

Traffic Impact Assessment

**Proposed BAPS Swaminarayan Hindu Temple
230 - 242 Aldington Road, Kemps Creek**





Ref: 17.323r01v04 TRAFFIX DA Report
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traffix
traffic & transport planners

po box 1061
potts point nsw 1335
t: +61 2 8324 8700
f: +61 2 9380 4481
w: www.traffix.com.au
abn: 66065132961



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Contents

1. Introduction	1
2. Location and Site	2
3. Existing Traffic Conditions	5
3.1 Road Network	5
3.2 Public Transport	7
3.3 Existing Site Generation	7
3.4 Key Intersections	7
3.5 Existing Intersection Performance	8
4. Description of Proposed Development	10
5. Parking Requirements	11
5.1 Parking Demand of Proposed Development	11
5.2 Disabled Parking	13
5.3 Servicing	13
6. Traffic Impacts	14
6.1 Trip Generation	14
6.2 Peak Period Intersection Performances	15
6.3 Residential Amenity	15
7. Access & Internal Design Aspects	17
7.1 Access	17
7.2 Internal Design	17
8. Conclusions	19

Appendices

Appendix A:	Photographic Record
Appendix B:	Survey Results
Appendix C:	SIDRA Outputs
Appendix D:	Reduced Plans
Appendix E:	Swept Path Analysis



1. Introduction

TRAFFIX has been commissioned by the Hindu BAPS Shri Swaminarayan Mandir to undertake a Traffic Impact Assessment in support of a Development Application relating to a Place of Public Worship. BAPS is a socio-spiritual Hindu organisation with its roots in the Vedas. BAPS strives to care for the world by caring for societies, families and individuals. Its universal work through a worldwide network of over 3,850 centres has received many national and international awards and affiliation with the United Nations. The proposed facility will operate from Monday to Sunday and provide a community hall, a prayer hall, and educational programs for youth, community gardens, a library, book store and a traditional temple. The development is located within the Penrith City Council Local Government Area and has been assessed under that Council's controls.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately. The proposed development accesses a local road and provides a total of 301 car parking spaces. Accordingly, the development requires referral to the Roads & Maritime Services under the provisions of SEPP (Infrastructure) 2007.

The report is structured as follows:

Section 2: Describes the site and its location

Section 3: Documents existing traffic conditions

Section 4: Describes the proposed development

Section 5: Assesses the parking requirements

Section 6: Assesses traffic impacts

Section 7: Discusses access and internal design aspects

Section 8: Presents the overall study conclusions.



2. Location and Site

The site is situated on the eastern side of Aldington Road between Bakers Lane and Abbotts Road. It is located approximately 16.8km north of Leppington Railway Station and approximately 20 kilometres northwest of the Warwick Farm Railway Station and approximately 50 kilometres west of the Sydney CBD. The site is located approximately 7.7km south of the intersection of the M4 with Mamre Road.

The site is rectangular in configuration with a total site area of approximately 101,328m². It currently accommodates a single dwelling house and has a northern, southern and eastern boundary to adjoining residential properties and a western frontage to Aldington Street. The eastern property boundary and the northern and southern property boundaries are approximately 142 metres in length. The northern and southern property boundaries are approximately 720 metres in length.

Vehicular access is currently provided via a driveway crossing onto Aldington Road. The driveway is located on the most northern end of the property. Both driveway is approximately 7.5 metres wide at the site boundary and provides car parking spaces in a tandem configuration.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the photographic record provided in **Appendix A** which gives a general understanding of the site and the surrounding roads.

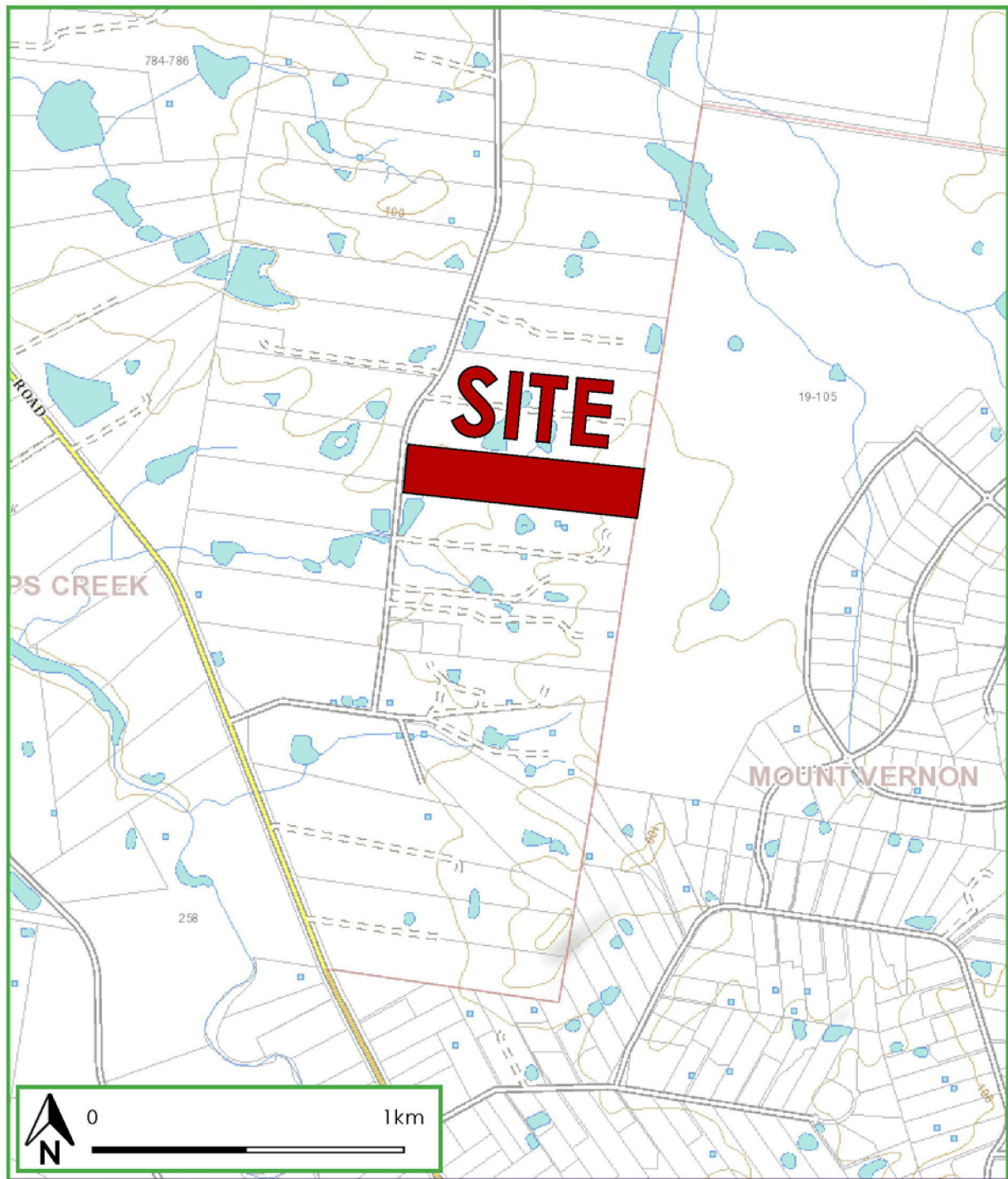


Figure 1: Location Plan



Figure 2: Site Plan



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Vehicular access is currently provided via a driveway crossing onto Aldington Road. The driveway is located on the most northern end of the property. Both driveway is approximately 7.5 metres wide at the site boundary and provides car parking spaces in a tandem configuration.

