

# Sugarmill Road Large Lot Residential Precinct 28, 35 and 89 Sugarmill Road; Sapphire Beach

## Traffic and Transport Impact Assessment

October 2021



Development: Sugarmill Road Large Lot Residential Precinct

Site Address: 28, 35 and 89 Sugarmill Road

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# Contents

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<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 SCOPE	
<b>2. EXISTING CONDITIONS .....</b>	<b>1</b>
2.1 LOCATION	
2.2 EXISTING TRANSPORT NETWORK	
2.3 EXISTING TRAFFIC VOLUMES	
<b>3. DEVELOPMENT DESCRIPTION .....</b>	<b>7</b>
<b>4. TRAFFIC IMPACT ASSESSMENT .....</b>	<b>7</b>
4.1 DEVELOPMENT TRAFFIC GENERATION	
4.2 INTERSECTION ANALYSIS	
4.3 COFFS HARBOUR DCP 2015	
4.4 PUBLIC TRANSPORT AND PEDESTRIAN / CYCLE ACCESS	
<b>5. CONCLUSION .....</b>	<b>15</b>
<b>6. REFERENCES .....</b>	<b>15</b>

**Appendix A Proposed plans of Subdivision**

**Appendix B SIDRA analysis summaries**

**Appendix C Sugarmill Road bus services**

# 1 Introduction

## 1.1 Scope

This Traffic and Transport planning assessment report has been prepared as part of a planning proposal application to Coffs Harbour City Council for rezoning of land at Sugarmill Road Sapphire Beach.

The proposal comprises a potential rezoning of land from RU2 Rural Landscape to R5 Large Lot Residential and E2 Environmental Conservation where appropriate.

This report assesses the impact of the proposed rezoning on the operation of the surrounding transport network infrastructure and levels of service.

# 2 Existing Conditions

## 2.1 Location

The planning proposal encompasses three properties at 28,35 and 89 Sugarmill Road, Sapphire Beach. (Lot 12 DP 243972; Lot 91 DP 786155 and Lot 17 DP 249273 respectively).



**Figure 1 Site location**

The properties jointly encompass approximately 6.4ha and are currently zoned RU2 Rural Landscape. The properties comprise mostly of rural dwellings and associated out buildings with single driveway accesses to Sugarmill Road.

## 2.2 Existing Transport Network

### Roads

**Solitary Islands Way** is a two-lane rural standard road acting as a service road parallel to the Pacific Highway servicing the northern suburbs of Coffs Harbour through to Woolgoolga. The Solitary Island Way network of service road and grade separated interchange connections to the Pacific Highway was completed in 2016 as part of the Roads and Maritime Services (RMS) Pacific Highway Upgrade program.

Solitary Island Way comprises generally of 3.5m travel lanes, 1.2m shoulders, off-road cycleway and bus lay-bys. The road geometry is generally flat and straight. The speed zone on Solitary Islands Way at the Sugarmill Road Intersection is 80km/h.

**Sugarmill Road** is a two-lane rural road directly servicing 17 rural lots. The road is approximately 1km in length from the intersection at Solitary Island Way to its western end.

Sugarmill Road has a 6.0m – 6.2m wide pavement with shoulders of variable width. The road environment is generally undulating.

The speed zone on Sugarmill Road is not signposted however the horizontal and vertical geometry of the road would indicate a design speed of 60km/h.

### Intersections

The **Sugarmill Road/Solitary Islands Way** intersection was constructed as an Austroads rural CHR type intersection as part of the Sapphire to Woolgoolga Pacific Highway upgrade project.

The intersection provides a 60m storage length right turn bay to Sugarmill Road with good sight distance in both directions.



**Figure 2 Sugarmill Road at Solitary Islands Way**

## 2.3 Existing Traffic Volumes

As part of the RMS Pacific Highway upgrade project, post opening traffic surveys were carried out on Solitary Islands Way north of Sugarmill Road in 2014. This AADT data was reported in the *Sapphire to Woolgoolga Pacific Highway upgrade Post-construction Operational Noise Report AUGUST 2015*.

The 2014 traffic surveys showed AADT volumes of only 637 vehicles per day on Solitary Islands Way at the Sugarmill Road intersection.

As validation of these low traffic volumes a peak hour intersection turning movement count was undertaken on Solitary Islands Way near the Sugarmill Road intersection at Wakelands Road. The count was undertaken during the morning and afternoon peak hours on Wednesday 21 October 2020.

