

11 November 2021



Matthew Metlege
School Infrastructure NSW
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NSW, 2000

Dear Matthew

1. New Primary School in Mulgoa Rise – 1-23 Forestwood Drive – Glenmore Park

ptc. has been engaged by Richard Crookes Construction on behalf of School Infrastructure NSW (SINSW) to address comments received following the submission of the State Significant Development Application (SSDA) for the proposed development of a new primary school located at 1-23 Forestwood Drive in Glenmore Park. The Transport and Traffic Assessment dated 20 August 2021 and submitted as part of the SSDA was prepared by **ptc.**

This letter has been prepared in response to the following documents:

- Letter dated 1 October 2021 from Penrith City Council (Council),
- Letter dated 5 October 2021 from Transport for NSW (TfNSW),
- Letter dated 12 October 2021 from the Department for Planning, Industry & Environment.

The individual items are addressed below.

2. Council Comments

2.1 Dedicated School Bus Service

Council Comment

The proposed use of the existing bus stops each side of Darug Street and the existing public bus route services is undesirable. A dedicated school bus service with dedicated bus service drop off and pick up area fronting the school is recommended with no student crossing of Darug Avenue or other roads to access buses. This should be reflected via an amended proposal.

Response

The existing bus stops on Darug Avenue is currently being serviced by only one bus (794 bus service). The frequency of the bus service is 27-73 minutes during the school peak hours. As the existing bus frequency is very low, the bus stops are able to accommodate additional bus services if the timetables are managed by departure / arrival times. Therefore, a dedicated bus drop-off area only for the school is not seen as required.

It is noted that this was not requested at any previous Transport Working Group meetings.

2.2 Zebra Crossing – Sight Lines

Council Comment

[As the above mentioned in Section 2.1] is not able to be achieved, then the following should be addressed and demonstrated:

- i) The bus stops are to have the required TfNSW Complimentary Guide complying setbacks and sight line set backs from the proposed pedestrian crossing (which is required to be relocated further south as set out in following dot points).

Response

Reference to Design Guidelines

Austrads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (Austrads Guide) stipulates the pedestrian sight distance requirements at pedestrian crossing facilities to provide a clear view between the approaching drivers and pedestrians waiting to cross the road. The document stipulates that a Crossing Sight Distance Requirement (CSD) is:

- necessary to ensure that the pedestrian can see approaching traffic in sufficient time to judge a safe gap and cross the roadway
- calculated from the critical safe gap (in the traffic stream) and the speed of approaching traffic

The CSD requirement is shown in Figure 3.7 of Austrads Guide which is presented in Figure 1 below.

Figure 3.7: Sight distance at pedestrian crossings

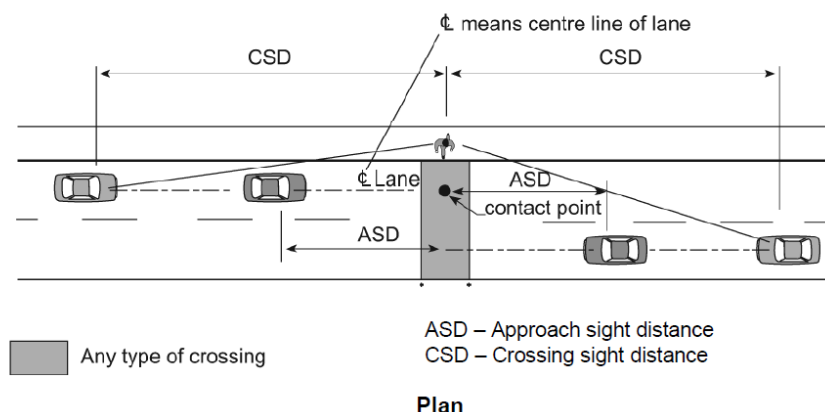


Figure 1 – Sight Distance at pedestrian crossings (Source: Austrads Guide to Road Design Part 4A)

The CSD is calculated using the following equation:

$$CSD = t_c \times \frac{V}{3.6}$$

where,

CSD = sight distance required for a pedestrian to safely cross the roadway

t_c = critical safe gap (sec) = crossing length/walking speed)

V = 85th percentile approach speed (km/h)

Likewise, NSW Government Transport Roads and Traffic Authority Technical Direction 2002/12c (TDT 2002/12c) ensures the signposting of intersection and crossing treatments. The standardised signposting formats for pedestrian crossings at unsignalized intersection and midblock according to the TDT 2002 are presented in Figure 2 and Figure 3 respectively.

The figures show that the 'No Stopping' sign should be installed at 20m vehicle approach distance and 10m vehicle exit distance from the zebra crossing unless a kerb extension is provided, for which a reference is made to the Pedestrian Refuge Technical Direction (See Note 5).

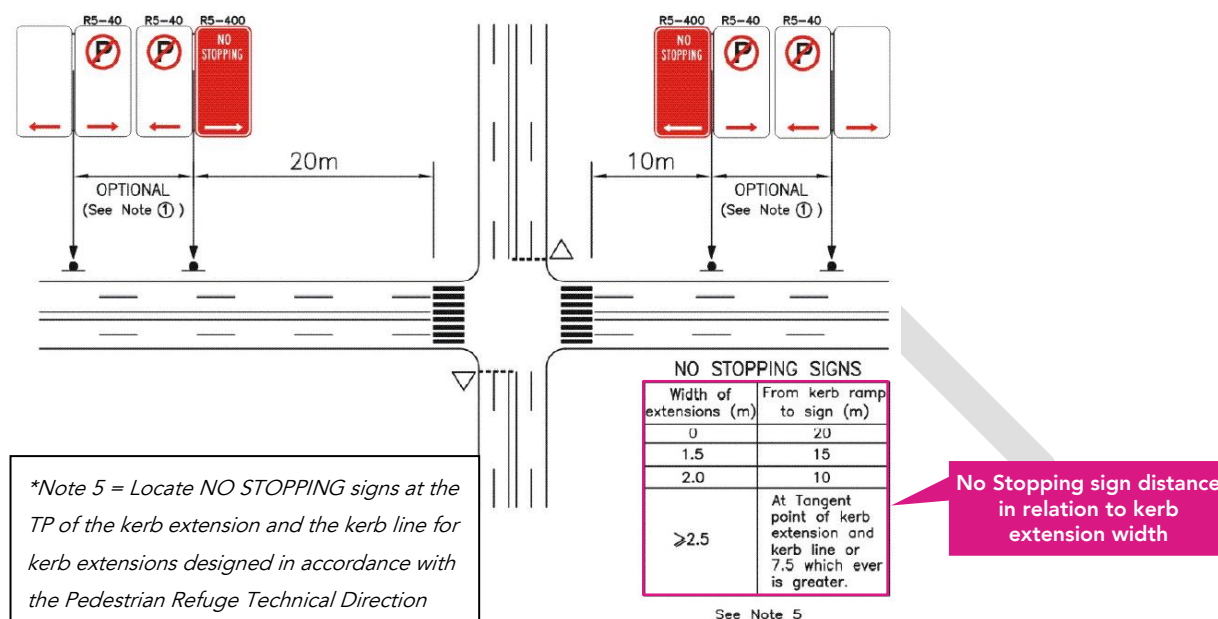


Figure 2 – Unsignalised intersection with pedestrian crossings (Source: Transport Roads and Traffic Authority Technical Direction 2002/12c, Figure 4)

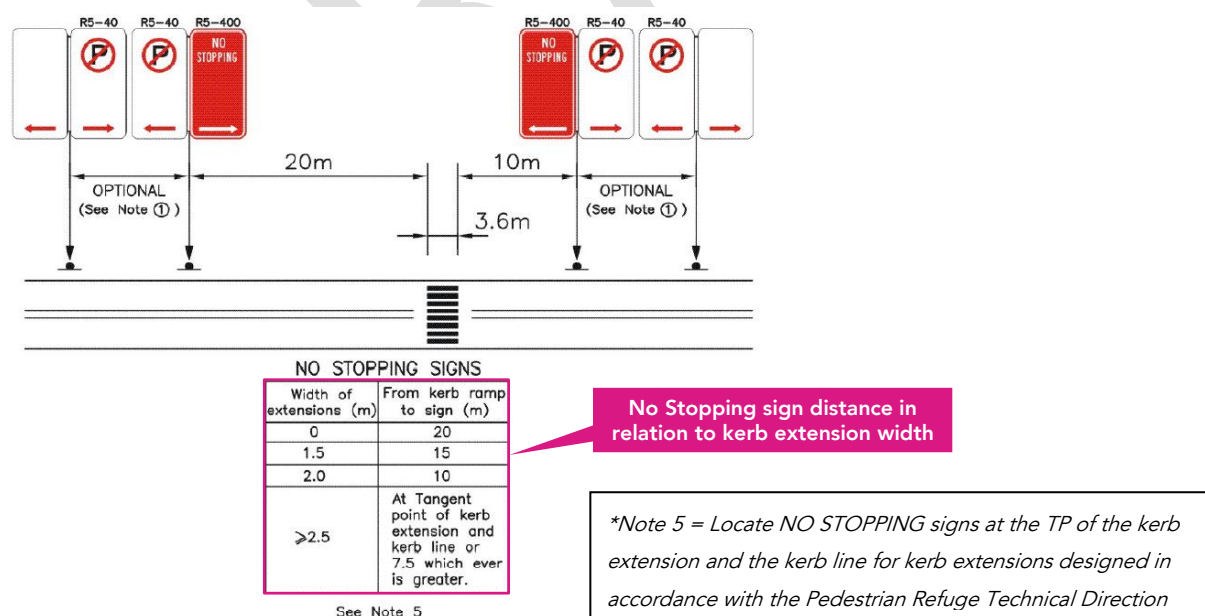


Figure 3 – Mid block pedestrian crossing (Source: Transport Roads and Traffic Authority Technical Direction 2002/12c, Figure 6)

TDT 2002/12c also provides standardised signposting formats for children's crossings, which is presented in Figure 4.

The 'No Stopping' sign should be installed at 24m vehicle approach distance from the children's crossing unless a kerb extension is provided, for which a reference is made to the Pedestrian Refuge Technical Direction (See Note 7). The 'Children Crossing' (stop) line is to be installed at 6m from the crossing.

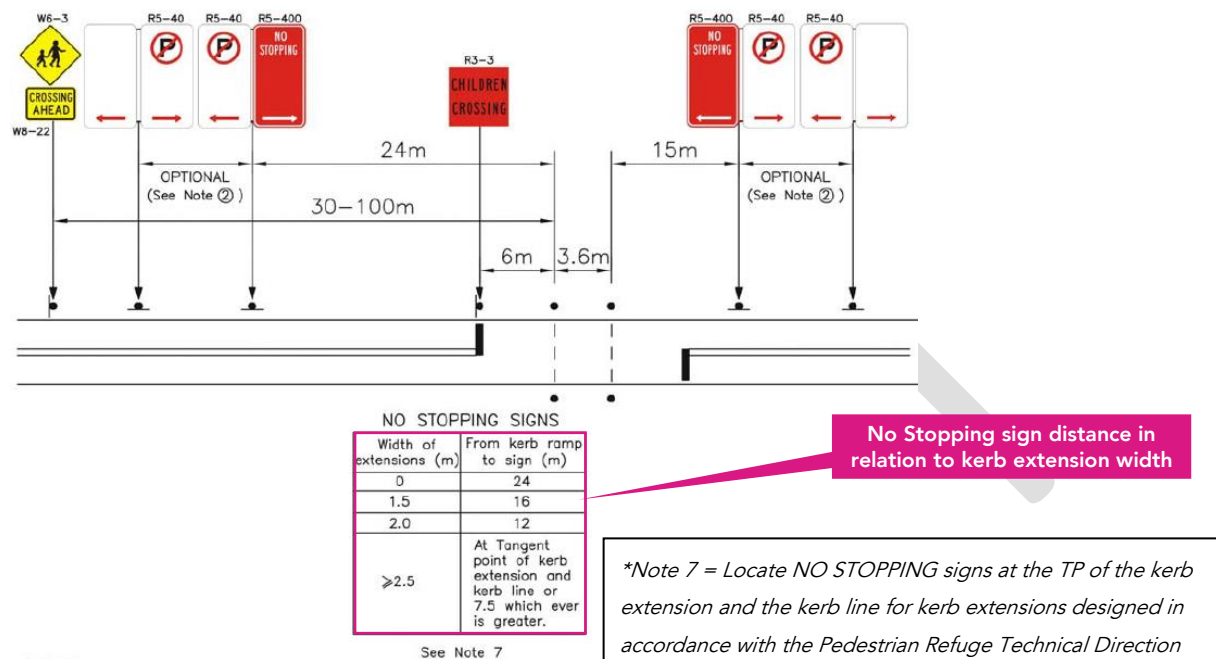


Figure 4 – Children's Crossing with Red and White Posts (Source: Transport Roads and Traffic Authority Technical Direction 2002/12c, Figure 7)

NSW Government Transport Roads and Traffic Authority Technical Direction 2011/01a (TDT 2011/01a) shows that the location of 'No Stopping' sign on refuge island is reliant on the width of the kerb extensions as shown in Figure 5. The same distance can be adopted to pedestrian crossings according to TDT 2002/12c (as stated above).

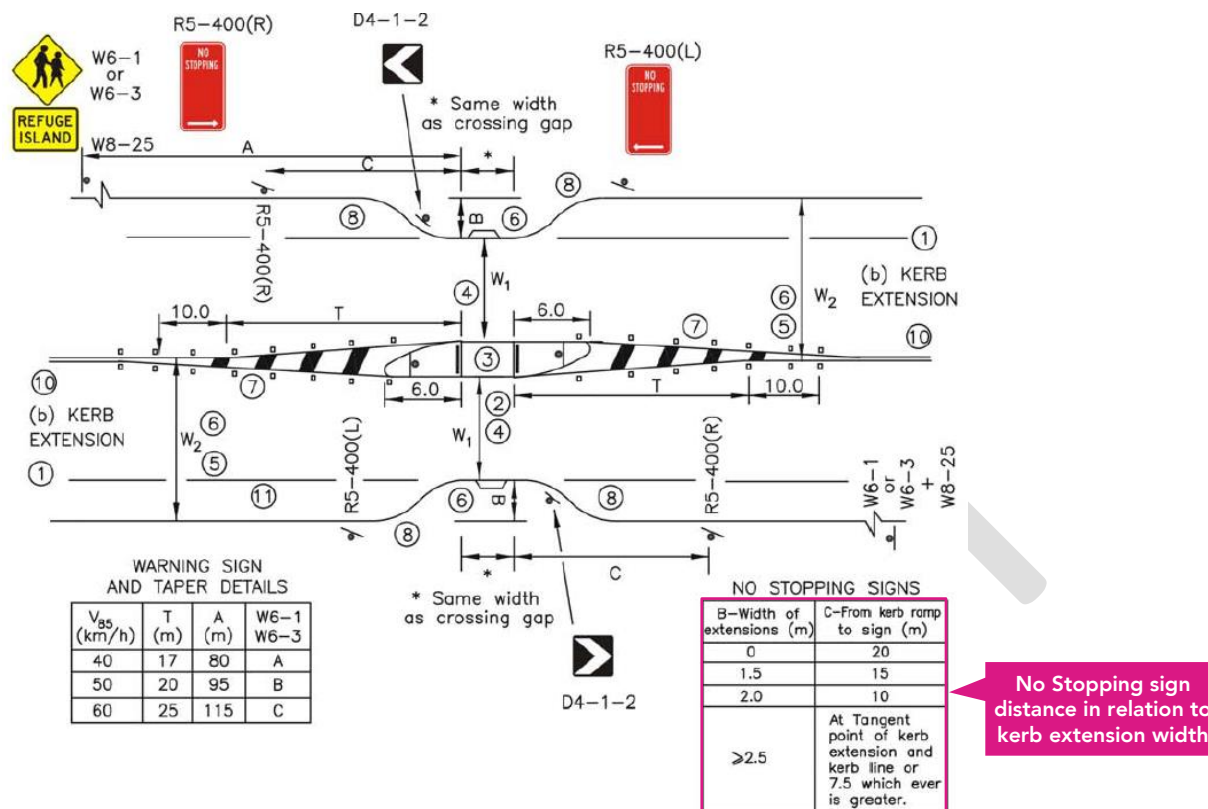


Figure 5 – Pedestrian refuge island two lane, two way with kerb extension (Source: Transport Roads and Traffic Authority Technical Direction 2011/01a, Figure 2)

Discussion and location of 'No Stopping' sign

Based on the Austroads Guide, the CSD at the zebra crossing at Darug Avenue is calculated as follows:

- $t_c = 7 \text{ m crossing length} / 1 \text{ sec/m walking speed for children (assumed)} = 7 \text{ sec critical safe gap}$
 - V is assumed to be 50km/h as the worst-case scenario for the 85th percentile school zone speed
- $\Rightarrow \text{CSD} = 97 \text{ m}$

The proposed sight lines and 'No Stopping' sign for Darug Avenue are presented in Figure 6. The blue arrow represents the 97 m long CSD. The green line represents the sight line between the vehicle and the pedestrian approaching the zebra crossing. Due to the 2.5m wide "kerb extension", a pedestrian would stand at the edge of the traffic lane before s/he crosses the road and therefore be always visible to an approaching vehicle.

The orange hatched area represents the bus stop including the draw in and out areas. The green sight line is not obstructed by the bus.

Based on the TDT 2002/12c and TDT 2011/01a, the 'No Stopping Sign' would be located at a distance of 7.5m from the zebra crossing where the kerb extension is $\geq 2.5\text{m}$. Hence, the proposed 'No Stopping' signs at the proposed zebra crossings on Darug Avenue, Deerubbin Drive and Forestwood Drive meet the minimum requirement. The 'No Stopping' sign on the western side of Darug Avenue is proposed at 11m from zebra crossing as shown in **Error! Reference source not found.** to coincide with the "Bus Zone" sign.

The Children Crossing sign is provided at 6m from the zebra crossing as per the TDT 2002/12c.