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Vehicular access is currently provided via a driveway crossing onto Aldington Road. The driveway is located on the most northern end of the property. Both driveway is approximately 7.5 metres wide at the site boundary and provides car parking spaces in a tandem configuration.

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3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

-  Mamre Road: a State Road (SR629) which traverses in a north-south direction between Elizabeth Drive in the south and the Great Western Highway in the north. Mamre Road is subject to an 80 km/h speed zoning and carries two traffic lanes, one in each direction in close proximity to the site.
-  Bakers Lane: a local lane which traverses in an east-west direction between Mamre Road in the east and Aldington Road in the west. Bakers Lane is subject to a 60k/h speed zoning and carries two (2) traffic lanes, one (1) in each direction.
-  Aldington Road: a local road which traverses in a north-south direction between Bakers Lane in the north and Abbots Road in the south. Aldington Road is subject to an 80 km/h speed zoning and carries two (2) traffic lanes, one (1) in each direction.
-  Abbots Road: a local road which traverses in an east-west direction between Mamre Road in the west and a cul-de-sac configuration in the east. Abbots Road is subject to a 50km/h speed zoning and carries two (2) traffic lanes, one (1) in each direction.

It can be seen from **Figure 3** that the site is conveniently located with respect to the arterial and local road systems serving the region. It is therefore able to effectively distribute traffic onto the wider road network, minimising traffic impacts.

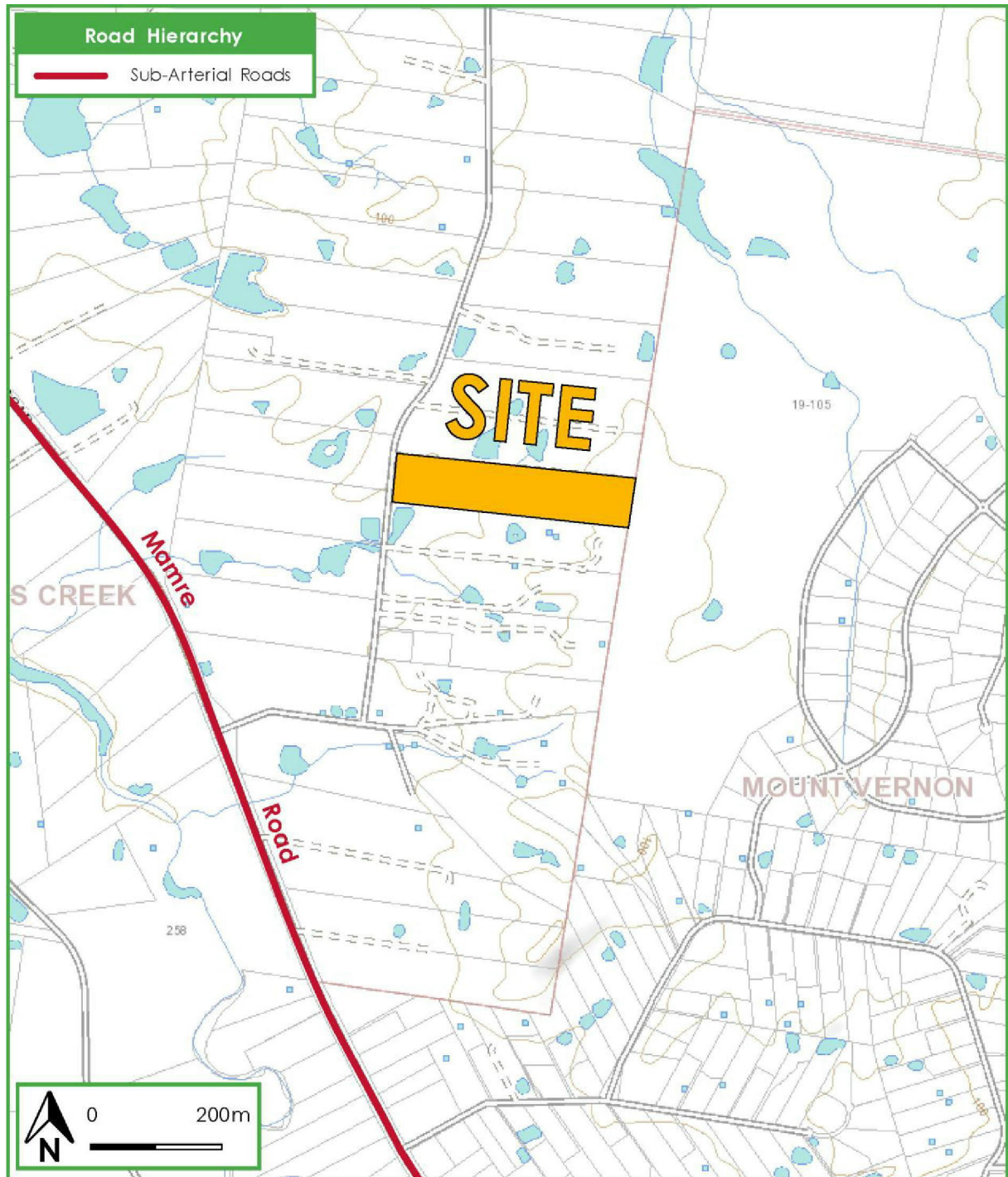


Figure 3: Road Hierarchy



3.2 Public Transport

Currently Kemps Creek has little development and subsequently there is limited public transport available within the surrounds of the subject site.

3.3 Existing Site Generation

As previously mentioned, the subject site is currently occupied by one (1) dwelling houses. Current RMS Guidelines as applied to low density residential dwellings shows that the houses would each generate 0.95 and 0.99 peak hour trips for the morning and evening peak hours respectively. With one (1) existing dwelling house on the site, it is evident that it currently generates a peak hour traffic generation of about one (1) vehicle trip during both the AM and PM peak hour.

3.4 Key Intersections

The pedestrian and vehicular access for the subject site is located on Aldington Street, Kemps Creek. The intersection of Bakers Lane with Mamre Road is considered to be the key intersections surrounding the site. A description of the intersection is provided below. The intersection of Bakers Lane and Mamre Road is currently signalised. An aerial image of the intersection is provided in **Figure 4** below.

Figure 4 shows that Bakers Lane east of the intersection with Mamre Road provides access to private properties only. The eastern leg of the subject intersection is sign controlled with a stop control whilst all other legs are signalised. Upon review of the intersection survey counts it is evident that the traffic volume accessing and egressing from the eastern leg are negligible and therefore the eastern leg of the intersection have been omitted from the SIDRA model in this report.



Figure 4: Aerial of Existing Intersection of Mamre Road & Bakers Lane.

3.5 Existing Intersection Performance

Traffic count surveys and intersection performance testing of the key intersection identified in **Section 3.4** has been undertaken to assess the existing network conditions using the SIDRA modelling software program. The survey results are provided in **Appendix B** for reference.