The count shows traffic volumes consistent with the 2014 RMS data and confirms that comparatively very little traffic would use the Sugarmill Road intersection compared to the standard of intersection which has been provided.

	Solitary Island Way				Wakelands Road	
	Southbound	Left turn in	Northbound	Right turn in	Left turn out	Right turn out
AM	22	14	44	9	11	22
H	2	1	2		2	1
PM	17	12	62	8	6	11
H	3	2	3	1		1

**Peak Hour (8:00am - 9:00am, 4:00pm – 5:00pm) Wakelands Road intersection count 21 Oct 2020.**

Sugarmill Road is a non through roads so indicative daily traffic volumes can be determined from likely traffic generation from the direct access land uses (predominantly residential). Using a development planning generation rate of 10 vehicle trips per lot / per day, the existing traffic volumes on Sugarmill Road would be in the order of: **170 vehicles per day with peak hour movements (12% of ADT) at 21 vehicles per hour.**

	Solitary Island Way				Sugarmill Road	
	Southbound	Left turn in	Northbound	Right turn in	Left turn out	Right turn out
AM	25	5	47	3	5	8
PM	21	7	66	5	3	7

**Estimated Peak Hour (8:00am - 9:00am, 4:00pm – 5:00pm) Sugarmill Road intersection movements 2021.**



### 3 Development Description

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The development comprises a potential rezoning of the three lots indicated in Figure 1 from RU2 Rural Landscape to R5 Large Lot Residential and E2 Environmental Conservation where appropriate.

A preliminary lot layout has been prepared for each lot taking into account the site constraints on each lot.

The preliminary lot plans result in a yield of only one additional lot for each existing lot, a total of three additional lots resulting from the proposal. This is the likely lot yield for the remaining Sugarmill Road lots which could potentially also proceed with rezoning proposals.

Each lot under the current proposal will utilise either an existing driveway access to Sugarmill Road or a new driveway access located to maximise sight distance to Sugarmill Road. There is potential for the two lots created at 35 Sugarmill Road to utilise a shared access at the existing driveway.

#### 28 Sugarmill Road

Proposed Lot 120	existing driveway
Proposed Lot 121	new driveway access

#### 35 Sugarmill Road

Proposed Lot 910	shared existing driveway
Proposed Lot 911	shared existing driveway

#### 89 Sugarmill Road

Proposed Lot 120	existing driveway
Proposed Lot 121	new driveway access

### 4 Traffic Impact Assessment

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#### 4.1 Development Traffic Generation

The following traffic impact modelling and assessment will consider the cumulative impacts on the road and transport network from all potential Sugarmill Road Large Lot residential rezoning.

Using a daily vehicle trip generation rate of 10 per dwelling, the re-development of all existing lots on Sugarmill Road could generate an additional 170 trips per day on Sugarmill Road yielding in the order of **340 vehicles per day** at 2031.

The resulting daily volumes including traffic generated from the proposed development would be well within the bounds of the environmental and amenity capacity of a two-lane rural road.

Peak Hour traffic generation from the proposal can be estimated from RMS and Austroads data with the highest end peak hour residential traffic generation for regional areas at 1 trip per dwelling.

The future rezoning's will consequently generate only 17 additional peak hour trips to the road network.

## 4.2 Intersection analysis

### Solitary Islands Way / Sugarmill Road intersection

While it is clear that the estimated minor increase in traffic from the proposed rezoning will have no impact on the Solitary Islands Way/Sugarmill Road intersection it would be prudent to carry out a simple assessment of likely intersection performance to gauge the spare capacity of the intersection.

The Solitary Islands Way/Sugarmill Road intersection has been assessed using a SIDRA Intersection model. Input data is the estimated 2021 turning movements from Section 2.3 of this report factored to 2031 volumes (assuming a conservative 3% annual growth) and the likely total potential rezoning development traffic added.

	Solitary Island Way				Sugarmill Road	
	Southbound	Left turn in	Northbound	Right turn in	Left turn out	Right turn out
AM	34	10	65	6	10	16
PM	28	14	90	10	6	14

#### ***Estimated Peak Hour intersection turning movements to 2031 (3% growth)***

Results of SIDRA modelling of the intersection turning movements are summarised in the tables below (Level of Service (LOS) RMS NSW).

