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## A TRAFFIC AND PARKING IMPACTS REPORT FOR A PROPOSED EXTENSION AT RISSALAH COLLEGE

Property addre	Rissalah College, 54-72 Hampden Rd, Lakemba NSW 2195
Client	crawford architects
Prepared by	O. Sannikov, MEngSc (Traffic Engineering), MIEAust, PEng, FAITPM
Date	09/11/22
Job No.	22067
Report No.	22067 Rep 02
Item	Report
Site location	Refer to Figure 1.
<b>Existing land</b>	<ul> <li>An independent co-educational school (referred to as "the College" further in this report).</li> </ul>
use	<ul> <li>The school provides education to Primary and High School students.</li> </ul>
	<ul> <li>34 full-time equivalent (FTE) teaching staff</li> </ul>
	<ul> <li>17 FTE non-teaching staff</li> </ul>
	<ul><li>930 students (years K to 10)</li></ul>
	<ul> <li>Ground level car parking areas</li> </ul>
	<ul> <li>21 car parking spaces for staff (0.4 spaces per staff or 1 space per 2.4 staff)</li> </ul>
	<ul> <li>Including 14 spaces in tandem configuration</li> </ul>
Proposed	<ul> <li>Alterations and additions (refer to architectural plans attached in the Appendix).</li> </ul>
development	<ul> <li>New extension to the property at No. 55 MacDonald Street</li> </ul>
	<ul> <li>New general learning areas (GLA)</li> </ul>
	<ul> <li>200 additional students (secondary school)</li> </ul>
	<ul> <li>New pedestrian access to MacDonald Street</li> </ul>



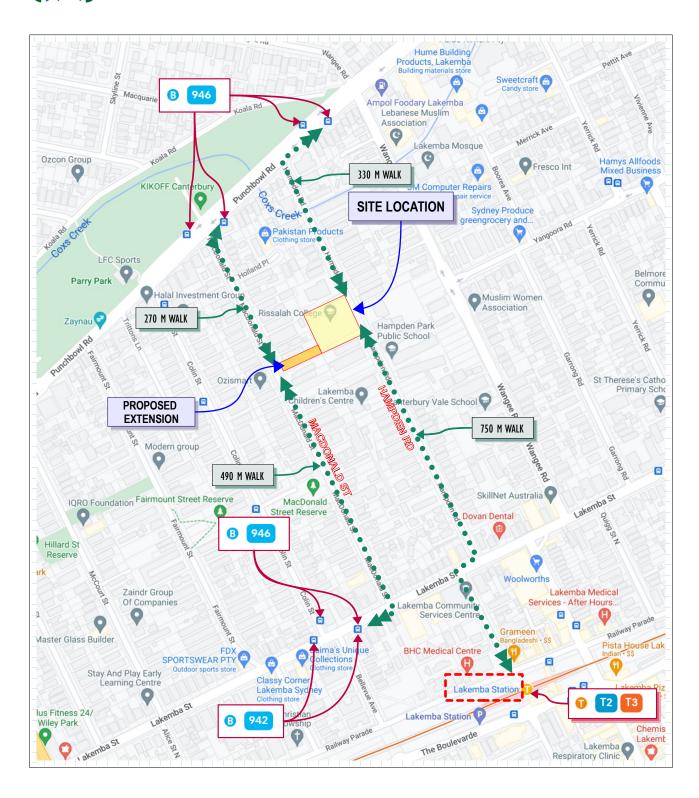


Figure 1. Site location and public transport provisions.



Item	Report								
	Existing traffic and parking situation								
Street	<ul> <li>The key roads around the proposed development are described below.</li> </ul>								
characteristics	Hampden Road								
	<ul> <li>Local street</li> </ul>								
	<ul><li>2 travel lanes and 2 parking lanes</li></ul>								
	<ul> <li>Hampden Park Public School is located on Hampden Road opposite Rissalah College. Student pick-ups at the School are timed to occur before the Rissalah College pick-ups, to avoid congestion in Hampden Road in both directions at the same time.</li> </ul>								
	<ul> <li>MacDonald Street</li> </ul>								
	<ul><li>Local street</li></ul>								
	<ul><li>2 travel lanes and 2 parking lanes</li></ul>								
	<ul> <li>Other streets in the surrounding area are local/local collector roads. Street conditions are typical for a residential area, with low to moderate traffic volumes.</li> </ul>								
	Public Transport								
	<ul> <li>Based on the advice received from the College Principal, public transport is used by the majority of secondary school students and to a lesser extent by primary school students.</li> </ul>								
	Refer to Figure 1.								
Bus	<ul> <li>There are public bus stops within walking distance (approximately 270, 330 and 490 metres) on Punchbowl Road and Lakemba Street, servicing routes 942 and 946.</li> </ul>								
	• The College operates three (3) private 20-seat buses which pick up approximately 50 to 60 students at about 15:10-15:20.								
	<ul> <li>A bus zone is established for this purpose at the southern end of the College frontage.</li> <li>It operates from 08:00 to 9:00 and 14:30 to 15:30 on school days.</li> </ul>								
Train	<ul> <li>Lakemba train station is located within 750 m from the College.</li> </ul>								



