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REGIONAL COUNCIL**



5 August 2026

ROAD SAFETY AND RISK ASSESSMENT

LOT 9 | 1401 PIERCES CREEK ROAD |
PIERCES CREEK QLD 4355

Downs Roadside Engineering
DARRAN HUTCHINGS

DOCUMENT CONTROL

REPORT DETAILS	
Report Title:	Road Safety and Risk Assessment Lot 9, 1401 Pierces Creek Road, Pierces Creek Road.
Project No.:	10315
Report Author:	Adriel Green

DOCUMENT CONTROL					
Revision	Author	Reviewer	Approved for Issue		
			Name	Signature	Date
0	A. Green	Naser	B. Tomkins	 Digitally signed by Brock Tomkins Reason: I am approving this document Date: 2026.08.05 13:46:00 +10'00'	05/08/2026

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1 INTRODUCTION

1.1 General

Downs Roadside Engineering Pty Ltd (DRE) has been commissioned by Darran Hutchings (herein referred to as the Client) to prepare a Road Safety and Risk Assessment relating to a proposed private access to Lot 9, 1401 Pierces Creek Road located in the Toowoomba Regional Council (TRC) Local Government Area (LGA).

For engineering purposes, this report will discuss the following:

- Observations made during a site visit undertaken on Friday 17th July 2026;
- Deficiencies identified during this site visit, and a desktop analysis;
- Observed Sight distances;
- Commentary based on client provided documentation; and
- Existing infrastructure in the surrounding area as it relates to the assessment.

1.2 Basis of report

This report has been compiled based on:

- Australian Standards and Austroads Guide to Road Design, outlined in **Section 5**;
- Discussions between DRE and the client;
- TRC Request for Information (RFI) as outlined in **Section 1.3**.

This report is specific for the site extents only and the provided engineering advice is provided solely for consideration by the Client and the relevant assessing authority. It should be noted that this report and its content have been compiled based on information (including existing site layout arrangements and proposed boundary re-alignment) current at the time of the report printing, and that recommendations within this report are valid based solely on the above.

1.3 Council Request for Information

The below sections is an excerpt of an RFI received from TRC:

Council is unable to determine if the required private access crossover for proposed lot 9 will affect the function, vehicle speeds, safety, efficiency, and capacity of Pierces Creek Road. No information has been provided to demonstrate that Safe Intersection Sight Distance (SISD) is available from the development access to Pierces Creek Road for Lot 9. The available sight distance is likely to be insufficient due to the road geometry, which may impact the safety and suitability of the proposed private access. Information Required by Council:

Provide amended plans and supporting information which:

- *Identify a proposed private access crossover location for proposed Lot 9;*
- *Demonstrate Safe Intersection Sight Distance (SISD) is available from the proposed private access crossover for proposed Lot 9 to Pierces Creek Road in accordance with Austroads Guide to Road Design Part 4A, section 3.2.2;*
- *Provide a road safety and risk assessment prepared and certified by a Registered Professional Engineer of Queensland (RPEQ) to confirm the safety and suitability of the proposed private access access for proposed Lot 9, including any required mitigation measures.*

2 BACKGROUND

2.1 Location and description

The site locality – as described in **Section 1.1** – is formally described as Lot 9 on RP861104. The boundary of Lots 8 and 9 are planned to be realigned (details by others). This assessment report focuses on the safety and risk of the proposed private access related to Lot 9 (access to Lot 8 already exists). This site is located in TRC and will provide access to an existing lot with no current formalised access on Pierces Creek Road (refer **Figure 1**, which illustrates the land parcels, proposed access and locality plan).

