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Traffic Engineering

531 Princes Highway, Port Fairy Proposed Residential Subdivision Traffic Impact Assessment





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Disclaimer

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1 Introduction and Scope

Colliers International Engineering and Design (TTMC) Pty Ltd has been engaged by the Applicant to prepare a Traffic Impact Assessment to accompany the Planning Application for the Proposed Residential Subdivision at 531 Princes Highway, Port Fairy.

Colliers reviews the traffic implications of the proposal and provides the necessary assessment as required.

Colliers considers the proposal to be appropriate from a traffic engineering perspective and warrants provision of the sought planning permit subject to conditions.

Record

No.	Author	Reviewed/Approved	Description	Date
1.			TIA: Original Issue	03/06/2025



2 Existing Conditions

2.1 The Site

The site at 531 Princes Highway, Port Fairy is approximately 1.4km west of Port Fairy town centre and is immediately south of the A1.

The site location in the context of the surrounding road network is shown in Figure 1.

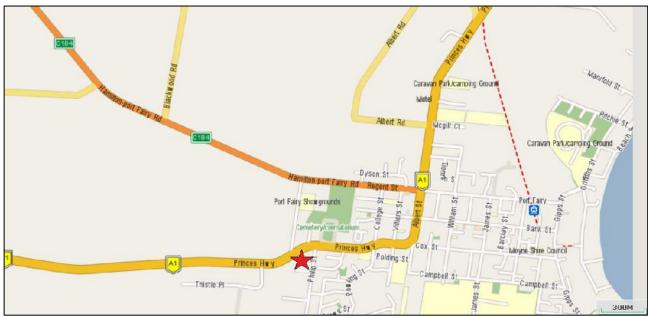


Figure 1: Site Locality Map (Source: Street-Directory)

The site is zoned within a Neighbourhood Residential Zone – Schedule 1 in the Moyne Planning Scheme.

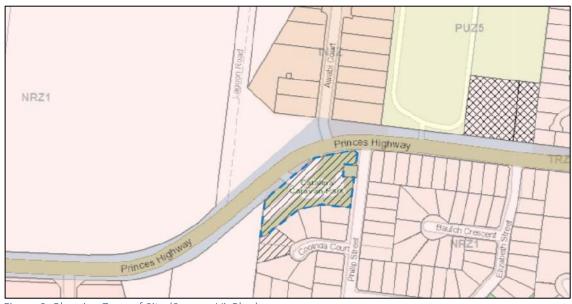


Figure 2: Planning Zone of Site (Source: VicPlan)



The site is currently not operating however previously operated as a caravan park, associated convenience store and petrol station.

Vehicle access is currently provided via an existing service road, with two access points connecting to Princes Highway. There is no signage restricting entry or exit at either location. However, the eastern access point is adjacent to a painted median with double continuous lines, which legally prohibit right-turn entry movements. In contrast, the western access point is located within a section of the median marked by broken lines, which allows for fully directional movements.



Figure 3: Aerial Image of Site – March 8th, 2025 (Source: NearMap)



Figure 4: Existing Site - October 2024 (Source: Google Street View)



2.2 Adjacent Road Network

Princes Highway (A1)

Princes Highway (A1) is part of the Principal Road Network (Transport Zone 2 – TRZ2) and features a two-way, single carriageway with one lane in each direction. An off-road shared path (2.0 metres wide) travels along the southern side of the road reserve, extending for approximately 300 metres west and 460 metres east of the site. The carriageway includes shoulders on both sides, typically ranging from 1.0 to 4.0 metres wide and parallel kerbside parking is available on the southern side of the carriageway. The speed limit adjacent to the site is 60 kph.



Figure 5: Princes Highway (facing west)

Philip Street

Philip Street is a local road and features a two-way, single carriageway with one lane in each direction. A footpath runs along each side of the road reserve. Parallel kerbside parking is available on each side of the carriageway. The default speed limit adjacent to the site is 50 kph.



Figure 6: Philip Street (facing south)



3 The Proposal

The Applicant proposes to subdivide the site into 9 residential lots, ranging in size from 341 square metres to 946 square metres, plus 2 additional lots: one for a drainage reserve and one for common property (access).

Vehicle access to Lots 1 to 7 is proposed via the existing service road and access points on Princes Highway. The eastern access point is proposed to operate as left and right turn entry only, and the western access point as left and right turn exit only, which will allow for one-direction of traffic within the site. The linemarking within the existing painted median on Princes Highway is proposed to be modified to support this arrangement.

The common property lot includes a carriageway with a minimum width of 5.5 metres, including 3 kerbside parking spaces and a pedestrian footpath traveling alongside the immediate lots and connecting to the existing shared path along Princes Highway.

Vehicle access to Lots 8 and 9 is proposed via new indicative vehicle crossings on Philip Street.

A copy of the proposed subdivision is attached in Appendix A and shown in the following figure.



