Traffic and Transport Assessment

Melaluka Road, Leopold – Clifton Estate Subdivision Residential Development

V201085

Prepared for

TGM

18 December 2020

Cardno

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D01	09/12/2020		Maselusi Amiatu	Matt Mudge
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1 Introduction

Cardno has been engaged by TGM to prepare a Traffic and Transport Assessment report for the proposed residential development and rezoning located at Melaluka Road, Leopold as part of the Clifton Estate Subdivision project.

This report details the existing conditions of the subject site as well as the results from the assessment of the traffic impacts associated with the proposal. It is intended for this report to accompany the subdivision development planning submission.

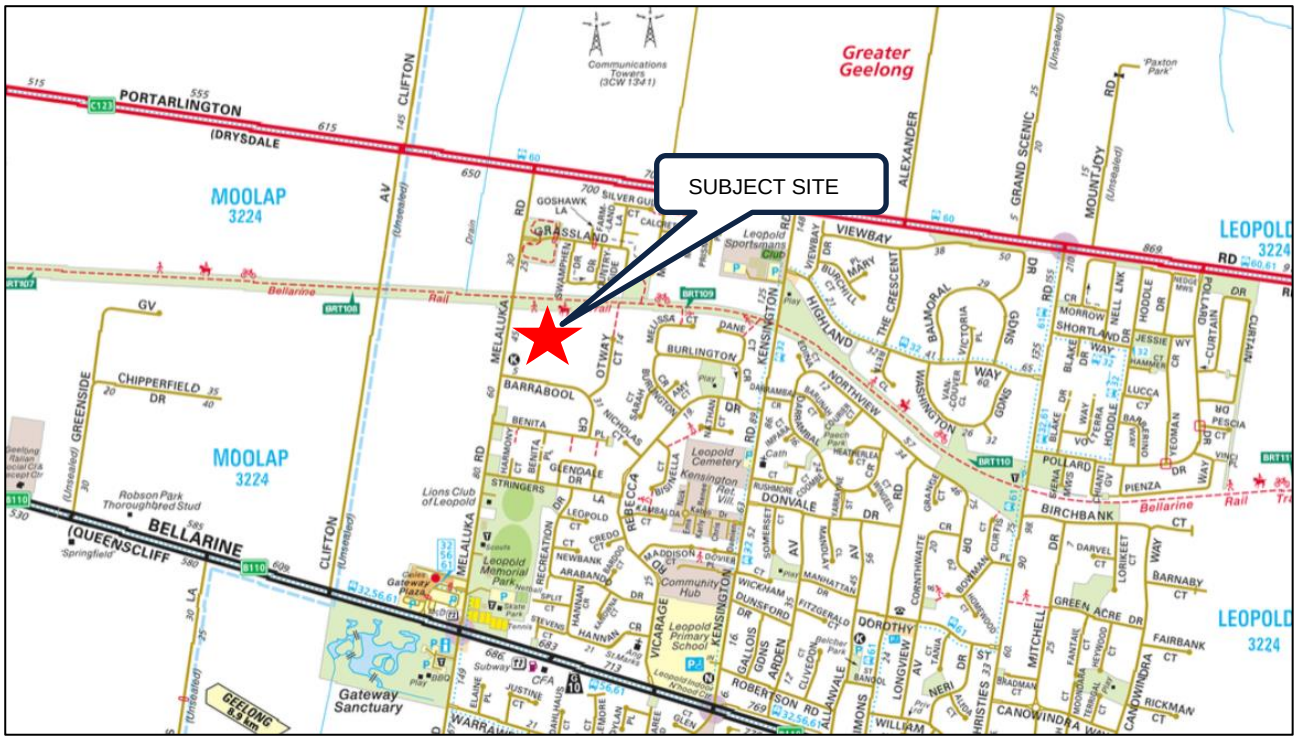
2 Existing Conditions

2.1 Locality

The site is located on the eastern side of Melaluka Road in Leopold (south-east of Geelong) and south of Bellarine Rail Trail with residential uses in the vicinity as presented in Figure 2-1.