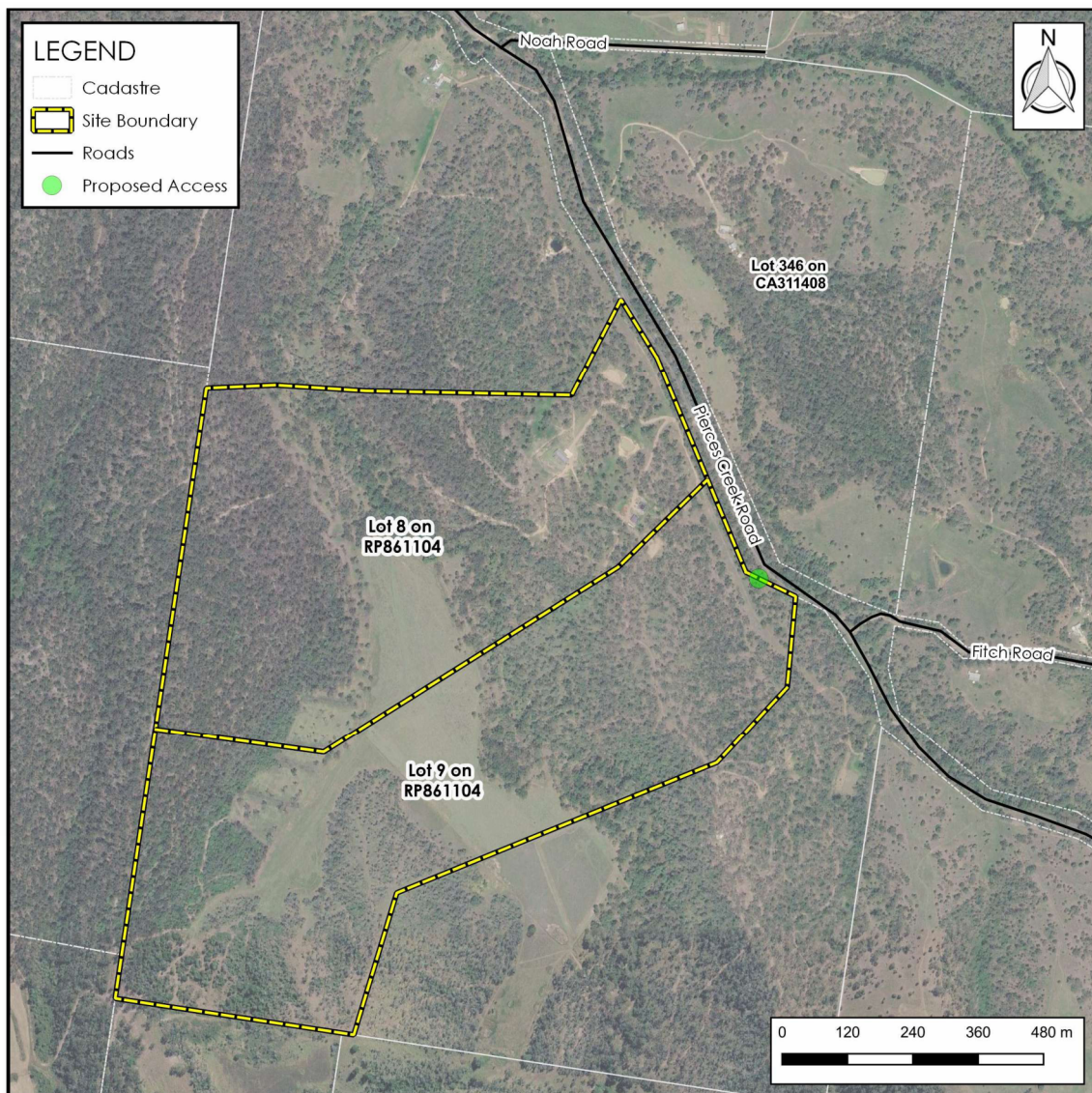


Figure 1 – Land parcels, site conditions and locality plan

Below, **Figure 2** shows the proposed boundary re-alignment of Lot 8 and Lot 9 on RP861104.

