PROPOSED MIXED RESIDENTIAL/RETAIL DEVELOPMENT

TRAFFIC IMPACT ASSESSMENT

48 – 54 Court Road, Fairfield

Final Issue: A – 29th October 2014

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MIXED RESIDENTIAL & RETAIL

48 – 54 COURT ROAD, FAIRFIELD

NSW 2165

Prepared for: Tallahon Pty Ltd
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EXECUTIVE SUMMARY

This Traffic & Parking Impact Assessment (TPIA) has been prepared for the proposed mixed use development at 48-54 Court Road, Fairfield for *Bureau SRH Pty Ltd* on behalf of *Tallahon Pty Ltd. The proposed development consists of 305 residential units and 720m^2 retail floor area. The development proposes to provide a total of 429 on-site car parking spaces and a loading bay accessed by an 8.8m Medium Rigid Vehicle, or equivalent.*

Fairfield City Centre DCP 2013 requires a total of 453 car parking spaces for the scale of development. The proposed 429 represents a numeric shortfall of 24 car parking spaces, however, due consideration must be given to the dual use operation of the site, whereby residential visitor and retail customer parking can be shared given they have offset peak usage times. The residential car parking requirement has been met, whilst provision of 10 staff spaces for retail staff has been provided (a rate of 2 per tenancy). In addition to the dual use, comparison has been made to the RMS Guide to Traffic Generating Developments visitor car parking rate which ranges from 1 per 5 of 7 units depending on development size and locality. Council's car parking rate of 1 per 4 does not account for the development size whereby as the number of units increase, the demand for residential visitor parking decreases.

A total of 18 adaptable units are proposed as part of the total 305 for the site. As per Fairfield City Centre DCP 2013, a total of 20 disabled car parking spaces have been provided for the 18 adaptable residential units and 2 non-residential car spaces.

Loading requirements under Fairfield City Centre DCP 2013 requires access by an 8.8m Medium Rigid Vehicle (MRV), which has been provided with the required 4.5m headroom clearance.

The design of the car park and access has been assessed in accordance with AS2890.1:2004, AS2890.2:2002 & AS2890.6:2009 where applicable.

The traffic generation of the site has been provided in accordance with the RMS Guide to Traffic Generating Developments and the use of SIDRA INTERSECTION 5.1. The intersection performance in terms of Level of Service has remained unaltered under future, post development, conditions.

1 INTRODUCTION

M^{C}Laren Traffic Engineering was commissioned by *Bureau SRH Pty Ltd* on behalf of *Tallahon Pty Ltd* to provide traffic impact assessment of the proposed mixed use development at 48-54 Court Road, Fairfield.

The proposed development includes two residential and one mixed use buildings. The western building is 8 storeys high and has a commercial ground floor with 720m^2 GFA for retail tenancies. The central building with two towers is 11 storeys high, and the eastern building is 8 storeys high. A total of 305 units have been provided in all three buildings.

A two level basement car park and ground level parking will provide a total of 429 parking spaces.

1.1 State Environmental Planning Policy (Infrastructure) 2007

The proposed development qualifies as a development with relevant size or capacity under Clause 104 of the SEPP (Infrastructure) 2007. As such, formal referral to the Roads and Maritime Services (RMS) is necessary.

The site is under the care and control of Fairfield City Council and is subject to their planning controls.

2 EXISTING CONDITIONS

2.1 Site Description

The subject site is located at 48-54 Court Road, Fairfield, as shown in **Figures 1 & 2**. Currently, the site is occupied by a factory. Surrounding the property is generally commercial and retail buildings including McDonalds, ALDI and Woolworths. Neeta City Shopping Centre is also located to the north of the site on the corner of Court Road & Nelson Street.

The site will have vehicular access from Court Road.

2.2 Road Hierarchy

The Horsley Drive has the following characteristics within close proximity to the site:

- RMS Classified STATE Road (Road No. 609)
- Approximately 20m in width facilitating three lanes in each direction
- Signposted 60km/h carriageway
- Kerbside parking not permitted along both sides of the road

Court Road has the following characteristics within close proximity to the site:

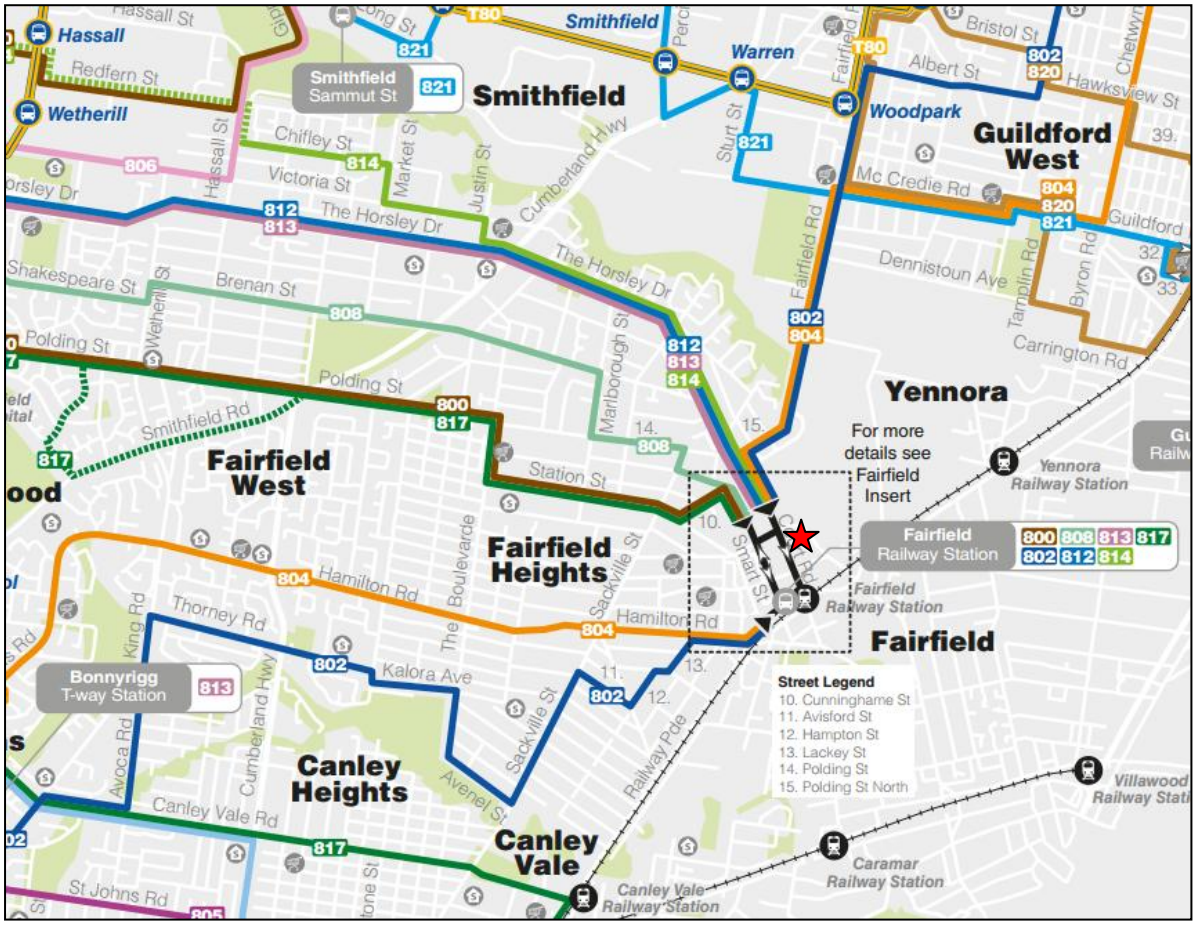
- Unclassified LOCAL Road
- Approximately 12m in width facilitating two lanes in each direction
- Signposted 40km/h shared zone
- Kerbside parking not permitted along both sides of the road
- Speed hump

Alan Street has the following characteristics within close proximity to the site:

- Unclassified LOCAL Road
- Approximately 12m in width facilitating two parking lane and two lane passing
- Signposted 40km/h carriageway
- Restricted 1 hour kerbside parking
- Speed hump

2.3 Public Transport

The subject site has multiple bus routes within 400m of the site which provide services to the surrounding areas including Liverpool and Parramatta. The site is located 500m walking distance from Fairfield train station. Train services run every 30 minutes with the line connecting Schofields and Campbelltown.