Figure 7: Proposed Subdivision Plan



4 Traffic Generation and Impacts

4.1 2025 Peak Hour Traffic Volumes

Colliers conducted a PM peak period traffic count at the intersections of Princes Highway with Philip Street and Awabi Court on March 5, 2025, between 4:25pm and 6:00pm. The PM peak hour traffic was recorded between 4:25pm and 5:25pm, in which the following traffic volumes were recorded.

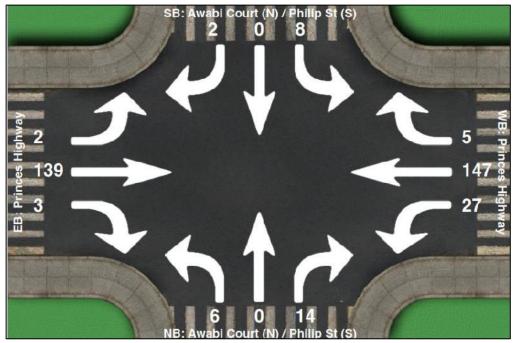


Figure 8: PM Peak Hour Volumes of Princes Highway with Philip Street and Awabi Court

Passing the site, Princes Highway recorded 144 eastbound and 155 westbound peak hour movements, a total of 299 two-way peak hour movements. It is likely the AM peak hour would generate similar traffic volumes except in the opposite direction

4.2 2025 Daily Traffic Volumes

Daily traffic is typically 10 times peak hour traffic, and therefore daily traffic is estimated to be 2,990 two-way vehicle movements in 2025.

4.3 2035 Peak Hour Traffic Volumes

According to the DTP Open Data Hub, Princes Highway is growing at an estimated rate of 1.5% per year eastbound and 2.0% westbound.

Factoring in 10 years of growth to 2035, Princes Highway is estimated to carry approximately 167 eastbound and 189 westbound vehicle movements during the PM peak hour, a total of 356 two-way peak hour movements. It is likely the AM peak hour would generate similar traffic volumes except in the opposite direction.



4.4 2035 Daily Traffic Volumes

By multiplying the 2035 peak hour traffic by 10, the estimated total daily traffic is projected to be 3,560 two-way vehicle movements.

4.5 Anticipated Trip Generation of Proposed Subdivision

The Transport for NSW (TfNSW) Guide to Transport Impact Assessment 2024 includes data from surveys of low-density residential developments conducted in 2022. A total of 24 sites were surveyed including 16 in metropolitan Sydney and 8 in regional NSW. The findings are summarised in the following tables.

Table 5.3. Low density residential sample summary (weekday)									
Weekday rates	Sydney	Regional							
Person trips (person trips/dwelling)									
AM peak hour	1.09	1.20							
PM peak hour	1.14	1.11							
Vehicle trips (vehicle trips/dwelli	ng)								
AM peak hour	0.68	0.83							
PM peak hour	0.77	0.84							
Daily	8.12	7.53							

Table 5.4. Low density residential sample summary (weekend)								
Weekend rates	Sydney	Regional						
Person trips (person trips/dwelling	ng)							
Peak hour	1.21	1.23						
Vehicle trips (vehicle trips/dwelling)	ng)							
Peak hour	0.68	0.83						
Daily	5.28	4.88						

By applying the regional rates, the proposed 9 residential lot subdivision is anticipated to generate:

- 8 peak hour vehicle trips,
- 68 weekday daily vehicle trips,
- 44 weekend daily vehicle trips.



4.6 Anticipated Peak Hour Trip Distribution

Based on the trip distribution observed in the traffic count on Philip Street, approximately 80% of development-related traffic is expected to travel to and from the Port Fairy town centre, east of the site. The estimated peak hour trip generation and distribution for the development is outlined below.

Anticipated Peak Hour Trip Distribution Summary

Princes Highway (7 lots)	Philip Street (2 lots)					
AM Weekday Peak Hour – 6 vehicle trips	AM Weekday Peak Hour – 2 vehicle trips					
Inbound (20%): 1 trip (1 left-in, 0 right-in)	Inbound (20%): 0 trips (0 left-in, 0 right-in)					
Outbound (80%): 5 trips (1 left-out, 4 right-out)	Outbound (80%): 2 trips(0 left-out, 2 right-out)					
PM Weekday Peak Hour – 6 vehicle trips	PM Weekday Peak Hour – 2 vehicle trips					
Inbound (60%): 4 trips(3 left-in, 1 right-in)	Inbound (60%): 1 trip (1 left-in, 0 right-in)					
Outbound (40%): 2 trips (0 left-out, 2 right-out)	Outbound (40%): 1 trip(0 left-out, 1 right-out)					

The 2035 peak hour traffic volumes are estimated to be distributed as follows at Princes Highway, the service road, and Philip Street.

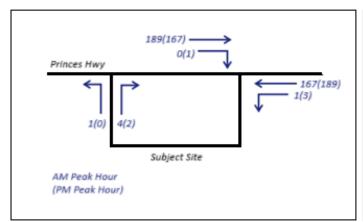


Figure 9: Princes Hwy / Site Access (2035 volumes)

Figure 10: Princes Hwy / Philip Street (2035 volumes)

4.7 AustRoads Warrants for Turn Treatments

Figure 3.25 of the AustRoads Guide to Traffic Management – Part 6: Intersections, Interchanges and Crossings Management (2020) provides guidance on when turn treatments are warranted.