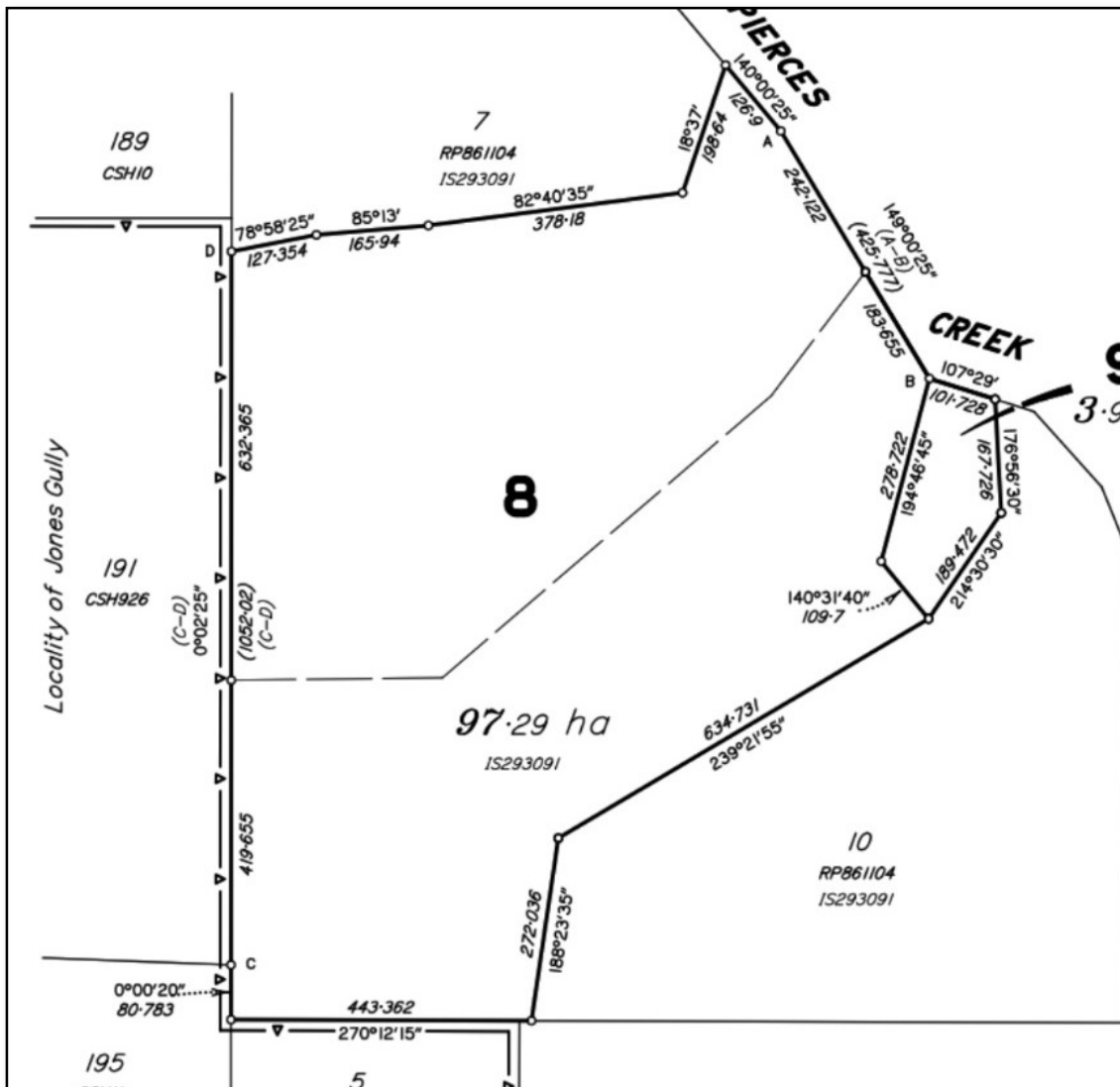


Figure 2 – Proposed boundary re-alignment plan

2.2 Road network

Pierces Creek Road is located north of Crow's Nest and serves to connect Crow's Nest to the townships of Yarraman and Blackbutt via the D'Aguilar Highway located within the LGA of TRC, this road bears North starting as Emu Creek Road, at an intersection with the New England Highway (in Crow's Nest) and becomes Pierces Creek Road at the intersection with Back Creek Road. Emu Creek Road has a posted speed of 60km/h at Latitude -27.254 Longitude 152.052, increasing to 80km/h at Latitude -27.250 Longitude 152.053 followed by 100km/h posted speed at Latitude -27.248 Longitude 152.054 before the Back Creek Road intersection (refer **Figure 3**). Some warning and advisory speed signage was found to be absent within the site approach and departures to the proposed access. The current posted speed limit (100km/h) was the only observed regulatory speed sign visible along the entire Northbound Pierces Creek Road approach. This included local road intersections and horizontal curves, with varying curve radius

on this route. The site has no advisory speed or speed limit signage throughout the road length past the 100km/h sign (R4-1-100B). Lane widths were observed to be 3.25m traffic lanes and a total 6.5m seal width at the subject location.

