



**TRAFFIC AND PARKING IMPACT ASSESSMENT OF
THE PROPOSED CHANGE
TO ENABLE FUNCTION CENTRE USE
AT 92 COORAMIN STREET, CARTWRIGHTS HILL**



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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

Development Type: **Function Centre**

Site Address: **92 Cooramin Street, Cartwrights Hill**

Prepared for: **Harness Racing New South Wales**

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1 INTRODUCTION

McLaren Traffic Engineering was commissioned by *Harness Racing New South Wales* to provide a traffic and parking impact assessment of the proposed change the land use restrictions to enable a Function Centre use at 92 Cooramin Street, Cartwrights Hill. The plans for the existing Wagga Harness Racing Clubhouse and racetrack are depicted in **Annexure A** for reference.

1.1 *Description and Scale of Development*

The proposal will change the land use restrictions to enable the site to be used as a function centre. The intended function centre use will have the following characteristics relevant to traffic and parking:

- Use of the existing clubhouse building (i.e. no new buildings are proposed);
- Use of the existing at-grade parking area with vehicular access from Cooramin Street, accommodating **308** car parking spaces, including:
 - **174** formal visitor car parking spaces within the main car park;
 - **62** large car + trailer car parking spaces adjacent to the stabling area;
 - Capacity for **72** overflow car parking spaces within a formalised gravel parking area.
- A maximum function capacity of **285** total guests;

It is noted that functions will predominantly occur outside of typical race meet periods (Friday Afternoons); however, on occasion, functions may occur at the same time as race meets.

1.2 *State Environmental Planning Policy (Transport and Infrastructure) 2021*

The proposal does not qualify as a traffic generating development with relevant size and/or capacity under *Clause 2.122* of the *SEPP (Transport and Infrastructure) 2021*. Accordingly, formal referral to Transport for NSW (TfNSW) is unnecessary and the application can be assessed by Wagga Wagga Council officers.

1.3 *Site Description*

The subject site includes one (1) lot legally identified as Lot 10/DP1247474, which is currently zoned RU1: Primary Production, and a small portion zoned *RU6: Transition* under the *Wagga Wagga City Council Local Environmental Plan 2010*. The site has frontages to Cooramin Street to the south and Hampden Avenue to the east. All vehicle access to the site is from Coormain Street.

The site has a total area of 24ha and currently includes a harness-racing track, stables (GFA 2257m²), and a club building area (GFA 850m²). The site consists of 174 formal visitor car parking spaces (including five (5) accessible spaces), and a further capacity for 72 vehicles within an overflow parking area.

1.4 Site Context

The location of the site is shown on an aerial photo and a street map in **Figure 1** and **Figure 2** respectively.



FIGURE 1: SITE CONTEXT – AERIAL PHOTO

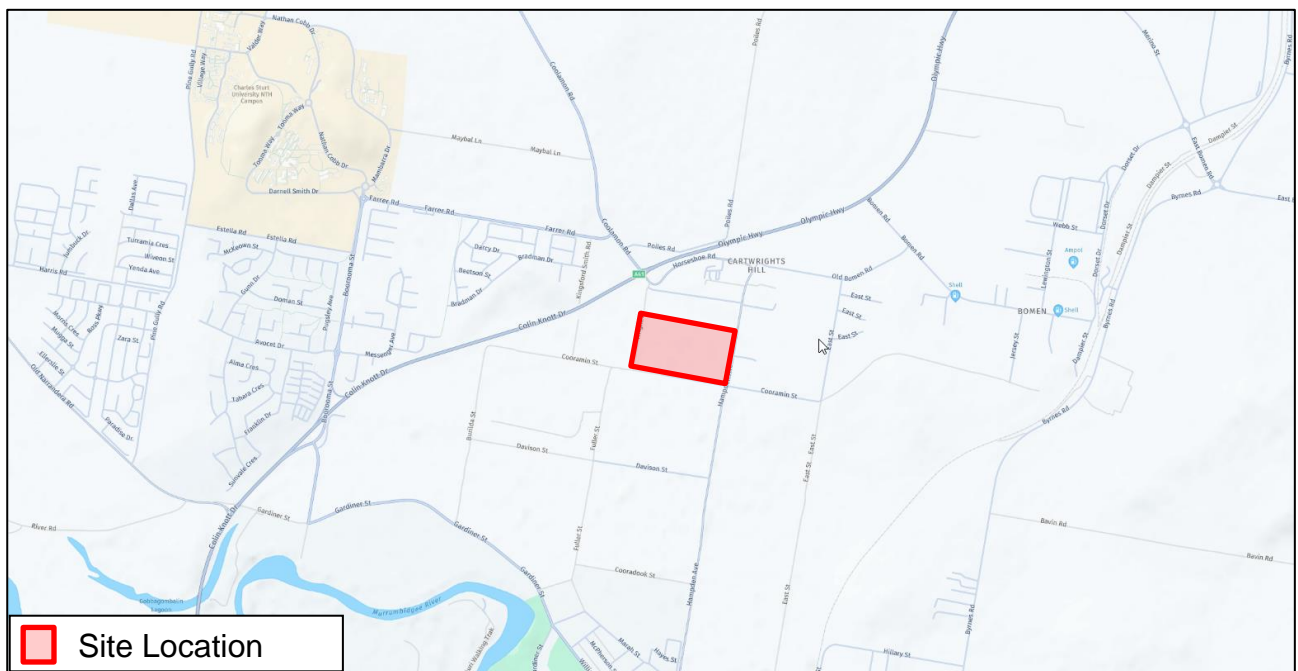


FIGURE 2: SITE CONTEXT – STREET MAP

2 EXISTING TRAFFIC AND PARKING CONDITIONS

2.1 *Road Hierarchy*

The road network servicing the site has characteristics as described in the following sub-sections.

2.1.1 Cooramin Street

- Unclassified LOCAL Road;
- Approximately 7m wide carriageway facilitating two-way traffic flow;
- Signposted 50km/h speed limit;
- Parking on grassed verge unlikely to occur;

2.1.2 Hampden Avenue

- Unclassified Rural COLLECTOR Road;
- Approximately 7m wide carriageway facilitating one (1) traffic flow lane in each direction;
- Signposted 80km/h speed limit south of Cooramin Street;
- Signposted 60km/h speed limit north of Cooramin Street;
- Parking on grassed verge unlikely to occur;

2.2 *Existing Traffic Management*

- “Give Way” line marked controlled intersection of Cooramin Street / Hampden Avenue;
 - Channelised right turn from Hampden Avenue into Cooramin Street (west);

2.3 *Existing Parking Environment*

Parking surveys were undertaken on Friday, 2 August 2024, at 15-minute intervals within the existing car park of the Harness Racing Club and stable car parking area between the hours of 10:30 AM – 6:30 PM, representing a typical Friday race day. The survey results are summarised in **Table 1**, with full results are reproduced within **Annexure B** for reference.

TABLE 1: EXISTING RACEDAY PARKING SUPPLY & SPARE CAPACITY

Parking Zone	Total Capacity (Supply)	Minimum Spare Capacity (Vacant Spaces) ⁽¹⁾			
		Friday 2 August 2024			
		10:30am – 12:30pm	12:45pm – 2:30pm	2:45pm – 4:30pm	4:45pm – 6:30pm
Main Car Park	174 ⁽²⁾	151 (87%)	143 (83%)	147 (84%)	148 (85%)
Stabling Area	62	23 (37%)	11 (13%)	7 (11%)	20 (32%)
Overflow Parking ⁽³⁾	72	72 (100%)	72 (100%)	72 (100%)	72 (100%)
Total	308	246⁽⁴⁾ (80%)	226⁽⁵⁾ (73%)	226⁽⁶⁾ (73%)	240⁽⁷⁾ (78%)

Notes:

- (1) The spare capacity for each survey zone is the number of spare parking spaces available within that area at the time of the overall peak parking demand (Total row).
- (2) A total of 174 car parking spaces can be counted based on on-site observations and aerial imagery.
- (3) The overflow parking provides informal parking areas, estimated to accommodate approximately 72 vehicles. Due to its informal nature, this parking area has been considered separately.
- (4) The total spare capacity represented here is the total capacity minus the maximum parking demand occurring during any given 15-minute period across the entire survey area. In the instance of the first period (10:30 AM – 12:30 PM), the maximum parking demand across the entire survey occurred at 12:30 PM where there were 62 parked vehicles across the entire survey zone. This results in a minimum spare capacity within the 15-min period (12:30 PM) of 246 (308-62=246).
- (5) The minimum spare parking capacity during the second period (12:45pm – 2:30pm) occurred during the 2:00 PM period, with 226 car parking spaces available.
- (6) The minimum spare parking capacity during the third period (2:45pm – 4:30pm) occurred during the 2:45 PM period, with 226 car parking spaces available.
- (7) The minimum spare parking capacity during the final period (4:45pm – 6:30pm) occurred during the 4:45 PM period, with 240 car parking spaces available.

