

TAFE NSW Construction Centre of Excellence Nepean Kingswood Campus – 2-44 O'Connell Street, Kingswood

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DOCUMENT VERIFICATION

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Project	TAFE NSW Construction Centre of Excellence					
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Client	TAFE NSW					
Revision	Date	Prepared By	Checked By	Signed		
v 04	12/05/2021	Justin Pindar	Vince Doan			

TRAFFIC CONTROL PLAN CERTIFICATES

Prepare a V	Vork Zone Traffic Management Plan		
Name	Vince Doan	Certificate No.	0052002098



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1. INTRODUCTION

TRAFFIX has been commissioned by Cadence Australia Pty Ltd on behalf of TAFE NSW to prepare a preliminary Construction Traffic and Pedestrian Management Plan (CTPMP) report in relation to the proposed TAFE NSW Construction Centre of Excellence at the Nepean Kingswood campus at 2-44 O'Connell Street, Kingswood (Application No: SSD-8571481).

This report documents the preliminary construction traffic management arrangements, methodology and traffic impacts associated with the construction of the development and should be read in conjunction with any other construction documentation prepared by Cadence Australia Pty Ltd. It should be noted that a comprehensive CTPMP can be prepared in response to SEARs conditions upon approval of the development and once a builder has been appointed to determine the exact construction methodology.

The report is structured as follows:

-) Section 2: Outlines the CTPMP requirements
-) Section 3: Documents existing traffic conditions
-) Section 4: Describes the overall construction program
-) Section 5: Describes the proposed traffic management arrangements
-) Section 6: Concludes the report



2. CTPMP REQUIREMENTS

2.1 Traffic Control Plan

The Traffic Control Plan (TCP) that is included in this report, should be implemented taking due account of on-site conditions as will occur over the construction period. Accordingly, construction crews are expected to respond in a pro-active manner to ensure that this plan is implemented to maximum effect and with no obvious safety issues being overlooked. In particular, the following matters are considered noteworthy:

-) All signs are to be placed where clear visibility is available;
-) Installations should be checked intermittently during the course of the day/s; and
- A Roads and Maritime Services (RMS) certified Traffic Controller shall be on-site during work hours to supervise vehicle and pedestrian movements.

It is noted that TRAFFIX is responsible for the preparation of this CTPMP only and not for its implementation, which is the responsibility of the project manager/builder.

2.2 SEARs Condition

The Planning Secretary's Environmental Assessment Requirements (SEARs) outlines the requirement for the preparation of a preliminary CTPMP and in particular, an item within Condition 7, which states:

7. Transport and Accessibility

The preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic addressing the following:

- Assessment of cumulative impacts associated with other construction activities (if any);
- An assessment of road safety at key intersections and locations subject to heavy vehicle construction traffic movements and high pedestrian activity;
- Details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process;



- Details of anticipated peak hour and daily construction vehicle movements to and from the site;
- Details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicles;
 and
- o Details of temporary cycling and pedestrian access during construction.



3. EXISTING CONDITIONS

3.1 Location and Site

The subject site is located within the TAFE NSW Nepean Kingswood campus at 2-44 O'Connell Street, Kingswood (Lot 1 in DP866081). More specifically, it is situated along the eastern boundary of the campus, north of 'Building T' and adjacent 'Building BA' of the Western Sydney University (WSU) Werrington South campus.

The site is rectangular in configuration with a total site area of approximately 2.1 hectares. It has a northern boundary to recreational area and southern boundary to Building T of the TAFE that measure approximately 100 metres. The remaining eastern and western boundaries measure approximately 210 metres to the internal road/Building BA of WSU and recreational area of the TAFE, respectively.

Vehicular access to the site is currently provided via the existing internal road network of the TAFE and WSU, including:

- O'Connell Street, situated near the southern boundary of the TAFE campus;
- O'Connell Street, situated on the southeast corner of the WSU campus; and
-) Great Western Highway, situated on the northeast corner of the WSU campus.

A Location Plan is presented in Figure 1, with a Site Plan presented in Figure 2 below.



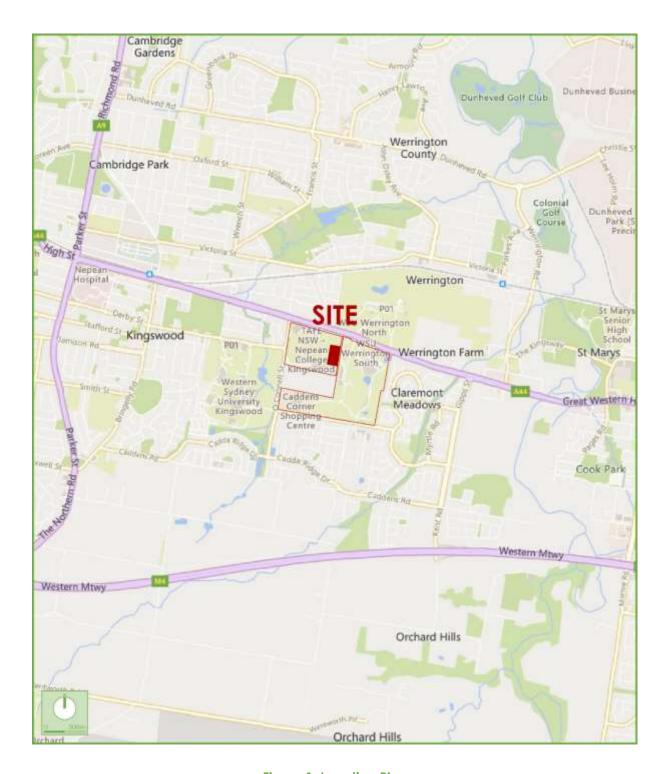


Figure 1: Location Plan



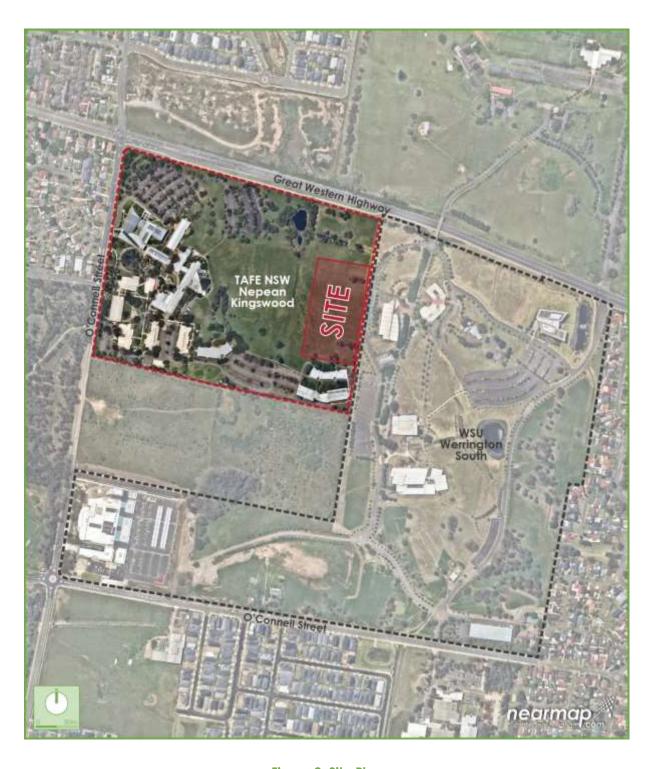


Figure 2: Site Plan



3.2 Road Network

The road hierarchy in the vicinity of the site is shown in Figure 3 with the following roads of particular interest:

) Great Western Highway:

an RMS highway (HW5) that traverses east-west between Sydney in the east and Bathurst in the west. Within the vicinity of the site, it is generally subject to 80km/h speed zoning (60km/h within proximity of the O'Connell Street intersection) and accommodates 2-3 lanes of traffic in each direction. Great Western Highway does not permit on-street parking and has been identified by the RMS as an approved 26.0m B-Double route.

) O'Connell Street:

a local road that traverses north-east between the Great Western Highway (HW5) in the north and Sunflower Drive in the east. It is generally subject to 50-60km/h speed zoning and accommodates a single lane of traffic in each direction. O'Connell Street permits on-street parking along both sides of the road.

) Gipps Street:

a local road that traverses north-south between the Great Western Highway (HW5) in the north and Kent Road in the south. It is subject to 80km/h speed zoning and accommodates a two (2) lanes of traffic in each direction. Gipps Street does not permit on-street parking along both sides of the road.

It can be seen from Figure 3 that the site is conveniently located with respect to the main arterial road serving the region, being the Great Western Highway. As such, traffic can effectively be distributed onto the wider road network, minimising traffic impacts.





Figure 3: Road Hierarchy



3.3 Public Transport

The subject site is within optimal walking distance (400 metres) of several bus services operating along O'Connell Street and the Great Western Highway. These bus services are presented in **Figure 4**, with the service frequencies during peak periods outlined in **Table 1** below.

Table 1: Bus Routes and Service Frequencies

Bus No.	Route	Service Frequency			
DUS NO.	Roule	Weekdays	Saturdays		
770	Mount Druitt to Penrith via St Marys	Every 20-30 minutes	Every 60 minutes		
775	Mount Druitt to Penrith via Erskine Park	Every 30 minutes	Every 60 minutes		
776	Mount Druitt to Penrith via St Clair	Every 20-30 minutes	Every 60 minutes		
835	UWS to Prairiewood	Every 30 minutes	-		

Furthermore, these above bus services provide regular services to Penrith, St Marys and Mount Druitt railway stations, which provide railway services along the following lines:

-) T1 North Shore and Western Line
-) T5 Cumberland Line
-) BML Blue Mountains Line
-) Regional Western NSW Line



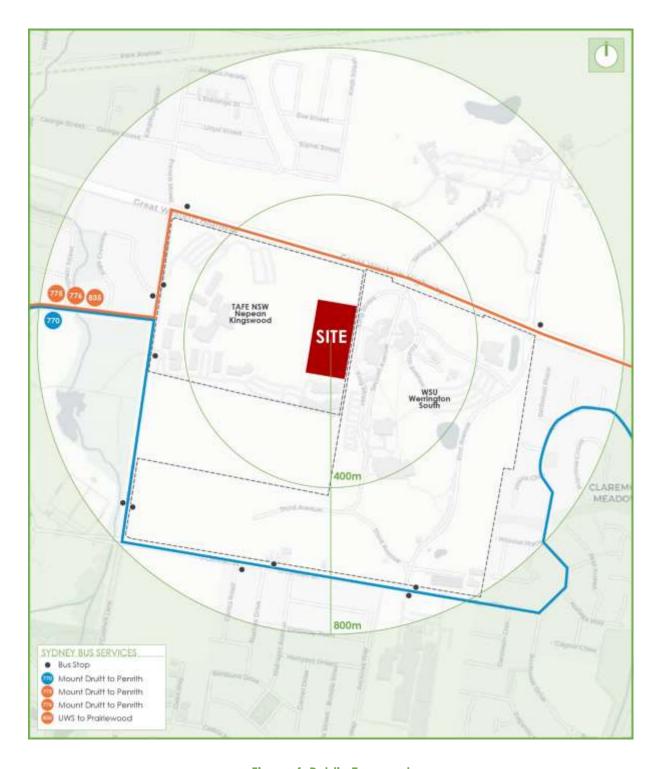


Figure 4: Public Transport



4. OVERVIEW OF CONSTRUCTION PROGRAM

4.1 Times of Operation

The total construction period is anticipated to occur for approximately 68-77 weeks, with the hours of operation summarised as follows:

) Monday to Friday 7:00am to 5:00pm;

) Saturday 8:00am to 1:00pm; and

) Sunday or Public Holiday No building activities are to be carried out at any time.