2031 PLUS DEVELOPMENT	Peak Hour	Degree of Saturation	Average Delay	LOS
<b>Movement</b>				
Solitary Islands Way right turn in to Sugarmill Road	AM	0.004	5.9	A
	PM	0.007	6.1	A
Solitary Islands Way left turn in to Sugarmill Road	AM	0.043	5.8	A
	PM	0.059	5.8	A
Sugarmill Road left turn out	AM	0.025	6.1	A
	PM	0.020	6.0	A
Sugarmill Road right turn out	AM	0.025	6.3	A
	PM	0.020	6.5	A

The 2031 plus development SIDRA analysis shows that the Solitary Islands Way / Sugarmill Road intersection remains with significant spare capacity for traffic growth in 2031 following the addition of potential traffic generation from likely rezoning.



### 4.3 Coffs Harbour DCP 2015

The requirements of Chapter C1.8 (Infrastructure requirements for rural and large lot residential subdivisions) need to be considered for the proposed development.

Section C1.8 (3) of the DCP requires that:

*'Where access is provided to service more than three resulting lots, the access is to be dedicated as a public road and constructed in accordance with Council's Development Specifications.'*

Road design requirements for new rural roads are specified in Section 3.6 of the Coffs Harbour City Council (CHCC) Development Design Specification 0041 – Geometric Road Layout.

New local rural roads require a minimum 6.0m pavement width with 1.0m shoulders. Sugarmill Road has generally 6.0m-6.2m wide pavement with variable width shoulders. Road verges are structurally sound and clear of obstruction.

The existing Sugarmill road cross section of 6.0m carriageway with wide road verges and clear of hazards is considered adequate for the minor increase in traffic from the proposed development and no road upgrade works are required.

#### **Driveway access points**

All existing and proposed vehicular access driveways required under the rezoning will be able to meet Coffs Harbour City Council Development specifications.

The minimum required sight distance for a domestic property access can be found in Fig 3.2 of AS/NZS 2890.1 Parking Facilities Part 1: Off-street car parking.

For a design speed of 60 km/h the minimum sight distance required is 55 m. An 80 km/h design speed would require 95m sight distance.

Sight distance measured at all existing and proposed driveway access points on straight sections of Sugarmill Road exceed 90m.

The existing driveway access at proposed Lot 120 is located within 70m of a horizontal curve on Sugarmill Road on its eastern approach. The design speed at this point would be less than 60km/h. The measured sight distance to the driveway and to a vehicle turning right into the driveway is 70m which exceeds the required sight distance criteria.



***Existing access at 28 Sugarmill Road looking west.  
Proposed Lot 120 (Sight distance >90m)***



***Existing access at 28 Sugarmill Road looking east.***

***Proposed Lot 120 (Sight distance >70m)***



***Proposed access at 28 Sugarmill Road looking west.  
Proposed Lot 121 (Sight distance >90m)***



***Proposed Access at 28 Sugarmill Road looking east.  
Proposed Lot 121 (Sight distance >90m)***





***Existing access at 35 Sugarmill Road looking west.  
Proposed Lot 910 and 911 (Sight distance >90m)***



***Existing access at 35 Sugarmill Road looking east.  
Proposed Lot 910 and 911 (Sight distance >90m)***



***Existing access at 89 Sugarmill Road looking west.  
Proposed Lot 171 (Sight distance >90m)***



***Existing access at 89 Sugarmill Road looking east  
Proposed Lot 171 (Sight distance >90m)***





***Proposed access at 89 Sugarmill Road looking west.  
Proposed Lot 170 (Sight distance >90m)***



***Proposed access at 89 Sugarmill Road looking east.  
Proposed Lot 170 (Sight distance >90m)***

#### **4.4 Public Transport and Pedestrian/Cycleway access**

Sugarmill Road is served by both Town bus and school bus services with designated bus lay byes located on Solitary Islands Way adjacent the Sugarmill Road intersection. A Bus route map and indicative school bus timetable are included in Appendix C.

The majority of the proposed additional lots will be within 400m-600m of the bus stops located on Solitary Islands Way providing good access to public transport services for the proposed land use density.

Solitary Islands Way benefits from a shared path and shared path network connections to Coffs Harbour and the Northern Beaches constructed as part of the Pacific Highway Sapphire to Woolgoolga Upgrade project. The proposed lots will have good access to the local shared path network.