As shown above, of the 308 parking spaces (including stable area spaces and overflow spaces), a minimum of **226** spaces are available during the race day period. Considering only the 174 formal visitor parking spaces within the main car park area, an absolute minimum of **143** car parking spaces were available during the race day period.

Parking demand within all parking zones peaks during the racing period (12:30-5:30 PM). It can be reasonably assumed that a similar pattern will occur during the occasional evening race periods (5:00-10:30 PM), whereby patrons will arrive and depart close to the start and finish times of the races.

2.4 Existing Traffic Environment

Turning movement count traffic surveys were conducted at the intersections of Cooramin Street / Hampden Avenue from 7:00_{AM} to 9:30_{AM} and 3:00_{PM} to 6:30_{PM} on Friday 2nd August 2024 representing a typical operating race day. The full survey results are shown in **Annexure B** for reference.

2.4.1 Existing Road Performance

The performance of the surrounding intersections under the existing traffic conditions has been assessed using SIDRA INTERSECTION 9.1, **Table 2** summarises the resultant intersection performance data, with full SIDRA results reproduced in **Annexure C**.

TABLE 2: EXISTING INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/vehicle)	Level of Service ⁽³⁾⁽⁴⁾	Control Type	Worst Movement
EXISTING PERFORMANCE						
Hampden Avenue / Cooramin Street	AM	0.12	1.2 (Worst: 8.6)	NA (Worst: A)	Give Way	RT from Cooramin Street (East)
	PM	0.16	1.7 (Worst: 11.9)	NA (Worst: A)		RT from Cooramin Street (West)

Notes:

- (1) The Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
- (2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.
- (3) The Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.
- (4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

As shown, the intersection is currently performing at a high level of efficiency, with an overall or worst movement Level of Service “A” condition in both the AM & PM peak hour periods. The Level of Service “A” performance is characterised by low approach delays and spare capacity.

2.5 Public Transport

The subject site has limited access to public transport. The closest bus stop (ID: 2650550) is located approximately 1.2km (18 minutes’ walk) north of the site on Horseshoe Road. The bus stop services existing bus routes 930 (Wagga Wagga via Coolamon) and 931 (Coolamon to Wagga Wagga), provided by Allen’s Coaches.

2.6 Future Road and Infrastructure Upgrades

From Wagga Wagga Council Development Application tracker and TfNSW Projects website, it appears that there are no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject site.

3 PARKING ASSESSMENT

3.1 **Council Parking Requirement**

Reference is made to the *Wagga Wagga City Council Development Control Plan 2010 (WWDCP 2010) Part 2 - Controls that apply to all development* which designates the following parking rates applicable to the proposed development:

2.2 Off-Street Parking

Restaurants, cafes, pubs, clubs and function rooms

1 space per 3 seats

Table 3 presents the parking requirements of the proposal according to WWDCP 2010 above car parking rates.

TABLE 3: WWDCP 2010 PARKING RATES

Land Use	Scale	Rate	Spaces Required	Spaces Provided
Function Centre	285 seats	1 per 3 seats	95	174 ⁽¹⁾

Note: (1) 174 formal parking spaces within the main car park area.

As shown, the strict application of the WWDCP 2010 requires the provision of **95** car parking spaces. The site currently consists of **174** formal visitor car parking spaces, exceeding WWDCP 2010 parking requirements by **79** spaces.

An additional consideration is needed when function events will occur at the same time as the horse-racing events. Typically, races occur on Friday afternoons from 12:30-5:30pm, or Friday nights from 5:00-10:30pm. Parking surveys were conducted on Friday 2 August 2024 to ensure the availability of car spaces during concurrent events.

As identified in **Table 1**, the lowest minimum spare capacity (vacant spaces) in the main formal car park was **143** spaces. If a function (with 285 patrons) was to occur simultaneously with a racing meet, there would still be **48** available (vacant) formal car parking spaces. As such, the current parking provided on-site is more than sufficient to provide parking for the events in the proposed function centre in addition to racing events if held simultaneously.

It is noted that on a first principles basis, the standard parking demand for function centres is 1 parking space per 3 guests/patrons. As such, the Council's DCP parking rate is in line with the anticipated parking demand of a function centre.

3.2 Parking for People with Disabilities

There are no proposed changes to the existing car park arrangement, which provides five (5) accessible car parking spaces for people with disabilities. Reference is made to *Section D4D6* of the *Building Code of Australia* (BCA), as part of the *National Construction Code 2022* (NCC) which categorises a function centre as a Class 9b building and therefore requires the provision of car parking for people with disabilities at a rate of:

Class 9b 1 accessible space for every 50 carparking spaces or part thereof.

Given the existing provision of 174 formal car parking spaces within the main car park, the existing provision of five (5) accessible car parking spaces, meets the BCA requirements and therefore no further accessible car parking is necessary in order to facilitate a function centre use on the site.

3.3 Bicycle & Motorcycle Parking Requirements

WWDGP 2010 does not require the provision of bicycle / motorcycle parking for a function centre. Accordingly, no bicycle / motorcycle parking facilities have been provided, thus satisfying Council requirements.

3.4 Servicing & Loading

It is expected that the site's loading and unloading operations will remain unchanged from existing operations with the addition of a function centre land use. The function centre land use will result in loading and servicing demands similar to that of the existing food and beverage services that currently occur at the Wagga Hardness Clubhouse.

3.5 Car Park Design & Compliance

There are no proposed design changes to the car parking currently in use on the site. As such, the car parking layout has not been assessed by *McLaren Traffic Engineering* with respect to the relevant clauses and objectives of AS2890.1:2004, AS2890.2:2018 and AS2890.6:2009 as part of this Traffic and Parking Impact Assessment.

4 TRAFFIC ASSESSMENT

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections.

4.1 **Traffic Generation**

4.1.1 Vehicle Trip Generation

The *RTA Guide to Traffic Generating Developments (2002)* and recent supplements as adopted by *Transport for NSW (TfNSW)*, do not provide any traffic generation rates for function centre land uses. As such, a first principles analysis has been undertaken, assuming a conservative approach that all guests arrive within 1-hour of the function starting and depart within 1-hour of the function finishing. This results in a traffic generation rate of 1 trip per car space required (or 1 trip per 3 guests).

The resulting Pre-Event and Post-Event peak hourly traffic generation is summarised in **Table 4**.

TABLE 4: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak	Generation Rate	Trips ⁽¹⁾
Function Centre	95 spaces	Pre-Event	1 trip per space	95 (95 in, 0 out)
		Post-Event	1 trip per space	95 (0 in, 95 out)

Notes:

(1) 100% inbound and 0% outbound assumed for the AM periods, vice versa for the PM peak period

As shown, the expected traffic generation associated with a future function centre land use (with a maximum 285-seat capacity) is in the order of **95** vehicle trips in the pre-event one-hour period (95 in, 0 out) and **95** vehicle trips in the post-event one-hour peak period (0 in, 95 out). This is considered a conservative approach.