★ **Site Location**

2.4 Future Road and Infrastructure Upgrades

From Fairfield City Council's Development Application tracker and website, it appears that there is no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject site.

3 SCALE OF DEVELOPMENT

3.1 Proposed Development

The proposed mixed use development has the following scale:

- Ninety seven (97) x 1 bedroom apartments
- One hundred and thirty one (131) x 2 bedroom apartments
- Seventy seven (77) x 3 bedroom apartments
- Of the 305 units, eighteen (18) units will be adaptable
- 720m^2 x Commercial GFA for retail tenancies
- 429 Car spaces

Both the ground level and basement level car parks are accessed via Court Road.

4 PARKING ASSESSMENT

4.1 Council Parking Requirement

Reference is made to *Fairfield City Centre DCP 2013 Appendix D* which designates the following parking rates for site specific developments within the Fairfield City Centre:

Residential –City Wide
1 space per 1 or 2 bedroom unit (less than 110m^2)
1.5 spaces per 3 or more bedroom unit (greater than 110m^2)
0.25 spaces per unit for visitors

Shop/Retail/Restaurants/Cafes/Refreshment Rooms etc.
1 space per 25m^2 GLFA

Table 1 below summarises Council's above car parking requirement

TABLE 1: DCP PARKING RATES

Land Use	Type	Scale	Rate	Spaces Required	Spaces Provided
Residential	1 & 2 bedroom	228	1 space per unit	228	358(1)
	3+ bedroom	77	1.5 spaces per unit	115.5	
	Visitor	305	0.25 spaces per unit	76.25	70(2)
Retail	Retail	720sqm	1 per 25sqm	29	9(2)
Total				**453**	**429**

Notes: (1) minimum of 10 three bedroom adaptable units provided with 10 disabled parking spaces, plus, 8 three bedroom units provided with 8 tandem (16 spaces) parking bays.
(2) Dual use whereby 20 of the residential visitor parking spaces can be utilised generally between the hours of 9am-6pm Mon-Fri given residential visitors peak after retail hours on Friday and weekends

As shown above, the development requires a total of 453 car parking spaces. The site provides a total of 429 car parking spaces, which represents a numeric shortfall of 24 car spaces, however justification for the parking shortfall is provided by the following:

- The minimum required residential parking spaces have been provided
- As per note (2), residential visitor parking typically peaks during weekend evenings, outside retail peak trade / business hours. It is common practice in mixed use developments to achieve a dual use parking outcome between retail parking and residential visitor parking as the two do not share peak parking times.

- The provision of 10 commercial spaces is adequate for 2 parking spaces for staff for each commercial unit. This is a practical outcome given the close proximity to the town centre and availability of public transport.
- Council's residential visitor car parking rate should be compared to the RMS *Guide to Traffic Generating Developments* and the underpinning surveys within the Guide. Referring to **Annexure C**, the RMS survey sites have been summarised, whereby the Sub Regional High Density developments ranged from 27 units to 71 units, whilst the CBD High Density sites ranged from 47 to 120 units both of which closely reflect the subject proposal. As shown in **Annexure C**, generally, as the number of units increases, the demand for visitor parking decreases. This is in the same fashion when considering shopping centres, whereby an increase in GFA does not mean a linear increase in traffic and parking generated, rather the rate of the traffic and parking increase declines as the GFA increases.

  A visitor parking rate of 1 space per 10 units reflects the general average for sub-regional survey sites. Nevertheless, when considering a rate of 1 space per 7 units for visitors, a total of 44 visitor car parking spaces are required. Given the availability of public transport, both bus and rail, the current State Government policies to reduce private vehicle dependency and the scale of the development that visitor parking should reflect the more applicable parking rates found from the RMS.

  In any case, the provision of 70 visitor parking spaces and 10 commercial space should be deemed adequate based on the dual use outcome for the mixed use development, which reflects the subjects sites locality and availability of public transport.

In summary, whilst the provision of 429 car parking spaces reflects a shortfall of 24 parking spaces is considered an acceptable variation to Council's DCP given the dual use outcome of the development type and the town centre locality to existing public transport and facilities within the town centre.

4.2 Bicycle & Motorcycle parking Requirements

Reference is made to *Fairfield City Centre DCP 2013 Clause 5.2.3* which designates the following bicycle parking rates within the Fairfield City Centre:

Residential
1 bicycle space for every 3 residential units

Retail
1 space per 300m^2 GFA

Application of this rate requires the provision of 104 spaces for bicycle parking.

4.3 Servicing & Loading

Reference is made to *Fairfield City Centre DCP 2013 Clause 5.2.6(k)* which states that *loading/ unloading zones shall be designed to accommodate at a minimum, medium rigid trucks and should be designed to allow trucks to enter and leave in a forward direction*.

The development provides one (1) loading bay for access by vehicles equivalent to an 8.8m Medium Rigid Vehicle (MRV). The loading bay has adequate headroom clearance of 4.5m as required by AS2890.2:2002.

The position of the loading bay sufficiently allows the MRV to enter and leave the site in a forward direction. Relevant swept paths are provided in **Annexure D**.

4.4 Disabled Parking

The development provides a total of 18 adaptable dwellings. Therefore, based on *Fairfield City Centre DCP 2013 Clause 5.2.5(g),* a total of 18 residential disabled parking spaces are required.

Clause 12.3.1 of the *Fairfield City Wide DCP – Chapter 12* stipulates that a minimum of two spaces for every 100 spaces should be disabled. With a total parking capacity 79 resident and retail parking spaces, two (2) disabled parking spaces are required.

Therefore, the development requires a total of 20 disabled parking spaces of which 18 are allocated to residents and two (2) are allocated as communal space.

4.5 Car Park Design & Compliance

Refer to **Annexure A** which shows the proposed parking layout that is designed in accordance with AS2890.1- 2004 & AS2890.6:2009 (or better). It should be noted that while we have assessed the plans to be compliant with the relevant standards, it is usual that a construction certificate is required prior to construction due to possible changes after D.A approval. Our interpretation of the standards is outlined below:

(a) **Aisle width**: Minimum 5.8 metres.

(b) **Parking bays:** Minimum 2.4 metre width for residents. Minimum 2.5 metre width for visitor parking. A 300mm widening of the parking space is required for each side wall obstruction for car door opening effects. A minimum parking bay length of 5.4 metres is required, unless a small bay which can have the dimensions of 5.0 metres long by 2.3 metres wide.

(c) **Driveway Gradient for User Class 1, 1A or 2 (i.e. Medium to Long Term parkers, such as employees, resident & tenants)**: To satisfy sight lines to pedestrians on footpaths and to comply with under carriage clearance and overhang checks. In this regard driveways serving more than a “domestic

dwelling" (i.e. three dwellings that generate less than 3 peak hour trips) but less than 30 peak hour trips need to achieve acceptable performance as follows:

- Provide a 2m by 2.5m sight triangle upon departure to the road boundary to provide adequate sight lines to pedestrians. See Figure 3.3 of AS2890.1-2004.
- 1:20 for the first 6 metres from the property boundary however this can be reduced if necessary based on individual assessments.
- Max 1:6 for the next 2 to 3m.
- Max 1:4 for up to 20m reducing to maximum of 1:5 greater than 20m for the entry ramp, unless otherwise justified.
- 1:8 transition over 2 metres to the basement floor level, unless otherwise justified.

