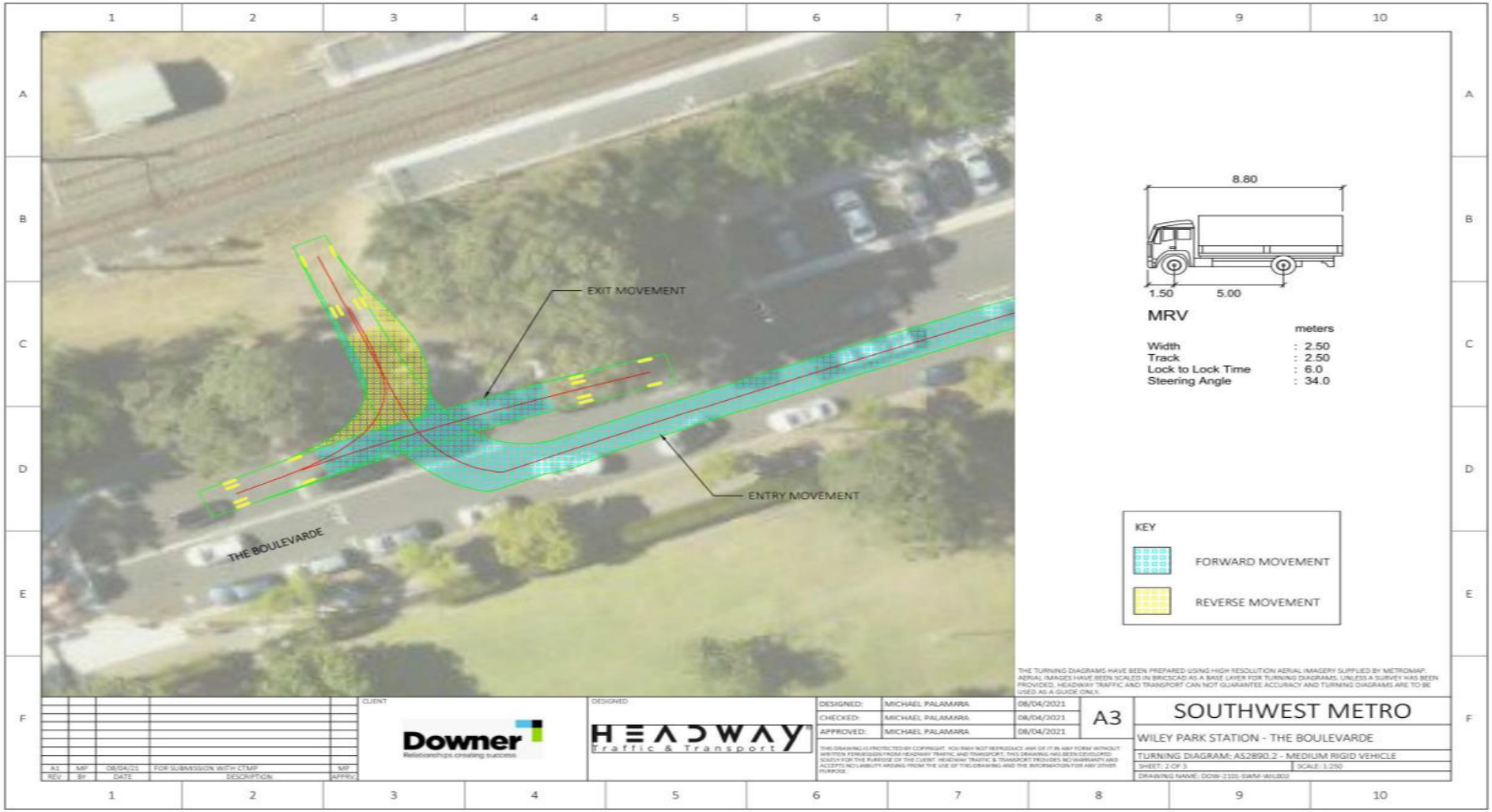
Belmore Station - Swept Path Analysis



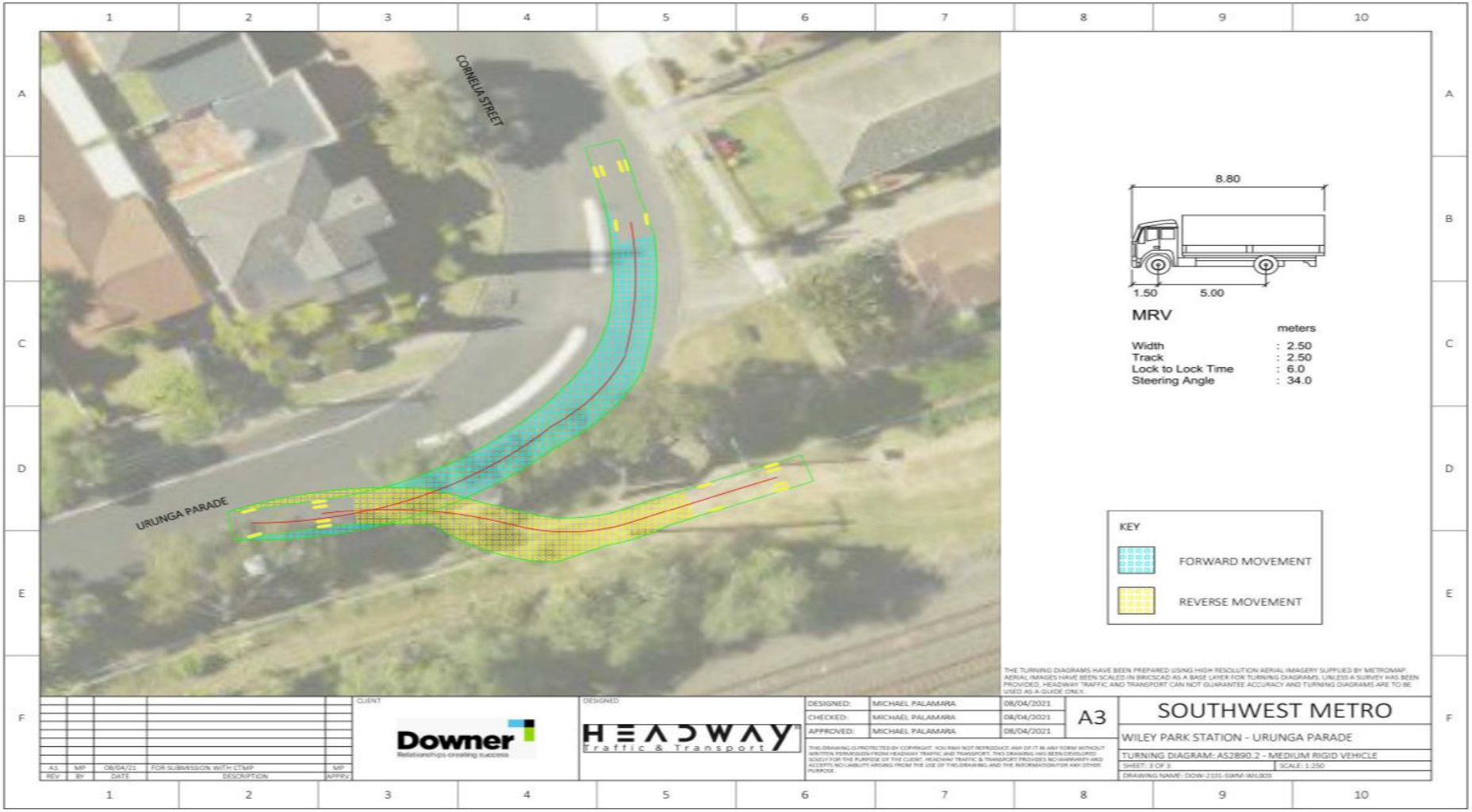
