

TRAFFIC & TRANSPORT ASSESSMENT

Amity College
85 Byron Road and 63 Ingleburn Road, Leppington

Reference: 18.300r01v05
Date: November 2019

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DOCUMENT VERIFICATION

Job Number	18.300			
Project	Amity College Leppington			
Client	Amity College Australia Ltd			
Revision	Date	Prepared By	Checked By	Signed
v05	21/11/2019	Kedar Ballurkar	Kedar Ballurkar	<i>Kedar Ballurkar</i>



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1. INTRODUCTION

TRAFFIX has been commissioned by Amity College Australia Ltd to undertake a Traffic Impact Assessment of a proposed educational establishment at 85 Byron Road & 63 Ingleburn Road in Leppington. Approval is sought for the construction of a school catering to years K-12 that will accommodate up to 1,000 students and 85 staff. The report also deals with the transport planning requirements under SEARS.

The proposed educational establishment is a state significant development and has been assessed with reference to the Secretary's Assessment Requirements (SEARs) as well as the planning controls for the Leppington Precinct under the South West Growth Area.

This report documents the findings of our investigations and should be read in the context of the Environmental Impact Statement prepared separately. Under Clause 57 of *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017*, the proposed development is of a scale and size that warrants referral to the Roads and Maritime Services (RMS). In addition, the SEARs process will require consultation with Council, RMS and Transport for NSW.

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: Presents details of the Green Travel Plan
- ▶ Section 8: Discusses access and internal design aspects
- ▶ Section 9: Addresses the SEARs
- ▶ Section 10: Presents the overall study conclusions



2. LOCATION AND SITE

The subject site partially encompasses two land parcels at 85 Byron Road and 63 Ingleburn Road, on the southwest corner of the intersection of these two roads. In a regional context, the site lies approximately 1.3 kilometres south of Leppington Station and 38 kilometres southwest of the Sydney central business district.

The two land parcels at 85 Byron Road and 63 Ingleburn Road combine to form a rectangular shaped in configuration, with a total area of approximately 3.15 hectares. They collectively form a single frontage to the south on Byron Road measuring approximately 285 metres in length and a frontage to the east on Ingleburn Road to the east measuring approximately 99 metres. The parcel at 63 Ingleburn Road wholly contains the northern and western boundaries, which adjoin a rural residential development and new road (under construction) respectively.

The subject development area forms a rectangular shaped site within these two land parcels and has a site area of approximately 2.23 hectares. It will extend for approximately 180 metres from Byron Road, extending east from the western site boundary.

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 provides an appreciation of the general character of roads and other key attributes in proximity to the site.

As part of the South West Growth Centre, the NSW Department for Planning & Environment has published an Indicative Layout Plan included in **Appendix B**. The plan illustrates the future road hierarchy and zoning for Leppington, where it is evident that the site will be bound by three frontages:

- ▶ A southern frontage to Byron Road measuring approximately 180 metres;
- ▶ A western frontage to a new local road measuring approximately 124 metres; and
- ▶ An eastern frontage to a new local road measuring approximately 106 metres.

The site is presently used for low density residential uses, with a single dwelling house positioned on 85 Byron Road (the dwelling on 63 Ingleburn Road is located external to the site). Two (2) vehicular accesses are provided to the site along Byron Road.

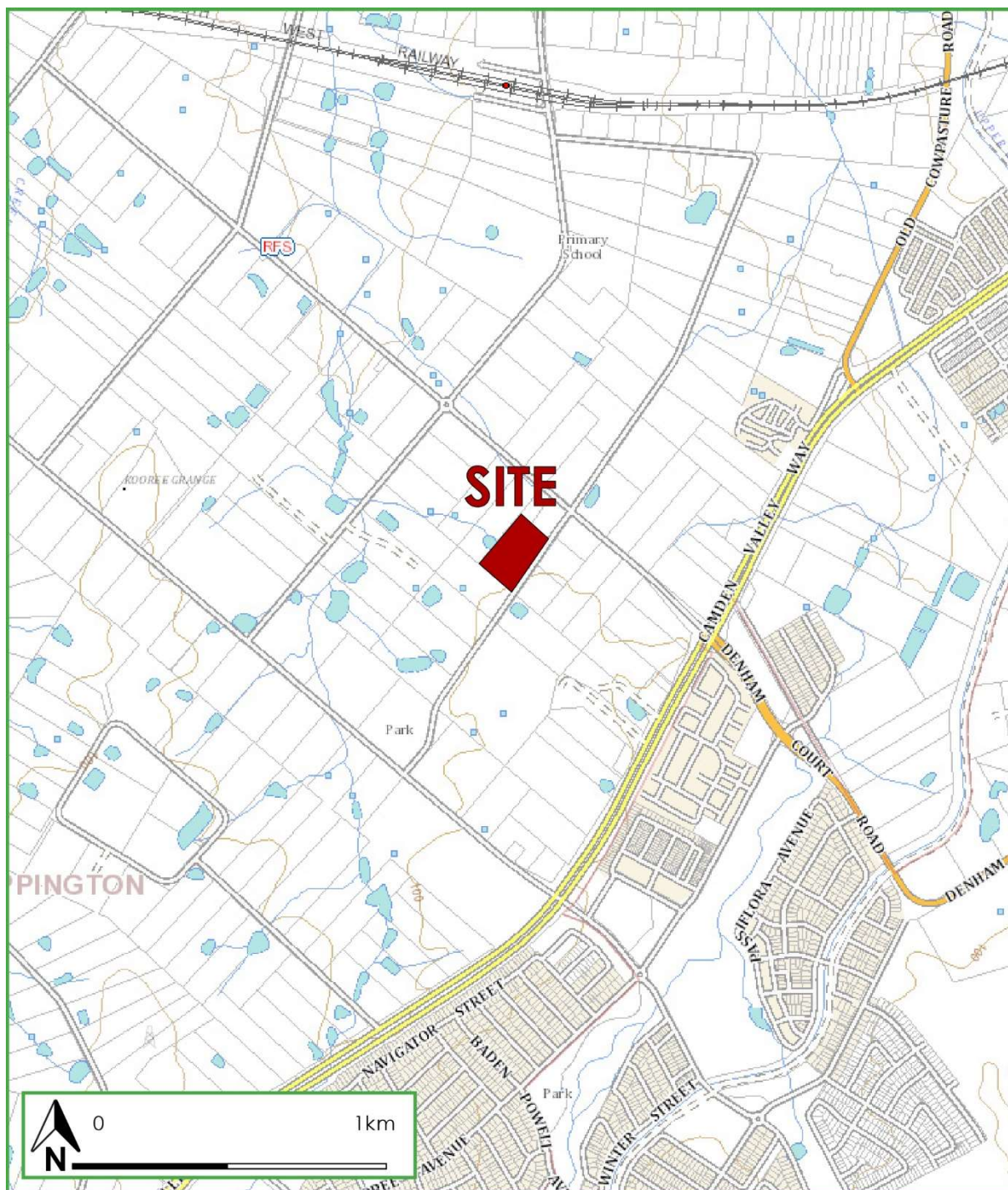


Figure 1: Location Plan



Figure 2: Site Plan



3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

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

- ▶ Camden Valley Way: an RMS Main Road (MR620) that generally runs in a north-south direction between the Hume Highway in the north and Narellan Road to the south. Camden Valley Way provides two lanes of traffic in each direction separated by a median and is subject to an 80km/h speed zoning.
- ▶ Ingleburn Road: a local road that generally runs in an east-west direction between Camden Valley Way in the east and Eastwood Road to the west. It provides a single lane of traffic in each direction and carries a 70km/h speed zoning. Under the precinct road hierarchy plan published in the *Camden Growth Centre Precincts Development Control Plan Schedule 5*, Ingleburn Road will be upgraded to a four lane sub-arterial road.
- ▶ Byron Road: a local road that traverses in a north-south direction between Rickard Road in the north and Heath Road to the south. It provides a single lane of traffic in each direction and is subject to a 70km/h speed zoning. Under the precinct road hierarchy plan published in the *Camden Growth Centre Precincts Development Control Plan Schedule 5*, Byron Road will be upgraded to a two lane collector road.

Reference should also be made to the Indicative Layout Plan in **Appendix B**. It is evident that the location of the site along Byron Road will ensure excellent connectivity within Leppington, whilst convenient access to the arterial road network on Camden Valley Way is provided via Ingleburn Road.

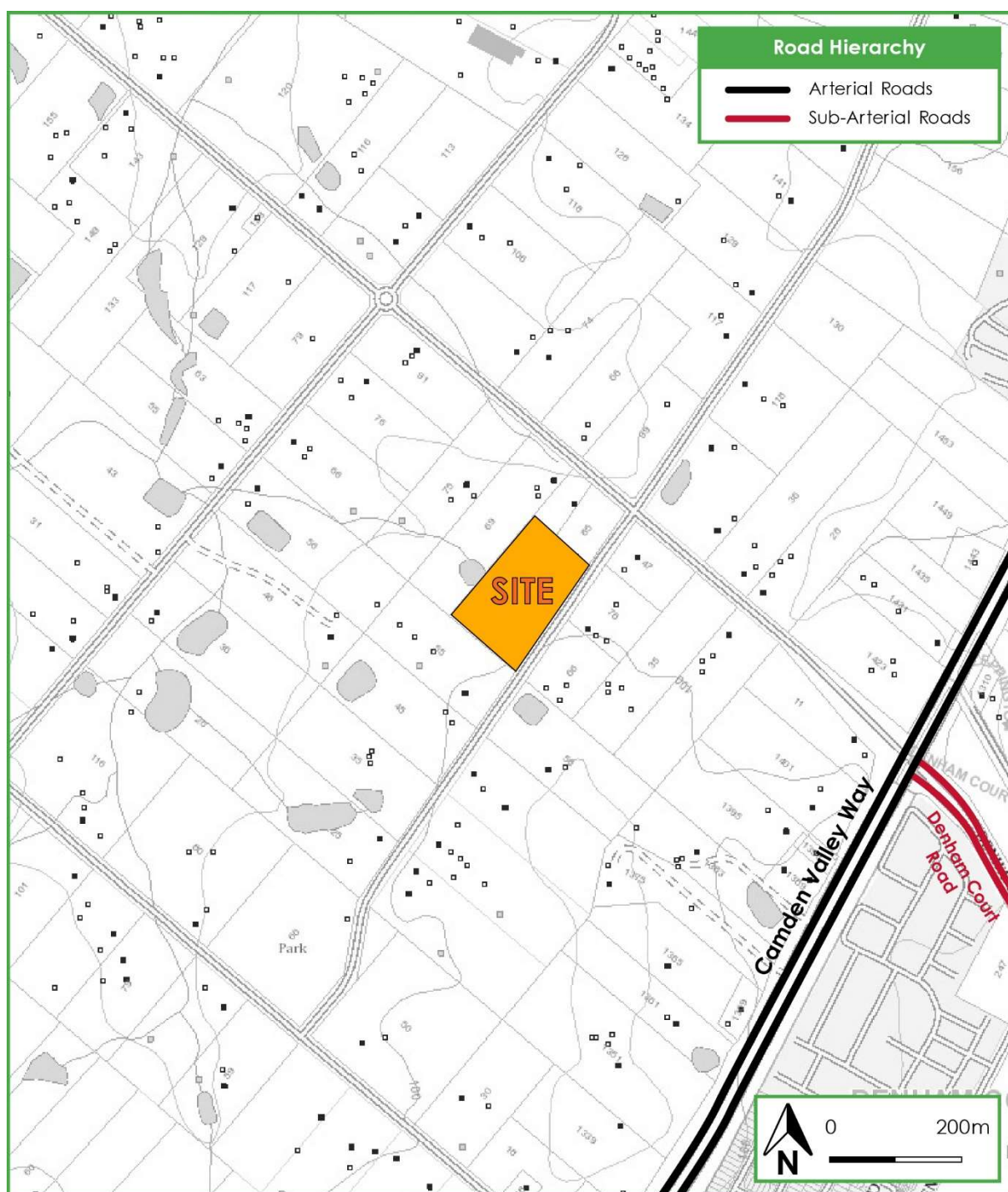


Figure 3: Road Hierarchy

3.2 Key Intersections

The key intersections in the vicinity of the site are shown below and provide an understanding of the existing road geometry and alignment in the locality.



Figure 4: Intersection of Ingleburn Road and Byron Road

It can be seen from **Figure 4** that Byron Road forms a four-way intersection with Ingleburn Road. The intersection is under priority control with all movements from Byron Road required to 'Give Way' to Ingleburn Road. Under the precinct road hierarchy plan published in the *Camden Growth Centre Precincts Development Control Plan Schedule 5*, this intersection will be upgraded to signals, along with the duplication of lanes on Ingleburn Road, which is to function as a sub-arterial road.



Figure 5: Intersection of Ingleburn Road, Camden Valley Way and Denham Court Road

It can be seen from **Figure 5** that the intersection of Ingleburn Road, Camden Valley Way and Denham Court Road has been recently upgraded to a four-legged signalised intersection. All legs of the intersection provide signalised pedestrian crossings, two slip lanes with signalised pedestrian crossings on the western side and two slip lanes with marked pedestrian crossings on the eastern side. The main attributes of each approach are outlined below.

- ▶ Camden Valley Way (north-east to south-west direction) :
 - The north-east bound approach provides two through lanes, one dedicated bus through lane, two right-turn lanes and one left-turn slip lane.
 - The south-east bound approach provides three through lanes, one dedicated bus through lane, one right-turn lane and one left-turn slip lane.
- ▶ Ingleburn Road and Denham Court Road (north-west to south-east direction):
 - The north-west bound approach (Denham Court Road) provides two through lanes, two right-turn lanes and one left-turn slip lane.
 - The south-west bound approach (Ingleburn Road) provides two through lanes, two right-turn lanes and one left-turn slip lane.



3.3 Public Transport

The existing bus services that operate in the locality are shown in **Figure 6**. It is evident that the development benefits from bus stops located nearby on Ingleburn Road. These stops are serviced by three routes which provide connections to centres such as Leppington Railway Station, Oran Park, Narellan and Liverpool.

It is envisaged that additional bus services will be introduced as the demand increases with further development within the Leppington Precinct. In this regard, Byron Road is to function as a collector road and would be ideal to form part of any new routes.

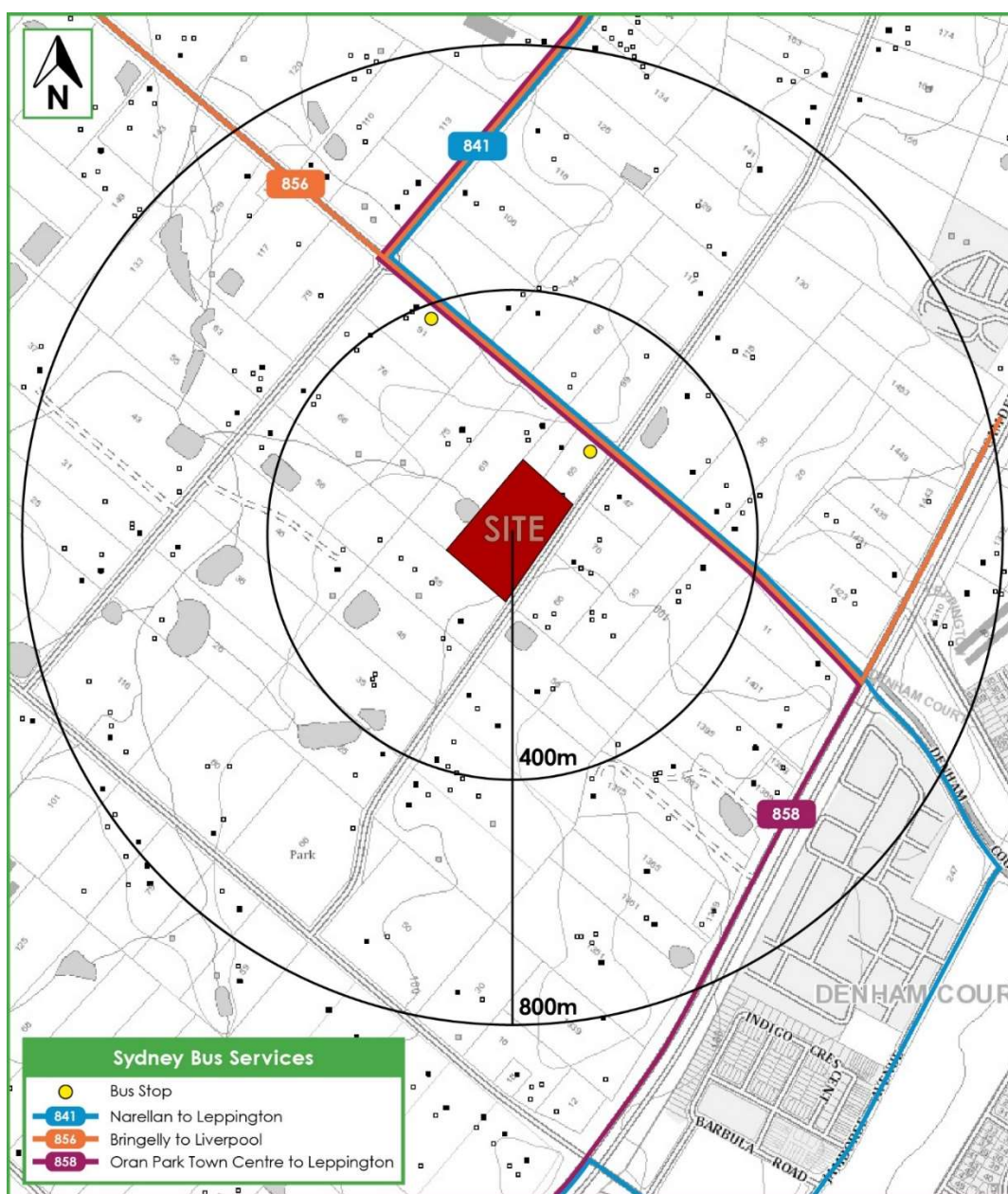


Figure 6: Public Transport

3.4 Pedestrian and Cycling Infrastructure

Currently there are no footpaths along Byron Road or Ingleburn Road. However, this will change as the area develops with the following cross sections from Camden City Council

Growth Centre Precinct DCP providing an indication of the future pedestrian and cycling infrastructure on all surrounding streets.

Figure 7 shows the cross section of a typical sub-arterial road which indicates what Ingleburn Road is expected to provide once it is upgraded. The provision of a shared path along both kerbsides will significantly improve pedestrian and cycling access along this corridor.

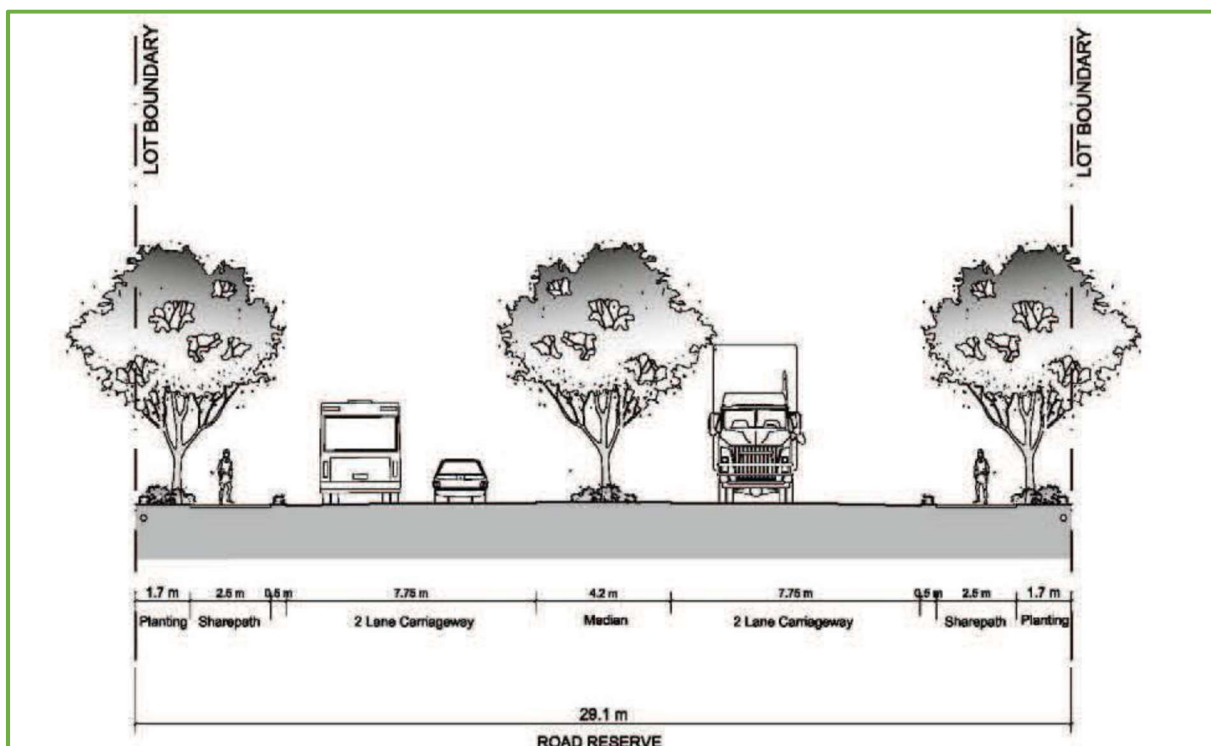


Figure 7: Cross section of typical sub-arterial road

Figure 8 and **Figure 9** show the cross section of a typical collector road which indicates what Byron Road is expected to provide once it is upgraded. The provision of either a shared path or footpath with on street cycleway in both directions will significantly improve pedestrian and cycling access along this corridor.