Figure 6 – Proposed Pedestrian Crossing at Darug Avenue, CSD and Signposting

2.3 Bus Zone Signage

Council Comment

[As the above mentioned in Section 2.1] is not able to be achieved, then the following should be addressed and demonstrated:

ii) Both bus stops must have bus zone signage.

Response

Bus zone signage has been proposed as part of the SSDA submission, refer to Appendix J.3 (Transport and Traffic Assessment) of the exhibited EIS. Amended signage and line marking plans are contained in **Attachment 1**.

2.4 Boarding Points

Council Comment

[As the above mentioned in Section 2.1] is not able to be achieved, then the following should be addressed and demonstrated:

iii) The existing bus stop boarding points should be related to align with the adjust 'Bus Zone' boarding point location and replaced with Council and DDA complying bus stop boarding points and bus shelters to Council satisfaction. Consultation shall be undertaken with Busways, TfNSW Bus Section and effected nearby residents and their acceptance or other comments provided with the application.

Response

It is not proposed to relocate the boarding point on the western side of Darug Avenue, as there is no requirement to do so. Refer to Section 2.2 for the relation between the zebra crossing and the bus stops.

The eastern boarding point has already been addressed in the SSDA TTA, where it was relocated south by 5m due to the zebra crossing design.

The location of bus stops and boarding points at Darug Avenue are presented in Figure 7.

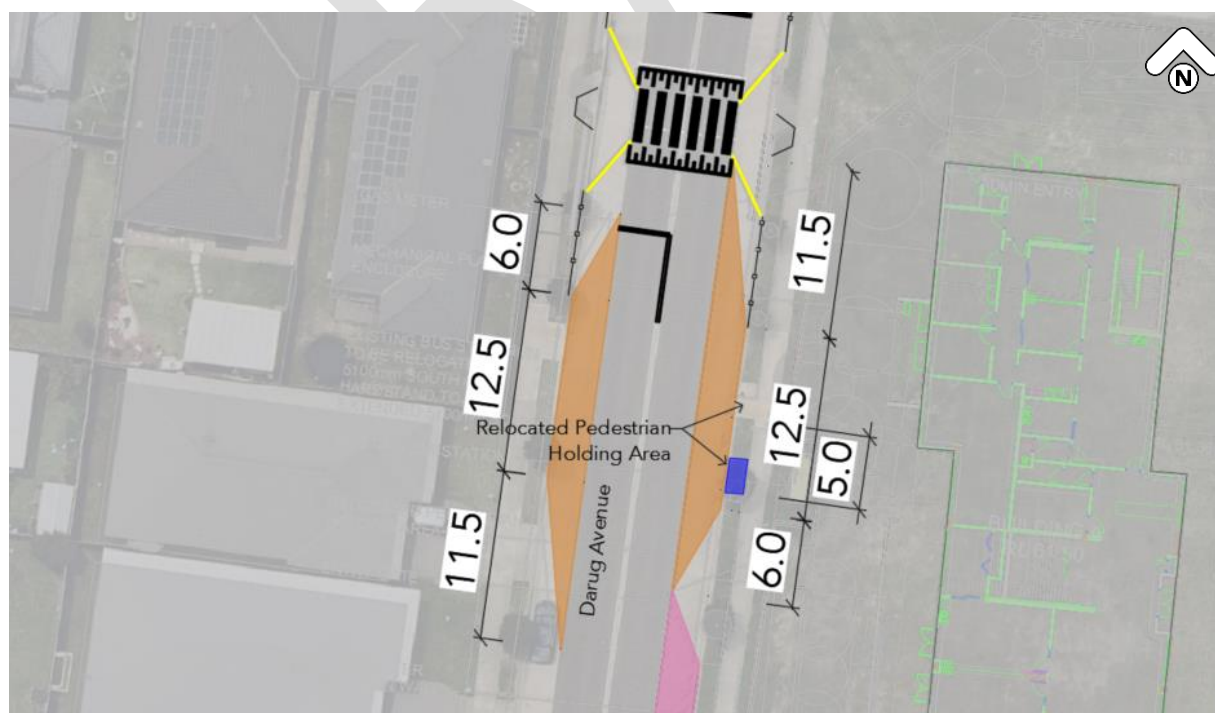


Figure 7 – Bus Zones at Pedestrian Holding Area

2.5 “No Stopping” at Forestwood Drive

Council Comment

The ‘No Stopping’ zone along the northern side of Forestwood Drive should extend along the bend to the start of the 90 degree parking in Parkway Avenue.

Response

The location of the ‘No Stopping’ sign has been amended as shown in the following figure. A detailed amended signage plan is presented in **Attachment 1**.

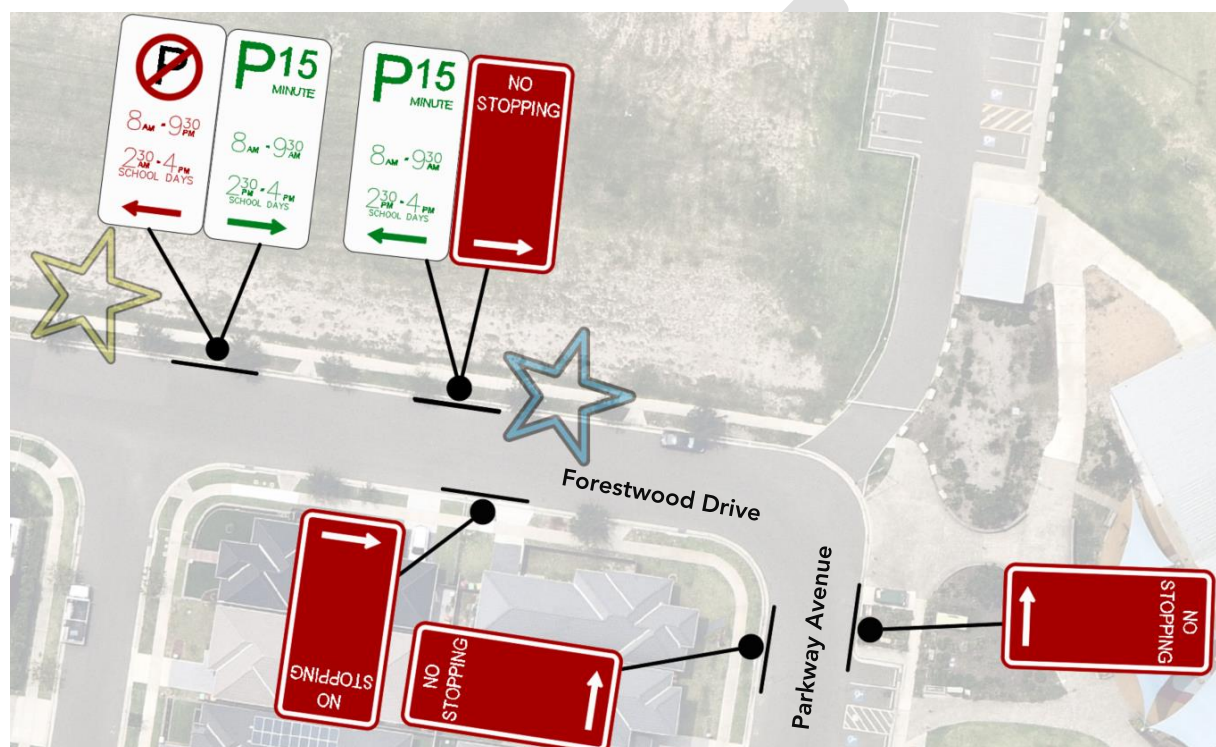


Figure 8 – Proposed Signages at Forestwood Drive and Parkway Avenue bend

2.6 Fencing at Darug Avenue / Deerubbin Drive

Council Comment

The proposed fencing at the corner of Darug Avenue and Deerubbin Drive should terminate at the start of the kerb ramp to cross Deerubbin Drive.

Response

The fencing at the corner of Darug Avenue and Deerubbin Drive has been amended to terminate at the start of the kerb ramp, as shown in Figure 9.

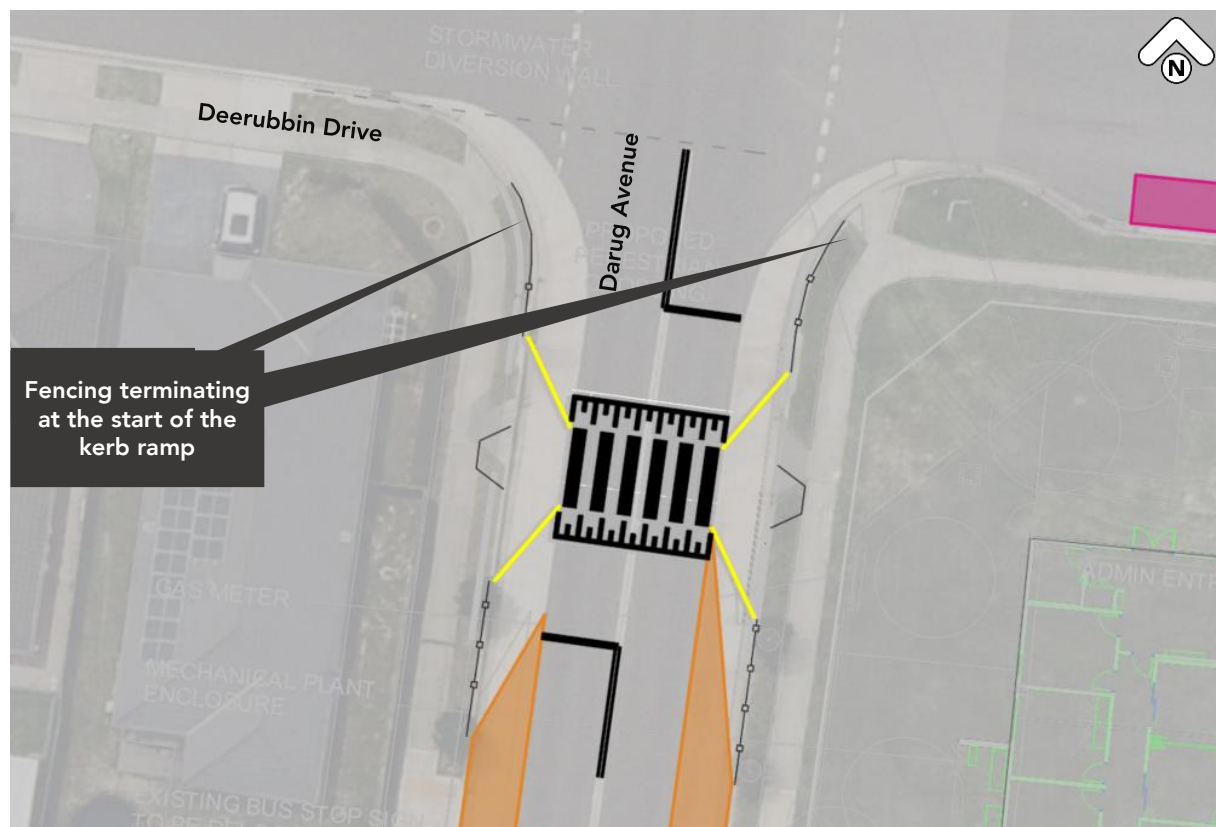


Figure 9 – Proposed Pedestrian Fencing at Darug Avenue and Deerubbin Drive intersection

2.7 Timing of Zebra Crossings

Council Comment

The raised combined pedestrian / children's crossings are to be provided in the proposed pedestrian crossing locations in the fronting streets, including Deerubbin Drive in the first stage of this development.

Response

Crossings along Darug Avenue and Forestwood Drive will be provided prior to commencement of the school.

The Deerubbin Drive crossing will be delivered by the mixed-use development across the road, of which the timing is unknown at this time. The project will get in contact with the mixed-use developer to enquire about timing of delivery to ensure that the crossing is constructed prior to commencement of the school.

2.8 Zebra Crossing Design

Council Comment

The proposed at grade pedestrian crossings must be raised and conform to Council's general design for raised combined pedestrian / children's crossings. The crossings must be a combined raised pedestrian crossing and children's crossing with raised shoulder medians, no fencing on the shoulders as shown proposed, with red and white poles, approach TF holding lines, children crossing flags and No Stopping zones complying with TfNSW guidelines.

Response

As per information provided to the authorities and discussions held as part of the TWG meetings, there is a flooding issue within the surrounding roads which prevents implementing any raised infrastructure within the carriageways (refer to documents prepared by Woolacotts: the Overland Flow Flooding Summary dated 27 July 2021 and the Flood Impact Assessment dated 22 October 2021).

A discussion on various at grade pedestrian crossing designs, including the implementation of middle islands, was submitted as part of the SSDA, refer to Attachment 3 of the TTA.

A revised at grade zebra crossing design is shown in the below figure and in **Attachment 1**, with the yellow lines representing fencing (or any other structure i.e. bollards that would be deemed acceptable) to imitate the kerb build outs. This is so that the impact on the water flow within the carriageway is minimised.

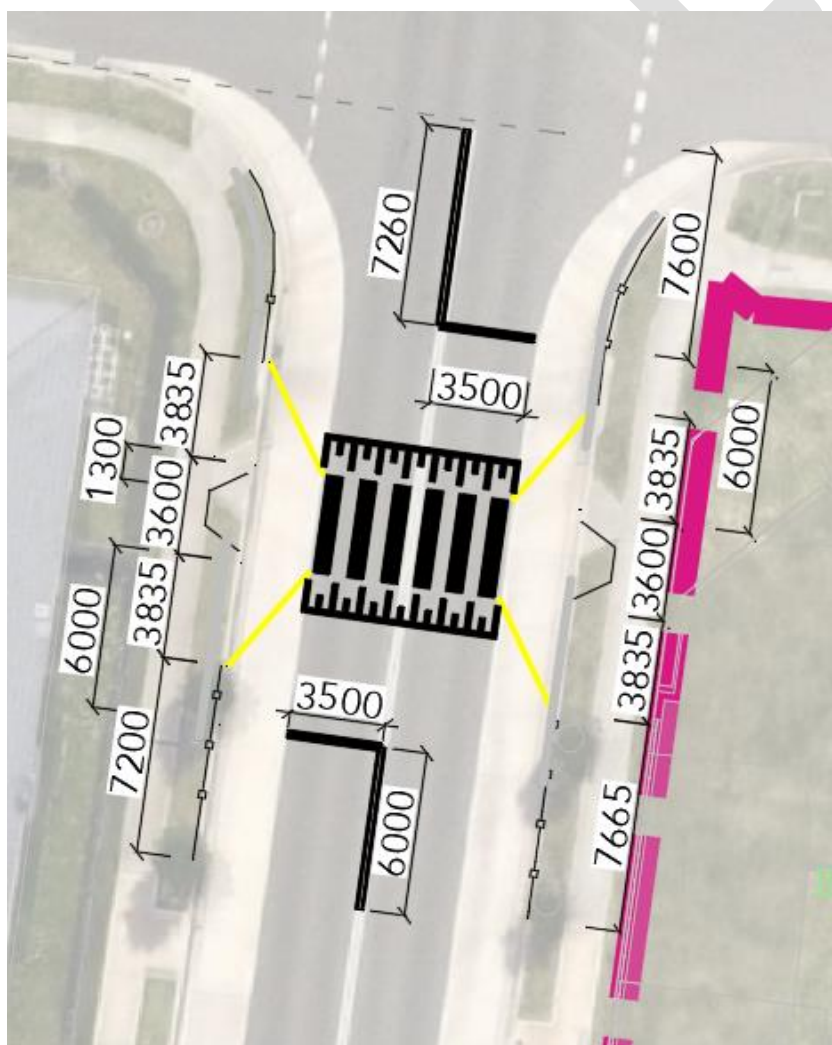


Figure 10 – Proposed Zebra Crossing Design

2.9 Pedestrian Fencing

Council Comment

There should also be pedestrian fencing provided on the verge at the back of the kerb, at the crossing 'No Stopping' zones on each side to direct pedestrian to the crossing.

Response

AS 1742.10 – 2009 Pedestrian Control and Protection stipulates the following:

9.6 Pedestrian fencing

Fencing may be used at the kerb side to direct pedestrians to a crossing point and to prevent pedestrians from crossing at other nearby points. It discourages motorists from parking close to a crossing point.

Fencing may also be used on medians and loading islands to control pedestrian movements. When used at staged crossings, it should be so aligned that pedestrians will face oncoming traffic as they are about to leave the median.

Particular attention should be given to the height and placement of the fence, and to the material used in its construction so as to minimize the potential sight obstruction between drivers and children about to cross the road. Fence material and construction should also be such as to minimize injuries to road users in the event of a collision. The risk of the fence preventing exit from a vehicle parked close to it needs also to be assessed.

Fencing is proposed on the verge at the back of the kerb from the zebra crossings to the pram ramps at intersections, from zebra crossings to 'No Stopping' or a distance of 7.5m at the midblock, at the start or end of bus bays and up to the driveways of the adjacent properties. The proposed fencing at Darug Avenue, Deerubbin Drive and Forestwood Drive are presented in Figure 11, Figure 12 and Figure 13 respectively.