Melaluka Road carries a daily traffic volumes of (approx.) 3,800 vehicles past the subject site.

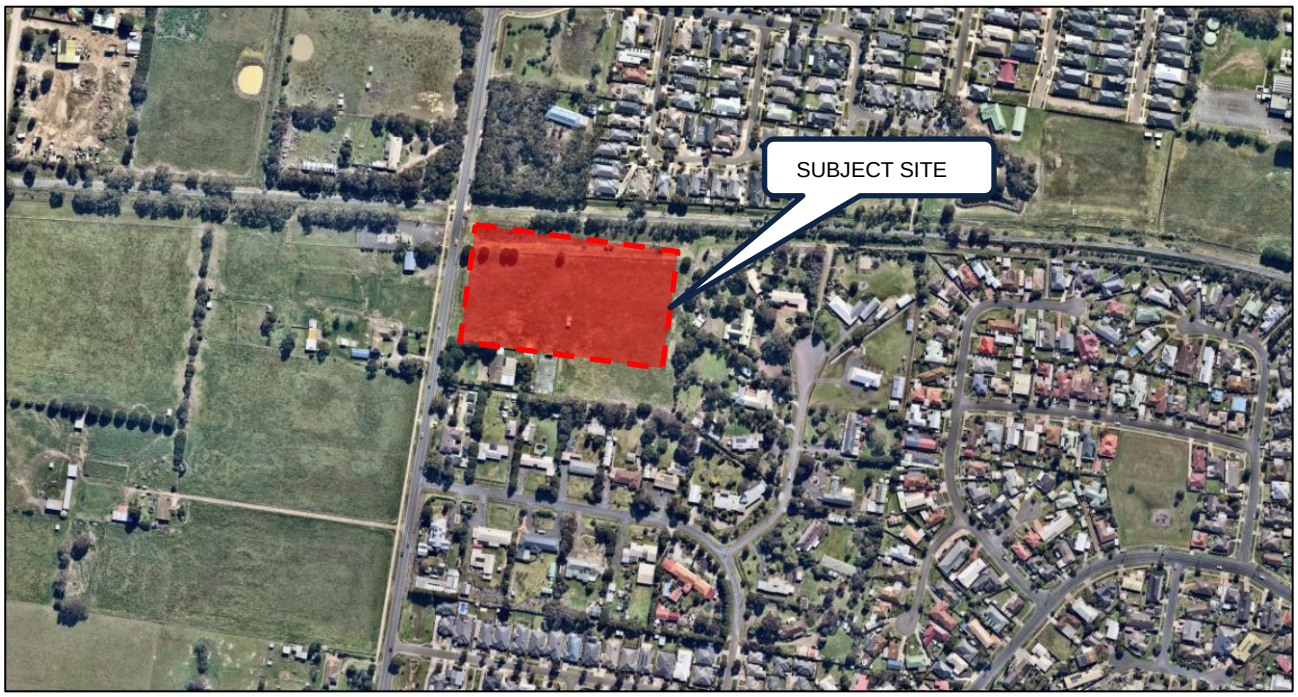
Figure 2-1 Locality Plan



Source: Melways Online

An aerial photograph of the site and surroundings is presented in Figure 2-2.

