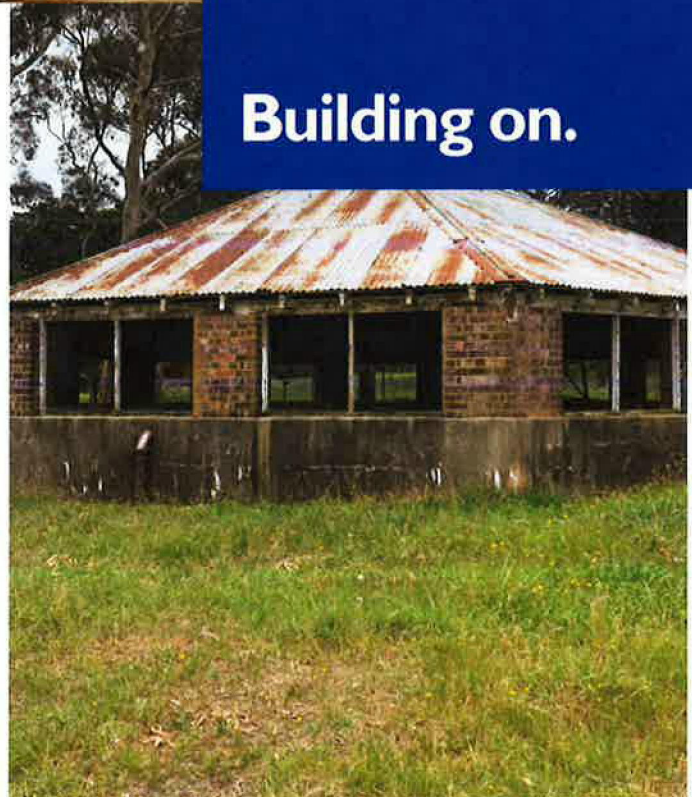


**SOUTHERN HIGHLANDS
REGIONAL ART GALLERY**

Varga Traffic Report

Building on.





2 September 2019
Ref 19364

The General Manager
Wingecarribee Shire Council
P.O. Box 141
MOSS VALE NSW 2577

E: mail@wsc.nsw.gov.au

Dear Ann Prendergast,

**PROPOSED SUBDIVISION OF LOT 38 DP 882935
ROWLAND ROAD, BOWRAL
TRAFFIC IMPACT ASSESSMENT REPORT**

Introduction

This Traffic Impact Assessment Report has been prepared to accompany a development application to Council for the proposed subdivision of Lot 38 DP 882935 into three new lots.

The intent of the subdivision is to create a new road reserve through the Council-owned land that will ultimately accommodate a new public road to service the adjoining *Southern Highlands Regional Art Gallery* to the north. A recent aerial image of the site and its surroundings is reproduced below.



Site

The subject site is located on the northern side of Rowland Road, extending between the Boardman Road roundabout and the Rouse Road cul-de-sac (Figure 1). The site has a street frontage approximately 451m in length to Rowland Road/Rouse Road and occupies a site area of approximately 74.23ha.

The site is currently zoned *RE1 Public Recreation* under the *Wingecarribee LEP 2010* and consists of a 1.2m wide footpath that runs along the northern side of Rowland Road in addition to clusters of established trees and low-level vegetation. The site is vacant of any structure.

Proposed Development

The development proposal involves the subdivision of the subject site – Lot 38 DP 882935 – into three new lots in order to provide a new access road to service Retford Park. A plan of the proposed subdivision has been prepared by *Richard Cox Surveyors Pty Ltd* as well as a concept road layout plan prepared by *Northrop*, with both plans attached for reference.

The proposed new road reserve will extend northward from the existing Jonathon Street intersection and have a variable width of between 23m-26m wide along with a circular section at its northern end where it adjoins the *Southern Highlands Regional Art Gallery's* southern boundary.

It is envisaged that the road reserve will ultimately accommodate a new 7m wide rural road with flat edge treatment – i.e. no kerb and gutter – in order to be sympathetic to the local rural landscape. It is also envisaged that a separate footpath will extend northward from the existing footpath that runs along the northern side of Rowland Road.

The intent of the circular section, which is to be located at the northern end of the new road reserve, is to potentially accommodate a turning circle area for all vehicles, including large tourist coaches, in the rare event that the future gates to the art gallery are closed.

A series of *Streetview* images are reproduced below and on the following page indicating where the proposed new public road will connect to the existing public road.



Jonathon Street facing north towards Rowland Road and the subject site



Rowland Road facing east towards Jonathon Street



Rowland Road facing west towards Jonathon Street

Road Hierarchy

Kangaloon Road (B73) is classified by the RMS as a *State Road* and provides one of the key north-south road links in the area. It typically carries one traffic lane in each direction in the vicinity of the site, with roundabouts and turning treatments provided at key intersections.

Boardman Road is a local, unclassified road which performs the function of a *collector route* through the area. It typically carries one traffic lane in each direction in the vicinity of the site, with kerbside parking generally permitted along both sides of the road.

Rowland Road, Jonathon Street and Rouse Road are all local, unclassified roads which are primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted on both sides of all three roads.

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by reference to data provided by Council. The count station was installed on Rowland Road, midway between Boardman Road and Jonathon Street, and recorded traffic volumes and vehicle speeds for a two-week period in July 2019. The results of the traffic surveys are attached in full and reveal that:

- two-way traffic flows in Rowland Road during the weekday morning peak period (9:00am-10:00am) ranged between 35 vehicles per hour (vph) and 70 vph, with an average of 48 vph
- two-way traffic flows in Rowland Road during the weekday afternoon peak period (3:00pm-4:00pm) ranged between 40 vph and 85 vph, with an average of 56 vph
- two-way traffic flows in Rowland Road during the weekend peak period (11:00am-12:00pm) was in the order of 43 vph
- the signposted speed limit is 50km/h whilst the 85th percentile speed limit was 49km/h.

Projected Traffic Generation

An indication of the traffic generation potential of most development types is provided by reference to the Roads and Maritime Services publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)*.

The RMS *Guidelines* do not however nominate a traffic generation rate for regional art galleries. Reference is therefore made to visitation forecasts provided by the Gallery, based on data of similar sized regional galleries.