4.1.2 Requirement for Impact Assessment

Reference is made to *Austroads Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments Figure 5.1*, which states the following regarding peak hour vehicle trips:

Likely impact of development:

Low Impact (<10 Trips): No Detailed Assessment Required

Moderate Impact (10-100 Trips): Traffic Impact Statement Required

High Impact (>100 Trips): Traffic Impact Assessment Required

Accordingly, the proposal is a moderate impact development and requires a Traffic Impact Statement.

4.2 Traffic Assignment

The road network, traffic surveys and locations of residential areas surrounding the site have been assessed, and the following traffic assignment has been assumed for all traffic to and from the site:

- 25% to/from the north via Hampden Avenue;
- 75% to/from the south via Hampden Avenue.

4.3 Traffic Impact

As the arrival and departure times are variable for events, three worst-case scenarios have been considered and aligned with the relevant peak-hour:

- AM Peak – Pre-Event Arrivals (95 in, 0 out);
- AM Peak – It is not anticipated that a function will conclude during the AM Peak hour.
- PM Peak – Pre-Event Arrivals (95 in, 0 out);
- PM Peak – Post-Event Departures (0 in, 95 out).

The traffic generation outlined in **Section 4.1 & 4.2** above has been added to the existing traffic volumes recorded. SIDRA INTERSECTION 9.1 was used to assess the intersection's performance. This assessment aims to compare the existing intersection operations to the future scenario under the increased traffic load. The results of this assessment are shown in **Table 5**.

TABLE 5: INTERSECTION PERFORMANCE (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/vehicle)	Level of Service ⁽³⁾⁽⁴⁾	Control Type	Worst Movement
EXISTING PERFORMANCE						
Hampden Avenue / Cooramin Street	AM	0.12	1.2 (Worst: 8.6)	0.12 (Worst: A)	Give Way	RT from Cooramin Street (east)
	PM	0.16	1.7 (Worst: 11.9)	0.16 (Worst: A)		RT from Cooramin Street (west)
FUTURE (POST-DEVELOPMENT) PERFORMANCE						
Hampden Avenue / Cooramin Street	AM (Pre-Event)	0.12	2.4 (Worst: 9.2)	NA (Worst: A)	Give Way	RT from Cooramin Street (west)
	PM (Pre-Event)	0.16	2.5 (Worst: 12.8)	NA (Worst: A)		RT from Cooramin Street (west)
	PM (Post-Event)	0.19	3.1 (Worst: 12.7)	NA (Worst: A)		RT from Cooramin Street (west)

Notes: Refer to notes under **Table 2**.

As shown, the intersection of Hampden Avenue /Cooramin retains the same overall level of service “A” under future conditions with minimal delays and additional capacity, indicating that there will be no adverse impact on the existing road network as a result of the proposed addition of a function centre land uses at the site. It is relevant to note that events finishing after 10:00 pm will have no adverse impacts on the intersection’s performance as the traffic generated will be outside of the existing PM peak period.

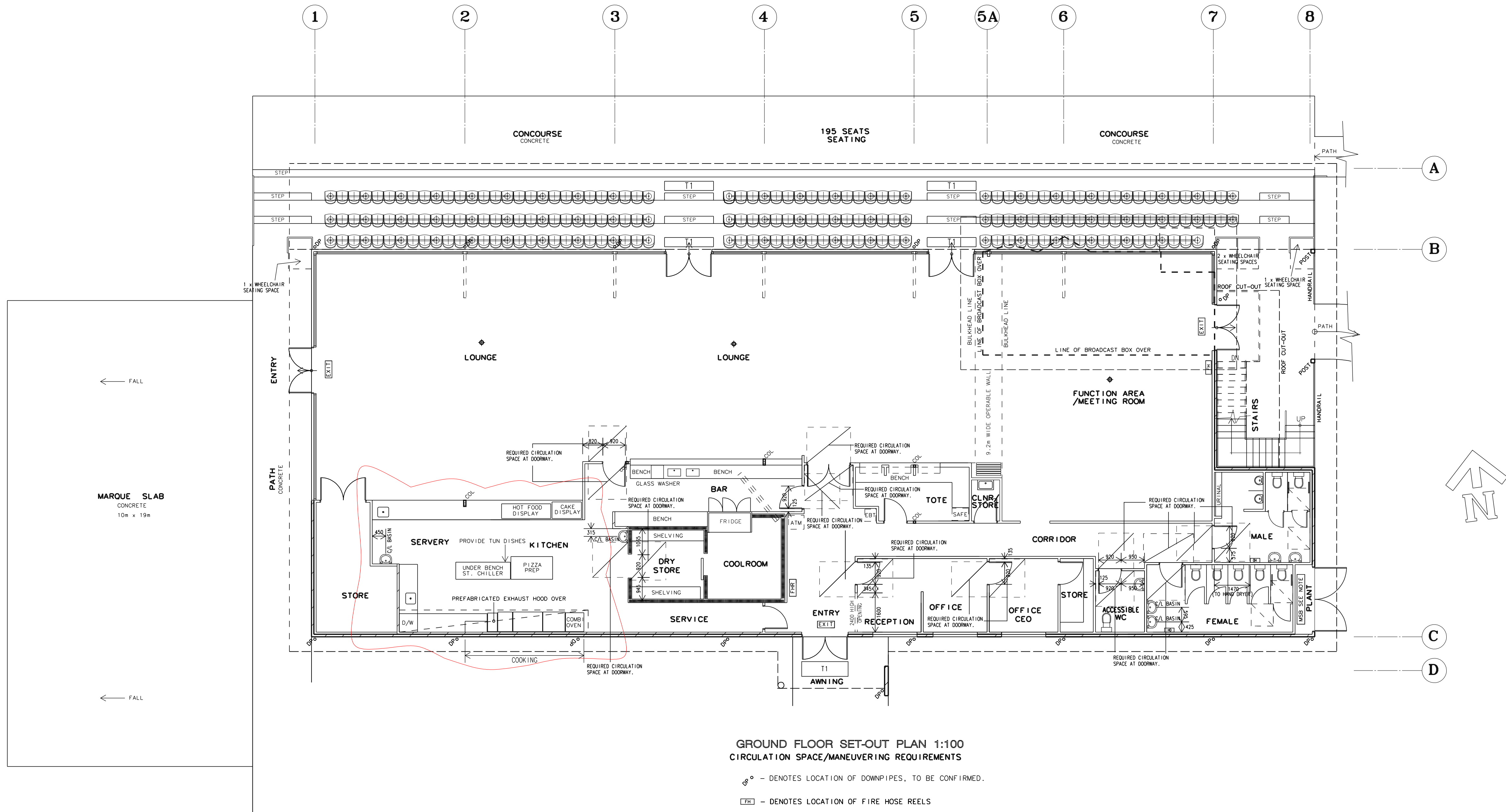
5 CONCLUSION

In view of the foregoing, the subject proposal to enable a Function Centre land use at the existing Wagga Harness Racing clubhouse at 92 Cooramin Street, Cartwrights Hill (as depicted in **Annexure A**) is fully supportable in terms of its traffic and parking impacts. The following outcomes of this traffic and parking impact assessment are relevant to note:

- a) The existing site includes car parking areas accommodating **308** car parking spaces, with a total of **174** formalised visitor parking spaces and an additional capacity for **72** overflow car parking spaces.
- b) On-site parking surveys during a typical Friday race meet (12:30pm – 5:00pm), indicates that there is an absolute minimum of **226** available (vacant) car parking spaces. With consideration to only the 174 formal visitor parking spaces, there is a minimum of **143** available (vacant) car parking spaces.
- c) Council's DCP (WWDCP 2010) requires a total of **95** car parking spaces for an assumed 285 patron capacity function centre.
- d) Given the **143 – 174** available on-site formal visitor car parking spaces, the parking demand for any future function centre use can be entirely accommodated within the existing on-site formal visitor parking area, with between **48 – 79** vacant spaces remaining.
- e) The proposed plans have not been assessed by MTE against the relevant sections of AS2890.1:2004, AS2890.2:2018 and AS2890.6:2022 as a part of this traffic and parking impact assessment.
- f) The traffic generation of the proposed development has been estimated to be some **95** trips in the pre-event peak period and **95** trips in the post-event peak period. The impacts of the traffic generation have been modelled using SIDRA INTERSECTION 9.1, indicating that there will be no adverse impact to the performance of the intersections as a result of the generated traffic.

