

12 December 2018

16734

Prity Cleary
Senior Planner
320 Pitt Street
Sydney, NSW, 2001

Dear Prity,

RE: PICTON HIGH SCHOOL RESPONSE TO SUBMISSIONS – RMS COMMENTS

We write with regard to Picton High School Redevelopment (SSD 17_8640), specifically in response to your email dated 12 December 2018 requesting responses to comments raised by RMS following the lodgement of the Response to Submissions package (dated 30 October 2018).

A response to each of RMS' comments are provided in **Table 1** below. This response should be read in conjunction with the following items:

- Revised Argyle Street drawings prepared by Bonacci Group (**Attachment A**);
- Swept Path Diagrams at 5kmh prepared by Stantec (**Attachment B**);
- Swept Path Diagrams at 10kmh prepared by Stantec (**Attachment C**);
- Email correspondence with RMS regarding School Zones (**Attachment D**); and
- Concept School Zone Plan developed in conjunction with RMS (**Attachment E**).

Table 1 Responses to Comments by RMS

Issue	Response
Intersection of Argyle Street and Wonga Road	
It is important that any SIDRA model provided in support of the SSD application is calibrated with on-site observations. RMS is not convinced that the existing queue lengths used are representative of what currently occurs. As such, this will have an impact upon delays experienced and the associated Level of Service (LOS) at this intersection. RMS has been unable to locate any information on how the base SIDRA model provided has been calibrated with on-site observations, such as queue lengths as well as delays.	<p>From the Traffic Assessment dated August 2018 the traffic modelling is based on 1,580 students and 125 teachers.</p> <p>For the above analysis the SIDRA default values have been used, excluding the assessment of the Wonga Road and Argyle Street intersection analysis. The gap acceptance values for right turning vehicles from Wonga Road have been reduced to 5.0 seconds and 3.0 seconds for the critical gap and follow-up headway respectively. The reductions are based on the on-site observations and traffic surveys and reflect the Austroads values (traffic video recording can be provided to identify queue lengths and delays at the intersection of Argyle Street and Wonga Road).</p> <p>Further sensitivity traffic modelling testing (refer to Note 2) has been undertaken for the intersection of Wonga Road and Argyle Street:</p>

Issue	Response																								
	<table><tr><th rowspan="2">Scenario</th><th colspan="2">Morning Peak</th><th colspan="2">Evening Peak</th></tr><tr><th>Average Delay (secs)</th><th>Level of Service (LoS)</th><th>Average Delay (secs)</th><th>Level of Service (LoS)</th></tr><tr><td>Base Case</td><td>15.8</td><td>B</td><td>18.4</td><td>B</td></tr><tr><td>¹Year 2021 with School Expansion</td><td>19.1</td><td>B</td><td>23.2</td><td>B</td></tr><tr><td>² Test 1 - Year 2021 with School Expansion</td><td>32.5</td><td>C</td><td>44.3</td><td>D</td></tr></table> <p>Note: ¹For this assessment the right turn movements from Wonga Road to Argyle Street, the critical gap acceptance and the Follow up Head-way is 5 seconds and 3 seconds, respectively.</p> <p>² For this assessment the right turn movements from Wonga Road to Argyle Street, the critical gap acceptance and the Follow up Head-way is 6 seconds and 4 seconds, respectively.</p> <p>SIDRA traffic models can be provided for the following scenarios:</p> <p><u>Traffic Assessment Dated August 2018</u></p> <ul style="list-style-type: none">• Scenario 1: Existing Traffic (Base Case) - This scenario includes the 2018 traffic survey volumes (includes the current school operations) modelled over the existing intersection configuration of Wonga Road and Argyle Street. This analysis has been performed for the morning and evening peak periods;• Scenario 2: Year 2021 with the Proposed School Expansion - This analysis incorporates a 3.0% per annum increase in the background traffic volume up to the year 2021 which is when the school redevelopment is expected to be completed. The school has been assessed as operating at full capacity of 1,580 students and 125 teachers. The layout of the existing intersection configuration of Wonga Road and Argyle Street is used for the assessment. <p><u>Construction Traffic Management Plan Dated December 2018</u></p> <ul style="list-style-type: none">• Post Construction Traffic Volumes - This analysis incorporates the Wonga Road upgrades, with the new bus facility accommodating up to three buses, a new vehicle driveway access and a new school entrance located on Wonga Road. For this assessment staff will enter the Site via Argyle Street, and depart via Wonga Road, all bus services will operate via Wonga Road. The layout of the existing intersection configuration of Wonga Road and Argyle Street is used for the assessment.	Scenario	Morning Peak		Evening Peak		Average Delay (secs)	Level of Service (LoS)	Average Delay (secs)	Level of Service (LoS)	Base Case	15.8	B	18.4	B	¹ Year 2021 with School Expansion	19.1	B	23.2	B	² Test 1 - Year 2021 with School Expansion	32.5	C	44.3	D
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RMS also notes that the modelling provided has reduced the gap acceptance for both the 'critical gap' and the 'follow up headway gap' for right turn movements from Wonga Road. Noting the limited justification provided and the number of existing large/heavy vehicles movements and future bus movements that will make this manoeuvre concern is raised with these reductions.	<p>The SIDRA standard inputs for critical gap acceptance is 7 seconds, and the follow up head way value is 4 seconds.</p> <p>For this assessment the critical gap acceptance and the Follow up Head-way is 5 seconds and 3 seconds, respectively. This is based the on-site observations and traffic surveys.</p> <p>The light vehicles and heavy vehicles Gap acceptance Factor is unchanged as per the SIDRA inputs. The light vehicles has a gap acceptance factor of 1.0, and heavy vehicle gap acceptance factor of 1.5.</p> <p>As shown below, the following critical gaps and follow up headway are calibrated in the intersection traffic models.</p> <p>Light Vehicles (Gap Acceptance Factor = 1.0), 5.0 x 1.0 = 5.0 sec critical gap and 3.0 x 1.0 = 3.0 sec follow-up headway apply</p> <p>Heavy Vehicles including buses (Gap Acceptance Factor = 1.5), 5.0 x 1.5 = 7.5 sec critical gap and 3.0 x 1.5 = 4.5 sec follow-up headway apply</p>																								

Issue	Response
<p>RMS also notes that the assessment shows that the intersection capacity has changed significantly from what was shown in the Traffic and Accessibility Impact Assessment dated 4 April 2018 to the updated Traffic and Impact Assessment dated 3 August 2018. While it is acknowledged that the initial assessment was based on 2,000 students which would result in the intersection performing at a Level of Service (LOS) F and the updated assessment was based on 1,580 students with the intersection performing at a LOS B, RMS notes that DPE is unable to place a cap on school student numbers for a public school and as such the school redevelopment will have the ability to cater for a greater number of students than 1,580 as detailed in the SSD application. As such, RMS is of the opinion that revised modelling for this intersection is required before a determination can be made on whether intersection upgrade works are required and if they are required when they will be required (i.e. at what number of students/staff movements).</p>	<p>The initial traffic modelling for the Wonga Road and Argyle Street included the School being developed to a maximum capacity of 2,000 students.</p> <p>The school numbers have now changed to a School capacity of 1,580 students and 125 teachers.</p> <p>This is an increase of 380 students and 42 staff from the current student enrolment and staff numbers.</p> <p>Refer to the latest traffic assessment dated August 2018.</p> <p>Ethos Urban has been in contact with the DPE regarding RMS' comment that the DPE is unable to place a cap on school student numbers for a public school. The DPE clarified that this is not the case, and that they are guided by Planning Circular PS 17-004 'Regulating expansion of schools'. The circular states that placing a cap on student/staff numbers limits flexibility when it comes to the growth of schools – however, may be considered in situations where there is evidence (particularly with regard to traffic/parking) to suggest that a cap may be necessary. In this regard, as no consent is sought for any student capacity above 1,580 students, no additional modelling is provided in this response with regard to increased numbers of staff or students.</p>
<p>In addition, if updated modelling indicates that an upgrade to this intersection is required then a concept design of the works should be provided prior to determination. RMS notes that that the SIDRA modelling initially provided detailed that this intersection would be upgraded to a roundabout. RMS however notes that there is limited land available at this intersection to facilitate this type of upgrade works without land acquisition. As such, RMS believes that any upgrades, if required, will need to demonstrate how a compliant intersection design can be wholly contained within the existing road reserve or if they it cannot, details should be provided on what legally binding arrangements are in place to ensure the required land can be obtained.</p> <p>Noting the above comments, the applicant should be requested to provide the above detail to council for review and comment prior to the determination of SSD 8640. If the updated information discussed above details that works are required at the intersection and DPE is intent on conditioning an approval, any conditions included should ensure there is a clear time frame for when the works are to be provided (e.g. when the school reaches a set number of students) and by whom. RMS is unable to provide any suggested timeframes noting the information RMS believes is required.</p>	<p>As per the response above, no updated modelling has been provided with regard to student numbers above 1,580. Hence, no further detail of a concept design of the works has been provided.</p> <p>As per the responses above, no further detail regarding upgrades to the intersection has been provided.</p>

Issue	Response
<p>Level of details</p> <p>As outlined in its last advice provided to DPE on the exhibited SSD, RMS believes that the concept plans for the proposed works in Argyle Street should contain a greater level of detail. This level of detail is required so as to demonstrate that the works proposed and required are able to comply with relevant standards, to ensure the proposed/required works can fit within the existing road reserve area or if they cannot what changes are required.</p> <p>The updated plans provided as part of the RTS do not provide sufficient detail. Specifically RMS is of the opinion that more detail is required on the geometry of the line marking such as all radii including for the proposed widening for the right turn bay and its entry, more details for the proposed pedestrian refuges, more details on sight distance to the kerb ramps, etc.</p> <p>As such, the applicant should be requested to provide the above detail to council for review and comment prior to the determination of SSD 8640</p>	<p>Bonacci Group have updated plans relating to Argyle Street in response to RMS' concerns. Refer to Attachment A. These updated plans have been informed by the updated swept path analysis at Attachment B and Attachment C (refer to comments below).</p>
<p>Swept Path Assessment</p> <p>RMS notes that the updated <i>Traffic and Accessibility Impact Assessment</i> (prepared by TDG, Ref: 14584 ta 180803 final, dated 3 August 2018) contains updated turning manoeuvres for buses entering and leaving the site. As detailed in RMS' previous advice the plans provided should comply with Austroads requirements (e.g. speeds used, required clearances, etc). The following comments are provided on the updated plans:</p> <ul style="list-style-type: none"> • The turning path for the bus entering the bus parking area fronting Argyle Street from the north does not appear to have been applied correctly. The radii used are too tight with the vehicle turning at too low a speed. If applied correctly the bus would not be able to park in the last parking space without reversing and manoeuvring into the position; • The bus turning from the right turn bay cannot enter the parking area without the front overhang crossing onto the footpath; • The turning path for the bus exiting the bus parking area to the north has not been applied correctly. The radii used are too tight with the vehicle turning at too low a speed; 	<p>As shown in Attachment B (swept path analysis at 5km/h) this will be the maximum design bus that will be used on-site. The bus access arrangement has been revised to avoid the front overhang.</p> <p>The bus vehicle turning path has been designed in accordance with the 'Austroads 2013 – Design Vehicles and Turning Path Templates Guide'.</p> <p>As specified in the Austroads Guide, the long rigid bus of 14.5 metres long, is designed to a speed of 5km/h.</p> <p>In addition, we have also prepared the bus movement at a design speed of 10km/h (refer to Attachment C).</p> <p>The bus operations (loading and unloading of students) will be managed by staff to ensure students get on the correct bus service, and fill up the first bus before proceeding with the second bus.</p>

Issue	Response
<ul style="list-style-type: none"> When the turning paths are applied correctly a bus is unable to enter the bus parking area if another bus is occupying the end parking space. This could cause queuing onto Argyle Street; If the number of buses shown within the Argyle Street bus pick up/drop off area are to be contained within this area then they would have to exit in the same order as they arrive (i.e. no space between the buses to allow them to manoeuvre into or out of their space if other buses are occupying the adjacent spaces). This has the potential to cause congestion which will impact upon the operation of Argyle Street; <p>Noting the comments above RMS believes that the applicant should be requested to provide the above detail to council for review and comment prior to the determination of SSD 8640.</p>	
School Zones	
<p>RMS notes that the RTS covering letter prepared by Ethos Urban (dated 30 October 2018) details, in part, that the determination of the school zones required (i.e. new school zone and/or amendments to the existing school zone) will be addressed following approval of the current SSD application. While this is correct, it has now become apparent that a temporary school is being established on the site with access to be gained from Wonga Road. The details of the temporary school were not discussed in any detail in the information that has been provided to date. While RMS acknowledges that the temporary school does not form part of the current SSD application, if it is intended to occupy the temporary school at the start of the 2019 school year RMS advises that the new school zone for Wonga Road and associated speed zone reductions will need to be in place before the commencement of use of the temporary school. The new school zone in Wonga Road to be determined in consultation with RMS's Road User Safety Project Officer. It is therefore requested that DPE inform the applicant that they should make contact with Amanda Priestley at RMS on 4221 2517 to further progress the new school zone that will be required in Wonga Road to service the proposed temporary school.</p>	<p>Stephen Craig from Taylor Construction has contacted Amanda Priestley regarding the School Zones on Wonga Road (refer to Attachment D). A concept School Zone plan has been prepared (refer to Attachment E).</p>
Construction Car Parking	

Issue	Response																								
RMS notes that limited information has been provided in relation to how construction parking will be dealt with. RMS is concerned that if not catered for it may have an impact on Argyle Street in terms of efficiency and safety;	<p>Refer to the two construction traffic management plans (CTMP) that was prepared on September 2018 and November 2018.</p> <p>The Construction Traffic Management Plan (CTMP) dated September 2018 was prepared for the following works:</p> <ul style="list-style-type: none">• Stage 1 constructions works - consists of civil works and earthworks levelling to accommodate prefabricated buildings and associated services, and the delivery of classroom demountables; and• Stage 2 construction works - consists of demolition of some of the existing single storey buildings, construction of new buildings including services and the construction of the surrounding soft and hard landscaping works. <p>The Construction Traffic Management Plan dated 14 November was prepared for the Wonga Road Construction works that will occur during the School Holidays.</p>																								
Conflicting Information																									
RMS notes that the RTS covering letter prepared by Ethos Urban (dated 30 October 2018) details in part that the works to Argyle Street include “construction of a new roundabout at the Argyle Street/Wonga Road intersection”. RMS also notes that the updated Traffic and Accessibility Impact Assessment prepared by TDG, dated 3 August 2018 details that no works are proposed at the intersection of Wonga Road and Argyle Street. If works are proposed (refer to comments above) then designs should be provided for council to review and comment prior to the determination of SSD 8640. It is unclear at this time if the proposed/required works as detailed in the Ethos Urban RTS could fit within the existing road reserve area without land acquisition being required;	<p>From the Traffic Assessment dated August 2018 the traffic modelling is based on 1580 students and 125 teachers. The existing intersection of Wonga Road and Argyle Street is used for the assessment.</p> <p>The SIDRA results (base case and 1) with further sensitivity (2) traffic modelling testing has been undertaken:</p> <table><tr><th rowspan="2">Scenario</th><th colspan="2">Morning Peak</th><th colspan="2">Evening Peak</th></tr><tr><th>Average Delay (secs)</th><th>Level of Service (LoS)</th><th>Average Delay (secs)</th><th>Level of Service (LoS)</th></tr><tr><td>Base Case</td><td>15.8</td><td>B</td><td>18.4</td><td>B</td></tr><tr><td>¹Year 2021 with School Expansion</td><td>19.1</td><td>B</td><td>23.2</td><td>B</td></tr><tr><td>² Test 1 - Year 2021 with School Expansion</td><td>32.5</td><td>C</td><td>44.3</td><td>D</td></tr></table> <p>Note: ¹For this assessment the right turn movements from Wonga Road to Argyle Street, the critical gap acceptance and the Follow up Head-way is 5 seconds and 3 seconds, respectively. ² For this assessment the right turn movements from Wonga Road to Argyle Street, the critical gap acceptance and the Follow up Head-way is 6 seconds and 4 seconds, respectively.</p>	Scenario	Morning Peak		Evening Peak		Average Delay (secs)	Level of Service (LoS)	Average Delay (secs)	Level of Service (LoS)	Base Case	15.8	B	18.4	B	¹ Year 2021 with School Expansion	19.1	B	23.2	B	² Test 1 - Year 2021 with School Expansion	32.5	C	44.3	D
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Roads Act 1993																									
Argyle Street, at this location, is a regional classified road, managed by Wollondilly Shire Council. As such and as advised above, council will need to assess the ultimate access arrangements and their acceptability. Noting the requirements of Section 138 of the Roads Act 1993 and specifically the requirement that “A consent may not be given with respect to a classified road except with the concurrence of RMS”, should the developer be able to demonstrate to council that the proposed access arrangements to/from Argyle Street are acceptable and comply with relevant standards, RMS would issue its concurrence under Section 138 of the Road Act 1993	SINSW has responded to all of Council’s concerns relating to the management of Argyle Street, most recently in correspondence on 4 December 2018. It is noted that Council will need to assess the ultimate access arrangement and their acceptability for RMS to provide concurrence.																								

With regard to the recommended conditions raised by RMS, we consider that their recommendations are reasonable with the exception of the request to provide SIDRA modelling for both 1,580 students and 2,000 students. As detailed in the table, the SSD Application for Picton High School does not seek consent for any number of students beyond 1,580.

Should you require any further information, please do not hesitate to contact Chris at the details below.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Chris Patfield', with a stylized, cursive script.

