19021 Two Tails - Traffic Impact Assessment 2021-03-08.docx

Ref: 19021

3 December 2021

Geoff Smyth & Associates PO Box 1925 COFFS HARBOUR NSW 2450

Dear Geoff



de Groot & Benson Pty Ltd

> Consulting Engineers & Planners

DA 0160/19DA – 963 Orara Way, Nana Glen Traffic Impact Assessment – Version 6

1. Introduction

We refer to Transport for NSW's letter to Council of 14 April 2020 which sought the preparation of a Traffic Impact Assessment in relation to the above DA. In particular, TfNSW requested information on

- assessment of the anticipated traffic volumes,
- distribution of traffic (i.e. the direction of vehicles arriving to and leaving from the site),
- sight distance from the entry / exit driveways, and
- any required road works to accommodate the additional traffic.
- details justifying the provision of the proposed parking spaces for up to 124 persons (amended to 78 persons on weekdays and 104 weekends.

In addition, we note Council's comments as set out in Section 3 of Maddocks Letter to Mills Oakly dated 21 September 2020 (Ref:MJW:ALCO:8107611). Finally, this report has been updated following discussions held at the Section 34 Conference and modification to the development since the conference.

2. Proposed Development

The proposed development on 963 Orara Way, Nana Glen comprises:

- i. Existing approved Cellar Door Premises and Restaurant (indoor area) 20 persons over 44 m² internal dining area with outdoor deck available for persons;
- ii. Restaurant addition (increased capacity of outdoor deck area) 40 persons (additional) over 90 m² of existing deck;
- iii. Marquee on a concrete slab (or grassed area adjoining cellar door/restaurant building) 26 persons over 460 m² of lawn;
- iv. Vineyard corridor 26 persons over 90 m² vineyard corridor on limited occasions.
- v. Carparking for 30 cars excluding the existing residence.
- vi. Separated entry and exit is the site off Orara Way
- vii. Garbage bin collection and deliveries to be before 10am to avoids any carparking conflicts

Access to the site is proposed off Orara Way.

There is no proposed public transport access to the development.

Under AS 2890 Part 1, the development is considered a User Class 2 with access to an arterial road.



Two Tales Winery 963 Orara Way, Nana Glen NSW 2450 Lot 9 & 10 DP 134701

For: Madonna & Barry Bannerman

A site plan and proposed development plan are shown on Figures 1 and 2:

Sheet Nam

Sheet Number WD 02 WD 03

EXISTING DWELLING HOUSE & PROPOSED POOL ALTS/ADDS + GARAGE.

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Drawing Schedule

TION SCREENS ADDED ON ROAD RESERVE RE AS DINING AREA NG DWELLING HOUSE NG SHED CHANGE OF I TENUATION SCREEN

PROPOSED OSMS SSI - 445m²

REMOVE EXISTING CAMPHOR LAUREL T

PROPOSED DECK

PROPOSED /

OILE I PARKING & ENTRY

AYR BHL

AS PER COUNCIL NOTE: ON AND PATH TO COLL MENDED PARKING AND OVERFLC WASTE WATER DISPOSAL AREAS.

PROPOSED CAR PARK [30 SPACES]

EXISTING CELLAR DOOR & RESTAURANT

Figure 1: Site Plan

Proposed Alterations & Additions: Carpark and Male Toilet + Storage to Existing Cellar Door + Restaurant (Tourist Facility)

Location Plan



Figure 2: Proposed Development





3. Existing Area Conditions & Projected Traffic

a. <u>Traffic Volumes</u>

Coffs Harbour City Council undertook traffic counts on the Orara Way in 2011 just north of Nana Glen Pre School. The results are shown in Annexure B.

We have updated the counts to 2020 by using a 2.5% annual growth rate. This is also included In Annexure B. In summary, the traffic counts show:

- peak morning traffic is about 226 veh/hour between 8am and 9am
- From Midday to 3pm peak traffic is 200 veh/hr. on the weekend, it was 263 veh/hour
- Peak afternoon traffic is about 233 veh/hr between 4pm and 5pm

In terms of trading at the Winery, the busiest days are on the weekend – Saturday and Sunday. For the analysis of the intersection requirements, we have used the maximum of either Saturday or Sunday for our analysis.