(d) **Headroom**: Minimum of 2.2m EXCEPT for the area directly above disabled parking spaces where minimum headroom of 2.5m is required in accordance with Clause 2.4 of AS2890.6:2009.

(e) The clearance height upon entry to the car park shall be clearly displayed if the height clearance is less than 2.3m.

Disabled parking is in accordance with AS2890.6-2009. The requirements met by the proposed development achieve:

(a) **Parking Bays**: Minimum 2.4m width and a minimum 5.4m bay length.

(b) **Shared Zone**: A shared zone must be located adjacent to the parking bay on either side. A Shared zone must also be included at the front and rear of the parking bay. It should be noted that the aisle can be deemed a shared zone for the front or rear of the parking bay. Where a shared zone separates two parking bays or separates the disabled space and a wall, a Bollard is to be installed in accordance to Figure 2.3 of AS2890.6 2009.

(c) **Disabled Space** of 3.8m is an acceptable practice in accordance with AS4299:1995.

(d) **Space Identification:** In accordance with Figure 3.1 of AS2890.6 each dedicated disabled parking bay is to be clearly identified.

It is our understanding that the future road provision will not extend to Horsley Drive as per Figure 7.7-3 of *Fairfield City Centre DCP 2013.* The internal road is for the purpose of access driveways being consolidated on Court Road.

5 TRAFFIC ASSESSMENT

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

5.1 Traffic Generation

The estimated traffic generation level for the residential and retail use, based upon the RMS' *Guide to Traffic Generating Developments 2002* is shown in **Table 2** below.

TABLE 2: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak Hour Rate	Peak Hour Generation	Peak Hour Split	
				AM	PM
High Density Residential	305 units	0.29 per unit(1)	89	18 in 71 out	71 in 18 out
Retail	823m^2 GFA	5.6 per 100m^2(2)	46	23 in 23 out	23 in 23 out
Total		**-**	**135**	**41 in 94 out**	**94 in 41 out**

Notes: (1) Assumes 80% inbound & 20% outbound during AM peak: Vice versa for PM. Rate utilised from shopping centre specialty store which is a worst case scenario for the small retail premises.

(2) Assumes 50% inbound & 50% outbound during PM peak. AM is not the peak trade for retail however has been assumed to be the same as the AM period.

The proposed development is expected to generate a total of **135** peak hour vehicle trips.

Whilst an AM peak has been shown for the retail component, this is not expected to be of the same magnitude in comparison to the PM peak. Nevertheless, the retail PM peak has been adopted for the AM period.

Additionally, the traffic generation for the residential component above has been based on 0.29 trips per unit, however recent data publicised by the RMS (RMS Technical Direction TDT 2013/04) shows reduced trip rates for high density residential. Therefore, it can be expected that the traffic generated by the residential component is somewhat less than that shown in **Table 2** above. In any case, the 0.29 trips per unit has been maintained as a sensitivity assessment.

5.2 Traffic Assignment

The traffic assignment adopted has been based on the existing surveys at the intersections of Court Road / Nelson Street / The Horsley Drive and Court Road / Spencer Street / Alan Street. Given that the site is located in the city centre of Fairfield and in close proximity to The Horsely Drive, it is assumed that the majority

of vehicles accessing the site will use this road. A small percentage will also travel to and from the west via Nelson Street.

In this manner, the future traffic assignment for the proposed development has been presented diagrammatically in **Annexure E**.

5.3 SIDRA Analysis

The traffic generation outlined in **Section 5.1 & 5.2** above has been added to the existing traffic volumes recorded. SIDRA INTERSECTION 5.1 was used to assess the intersections performance. The purpose of this assessment is to compare the existing intersection operations to the future scenario under the increased traffic load. The results of this assessment are shown in **Table 3** below:

TABLE 3: INTERSECTION PERFORMANCES
(SIDRA INTERSECTION 5.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3]	Control Type	Worst Movement
EXISTING PERFORMANCE						
Court Rd / Nelson St / The Horsley Dr	AM	0.781	42.5 (66.6)	**D** (Worst: E)	Signals	RT from Court Rd
	PM	0.896	50.3 (>70)	**D** (Worst: F)	Signals	RT from Court Rd
Court Rd / Spencer St / Alan St	AM	0.269	13.6 (17.8)	**A** (Worst: B)	Signals	RT from Court Rd (N) & (S)
	PM	0.567	14.9 (19.4)	**B** (Worst: B)	Signals	RT from Court Rd (N)
FUTURE PERFORMANCE (post-construction)						
Court Rd / Nelson St / The Horsley Dr	AM	0.791	44.8 (67.9)	**D** (Worst: E)	Signals	RT from Court Rd
	PM	0.913	53.5 (77.3)	**D** (Worst: F)	Signals	RT from Court Rd
Court Rd / Spencer St / Alan St	AM	0.295	13.8 (12.6)	**A** (Worst: B)	Signals	RT from Court Rd (N) & (S)
	PM	0.601	15.6 (21.5)	**B** (Worst: B)	Signals	RT from Court Rd (N)

NOTES:

(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) Average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) 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.

As shown in **Table 3** above, the nearby intersections of Court Road / Nelson Street / The Horsley Drive & Court Road / Spencer Street / Alan Street maintain their current LoS performance post-development with only very minor increases in the overall average delay of the intersections which is acceptable. The proposed development and the related additional traffic will not have any significant impact on the surrounding road network and will not prove detrimental to the existing traffic flow efficiency.

6 CONCLUSION

The subject proposal at 48-54 Court Road, Fairfield for 305 residential units and 720m^2 of retail floor space is fully supportable in terms of its traffic and parking impacts.

The development provides a total of 429 car parking spaces which represents a numeric shortfall of 24 parking spaces when compared to Fairfield Councils DCP requirement of 453. Whilst there is a numeric shortfall, dual use outcome is proposed whereby retail and residential car spaces have shared use given their peak usage times do not align. Additionally, Council's visitor car parking rate, in comparison to the RMS, is significantly higher than what is likely to be demanded.

The provision of 20 disabled parking spaces satisfies the 18 residential adaptable unit requirements and the two (2) non-residential disabled space requirements as per the DCP.

The design of car parking and access satisfies AS2890.1:2004 & AS2890.6:2009 requirements for user classes appropriate for residents, visitors and retail customers.

On-site loading will be completed by an 8.8m Medium Rigid Vehicle (MRV). The appropriate swept path tests are shown in **Annexure D** with the required 4.5m headroom achieved. Ramps which are traversed by the MRV are compliant with AS2890.2:2002 and vertical clearance checks.

The traffic generated by the development has been assessed using SIDRA INTERSECTION 5.1 and shown to have little effect on the existing nearby intersections with respect to existing Level of Service.

