



Reference No: PC16017\_LER-001\_SISD Assessments\_11.03.2022.docx  
Revision No: 0

11 March 2022

Harley Dykstra  
Unit 15, 2 Hensbrook Loop  
FORRESTDALE WA 6112

Attention: Mr Henry Dykstra

Dear Henry,

**RE: DR MEDIATION - DR 260/2021 A.C.N. 605 729 995 PTY LTD V CITY OF KALAMUNDA  
RESPONSES TO TRAFFIC ISSUES**

We are pleased to present our responses to the issues raised at the SAT mediation discussions undertaken for the above proceedings held on Tuesday 1/02/2022.

The main points raised by the City of Kalamunda that required resolution, all related to the traffic issues and were as follows:

1. *Council Engineering Manager confirmed 4 traffic issues and would be open to receiving further technical information to assist in addressing and satisfying the Councillors on those issues, including updated design information, updated engineering technical advice, and updated specific traffic management measures.*
2. *With respect to the left out swept path, Council Engineers have yet to confirm whether they accept that the vehicle does not need to stay in the inside lane but can stay "lane correct". The proponent is to provide some further supporting information on that position for consideration by the Council Engineer.*
3. *The site distance for the "right out" turning movement to view the traffic oncoming from the left (east) needs further survey specific information to demonstrate the precise sight distance that a truck and car will have when at the curb face and confirm that distance in the context of the 80km posted speed limit and the 90km design limit.*
4. *The currently proposed 24m long slip lane for right turning traffic (coming from the east to turn into the proposed landscape facility) to be reviewed. Although currently not being promoted as essential the council engineer would like further details to demonstrate from a Traffic Management point of view, how this is considered to be adequate. The alternative would be to present a longer slip lane with removal of trees. Both options can be presented to Council Engineers and Council can be given the option to choose one or the other.*
5. *Council Engineers also queried the safety and viability of the right out movement for a truck. Specifically: the ability for a truck to complete the full right turn movement into the west bound lanes, or if necessary, safely dwell in the median space while awaiting a gap in traffic.*

## 1. TERMS OF REFERENCE

The following terms of reference were used to guide the crossover and various road element design :

- Site and field measurements based on standard sight distance calculations.
- The following analysis drawings that demonstrate the field work and outcomes. Refer to **Appendix B** for details:
  - PC16017-CI-SK2 - Rev A
  - PC16017-CI-SK6 - Rev D
  - PC16017-CI-SK7 - Rev D
  - PC16017-CI-SK8 - Rev D
  - PC16017-CI-SK9 - Rev C
- WA Road Traffic Code 2000
- Austroads Standards.



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## 2. Item 2 – LEFT HAND TURNING MOVEMENT OUT OF FACILITY STAYING LANE CORRECT

We have referred this enquiry to our traffic consultants and their response is provided in **Appendix A**. The turning movement in question is shown in **Figure 1** below (Excerpt from Peritas Drg PC16017-CI-SK4 - Rev D also provided in **Appendix B**)

**Figure 1 – Turning Movement the subject of Council request for further information (Right hand turning east along Welshpool Road east)**



The advice from the Traffic consultants Transcore confirm that

- The WA Road Traffic Code 2000 sets out the regulations for driving on WA roads.
- **Regulation 112** relates to keeping as far left as practicable ("a driver must keep the vehicle as close as practicable to the left boundary of the carriageway, except where 2 or more lanes marked on the carriageway are available exclusively for vehicles travelling in the same direction.")
- **Regulation 113** relates to restriction on use of right lane, but only applies if the speed limit is 90km/h or more, or a "Keep left unless overtaking" sign applies on that part of the carriageway.
- **Regulation 21** relates to left turns at intersections with multiple lanes. It only specifies the traffic lanes a vehicle can use to approach and enter the intersection, not which lanes it must use on exit from the intersection. However, it is worth noting that 21(2) makes special provision for vehicles 7.5m long (or longer) to also use the lane adjacent to the left hand lane on approach to the intersection to turn left if required, if safe to do so and if it is not practicable for the driver to turn left from within the left lane.

In conclusion Transcore state that "**.....a truck should be permitted to turn left out from a driveway into either lane on the adjacent carriageway of this dual lane road, not just into the left hand lane.**"



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### 3. Item 3 – THE SIGHT DISTANCE FOR THE “RIGHT OUT” TURNING MOVEMENT TO VIEW THE TRAFFIC ONCOMING FROM THE LEFT (EAST)

Previous Sight distance analysis sketches presented to council were based on aerial photograph overlays and partial site measurements.

The below sequence of photos illustrates the site set-up and measurement process undertaken for the SAT mediation investigations and to reconfirm previous recommendations by more accurate on site assessments.

The results of the recent investigations are summarised in **tables 3.1 and 3.2** and illustrated in the drawings provided in **Appendix B**.

The various Sight Distance calculations were undertaken for “**Posted Speed**” and “**Design Speed**” as appropriate for each of the sight distance indicators being:

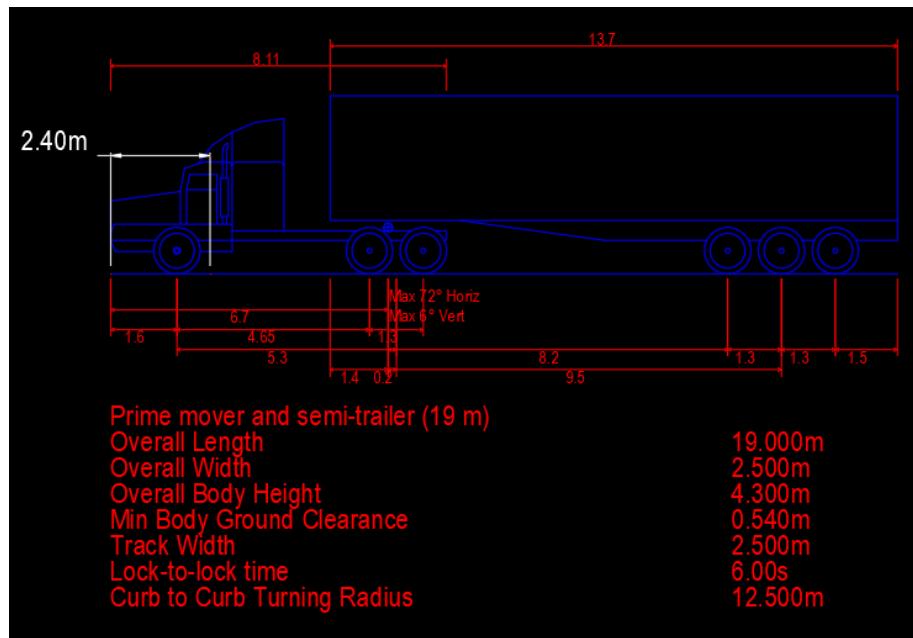
- Minimum Gap Sight Distance (MGSD)
- Safe Sight Distance (SSD)
- Safe Intersection Sight Distance (SISD)

The “**Design Speed**” assessment is incorporated in the design guidelines to provide for the design consideration as a contingency to the actual traffic speed limit for the road, by adding 10Kmph to the “posted speed” and determine the sight distances for this situation.

To confirm available sight distances, measurements were undertaken on site utilising relevant measurements simulating traffic movements outgoing from the proposed facility utilising the following parameters :

- Based on a driver's eye height in a car is 1.1m and for a truck it is 2.4m.
- The driver position in a truck's cab is approximately 2.4m (Austroads 2013 – 19.0m semi-trailer). With an eye position setback 3.0 m would leave the nose of the cab 0.6m from the edge of the major road. Refer to **Figure 2** below.