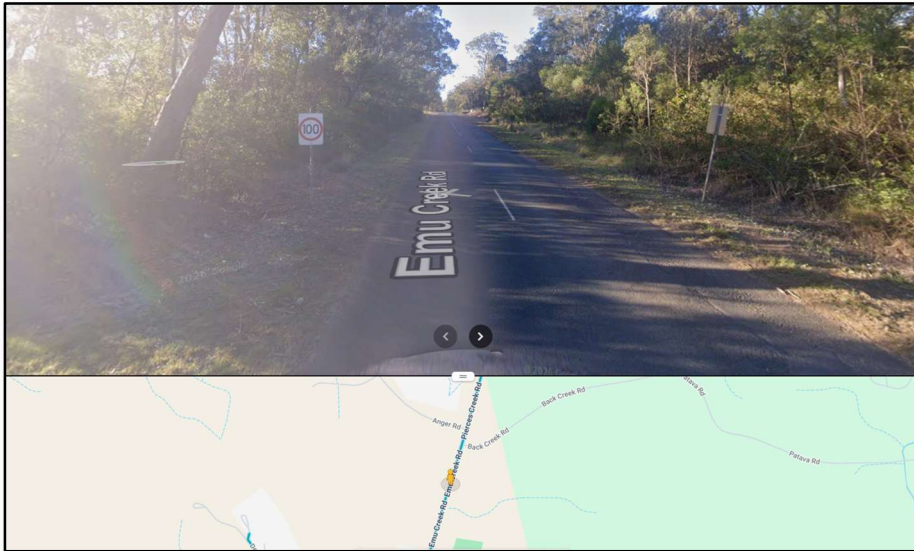


Figure 3 - Pierces Creek Road 100km/h speed limit location



Figure 4 – Typical section - Pierces Creek Road - looking south



Figure 5 - Access gate for proposed Lot 9 access

2.3 Traffic volumes

Traffic volumes were extracted from the TRC smart mapping portal and summarised below.

Table 1 – Road traffic volumes

Location	2023 ADT (vpd)	% HV
Pierces Creek Road	244	18

Note: ADT = Average daily traffic, vpd = vehicles per day, HV = Heavy vehicles

3 SITE INVESTIGATIONS

DRE was engaged by the client to undertake a road safety and risk assessment of the proposed private access to Lot 9 of 1401 Pierces Creek Road to quantify a suitable location for the private access by demonstrating sight distance suitability, assessing road safety and other risks.

3.1 Observations

A site visit was undertaken by DRE on Friday the 17th July 2026 and was attended by Brock Tomkins, Naser and Adriel Green. Traffic operations were observed during the site visit, with focus on how vehicles were negotiating both the approach to and departure from the private access.

Observations for the southbound approach identified an available sight distance of 474m.

Observations for the northbound approach identified an available sight distance of 176m. Of the minimal traffic observed driving past the site (during the site visit), there was a common tendency to drive the northbound approach at speed, before unintentionally crossing the dividing line (to the RHS) adjacent Fitch Road before applying moderate braking and then correcting lane position.

This observation – combined with DRE undertaking several drives through suggests the northbound approach geometry is not suitable for the 100km/h speed limit, and that 90km/h represents an upper limit of speed. It was identified that the southbound approach could be driven comfortably at the speed limit.

3.2 Advisory speeds

Pierces Creek Road does not have advisory speeds in the proximity of the site. As outlined in **Section 3.1**, advisory speed signs (W8-2B) are recommended on the northbound approach when driving past Fitch Road (refer Curve 4, **Figure 6**).

It is also evident from the overall drive north of Crows Nest that Pierces Creek Road could benefit from a wider network treatment of advisory speed signage in combination with appropriate curve warning signage. This in itself would require a Vericom assessment to appropriately assess the suggested advisory speed, but this would assist with providing a wider level of road safety for overall length of Pierces Creek Road.