The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system



being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown overleaf:

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
<i>A</i>	less than 14	Good operation	Good operation
<i>B</i>	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
<i>C</i>	29 to 42	Satisfactory	Satisfactory but accident study required
<i>D</i>	43 to 56	Operating near capacity	Near capacity and accident study required
<i>E</i>	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
<i>F</i>	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

A summary of the modelled results are provided in **Table 1** below. Reference should also be made to the SIDRA outputs included in **Appendix C** which provide detailed results for individual lanes and approaches.

Table 1: AM & PM Peak Hour Intersection Performances

Intersection Description	Control Type	Model	Period	Degree of Saturation	Intersection Delay (sec)	Level of Service
Mamre Road / Bakers Lane	Signals	Existing	AM	0.840	24.3	B
			PM	0.837	14.4	A

It can be seen from Table 1 that all key intersections are operating with acceptable delays and a Level of Service of B and A during the critical AM and PM peak period respectively.



4. Description of Proposed Development

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development for which approval is now sought comprises the following components:

- Provision of a BAPS Swaminarayan Hindu Temple providing 3,821 m² GFA including:
 - 1,236 m² Assembly Hall & Youth Centre;
 - 3,821 m² Dinning & Multi Use Facility;
 - 340 m² GFA for Administrative Offices; and
 - 660 m² GFA for a traditional temple for meditation, Monk's residence, prayers rituals and festivals
- Gardens;
- Souvenir Shop; and
- The provision of ground level car park, with a total of 301 spaces for the development.

The parking and traffic impacts arising from the development are discussed in Sections 5 and 6, respectively. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix D**.



5. Parking Requirements

5.1 Parking Demand of Proposed Development

The Penrith City Council DCP does not provide a car parking rates for a community facility, entertainment facilities/ function centres, fitness centres and places of public worships as provided in **Table 2** below.

Table 2: Parking Rates and Provision

Use	DCP Type	Maximum	DCP Rate	Requirement
Administrative Offices	Office	340 m ²	1 space per 40m ² GFA	9
Dinning and Multi Use Facility	Entertainment Facilities/ Function Centres	245 seats; 3,821 m ²	1 space per 3.5 seats or 1 space per 3.5m ² GFA, whichever is greater	244
Assembly Hall and Youth Centre	Fitness Centre including Gym	1,236 m ²	7 spaces per 100m ² GFA	87
Monks Residence & Temple	Place of public worship	50 seats; 660 m ²	1 space per 4 seats or 1 spare per 6m ² of gross floor area, whichever is greater	110
Total:				450

It can be seen from Table 2 that the proposed development requires a minimum of 450 parking spaces for the proposed development under the requirements of Penrith City Council's DCP. However it is considered that the operation of the proposed Hindu Temple facility demonstrates that the parking requirement is significantly reduced as that multiple facilities listed above are used by visitors in a single visit. It is also noteworthy that the following times are the normal weekly operational peaks:

- Individual prayer and meditation on weekdays between 7:00am and 11:30am and between 4:00pm and 7:00pm; and
- Attendance of the whole congregation (an anticipated 600 people) on Sunday between 4:30pm and 6:30pm.

Therefore an additional parking assessment based on the proposed operation of the site is detailed below.

The site operation details of the Hindu Temple facility are detailed in **Table 3** below. It is noteworthy that the site is proposed to operate in the same manner as two (2) of the existing Hindu Temple Facilities in Sydney.



Table 3: Site Operation Details

Day	Operational hours	Expected Visitors	Expected Visit Duration
Monday	7:00am – 11:30am	50	Maximum stay 15 minutes
	4:00pm – 7:00pm		
Tuesday	7:00am – 11:30am	50	Maximum stay 15 minutes
	4:00pm – 7:00pm		
Wednesday	7:00am – 11:30am	50	Maximum stay 15 minutes
	4:00pm – 7:00pm		
Thursday	7:00am – 11:30am	50	Maximum stay 15 minutes
	4:00pm – 7:00pm		
Friday	7:00am – 11:30am	50	Maximum stay 15 minutes
	4:00pm – 7:00pm		
Saturday	7:00am – 11:30am	50	Maximum stay 15 minutes
	4:00pm – 7:00pm		
Sunday	4:30pm – 6:30pm	600	Maximum stay 2 hours
Major Event	4:30pm – 6:30pm	800	Maximum 5 events a year

As can be seen in Table 3 above the maximum expected number of visitors to the site is 800 people on a special event day which is considered to occur a maximum of five (5) times a year. In response the proposed development provides 301 off-street car parking spaces. It is considered that many people visiting the site will travel with other family members. Therefore a car occupancy rate of 3.0 has been adopted which is in line with observations made at the two (2) existing centres in Sydney on Major Event days. Therefore the parking provision is considered to accommodate the expected parking demand of 267 car spaces under the Major Event scenario. It is emphasised that no on-street spaces are relied upon for the proposed development.

Furthermore Table 3 demonstrates that the normal week peak period will occur on a Sunday between 4:30pm and 6:30pm when 600 patrons are expected to visit the centre. It is considered the parking demands of these patrons will be readily accommodated within the site with similar car occupancy rates for this weekly event.

5.2 Disabled Parking

Penrith City Council's DCP does not include specific parking rates for this type of development. Notwithstanding, application of the Building Code of Australia Table D3.5 provides a rate for 1 space



for every 50 car parking spaces or part thereof. The development provides a total of 301 parking spaces and is therefore required to provide a minimum of six (6) disabled parking space. In response, the proposed development provides six (6) accessible parking space. This complies with the requirements and is considered acceptable.

5.3 Servicing

It is proposed that all garbage collection be undertaken within the site by Council. Penrith City Council's waste collection vehicle is a 10.5m rigid vehicle. Swept path analysis has been undertaken on the design vehicle confirming satisfactory access and egress in a forward direction from the proposed accesses. The swept path analysis is including in **Appendix E** for reference. This arrangement is considered acceptable having regard for the moderate size of the development.

The development does not propose any designated service vehicle parking spaces. Notwithstanding this, it is noted that all servicing of the site will be undertaken with the use of cars and vans outside times of peak parking demands. Hence, service vehicles will generally utilise vacant parking spaces for all deliveries.



6. Traffic Impacts

6.1 Trip Generation

Network Peak:

The RMS Guideline does not provide a traffic generation rate for a Place of Public Worship. Accordingly, the traffic generation of the proposed place of public worship has been determined from first principles. The traffic generation associated with the community centre during the network peak will occur on the weekday morning between 7:00am – 11:30am and evening between 4:30pm to 6:30pm, when 50 visitors are expected at the community centre. Under a worst case scenario when all cars arrive and depart within the same hourly period, the traffic generation associated with this number of visitors is expected to be in the order of 100 veh/hr. For purposes of assessment, the 100 vehicle trips will be split equally into both directions with the following trip generation expected:

- ➊ 100 vehicle trips (50 in; 50 out) during the AM peak period; and
- ➋ 100 vehicle trips (50 in; 50 out) during the PM peak period.

The above generations will be expected to travel through the intersection of Mamre Road and Baker Street under a worst case scenario and will be split in both directions (50 in / 50 out) distributed to the north and south along Mamre Street, thereby minimising impacts. To assess the above volume increases SIDRA modelling was undertaken for the critical intersection with the proposed developments expected traffic generation.