Item	Report									
	Proposed redevelopment									
Existing and	<ul> <li>The existing and planned student numbers were provided by Rissalah College.</li> </ul>									
planned student and	Existing population									
staff numbers	<ul> <li>Primary school (kindergarten to Year 6) – 645 students</li> </ul>									
	<ul> <li>Secondary school (Years 7 to 12) – 285 students</li> </ul>									
	<ul> <li>Planned population for the proposed expansion</li> </ul>									
	<ul> <li>Primary school (kindergarten to Year 6) – 645 students (no change)</li> </ul>									
	<ul> <li>Secondary school (Years 7 to 12) – 485 students (200 additional students)</li> </ul>									
	<ul> <li>The future increase of teaching staff has been calculated proportionally to the increase in the number of students. The increase of non-teaching staff was estimated at 50% of the student growth factor, as the students' increase does not require the increased number of administration staff. The likely future staff numbers will be as follows</li> </ul>									
	<ul> <li>41 FTE teaching staff (increase by 7)</li> </ul>									
	<ul> <li>19 FTE non-teaching staff (increase by 2)</li> </ul>									
	o 60 staff in total									



Item	Report
Planning control	City of Canterbury Bankstown
document	<ul> <li>Canterbury Development Control Plan 2012 (DCP)</li> </ul>
	<ul> <li>Part B – General Controls</li> </ul>
	<ul> <li>Part C - Residential Development</li> </ul>
	<ul> <li>Part E - Site Specific Development</li> </ul>
	Requirement Compliance

## Section B1 - Transport and parking

## **B1.3.1 General Parking Rates**

Land Use	Car Spaces	Servicing and Delivery	Bicycle Spaces			
Educational Establishments	Primary School 1 space per 2 staff Visitors: Adequate provision on- street for the dropping-off and picking-up of students.	Provide for adequate bus	Staff: Minimum 1 space per 10 staff. Students: Adequate			
	Secondary School/Other Educational Establishment A Traffic and Parking Assessment Report with a	econdary School/Other ducational Establishment Traffic and Parking				
	survey of similar establishments is required.		Staff: Minimum 1 space per 10 staff. Students: Adequate provision of bicycle parking for students.			

	for students.					
The existing car parking requirement for 51 staff is: $51/2 = 25.5$ , say 26 spaces.	Currently, the College provides a total of 21 off-street car parking spaces. Most of these spaces are in a tandem arrangement, however they have been successfully managed over the years.					
	Based on the DCP requirements, the College currently relies on (26 - 21) = 5 on-street car parking spaces.					
After the proposed redevelopment, the car parking requirement for the estimated 65 staff $60 / 2 = 30$ car parking spaces	The proposed redevelopment does not include any changes to the existing car parking provision of 21 spaces.					
50 / 2	Based on the DCP requirements, after the proposed redevelopment the College will rely on (30 - 21) = 9 on-street car parking spaces.					
	The additional on-street car parking demand will be $(9 - 5) = 4$ staff cars.					
The minimum bicycle parking requirement for the estimated 60 staff after the proposed redevelopment is 60 / 10 = 6 bicycle parking spaces	6 bicycle spaces are to be provided					
Currently, there are 3 buses used to deliver and pick up students.	The number of buses would need to be increased to 4, proportionally to the student population growth.					



Item	Report										
	Traffic and parking conditions and management										
Existing parking	Parking surveys and survey results										
conditions	<ul> <li>A parking demand survey was conducted on Thursday 1<sup>st</sup> of September 2022.</li> </ul>										
	<ul> <li>The survey was conducted between 07:00 and 16:00 (most staff start to leave about an hour after the classes).</li> </ul>										
	Refer to Figure 2 for survey locations.										
	• The survey areas were kerbside parking locations in the surrounding streets, within walking distance, up to 700 metres from the site (less than the 750 m walking distance to the Lakemba train station). It must be noted that whilst the maximum walking distance is 700 m, the average walking distance to available parking spaces within this range is 350 m.										
	<ul> <li>Parked cars and available parking spaces were counted only in unrestricted kerbside parking zones within the survey parking areas (suitable for all day parking by the school staff).</li> </ul>										
	Refer to <b>Table 1</b> for survey results										
	<ul> <li>Overall, the on-street parking demand was stable throughout the day with approximately 70 to 85 spaces vacant at any one time.</li> </ul>										
	<ul> <li>The maximum number of vacant spaces (90) was observed at 13:30</li> </ul>										
	<ul> <li>The minimum number of vacant spaces (61) was observed at 16:00</li> </ul>										
	<ul> <li>Counts within closer areas (up to 450 metre walking distance, 225 m on average) revealed that approximately 20 to 25 spaces were vacant throughout the day.</li> </ul>										
Parking impact of the proposed redevelopment	<ul> <li>After the proposed redevelopment, based on the car parking rates set out in the DCP and the estimated staff number, the College will rely on 4 additional on-street car parking spaces.</li> </ul>										
	<ul> <li>As may be seen from the parking accumulation survey results, the surrounding streets can easily accommodate this additional car parking demand. The remaining vacancy rates will be in the order of 13 to 18 parking spaces within close walking distance and 63 to 78 parking spaces within reasonable walking distance.</li> </ul>										
	There will be no undue negative impact on the street parking conditions.										
Bus parking	<ul> <li>A bus zone for three (3) mini-buses is currently established at the southern end of the College frontage. It operates from 08:00 to 9:00 and 14:30 to 15:30 on school days.</li> </ul>										
	• It is recommended that either this bus zone be extended to the south for one additional bus (8 m) or a similar bus zone for one (1) bus be established in MacDonald Street to the north of property No. 55.										