Wiley Park Station - Swept Path Analysis ,1A



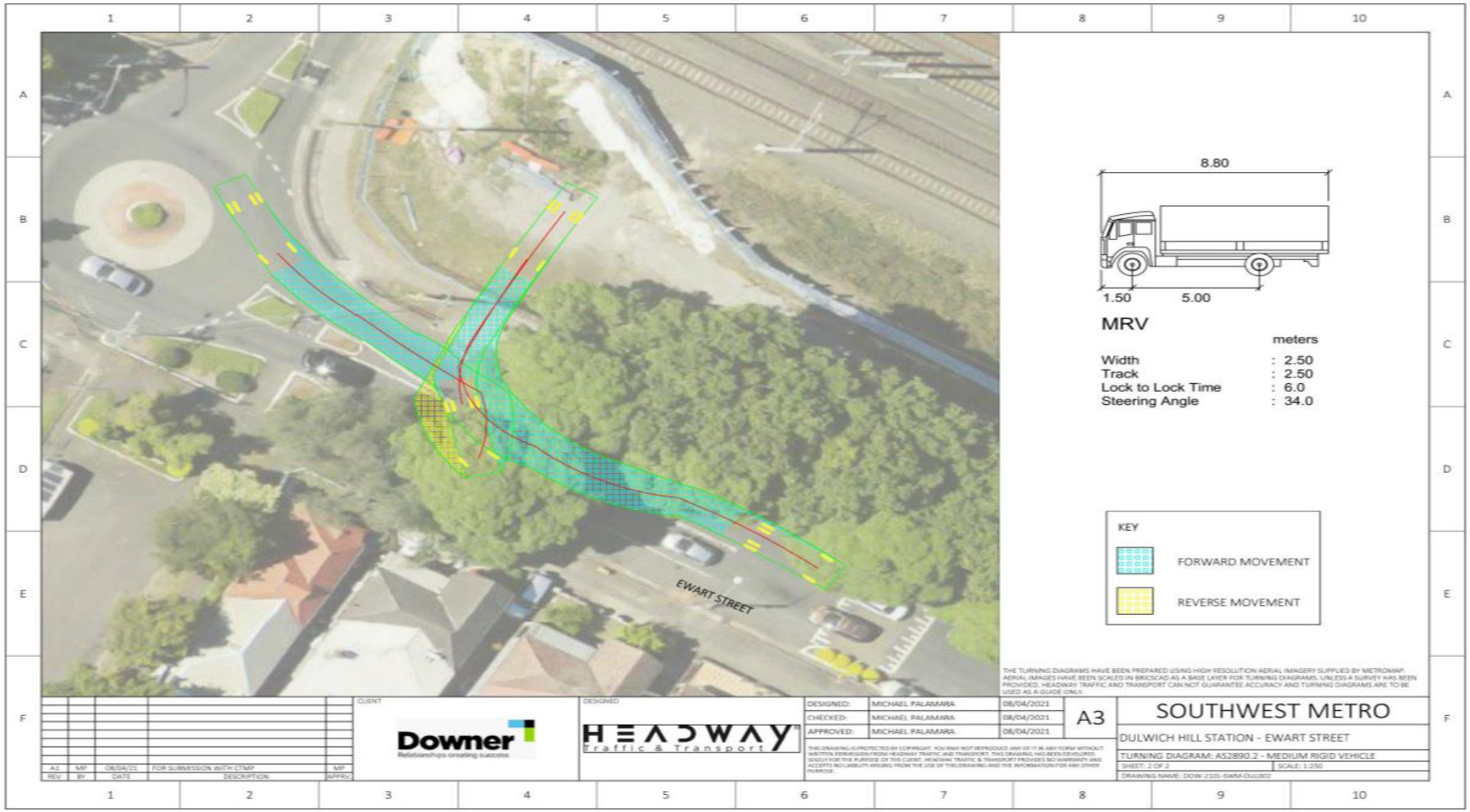