Figure 2-2 Aerial Photograph

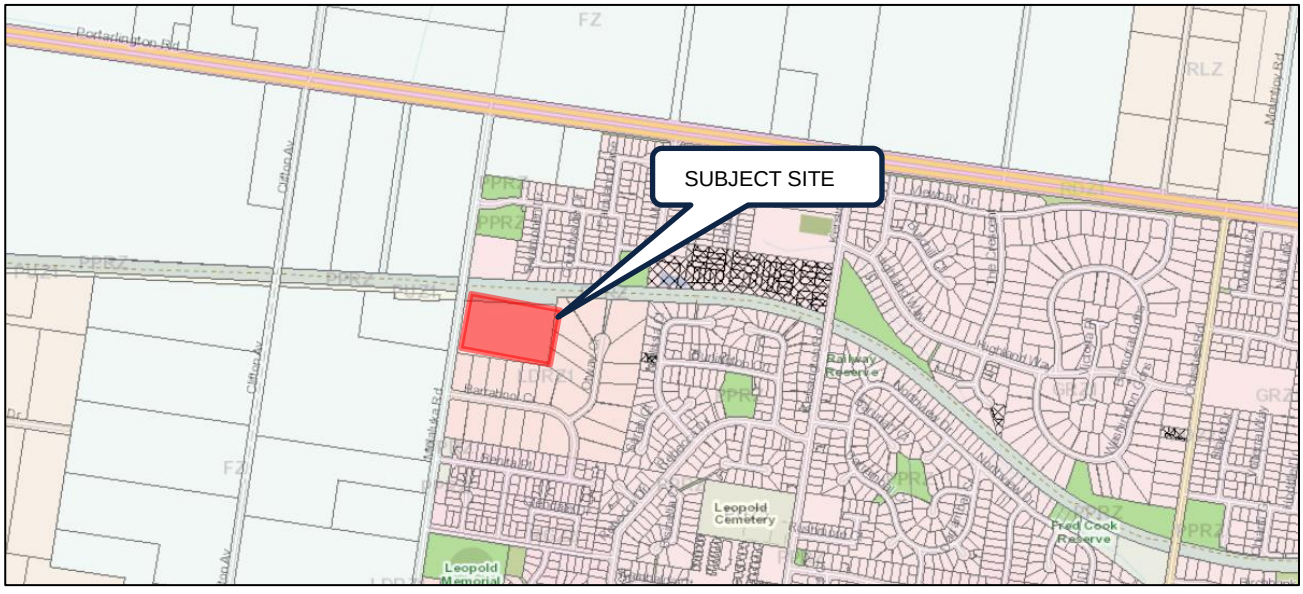


Source: Nearmap (Dated 09 December 2020)

2.2 Land Use Zoning

The site is located within a Low Density Residential Zone proposed to be rezoned to General Residential zone, shown in Figure 2-3.

Figure 2-3 Zoning Map



Source: VicPlan (09 December 2020)

2.3 Road Network

2.3.1 Melaluka Road

Melaluka Road is a two-way two-lane local council road generally running north-south. Melaluke Road provides connections from both Portarlington Road (arterial) and Bellarine Highway to local residential areas with a posted speed limit of 80 km/hr.

The road is sealed with grassed shoulders and nature strips on both sides. It carries a daily traffic volumes in the order of 3,800 vehicles per day.

Figure 2-4 Melaluka Road, Leopold Aerial (NearMap, dated 09 December 20200

2.3.2 Portarlington Road

Portarlington Road is a VicRoads declared arterial road running east-west. Within the vicinity of the subject site, Portarlington Road has two lanes in each direction, separated by a wide, central median strip, lined with guard rail.

Portarlington Road meets Melaluka Road at a signalised intersection, allowing all controlled turning movements. The intersection is shown in Figure 2-5.

Figure 2-5 Portarlington Road, intersection with Melaluka Road

2.4 Public Transport Network

Several bus routes service the surrounding area including bus route 32, 56, 60 and 61, however the closest existing bus stop to the subject site is 700m to the south and 500m to the north.

Marshall station is located approximately 9.1 km to the south-west of the site and provide a V/Line services connecting Geelong to Melbourne.

2.5 Active Transport Network

Active transport facilities in the vicinity of the subject site are limited.

Footpaths are provided on Melaluka Road, which service pedestrians north-south, and connect into the shopping centre and sports ovals, approximately 800m south of the site. However, connectivity to the north is limited, with no footpaths provided on Portarlington Road.