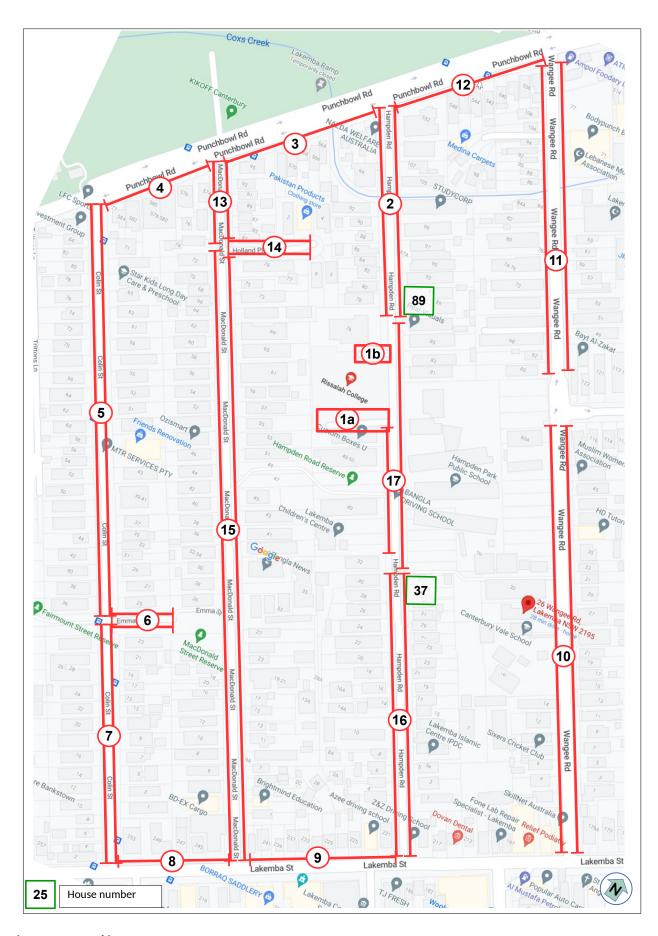


Figure 2. Car parking survey areas.



Table 1. Parking demand survey results.

	Number of parked cars																		
								Р	arking	Locatio	n								
Time	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
7:00	0	0	34	8	7	63	9	26	4	8	51	56	13	15	14	82	48	12	450
7:30	6	0	38	9	7	61	9	26	6	8	51	56	12	15	14	82	49	13	462
8:00	12	0	42	9	6	58	8	24	6	9	51	56	11	15	14	82	50	13	466
8:30	15	1	42	9	7	56	8	22	6	10	51	56	10	14	14	82	48	13	464
9:00	18	1	41	9	8	53	8	19	6	11	51	57	9	13	14	82	45	13	458
9:30	18	1	41	9	8	55	7	21	6	11	52	58	10	12	13	82	45	13	462
10:00	18	1	40	9	7	56	6	22	6	11	52	59	10	12	12	82	45	13	461
10:30	18	1	40	9	7	57	6	23	6	10	51	59	10	11	11	82	45	13	459
11:00	18	1	41	10	7	57	6	23	6	9	50	59	10	11	11	82	45	13	459
11:30	18	1	41	10	6	58	6	24	6	9	50	59	10	10	11	82	45	13	459
12:00	18	1	39	10	7	58	5	24	6	8	49	59	11	10	11	83	45	13	457
12:30	18	1	39	10	7	56	7	24	5	9	46	59	11	9	11	83	45	13	453
13:00	18	0	40	10	6	53	8	23	5	9	48	53	8	11	11	85	45	13	446
13:30	17	0	41	8	6	51	7	24	5	9	47	51	8	12	10	87	47	11	441
14:00	18	0	42	9	6	57	8	25	6	9	46	49	8	12	10	89	47	9	450
14:30	18	0	43	9	7	62	9	26	6	9	42	48	9	12	9	91	46	6	452
15:00	19	1	42	8	8	64	9	26	7	10	51	61	11	12	11	92	48	8	488
15:30	19	1	40	11	6	61	12	27	8	10	46	52	13	13	12	95	50	10	486
16:00	19	1	41	7	6	61	14	25	8	10	40	42	13	13	12	98	50	10	470
No of spaces	18	3	43	11	8	68	17	27	10	11	51	62	12	15	18	98	46	13	531