Discussions with the Gallery indicate that attendances in the first year of operation could be in the order of 35,000-70,000 people. For the purposes of this assessment, the higher figure has been adopted.

If the 70,000 annual attendance estimate is averaged over a 50-week year, with the Gallery opened 7 days per week, the Gallery could expect in the order of 200 people per day.

Whilst it is acknowledged that more well-known exhibitions will attract higher visitation numbers, it is considered that the use of the higher 70,000 annual figure should cover those highs and lows throughout the year.

It is also worth noting that the abovementioned “200 people per day” forecast includes school children that will arrive on buses. The Gallery will conduct lessons for school children, with approximately 30-50 children per session, split across two classrooms, with two sessions per day.

In terms of the general public, the Gallery estimates between 20-50 attendees per day on a typical weekday, with 80-100+ attendees per day on a typical weekend. The weekend figure could get up to 200 attendees per day during a more well-known exhibition, as noted above.

For the purposes of this assessment, it has been assumed that on weekdays, the Gallery will have 4 bus loads of school children per day (with 20 children per bus). Furthermore, the general public will have a car driver rate of *2.5 people per car*, as most people are expected to arrive in groups.

In *daily* traffic terms, the gallery could therefore expect in the order of say, 100 *daily* vehicle trips on a weekday (i.e. 50 vehicles IN and 50 vehicles OUT) and say, 160 *daily* vehicle trips on a weekend (i.e. 80 vehicles IN and 80 vehicles OUT).

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network during peak *hour* periods.

In *hourly* traffic terms, the gallery could therefore conservatively expect in the order of say, 1/3 of the above *daily* vehicle trips to occur during the peak *hour* periods.

During the weekday morning and afternoon peak *hour* periods, the above *daily* figures translate to 32 peak *hour* vehicle trips during the weekday morning and afternoon peak periods, and 52 peak *hour* vehicle trips during the weekend lunchtime peak period.

That projected increase in traffic activity as a consequence of the development proposal is minimal and will clearly not have any unacceptable traffic implications in terms of road network capacity, as is demonstrated by the following section of this report.

Environmental Capacity of Residential Streets

Research undertaken by the Roads and Maritime Services has identified a number of environmental capacity performance standards for different types of residential streets, as set out in the table below:

Table 4.6 Environmental Capacity Performance Standards on Residential Streets			
Road Class	Street Type	Maximum Speed (km/hr)	Maximum Peak Hour Volume (veh/hr)
Local	Access Way	25	100
	Street	40	200 Environmental Goal 300 Maximum
Collector	Street	50	300 Environmental Goal
			500 Maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

The cumulative traffic flows in Rowland Road as a consequence of the development proposal is therefore expected to be in the order of 80-90 vph during the weekday *and* weekend peak *hours*, *well below* the threshold of 200 vph which is the environmental goal for a local residential street.

As such, the projected increase in traffic activity as a consequence of the development proposal will clearly not have any unacceptable traffic implications in terms of road network capacity.

Driver Sight Distance/Visibility

The driver sight distance/visibility requirements at the proposed intersection are specified in *Figure 3.2 Site Distance Requirements at Access Driveways* of AS2890.1 - 2004 published by Standards Australia and also in *Chapter 3.4 Site Distance at Property Entrances* (Austroads 2009).

The driver sight distance/visibility requirements in both publications are based on a minimum gap sight distance of 5 seconds. The relevant extract from *AS2890.1 – 2004* is reproduced below:

FIGURE 3.2 SIGHT DISTANCE REQUIREMENTS AT ACCESS DRIVEWAYS

Frontage road speed (Note 4) Km/h	Distance (Y) along frontage road m	
	Access driveways other than domestic (Note 5)	
	Desirable 5 s gap	Minimum SSD
40	55	35
50	69	45
60	83	65
70	97	85
80	111	105
90	125	130
100	139	160
110	153	190

The *Standards Australia* and *Austroads* publications both specify a desirable 5 second safe stopping driver sight distance/visibility of 69m for a frontage road speed of 50km/h.

The proposed “fourth arm” off the Rowland Road and Jonathon Street intersection is to be located on the outside of the bend in the road, thereby providing optimum driver sight distance/visibility in both directions – i.e. *in excess* of 100m in both directions – thereby comfortably satisfying the desirable *Standards Australia* and *Austroads* requirements.

The proposed new local rural road and turning area have been designed to accommodate the swept turning path requirements of the 12.5m long HRV and 14.5m long bus as specified in *Austroads*, allowing them to enter and exit from Rowland Road without difficulty, and to turn around and exit the site in a forward direction, if required.