Wiley Park Station - Swept Path Analysis,1B



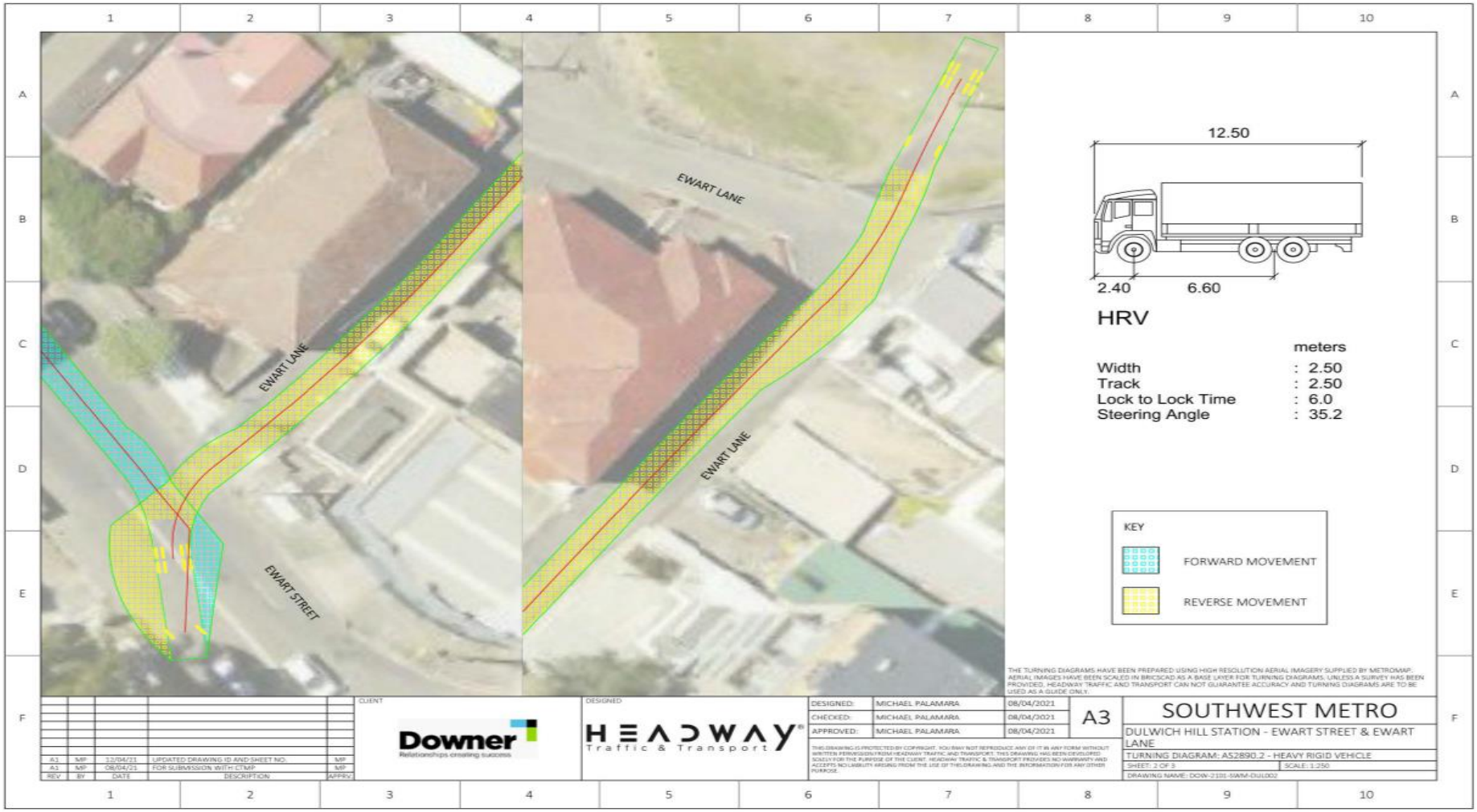
Wiley Park Station - Swept