							Nu	mber c	of vaca	nt park	ing spa	ces							
	Parking Location																		
Time	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
7:00	18	3	9	3	1	5	8	1	6	3	0	6	-1	0	4	16	-2	1	81
7:30	12	3	5	2	1	7	8	1	4	3	0	6	0	0	4	16	-3	0	69
8:00	6	3	1	2	2	10	9	3	4	2	0	6	1	0	4	16	-4	0	65
8:30	3	2	1	2	1	12	9	5	4	1	0	6	2	1	4	16	-2	0	67
9:00	0	2	2	2	0	15	9	8	4	0	0	5	3	2	4	16	1	0	73
9:30	0	2	2	2	0	13	10	6	4	0	-1	4	2	3	5	16	1	0	69
10:00	0	2	3	2	1	12	11	5	4	0	-1	3	2	3	6	16	1	0	70
10:30	0	2	3	2	1	11	11	4	4	1	0	3	2	4	7	16	1	0	72
11:00	0	2	2	1	1	11	11	4	4	2	1	3	2	4	7	16	1	0	72
11:30	0	2	2	1	2	10	11	3	4	2	1	3	2	5	7	16	1	0	72
12:00	0	2	4	1	1	10	12	3	4	3	2	3	1	5	7	15	1	0	74
12:30	0	2	4	1	1	12	10	3	5	2	5	3	1	6	7	15	1	0	78
13:00	0	3	3	1	2	15	9	4	5	2	3	9	4	4	7	13	1	0	85
13:30	1	3	2	3	2	17	10	3	5	2	4	11	4	3	8	11	-1	2	90
14:00	0	3	1	2	2	11	9	2	4	2	5	13	4	3	8	9	-1	4	81
14:30	0	3	0	2	1	6	8	1	4	2	9	14	3	3	9	7	0	7	79
15:00	-1	2	1	3	0	4	8	1	3	1	0	1	1	3	7	6	-2	5	43
15:30	-1	2	3	0	2	7	5	0	2	1	5	10	-1	2	6	3	-4	3	45
16:00	-1	2	2	4	2	7	3	2	2	1	11	20	-1	2	6	0	-4	3	61

Note: negative numbers indicate vehicles parked illegally



Item	Report	
Existing queuing	•	Observation surveys
<i>33</i>		<ul> <li>A survey of student pick-up activities in Hampden Road was carried out on Tuesday 29/03/22 between 14:00 and 16:00.</li> </ul>
		<ul> <li>The morning drop-off period is typically not as busy at schools and therefore not critical.</li> </ul>
		Observations included:
		<ul> <li>Students leaving the Hampden Park Public School and associated pedestrian movements and car-based pick-ups.</li> </ul>
		<ul> <li>Most of these activities occurred just prior to or at the beginning of the peak pick-up period at Rissalah College. There was minimal interaction.</li> </ul>
		<ul> <li>Car pick-ups occurred on the eastern side of Hampden Road in the time restricted parking zone.</li> </ul>
		<ul> <li>Students leaving Rissalah College on foot, by school buses and picked up by cars.</li> </ul>
		<ul> <li>Most of the secondary school students walked, primarily to the south of the school.</li> </ul>
		<ul> <li>Car pick-ups mostly occurred on the western side of Hampden Road in the time restricted parking zone, with the queue extending into the traffic lane during the peak period.</li> </ul>
		The vehicular queue at the College frontage started accumulating at approximately 14:30. By about 14:40 the queue extended just beyond the zebra crossing located some 50 m to the south of the College. The queue continued growing until about 15:20 when vehicles at the front of the queue started leaving (having had picked up their children). The queue completely dissipated at approximately 15:45.
		<ul> <li>The maximum length of the queue was in the order of 55-60 vehicles or 360 m.</li> </ul>
		<ul> <li>It must be noted that the survey was conducted in rainy weather, with more students picked up by car than usual. The observed queuing is believed to represent the worst case scenario.</li> </ul>
		<ul> <li>Student pick-ups were conducted generally in an orderly manner. All cars had labels with numbers on their windscreens, corresponding to the children they were picking up.</li> </ul>
		<ul> <li>Several staff members were positioned along the road and looked up windscreen numbers, advising other staff members at the College about the children to be prepared for the pick-up. Children were then released and escorted to their cars when necessary by the staff.</li> </ul>
Estimated queuing after redevelopment	•	Assuming that the proportion of students picked up by cars will remain the same in the future, the following analysis has been carried out.
. cuevelopinent	•	Currently, there are 645 primary school students and 285 secondary school students at the College.
	•	The planned growth of the student numbers by 200 for the current redevelopment proposal is for the secondary school only. After the redevelopment, the number of secondary school students will increase by 70% (1.7 times).
	•	The percentage of students picked up by cars is different for the primary and secondary schools, as most secondary school students travel from the College by themselves, on foot or by public transport.
	•	A recent research study of schools carried out by TfNSW has found that the average vehicle trip generation for metropolitan schools was 0.53 car trips per student for primary students and 0.28 for secondary students.
	•	Application of the above rates to the existing maximum vehicular queue length of 360 m and the existing student numbers (645 primary and 285 secondary) reveals that cars picking up primary and secondary school students currently contribute to 81% (292 m) and 19% (68 m) of the queue respectively.