★ **Site Location**

MIXED RESIDENTIAL / RETAIL

48-54 COURT ROAD, FAIRFIELD

FIGURE 1:

AERIAL SITE LOCATION

PREPARED FOR: TALLAHON PTY LTD

BY: M^{C}LAREN TRAFFIC ENGINEERING

★ **Site Location**

MIXED RESIDENTIAL / RETAIL

48-54 COURT ROAD, FAIRFIELD

FIGURE 2:

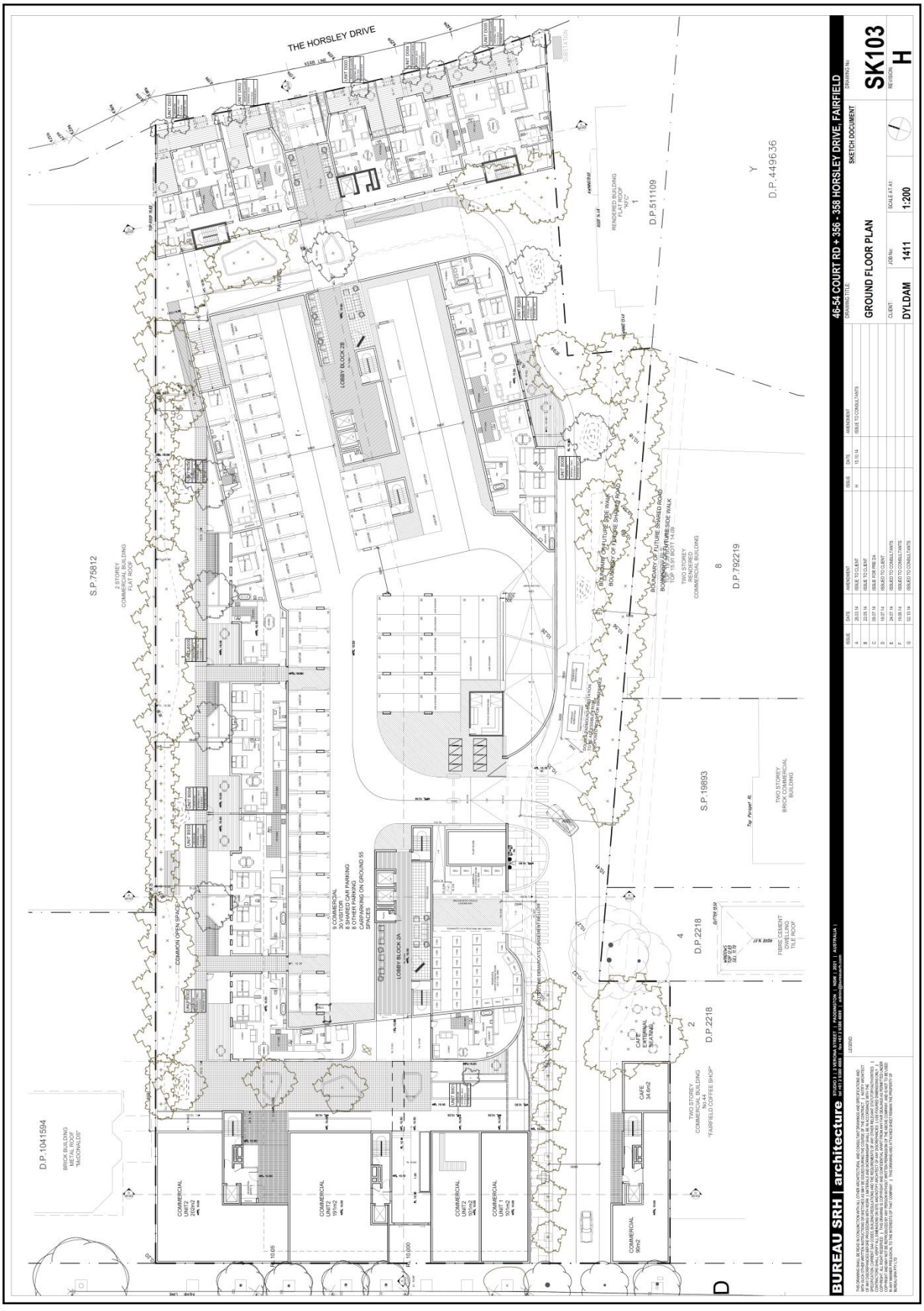
MAP LOCATION

PREPARED FOR: TALLAHON PTY LTD

BY: M^{C}LAREN TRAFFIC ENGINEERING

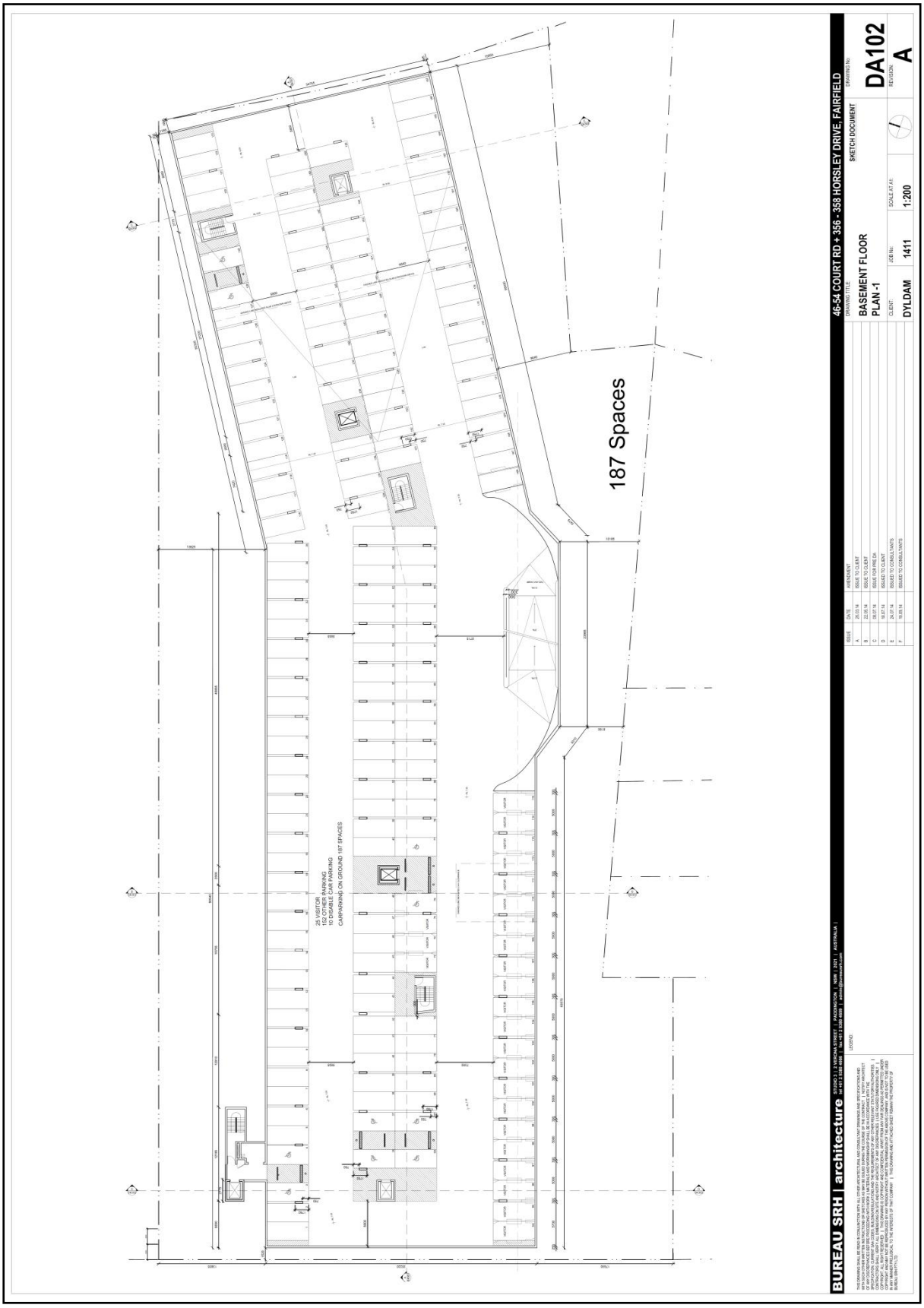
ANNEXURE A: PROPOSED PLANS

(Sheet 1 of 3)