Path Analysis,1C



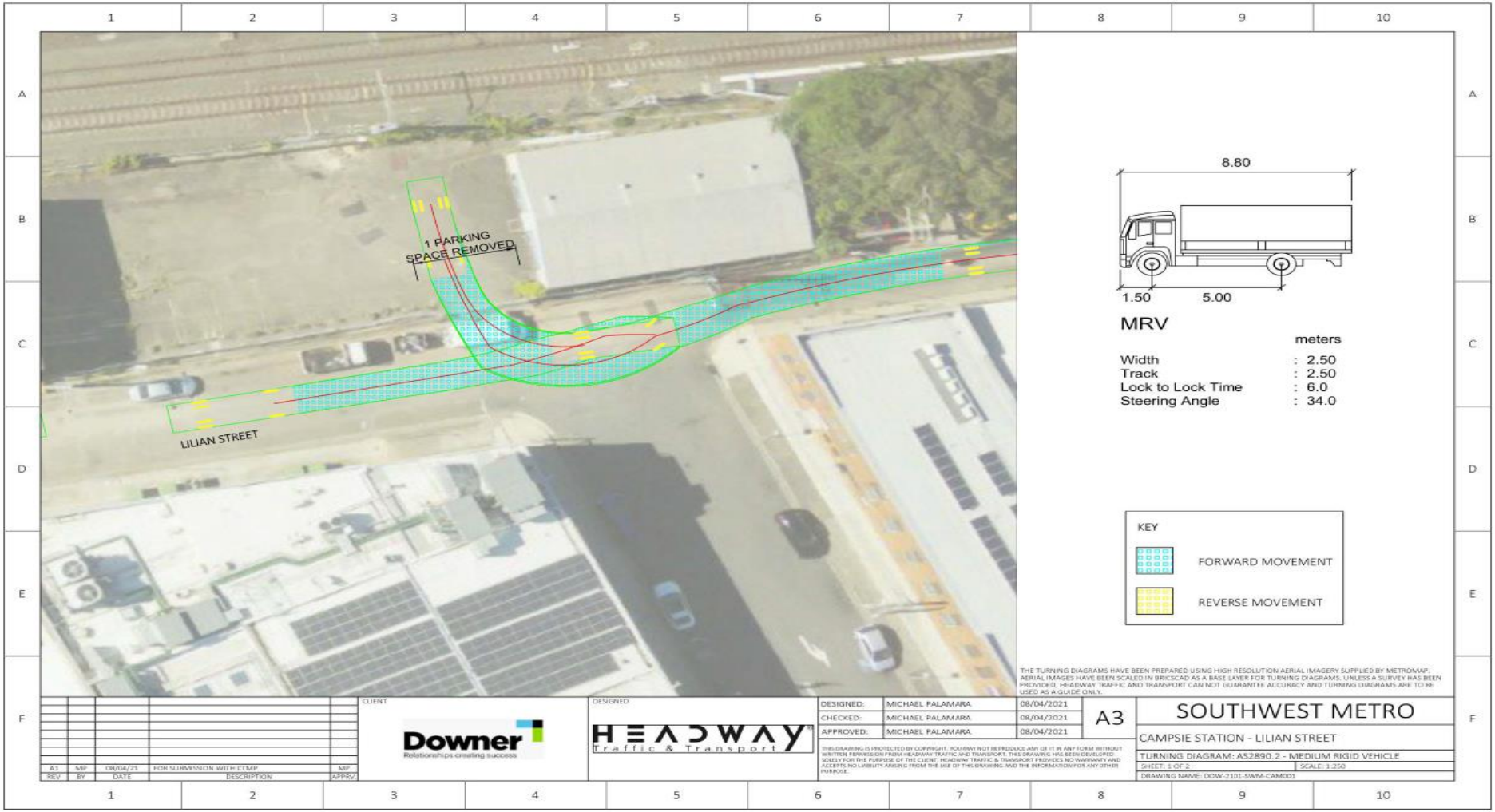
Dulwich Hill Station-Swept Path Analysis, 1A