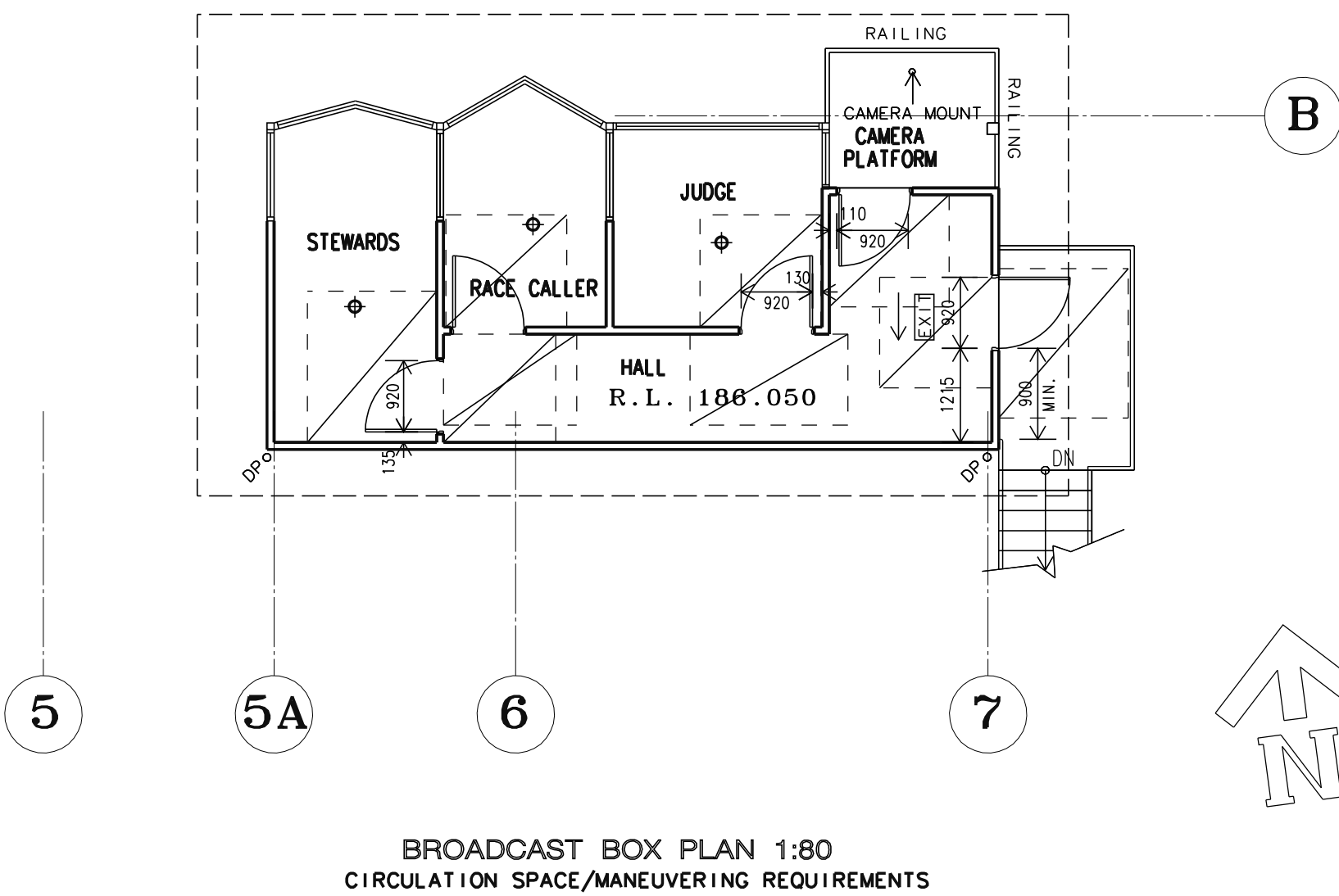


**ANNEXURE A: PROPOSED PLANS
(2 SHEETS)**



GROUND FLOOR SET-OUT PLAN 1:100
CIRCULATION SPACE/MANEUVERING REQUIREMENTS

° - DENOTES LOCATION OF DOWNPIPES, TO BE CONFIRMED.
T1 - DENOTES LOCATION OF FIRE HOSE REELS

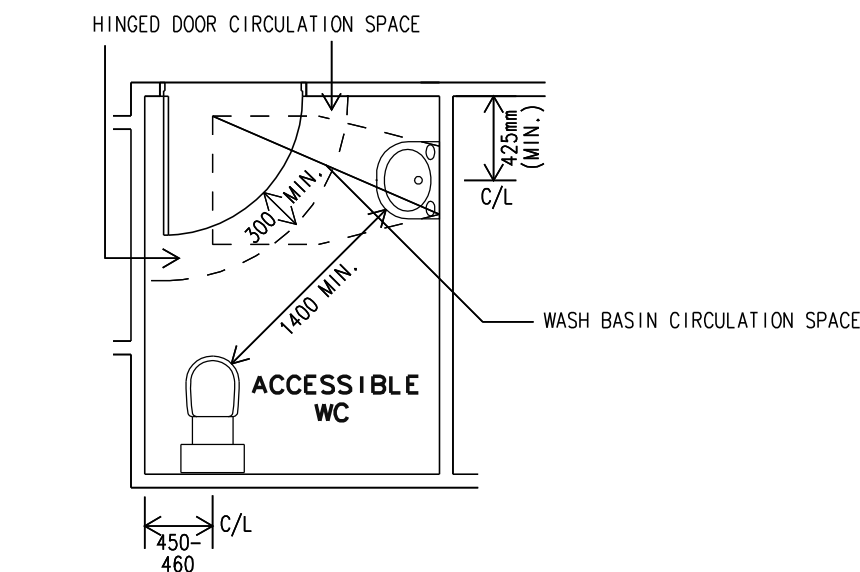


BROADCAST BOX PLAN 1:80
CIRCULATION SPACE/MANEUVERING REQUIREMENTS

INSULATION

PROVIDE R2.5 INSULATION FOR ALL EXTERNAL WALLS FACING NORTH, EAST AND WEST.
PROVIDE R2.3 INSULATION FOR ALL EXTERNAL WALLS FACING SOUTH.
PROVIDE R2.5 INSULATION FOR INTERNAL ENVELOPE WALLS.
PROVIDE R2.3 INSULATION TO THE ROOF.
PROVIDE R1.3 INSULATION FOR INTERNAL CEILING.

T1 - DENOTES THE LOCATION TACTILE INDICATORS IN ACCORDANCE WITH PART D3.8 OF THE BCA.



ACCESSIBLE WC DETAIL 1:50
CIRCULATION SPACE REQUIREMENTS

GENERAL NOTES:

- All dimension shown in millimeters unless noted otherwise.
- DO NOT SCALE from drawing. If in doubt ask.
- All dimension and levels are to be confirmed on site prior to construction.
- Concrete slab & footings to be designed in accordance with AUSTRALIAN STANDARD 2870 - 2011.
- All structural elements to be designed by a practicing structural engineer.
- All timber used in the building shall be strictly in accordance with the provisions of AUSTRALIAN STANDARD 1684 - 2010, NATIONAL TIMBER FRAMING CODE, unless a certificate from a practicing structural engineer is submitted to council certifying that the building has been designed to withstand the most adverse combination of loads to which it will be subjected.
- Construction of any stairways and balustrades shall comply with the requirements of the BUILDING CODE OF AUSTRALIA.
- All plumbing and drainage work is to comply with the requirements of AUSTRALIAN STANDARD 3500-NATIONAL PLUMBING AND DRAINAGE CODE and the NEW SOUTH WALES CODE OF PRACTICE PLUMBING AND DRAINAGE.
- Protection of the building from attack by termites is to be carried out in accordance with the provisions of THE BUILDING CODE OF AUSTRALIA and or AUSTRALIAN STANDARD 3660.1-2000 PROTECTION OF BUILDINGS FROM SUBTERRANEAN TERMITES.