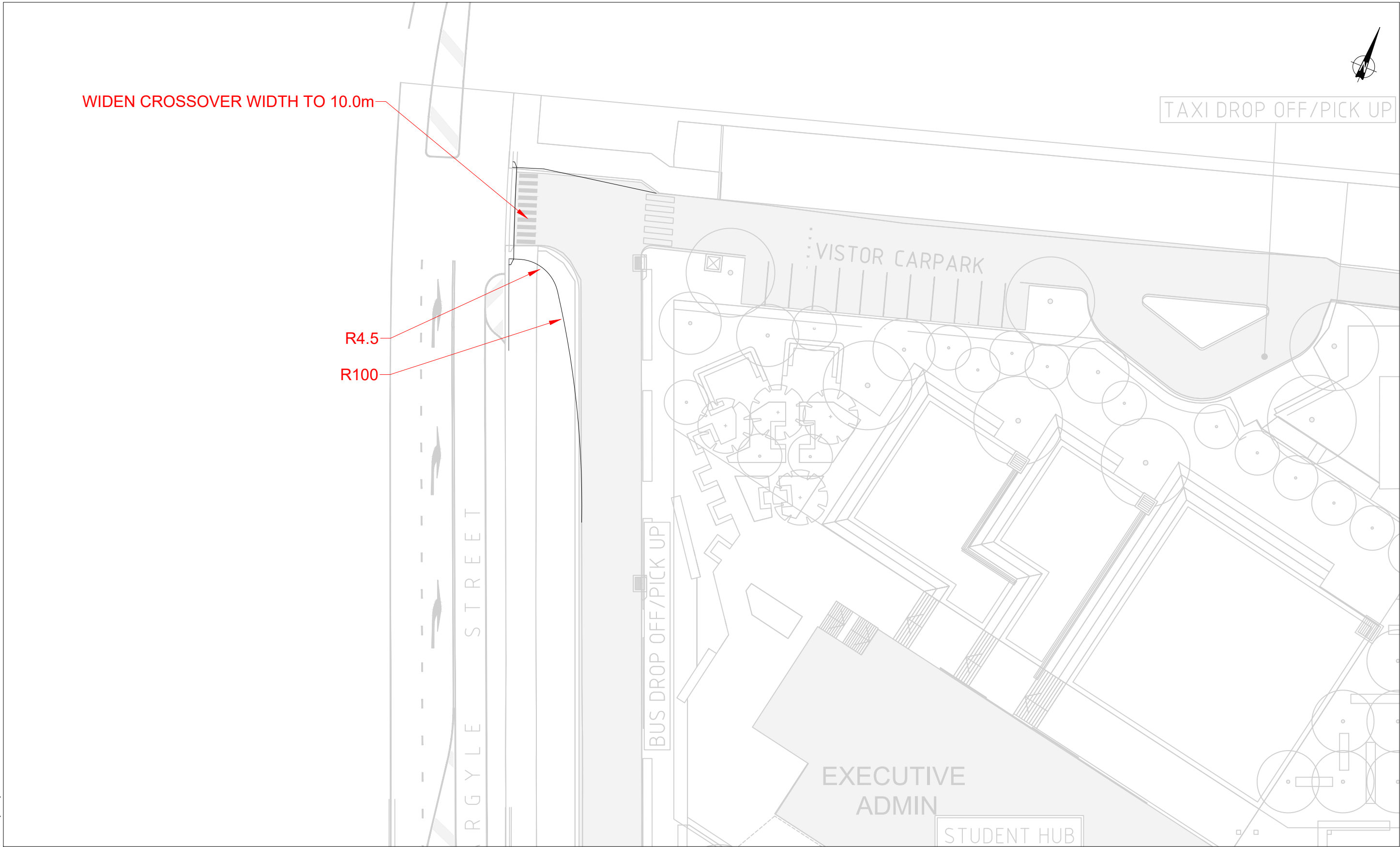
Chris Patfield
Urbanist
+61 2 9409 4909
cpatfield@ethosurban.com



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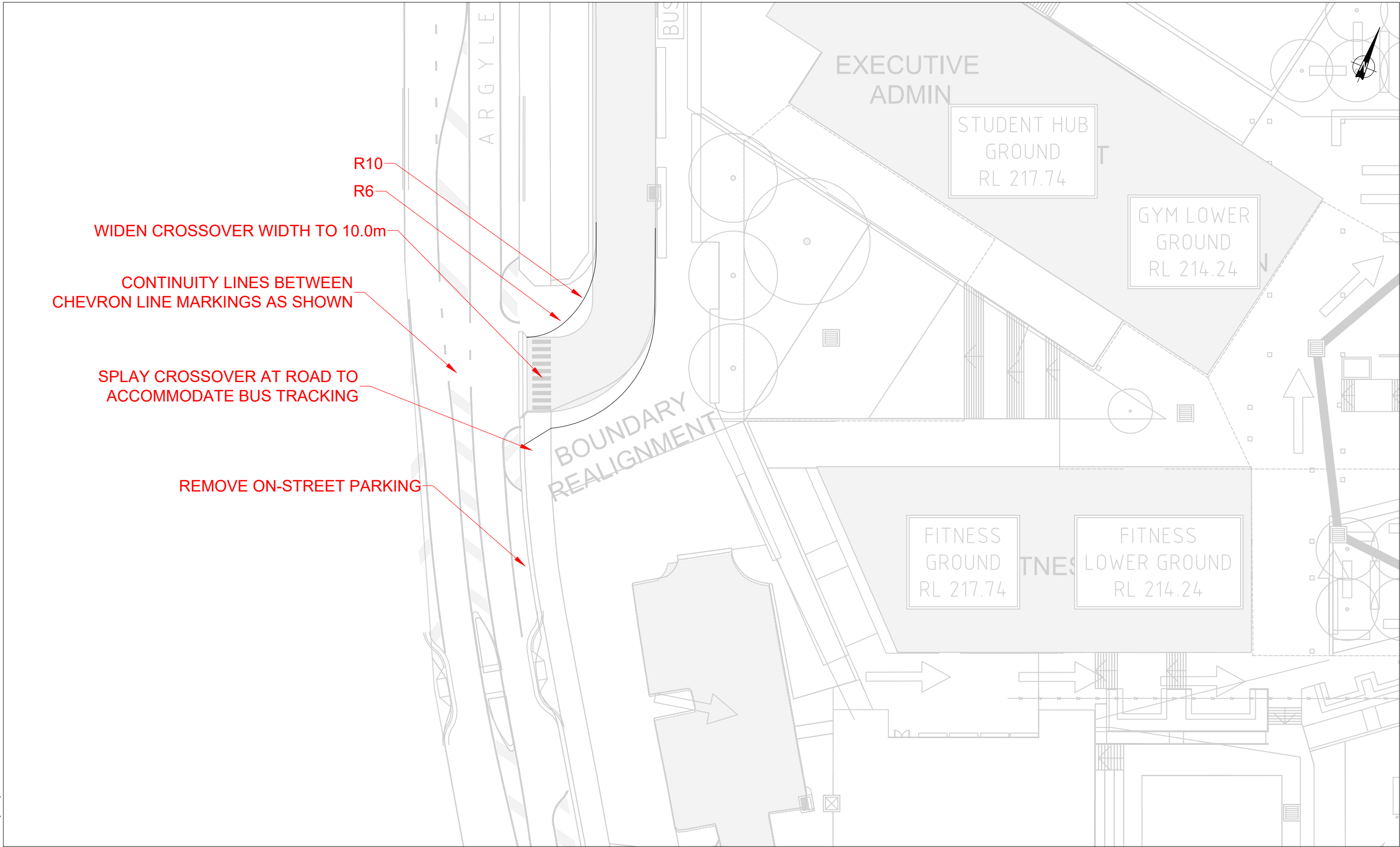
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Picton High School
Site Plan Review
Recommended Modifications

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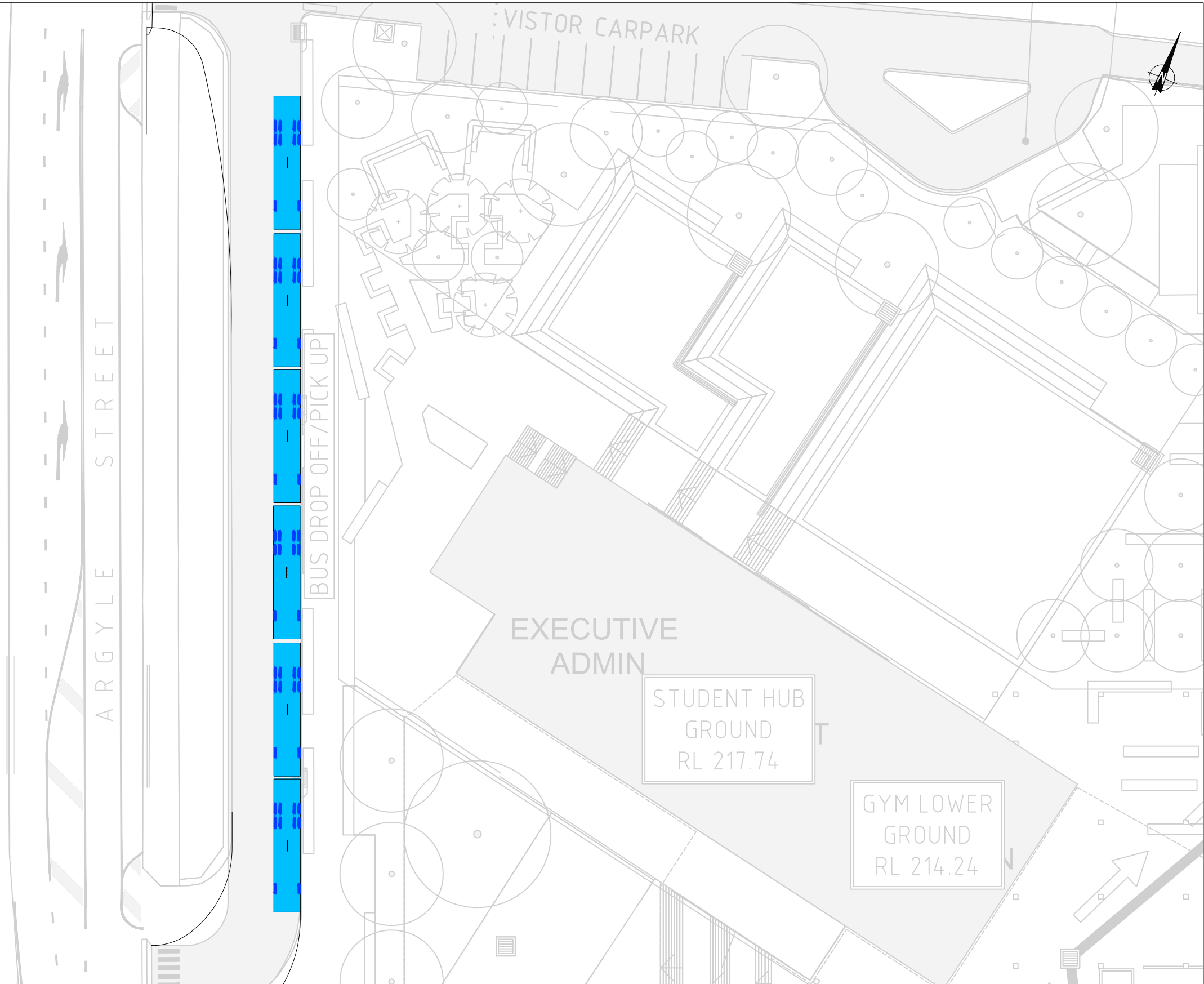
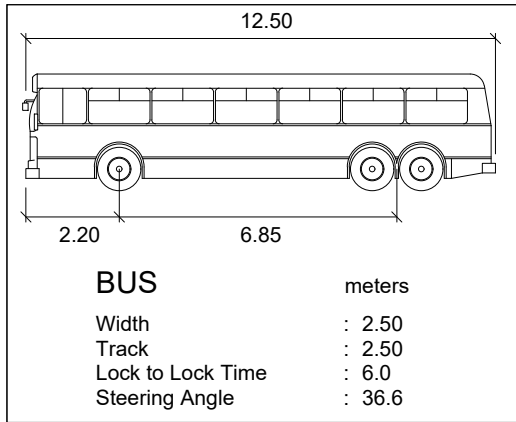


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Picton High School
Site Plan Review
Recommended Modifications

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Picton High School
Swept Path Assessment
On-site Bus Parking

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LONG RIGID BUS_{mm}

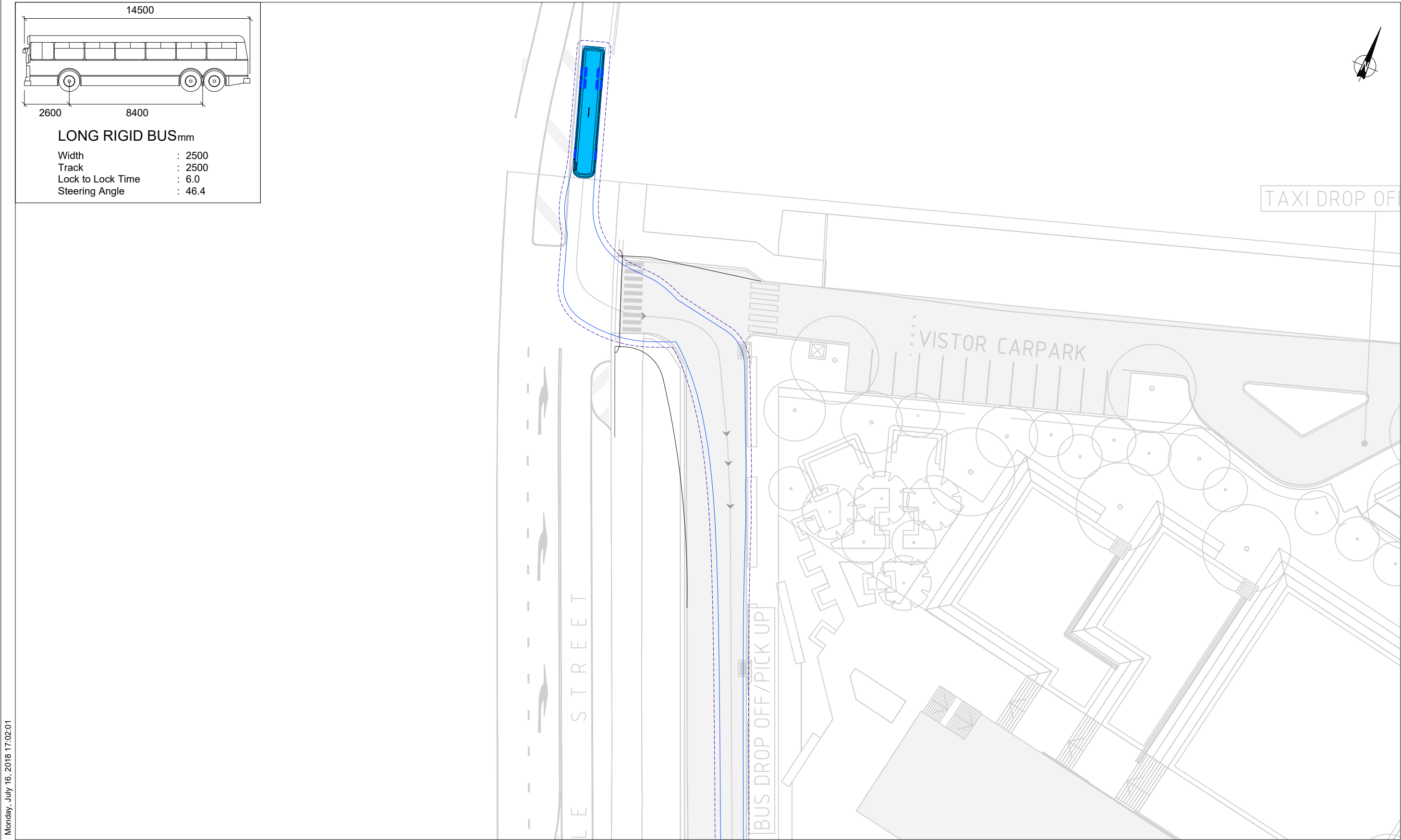
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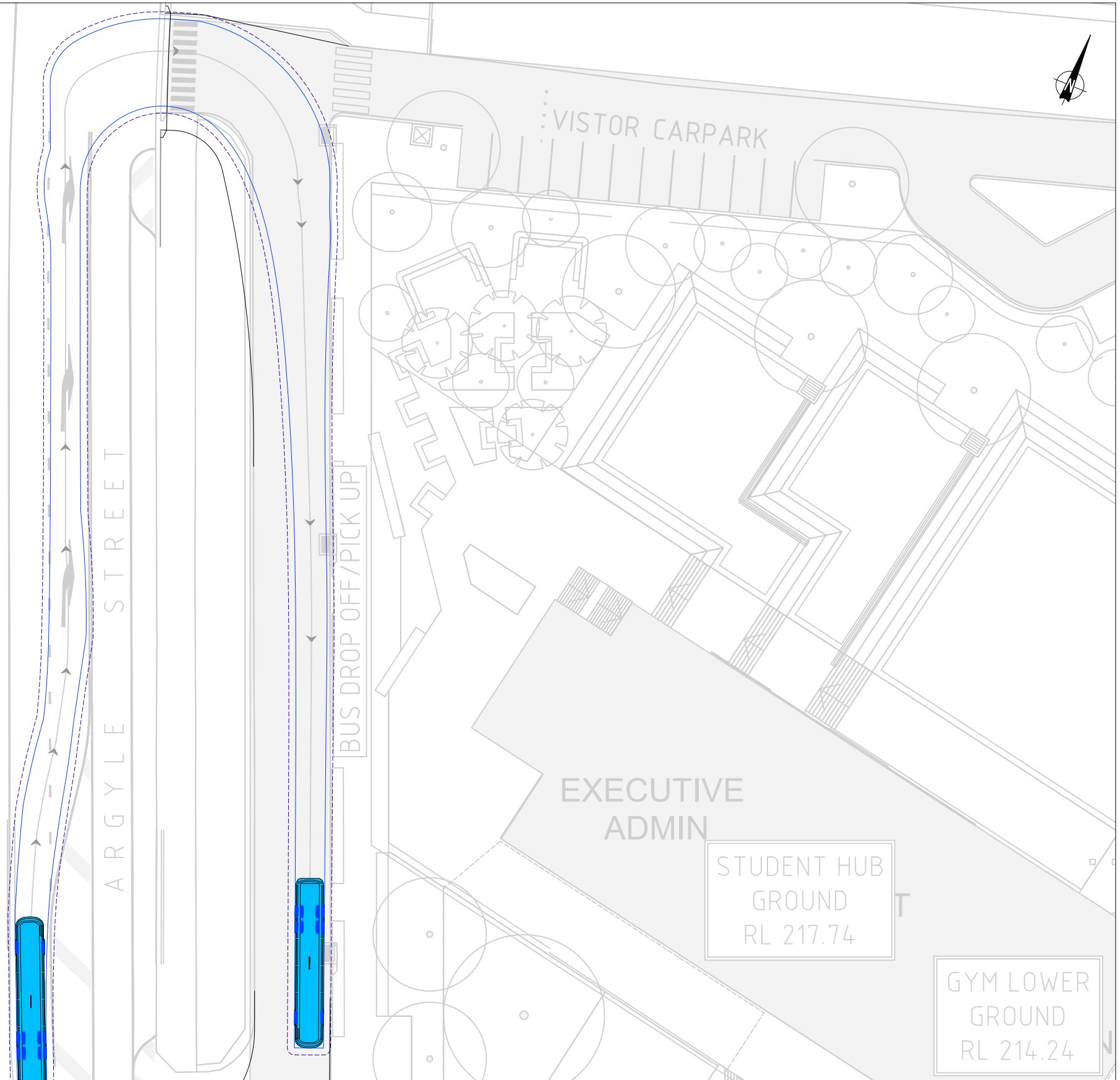
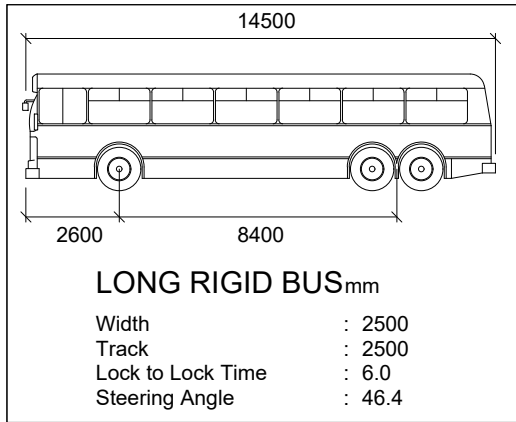
Picton High School

Swept Path Assessment

14.5m Bus Entry - Left Turn

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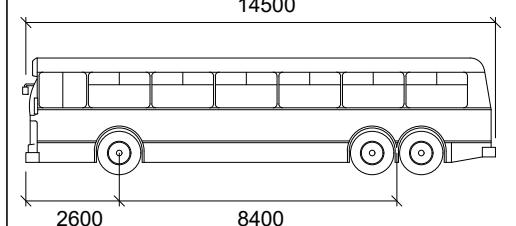
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Picton High School
Swept Path Assessment
14.5m Bus Entry - Right Turn

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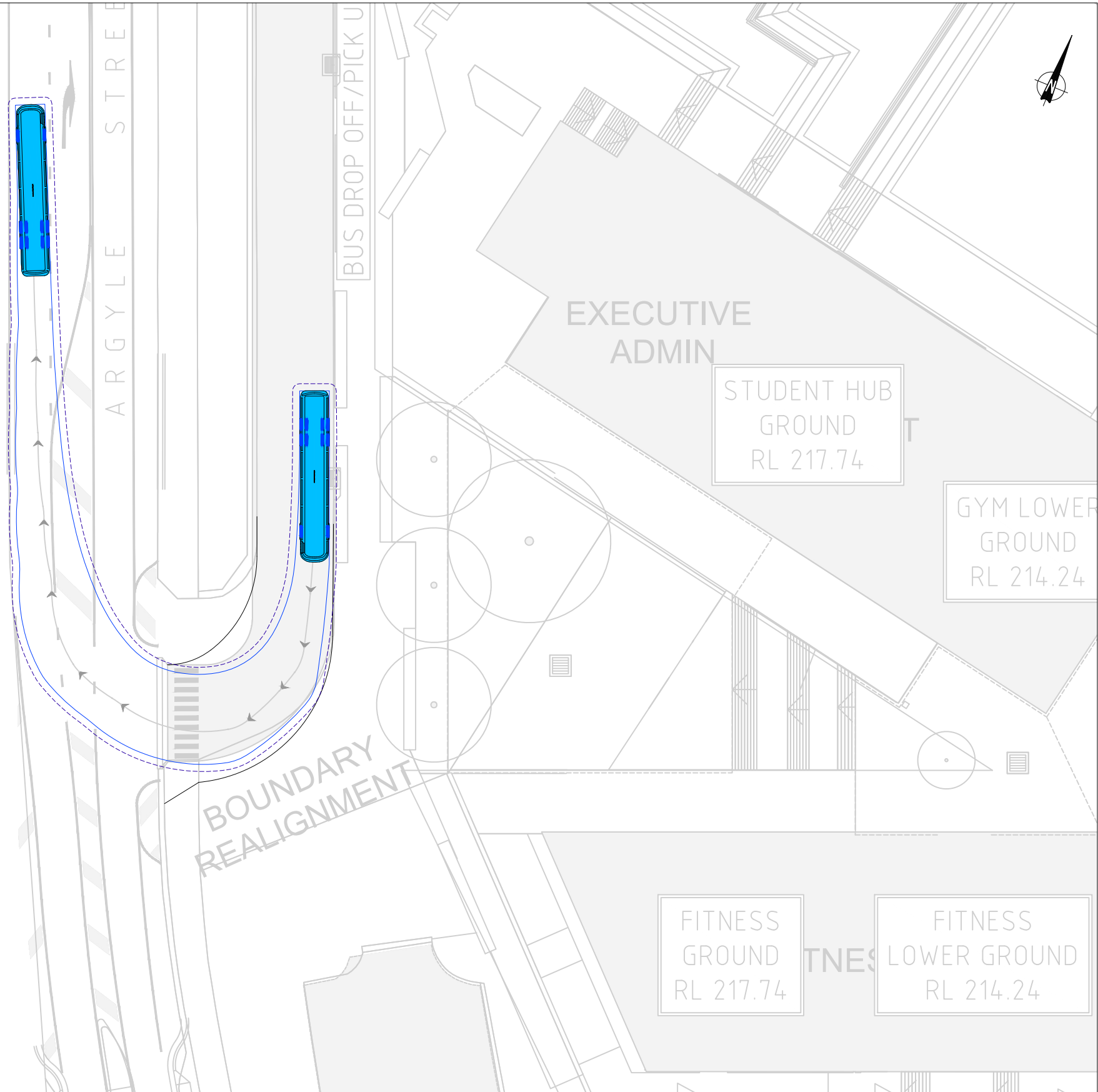
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Picton High School