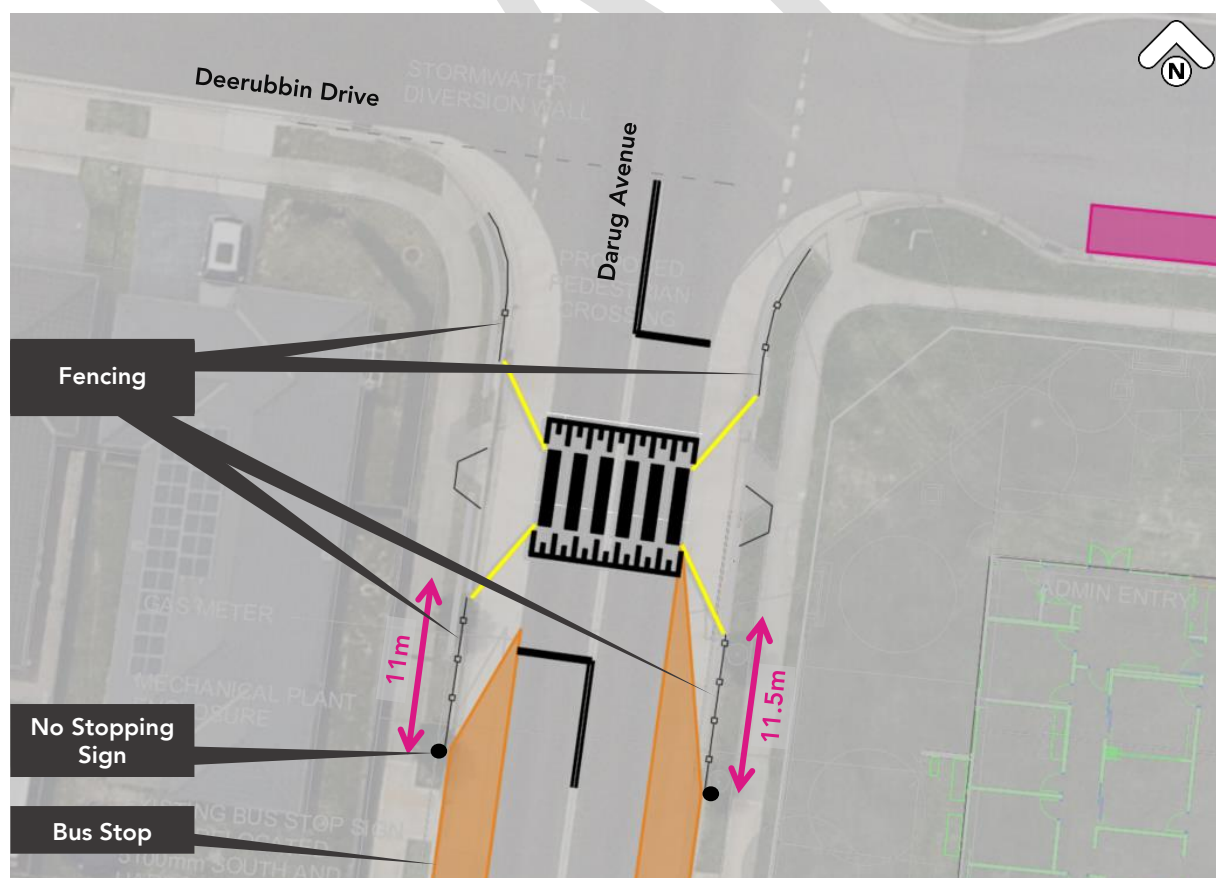


Figure 11 – Proposed Pedestrian Fencing at Darug Avenue

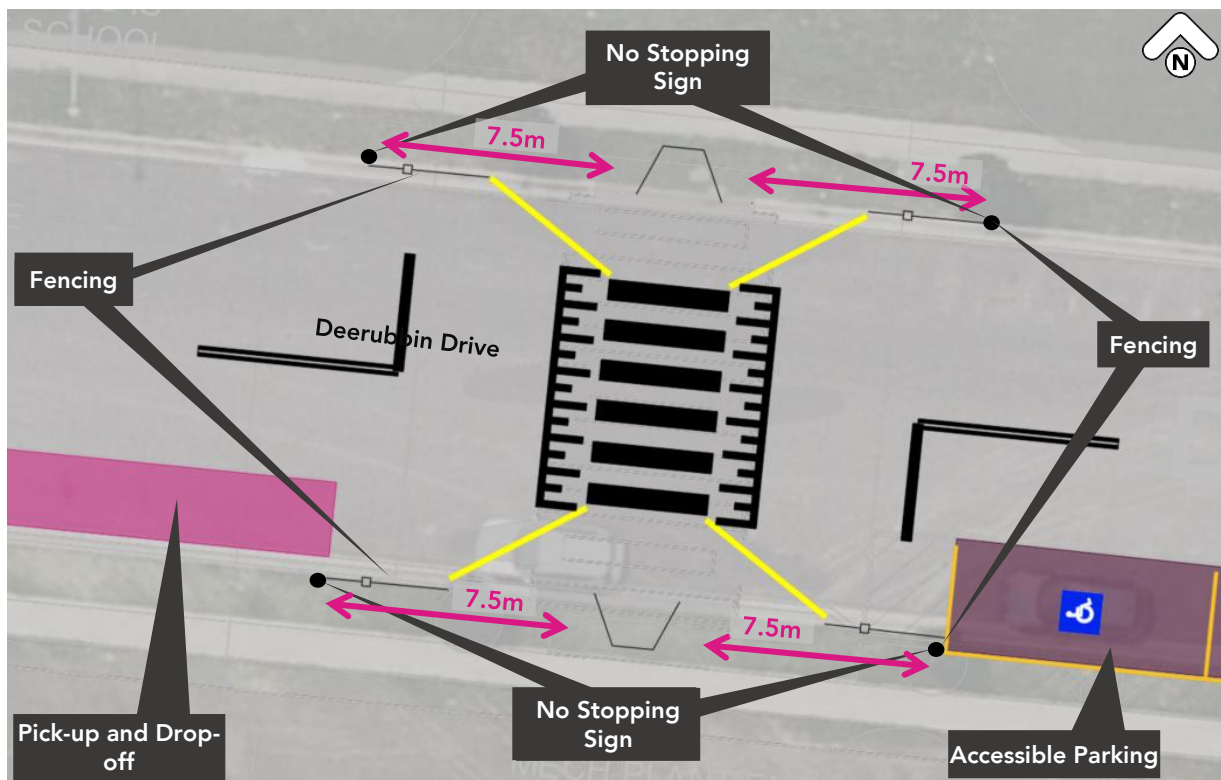


Figure 12 – Proposed Pedestrian Fencing at Deerubbin Drive

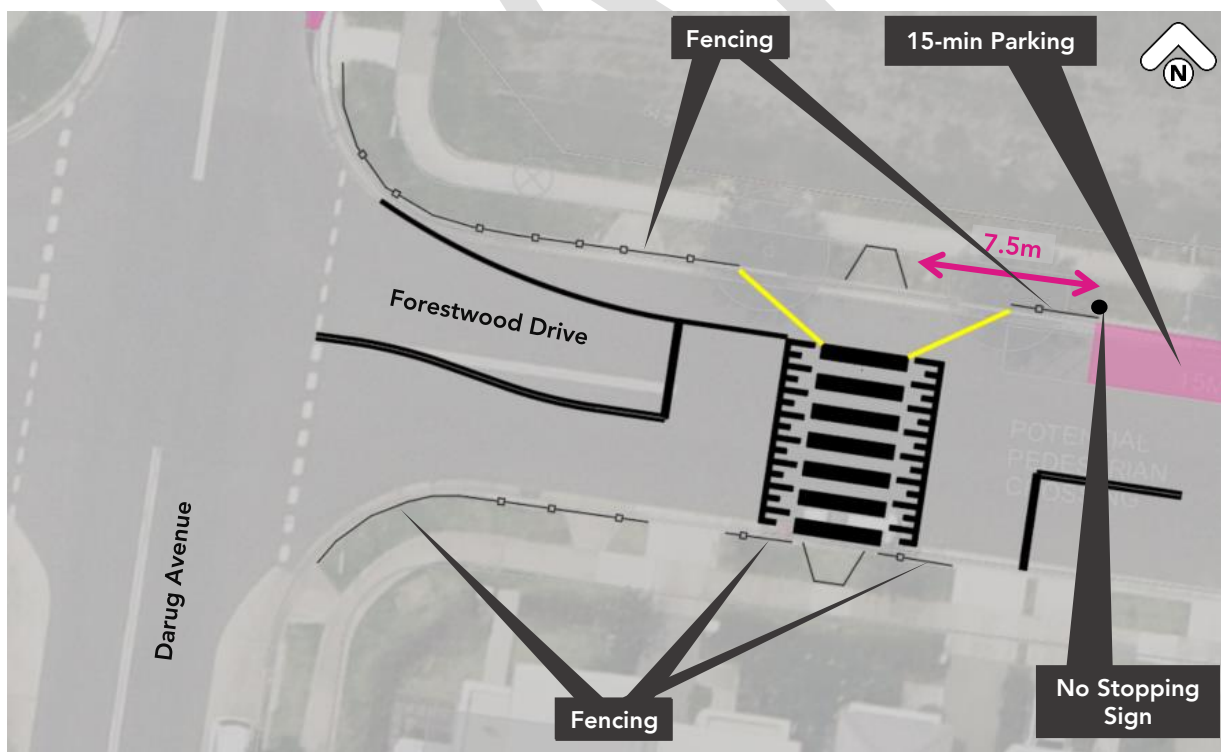


Figure 13 – Proposed Pedestrian Fencing at Forestwood Drive

2.10 Zebra Crossing – Queuing Clearance

Council Comment

The proposed crossing in Darug Avenue and in Forestwood Drive should be relocated to provide at least 13m of queuing clearance (to allow for two cars or one HRV or bus) from the Deerubbin Drive and Forestwood Drive through traffic to the TF holding line which should be located 6m from the edge of marked pedestrian crossing.

Response

The zebra crossings have been relocated following the detailed design and they are now located as follows (refer to Figure 14 and Figure 15):

- 7.6 m long vehicle holding area is provided on Darug Avenue allowing for 1 car to wait, and
- 14.7m long vehicle holding area is provided on Forestwood Drive allowing for 2 cars or 1 truck to wait.
- Additional 6m distance from the zebra crossing to the stop line is provided at both crossings, as per the guidelines for children's crossing.

Lengthening the distance of the Darug Avenue crossing to a distance of 13m from the intersections is not seen as required and is not recommended for the following reasons:

- The crossings would be moved away from the pedestrian desire lines, which would in turn likely result in more pedestrians crossing the roads unsafely closer to the intersections.
- Existing bus stops on either side of Darug Avenue would need to either be removed or relocated further south, which is not feasible for the bus route going northbound.
- It is expected that only the occasional truck, if any, would travel during the pick-up and drop-off times.
- There is no guideline or standard that prescribes an offset of a zebra crossing from an intersection. The project proposes to locate the crossings at least 12m from the intersections to allow a 6m distance to a stop line plus a waiting space for 1 car, which is considered suitable.

This design was accepted by Council and TfNSW during the Transport Working Group meeting held on 3rd November 2021.

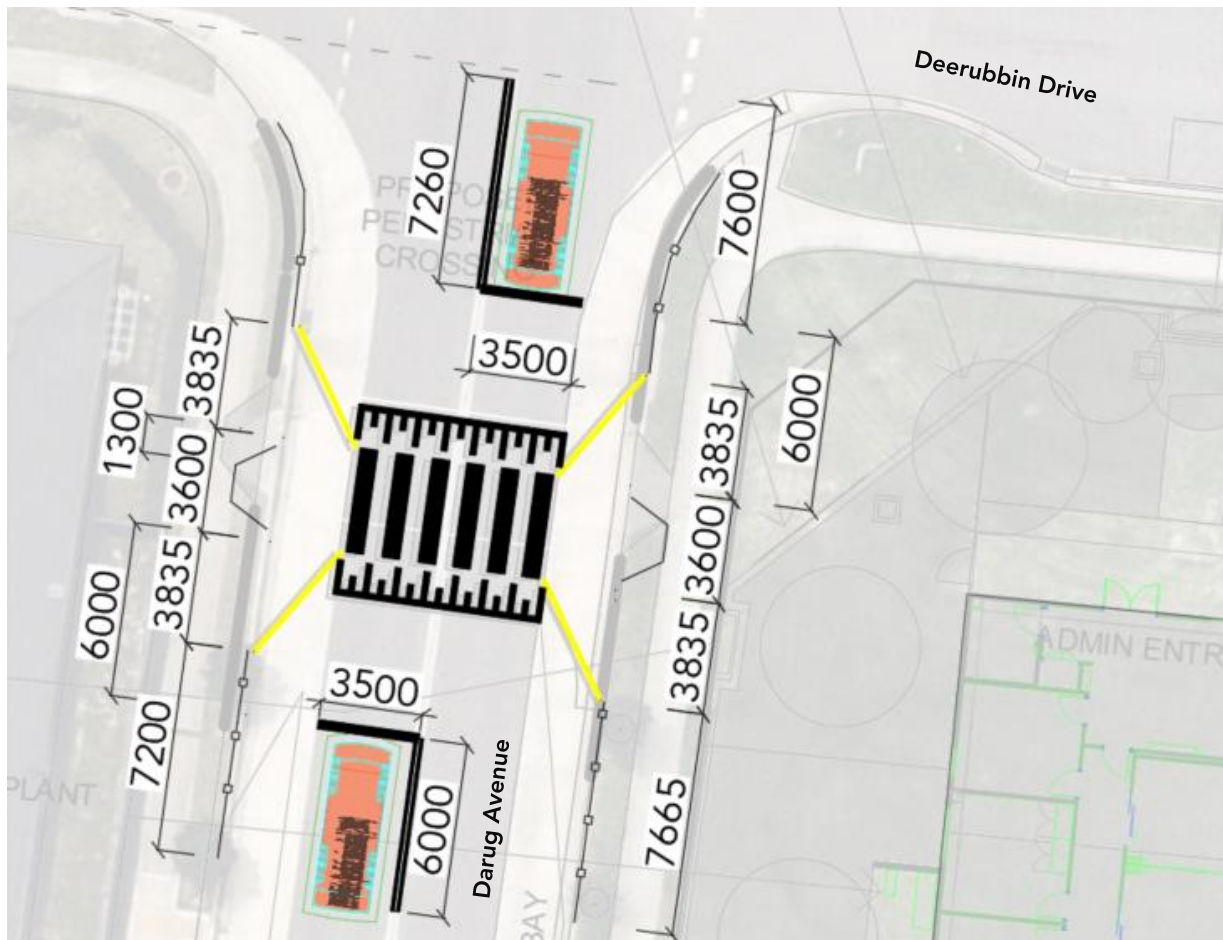


Figure 14 – Vehicle Holding Area at Darug Avenue

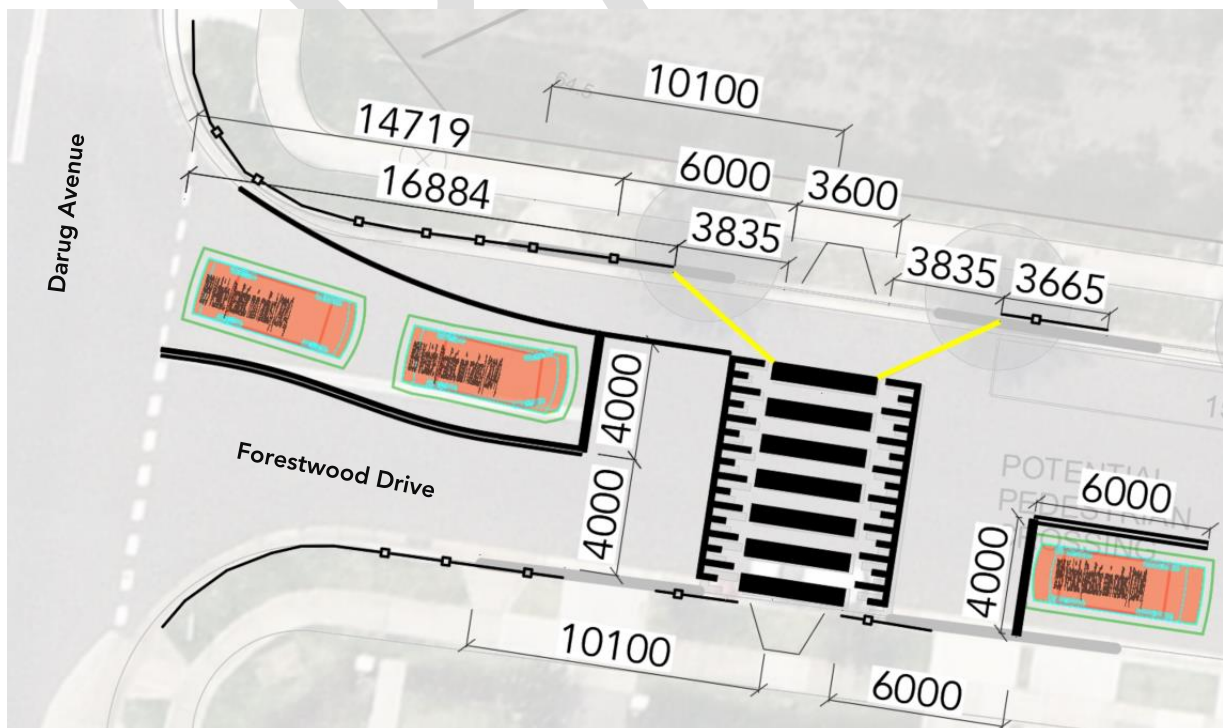


Figure 15 – Vehicle Holding Area at Forestwood Drive

2.11 Zebra Crossing – ‘No Stopping’ zones

Council Comment

The ‘No Stopping’ zones and traffic controls at the proposed combined raised pedestrian / children’s crossing shall comply with AS 1742 and TfNSW Supplement to Australian Standards As 1742 including TfNSW Technical Direction TDT 2002/12c.

Response

Refer to Section 2.2 for details regarding ‘No Stopping’ zones and **Attachment 1** for detailed drawings.

2.12 Street Lighting

Council Comment

The proposal should include the provision of street lighting at all pedestrian crossings that complies with Australian Standards. Details should be submitted for assessment or this should be addressed via conditions of consent, to the satisfaction of Council as the relevant roads authority.

Response

Street lighting will be required and will be provided in due course.

2.13 Continuous Footpath Treatment

Council Comment

An amended application shall include the provision of a continuous footpath treatments across the school driveways to highlight to motorists that pedestrians have right of way when walking on the footpath/driveway.

Response

A continuous footpath treatment will be provided in accordance with TD2013/05.

2.14 Signage and Linemarking Plans

Council Comment

The application should include all details and dimensions of all on-street signage and line marking and all off street parking signage and line marking. This includes the spaces and aisles and appropriate ‘Shared Zone’ signage, ‘Stop’ or ‘Give Way’ signage, accessible parking signage, ‘No Stopping’ signage and line marking within the staff car park.

Response

A plan outlining all relevant on-street signs and line marking has been provided as part of the SSDA. The updated plans are provided in **Attachment 1**.

2.15 Location and Number of School Gates

Council Comment

The application should include a review of the location and number of school gates for students. Appropriate internal pathways and all weather protection should be provided, especially for gates that are used for students waiting to catch the bus and while waiting to be picked up by car.