G	KITCHEN AMENDED (CLOUDED)	18/09/2018
F	DOORS AMENDED	25/07/2018
E	WASH BASIN ADDED TO KITCHEN	23/07/2018
D	GENERALLY AMENDED	25/05/2017
C	ISSUED FOR CONSTRUCTION	20/03/2017
no.	description	date
	amendments	

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project:

PROPOSED WAGGA HARNES
RACING CLUB FACILITY,
AT LOTS 1-6 & 19-24 (DP 2655)
COORAMIN STREET & HAMPDEN AV.
CARTWRIGHTS HILL. N.S.W.

client:

HARNES RACING N.S.W.

title:

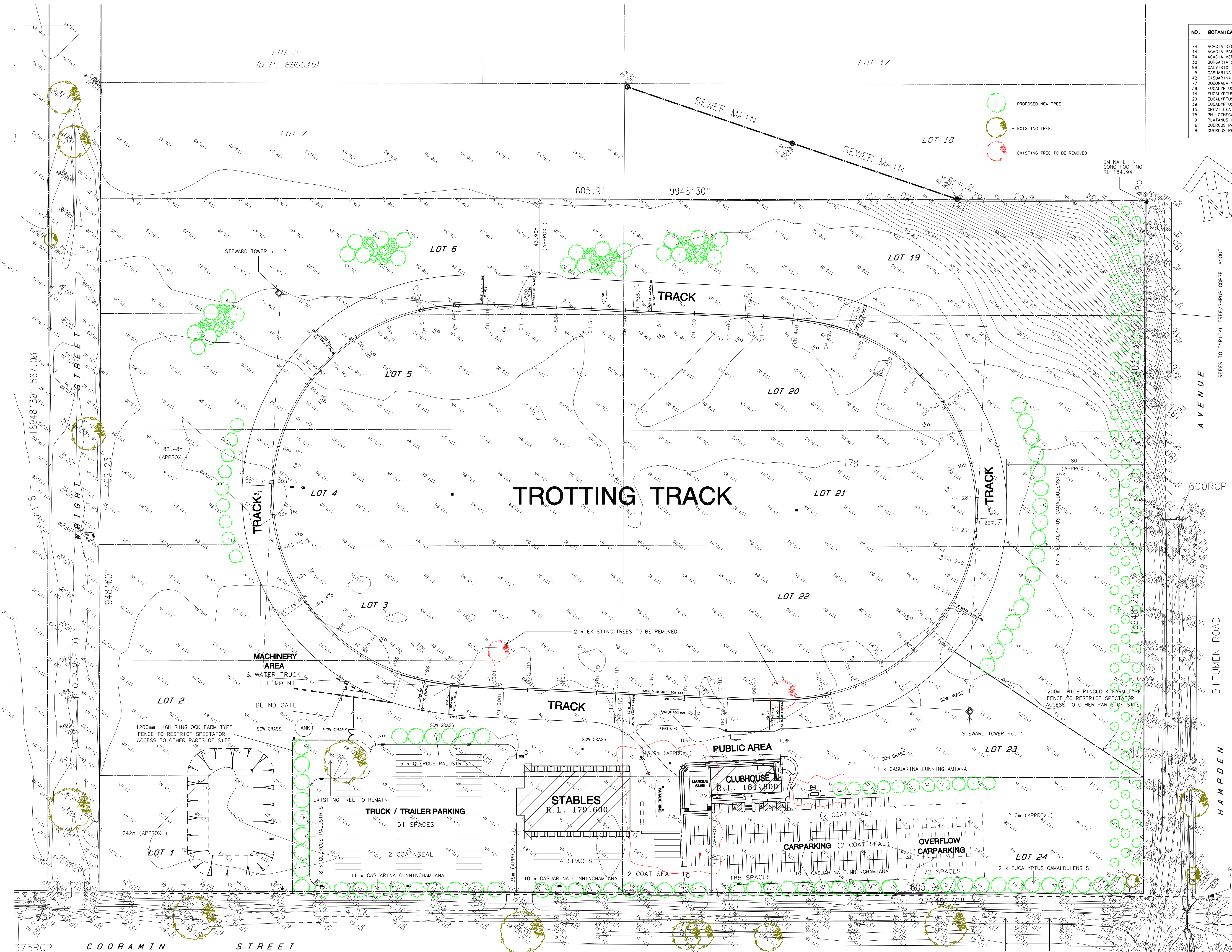
CIRCULATION/
MANEUVERING
PLAN.

scale:
AS NOTED
drawn: date:
C.McK/L.B. MARCH 2016
162 XITE STREET,
PO BOX 1929 P 02 6363 1780
ORANGE NSW 2800 F 02 6362 8257

job no:
13073

drg no: issue
C9 G





NO.	BOTANICAL NAME	COMMON NAME	CONTAINER SIZE
74	ACACIA DECORA	WESTERN GOLDEN WATTLE	TUBE
44	ACACIA PARADOXA	KANGAROO THORN	TUBE
74	ACACIA VERNICIFLUA	VARNISH WATTLE	TUBE
38	BURSARIA SPINOSA	BLACKTHORN	TUBE
98	CALYTRIX TETRAGONA	FRINGE MYRTLE	TUBE
5	CASUARINA CUNNINGHAMIANA	RIVER SHE OAK	TUBE
42	CASUARINA CUNNINGHAMIANA	RIVER SHE OAK	300
77	DODONAEA VISCOSA SSP. CUNEATA	HOP BUSH	TUBE
39	EUCALYPTUS BLAKELYI	BLAKELY'S RED GUM	TUBE
44	EUCALYPTUS CAMALDULENSIS	RED RIVER GUM	TUBE
29	EUCALYPTUS CAMALDULENSIS	RED RIVER GUM	300
39	EUCALYPTUS MELLIODORA	YELLOW BOX	TUBE
15	GREVILLEA ROSMARINIFOLIA	ROSEMARY GREVILLEA	TUBE
75	PHILOTHECA MYOPOROIDES	EPHEDROM	TUBE
9	PLATANUS ORIENTALIS 'DIGITATA'	CUT-LEAF PLAIN TREE	300
6	QUERCUS PALUSTRIS	PIN OAK	300
8	QUERCUS PHELLLOS	WILLOW OAK	300

SITE CALCULATIONS:

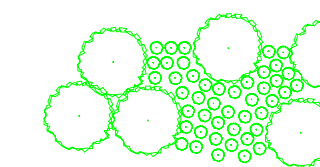
PROPOSED WAGGA HARNESS RACING PROPOSAL,
AT LOT'S 1-6 & LOT'S 19-24 (D.P. 2655)
COORAMIN STREET & HAMPDEN AVENUE,
CARTWRIGHTS HILL. N.S.W.

SITE AREA
LOT'S 1-6 & LOT'S 19-24 = 24.1612 ha

PROPOSED STABLES AREA = 2256.5m²
PROPOSED CLUB BUILDING AREA = 850.2m²
TOTAL BUILDING AREA = 3107.1m²

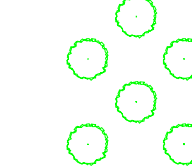
NOTES:

- 1-FLOOR LEVELS, STORMWATER & SEWAGE DESIGN BY CIVIL ENGINEER.
- 2-FLOOR LEVELS ARE A GUIDE ONLY & TO BE CONFIRMED BY CIVIL ENGINEER.
- 3-BOUNDARIES ARE TO BE CONFIRMED BY SURVEY.