4.2 Site Establishment Plan

Reference should be made to the Site Establishment Plan presented in **Appendix A**, which outlines the indicative locations of:

-) Site sheds, including offices and amenities;
-) On-site parking areas and proposed vehicular access; and
-) Material storage and delivery areas.

A detailed Site Establishment Plan can be provided within the comprehensive CTPMP upon the appointment of a builder and the finalisation of the construction methodology.

4.3 Overview of Construction Works

4.3.1 Site Establishment Stage

This stage of construction will involve the initial site establishment, including compound and enabling works during a 4-6 week period. The maximum sized truck to be utilised throughout this stage will be 12.5m long heavy rigid vehicles (HRVs). It is proposed that all site establishment works occur within the site, with construction vehicle access provided from the Great Western Highway and via the existing WSU Werrington South internal road network.

This stage will have a maximum of four (4) trucks per day (4 in, 4 out), which equates to a maximum of one (1) truck every 2.5 hours. This volume is therefore considered minor and will have negligible impacts on the surrounding intersections and internal road network of the WSU Werrington South campus.



4.3.2 Bulk Excavation Stage

This stage of construction will involve earthworks with an estimated 6,000m³ to be removed from site during a 4-6 week period. The maximum sized truck to be utilised throughout this stage will be 19.6m long truck and dog trailers. It is proposed that all bulk excavation works occur within the site, with construction vehicle access provided from the Great Western Highway and via the existing WSU Werrington South internal road network.

This stage will have a maximum of 40 trucks per day (40 in, 40 out), which equates to a maximum of one (1) truck every 15 minutes. It should be noted that this truck volume is anticipated to occur over a one-week period and as such, considered moderate and will have minimal impacts on the surrounding intersections and internal road network of the WSU Werrington South campus.

4.3.3 Construction Stage

This stage of construction will involve construction works including concrete pours, steel frame installation, wall panelling and roof sheeting during a 60-65 week period. The maximum sized truck to be utilised throughout this stage will be 19.0m long articulated vehicles. It is proposed that all construction works occur within the site, with construction vehicle access provided from the Great Western Highway and via the existing WSU Werrington South internal road network.

This stage will have a maximum of 10 trucks per day (10 in, 10 out), which equates to a maximum of one (1) truck every hour. This volume is therefore considered minor and will have negligible impacts on the surrounding intersections and internal road network of the WSU Werrington South campus.



5. TRAFFIC MANAGEMENT ARRANGEMENTS

5.1 Truck Routes

5.1.1 WSU Consultation

The truck routes to and from the subject site are proposed to utilise the existing internal road network of the WSU Werrington South campus. Accordingly, in principle approval has been obtained with WSU to utilise the internal road network, as contained in the email correspondence, dated 20 January 2021, which has been provided in Appendix B for reference.

5.1.2 Truck Routes

The proposed truck routes will start and finish on the Great Western Highway, an RMS approved 26.0m B-Double route, with a copy of the routes to be provided to all drivers prior to attending site. These truck routes are presented in Figure 5 and summarised as follows:

-) Routes to the subject site: (Inbound)
- 1. Trucks will arrive on the Great Western Highway, westbound.
- 2. Turn left onto First Avenue (WSU campus), southbound.
- 3. Turn right onto Third Avenue, westbound.
- 4. Turn right onto King Street, northbound.
- 5. Access the subject site and loading zone.
-) Routes from the subject site: 1. Trucks will depart the site onto King Street, northbound.
 - (Outbound)
- 2. Continue straight through the roundabout, eastbound.
- 3. Take the first left onto an unnamed road, eastbound.
- 4. Turn left onto First Avenue, northbound.
- 5. Turn right onto the Great Western Highway, eastbound.

A swept path analysis has been undertaken and provided in Appendix C, demonstrating satisfactory vehicle movements through the key intersections within the WSU internal road network. It is noted that appropriate traffic controls will be required to facilitate vehicle movements at key intersections, with the details to be discussed within the comprehensive CTPMP, upon the appointment of a builder.





Figure 5: Truck Routes



5.2 Trucks Arrivals

All trucks will be linked via CB radio and/or hands-free mobile and will only be called onto site when required and when there is sufficient capacity to accommodate the proposed trucks. This management of loading / unloading or deliveries is envisaged to be the same throughout all stages of construction and will ensure no trucks would be required to queue or park along the internal road network of the WSU campus.

Daily truck arrivals will peak during the bulk excavation stage with 40 truck arrivals per day (40 in, 40 out) which equates to approximately one (1) truck arrival every 15 minutes on average, over a 4-6-week period as discussed in Section 4.3.2. This is considered a worst-case scenario and it should be noted that truck arrivals and departures will be significantly less during other stages of construction as discussed in Section 4.3.

Truck arrival and departure times will be formalised as part of the Final CTMP to be completed once a builder is appointed. Notwithstanding, it is envisaged that the vast majority of truck arrivals will occur between the hours of 9:30am–4:00pm (outside of peak staff/student arrival and departure times), when most students are on campus, in order to minimise impacts to existing traffic flows. It is envisaged that proposed truck arrival and departure times are to be discussed with UWS as part of the Final CTMP in conjunction with the appointed builder. However, for the purpose of this preliminary CTMP report it is expected that impacts to UWS traffic and pedestrian movements will be managed safety and efficiently in accordance with appropriate Traffic Control Plans which are to be included in the Final CTMP.

5.3 Vehicle Access and Internal Circulation

Construction vehicles will access the site via dedicated access gates off the King Street WSU internal road. A swept path analysis has been conducted demonstrating satisfactory vehicle entry and egress movements of the largest anticipated vehicle to be accommodated on-site. This analysis has been provided in **Appendix C** for reference.

The proposed access and internal truck circulation arrangements are considered satisfactory for the following reasons:

) The intersection of First Avenue and Great Western Highway is a signalised intersection with signalised and zebra pedestrian crossings provided across the northern, southern and



eastern approaches, thereby ensuring pedestrians will be safety accommodated crossing at this intersection.

-) The swept path analysis provided in **Appendix C** shows that all construction vehicles are able to safely enter and exit the subject site in accordance with the NSW Road Rules.
- The internal road network provides sufficient width two accommodate two-way flow along the majority of its length and adequate passing opportunities are provided. It is noted however, the roadway north of the works zone area to the roundabout (adjoining the bridge) provides a roadway width of approximately 5.6m wide and is insufficient area for passing. As a result, this stretch of road will be controlled with a traffic controller when trucks are exiting the works zone. A traffic control plan will be developed during the detailed CPTMP stage.

5.4 Crane Requirements

A tower crane is proposed to be utilised during the construction period with the location and positioning of the crane to be determined upon the appointment of a builder. It is however envisaged that all crane movements will be contained within site.

5.5 Pedestrian Control

Pedestrian access surrounding the site will be managed safely during all construction stages, with any additional pedestrian controls, such as permitter fencing and separated pedestrian access gates to be discussed within the comprehensive CTPMP, upon the appointment of a builder.

5.6 Employee Vehicles

All construction workers will be permitted to park on-site during all stages of construction. A dedicated car park area will be provided and situated on the southwest corner of the site, which will be accessible from O'Connell Street via the TAFE internal road network.

5.7 Cumulative Impacts

It is understood that no other development is currently under construction within the vicinity of the site (500m) or within the TAFE or WSU boundaries, noting the majority of truck movements are contained within the internal road network and on the Great Western Highway, an RMS



approved 26.0m B-Double route. As such, the construction impacts of the development are anticipated to have minimal cumulative impacts.

5.8 Traffic Control Plan

An indicative sample TCP has been included in **Appendix D**, which demonstrates the indicative signage to be adopted during all stages of construction. Additional TCPs are to be discussed within the comprehensive CTPMP, once a builder has been appointed to determine the exact construction methodology.

The sample TCP has been designed in accordance with the requirements of the RMS *Traffic Control at Work Sites Manual* and is recommended for adoption.



6. TRAFFIC IMPACTS

6.1 Existing Intersection Performance

For the purposes of assessment of the traffic impacts during construction of the TAFE NSW Construction Centre of Excellence, surveys were also undertaken on Thursday 29th April 2021 of the most critical intersection being the intersection of WUS Accesses with Great Western Highway during the network peak periods between 7:00am and 9:00am and 4:00pm and 6:00pm.

The traffic volumes in these surveys formed the base case volumes for software modelling undertaken to assess intersection performance characteristics under existing traffic conditions. The SIDRA Intersection 9 model produces a range of outputs, the most useful of which are the Degree of Saturation (DoS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LoS) criteria. These performance measures can be interpreted using the following explanations:

DoS - the DoS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DoS approaches 1, it is usual to attempt to keep DoS to less than 0.9. When DoS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DoS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LoS - this is a comparative measure which provides an indication of the operating performance of an intersection.



Table 2: RMS Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
Α	<14	Good Operation	Good Operation
В	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
С	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

A summary of the modelled results are provided below in **Table 3**. Reference should also be made to the SIDRA outputs provided in **Appendix E** which provide detailed results for each movement.

Table 3: Existing Intersection Performance

Intersection	Control	Period	Scenario	Degree of Saturation (DoS)	Average Delay	Level of Service
Great Western	Cianal	AM	Evistina	0.756	13.9	Α
Highway with WUS Accesses	Signal	PM	Existing	0.713	14.2	Α

It can be seen from Table 3 that the intersection of Great Western Highway with WSU Accesses operate at a level of service A during both the AM and PM peak periods. Nevertheless, it is stressed that the most relevant use of this analysis is to compare the relative change in the performance parameters as a result of the construction period. This is discussed further in Section 6.2.

6.2 Construction Intersection Performance

6.2.1 Construction Truck Volumes and Trip Distributions

Section 4.3.2 states that the bulk excavation stage will have a maximum of 40 trucks per day being the highest traffic volume during construction. As a conservative assessment, 20 trucks



per an hour during the morning and evening peak period (20in, 20out) have been inputted to the SIDRA Intersection model.

Construction workers would arrive before the network peak period and depart before the network evening peak period. In addition, construction workers will not be accessing the site via the WUS access and will be parking their vehicles within the TAFE Kingswood campus with access via O'Connell Street. It is expected that vehicles from construction workers will be minimal during the network peak period and as a result, not essential to this assessment nor required.

As discussed within Section 5.1, the proposed truck route will see all trucks coming from and leading to Great Western Highway to the east.