## **5 Conclusion**

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- 1 The proposed Sugarmill Road Large Lot Residential Precinct rezoning will have no impact on traffic safety, level of service or amenity on the Solitary Islands Way - Sugarmill Road intersection.
- 2 The existing Sugarmill road cross section of 6.0m carriageway with wide road verges and clear of hazards is considered adequate for the minor increase in traffic from the proposed development and no road upgrade works are required.
- 3 The proposed vehicular access roads and driveways to the lots proposed under the rezoning will be able to meet Coffs Harbour City Council Development specifications.
- 4 The majority of the proposed residential lots will be within 400m-600m of the bus stops located on Solitary Islands Way providing good access to public transport services for the proposed land use density. The proposed lots will also have good access to the local shared path network.

## **6 References**

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*Roads and Maritime Services Guide to Traffic Generating Developments*

*Coffs Harbour City Council AUS-SPEC Specifications*

*Austrroads Guides to Road Design*

*AS/NZS 2890.1 Parking Facilities Part 1: Off-street car parking*

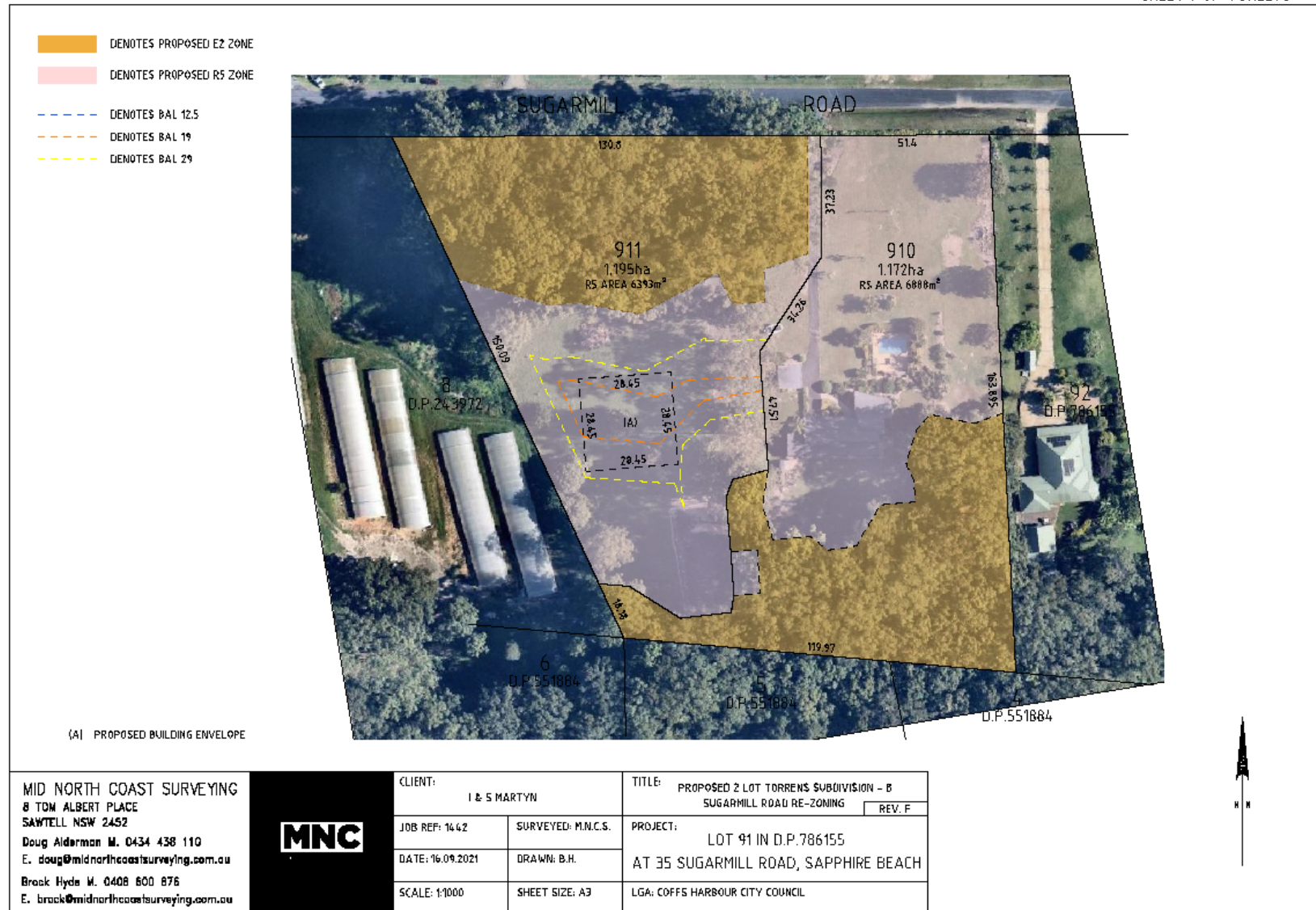
*Sapphire to Woolgoolga Pacific Highway upgrade Post-construction Operational Noise Report AUGUST 2015*