15 Years (Year 2035) Traffic Growth

Assuming 2.5% per annum traffic growth, we have estimated the traffic volumes on Orara Way as follows (Refer Annexure B):

In summary, the traffic counts show:

- peak morning traffic is about 328 veh/hour between 8am and 9am
- From Midday to 3pm peak traffic is 290 veh/hr. on the weekend, it was 365 veh/hour
- Peak afternoon traffic is about 338 veh/hr between 4pm and 5pm

Section 4 determined the key times when peak traffic was likely to be using the winery. The key times were:

- 12:30pm
- 2:30pm
- 6:30pm and
- 9:30pm

In 2035, the estimated traffic volumes on the Orara Way at key times are:

Maximum Hourly Traffic on weekends (vehicles per hour)							
Time of Day	Northbound Traffic	Southbound Traffic	Total				
12:30pm	118	128	246 veh/hr				
2:30pm	140	130	270 veh/hr				
6:30pm	98	48	145 veh/hr				
9:30pm	26	12	38 veh/hr				

b. Distribution of Traffic

The Orara Way is a link between the two major centres of Coffs Harbour (around 75,000 persons) and Grafton (around 20,000 persons). Coffs Harbour being the significantly larger centre and a main tourist destination would be the source /destination of the majority of traffic accessing the Two Tails Winery.

Based on this, we would propose that following traffic distributions:

- To or from the north 20 % of traffic
- To or from the south 80% of the traffic.

To test the sensitivity of the results, we have also analysed the traffic using the following distribution: - To or from the north – 40 % of traffic



- To or from the south – 60% of the traffic.

c. <u>Entry And Egress to the Site & Sight Distance</u>

Sight Distance – Proposed Driveway

The key consideration for entry and exit from the site is sight distance. Figure 3.2 of AS2890 Part 1 specifies the sight distance requirements. Along the frontage of the property, Orara Way is in a 70 km/hr zone. Based on Figure 3.2, the sight distance requirement is desirably 97m with a minimum of 85m.

We have been out to site and measured sight distance. The results are shown on Drawing 19021-SK1 and in Annexure A. We found that there is in excess of 150m sight distance from the north and the south.

As such the proposed location of the intersection complies with AS 2890.

Sight Distance – Crown Road

The sight distance requirements for the Crown Road are covered by "Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections" by Austroads. Typically, this standard requires Safe Intersection Sight Distance to be available which is 151m for a reaction time of 2secs.

The results are shown on Drawing 19021-SK1 and in Annexure A. We found that there is in excess of 150m sight distance from the north and the south.

Geometry

As noted below, the width of the access will need to be a minimum of 6m.



4. Proposed Development Traffic generation

4.1 Personage Estimates

The proposed development components which generate traffic comprise as follows as per the SEE

The **proposed** hours of operation for the application are as follows:

- i. Restaurant (indoor area + outdoor deck area) 10am to 10pm Mon to Sun for a maximum of 2 sittings for lunch and dinner;
- ii. Concrete Slab/Marquee area 10am to 6pm Sat and Sun for a maximum of 2 sittings;
- iii. Vineyard corridor 11am to 4.30pm on any day and limited to three occasions per year for a maximum of 1 sitting.
- iv. Cellar Door tastings between 10am and 5pm for a maximum of 20 people per day seated at tables between dining times.

A maximum of eight persons are proposed to be **employed** and on-site parking for a total of 40 vehicles (including the 6 spaces previously approved) is **now proposed** including three spaces for persons with a disability and are to be accessible through the internal driveway from Orara Way.

The parking is based on 1 space per 6.6m² for the deck, and 1 space per 2.5 patrons for the Concrete Slab/Marquee less the area for the vineyard corridor as it will not be used at the same time as the Concrete Slab/Marquee area and includes the six spaces required for the approved farm stay accommodation and existing cellar door premises and restaurant. The approved unconstructed garage will provide parking for the dwelling house.