Response

The location and number of school gates has been discussed in ptc.'s Traffic and Transport Assessment report submitted as part of the SSDA. No concerns were raised during any previous Transport Working Group meetings.

Large canopies provide all weather protection within the boundary and in proximity to main entry gates on Deerubbin Drive and Darug Avenue.

2.16 Accessible Parking

Council Comment

In addition to the above design amendments, on- street accessible parking is not acceptable due to user conflict with through traffic, ramps and clearances required on-street. All accessible "Assisted Pick-Up and Drop-Off" spaces and all accessible parking must be provided on-site which has been outlined to the applicant throughout numerous pre-lodgement engagement sessions. Noting the location of the current proposed car park, consideration should be given to onsite accessible parking that is located within close proximity to the school entrance and facilities.

Response

Discussions regarding providing on-street accessible parking spaces was undertaken during the meeting with Council in March 2021. The following is the excerpt from the meeting minutes dated 25th March 2021).

"It is Council's preference that any accessible parking drop off areas be provided on-site. If the accessible parking bays are to be provided on the street, then the bays shall comply with AS2890.6, requiring widening of the existing parking bay by approximately 0.7m resulting in the loss of street trees."

While Council's preference is acknowledged, the on-street accessible parking has been designed in accordance with the Australian Standards and the spaces will be signposted as such. Therefore, conflicts with through traffic or pram ramps are not considered as an issue.

2.17 School Transport Scheme

Council Comment

The applicant is requested to review Transport for NSW's Policy on the provision of Subsidised School Transport Scheme and School Term Bus Pass as a way of encouraging increased bus uptake in the local school catchment. Parents may be more supportive to allow children to use a school bus service compared with walk or ride the whole way between home and school.

Response

The Subsidised School Transport Scheme and School Term Bus Pass have already been analysed and discussed in ptc.'s Traffic and Transport Assessment report submitted as part of the SSDA.

Any changes to the SSTS arrangements lie in the responsibility of TfNSW.

2.18 School Crossing Supervisor

Council Comment

The applicant is requested to confirm the feasibility to fast track the assessment and approval of a School Crossing Supervisor (SCS) to ensure a SCS is appointed as soon as possible. It is recommended that this appointment should be a requirement prior to the issue of any Occupation Certificate.

Response

According to TfNSW Centre for Road Safety¹, the following is required in order to apply for a School Crossing Supervisor:

“The School Crossing Supervisor Program will assess the nominated site against set criteria. For a site to be eligible for a school crossing supervisor it must meet the following criteria:

- *The site must have an existing children's crossing, pedestrian crossing (zebra) or combined crossing (children's and zebra)*
- *The crossing must be used by infant and/or primary school children*
- *The site must be located within a 40km/h school zone*
- *In the morning or afternoon, the crossing must register counts of either:*
 - *50 or more unaccompanied infant and/or primary school children, or*
 - *300 or more passenger car units (heavy vehicles over three tonnes unladen are counted as two passenger car units)*
- *The site must be considered a safe working environment for a school crossing supervisor.”*

Further reference has been made to TfNSW website², as it seems that there is a program to fast-track the application for the school crossing supervisor. The project would welcome if it could take part in this program.

2.19 Pedestrian Fencing

Council Comment

The applicant is requested to consider the need or appropriateness of TfNSW crash rated pedestrian fencing along the back of kerb at the 'No Stopping' zones at all of the proposed raised combined pedestrian / children's crossings including Deerubbin Drive. The review should include careful consideration to the location of the school gates and requirement for pedestrian fencing (or possibly dense landscaping) to minimize the risk of children and other pedestrians running out of the school gate and out onto the roadway.

Response

Refer to Section 2.9 for pedestrian fencing.

¹ Refer to <https://roadsafety.transport.nsw.gov.au/stayingsafe/schools/schoolcrossingsupervisorprogram.html>

² <https://roads-waterways.transport.nsw.gov.au/about/news-events/news/ministerial/2020/200605-school-crossing-supervisor-program-fast-tracked.html>

2.20 Parking Provisions

Council Comment

The application and parking analysis should include a review of the usage of the Council sports ground adjoining car park for parking generated by the school. This car park is highly likely to be used for student drop off and pick up. This development should include improved parking and pedestrian safety and access including provision of a 'Shared Zone' or low speed environment with continuous footpath, school gate and connection path.

Response

The TTA submitted as part of the SSDA outlines the expected demand for parking, and as part of this it has been determined that sufficient on-street parking for the purpose of pick-up and drop-off will be provided along the surrounding road. Appropriate signage and line marking, as well as re-alignment of kerbs has been proposed to provide an appropriate and sufficient pick-up and drop-off facility.

2.21 Travel Plan

Council Comment

Evidence of a commitment of funding to ensure the part time Travel Coordinator is able to commence in the first year of the schools operation should be sought.

Response

As per the business case which has been approved by NSW treasury, funding is available for a part-time travel coordinator to commence in the school's first year of operations (for more detail, refer to response prepared by rps).

2.22 Operational Traffic, Parking and Pedestrian Management Plan

Council Comment

An Operational Traffic, Parking and Pedestrian Management Plan that includes arrangements for School Principal should nominate staff (or adult volunteers) to provide supervision at the designated on street 'No Parking' student pick up zones is recommended. Having staff supervision may support increased staggering of student pick up during the busy afternoon peak time by providing parents/carers a short period (e.g. 15 minutes) of student supervision within school grounds or at the pick-up zone.

Response

The School Transport Plan will be updated to address the above once a principal has been appointed.

2.23 Travel Mode

Council Comment

The Traffic Report - Traffic Plan / School Transport Plan indicates 414 students (mainstream and supported) and 27 staff. Confirmation is requested that these predicted student numbers are realistic for the current and future growth of the school catchment. The recent opening at Jordan Springs Public School reportedly had a doubling of growth within 12 months that resulted with significant burden on the surrounding road network and a high number of complaints including illegal parking and unsafe driving.

Response

SINSW confirm that the Business Case for 414 student was based on the population projections only requiring 414 enrolment placements. The analysis for projecting population growth is generated by SINSW's planning tool Eagle Eye (for more detail, refer to response prepared by rps).

2.24 Mode of Travel

Council Comment

The Traffic Report - School Transport Plan indicates mode of travel will be:

- 15% - walk
- 35% - cycle/scoot
- 10% - public transport
- 40% - car

Confirmation is required that this is a realistic representation of mode of travel compared to local schools such as Glenmore Park Public School and Surveyors Creek Public School. Both these schools have very high car dependency with 'park and walk' and use of the 'No Parking' student drop off and pick up zones. Council would estimate about 70% drive would be more realistic.

Response

SINSW has recently put processes in place to ensure that all school developments investigate measures that can be implemented to increase active and public transport and decrease car usage for both staff and students.

A School Transport Plan has been prepared outlining measures to promote active and public transport and carpooling. SINSW is committed to implementing these plans across all new developments; A travel plan coordinator will be employed to coordinate the implementation of these measures and monitor the mode shift.

In any case, the "as crow flies" and actual 400 / 800 / 1200m walking catchments are presented in Figure 16, which also outlines the small enrolment catchment. Within the enrolment catchment, 14% of students reside within the 400m walking catchment, 21% within the 401m - 800m catchment and 40% within the 801m - 1200m catchment. Additionally, the surrounding area has been well developed with reasonable pedestrian infrastructures including footpaths, shared paths and pram ramps.

Furthermore, this project is a green field site where the principal will have a chance to develop an active and public transport culture amongst the school community from the commencement of the school.

The project has been designed to promote active transport, with bike and scooter spaces provided close to the school entries and pedestrian crossings planned to surround the school.

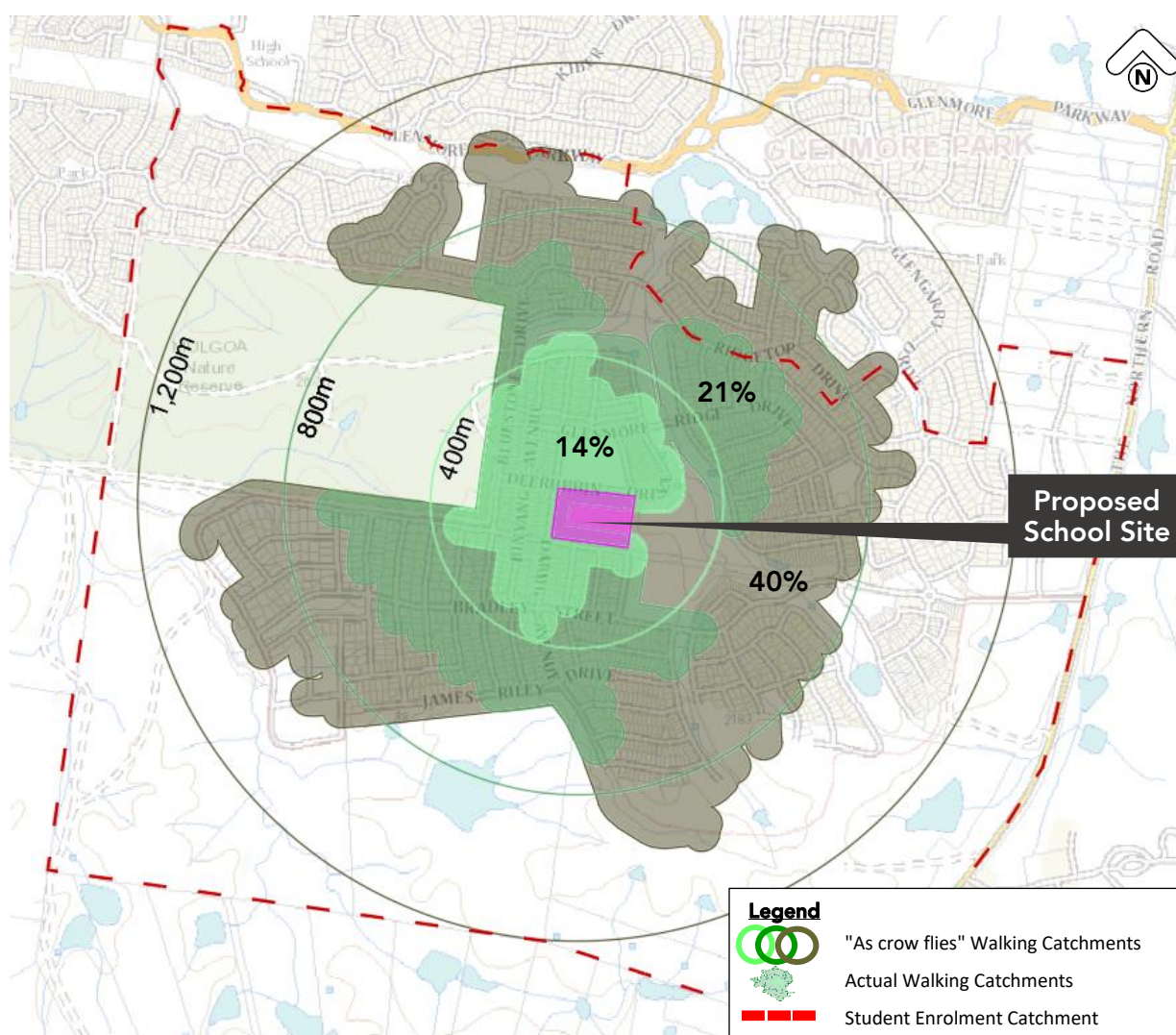


Figure 16 – Walking Catchment and Student Population

2.25 Zebra Crossing – "No Stopping" Signage

Council Comment

The Traffic Report - Chapter 5 – on street car parking estimation does not appear to have included the 'No Stopping' distances at the pedestrian crossings. This should be addressed and may require adjustments to crossing and zone locations, and will reduce the number of on-street car parking spaces that are available (20m + 10m; also 10m at intersections; bus zones; driveways). The installation of the pedestrian crossings will also remove current on-street parking on the other side of the streets.

Response

Refer to Section 2.2 for details regarding 'No Stopping' distances.

2.26 Signage and Line Marking Plans

Council Comment

The Traffic and Transport Assessment – Signage and Line Marking Plans and the Civil Plans should be amended to include the required adjusted arrangements and include details of all signage and line marking, dimensions and lengths suitable for referral to Council's Local Traffic Committee for approval and conditions by Council.

Response

The signage and line marking plans have been amended and are presented in **Attachment 1**.

2.27 School Zone Signage

Council Comment

Details of the proposed 40 km/hour School Zone signage, line marking and flashing lighting should be submitted to TfNSW for approval and conditions.

Response

A 'School Zone' signage plan was submitted as part of the SSDA TTA. An amended indicative plan has been prepared and is presented in **Attachment 1**.

2.28 Mode of Travel

Council Comment

The Traffic Report - 5.2.8 - Pick-up and Drop-off Quantity of 40% of students being driven is not considered appropriate. While not all families will use the designed student drop off and pick up zone, there will be families that park and walk. Council consider that 70% of students being driven is more realistic. This would equate to in the order of $289 / 1.2 = 241$ cars. The peak pick up time should be based on this higher number.

Response

As per discussions with Council, 15minP parking spaces have been incorporated in the design to accommodate "Park & Walk" behaviour.

Refer to Section 2.24 for a response regarding the travel mode.

2.29 Demand Assessment

Council Comment

The Traffic Report - 6.7.1 Demand Assessment requires further clarification / review with zone length dimensions and detailed not stopping requirements for the following:-

- a. 12 "Pick-up and Drop-off" spaces along Deerubbin Drive*
- b. 12 "Pick-up and Drop-off" spaces along Forrestwood Drive*
- c. 14 "15min Parking" spaces along Darug Avenue*
- d. 16 "15min Parking" spaces along Deerubbin Drive*
- e. 8 "Assisted Pick-up and Drop-off" spaces for accessible student along Deerubbin Drive – noting that this is not supported by Council with all accessible parking provided on-site.*

Response

For demand assessment refer to Section 2.24 and the TTA submitted as part of the SSDA.

Refer to Section 2.2 for 'No Stopping' requirements and **Attachment 1** for an updated signage plan.

A discussion regarding the on-street provision of accessible parking is provided in Section 2.16.

3. Transport for New South Wales

3.1 Zebra Crossing – Sight Lines

TfNSW Comment

5.2.4.1 & Attachment 2 (Pedestrian Crossings) – Bus Bays need to be located sufficiently away from the crossing to ensure sight lines are not obstructed in line with Australian Standards (this also needs to consider how many buses may simultaneously be present, especially at bus stop B);

Response

Refer to Section 2.2 for pedestrian crossing sight lines and location of bus bays.

The existing bus stops on Darug Avenue is currently being serviced by only one bus (794 bus service). The frequency of the bus service in both bus stops is 27-73 minutes during the school peak hours. As the existing bus frequency is very low, the existing bus stops are likely to accommodate additional bus services if the timetables are managed by departure / arrival times.

3.2 Bus Bay Length

TfNSW Comment

In addition the bus bay is to have sufficient length (consider draw-in length, draw out length, and maximum number of services expected at any one time) to ensure that buses can be fully contained within bus bay;

Response

According to TfNSW *Guidelines for the Planning of Bus Layover Parking*, a standard bus requires a minimum of 12.5m long parking length and additional 11.5m draw-in and 6.0m draw-out length, refer to the table below.

Minimum Bus Draw In and Draw Out Lengths				
Type of bus	Length (metres)	Min. draw-in length (metres)	Min. draw-out length (metres)	Length for one bus (metres)
Standard (inc double decker)	12.5	11.5	6.0	30.0
Long Rigid	14.5	14.0	6.5	35.0
Articulated	18.0	14.0	8.0	40.0

Figure 17 – Bus Zone Dimensions Requirements

The proposed zebra crossing and the proposed relocated eastern bus bay have been located such that both bus bays at Darug Avenue will be compliant with the TfNSW requirement, thus will meet the minimum requirement for parking, draw-in and draw-out lengths, as shown in Figure 18.