Turning volumes are highest at the Philip Street access, making it the critical location for assessment. The peak turning movements occur during the AM peak hour for right turns into Philip Street, and during the PM peak hour for left turns into Philip Street. This is illustrated in the following figure, which shows that only Basic Left Turn (BAL) and Basic Right Turn (BAR) treatments are warranted at both the Princes Highway service road and Philip Street, based on peak hour volumes and projected traffic growth to 2035.



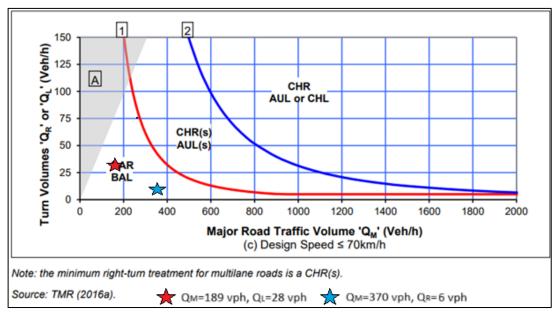


Figure 11: AustRoads Turn Treatment Warrants Chart (Figure 3.25 of AGTM Part 6)

4.8 Adequacy of Turn Treatments

Basic Left Turn Treatments into Philip Street and Service Road (Princes Hwy)

Access to Philip Street and the site via Princes Highway currently includes Basic Left Turn (BAL) treatments, supported by adequate shoulder width to facilitate left-turn entry movements. The BAL treatment requires a minimum carriageway width of 6.0 metres from the centreline (inclusive of the travel lane and shoulder). Existing conditions exceed this requirement, providing a minimum carriageway width of 6.3 metres.

Basic Right Turn Treatment into Philip Street

Philip Street currently accommodates right-turn entry movements from Princes Highway via existing broken lines within the painted median. The effective carriageway width at this location is 6.3 metres, which meets the requirements for a Basic Right Turn (BAR) treatment. As the proposed development does not result in an increase in peak hour right-turn volumes into Philip Street, the existing arrangement is appropriate and requires no modification.

Basic Right Turn Treatment into Service Road (Princes Hwy)

Right-turn entry into the subject site from Princes Highway is currently provided via the western access point. To support the proposed one-way internal circulation, it is recommended that the right-turn entry be relocated to the eastern access point. This allows the western access point to operate as exit-only, which is safer due to the better sight distance for vehicles exiting back onto Princes Highway.

The eastern access point is more suitable for entry movements and does not present the same sight distance concerns for egress. To enable this change, minor adjustments to the existing painted median is required, with a section of the double continuous markings replaced by broken markings. This will provide an effective carriageway width of 6.4 metres, which is sufficient for a Basic Right Turn (BAR) treatment and for vehicles to pass unimpeded by right-turn entry vehicles. Right-turn entry volumes are expected to be low, with only one movement projected during the PM peak hour.



5 Sight Distance Requirements

The development proposes to utilise existing intersections along Princes Highway. It is noted that the right-turn entry to the service road is proposed to be relocated to the eastern access point, while the western access point will function as an exit only. The following photographs illustrate the visibility conditions for each of these turning movements.

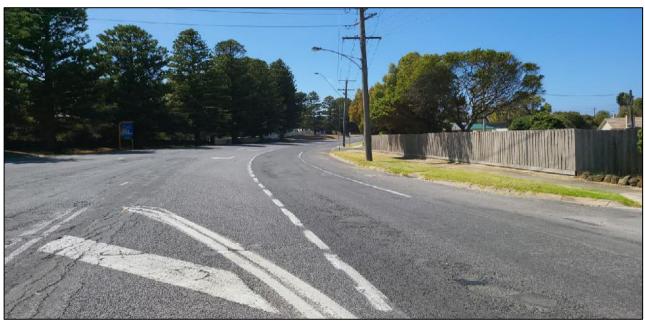


Figure 12: Princes Highway (facing ahead from painted median adjacent to eastern access point) – 135m



Figure 13: Princes Highway (facing left from western access point) – 184m





Figure 14: Princes Highway (facing right from western access point) – 100m



Figure 15: Philip Street (facing left) – 85m



Figure 16: Philip Street (facing right) – 270m



The available sight distances for each turning movement, along with the relevant design requirements, are detailed below and have been assessed as compliant with EDD requirements under AustRoads. Refer to sight distance check in Appendix B.

Note: The Extended Design Domain (EDD), as outlined in the Austroads guidelines for sight distance at intersections, is primarily intended for evaluating existing intersections. Accordingly, the EDD criteria have been applied to assess the measured sight distances presented below.