TYPICAL TREE/SHRUB COPSE LAYOUT NOT TO SCALE

PLANTING OF COPSES OF TREE/SHRUB SPECIES (SETOUT AT 3.5 x 4m CENTRES). PLANT IN GROUPS OF 3 TO 5 OF EACH SPECIES, ARRANGED RANDOMLY. SPECIES:
6 x ACACIA DECORA (S)
6 x ACACIA VERNICIFLUA (S)
1 x CASUARINA CUNNINGHAMIANA
12 x CALYTRIX TETRAGONA (S)
12 x DODONAEA VISCOSA SSP. CUNEATA (S)
5 x EUCALYPTUS CAMALDULENSIS
2 x EUCALYPTUS MELLIODORA
12 x PHILOTHECA MYOPOROIDES (S)



TYPICAL HAMPDEN AVENUE BOUNDARY PLANTING LAYOUT NOT TO SCALE

SCREEN PLANTING OF TREE/SHRUB SPECIES (SETOUT AT 3.5 x 4m CENTRES). PLANT IN GROUPS OF 3 TO 5 OF EACH SPECIES, ARRANGED RANDOMLY. SPECIES:
44 x ACACIA DECORA
44 x ACACIA PARADOXA
44 x ACACIA VERNICIFLUA
38 x BURSARIA SPINOSA
38 x CALYTRIX TETRAGONA
17 x DODONAEA VISCOSA SSP. CUNEATA
29 x EUCALYPTUS BLAKELYI
29 x EUCALYPTUS CAMALDULENSIS
29 x EUCALYPTUS MELLIODORA
15 x GREVILLEA ROSMARINIFOLIA
15 x PHILOTHECA MYOPOROIDES



J	GENERALLY AMENDED (CLOUDED)	02/10/2018
H	MISSING LIGHT POST ADDED	18/07/2018
G	RETAINING WALL/FENCE AMENDED	18/06/2018
F	CLUBHOUSE PLANTS REMOVED	10/11/2017
D	GENERALLY AMENDED	25/05/2017
no.	description	date
	amendments	

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project:
PROPOSED WAGGA HARNESS RACING CLUB FACILITY,
AT LOTS 1-6 & 19-24 (DP 2655)
COORAMIN STREET & HAMPDEN AV.
CARTWRIGHTS HILL. N.S.W.

client:
HARNESS RACING N.S.W.

BM PM 48140 title:
RL 177.62

PROPOSED PART SITE PLAN.

scale:
AS NOTED
drawn: date:
C.McK/L.B. MARCH 2016
162 XITE STREET,
PO BOX 1929 P 02 6363 1780
ORANGE NSW 2800 F 02 6362 8257

job no: 13073
g4
job no: 13073
g4



mckinnon design

job no: 13073
g4

PROPOSED PART SITE PLAN 1:1000

30 - DENOTES APPROX. LOCATION OF LIGHT POSTS. REFER TO ENGINEERS DETAILS

NOTE: LEVELS SHOWN ARE A GUIDE ONLY
FLOOR LEVELS, FINISHED SURFACE LEVELS & RETAINING
WALLS TO BE CONFIRMED WITH CIVIL ENGINEERS DESIGN

NOTE: EXISTING SITE PLAN FROM DETAIL SURVEY PROVIDED
BY CRAIG JAKES & ASSOC. LAND SURVEYING CONSULTANTS



**ANNEXURE B: TRAFFIC SURVEY DATA
(3 SHEETS)**

Curtis Traffic Surveys

Job: 240801mcl(240488)
 Client: McLaren Traffic Engineering
 Day, date 2/08/24
 Location: Riverina Paceway
 Weather: Fine
 Surveyor MC

Area "C", overflow not used

Parking round commencing...

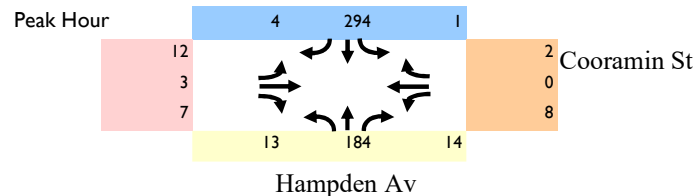
Zone	Street	To	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30
a	Main Public car park		5	6	7	8	8	8	8	14	23	25	27	28	30	30	31	28	29	27	24	26	29	27	28	28	25	26	25	20	14	10	3	0	0
b	Stabling area cars etc		4	5	6	6	7	8	8	14	14	14	14	18	18	14	18	18	19	20	21	20	19	18	17	15	10	14	13	12	12	13	7	1	1
b	Stabling area with horse		3	3	5	6	8	12	18	23	25	26	28	33	33	35	33	31	34	35	36	34	31	31	31	20	29	28	23	21	19	15	11	0	0

Patron count

D	Bar/restaurant	0	0	0	0	0	0	1	4	6	8	9	10	11	12	13	15	14	16	15	10	11	8	12	9	8	5	1	2	x	x	x	x	x
E	Champions Room	0	0	0	0	1	1	1	1	2	2	2	2	1	1	1	1	1	1	2	2	1	0	0	0	0	0	0	0	x	x	x	x	x
F	outside table area	0	0	0	0	0	0	0	0	2	0	0	3	0	0	2	4	3	0	0	2	2	0	0	3	2	0	0	0	0	0	0	0	0
G	outside seating	0	0	0	0	0	0	0	2	4	4	3	10	8	15	5	1	3	4	5	10	16	11	5	14	5	0	0	0	0	0	0	0	0
H	outside grass area	0	0	0	0	0	0	0	2	2	1	3	3	2	6	4	0	2	2	0	2	0	1	0	4	1	0	0	0	0	0	0	0	0
I	stabling area grass	0	0	0	0	0	0	0	0	3	2	0	0	3	4	0	3	1	0	1	4	0	0	2	6	2	0	3	1	0	0	0	0	0

Curtis Traffic Surveys

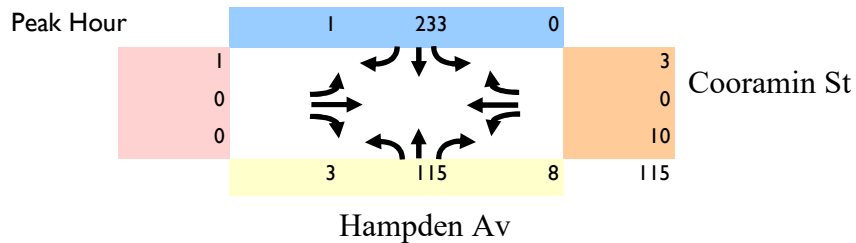
Job: 240801mcl(240488)
 Day, date: 2/08/24
 Location: Hampden Av & Cooramin St
 Weather: Fine
 Client: McLaren Traffic Engineering
 All motor vehicles



Time Period	From Hampden Av north			From Cooramin St west			From Hampden Av south			From Cooramin St east			Total vehicle movements
	left	through	right	left	through	right	left	through	right	left	through	right	
15:00 to 15:15	0	66	2	4	0	2	2	31	1	1	0	0	109
15:15 to 15:30	0	87	1	2	0	0	3	54	2	2	0	1	152 Peak
15:30 to 15:45	0	87	1	2	0	0	3	54	2	2	0	1	152 Peak
15:45 to 16:00	1	54	0	4	3	5	5	45	9	3	0	0	129
16:00 to 16:15	0	44	3	2	0	3	3	36	0	2	2	0	95
16:15 to 16:30	0	43	0	3	0	3	2	60	5	0	0	0	116
16:30 to 16:45	0	43	0	3	0	3	2	60	5	0	0	0	116
16:45 to 17:00	1	26	1	1	0	4	1	40	0	0	1	0	75
17:00 to 17:15	0	30	0	2	0	7	1	48	2	2	0	1	93
17:15 to 17:30	0	30	0	2	0	7	1	48	2	2	0	1	93
17:30 to 17:45	0	12	1	5	0	8	0	28	3	2	0	0	59
17:45 to 18:00	1	14	0	11	0	11	1	22	1	0	0	0	61
18:00 to 18:15	1	14	0	11	0	11	1	22	1	0	0	0	61
18:15 to 18:30	1	14	0	11	0	11	1	22	1	0	0	0	61
Totals	5	564	9	63	3	75	26	570	34	16	3	4	
15:00 to 16:00	1	294	4	12	3	7	13	184	14	8	0	2	542 Peak Hour
15:15 to 16:15	1	272	5	10	3	8	14	189	13	9	2	2	528
15:30 to 16:30	1	228	4	11	3	11	13	195	16	7	2	1	492
15:45 to 16:45	1	184	3	12	3	14	12	201	19	5	2	0	456
16:00 to 17:00	1	156	4	9	0	13	8	196	10	2	3	0	402
16:15 to 17:15	1	142	1	9	0	17	6	208	12	2	1	1	400
16:30 to 17:30	1	129	1	8	0	21	5	196	9	4	1	2	377
16:45 to 17:45	1	98	2	10	0	26	3	164	7	6	1	2	320
17:00 to 18:00	1	86	1	20	0	33	3	146	8	6	0	2	306
17:15 to 18:15	2	70	1	29	0	37	3	120	7	4	0	1	274
17:30 to 18:30	3	54	1	38	0	41	3	94	6	2	0	0	242