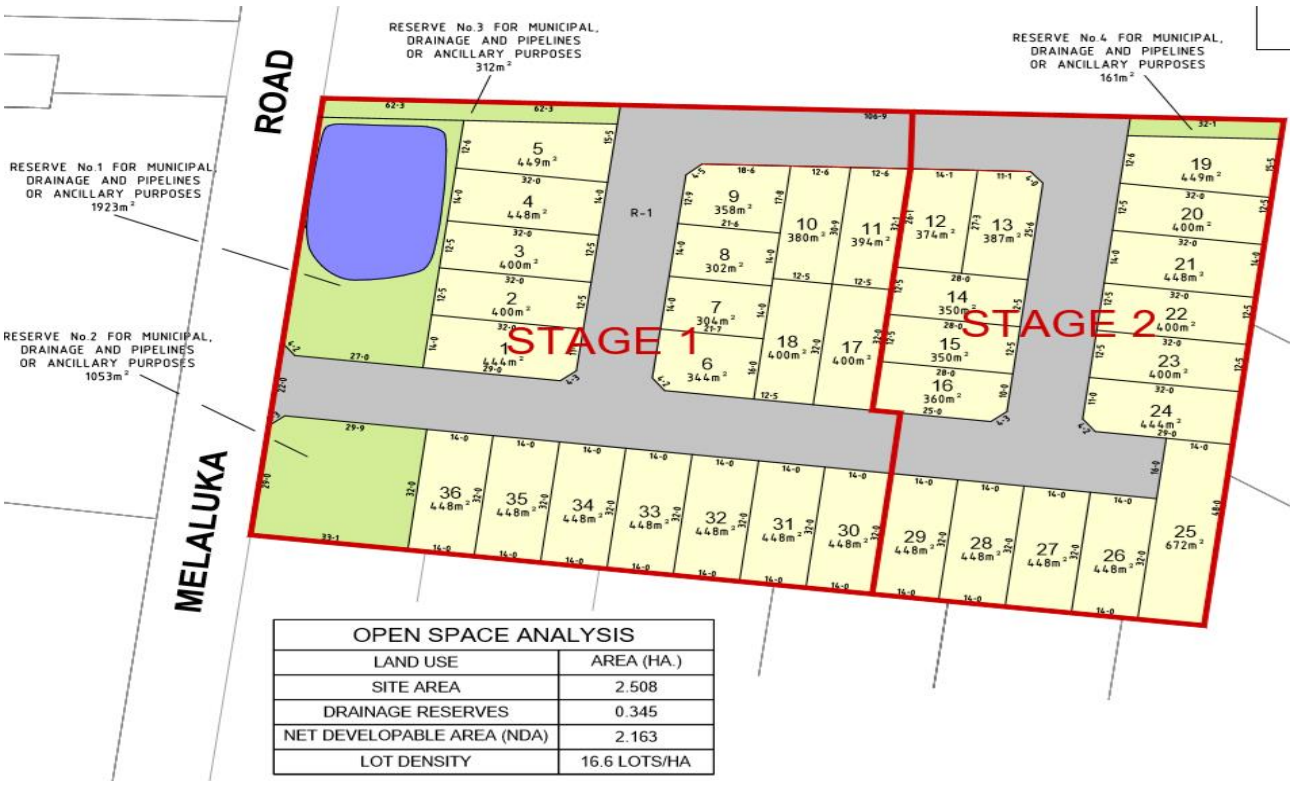
On-road cyclist facilities are limited in the area, with only a small section of marked cycleway on Portarlington Road intersection.

The Bellarine Rail Trail, provides excellent recreational opportunity and connectivity for walkers and cyclists, with an access point located directly adjacent to the north boundary of the subject site.

3 Proposed Development

The proposal is to develop the site for the purpose of a standard-density residential development comprised of 36 dwellings.

Figure 3-1 Proposed Development Plan



OPEN SPACE ANALYSIS	
LAND USE	AREA (HA.)
SITE AREA	2.508
DRAINAGE RESERVES	0.345
NET DEVELOPABLE AREA (NDA)	2.163
LOT DENSITY	16.6 LOTS/HA

A copy of the proposed development plans prepared by TGM (dated 18 November 2020) is attached in Appendix A.