Sight Distances Measured

Location	Direction	Ref	Sight Distance Provided	EDD Stopping Sight Distance (SSD)	Minimum Gap Sight Distance (MGSD)	EDD Safe Intersection Sight Distance (SISD) ¹
Princes Hwy Service Rd Eastern Access Point	Facing Ahead when entering	Figure 12	135m		67m (4s)	
Princes Hwy Service Rd	Facing Left when exiting	Figure 13	184m	56m		0.1
Western Access Point	Facing Right when exiting	Figure 14	100m		92m (Es)	81m
Dhilin Street	Facing Left when exiting	- I FIGURE 15 I 85m			83m (5s)	
Philip Street	Facing Right when exiting	Figure 16	270m			

Note 1: A 1.5-second reaction time has been applied, in accordance with Austroads for single carriageway roads carrying fewer than 4,000 vehicles per day, which is applicable to Princes Highway.

Note 2: An 85th percentile operating speed of 60 kph has been adopted, which aligns with the posted speed limit.

Note 3: A coefficient of deceleration of 0.46 has been used, representing normal road surface conditions.



6 Access Design

6.1 Pedestrian Access

The common property lot includes a pedestrian footpath traveling alongside the immediate lots and connecting to the existing shared path along Princes Highway. Pedestrian access is appropriate from a traffic engineering perspective.

6.2 Vehicle Access

Swept path diagrams in Appendix C demonstrate that both a B99 vehicle (from AS2890.1:2004) and 8.8 metres long Medium Rigid Vehicle (from AS2890.2:2018) successfully circulates the service road via Princes Highway with adequate manoeuvring space. These vehicles represent the design vehicle and check vehicle, respectively. Based on this assessment, vehicle access is appropriate from a traffic engineering perspective.

6.3 Street Form

The common property access lot is 10 metres wide, with a minimum 5.5 metres wide one way carriageway, except at the access points to Lots 1 and 2. On the south side includes a 2.1 metres wide kerbside parallel parking a 3.0 metres wide verge and a 1.5 metres wide footpath. The north side includes a typical 1.5 metres wide verge.

This layout generally aligns with the Access Place requirements set out in Clause 56.06 of the Planning Scheme. A variation to the verge width is considered appropriate due to the presence of an existing 2.0 metres wide off-road shared path along Princes Highway, immediately adjacent to the access lot.

Access Place A minor street providing local residential access with shared traffic, pedestrian and recreation use, but with pedestrian priority.										
•	Traffic volume ¹	300vpd to1000vpd								
•	Target speed ²	15kph								
•	Carriageway width ³ & parking provision within street	5.5m wide with 1 hard standing verge parking space per 2 lots.								
	reservation	5.5m wide with parking on carriageway - one side. Appropriately signed.								
•	Verge width ⁴	7.5m minimum total width.								
		For services provide a minimum of 3.5m on one side and a minimum of 2.5m on the other.								
•	Kerbing ⁵	Semi-mountable rollover or flush and swale or other water sensitive urban design treatment area.								
•	Footpath provision	Not required if serving 5 dwellings or less and the carriageway is designed as a shared zone and appropriately signed.								
		or								
		1.5m wide footpath offset a minimum distance of 1m from the kerb.								
•	Cycle path provision	None								

Figure 17: Clause 56.06 Requirements for an Access Place



7 Summary and Conclusions

The proposed residential subdivision at 531 Princes Highway, Port Fairy is summarised as follows from a traffic engineering perspective:

- The proposal involves subdividing the site into 9 residential lots plus 1 lot for a drainage reserve and 1 lot for common property (access).
- Vehicle access is proposed via the existing intersections along Princes Highway, including the service road, and Philip Street.
- The eastern access point for the service road is proposed to allow for entry only, and the western access point for exit only, enabling one-way traffic through the site. The existing markings within the painted median on Princes Highway will be modified to suit.
- The proposed 9 residential lot subdivision is anticipated to generate 8 peak hour vehicle trips, 68 weekday daily vehicle trips and 44 weekend daily vehicle trips.
- Basic Left Turn (BAL) and Basic Right Turn (BAR) treatments remain warranted at both the Princes Highway service road and Philip Street, based on project traffic growth and peak hour volumes in 2035.
- Aside from minor linemarking changes, no road modifications are required to Princes Highway. The effective carriageway widths are adequate for Basic Treatments.
- The available sight distances for each turning movement have been assessed as compliant with EDD requirements under AustRoads which is appropriate.
- The B99 vehicle and MRV successfully circulate the service road via Princes Highway in each direction.
- Pedestrian and vehicle access is appropriate from a traffic engineering perspective.
- The common property access lot generally complies with Access Place requirements under Clause 56.06 of the Planning Scheme. A reduced verge width is considered acceptable due to the existing 2.0 metre off-road shared path along Princes Highway, directly adjacent to the access lot.