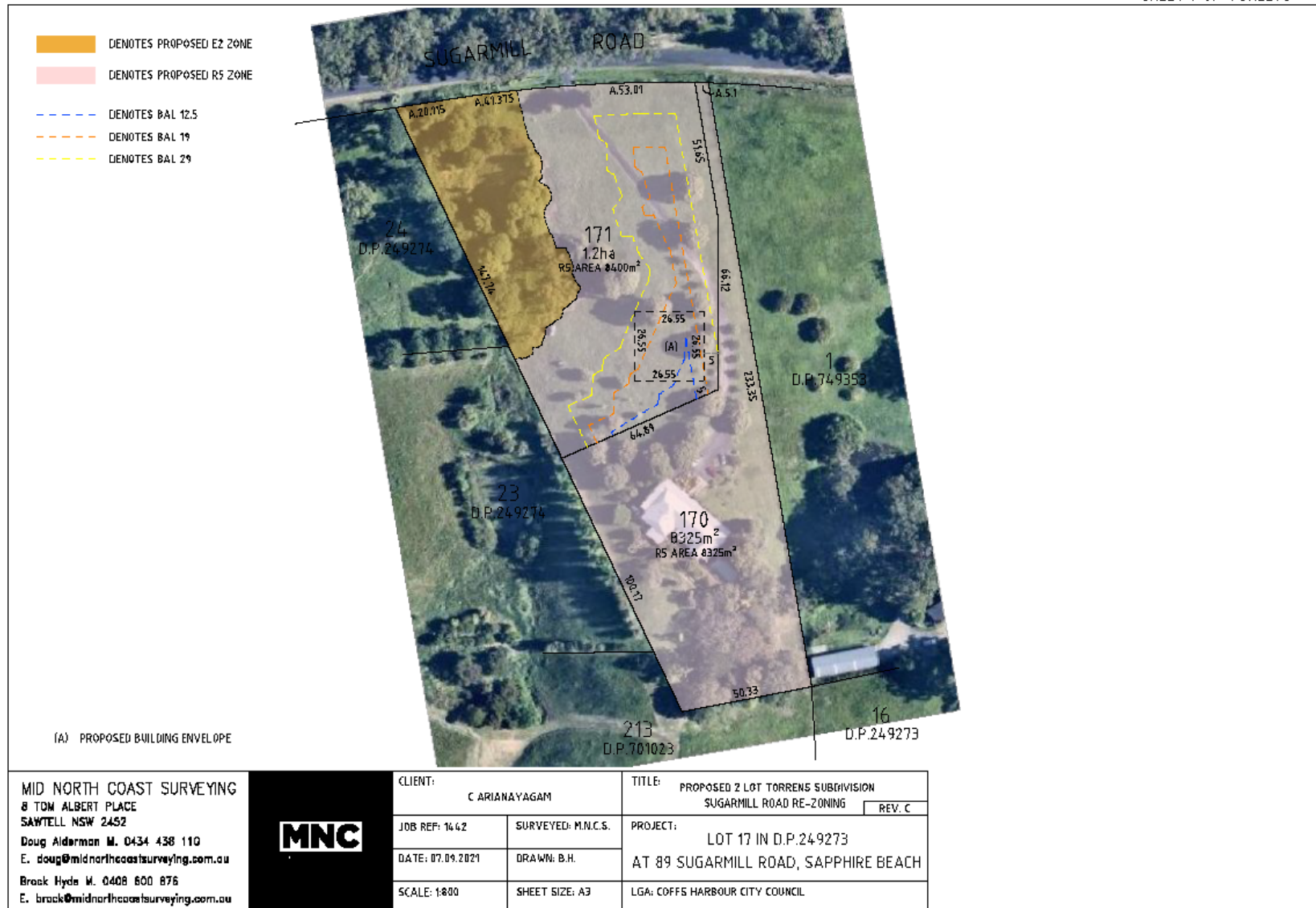


## Appendix A – Plans of Proposed Subdivision

SHEET 1 OF 1 SHEETS









## Appendix B – SIDRA analysis summaries

### 2031 plus development AM peak

#### MOVEMENT SUMMARY

##### Site: 101 [Solitary Islands Way at Sugarmill Road]

Solitary Islands Way intersection 2031 plus development AM peak  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Solitary Islands Way											
1	L2	11	20.0	0.043	5.8	LOS A	0.0	0.0	0.00	0.08	56.8
2	T1	68	4.6	0.043	0.0	LOS A	0.0	0.0	0.00	0.08	59.4
Approach		79	6.7	0.043	0.8	NA	0.0	0.0	0.00	0.08	59.0
North: Solitary Islands Way											
8	T1	36	8.8	0.019	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	6	16.7	0.004	5.9	LOS A	0.0	0.1	0.18	0.55	51.9
Approach		42	10.0	0.019	0.9	NA	0.0	0.1	0.03	0.08	58.6
West: Sugarmill Road											
10	L2	11	30.0	0.025	6.1	LOS A	0.1	0.8	0.20	0.56	51.8
12	R2	17	12.5	0.025	6.3	LOS A	0.1	0.8	0.20	0.56	52.0
Approach		27	19.2	0.025	6.2	LOS A	0.1	0.8	0.20	0.56	51.9
All Vehicles		148	9.9	0.043	1.8	NA	0.1	0.8	0.05	0.17	57.5

### 2030 plus development PM peak

#### MOVEMENT SUMMARY

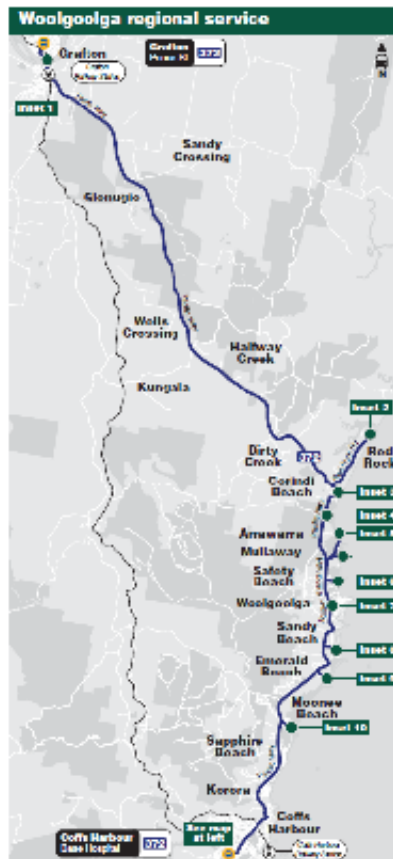
##### Site: 101 [Solitary Islands Way at Sugarmill Road]

Solitary Islands Way intersection 2031 plus development PM peak  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Solitary Islands Way											