The site is proposed to have a single vehicle access point onto Melaluka Road, and comprise a cul-de-sac and closed-loop road. Among the residential lots, a drainage reserve is provided adjacent to Melaluka Road.

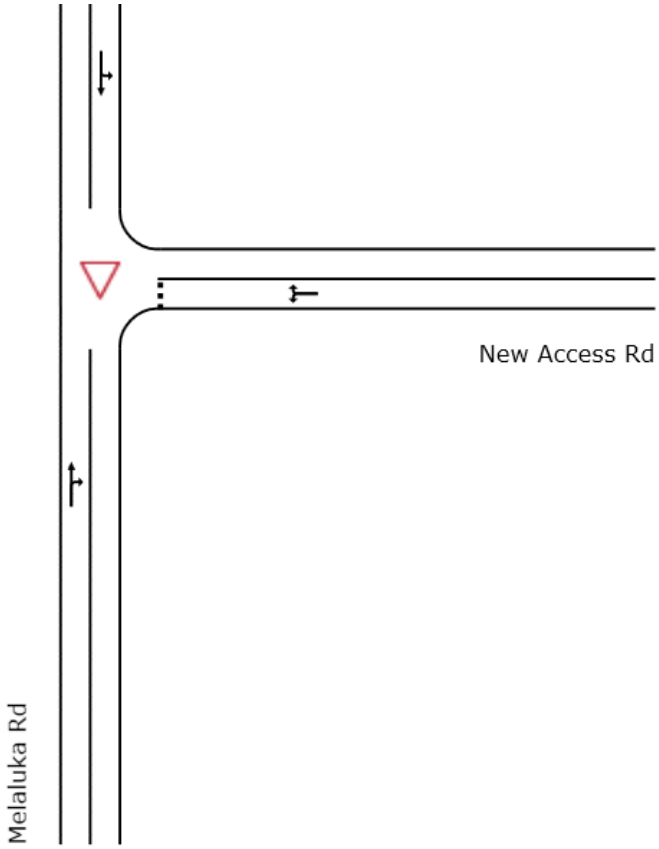
All lots within the proposed subdivision have frontage onto a new internal road.

4 Design Considerations

4.1 External Road Connection

The planned residential subdivision will be connected to the existing Melaluka Road. This is proposed to be achieved through a sign-controlled intersection as illustrated in the figure below. This design is consistent with neighbouring subdivision developments on Melaluka Road.

Figure 4-1 Proposed Intersection Layout



4.2 Lot Layout

The proposed residential lot layout allows for dedicated crossovers to each property. Adjacent properties are expected to share a double-wide vehicle crossover to maximise the opportunity for naturestrip planting and kerbside parking, space permitting. All lots have adequate manoeuvring room.

4.3 Internal Road Cross Section

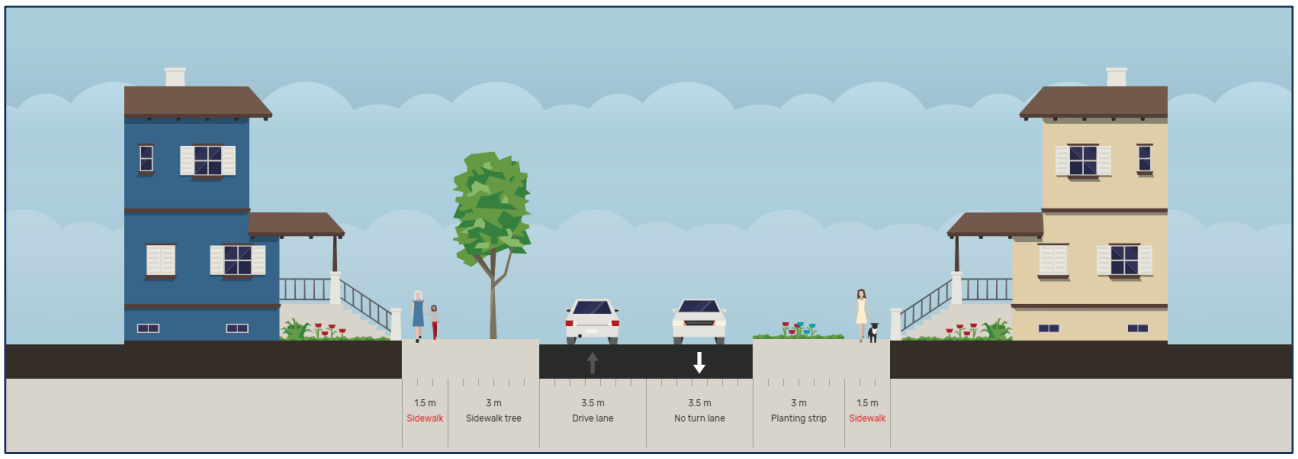
The proposed new access roads both have a road-reserve width of 16.0m. The new roads are proposed to be unmarked, with the exception at the 90-degree bends where a central pavement line-marking is proposed.