Development Peak:

The traffic generation of the proposed place of public worship has been determined from first principles for the site's peak traffic generation period which is considered to occur on a Sunday afternoon between 4:30pm and 6:30pm. During this period up to 600 visitors are expected to visit the site. With a car occupancy of 2.0 the following traffic generation is expected:

- ➌ 300 vehicle trips (150 in; 150 out) during the Sunday PM peak period

The above generations will be expected to travel through the intersection of Mamre Road and Baker Street under a worst case scenario and will be split in both directions (50 in / 50 out) distributed to the north and south along Mamre Street, thereby minimising impacts. As the above generation is expected to fall outside of commuter peak periods no SIDRA modelling is considered necessary. Furthermore the development site is located in an unpopulated and underdeveloped area and is unlikely to have any significant traffic impacts on the Sunday afternoon network.



6.2 Peak Period Intersection Performances

Modelling of the key intersections identified has focused on the 7:45am - 8:45am weekday peak period and 4:00pm - 5:00 pm weekday peak period. A summary of the modelled results are provided in **Table 4** below.

Table 4: Existing and Future AM & PM Peak Hour Intersection Performances

Intersection Description	Control Type	Model	Period	Degree of Saturation	Intersection Delay (sec)	Level of Service
Mamre Road / Baker Lane	Signals	Existing	AM	0.840	24.3	B
			PM	0.837	14.4	A
		Existing + Development	AM	0.857	29.7	C
			PM	0.837	14.4	A

It can be seen from Table 4 that all key intersections are expected to operate satisfactorily under the proposed future scenario with a Level of Service of A being maintained at the critical intersection during the PM peak period with a slight decrease in Level of Service to a C during the AM Peak period which and slight increase in delay. Reference should be made to the SIDRA Outputs provided in **Appendix C**. Notwithstanding, it is considered that the existing road network and intersections can readily accommodate the proposed development.

6.3 Residential Amenity

The potential impacts of the development on the amenity of existing residents is most appropriately assessed having regard to traffic volumes on affected road sections, based upon the concept of 'environmental capacity'. In doing so, it must be acknowledged that the concept of 'environmental capacity' of a road is not an exact science. It is dependent upon many factors, including the function (classification) of the road, historic traffic levels, traffic composition (notably the percentage of heavy vehicles), vehicle speeds, road widths, road gradients, road surface conditions, distances to building façades and type of building construction. In addition, individual people have different responses to the prevailing conditions so that circumstances that one person finds unacceptable may be acceptable to another. These variables are set out in Section 4.3 of the RMS *Guide to Traffic Generating Developments*.



Nevertheless, RMS has formulated design criteria for local and collector residential streets that take due account of amenity and safety considerations. These include an environmental goal and a maximum goal for local and collector roads as follows:

Road Class	Environmental Goal (veh/hr)	Maximum Volume (Veh/hr)
Local Street	200	300
Collector Street	300	500

Based on the development forecast peak hour generation at key times and the fact that these trips can use several routes to access the site, it is evident that that there will be a negligible increase in traffic volumes on all affected routes and that environmental amenity will not be an issue.



7. Access & Internal Design Aspects

7.1 Access

The development nominally requires a Category 3 Driveway under AS 2890.1 (2004), being a separate entry driveway of 6.0m and an exit driveway of width 4.0 to 6.0 metres with a separation of 1 to 3 metres. In response, the development proposes two (2) combined entry / exit driveways of width 7.6 metre access at the northern and southern ends of the site onto Aldington Street, thereby exceeding (superior to) the requirements of AS 2890.1 (2004).

7.2 Internal Design

The proposed car parks generally comply with the requirements of AS 2890.1 (2004) and the following characteristics are noteworthy:

7.2.1 Parking Modules

- All parking spaces are to be designed in accordance with a Class 1A user and are provided with a minimum space length of 5.4m, a minimum width of 2.4 metres and a minimum aisle width of 5.8 metres.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm. All columns are to be located outside of the parking space design envelope shown in Figure 5.2 of AS 2890.1 (2004).
- Dead-end aisles are provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1 (2004).
- A single accessible parking space is designed in accordance with AS 2890.6 (2009). The space are provided with a clear width of 2.4 metres and located adjacent to a minimum shared area of 2.4 metres.
- A maximum gradient of 1:20 (5%) has been provided throughout the site for the gradient parallel to the angle of parking and a maximum 1:16 (6.25%) in any other direction in accordance to the requirements of AS2890.1 (2004).
- A maximum gradient of 1:40 in all directions has been provided for all accessible and shared areas.



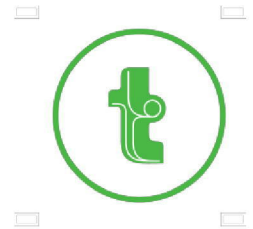
7.2.2 Clear Head heights

- A minimum clear head height of 2.2 metres is required for all areas within the car park as required by AS 2890.1 (2004). Increased headroom of 2.5 metres is required above accessible parking spaces.

7.2.3 Other Considerations

- Appropriate pedestrian visual splays are provided at the access driveway.
- A swept path analysis of all critical movements has been undertaken to confirm geometry and compliance with the relevant standards. The swept path assessment is included in **Appendix E**.

In summary, the internal configuration of the car park has been designed in accordance with AS 2890.1 (2004) and AS 2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments (if any) can be dealt with prior to the release of a Construction Certificate.



8. Conclusions

In summary:

- The development seeks to provide a Community Facility to provide community and educational based programs separately for youths and adults;
- The car parking assessment for the development was generated using a 'first principles' approach. Application of these rates results in a requirement for a total of 267 car parking spaces. In response, the development proposes to provide 301 car parking spaces. Provision of these within the car park will ensure that all parking will be accommodate on-site.
- The traffic generation arising from the proposed community centre development has been assessed as a net increase over and above existing traffic conditions. The increase is 100 veh/hr and 100 veh/hr, during the AM and PM peak periods respectively. These trips will be split into both directions and can be readily accommodated, with minimal impacts on the surrounding road system;
- The proposed development will create minimal traffic impacts that can be readily accommodated on the surrounding road network;
- The proposed car park generally complies with the requirements of both AS 2890.1 and AS 2890.6. The car park has also been assessed using the computer program Auto Track, as permitted by AS 2890.1 (2004) and operates safely and efficiently. Any minor adjustments to ramp swept paths can be made at construction certificate stage;

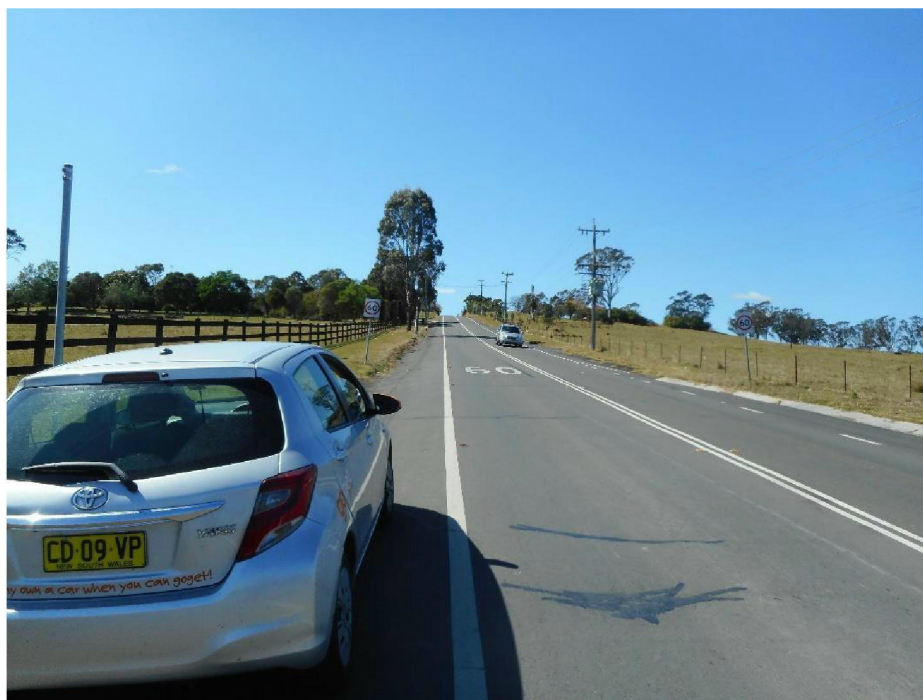
It is therefore concluded that the proposed development is supportable on traffic planning grounds and will operate satisfactorily.