Swept Path Assessment

14.5m Bus Exit - Right Turn

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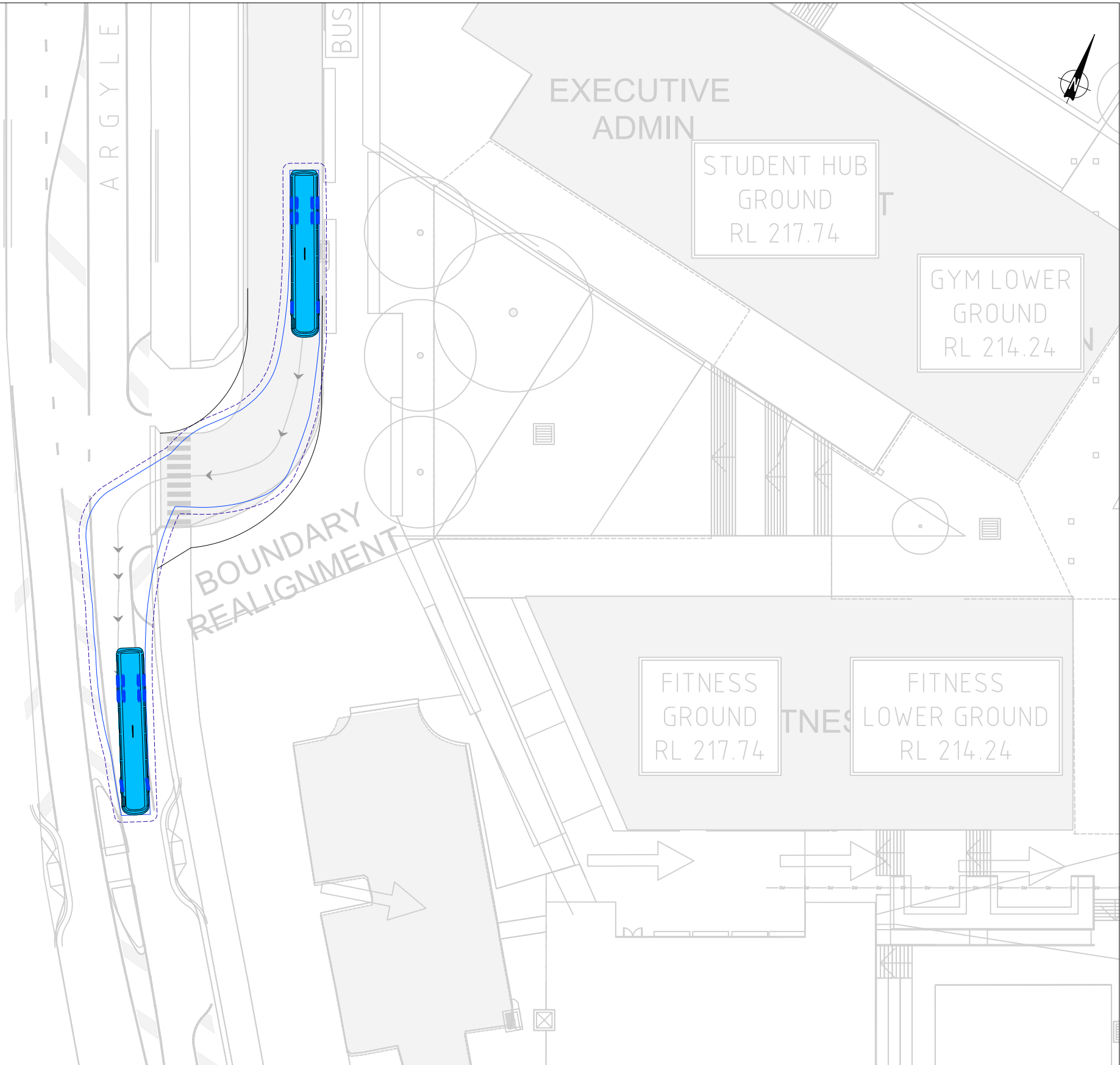
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Steering Angle : 46.4



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Picton High School
Swept Path Assessment
14.5m Bus Exit - Left Turn

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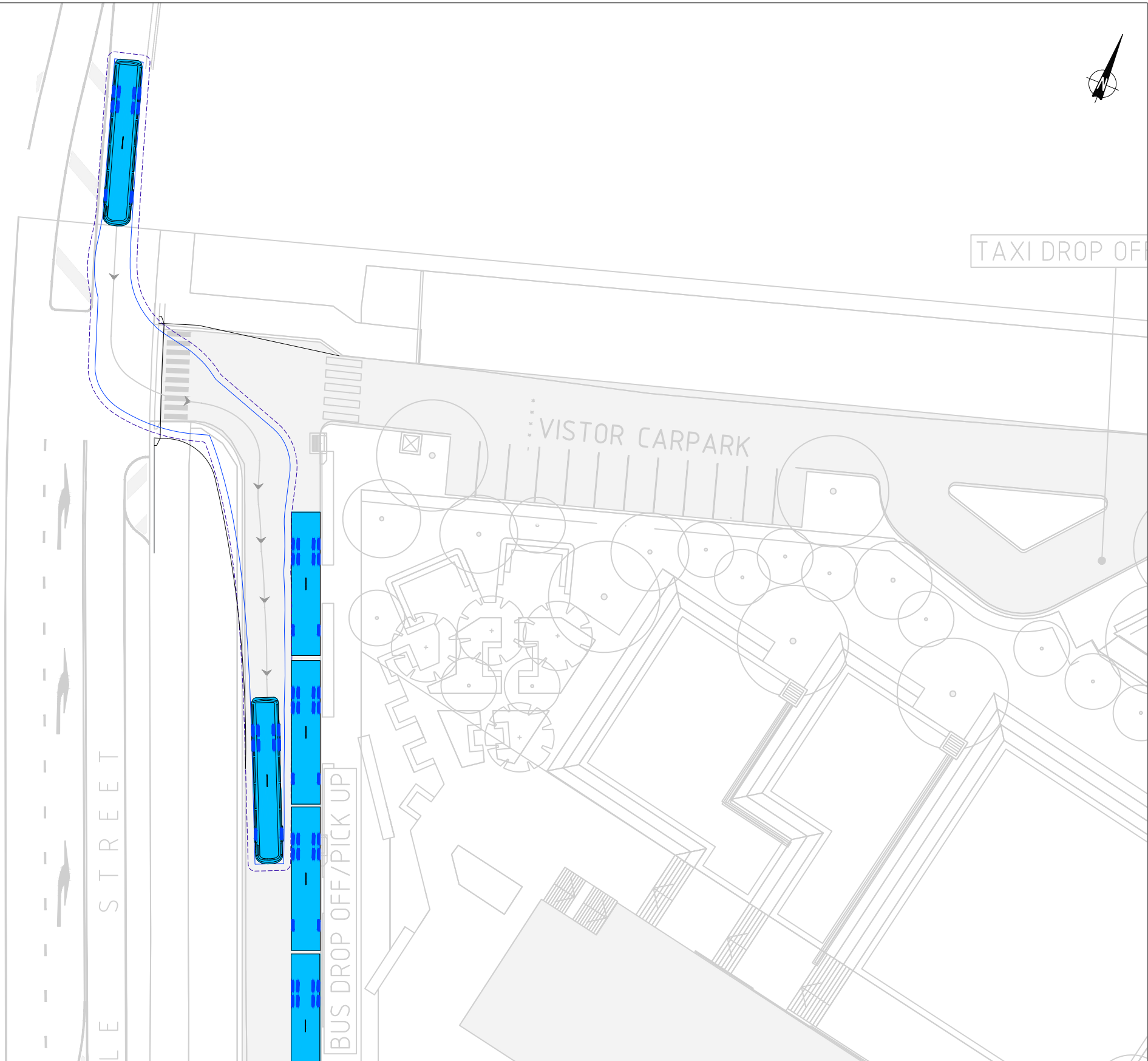
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Picton High School

Swept Path Assessment

14.5m Bus Entry - Left Turn (Circulating Lane)

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LONG RIGID BUS_{mm}

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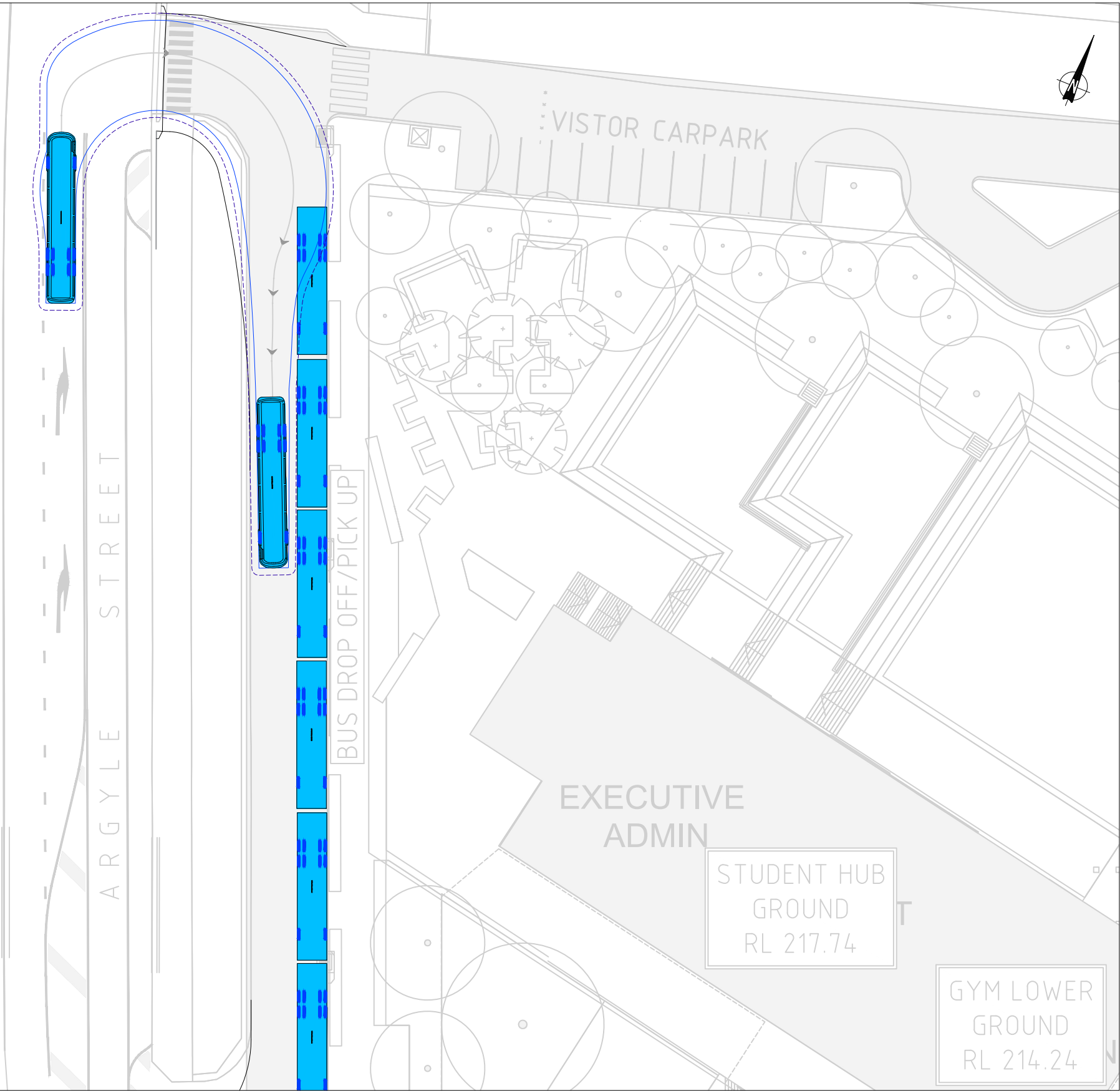
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Picton High School

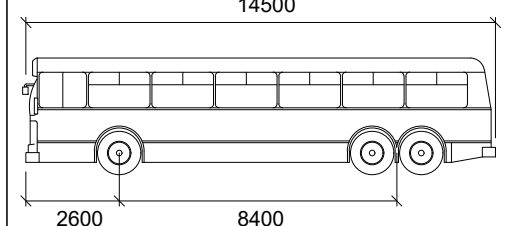
Swept Path Assessment

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LONG RIGID BUS_{mm}

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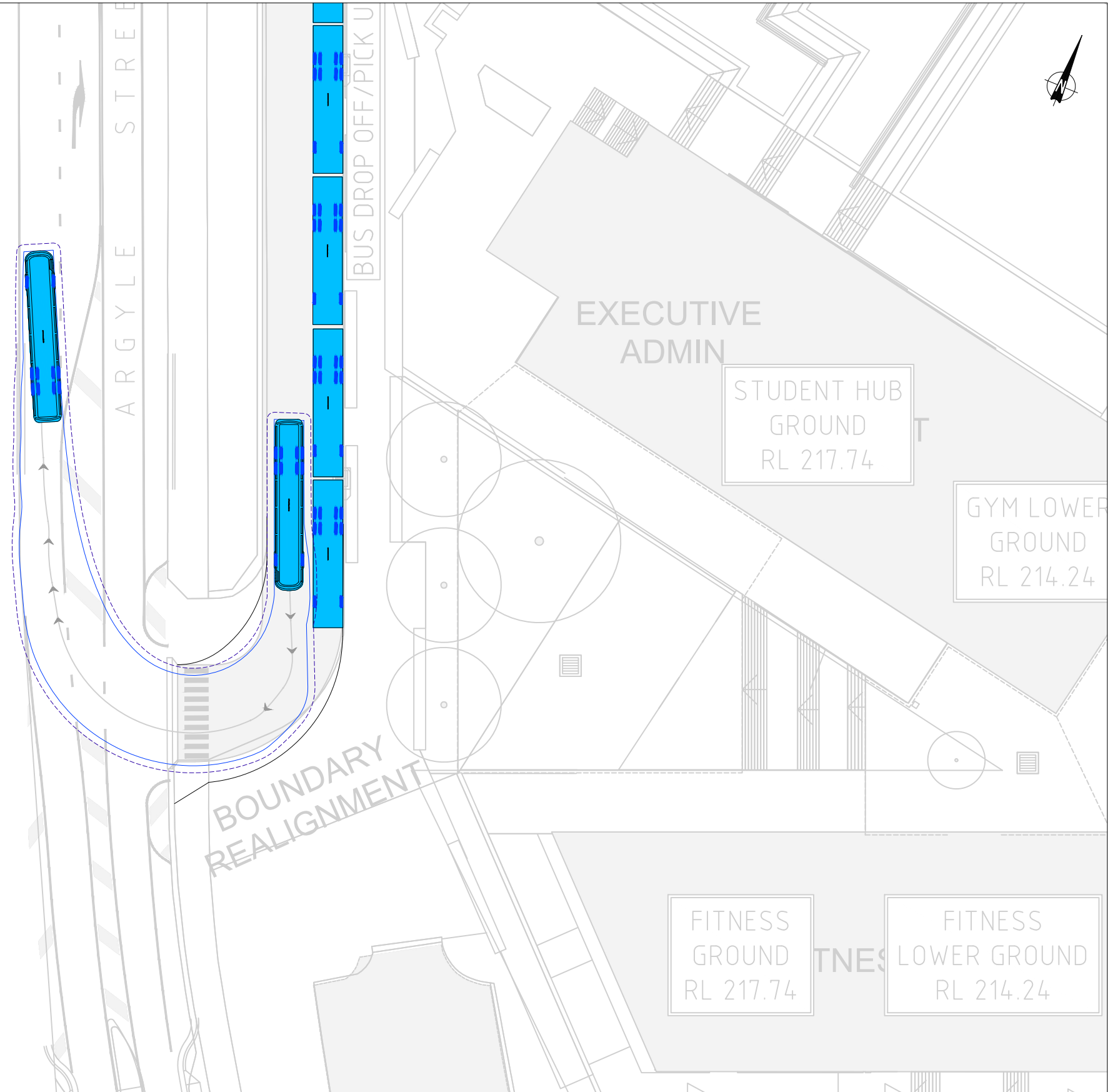
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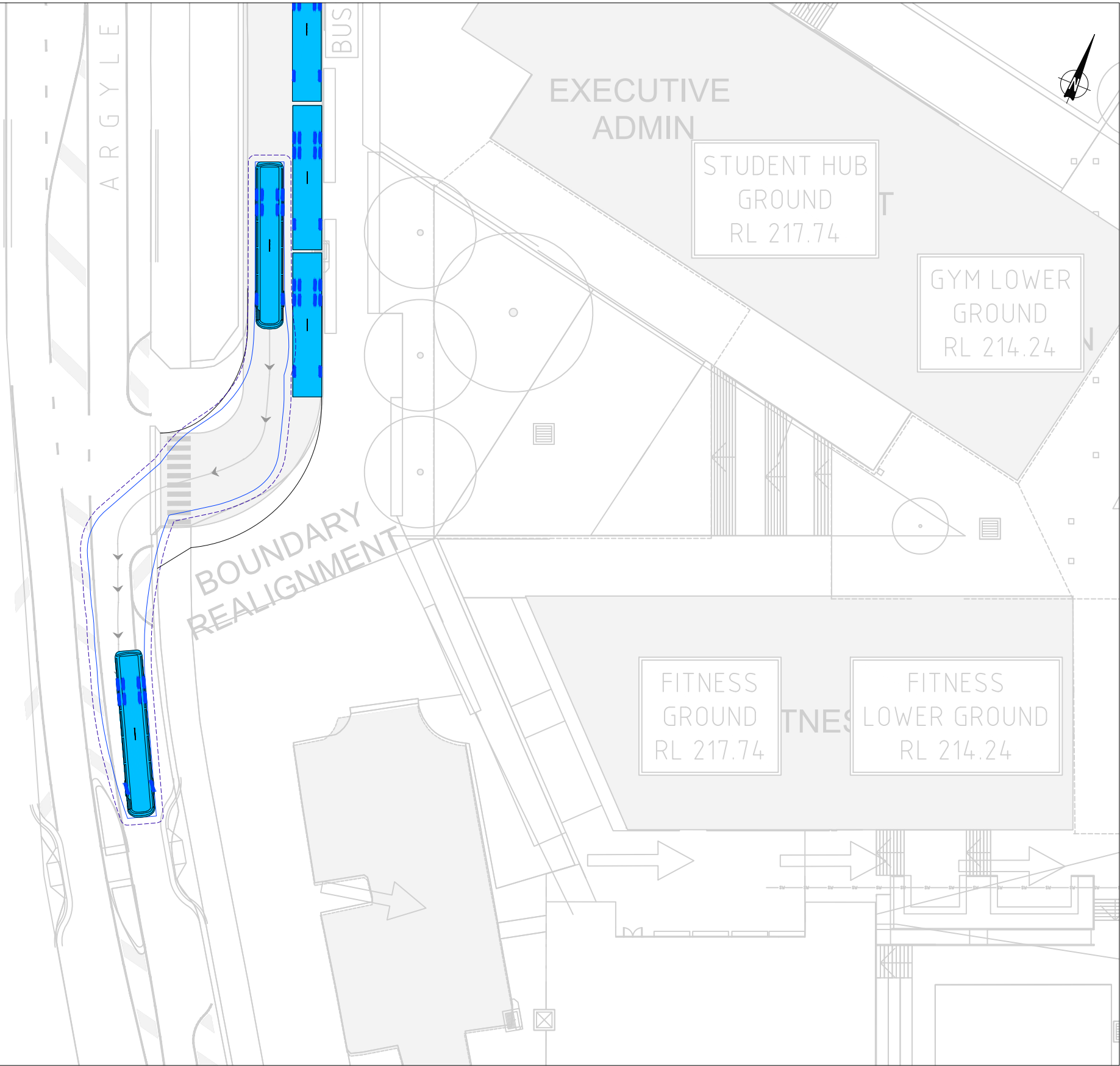
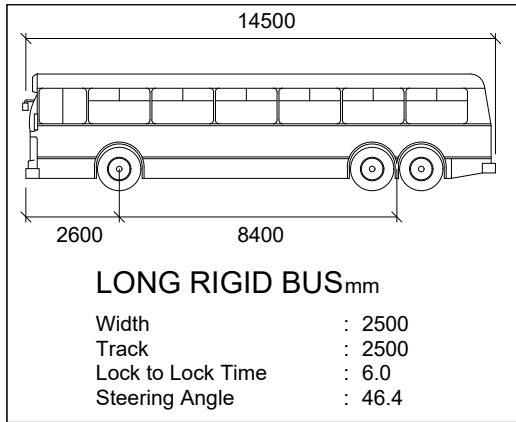
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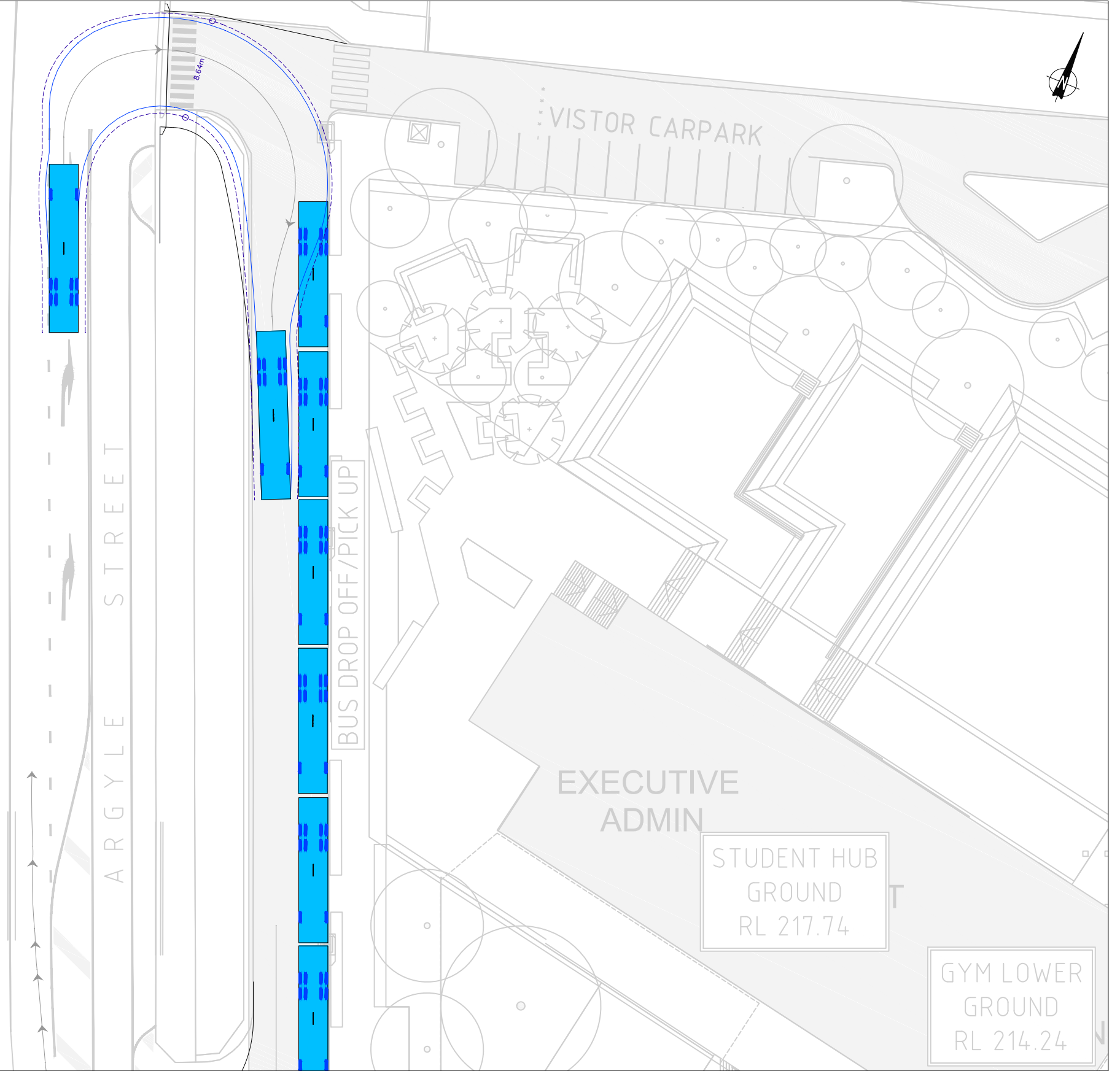
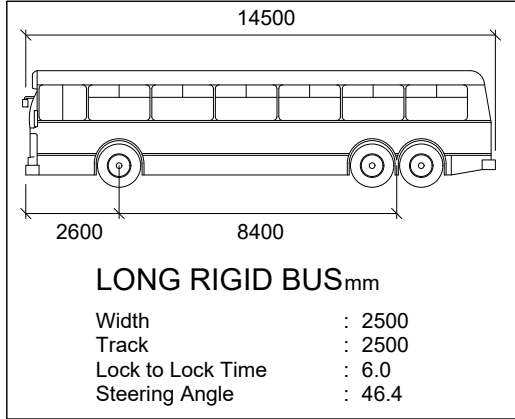
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Picton High School
Swept Path Assessment
14.5m Bus Exit - Left Turn (Circulating Lane)