1	L2	15	21.4	0.059	5.8	LOS A	0.0	0.0	0.00	0.08	56.7
2	T1	95	4.4	0.059	0.0	LOS A	0.0	0.0	0.00	0.08	59.4
Approach		109	6.7	0.059	0.8	NA	0.0	0.0	0.00	0.08	59.0
North: Solitary Islands Way											
8	T1	29	14.3	0.017	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	11	20.0	0.007	6.1	LOS A	0.0	0.3	0.22	0.55	51.6
Approach		40	15.8	0.017	1.6	NA	0.0	0.3	0.06	0.14	57.5
West: Sugarmill Road											
10	L2	6	16.7	0.020	6.0	LOS A	0.1	0.6	0.24	0.56	52.2
12	R2	15	14.3	0.020	6.5	LOS A	0.1	0.6	0.24	0.56	51.8
Approach		21	15.0	0.020	6.3	LOS A	0.1	0.6	0.24	0.56	51.9
All Vehicles		171	9.9	0.059	1.7	NA	0.1	0.6	0.04	0.15	57.7

## Appendix C – Bus Service

 **FOREST** North Coast Network Map



### Example School bus service – Forest Coaches

Route Number	Route Time	Stops
S851	7:55am	Gaudrons Rd*, (R)Solitary Islands Way, Wakelands Rd*, Maccues Rd*, (R)Solitary Islands Overpass, Moonee Beach Rd, The Corso*, (R)The Corso, (R)Rushton Av, (R)Wansborough Av, Dawn/Wansborough*, (L)Dawn St, (R)Woodhouse Rd, Woodhouse Bus shelter*, (L)Moonee Beach Rd, ABC Childcare Centre*, (R)Pacific Hwy, Korora Interchange 8.10 am*, Pacific Hwy, (L)Orlando St, Harbour Dr, Coffs High School 8.20 am*