**Figure 2 – Truck configuration for calculations**





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#### Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections

Table 3.2: Safe intersection sight distance (SISD) and corresponding minimum crest vertical curve size for sealed roads (S<L)

Design speed (km/h)	Based on safe intersection sight distance for cars <sup>1</sup> $h_1 = 1.1$ ; $h_2 = 1.25$ , $d = 0.362$ ; Observation time = 3 s					
	$R_T = 1.5s^3$		$R_T = 2.0s$		$R_T = 2.5s$	
	SISD (m)	K	SISD (m)	K	SISD (m)	K
40	67	4.9	73	6	-	-
50	90	8.6	97	10	-	-
60	114	14	123	16	-	-
70	141	22	151	25	-	-
80	170	31	181	35	-	-
90	201	43	214	49	226	55
100	234	59	248	66	262	74
110	-	-	285	87	300	97
120	-	-	324	112	341	124
130	-	-	365	143	383	157
Minimum SISD capability provided by the crest vertical curve size <sup>4</sup>	Car at night <sup>5</sup>	$d = 0.46$ , $h_1 = 0.65$ m, $h_2 = 1.25$ m, observation time = 2.6 s. $d = 0.46$ , $h_1 = 1.1$ m, $h_2 = 0.75$ m, observation time = 2.5 s.				
	Truck	$d = 0.24$ , $h_1 = 2.4$ m, $h_2 = 1.25$ m, observation time = 3.0 s.				
	Truck at night <sup>5</sup>	$d = 0.29$ , $h_1 = 1.05$ m, $h_2 = 1.25$ m, observation time = 1.8 s. $d = 0.29$ , $h_1 = 2.4$ m, $h_2 = 0.75$ m, observation time = 3.0 s.				

Figure 3– Sight Distance Calculations & Illustration (“Right Out” heading West turning movement). Sight distances to view traffic oncoming for the east at **Posted Speed 80 Kmph.**





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**Photo 1 – View looking east towards the proposed crossover location in line the boundary.  
Refer to Figure 3 above and Peritas Drg PC16017-CI-1100 - Rev H – application drawing)**



**Photo 2 – Setting up observation position at future crossover (3m back from kerbline line on Welshpool Road East).**





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**Photo 3 – Setting up observation position at future crossover (3m back from kerbline line on Welshpool Road East).**



**Photo 4 – Setting up “Height of Eye” observation position for car (1.1m).**





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**Photo 5 – Setting up “Height of Eye” observation position for truck (2.4m).**



**Photo 6 – View from observation position looking east towards oncoming traffic**





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**Photo 7 – View from vehicle (car) at observation position looking east towards oncoming traffic**





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**Photo 8 – View from vehicle (truck height) at observation position looking east towards oncoming traffic.**





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**Photo 9 – View measured sight distance location east looking westwards back towards crossover with vehicle exiting at future crossover.**





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**Photo 10 – Close up of Photo 9**





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The results of the site investigations and comparison to previous assessments is shown below in tabulations. The tabulations demonstrate the major **sight line considerations** and how they meet requirements or where they are potentially deficient in terms of the design guidelines but meet the practical requirements of the guidelines.

**Table 3-1: Sight Line Comparisons-Assessment Results  
(Posted Speed – 80KM/hr)**

Description	Illustration Drawing	Required Sight Distances		Required Sight Distances	
		Car	Truck	Required	Provided
MGSD (Min Gap Sight Distance approaching from the East)	SK7-Rev D	200 m	205 m	200 m	205 m
SSD (Stopping Sight Distance) approaching from the East)	SK9-Rev D	Not assessed as 90KM/hr passes	200+ m	Not assessed as 90KM/hr passes	200+ m
SISD (Safe Intersection Sight Distance approaching from the East)	SK2-Rev A	183 m	205 m	200 m	205 m

Note : **Green** text Indicates pass, **Red** Text indicates deficiency.

**Table 3-2: Sight Line Comparisons-Assessment Results  
(Design Speed – 90KM/hr = Posted Speed + 10kmph)**

Description	Illustration Drawing	Required Sight Distances		Required Sight Distances	
		Car	Truck	Required	Provided
MGSD (Min Gap Sight Distance approaching from the East)	SK7-Rev D	200 m	205 m	200 m	205 m
SSD (Stopping Sight Distance) approaching from the East)	SK9-Rev D	142m	200+ m	165 m	200+ m
SISD (Safe Intersection Sight Distance approaching from the East)	SK8-Rev D	218 m	205 m	241 m	205 m

Note : **Green** text Indicates pass, **Red** Text indicates deficiency.

Referring to **Photos 7 & 8** it is clear that trimming of tree limbs within the road reserve will improve the available sight line distances beyond those observed and measured on site. This would increase the safe intersession sight distance ("SISD") for a car at the crossover for the posted speed 80 Kmhp to in excess of 85 Kmhp and closer to the Design Speed compliance of 90 Kmhp.

For the truck, a similar improvement in SISD would be provided. Whilst this may be short of the design guidelines requirement it meets the requirements based on vehicles travelling at the legal posted speed.

Tree and vegetation maintenance in this location is also required to maintain the powerlines corridor free of fire and weather damage. If the vegetation in the verge is maintained to meet these requirements the sight distances will be improved beyond both the posted speed and design speed criteria. We believe that the above demonstrates adequate compliance for council to approve the crossover as presented by the proponent.



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#### 4. Item 4 – SLIP LANE (EASTERN TRAFFIC INTO THE SITE)

**Welshpool Road East** in the vicinity of the subject site is a four-lane dual carriageway road with a kerbed and solid central median. Each carriageway is approximately 7.4 m wide and the median varies in width from approximately 4.5 m near the western property boundary to approximately 8.5 m wide near the eastern property boundary.

Median breaks and turn pockets are provided at multiple locations in this vicinity. The existing turn pockets are not compliant with respect to the requirements of Austroads Guidelines as it relates to deceleration length requirements.

A pedestrian footpath on the southern and a shared path on the northern side of Welshpool Road East is in place in the vicinity of the subject site.

According to the Main Roads WA *Metropolitan Functional Road Hierarchy* document, Welshpool Road East is classified as a *Distributor A* road. Refer **Figure 4** and **Figure 5** for more details.

Welshpool Road East is under with care and control of the local authority (vested by WAPC (*Other Regional Road*)).

Substantial vegetation also exists place within the road reserve along the northern side of Welshpool Road East as well as within the Welshpool Road East median. Refer to photos below.

According to available traffic data for Welshpool Riad East (east of Tonkin Highway – SLK 0.24) the vehicles per day counts in this section of road is 17,652 VPD (Source : 2020/2021 MRWA)

Welshpool Road East and operates under a sign posted speed limit of 80km/h in the vicinity of the subject site.

**Figure 4 – Westbound view along Welshpool Road East in the vicinity of the subject site.**





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**Figure 5 – Eastbound view along Welshpool Road East in the vicinity of the subject site.**

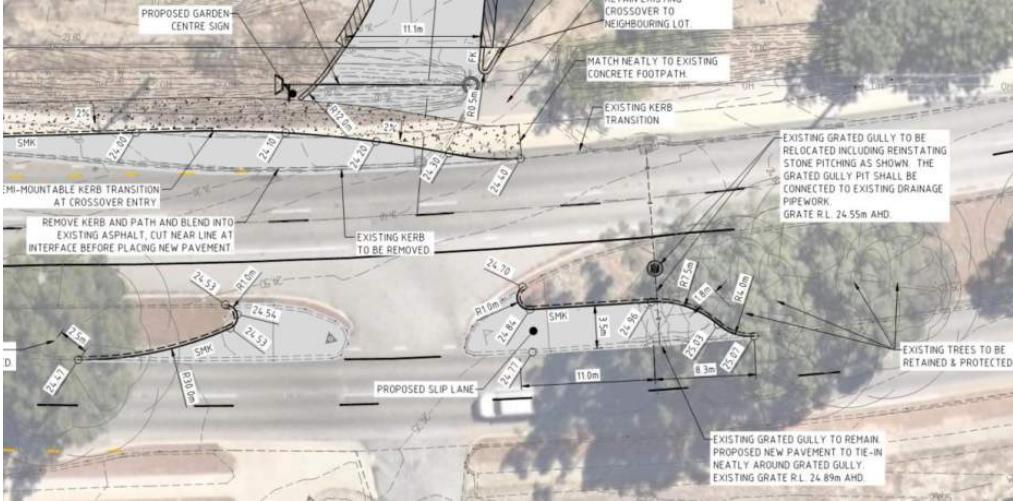


During the early discussions with council regarding the crossover, the issue of a right turn pocket for vehicles approaching from the east to enter the proposed site was not considered necessary due to the dual lane configuration of Welshpool Road East at that location.