The Concrete Slab/Marquee and vineyard areas are not proposed to be used concurrently and as such the maximum potential is for 104 persons including patrons (20 diners existing restaurant, 40 diners deck, 26 diners either on the Concrete Slab/Marquee area, or using the vineyard corridor), 8 staff, 4 farm stay guests and 6 residents may use or be present on the site at any one time.

The SEE indicates that the maximum personage would be 104 persons including persons. However, this number is unlikely to occur given the likelihood of various classes of persons being on the site at the same time. We have analysed the personage over the course of a peak day to determine peak traffic entry and exit from the site. This has been based on the following:

Figure 4.1 shows the expected personage over the course of a busy day which peaks at 104 persons between 1pm and 2pm. This figure includes staff. This figure is slightly higher than the 104 persons quoted above as it allows for some overlap of people arriving and departing who are on the premises at the same time. There is a second, smaller peak at around 7pm when the restaurant is full again for dinner of around 78 persons.



Traffic Generation Estimates 4.2

Given that the winery is located at least 30 minutes from the major sources of persons, we would expect that vehicles will have multiple occupants. On average we would expect 2.5 persons per vehicle who would arrive in a one hour window: This the peak traffic generation for the winery would be as shown on Figure 4.2.

Arrivals

Our analysis suggests a peak arrival traffic volume of 26 vehicles per hour at around 12:30pm to 1:00pm. There is second peak at around 6:30pm of 28 vehicles per hour.

Departures

Our analysis suggests a peak arrival traffic volume of 36 vehicles per hour at around 2:30pm. There is second lower peak at around 09:00pm of 34 vehicles per hour.

Origin / Destination

Traffic to the winery will be generated either from the north (ie Grafton and surrounds) or the south (Coffs Harbour and surrounds). Given that Coffs has a much larger population, we would expect most traffic to come from the south. We have looked at 2 scenarios – an 20/80 North/South split and a 40/60 North/ South Split

Daytime Peaks:

Scenario 1: 80/20 Split

Arriving at 12:30pm: 26 veh/hour (21 Veh/hr from the south and 5 veh/hour from the north) Departing at 2:30pm 25 veh/hour (20 Veh/hr to the south and 5 veh/hour to the north)

Scenario 2: 60/40 Split

- Arriving at 12:30pm: the north)
- Departing at 2:30 pm north)
- 26 veh/hour (16 Veh/hr from the south and 9 veh/hour from
 - 25 veh/hour (15 Veh/hr to the south and 10 veh/hour to the

Evening Peaks:

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Scenario 1: 80/20 Split

- Arriving at 6:30pm: the north)
- Departing at 9:00pm north)
- 24 veh/hour (20 Veh/hr from the south and 4 veh/hour from
- 28 veh/hour (22 Veh/hr to the south and 6 veh/hour to the

24 veh/hour (14 Veh/hr from the south and 10 veh/hour from

Scenario 2: 60/40 Split

north)

- Arriving at 6:30pm: the north)
 - Departing at 9:00 pm 28 veh/hour (17 Veh/hr to the south and 11 veh/hour to the

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Figure 4.1 – Personage of the Winery over the Course of a Busy Day

Figure 4.2 – Traffic Generation over the Course of a Busy Day (cased on 2.5 persons per vehicle)





5. Traffic Impact Assessment

As noted above, the key times for traffic entry to and exit from the site are:

- Entry: 12:30pm and 06:30pm
- Exit: 02:30pm and 09:00pm

5.1 Intersection of Site Entry to Orara Way – Entering the Site:

We have analysed the intersection requirements based on the peak 2035 traffic volumes and the above site generated traffic volumes. The analysis is based on *Figure 4.9 of "Guide to Road Design* – *Part 4A* – *Unsignalised and Signalised Intersections"*. Refer Annexure C for details.

The key movements are turning either left or right from the Orara Way into the site.