Curtis Traffic Surveys

Job: 240801mcl(240488)
Day, date: 2/08/24
Location: Hampden Av & Cooramin St
Weather: Fine
Client: McLaren Traffic Engineering
 All motor vehicles



Time Period	From Hampden Av north			From Cooramin St west			From Hampden Av south			From Cooramin St east			Total vehicle movements
	left	through	right	left	through	right	left	through	right	left	through	right	
07:00 to 07:15	2	33	0	1	0	0	0	27	1	2	0	0	66
07:15 to 07:30	0	23	0	0	0	0	0	22	1	0	0	0	46
07:30 to 07:45	1	47	0	0	0	0	0	22	0	3	0	1	74
07:45 to 08:00	0	45	0	0	0	0	0	41	0	1	0	0	87
08:00 to 08:15	0	49	0	0	0	0	0	24	4	6	0	1	84
08:15 to 08:30	0	62	0	1	0	0	1	24	2	2	0	0	92
08:30 to 08:45	0	69	0	0	0	0	0	30	1	1	0	0	101 Peak
08:45 to 09:00	0	53	1	0	0	0	2	37	1	1	0	2	97
09:00 to 09:15	1	41	0	0	0	1	0	30	0	1	0	0	74
09:15 to 09:30	0	29	0	0	0	0	0	19	1	0	0	1	50
Totals	4	451	1	2	0	1	3	276	11	17	0	5	
07:00 to 08:00	3	148	0	1	0	0	0	112	2	6	0	1	273
07:15 to 08:15	1	164	0	0	0	0	0	109	5	10	0	2	291
07:30 to 08:30	1	203	0	1	0	0	1	111	6	12	0	2	337
07:45 to 08:45	0	225	0	1	0	0	1	119	7	10	0	1	364
08:00 to 09:00	0	233	1	1	0	0	3	115	8	10	0	3	374 Peak Hour
08:15 to 09:15	1	225	1	1	0	1	3	121	4	5	0	2	364
08:30 to 09:30	1	192	1	0	0	1	2	116	3	3	0	3	322