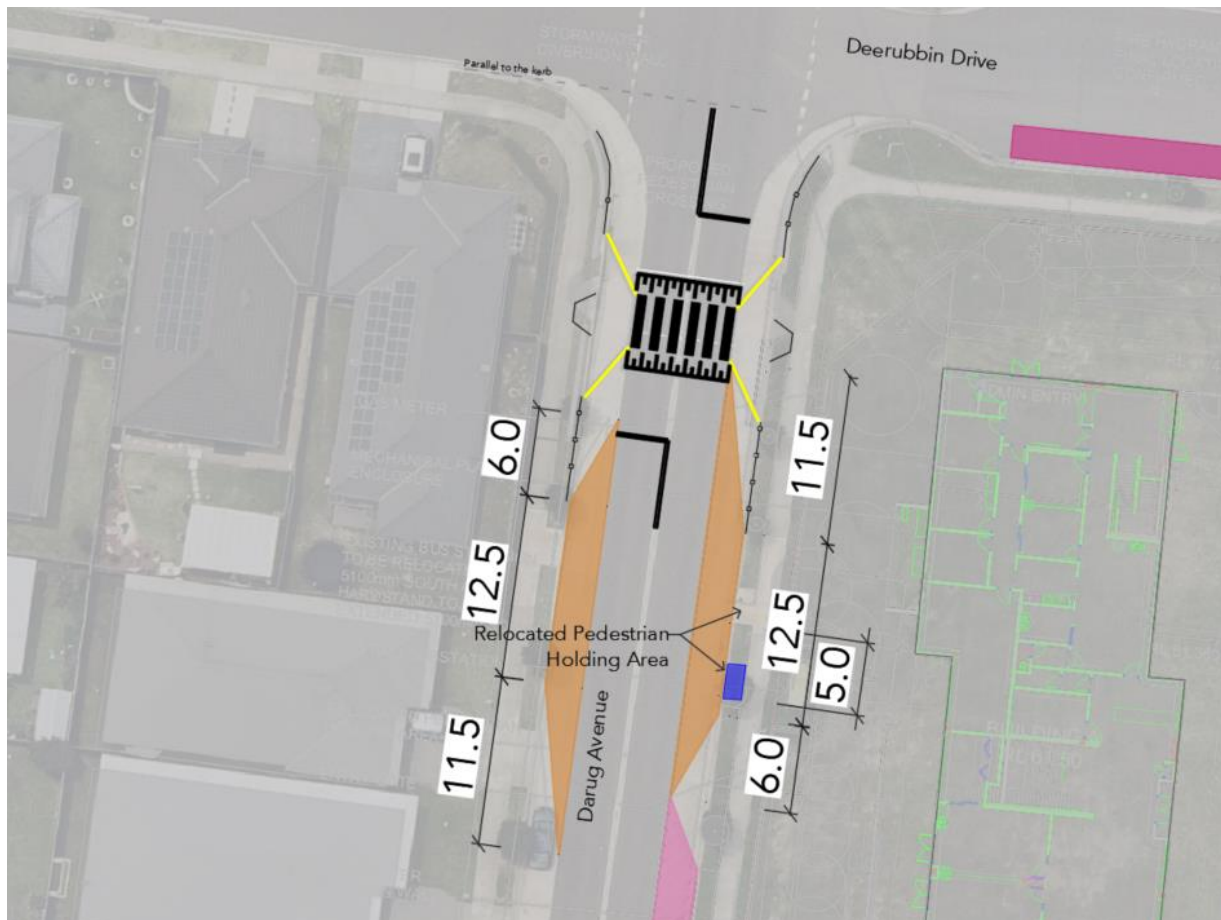
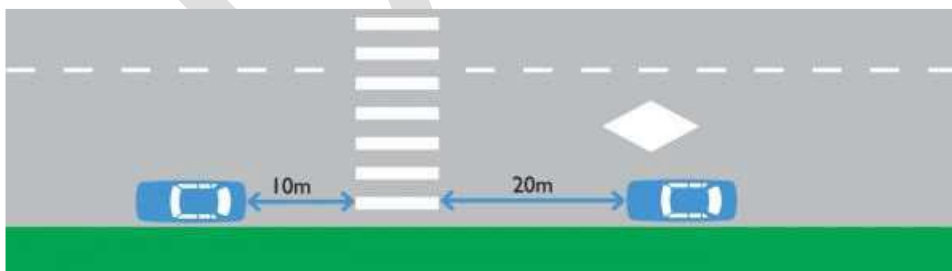


Figure 18 – Bus Bays at Darug Avenue

3.3 Zebra Crossing – Distance

TfNSW Comment

5.1 - The amount of parking spaces shown in Figure 41 will need to be revised as the below minimum buffer is required at zebra crossings;



Response

Refer to Section 2.2 regarding “No Stopping” distances.

3.4 Pick-up / Drop-off at Deerubbin Drive

TfNSW Comment

5.2.5 – TfNSW questions whether the school drop off/pick up on Deerubbin Drive is going to attract more parents given the proximity to the school buildings, Especially during wet weather days.

TfNSW would not encourage school drop off/pick up or 15min parking for school days along Deerubbin Drive especially due to the proximity to the basement access of the mixed used development opposite the school. Given the narrow road at Deerubbin Drive, kerbside parking for school drop off and right turning vehicles into the mix used development would likely cause queuing and put pedestrian at risk when crossing Deerubbin Drive especially for vulnerable children crossing the road;

Response

The proposed design has been set out for the majority of days based on averages, which is a standard approach. Designing for rainy days would result in over-engineered designs.

The concerns about pick-up / drop-off along Deerubbin Drive were not raised during any of the previously held Transport Working Group meetings.

In regard to the conflicts on Deerubbin Drive, the following considerations are made:

- It is noted that the vehicular access off Deerubbin Drive to the mixed-use development is only for the car access to the residential development, which is not expected to generate many vehicular trips. The travel movements to / from the residential basement are expected to be tidal – exit movements during the morning peak and entry movements in the afternoon peak, which does not coincide with the school pick-up.
- The heavy vehicle access to the mixed-use development is provided via the loading dock off Darug Avenue. The commercial accesses are provided via Glenmore Ridge Drive and Glenholme Drive.
- Deerubbin Drive is 12m wide. The road accommodates 2 traffic lanes and 2 kerbside parking lanes, thus is not considered narrow. As a comparison, Darug Avenue, which accommodates a bus route is also 12m wide.
- The zebra crossing will be supervised during the school peak hours and fencing will be provided adjacent to the crossings along the kerbs up to a distance of 7.5m from the crossings for improved pedestrian safety.

Therefore, the possibility of conflicts between children crossing Deerubbin Drive and vehicles accessing the mixed-use development is considered low.

3.5 U-turns

TfNSW Comment

5.2.5 – What measures are proposed to prevent parents from undertaking u-turn manoeuvres? It is noted that the SUH pick-up/drop-off is located on the westbound side of Deerubin Drive and that any parents requiring access to the SUH unit coming from the south would generally just turn right at Deerubin Drive as opposed to driving around the block. This movement may also be more prevalent during wet weather if parents wish to drop their children off closest to a building facility;

Response

If issues with parents undertaking U-turns are observed in the future, lane divider pavement flaps could be implemented along the centre line of Deerubbin Drive. The requirement for these measures could be reviewed as part of the STP updates.

As the SUH parking requires larger parking bays and pram ramps, it is more likely that the pick-up and drop-off will be undertaken on the correct side of the road. Vehicles requiring to park at the SUH unit and approaching from the south will be advised to turn right at Glenmore Ridge Drive, then turn right into Glenholme Drive and park on the SUH pick-up/drop-off.

The proposed design has been set out for the majority of days based on averages, which is a standard approach. Designing for rainy days would result in over-engineered designs.

3.6 Zebra Crossing – Design

TfNSW Comment

6.4.1 & Attachment 2 (Pedestrian Crossings) – The Crossings need to be designed in accordance with relevant standards, guidelines and supplements. Fencing is not an approved device as part of a zebra crossing. It should be noted that fencing at crossings can obscure visibility of pedestrians (in particular children shorter in height than the fencing). Therefore this design will not be supported by TfNSW;

Response

Refer to Section 2.8 regarding the pedestrian crossing design.

3.7 Zebra Crossing – Sight Lines

TfNSW Comment

6.4.1 – How was location of crossings determined? Sufficient sight distance needs to be achieved for each crossing;

The kerb would need to expand out ~3m up to the edge of the through lane, where the cars are for sight distance compliance;

Response

Refer to Section 2.2 in regard to sight lines.

3.8 Speed Counts

TfNSW Comment

6.4.2.2 – It is expected that speed counts are undertaken to indicate that the 85th percentile speed does not exceed 60km/h;

Response

Speed surveys undertaken today would not represent the future travel behaviour, thus an assessment of the 85th percentile speed would not provide an accurate representation of the road character for when the school is operational. Further, it is noted that the mixed-use development is yet to be constructed and the amount of traffic is likely to increase in the near future. This will result in a reduction in travel speeds.

It has been agreed during the TWG meeting held on the 3rd November 2021 that no speed count surveys need to be undertaken at this point.

3.9 Local Traffic Committee / Children's Crossing

TfNSW Comment

6.4.2.3 – All proposed crossings will need to be submitted to Local Traffic Committee for recommendation to Council for approval. TfNSW requests clarification as to whether children's crossings are being considered;

Response

All three crossings are proposed to be designed as children's crossings. The plans will be submitted in due course to the Local Traffic Committee for approval.

3.10 HRV Swept Path

TfNSW Comment

Figure 56 & Attachment 2 (Pedestrian Crossings) – The swept path is considered unacceptable (particularly due to the proximity to the pedestrian crossing), the plans indicate that a HRV encroaches over the centreline into the opposing traffic lane on both Darug Avenue and Forestwood Drive. This would result in a B99 vehicle travelling along Forestwood Drive to be forced to occupy the very left of the carriageway which is unrealistic if the vehicle is wishing to travel straight or turn right (and arrives before the HRV);

Response

The proposed zebra crossing at Darug Avenue has been relocated further south and is located at 13.3m south of Darug Avenue / Deerubbin Drive intersection. The HRV turn movement swept path has been re-run and it can be accommodated without crossing the opposite lane, as shown in Figure 19.

The proposed zebra crossing location at Forestwood Drive has been relocated further east at 20.7m from the Darug Avenue / Forestwood Drive intersection. The proposed new location allows for adequate turn movement as shown in Figure 20.

In any case, it is noted that local roads seldomly allow for an HRV movement without crossing into the opposite lane. Further, the turn movements discussed above are not likely to occur during the pick-up and drop-off time, as no bus routes run along these routes and waste collection will occur outside of pick-up and drop-off times.

This has been agreed during the TWG meeting held on the 3rd November 2021.

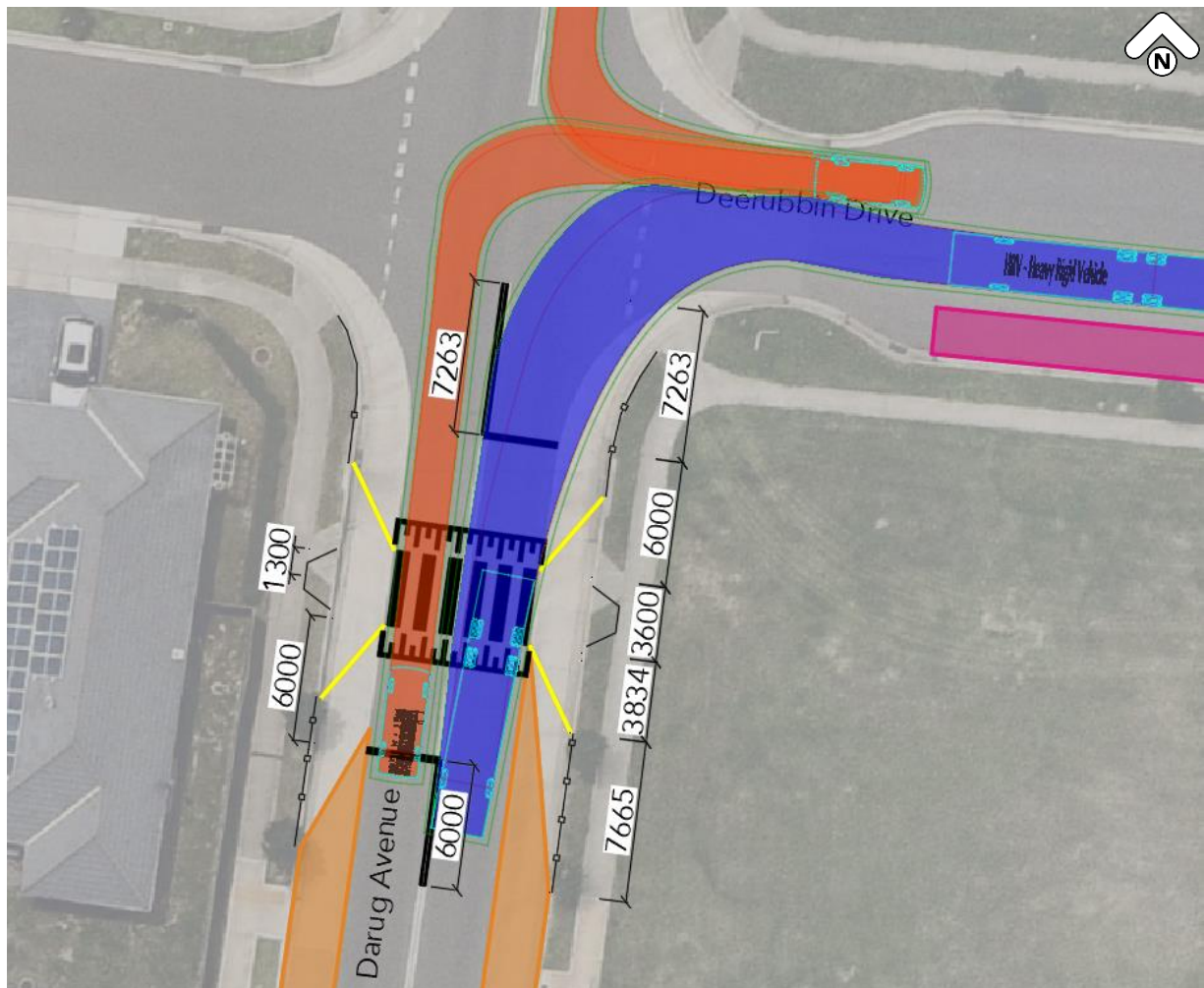


Figure 19 – HRV Swept Path at proposed Zebra Crossing at Forestwood Drive

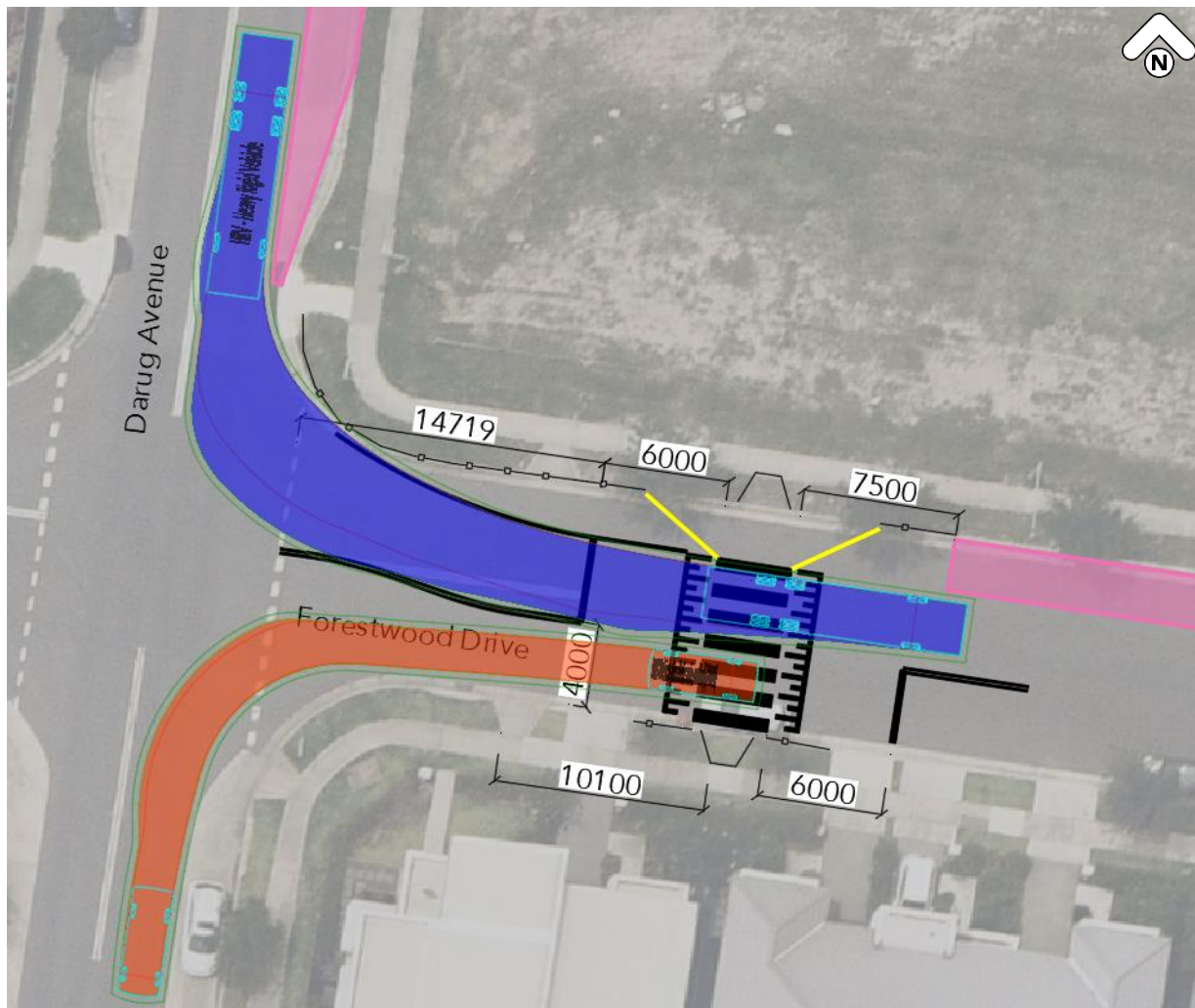


Figure 20 – HRV Swept Path at proposed Zebra Crossing at Forestwood Drive

3.11 Zebra Crossing – Sight Lines

TfNSW Comment

6.5.4 – The sight line assessments need to be quantified. Has TDT2002/12C been referred to? Has crossing sight distance (Austroads) been assessed? Not only should motorist's view of pedestrians be considered, but also the pedestrian's view of oncoming vehicles;

Response

Refer to Section 2.2 in regard to the sight lines.

3.12 Signage and Linemarking

TfNSW Comment

6.6 & Attachment 4 – It should be noted that TfNSW is the only agency with authority to install School Zones. Attachment 4 school zone signage plan should be removed or stamped as indicative (and may be subject to changes by TfNSW post consent) and is not to be considered as an approved plan;

Should consent be provided, the Developer must obtain written authorisation from TfNSW to install the School Zone signs and associated pavement markings and/or remove/relocate any existing Speed Limit signs;

To obtain authorisation, the Developer must submit the following for review and approval by TfNSW, at least eight (8) weeks prior to student occupation of the site:

- i. A copy of Council's development Conditions of Consent*
- ii. The proposed school commencement/opening date*
- iii. Two (2) sets of detailed design plans showing the following:*
 - School property boundaries*
 - All adjacent road carriageways to the school property*
 - All proposed school access points to the public road network and any conditions imposed/proposed on their use*
 - All existing and proposed pedestrian crossing facilities on the adjacent road network*
 - All existing and proposed traffic control devices and pavement markings on the adjacent road network (including School Zone signs and pavement markings).*
 - All existing and proposed street furniture and street trees.*

School Zone signs and pavement marking patches must be installed in accordance with TfNSW approval/authorisation, guidelines and specifications.

All School Zone signs and pavement markings must be installed prior to student occupation of the site.

The Developer must maintain records of all dates in relation to installing, altering, removing traffic control devices related to speed.