Item	Report
	<ul> <li>With the proposed increase of secondary school students from 285 to 485, the respective vehicular queue component is likely to grow from 68 m to 116 m.</li> </ul>
Proposed queue management	• The total queue of (292 (primary ) + 116 (secondary) = 408 m can be contained in Hampden Road which is approximately 450 m long between the front of the drop-off zone at the College frontage and the Lakemba Street intersection.
	<ul> <li>However, such an increased queue will extend nearly to the end of the street. There will be a risk that at times the queue may exceed the length of Hampden Road. This is undesirable.</li> </ul>
	<ul> <li>The proposed extension of the College to occupy the site of No. 55 MacDonald Street and the establishment of the pedestrian access off MacDonald Street provide an opportunity to separate the queues generated by primary and secondary school vehicles.</li> </ul>
	<ul> <li>It is recommended that all primary school pick-ups continue to occur in Hampden Street, whilst the secondary school pick-ups are transferred to MacDonald Street.</li> </ul>
	• As may be seen in <b>Figure 3</b> overleaf, the existing lengths of Hampden Street to the south from the College (450 m) and of MacDonald Street to the north of No. 55 (250 m) are more than sufficient to accommodate 292 m and 116 m queues respectively.
	<ul> <li>The above proposed queue separation will improve conditions in Hampden Road by reducing congestion during the College pick-up periods.</li> </ul>
Conclusion	• The proposed College extension and the increase in the secondary school student numbers by 200 are supportable on traffic and parking grounds.

Oleg I. Sannikov

Oleg I. Sannikov Director MEngSc (Traffic Engineering) MIEAust, PEng FAITPM





Figure 3. Existing and estimated future queuing lengths and street capacities.



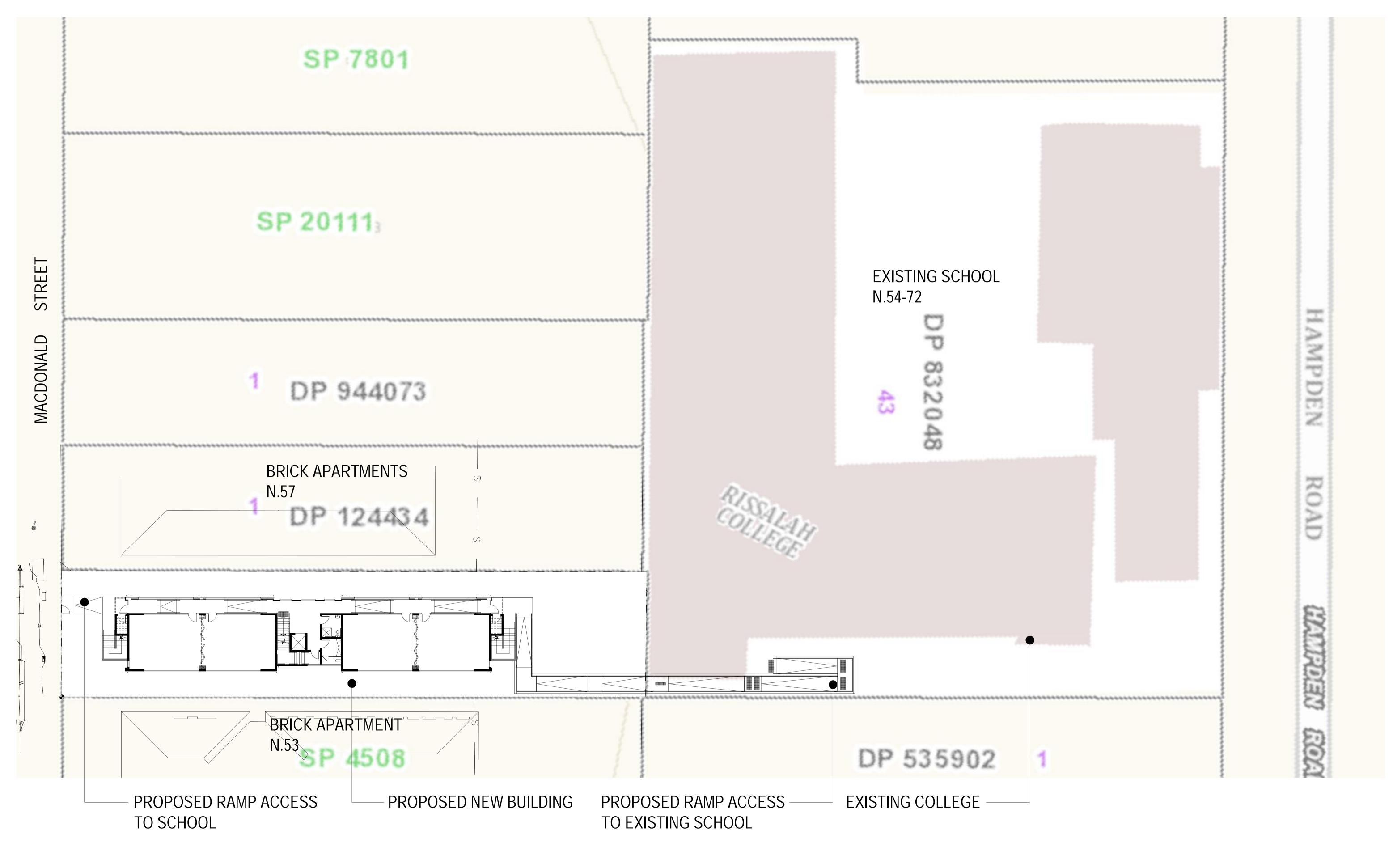
## **References:**

Canterbury Development Control Plan 2012 (DCP) RMS (2002) Guide to Traffic Generating Developments RMS (2014) Trip Generation Surveys. Schools. Analysis Report AS/NZS 2890.1-2004 Parking facilities - Off-street car parking