Traffic travelling from the east, westbound along Welshpool road had adequate sight distance (refer to SSD and MGSD **tabulations 3.1 & 3.2**) to see an exiting vehicle from the facility or see a vehicle waiting to turn into the facility and to be able to change lanes to pass the vehicle safely.

When further discussions with council were held after the initial submission, it was suggested that a nominal slip lane length would be better than none but at the same time ensuring that trees were retained. This resulted in the turn pocket configuration shown in **Figures 6 & 7** below.

**Figure 6 – Current Right Hand turn pocket into the subject site (from the east).**

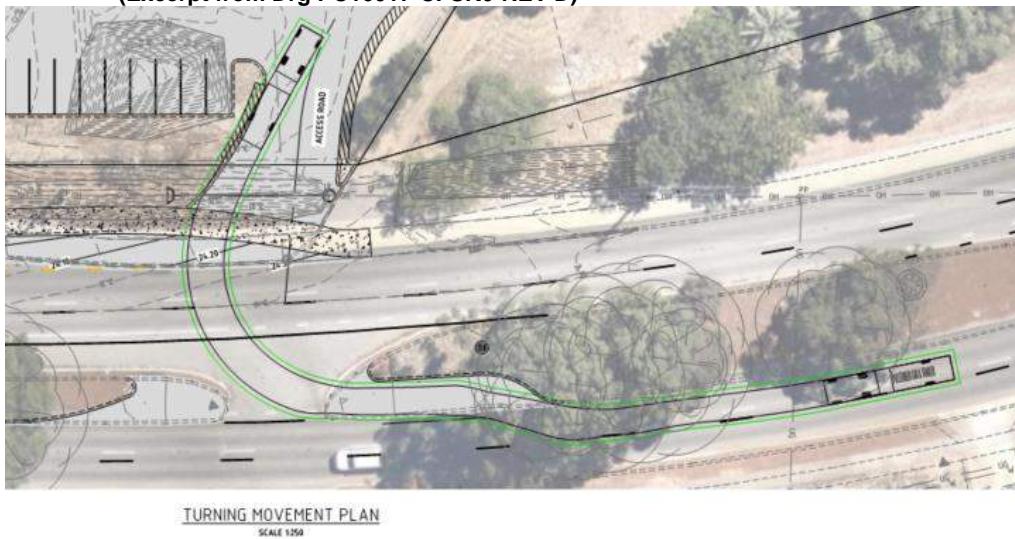




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On this basis a minimum slip lane length was included in the plans to at least cater for a single car/trailer combination that would also accommodate a single truck waiting to turn into the facility from the east. This avoided vegetation clearing in the median whilst providing an improved entry into the proposed landscape centre.

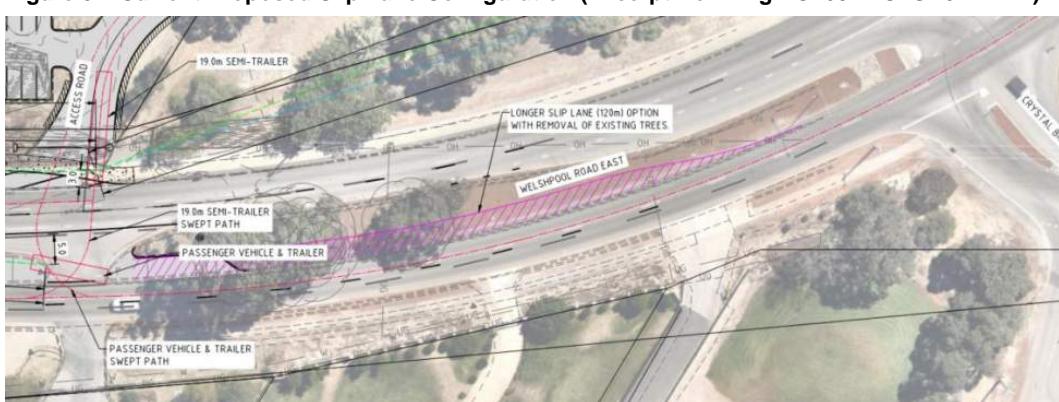
**Figure 7 – Current Proposed Slip Lane Configuration with Turning Movement shown  
(Excerpt from Drg PC16017-CI-SK6-REV D)**



The alternate longer slip lane arrangement has now also been provided for council engineer's consideration and an excerpt is shown in **Figure 8** below (refer also to Drg PC16017-CI-SK8-REV D in Appendix B) but this will require the removal of existing trees located in the median.

The proponent is prepared include these works in the submission however, council would need to confirm their preference based on the two options presented.

**Figure 8 – Current Proposed Slip Lane Configuration (Excerpt from Drg PC16017-CI-SK8-REV D)**





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The updated slip lane length option presented in **Figure 8** is based on the requirements noted in Austroads Table 5.3. See **Figure 9** below.

**Figure 9– Slip Lane length Assessments based on Austroads (See Table 5.2 below)**

Table 5.2: Deceleration distances required for cars on a level grade

Design speed of approach	Length of deceleration D – including diverge taper T										Diverge length Ld3 for lane widths	
	Stop condition1		Design speed of exit curve (km/h)2									
	Road (km/h)	0	0	20	30	40	50	60	70	80	90	3.5 m <sup>d</sup>
	Comf. 2.5 m/s <sup>2</sup>	Max. 3.5 m/s <sup>2</sup>	Comfortable average rate of deceleration 2.5m/s <sup>2</sup>									
50	40	30	30	25	15						33	27
60	55	40	50	40	30	15					40	33
70	75	55	70	60	50	40	20				47	40
80	100	70	95	85	75	60	45	25			54	44
90	125	90	120	110	100	85	70	50	25		60	50
100	155	110	150	140	130	115	100	80	55	30	67	57
110	185	135	180	175	160	150	130	110	90	60	74	62



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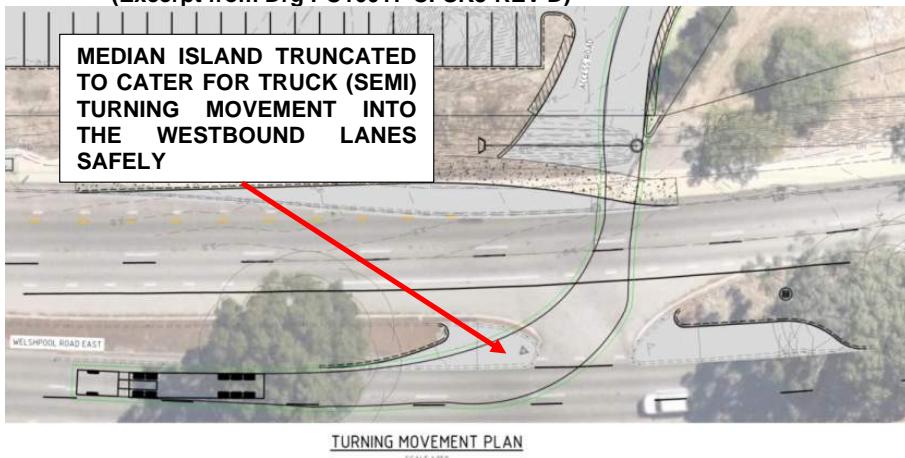
**5. ITEM 5 - SAFETY AND VIABILITY OF THE RIGHT OUT MOVEMENT FOR A TRUCK.  
SPECIFICALLY: THE ABILITY FOR A TRUCK TO COMPLETE THE FULL RIGHT TURN  
MOVEMENT INTO THE WEST BOUND LANES**

The design of the crossovers and the modifications to the median island in Welshpool Road East already caters for a safe turning movement for a truck exiting the facility to the westbound lanes. Refer to **Figure 7** and **Figure 10** below as well as Drg PC16017-CI-SK3-REV D in Appendix B.

For the case of a car and a car and trailer combination there is sufficient space for a refuge stop by a car and potentially for a car trailer combination in the median before proceeding but for a truck the movement would need to be completed in one crossing.