Conclusion

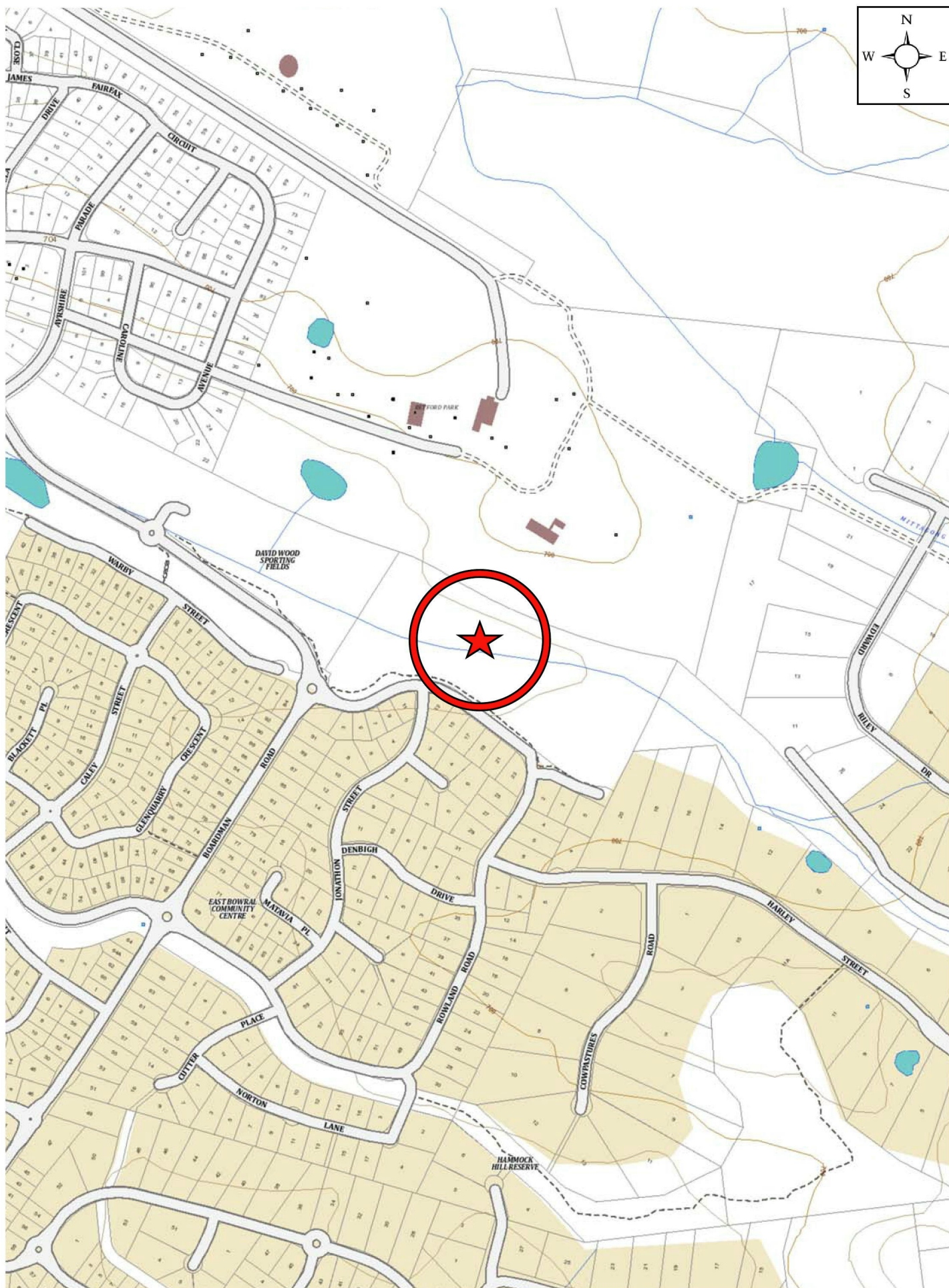
The foregoing has found that the proposed subdivision of the Council reserve in order to accommodate a new local rural road, as well as anticipated traffic volumes from the art gallery, will not have any unacceptable implications in terms of road network capacity or access requirements.

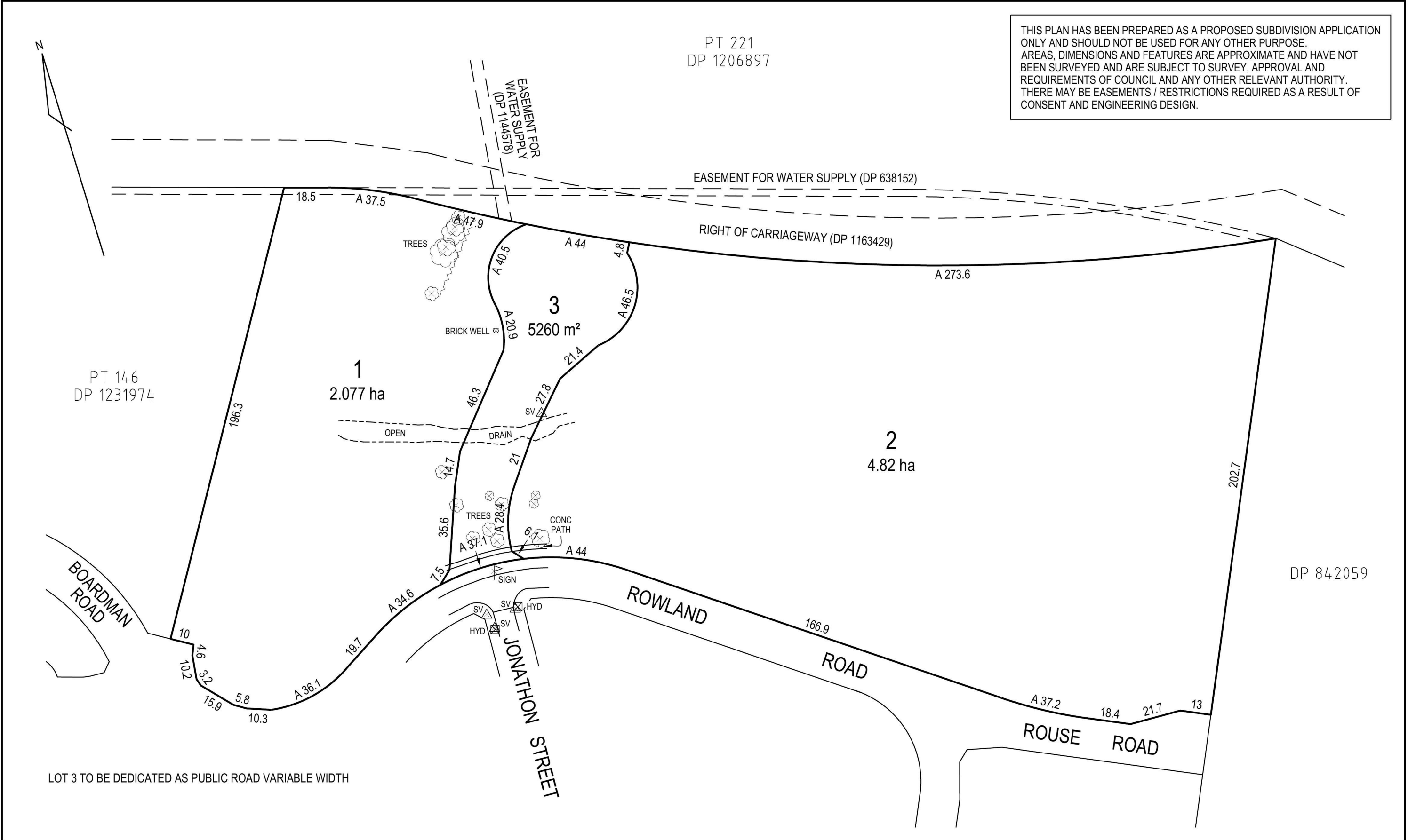
I trust this advice satisfies your requirements. Please do not hesitate to contact me on telephone 9904 3224 should you wish to discuss any aspect of the above.