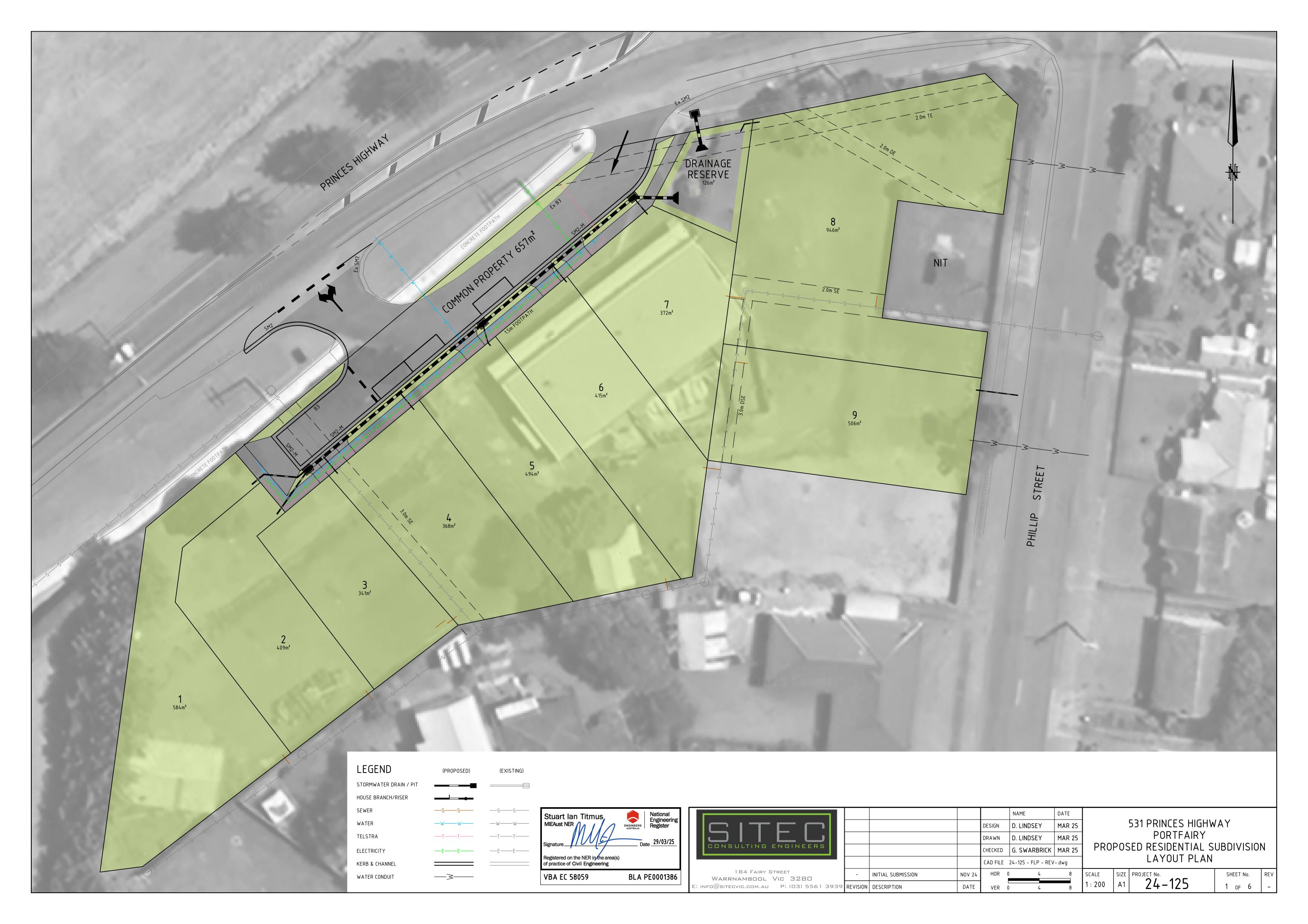
Colliers are satisfied that the proposal warrants provision of the sought planning permit from a traffic engineering perspective subject to conditions.