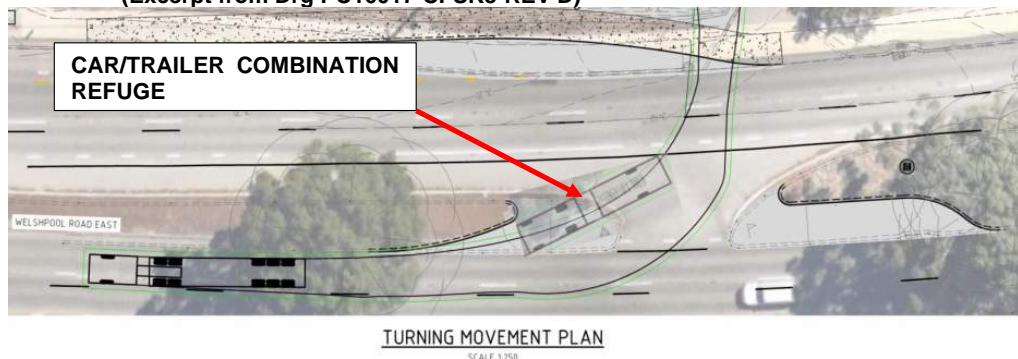
Based on having sufficient SSD and MGSD sight distances for approaching vehicles (Refer to section 3 of this report and tables 3.1 & 3.2 for commentary) this would allow vehicles approaching the crossover location from the east sufficient time to see the exiting vehicles as well as time to either slow down and not conflict or alternately to change lanes to pass the exiting vehicle safely in the alternate lane.

**Figure 10 – Current Proposed Slip Lane Configuration with Turning Movement shown  
(Excerpt from Drg PC16017-CI-SK3-REV D)**



Refer to **Figure 11** below for an overlay showing the potential median refuge situation for a car and trailer combination. A car would certainly have sufficient space to be accommodated, a car and trailer would most likely be accommodated (depending on size of the trailer) but the semi-trailer would not be able to be accommodated.

**Figure 11 – Current Proposed Slip Lane Configuration with MEDIAN ISLAND REFUGE OVERLAY  
(Excerpt from Drg PC16017-CI-SK3-REV D)**





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## 6. CONCLUSIONS AND OTHER MATTERS

It is clear from the additional field investigations and site measurements that the proponent is offering practical solutions to the traffic management for vehicles entering and exiting the site to mitigate perceived safety issues.

**The left turn (heading east) turning movement** out of the facility has been shown to not be required to stay on the inside lane according to the WA Road Traffic Code 2000. There are no design guideline directives or recommendations that this be a constraint on that traffic movement.

In regard to the major **sight line considerations** we can conclude that the major indicators meet all the "Posted Speed" requirements and is only deficient in one case for the truck movement approach under "Design Speed": considerations. Road designs are not and should not be based on traffic that is speeding or operating outside of the legal traffic limits posted on a traffic route.

As noted in the commentary in Section 3 above, the truck approach at the Design Speed results will be improved on site by some vegetation maintenance within the road reserve only. We believe based on the above observations and conclusions, that there is sufficient grounds for council to approve the application for the crossover at this location.

Consideration was given to council's commentary on the **Slip Lane (eastern traffic approach)** into the facility. Due to the dual lane configuration of the road at this location we do not believe that from a traffic point of view that the inclusion of a slip lane is justified at this location, however, we have provided justification in Section 4 above and have also provided the general configuration for the alternate longer slip lane arrangement for council engineer's consideration (refer to Drg **PC16017-CI-SK8-REV D ins Appendix B**). Council would need to confirm their preference based on the two options presented noting that the longer slip lane would require mature vegetation clearing within the medians.

For **Truck exiting westbound** from the facility, an analysis of the truck turning movement has been provided for council's consideration noting that for a car, the median gap could provide a refuge while waiting for a gap in traffic but that for the truck movement there is no such provision possible. The movement would only be undertaken when safe to do so as per excepted road traffic rules.

To provide additional security that the facility will manage its operations to minimise potential for traffic impacts on the local road network, a condition could be placed on the planning approval restricting truck delivery to and from site to outside peak traffic times only, such as "**deliveries to and from site only between 9:30am and 3:30pm**".

We trust the above provides council with sufficient data to recommend that the traffic issues have been adequately addressed and application can move forward to its logical conclusion to being approved with specific conditions relating to traffic provisions. As there was previous support for the application, we trust that based on the above matters being addressed the application can be resolved.

Yours faithfully,

**Enzo Biagioni-Froudist**  
Principal - Civil  
**Peritas Consulting Pty Ltd**

Encl. Appendix A – Left hand turn out of facility discussion  
Appendix B – Illustration Drawings



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## APPENDIX A – VEHICLE TURNING LEFT OUT OF DRIVEWAY (LANE CORRECT)

Email response from Transcore (Traffic Consultant) supporting advice that traffic exiting the facility does need to stay in the inside lane when exiting the proposed landscape facility.

RE: Welshpool Rd - vehicle turning left out from driveway



Robin White <rwhite@transcore.net.au>  
To Enzo Biagiioni-Froudast  
Cc Behnam Bordbar, Mohammad Rasouli

(i) You replied to this message on 2/03/2022 11:33 AM.



Tue 1/03/2022 2:02 PM

Hi Enzo,

You phoned this morning and asked about the requirement for a truck to remain lane correct while turning left out from a driveway to enter a dual carriageway road.

The WA Road Traffic Code 2000 sets out the regulations for driving on WA roads. It does not specifically state which traffic lane a vehicle must enter in this situation.

Regulation 112 relates to keeping as far left as practicable ("a driver must keep the vehicle as close as practicable to the left boundary of the carriageway, except where 2 or more lanes marked on the carriageway are available exclusively for vehicles travelling in the same direction.")

Regulation 113 relates to restriction on use of right lane, but only applies if the speed limit is 90km/h or more, or a "Keep left unless overtaking" sign applies on that part of the carriageway.

Regulation 21 relates to left turns at intersections with multiple lanes. It only specifies the traffic lanes a vehicle can use to approach and enter the intersection, not which lanes it must use on exit from the intersection. However, it is worth noting that 21(2) makes special provision for vehicles 7.5m long (or longer) to also use the lane adjacent to the left hand lane on approach to the intersection to turn left if required, if safe to do so and if it is not practicable for the driver to turn left from within the left lane.

Accordingly, (unless someone can point to a specific regulation that requires otherwise) a truck should be permitted to turn left out from a driveway into either lane on the adjacent carriageway of this dual lane road, not just into the left hand lane.