Right Turn Movement from Orara Way into the Site

Scenario 1 - 80/20 Traffic Split

In 2035, the estimated traffic volumes on the Orara Way at key times are:

Scenario 1 – 80/20 Traffic Split (vehicles per hour)						
	Orara W	ay Traffic	Site Entry		(refer Annex	
Time of Day	Northbou nd Traffic	Southboun d Traffic	Left Turn Entry to Site from south (Q1)	Right Turn Entry to Site from north (Q _R)	QT1 + QT2 + QL	
12:30pm	118	128	246	21	5	267
6:30pm	98	48	145	20	4	165

The assessed volumes are summarised below based on 12:30pm, which is the highest traffic time frame. These are plotted on Figure 5.1.

Scenario 2 – 60/40 Traffic Split

In 2035, the estimated traffic volumes on the Orara Way at key times are:

Scenario 2 – 60/40 Traffic Split (vehicles per hour)						
	Orara W	ay Traffic	Site Entry		(refer Annex C)	
Time of Day	Northbou nd Traffic	Southboun d Traffic	Left Turn Entry to Site from south (Qı)	Right Turn Entry to Site from north (Q _R)	QT1 + QT2 +QL	
12:30pm	118	128	246	15	10	261
6:30pm	98	48	145	14	10	159

The assessed volumes are summarised below based on 12:30pm, which is the highest traffic time frame. These are plotted on Figure 5.1.



Figure 5.1: 2.5 Persons per Car - Warrants for Right turn Treatments from Orara Way to the Site



Scenario 1 – 80/20 Spilt from the site travelling south (8 veh/hr) – Scenario 2 – 60/40 Spilt from the site travelling south (16 veh/hr) –

Source: Arndt and Troutbeck (2006).



Result:

Under both Scenarios, the analysis suggests that a type BAR/BAL intersection on Orara Way, will provide satisfactory access to the site.

a. Sensitivity Analysis based on 2 persons per car

Council in its comments suggested that a sensitivity on the traffic generation for the site be based on 2 persons per vehicle. Our experience suggests that this is not realistic given that:

- The site is at least 30 minutes by car from either Grafton of Coffs Harbour.
- The most common table grouping is 4 people, with larger groups quite common.
- In these days of drink driving rules, most groups come with a "designated driver" and so passenger numbers in cars are maximised.

Given the above, it is our opinion that traffic based on 2 persons per car is unrealistic. Nevertheless, we have conducted a sensitivity analysis using the lower car occupancy suggested by Council of 2.0 persons per car.

Based on this, the peak entry into the site increases from 40 vehicles per hour to 50 vehicles per hour. In terms of traffic, Scenario 2 is the worst case and we have plotted the results on Figure 5.2.



Scenario 1 – 80/20 Traffic Split (vehicles per hour)						
	Orara W	ay Traffic	Site Entry		(refer Annex C)	
Time of Day	Northbou nd Traffic	Southboun d Traffic	Left Turn Entry to Site from south (Qı)	Right Turn Entry to Site from north (Q _R)	QT1 + QT2 + QL	
12:30pm	118	128	246	40	10	286
6:30pm	98	48	145	27	7	172

Scenario 2 – 60/40 Traffic Split (vehicles per hour)						
	Orara W	ay Traffic	Site Entry		(refer Annex C)	
Time of Day	Northbou nd Traffic	Southboun d Traffic	Total QT1 + QT2	Left Turn Entry to Site from south (Qı)	Right Turn Entry to Site from north (Q _R)	QT1 + QT2 + QL
12:30pm	118	128	246	30	20	276
6:30pm	98	48	145	20	14	165

The assessed volumes are summarised below based on 12:30pm, which is the highest traffic time frame. These are plotted on Figure 5.2.

The analysis confirms that the both a BAR and a BAL type intersection would be required.





Scenario 1 – 80/20 Spilt from the site travelling south (10 veh/hr) – Scenario 2 – 60/40 Spilt from the site travelling south (20 veh/hr)



Result:

Under both Scenarios, the analysis suggests that a type BAR/BAL intersection on Orara Way, will provide satisfactory access to the site.

Conclusion - Intersection of Site Entry to Orara Way:

Based on the peak traffic 2035 volumes and the sensitivity analysis undertaken, both a BAR and a BAL would be required for access to the property. We note that the BAR/BAL intersection is based on the movement of a large semi trailer. The dimensions of the intersection should be in accord in accordance with AS2890.2 Figure 3.2.