The general cross section allows for 1.5m footpaths on boths sides, 3.0m nature strips and a 7.0m wide road with 3.5m lanes in each direction. However, the road reserve cross section varies throughout the site, allowing for car parking and road bends as necessary.

On the 90-degree corners of Road ‘R1’, a central painted line is recommended to delineate lanes, and no parking is advised to be allowed on the corners.

Due to the short length of roads, no local area traffic management devices are required to be installed within the development.

Figure 4-2 Road Reserve Cross Section



4.4 Design Summary

Overall, Cardno is satisfied with the design elements in regards to the proposed intersection footprint and new access road cross-section. It is deemed that the proposed design is appropriate and will function satisfactorily.

5 Traffic Considerations

5.1 Traffic Generation Impact

The RTA Guide to Traffic Generating Developments (2002) sets out traffic generation rates for a range of land uses based on empirical studies undertaken by the NSW Road and Traffic Authority.

It is acknowledged in Part 12 of Austroads Guide to Traffic Management as the most comprehensive Australian reference on traffic generation.

The RTA Guide sets out the following traffic generation rates for low-density housing:

Residential

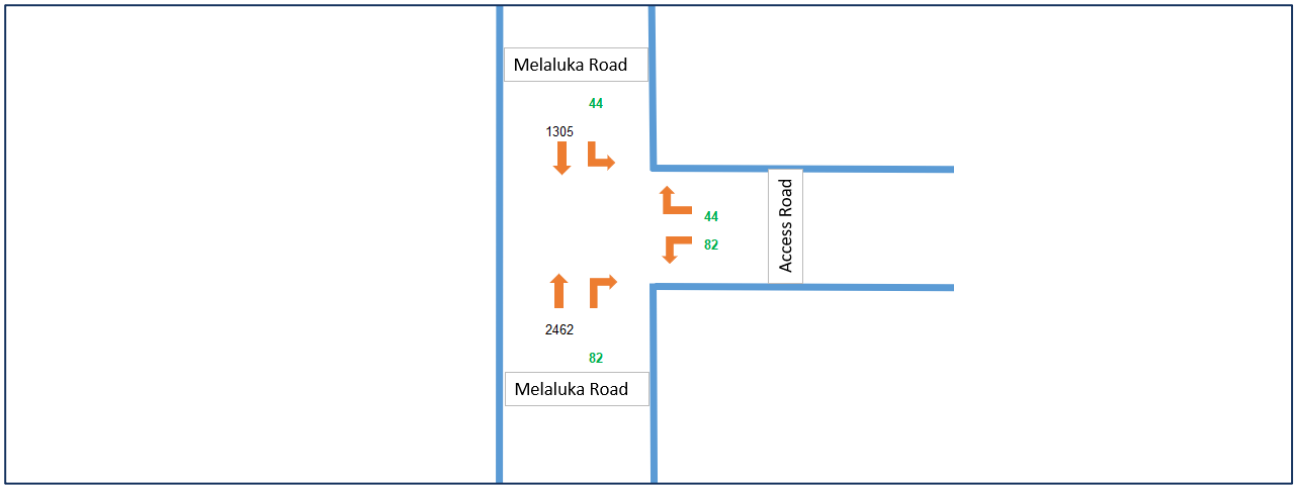
- *Daily vehicle trips = 7 trips per dwelling*
- *Weekday peak hour vehicle trips = 0.7 trips per dwelling.*

By adopting the abovementioned rates, the proposal would be expected to generate in the order of 252 vehicle movements per day, inclusive of 25 vehicle movements during the road network peak hours.