Regards,

**Robin White**  
Senior Traffic & Transport Engineer



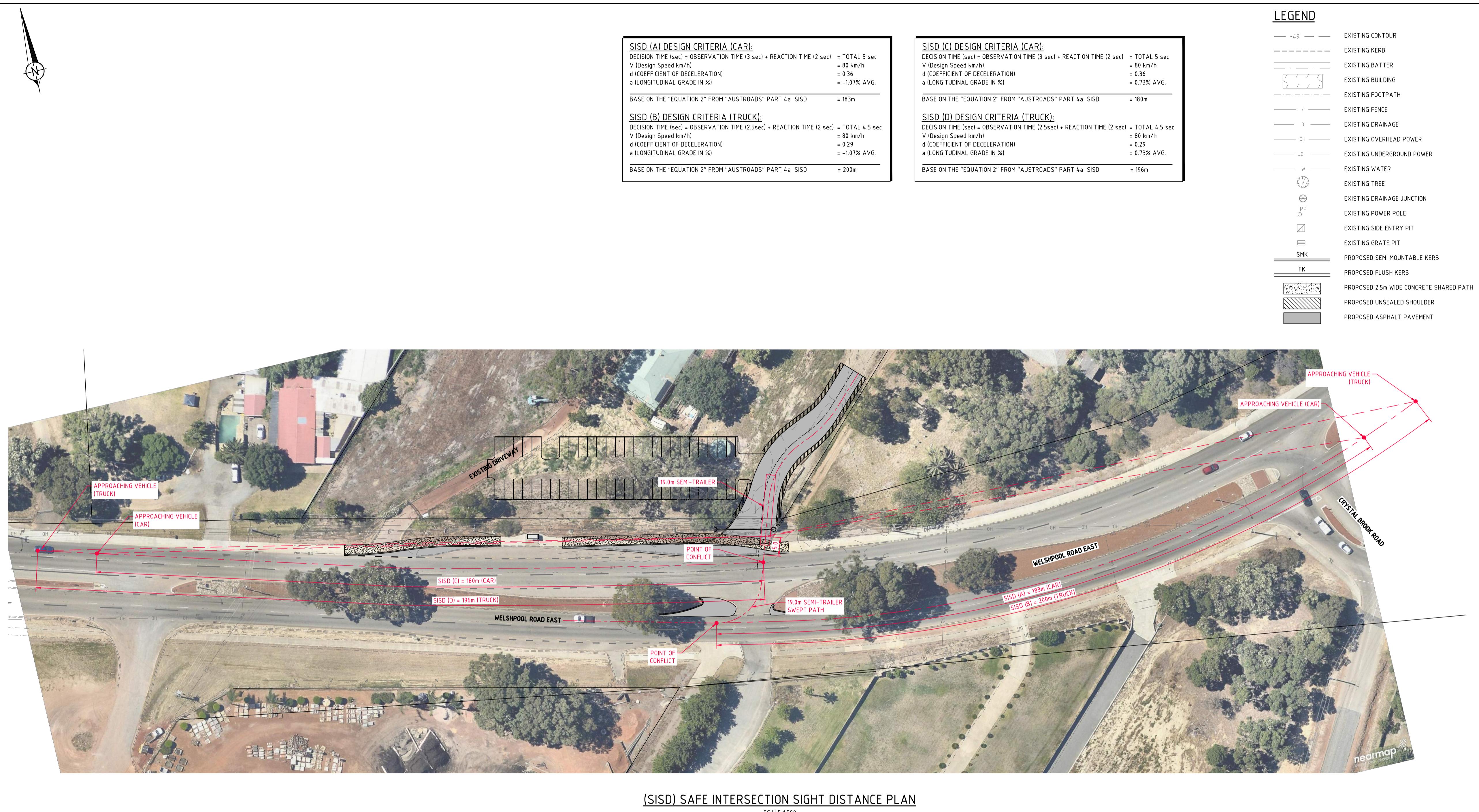
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**w:** [www.transcore.net.au](http://www.transcore.net.au)

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## APPENDIX B—ILLUSTRATION DRAWINGS



E:\Project Delivery (PD)\3.0 Projects\3.4 Civil\2016\PCI16017 – Lot 150 Welshpool Road, Wattle Grove\2.0 Design\2.34 Drawings\2.34.1 Acad\PCI16017-CI-SK2.dwg

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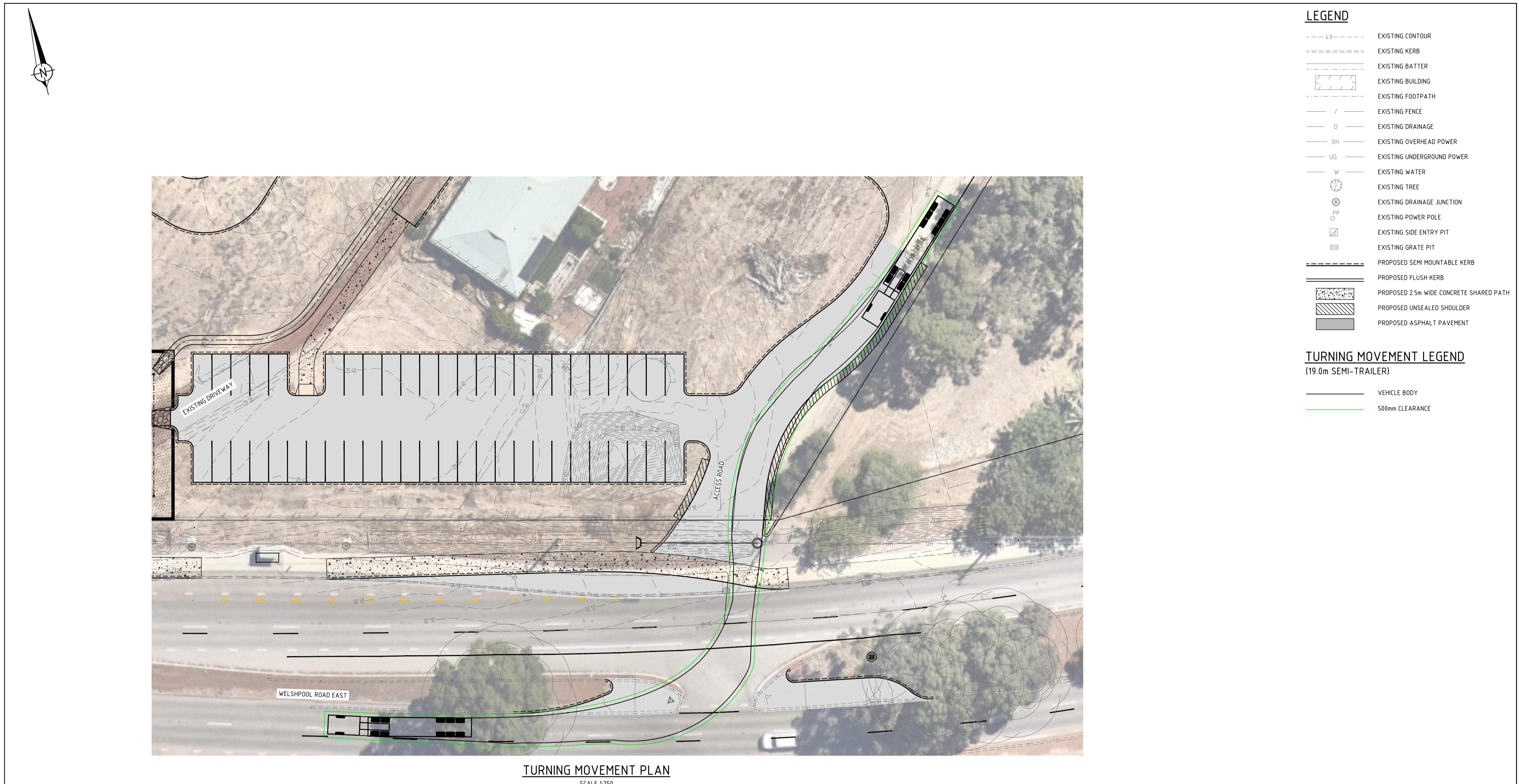


Tel: +61 8 9256 3003 | Fax: +61 8 9256 2003 | Mb: 0417962300  
Unit 1/5 Hughes Street Canning Vale South WA 6155  
PO Box 5486

PROJECT:  
PROPOSED DRIVEWAY  
720 WELSHPOOL ROAD  
WATTLE GROVE

DRAWING TITLE:  
SAFE INTERSECTION SIGHT  
DISTANCE PLAN

SCALE	AS SHOWN	FILE	THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED BELOW
HORIZONTAL	-	DESIGN DA	
VERTICAL	-	DRAWN DA	
SURVEY DATUM	AHD	CHECKED EBF	APPROVED
WAPC No	-	DATE MAY 18	-
CADFILE NAME	PC16017-CI	DRAWING No.	REV.
			A