Yours sincerely



Chris Palmer
Traffic Engineer B.Eng (Civil)
Varga Traffic Planning Pty Ltd





LGA : WINGECARRIBEE	SCALE : A3 1:1500	SOUTHERN HIGHLANDS REGIONAL ART GALLERY WINGECARRIBEE SHIRE COUNCIL	RICHARD COX SURVEYORS PTY. LTD. INC. LEAN LACKENBY & HAYWARD (BOWRAL) ABN 41108 585 379 15 BUNDAROO STREET, BOWRAL NSW 2576 PO BOX 1500 PHONE : 02 4861 3711 MOBILE : 0427 482537 EMAIL : rrcox@bigpond.com	SHEET : 1 OF 1
	DATUM :	PLAN OF PROPOSED SUBDIVISION OF LOT 38 DP 882935 ROWLAND ROAD, BOWRAL		DATE : 23/8/2019 REF : 1982 DWG1982-DA



	PROPOSED ROAD BOUNDARY LINE
	CONTROL LINE
	PROPOSED BATTER EXTENTS
	ROAD PAVEMENT (TBC)
	FOOTPATH
	STENCIL CONCRETE TO MATCH EXISTING
	BRIDGE ON FOOTPATH
	CULVERT UNDER ROAD
	DRAINAGE SWALE

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	SN		SN	22.08.19

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SCALE 1:500@A1

Sydney
Level 11 345 George Street, Sydney NSW 2000
Ph (02) 9241 4188 Fax (02) 9241 4324
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT

ART GALLERY
RETFORD PARK

STAGE 1 - ROADWAY

DRAWING TITLE

CIVIL SKETCH

ROAD OPTIONS WITH PROPOSED
BOUNDARY

JOB NUMBER

191323

DRAWING NUMBER

SK04.01

REVISION

1

DRAWING SHEET SIZE = A1

Printed By : STEPHANIE NOBLE

Found : T:\2019 Jobs\191323 - Art Gallery Retford Park\Drawings\Northrop\Civil\2-CAD\2-CAD FILES\3-SKETCH\SK4.01 ROAD OPTS WITH BOUNDARY\SK04.01.dwg

Date: 15.02.2018 11:24 AM

ROWLAND RD – MIDWAY BETWEEN BOARDMAN RD & JONATHON ST
Weekly Vehicle Counts (Virtual Week)
TWO WAY COUNT

VirtWeeklyVehicle-1582 -- English (ENA)

Datasets:

Site: [4550-0010] Rowland Rd - between Boardman Rd & Jonathon St
Attribute:
Direction: 8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration: 4 July 2019 => 11 July 2019
Zone:
File: 4550-0010 0 2019-07-15 1446.EC0 (Plus)
Identifier: RR5063ZA MC5900-X13 (c)MetroCount 09Nov16
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019 (13.0973)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: East, West (bound), P = East, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 6802 / 6805 (99.96%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-1582

Site: 4550-0010.0.1EW

Description: Rowland Rd - between Boardman Rd & Jonathon St

Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019

Scheme: Vehicle classification (AustRoads94)

Filter: Cls(1-12) Dir(EW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	1 - 7
Hour									
0000-0100	0.0	1.0	0.5	0.5	2.5	0.5	2.0	0.9	1.0
0100-0200	0.0	3.0	0.0	0.0	0.0	1.0	1.0	0.3	0.5
0200-0300	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.4	0.4
0300-0400	1.0	1.0	0.0	1.0	0.0	0.0	0.0	0.6	0.4
0400-0500	0.5	3.0	0.5	0.0	1.0	0.5	0.5	0.8	0.7
0500-0600	2.0	8.0	4.0	3.5	13.5	3.0	2.5	6.0	5.0
0600-0700	10.0	23.0	13.5	9.0	29.5	5.5	4.5	16.3	12.8
0700-0800	23.0	44.0	15.5	14.5	41.0	10.0	7.5	25.8	20.5
0800-0900	32.5	59.0	33.0	27.5	67.5	19.5	15.0	42.2	34.5
0900-1000	42.0	72.0	32.0	34.5	69.5	35.5	17.0	47.6	41.0
1000-1100	29.5	76.0	32.0	62.0	31.0	42.0	33.0	42.8	41.2
1100-1200	33.0	72.0	35.0	62.5	29.0	43.5	42.0	43.4	43.2
1200-1300	30.5	30.0	29.5	61.5	39.5	43.0	36.5	38.2	38.6
1300-1400	30.5	28.5	30.5	66.5	36.0	41.5	32.5	38.4	38.0
1400-1500	32.0	36.0	43.5	71.0	40.5	41.5	28.5	44.6	41.9
1500-1600	72.0	39.5	43.5	85.5	47.5	40.5	30.0	56.0	49.6
1600-1700	89.0	39.5	39.5	74.5	31.5	41.5	37.0	51.0	47.4
1700-1800	62.0	34.5	33.0	68.0	32.5	25.0	19.0	44.2	37.4
1800-1900	45.0	19.0	15.5	45.5	24.5	19.5	18.5	28.2	25.4
1900-2000	16.0	10.0	11.0	28.0	7.5	12.5	10.0	14.3	13.4
2000-2100	12.0	7.5	5.0	11.0	5.0	10.5	6.5	7.7	7.9
2100-2200	2.0	7.0	1.0	15.0	7.5	7.5	3.5	7.0	6.5
2200-2300	1.0	1.5	0.5	7.5	4.5	7.0	1.5	3.2	3.5
2300-2400	6.0	1.0	3.0	4.0	4.0	2.0	3.5	3.3	3.2
Totals									
0700-1900	521.0	550.0	382.5	673.5	490.0	403.0	316.5	502.4	458.7
0600-2200	561.0	597.5	413.0	736.5	539.5	439.0	341.0	547.8	499.4
0600-0000	568.0	600.0	416.5	748.0	548.0	448.0	346.0	554.3	506.1
0000-0000	572.0	616.0	422.0	753.5	565.5	453.5	352.0	563.3	514.1
AM Peak	0900 42.0	1000 76.0	1100 35.0	1100 62.5	0900 69.5	1100 43.5	1100 42.0		
PM Peak	1600 89.0	1600 39.5	1500 43.5	1500 85.5	1500 47.5	1200 43.0	1600 37.0		