Following installation of all School Zone signs and pavement markings the Developer must arrange an inspection with TfNSW for formal handover of the assets to TfNSW. The installation date information must also be provided to TfNSW at the same time. Note: Until the assets are formally handed-over and accepted by TfNSW, TfNSW takes no responsibility for the School Zones/assets;

Response

The School Zone plan was prepared to initiate the process of applying for the school zone as early as possible. An "Indicative" mark on the School Zone plan has been added and the plan has been amended to incorporate the comments, refer to **Attachment 1**.

Installation in accordance with TfNSW guidelines will be undertaken in due course.

3.13 Travel Mode Share

TfNSW Comment

6.7.1 – How long will it take before the proposed target travel mode share is achieved? Has comparisons been undertaken with other schools in this area (with similar characteristics) to see what the travel mode share is like;

Response

The time before the travel mode share will be achieved will be addressed in the updated School Transport Plan once the principal has been appointed.

In regard to the travel mode share comparison with other schools refer to Section 2.24.

3.14 Traffic Distribution

TfNSW Comment

Figure 66/67 – It is assumed that no traffic generated by the development will seek to access Deerubin Drive from the south – how realistic is this, noting that any disabled students would seek to gain access via Deerubbin Drive;

Response

The percentage of students residing in the south and wanting to use the SUH pick-up and drop-off is expected to be minor, hence this was not specifically assessed. Vehicles requiring parking at SUH unit and approaching the school from the south can turn right at Glenmore Ridge Drive, then turn right into Glenholme Drive and park on the SUH pick-up/drop-off.

It is envisaged students travelling from the north are more likely to park at Deerubbin Drive, and those travelling from south are more likely to park at Forestwood Drive. There will be parents who will not follow the rules; however, it is assumed that this will be a small percentage.

Information regarding the recommended pick-up and drop-off areas based on the area of residences will be provided to parents in the School Transport Plan.

3.15 Sight Distance at Car Park

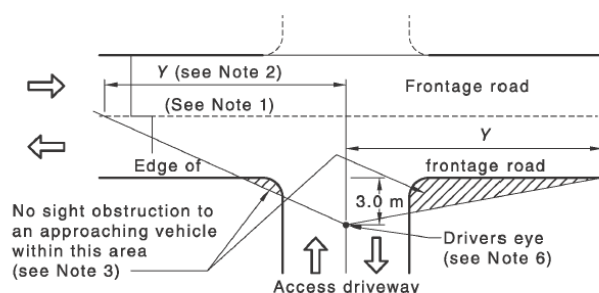
TfNSW Comment

Attachment 2 (Car Park Design review ptc-004) – right turn movements into car park should be reviewed as to whether sight distance to oncoming vehicles from north is sufficient. Parking spaces adjacent to driveway should also be removed to enable sight distances for vehicles leaving the driveway;

Response

Reference is made to figure 3.3 Sight distance requirement at access driveway exits from the AS2890.2, an excerpt of which is shown in the figure below.

The sight distance is dependent on the speed limit, which will be 40km/h during school peak times and 50km/h at any other time. Based on this, a 69m sight distance would be required. However, it is noted that Deerubbin Drive has an acute bend at this location, meaning that vehicles will likely drive at much lower than the posted speeds.



Frontage road speed (see Note 4) km/h	Distance (Y) along frontage road (see Note 5) m	
	5 s gap	8 s gap
40	55	89
50	69	111

Figure 21 – Figure 3.3 from the AS2890.2

The following assessment was undertaken to determine the required visibility based on the expected speeds.

The radius of the existing road centreline on the approach to the driveway is 17m. The following equation (based on Formula 5, Austroads Guide to Road Design: Part 3 – Geometric design) was used to calculate the speed that vehicles would negotiate the approach radius:

$$V = \sqrt{(127(e+f))R}$$

Where; V= Vehicle speed (km/h)

e = superelevation (0.025)

f = side friction factor (0.3)

R = radius (m) (17)

From this formula, it has been calculated that the negotiable speed of the approach radius is 26.5 kph.

Then, using Formula 1 (Austroads Guide to Road Design: Part 3 – Geometric design) the Stopping Sight Distance (SSD) required was calculated.

$$SSD = Rt \sqrt{V/3.6} + V^2/254 (d+0.01a)$$

Where; Rt = reaction time (1.5 sec)

V = vehicle speed (kph) (26.5 km/h)

d = mean value on wet sealed roads (0.46)

a = longitudinal grade (0.1)

From this formula, it has been calculated that a suitable SSD for the driveway would be 17m. With a speed of 30km/h, a sight distance of 20m is required.

Figure 22 shows the 38m and 47m unobstructed sight distance lengths starting at the drivers' location upon exit and entry to the loading area. The provided sight distance is deemed acceptable, given that 17m would be the minimum required based on the expected speed.

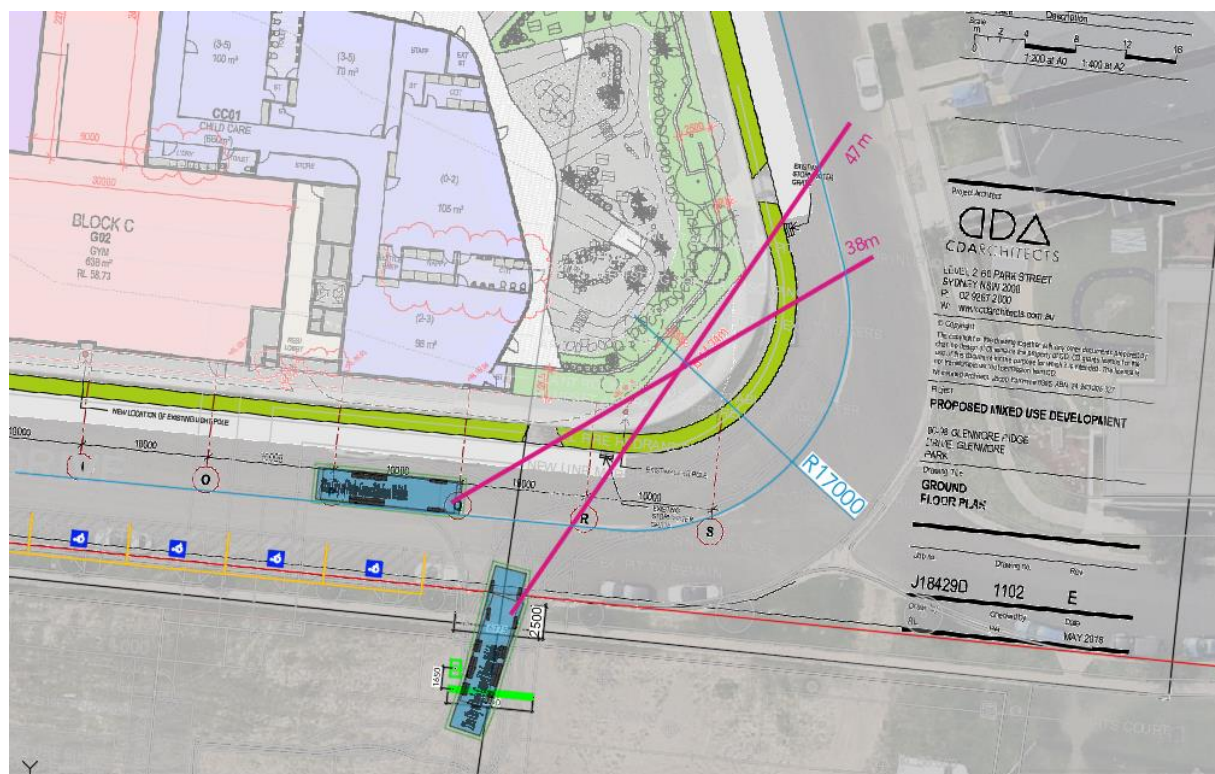


Figure 22 – Sight distances as loading area access

Further, reference to the following sections from the AS2890.2, Figure 3.3 is made:

- *NOTE 3 Parking on this side of the frontage road may need to be restricted on either side of the driveway so that the sight distance required by the above table to an approaching vehicle is not obstructed.*
- *NOTE 6 When checking sight distance the height of the object (approaching vehicle) is to be taken as 1.15 m above the road surface. The driver's eye height is to be taken as any height in the range 1.15 m to 2.5 m, to cater for both car and commercial vehicle drivers.*

The guideline does not prescribe removal of parking spaces, but rather indicates that this may be required. Given that the driveway will be used by trucks, a 2.5m driver's eye height can be assumed, meaning that the truck driver will be able to see above vehicles parked along the kerb. In addition, parking on the western side of the driveway will occur during pick-up and drop-off only, as this section of the kerb will be restricted to accessible parking during school operating hours. Truck deliveries / waste collection will occur outside of pick-up and drop-off time but within school operating hours, meaning that very few, if any, cars will be parked along the kerb west of the driveway.

Considering all the above, the provided sight distance is deemed acceptable given the expected vehicle speeds due to the road alignment, the type of vehicles accessing the driveway and the frequency and timing when the driveway will be used.

3.16 Zebra Crossing – Design / Surface

TfNSW Comment

Attachment 3 – Figure 81 shows a surface change at a raised intersection (which does not have pedestrian priority). Is there justification as to why a surface treatment is being considered as an isolated treatment at crossings? Surface treatments are generally used as a threshold treatment or to highlight the presence of something. Zebra pavement markings already indicates the pedestrian priority at crossings, addition surface treatments may detract from the zebra pavement marking;

Response

The change in pavement was proposed to imitate a raised crossing / shared zone to raise driver's awareness of an increased pedestrian activity. This is because the development cannot provide a raised zebra crossing due to flooding issues.

A discussion on the zebra crossing design ins provided in Section 2.8.

3.17 Zebra Crossing – Design / Fence

TfNSW Comment

Attachment 3 – a fence is not considered an appropriate alternative to kerb build outs and is not supported by Australian Standards. Figure 82 shows fencing in what appears to be car park location and the TfNSW spec fencing is located on the footpath.

Response

A discussion on the zebra crossing design ins provided in Section 2.8. Amended signage and line marking plans showing updated fencing locations are presented in **Attachment 1**.

3.18 Signage Plan

TfNSW Comment

Attachment 4 – Should consent be provided, parking signage plan is to be submitted to Local Traffic Committee for review/recommendation to council.

Response

A signage and line marking plan has already been prepared as part of the SSDA documentation. An amended plan is presented in **Attachment 1** and will be submitted to the Local Traffic Committee in due course.

3.19 Pedestrian Access Gate

TfNSW Comment

Identify whether there are opportunities to provide pedestrian and cycling access at Gate 5, given it's potential as a desire line for journeys from the south east (linking the pedestrian and cycling network at Mulgoa Rise Fields);

Response

To access the school via Gate 4, pedestrians and cyclists arriving at the school from the southeast would have to cross two driveways (Council's car park and staff car park) as shown in orange dotted line in Figure 23. Additionally, the proposed school buildings are located towards the north, meaning that even if students accessed the school via Gate 5, they would have to walk further north within the school property. Considering the above, students will be advised to walk along the Council car park and enter the site via Gate 1 (see green dotted line in Figure 23).

It is noted that students walking along this path will have to cross Gate 6; however, this gate is for waste collection and service vehicles only and these vehicles will service the site outside of school peak hours.

The above has been agreed during the TWG meeting held on the 3rd November 2021.



Figure 23 – School Access Points and Pedestrian Desire Lines

3.20 First School Student Travel Survey

TfNSW Comment

Specify when the first school student travel survey will be conducted;

Response

The first school travel survey will be conducted within three months of commencement of the school. This will be incorporated in the STP.

3.21 Additional Bicycle and Scooter Parking

TfNSW Comment

Noting that the school is proposed to expand to around 1000 students, identify a strategy to ensure there is sufficient bicycle and scooter parking provision to meet that demand, noting a 35% mode share target applicable to those modes.

Consideration could be made to the opportunity to provide vehicle and e-bike charging station at the site as these modes of vehicles becomes more popular;

Response

The proposal is to provide bicycle and scooter parking for 35% students for the proposed school population of 414 students. As marked in pink square in in Figure 24, the proposed development includes space to accommodate additional bike / scooter parking spaces if the demand increases.

The layout of the future school expansion has been master-planned on the southern side of the development as shown. Detailed drawings showing bicycle spaces will be prepared in due course, when the consecutive stage will be planned. However, the master plan shows vacant space where additional bicycle and scooter spaces can be accommodated.

A strategy to implement e-charging stations for electric bicycles has been included in the submitted School Transport Plan.

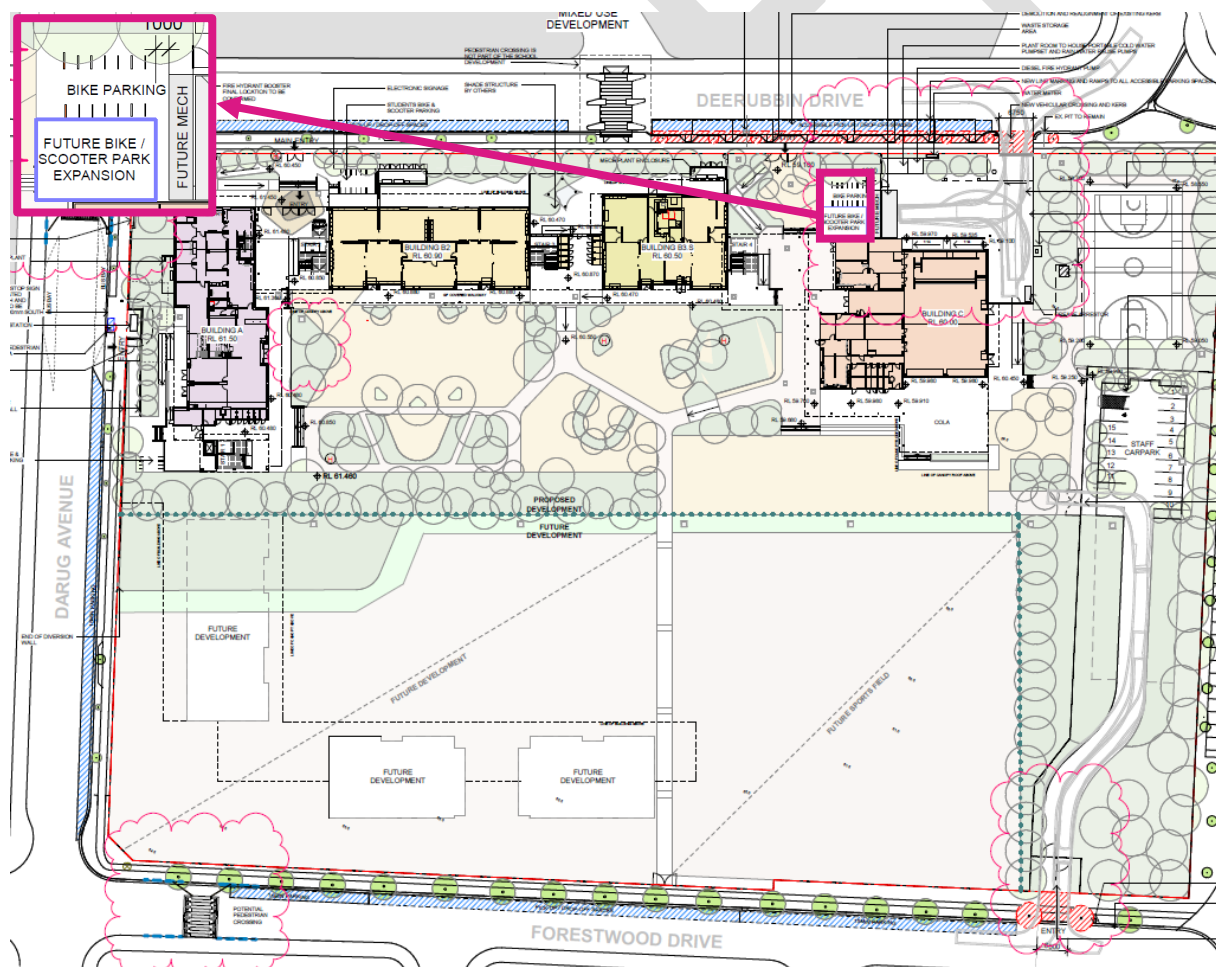


Figure 24 – Future Masterplan

3.22 Traffic Distribution

TfNSW Comment

3.2 – what enforces that students arriving from the north “shall” use the northern pick up/drop off and similarly for students on the south using the southern pick up/drop off;

Response

It is envisaged students travelling from the north are more likely to park at Deerubbin Drive, and those travelling from south are more likely to park at Forestwood Drive. There will be parents who will not follow the rules; however, it is assumed that this will be a small percentage.

Information regarding the recommended pick-up and drop-off areas based on the area of residences will be provided to parents in the School Transport Plan.

3.23 School Gate Operation

TfNSW Comment

4.2.2 – how is this strategy going to be managed across 4 different gates? Are parents and students assigned to a specific gate;

Response

This will be decided and embedded in the School Transport Plan once a principal has been appointed.

3.24 School Gate Operation

TfNSW Comment

4.2.2 – How does gate 3 operate? The gate is located towards the northern end of the 15 min parking zone. Will kids being held behind the gate, waiting for the parents/caretaker being at the front of the queue similar to drop off/pick up zones?

It is noted that the parking along Darug Avenue is marked as a 15min parking zone and not a school pick/drop off zone;

Response

This will be embedded in the School Transport Plan once a principal has been appointed.

3.25 U-turns

TfNSW Comment

4.2.2 – “vehicles are not to undertake U-turns across the local roads” - how is this being enforced;

4.2.4 – What prevents or deters motorists from undertaking U-turn or 3-point manoeuvres;

Response

If issues with parents undertaking U-turns are observed in the future, lane divider pavement flaps could be implemented along the centre line of Deerubbin Drive. The requirement for these measures could be reviewed as part of the STP updates.

3.26 Buses for School Events

TfNSW Comment

4.3 – How many large buses are anticipated for school events? It is unclear if the buses can be accommodated for in the proposed bus zones without impacting the safe operation of the crossing.

Response

There is a bus atop on the eastern site of Darug Avenue, and an approximately 80m long 15-minute parking zone is proposed on the school frontage along Darug Avenue adjacent to the bus stop. Either the existing bus stop or the 15-minute parking zone can easily accommodate buses required for school events.