Appendix A

Photographic Record



View looking west on Bakers Lane at intersection with Mamre Road, Kemp's Creek



View looking east on Bakers Lane at Adlington Road, Kemp's Creek





View looking north on Aldington Road, Kemps Creek.



View looking south on Aldington Road, Kemps Creek.



Appendix B

Survey Results



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

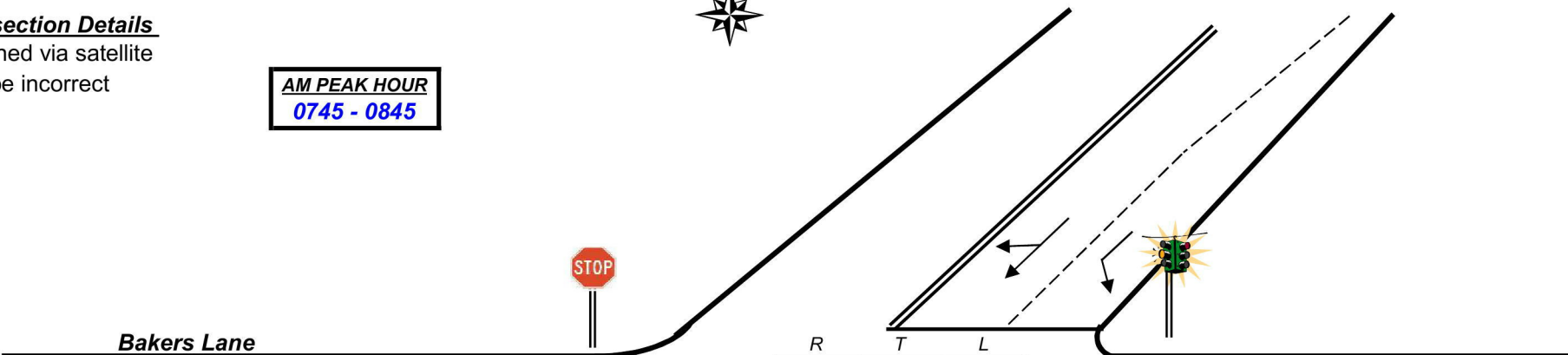
Client : Traffix
Job No/Name : 6578 KEMPS CREEK Bakers Lane
Day/Date : Wednesday 13th September 2017

Intersection Details

Obtained via satellite

May be incorrect

AM PEAK HOUR
0745 - 0845



R	T	L	AM	PM
2	644	581		
1	775	62		

AM	PM	L	T	R
1	3			
1	2			
0	3			

No Signals

PM	AM	L	T	R
3	705			8
0	786			60

R	T	L	PM	AM
115	360			
0	1			
8	45			

PM PEAK HOUR
1600 - 1700

Weather >>>



Mamre Rd

Bakers Lane

Appendix C

SIDRA Outputs

MOVEMENT SUMMARY

 **Site: 101 [Mamre Road & Baker Lane, Kemps Creek - EX AM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mamre Road											
2	T1	827	0.0	0.759	12.0	LOS A	20.9	146.6	0.78	0.72	50.1
3	R2	63	0.0	0.397	40.7	LOS C	2.2	15.4	0.98	0.75	35.4
Approach		891	0.0	0.759	14.0	LOS A	20.9	146.6	0.79	0.72	48.7
East: Baker Lane											
4	L2	47	0.0	0.062	18.7	LOS B	1.0	6.8	0.63	0.69	44.9
6	R2	379	0.0	0.840	39.7	LOS C	14.5	101.2	1.00	0.96	35.6
Approach		426	0.0	0.840	37.4	LOS C	14.5	101.2	0.96	0.93	36.4
North: Mamre Road											
7	L2	612	0.0	0.795	28.4	LOS B	20.2	141.7	0.94	0.91	40.2
8	T1	678	0.0	0.839	25.9	LOS B	24.2	169.7	0.96	0.98	42.1
Approach		1289	0.0	0.839	27.1	LOS B	24.2	169.7	0.95	0.95	41.1
All Vehicles		2606	0.0	0.840	24.3	LOS B	24.2	169.7	0.90	0.87	42.5

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Organisation: TRAFFIX PTY LTD | Processed: Thursday, 5 October 2017 4:33:54 PM

Project: \\192.168.3.1\data\Synergy\Projects\17\17.323\Modelling\17.323m01v01 Mamre Road & Baker Lane, Kemps Creek.sip7

MOVEMENT SUMMARY

 **Site: 101 [Mamre Road & Baker Lane, Kemps Creek - EX PM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mamre Road											
2	T1	742	0.0	0.544	4.7	LOS A	10.5	73.6	0.52	0.47	55.7
3	R2	8	0.0	0.045	33.2	LOS C	0.2	1.6	0.93	0.66	38.1
Approach		751	0.0	0.544	5.0	LOS A	10.5	73.6	0.53	0.47	55.4
East: Baker Lane											
4	L2	8	0.0	0.015	21.4	LOS B	0.2	1.2	0.72	0.65	43.5
6	R2	121	0.0	0.652	36.7	LOS C	3.8	26.5	1.00	0.83	36.7
Approach		129	0.0	0.652	35.7	LOS C	3.8	26.5	0.98	0.82	37.0
North: Mamre Road											
7	L2	65	0.0	0.070	13.9	LOS A	1.0	6.9	0.54	0.69	47.8
8	T1	816	0.0	0.837	19.7	LOS B	24.5	171.5	0.93	0.95	45.3
Approach		881	0.0	0.837	19.2	LOS B	24.5	171.5	0.90	0.93	45.5
All Vehicles		1761	0.0	0.837	14.4	LOS A	24.5	171.5	0.75	0.73	48.4

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Project: \\192.168.3.1\data\Synergy\Projects\17\17.323\Modelling\17.323m01v01 Mamre Road & Baker Lane, Kemps Creek.sip7