**Appendix** 

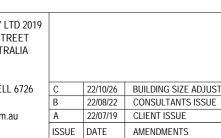
**Architectural plans** 



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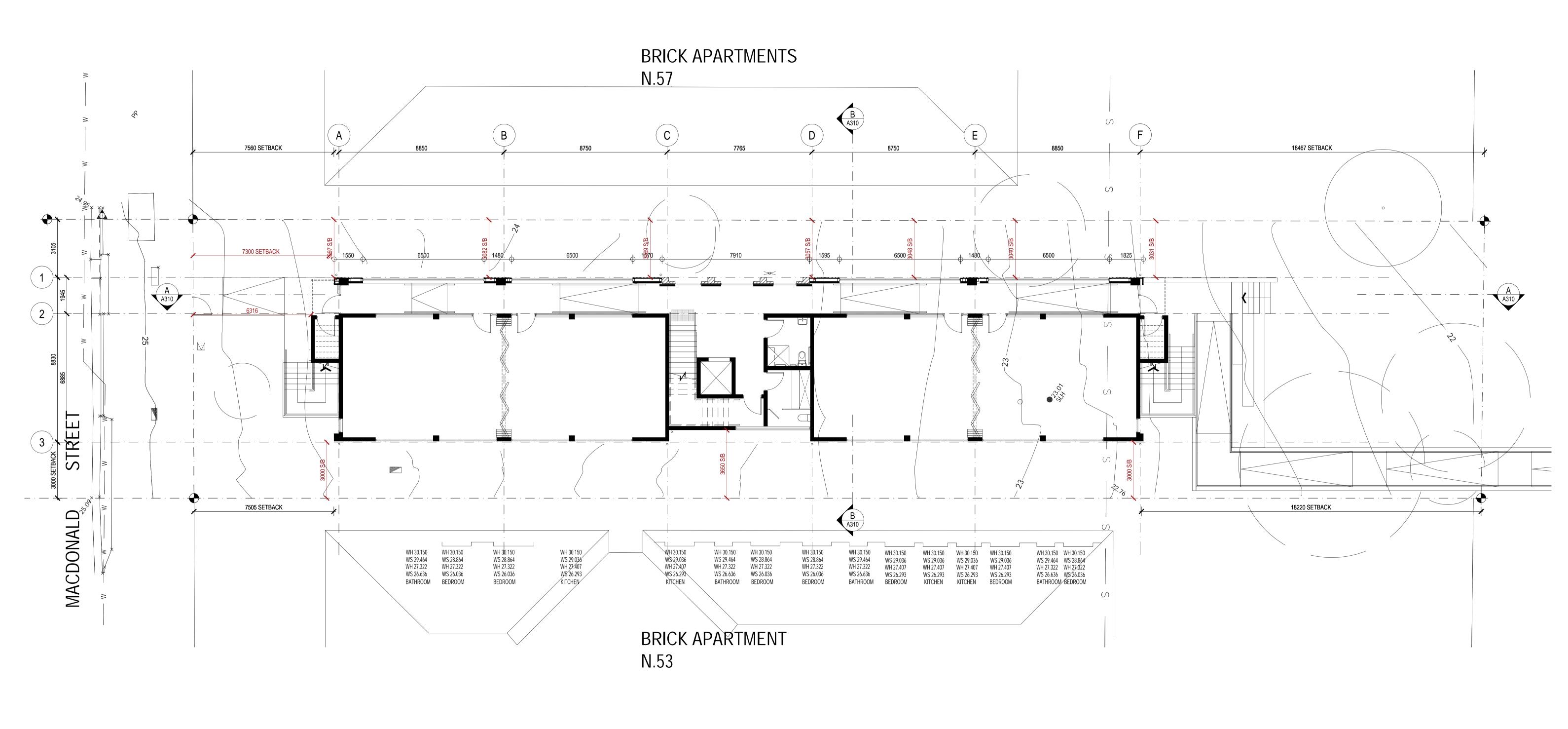
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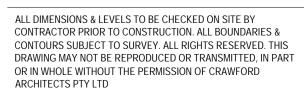