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D DRAWING UPDATED	DA 23.06.21	NOTE	
C SLIP LANE ADDED	DA 19.04.21	This is an uncontrolled document issued for information purposes only, unless the checked sections are signed	
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A ISSUED FOR INFORMATION	DA 12.06.18	Figure dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.	
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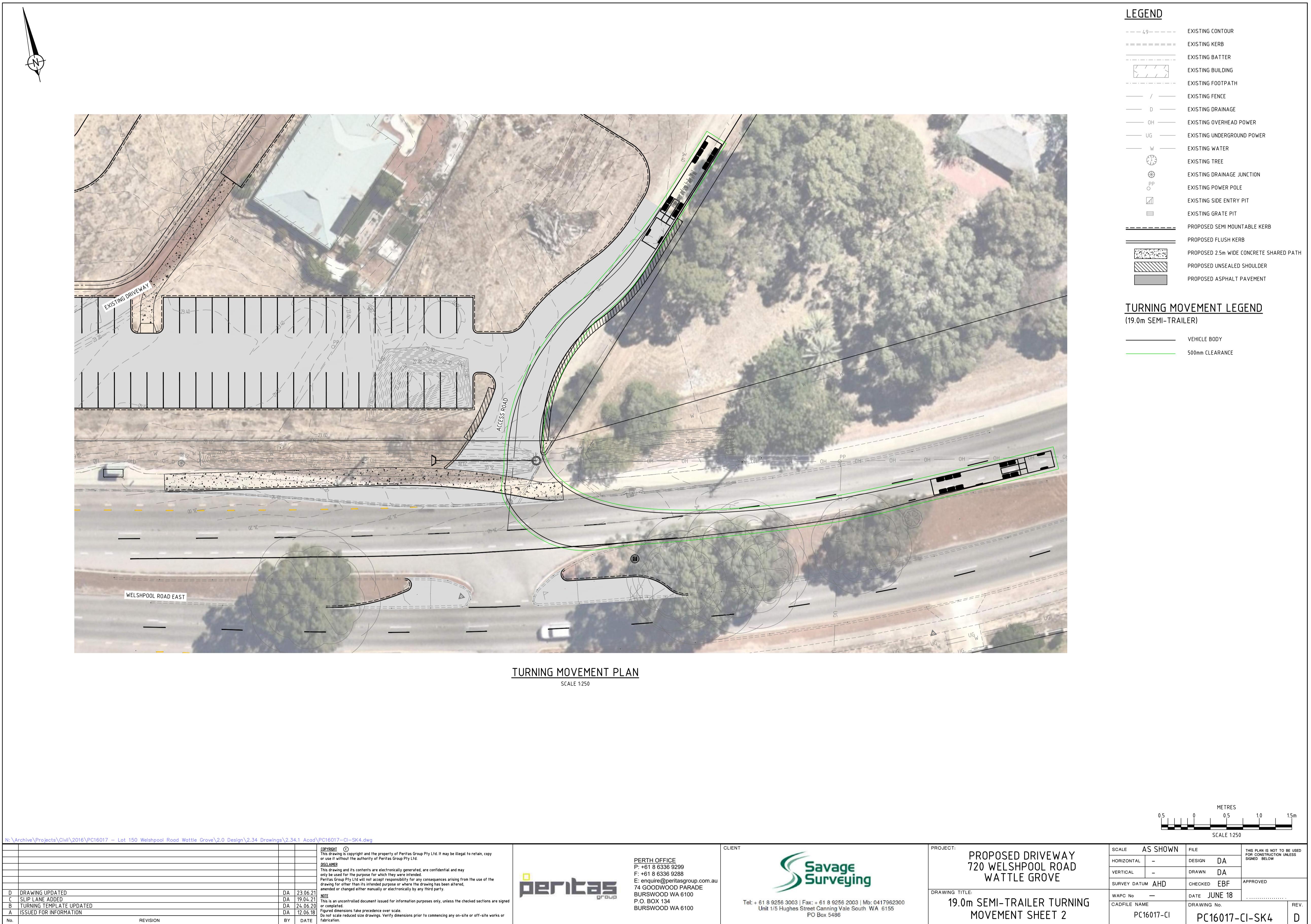


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Unit 1/5 Hughes Street Canning Vale South WA 6155  
PO Box 5486

PROJECT:  
**PROPOSED DRIVEWAY  
720 WELSHPOOL ROAD  
WATTLE GROVE**

DRAWING TITLE:  
**19.0m SEMI-TRAILER TURNING  
MOVEMENT SHEET 1**

SCALE	AS SHOWN	FILE	THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED BELOW
HORIZONTAL	—	DESIGN DA	
VERTICAL	—	DRAWN DA	
SURVEY DATUM	AHD	CHECKED EBF	APPROVED
WAPC No	—	DATE JUNE 18	.....
CADFILE NAME	PC16017-CI	DRAWING NO.	REV.
		PC16017-CI	D





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D	DRAWING UPDATED	DA 23.06.21	NOTE
C	SLIP LANE ADDED, TURNING TEMPLATE UPDATED	DA 19.04.21	This is an uncontrolled document issued for information purposes only, unless the checked sections are signed.
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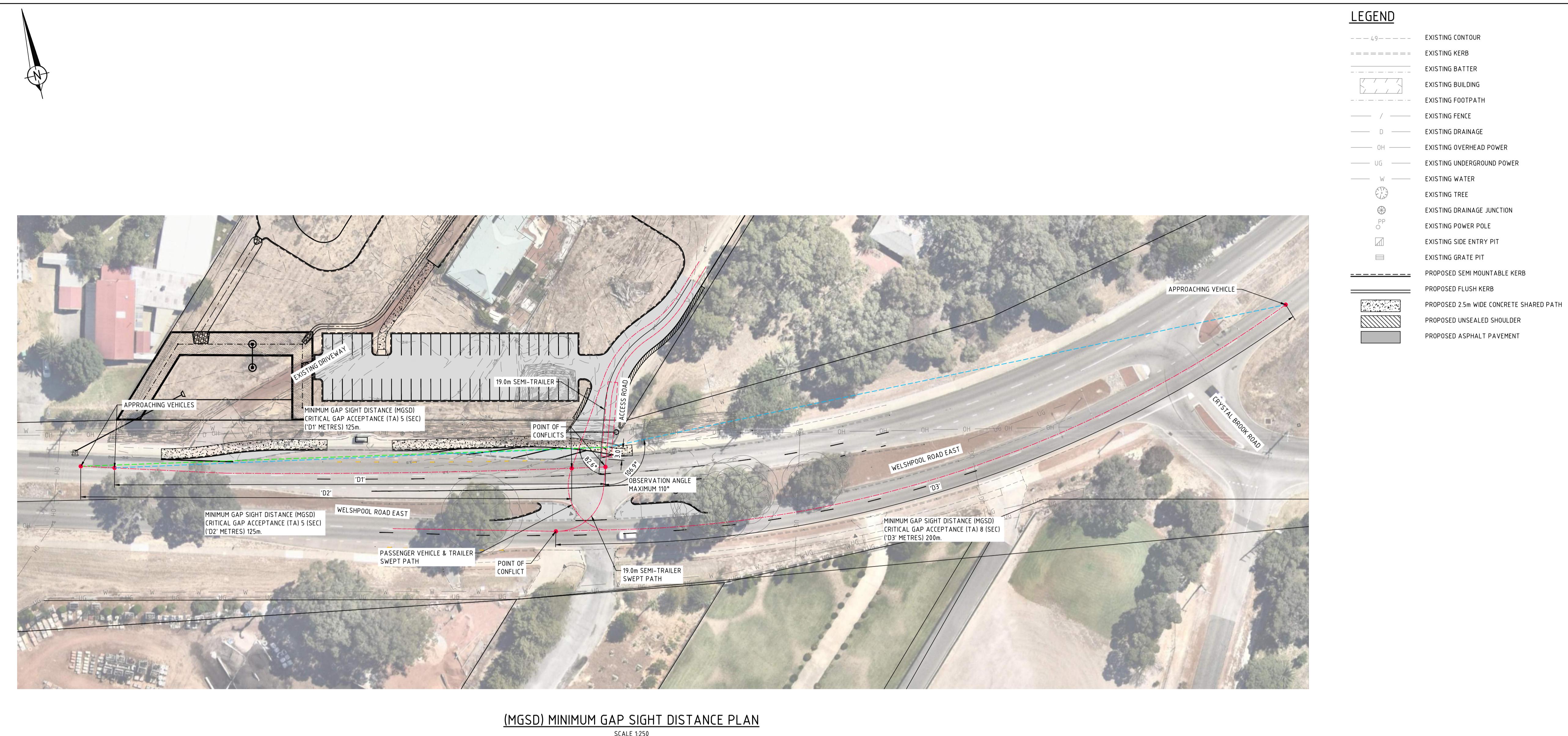