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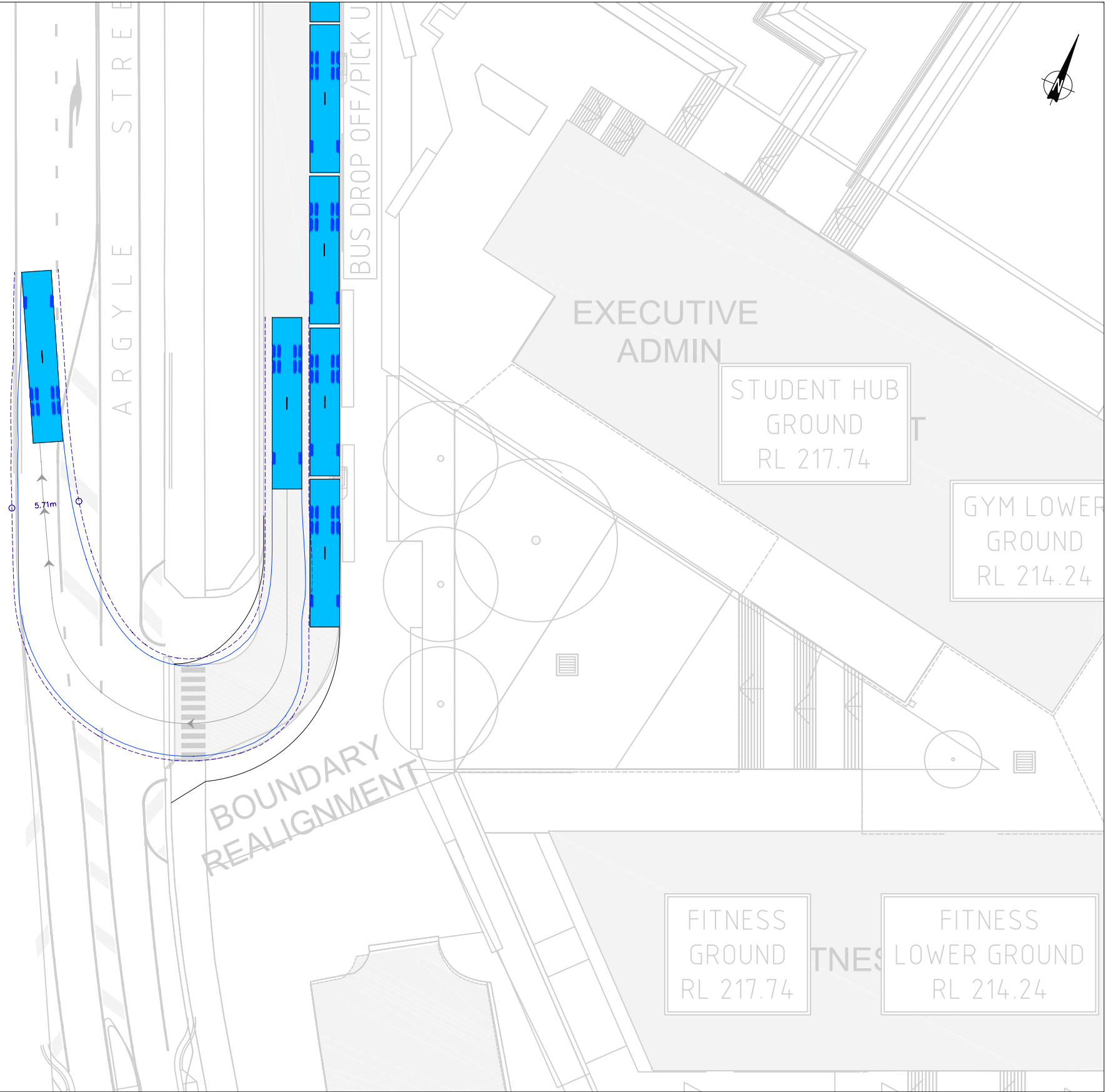
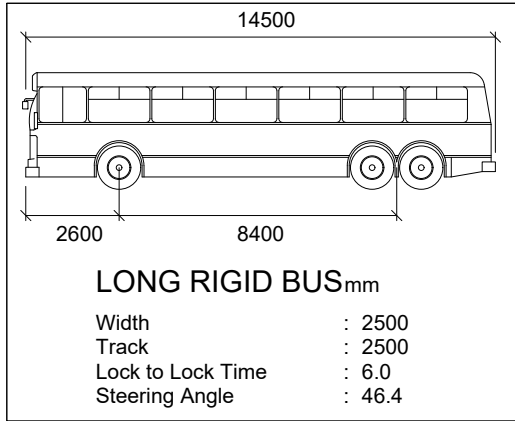
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Picton High School
Swept Path Assessment
14.5m Bus Entry - Right Turn (Circulating Lane) - 10km/h

DRAWN: TJG	---	---
DATE: 12/12/18	STATUS: ---	
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Tuesday, July 17, 2018 05:34:25

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Picton High School
Swept Path Assessment
14.5m Bus Exit - Right Turn (Circulating Lane) - 10km/h

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SCALE: 1:400 @ A3		
DWG NO: 14584-0S2C		





Existing School Zone to remain the same, given that access points to this side of the school will remain the same

New School Zone to be installed at the marked orange 'X' and extends along the marked orange sections of the proposed newly formed road



Double Sided Sign



Single Sided Sign post



Dragons Teeth Pavement Marking



R4-230 (School 40km/h Sign)



R4-231 (End School Zone Sign)



40km/h Pavement Patch

4 December 2018

16734

Prity Cleary
Senior Planner
320 Pitt Street
Sydney, NSW, 2001

Dear Prity,

RE: PICTON HIGH SCHOOL RESPONSE TO SUBMISSIONS

We write with regard to Picton High School Redevelopment (SSD 17_8640), specifically in response to your email dated 27 November 2018 requesting responses to comments raised by Wollondilly Council following the lodgement of the Response to Submissions package (dated 30 October 2018).

A response to each of Council's comments are provided in **Table 1** below.

Issue	Response
Wollondilly Council – Construction Phase	
<p>a) We note that Wonga Rd is a public road and the community have a legal right of access and Council have expressed concern of how the applicant will ensure school traffic is kept to a minimum on Wonga Rd throughout – details to be submitted and considered as part of the S138 application.</p> <p>- We also suspect Wonga rd will be more desirable for parking for student and any overflow staff given on-street Argyle St Parking will be a further distance away</p>	<p>Studies completed in support of the EIS demonstrate that there is a sufficient staff parking area, accessible from Argyle Street provided within the High School redevelopment. Access via Wonga Road and its extension is intended or designed for services vehicle access and staff vehicle exit from the existing south west carpark. The existing condition of Wonga Road remains unchanged. The parking allocation for staff and students should be managed and carried out in accordance with the intended traffic management strategies.</p> <p>Referring to the Construction Traffic Management Plan dated 4 December: It is intended that the Contractors (Taylor) will implement traffic control for a couple of weeks to keep cars out of the end of Wonga Road and control pedestrian movements.</p> <p>A new pedestrian school Access will be provided on Argyle Street after all construction works in Wonga Road is completed. This access will be used by students dropped off or picked up on Argyle Street.</p> <p>If students do park on Wonga Road they will be required to park out-side the bus zone. This would be up to 200 to 250 metres walking distance from the School Access on Wonga Road.</p>
b) Designated parent drop off and pick up zones to be defined on Argyle St that considers construction activities/construction zones	Refer to the attached revised civil work drawing showing extent of parent drop off and pick up zone on Argyle St

Issue	Response
<p>c) Council is also concerned how existing parking requirements on Wonga Rd (for 3rd Parties) is to be accommodated as well as construction traffic demands (including construction related parking which is detailed as being 50 trucks per day plus 125 vehicle movements from the workers (assuming 2 person occupancy)). The applicants claim that peak parking of 16 in Wonga Rd is at odds from Councils observation of parking demand, particularly outside of the Remondis Depot.</p> <p>d) Council also notes they have been in receipt of a 'Wonga Rd Construction Works traffic Management Plan' 14 November by Stantec (formerly TDG) that has conflicting construction parking requirements that is detailed in the 'Picton High School redevelopment - Construction Traffic Management Plan' September 2018 by TDG</p>	<p>As detailed in the Construction Traffic Management Plan (CTMP) dated 4 December 2018, Stage 2 works, the construction workers parking demand exceeds the number of on-street parking along Argyle Street and Wonga Road.</p> <p>The Contractor will continue to undertake negotiation with neighbouring commercial organizations to offset the traffic demands during construction.</p> <p>It should be taken in consideration, that the parking demand can be reduced by the following recommendation:</p> <ul style="list-style-type: none"> • Construction workers will arrive and finish throughout different times of the day; • Some car parking spaces is provided on-site; • Public transport will be used to get to / from the site; and • Construction workers will also car share. <p><u>Referring to SSD</u></p> <p>The Construction Traffic Management Plan (CTMP) dated September 2018 was prepared to address the overall construction activities of the site.</p> <p>A breakdown of the construction works is provided below:</p> <ul style="list-style-type: none"> • Stage 1 constructions works - consists of civil works and earthworks levelling to accommodate prefabricated buildings and associated services, and the delivery of classroom demountables; and • Stage 2 construction works - consists of demolition of some of the existing single storey buildings, construction of new buildings including services and the construction of the surrounding soft and hard landscaping works. • Based on the construction works that is involved, Stage 1 is estimated that up to 80 contractors are to be on-site, and up to 250 contractors for Stage 2.
	<p><u>Referring to Section S138 Application</u></p> <p>The Construction Traffic Management Plan dated 14 November is to address the construction works on Wonga Road only, which will involve the following:</p> <ul style="list-style-type: none"> • A bus parking facility will be provided on Wonga Road adjacent to the site to accommodate up to three buses, including a turning facility to enable buses to drive in a forward direction • A new pedestrian footpath and pedestrian crossing on Wonga Road; and • A new access will be provided via Wonga Road, which will connect with the south-western staff parking area <p>The version of the CTMP attached here, dated 4 December, is an updated version of the 14 November issue.</p> <p>The Wonga Road Construction works that will occur during the School Holidays, it is estimated up to 30 contractors are to be on-site, with up to 5 trucks per day.</p>
<p>e) To service existing school numbers, the bus provider operates 20-21 bus services that operate within a 35-45min window – this is not specifically addressed in the construction management plan nor appears to be in the modelling</p>	<p>The SIDRA traffic model includes 20 bus movements (inbound and outbound in the morning and school afternoon peak periods. The Construction Traffic Management Plan dated 14 November has been updated to make reference of the traffic movements.</p>

- f) During 'Stage 2' of the works, staff vehicles are to leave via Wonga Rd – again doesn't appear to be reflected in the modelling

Referring to SSD

The Construction Traffic Management Plan (CTMP) dated September 2018 does not include SIDRA intersection analysis for the Stage 1 and 2 works. SIDRA is only undertaken for the existing scenario.

(The SIDRA traffic model for Stage 2 – as attached)

As detailed in the CTMP dated September 2018 (for construction of the Main Contract work – Stage 2) during the Stage 2 construction works there will be up to 250 contractors on-site. Construction staff will have access to the northern car park during Stage 2 via Argyle Street.

The SIDRA traffic model for Stage 2 has been assessed on the details below:

- This will be split 50/50 coming from the northbound and southbound direction for each road user
- Bus movements will occur on Wonga Road
- Staff will have access to the southern car park, with entry via Argyle Street and Exit will be via Wonga Road
- Parents drop off and pick up will occur on Argyle Street and Wonga Road.
- A new School access fronting the parents drop off and pick up on Argyle will be provided for students, which is used at the primary drop off and pick up location.
- The construction works will generate up to 125 vehicle movements (construction staff) in the morning and evening periods, with a one-person vehicle occupancy.
- Construction staff and construction vehicles will have entry /exit the site via the northern driveway on Argyle Street.
- To minimize the traffic impacts and conflict between the School and the construction works. It will be advised construction vehicles will arrive / depart outside the School peak periods.

The SIDRA summary results are provided below, during the Stage 2 works for the existing intersection configuration of Wonga Road and Argyle Street.

Intersection	Morning Peak Period			Afternoon Peak Period		
	Degree of Saturation (%)	Average Delay (secs)	Level of Service (LoS)	Degree of Saturation (%)	Average Delay (secs)	Level of Service (LoS)
Wonga Road and Argyle Street	52.6%	37.5	C	82.6%	69.1	E

Note: From the on-site observations and traffic surveys the critical gap acceptance and the Follow up Head-way is 5 seconds and 3 seconds, respectively. For this assessment we have applied a higher critical gap acceptance and the Follow up Head-way is 6 seconds and 4 seconds, than what was observed on site, and all staff leaving during this time.

From the above assessment, in the afternoon peak Wonga Road and Argyle Street intersection will be operating at near capacity. It should be noted that not all staff will leave during the School peak periods.

Referring to Section S138 Application

The Construction Traffic Management Plan dated 14 November includes SIDRA traffic modelling for the following scenarios:

- Existing Scenario
- After completion of the Wonga Road upgrades, with all bus movements using the new bus facility, and all staff will exit via Wonga Road in the afternoon period.