6.2.2 Construction Intersection Performance

The traffic impacts arising from the construction period during the morning and evening network peak periods have been assessed by loading the assumptions distributed traffic volumes into the SIDRA Intersection model. The results of this software modelling are summarised in **Table 4** below, with detailed outputs provided in Appendix E.

Table 4: Existing and Construction Intersection Performance

Intersection	Control	Period	Scenario	Degree of Saturation (DoS)	Average Delay	Level of Service	
Great Western Highway with WUS		АМ	Existing	0.756	13.9	Α	
			Existing + Development	0.763	14.2	Α	
Accesses			DAA	Existing	0.713	14.2	Α
		PM	Existing + Development	0.719	14.4	Α	

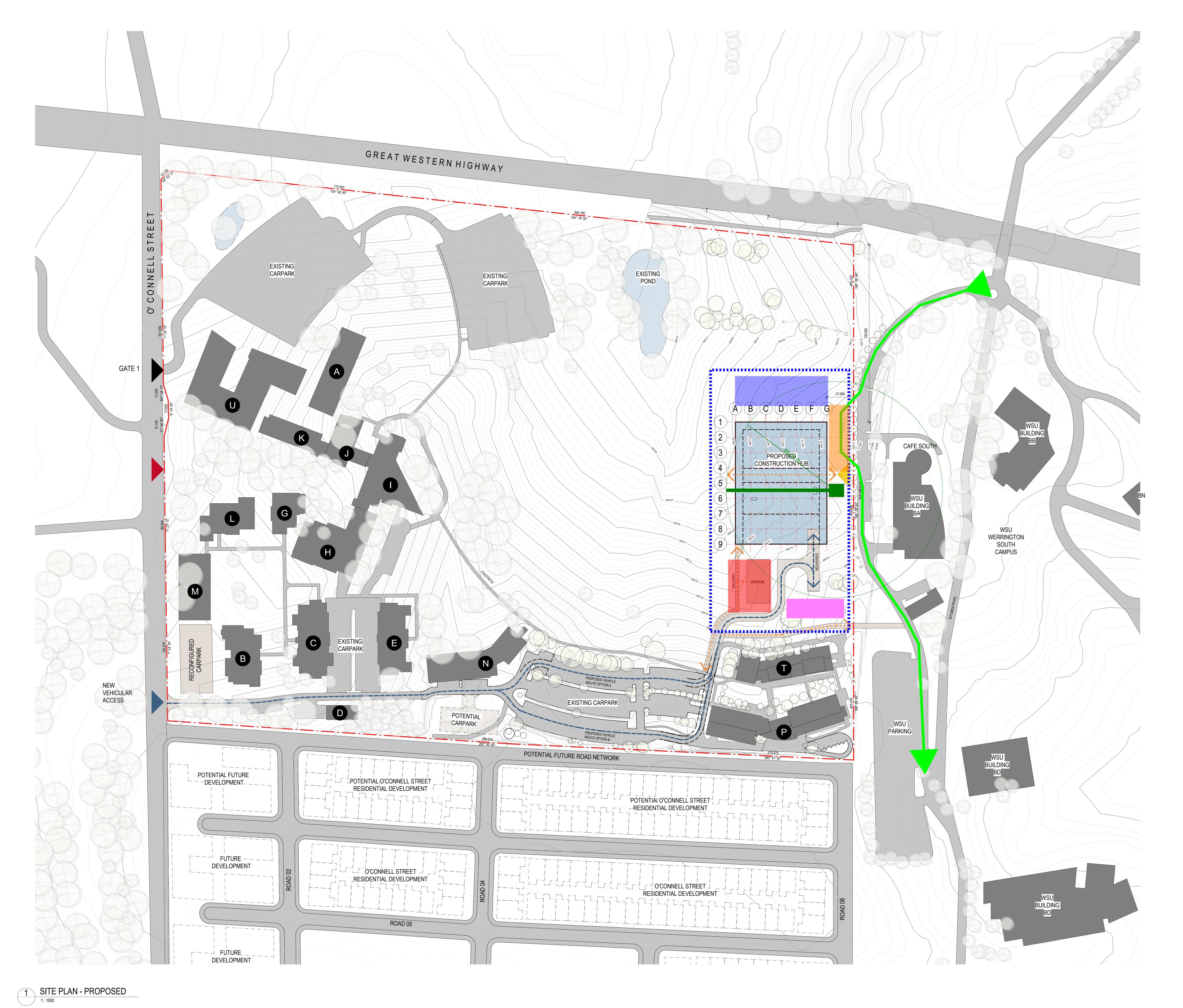
It can be seen that the additional volumes from the construction vehicles would only experience minor increases in average delay at the intersection of Great Western Highway with WUS accesses. As such, the development is considered supportable from a traffic planning perspective with no external improvements to the network required.



7. CONCLUSION

This report should be read in conjunction with other construction documentation prepared by Cadence Australia Pty Ltd. The preliminary CTPMP outlined above is considered satisfactory for the purposes of a SSDA submission. It is envisaged a comprehensive CTPMP will be prepared by TRAFFIX at a later stage in response to SEARs conditions upon approval of the development and once a builder has been appointed to determine the exact construction methodology.

	APPENDIX A
	APPENDIX A Site Establishment Plan



EXISTING PEDESTRIAN ACCESS PROPOSED PEDESTRIAN ACCESS EXISTING VEHICULAR ACCESS PROPOSED VEHICULAR ACCESS — - — BOUNDARY LINE A EXISTING BUILDING NAME PROPOSED VEHICULAR
ROUTE CARPARK
RECONFIGURATION PROPOSED CONSTRUCTION HUB PROPOSED ROADS WALKWAYS AND RECONFIGURED CARPARK EXISTING ROADS, WALKWAYS AND CARPARKS PROPOSED LANDSCAPE CONSTRUCTION SITE SITE SHEDS **DELIVERIES** CONSTRUCTION TRAFFIC MATERIAL STORAGE PARKING

LEGEND

GRAY PUKSAND

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Contractors to check & verify all Dimensions on Site prior to Construction/Fabrication.

Figured Dimensions take precedence over Scaled Dimensions. Any Discrepancies should be immediatley referred to the Architect.

NSW Nominated Architects Scott Moylan 7147 Craig Saltmarsh 6569

All work to comply with N.C.C. Statutory Authorities & Relevant Australian Standards.

REV DESCRIPTION
A For Information **DATE** 03-12-20 PROJECT NO 220090

CHECKED APPROVED **TAFE NSW Western Sydney** Construction Hub
12-44 O'connell St, Kingswood

NSW 2747

PRELIMINARY

SITE PLAN - PROPOSED

A0102 REV SCALE @ A0 As indicated

APPENDIX B

WSU Consultation

Vince Doan

Subject:

RE: TAFE CCoE Construction Traffic Proposal

From: Jaimie Abbey

Sent: Wednesday, 20 January 2021 1:15 PM

To: Sam Gibson

Cc: Smith, Allison; Cameron Lang; David Riddell; Cameron Huxley; Paul Georgiades; Michelle Lee; Matt Choi;

Michaela Briggs

Subject: RE: TAFE CCoE Construction Traffic Proposal

Hi Sam,

I have spoken with Michelle who has confirmed that the University's preference is for a licence agreement for construction access to be put in place. We in principle, also approve the use of our site for construction access. Michelle is due to review the details of the proposed construction access arrangements with Matt this week and will come back in principle and agree with the arrangements you are proposing.

Kind regards,

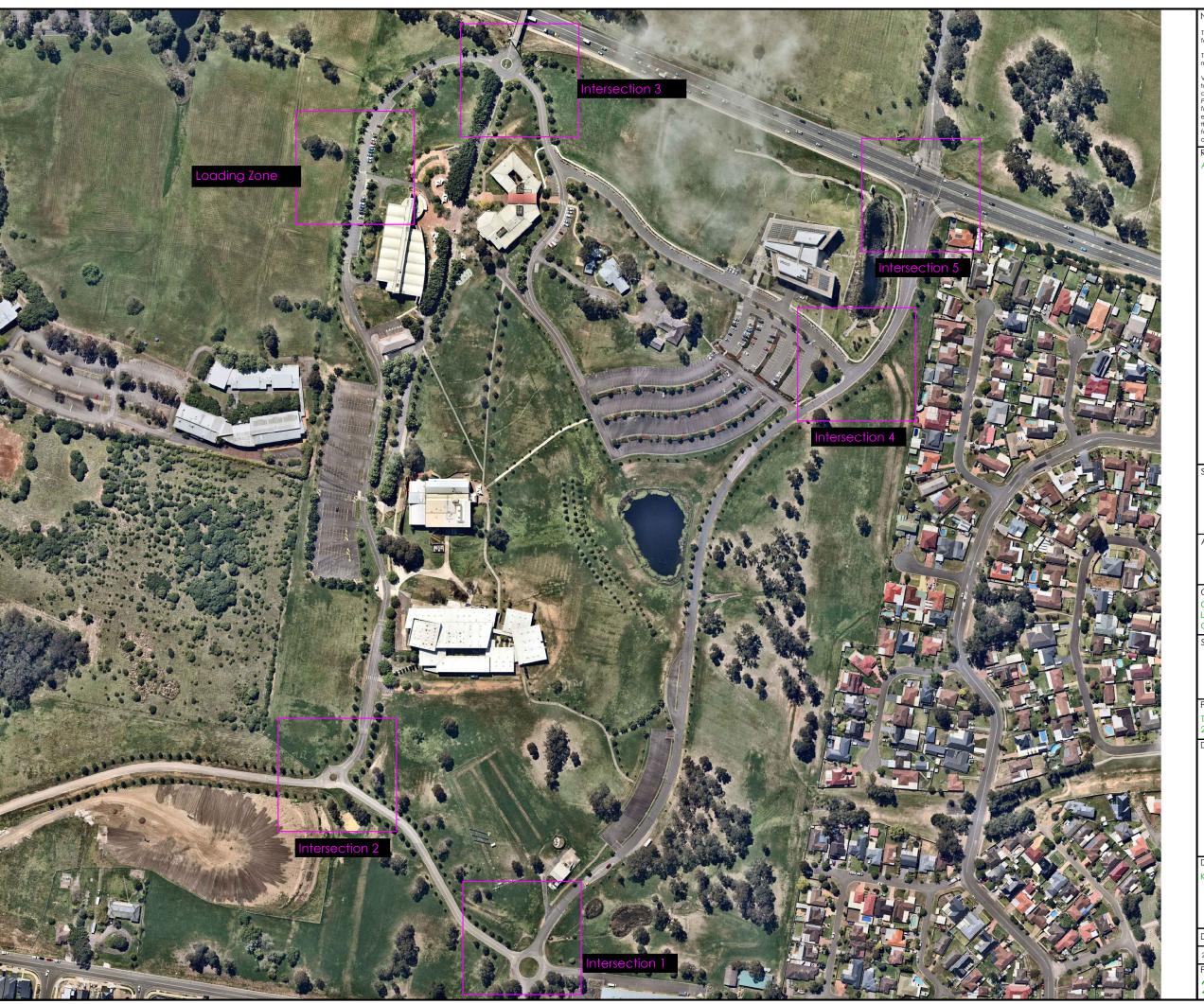
Jaimie Abbey | Senior Project Officer Office of Estate and Commercial Estate Planning and Strategy P: 02 4570 1813 | M: 0402 678 557 E: j.abbey@westernsydney.edu.au