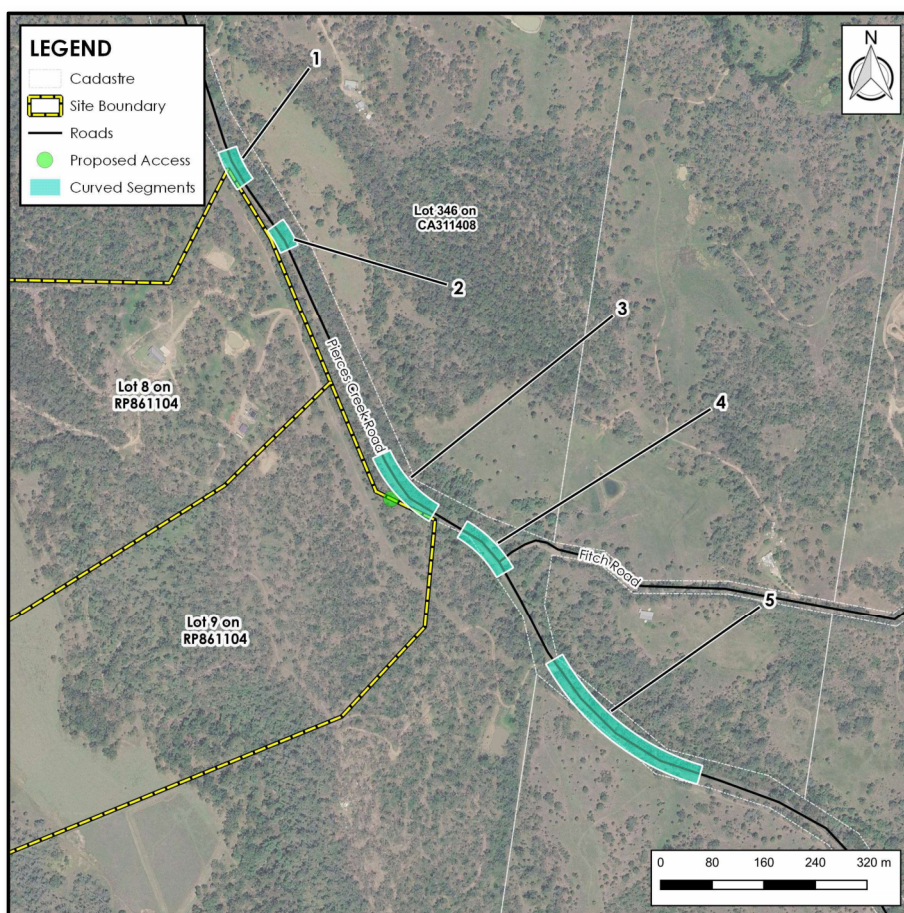


Figure 6 - Horizontal curve locations

Whilst Vericom assessment has not been performed, DRE has experience in performing this type of assessment and acknowledges the geometric relationship between determination of advisory speeds on horizontal curve design (Appendix F of AS1742.2 (2022) for Vericom and Table 7.6 from Austroads Guide to Road Design (AGRD) Part 3: for horizontal geometric design). Based on the AGRD Pt. 3 relationship and the car to truck speed correlation of -10 km/h, the advisory speeds recommended for the five horizontal curves adjacent to the proposed access are outlined in **Table 2**, with emphasis on Curve 4.

Table 2 - Advisory speeds

ID	Length (m)	Existing Radius (m)	Recommended car speed Design (Posted) (km/h)	Recommended truck speed Design (Posted) (km/h)
1	61	190	80 (70)	70 (60)
2	43	200	80 (70)	70 (60)
3	124	200	80 (70)	70 (60)
4	95	180	80 (70)	70 (60)
5	295	380	100 (90)	90 (80)

As outlined in **Table 1**, there is a low volume of cars and low percentage of heavy vehicles (18% HV). Thus adopting an advisory speed for cars is considered the most suitable approach.

3.3 Sight distance (Intersection and accesses)

The purpose of this section is to discuss and summarise the observed available sight distance at the proposed access, and the minimum relevant sight distance in accordance with Austroads Guide to Road Design Part 4A, which has been considered and calculated, inclusive of Approach Sight Distance (ASD), Safe Intersection Sight Distance (SISD), Stopping Sight Distance (SSD) and Minimum Gap Sight Distance (MGSD).

Table 3 – Minimum sight distance requirements (refer Appendix B)

Sight Distance Type	Car (m) V80	Car (m) V100	Truck (m) V70	Truck (m) V90
ASD	110	160	105	150
SISD	145	200	130	190
*SSD	110	160	100	155
MGSD	110	140	95	125

*Not specifically required

Table 4 – Available sight per access / intersection (1.1m eye height)

Location	Sight Distance – Left	Sight Distance – Right
Proposed Access	473m	175m

Table 5 – Sight compliance checks

Parameters	Car		Truck	
Sight direction	Sight Left	Sight Right	Sight Left	Sight Right
Recommended design speeds (km/h)	100	80	90	70
ASD	N/A	N/A	N/A	N/A
SISD	✓✓	✓✓	✓✓	✓✓
*SSD	✓✓	✓✓	✓✓	✓✓
MGSD	✓✓	✓✓	✓✓	✓✓

Note 2: ✓✓ = excellent sight; ✓ = satisfactory sight (passing all checks); * = poor sight or failing ≥ 1 sight distance check

Based on available sight distance values measured for the proposed access and the recommended sight distance failures availability (Table 5):

- All relevant sight distances are achieved in both directions;

Proposed mitigations to offset the observed discrepancy between posted speed and recommended speed consist of:

- Providing advisory speed signage (W8-2)
- Providing concealed driveway signage (W5-55-1) on Pierces Creek Road at key locations;
- Pruning of trees in the road reserve for the northbound approach to increase sight distance.

3.4 Existing sign details

The below table summarises the existing signs north and south of the subject site, with the existing signs summarised, located between Fitch Road and Noah Road (refer **Figure 7**). Details include AS1742 references, the sign name and its category.