Issue	Response
<p>g) The pick up area on Wonga Road details bays for 3-4 buses although we note that a maximum of 6 buses could be on site at given time, under current operating timeframes (ie could be more buses if the pick up/drop off process is slower) – as such a designated area to hold additional buses needs to be reserved in Wonga Rd to accommodate (and the loss of parking considered given point c above)</p>	<p><u>Referring to Section S138 Application</u></p> <p>As detailed in the Construction Traffic Management Plan dated 14 November, in Section 4.1</p> <p><i>'All school buses will drop off in the morning and pick up in the afternoon along the new bus facility on Wonga Road. Current bus operations along Argyle Street will be discontinued.</i></p> <p><i>Three buses can be accommodated in the new bus facility, and three more on Wonga Road at the proposed bus zone location.</i></p> <p><i>In the morning dropping off students does not take long and buses move as soon as all students are off.</i></p> <p><i>In the afternoon a designated waiting area in the school will be provided near the bus area, which will be managed by staff. The staff at the waiting area will inform students of the bus services approaching to ensure students get on the correct bus.</i></p> <p><i>If all bus zones in Wonga Road are occupied, other buses will wait on the northern side of Wonga Road until a bus zone is unoccupied. It is proposed to designate a zone to accommodate up to three buses on Wonga Road as detailed in the Bonacci Plans 'Wonga Road traffic Control Device Plan.'</i></p> <p>Please note that the designated parents pick up and drop off along Argyle Street will remain in operational.</p> 

Issue	Response
<p>h) The traffic modelling is for the pre construction and post construction – not ‘during’ construction considering bus movements, existing traffic, staff exiting and construction movements. The assumption that the gap acceptance value has been reduced from 5s to 3s seems inadequate for buses and heavy vehicle movement and needs to be justified</p>	<p><u>Referring to Section S138 Application</u></p> <p>The construction Traffic Management Plan dated 14 November by Stantec has been updated to address the existing (pre construction) scenario during the operation of the School and post construction (completion of Wonga Road Upgrades).</p> <p>Council has requested SIDRA intersection traffic modelling to be undertaken during the construction works for Wonga Road.</p> <p>The SIDRA Traffic modelling for the construction works on Wonga Road was not required, as the construction works will be during the School Holidays. Generally, School Holidays will have less traffic movements than a normal School day. Based on the estimated 30 contractors driving to the site, and up to 5 trucks per day (equivalent to 0.5 trucks per hour), the traffic volumes would be negligible.</p> <p>The construction periods align with the Schools Off Peak Hours. It should be noted traffic volumes are generally lower during the School holidays, and traffic modelling will not be required at this stage.</p> <p>As calibrated in the SIDRA traffic model bus movements are classified as heavy vehicles. Details of the Gap acceptance and follow up head way is address in the Section Wollondilly Council – Operational Phase – (Point D)</p>
<p>i) School zone changes need to be confirmed, through RMS, and need to be holistic considering changes to both Argyle and Wonga</p>	<p>As stated in the Response to Submissions, RMS has informed the project team that revision of the extent of the school zone extension will be made following approval of the SSD Application. Ongoing consultation will occur with RMS in this regard.</p>
<p>j) The road safety audit carried out by GHD is noted; However it appears the intersection of Wonga and Argyle is not covered with the report and needs to be addressed.</p>	<p>Safety audit encompasses the scope of work within the high school redevelopment. There is no provision for any work to be carried out at Wonga Rd & Argyle St intersection.</p>
<p>k) The findings of the road safety audit need to be accommodated in the design on Wonga and Argyle – from submissions to date on Wonga Rd it appears these findings have not been addressed</p>	<p>A request is made for a condition consent to address the findings of the road safety audit on Wonga and Argyle St to be addressed in detailed design for construction.</p>
<p>l) Any works that will regulate traffic (signs and lines) will require approval from the Local Traffic Committee</p>	<p>The proposed signpost and line marking plan will be designed to the Austroads, RMS Guidelines and Australian Standards and will be issued to traffic Committee as per the common approval process.</p>
<p>m) Any works within the road reserve will need to be carried out in accordance with Councils Design and Construction Specifications and in accordance with adopted policies and fees & charges</p>	<p>Civil Engineers confirms that the works within the road reserve are designed and documented in accordance with Council and RMS design requirements.</p>

Issue	Response
<p>n) We note works on Argyle St will likely come through a separate Section 138 application in due course but be consistent with any SSD approval</p>	<p>Two construction traffic management plans have been prepared for the SSD and Section 138:</p> <p><u>Referring to SSD</u></p> <p>The Construction Traffic Management Plan (CTMP) dated September 2018 was prepared to address the overall construction activities of the site, with works on Argyle Street.</p> <p>A breakdown of the construction works is provided below:</p> <ul style="list-style-type: none"> • Stage 1 constructions works - consists of civil works and earthworks levelling to accommodate prefabricated buildings and associated services, and the delivery of classroom demountables; and • Stage 2 construction works - consists of demolition of some of the existing single storey buildings, construction of new buildings including services and the construction of the surrounding soft and hard landscaping works. <p><u>Referring to Section S138 Application</u></p> <p>The construction Traffic Management Plan dated 14 November to address the construction works on Wonga Road, which will involve the following:</p> <ul style="list-style-type: none"> • A bus parking facility will be provided on Wonga Road adjacent to the site to accommodate up to three buses, including a turning facility to enable buses to drive in a forward direction • A new pedestrian footpath and pedestrian crossing on Wonga Road; and • A new access will be provided via Wonga Road, which will connect with the south-western staff parking area
Wollondilly Council – Operational Phase	
<p>a) 'De-commissioning' of Wonga Rd needs to be conditioned – to bring back a appropriate level of service reflecting the changes arrangements (likely to require consent through the Local traffic Committee process)</p>	<p>The only decommissioning anticipated would be the bus queuing zone along the southern side of the Church and opposite Picton Bus Lines, which would simply be a case of removing the two signs. The proponent is willing for this to be provided as a condition of consent.</p>
<p>b) The assessment of the Wonga Rd/Argyle St intersection capacity has changed significantly since the initial application but again we note the Road Safety Audit does not cover this intersection</p>	<p>The initial traffic modelling for the Wonga Road and Argyle Street included the School being developed to a maximum capacity of 2,000 students.</p> <p>That has now changed to 1,580 students, which the traffic models are based on.</p>

Issue	Response
<p>c) The Ethos Urban letter of 30 October discusses how the intersection has 'ample capacity' yet the concern about additional bus movements (to service the greater numbers from the bus depot) plus staff exiting via Wonga Rd doesn't appear to be factored in yet the letter further describes (under 'Works that require approval under the Roads Act 1993) - <i>the construction of a new roundabout at the Argyle Street/Wonga Road Intersection</i> – so somewhat confused</p>	<p><u>Referring to the previous Traffic Assessment</u></p> <p>The latest Traffic Assessment excludes the construction of a new roundabout at the Argyle Street/Wonga Road intersection.</p> <p>SIDRA traffic modelling was undertaken for the scenario below:</p> <p>'Year 2021 with the Proposed School Expansion - This analysis incorporates a 3.0% per annum increase in the background traffic volume up to the year 2021 which is when the school redevelopment is expected to be completed. The school has been assessed as operating at full capacity of 1,580 students and 125 teachers. '</p> <p>Further details in detailed in the Traffic Assessment prepared by TDG dated August 2018.</p>
<p>d) Same intersection - the assumption that the gap acceptance value has been reduced from 5s to 3s seems inadequate for buses and heavy vehicle movement and needs to be justified</p>	<p>The SIDRA standard inputs for critical gap acceptance is 7 seconds, and the follow up head way value is 4 seconds.</p> <p>For this assessment the critical gap acceptance and the Follow up Head-way is 5 seconds and 3 seconds, respectively. This is based the on-site observations and traffic surveys.</p> <p>The light vehicles and heavy vehicles Gap acceptance Factor is unchanged as per the SIDRA inputs. The light vehicles have a gap acceptance factor of 1.0, and heavy vehicle gap acceptance factor of 1.5.</p> <p>As shown below, the following critical gaps and follow up headway are calibrated in the intersection traffic models.</p> <p>Light Vehicles (Gap Acceptance Factor = 1.0), $5.0 \times 1.0 = 5.0$ sec critical gap and $3.0 \times 1.0 = 3.0$ sec follow-up headway apply</p> <p>Heavy Vehicles including buses (Gap Acceptance Factor = 1.5), $5.0 \times 1.5 = 7.5$ sec critical gap and $3.0 \times 1.5 = 4.5$ sec follow-up headway apply</p>
<p>e) School zone changes need to be confirmed, through RMS, and need to be holistic considering changes to both Argyle and Wonga reflecting the decommissioning of Wonga Rd</p>	<p>As stated in the Response to Submissions, RMS has informed the project team that revision of the extent of the school zone extension will be made following approval of the SSD Application. Ongoing consultation will occur with RMS in this regard.</p>
<p>f) The road safety audit carried out by GHD is noted; However it appears the intersection of Wonga and Argyle is not covered with the report and needs to be addressed.</p>	<p>The Safety Audit submitted with the revised RtS encompasses the scope of work within the high school redevelopment. There is no provision for any work to be carried out at Wonga Rd & Argyle St intersection.</p>
<p>g) The findings of the road safety audit need to be accommodated in the design on Wonga and Argyle – from submissions to date on Wonga Rd it appears these findings have not been addressed</p>	<p>A request is made for a consent to require the findings of the road safety audit on Wonga and Argyle St to be addressed in detailed design for construction.</p>

Issue	Response
h) Any works that will regulate traffic (signs and lines) will require approval from the Local Traffic Committee	The proposed signpost and line marking plan will be issued to traffic Committee as per the common approval process.
i) Any works within the road reserve will need to be carried out in accordance with Councils Design and Construction Specifications and in accordance with adopted policies and fees & charges	Civil Engineers confirms that the works within the road reserve are designed and documented in accordance with Council and RMS design requirements.
j) I couldn't find the Bonacci Group updated drawings 'Attachment B' on the portal!?	We note that the files uploaded to the Major Projects website are incorrectly named, however, are uploaded to the portal. Attachment A refers to the Response to Submissions Table, which is correctly labelled. Attachment B refers to revised Architectural Drawings prepared by BLP – which are currently uploaded as individual files incorrectly referenced as Attachment A. Note that the Architectural Drawings prepared by BLP were informed by works completed by Bonacci Group. The only drawings prepared by Bonacci Group uploaded as part of the Response to Submissions is the Updated Traffic Control Device Sketch Plan which has been correctly uploaded at Attachment O .
k) Is the Green Travel Plan more of a discussion paper than a Plan??	<u>Referring to SSD</u> The Green Travel Plan is a Plan for the School. It is used to inform delivery and promotion of a variety of transport choices for people who travel, to mitigate against any negative effects of car use.
l) Maybe more of a question for the Planners – I am challenged by the premise of building floor space to accommodate 2,000 students but not intending to have more than 1580 students? How could that be legally enforced? What are the transport implications if more than 1580 students are actualised (maybe for one off events etc)	The SSD Application only seeks consent for a capacity of 1,580 students and 125 staff. It is understood by the applicant that any future increase in student or staff numbers will require formal approval. The environmental impacts of a capacity increase to more than 1,580 students and 125 staff will be assessed as part of any future application.

Should you require any further information, please do not hesitate to contact Chris or Alexis at the details below.

Yours sincerely,



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WONGA ROAD CONSTRUCTION WORKS - TRAFFIC MANAGEMENT PLAN

PREPARED FOR DEPARTMENT OF EDUCATION

04 December 2018

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This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

QUALITY STATEMENT

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Kirk Martinez

PROJECT TECHNICAL LEAD

Kirk Martinez

PREPARED BY

Kirk Martinez

04/12/2018

CHECKED BY

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04/12/2018

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04/12/2018

APPROVED FOR ISSUE BY

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04/12/2018

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REVISION SCHEDULE

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	13.11.2018	Rev 01	KM	FG	FG	KM
2	14.11.2018	Rev 02	KM	KM	KM	KM
3	30.11.2018	Rev 03	KM	KM	KM	KM
4	04.12.2018	Rev 04	KM	KM	KM	KM

Department of Education

Wonga Road Construction Works - Traffic Management Plan

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APPENDICES

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1. Introduction

The Traffic Management Plan (TMP) provides a review of the traffic, parking and pedestrian implications of the traffic management measures proposed for the Wonga Road Construction Works, and the post construction operations of Picton High School.

The intended works to be carried out are located on Wonga Road. The construction works will involve the following:

- A bus parking facility will be provided on Wonga Road adjacent to the site to accommodate up to three buses, including a turning facility to enable buses to drive in a forward direction
- A new pedestrian footpath and pedestrian crossing on Wonga Road; and
- A new access will be provided via Wonga Road, which will connect with the south-western staff parking area.

The Wonga Road construction works will occur on-street, with minimal disruption expected to vehicular traffic, pedestrians and cyclists.

The proposed dates of the construction works are estimated between December 2018 to January 2019 during the School Holidays, to avoid any disruptions to the school operations.

This TMP is based on the information available for the proposed construction works at the time of writing. However, it cannot be guaranteed that the specific methodology described herein is used at the time of construction. Any changes are to be incorporated into the appropriate Traffic Management Plans (TMP) prior to the commencement of those works.

The TMP is to be submitted to the relevant authorities prior to the commencement of work.

1.1 Report Scope

The Traffic Management Plan (TMP) covers the traffic management concepts behind the construction of the Wonga Road upgrades, and the Picton High School operations with the Wonga Road upgrades.

2. Existing Transport Environment

2.1 Work Area

Figure 1 shows the location of work area along Wonga Road in relation to Picton High School and the surrounding road network.



Figure 1: Wonga Road Work Zone¹

Picton High School is located on the eastern side of Argyle Street, approximately 100 metres north of Wonga Road. The site has an area of 5.69 hectares. Existing vehicular access to the site is provided via separate entry and exit driveways off Argyle Street, with the northern access accommodating entry movements and the southern access accommodating exit movements. The site also has frontage to Wonga Road and a partially formed paper road along the eastern site boundary.

Key features of the site and its surrounds are as follows:

- Established residential use occupies the land to the north of the site;
- Land to the west, south and east is predominantly undeveloped at present;
- Some commercial and industrial uses are located along Wonga Road, including the Picton Bus depot which is the company operating the school services; and
- A paper road extension of Wonga Road extends about half way across the rear (eastern) boundary of the site.

¹ Source: Intramaps: <http://maps.wollondilly.nsw.gov.au/intramaps80public/>

2.2 Existing Road Environment

Argyle Street is identified as a Regional Classified Road in the vicinity of the site and is managed by Wollondilly Shire Council. It runs in a north-south alignment and has a carriageway width of 13.0 metres kerb to kerb, accommodating one lane of traffic in each direction and parallel parking on both sides of the road.

Continuous double white centreline markings are established across the whole of the site frontage. In effect, these impose a no right turning restriction either to or from the driveway crossings. These current controls are somewhat impractical as established and evidence from site observations are that the control is ignored in the present environment.

A school speed zone control is imposed along Argyle Street that reduces the permissible speed limit to 40km/h between 8:00am to 9:30am and 2:30pm to 4:00pm on school days, extending from Wood Street in the north to a location about 90 metres north of Wonga Road. This covers the entire school frontage area and extends north over the marked kerbside parking environment.

The on-street parking controls on Argyle Street comprises of the following elements:

- On the western side of Argyle Street, five spaces with a P2 (2 minute) parking restriction between 8:00am to 9:30am and 2:30pm to 4:00pm;
- On the immediate school frontage, a P2 (2 minute) parking restriction drop-off zone of about 50 metres in length, catering for up to about eight vehicles at a time;
- A bus layover area is established about 20 metres north of the school's northern driveway crossing on the east side of Argyle Street. Its defined operating times are: 8:30am to 9:30am and 3:00pm to 4:00pm on school days; and
- Otherwise, generally time unrestricted parking controls are provided.

Wonga Road is a local road that runs in an east-west alignment extending from Argyle Street and runs in a north-south alignment to abut the eastern boundary of the site. It has a carriageway width of 13.0 metres kerb to kerb and accommodates one lane of traffic in each direction. Unrestricted parking is provided on both sides of the road.

Stop sign in Wonga Road control its junction with Argyle Street. Argyle Street has a painted right turn bay and left turn deceleration lane which facilitate access to Wonga Road.

On-road cycling is currently allowed within the carriageway of Argyle Street, under the school speed zone-controlled environment. There are no cycle facilities provided along Wonga Road.

A continuous concrete footpath is established along Argyle Street on the school side of the road. It extends north from the southern school boundary connecting the school with the Picton town centre. No pedestrian facilities are provided along Wonga Road.

2.3 Operating of Existing Road Systems

2.3.1 Existing Traffic Movements

Turning movement surveys were commissioned on Thursday 26 July 2018, between 7:00am to 10:00am and 2:00pm to 5:30pm, at the intersection of Argyle Street and Wonga Road.

The results of the intersection traffic surveys for the morning and evening peak periods are presented in Figure 2.

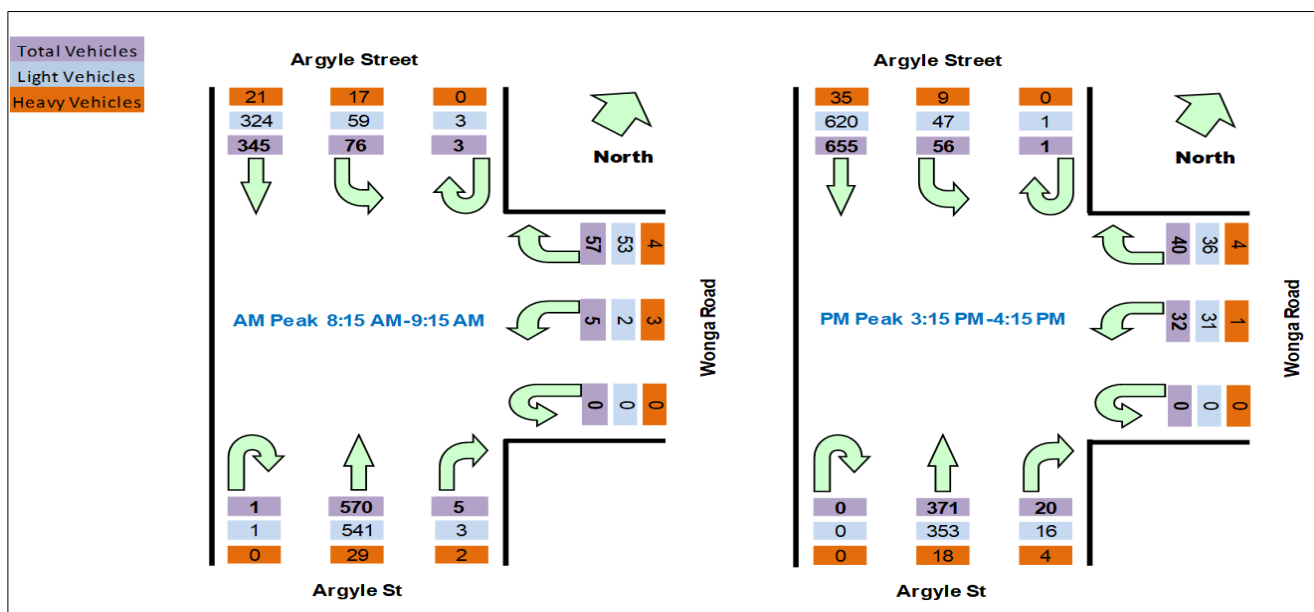


Figure 2: Morning and Evening Peak Periods – Vehicle Turning Movements

The survey results indicate that Wonga Road currently carries a low level of traffic, with 143 and 148 vehicle movements recorded in the morning and evening peak periods, respectively.

2.3.2 Existing Intersection Performance

An analysis of the operation of the critical intersections within the study area was carried out using the SIDRA computer modelling program for the existing intersection traffic volumes and layouts.

Stantec has assessed the performance of the intersections using the SIDRA Intersection Analysis Software (V7). Performance criteria for intersections are based on the RTA (RMS) Guide to Traffic Generating Developments. A qualitative rating and its corresponding Level of Service (LoS) are applied to the average delay per vehicle as shown in Table 1

Table 1: Level of Service Criteria for Intersections

Level of Service (LoS)	Average Delay per Vehicle (seconds)	Traffic Signals, Roundabouts
A	Less than 15	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals incidents will cause excessive delays

Note: For signals, average delays per vehicle are for the intersection as a whole. For Roundabouts / Give Way / Stop Signs, average delay per vehicle is for the worst movement.

The existing intersection layout of Argyle Street and Wonga Road is shown in Figure 3.



Figure 3: Existing Intersection Layout of Argyle Street and Wonga Road

Table 2 gives a summary of the SIDRA results for the current volumes applied to the existing intersection configuration. The SIDRA outputs are included in Appendix B.

Table 2: Summary of SIDRA Outputs for Wonga Road and Argyle Street

Peak Time	Average Delay (Secs)	Level of Service (LoS)
Morning Peak	14.5	A
Evening Peak	18.4	B

The current intersection configuration of Wonga Road and Argyle Street is operating at an excellent Level of Service (LoS) A and B for the morning and evening peak periods, respectively. The results indicate that the current intersection configuration has ample capacity to cater for the construction vehicles for the Wonga Road Works, most of which will be during the day.

2.4 Existing Parking Environment

2.4.1 Wonga Road

A detailed parking survey in Wonga Road has been undertaken. Figure 4 shows the extent of the parking survey and the number of car parking spaces provided at each of the locations.