Colliers International Engineering & Design (TTMC) Pty Limited

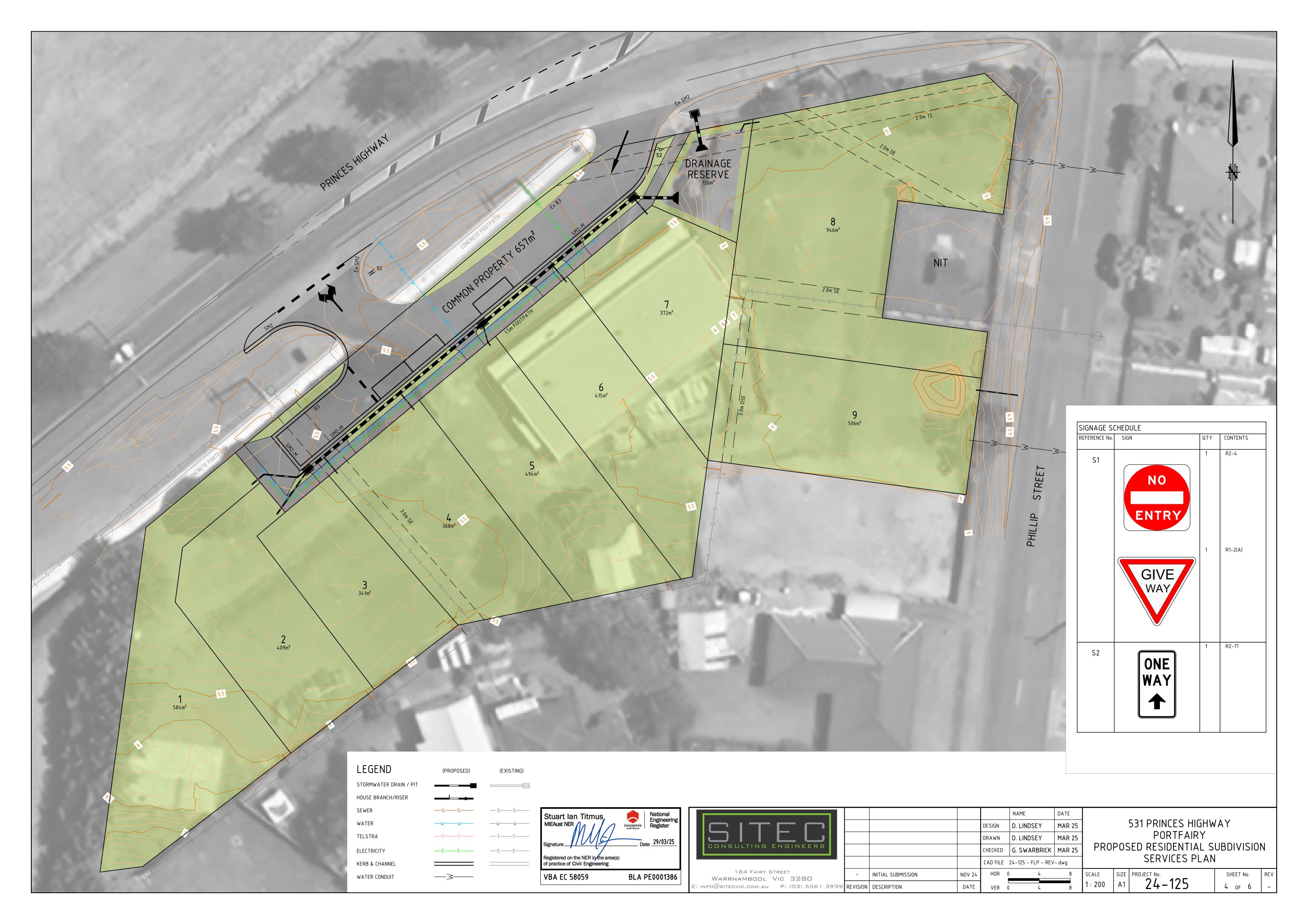
Patrick McArdle

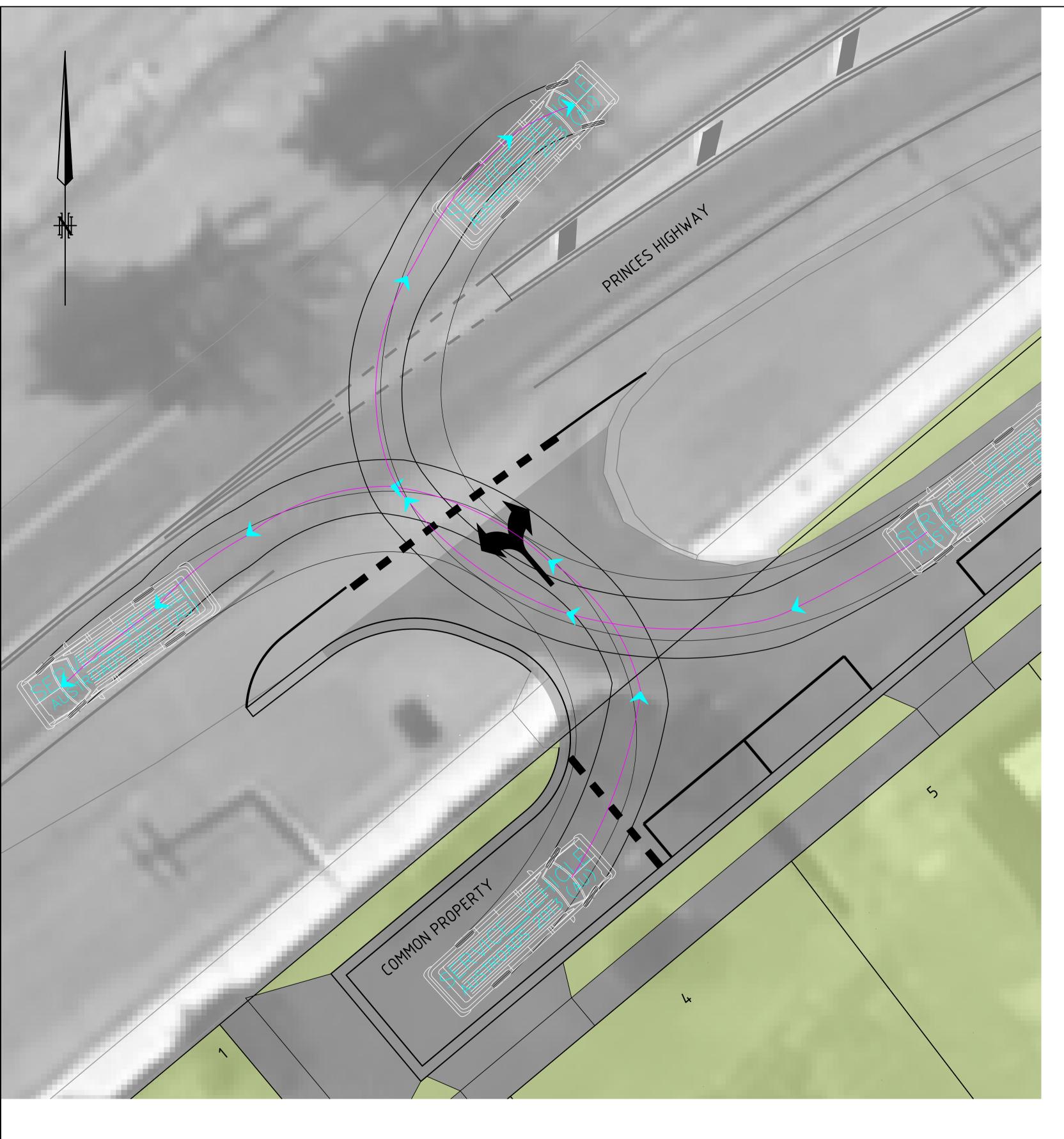
Principal Consultant (Transport)