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PROJECT:  
PROPOSED DRIVEWAY  
720 WELSHPOOL ROAD  
WATTLE GROVE

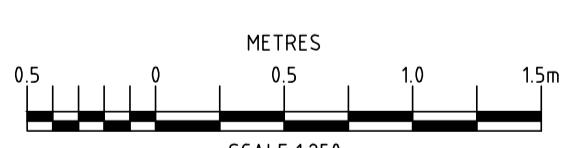
DRAWING TITLE:  
TURNING  
MOVEMENT SHEET 4

SCALE	AS SHOWN	FILE	THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED BELOW
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VERTICAL	—	DRAWN DA	
SURVEY DATUM	AHD	CHECKED EBF	APPROVED
WAPC No	—	DATE JUNE 18	.....
CADFILE NAME	PC16017-CI	DRAWING NO.	REV.
		PC16017-CI	D



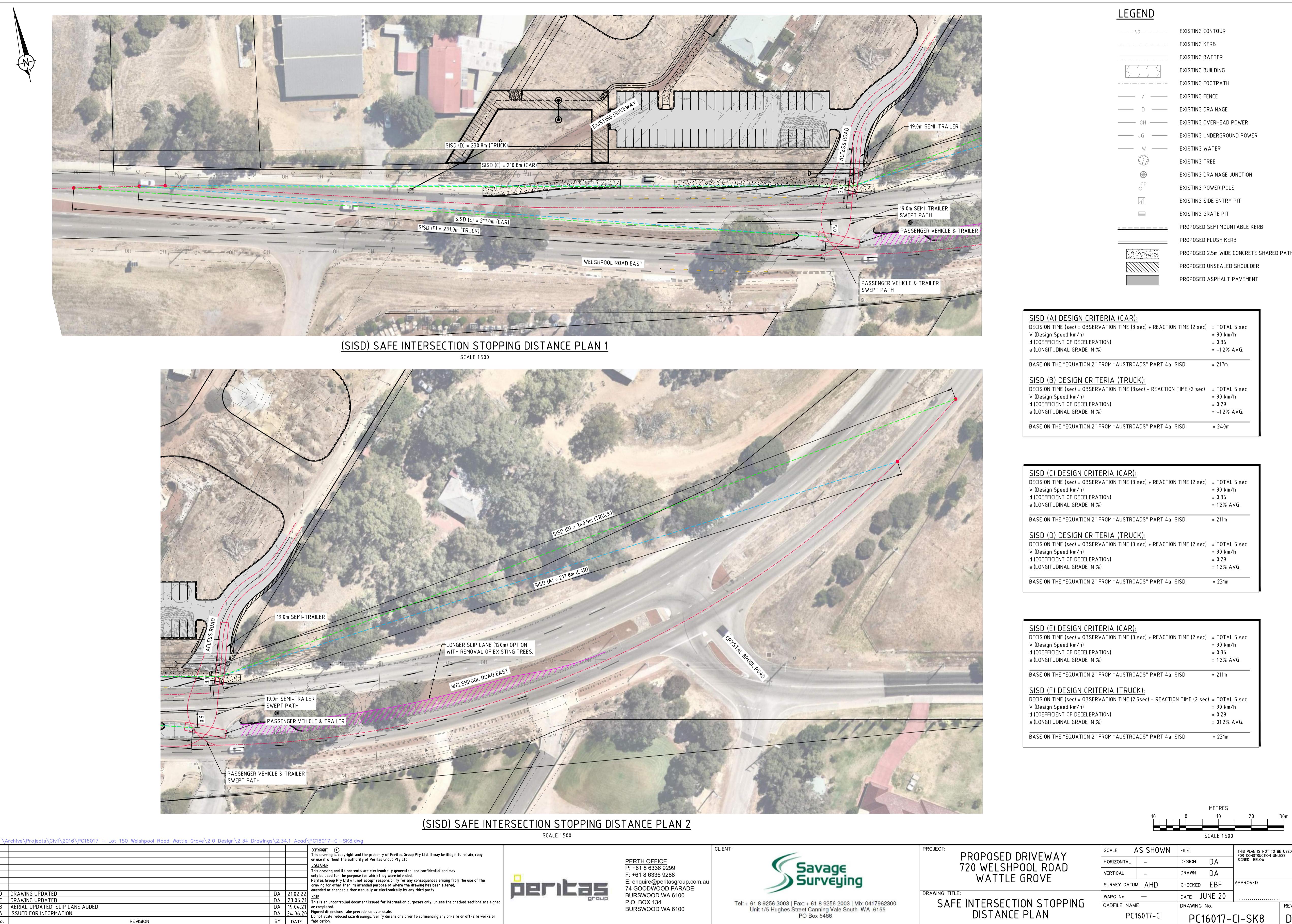
(MGSD) MINIMUM GAP SIGHT DISTANCE PLAN

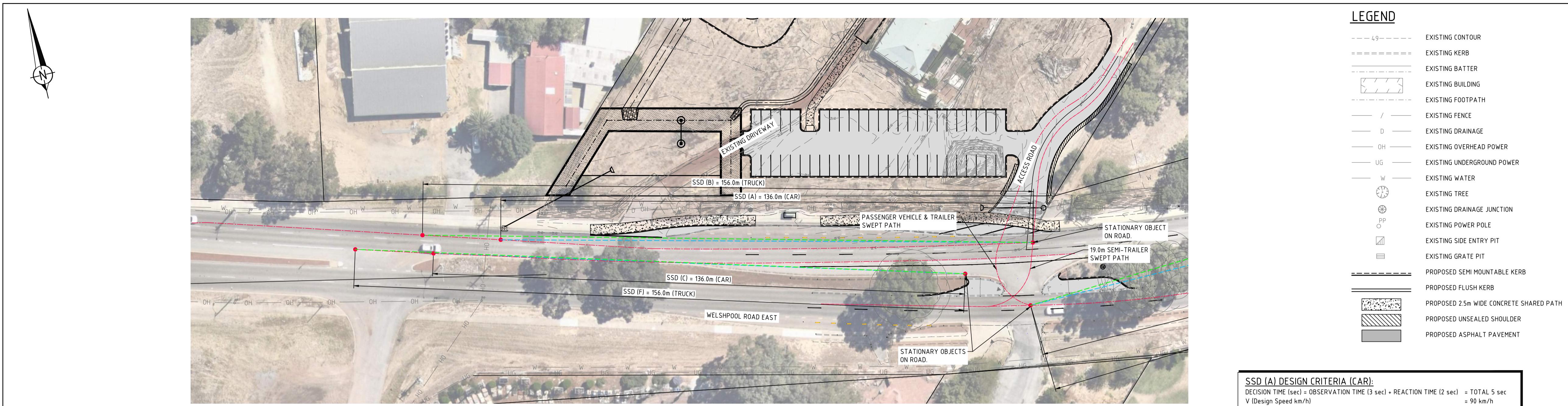
SCALE 1:250



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D	DRAWING UPDATED DA 21/06/22 NOTE	C	DRAWING UPDATED DA 23/06/21	B	AERIAL UPDATED, SLIP LANE ADDED DA 19/04/21	A	ISSUED FOR INFORMATION DA 24/06/20	No.	REVISION BY DATE	WAPC No — DATE JUNE 20 .....	CAOFILE NAME PC16017-CI DRAWING No. PC16017-CI-SK7 REV. D	



**LEGEND**

— - - - -	EXISTING CONTOUR
— - - - -	EXISTING KERB
— - - - -	EXISTING BATTER
— - - - -	EXISTING BUILDING
— - - - -	EXISTING FOOTPATH
/	EXISTING FENCE
D	EXISTING DRAINAGE
OH	EXISTING OVERHEAD POWER
UG	EXISTING UNDERGROUND POWER
W	EXISTING WATER
⌚	EXISTING TREE
PP	EXISTING DRAINAGE JUNCTION
O	EXISTING POWER POLE
----	PROPOSED SEMI MOUNTABLE KERB
— — — —	PROPOSED FLUSH KERB
— — — —	PROPOSED 2.5m WIDE CONCRETE SHARED PATH
▨▨▨▨	PROPOSED UNSEALED SHOULDER
▨▨▨▨	PROPOSED ASPHALT PAVEMENT