Figure 4: Number of Car Parking Spaces on Wonga Road²

Based on the parking surveys along Wonga Road there is a maximum of 72 on-street parking spaces (before the Wonga Road upgrades).

The key findings from the survey are summarised below:

- The peak number of occupied spaces occurred at 11:00am, 1:10pm, 1:30pm and 2:30pm, with 16 out of 72 car parking spaces occupied;
- There were no vehicles parked before 8:00am; and
- There were less than 10 vehicles parked from 4:30pm onwards.

The car parking demand and available car parking spaces is presented in Figure 5.

In summary, the parking survey results indicate that there is ample spare on-street parking capacity along Wonga Road to accommodate for the Construction workers and for Staff at the Remondis Site during the Wonga Road Works.

² Source: Nearmap (<https://www.nearmap.com.au/>)

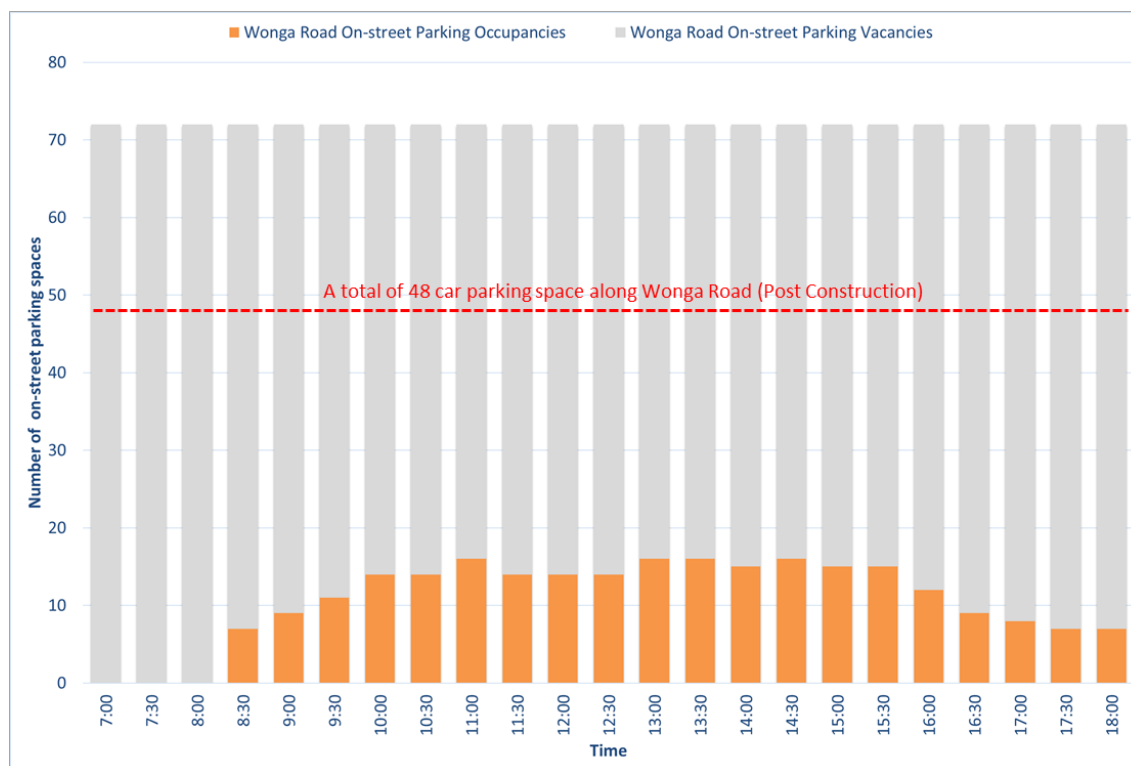


Figure 5: Wonga Road On-Street Parking Demand

2.5 Sight Distance

The existing sight distances have been measured on-site. These measurements are summarised in **Table 3**.

Table 3: On-site Site Distance Measurements

Intersection	Sight Distance	Photos	Austrroads Approach Sight Distance (ASD)	Comment
Wonga Road and Argyle Street	To the South 267 metres		Design speed of 70km/h = Approach Sight Distance of 92 metres	The approach sight distances comply with the Austrroads guide to Road Design Part 4A – Unsignalized and Signalized intersection
	To the North 220 metres		Design speed of 40km/h = Approach Sight Distance of 40 metres	

Based on the Austrroads Guidelines and the measurements taken on-site, there is acceptable sight distances at the intersection of Wonga Road and Argyle Street.

2.6 Travel Mode Survey

A travel mode surveys have been undertaken for number of students and staff at the School. The surveys involved a sample of the school population. These were undertaken on 30th June 2017.

The travel mode survey results identified the following travel mode distributions in Table 4.

Table 4: Travel Mode Survey Results

Mode of Travel	Student Totals	Student Mode Split (%)	Teachers Totals	Teacher Mode Split (%)
Walk	13	6.2%	1	1.6%
Bus	140	66.7%	0	0.0%
Train	1	0.5%	0	0.0%
Bicycle	1	0.5%	0	0.0%
By car - dropped off in the morning	46	21.9%	0	0.0%
Passengers in another student's car	2	1.0%	0	0.0%
Passengers in a car driven by a member of staff	2	1.0%	2	3.2%
Car as a driver	5*	2.4%	59	95.2%
Other	0	0.0%	0	0.0%
Total respondents (sample size)	210	100.0%	62	100.0%

Note: *The number of students driving has been estimated based on the student parking demand due to Year 12 students not being surveyed on the survey date.

The following characteristics from the Travel Mode Survey are noted below:

- About 67% of all student used buses;
- Student drop-off by car accounted for 22% of arrivals;
- Accessible (walking/cycling) modes accounted for 6.2% of student arrivals, noting that cycling represents a very low (0.5%) utilisation. This is perhaps a function of the wide and rural nature of the area serviced; and
- By contrast, 98.4% of the staff arrived by car, either as the driver or passenger.

3. Wonga Road Traffic Management Plan

3.1 Wonga Road Construction Activities

The proposed works on Wonga Road, illustrated in Figure 8, will involve the following:

- A bus parking facility will be provided on Wonga Road adjacent to the site to accommodate up to three buses, including a turning facility to enable buses to turn around;
- A new pedestrian footpath and pedestrian crossing; and
- A new vehicle access will be provided via Wonga Road, which will connect with the south-western staff parking area.

3.2 Constructions Times

The proposed construction works (including excavation, construction and deliveries of materials and equipment etc) will be carried out at the following times:

- Monday to Friday 7:00am to 5:00pm;
- Saturday from 8:00am to 1:00pm; and
- No construction works on Sundays.

The Wonga Road construction works will occur during the School holidays between December 2018 to January 2019 for a duration of 4 weeks. Due to unexpected circumstances that the Wonga Road works are not completed during this time. The construction works will be postponed until Term 1 School Holidays.

3.3 Construction Vehicles and Equipment

The maximum sized design vehicle for the project is a truck and dog, although various types of trucks will visit the site. At most, typical construction activities are expected to generate up to 5 trucks per day for the duration of the construction period. This is equivalent to one truck movement every 2 hours.

Furthermore, the types of vehicles used on the project may include, but not be limited to:

- Excavator;
- Bobcats;
- Roller; and
- Watercarts;

3.4 Truck Routing

The majority of trucks associated with the Wonga Road construction activities will access the Work Area along Wonga Road via Argyle Street.

The proposed construction vehicle movement plan accessing the work area is shown in Figure 6.



Figure 6: Construction Vehicle Movement Plan ³

An overview of the construction truck routes connecting the State roads is shown in Figure 7.



Figure 7: Construction Movements (Overview) ⁴

³ Source: Near maps (<https://www.nearmap.com.au/>)

⁴ Source: Google maps (<https://www.google.com/maps>)

3.5 Construction Permits

3.5.1 Works Zone

This Traffic Management Plan accompanies the application for a 'works zone' submitted to Council for approval, for the designated work area along Wonga Road.

3.5.2 Temporary Road Closures

This Traffic Management Plan accompanies the application submitted to Council for approval, of road closures or partial road closures that are required during the construction works.

3.5.3 Road Occupancy License

This Traffic Management Plan accompanies a Road Occupancy Licence 'ROL' submitted to the relevant authorities for works within the road carriageway. A ROL is required for any activity likely to impact on traffic flow, even if that activity takes place off-road. RMS or Council are the assessing authority depending on the responsibility.

3.6 Access to Adjacent Properties

The existing driveways located on Wonga Road will not be impacted by the construction activities. It is advised the developments on Wonga Road will be contacted by the contractors to ensure access to the site will remain open or provided with an alternative access.

3.7 Traffic Control Plan

A Traffic Control Plan (TCP) has been developed for the major construction works on Wonga Road, as shown in Appendix C. This will be used as required during the construction phases.

The Traffic Control Plans has been designed in accordance with the Australian Standards and the Roads and Maritime Services (RMS) Traffic Control at Work Sites Manual and prepared by an RMS Accredited Traffic Control Plan Developer.

3.8 Methods of Communicating Change

Local residents, parents, staff and building managements will be informed of the construction works and dates by letter box drops, advertisement in the local newspaper and school newsletters.

The notifications will occur 2 weeks in advance of the commencement date.

3.9 Car Parking During Construction Works

3.9.1 Construction Workers Parking

It is estimated that up to 30 contractors will be on-site. Construction workers will have access to the School car park throughout the duration of the Construction Works.

As detailed in Section 2.4, additional on-street parking is also available along Wonga Road.

Workers and sub-contractors will be encouraged to use public transport to travel to and from the work site where possible. The site has access to public transport services, fronting the Picton High School along Argyle Street. The bus routes are shown in Table 5.

Table 5: Bus Services along Argyle Street

Bus Route	Bus Services
911	Bargo to Picton
912	Yanderra to Picton via Buxton and Thirlmere
913	Buxton to Picton via Tahmoor
914	Buxton to Picton via Estonian Village

It should be taken in consideration, that the parking demand can be reduced by the following:

- Construction workers will arrive and finish throughout different times of the day;
- Car parking spaces is provided on-site;
- Public transport will be used to get to / from the site; and
- Construction workers will also car share.

3.10 Construction Traffic Effects

3.10.1 Truck Movements

The construction works are to generate daily volumes of heavy vehicle movements from December 2018 to January 2019. All loading is proposed to occur within the work zone.

The Wonga Road construction works is expected to generate up to 5 trucks per day (5 inbound movements, 5 outbound movements). This is equivalent to one heavy vehicle movement every hour.

It is expected the construction works will occur during the School Holidays. The construction periods typically align with the surrounding road network's off-peak hours, and it is therefore considered that there is ample capacity to accommodate the construction truck movements of up to five trucks per day.

The proposed turning area that will be constructed as part of the Wonga Road upgrades will be used by construction trucks to U-turn and head back to Argyle Street.

3.10.2 Construction Worker Vehicle Movements

As outlined in Section 3.9.1, it is estimated that up to 30 contractors are to be on-site.

The movements generated by construction workers are expected to be primarily accessing the work area in the morning and departing the site in the evening. It has been assumed that the site will generate up to 30 vehicle movements in the morning and evening periods, with a one-person vehicle occupancy.

These vehicle movements will likely be spread over several hours in the morning and evening periods with contractors starting at 7:00am and finishing at 5:00pm. It should be noted contractors start and finish at different times of the day, depending on the construction works that is involved at the time. The construction works is also proposed to operate on Saturdays from 8:00am to 4:00pm.

The traffic volumes on the surrounding road network are expected to be lower as the Construction works will occur during the School Holidays.

Based on the above, the traffic generated by construction workers will occur outside of the surrounding road network peak periods and during the School holidays. Given the road classifications and associated traffic volumes of the nearby roads and intersections, it is considered that the road network is able to readily accommodate the expected very low traffic volumes generated by the construction workers.

4. Post Construction – School Operations

4.1 Bus Services

After completion of the Wonga Road Construction works, a new footpath / pedestrian crossing, new bus facility accommodating up to three buses and a new school entrance located at the rear, will be provided, as shown in Figure 8. In addition, a turning area is also located at the end of Wonga Road, to allow buses to U-turn and head back in a forward direction to Argyle Street.

The Traffic Control Device plan have been prepared by Bonacci and is presented for reference in Appendix B.

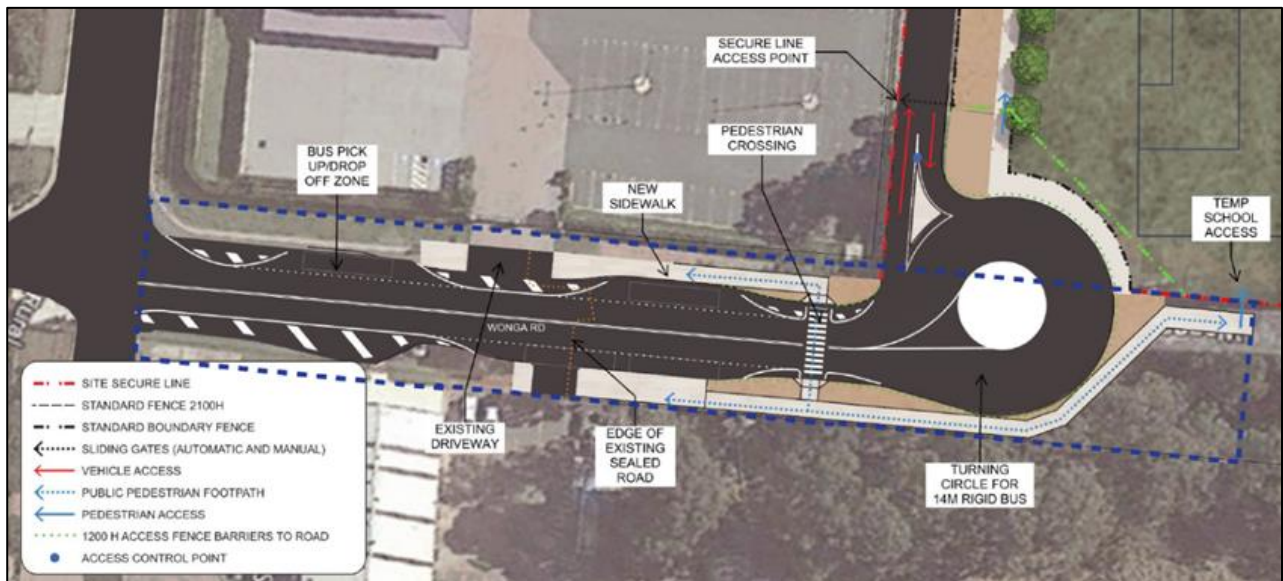


Figure 8: Proposed Wonga Road Upgrade

All school buses will drop off in the morning and pick up in the afternoon along the new bus facility on Wonga Road. Current bus operations along Argyle Street will be discontinued.

A designated waiting area will be provided near the bus area, which will be managed by staff. The staff at the waiting area will inform students of the bus services approaching to ensure students get on the correct bus.

If the bus pick up and drop off zone is fully occupied, other buses will queue along the northern side of Wonga Road until the bus area is unoccupied. It is proposed to designate a bus zone (50 metres long) on Wonga Road as shown in Figure 9.

The proposed bus zone will be restricted to the following times:

- School days: 8:00am to 9:00am and 3:00pm to 4:00pm; and
- Construction Work zone all other times.



Figure 9: Proposed Temporary Bus Zone on Wonga Road

In order to maintain the safety of the general public and reduce the traffic implications. The following code is to be implemented as a measure to maintain safety within the site:

- Utilisation of only the designated transport routes; and
- Bus movements are to abide by the schedules to reduce the number of buses entering and exiting Wonga Road at any one time.

An evaluation of the U-turn facility has been undertaken using the software package 'AutoTurn'. The assessment reviewed the ability for 14.5 long rigid bus manoeuvring around the U-turn facilities is shown in Figure 10.



Figure 10: Bus Movements

4.2 Staff Access and Delivery vehicles

Staff will have access to the southern car park via Argyle Street and Wonga Road. A new entry and exit access will run along the southern boundary of the site connecting Wonga Road to the southern carpark. A new (entry only) access will be located on Argyle Street, as shown in Figure 11.

Deliveries to the site will be very low and infrequent. Delivery vehicles will enter and exit the site via the new driveway access on Wonga Road.



Figure 11: Staff and Delivery Vehicle Access

4.3 Drop Off and Pick Up

The parents drop off and pick up area will continue to occur along Argyle Street, as per the current arrangements. There will be a new School access fronting the parents drop off and pick up area. The new School Access on Argyle Street and a footpath connection via the northern side of the Hall Building will be provided for access to the School grounds. This will be the main drop off and pick up point, and will reduce the number of Students walking through the new Bus Facility

It has been advised some parents may use Wonga Road as a drop off and pick up point. This would not be ideal for the students as they would have walk 200 metres to/from the new School Access, via the new bus Facility. Wonga Road turns into a dead-end street with no formal turning area.

Parents will continually be advised by the Schools newsletter of the designated pick up and drop off areas along Argyle Street.

4.4 Pedestrian Safety

During the operations of the School, a traffic controller / staff will be at the new bus facility and will assist in the safety of pedestrian crossing at Wonga Road to avoid conflicts with the bus movements.

A pedestrian movement plan is shown in Figure 12.

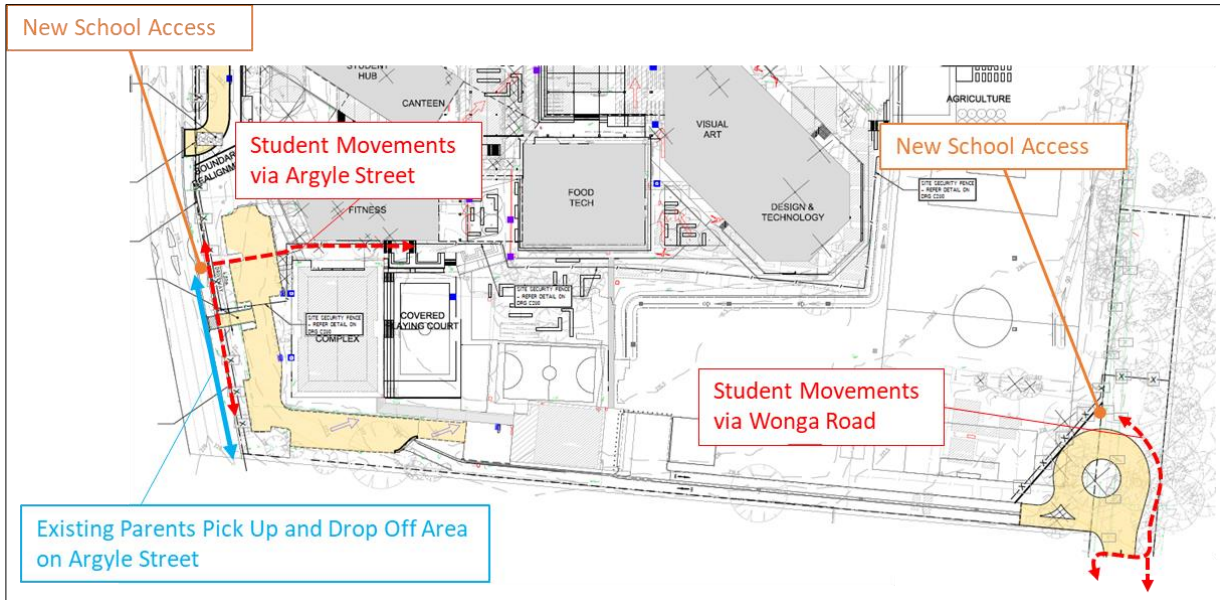


Figure 12: Pedestrian Movement Plan for Students

4.5 School Zones

Bus services will be travelling via Wonga Road to access the new bus facility. It is proposed School zone signs and line marking will be provided on Wonga Road, operating between 8:00am and 9:30am, and from 2:30pm to 4:00pm.

4.6 Postponed Construction Works

The Wonga Road construction works will occur during the School holidays between December 2018 to January 2019 for a duration of 4 weeks. Due to unexpected circumstances that the Wonga Road works are not completed during this time. The construction works will be postponed until Term 1 School Holidays. The bus services, parents pick up and drop off areas and staff access will continue to occur along Argyle Street as per the current arrangement.

4.7 Intersection Analysis – Post Construction

An analysis of the operation of the existing intersection of Argyle Street and Wonga Road, with the Wonga Road upgrades was carried out using the SIDRA computer modelling program.