ROWLAND RD – MIDWAY BETWEEN BOARDMAN RD & JONATHON ST
Weekly Vehicle Counts (Virtual Week)
EASTBOUND

VirtWeeklyVehicle-1581 -- English (ENA)

Datasets:

Site: [4550-0010] Rowland Rd - between Boardman Rd & Jonathon St
Attribute:
Direction: 8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration: 4 July 2019 => 11 July 2019
Zone:
File: 4550-0010 0 2019-07-15 1446.EC0 (Plus)
Identifier: RR5063ZA MC5900-X13 (c)MetroCount 09Nov16
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019 (13.0973)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: East (bound), P = East, Lane = 0, 2-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 3375 / 6805 (49.60%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-1581

Site: 4550-0010.0.1EW

Description: Rowland Rd - between Boardman Rd & Jonathon St

Filter time: 4 July 2019 => 11 July 2019

Scheme: Vehicle classification (AustRoads94)

Filter: Cls(1-12) Dir(E) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0, 2-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
								1 - 5	1 - 7
Hour									
0000-0100	0.0	0.0	0.0	0.0	2.0	0.0	0.5	0.4	0.4
0100-0200	0.0	2.0	0.0	0.0	0.0	0.5	1.0	0.2	0.4
0200-0300	0.0	0.0	0.5	0.5	0.5	0.5	0.0	0.3	0.3
0300-0400	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.2	0.2
0400-0500	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.1
0500-0600	0.5	2.0	0.0	0.5	2.5	1.0	1.0	1.0	1.0
0600-0700	4.5	10.0	6.0	4.0	12.0	2.0	2.5	7.0	5.5
0700-0800	7.0	12.0	4.0	4.5	15.0	2.5	1.0	8.1	6.2
0800-0900	9.5	22.0	10.0	8.5	20.5	3.5	6.0	13.2	10.6
0900-1000	14.0	26.0	8.5	12.0	26.5	12.5	5.5	16.4	14.2
1000-1100	13.0	33.0	14.0	24.0	12.5	14.5	16.5	17.8	17.1
1100-1200	14.5	33.0	17.0	35.5	14.0	27.5	19.5	21.7	22.2
1200-1300	15.5	19.0	16.5	28.0	21.0	27.0	16.5	20.0	20.5
1300-1400	17.5	14.5	13.0	28.5	22.0	24.5	14.0	19.1	19.1
1400-1500	15.0	21.0	21.0	34.0	15.0	23.5	20.0	21.2	21.4
1500-1600	41.0	17.0	25.5	42.0	25.5	22.5	14.5	29.0	25.8
1600-1700	46.0	21.5	28.5	41.5	17.5	21.5	18.0	29.3	26.4
1700-1800	45.0	22.5	19.0	40.0	21.5	12.5	8.5	27.9	22.5
1800-1900	29.0	14.0	10.0	29.5	18.5	12.5	9.5	19.2	16.7
1900-2000	10.0	7.5	6.5	23.0	5.0	6.5	6.5	10.4	9.2
2000-2100	9.0	4.5	5.0	9.0	3.0	8.5	4.0	5.8	5.9
2100-2200	1.0	6.5	0.5	11.5	6.0	3.5	3.0	5.6	4.8
2200-2300	0.0	1.5	0.5	6.0	2.5	4.5	0.5	2.3	2.4
2300-2400	3.0	0.5	2.0	3.5	3.0	1.0	2.0	2.3	2.1
Totals									
0700-1900	267.0	255.5	187.0	328.0	229.5	204.5	149.5	243.0	222.6
0600-2200	291.5	284.0	205.0	375.5	255.5	225.0	165.5	271.7	248.2
0600-0000	294.5	286.0	207.5	385.0	261.0	230.5	168.0	276.4	252.6
0000-0000	295.5	290.0	208.0	386.5	266.0	233.0	170.5	278.6	254.9
AM Peak	1100	1100	1100	1100	0900	1100	1100		
	14.5	33.0	17.0	35.5	26.5	27.5	19.5		
PM Peak	1600	1700	1600	1500	1500	1200	1400		
	46.0	22.5	28.5	42.0	25.5	27.0	20.0		

ROWLAND RD – MIDWAY BETWEEN BOARDMAN RD & JONATHON ST
Weekly Vehicle Counts (Virtual Week)
WESTBOUND

VirtWeeklyVehicle-1580 -- English (ENA)

Datasets:

Site: [4550-0010] Rowland Rd - between Boardman Rd & Jonathon St
Attribute:
Direction: 8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration: 12:24 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019,
Zone:
File: 4550-0010 0 2019-07-15 1446.EC0 (Plus)
Identifier: RR5063ZA MC5900-X13 (c)MetroCount 09Nov16
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 4 July 2019 => 11 July 2019
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: West (bound), P = East, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 3427 / 6805 (50.36%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-1580

Site: 4550-0010.0.1EW

Description: Rowland Rd - between Boardman Rd & Jonathon St

Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019

Scheme: Vehicle classification (AustRoads94)