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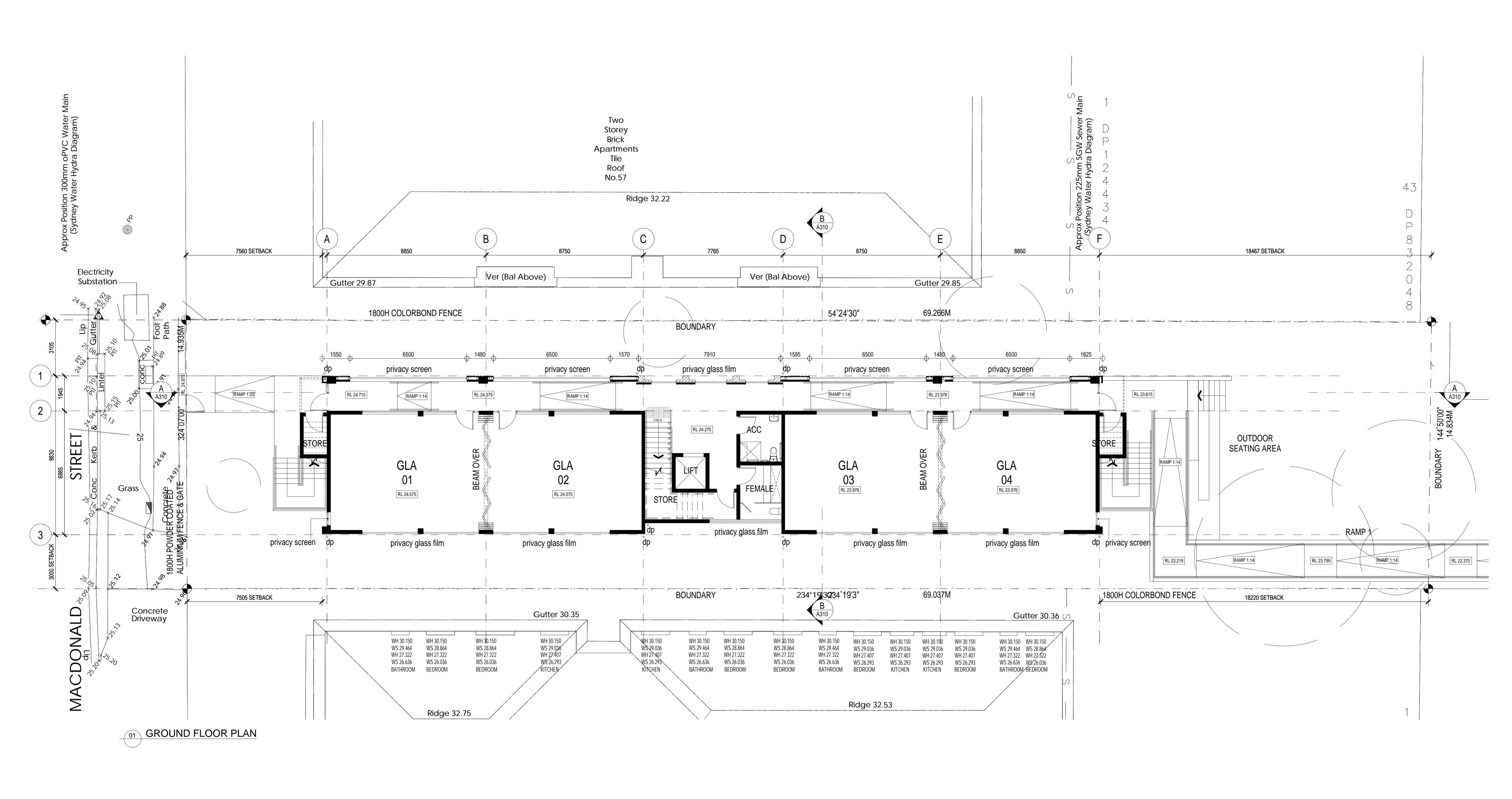
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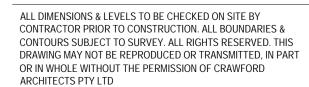


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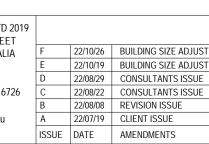
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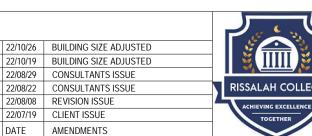






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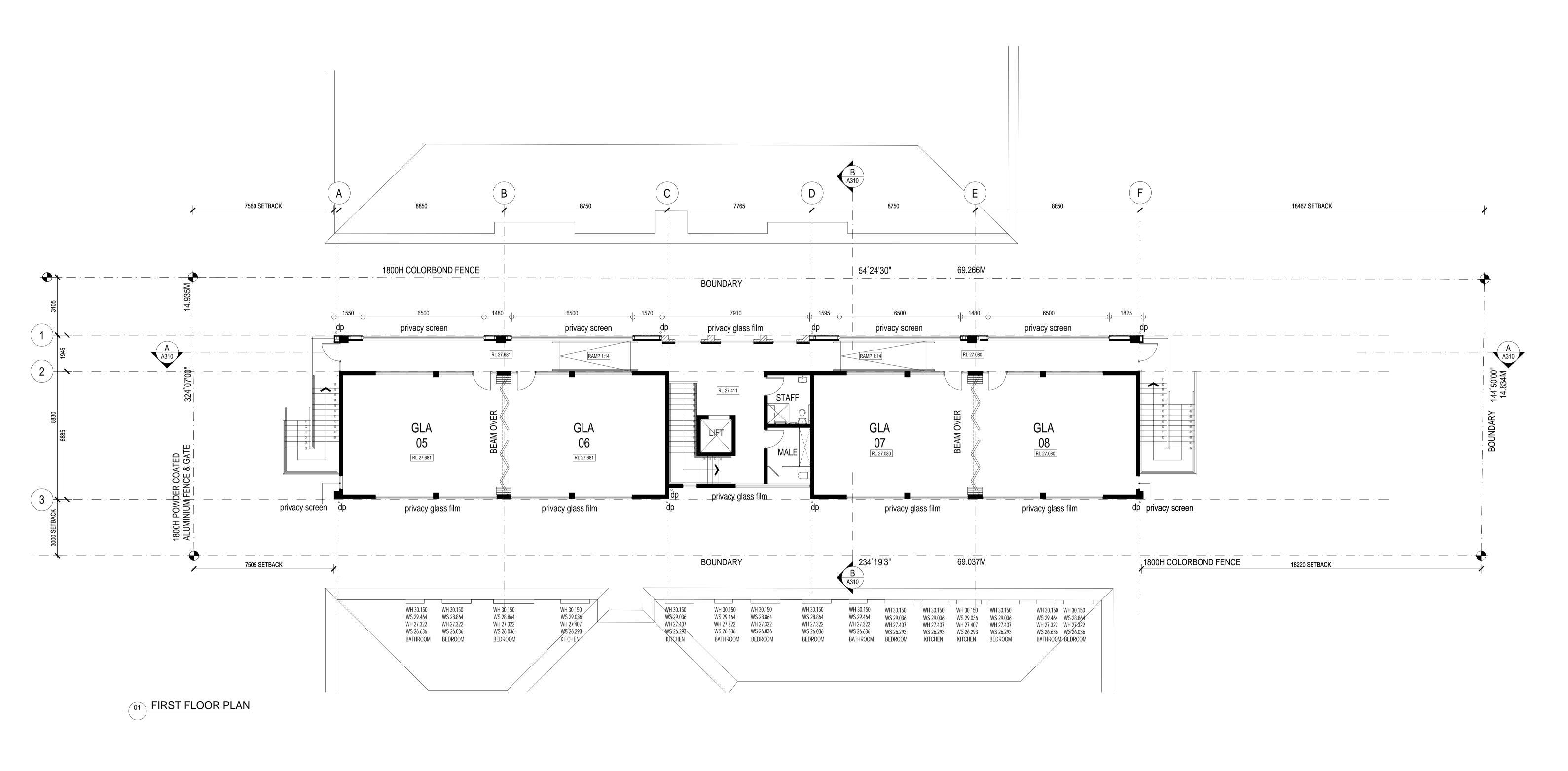
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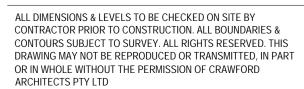