The two traffic modelling scenarios for the road network are modelled for the morning and evening School peak periods:

- **Scenario 1: Existing Traffic (Base Case)** - This scenario includes the 2018 traffic survey volumes (includes the current school operations) modelled over the existing intersection configuration of Wonga Road and Argyle Street. This analysis has been performed for the morning and evening peak periods;
- **Scenario 2: Post Construction Traffic Volumes** - This analysis incorporates the Wonga Road upgrades, with the new bus facility accommodating up to three buses, a new vehicle driveway access and a new school entrance located on Wonga Road. For this assessment staff will enter the Site via Argyle Street, and depart via Wonga Road, all bus services will operate via Wonga Road. The layout of the existing intersection configuration of Wonga Road and Argyle Street is used for the assessment.

The traffic distribution of the various users associated with the school are described below and in Figure 13 to Figure 14:

- It has been assumed that 100% of staff (current staff number is 83) will utilise the new driveway access via Argyle Street to access the site, and all staff will exit the site via Wonga Road;
- Staff vehicle distributions have been based on a 50 / 50 split coming from the northbound and southbound direction;
- The 40 bus movements have been based on the existing traffic surveys for the morning and afternoon peak periods. For this assessment all bus services will enter and leave Wonga Road;
- Bus movements have been based with a 50 / 50 split coming from the northbound and southbound direction;
- The parents drop-off and pick-up movements will continue to occur along Argyle Street as per the current arrangement; and
- Deliveries to the site will be very low and infrequent. Deliveries will enter and exit the site via the new driveway access on Wonga Road.



Figure 13: Staff Vehicle Movements (Morning and Evening Peak Periods)



Figure 14: Bus Movements (Morning and Evening Peak Periods)

A summary of the SIDRA results is presented in Table 6 for the Argyle Street and Wonga Road intersection, with the detailed outputs provided in Appendix B.

Table 6: Wonga Road and Argyle Street SIDRA Results

Scenario	Morning Peak		Evening Peak	
	Average Delay (secs)	Level of Service (LoS)	Average Delay (secs)	Level of Service (LoS)
Scenario 1	14.5	A	18.4	B
Scenario 2	21.8	B	26.3	B

Note: For the SIDRA assessment, the gap acceptance values for right turning vehicles from Wonga Road have been reduced to 5.0 seconds and 3.0 seconds for the critical gap and follow-up headway. The reductions are based on on-site observations and traffic surveys to reflect the Austroads values.

The intersection analysis results show that the intersection of Wonga Road and Argyle Street is currently (Scenario 1) operating at a Level of Service A and B for both the morning and evening peak periods.

Based on the Scenario 2 assessment, the intersection of Wonga Road and Argyle Street is operating at a Level of Service B for the morning and evening peak periods and can accommodate for the redistribution of traffic from Staff and buses.

5. Response to Council Comments

The following Council comments and responses are provided in Table 7.

Table 7: Council Comments

Council Comments	Response
Wonga Road Works Issues discussed: Service Temporary School Safety for Students Picton Bus Lines Kiss and Ride	The School operations (post Wonga Road Constructions) has been detailed in Section 4, which discuss the traffic management systems, bus routes, pick up and drop offs, pedestrian safety and proposed School operations.
Construction Zones Argyle Street Congestion during Pick Up and Drop of Safety Issues	The constructions zones along Argyle Street will have no impact on the existing parent pick up and drop off area along Argyle Street, as detailed in Section 4.3. A new School Access on Argyle Street and a footpath connection via the northern side of the Hall Building will be provided for access to the School grounds.
Traffic movement analysis - RMS concerned with how the intersection from Wonga Rd to Argyle St will work	The current intersection configuration of Wonga Road and Argyle Street is operating at an excellent Level of Service (LoS) B for the morning and evening peak periods when the School is in operations. The Wonga Road construction will occur during the school holidays. Therefore, the current intersection configuration has ample capacity to cater for the construction vehicles for the Wonga Road Construction Works. Refer to Section 2.3.2 and 4.7.
Swept paths	An evaluation of the U-turn facility has been undertaken using the software package 'AutoTurn'. The assessment reviewed the ability for 14.5 long rigid bus manoeuvring around the U-turn facility, as detailed in Section 4.1.
Sight lines	The existing sight distances have been measured on-site, and is referred to Section 2.5.
Construction Zones	This Traffic Management accompanies the Section 138 application to Council for a 'Works Zone'
Parking, numbers and peak times	It is estimated that up to 30 contractors will be on-site. Construction workers will have access to the School car park throughout the duration of the Construction Works. Additional, on-street parking is available along Wonga Road, as detailed in Section 3.9.
Traffic Control	A Traffic Control Plan (TCP) has been developed for the major construction works on Wonga Road, as shown in Appendix C.
Access to Nursery and Pound an issue	The existing driveways located on Wonga Road will not be impacted by the construction activities. It is advised the developments on Wonga Road will be contacted by the contractors to ensure access to the site will remain open or provided with an alternative access.
People will use Wonga road in uncontrolled manner if issue not addressed	Before the construction works local residents, parents, staff and building managements will be informed of the construction works and dates by

Council Comments	Response
	<p>letter box drops, advertisement in the local newspaper and school newsletters.</p> <p>During the operations of the School Parents will be informed of the designed pick up and drop off areas on Argyle Street, and the new bus routes and School access.</p> <p>In addition, it is intended that the Contractors (Taylor) will implement traffic control for a couple of weeks to keep cars out of this end of Wonga Road and control pedestrian movements, then the School will take over and continue the traffic.</p>
How pedestrians are managed	<p>During the operations of the School, a traffic controller / staff will be at the new bus facility and will assist in the safety of pedestrian crossing at Wonga Road to avoid conflicts with the bus movements.</p>
School zone contact	<p>Bus services will be travelling via Wonga Road to access the new bus facility. It is proposed School zone signs and line marking will be installed on Wonga Road, operating between 8:00am to 9:30am, and 2:30pm to 4:00pm which will reduce the risk and potential crashes (in consultation with RMS).</p>

6. Conclusion

Stantec has prepared this Traffic Management Plan (TMP) to discuss the proposed temporary traffic and pedestrian management measures to be employed during the Wonga Road Construction Works, and the post construction operations of the School.

The Wonga Road construction works will involve the following:

- A bus parking facility will be provided on Wonga Road adjacent to the site to accommodate up to three buses, including a turning facility to enable buses to turn around;
- A new pedestrian footpath and pedestrian crossing on Wonga Road; and
- A new access will be provided via Wonga Road, which will connect with the south-western staff parking area.

The Wonga Road construction works will occur on-street, with minimal disruption expected to vehicular traffic, pedestrians and cyclists.

The proposed dates of the construction works are estimated between December 2018 to January 2019 during School Holidays, to minimise disruptions and reduce potential safety issues associated with the school operations.

Appendices

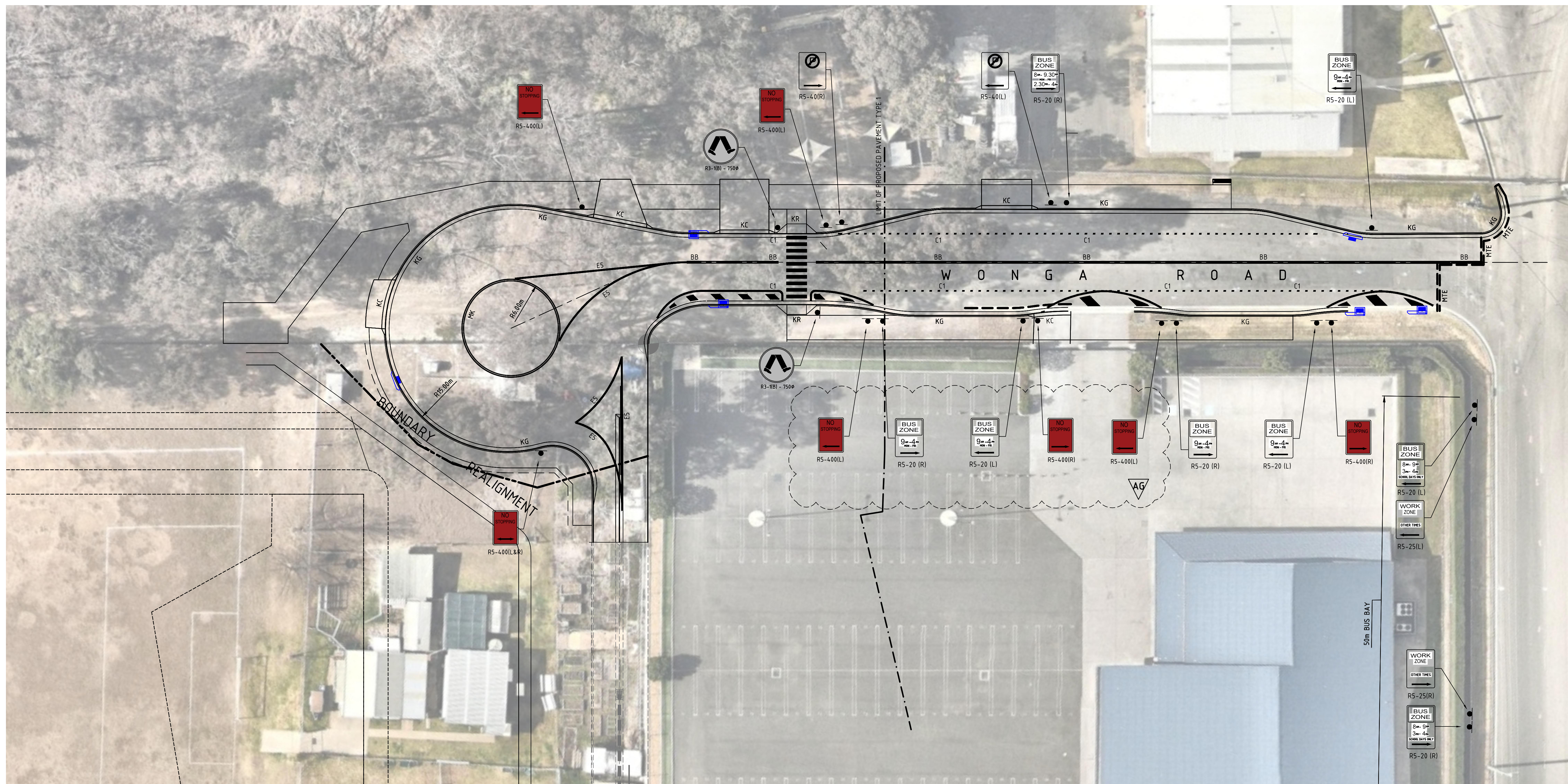


Appendix A Traffic Control Device Plan

NOTE
LINEMARKING TO BE IN ACCORDANCE WITH AS1742.2
AND THE RELEVANT LOCAL OR STATE AUTHORITY
GUIDELINES.

The diagram illustrates the layout of road markings with the following dimensions and labels:

- BB (DIVIDING BARRIER LINES (TWO WAY))**: Consists of two parallel lines. The distance between them is 0.1m wide, with 0.1m space on each side.
- E5 (EDGE LINE (PAINTED MEDIAN))**: A single line, 0.15m wide.
- C1 (CONTINUITY LINE)**: Consists of a central line and two side lines. The central line is 1m wide. The distance between the central line and each side line is 3m. The side lines are 0.15m wide.



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AE	FOR REVIEW	12.11.18	BF	-
AD	FOR REVIEW	08.11.18	BF	-
AC	FOR REVIEW	06.11.18	BF	-
AB	FOR REVIEW	06.11.18	BF	-
AA	PRELIMINARY	16.10.18	BF	-

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Project Name	PICTON HIGH SCHOOL WONGA ROAD EXTENSION PICTON, NSW 2571
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Drawing Title	WONGA ROAD TRAFFIC CONTROL DEVICE PLAN
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PRELIMINARY

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Sheet	A1			

Appendix B SIDRA Results

MOVEMENT SUMMARY



Site: 3 [Scenario 1 AM 2018 - Base with existing School numbers]

AM 2018 - Base with existing School numbers
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	600	5.1	0.318	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
3	R2	5	40.0	0.008	9.1	LOS A	0.0	0.3	0.50	0.63	49.5
Approach		605	5.4	0.318	0.1	NA	0.0	0.3	0.00	0.01	59.8
East: Wonga Road											
4	L2	5	60.0	0.010	12.4	LOS A	0.0	0.4	0.48	0.92	36.2
6	R2	60	7.0	0.148	14.5	LOS A	0.5	3.6	0.73	1.00	35.0
Approach		65	11.3	0.148	14.3	LOS A	0.5	3.6	0.71	1.00	35.1
North: Argyle Street											
7	L2	80	22.4	0.050	3.5	LOS A	0.0	0.0	0.00	0.45	38.6
8	T1	363	6.1	0.194	0.0	LOS A	0.0	0.0	0.00	0.00	40.0
Approach		443	9.0	0.194	0.7	NA	0.0	0.0	0.00	0.08	39.7
All Vehicles		1114	7.2	0.318	1.2	NA	0.5	3.6	0.04	0.09	48.1

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

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MOVEMENT SUMMARY



Site: 3 [Scenario 1 PM 2018 - Base with existing School numbers]

PM 2018 Base with existing School numbers
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	391	4.9	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	21	20.0	0.046	12.1	LOS A	0.2	1.3	0.66	0.83	48.2
Approach		412	5.6	0.207	0.6	NA	0.2	1.3	0.03	0.04	59.2
East: Wonga Road											
4	L2	34	3.1	0.076	14.4	LOS A	0.2	1.8	0.65	1.00	48.2
6	R2	42	10.0	0.132	18.4	LOS B	0.4	3.2	0.78	1.00	45.7
Approach		76	6.9	0.132	16.7	LOS B	0.4	3.2	0.72	1.00	46.8
North: Argyle Street											
7	L2	59	16.1	0.035	5.7	LOS A	0.0	0.0	0.00	0.57	52.9
8	T1	689	5.3	0.366	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		748	6.2	0.366	0.5	NA	0.0	0.0	0.00	0.05	59.3
All Vehicles		1236	6.0	0.366	1.5	NA	0.4	3.2	0.06	0.10	58.3

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

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MOVEMENT SUMMARY



Site: 3 [Scenario 2 AM - Wonga Road Upgrades]

AM - Wonga Road Upgrades with existing School numbers
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	641	4.8	0.339	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
3	R2	26	88.0	0.057	12.0	LOS A	0.2	2.6	0.57	0.76	48.7
Approach		667	8.0	0.339	0.5	NA	0.2	2.6	0.02	0.03	59.4
East: Wonga Road											
4	L2	26	92.0	0.061	13.7	LOS A	0.2	2.6	0.52	0.95	35.8
6	R2	81	31.2	0.302	21.8	LOS B	1.1	9.6	0.83	1.06	32.9
Approach		107	46.1	0.302	19.8	LOS B	1.1	9.6	0.75	1.03	33.6
North: Argyle Street											
7	L2	101	38.5	0.069	3.6	LOS A	0.0	0.0	0.00	0.45	38.6
8	T1	363	6.1	0.194	0.0	LOS A	0.0	0.0	0.00	0.00	40.0
Approach		464	13.2	0.194	0.8	NA	0.0	0.0	0.00	0.10	39.7
All Vehicles		1239	13.3	0.339	2.3	NA	1.1	9.6	0.08	0.14	47.4

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

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

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

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

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

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MOVEMENT SUMMARY



Site: 3 [Scenario 2 PM - Wonga Road Upgrades]

PM - Wonga Road Upgrades with existing School numbers
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Argyle Street											
2	T1	391	4.9	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	42	60.0	0.140	17.3	LOS B	0.5	5.1	0.76	0.90	45.4
Approach		433	10.2	0.207	1.7	NA	0.5	5.1	0.07	0.09	58.1
East: Wonga Road											
4	L2	99	24.5	0.279	18.6	LOS B	1.0	8.9	0.74	1.04	46.1
6	R2	105	24.0	0.419	26.3	LOS B	1.6	13.5	0.87	1.08	41.9
Approach		204	24.2	0.419	22.6	LOS B	1.6	13.5	0.81	1.06	43.8
North: Argyle Street											
7	L2	80	38.2	0.055	5.9	LOS A	0.0	0.0	0.00	0.57	53.0
8	T1	689	5.3	0.366	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		769	8.8	0.366	0.7	NA	0.0	0.0	0.00	0.06	59.1
All Vehicles		1406	11.5	0.419	4.2	NA	1.6	13.5	0.14	0.21	56.0

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

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

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

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

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

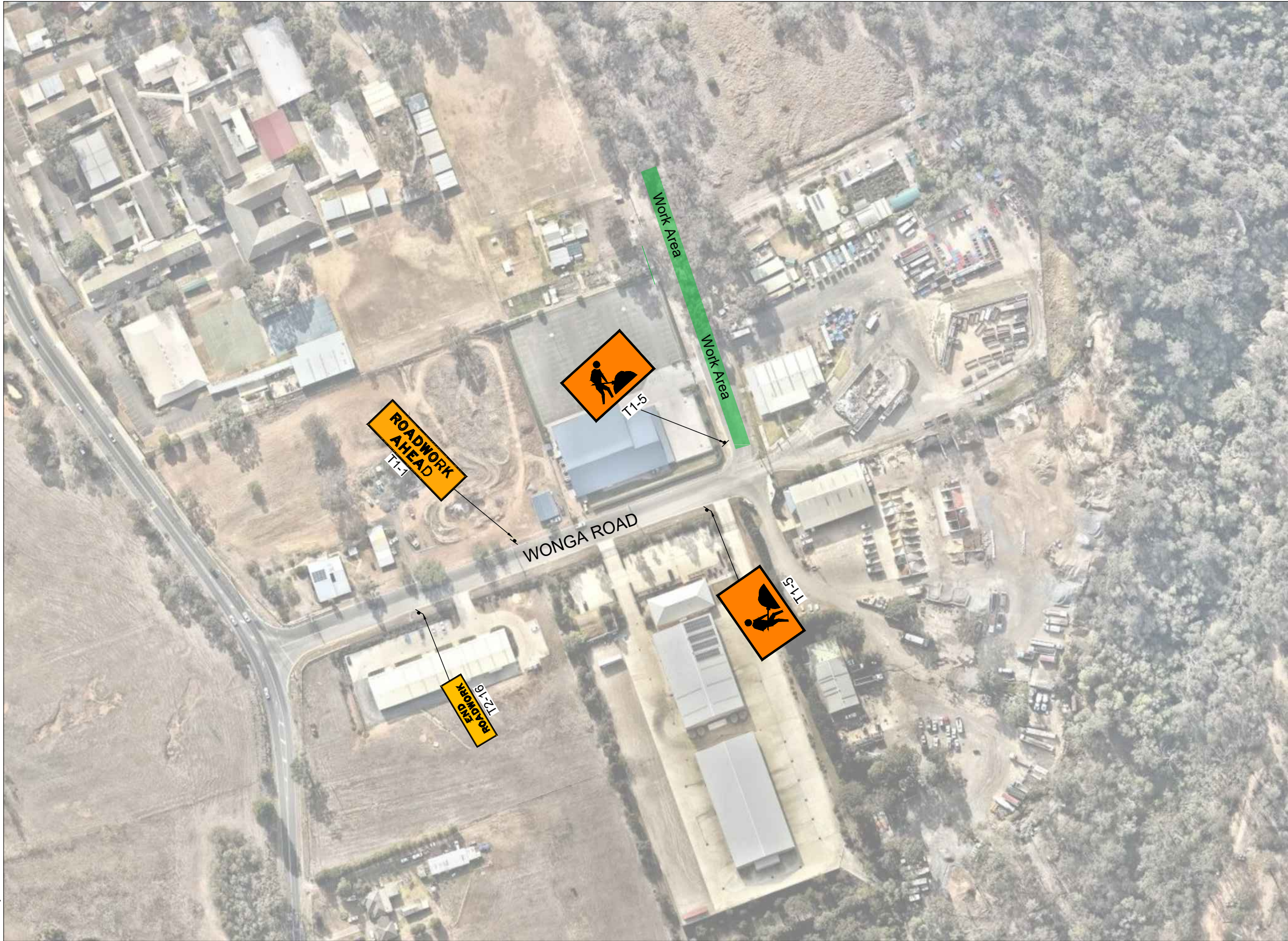
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Appendix C Traffic Control Plans



- ### NOTES
1. All signs and temporary traffic control devices to be covered or removed outside of operational hours.
 2. All trucks to avoid parking on or blocking the adjacent driveways.
 3. Aerial image obtained from Nearmap. Any scaling and dimensions are indicative only and subject to detailed survey.