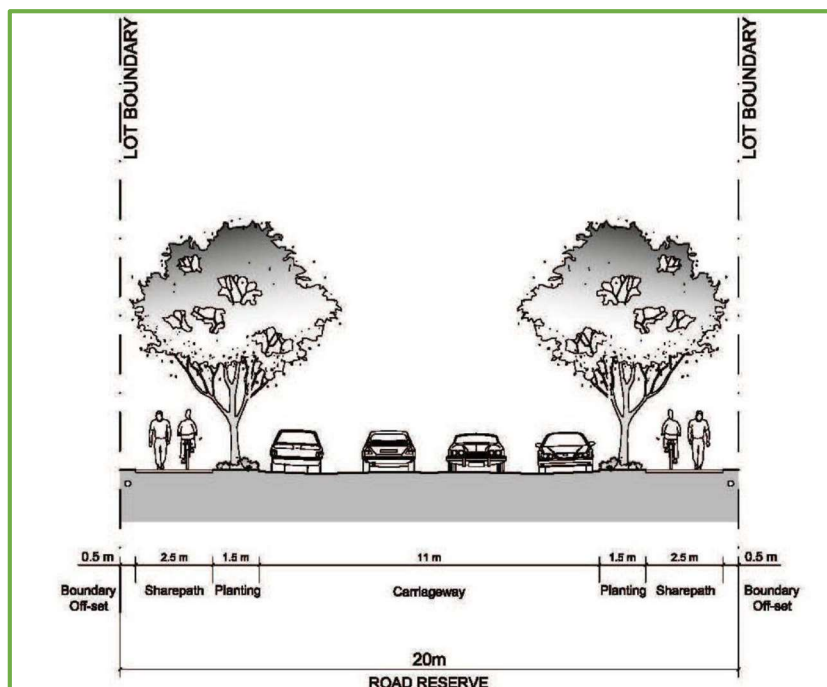


Figure 8: Cross section of typical collector road with sharepath

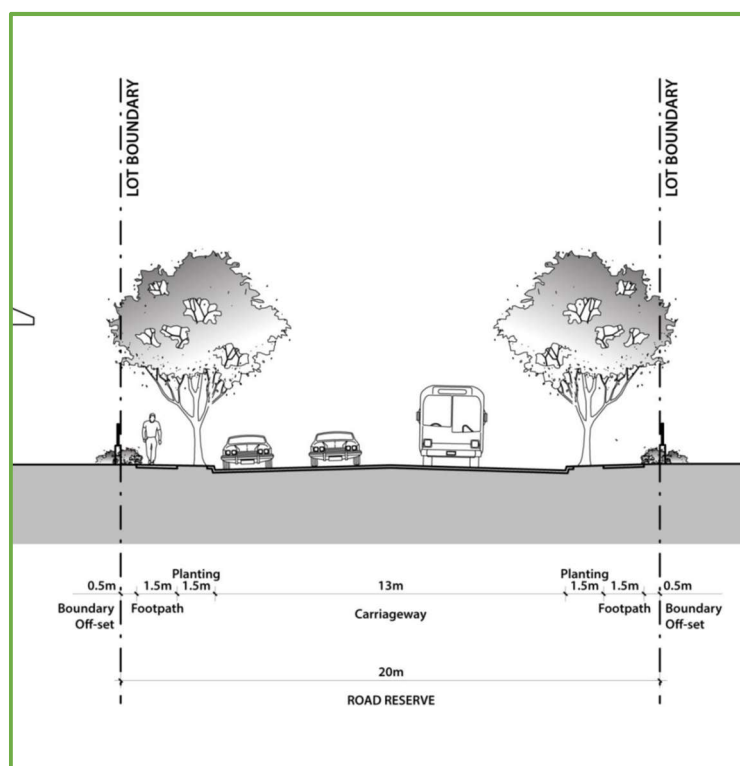


Figure 9: Cross section of typical collector road with on street cycle way

Figure 10 shows the cross section of a typical local road which indicates what the two roads along the north east and south western boundaries are expected to provide once they are upgraded. The provision of footpaths along both kerbsides will significantly improve pedestrian access along these corridors.

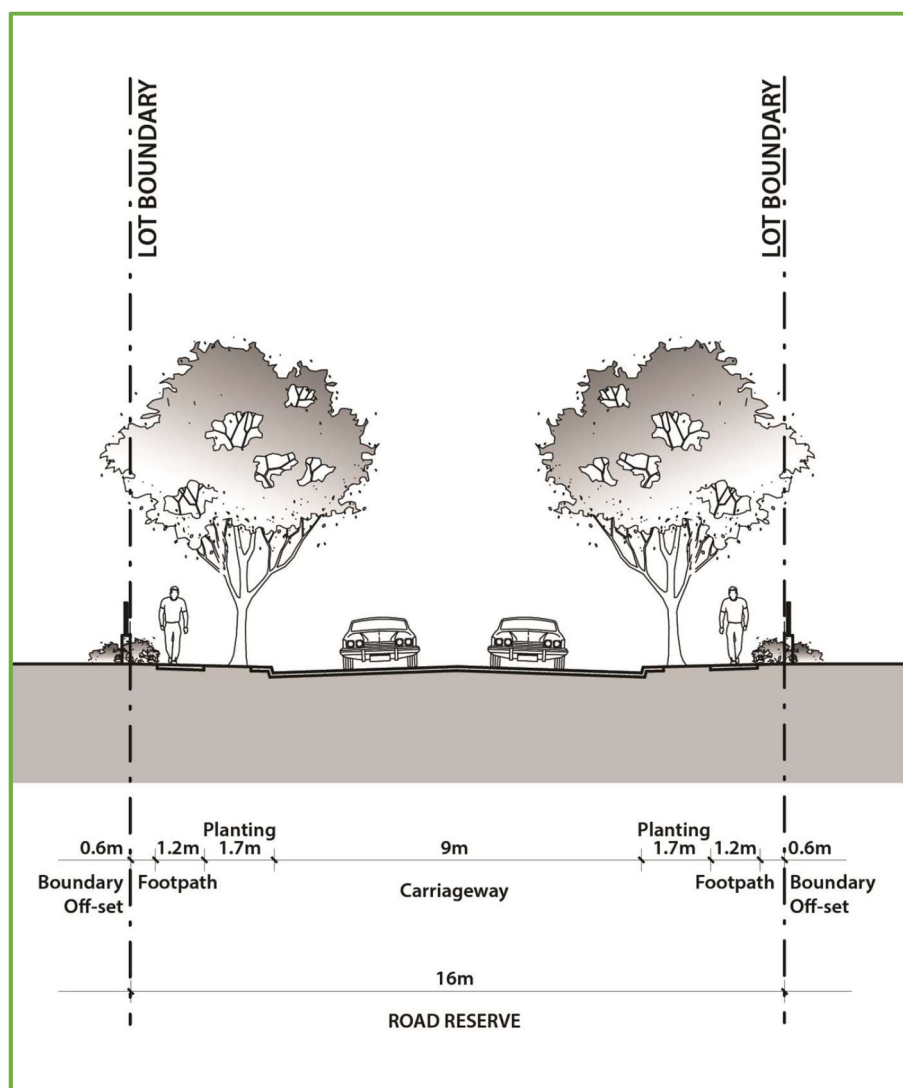


Figure 10: Cross section of typical local road



4. DESCRIPTION OF PROPOSED DEVELOPMENT

4.1 Proposed Development

A detailed description of the proposed development is provided in the Environmental Impacts Statement, prepared separately. In summary, this state significant development application seeks approval for the demolition of all existing structures on-site and for the construction of an educational establishment to operate as a school for years K-12, to be operated by Amity College.

The development application will seek approval for the following parking facilities:

► On-Site Parking:

- Two (2) separate basement car parks, accessed from the western and eastern local roads respectively, with total capacity for 94 parking spaces;
- An at-grade visitor parking area accessed from Byron Road, containing 10 spaces;
- An at-grade pick-up and drop-off area for primary school aged children, accessed from the western local road, with 10 angled spaces and a 42 metre parallel bay capable of accommodating seven (7) spaces; and
- Two (2) loading bays accessed separately from the western and eastern local roads, each capable of accommodating an 8.8m Medium Rigid Vehicle.

► On-Street Parking:

- 15 angled on street car parking spaces along the western kerbside of the eastern local road, suitable for pick-up and drop-off parking during school times; and
- A 69 metre intended bay on the northern kerbside of Byron Road, capable of accommodating four (4) buses.

The parking requirements and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**, respectively. Reference should be made to the architectural plans prepared by Gran Associates Australia, for which the site and basement plans are presented at reduced scale in **Appendix C**.



4.2 Development Staging

Construction of the proposed development will be staged over 20 years opening with three classrooms in 2019 and will reach 908 students by 2038. The *indicative* student and staff populations predicted over the next 20 years is shown in **Figure 11** with the school reaching 500 students and 49 staff in 2027 and 900 students and 83 staff in 2038. The school population will have an average increase of approximately 45 students and 4 staff per year over the next 20 years.

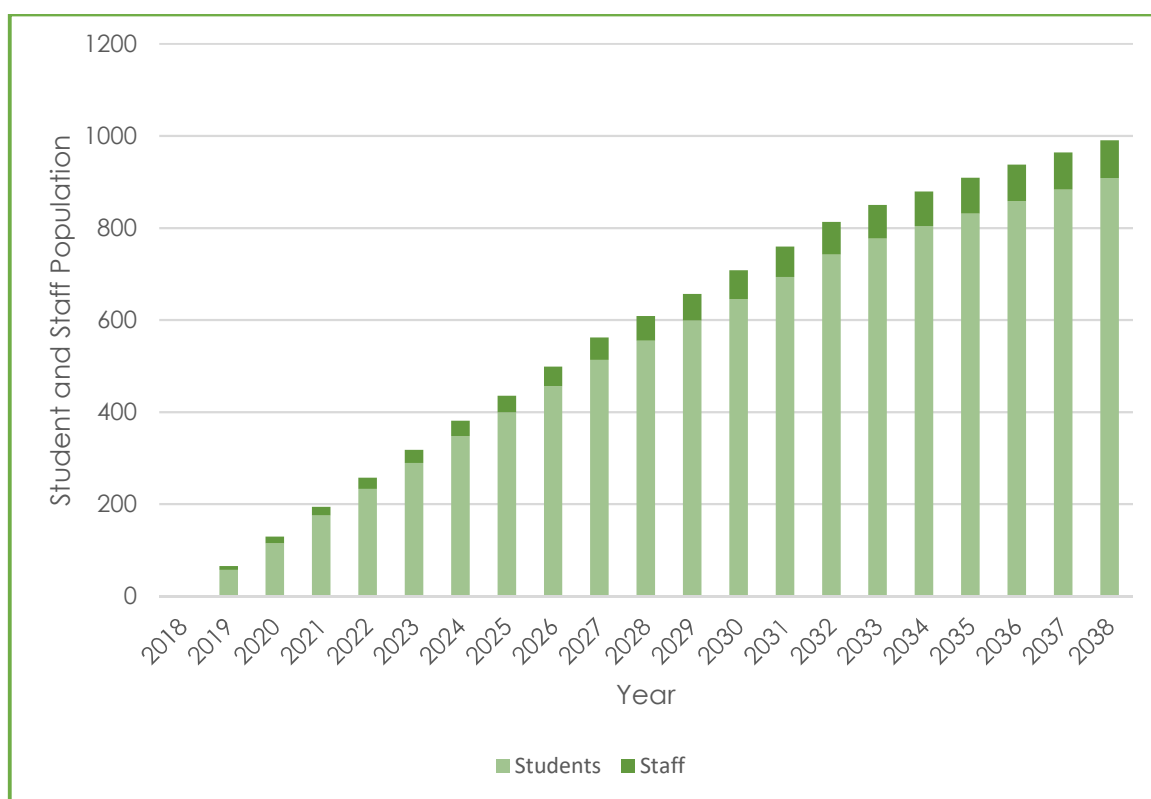


Figure 11: Student Population from 2019 – 2038

It will be evident that in 5 years the school will be only at 30% capacity, such that all committed road improvements by State and local government that will be relied upon by the school will be fully operational. This is discussed further in Section 7.



5. PARKING REQUIREMENTS

5.1 Car Parking

Section 4.4.4 of the *Camden Growth Centre Precincts Development Control Plan (DCP) 2016* requires parking for educational establishments to be provided in accordance with the rates shown in **Table 1**.

Table 1: DCP Parking Rates and Provision

Type	No.	Parking Rate	Minimum Spaces Required	Spaces Provided
Educational Establishment - School				
Staff	85	1 space per full time equivalent staff member	85	104
Students	1000 total	1 space per 100 students; and 1 space per 5 students in Year 12	10	
	70 Year 12		14	
Pick-Up and Drop-Off	1000 Students	A pick-up and drop-off facility of sufficient size to accommodate the forecast demand identified through a traffic and parking report. The resultant layout of the facility to be to the satisfaction of Council.	Assessment	17

* Assumed intake of 85 students enrolled in Year 12.

5.1.1 Staff, Visitor & Year 12 Parking

It is evident that the proposed development is nominally required to provide 109 car parking spaces, excluding additional parking for pick-up and drop-off activity. In response, provision for 104 car parking spaces has been made (independent of pick-up and drop-off spaces).

It is noteworthy that Amity College operates a school with similar characteristics in Prestons, approximately seven (7) kilometres from the subject site. As detailed in Section 6.1, travel mode surveys revealed that 89% of staff were drivers themselves, which is attributed to a small number walking/cycling and carpooling. When adopting this percentage, the proposed development would have a reduced demand for 76 staff spaces (the DCP assumes 100% of staff will drive).



Accordingly, the proposed provision of 104 car parking spaces will exceed an adjusted (predicted) requirement of 100 spaces, and this will be sufficient to account for all staff, visitor and year 12 parking demands.

It is emphasised that this quantum of parking will be required progressively over a 20 year timeframe but is expected to be provided well in advance of demand at any stage.

5.1.2 Pick-Up and Drop-Off Spaces

With respect to pick-up and drop-off parking, the proposed development will provide 17 on-site parking spaces accessed from the western local road. These spaces will be allocated for primary years, whilst an additional 15 (angled) on-street parking spaces are proposed on the eastern local road, intended for use by secondary year set-down/pick-up. Discussions with Council have taken place with regards to the on-street parking proposed and Council provided in principle support based on support for similar arrangements previously. A copy of Council's correspondence stating in principle support for the on-street parking is provided in **Appendix D**.

The combined provision of 32 pick-up and drop-off spaces equates to a rate of 1 pick-up and drop-off space per 29 students. In this regard, a single space would be expected to turn over a minimum of 15 cars over a 30 minute period (based on a two minute average dwell time) and therefore the 32 available spaces will provide a theoretical capacity of 480 cars. This is more than sufficient to accommodate 450 car arrivals over a 30 minute period. As discussed in Section 6, this compares with an expected demand for 450 car arrivals (during the morning and also the afternoon) when account is taken of the modal splits and average car occupancies.

In particular it is reiterated as discussed in Section 6 that the travel mode surveys for the Prestons school revealed an average car occupancy rate of two (2) children per vehicle. It is expected that the school will have a similar ratio given it will cater for K-12 years, thus increasing the likelihood of siblings attending together.

Again, it is emphasised that this quantum of parking will be required progressively over a 20 year timeframe but is expected to be provided well in advance of demand at any stage.



5.2 Accessible Parking

For educational establishments, the Building Code of Australia requires accessible parking to be provided at a rate of 1 space for every 100 car parking spaces or part thereof for a school. Therefore, with a provision of 117 car parking spaces the proposed development requires two (2) accessible car parking space. In response, four (4) accessible parking spaces are provided within one of the basement car parks, thus complying with the BCA.

The access consultant requested an accessible parking space be provided at the primary school angled drop off an pick up areas and another accessible space at the on street parking spaces, which have been provided in the plans as shown in **Appendix C**.

5.3 Bicycle Parking

The DCP does not specify a bicycle parking rate for education establishments however based on rates published under the NSW Government *Planning Guidelines for Walking and Cycling*, the provisions suggested would be minor: 3-5 spaces for staff ad 5-9 spaces for students (based on 3-5% of number of staff and 5-10% of number of students). The development proposes 62 bicycle parking spaces which is considered a sufficient provision.

5.4 Refuse Collection and Servicing

The site provides two (2) separate loading bays each with a separate vehicular access from either the western or eastern local road. Both loading bays accommodate up to an 8.8m long Medium Rigid Vehicle (MRV). These loading bays are anticipated to accommodate all servicing requirements for the site, including regular waste collection, large delivery vehicles and any other servicing requirements. The loading bay accessed from the western local road will allow for forward entry and exit movements and is thus suitable for regular deliveries, whilst reverse entry movements will be required for the loading bay accessed from the eastern local road, which is permissible for a local road under AS2890.2 (2002) subject to Council approval.



6. TRAFFIC AND TRANSPORT IMPACTS

6.1 Travel Mode Survey

To assess the traffic generation for the proposed development, an online travel mode questionnaire was prepared for Amity College, Preston, approximately 6.7km northwest of the site. This school has similar characteristics to the proposed school, which caters for K-12 years and is operated by the applicant.

The online survey was open for responses between 14 December 2018 and 21 December 2018. A sample rate of approximately 25% of staff and a sample rate of 7.3% of for the student population was achieved. The survey included a range of questions, which were primarily aimed to gain an understanding of the AM and PM peak periods, travel modes used and for those who drive the vehicle occupancy rate. The key results of these surveys are discussed in the following sections.

6.1.1 Travel Modes

The travel modes for staff are presented below in **Table 2** for both the AM and PM peak periods.

Table 2: Staff Travel Modes

Travel Mode	AM Peak	PM Peak
By Car (as driver)	89.2%	89.1%
By Car (as passenger – pick-up or drop-off)	1.8%	0%
By Car (as a passenger – car pool)	3.6%	3.6%
Public Transport – Bus	0%	0%
Public Transport – Train	0%	0%
Bicycle	1.8%	1.8%
Walk	3.6%	5.5%
Totals	100%	100%

It can be seen from Table 2 that the preferred mode of travel for staff is driving to school, which accounts for over 89% during the AM and PM peak periods. Approximately 10% of staff car



pool or use active travel modes such as walking and cycling during the peaks. However, no staff use public transport to travel to and from school. The travel modes for students are presented in **Table 3** for both the AM and PM peak periods.

Table 3: Student Travel Modes

Travel Mode	AM Peak	PM Peak
By Car (dropped off/picked up)	83.4 %	78.2%
By Car (with member of staff)	2.9%	2.9%
After School Extra Curricular Activities	-	2.2%
School Bus	6.5%	7.3%
Public Transport – Bus	3.6%	3.6%
Public Transport – Train	0%	0%
Bicycle	0%	0%
Walk	3.6%	5.8%
Totals	100%	100%

It can be seen from Table 3 that during the AM peak period, 83.4% of students are dropped-off, 2.9% of students arrive with a staff member, with 10.1% utilising public transport, and 3.6% preferring active travel. During the PM peak period, 78.2% of the students are picked-up, 2.9% are picked up by members of staff, 2.2% staying at school for extracurricular activities, 10.9% utilising public transport and 5.8% preferring active travel.

6.1.2 Vehicle Occupancy

The questionnaire asked students who were dropped off and picked up by car to advise how many students travelled with them, to establish average car occupancies. Based on the responses provided, the average vehicle occupancy was found to be two (2) students per vehicle during both the AM and PM peak periods.

The above vehicle occupancy rate is comparable to another independent schools surveyed in metropolitan Sydney including Rouse Hill Anglican College in Rouse Hill (2 children per vehicle) and SCECGS Redlands in Cremorne (2.2 children per vehicle).



6.1.3 Peak Arrival and Departure Times

As the peak times for school drop off and pick up do not necessarily coincide with the staff peak times or the road network peaks, the time of arrival and departure for students and staff were asked as part of the questionnaire. The results of which are displayed in **Table 4**.

Table 4: Staff and Student Arrival and Departure Times

Times	Students	Staff
By Car (dropped off)		
Prior to 7:00am	-	2%
7:00am – 8:00am	3%	29%
8:00am – 9:00am	96%	67%
After 9:00am	1%	2%
By Car (picked up)		
Prior to 3:00pm	-	-
3:00pm – 4:00pm	90%	2%
4:00pm – 5:00pm	6%	73%
After 5:00pm	4%	25%

It can be seen from Table 4 that the student peak times are from 8:00am to 9:00am for the drop off and from 3:00pm to 4:00pm for the pick up. During both these times 90% or more of students are dropped off and picked up. The staff AM peak coincides with the drop off peak however only 67% of staff arrive at this time and 29% of staff arriving in the hour before. During the PM peak, most staff depart between 4:00pm and 5:00pm and therefore does not coincide with the student pick up peak. Only 2% of staff depart during the student pick up peak.

6.2 Development Trip Generation

The above survey analysis has been used to establish a traffic generation rate for the proposed school, as discussed below.



6.2.1 Staff Traffic Generation

The school will cater for up to 85 full time equivalent staff. Based on the Prestons travel mode survey which revealed 89% of staff driving, a total of 76 staff would drive to the proposed school across all hours. The following traffic generation would result during the peak staff arrival and departure times:

- ▶ 51 vehicle trips per hour during the staff AM peak hour (8:00am – 9:00am); and
- ▶ 55 vehicle trips per hour during the staff PM peak hour (4:00pm – 5:00pm).