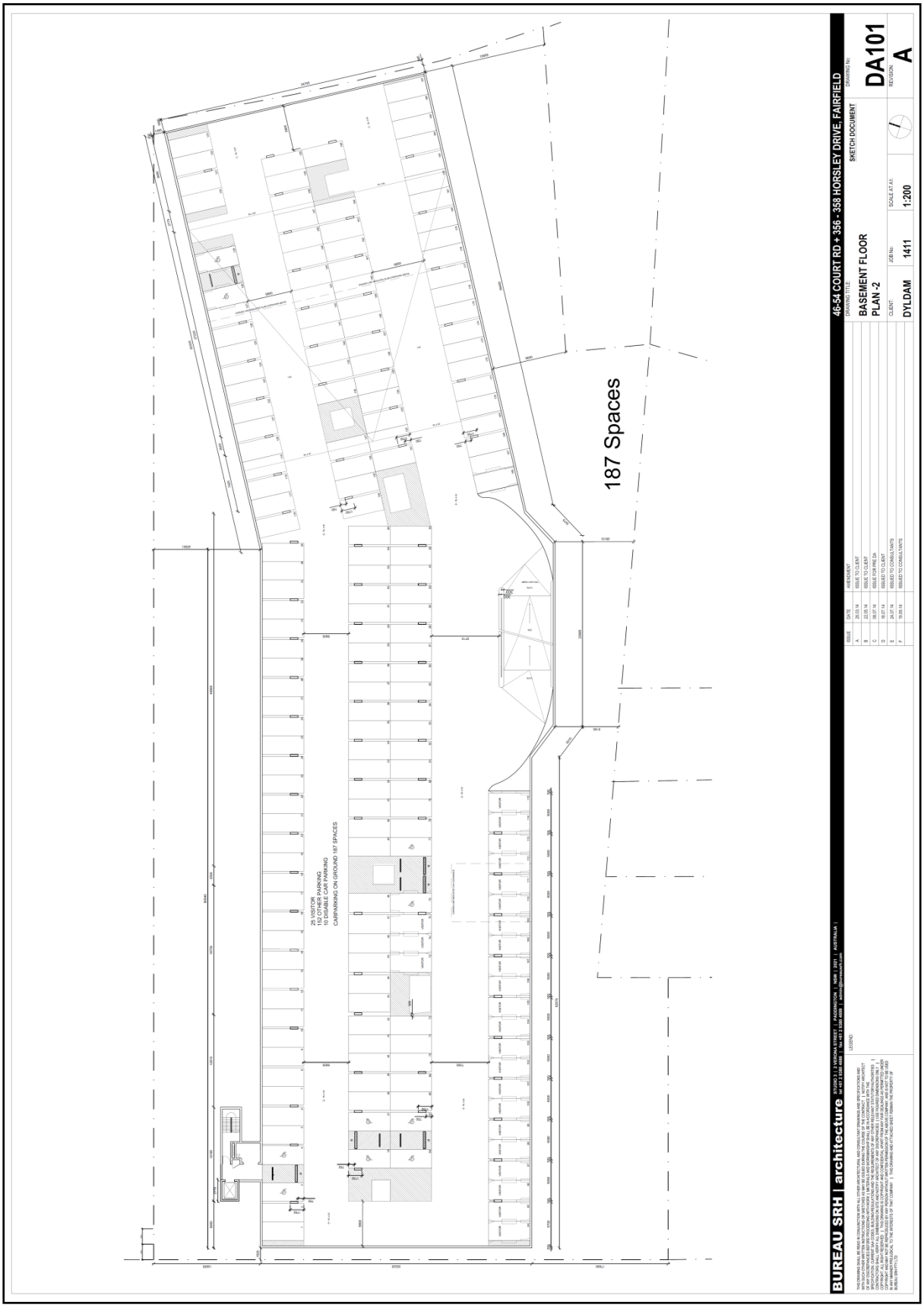
ANNEXURE A: PROPOSED PLANS

(Sheet 2 of 3)



ANNEXURE A: PROPOSED PLANS

(Sheet 2 of 3)



ANNEXURE B: TRAFFIC & PARKING SURVEYS

(Sheet 1 of 2)

Curtis Traffic Surveys						Peak Hour		97	151	1157					
	Turning movement count						67				1144				
Job:	140809mcl(2014_254)						426				141		N		
Day, date	20/08/14						0				11				
Location:	Court Rd, Nelson St & Horsley Dr							35	178	126					
Weather:	Fine														
Client:	McLaren Traffic Engineering														
	All motor vehicles														
	From Horsley Dr north			From Horsley Dr east			From Nelson St			From Court Rd			Total vehicle movements		
Time Period	left	through	right	left	through	right	left	through	right	left	through	right			
07:00 to 07:15	314	28	15	9	55	0	3	41	15	3	12	189	684		
07:15 to 07:30	358	38	18	11	60	0	4	60	19	1	17	225	811		
07:30 to 07:45	341	31	19	12	84	0	5	39	20	4	19	205	779		
07:45 to 08:00	312	36	24	15	95	0	6	51	18	5	23	230	815		
08:00 to 08:15	228	31	25	21	111	0	5	45	21	3	30	246	766		
08:15 to 08:30	338	37	19	16	115	0	10	50	41	2	32	279	939	Peak	
08:30 to 08:45	310	45	23	16	95	0	11	41	35	3	34	305	918		
08:45 to 09:00	281	38	30	14	105	0	9	42	29	3	45	314	910		
Totals	2482	284	173	114	720	0	53	369	198	24	212	1993			
07:00 to 08:00	1325	133	76	47	294	0	18	191	72	13	71	849	3089		
07:15 to 08:15	1239	136	86	59	350	0	20	195	78	13	89	906	3171		
07:30 to 08:30	1219	135	87	64	405	0	26	185	100	14	104	960	3299		
07:45 to 08:45	1188	149	91	68	416	0	32	187	115	13	119	1060	3438		
08:00 to 09:00	1157	151	97	67	426	0	35	178	126	11	141	1144	3533	Peak Hour	

Curtis Traffic Surveys						Peak Hour		22	132	42					
	Turning movement count						58				72				
Job:	140809mcl(2014_254)						33				95		N		
Day, date	20/08/14						0				102				
Location:	Court Rd, Spencer St & Alan St							11	297	23					
Weather:	Fine														
Client:	McLaren Traffic Engineering														
	All motor vehicles														
	From Court Rd north			From Spencer St			From Court Rd south			From Alan St			Total vehicle movements		
Time Period	left	through	right	left	through	right	left	through	right	left	through	right			
07:00 to 07:15	2	29	3	5	4	0	2	64	3	16	15	6	149		
07:15 to 07:30	3	35	3	6	4	0	2	74	6	11	13	5	162		
07:30 to 07:45	5	37	2	7	3	0	3	81	4	17	10	9	178		
07:45 to 08:00	4	34	1	17	5	0	7	83	4	17	21	16	209		
08:00 to 08:15	5	31	2	12	6	0	3	75	5	19	18	7	183		
08:15 to 08:30	10	40	5	16	8	0	4	75	5	24	22	13	222		
08:30 to 08:45	13	29	9	18	8	0	1	79	6	31	29	29	252	Peak	
08:45 to 09:00	14	32	6	12	11	0	3	68	7	28	26	23	230		
Totals	56	267	31	93	49	0	25	599	40	163	154	108			
07:00 to 08:00	14	135	9	35	16	0	14	302	17	61	59	36	698		
07:15 to 08:15	17	137	8	42	18	0	15	313	19	64	62	37	732		
07:30 to 08:30	24	142	10	52	22	0	17	314	18	77	71	45	792		
07:45 to 08:45	32	134	17	63	27	0	15	312	20	91	90	65	866		
08:00 to 09:00	42	132	22	58	33	0	11	297	23	102	95	72	887	Peak Hour	