**ANNEXURE C: SIDRA RESULTS
(5 SHEETS)**

MOVEMENT SUMMARY

▼ Site: 101 [Existing AM - Cooramin Street / Hampden Avenue
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Cooramin Street / Hampden Avenue
Cartwrights Hill, NSW
Existing AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Hampden Avenue (south)															
1	L2	All MCs	3	5.0	3	5.0	0.068	7.7	LOS A	0.1	0.5	0.06	0.35	0.06	62.1
2	T1	All MCs	115	5.0	115	5.0	0.068	2.1	LOS A	0.1	0.5	0.06	0.35	0.06	65.4
3	R2	All MCs	8	5.0	8	5.0	0.068	7.5	LOS A	0.1	0.5	0.06	0.35	0.06	61.7
Approach			126	5.0	126	5.0	0.068	2.6	NA	0.1	0.5	0.06	0.35	0.06	65.0
East: Cooramin Street (east)															
4	L2	All MCs	10	5.0	10	5.0	0.014	6.4	LOS A	0.1	0.4	0.37	0.57	0.37	55.6
5	T1	All MCs	1	5.0	1	5.0	0.014	7.0	LOS A	0.1	0.4	0.37	0.57	0.37	52.1
6	R2	All MCs	3	5.0	3	5.0	0.014	8.6	LOS A	0.1	0.4	0.37	0.57	0.37	51.5
Approach			14	5.0	14	5.0	0.014	6.9	LOS A	0.1	0.4	0.37	0.57	0.37	54.4
North: Hampden Avenue (north)															
7	L2	All MCs	1	5.0	1	5.0	0.124	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
8	T1	All MCs	233	5.0	233	5.0	0.124	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	1	5.0	1	5.0	0.001	5.8	LOS A	0.0	0.0	0.22	0.53	0.22	51.8
Approach			235	5.0	235	5.0	0.124	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Cooramin Street (west)															
10	L2	All MCs	1	5.0	1	5.0	0.004	5.9	LOS A	0.0	0.1	0.37	0.53	0.37	51.5
11	T1	All MCs	1	5.0	1	5.0	0.004	6.9	LOS A	0.0	0.1	0.37	0.53	0.37	52.0
12	R2	All MCs	1	5.0	1	5.0	0.004	8.6	LOS A	0.0	0.1	0.37	0.53	0.37	55.2
Approach			3	5.0	3	5.0	0.004	7.1	LOS A	0.0	0.1	0.37	0.53	0.37	52.9
All Vehicles			378	5.0	378	5.0	0.124	1.2	NA	0.1	0.5	0.04	0.15	0.04	61.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Existing PM - Cooramin Street / Hampden Avenue
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Cooramin Street / Hampden Avenue
Cartwrights Hill, NSW
Existing PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
South: Hampden Avenue (south)															
1	L2	All MCs	13	5.0	13	5.0	0.116	7.7	LOS A	0.1	1.0	0.08	0.38	0.08	61.8
2	T1	All MCs	184	5.0	184	5.0	0.116	2.2	LOS A	0.1	1.0	0.08	0.38	0.08	65.0
3	R2	All MCs	14	5.0	14	5.0	0.116	7.9	LOS A	0.1	1.0	0.08	0.38	0.08	61.4
Approach			211	5.0	211	5.0	0.116	2.9	NA	0.1	1.0	0.08	0.38	0.08	64.6
East: Cooramin Street (east)															
4	L2	All MCs	8	5.0	8	5.0	0.012	6.6	LOS A	0.0	0.3	0.43	0.58	0.43	55.1
5	T1	All MCs	1	5.0	1	5.0	0.012	8.5	LOS A	0.0	0.3	0.43	0.58	0.43	51.7
6	R2	All MCs	2	5.0	2	5.0	0.012	10.6	LOS A	0.0	0.3	0.43	0.58	0.43	51.2
Approach			11	5.0	11	5.0	0.012	7.5	LOS A	0.0	0.3	0.43	0.58	0.43	54.0
North: Hampden Avenue (north)															
7	L2	All MCs	1	5.0	1	5.0	0.156	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
8	T1	All MCs	294	5.0	294	5.0	0.156	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	4	5.0	4	5.0	0.003	6.1	LOS A	0.0	0.1	0.30	0.54	0.30	51.6
Approach			299	5.0	299	5.0	0.156	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
West: Cooramin Street (west)															
10	L2	All MCs	12	5.0	12	5.0	0.028	6.2	LOS A	0.1	0.8	0.42	0.60	0.42	52.5
11	T1	All MCs	3	5.0	3	5.0	0.028	8.5	LOS A	0.1	0.8	0.42	0.60	0.42	52.9
12	R2	All MCs	7	5.0	7	5.0	0.028	11.9	LOS A	0.1	0.8	0.42	0.60	0.42	52.2
Approach			22	5.0	22	5.0	0.028	8.3	LOS A	0.1	0.8	0.42	0.60	0.42	52.4
All Vehicles			543	5.0	543	5.0	0.156	1.7	NA	0.1	1.0	0.06	0.19	0.06	61.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Future AM (Pre-Event) - Cooramin Street / Hampden Avenue - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Cooramin Street / Hampden Avenue
Cartwrights Hill, NSW
Future AM (Pre-Event)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
South: Hampden Avenue (south)															
1	L2	All MCs	74	5.0	74	5.0	0.108	7.1	LOS A	0.1	0.6	0.05	0.46	0.05	60.5
2	T1	All MCs	115	5.0	115	5.0	0.108	2.1	LOS A	0.1	0.6	0.05	0.46	0.05	63.6
3	R2	All MCs	8	5.0	8	5.0	0.108	7.6	LOS A	0.1	0.6	0.05	0.46	0.05	60.1
Approach			197	5.0	197	5.0	0.108	4.2	NA	0.1	0.6	0.05	0.46	0.05	62.3
East: Cooramin Street (east)															
4	L2	All MCs	10	5.0	10	5.0	0.014	6.4	LOS A	0.1	0.4	0.38	0.57	0.38	55.5
5	T1	All MCs	1	5.0	1	5.0	0.014	7.9	LOS A	0.1	0.4	0.38	0.57	0.38	52.0
6	R2	All MCs	3	5.0	3	5.0	0.014	8.9	LOS A	0.1	0.4	0.38	0.57	0.38	51.5
Approach			14	5.0	14	5.0	0.014	7.0	LOS A	0.1	0.4	0.38	0.57	0.38	54.3
North: Hampden Avenue (north)															
7	L2	All MCs	1	5.0	1	5.0	0.124	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
8	T1	All MCs	233	5.0	233	5.0	0.124	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	25	5.0	25	5.0	0.017	6.1	LOS A	0.1	0.5	0.30	0.56	0.30	51.6
Approach			259	5.0	259	5.0	0.124	0.6	NA	0.1	0.5	0.03	0.06	0.03	59.0
West: Cooramin Street (west)															
10	L2	All MCs	1	5.0	1	5.0	0.004	5.9	LOS A	0.0	0.1	0.40	0.53	0.40	51.2
11	T1	All MCs	1	5.0	1	5.0	0.004	7.4	LOS A	0.0	0.1	0.40	0.53	0.40	51.7
12	R2	All MCs	1	5.0	1	5.0	0.004	9.2	LOS A	0.0	0.1	0.40	0.53	0.40	54.9
Approach			3	5.0	3	5.0	0.004	7.5	LOS A	0.0	0.1	0.40	0.53	0.40	52.6
All Vehicles			473	5.0	473	5.0	0.124	2.4	NA	0.1	0.6	0.05	0.24	0.05	60.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Future PM (Pre-Event) - Cooramin Street / Hampden Avenue - Copy (2) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Cooramin Street / Hampden Avenue
Cartwrights Hill, NSW
Future PM (Pre-Event)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Veh. veh	Dist]									
			veh/h	%	veh/h	%	v/c	sec			m				km/h
South: Hampden Avenue (south)															
1	L2	All MCs	84	5.0	84	5.0	0.155	7.2	LOS A	0.2	1.2	0.07	0.44	0.07	60.8
2	T1	All MCs	184	5.0	184	5.0	0.155	2.2	LOS A	0.2	1.2	0.07	0.44	0.07	63.9
3	R2	All MCs	14	5.0	14	5.0	0.155	7.9	LOS A	0.2	1.2	0.07	0.44	0.07	60.4
Approach			282	5.0	282	5.0	0.155	4.0	NA	0.2	1.2	0.07	0.44	0.07	62.7
East: Cooramin Street (east)															
4	L2	All MCs	8	5.0	8	5.0	0.013	6.6	LOS A	0.0	0.3	0.44	0.59	0.44	55.0
5	T1	All MCs	1	5.0	1	5.0	0.013	9.6	LOS A	0.0	0.3	0.44	0.59	0.44	51.6
6	R2	All MCs	2	5.0	2	5.0	0.013	10.9	LOS A	0.0	0.3	0.44	0.59	0.44	51.1
Approach			11	5.0	11	5.0	0.013	7.7	LOS A	0.0	0.3	0.44	0.59	0.44	53.9
North: Hampden Avenue (north)															
7	L2	All MCs	1	5.0	1	5.0	0.156	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
8	T1	All MCs	294	5.0	294	5.0	0.156	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	28	5.0	28	5.0	0.021	6.4	LOS A	0.1	0.6	0.36	0.58	0.36	51.5
Approach			323	5.0	323	5.0	0.156	0.6	NA	0.1	0.6	0.03	0.05	0.03	59.1
West: Cooramin Street (west)															
10	L2	All MCs	12	5.0	12	5.0	0.030	6.2	LOS A	0.1	0.8	0.44	0.60	0.44	52.2
11	T1	All MCs	3	5.0	3	5.0	0.030	9.2	LOS A	0.1	0.8	0.44	0.60	0.44	52.6
12	R2	All MCs	7	5.0	7	5.0	0.030	12.8	LOS A	0.1	0.8	0.44	0.60	0.44	51.9
Approach			22	5.0	22	5.0	0.030	8.7	LOS A	0.1	0.8	0.44	0.60	0.44	52.2
All Vehicles			638	5.0	638	5.0	0.156	2.5	NA	0.2	1.2	0.07	0.25	0.07	60.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▼ Site: 101 [Future PM (Post-Event) - Cooramin Street / Hampden Avenue - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Cooramin Street / Hampden Avenue
Cartwrights Hill, NSW
Future PM (Post-Event)
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
South: Hampden Avenue (south)															
1	L2	All MCs	13	5.0	13	5.0	0.116	7.7	LOS A	0.1	1.0	0.08	0.38	0.08	61.8
2	T1	All MCs	184	5.0	184	5.0	0.116	2.2	LOS A	0.1	1.0	0.08	0.38	0.08	65.0
3	R2	All MCs	14	5.0	14	5.0	0.116	7.9	LOS A	0.1	1.0	0.08	0.38	0.08	61.4
Approach			211	5.0	211	5.0	0.116	2.9	NA	0.1	1.0	0.08	0.38	0.08	64.6
East: Cooramin Street (east)															
4	L2	All MCs	8	5.0	8	5.0	0.013	6.6	LOS A	0.0	0.3	0.43	0.59	0.43	55.1
5	T1	All MCs	1	5.0	1	5.0	0.013	8.5	LOS A	0.0	0.3	0.43	0.59	0.43	51.7
6	R2	All MCs	2	5.0	2	5.0	0.013	10.9	LOS A	0.0	0.3	0.43	0.59	0.43	51.1
Approach			11	5.0	11	5.0	0.013	7.5	LOS A	0.0	0.3	0.43	0.59	0.43	54.0
North: Hampden Avenue (north)															
7	L2	All MCs	1	5.0	1	5.0	0.156	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
8	T1	All MCs	294	5.0	294	5.0	0.156	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	4	5.0	4	5.0	0.003	6.1	LOS A	0.0	0.1	0.30	0.54	0.30	51.6
Approach			299	5.0	299	5.0	0.156	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
West: Cooramin Street (west)															
10	L2	All MCs	36	5.0	36	5.0	0.193	6.3	LOS A	0.8	5.6	0.54	0.72	0.54	52.7
11	T1	All MCs	3	5.0	3	5.0	0.193	9.2	LOS A	0.8	5.6	0.54	0.72	0.54	53.2
12	R2	All MCs	78	5.0	78	5.0	0.193	12.7	LOS A	0.8	5.6	0.54	0.72	0.54	52.4
Approach			117	5.0	117	5.0	0.193	10.6	LOS A	0.8	5.6	0.54	0.72	0.54	52.5
All Vehicles			638	5.0	638	5.0	0.193	3.1	NA	0.8	5.6	0.14	0.27	0.14	59.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

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Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.