Western Sydney University Locked Bag 1797 Penrith NSW 2751 westernsydney.edu.au

WESTERN SYDNEY UNIVERSITY



APPENDIX C Swept Path Analysis



This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NIS 2890.1:2004 Parking facilities - Off-street car parking, and/or AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev. Revision Note

A Initial Swept Paths Analysis

JP 09-12-20

Swept Path Legend

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

Architect

Cadence Australia Pty Ltd Level 1, 10 Mallett Street Camperdown 2050



Project Description

2-44 O'Connell Street, Kingswood, NSW, 2747

Drawing Prepared By



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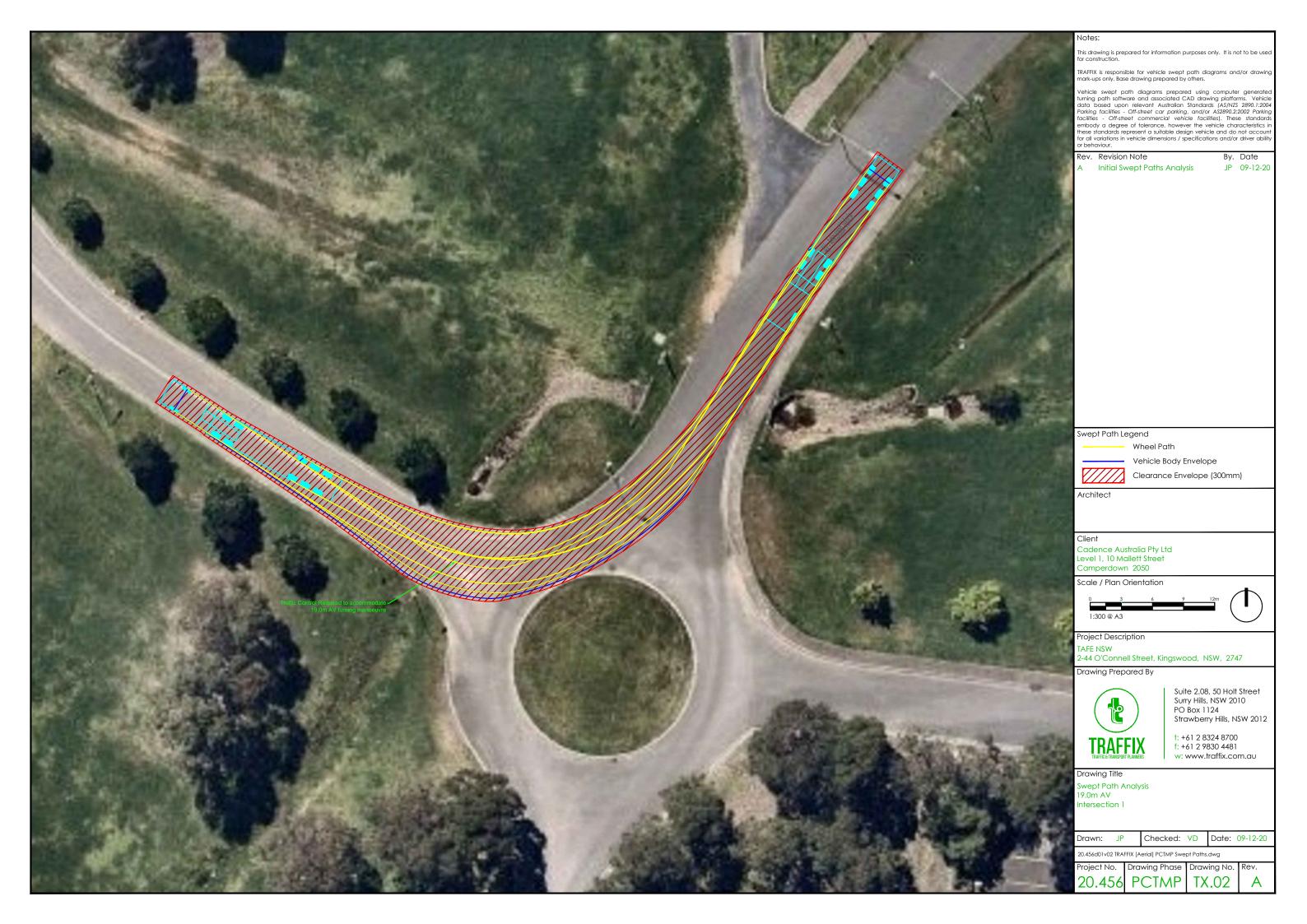
Drawing Title

Key Movements Naming Convention

Drawn: JP	Checked:	VD	Date:	09-12
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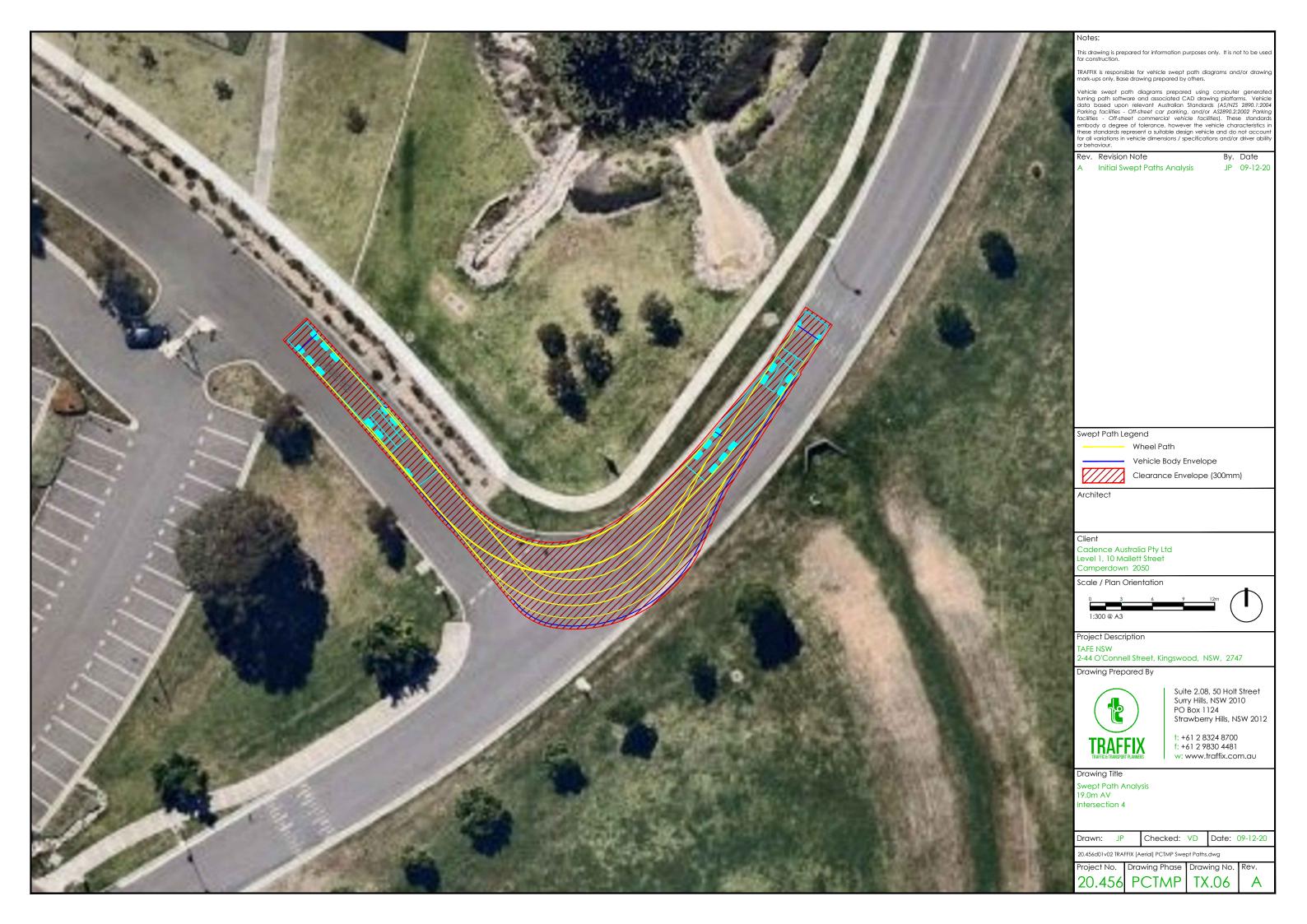
Project No. Drawing Phase Drawing No. Rev. 20.456 PCTMP | TX.01