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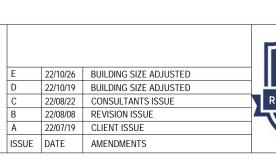
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RISSALAH COLLEGE

PROPOSED CLASSROOMS



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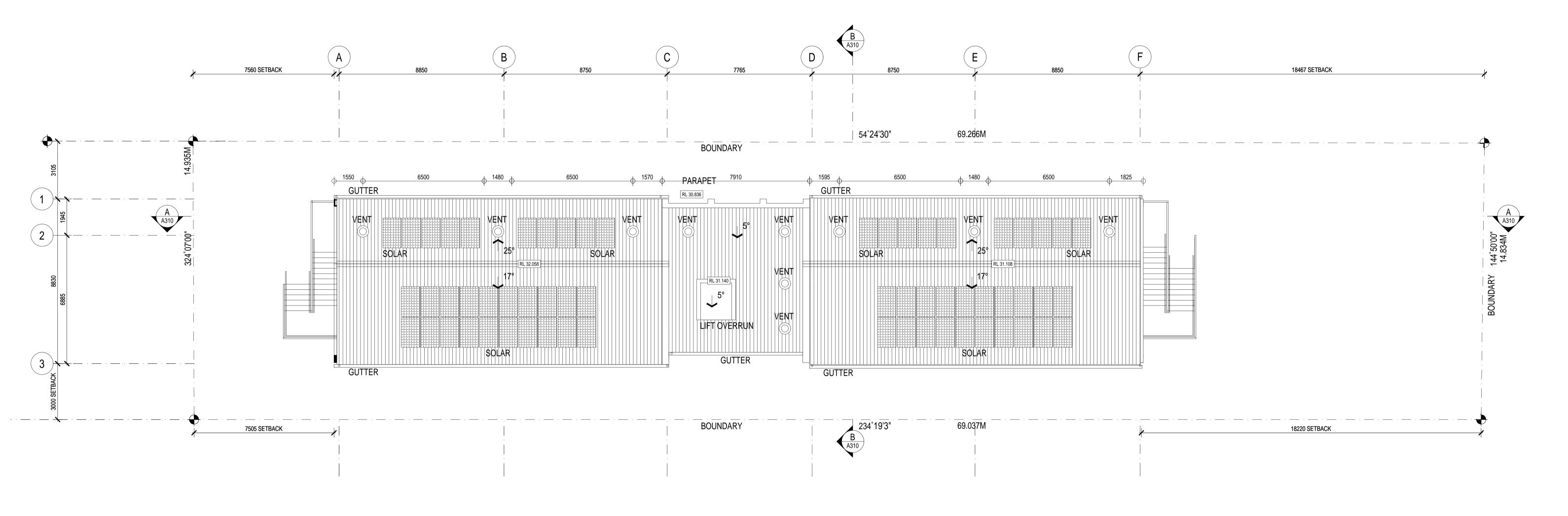
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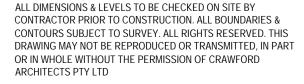


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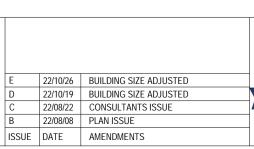
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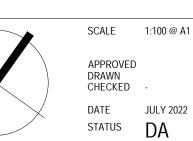


RISSALAH COLLEGE

54-72 HAMPDEN RD, LAKEMBA NSW 2195

PROPOSED CLASSROOMS

PROPOSED ROOF PLAN



PROJECT NUMBER DRAWING NUMBER