Table 6: Existing signage provisions on the roads

Sign ID	Standard	Sign Name	Category
01	AS1742.1	Floodway (W5-7-1)	Warning
02	AS1742.1	Road Subject to Flooding for Next 3km (G9-21)	Guide
03	AS1742.1	T-intersection (R) (W2-3)	Warning
04	AS1742.1	T-intersection (L) (W2-3)	Warning
05	AS1742.1	School Bus Route (W6-205)	Warning

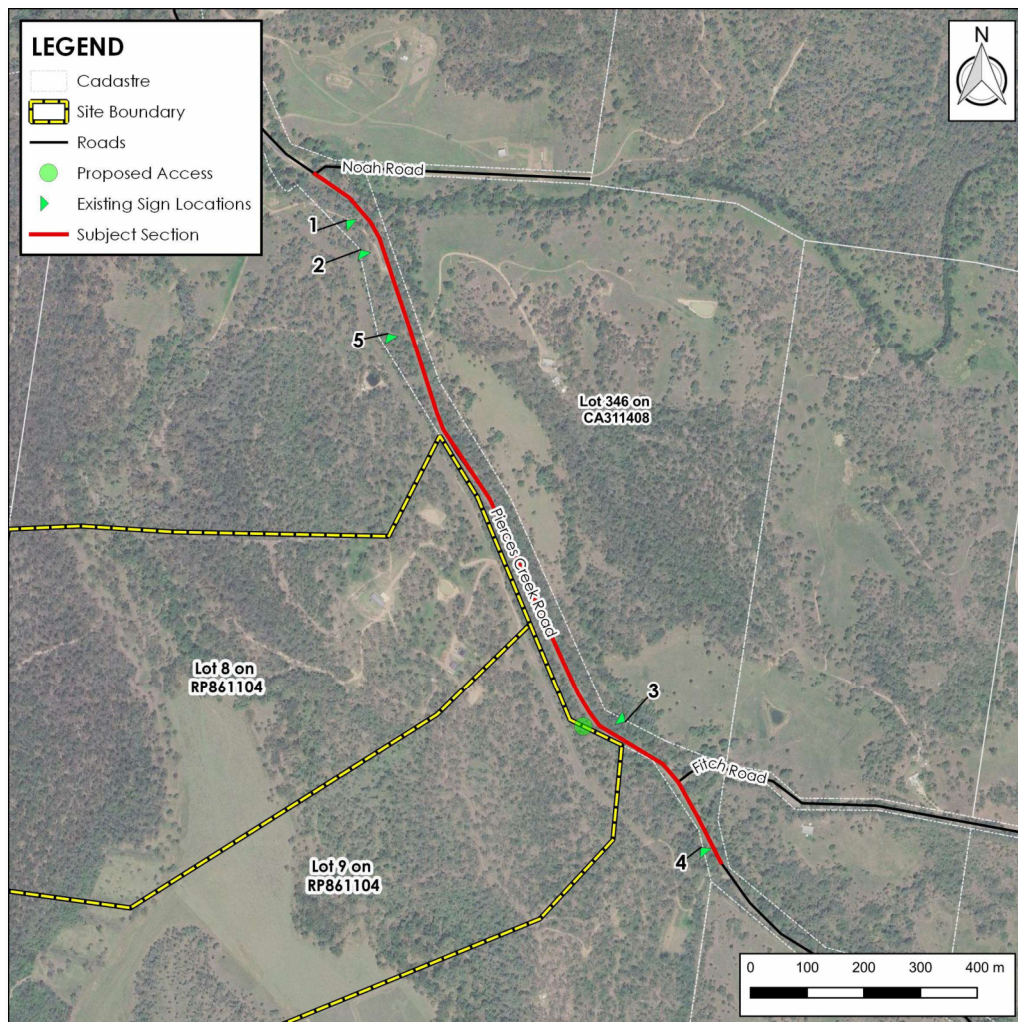


Figure 7 - Existing sign locations

4 FINDINGS

Having assessed a variety of engineering considerations at the proposed access for Lot 9, 1401 Pierces Creek Road, DRE have grouped the findings into three defined areas, observations, suggestions and recommendations.

1. Observations: No particular action required;
2. Suggestions: Should be considered; and
3. Recommendations: Implementation is recommended but not mandatory.

Observations:

- Absence of advisory speed signage;
- No road shoulders present;

Suggestions:

- Construction of additional and consistent warning signage on Pierces Creek Road;
- Concealed driveway signage at targeted locations on Pierces Creek Road; and
- Vegetation pruning on the northbound approach.

Recommendations:

- Provide advisory speed signage (W8-2-80B) on Curves 1-4 to lower risks associated with geometric deficiency along the length of Pierces Creek Road that has been investigated. Alternatively, undertake Vericom assessment for the entire length of Pierces Creek Road and upgrade signage based on assessment findings.

No works are considered necessary for the landholder to implement beyond construction of the private access. The recommendations listed above should be considered by Council irrespective of the proposed private access location. These findings confirm that there is no engineering reason that should preclude placement of a private access at the proposed location for Lot 9 (1401 Pierces Creek Road).