MOVEMENT SUMMARY

 **Site: 101 [Mamre Road & Baker Lane, Kemps Creek - FU AM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mamre Road											
2	T1	827	0.0	0.818	17.9	LOS B	27.1	190.0	0.82	0.80	46.3
3	R2	89	29.4	0.777	51.7	LOS D	3.9	34.6	1.00	0.91	31.6
Approach		917	2.9	0.818	21.2	LOS B	27.1	190.0	0.84	0.81	44.3
East: Baker Lane											
4	L2	74	35.7	0.114	20.3	LOS B	1.7	15.6	0.62	0.71	43.3
6	R2	405	6.5	0.831	40.8	LOS C	16.9	124.7	0.98	0.94	35.1
Approach		479	11.0	0.831	37.6	LOS C	16.9	124.7	0.93	0.91	36.2
North: Mamre Road											
7	L2	638	4.1	0.857	36.8	LOS C	26.9	194.7	0.98	0.96	36.7
8	T1	678	0.0	0.843	28.9	LOS C	27.3	191.0	0.97	0.98	40.7
Approach		1316	2.0	0.857	32.7	LOS C	27.3	194.7	0.97	0.97	38.6
All Vehicles		2712	3.9	0.857	29.7	LOS C	27.3	194.7	0.92	0.91	39.9

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

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

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SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Project: \\192.168.3.1\\data\\Synergy\\Projects\\17\\17.323\\Modelling\\17.323m01v01 Mamre Road & Baker Lane, Kemps Creek.sip7

MOVEMENT SUMMARY

 **Site: 101 [Mamre Road & Baker Lane, Kemps Creek - FU PM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
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3	R2	8	0.0	0.045	33.2	LOS C	0.2	1.6	0.93	0.66	38.1
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6	R2	121	0.0	0.652	36.7	LOS C	3.8	26.5	1.00	0.83	36.7
Approach		129	0.0	0.652	35.7	LOS C	3.8	26.5	0.98	0.82	37.0
North: Mamre Road											
7	L2	65	0.0	0.070	13.9	LOS A	1.0	6.9	0.54	0.69	47.8
8	T1	816	0.0	0.837	19.7	LOS B	24.5	171.5	0.93	0.95	45.3
Approach		881	0.0	0.837	19.2	LOS B	24.5	171.5	0.90	0.93	45.5
All Vehicles		1761	0.0	0.837	14.4	LOS A	24.5	171.5	0.75	0.73	48.4

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

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

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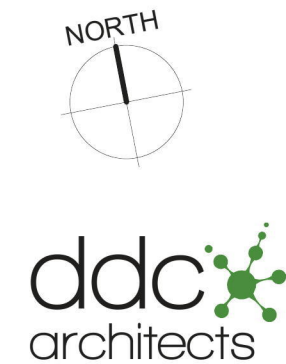
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Project: \\192.168.3.1\data\Synergy\Projects\17\17.323\Modelling\17.323m01v01 Mamre Road & Baker Lane, Kemps Creek.sip7

Appendix D

Reduced Plans

Revision Schedule		
issue#	date	description
A	24 Oct 2017	Draft DA for Coordination



Unit 3
112 Russell Street
Emu Plains NSW 2750
02 4728 6500

Project Title
BAPS Temple

Client
BAPS Swaminarayan Sanstha, Australia Ltd

Address
Aldington Road, Kemps Creek

Drawing Title
Site and External Works Plan - Landscape
Precinct

Drawn
Author

Checked
Checker

Scale
1 : 500 @ A1

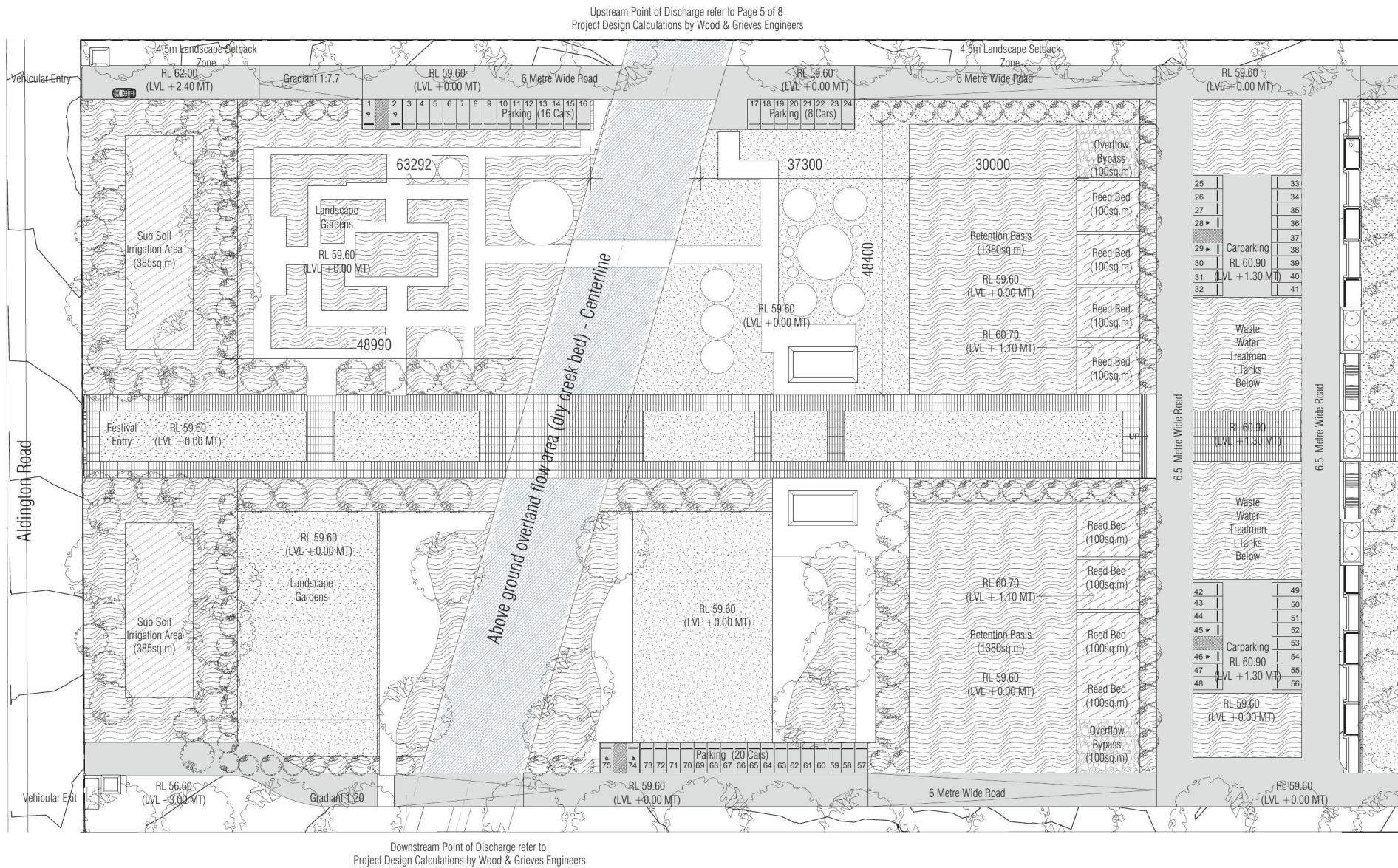
Drawing Number

16079 - DA-05

A Issue Date
8/11/2017
11:51:02 AM

DRAFT DA

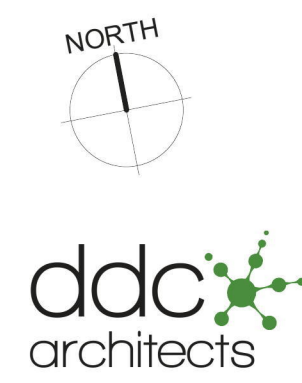
Landscape Zone



1 Proposed Site Plan - Landscaped Zone - With Above Ground Overland Flow 1 : 500

Car Parking: Landscape Zone - 75

Revision Schedule		
issue#	date	description
A	24 Oct 2017	Draft DA for Coordination