6.2.2 Student Traffic Generation

Based on the proposed 1,000 students attending the school there would be 834 students dropped off by car and 782 picked up by car. With a vehicle occupancy rate of two students per car there would be 417 vehicles in the morning and 391 vehicles in the afternoon. Using the arrival and departure times in Table 4 the following traffic generation will occur during the peak drop off and pick up times:

- ▶ 800 vehicle trip per hour during the student drop off peak hour (8:00am – 9:00am)
 - 400 vehicles arriving to the site;
 - 400 vehicles departing to the site; and
- ▶ 704 vehicle arrivals per hour during the student pick up peak hour (3:00pm – 4:00pm)
 - 352 vehicle trips arriving to the site;
 - 352 vehicle trips departing to the site.

6.2.3 Combined Traffic Generation

Having regard for vehicle trips associated with both staff and students, the proposed development is expected to have the following traffic generation potential:

- ▶ 851 vehicle trips per hour during the student drop off peak hour (8:00am – 9:00am); and
- ▶ 704 vehicle trips per hour during the student pick up peak hour (3:00pm – 4:00pm).

It is noted that this is a worst case scenario that does not include the effects of modal split changes as would be expected as the area develops generally over the next 20 years.



6.3 Trip Distribution

The following section estimates a distribution of the above traffic generation volumes around the site and local road network, with a focus on the two critical intersections of Ingleburn Road and Byron Road and Ingleburn Road, Camden Valley Way and Denham Court Road.

6.3.1 Distribution Assumptions

To distribute the school's traffic generation around the local road network, the school has provided the expected catchment of the proposed school with the percentage and number of students attending the proposed school from the surrounding suburbs, which is shown in **Table 5**.

Table 5: Expected Percentage of Students from Surrounding Suburbs

Suburb	Percentage of Students	Number of Students
Leppington	50%	500
Austral	7%	70
Catherine Fields	6%	60
Denham Court	5%	50
Oran Park	5%	50
Rossmore	5%	50
Bardia	3%	30
Edmonson Park	3%	30
Gledwood Hills	3%	30
Gregory Hills	3%	30
Harrington Park	3%	30
Horningsea Park	2%	20
West Hoxton	2%	20
Bringelly	1%	10
Cobbitty	1%	10
Narellan	1%	10
Totals	100%	1,000



The above percentages were used to determine the origin and destination of the vehicles driving to and from the school during the peak periods. This was achieved by assigning one or more of five directions the vehicles would come from and go to for each suburb to assess the traffic volume increases at the two key intersections of Ingleburn Road and Byron Road and Camden Valley Way, Ingleburn Road and Denham Court Road. The percentages to and from each direction are provided in **Table 6**.

Table 6: Percentage of vehicles to and from each direction of the network

Origin / Destination	Percentage of Vehicles
Denham Court Road (East) via Byron Road (North) and Ingleburn Road (East)	17%
Camden Valley Way (North) via Byron Road (North) and Ingleburn Road (East)	7%
Byron Road (North)	17%
Ingleburn Road (West) via Byron Road (North)	23%
Byron Road (South)	37%
Total	100%

On arrival at the school the traffic is then divided evenly between the two drop off and pick up areas for the primary and secondary schools. The percentages are then split into the in and out directions which is assumed to be 50% in and 50% out as most traffic will be for pick-up and drop-off.

6.3.2 Distributions and Diagrams

The above percentage distributions have been illustrated in the following traffic flow diagrams for the site for the AM and PM site peaks in **Figures 12** and **13**.

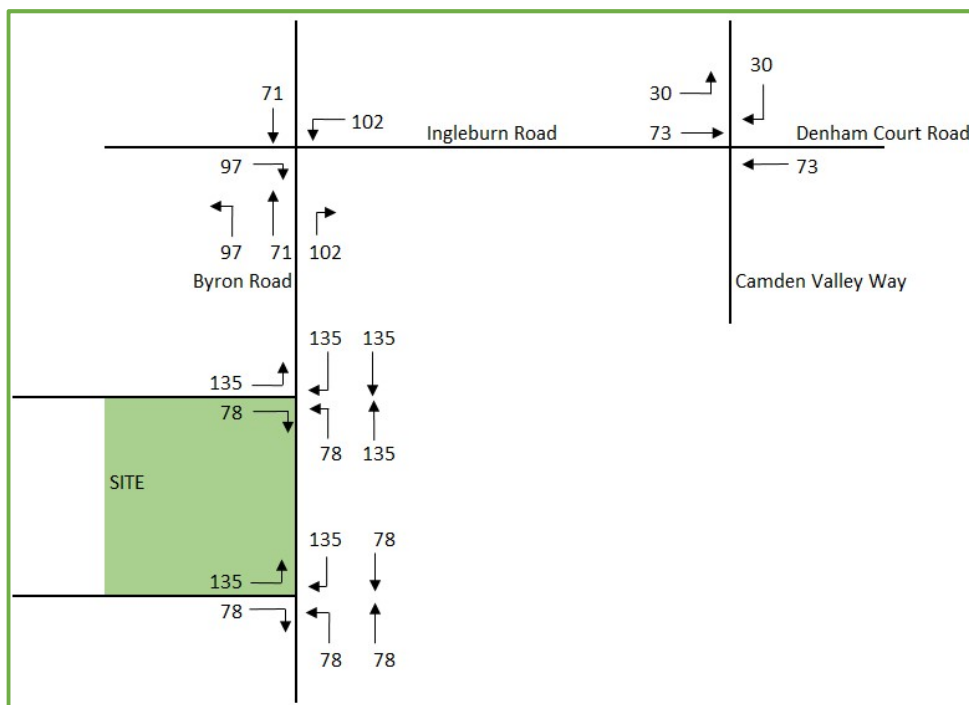


Figure 12: AM Site Peak Hour Traffic Distribution

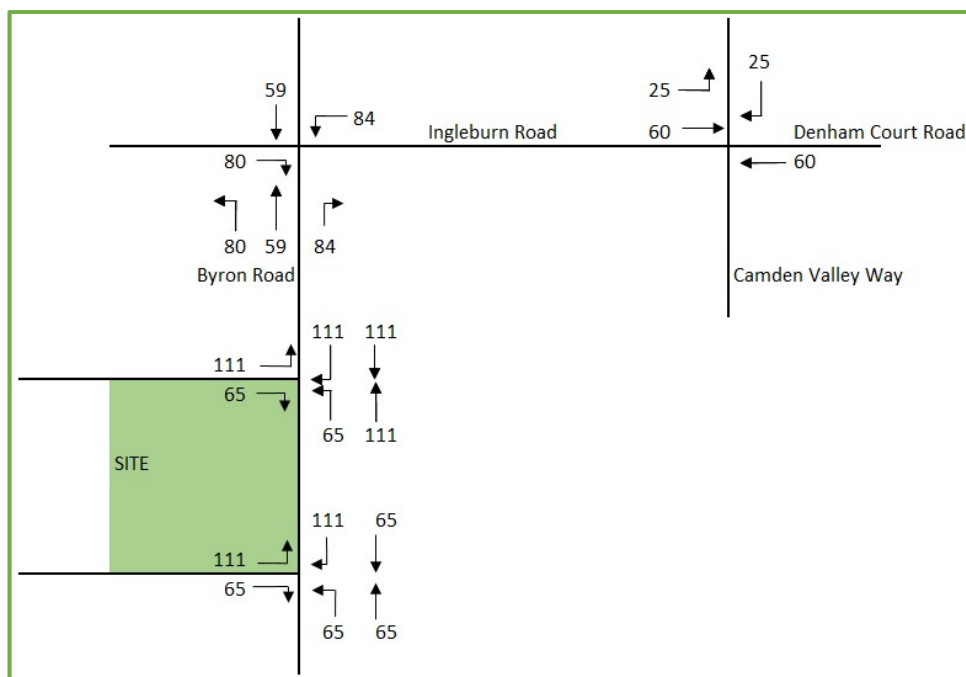


Figure 13: PM Site Peak Hour Traffic Distribution



6.4 Traffic Impacts

The *Leppington Precinct Plan* included a Transport and Access Strategy report in 2014 which included the results of software modelling undertaken for the future road network. This incorporated the traffic volumes associated with growth in the region, and in particular, the subject site was identified as a location for a school. Accordingly, this software modelling is expected to take full account for the above traffic impacts under future scenarios.

As of February 2019, the following road improvements have either been implemented or are in the process of being designed for early implementation:

- ▶ The intersection of Camden Valley Way, Ingleburn Road and Denham Court Road was fully upgraded in 2016, with a description of the layout provided in Section 3.2.
- ▶ The intersection of Ingleburn Road and Byron Road is in the process of being upgraded, with Council confirming in their letter dated April 2018 that traffic signals are being provisionally progressed.

It is noteworthy that the Transport and Access Strategy report identified the need to upgrade the intersection of Ingleburn Road and Byron Road in 2026, and as such it is anticipated that this will occur well in advance. Notwithstanding, the intake for the proposed school will be progressively staged, with approximately:

- ▶ 50 students enrolled on the year of opening in 2019.
- ▶ 500 students enrolled in 2026; and
- ▶ 950 students enrolled in 2038.

It is therefore expected that the committed road network will adequately cater for school volumes (and all other development) under all future scenarios. Only minimal staff and student numbers are proposed upon opening in 2019, with the school operating only at 50% of capacity in 2026, when further road upgrades are expected by governments to support progressive development under the *Leppington Precinct Plan*., which has been designed to accommodate volumes consistent with a fully operational school. It is thus expected that the traffic impacts of the proposed school are therefore acceptable, with the above analysis considered suitable as an input to any further future strategic planning as may be undertaken by Council and/or RMS. In summary, the school and its impacts have already been



incorporated into the strategic planning for this location; and suitable infrastructure either committed or proposed.



7. GREEN TRAVEL PLAN

7.1 Overview

A Green Travel Plan (GTP) is a plan intended to make it easier for users to get to and from a development and reduce reliance on private transportation. A detailed GTP will be prepared prior to occupation of the school in response to a suitable condition of consent and will include measures to encourage use of public transport as well as walking and cycling. As discussed further below, it is considered unnecessary to implement such a plan until the school has a sufficient 'critical mass' to warrant changes in travel mode, which would likely be when about 30% of the school capacity (300 students) is reached in or around 2023.

7.2 Active Transport Infrastructure

The Leppington Precinct Plan prepared by ARUP details an extensive active transport network when the area is fully developed. The plan specifies bicycle path routes in **Figure 14** as well as footpaths along all roadways. The cross sections provided in Section 3.4 detail the type of infrastructure that will be provided on the roads surrounding the school. Byron Road is expected to have off street cycle lanes which will provide a safe route for the students and staff to ride to and from school. This will link up with the wider bicycle network throughout Leppington as shown in Figure 14.

In addition, the school will provide 62 bicycle parking spaces for staff and students which will encourage riding as an alternative to car use. Details of all active transport information will be included in the Green Travel Plan and Transport Access Guide, when required before occupation. Therefore, sufficient active transport infrastructure has been planned for the precinct and the school which will enable the school to achieve active transport targets.

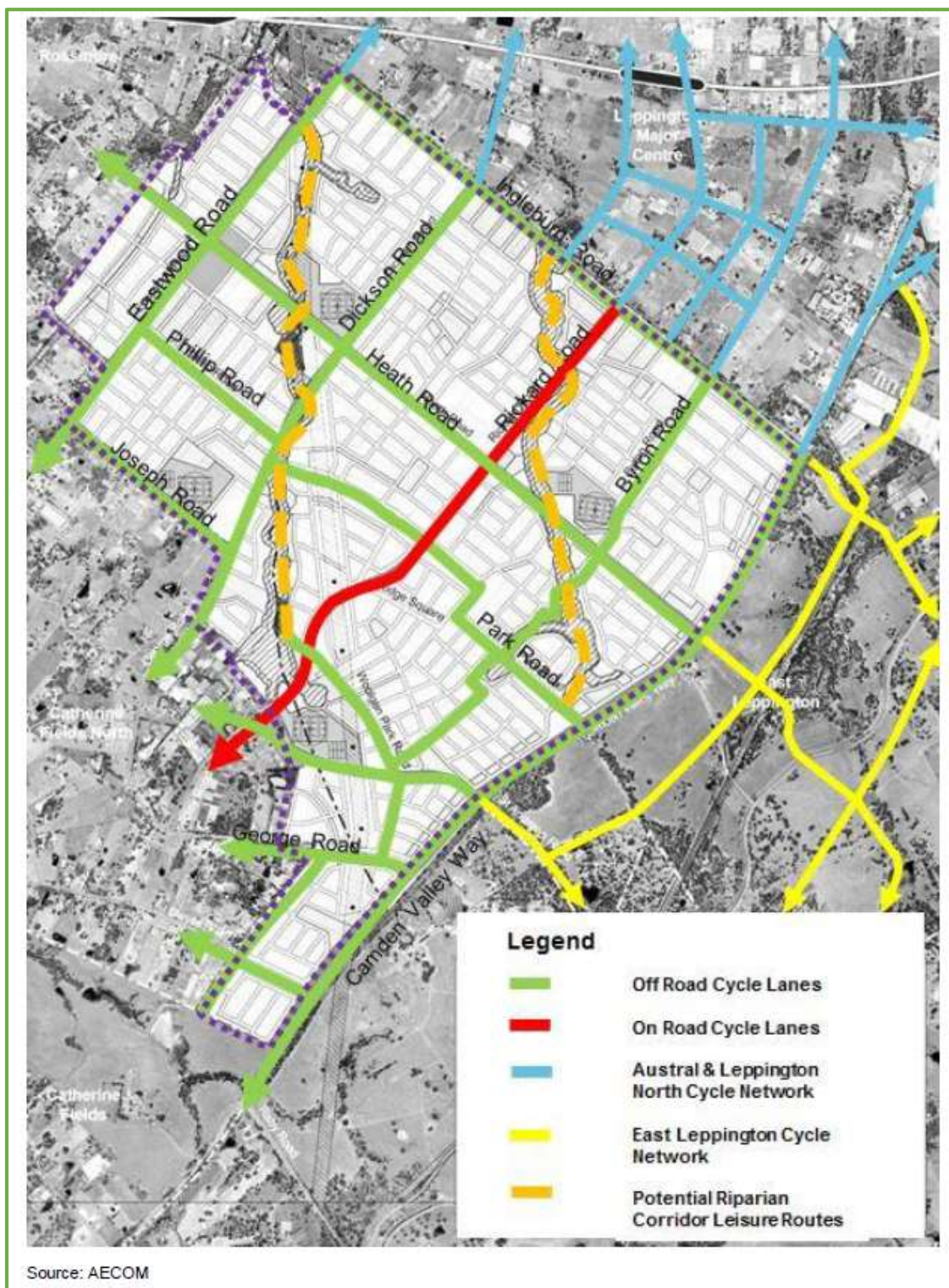


Figure 14: Proposed Cycle Network



7.3 Discussion

Given the subject site is within a greenfield precinct, it is considered premature to prepare a GTP as future public transport services have not yet been confirmed in the region to support the Leppington Precinct Plan. It is expected therefore that a GTP would be prepared for implementation in or around 2023 at 30% school capacity, in order to incorporate the introduction of new general bus services. This would include school bus routes which would be devised following knowledge of student catchments.

The GTP would include travel mode targets and can be monitored by way of surveys, similar to those undertaken for the Prestons school. It is envisaged that the reductions in car based travel modes to achieve the nominated targets could be facilitated by the following travel demand management measures:

- ▶ Preparation of a Transport Access Guide (TAG) document to identify and illustrate all public transport routes serving the school. This can be distributed to parents and staff upon the school opening, which will allow opportunity for sustainable habits to be adopted from the start of a student's enrolment. This would promote all sustainable travel modes.
- ▶ Staggered finish times to disperse peak activity during afternoons. This can be confirmed prior to occupation of the school, when management will gain more knowledge on resources and enrolment numbers; and
- ▶ Car sharing schemes can be encouraged for both staff and students. Parents should be encouraged to car-pool multiple students to alleviate congestion during pick-up and drop-off periods. Initiatives could be implemented for staff whereby off-street parking spaces are only available for vehicles transporting two (2) or more staff to work.
- ▶ Additional public and school specific transport options are to be included as they come online as the area and school develops to ensure students and staff are aware of all transport options.



8. ACCESS AND INTERNAL DESIGN ASPECTS

8.1 Access Arrangements

8.1.1 Byron Road Vehicular Access

The Byron Road vehicular access caters for the visitor car park containing 10 spaces. Under AS2890.1 (2004) a car park with less than 25 spaces of User Class 2 with access from a local road would require a Category 1 vehicular access. A Category 1 access facility requires a combined entry exit driveway with a width of 3.0m – 5.5m. The Byron Road vehicular access is proposed to be 6.0m wide, which is superior to the minimum requirements of the standard.

8.1.2 Primary School Drop-Off/Pick-Up Vehicular Access

The primary school drop off and pick up has been designed as a one way system to improve circulation with separate entry and exit driveways. The entry driveway is provided with a width of 6.3m and the exit driveway has a width of 6.1m which are considered acceptable for the high turnover of a drop off and pick up zone. Swept path analysis of the drop off/pick up area is provided in **Appendix E**.

It should be noted that the drop off/pick up zone can accommodate emergency service vehicle such as large fire trucks as well as ambulance and police vehicles. In addition, the area between the primary school building and primary school hall will be maintained as curtilage to allow for an ambulance to access the hard surface play area.

8.1.3 Southern Basement Car Park Vehicular Access

The southern basement car park provides 62 User Class 1A parking spaces from a local road which therefore requires a Category 1 vehicular access. The vehicular access provided is 6.1m wide which is superior to the minimum width of 3.0m – 5.5m required under AS2890.1 (2004).

8.1.4 Primary School Servicing Access

The development proposes a separate servicing access located on the proposed southern boundary road. This access will provide access to a loading bay for the primary school which



allows the service vehicle to enter and exit the site in a forward direction. The vehicular access for the southern loading bay is 7.0m wide which is sufficient to accommodate up to an 8.8 m long MRV as shown in the swept path analysis shown in **Appendix E**.

8.1.5 Northern Staff Car Park Vehicular Access

The northern staff basement car park provides 32 Class 1A parking spaces from a local road which therefore requires a Category 1 vehicular access. The vehicular access provided is 6.1m wide which is superior to the minimum width of 3.0m – 5.5m required under AS2890.1 (2004).

8.1.6 High School Servicing Vehicular Access

The development proposes a second separate loading bay located on the proposed northern boundary road with a separate vehicular access. This access will service vehicles to reverse into the loading bay directly from the proposed northern road. The vehicular access for the southern loading bay is 7.0m wide which is sufficient to accommodate up to an 8.8m long MRV as demonstrated by the swept path analysis provided in **Appendix E**.

8.1.7 Temporary Access and Parking

The temporary vehicular access as shown in the Stage 1 – Stage 5 Staging Plans provided in **Appendix F** for staff parking is to be Category 2 driveway of width 6.0 – 9.0 metres from Byron Road. This facility can accommodate a demand of up to 300 parking spaces from a local road and therefore will be more than sufficient to accommodate the expected demand. The parking spaces can be provided informally for the temporary car park due to the large relatively flat area available within the site. The proposed temporary access is expected to provide sufficient sight distance given the straight and level carriageway of Byron Road.

8.2 On-Street Parking Arrangements

8.2.1 Byron Road - Bus Bay

The state significant development application proposes an indented on-street bay on Byron Road to accommodate school buses. The bay measures 69 metres in length which could accommodate up to four (4) standard buses (12.5m in length).



The location of the bus bay on Byron Road is considered to be ideal, being situated away from pick-up and drop-off areas and eliminating reliance on local roads. Whilst the dimensions and layout for the upgraded Byron Road has not been finalised, the proposed bay has been indented by 1.3m which would ensure that through lanes remain unobstructed.

The Council has stated in principle support for the bus bay on Byron Road as it has previously support such arrangements. The correspondence with Council stating in principle support is provided in **Appendix D**.

8.2.2 Eastern Local Road – Pick-Up and Drop-Off Parking

15 on-street parking spaces on the western kerbside of the eastern local road comply with the minimum dimensions for high turnover use under the on-street parking standard AS2890.5 (1993) and are provided with a minimum space width (parallel to kerb) of 3.7m and depth of 5.2m.

8.3 Internal Design

The internal car park complies with the requirements of AS 2890.1 (2004), AS2890.2 (2002) and AS 2890.6 (2009), and the following characteristics are noteworthy:

8.3.1 Parking Modules

- ▶ All staff car parking spaces have been designed in accordance with a Class 1A user. These spaces are provided with a minimum space length of 5.4m, a minimum width of 2.4m and a minimum aisle width of 5.8m.
- ▶ All visitor car parking spaces have been designed in accordance with a Class 2 user. These spaces are provided with a minimum space length of 5.4m, a minimum width of 2.5m and a minimum aisle width of 5.8m.
- ▶ All 45° angled drop off and pick up car parking spaces have been designed in accordance with a Class 3A user. These spaces are provided with a minimum space length of 5.4m, a minimum width of 2.6m and a minimum aisle width of 4.2m.
- ▶ The informal parallel 'kiss and ride' zone is provided with a minimum width of 2.1m to allow vehicles to parallel park.



- ▶ All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- ▶ Dead-end aisles are provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1 (2004) and turning bays when exceeding six spaces.
- ▶ All accessible parking spaces have been designed in accordance with AS2890.6 (2009), being 2.4m wide, 5.4m long and situated immediately adjacent to a dedicated shared area or the circulating aisle.

8.3.2 Ramps

- ▶ The internal ramp is to provide a maximum gradient of 25% (1 in 4) with sag and summit transitions of 12.5% (1:8) respectively for a minimum of 2.0m, to satisfy the requirements of AS2890.1 (2004).