3.27 Update STP

TfNSW Comment

Prior to occupancy, the Proponent shall update the School Travel Plan to address the following items, in consultation with TfNSW:

j. Provide a copy of the Program Evaluation Report to TfNSW;

k. Provide a final version of the Travel Access Guide to TfNSW.

Response

Noted; The School Transport Plan will be updated and submitted in due course.

3.28 Preliminary Construction Traffic and Pedestrian Management Plan

TfNSW Comment

5.6.2 / Figure 23 – traffic controllers would be required to stop traffic in both directions on Darug Avenue, the plan should be updated to reflect this;

Response

A truck turning right into the site and a truck exiting the site will need to give way to the southbound traffic, which does not create any conflicts. Nevertheless, a traffic controller can be provided on the northern side as requested.

The CTMP can be updated at the Construction Certificate stage.

3.29 Truck Turning

TfNSW Comment

5.6.2 / Figure 24 – Truck turning right requires to occupy the left side of the road, however it is still required to give way to vehicles travelling eastbound. This will cause issues as the truck would either be obstructing the entire westbound carriageway as it waits for an appropriate gap, or the left side of the road, which causes further issues for other traffic navigating this intersection. Traffic would be required to be controlled on all legs, as truck coming out of Darug Avenue is required to still give way to vehicles travelling east along Bradley Street. This arrangement is not supported and TfNSW requests that smaller construction vehicles are used to improve safe outcomes for road users.

Response

The Bradley Street / Darug Avenue intersection discussed in the preliminary CTMP has been shown to accommodate 2 trucks travelling simultaneously. Based on the TfNSW comment, it is proposed that these two turn movements do not overlap, which can be controlled by traffic controllers.

The truck exiting Bradley Street and turning right into Darug Avenue will need to give-way to the eastbound vehicles, which is a standard approach and as such, no conflict is seen between the vehicles travelling eastbound and the truck turning right. The right turn movement into Darug Avenue has been amended and a traffic controller has been provided to prepare the southbound traffic to stop.

For the truck exiting Darug Avenue and turning left into Bradley Street, the truck will need to give-way to the eastbound vehicles, which is a standard approach. It is noted that the truck's left turn movement creates conflict with the westbound vehicles on Bradley Street; however, this will be managed by a traffic controller and is not unusual. The construction truck driver will be informed about the required traffic manoeuvres along the local roads, and therefore, this is not considered an issue.

This was agreed during the TWG meeting held on the 3rd November 2021.

The CTMP will be updated accordingly at the Construction Certificate stage.

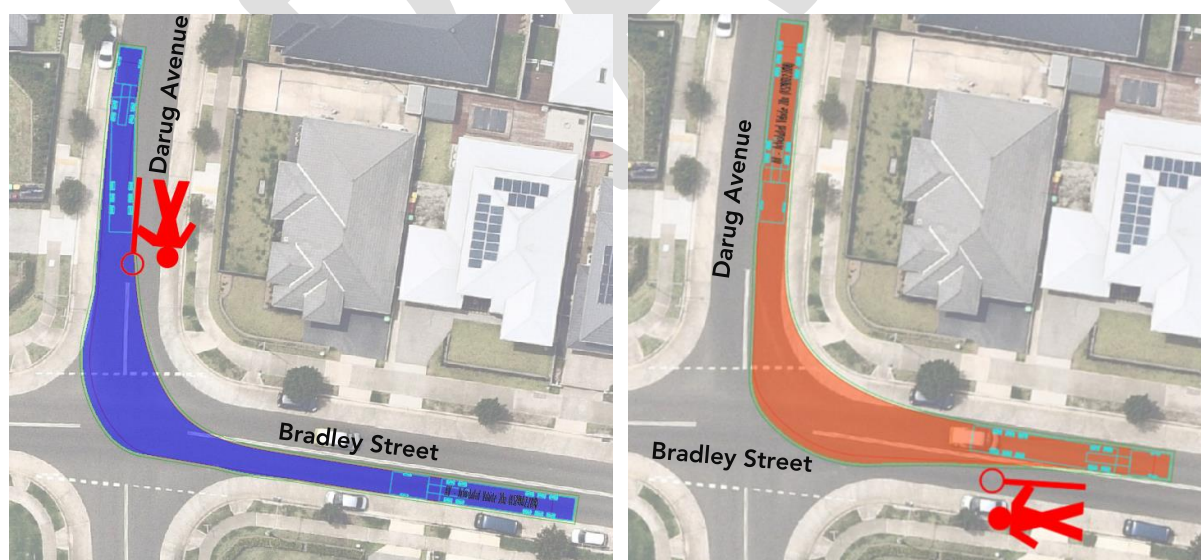


Figure 25 – AV Swept Path at Bradley Street / Darug Avenue intersection

4. DPIE Comments

4.1 Staff Parking

DPIE Comments

Further consideration should be given to the provision of additional staff parking on site given the limited availability of public transport opportunities providing connections from outside of the school catchment. It is noted that the area identified as 'future carpark expansion' could potentially be used.

Response

SINSW has recently put processes in place to ensure that all school developments investigate measures that can be implemented to increase active and public transport and decrease car usage for both staff and students.

A School Transport Plan has been prepared outlining measures to promote active and public transport and carpooling. SINSW is committed to implementing these plans across all new developments; A travel plan coordinator will be employed to coordinate the implementation of these measures and monitor the mode shift.

It is proposed to provide 17 car parking spaces on-site, which accounts for 63% of staff. This provision is to promote active transport and a means to shift towards alternative transport modes.

The proposed school development is a greenfield site with no pre-existing travel behaviours. Therefore, by implementing the School Transport Plan low private car usage can be promoted from commencement of operations.

4.2 Travel Mode Comparison to Other School

DPIE Comments

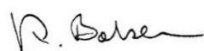
All comments provided by TfNSW and Council are to be addressed in the RtS as previously advised. However, the Department reinforces the importance of undertaking a comparison of other schools

Response

Noted. For responses to travel mode and comparison to other schools refer to Section 2.24.

We trust that this letter assists in the assessment of the application. For any further enquiries, please contact our office on (02) 8920 0800.

Kind regards,



Kasia Balsam
Team Leader

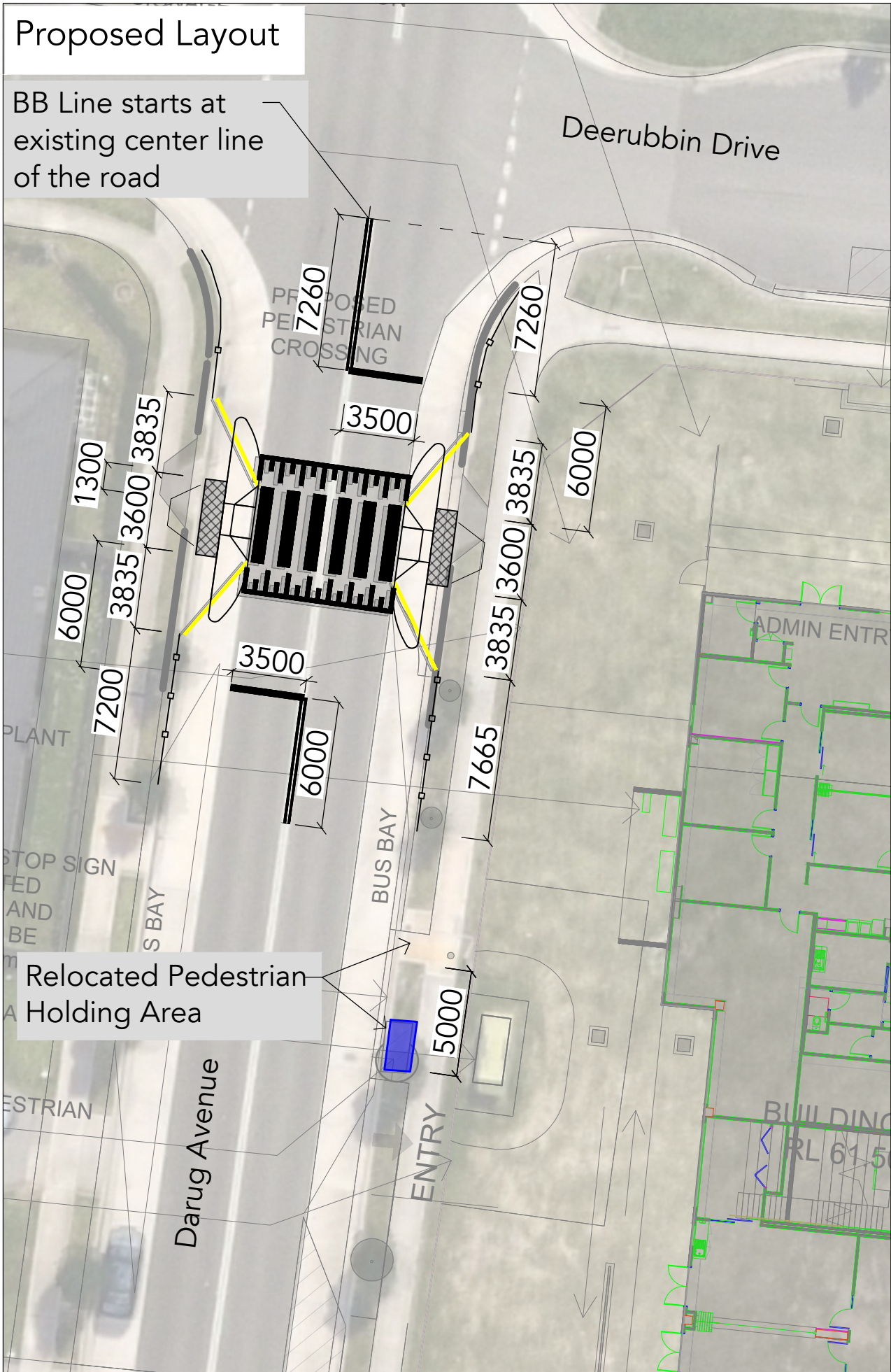
Document Control: Prepared by PS on 9 November 2021. Reviewed by KB on 11 November 2021.

Attachment 1 Signage and Line Marking Plans

DRAFT

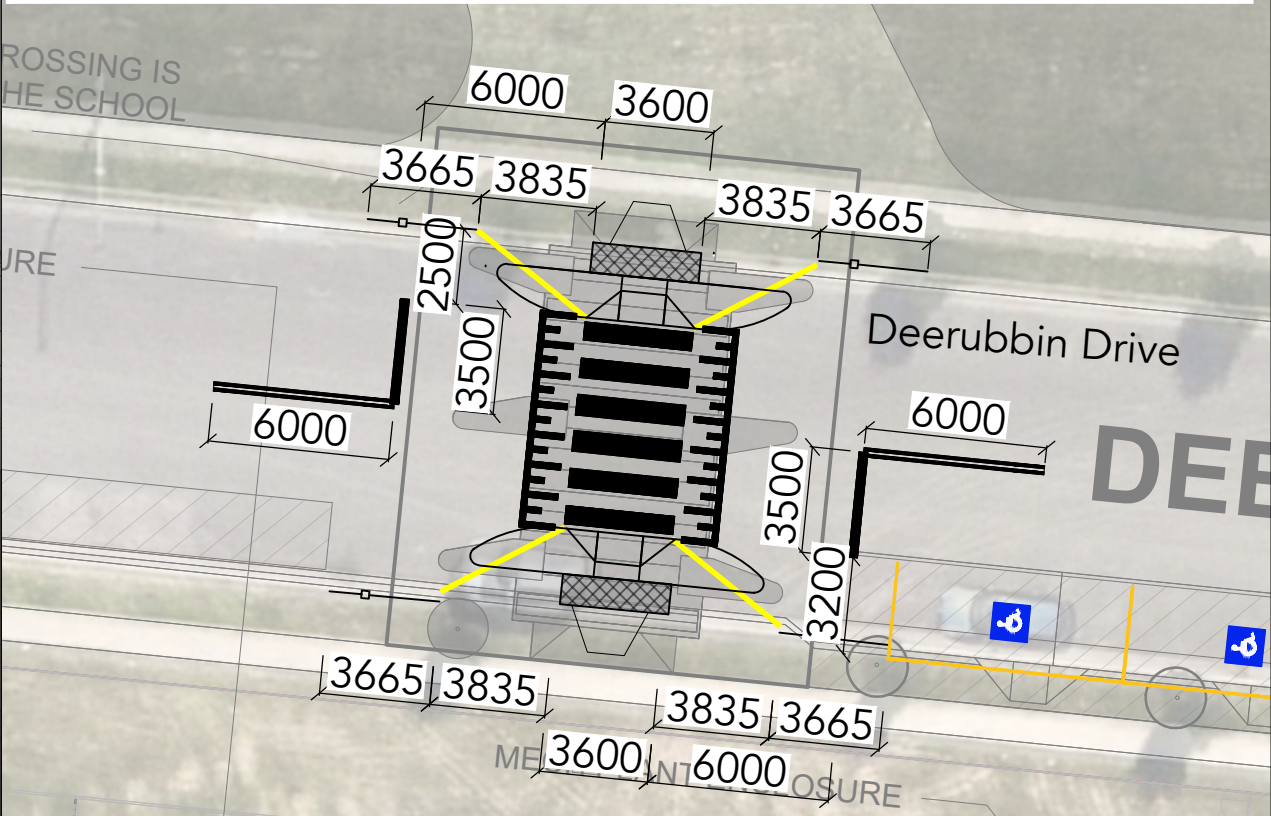
Proposed Layout

BB Line starts at existing center line of the road



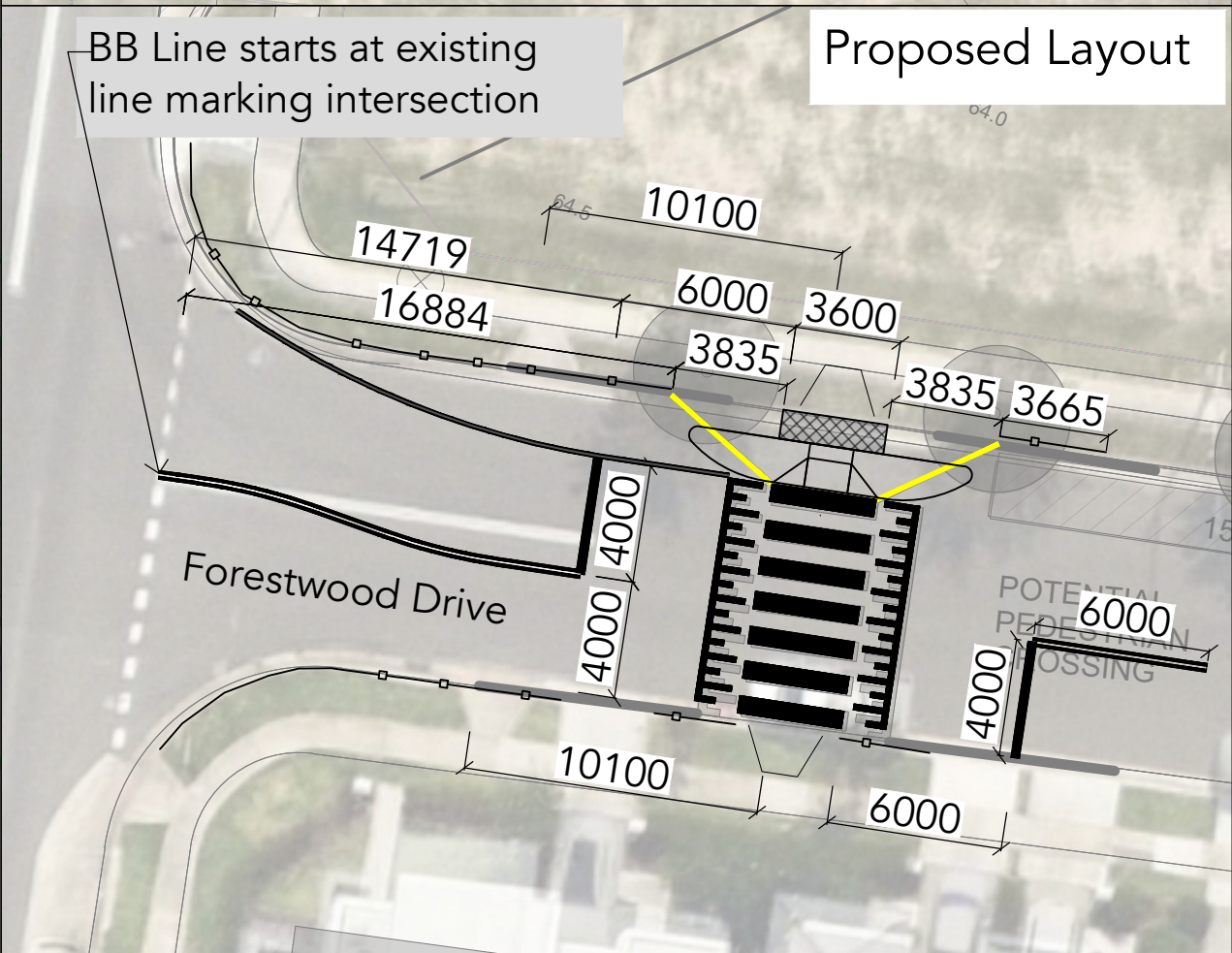
Relocated Pedestrian Holding Area

Recommended crossing to be implemented by others. Fencing at the kerbs to be built by the project



BB Line starts at existing line marking intersection

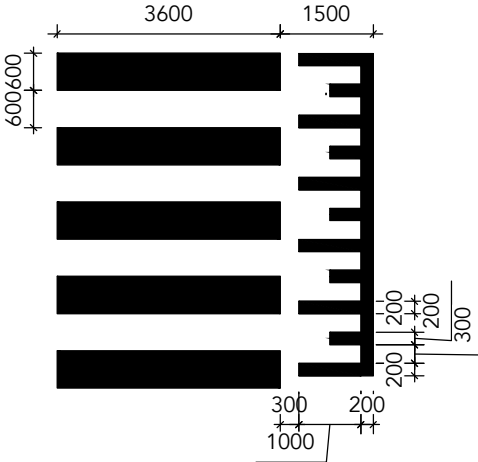
Proposed Layout



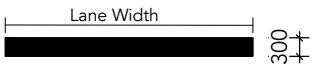
comments

A3

Zebra Crossing (PX)



Stop Line (TF)



Barrier Line (BB)



Edge Line at kerb (E1)



Note: All lines are painted in white

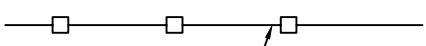
Fencing

Fencing at Zebra Crossing



Detail of the fencing shall be agreed on with Council and TfNSW

Fencing at Kerbs



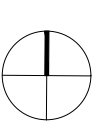
Install RMS Type 1 Pedestrian Fence

- PAINT TYPES:
- Thermoplastic paint type is to be used for outdoor car park areas
 - Water-based acrylic paint type is to be used for indoor car park areas
 - Non-slip material is to be incorporated into pedestrian crossing / walkway line marking (refer to RMS Specification R141)

ptc.