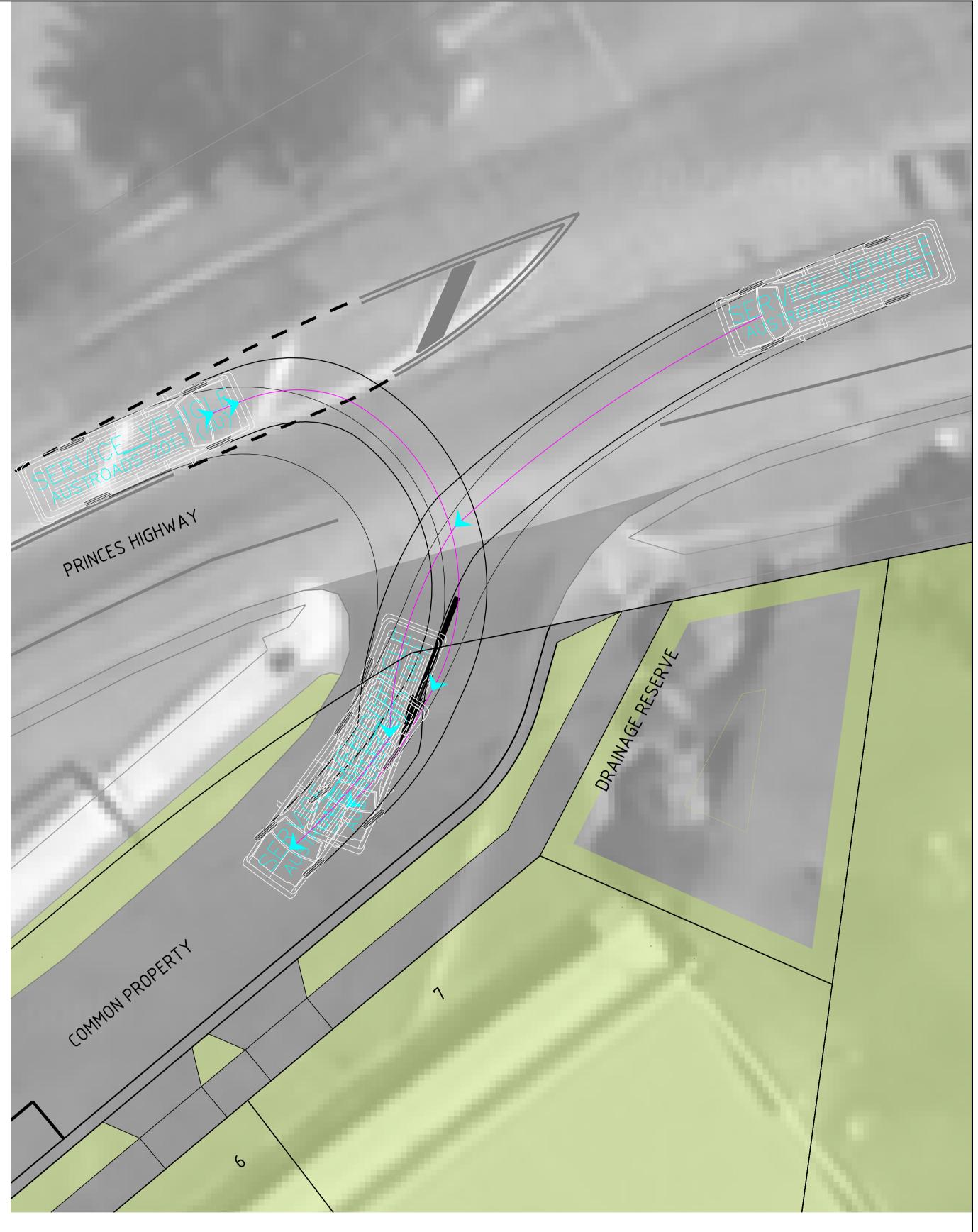
Appendix A: Proposed Subdivision Plan

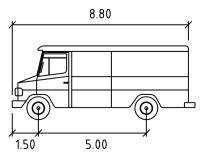












SERVICE VEHICLE

Width Track Lock to Lock Time Steering Angle

meters : 2.50 : 2.50 : 6.0 : 38.7

National Engineering Register Registered on the NER in the area(s) of practice of Civil Engineering VBA EC 58059 BLA PE0001386