8.3.3 Clear Head Heights

- ▶ A minimum clear head height of 2.2m is to be provided for all areas within the basement car park as required by AS2890.1 (2004).
- ▶ A minimum clear head height of 2.5m is to be provided above all accessible spaces in accordance with AS2890.6 (2009).

8.3.4 Service Area Design

- ▶ The internal design of the service areas has been undertaken in accordance with the requirements of AS2890.2 for the maximum length vehicle permissible on-site being an 8.8m long MRV.
- ▶ A minimum bay width of 3.5m is provided for all service bays.
- ▶ A swept path analysis has been undertaken as permissible under AS2890.2 and confirms the internal design. The swept path assessment is included in **Appendix E**.

8.3.5 Other Considerations

- ▶ All columns are to be located outside of the parking space design envelope shown in Figure 5.2 of AS 2890.1 (2004).



- ▶ Visual splays have been provided at the access driveways in accordance with Figure 3.3 of AS 2890.1 (2004).

8.4 Summary

In summary, the internal configuration of the car park has been designed in accordance with AS2890.1 (2004), AS2890.2 (2002) and AS2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.



9. RESPONSES TO STAKEHOLDERS

9.1 SEARs Responses

A response to each relevant requirement of the Secretary's Environmental Assessment Requirements (SEARs) is provided below, including references to sections of this report where applicable. Reference should also be made to the full copy of the SEARs is provided in **Appendix G** and the below matters relate specifically to Item 7:

Item 7: Transport and Accessibility

The EIS shall include a Traffic Transport and Accessibility Impact Assessment, which details, but is not limited to the following:

Accurate details of the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and existing traffic and transport facilities provided on the road network located adjacent to the proposed development.

► TRAFFIX Response

The area around the site is predominantly occupied by semi-rural properties with negligible activity across all travel modes and thus any assessment of current traffic, pedestrian and cyclist volumes is irrelevant and of no assistance, with the development essentially creating a net impact upon a zero base.

An assessment of the operation of existing and future transport networks including the bus network and the ability to accommodate the forecast number of trips to and from the development.

► TRAFFIX Response

The existing public transport network has been discussed in Section 3. Traffic assessment of the precinct has been conducted and included in the Transport and Access Strategy for the Draft Leppington Precinct Plan, which incorporated a school on the subject site. The intersection of Camden Valley Way, Ingleburn Road and Denham Court Road was upgraded in 2016 and Council is in the process of upgrading the intersection of Ingleburn Road and Byron Road to a signalised intersection. The Transport and Access Strategy



recommended upgrading the latter intersection by 2026. As such, the existing intersection is expected to be readily able accommodate the student population between 2019 and 2026, when only be 50% of the school capacity will be reached. Further road upgrades are anticipated after 2026 with the progressive delivery of infrastructure under the Leppington Precinct Plan. It is thus expected that the traffic impacts of the proposed school are acceptable, with the above analysis also available to inform ongoing future strategic planning in the Plan area, by Council and/or Stage Government.

It is noted that at full capacity in 2038, some 105 students are predicted to rely on public transport (buses) based on the current modal splits at Prestons. This is a modest demand that can be accommodated even by existing services along Ingleburn Road. Nevertheless, the implementation of a Green Travel Plan over time, with additional frequencies and routes possible in response to a demonstrated Precinct demand, is expected to increase this public transport modal split. In this regard, the Precinct Plan has included the possibility of additional bus route(s) along Byron Road which would be able to stop in front of the school. In summary, the existing and future bus networks are considered sufficient to accommodate the expected demand.

Details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area.

▶ TRAFFIX Response

A travel mode survey of the Amity College in Prestons, which is a similar school in the local area, has been conducted to estimate the peak hour vehicle trips generated by the school which is explained in detail in Section 6. Based on the travel mode surveys, 47 students are expected to walk or cycle to and from school. However, as the surrounding area is yet to be redeveloped this would only occur when significant residential development is completed within about 800 metres of the site.



Details of any proposed school bus routes along bus capable roads (i.e. travel lanes of 3.5 metres minimum) and supporting infrastructure (bus stops, bus bays etc).

▶ TRAFFIX Response

Section 6.5 discusses the proposed bus routes along Byron Road and Section 8.1.1 details the proposed bus bay on Byron Road. At this stage there are no plans for a school bus route or private shuttle bus however these options may be considered in the future. The proposed bus bay will allow for any shuttle bus or school bus routes and Byron Road is planned to be a bus capable road as part of the precinct plan. Therefore, supporting infrastructure for possible future bus routes has been accommodated in the proposed development.

The adequacy of public transport, pedestrian and bicycle networks and infrastructure to meet the likely future demand of the proposed development.

▶ TRAFFIX Response

The existing public transport, pedestrian and bicycle networks serve a semi-rural area and cannot be expected to serve the future Precinct in the long term. Hence, the school will contribute progressively to improved use of predict public transport, walking and cycling demand over time. In this regard, future plans for the area include upgraded bus routes along Byron Road, footpaths on all surrounding streets and improving the bicycle network, with provision of off street and on street bicycle routes.

Comparison of the traffic generated by the proposed development against the alternative of planned housing development for part of the site.

▶ TRAFFIX Response

A comparison of the site with the planned housing development is not considered necessary as all planning documentation for the area assumes a school on the subject site. This included traffic modelling of the Precinct in the Draft Precinct Plan, which also assessed a larger school site that included parts of the properties at 85 Byron Road, 63 Ingleburn Road and 69 Byron Road.

Nevertheless, it is clear that that a school would generate peak demands that would only coincide with the morning peak over a short (school) drop-off period. This may be compared with sustained traffic over a four hour period associated with residential



development. During the evening commuter peak, the school will generate no impacts, compared with residential development.

In summary, the school provides a public benefit in terms of peak period road network performance, compared with residential development, with the exception of a short term (one hour) school peak on weekday mornings. The school is also expected to generate no or negligible impacts on weekends, in contrast to residential development.

It is also noted that the land has already been rezoned to SP2 Infrastructure. This permits Educational Establishments to allow for the development of a school.

An assessment of road safety at key intersection and locations (including but not limited to the Ingleburn-Byron Road and Ingleburn Road-Camden Valley Way intersections) subject to heavy vehicle construction traffic movements and high pedestrian activity.

► TRAFFIX Response

An assessment of the existing Ingleburn Road and Byron Road intersection is not considered necessary as this intersection is to be upgraded. It is expected that once detailed plans of the upgraded intersection are available, a road safety audit would be undertaken that would account for the proposed school.

The intersection of Ingleburn Road with Camden Valley Way has recently been upgraded and includes signal controlled pedestrian crossings on all approaches, affording maximum safety. In addition, as the school is to be constructed in stages over 20 years, high pedestrian activity is not expected in the foreseeable future based on the expected modal splits. However, localised pedestrian concentrations will occur in close proximity to the school and in this regard, the design of access driveways and footpaths will be in accordance with relevant standards.

With regard for construction activity, the school will be constructed in stages over 20 years in response to a progressively growing demand that serves the expected catchment. Therefore, detailed Construction Traffic Management Plans will be required for each stage of construction and this is a matter that can also be conditioned. This will also need to take account of the construction methodology associated with each stage, which cannot be known at this time, particularly as external traffic conditions will change over time as the Precinct evolves.



Identification of suitable infrastructure required to ameliorate any impacts on traffic efficiency and to maximise road safety at affected intersections.

► TRAFFIX Response

These matters have been discussed above. In general terms, as the road network will be upgraded progressively and as the school will also be developed progressively over 20 years, it is considered appropriate that a road safety audit be undertaken at each stage of development of the school to ensure that the appropriate infrastructure is available and safe.

As to the issue of amenity, it will be evident that this is a subjective issue as discussed in the RMS's publication "Guide to Traffic Generating Development". Nevertheless, residents near the school and in the Precinct generally will be aware of the presence of a school prior to any purchase and accordingly, their expectations in relation to amenity will be conditioned appropriately.

The proposed access arrangements (normal and emergency as well as interim access arrangements during any required upgrade works), including car and bus pick-up/drop-off movements, estimated service vehicle movements, and parking areas for all car user groups (e.g. visitor parking, disabled parking and car share).

► TRAFFIX Response

The proposed access arrangements for all site users are provided in accordance with relevant standards as discussed in Section 8.1.

Sustainable travel initiatives for staff, students and visitors, particularly for the provision of a Green Travel Plan and wayfinding strategies.

► TRAFFIX Response

Section 7 discusses the requirements of the Green Travel Plan to be prepared once further details are available relating to public transport and surrounding road infrastructure.



Safe pedestrian and bicycle connections, including pedestrian crossings and refuges and speed control devices and zones.

► **TRAFFIX Response**

Once detailed plans of the surrounding road network under the precinct Plan are available the requirements for bicycle connections including pedestrian refuges and crossings and speed control devices and zones can be assessed. This is likely to occur as part of the Green Travel Plan that will evolve over time and which can be conditioned.

Details of any upgrading or road improvement works required to accommodate the proposed development (including any local road construction that may be required in accordance with Council's DCP).

► **TRAFFIX Response**

The local road network is planned to be upgraded as part of the Leppington Precinct Plan. However, the school itself, including access thereto by all travel modes, has been designed to comply with all relevant standards.

Details of travel demand management measures to minimise the impact on general traffic and bus operations and to encourage sustainable travel choices and details programs for implementation, including the preparation of a Green Travel Plan.

► **TRAFFIX Response**

Some examples of potential travel demand strategies are provided in Section 8.2. The Green Travel Plan to be prepared (and which can be conditioned) will detail the adopted travel demand strategies and include mode share targets to reduce private car use. This document is not considered necessary until 30% of the school capacity is reached; and will be updated progressively over the remaining 20 year period when capacity is expected to be reached.



The impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works, if required. Traffic modelling is to be undertaken using, but not limited to, SIDRA network modelling for current and future years.

► **TRAFFIX Response**

Assessment of the cumulative impact on nearby intersection is contained in the Transport and Access Strategy for the Draft Leppington Precinct Plan. This Strategy recommended upgrading the intersection of Byron Road and Ingleburn Road to a roundabout. However, Council is currently in the process of planning to upgrade this intersection to a signalised intersection. In addition, the intersection of Camden Valley Way, Ingleburn Road and Denham Court Road has already been upgraded. Therefore, the development does not trigger any upgrades to major intersection and the only upgrades will be the surrounding local roads along the site frontages, which will be included as part of the development with no associated funding required.

SIDRA modelling is considered unnecessary, particularly as both traffic conditions and the school roll-out will both change progressively over 20 years. Nevertheless, traffic associated with a school on the subject site is included in all strategic modelling undertaken to date for the Precinct.

Prioritisation of active transport initiatives through provision of walking and cycling infrastructure) e.g. segregated paths, bicycle parkin, etc) to and within the site, considering connections and availability of public transport.

► **TRAFFIX Response**

This will be assessed once detailed road network layouts are provided including footpaths and cycle lanes. It should be noted the architectural plans include footpaths around the proposed development for convenient pedestrian access.



Proposed number of on-site car parking spaces and corresponding compliance with the Camden Growth Centre Precincts Development Control Plan and justification for the level of car parking provided on-site.

► TRAFFIX Response

The parking compliance assessment is provided in Section 5.1. The car parking provided complies with the minimum requirement when account is taken of the expected modal splits based on surveys. It is also noteworthy that the required parking has been assessed at full capacity and as this will not be reached for 20 years, some consideration for staging this parking supply would be reasonable, should this be required.

Proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance.

► TRAFFIX Response

The bicycle parking provision is discussed in Section 5.3. The provision will be adequate for the site and further details as design, security and location will be provided at Construction Certificate stage.

Details of emergency vehicle access arrangements.

► TRAFFIX Response

Emergency vehicles have a number of options with access arrangements. The primary school has the onsite drop off and pick up area which would allow for emergency vehicles such as an ambulance and the Byron Road bus bay would also allow for vehicles up to the size of a fire truck.

An assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures.

► TRAFFIX Response

This assessment would require detailed road network layouts showing the proposed footpaths and traffic volume forecasts to assess what, if any, road safety measures are required. The architectural plans include footpaths around the proposed development for convenient pedestrian access and all driveways comply with relevant standards, so that no



safety issues are expected. Nevertheless, as occurs at most schools, conditions will be monitored over time and this can occur at each stage of construction as part of a road safety audit process.

An assessment of cumulative on-street parking impacts of car and bus pick-up/drop-off, staff parking and any other parking demands associated with the development during weekdays and special events.

► **TRAFFIX Response**

The parking has been assessed as compliant with the relevant DCP and as such is considered acceptable. The proposed parking provision will accommodate the parking demand for staff and the drop off and pick up for the primary school. The high school drop off and pick is generally accommodated on street. This assessment is based on parking provision essentially 20 years in advance of demand.

It would not be realistic to accommodate the parking requirements for special events at such an early stage. However, parking management for regular events at the school can be detail in the Green Travel Plan; or subject to further approvals should these be necessary.

Measures to maintain road and personal safety in line with CPTED (crime prevention) principles.

► **TRAFFIX Response**

This is to be assessed by the relevant the relevant consultant for safety and crime prevention.

In relation to construction traffic:

- ***an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity;***
- ***details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process;***
- ***details of the anticipated daily and peak hour construction vehicle movements to and from the site, so as to not impact current traffic operations on the road network;***
- ***details of access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle;***
- ***details of temporary cycling and pedestrian access during construction;***



- *details of proposed construction vehicle access arrangements at all stages of construction; and*
- *traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.*

► TRAFFIX Response

A preliminary Construction Management Plan (CMP), prepared by Outline Planning Consultants, has been provided as part of the DA submission. In addition, TRAFFIX has prepared a separate Preliminary Construction Traffic Management Plan which addresses the above aspects as much as possible at this early stage.

9.2 RMS Responses

A response to each requirement of the Roads and Maritime Services' email is provided below, including references to sections of this report where applicable. Reference should also be made to the copy of the email provided in **Appendix H**. It must be noted that RMS stated in the email that the following items will be reviewed once the development application is submitted. Therefore, no in principle support or feedback is required prior to lodgement.

Details of pedestrian and vehicular access points – this will affect where new school zones will need to be located.

► TRAFFIX Response

Pedestrian accesses will be provided on all three frontages and therefore school zones will be required along all three streets including Byron Road.

Details of any new intersection treatments and pedestrian crossings proposed as part of this application (new traffic signals require adequate justification and a warrants assessment).

► TRAFFIX Response

Intersection upgrades and pedestrian crossings are not proposed as part of this application.



Staging details of staff and student numbers.

▶ **TRAFFIX Response**

The staging of the development is described in detail in Section 4.2 of this report.

Details of the enrolment/catchment area – this will provide information regarding the expected trip distribution.

▶ **TRAFFIX Response**

The expected catchment of the school is provided in Section 6.3.1 which provides the expected percentage and number of students from surrounding suburbs at full occupancy. This was then used to determine the trip distribution for the traffic generation of the site.

How many vehicles are expected to use the Camden Valley Way/Ingleburn Road intersection (the expected traffic generation of this development might be higher than expected when Camden Valley Way was upgraded and the Precinct rezoning).

▶ **TRAFFIX Response**

Detail traffic distribution diagrams are provided in Section 6.3.2 which show the traffic expected to use Camden Valley Way, Ingleburn Road and Denham Court Road intersection.

Expected travel modes (e.g. via car, bus, train, walking/cycling).

▶ **TRAFFIX Response**

The expected travel modes, which are based on the survey of the existing Amity College at Prestons, are provided in Section 6.1.1.

Details of the kiss and ride and bus bay areas.

▶ **TRAFFIX Response**

The kiss and ride facility is described in detail in Section 8.1.2 and the description of the bus bay on Byron Road is described in Section 8.2.1.



9.3 TfNSW Response

Consultation with Transport for NSW (TfNSW) was requested as evidence by the correspondence included in **Appendix I**. However, no response was received from the contact nominated in the response letter to the request for SEARs.

9.4 SEPP Response

The State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 requires the following points to be taken into consideration during assessment. The following section addresses each point to ensure they have been taken into consideration for this application.

The accessibility of the site concerned including:

- (i) The efficiency of movement of people and freight to and from the site and the extent of multi-purpose trips and**
- (ii) The potential to minimise the need for travel by car, and**
- (iii) Any potential traffic safety, road congestion or parking implications of the development.**

► **TRAFFIX Response**

The movement of people to and from the site is discussed in Section 6 which discusses travel modes, trip generation and distribution for the proposed development at maximum capacity.

The potential for minimising car travel is discussed in Section 7 which proposes a Green Travel Plan to encourage and monitor alternative travel modes of staff and students, which will be provided once the school reaches a specified number of children to justify the minimisation strategies and assessment.

The parking implications of the development is described in Section 5. The traffic safety is to be assessed as the site develops with the provision of infrastructure such as crossings and refuges subject to warrants. Road congestion has been assessed under the masterplan providing recommendations for the upgrade of local and arterial roads which are being progressed by Council.



10. CONCLUSIONS

In summary:

- ▶ The State Significant Development (SSD) application to which this report relates, seeks approval for the construction of an educational establishment on land encompassing 85 Byron Road and 63 Ingleburn Road in Leppington. The applicant, Amity College, seeks approval to construct operate a school catering to K-12 years with capacity for 1,000 students and 85 staff. The school will be constructed progressively over a 20 year period, with 50 students expected upon opening, increasing by about 50 students per year thereafter.
- ▶ All strategic planning within the Leppington Precinct plan assumes the provision of a school on the subject site; and all planned infrastructure to support the Plan has been identified and will be progressively implemented. Given that the school forms part of the strategic planning for the Precinct (notably the Draft Transport and Access Strategy prepared for the prior Draft Leppington Precinct Plan), the broader cumulative traffic impacts of development has already been determined and this report focusses on the delivery of a compliant design.
- ▶ At full development (in 20 years) the proposed school has been assessed to generate a demand for 104 staff, visitor and year 12 parking spaces under the *Camden Growth Centre Precincts Development Control Plan*. When accounting for expected travel mode characteristics, the proposed provision of 100 parking spaces is appropriate and in any event this supply could be staged.
- ▶ A total of 17 on-site pick-up and drop-off spaces will be provided in addition to 15 angled on-street spaces along the site frontage. This accords with the expected demand at full development.
- ▶ Based on travel mode surveys of the Prestons campus (operated by the applicant) it is estimated that at full development, the proposed school will generate:
 - 851 veh/hr during the student drop-off peak hour (8:00am – 9:00am); and
 - 704 veh/hr per hour during the student pick-up peak hour (3:00pm – 4:00pm).
- ▶ These volumes will not be reached until full capacity in 20 years, with volumes expected to commence at about 42 veh/hr (during the more critical AM peak) and increasing by this



same amount each year. These volumes will be readily accommodated by the existing road system for several years. Notwithstanding, upgrades are already committed in the locality. Most notably, the intersection of Camden Valley Way with Ingleburn Road has already been upgraded, while the intersection of Ingleburn Road with Byron Road is currently under design for traffic signal control. As a minimum, these improvements are expected to be satisfactory to accommodate the school for at least 5-10 years, depending on the timing of other planned improvements in the Precinct as development evolves. The Leppington Precinct road network for 2026 has been designed to accommodate the volumes of a fully operational school which is not expected to occur until 2038.

- ▶ Nevertheless, the school traffic is embedded in the strategic modelling undertaken to date and this modelling forms the basis of future infrastructure provision and timing.
- ▶ The design of accesses and parking areas have been appropriately located and have been assessed to comply with AS2890.1 (2004), AS2890.2 (2002) and AS2890.6 (2009).
- ▶ The requirements in Item 7: Traffic and Accessibility of the SEARs have been responded to individually in Section 9.1, the requirements of RMS have been addressed in Section 9.2 and details of the consultation with TfNSW in Section 9.3.

This Traffic and Transport Assessment therefore demonstrates that the subject application is supportable on transport planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

APPENDIX A

Photographic Record



Existing site driveway viewed from Byron Road, facing south



Site frontage as viewed from Byron Road, facing south



View along southern site boundary looking west across Ingleburn Road.



Intersection of Ingleburn Road (left-right) and Byron Road from northern corner.