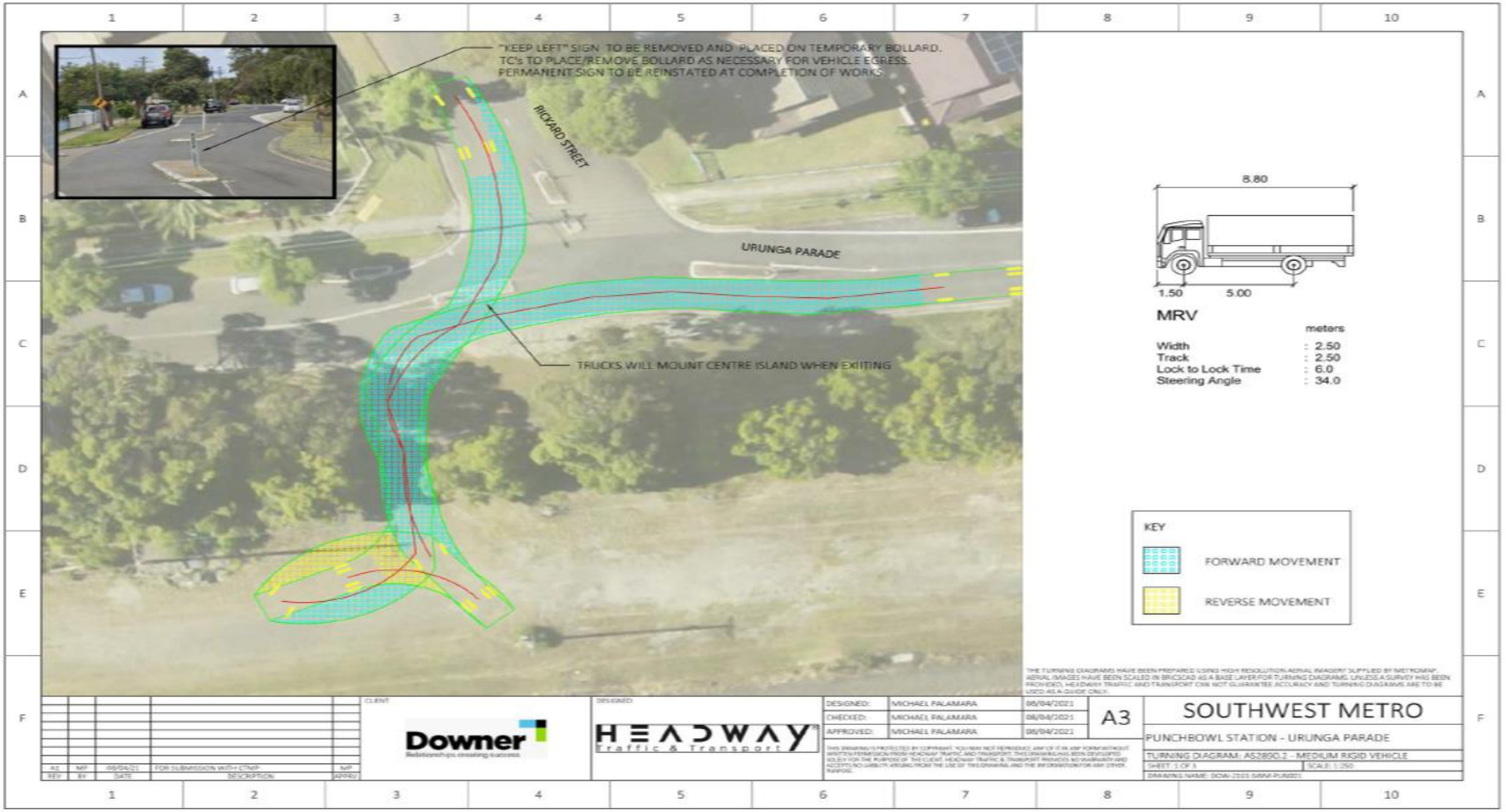
Dulwich Hill Station-Swept Path Analysis,1B



Campsie Station-Swept Path Analysis



Punchbowl Station-Swept Path Analysis. 1A



Punchbowl Station-Swept Path Analysis,1B