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450 VARIES

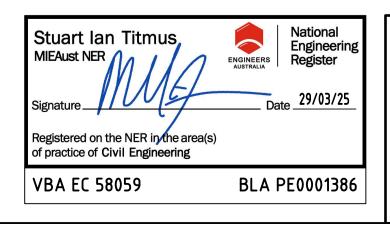
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VARIES

COMMON PROPERTY TYPICAL CROSS SECTION

40mm NOMINAL SIZE F.C.R. OR APPROVED EQUIVALENT (97% MOD. A.A.S.H.O.)

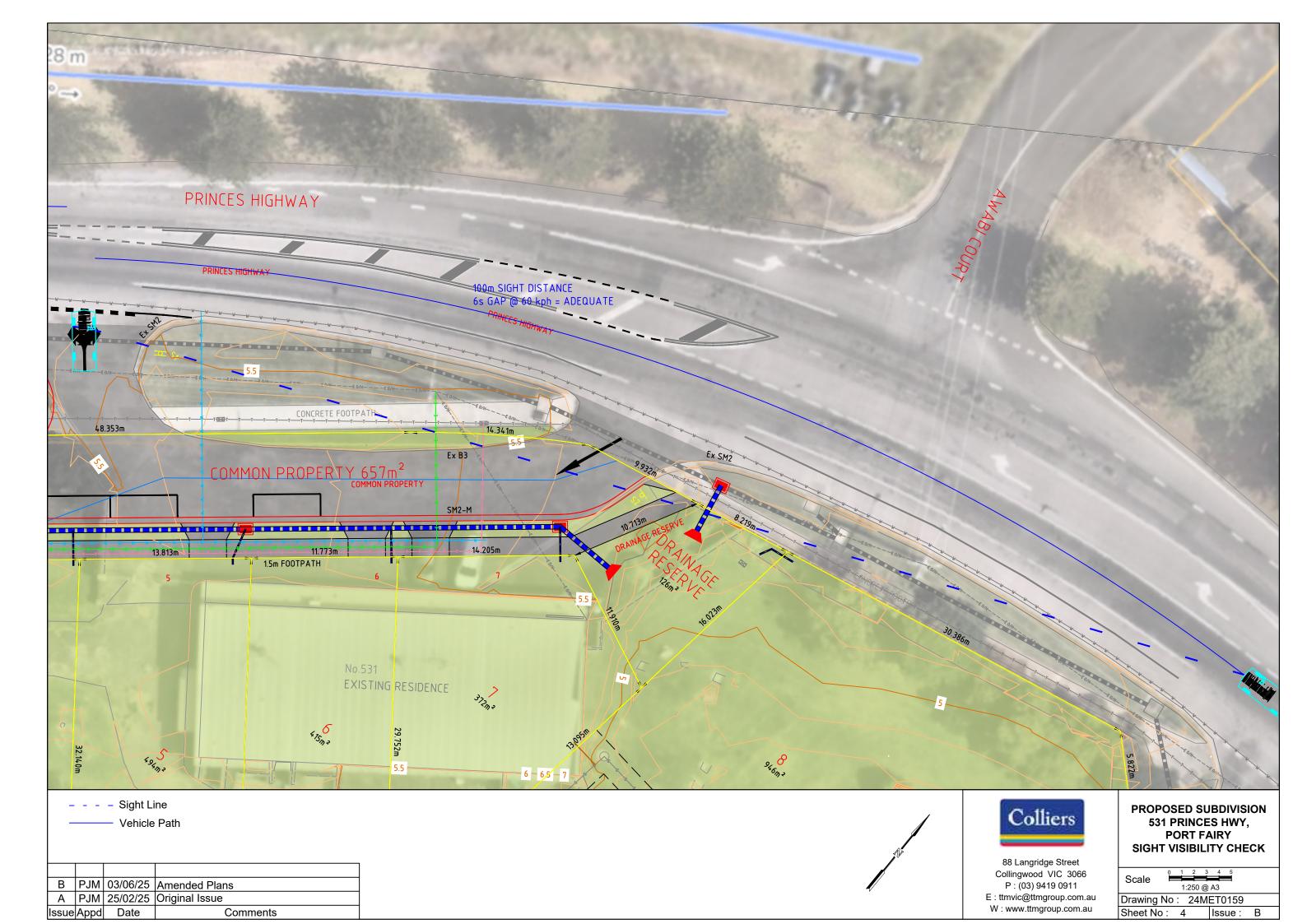
SCALE HOR 1:50 VER 1:25



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Appendix B: Sight Distance Check







Appendix C: Swept Path Diagrams