Filter: Cls(1-12) Dir(W) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
								1 - 5	1 - 7
Hour									
0000-0100	0.0	1.0	0.5	0.5	0.5	0.5	1.5	0.4	0.6
0100-0200	0.0	1.0	0.0	0.0	0.0	0.5	0.0	0.1	0.2
0200-0300	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
0300-0400	0.5	1.0	0.0	0.5	0.0	0.0	0.0	0.3	0.2
0400-0500	0.5	3.0	0.5	0.0	1.0	0.0	0.5	0.8	0.6
0500-0600	1.5	6.0	4.0	3.0	11.0	2.0	1.5	5.0	4.0
0600-0700	5.5	13.0	7.5	5.0	17.5	3.5	2.0	9.3	7.3
0700-0800	16.0	32.0	11.5	10.0	26.0	7.5	6.5	17.7	14.4
0800-0900	23.0	37.0	23.0	19.0	47.0	16.0	9.0	29.0	23.9
0900-1000	28.0	46.0	23.5	22.5	43.0	23.0	11.5	31.1	26.8
1000-1100	16.5	43.0	18.0	38.0	18.5	27.5	16.5	25.0	24.1
1100-1200	18.5	39.0	18.0	27.0	15.0	16.0	22.5	21.8	21.0
1200-1300	15.0	11.0	13.0	33.5	18.5	16.0	20.0	18.2	18.1
1300-1400	13.0	14.0	17.5	38.0	14.0	17.0	18.5	19.3	18.9
1400-1500	17.0	15.0	22.5	37.0	25.5	18.0	8.5	23.4	20.5
1500-1600	31.0	22.5	18.0	43.5	22.0	18.0	15.5	27.0	23.8
1600-1700	43.0	18.0	11.0	33.0	14.0	20.0	19.0	21.7	21.0
1700-1800	17.0	12.0	14.0	28.0	11.0	12.5	10.5	16.3	14.8
1800-1900	16.0	5.0	5.5	16.0	6.0	7.0	9.0	9.0	8.7
1900-2000	6.0	2.5	4.5	5.0	2.5	6.0	3.5	3.9	4.2
2000-2100	3.0	3.0	0.0	2.0	2.0	2.0	2.5	1.9	2.0
2100-2200	1.0	0.5	0.5	3.5	1.5	4.0	0.5	1.4	1.7
2200-2300	1.0	0.0	0.0	1.5	2.0	2.5	1.0	0.9	1.2
2300-2400	3.0	0.5	1.0	0.5	1.0	1.0	1.5	1.0	1.1
Totals									
0700-1900	254.0	294.5	195.5	345.5	260.5	198.5	167.0	259.5	236.1
0600-2200	269.5	313.5	208.0	361.0	284.0	214.0	175.5	276.0	251.3
0600-0000	273.5	314.0	209.0	363.0	287.0	217.5	178.0	277.9	253.5
0000-0000	276.5	326.0	214.0	367.0	299.5	220.5	181.5	284.7	259.2
AM Peak	0900	0900	0900	1000	0800	1000	1100		
	28.0	46.0	23.5	38.0	47.0	27.5	22.5		
PM Peak	1600	1500	1400	1500	1400	1600	1200		
	43.0	22.5	22.5	43.5	25.5	20.0	20.0		

MetroCount Traffic Executive

Speed Histogram

SpeedHist-1584 -- English (ENA)

Datasets:

Site: [4550-0010] Rowland Rd - between Boardman Rd & Jonathon St
Attribute:
Direction: 8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration: 12:24 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019,
Zone:
File: 4550-0010 0 2019-07-15 1446.EC0 (Plus)
Identifier: RR5063ZA MC5900-X13 (c)MetroCount 09Nov16
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

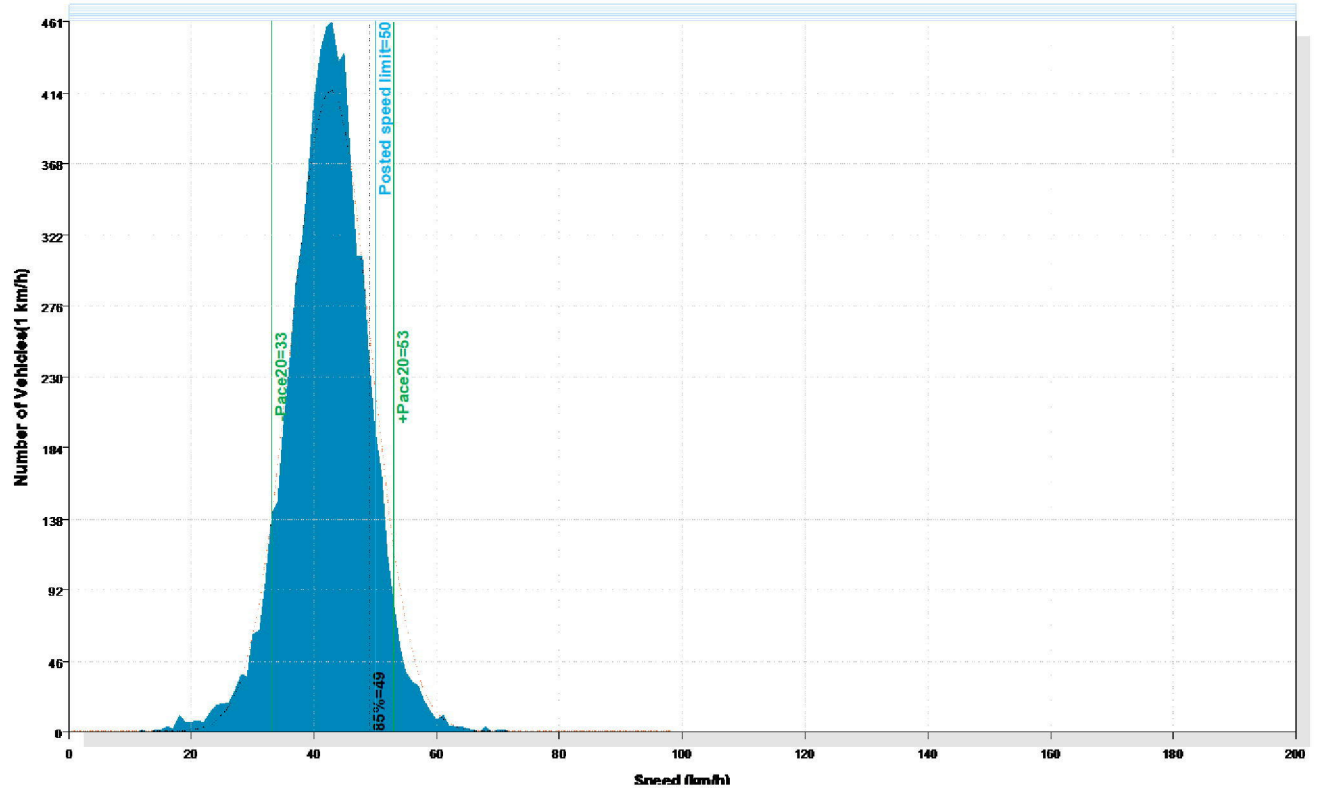
Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019 (13.0973)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = East, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 6802 / 6805 (99.96%)