ANNEXURE B: TRAFFIC & PARKING SURVEYS

(Sheet 2 of 2)

Curtis Traffic Surveys					Peak Hour		206	144	898					
	Turning movement count					115				1398				
Job:	140809mcl(2014_254)					255				244		N		
Day, date	19/08/14					0				32				
Location:	Court Rd, Nelsonr St & Horsley Dr						119	233	183					
Weather:	Fine													
Client:	McLaren Traffic Engineering													
	All motor vehicles													
	From Horsley Dr north			From Horsley Dr east			From Nelson St			From Court Rd				
Time Period	left	through	right	left	through	right	left	through	right	left	through	right	Total vehicle movements	
16:00 to 16:15	201	41	42	28	62	0	24	56	38	10	49	356	907	
16:15 to 16:30	207	32	56	21	53	0	29	62	46	9	52	375	942	
16:30 to 16:45	266	42	62	31	78	0	31	54	47	6	82	326	1025	Peak
16:45 to 17:00	224	29	46	35	62	0	35	61	52	7	61	341	953	
17:00 to 17:15	232	36	35	36	59	0	28	70	32	5	58	305	896	
17:15 to 17:30	211	45	22	31	75	0	35	84	39	5	64	236	847	
17:30 to 17:45	231	39	48	32	80	0	34	107	47	3	83	315	1019	
17:45 to 18:00	205	30	31	27	62	0	27	85	34	4	71	320	896	
Totals	1777	294	342	241	531	0	243	579	335	49	520	2574		
16:00 to 17:00	898	144	206	115	255	0	119	233	183	32	244	1398	3827	Peak Hour
16:15 to 17:15	929	139	199	123	252	0	123	247	177	27	253	1347	3816	
16:30 to 17:30	933	152	165	133	274	0	129	269	170	23	265	1208	3721	
16:45 to 17:45	898	149	151	134	276	0	132	322	170	20	266	1197	3715	
17:00 to 18:00	879	150	136	126	276	0	124	346	152	17	276	1176	3658	

Curtis Traffic Surveys					Peak Hour		50	305	30					
	Turning movement count					83				119				
Job:	140809mcl(2014_254)					62				210		N		
Day, date	19/08/14					10				202				
Location:	Court Rd, Spencer St & Alan St						64	512	64					
Weather:	Fine													
Client:	McLaren Traffic Engineering													
	All motor vehicles													
	From Court Rd north			From Spencer St			From Court Rd south			From Alan St				
Time Period	left	through	right	left	through	right	left	through	right	left	through	right	Total vehicle movements	
16:00 to 16:15	15	88	13	17	23	5	9	57	14	42	44	33	360	
16:15 to 16:30	11	89	12	13	18	3	6	68	12	32	41	29	334	
16:30 to 16:45	8	92	8	14	21	4	12	132	16	41	52	31	431	
16:45 to 17:00	6	89	9	16	13	2	21	148	19	31	61	36	451	Peak
17:00 to 17:15	9	57	18	30	12	1	15	122	14	78	51	24	431	
17:15 to 17:30	7	67	15	23	16	3	16	110	15	52	46	28	398	
17:30 to 17:45	5	71	19	18	13	1	15	135	14	62	52	20	425	
17:45 to 18:00	5	62	26	11	20	0	23	123	13	62	66	16	427	
Totals	66	615	120	142	136	19	117	895	117	400	413	217		
16:00 to 17:00	40	358	42	60	75	14	48	405	61	146	198	129	1576	
16:15 to 17:15	34	327	47	73	64	10	54	470	61	182	205	120	1647	
16:30 to 17:30	30	305	50	83	62	10	64	512	64	202	210	119	1711	Peak Hour
16:45 to 17:45	27	284	61	87	54	7	67	515	62	223	210	108	1705	
17:00 to 18:00	26	257	78	82	61	5	69	490	56	254	215	88	1681	

ANNEXURE C: RMS VISITOR PARKING

Description	Site	Units	Levels	Provided Parking		Parking Survey		Visitor Demand per Unit
				Resident	Visitor	Resident	Visitor	
Sub-Regional	Brighton-Le-Sands 1	27	7	27	8	32	9	1 space per 3 units
Sub-Regional	Strathfield	32	8	32		28	7	1 space per 5 units
Sub-Regional	Chatswood 1	39	8	33	10	27	2	1 space per 20 units
Sub-Regional	Chatswood 3	39	8	48	9	42	3	1 space per 13 units
Sub-Regional	Miranda	39	8	39	9	37	4	1 space per 10 units
Sub-Regional	Brighton-Le-Sands 2	40	8	42	10	47	6	1 space per 7 units
Sub-Regional	Chatswood 2	44	9	42	5	33	6	1 space per 7 units
Sub-Regional	Bankstown	54	8	52	11	40	5	1 space per 11 units
Sub-Regional	Sutherland	56	8	58	4	46	5	1 space per 11 units
Sub-Regional	Artarmon 2	71	12	71	18	60	6	1 space per 12 units

ANNEXURE D: COMPLIANCE
(Sheet 1 of 7)

AS2890.1:2004 COMPLIANCE TABLE	GF, B1 & B2	
CLAUSE	**COMPLIANCE**	**REASON FOR DEPARTURE**
TABLE 1.1: USER CLASS (SPACES) 1 (0) 1A (343) 2 (110) 3 (0) 3A (0) 4 (0) TOTAL (**453**)	Yes	See **Section 4.1** of the report
Figure 2.2 Angle Parking Dimensions Applicable bay length, bay width, aisle width	Yes	
Clause 2.4.1(a)(iii) Small Car Space 2.3m wide x 5.0m long	N/A	
Clause 2.4.1(b)(ii) 300mm clearance to high objects	Yes	
Clause 2.4.2(c) 1m blind aisle extension	Yes	
Figure 2.5 Parallel Parking Dimensions Applicable bay length, bay width, aisle width	Yes	
Clause 2.4.5.2(a) Kerb Height	N/A	
Clause 2.4.5.4 Wheel Stops Height, width, setback	N/A	
Clause 2.4.6 Gradients within parking modules Minimum & maximum gradients	N/A	
Clause 2.4.7 Motorcycles Parking bay dimensions	N/A	
Clause 2.5.2(a) Straight ramp widths 3m between kerbs (1 way), 5.5m between kerbs (2 way)	Yes	
Kerb widths – standard 300mm	Yes	
Wall-to-wall width (on straight) SINGLE LANE – standard 3.6m TWO LANES – standard 6.1m	Yes	
Table 2.2 Curved ramp widths See table	N/A	
Figure 2.9 Curved ramp dimensions See table	N/A	
Clause 2.5.3(a) Ramp grades (public) >20m:16.7% max <20m: 20% max	N/A	
Clause 2.5.3(b) Ramp grades (private) >20m : 20% max <20m: 25% max	Yes	
Clause 2.5.3(d) Changes of grade Not in excess of 12.5% for summit 15% for sag	Yes	
Domestic Driveways		
Min 3m width	N/A	
Max grade 25%	N/A	
Max grade across property line or footpath: 5%	Yes	

ANNEXURE D: COMPLIANCE

(Sheet 2 of 7)