5.2 Number of Car Spaces and Carparking Layout

Under Class 2 of AS 2890 Part 1, the minimum car park dimensions for 90-degree parking is 2.5m width and 5.4m depth with a minimum isle width of 5.8m. The layout shown in Figure 2 complies with this.

The "Statement of Environmental Effects – Proposed Additional Dining Areas" prepared by Geoff Smyth & Associates and dated August 2020, sets out the basis of the on-site car parking calculation. They are summarised below:

It is noted that in Section 4, we estimated that the peak traffic generation would be 42 veh/hour. This is greater that the 30 car spaces available. Our analysis is a worst case scenario which may occur perhaps once or twice a year if the development is at full occupancy. Our understanding is that overflow parking is proposed in the unformed road reserve to the south of the development.

5.3 Entry and Exit Requirements under AS 2890

The development is a "User Class 2" with access onto an arterial road. As such, key dimensional parameters are from Table 3.2 of AS 2890 are set out below:

Entry Width	6m to 9m
Exit Width	Combined with Entry, but if separate, both entry and exit should be a minimum of 3.0m

The proposed development has provided separate entry and exit driveways which are both a minimum of 4m wide which is in excess of the AS 2890 requirements.

Under AS 2890, the entry and exit should be at 90 degrees to the Orara Way. The site plan used in this report has the entrance road at a different angle. It is a simple CC matter to slightly adjust the alignment of the entry to comply with the 90 degree requirement.

6 Recommendations

In our opinion the proposed development will have minimal traffic impact.

- The traffic volumes generated by the development are relatively low and no specific work is required on the Orara Way to accommodate the development.
- It has adequate on-site parking



The entry and exit to the site complies with AS 2890 and its location has adequate sight distance. The entry design requires adjustment to ensure that both entry and exit are at 90 degrees to the Orara Way. The Carpark layout and entry is shown on the attached Drawings
Two Tails Winery – Carparking Layout – 19021-C100-C103– Version C dated 20 September 2021 prepared by de Groot & Benson Pty Ltd Annexure D)

Should you have any further queries, please contact Rob de Groot on 02 6652 1700, or mobile 04 1883 1700 or by email at rob@dgb.com.au.

Yours faithfully

R J de Groot DIRECTOR



DRAWINGS

Drawing 1902-C100-C103– Version C dated 20 September 2021 prepared by de Groot & Benson Pty Ltd







GRAVEL ROAD					0.450 RCP	NOTE: ENTRY DIMENSIONS IN ACCORD WITH FIGURE 3.2 AS2890 PART 2 -		
0	5 I	10 I	15 I	20	25Metres I	(OFF STREET COMMERCIAL VE	HICLE
	·	SCALE 1:	250			F	ACILITIES	
de Groot & Benson		A.C.N. 052 300 571 236 Harbour Drive, Coffs Harbour NSW 2450				TWO TAIL WINERY 963 ORARA WAY, NANA GL	EN	19021 - C102
Consulting Engineers & Planners		Phone (02) 6652 1700 Fax (02) 6652 7418 Email: email@dgb.com.au			MEE	DIUM RIGID VEHICLE SV	VEPT PATH	Amendment No. C





ANNEXURE A – Sight Distance Analysis – Two Tail Winery



Photo 1 – Driveway Looking South

Photo 2 - Driveway - Looking north









Photo 4 – 150m north of driveway– Looking south (Camera at 1.05m height)





ANNEXURE B – Traffic Counts on Orara Way @ Nana Glen Preschool



ANNEXURE C – Traffic Warrants



Extract from <u>"Guide to Road Design – Part 4A – Unsignalised and Signalised Intersections"</u>. AUSTROADS 2010

Source: Arndt and Troutbeck (2006).

Figure 4.9: Warrants for turn treatments on the major road at unsignalised intersections

 Where the major road has four lanes (e.g. two in each direction) the value used for Q_M is the volume in the closest through lane to the turning movement.



Source: Arndt and Troutbeck (2006).