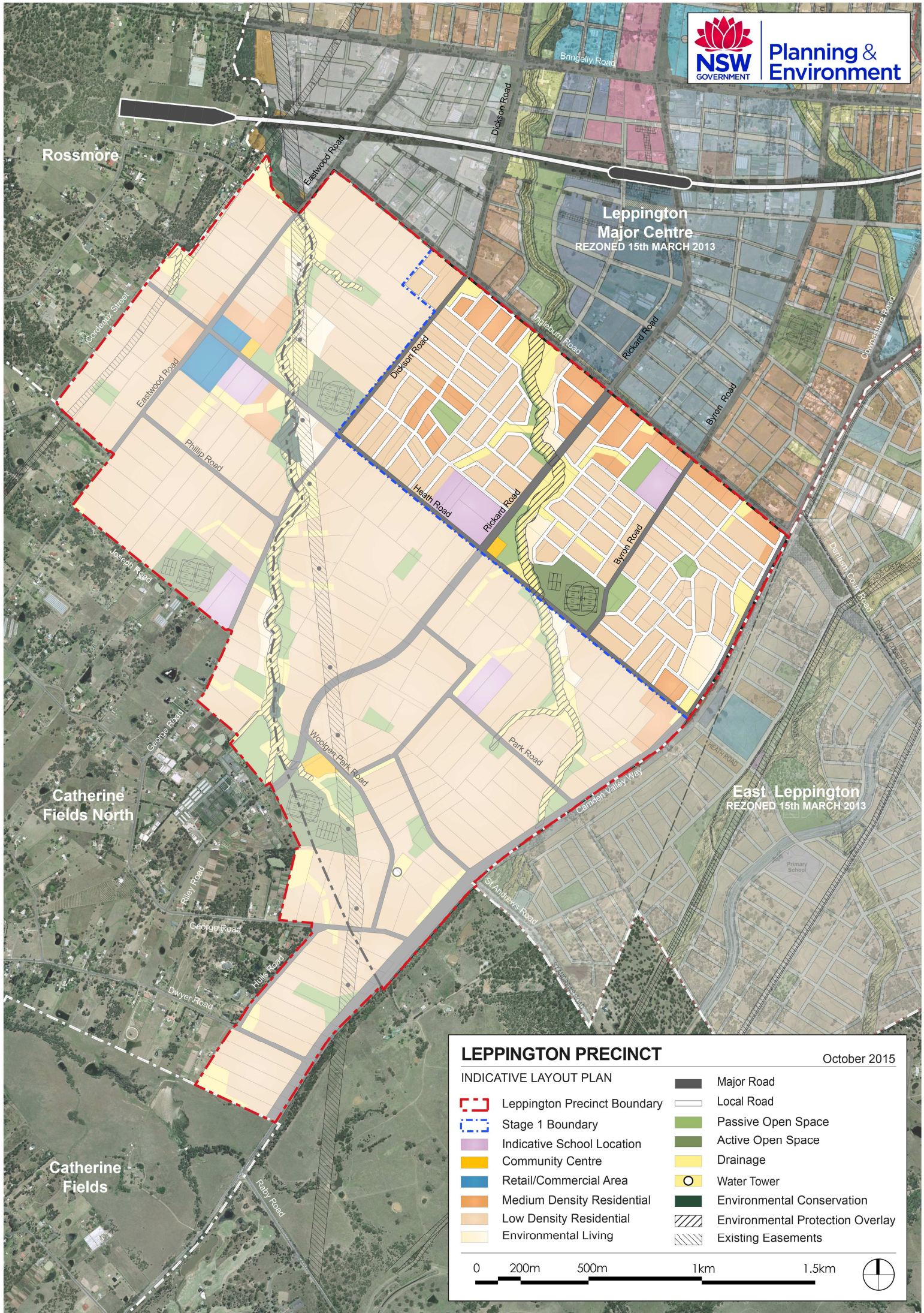
Intersection of Byron Road and Ingleburn Road looking east along Ingleburn Road.



Intersection of Ingleburn Road and Camden Valley Way

APPENDIX B


















Indicative Layout Plan (Leppington)



LEPPINGTON PRECINCT

October 2015

INDICATIVE LAYOUT PLAN

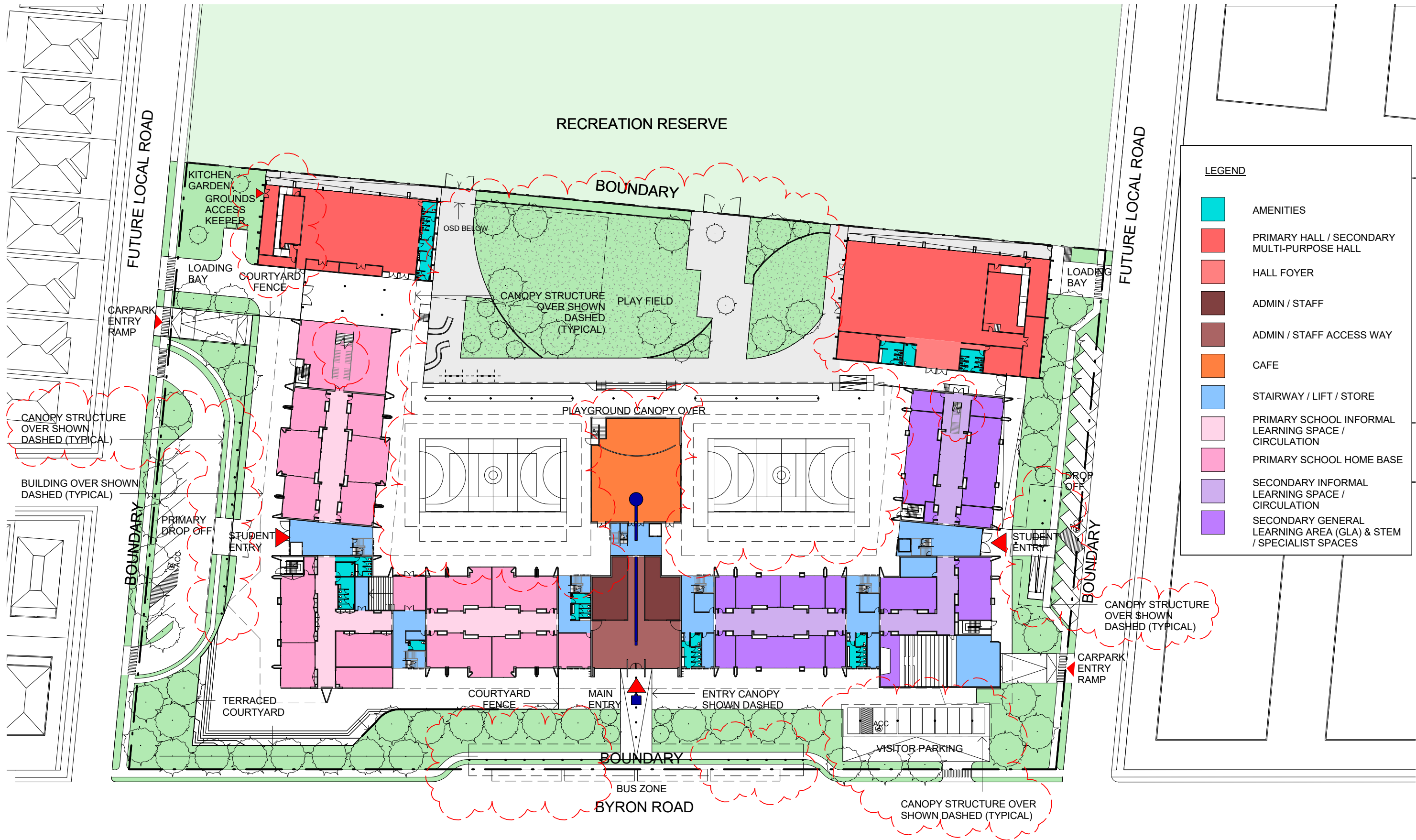
- | | | | |
|---|------------------------------|---|----------------------------------|
|  | Leppington Precinct Boundary |  | Major Road |
|  | Stage 1 Boundary |  | Local Road |
|  | Indicative School Location |  | Passive Open Space |
|  | Community Centre |  | Active Open Space |
|  | Retail/Commercial Area |  | Drainage |
|  | Medium Density Residential |  | Water Tower |
|  | Low Density Residential |  | Environmental Conservation |
|  | Environmental Living |  | Environmental Protection Overlay |
| | |  | Existing Easements |

0 200m 500m 1km 1.5km



APPENDIX C

Architectural Plans (Reduced Scale)



0 mm 10 mm 30 mm

ON ORIGINAL SHEET

N°.	DESCRIPTION	DATE
PI	PRELIMINARY ISSUE	16.01.19
P2	PRELIMINARY ISSUE	13.03.19

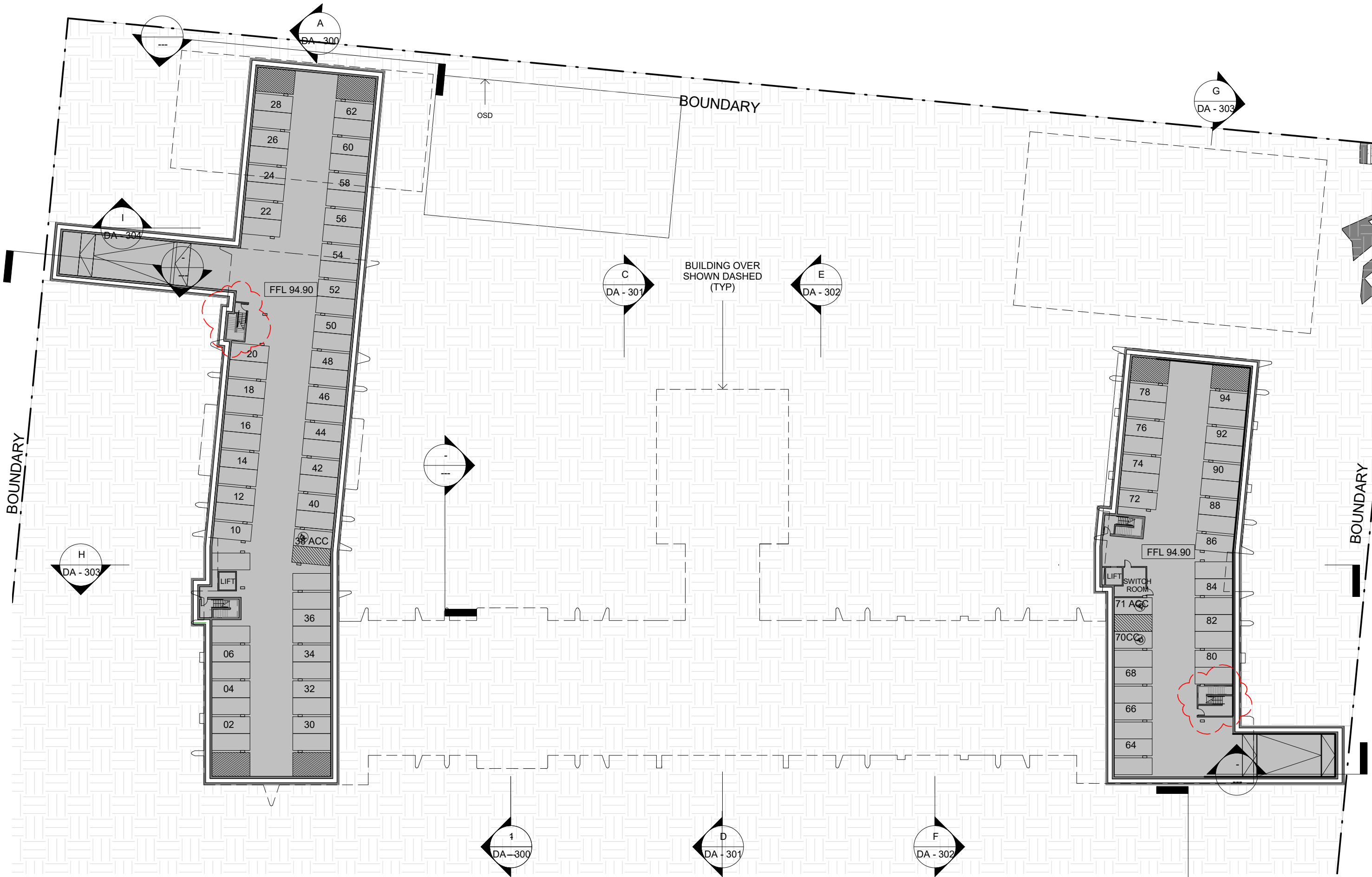
SCALE	DRAWN BY	CHECKED BY	DATE
1 : 750 @A3	BM/MC	PR	November 2018

PROJ. No.	DRAWING No.	REV.
A1803	DA - 010	P2

GRAN ASSOCIATES AUSTRALIA
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PH: +61 2 9818 8437
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PETER REED ARAIA, AIA NOM ARCH 5377
ANTHONY KEMENY FRAIA NSW REG No. 4599

PROJECT
AMITY COLLEGE LEPPINGTON
85 Byron Road, Leppington NSW

TITLE:
SITE PLAN



	Nº	DESCRIPTION	DATE		SCALE	DRAWN BY	CHECKED BY	DATE
	P1	PRELIMINARY ISSUE	16.01.19		1 : 500 @A3	BM/MC	PR	November 2018
	P2	PRELIMINARY ISSUE	01.02.19					
	P3	PRELIMINARY ISSUE	04.02.19					
	P4	PRELIMINARY ISSUE	13.03.19		PROJ. No.	DRAWING No.	REV.	
					A1803	DA - 105	P4	

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FAX: +61 2 9818 8288
PETER REED ARAIA, AIA NOM ARCH 5377
ANTHONY KEMENY FRAIA NSW REG No. 4599

PROJECT
AMITY COLLEGE LEPPINGTON
85 Byron Road, Leppington NSW
TITLE:
BASEMENT FLOOR PLAN

APPENDIX D

Council Correspondence

Hayden Dimitrovski

From: Gary Peacock <gpeacock@outline.com.au>
Sent: Thursday, 14 February 2019 8:21 AM
To: Peter Reed; Michael Clarke
Subject: Fwd: Local street parking: proposed new school Amity College Leppington

Good morning gentlemen,

If you have not already received a copy I would be grateful if you could pass this on to the traffic consultants.

It indicates support for:

1. Widening the northern Local Street in order to accommodate on-street parking.
2. Proposed use of bus bays on Byron Road.

Kind Regards,

Gary Peacock

Managing Director
OUTLINE PLANNING CONSULTANTS PTY LTD
TOWN PLANNING & PROPERTY DEVELOPMENT MANAGEMENT
SUITE 18, PITTWATER BUSINESS PARK
No. 5 VUKO PLACE
WARRIEWOOD NSW 2102
www.outline.com.au

Tel: [02 9262 3511](tel:0292623511)
Mobile: [0418 242 762](tel:0418242762)

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Begin forwarded message:

From: Ryan Pritchard <Ryan.Pritchard@camden.nsw.gov.au>
Subject: FW: Local street parking: proposed new school Amity College Leppington
Date: 14 December 2018 at 12:11:28 pm AEDT
To: "Gary Peacock (gpeacock@outline.com.au)" <gpeacock@outline.com.au>

Hi Gary,

Conceptually we could look at wider road reserves (north and south) adjacent to the school that provide for dedicated on-street parking bays as you have depicted.

Please note that the local road on the northern side of the school should be constructed to its full width as it is completely within your existing site.

Council's formal position on the above will be confirmed when we are formally consulted by DPE on the DA.

Regards,

Ryan Pritchard
Principal Planner



70 Central Avenue, Oran Park, 2570
02 4654 7715
www.camden.nsw.gov.au

PO Box 183, Camden NSW 2570
Ryan.Pritchard@camden.nsw.gov.au
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From: Sugule Mohamed
Sent: Monday, 3 December 2018 10:28 AM
To: Gary Peacock <gpeacock@outline.com.au>
Cc: Peter Reed <preed@granassociates.com.au>; Michael Clarke <mclarke@granassociates.com.au>; Ryan Pritchard <Ryan.Pritchard@camden.nsw.gov.au>
Subject: RE: Local street parking: proposed new school Amity College Leppington

Hi Gary,

The Engineering Certification team have reviewed your proposal and offer the following advise;

1. Council supports in principal your proposal for the parking arrangements for the future local roads provided compliance with AS 2890.5-1993 (Australian Standard- Part 5: On-street parking). Council in the past has supported such arrangement i.e. Redman Grange Oran Park **AND** Franzman Ave Elderslie.
2. Additionally, Council also supports in principle your bus bay proposed arrangement for Byron Road provided your compliance with Transport NSW Specification for the buses. Council in past has supported such arrangement i.e. Lodges Road Elderslie.

For further clarification on any of the above points, please do not hesitate to call me. Thank you.

Regards

Sugule Mohamed
Team Leader Engineering Certification



70 Central Avenue, Oran Park, 2570
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sugule.mohamed@camden.nsw.gov.au
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From: Gary Peacock <gpeacock@outline.com.au>
Sent: Friday, 30 November 2018 4:49 PM
To: Sugule Mohamed <sugule.mohamed@camden.nsw.gov.au>
Cc: Peter Reed <preed@granassociates.com.au>; Michael Clarke <mclarke@granassociates.com.au>; Ryan Pritchard <Ryan.Pritchard@camden.nsw.gov.au>
Subject: Local street parking: proposed new school Amity College Leppington

Good afternoon & SA Mohamed,

I refer to our telephone discussions today in regard to this matter.

Amity College has prepared a draft plan showing provision for on-street parking in the unmade Local Street that is to run along the northern boundary of the proposed school site. [NOTE: Draft plan only, in process of being refined- subject to your advice.]

Refer to accompanying png file, which illustrates the on-street parking proposed on the north side of the school. This will probably mean that the road reserve will be more than the 16m width as provided for in the Camden Growth Centres Precincts Development Control Plan 2017 for Local Streets. What would be a suitable road reserve width?

As you are aware, such a parking arrangement is not strictly in accordance with the 'Local Street' road template, however, the proposed parking arrangements proposed has significant benefits in that it will provide for out-of-school-hours use by the general public wishing to use the proposed local park that adjoins the school.

Strict adherence to the 'Local Street' would mean that there would be minimal public street parking available- a disincentive to the public enjoying this open space in the future (or perhaps more congested streets).

The aim will be to construct this parking and half construction of this Local Street as part of the overall school development project.

Refer to accompanying png files.

We seek your support in principle for these parking arrangements.

As a further sub-option, could such a parking arrangement also be considered on the southern side of the school site (which also fronts another Local Street)? Amity College will be responsible for the completion of construction of this Local Street as part of the school development project. (Crownland is currently building the other half of this road as a part of their approved residential subdivision). If your answer is in the affirmative, please advise what overall road reserve width would seem most suitable for this purpose.

Additionally, I would be grateful if you could confirm your requirements for dedication (as a road reserve) of the bus bays, including

footpaths, fronting Byron Road. The bus bays will be enlarged over time and dedicated on a staged basis (presumably the same as the current arrangements for dedication of the bus bay area fronting Heath Road at The Anglican Schools Corporation school just down Byron Road).

Please call me if you have any questions or wish to discuss the above in further detail.

Thank you for your planning & engineering team's support to date in helping us resolve outstanding issues of relevance to Council.

Thanking you in anticipation of your guidance in regard to the above matters.

Regards,

Gary Peacock

Managing Director

OUTLINE PLANNING CONSULTANTS PTY LTD

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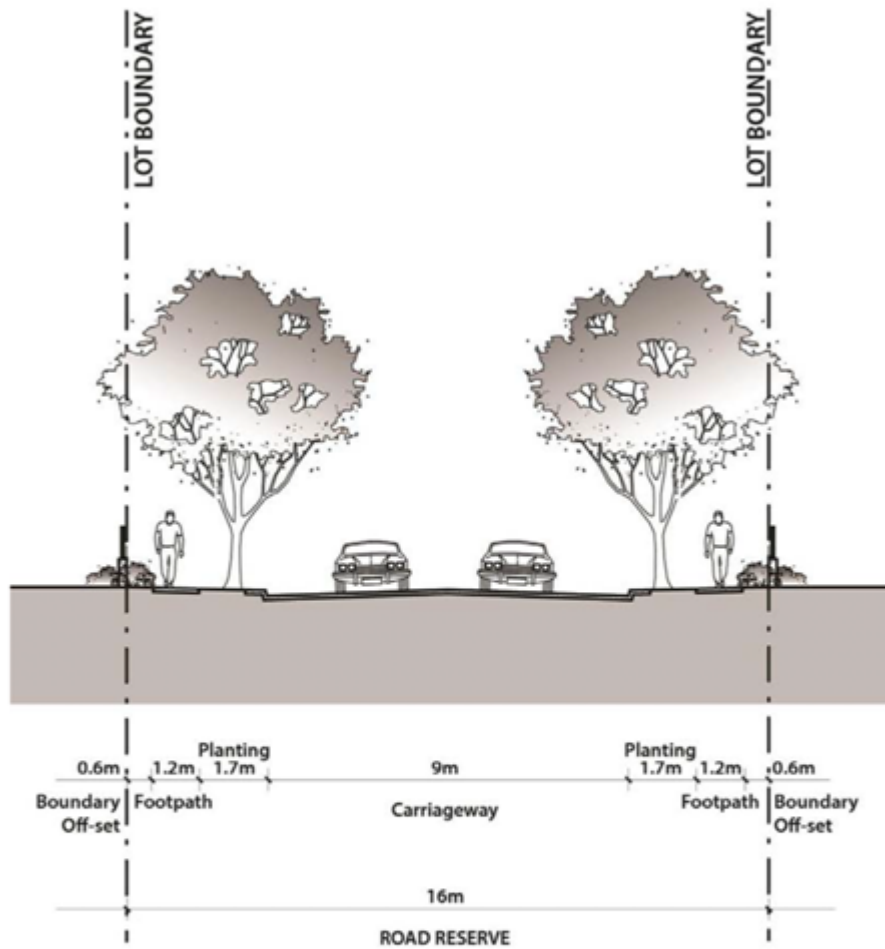
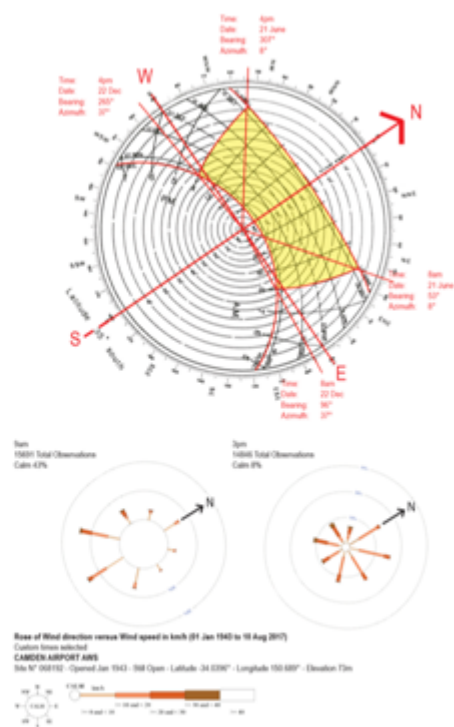
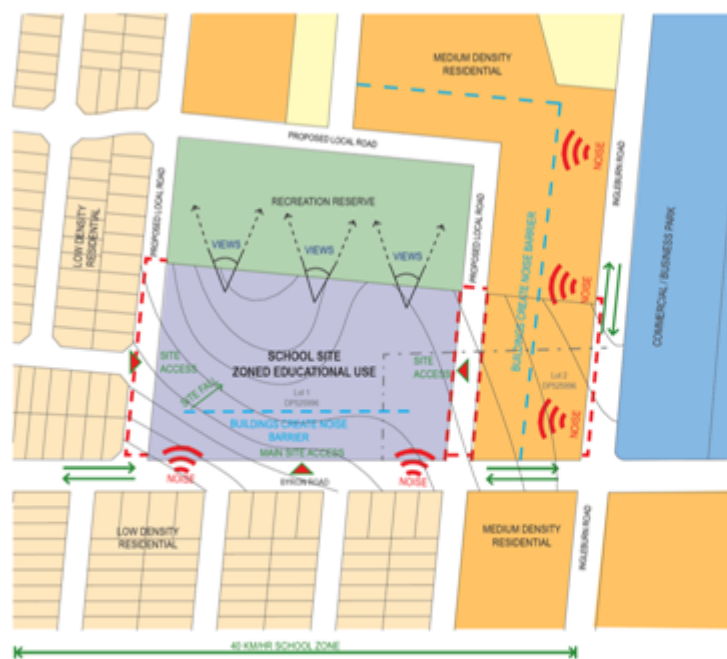