Select access facility category from Table 3.1	3	
Table 3.2 Access driveway widths 1: 3-5.5m combined 2: 6-9m combined 3: 6m entry, 4-6m exit, 1-3m separation 4: 6-8m entry, 6-8m exit, 1-3m separation 5: intersection to be provided.	Yes	6.0m combined entry/exit is sufficient for low turnover rate
Clause 3.2.3 Driveway location compliance	Yes	
Figure 3.2 Car sight distances	Yes	
Figure 3.3 Pedestrian sight distances	Yes	
Clause 3.4 Queuing areas See table 3.3	Yes	
Clause 4.3.4 Low clearance signs Give way / stop signs Speed limit signs Other warning signs	N/A	Not on plans, can be detailed prior to CC
Clause 4.4 Pavement markings Linemarking Pedestrian crossings arrows	N/A	Not on plans, can be detailed prior to CC
Clause 5.2 Column location See figure 5.1 E.g. 90^{o}: 750mm setback	Yes	
Clause 5.3.1 headroom At least 2.2m for cars 2.2m above disabled travel paths	Yes	
Clause 5.4 enclosed garages **Single**: 3m internal width 2.4m doorway min (see figure 5.4) **Multiple:** 2.4m wide each	N/A	
Circulation	Yes	Convex Mirrors on all corners

AS2890.6:2009 COMPLIANCE TABLE	**B1 & B2**	
CLAUSE	**COMPLIANCE**	**REASON FOR DEPARTURE**
Parking Dimensions 2400x 5400mm 2400x 5400mm shared space Fig 2.2	Yes	
Bollard Located 800 ± 50 1200mm along shared space Fig 2.2	Yes	Bollard to be located 800mm from parking aisle and installed accordingly during construction
Min. 2500mm required directly above space (Fig 2.7) Min. 2200mm for general access (Cl 2.4)	Not shown	Architect to confirm
Space Identification Fig 3.1 1200x 1200 min with 500 to 600mm from front of space	Yes	To be linemarked accordingly by a suitable contractor
Space Delineation Clause 3.2	Yes	To be linemarked accordingly by a suitable contractor

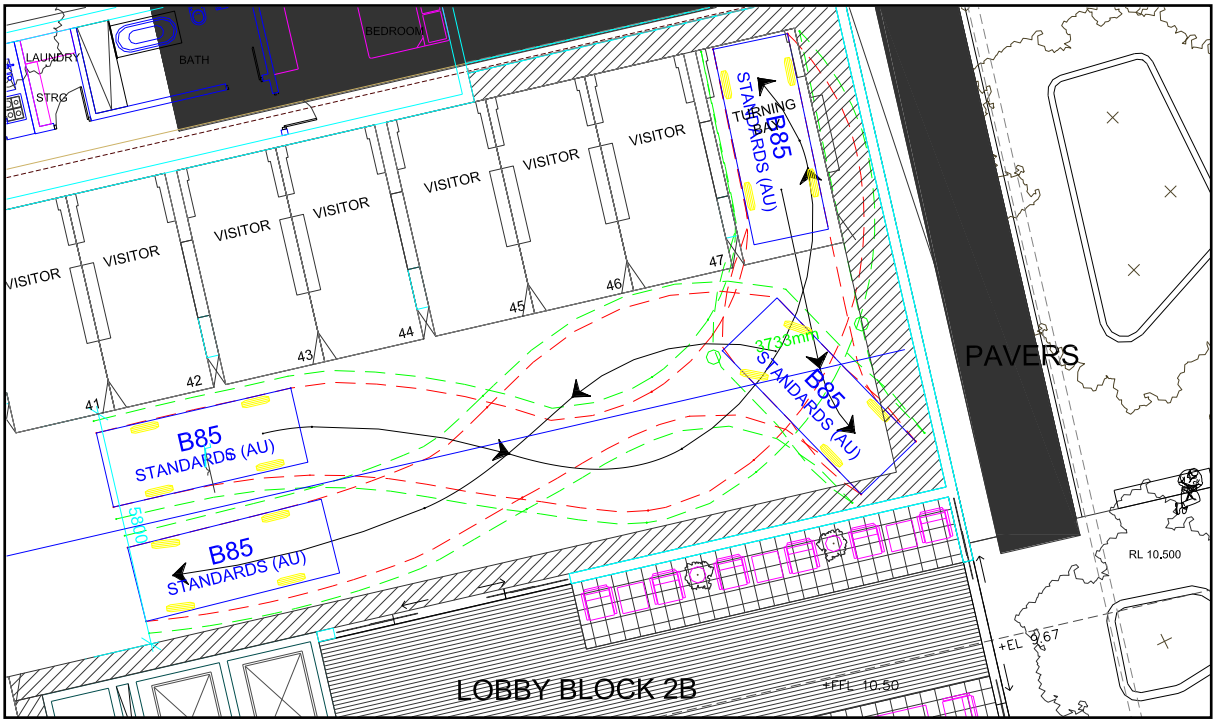
ANNEXURE D: COMPLIANCE

(Sheet 3 of 7)

AS2890.2:2002 COMPLIANCE TABLE	GF	
CLAUSE	**COMPLIANCE**	**REASON FOR DEPARTURE**
Select Service Vehicle from Table 2.1 or other special vehicle	Yes	Needs to Accommodate 8.8m MRV
Table 3.2 Roadway/Ramp Grades: 15.4% max for all service vehicles	Yes	
Table 3.2 Maximum grade changes SRV or smaller: 8.3% in 4m travel MRV, HRV: 6.25% in 7m of travel AV: 6.25% in 10m of travel	Yes	
Figure 3.3 Vehicle sight distances	Yes	
Figure 3.4 Pedestrian sightlines	Yes	
Table 4.1 Service Bay Dimensions SRV: 3.5m x 6.4m min. MRV: 3.5m x 8.8m min. HRV: 3.5m x 12.5m AV: 3.5m x 19.0m	Yes	
Table 4.1 Vertical clearance (headroom) 3.5m for SRV 4.5m for MRV, HRV & AV	Yes	
Clause 4.3.1(d) Max gradient within service area 15.4% in any direction for forward movement 12.5% where reverse movements take place	N/A	
Section 5 Design Vehicle Swept Paths & Circulation	Yes	

ANNEXURE D: COMPLIANCE

(Sheet 4 of 7)



B85 AT TURN BAY

3 movements,

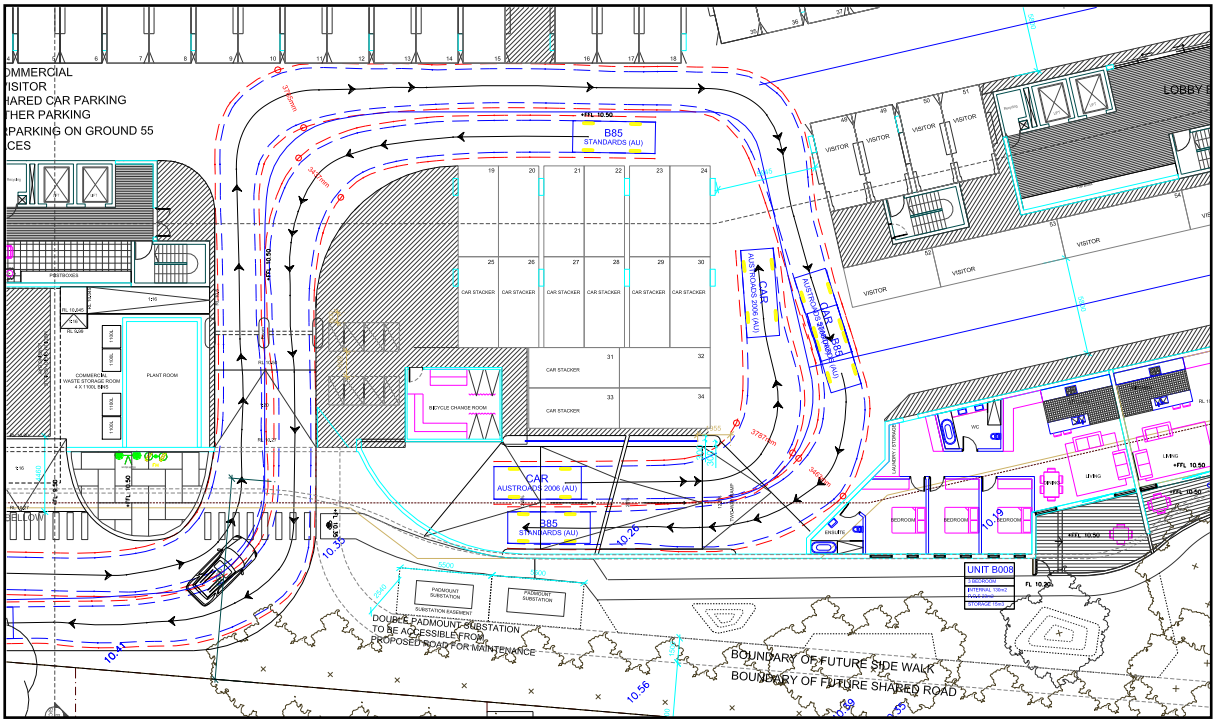
Successful – hatched area to be at-grade only