DESIGNED BY: KIRK MARTINEZ



RMS SELECT / MODIFY TRAFFIC
CONTROL PLANS
CARD NO: 0023174468

Monday, November 12, 2018 15:29:14

REV	DATE	DRN	CHK	DESCRIPTION
00	12/11/18	DA	----	----

Wonga Road Construction Works TCP

DRAWN: DA	---	---
DATE: 12-11-18	STATUS: ---	
SCALE: 1:2000 @ A3		
DWG NO:14584 - 01SA		

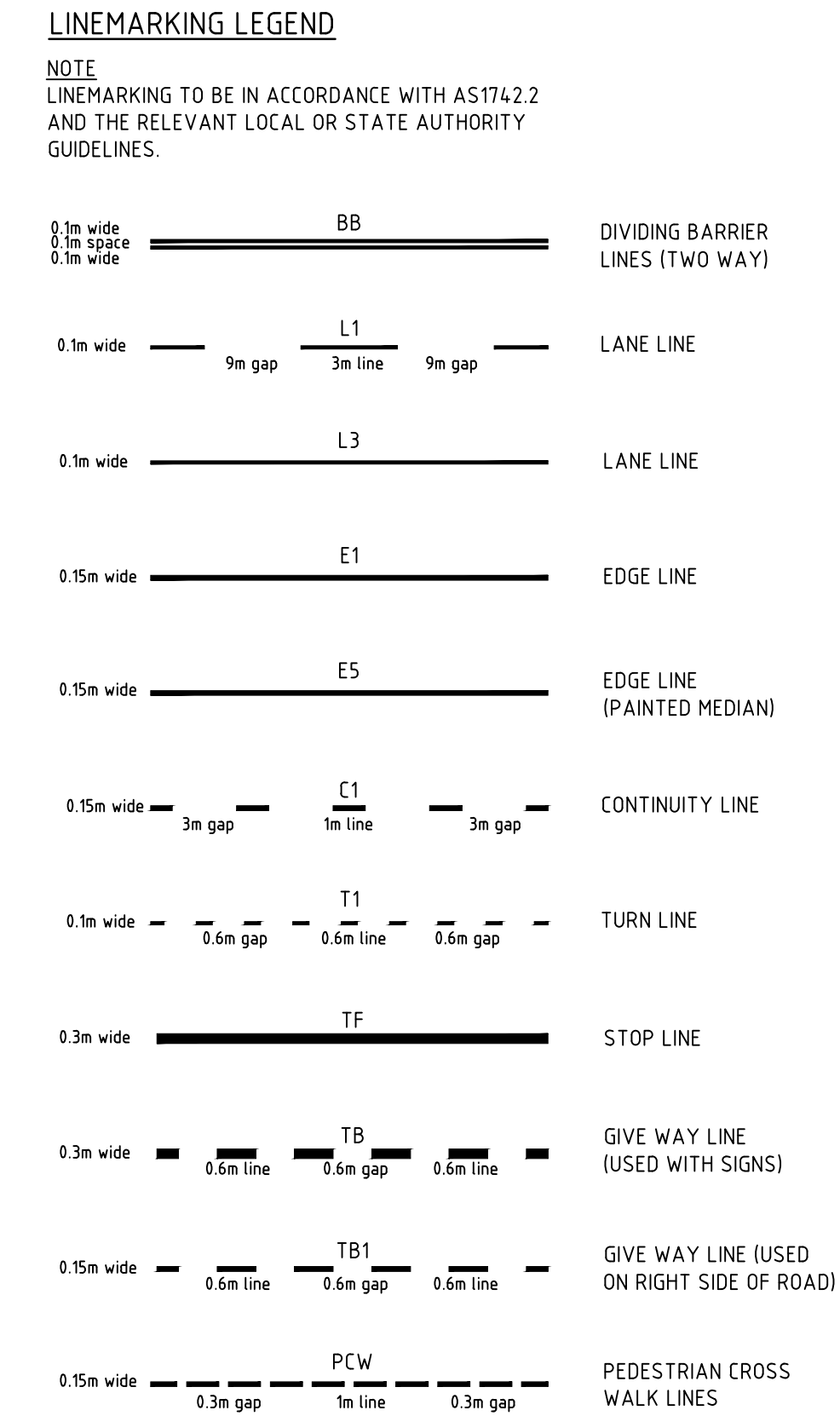
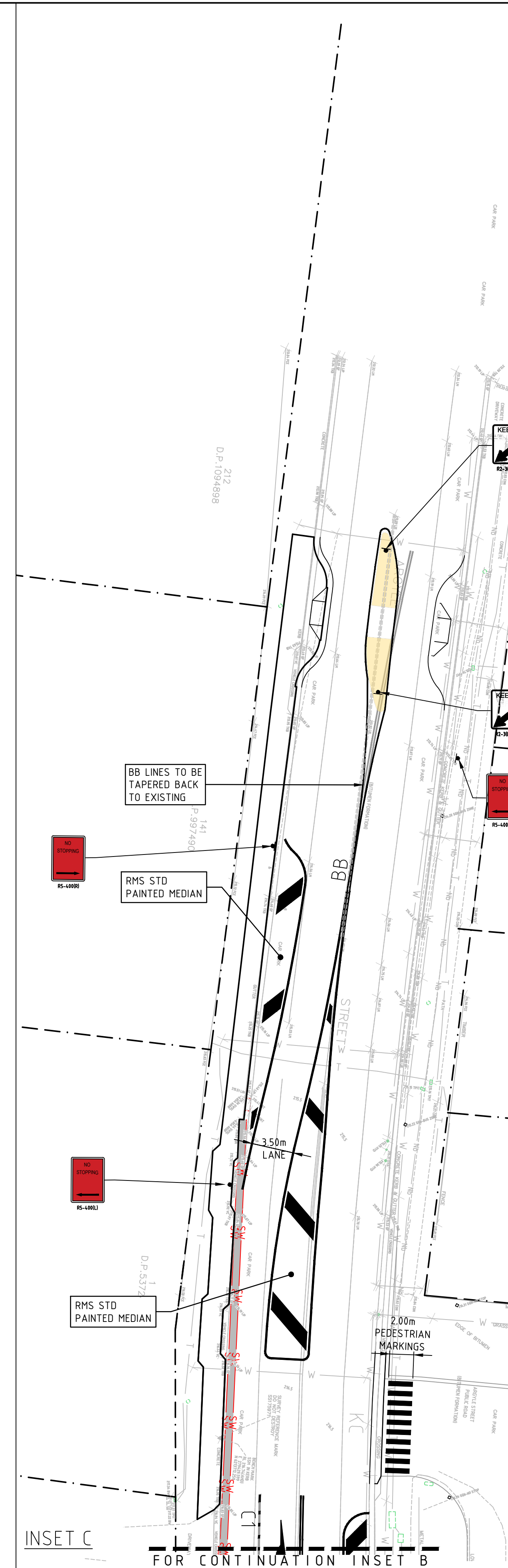
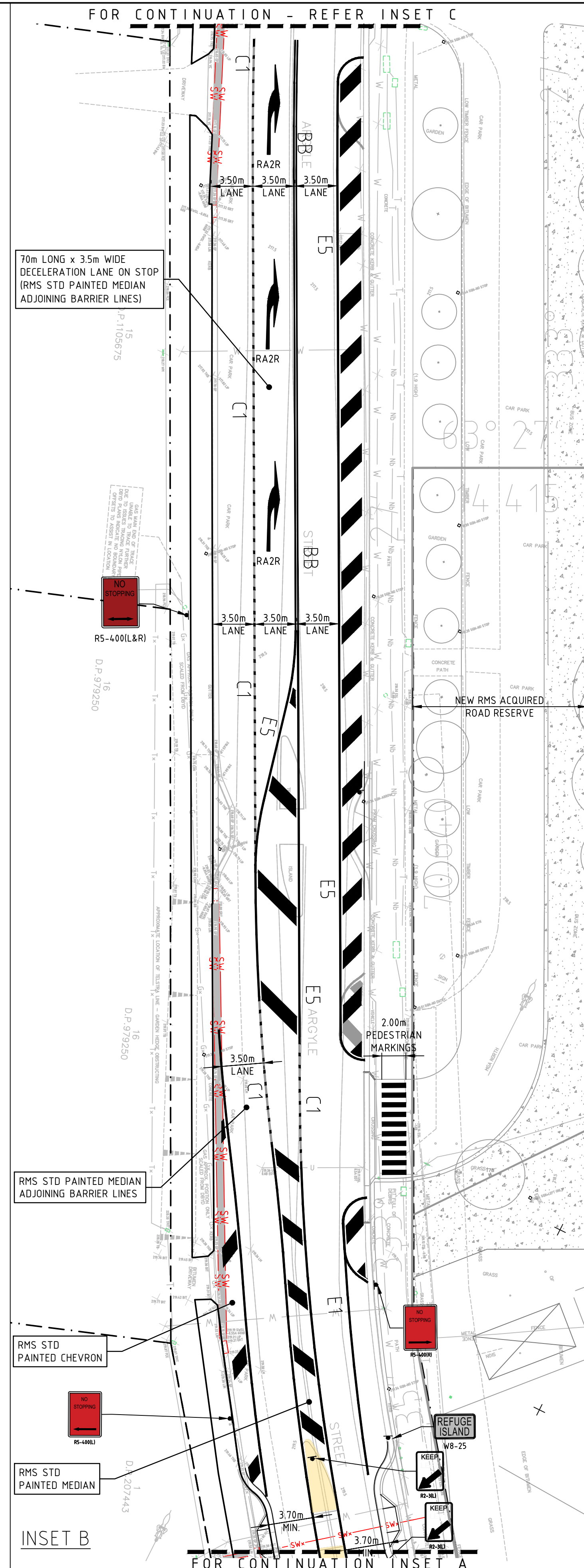
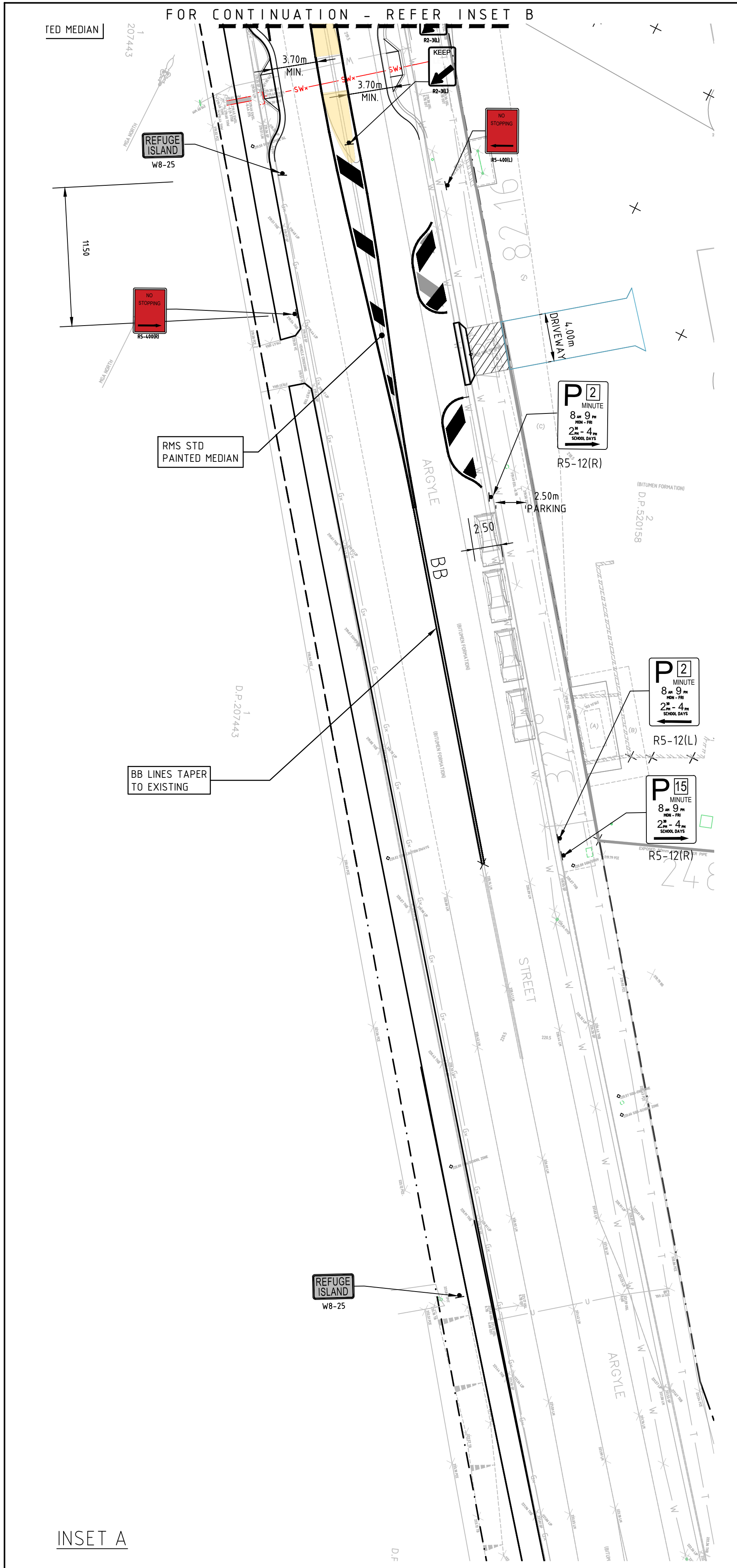


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SCALE 1:250

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AB	EFSG SIGN OFF ISSUE	30/11/18	DB	SN
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Rev	Description	Date	By	App
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Rev	Description	Date	By	App
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sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name
PICTON HIGH SCHOOL
REDEVELOPMENT
PICTON, NSW 2571

Drawing Title
SIGN POST AND MARKING
PLAN

DESIGN DEVELOPMENT			
Designed	SN	Project Director Approved	Date
Drawn	DB		
Scale	1:250	Project Ref	Drawing No
Date	NOV 2018		Rev
Sheet	A1	20 21888 01	C070 AB

Prity Cleary

From: Prity Cleary
Sent: Tuesday, 6 November 2018 4:30 PM
To: Chris Patfield
Subject: RE: Picton High School SSD 8640

Thanks Chris.

Kind regards,

Prity Cleary

Senior Planner
Social and Other Infrastructure Assessments
Planning Services
320 Pitt Street | GPO Box 39 | Sydney NSW 2001
T 02 8289 6795 E Prity.Cleary@planning.nsw.gov.au



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From: Chris Patfield <cpatfield@ethosurban.com>
Sent: Tuesday, 6 November 2018 1:32 PM
To: Prity Cleary <Prity.Cleary@planning.nsw.gov.au>
Cc: Daniel West <Dwest@ethosurban.com>
Subject: RE: Picton High School SSD 8640

Hi Prity,

Thank you for your email. I have provided responses to your queries below:

1. The demountable buildings (temporary school) will not form part of the SSD Application. It will be carried out under the exempt and complying provisions of the *SEPP (Educational Establishments and Child Care Facilities) 2017*
2. Whilst the temporary school is not part of the SSD Application, the timing and use of the temporary school is dependent on the SSD Application only in that demolition of the existing buildings (and hence, the requirement for student and staff decanting) can only commence once the SSD Application is approved. Ideally, development consent for the SSD Application will be granted prior to the end of 2018, which would allow demolition to commence and the temporary school to become operational prior to the commencement of Term 1 2019 to reduce the impact on student and staff disruption. The Wonga Road and access works support, but are not necessary to, the operation of the temporary school – however, the project team are working to ensure that the Wonga Road access will be available prior to the commencement of the temporary school pending planning approval of the SSD Application.

The proposed works for Wonga Road are incorporated into the SSD package as it forms part of the Redevelopment including;

- It becomes the truck access point for the redeveloped school deliveries, garbage pickup and the like.
- It is the exit point for staff utilising the South Carpark.
- It is the proposed location for additional bus pickup & dropoff in the Masterplan for a future 500 students (if it ever happens)

The temporary school doesn't *need* the Wonga Road works to be completed to operate i.e. it will open Day 1 Term 1 2019 utilising the existing Argyle Street bus pick up & drop off facilities. However, the school operation would benefit greatly from having the Wonga Road Works completed. No Wonga roadworks will be completed without the Wollondilly Shire Council Section 138 approvals process being completed.

I trust that adequately responds to your enquiries. If you need any further clarification, please let me know.

Kind regards,

Chris

Chris Patfield

Urbanist
Planning

T. +61 2 9956 6962

D. +61 2 9409 4909

M. +61 434 014 517

W. ethosurban.com



**ETHOS
URBAN**

173 Sussex St.
Sydney NSW 2000

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From: Prity Cleary <Prity.Cleary@planning.nsw.gov.au>

Sent: Monday, 5 November 2018 1:53 PM

To: Chris Patfield <cpatfield@ethosurban.com>

Subject: Picton High School SSD 8640

Hi Chris,

Both Wollondilly Council and the Department have recently received emails from residents about the Wonga Road works and the concerns with respect to demountable buildings (temporary school) to be placed on site.

I understand that the Wonga Road access and road works forms part of the this SSD application.

The Department requires clarification as follows:

1. Does the demountable buildings (temporary school) form part of the SSD application or will it be carried out under the exempt development provisions?
2. If the temporary school will be carried out under the exempt development provisions, when will the temporary school be established and be in use, will it take place once the stage 1 works including Wonga Road access and road works (forming part of SSD) has been completed?

Kind regards,

Prity Cleary

Senior Planner

Social and Other Infrastructure Assessments

Planning Services

320 Pitt Street | GPO Box 39 | Sydney NSW 2001

T 02 8289 6795 E Prity.Cleary@planning.nsw.gov.au

Prity Cleary

From: Chris Patfield <cpatfield@ethosurban.com>
Sent: Wednesday, 12 December 2018 12:19 PM
To: Prity Cleary
Cc: 'Michael Kavanagh'
Subject: RE: Picton High School SSD 8640

Hi Prity,

Regarding the RMS comments: we are working on getting you a response by COB. In any event, I will provide you with an update before the end of the day.

Regarding the forecast strategy: we have clarified with SINSW about the current living in catchment projections for Picton High School. These are captured in the table below.

School Name	School Level	Measurement	2017	2021	2026	2031	2036	2041
Picton High School	High	Students	1,211	1,320	1,340	1,360	1,475	1,590
Picton High School	High	Staff Spaces	61	66	67	68	74	80

Regarding these figures and a strategy for student/staff intake, the following comments inform the projections:

- the projections are based on building capacity and infrastructure at the school and simulations including regional population growth
- the projections are not related to any enrolment strategy, as there are legislative requirements which require any future student the ability to enrol in a local public high school

These projections indicate that the school is not projected to exceed 1,580 students until 2041. Any increase above 1,580 students will require additional classrooms beyond what is proposed under the current SSD Application notwithstanding that core facilities are provided up to 2,000 students. Hence, any increase above 1,580 will likely require (pending exempt and complying development provisions) formal development consent. Whilst the limitations to flexible growth of the school under a proposed student or staff cap are acknowledged (including the legislative requirements associated with allowing students the ability to enrol), there is projected to be 20+ years for the school to seek a formal modification to the consent to increase or remove the cap if required. Consistent with the planning circular that you sent through last week, we consider there be reasonable evidence in this instance to suggest that a cap is appropriate as discussed with you over the last week.

Please let me know if you require any further information on the forecast strategy.

Kind regards,

Chris

Chris Patfield

Urbanist



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173 Sussex Street
Sydney NSW 2000

Happy holidays from Ethos Urban!

Our office will be closed from 22nd December and will reopen on 7th January.

We wish you a happy, safe and relaxing holiday with friends and family,
and look forward to working with you in 2019.

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From: Prity Cleary <Prity.Cleary@planning.nsw.gov.au>
Sent: Wednesday, 12 December 2018 11:58 AM
To: Chris Patfield <cpatfield@ethosurban.com>
Cc: 'Michael Kavanagh' <michael.kavanagh11@det.nsw.edu.au>
Subject: Picton High School SSD 8640

Hi Chris,

I was just following up on the information Department have requested including a response to RMS comments and forecast strategy of student capacity being reached.

Could you please give some indication when this information will be provided?

Kind regards,

Prity Cleary
Senior Planner
Social and Other Infrastructure Assessments
Planning Services
320 Pitt Street | GPO Box 39 | Sydney NSW 2001
T 02 8289 6795 E Prity.Cleary@planning.nsw.gov.au



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