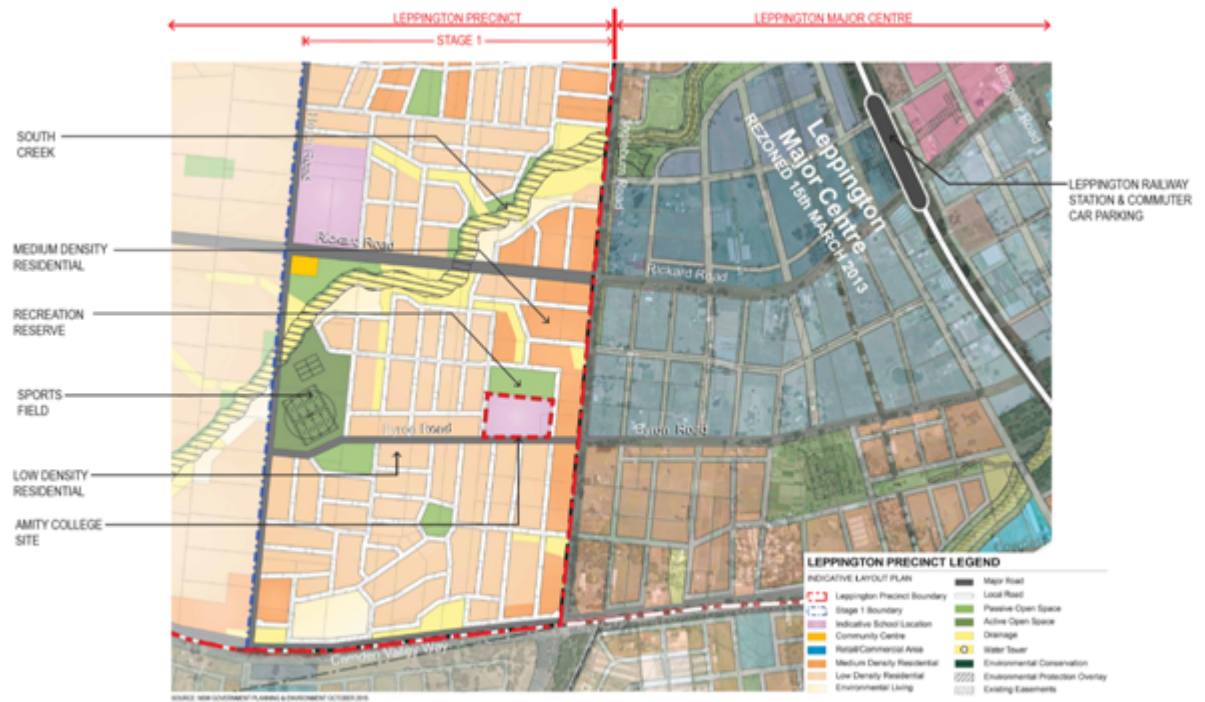
FIGURE 10 (above): Typical Local Street section

Source: Camden Growth Centre Precincts Development Control Plan

Ltd



SITE CONTEXT PLAN



GRAM
GRAM ASSOCIATES AUSTRALIA
ARCHITECTS PTY LTD
1/100-110 SOUTH CREEK ROAD
LEPPINGTON NSW 5074
TEL: 08 8350 0000
WWW.GRAMARCHITECTS.COM.AU



28/07/2018

NO. 00000000000000000000

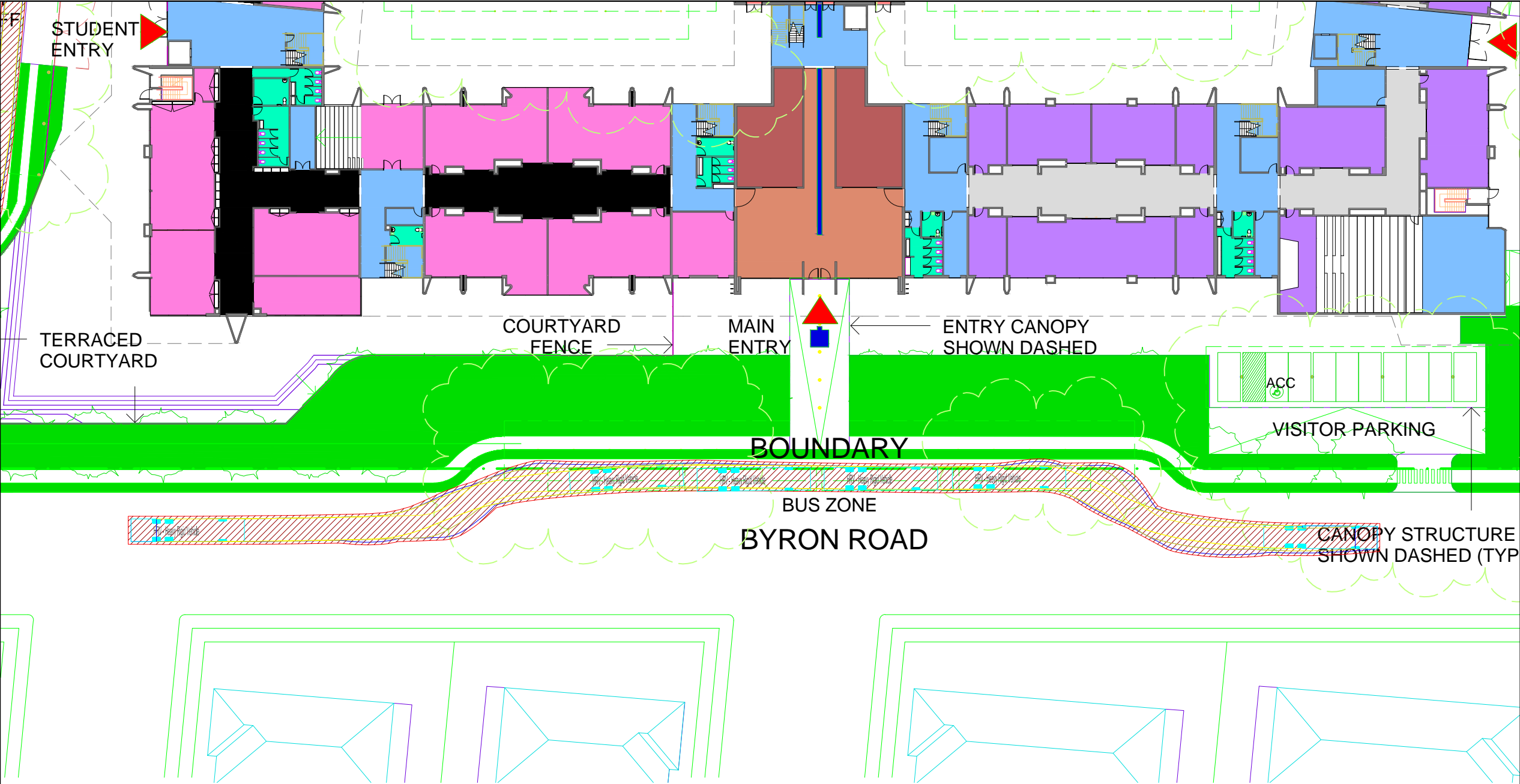


AMITY COLLEGE LEPPINGTON CAMPUS

MASTER PLAN 2018
LOCAL GOVERNMENT AREAS

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 note

A Updated Plans

by. date

HD 18-03-19

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Gran Associates

client

Amity College Australia Ltd
163 Kurralong Road
Prestons NSW 2170

scale

1:500 @ A3

0m

5

10

15

20

project

Amity College Leppington
63 Ingleburn Road and 85 Byron Road
Leppington NSW 2179

drawing prepared by

TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@trafix.com.au

drawing title

Byron Road Bus Bay
Entry and Exit
12.5m long Heavy Rigid Vehicles (HRV)

drawn: HD

checked: KB

date: 04-02-2019

18.300306v01 TRAFFIX [190314 Plans] Design Review.dwg

18.300

-

TX.01

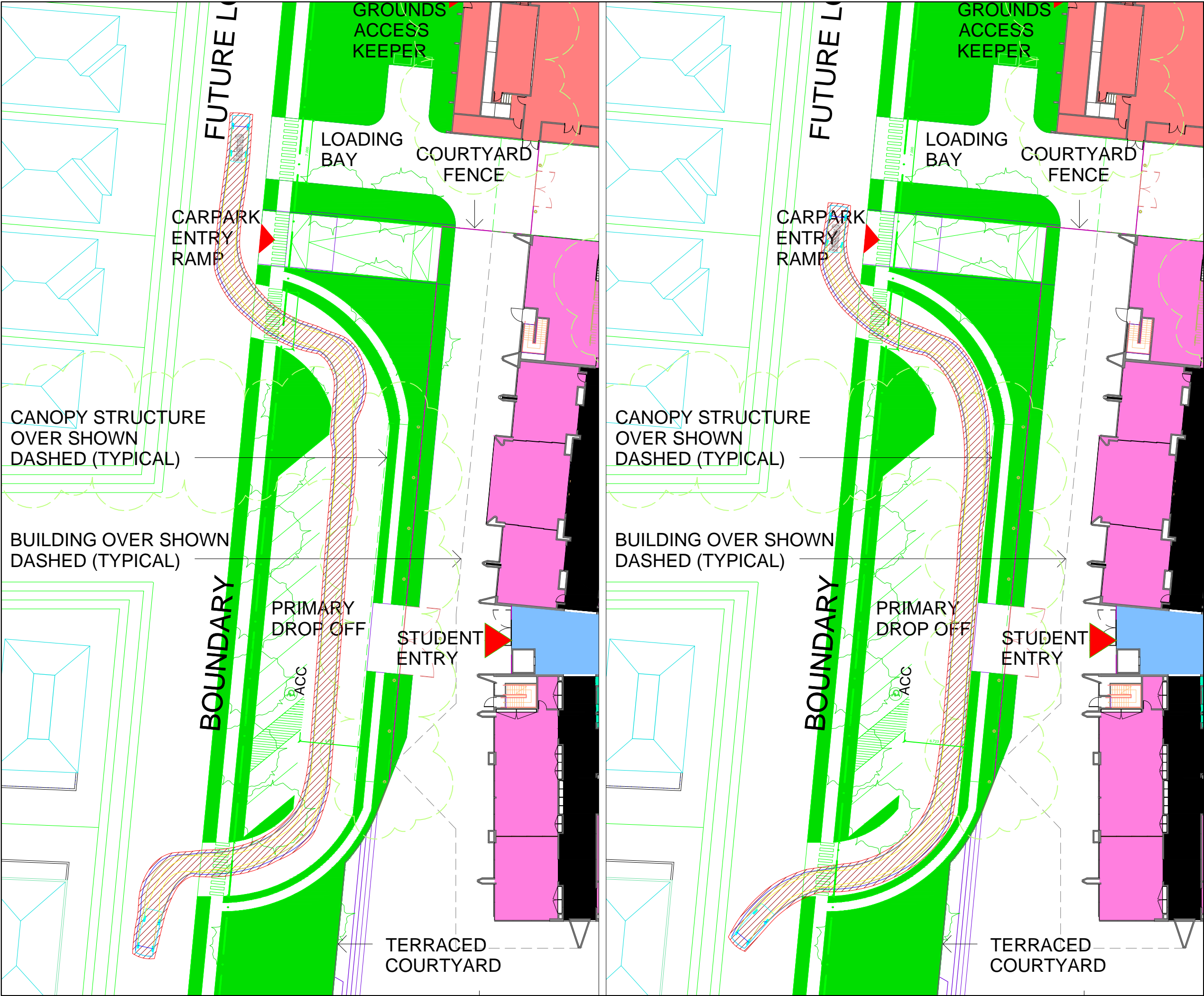
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project no.

drawing phase.

drawing no.

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no. revision note

A Updated Plans

by. date

HD 18-03-19

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Gran Associates

client

Amity College Australia Ltd
163 Kurraging Road
Prestons NSW 2170

scale

1:400 @ A3

0m 4 8 12 16

project

Amity College Leppington
63 Ingleburn Road and 85 Byron Road
Leppington NSW 2179

drawing prepared by

TRAFFIX
traffic and transport planners
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PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

drawing title

On site Drop off and Pick Up
B99 Vehicle

drawn: HD

checked: KB

date: 04-02-2019

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18.300

-

TX.02

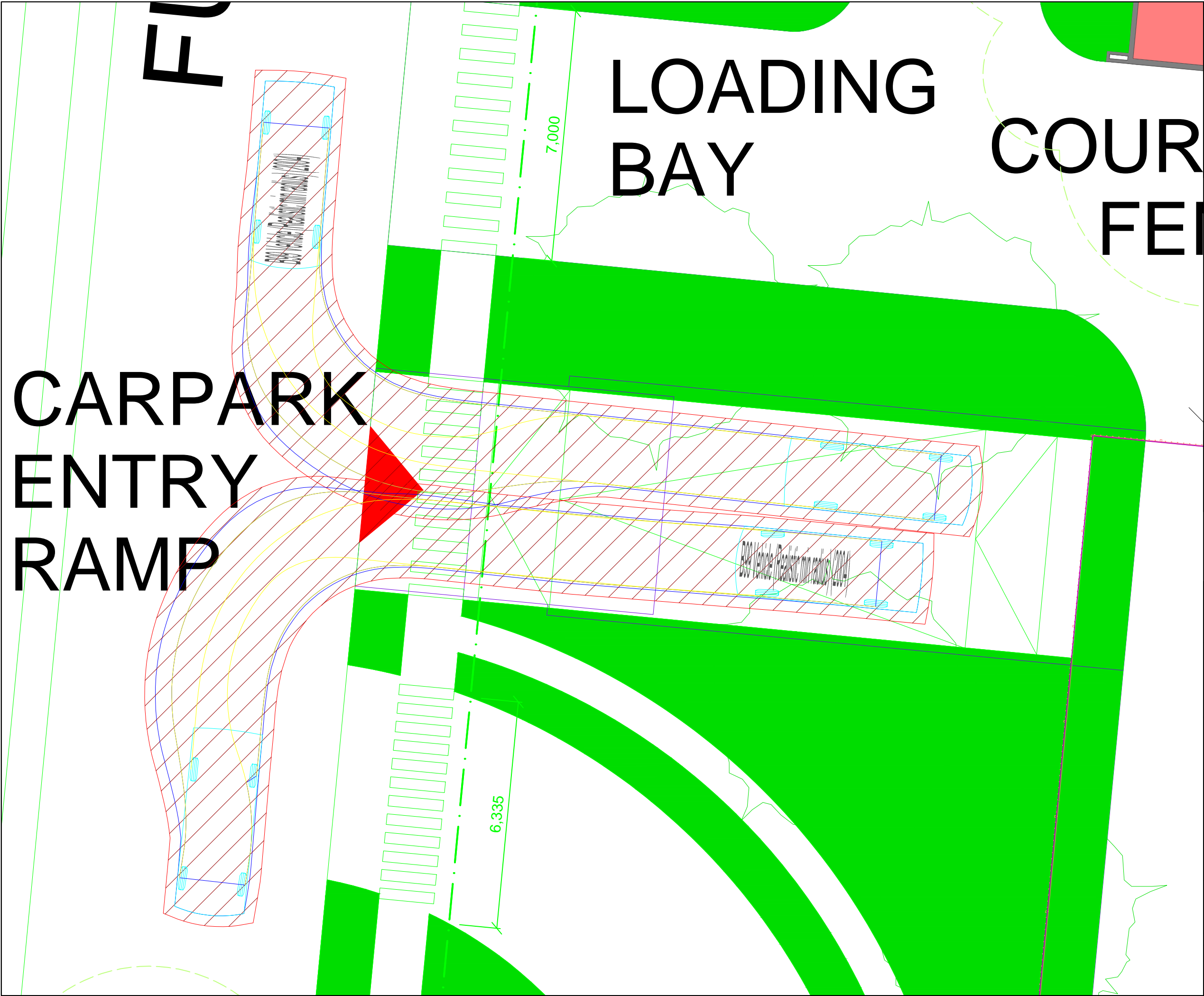
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drawing phase.

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no. revision note

A Updated Plans

by. date

HD 18-03-19

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Gran Associates

client

Amity College Australia Ltd
163 Kurrabung Road
Prestons NSW 2170

scale

1:100 @ A3

0m

1

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project

Amity College Leppington
63 Ingleburn Road and 85 Byron Road
Leppington NSW 2179

drawing prepared by

TRAFFIX

traffic and transport planners

Suite 2.08, 50 Holt Street
Surry Hills NSW 2010

PO Box 1124
Strawberry Hills NSW 2012

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

drawing title

Southern Basement Car Park Access
Entry and Exit
B99 Vehicle

drawn: HD

checked: KB

date: 04-02-2019

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TX.03

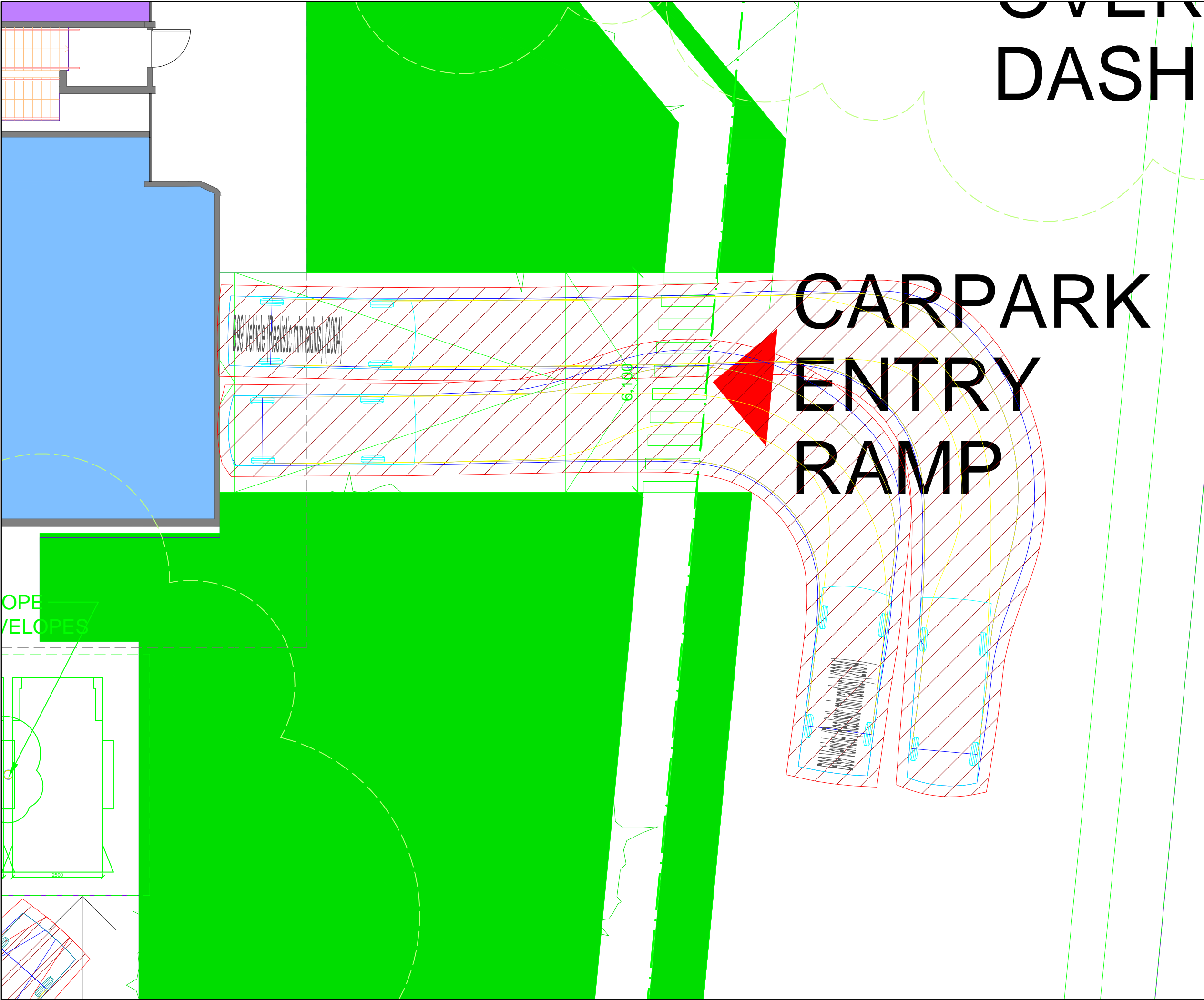
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project no.