Unit 3
112 Russell Street
Emu Plains NSW 2750
02 4728 6500

Project Title
BAPS Temple

Client
BAPS Swaminarayan Sanstha, Australia Ltd

Address
Aldington Road, Kemps Creek

Drawing Title
Site and External Works Plan - Central Precinct

Drawn
Author

Checked
Checker

Scale
1 : 500 @ A1

Drawing Number

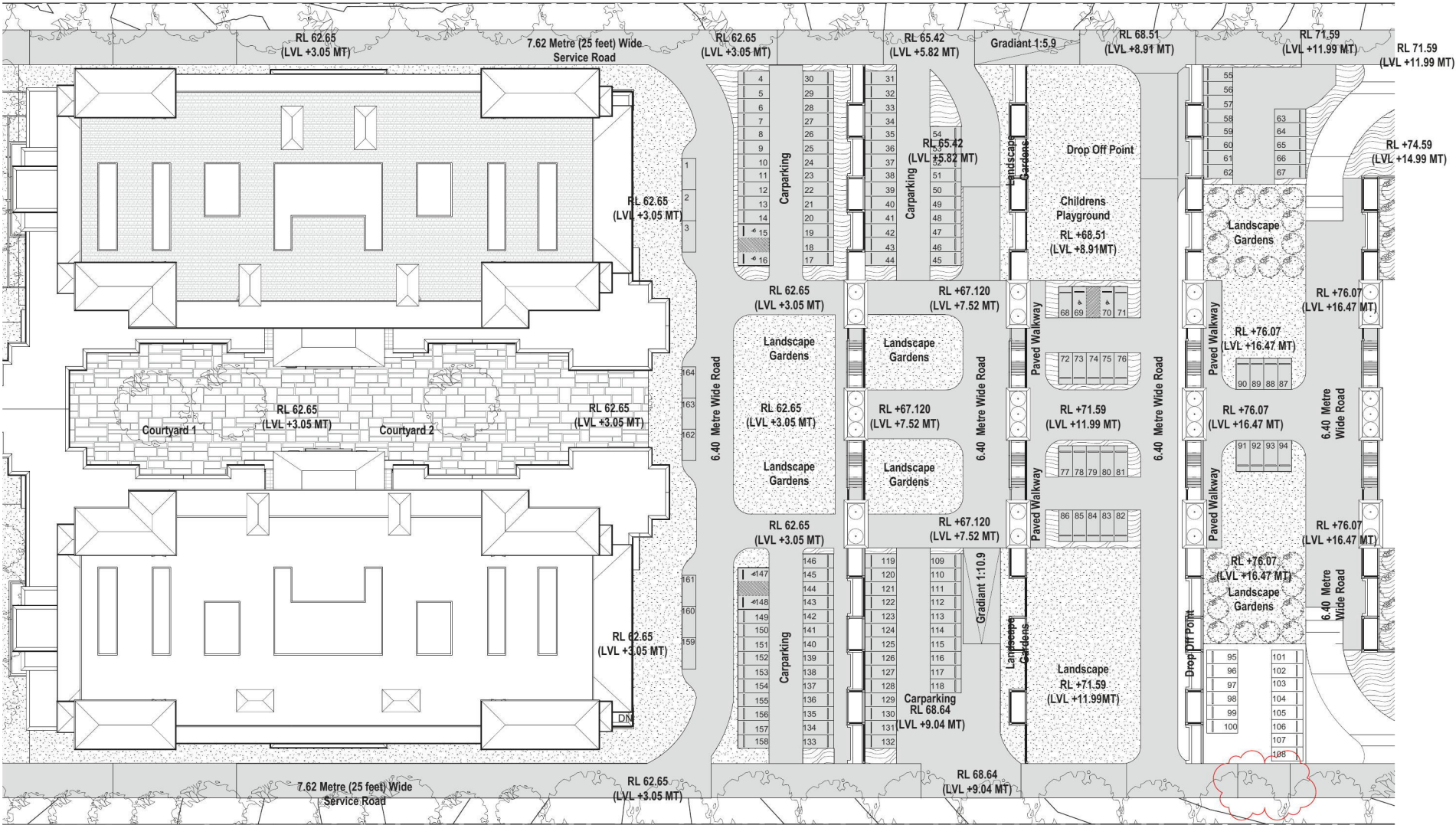
16079 - DA-06

A Issue Date
8/11/2017
11:51:22 AM

DRAFT DA

Central Facilities Level

Carpark &
Playground Zone



1 Proposed Site Plan - Central Facilities & Parking
1 : 500
Car Parking: Central Facilities - 164

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CONTRACTORS TO VERIFY ALL DIMENSIONS AND SETOUTS ON SITE BEFORE COMMENCING WORK.

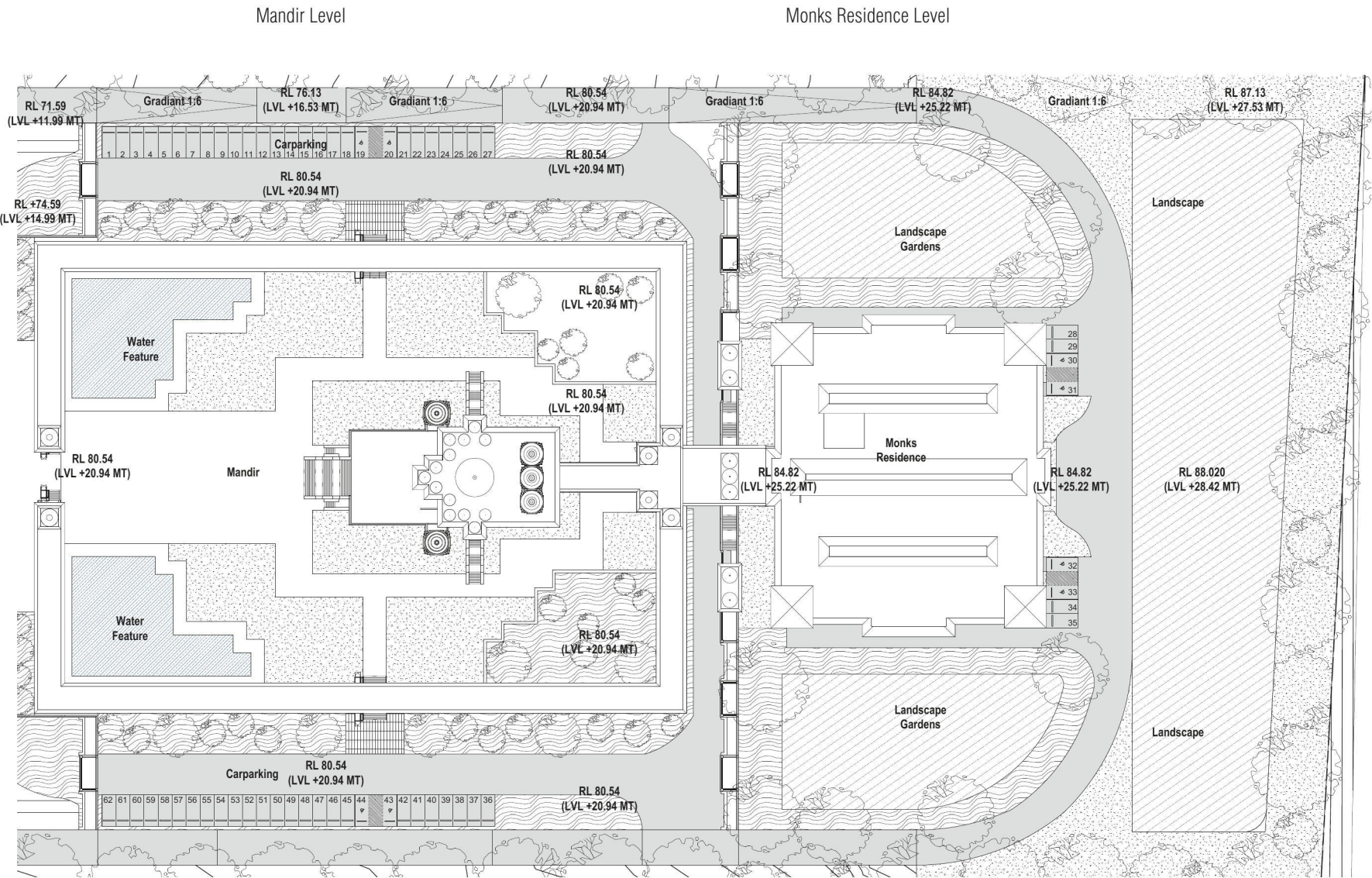
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TO BE READ IN CONJUNCTION WITH ENGINEERS DOCUMENTS.