The traffic movement counts on Melaluka Road were devised from SCATS data at the Portarlington Road intersection. The proportion of these movements was then used to distribute the trips from the Access Road between north and south.

The expected annual average daily traffic volumes are shown in Figure 5-1.

Figure 5-1 Projected Annual Average Daily Traffic (AADT)



Based on the calculated number of trips, the level of traffic generated by the proposed low density residential development is low and can be comfortably accommodated within the surrounding road network.

5.2 Intersections

5.2.1 Access Road Intersection

The proposed access intersection is to be a give-way controlled, three-leg intersection. With the proposed network peak hour of 25 vehicle movements, the give-way intersection is deemed to be of appropriate capacity to accommodate the vehicle movements.

Due to the existing speed limit of 80km/hr, it is also recommended to provide a deceleration lane on the northern side of Melaluka Road turning left into the proposed development.

5.2.2 Portarlington Road Signalised Intersection

The Portarlington Road signalised intersection is considered to be designed to accommodate the additional traffic movements from the proposed development, with no discernible impact on the delays or queue length at the intersection.

5.3 Waste

The proposed internal road layout is satisfactory to accommodate a standard size waste collection vehicle. It is understood that the residential lots will have their own waste collection bins, which will be placed kerb-side for pickup.

6 Conclusions

Having undertaken a traffic engineering assessment of the proposed low density residential development, we are of the opinion that:

- The proposed internal road layout and access to Melaluka Road is considered acceptable for the residential development;
- The proposed residential lot layout allows for access to each lot and sufficient manoeuvring for vehicles;
- The residential lots are well connected for pedestrians to the shopping centre, south of the site;
- The residential lots have a active transport opportunity in the shared path to the north;
- The proposed intersection and cross-section is adequate to cater for the additional development traffic;
- The proposal would be expected to generate in the order of 252 vehicle movements per day, inclusive of the 25 vehicle movements during the road network peak hours;
- The level of traffic generated by the proposed low-density residential development is considered low and can be accommodated within the surrounding road network and proposed new intersections; and
- Waste collection is deemed to be acceptable at the proposed subdivision.

APPENDIX

A

PROPOSED DEVELOPMENT PLANS

PROPOSED PLAN OF SUBDIVISION CLIFTON ESTATE LEOPOLD

BELLARINE RAIL TRAIL

BELLARINE RAIL TRAIL

ROAD

RESERVE No.1 FOR MUNICIPAL, DRAINAGE AND PIPELINES OR ANCILLARY PURPOSES 1923m²

RESERVE No.2 FOR MUNICIPAL, DRAINAGE AND PIPELINES OR ANCILLARY PURPOSES 1053m²

RESERVE No.3 FOR MUNICIPAL, DRAINAGE AND PIPELINES OR ANCILLARY PURPOSES 312m²

RESERVE No.4 FOR MUNICIPAL, DRAINAGE AND PIPELINES OR ANCILLARY PURPOSES 161m²

MELALUKA

R-1

STAGE 1

STAGE 2

N

W E

S

OPEN SPACE ANALYSIS	
LAND USE	AREA (HA.)
SITE AREA	2.508
DRAINAGE RESERVES	0.345
NET DEVELOPABLE AREA (NDA)	2.163
LOT DENSITY	16.6 LOTS/HA

SCALE 1:600 (@A2)
DATE 18/11/2020
VERSION E
PLAN REF 18706-04

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