drawing phase.

drawing no.

rev



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Notes

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no. revision note

A Updated Plans

by. date

HD 18-03-19

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Gran Associates

client

Amity College Australia Ltd
163 Kurrajong Road
Prestons NSW 2170

scale

1:100 @ A3

0m

1

2

3

4

project

Amity College Leppington
63 Ingleburn Road and 85 Byron Road
Leppington NSW 2179

drawing prepared by

TRAFFIX

traffic and transport planners

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Strawberry Hills NSW 2012

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

drawing title

Northern Basement Car Park Access
Entry and Exit
B99 Vehicle

drawn: HD

checked: KB

date: 04-02-2019

18.30006v01 TRAFFIX [190314 Plans] Design Review.dwg

18.300

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TX.04

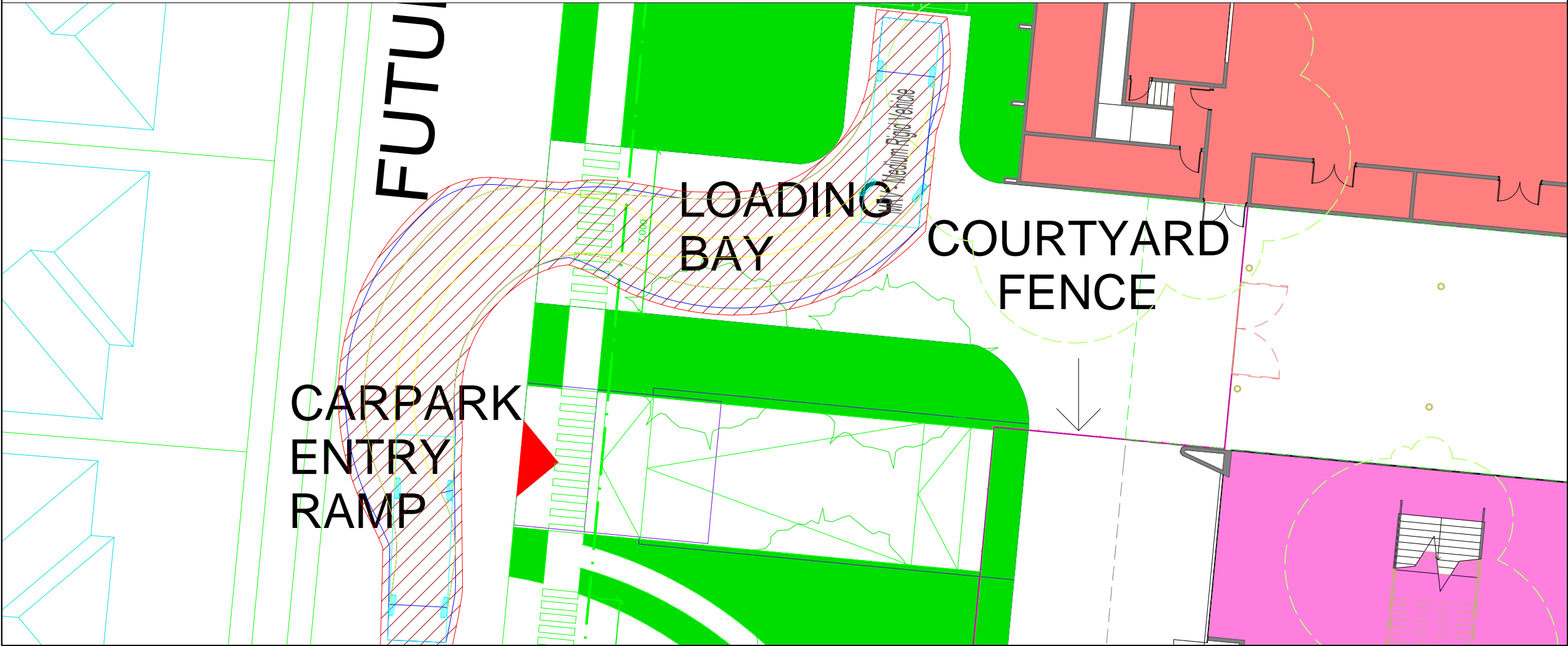
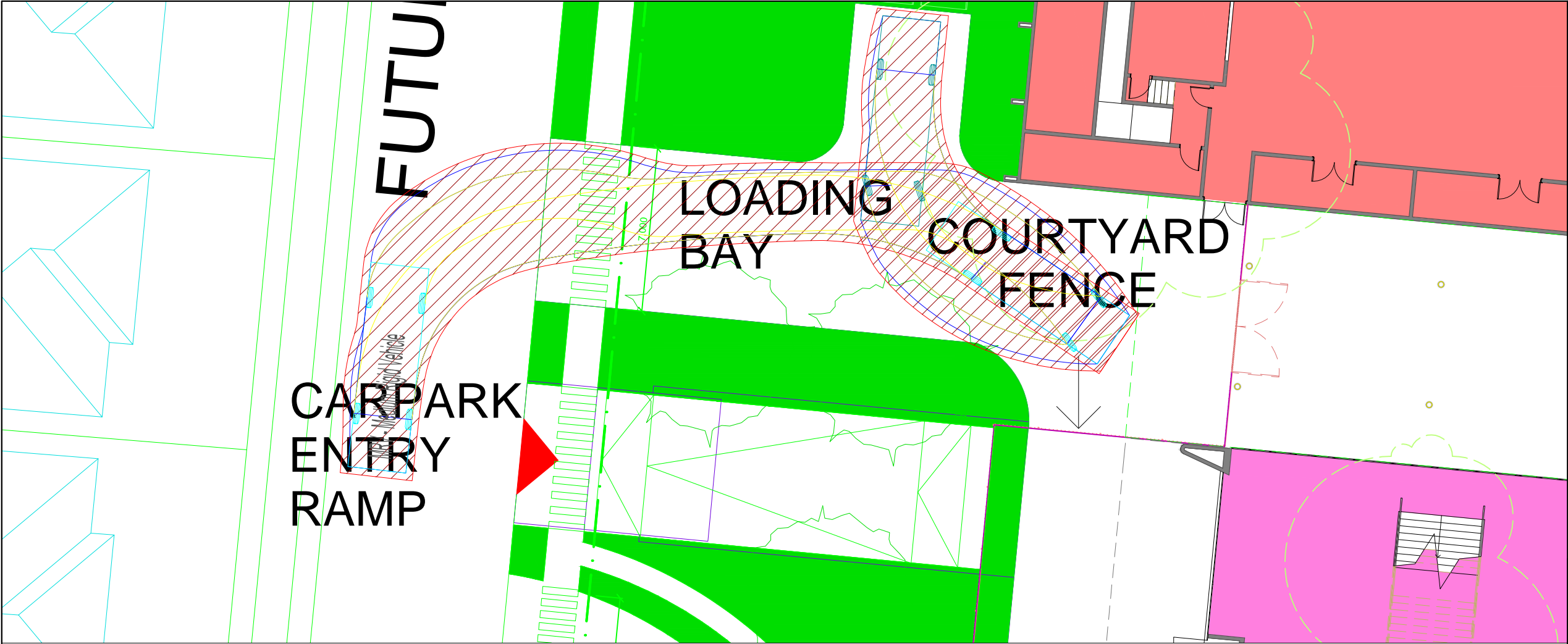
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project no.

drawing phase.

drawing no.

rev



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no. revision note

A Updated Plans

by. date

HD 18-03-19

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Gran Associates

client

Amity College Australia Ltd
163 Kurralong Road
Prestons NSW 2170

scale

1:200 @ A3

0m 2 4 6 8

project

Amity College Leppington
63 Ingleburn Road and 85 Byron Road
Leppington NSW 2179

drawing prepared by

TRAFFIX
traffic and transport planners
Suite 2/08, 50 Holt Street
Surry Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

drawing title

Southern Loading Bay Access
Entry and Exit
8.8m long Medium Rigid Vehicle (MRV)

drawn: HD

checked: KB

date: 04-02-2019

18.30006v01 TRAFFIX [190314 Plans] Design Review.dwg

18.300

-

TX.05

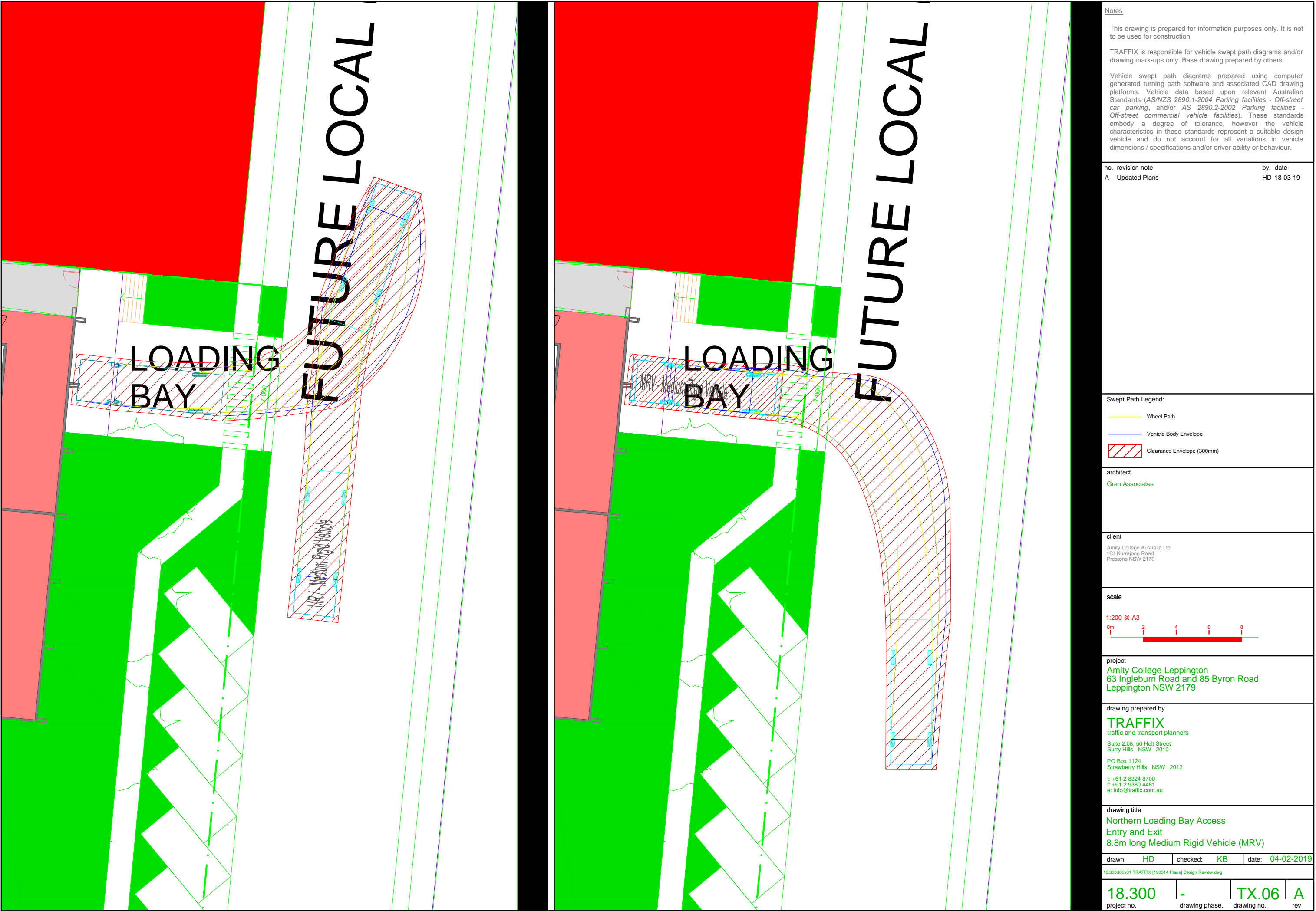
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project no.

drawing phase.

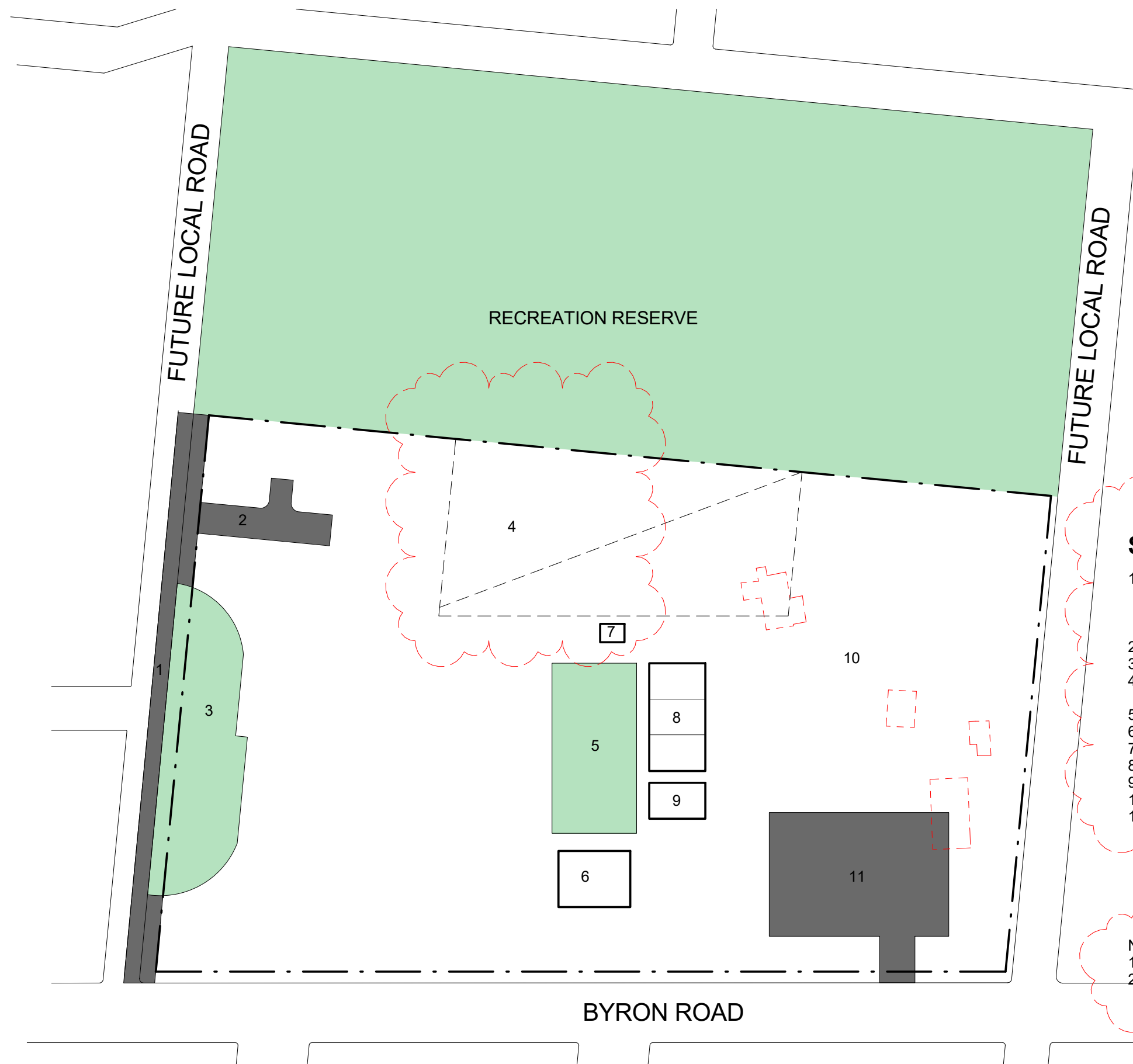
drawing no.

rev



APPENDIX F

Stage 1 Staging Plan

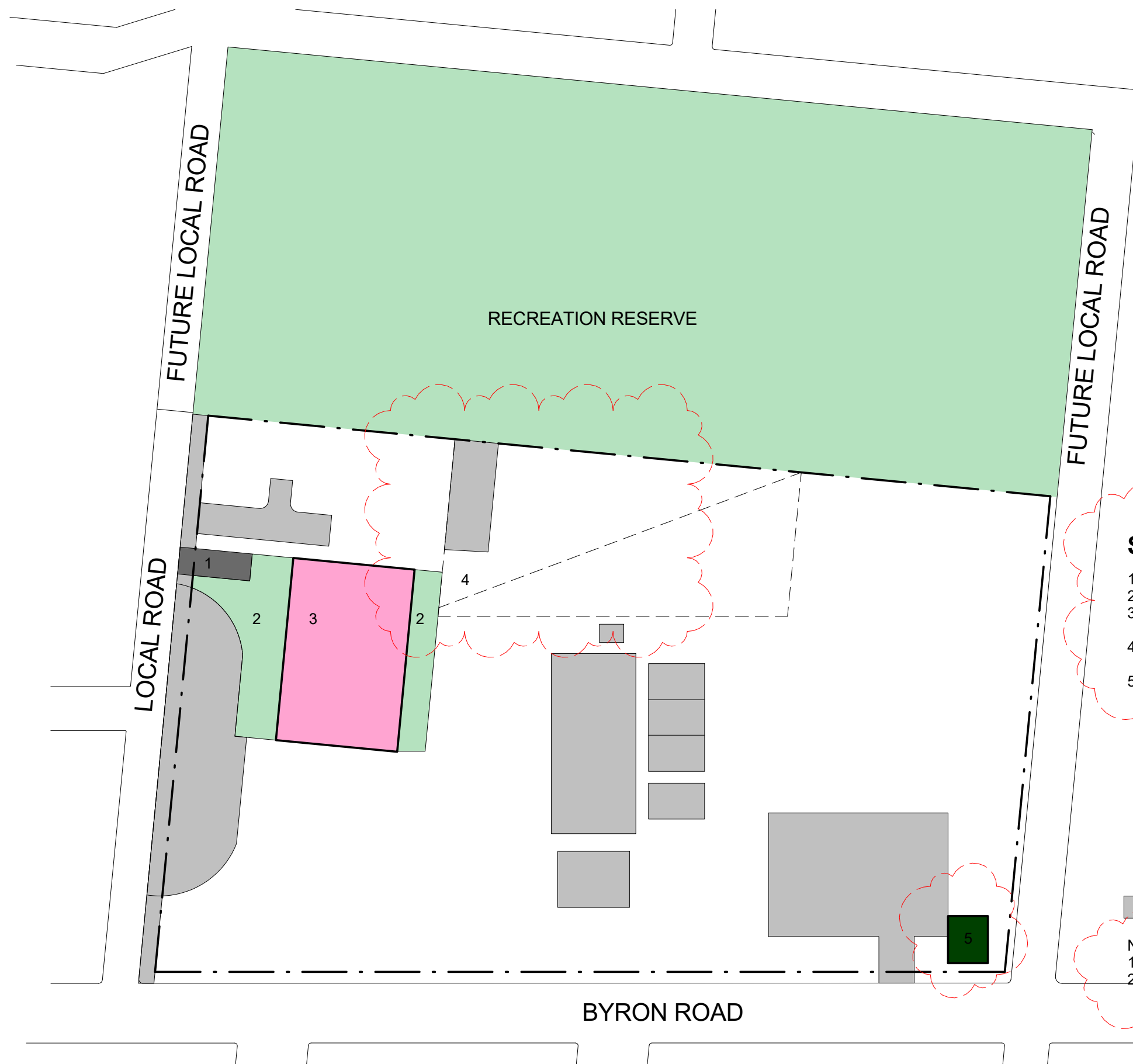


STAGE 1

1. COMPLETE REMAINING PORTION OF ROAD AND FOOTPATH RESERVE (INCLUDES WORKS RELATING TO CONNECTION WITH BYRON ROAD)
2. LOADING ZONE
3. DROP OFF PARKING AND LANDSCAPING
4. EXCLUSION ZONE FOR WORKS RELATING TO FUTURE PLAY FIELD AND LANDSCAPING.
5. PLAY FIELD
6. ADMINISTRATION (DEMOUNTABLE)
7. TOILET BLOCK (DEMOUNTABLE)
8. PRIMARY HOME BASES (DEMOUNTABLE)
9. CANTEEN (DEMOUNTABLE)
10. DEMOLISH EXISTING BUILDINGS
11. TEMPORARY STAFF PARKING AND BUS STOP


NOTE:

1. LANDSCAPING REFERS TO HARD AND SOFT WORKS
2. SOIL, REMEDIATION, EXCAVATION AND FILL AS REQUIRED



STAGE 2

1. DRIVEWAY TO BASEMENT PARKING
2. LANDSCAPING AND OUTDOOR LEARNING AREAS
3. TWO STOREY PRIMARY HOME BASE MODULES WITH BASEMENT PARKING BELOW
4. EXCLUSION ZONE FUTURE PLAY FIELD AND LANDSCAPING.
5. SUBSTATION

 PREVIOUS STAGE

NOTE:

1. LANDSCAPING REFERS TO HARD AND SOFT WORKS
2. SOIL, REMEDIATION, EXCAVATION AND FILL AS REQUIRED



STAGE 3

1. PRIMARY COURTYARD
2. PRIMARY PLAYGROUND (SLIDE, SWINGS, ETC)
3. SHADE STRUCTURES ABOVE 1 AND 2
4. TERRACED LEARNING AREA EXCAVATION AND LANDSCAPING
5. BUS BAY, MAIN STREET ENTRY AND LANDSCAPING
6. EXCLUSION ZONE FOR FUTURE PLAY FIELD AND LANDSCAPING.