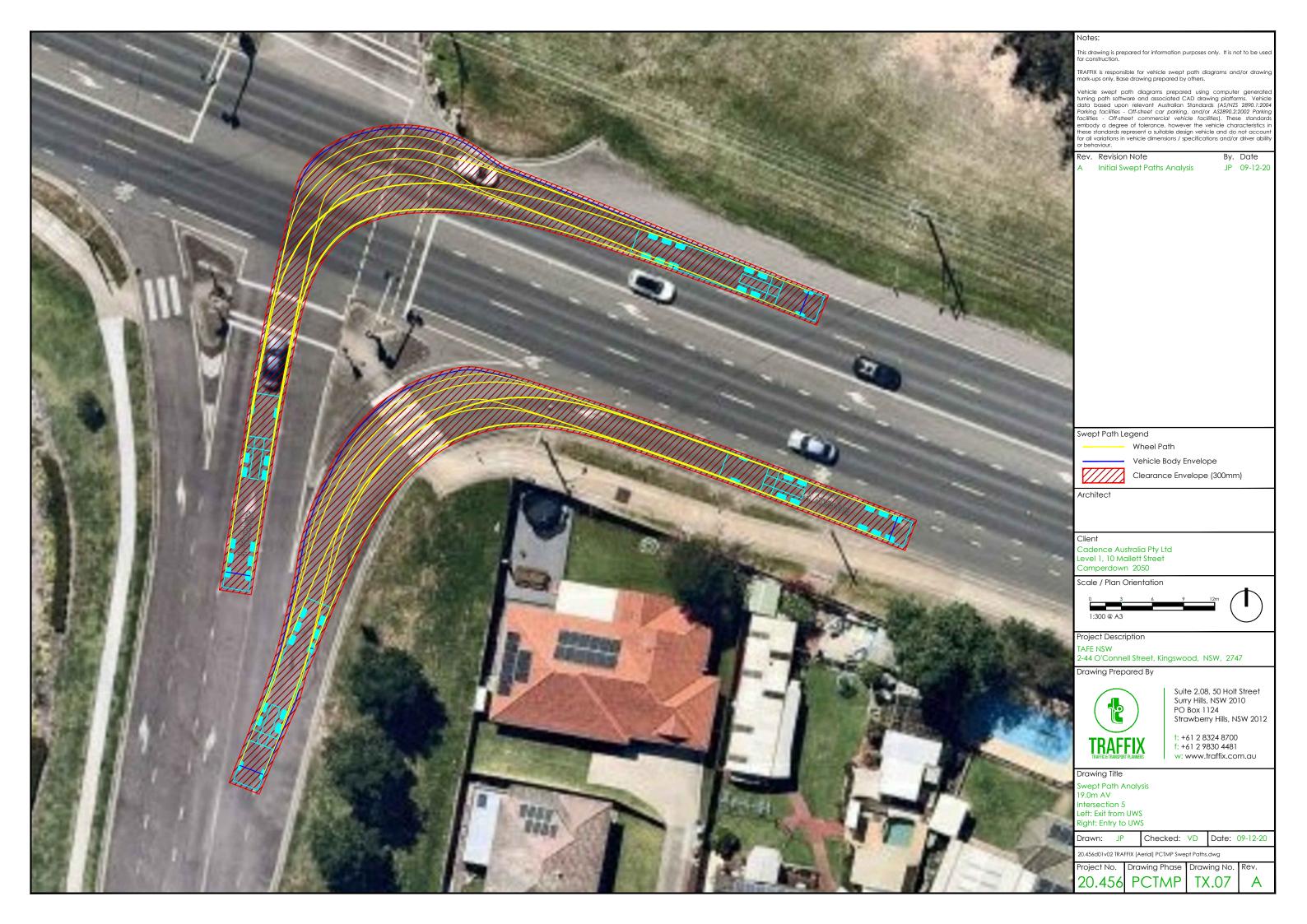




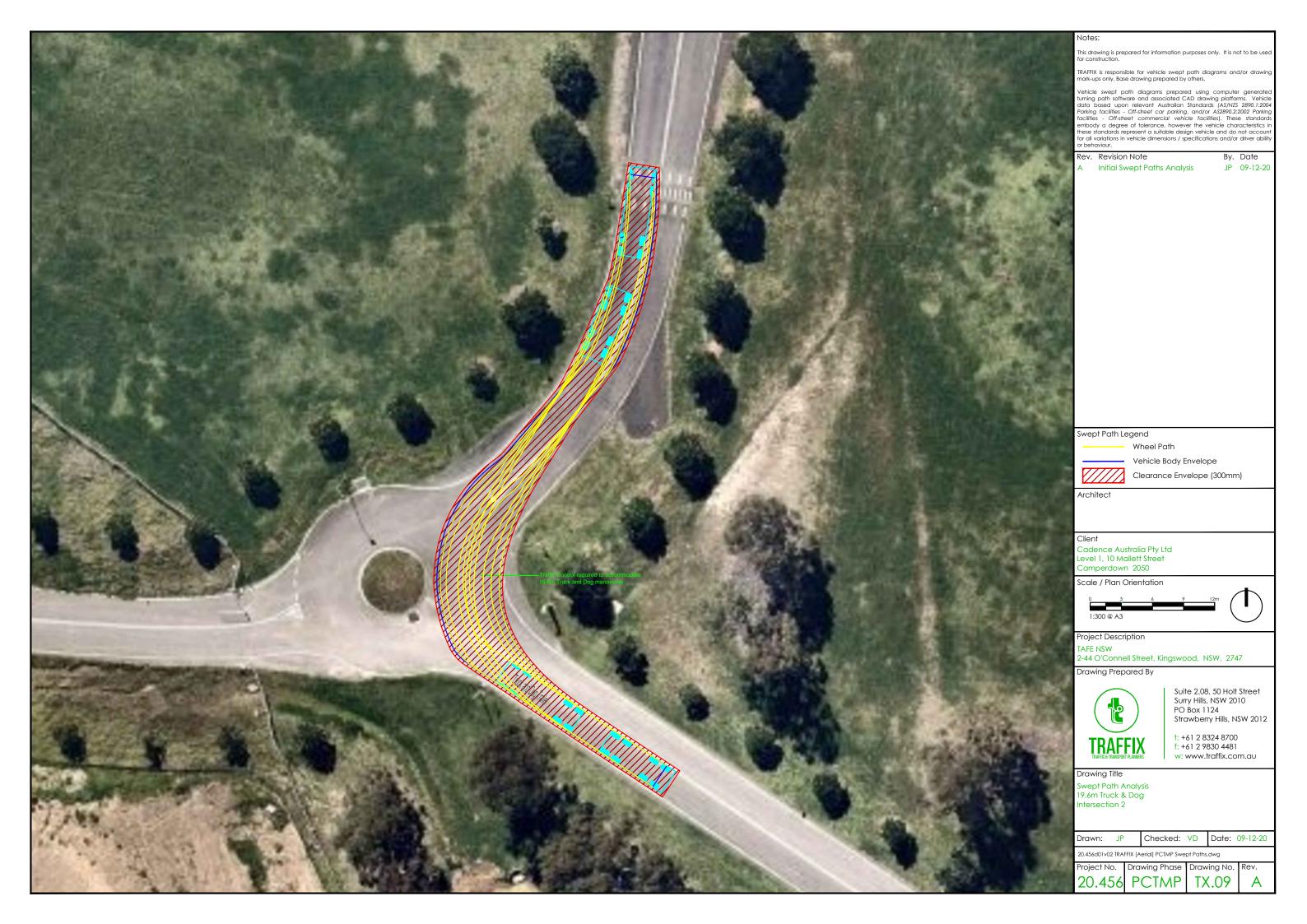




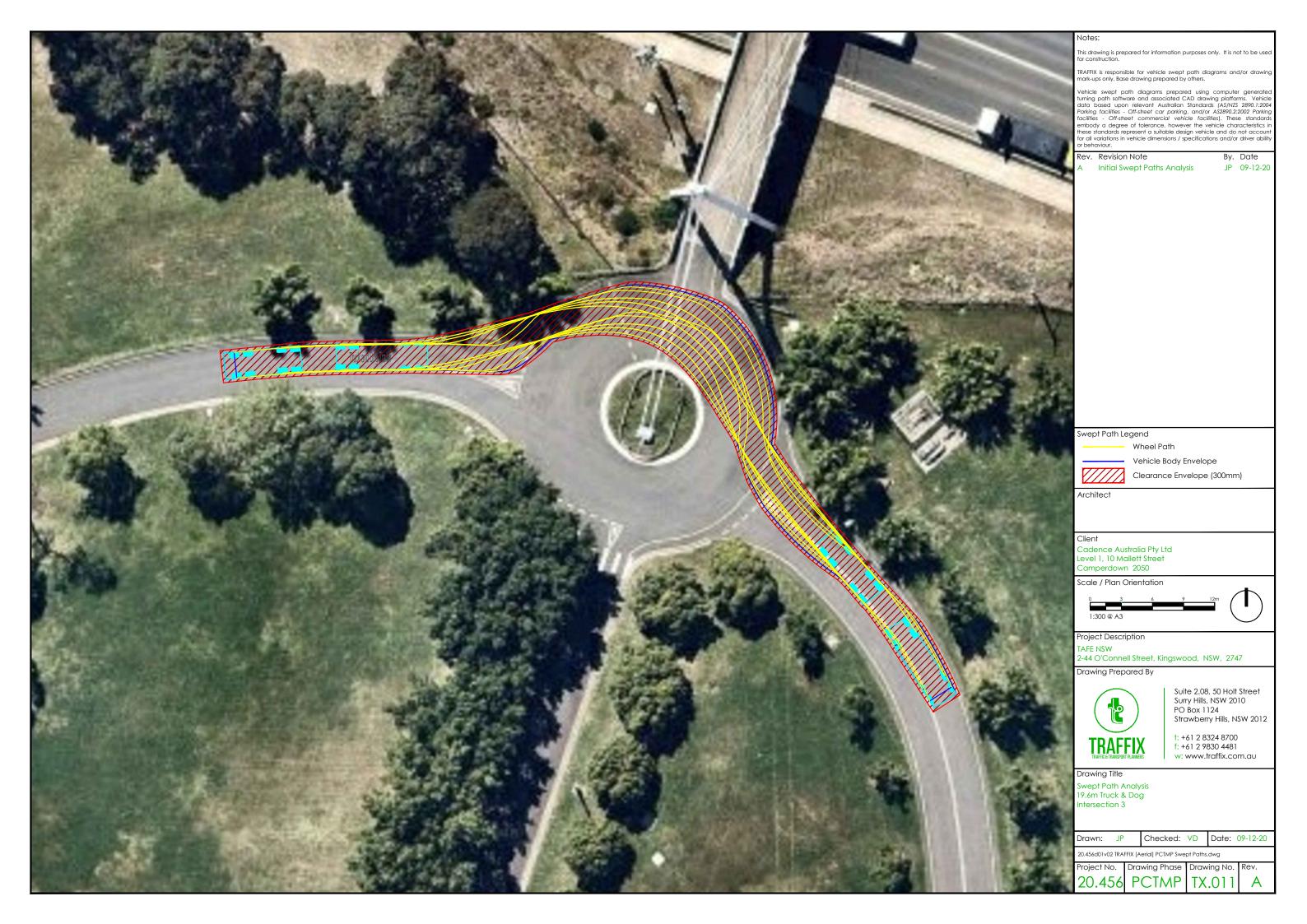


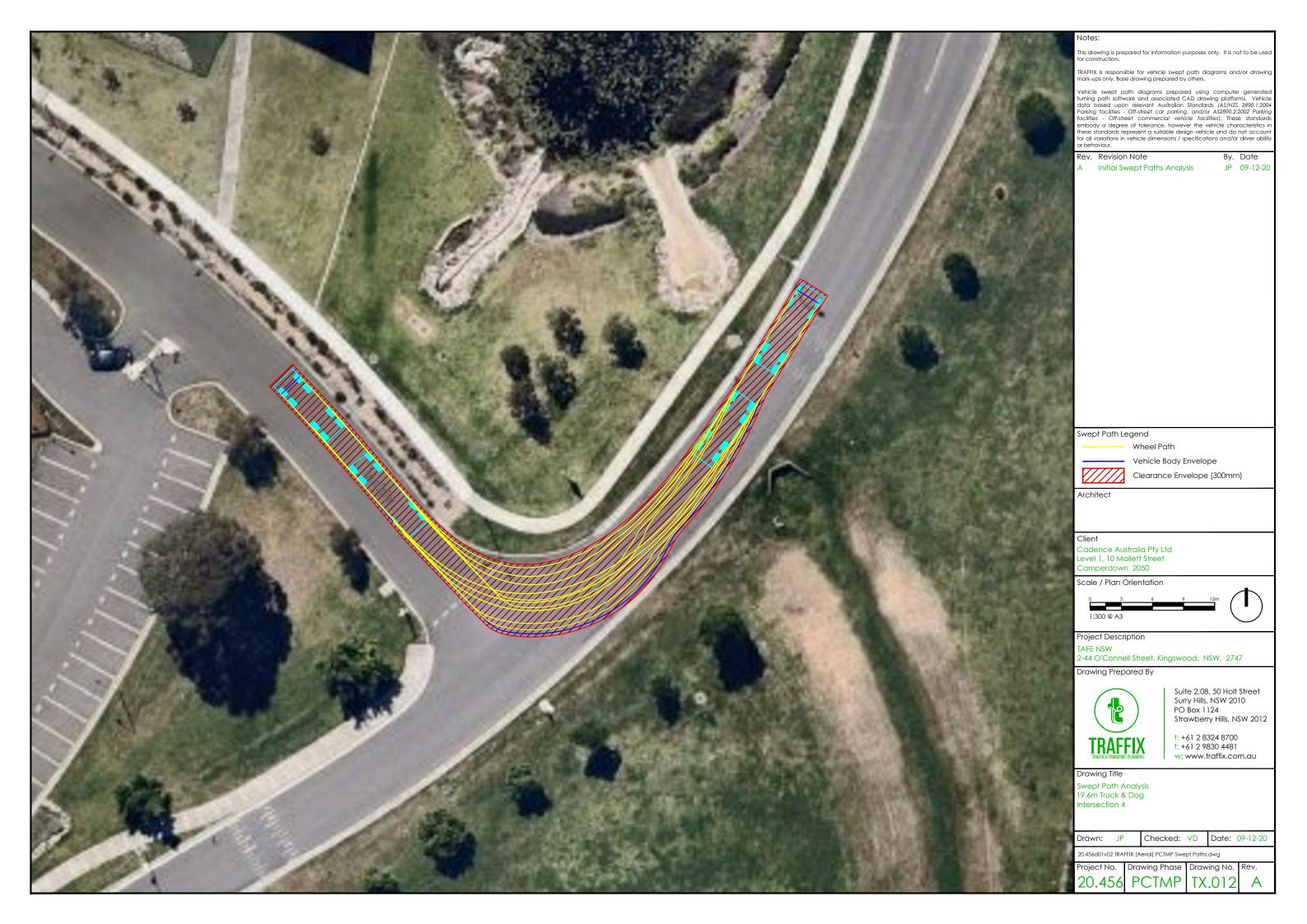


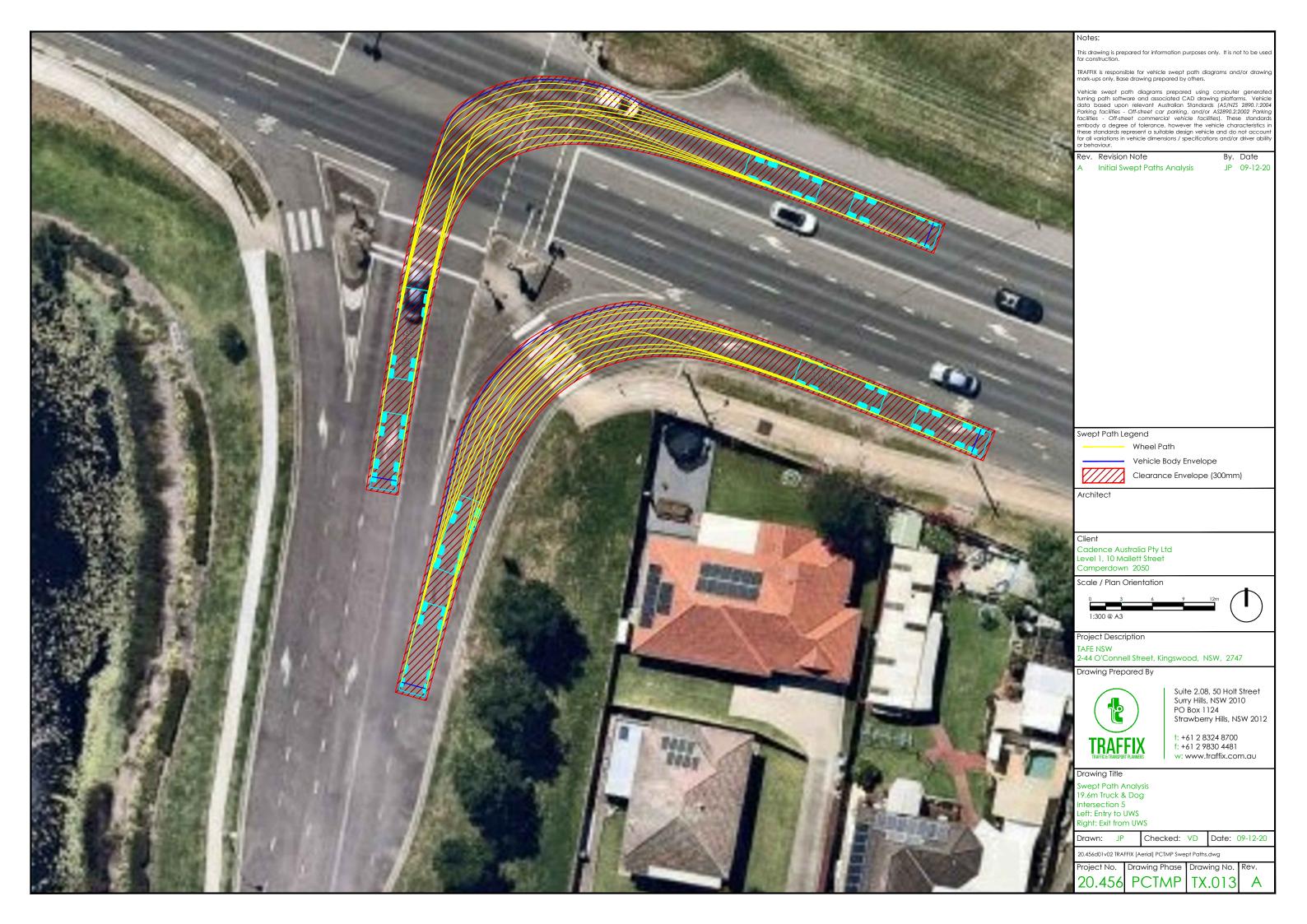


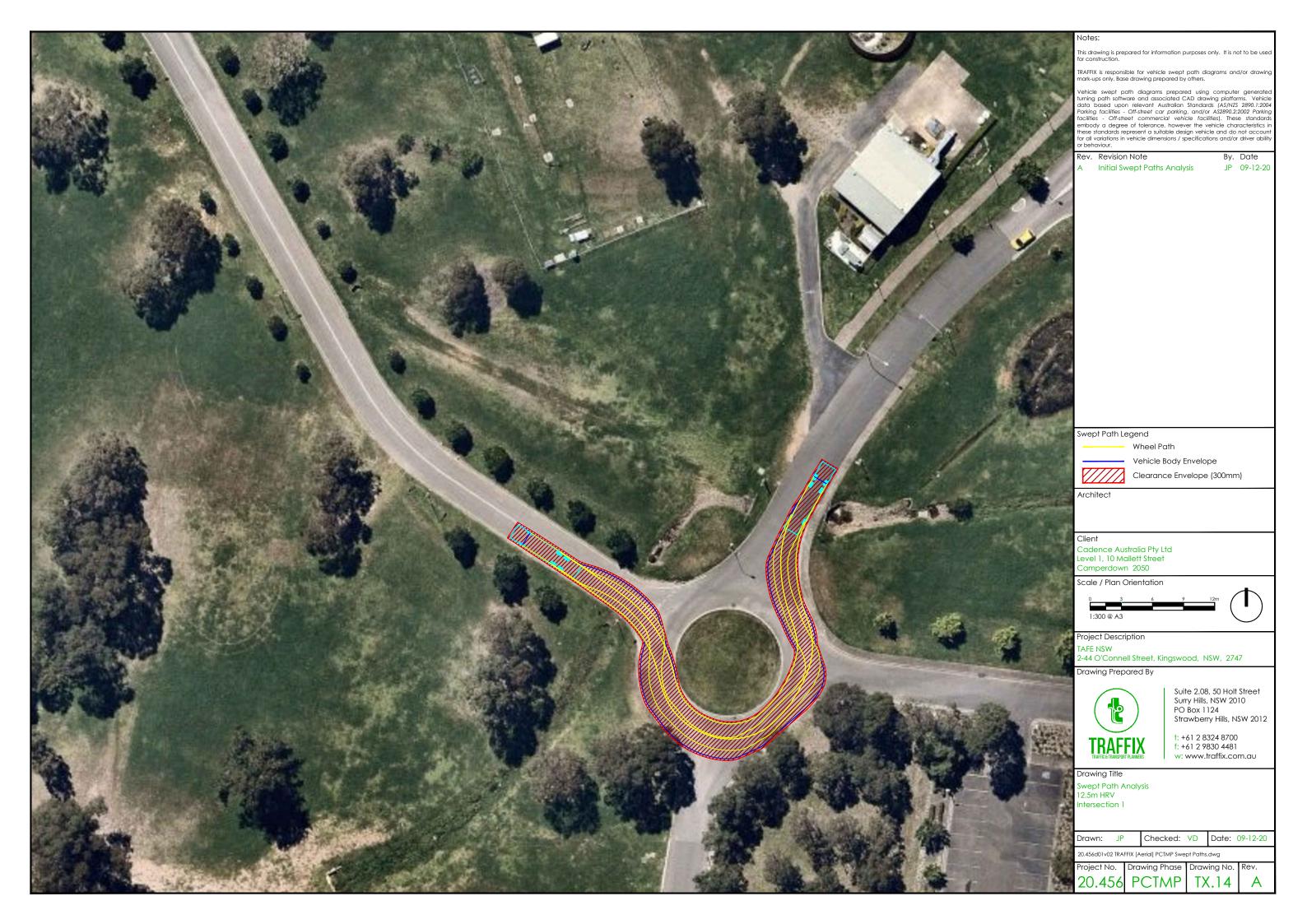


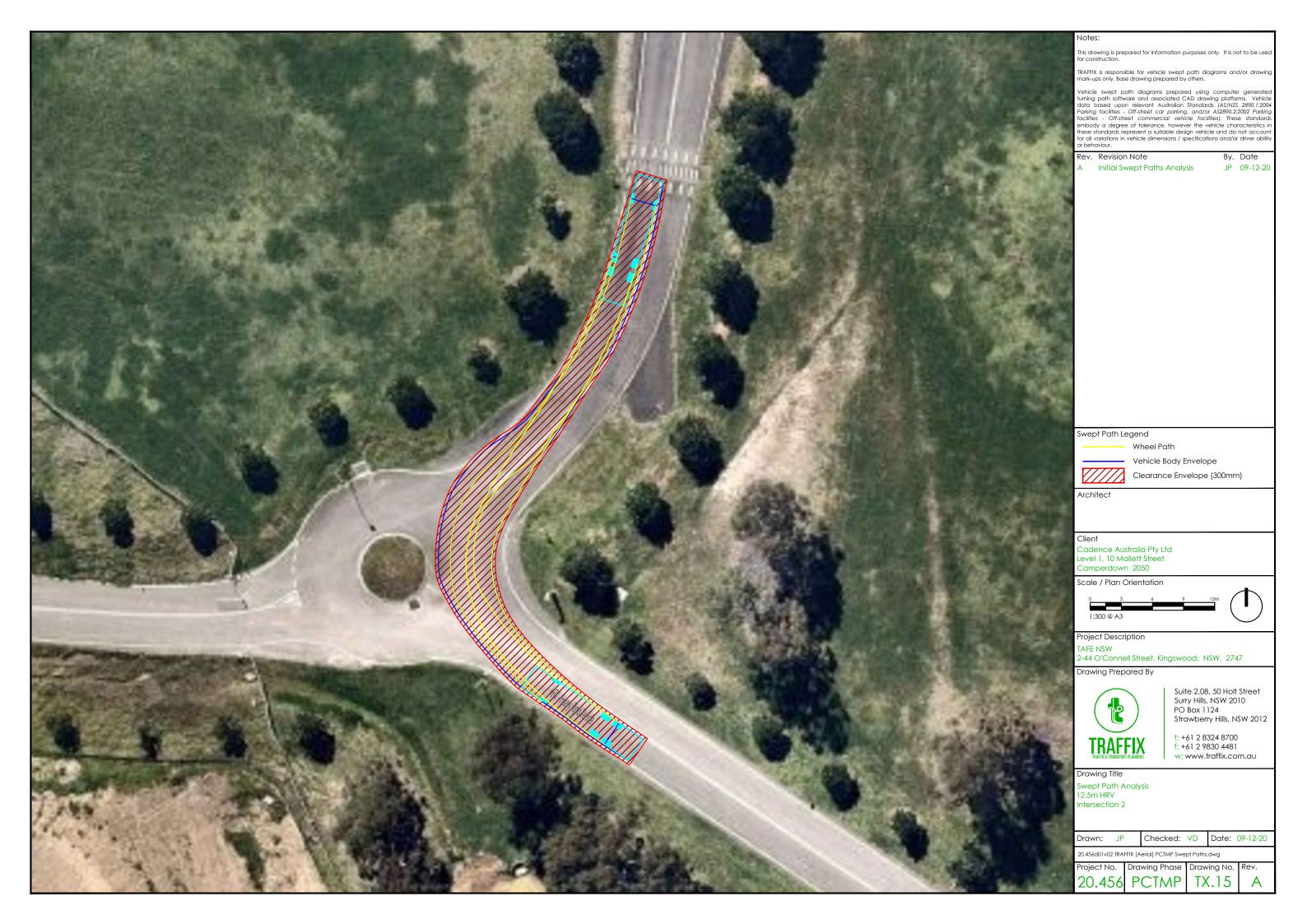








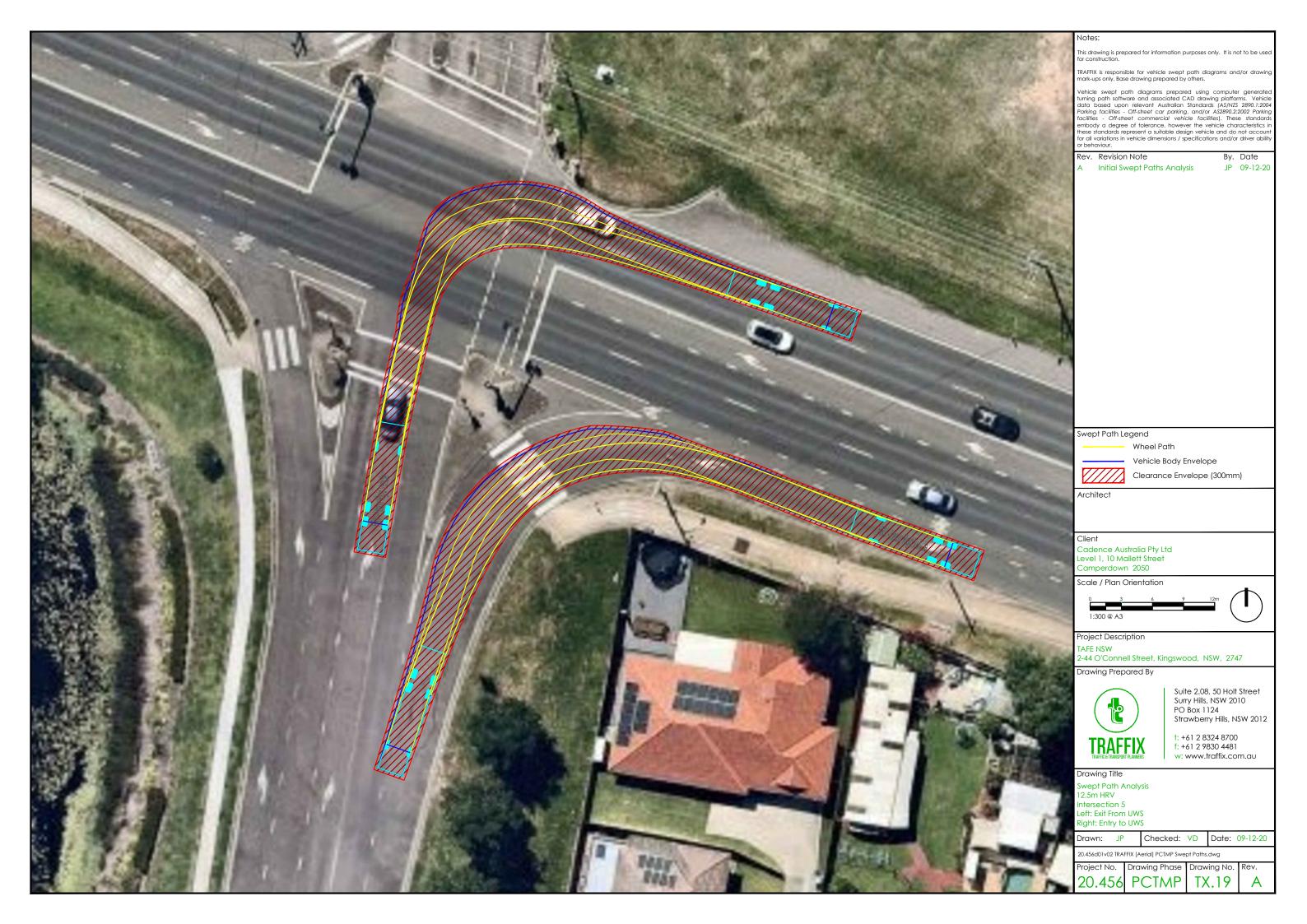




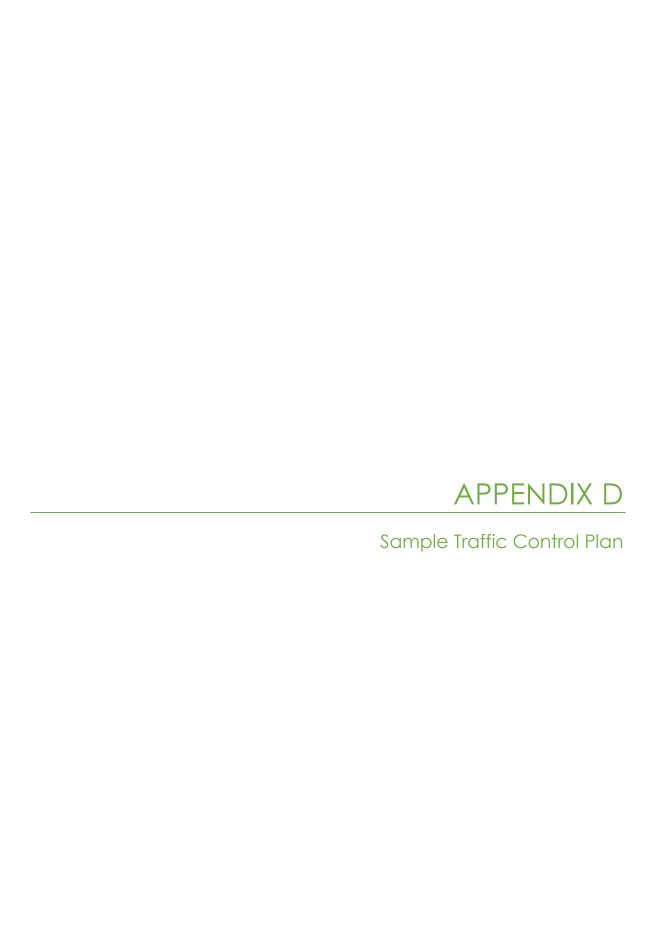














	TCP 01 : Sample TCP	Date:	28.01.2021
Project:	TAFE NSW Nepean Kingswood	Prepared By:	Justin Pindar