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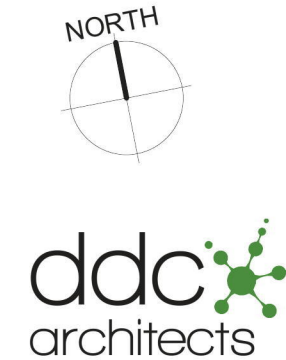
Revision Schedule		
issue#	date	description
A	24 Oct 2017	Draft DA for Coordination



1 Proposed Site Plan - Mandir & Monks Residence

1 : 500

Car Parking: Mandir & Monks Residence - 62



Unit 3
112 Russell Street
Emu Plains NSW 2750
02 4728 6500

Project Title
BAPS Temple

Client
BAPS Swaminarayan Sanstha, Australia Ltd

Address
Aldington Road, Kemps Creek

Drawing Title
Site and External Works Plan - Mandir & Monks Precinct

Drawn
Author

Checked
Checker

Scale
1 : 500 @ A1

Drawing Number

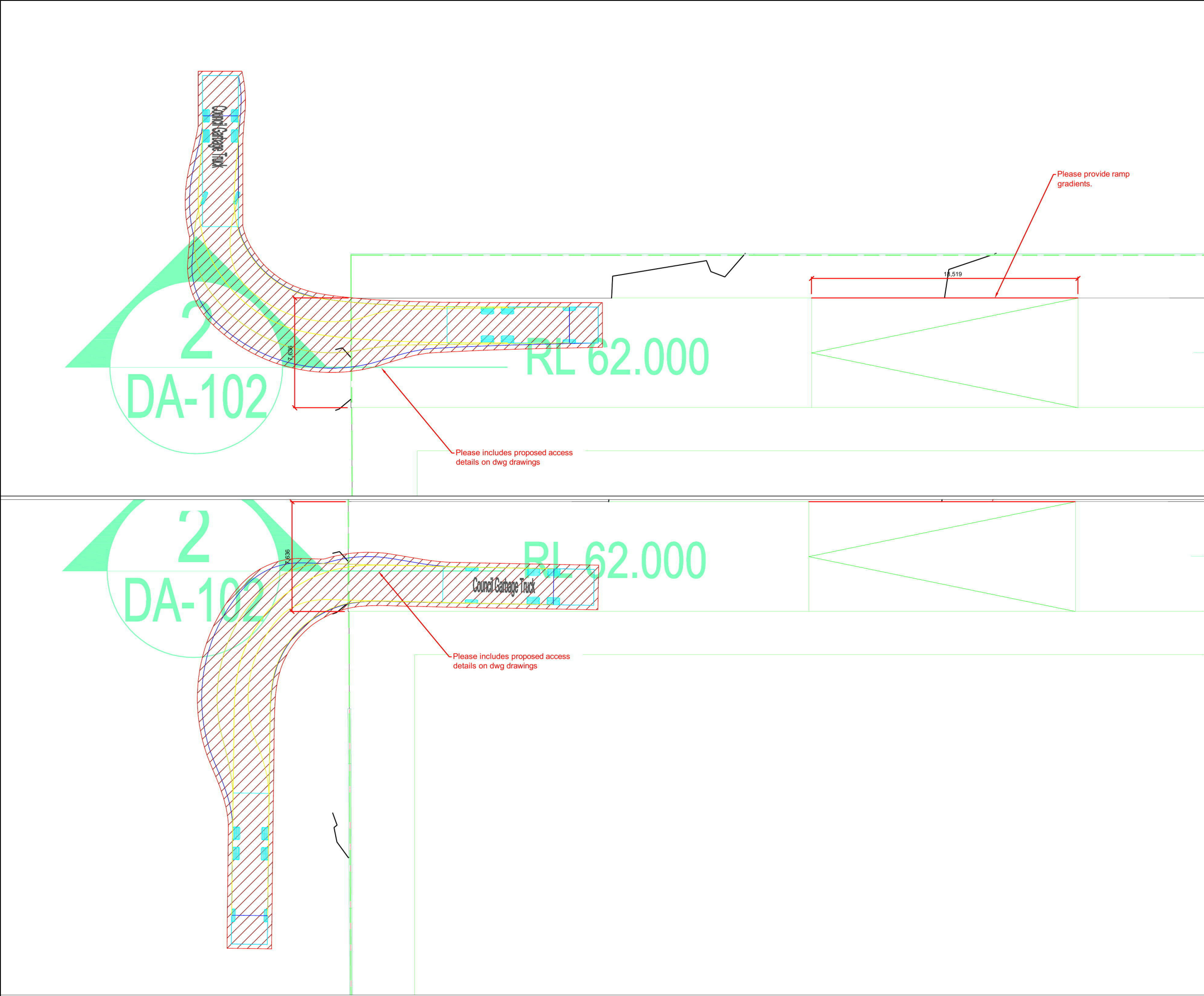
16079 - DA-07

A Issue Date
8/11/2017
11:51:37 AM

DRAFT DA

Appendix E

Swept Path Analysis



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1-2004 *Parking facilities - Off-street car parking*, and/or AS 2890.2-2002 *Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no. revision noteby. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

client

BAPS Australia
40 Eleanor Street
ROSEHILL 2142

scale

1:250 @ A3

0m12468

project

BAPS Community Centre
Kemps Creek

drawing prepared by

TRAFFIX

traffic and transport planners

Suite 2.08, 50 Holt Street
Surry Hills NSW 2010

P.O. Box 1124
Strawberry Hills NSW 2012

t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

traffix

traffic & transport planners

drawing title

Swept Paths

drawn: AKchecked: date: 05-10-2017

17.323project no.

-drawing phase.

TX.01drawing no.

-rev