**SSD (A) DESIGN CRITERIA (CAR):**

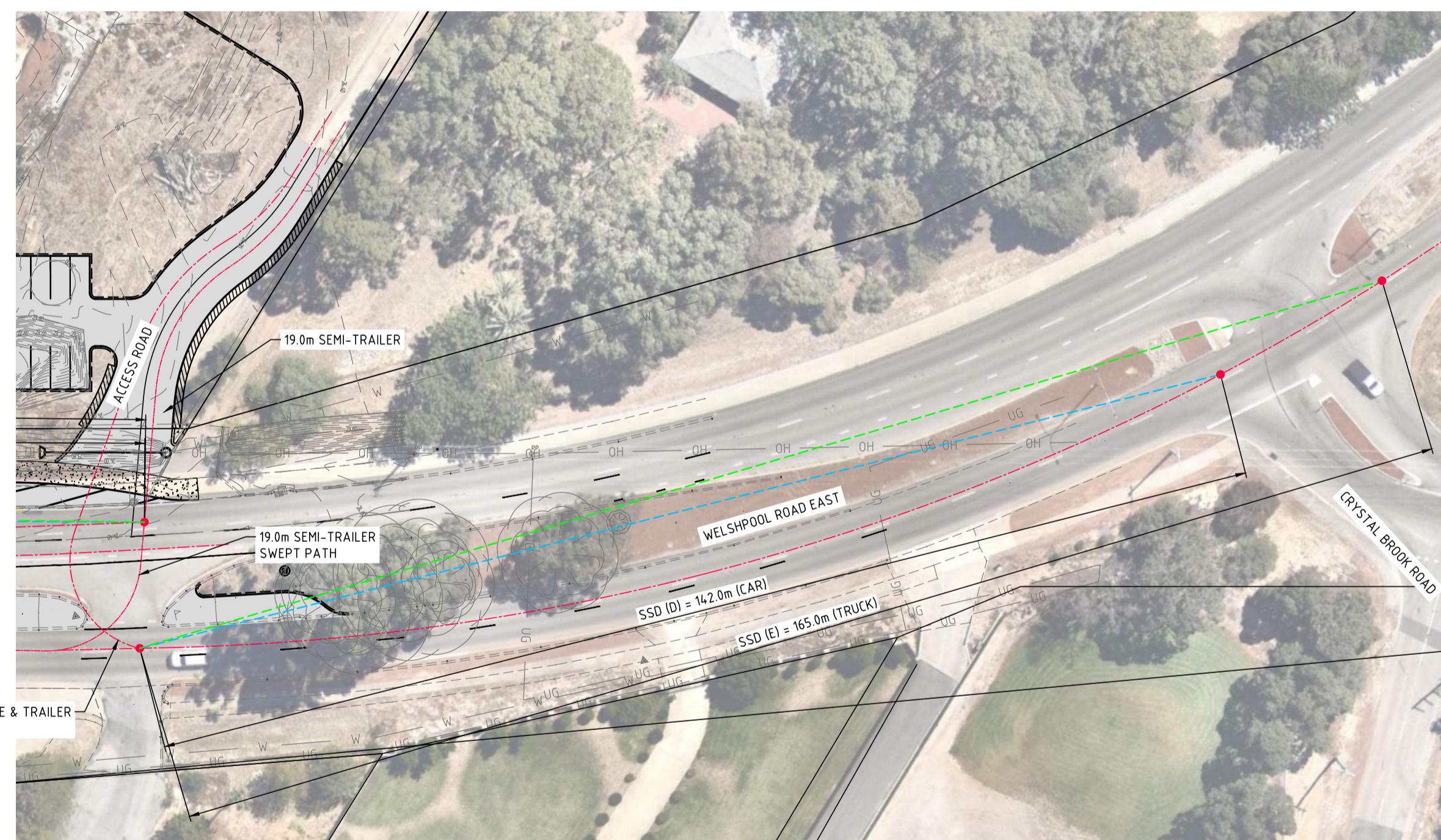
DECISION TIME (sec) = OBSERVATION TIME (3 sec) + REACTION TIME (2 sec) = TOTAL 5 sec  
V (Design Speed km/h) = 90 km/h  
d (COEFFICIENT OF DECELERATION) = 0.36  
a (LONGITUDINAL GRADE IN %) = -12% AVG.

BASE ON THE "EQUATION 1" FROM "AUSTRROADS" PART 3 SSD = 136m

**SSD (B) DESIGN CRITERIA (TRUCK):**

DECISION TIME (sec) = OBSERVATION TIME (3sec) + REACTION TIME (2 sec) = TOTAL 5 sec  
V (Design Speed km/h) = 90 km/h  
d (COEFFICIENT OF DECELERATION) = 0.29  
a (LONGITUDINAL GRADE IN %) = -12% AVG.

BASE ON THE "EQUATION 1" FROM "AUSTRROADS" PART 3 SSD = 156m

**SSD (C) DESIGN CRITERIA (CAR):**

DECISION TIME (sec) = OBSERVATION TIME (3 sec) + REACTION TIME (2 sec) = TOTAL 5 sec  
V (Design Speed km/h) = 90 km/h  
d (COEFFICIENT OF DECELERATION) = 0.36  
a (LONGITUDINAL GRADE IN %) = 12% AVG.

BASE ON THE "EQUATION 1" FROM "AUSTRROADS" PART 3 SSD = 136m

**SSD (D) DESIGN CRITERIA (CAR):**

DECISION TIME (sec) = OBSERVATION TIME (3 sec) + REACTION TIME (2 sec) = TOTAL 5 sec  
V (Design Speed km/h) = 90 km/h  
d (COEFFICIENT OF DECELERATION) = 0.29  
a (LONGITUDINAL GRADE IN %) = 12% AVG.

BASE ON THE "EQUATION 1" FROM "AUSTRROADS" PART 3 SSD = 142m

**SSD (E) DESIGN CRITERIA (TRUCK):**

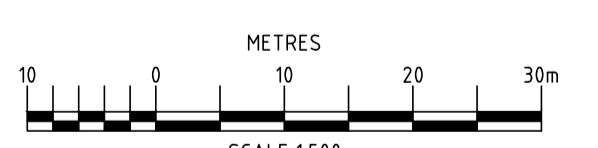
DECISION TIME (sec) = OBSERVATION TIME (3 sec) + REACTION TIME (2 sec) = TOTAL 5 sec  
V (Design Speed km/h) = 90 km/h  
d (COEFFICIENT OF DECELERATION) = 0.36  
a (LONGITUDINAL GRADE IN %) = 12% AVG.

BASE ON THE "EQUATION 1" FROM "AUSTRROADS" PART 3 SSD = 165m

**SSD (F) DESIGN CRITERIA (TRUCK):**

DECISION TIME (sec) = OBSERVATION TIME (2.5sec) + REACTION TIME (2 sec) = TOTAL 5 sec  
V (Design Speed km/h) = 90 km/h  
d (COEFFICIENT OF DECELERATION) = 0.29  
a (LONGITUDINAL GRADE IN %) = 0.12% AVG.

BASE ON THE "EQUATION 1" FROM "AUSTRROADS" PART 3 SSD = 156m



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B	AERIAL UPDATED, SLIP LANE ADDED	DA	19.04.21	Fingered dimensions take precedence over scale.	DA	24.06.20	Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.	DA	24.06.20	DA	19.04.21	720 WELSHPOOL ROAD	WATTLE GROVE	DRAWING TITLE:	STOPPING SIGHT DISTANCE PLAN	WAPC No	-	DATE	JUNE 20	.....	CADFILE NAME	PC16017-CI	DRAWING NO.	PC16017-CI-SK9	REV.	C		
A	ISSUED FOR INFORMATION	DA	24.06.20	BY DATE	DA	24.06.20	BY DATE	DA	24.06.20	DA	19.04.21	Tel: +61 8 9256 3003   Fax: +61 8 9256 2003   Mb: 0417962300	Unit 1/5 Hughes Street Canning Vale South WA 6155	PO Box 5486	PROJECT:	PROPOSED DRIVEWAY	FILE											
No.	REVISION																											