5 REFERENCES

- Manual of Uniform Traffic Control Devices
 - › AS1742.1: 2021, General introduction and index of signs
 - › AS1742.2: 2022, Traffic control devices for general use
- Austroads Guide to Road Design Part 3: Geometric Design (AGRD3);
- Austroads Guide to Road Design Part 4: Intersections & Crossings General (AGRD4);
- Austroads Guide to Road Design Part 4A: Unsignalised & Signalised Intersections (AGRD4A), Clause 3.5;

APPENDIX A

SITE VISIT OBSERVATIONS

Reference	Description
Northbound Direction	
 	On the Northbound direction towards the site, the sight distance check showed that a member on the proposed private access edge is visible from 176m.
Southbound Direction	
 	On the Southbound direction towards the site, the sight distance check showed that a member on the proposed private access edge is visible from 474m.

APPENDIX B SIGHT DISTANCE CALCULATIONS

Pierces Creek Road 10315
Lot 9 | 1401 Pierces Creek Road
80 km/h Sight Distance

Job No.: 10315
Client: Darran Hutchings

Sight Distance Summary
Vehicle: Car

Reference	Known/Assumed Data	Units	Output	Notes
Austroads	Year of Planned Opening		2025	
	Typical reaction conditions		High speed urban areas	Refer Austroads, Pt 3, Table 5.2
	Reaction Time (R _T)	s	2.0	Refer Austroads, Pt 3 Guide to Road Design
	85th Percentile Speed	km/h	80	Refer AGRD Pt 3, Tbl 3.4, Cars 10kmh > Trucks
	Design Vehicle Type?		Car	
	Case Code		Norm-day	Norm-day selects car, Truck-day selects truck
	Road Configuration 1		High speed urban, few intersections, alerted rural driving ≥ 90kmh	Typical road conditions
	Road Configuration 2		Two lane / two way	
	Road Dry or Wet?		Wet	Affects SIRD
	Time of Day (Night or Day)?		Day	Affects SSD
Table 5.2	Road Sealed or Unsealed?		Sealed	
	Is PBS being assessed? If so, what level?		N/A	PBS requires lower 'd' value be assessed
	Is this assessment using EDD values?		No	PBS requires lower 'd' value be assessed
	ASD Coefficient of Deceleration (d)		0.36	Refer Austroads, Part 4a, Table 3.1
	SIRD Coefficient of Deceleration (d)		0.36	Refer Austroads, Part 4a, Table 3.2
	SSD Coefficient of Deceleration (d)		0.36	Refer Austroads, Part 3, Table 5.4 - 5.5
	Longitudinal grade in direction of travel	%	2	Where average grade is <2%, no grade correction shall be applied. Otherwise, round to nearest 2% and refer drawings.
	Calculations			
	1. Approach Sight Distance (ASD)			
	ASD Coefficient of Deceleration (d)		0.36	Car
Eq. 1	ASD Coefficient of Deceleration (d)		N/A	Truck, where RT1 or RT1 adopt 0.28 or 0.26
	Grade correction	m	-4.00	Cars, Refer Austroads Part 4a, Table 3.3
	ASD (Car)		110.8	Refer Austroads, Pt 4a, Table 3.1
	ASD (Truck) or Bus		N/A	Refer Austroads, Pt 4a, Table 3.1
	2. Safe Intersection Sight Distance (SIRD)			
	SIRD Coefficient of Deceleration (d)		0.36	Car
	SIRD Coefficient of Deceleration (d)		N/A	Truck, where RT1 or RT1 adopt 0.28 or 0.26
	Observation time (Ot)	s	1.50	2.5s min for Trucks NDD, 3.0s for Cars NDD
	Decision time (Dt)	s	3.50	Refer Austroads Part 4a, Eq 2.
	Grade correction	m	-4.00	= Observation time (3s) + Reaction time
Eq. 2	SIRD (Car)	m	144.1	Cars, Refer Austroads Part 4a, Table 3.3
	SIRD (Truck) or Bus	m	N/A	Refer Austroads Part 4a, Eq 2.
	3. Stopping Sight Distance (SSD)			
	SSD Coefficient of Deceleration (d)		0.36	Car
	SSD Coefficient of Deceleration (d)		N/A	Truck, where RT1 or RT1 adopt 0.28 or 0.26
	Grade Correction	m	-4.00	Car
	SSD (Car)	m	110.8	Refer Austroads Part 3, Table 5.4
	SSD (Truck)	m	N/A	Refer Austroads Part 3, Table 5.5
	SSD (Bus)	m	N/A	Refer Austroads Part 3, Table 5.3
	4. Minimum Gap Sight Distance (MGSD)			
Table 3.5	85th Percentile Approaching Speed	km/h	80	110.75
	Critical Gap Acceptance Time (ta)	s	5.0	
	MGSD		111.0	Refer Austroads Pt 4a, Table 3.4 - 3.5
	Available Sight Distance?	m	175.0	As determined on site visit (Southbound approach)
	Largest sight distance requirement for project intersection?	m	144.1	As determined by ASD, SIRD, MGSD
	What are you assessing?	All	All	Rounded up to nearest 10m
	Does Project satisfy required sight distance?		Yes	