PREVIOUS STAGE

NOTE:
1. LANDSCAPING REFERS TO HARD AND SOFT WORKS
2. SOIL, REMEDIATION, EXCAVATION AND FILL AS REQUIRED

0 mm

10 mm

30 mm

ON ORIGINAL SHEET

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N°.	DESCRIPTION	DATE
PI	PRELIMINARY ISSUE	29.01.19
P2	PRELIMINARY ISSUE	14.02.19



SCALE	DRAWN BY	CHECKED BY	DATE
1 : 1000 @A3	DM	MC	November 2018
PROJ. No.	DRAWING No.	REV.	
A1803	DA - 602	P2	

gran GRAN ASSOCIATES AUSTRALIA ARCHITECTS PTY LTD LEVEL 1, 597 DARLING STREET ROZELLE NSW 2039 PH: +61 2 9818 8437 FAX: +61 2 9818 8288 PETER REED ARAIA, AIA NOM ARCH 5377 ANTHONY KEMENY FRAIA NSW REG No. 4599	PROJECT AMITY COLLEGE LEPPINGTON 85 Byron Road, Leppington NSW TITLE: STAGING PLAN STAGE 3
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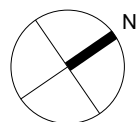
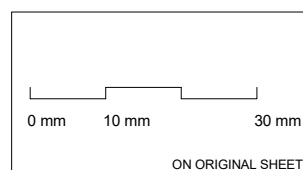
STAGE 4

1. TWO STOREY PRIMARY HOME BASE MODULE WITH LINKS AND BASEMENT PARKING
2. TWO STOREY PRIMARY HOME BASE MODULE WITH LINKS
3. LANDSCAPING AND OUTDOOR LEARNING AREAS
4. REMOVE DEMOUNTABLES
5. EXCLUSION ZONE FOR FUTURE PLAY FIELD AND LANDSCAPING
6. REMOVE TEMPORARY PARKING

PREVIOUS STAGE

NOTE:

1. LANDSCAPING REFERS TO HARD AND SOFT WORKS
2. SOIL, REMEDIATION, EXCAVATION AND FILL AS REQUIRED



N°.	DESCRIPTION	DATE
PI	PRELIMINARY ISSUE	29.01.19
P2	PRELIMINARY ISSUE	14.02.19



SCALE	DRAWN BY	CHECKED BY	DATE
1 : 1000 @A3	DM	MC	November 2018
PROJ. No.	DRAWING No.	REV.	
A1803	DA - 603	P2	



PROJECT
AMITY COLLEGE LEPPINGTON
85 Byron Road, Leppington NSW
TITLE:
STAGING PLAN STAGE 4



STAGE 5

- 1. PRIMARY HALL AND LANDSCAPING
- 2. EXCLUSION ZONE FOR FUTURE PLAY FIELD AND LANDSCAPING
- 3. SECONDARY PLAY COURT
- 4. SECONDARY THREE STOREY LEARNING AREA MODULE WITH LINKS
- 5. SECONDARY DROP OFF AND LANDSCAPING
- 6. CONSTRUCT HALF OF LOCAL ROAD (INCLUDES WORKS RELATING TO CONNECTION WITH BYRON ROAD)
- 7. LANDSCAPING.

PREVIOUS STAGE

NOTE:
1. LANDSCAPING REFERS TO HARD AND SOFT WORKS
2. SOIL, REMEDIATION, EXCAVATION AND FILL AS REQUIRED

0 mm

10 mm

30 mm

ON ORIGINAL SHEET

N

N°.	DESCRIPTION	DATE
PI	PRELIMINARY ISSUE	29.01.19
P2	PRELIMINARY ISSUE	14.02.19



SCALE	DRAWN BY	CHECKED BY	DATE
1 : 1000 @A3	DM	MC	November 2018
PROJ. No.	DRAWING No.	REV.	
A1803	DA - 604	P2	

gran <small>GRAN ASSOCIATES AUSTRALIA ARCHITECTS PTY LTD LEVEL 1, 597 DARLING STREET ROZELLE NSW 2039 PH: +61 2 9818 8437 FAX: +61 2 9818 8288 PETER REED ARAIA, AIA NOM ARCH 5377 ANTHONY KEMENY FRAIA NSW REG No. 4599</small>	PROJECT AMITY COLLEGE LEPPINGTON 85 Byron Road, Leppington NSW
	TITLE: STAGING PLAN STAGE 5

APPENDIX G

SEARs Requirements

Secretary's Environmental Assessment Requirements

Section 4.12(8) of the *Environmental Planning and Assessment Act*
Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

Application Number	SSD 9227
Proposal Name	Proposed New Amity College Campus
Location	85 Byron Road & 63 Ingleburn Road, Leppington
Applicant	Amity College
Date of Issue	26 April 2018
General Requirements	<p>The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the Regulation).</p> <p>Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.</p> <p>Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include:</p> <ul style="list-style-type: none"> adequate baseline data; consideration of potential cumulative impacts due to other development in the vicinity (completed, underway or proposed); and measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment. <p>The EIS must be accompanied by a report from a qualified quantity surveyor providing:</p> <ul style="list-style-type: none"> a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the <i>Environmental Planning and Assessment Regulation 2000</i>) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; an estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and certification that the information provided is accurate at the date of preparation.
Key Issues	<p>The EIS must address the following specific matters:</p> <p>1. Statutory and Strategic Context Address the statutory provisions contained in all relevant environmental planning instruments, including:</p> <ul style="list-style-type: none"> State Environmental Planning Policy (State & Regional Development) 2011; State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017; State Environmental Planning Policy (Infrastructure) 2007; State Environmental Planning Policy No.55 – Remediation of Land; State Environmental Planning Policy No. 64 – Advertising Signage; State Environmental Policy (Sydney Region Growth Centres) 2006;

	<ul style="list-style-type: none"> • State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017; • State Environmental Planning Policy NO. 20 – Hawkesbury-Nepean River; • Draft Environmental State Environmental Planning Policy; • Draft Remediation of Land State Environmental Planning Policy; and • Camden Local Environmental Plan 2010. <p><i>Permissibility</i> Detail the nature and extent of any prohibitions that apply to the development.</p> <p><i>Development Standards</i> Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards.</p> <p>2. Policies Address the relevant planning provisions, goals and strategic planning objectives in the following:</p> <ul style="list-style-type: none"> • NSW State Priorities; • Greater Sydney Region Plan, A Metropolis of Three Cities; • NSW Future Transport 2056; • State Infrastructure Strategy 2018 – 2038; • Sydney's Cycling Future 2013; • Sydney's Walking Future 2013; • Sydney's Bus Future 2013; • Crime Prevention Through Environmental Design (CPTED) Principles; • Healthy Urban Development Checklist, NSW Health; • Better Placed – an integrated design policy for the built environment of NSW; • Greater Sydney Commission's Western City District Plan; and • Camden Development Control Plan 2011; and • Camden Growth Centre Precincts Development Control Plan. <p>3. Operation</p> <ul style="list-style-type: none"> • Provide details of the existing and proposed school operations, including staff and student numbers, school hours of operation, and operational details of any proposed before/after school care services and/or community use of school facilities. • Provide a detailed justification of suitability of the site to accommodate the proposal. • Provide details of how the school will continue to operate during construction activities of the new primary and secondary school, including proposed mitigation measures. <p>4. Built Form and Urban Design</p> <ul style="list-style-type: none"> • Address the height, density, bulk and scale, setbacks of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces. • Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours and Crime Prevention Through Environmental Design Principles. • Develop a design report that includes diagrams, illustrations and drawings to clarify the design intent of the proposal that clearly demonstrates how design quality will be achieved in accordance with Schedule 4 Schools – Design Quality Principles of State Environmental
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	<p>Planning Policy (Educational Establishments and Child Care Facilities) 2017.</p> <ul style="list-style-type: none"> • Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development. • Provide detailed site and context analysis to justify the proposed site planning and design approach. • Provide a detailed site-wide landscape strategy. <p>5. Environmental Amenity</p> <ul style="list-style-type: none"> • Assess amenity impacts on the surrounding locality, including solar access, acoustic impacts, visual privacy, view loss, overshadowing and wind impacts. • Identify any proposed use of the school outside of school hours (including weekends) and assess any resultant amenity impacts on the immediate locality and proposed mitigation measures. • Detailed outline of the nature and extent of the intensification of use associated with the increased floor space. • Detail amenity impacts including acoustic impacts. High level of environmental amenity for any surrounding residential land uses must be demonstrated. • Detail any proposed use of the school grounds out of school hours (including weekends) and any resultant amenity impacts on the immediate locality and proposed mitigation measures. <p>6. Staging</p> <p>Provide details and expected timing regarding the staging of all components of the proposed development.</p> <p>7. Transport and Accessibility</p> <p>The EIS shall include a Traffic Transport and Accessibility Impact Assessment, which details, but is not limited to the following:</p> <ul style="list-style-type: none"> • accurate details of the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and existing traffic and transport facilities provided on the road network located adjacent to the proposed development; • an assessment of the operation of existing and future transport networks including the bus network and their ability to accommodate the forecast number of trips to and from the development; • details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area; • details of any proposed school bus routes along bus capable roads (i.e. travel lanes of 3.5 metres minimum) and supporting infrastructure (bus stops, bus bays etc); • the adequacy of public transport, pedestrian and bicycle networks and infrastructure to meet the likely future demand of the proposed development; • comparison of the traffic generated by the proposed development against the alternative of planned housing development for part of the site; • an assessment of road safety at key intersection and locations (including but not limited to the Ingleburn-Byron Road and Ingleburn Road-Camden Valley Way intersections) subject to heavy vehicle construction traffic movements and high pedestrian activity; • identification of suitable infrastructure required to ameliorate any impacts on traffic efficiency and to maximise road safety at affected intersections; • the proposed access arrangements (normal and emergency as well as interim access arrangements during any required upgrade works), including car and bus pick-up/drop-off movements, estimated service
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	<p>vehicle movements, and parking areas for all car user groups (e.g. visitor parking, disabled parking and car share);</p> <ul style="list-style-type: none"> • sustainable travel initiatives for staff, students and visitors, particularly for the provision of a Green Travel Plan and wayfinding strategies; • safe pedestrian and bicycle connections, including pedestrian crossings and refuges and speed control devices and zones; • details of any upgrading or road improvement works required to accommodate the proposed development (including any local road construction that may be required in accordance with Council's DCP); • details of travel demand management measures to minimise the impact on general traffic and bus operations and to encourage sustainable travel choices and details programs for implementation, including the preparation of a Green Travel Plan; • the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works, if required. Traffic modelling is to be undertaken using, but not limited to, SIDRA network modelling for current and future years; • assess the impact of the proposed variation in planned subdivision pattern and indicative layout plan on the delivery of surrounding network (where applicable); • prioritisation of active transport initiatives through provision of walking and cycling infrastructure) e.g. segregated paths, bicycle parkin, etc) to and within the site, considering connections and availability of public transport; • proposed number of on-site car parking spaces and corresponding compliance with the Camden Growth Centre Precincts Development Control Plan and justification for the level of car parking provided on-site; • proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance; • details of emergency vehicle access arrangements; • an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures; • an assessment of cumulative on-street parking impacts of car and bus pick-up/drop-off, staff parking and any other parking demands associated with the development during weekdays and special events; • measures to maintain road and personal safety in line with CPTED principles; • in relation to construction traffic: <ul style="list-style-type: none"> ○ an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity; ○ details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process; ○ details of the anticipated daily and peak hour construction vehicle movements to and from the site, so as to not impact current traffic operations on the road network; ○ details of access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle; ○ details of temporary cycling and pedestrian access during construction; ○ details of proposed construction vehicle access arrangements at all stages of construction; and
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- traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.

→ Relevant Policies and Guidelines:

- *Guide to Traffic Generating Developments (Roads and Maritime Services)*
- *IS Guidelines – Road and Related Facilities (DoPI)*
- *Cycling Aspects of Arteroads Guides*
- *NSW Planning Guidelines for Walking and Cycling*
- *Arteroads Guide to Traffic Management Part 12 Traffic Impacts of Development*
- *Standards Australia AS2890.1 Bicycle Parking Facilities*

8. Noise and Vibration

Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation, including consideration of any public-address system, school bell and use of any school hall for concerts etc. (both during and outside school hours). Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land.

→ Relevant Policies and Guidelines:

- *Noise Policy for Industry 2011 (PA)*
- *Interim Construction Noise Guideline (DECC)*
- *Assessing Vibration – A Technical Guideline 2008*
- *Development Near Rail Corridors and Local Roads – Interim Guideline (Department of Planning 2008)*

9. Ecologically Sustainable Development (ESD)

- Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the development.
- Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.
- Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice.

10. Social Impacts

Include an assessment of the social consequences of the school's relative location.

11. Aboriginal Cultural Heritage

- Identify and describe the Aboriginal cultural heritage values that exist across the whole area that would be affected by the development, which may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (DECCW, 2011).
- Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). Detail the significance of cultural heritage values for Aboriginal people who have a cultural association with the land.

	<ul style="list-style-type: none"> Assess impacts on Aboriginal cultural heritage values and demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH. Please note the Due Diligence assessment process is not appropriate to address the requirements for Aboriginal Cultural Heritage assessment. <p>12. Utilities</p> <ul style="list-style-type: none"> Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure. Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design. <p>13. Contributions Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development.</p> <p>14. Contamination Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP 55. → Relevant Policies and Guidelines:</p> <ul style="list-style-type: none"> <i>Managing Land Contamination Planning Guidelines - SEPP</i> <input type="checkbox"/> <i>Remediation of Land</i> <input type="checkbox"/> <i>DAP</i> <input type="checkbox"/> <p>15. Salinity Include a salinity report in accordance with the Site Investigation for Urban Salinity Booklet (EPA).</p> <p>16. Construction Hours Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours.</p> <p>17. Drainage Detail drainage associated with the proposal, including springs, stormwater and drainage infrastructure. → Relevant Policies and Guidelines:</p> <ul style="list-style-type: none"> <i>Guidelines for development adjoining land and water managed</i> <input type="checkbox"/> <i>DCC</i> <input type="checkbox"/> <i>OEH 201</i> <input type="checkbox"/> <p>18. Flooding</p> <ul style="list-style-type: none"> Assess any flood risk on site (detailing the most recent flood studies for the project area) and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and an increase in rainfall intensity. The 1% annual exceedance probability extent and the location of all proposed on-site stormwater detention/quality control facilities must be provided. <p>19. Waste</p> <ul style="list-style-type: none"> Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.
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	<ul style="list-style-type: none"> Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site. <p>20. Biodiversity Advise and provide comment on the current status of the existing biodiversity certification on the subject site as identified in the South West Growth Centre - Biodiversity Certification map under section 43 of the Biodiversity Conservation (Savings and Transition) Regulation 2017.</p> <p>21. Sediment, Erosion and Dust Controls Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles. → Relevant Policies and Guidelines:</p> <ul style="list-style-type: none"> <i>Managing Urban Stormwater – Soils and Construction Volume 1 2004</i> Landcom <i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW EPA</i> <i>Guidelines for development adjoining land and water managed by DCC OEH 201</i>
Plans and Documents	<p>The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents.</p> <p>In addition, the EIS must include the following:</p> <ul style="list-style-type: none"> Architectural drawings including but not limited to the following requirements: <ul style="list-style-type: none"> dimensioned including RLs; plans, sections and elevation of the proposal at no less than 1:200 showing furniture layouts and program; site and context plans that demonstrate active transport linkages with existing, proposed and potential footpaths and bicycle paths and public transport links; and detailed annotated wall sections at 1:20 scale that demonstrate typical cladding, window and floor details, including materials and general construction quality; Artist impressions/architectural renders of the proposal; Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and boundaries; Site Plans and operations statement demonstrating the afterhours and community use strategy; Site Analysis Plan; Stormwater Concept Plan and Stormwater Management Plan; Flood report prepared in accordance with Camden Council's Flood Risk Management Policy. Sediment and Erosion Control Plan; Shadow Diagrams; View Analysis / Photomontages, including from public vantage points; An integrated Landscape Plan/Strategy (including identification any trees to be removed and trees to be retained or transplanted); Preliminary Construction Management Plan, inclusive of a Preliminary Construction Traffic Management Plan detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures; Geotechnical and Structural Report; Accessibility Report; Arborist Report; Salinity Investigation Report (if required);

	<ul style="list-style-type: none"> • Acid Sulphate Soils Management Plan (if required); • Schedule of materials and finishes including a physical material sample board (no larger than A3) with correct proportional representation of materials; • Acoustic Report; • Waste Management Plan; • Fire Safety Measures Schedule; • Green Travel Plan; • Draft Construction Environmental Management Plans and relevant sub plans; and • A report tabling how the project responds to and upholds the design guide for schools as stipulated in Schedule 4 Schools – design quality principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017.
Consultation	<p>During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular, you must consult with:</p> <ul style="list-style-type: none"> • Camden Council; • Government Architect NSW (through the NSW State Design Review Panel Process) • Transport for NSW (TNSW); and • Roads and Maritime Services (RMS). <p>Consultation with Council, TfNSW, RMS and Government Architect NSW should commence as soon as practicable to agree the scope of investigation.</p> <p>The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.</p>
Further consultation after 2 years	<p>If you do not lodge a development application and EIS for the development within two years of the issue date of these SEARs, you must consult further with the Secretary in relation to the preparation of the EIS.</p>
References	<p>The assessment of the key issues listed above must consider relevant guidelines, policies, and plans as identified.</p>

APPENDIX H

RMS Requirements

Hayden Dimitrovski

From: COMAN Malgy <Malgy.COMAN@rms.nsw.gov.au>
Sent: Tuesday, 19 February 2019 3:39 PM
To: Kedar Ballurkar
Subject: RE: Proposed New Amity College Campus - SSD 9227

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Kedar,

As discussed earlier over the phone, Roads and Maritime Services (Roads and Maritime) will require the following information in the Traffic Report as a minimum for review:

- Details of pedestrian and vehicular access points – this will affect where new school zones will need to be located;
- Details of any new intersection treatments and pedestrian crossings proposed as part of this application (new traffic signals require adequate justification and a warrants assessment);
- Staging details of staff and student numbers;
- Details of the enrolment/catchment area – this will provide information regarding the expected trip distribution;
- How many vehicles are expected to use the Camden Valley Way/Ingleburn Road intersection (the expected traffic generation of this development might be higher than expected when Camden Valley Way was upgraded and the Precinct rezoning);
- Expected travel modes (e.g. via car, bus, train, walking/cycling); and
- Details of the kiss and ride and bus bay areas.

If you can please provide the above information in the traffic report/analysis it would assist Roads and Maritime in the assessment of this development once the development application is referred to us. Please note that there may be other information requested once we received the Traffic Report.

Please let me know if you have any questions.

Regards,

Malgy Coman
Land Use Planner (Monday, Tuesday and Thursday)
North West Precinct
T 02 8849 2413
www.rms.nsw.gov.au
Every journey matters

Roads and Maritime Services
27 Argyle Street Parramatta NSW 2150

From: Kedar Ballurkar [mailto:Kedar.Ballurkar@traffix.com.au]
Sent: Tuesday, 5 February 2019 3:04 PM
To: Development Sydney
Cc: Hayden Dimitrovski
Subject: Proposed New Amity College Campus - SSD 9227

Hi,

We would appreciate if a land use planner can be contacted regarding the subject State Significant Development Application for a new school at 63 Ingleburn Road & 85 Byron Road in Leppington.

We are in the process of completing a Traffic Impact Assessment and would appreciate a call to discuss any considerations to notice prior to lodgement of the EIS. This would form part of the consultation process as required under the SEARs.

Many thanks,

Kedar Ballurkar
Senior Engineer

TRAFFIX

a: Suite 2.08, 50 Holt St, Surry Hills, NSW, 2010 | PO Box 1124, Strawberry Hills, NSW, 2012

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APPENDIX I

TfNSW Correspondence

Hayden Dimitrovski

From: Kedar Ballurkar
Sent: Tuesday, 26 February 2019 1:35 PM
To: 'Ken Ho'
Cc: Hayden Dimitrovski
Subject: RE: Proposed New Amity College Campus - SSD 9227

Hi Ken,

Just following up on the below email, would there be someone suitable to speak with at TfNSW regarding consultation for this SSD Application?

Much Appreciated,

Kedar Ballurkar
Senior Engineer

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From: Kedar Ballurkar
Sent: Tuesday, 5 February 2019 2:59 PM
To: 'Ken Ho' <hen.ho@transport.nsw.gov.au>
Cc: Hayden Dimitrovski <hayden.dimitrovski@traffix.com.au>
Subject: Proposed New Amity College Campus - SSD 9227

Hi Ken,

I am writing in relation to the subject State Significant Development Application for a proposed K-12 school at 63 Ingleburn Road & 85 Byron Road, Leppington. We are in the process of completing our Traffic Impact Assessment report that will be lodged along with the EIS.

We noted that the attached letter includes specific items, however as the site is within a greenfields precinct, we have found some difficulty with addressing all requirements.

We would appreciate a call anytime at your convenience, which would form part of the consultation process (as required under the SEARs).

Kind Regards,

Kedar Ballurkar
Senior Engineer

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