Project Number:	20.456	Approved By:	Vince Doan (0052002098)
Client:	Cadence Australia Pty Ltd	Signature:	

TRAFFIC & TRANSPORT PLANNERS

Suite 2.08 50 Holt Street Surry Hills NSW 2010

(02) 8324 8700 info@traffix.com.au



APPENDIX E

SIDRA Intersection Outputs

SITE LAYOUT

Site: 101 [101_Great Western Highway / UWS Access -

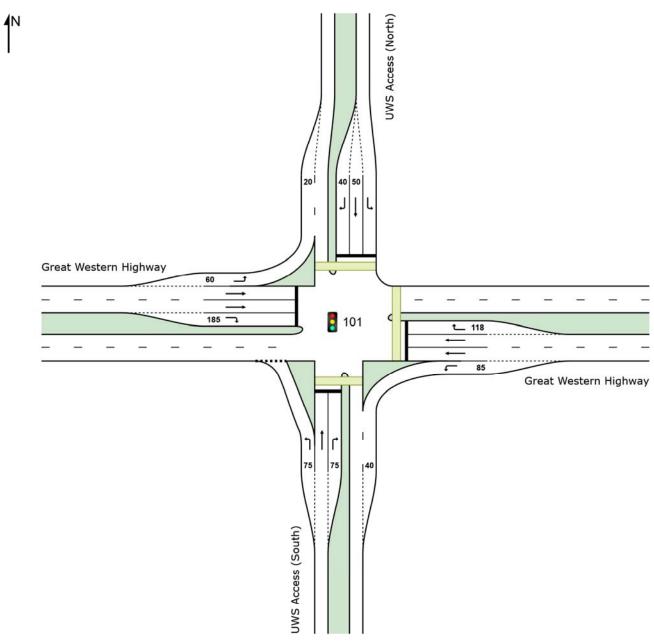
Existing_AM (Site Folder: General)]

Great Western Highway / UWS Access

Period: AM Scenario: Existing Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



USER REPORT FOR SITE

All Movement Classes

Project: 20.456m01v01 WSU Access x Great Wetsern

Template: Movement Highway Summaries

Site: 101 [101_Great Western Highway / UWS Access - Existing_AM (Site Folder: General)]

Great Western Highway / UWS Access

Period: AM Scenario: Existing Site Category: (None)

Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program Green Split Priority has been specified Phase Sequence: Variable Phasing Reference Phase: Phase A Input Phase Sequence: A, B1*, B2*, C, D Output Phase Sequence: A, C, D

(* Variable Phase)