Pierces Creek Road 10315
Lot 9 | 1401 Pierces Creek Road
70 km/h Sight Distance

Job No.: 10315
Client: Darran Hutchings

Sight Distance Summary
Vehicle: Truck

Reference	Known/Assumed Data	Units	Output	Notes
Austroads	Year of Planned Opening		2025	
	Typical reaction conditions		High speed urban areas	Refer Austroads, Pt 3, Table 5.2
	Reaction Time (R _T)	s	2.0	Refer Austroads, Pt 3 Guide to Road Design
	85th Percentile Speed	km/h	70	Refer AGRD Pt 3, Tbl 3.4, Truck 10kmh < Cars
	Design Vehicle Type?		Truck	
	Case Code		Truck-day	Norm-day selects <i>car</i> , Truck-day selects <i>truck</i>
	Road Configuration 1		High speed urban, few intersections, alerted rural driving ≥ 90kmh	Typical road conditions
	Road Configuration 2		Two lane / two way	
	Road Dry or Wet?		Wet	Affects SIRD
	Time of Day (Night or Day)?		Day	Affects SSD
Table 5.2	Road Sealed or Unsealed?		Sealed	
	Is PBS being assessed? If so, what level?		N/A	PBS requires lower 'd' value be assessed
	Is this assessment using EDD values?		No	PBS requires lower 'd' value be assessed
	ASD Coefficient of Deceleration (d)		0.29	Refer Austroads, Part 4a, Table 3.1
	SIRD Coefficient of Deceleration (d)		0.29	Refer Austroads, Part 4a, Table 3.2
	SSD Coefficient of Deceleration (d)		0.29	Refer Austroads, Part 3, Table 5.4 - 5.5
	Longitudinal grade in direction of travel	%	2	Where average grade is <2%, no grade correction shall be applied. Otherwise, round to nearest 2% and refer drawings.
	Calculations			
	1. Approach Sight Distance (ASD)			
Eq. 1 Eq. 1	ASD Coefficient of Deceleration (d)		N/A	Car
	ASD Coefficient of Deceleration (d)		0.29	Truck, where RT1 or RT1 adopt 0.28 or 0.26
	Grade correction	m	-3.00	Cars, Refer Austroads Part 4a, Table 3.3
	ASD (Car)		N/A	Refer Austroads, Pt 4a, Table 3.1
	ASD (Truck) or Bus		101.1	Refer Austroads, Pt 4a, Table 3.1
	2. Safe Intersection Sight Distance (SIRD)			
	SIRD Coefficient of Deceleration (d)		N/A	Car
	SIRD Coefficient of Deceleration (d)		0.29	Truck, where RT1 or RT1 adopt 0.28 or 0.26
	Observation time (Ot)	s	1.50	2.5s min for Trucks NDD, 3.0s for Cars NDD
	Decision time (Dt)	s	3.50	Refer Austroads Part 4a, Eq 2.
Eq. 2 Eq. 2	Grade correction	m	-3.00	= Observation time (3s) + Reaction time
	SIRD (Car)	m	N/A	Cars, Refer Austroads Part 4a, Table 3.3
	SIRD (Truck) or Bus	m	130.3	Refer Austroads Part 4a, Eq 2.
	3. Stopping Sight Distance (SSD)			
	SSD Coefficient of Deceleration (d)		N/A	Car
	SSD Coefficient of Deceleration (d)		0.29	Truck, where RT1 or RT1 adopt 0.28 or 0.26
	Grade Correction	m	-4.00	Truck
	SSD (Car)	m	N/A	Refer Austroads Part 3, Table 5.4
	SSD (Truck)	m	101.1	Refer Austroads Part 3, Table 5.5
	SSD (Bus)	m	N/A	Refer Austroads Part 3, Table 5.3
Eq. 1 Eq. 1 Eq. 1	4. Minimum Gap Sight Distance (MGSD)			
	85th Percentile Approaching Speed	km/h	70	N/A
	Critical Gap Acceptance Time (ta)	s	5.0	
	MGSD		97.0	Refer Austroads Pt 4a, Table 3.4 - 3.5
	Available Sight Distance?	m	175.0	As determined on site visit (Southbound approach)
	Largest sight distance requirement for project intersection?	m	130.3	As determined by ASD, SIRD, MGSD
	What are you assessing?	All	All	Rounded up to nearest 10m
	Does Project satisfy required sight distance?		Yes	
Table 3.5				