Speed Statistics

Direction: EW
Vehicles = 6802
Posted speed limit = 50 km/h, Exceeding = 789 (11.60%), Mean Exceeding = 53.27 km/h
Maximum = 71.1 km/h, **Minimum** = 12.6 km/h, **Mean** = 42.7 km/h
85% Speed = 49.05 km/h, **95% Speed** = 52.74 km/h, **Median** = 42.93 km/h
20 km/h Pace = 33 - 53, **Number in Pace** = 6060 (89.09%)
Variance = 42.48, **Standard Deviation** = 6.52 km/h

Speed Histogram

Speedlist:1584 (Metric) Site:4550-0010.0.1EW
Description: Rowland Rd - between Boardman Rd & Jonathan St
Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019
Filter: Cst(1-12) Dir(E-SW) Sp(10,160) Headway(0) Span(0 - 100) Lane(0-16)
Scheme: Vehicle classification (AustRoads84)



MetroCount Traffic Executive

Class Bin Chart

ClassBin-1586 -- English (ENA)

Datasets:

Site: [4550-0010] Rowland Rd - between Boardman Rd & Jonathon St
Attribute:
Direction: 8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration: 12:24 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019,
Zone:
File: 4550-0010 0 2019-07-15 1446.EC0 (Plus)
Identifier: RR5063ZA MC5900-X13 (c)MetroCount 09Nov16
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019 (13.0973)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = East, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 6802 / 6805 (99.96%)

Class Bins

Class 1 - 6312 (92.80%)

Class 2 - 61 (0.90%)

Class 3 - 401 (5.90%)

Class 4 - 8 (0.12%)

Class 5 - 2 (0.03%)

Class 6 - 12 (0.18%)

Class 7 - 4 (0.06%)

Class 8 - 1 (0.01%)

Class 9 - 1 (0.01%)

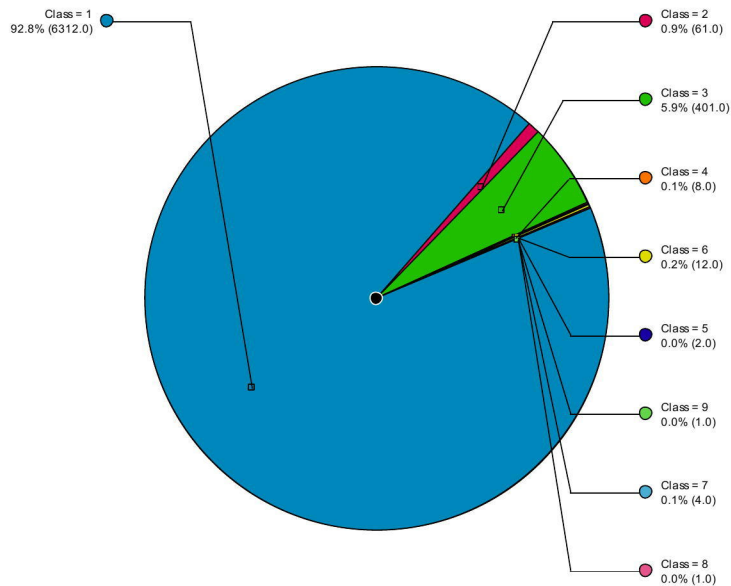
Class 10 - 0 (0.00%)

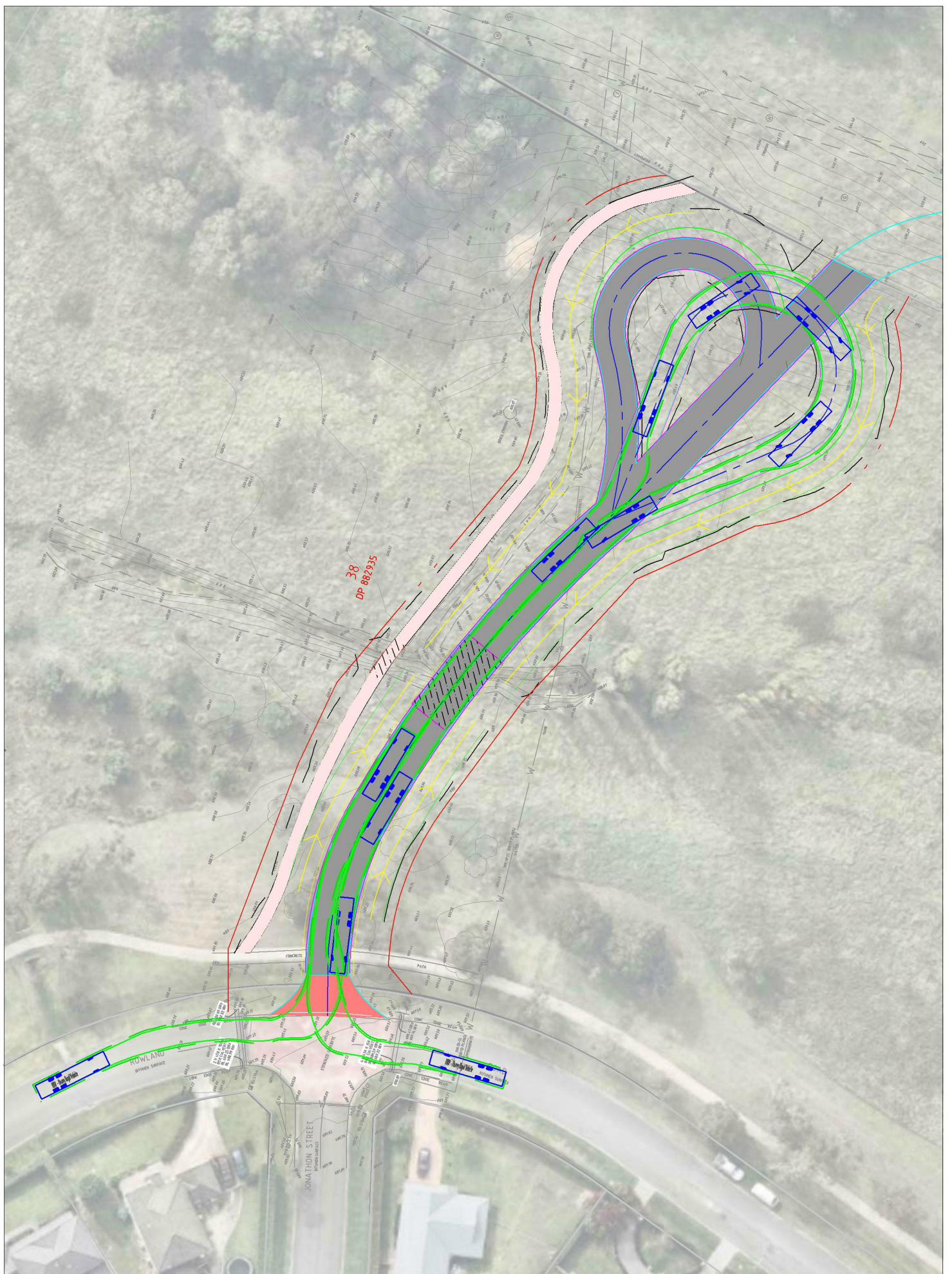
Class 11 - 0 (0.00%)