Suite 502, 1 James Place
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ptcconsultants.co

rev	date	comment / description	drawn	reviewed
9	10/11/21	For Information	PS	KB
8	05/11/21	For Information	PS	KB
7	03/11/21	For Information	PS	KB/SW
6	01/11/21	For Information	PS	KB/SW
5	28/10/21	For Information	PS	KB/SW
4	26/10/21	For Information	PS	KB

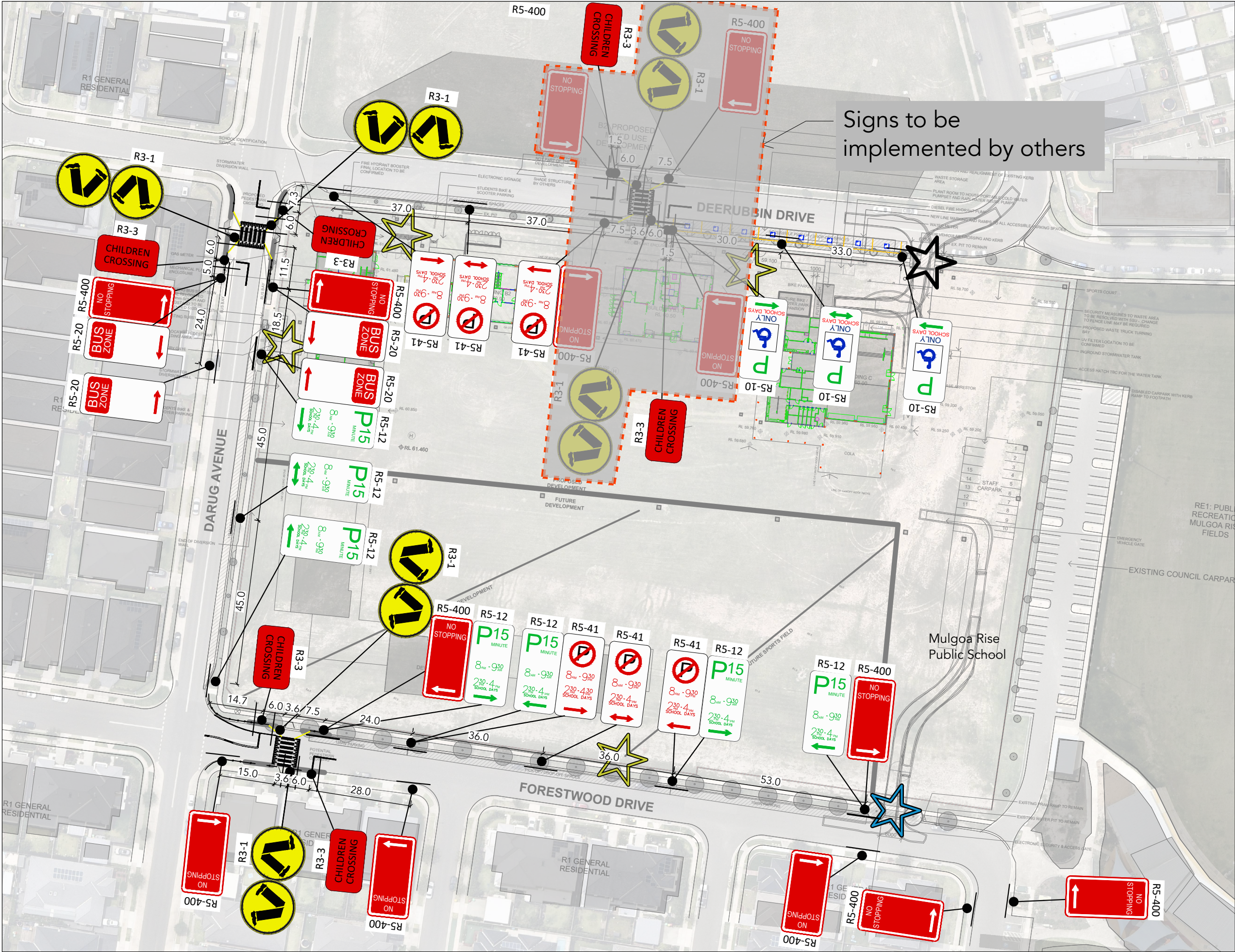


project
New Public School In Mulgoa Rise

drawing title
Pedestrian Crossings Line Marking Plan

client
SINSW
drawing #
ptc-002
project #
KB - 2840
scale
1 : 250

rev 9



comments

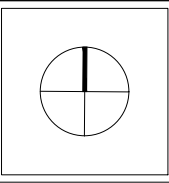
A3

- Pedestrian Entry
- Vehicular Entry

ptc.

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rev	date	comment / description	drawn	reviewed
9	10/11/21	For Information	PS	KB
8	05/11/21	For Information	PS	KB
7	03/11/21	For Information	PS	KB/SW
6	01/11/21	For Information	PS	KB/SW
5	28/10/21	For Information	PS	KB/SW
4	26/10/21	For Information	PS	KB

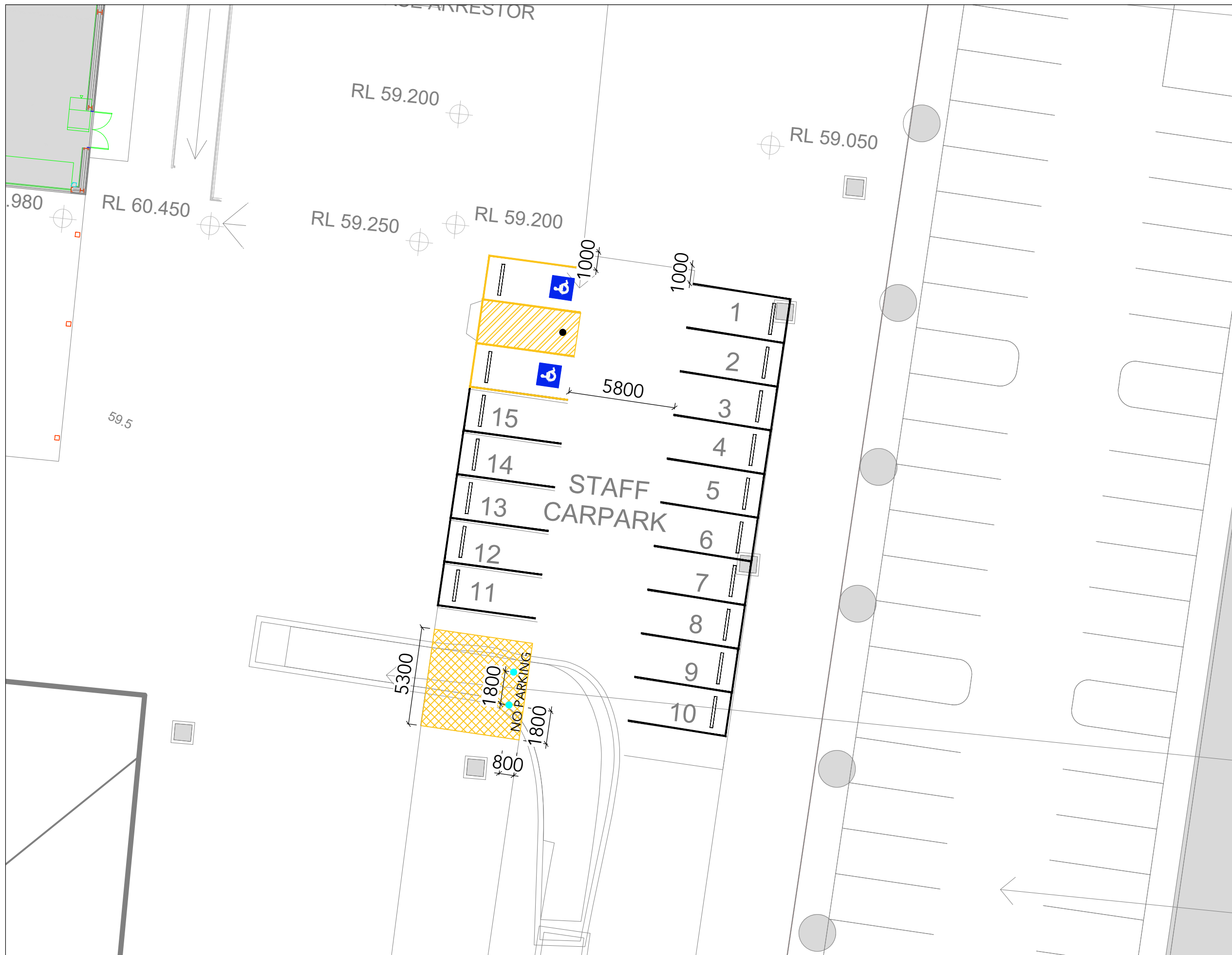


project
New Public School In Mulgoa Rise

drawing title
Parking Signage Plan

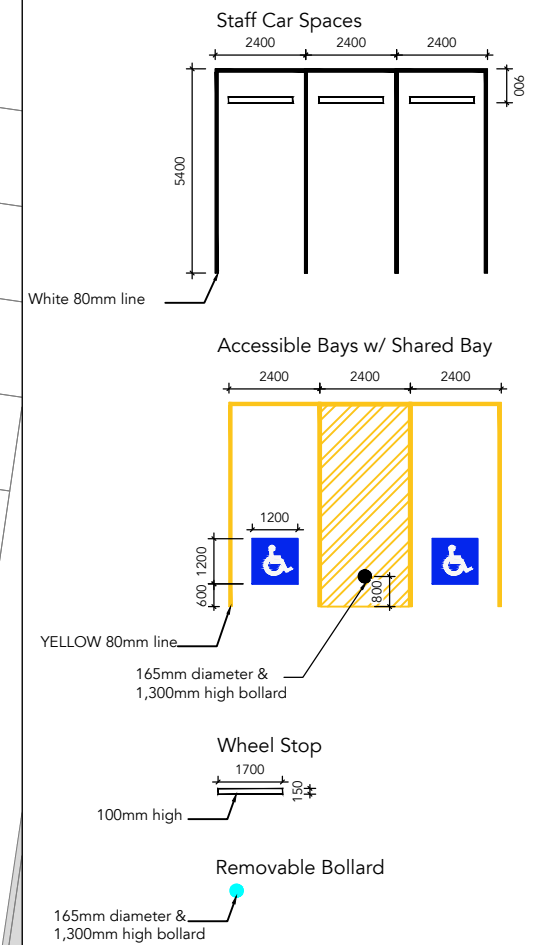
client SINSW
drawing # ptc-007
project # KB - 2840
scale 1 : 1000

rev 9



comments

A3



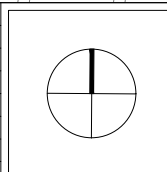
- PAINT TYPES:**
- Thermoplastic paint type is to be used for outdoor car park areas
 - Water-based acrylic paint type is to be used for indoor car park areas
 - Non-slip material is to be incorporated into pedestrian crossing / walkway line marking (refer to RMS Specification R141)

Colour Chart

Australian Standards (AS2700)

- | | |
|---|-------------------|
|  | N14 Golden White |
|  | Y14 Golden Yellow |
|  | R13 Signal Red |
|  | B21 Ultramarine |

rev	date	comment / description	drawn	reviewed
9	10/11/21	For Information	PS	KB
8	05/11/21	For Information	PS	KB
7	03/11/21	For Information	PS	KB/SW
6	01/11/21	For Information	PS	KB/SW
5	28/10/21	For Information	PS	KB/SW
4	26/10/21	For Information	PS	KB



project	New Public School In Mulgoa Rise
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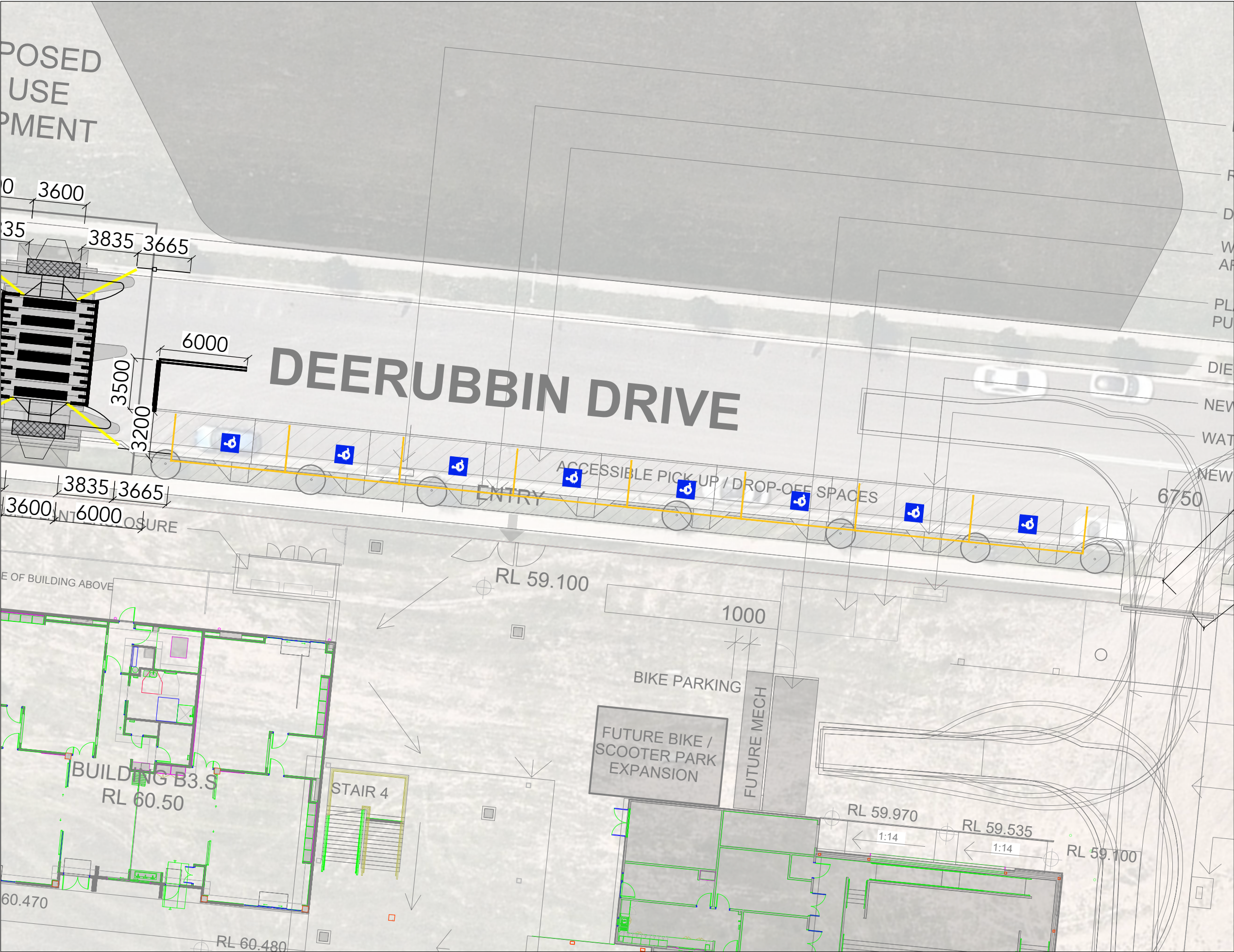
drawing title
Car Park Line Marking Plan

client	SINSW
drawing #	ptc-009
project #	KB - 2840
scale	1 : 200

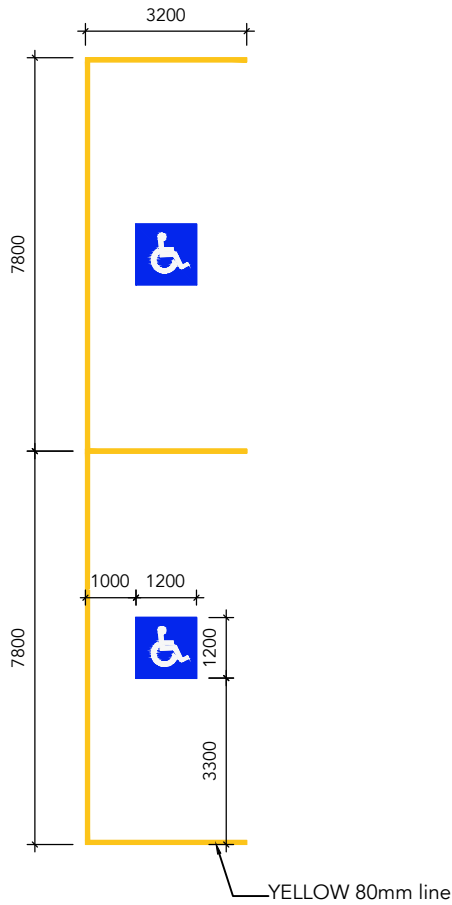
rev 9

ptc.

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ptcconsultants.co



On-Street Accessible Car Parking



- PAINT TYPES:
- Thermoplastic paint type is to be used for outdoor car park areas
 - Water-based acrylic paint type is to be used for indoor car park areas
 - Non-slip material is to be incorporated into pedestrain crossing / walkway line marking (refer to RMS Specification R141)

Colour Chart

Australian Standards (AS2700)

- N14 Golden White
- Y14 Golden Yellow
- R13 Signal Red
- B21 Ultramarine