Vehicle Movement Performance														
	Turn	Turn INPUT VOLUMES		DEM		Deg.		Level of	95% BACK OF QUEUE		Prop. Effective			Aver.
ID		VOLU [Total	JMES HV 1	FLO [Total	WS HV]	Satn	Delay	Service	QUI [Veh.	=UE Dist]	Que	Stop Rate	No. Cycles	Speed
		veh/h	veh/h	veh/h	%	v/c	sec		veh	m m		rate	Cycles	km/h
South	h: UW	S Access	(South)											
1	L2	14	3	15	21.4	0.035	16.4	LOS B	0.4	3.4	0.47	0.62	0.47	52.6
2	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
3	R2	44	0	46	0.0	* 0.221	60.3	LOS E	2.7	18.9	0.93	0.74	0.93	35.1
Appr	oach	59	3	62	5.1	0.221	49.7	LOS D	2.7	18.9	0.82	0.71	0.82	38.3
East:	Great	Western	Highway	y										
4	L2	96	2	101	2.1	0.055	7.7	LOSA	0.0	0.0	0.00	0.60	0.00	68.5
5	T1	1825	64	1921	3.5	* 0.756	13.8	LOSA	40.0	288.6	0.69	0.65	0.69	68.6
6	R2	1	0	1	0.0	0.012	72.6	LOS F	0.1	0.5	0.97	0.59	0.97	32.8
Appr	oach	1922	66	2023	3.4	0.756	13.5	LOSA	40.0	288.6	0.66	0.64	0.66	68.6
North	n: UWS	S Access	(North)											
7	L2	1	0	1	0.0	0.003	45.7	LOS D	0.1	0.4	0.79	0.59	0.79	39.1
8	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
9	R2	4	0	4	0.0	0.020	57.7	LOS E	0.2	1.6	0.89	0.64	0.89	38.3
Appr	oach	6	0	6	0.0	0.020	54.8	LOS D	0.2	1.6	0.88	0.61	0.88	37.0
West	:: Grea	t Westerr	n Highwa	y										
10	L2	11	0	12	0.0	0.006	7.6	LOSA	0.0	0.0	0.00	0.60	0.00	70.2
11	T1	1408	45	1482	3.2	0.568	11.1	LOSA	23.8	171.3	0.56	0.51	0.56	70.5
12	R2	38	1	40	2.6	* 0.475	77.1	LOS F	2.7	19.0	1.00	0.73	1.00	34.3
Appr	oach	1457	46	1534	3.2	0.568	12.8	LOSA	23.8	171.3	0.57	0.52	0.57	68.9
All Vehic	cles	3444	115	3625	3.3	0.756	13.9	LOSA	40.0	288.6	0.62	0.59	0.62	68.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 102 [102_Great Western Highway / UWS Access - Existing_PM (Site Folder: General)]

Great Western Highway / UWS Access

Period: PM

Scenario: Existing Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130 seconds (Site Optimum Cycle Time - Minimum

Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program Green Split Priority has been specified Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B1*, B2*, C, D

Output Phase Sequence: A, C, D

(* Variable Phase)

Vehicle Movement Performance														
	Turn			DEMAND		Deg.	Aver. Level o		95% BACK OF		Prop. Effective		Aver.	Aver.
ID		VOLU	JMES HV 1	FLO		Satn	Delay	Service		EUE Diet 1	Que	Stop		Speed
		[Total veh/h	veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: UW	S Access												
1	L2	41	0	43	0.0	0.090	14.9	LOS B	1.2	8.3	0.47	0.65	0.47	54.7
2	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
3	R2	67	0	71	0.0	* 0.342	61.5	LOS E	4.2	29.3	0.95	0.76	0.95	34.8
Appr	oach	109	0	115	0.0	0.342	43.8	LOS D	4.2	29.3	0.77	0.72	0.77	40.8
East	: Great	Western	Highway	y										
4	L2	38	0	40	0.0	0.022	7.6	LOSA	0.0	0.0	0.00	0.60	0.00	69.0
5	T1	1766	35	1859	2.0	* 0.713	13.2	LOS A	35.8	254.7	0.66	0.62	0.66	69.0
6	R2	3	0	3	0.0	0.037	73.4	LOS F	0.2	1.4	0.98	0.63	0.98	32.7
Appr	oach	1807	35	1902	1.9	0.713	13.2	LOSA	35.8	254.7	0.65	0.62	0.65	68.9
North	n: UWS	S Access	(North)											
7	L2	5	0	5	0.0	0.013	46.2	LOS D	0.3	1.8	0.80	0.64	0.80	38.9
8	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
9	R2	11	0	11	0.0	0.005	57.1	LOS E	0.1	0.4	0.89	0.59	0.89	38.4
Appr	oach	7	0	7	0.0	0.013	48.6	LOS D	0.3	1.8	0.83	0.62	0.83	37.5
West	t: Grea	t Westerr	n Highwa	у										
10	L2	4	0	4	0.0	0.002	7.6	LOSA	0.0	0.0	0.00	0.60	0.00	70.2
11	T1	1697	35	1786	2.1	0.679	12.7	LOSA	32.7	233.1	0.64	0.59	0.64	69.3
12	R2	14	0	15	0.0	* 0.172	75.0	LOS F	1.0	6.7	0.99	0.69	0.99	34.8
Appr	oach	1715	35	1805	2.0	0.679	13.2	LOSA	32.7	233.1	0.64	0.60	0.64	68.9
All Vehic	cles	3638	70	3829	1.9	0.713	14.2	LOSA	35.8	254.7	0.65	0.61	0.65	67.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 103 [103_Great Western Highway / UWS Access - EX + DEV_AM (Site Folder: General)]

Great Western Highway / UWS Access

Period: AM

Scenario: Existing + Development

Site Category: (None)

Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program Green Split Priority has been specified Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B1*, B2*, C, D

Output Phase Sequence: A, C, D

(* Variable Phase)

Vehicle Movement Performance														
	Turn			DEMAND		Deg.		Level of				Effective	Aver.	Aver.
ID		VOLU		FLO		Satn	Delay	Service		EUE	Que	Stop		Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: UW	S Access												
1	L2	14	3	15	21.4	0.035	16.8	LOS B	0.4	3.5	0.48	0.62	0.48	52.3
2	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
3	R2	64	20	67	31.3	* 0.367	62.7	LOS E	4.0	35.9	0.96	0.77	0.96	33.9
Appr	oach	79	23	83	29.1	0.367	54.4	LOS D	4.0	35.9	0.87	0.74	0.87	36.4
East	Great	Western	Highway	у										
4	L2	116	22	122	19.0	0.075	7.5	LOSA	0.0	0.0	0.00	0.58	0.00	62.0
5	T1	1825	64	1921	3.5	* 0.763	13.8	LOSA	40.8	294.3	0.69	0.65	0.69	68.6
6	R2	1	0	1	0.0	0.012	72.6	LOS F	0.1	0.5	0.97	0.59	0.97	32.8
Appr	oach	1942	86	2044	4.4	0.763	13.4	LOSA	40.8	294.3	0.65	0.64	0.65	68.2
North	n: UWS	S Access	(North)											
7	L2	1	0	1	0.0	0.003	45.7	LOS D	0.1	0.4	0.79	0.59	0.79	39.1
8	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
9	R2	4	0	4	0.0	0.020	57.7	LOS E	0.2	1.6	0.89	0.64	0.89	38.3
Appr	oach	6	0	6	0.0	0.020	54.8	LOS D	0.2	1.6	0.88	0.61	0.88	37.0
West	: Grea	t Westerr	n Highwa	ıy										
10	L2	11	0	12	0.0	0.006	7.6	LOSA	0.0	0.0	0.00	0.60	0.00	70.2
11	T1	1408	45	1482	3.2	0.568	11.1	LOSA	23.8	171.3	0.56	0.51	0.56	70.5
12	R2	38	1	40	2.6	* 0.475	77.1	LOS F	2.7	19.0	1.00	0.73	1.00	34.3
Appr	oach	1457	46	1534	3.2	0.568	12.8	LOSA	23.8	171.3	0.57	0.52	0.57	68.9
All Vehic	cles	3484	155	3667	4.4	0.763	14.2	LOSA	40.8	294.3	0.62	0.59	0.62	67.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 104 [104_Great Western Highway / UWS Access - EX + DEV_PM (Site Folder: General)]

Great Western Highway / UWS Access

Period: PM

Scenario: Existing + Development

Site Category: (None)

Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program Green Split Priority has been specified Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B1*, B2*, C, D

Output Phase Sequence: A, C, D

(* Variable Phase)

Vehicle Movement Performance														
	Turn	INP		DEMAND		Deg.		Aver. Level of		95% BACK OF		ffective	Aver.	Aver.
ID		VOLU		FLO		Satn	Delay	Service		EUE	Que	Stop		Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	South: UWS Access (South)													
1	L2	41	0	43	0.0	0.090	15.3	LOS B	1.2	8.4	0.48	0.65	0.48	54.4
2	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
3	R2	87	20	92	23.0	* 0.490	63.6	LOS E	5.6	46.9	0.97	0.79	0.97	33.9
Appr	oach	129	20	136	15.5	0.490	48.2	LOS D	5.6	46.9	0.82	0.74	0.82	38.9
East	Great	t Western	Highway	y										
4	L2	58	20	61	34.5	0.041	7.3	LOSA	0.0	0.0	0.00	0.56	0.00	56.7
5	T1	1766	35	1859	2.0	* 0.719	13.2	LOSA	36.4	259.1	0.66	0.62	0.66	69.0
6	R2	3	0	3	0.0	0.037	73.4	LOS F	0.2	1.4	0.98	0.63	0.98	32.7
Appr	oach	1827	55	1923	3.0	0.719	13.1	LOSA	36.4	259.1	0.64	0.62	0.64	68.6
North	n: UWS	S Access	(North)											
7	L2	5	0	5	0.0	0.013	46.2	LOS D	0.3	1.8	0.80	0.64	0.80	38.9
8	T1	1	0	1	0.0	0.004	52.2	LOS D	0.1	0.4	0.89	0.53	0.89	29.3
9	R2	1	0	1	0.0	0.005	57.1	LOS E	0.1	0.4	0.89	0.59	0.89	38.4
Appr	oach	7	0	7	0.0	0.013	48.6	LOS D	0.3	1.8	0.83	0.62	0.83	37.5
West	: Grea	it Westerr	n Highwa	у										
10	L2	4	0	4	0.0	0.002	7.6	LOSA	0.0	0.0	0.00	0.60	0.00	70.2
11	T1	1697	35	1786	2.1	0.679	12.7	LOSA	32.7	233.1	0.64	0.59	0.64	69.3
12	R2	14	0	15	0.0	* 0.172	75.0	LOS F	1.0	6.7	0.99	0.69	0.99	34.8
Appr	oach	1715	35	1805	2.0	0.679	13.2	LOSA	32.7	233.1	0.64	0.60	0.64	68.9
All Vehic	cles	3678	110	3872	3.0	0.719	14.4	LOSA	36.4	259.1	0.65	0.61	0.65	67.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)