Class 12 - 0 (0.00%)

Class Bin Chart

ClassBin-1586 (Metric) Site:4550-0010.0.1EW
Description: Rowland Rd - between Boardman Rd & Jonathon St
Filter time: 12:25 Tuesday, 2 July 2019 => 14:45 Monday, 15 July 2019
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)
Scheme: Vehicle classification (AusRoads94)
Total=6802

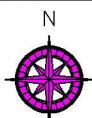




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PROJECT
 ART GALLERY RETFORD PARK



DRAWING TITLE
 12.5M HRV TRUCK TURNING PATH - OPT 2
 U-Turning around Proposed Internal Road off Rowland Road

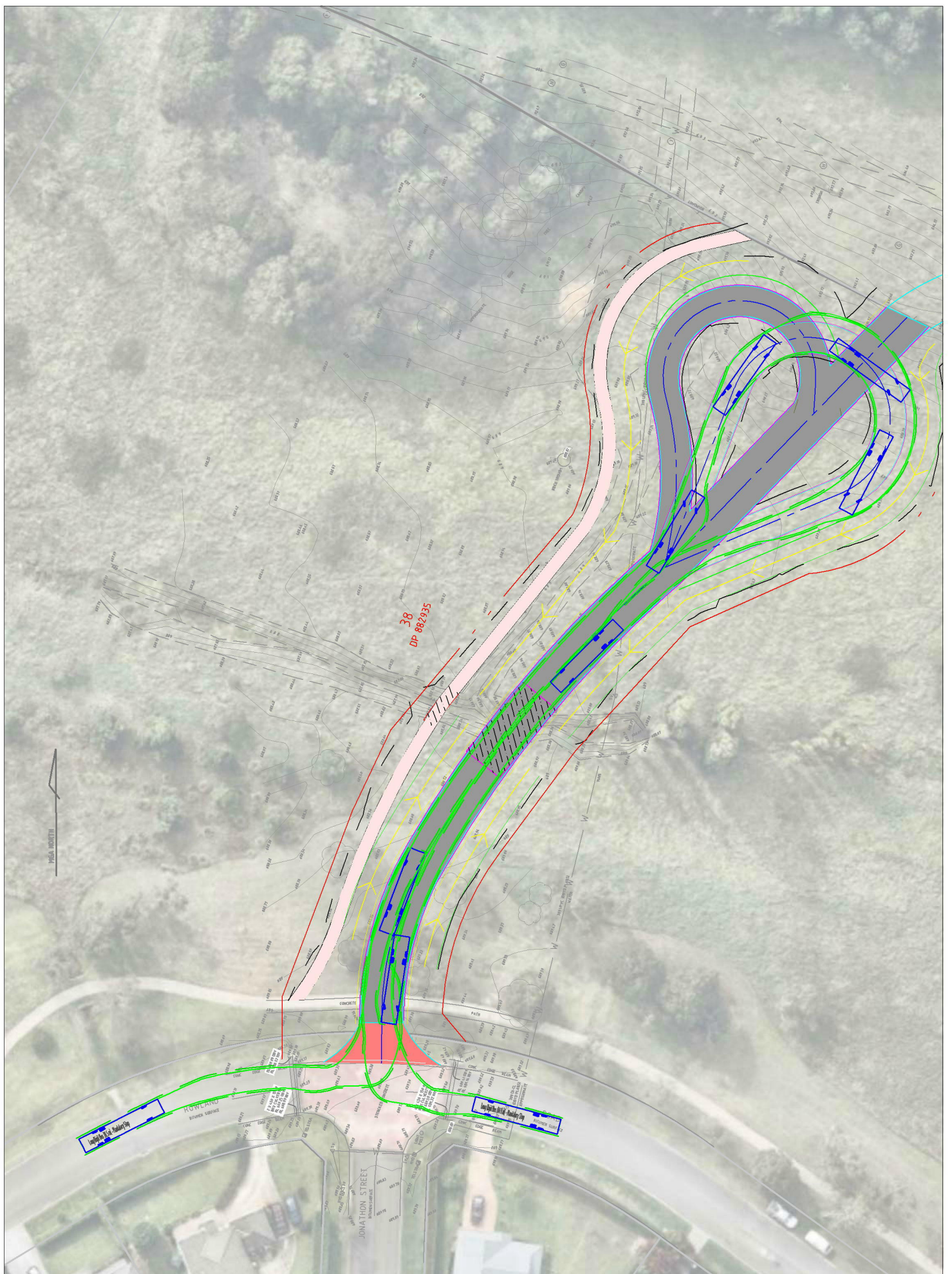
ADDRESS
 Southern Highlands Gallery at
 Retford Park

PROJECT NO
 19364
 REVIEWED
 CHRIS PALMER

1:800 @ A4
 DATE DRAWN
 2019-8-27
 PREPARED
 DONALD LEE

VARGA TRAFFIC PLANNING Pty Ltd
 Transport, Traffic and Parking Consultants

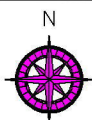




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PROJECT
 ART GALLERY RETFORD PARK



DRAWING TITLE
 14.5M LONG RIGID TRUCK TURNING PATH - OPT.2 1:800 @ A4
 U-Turning around Proposed Internal Road off Rowland Road

ADDRESS
 Southern Highlands Gallery at
 Retford Park

PROJECT NO
 19364
 REVIEWED
 CHRIS PALMER

DATE DRAWN
 2019-8-27
 PREPARED
 DONALD LEE

VARGA TRAFFIC PLANNING Pty Ltd
 Transport, Traffic and Parking Consultants