5km/h

Red– Vehicle body
Green – 300mm clearance

ANNEXURE D: COMPLIANCE

(Sheet 5 of 7)



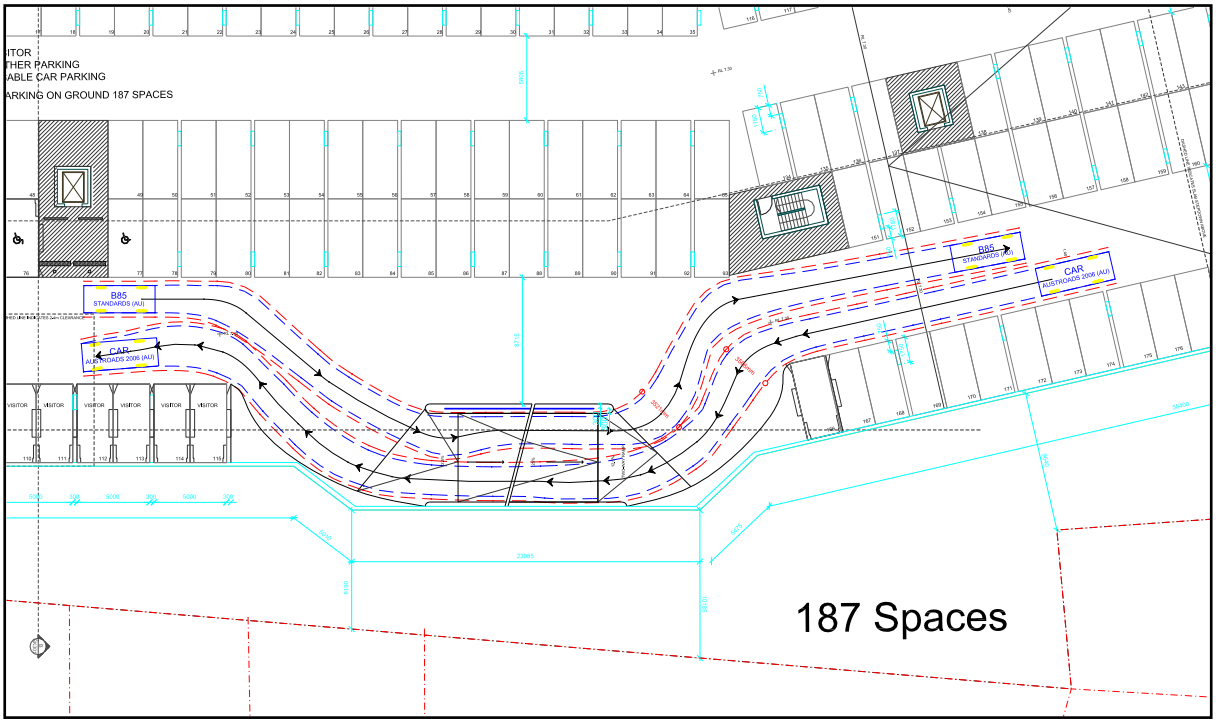
B99 Car passing B85 Car

Successful – Tested @ 5km/h

Blue – Vehicle body
Red – 300mm clearance

ANNEXURE D: COMPLIANCE

(Sheet 6 of 7)



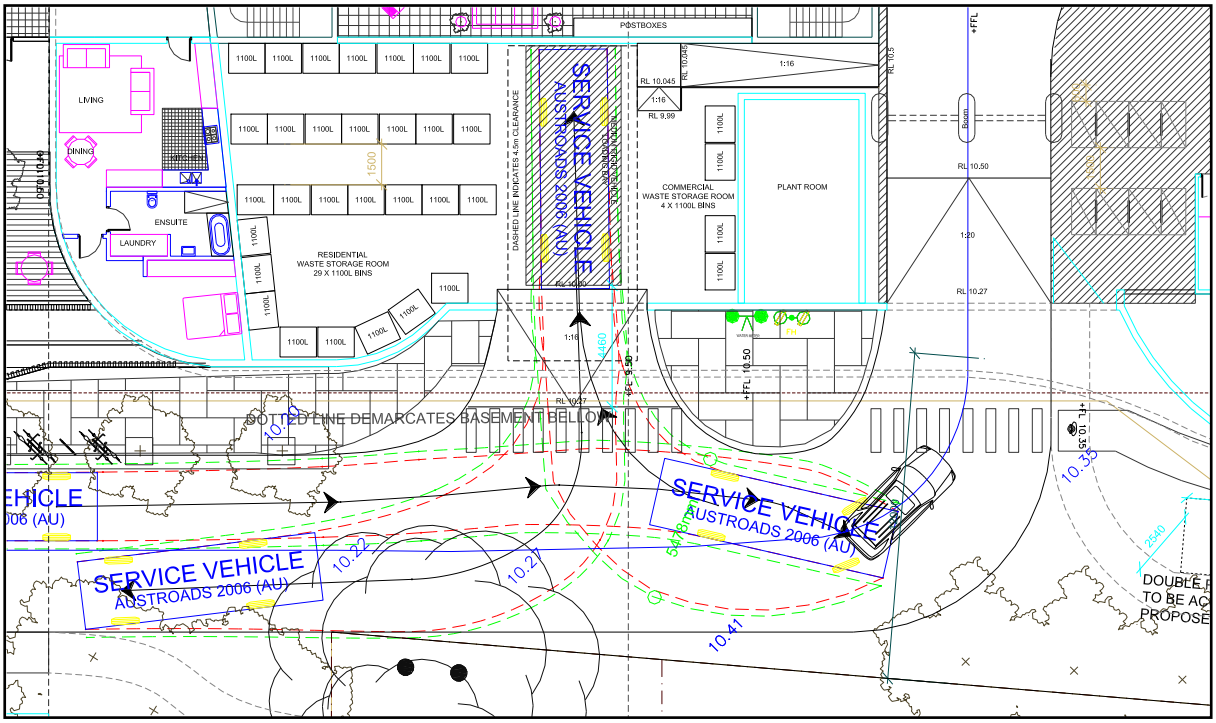
B99 Car passing B85 Car at ramp on basement levels 1 & 2

Successful – Tested @ 5km/h

Blue – Vehicle body
Red – 300mm clearance

ANNEXURE D: COMPLIANCE

(Sheet 7 of 7)



8.8m Medium Rigid Vehicle (MRV) accessing loading dock

5km/h

2 manoeuvres entry; 1 manoeuvre exit

Successful

ANNEXURE E: TRAFFIC ASSIGNMENT