



### PROPOSED KINDY / PRE-PRIMARY

#### VICTORIA PARK CHRISTIAN PRIMARY SCHOOL

**ENVIRONMENTAL ACOUSTIC ASSESSMENT** 

**MARCH 2021** 

OUR REFERENCE: 27402-2-21088



#### DOCUMENT CONTROL PAGE

TOWN OF VICTORIA PARK Received: 24/06/21

#### **ENVIRONMENTAL ACOUSTIC ASSESSMENT**

# KINDY / PRE-PRIMARY VICTORIA PARK CHRISTIAN PRIMARY SCHOOL

Job No: 21088

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**FOR** 

### **MATTHEWS & SCAVALLI ARCHITECTS**

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TOWN OF VICTORIA PARK Received: 24/06/21

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#### **APPENDICIES**

A PLANS

#### 1

#### 1. INTRODUCTION

TOWN OF VICTORIA PARK Received: 24/06/21

Herring Storer Acoustics were commissioned to undertake an acoustic assessment of noise emissions associated with the proposed development of a kindy and pre-primary classrooms, as part of the Victoria Park Christian Primary School.

The report considers noise received at the neighbouring premises from the proposed development for compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This report considers noise emissions from :

- Children playing within the outside play areas of the child care centre; and
- Mechanical services.

For reference, plans of the proposed development is attached in Appendix A.

#### 2. SUMMARY

The proposed classrooms would only operate during school hours, thus they would only be open during the day period on weekdays (excluding Public Holidays).

With the design / location of the early learning centre, we believe that the noise received at the closest neighbours to the south west would, due to the barrier affect provided by the early learning centre building, from children playing outdoors would be significantly reduced from the current situation. Additionally, noise received at the neighbouring premises from children playing in the outdoor areas would comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed operating times.

With the air conditioning condensing units located, as shown on the plan attached in Appendix A and the screening to the plant as shown on Figure 5.1, noise emissions from the mechanical services has been assessed to also comply with the relevant assigned noise levels for the proposed operating times.

With the screening of the air conditioning condensing units, as shown in Figure 5.1, noise emissions from the proposed child care centre, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all times.

#### 3. CRITERIA

The allowable noise level at the surrounding locales is prescribed by the *Environmental Protection* (*Noise*) Regulations 1997. Regulations 7 & 8 stipulate maximum allowable external noise levels. For noise sensitive premises this is determined by the calculation of an influencing factor, which is then added to the base levels shown below in Table 3.1. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. For commercial premises, the assigned noise levels are fixed throughout the day, as listed in Table 3.1.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving	Time of Day	Assigned Level (dB)		
Noise	Time of Day	L <sub>A10</sub> L <sub>A1</sub> L <sub>Am</sub>		L <sub>Amax</sub>
	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
Noise sensitive premises:	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
highly sensitive area	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF

Note:

LA10 is the noise level exceeded for 10% of the time.

LA1 is the noise level exceeded for 1% of the time.

L<sub>Amax</sub> is the maximum noise level.

IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

"impulsiveness" means a variation in the emission of a noise where the difference between L<sub>Apeak</sub> and L<sub>Amax(Slow)</sub> is more than 15 dB when determined for a single representative event;
 "modulation" means a variation in the emission of noise that —
 (a) is more than 3 dB L<sub>AFast</sub> or is more than 3 dB L<sub>AFast</sub> in any one-third actave hand.

- third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible;

"tonality"

means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as  $L_{Aeq,T}$  levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as  $L_{ASlow}$  levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 3.2 below.

**TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS** 

Where <b>tonality</b> is present	Where <b>modulation</b> is present	Where <b>impulsiveness</b> is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

For this development, the closest neighbouring residences are located to the west, as shown on Figure 3.1. For these residences, with Canning Highway being within 450 metres, the influencing factor (IF) has been calculated at +2 dB.



FIGURE 3.1 – NEIGHBOURING RESIDENCES

Based on the above influencing factor, the assigned outdoor noise levels for the neighbouring residential locations are listed in Table 3.3.

**TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL** 

Premises Receiving	Time of Day	Assigned Level (dB)		
Noise	Time of Day	L <sub>A 10</sub>	L <sub>A 1</sub>	L <sub>A max</sub>
	0700 - 1900 hours Monday to Saturday	47	57	67
Noise sensitive	0900 - 1900 hours Sunday and Public Holidays	42	52	67
premises	1900 - 2200 hours all days	42	52	57
p. 5	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	37	47	57

Note:

L<sub>A10</sub> is the noise level exceeded for 10% of the time.

L<sub>A1</sub> is the noise level exceeded for 1% of the time.

 $L_{\mbox{\scriptsize Amax}}$  is the maximum noise level.

#### 4. PROPOSAL

The proposed classrooms would only operate during school hours, thus they would only be open during the day period on weekdays (excluding Public Holidays). From the information provided, we understand that the number of children associated with the kindy / pre-primary program would be limited to 50.

With regards to the air conditioning, we understand that the air conditioning system will be located, as shown on the mechanical services plan, attached in Appendix A.

#### 5. MODELLING

To assess the noise received at the neighbouring premises from the proposed development, noise modelling was undertaken using the noise modelling program SoundPlan.

Calculations were carried out using the DWER weather conditions as stated in the Department of Environment Regulation "Draft Guidance on Environmental Noise for Prescribed Premises".

Calculations were based on the sound power levels used in the calculations are listed in Table 5.1.

TABLE 3.1 – 300K	TABLE 5.1 – SOUND FOWER LEVELS		
ltem	Sound Power Level, dB(A)		
Children Playing	83 (per 10 children)		
	4 @ 68		
Air conditioning condensing Units	1 @ 65		
	1 @ 63		

TABLE 5.1 - SOUND POWER LEVELS

#### Notes:

- 1 The screening to the air conditioning condensing unit being as shown on the plans, as shown on Figure 5.1.
- Noise modelling was undertaken to a number of different receiver locations for each of the neighbouring residences. However, to simplify the assessment, only the noise level in the worst case location, as shown on Figure 3.1, have been listed.

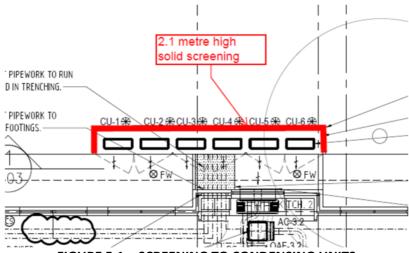


FIGURE 5.1 – SCREENING TO CONDENSING UNITS

#### 6. ASSESSMENT

Given the number of children, acoustic modelling of outdoor play noise was based on the plans provide, with, to be conservative as the sound power level is based on 5 groups of 10 children within the play area.

The resultant noise levels at the neighbouring residence from children playing outdoors are tabulated in Table 6.1.

The resultant noise levels from the air conditioning at the neighbouring residences are also listed in Table 6.1.

From previous measurements, noise emissions from children playing is a broadband noise and does not contain any annoying characteristics. Noise emissions from the mechanical services would be tonal and a +5 dB(A) penalty would be applied, as shown in Table 6.1.

TABLE 6.1 - ACOUSTIC MODELLING RESULTS FOR  $L_{\rm A10}$  CRITERIA OUTDOOR PLAY AREAS AND MECHANICAL PLANT

Naighbouring Drowing	Calculated Noise Level (dB(A))			
Neighbouring Premises	Children Playing	Air Conditioning		
North West	45	13 (18)		
South West	29	40 (45)		

() Includes +5 dB(A) penalty for tonality

Tables 6.2 and 6.3 summarise the applicable Assigned Noise Levels, and assessable noise level emissions for each identified noise.

TABLE 6.2 – ASSESSMENT OF L<sub>A10</sub> NOISE LEVEL EMISSIONS OUTDOOR PLAY (DAY PERIOD)

Neighbouring Premises	Assessable Noise Level, dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
North West	45	47	Complies
South West	29	47	Complies

TABLE 6.3 – ASSESSMENT OF L<sub>A10</sub> NOISE LEVEL EMISSIONS ALL AIR CONDITIONING (NIGHT PERIOD)

Neighbouring Premises	Assessable Noise Level, dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
North West	18	47	Complies
South West	45	47	Complies

#### 7. CONCLUSION

The proposed classrooms would only operate during school hours, thus they would only be open during the day period on weekdays (excluding Public Holidays).

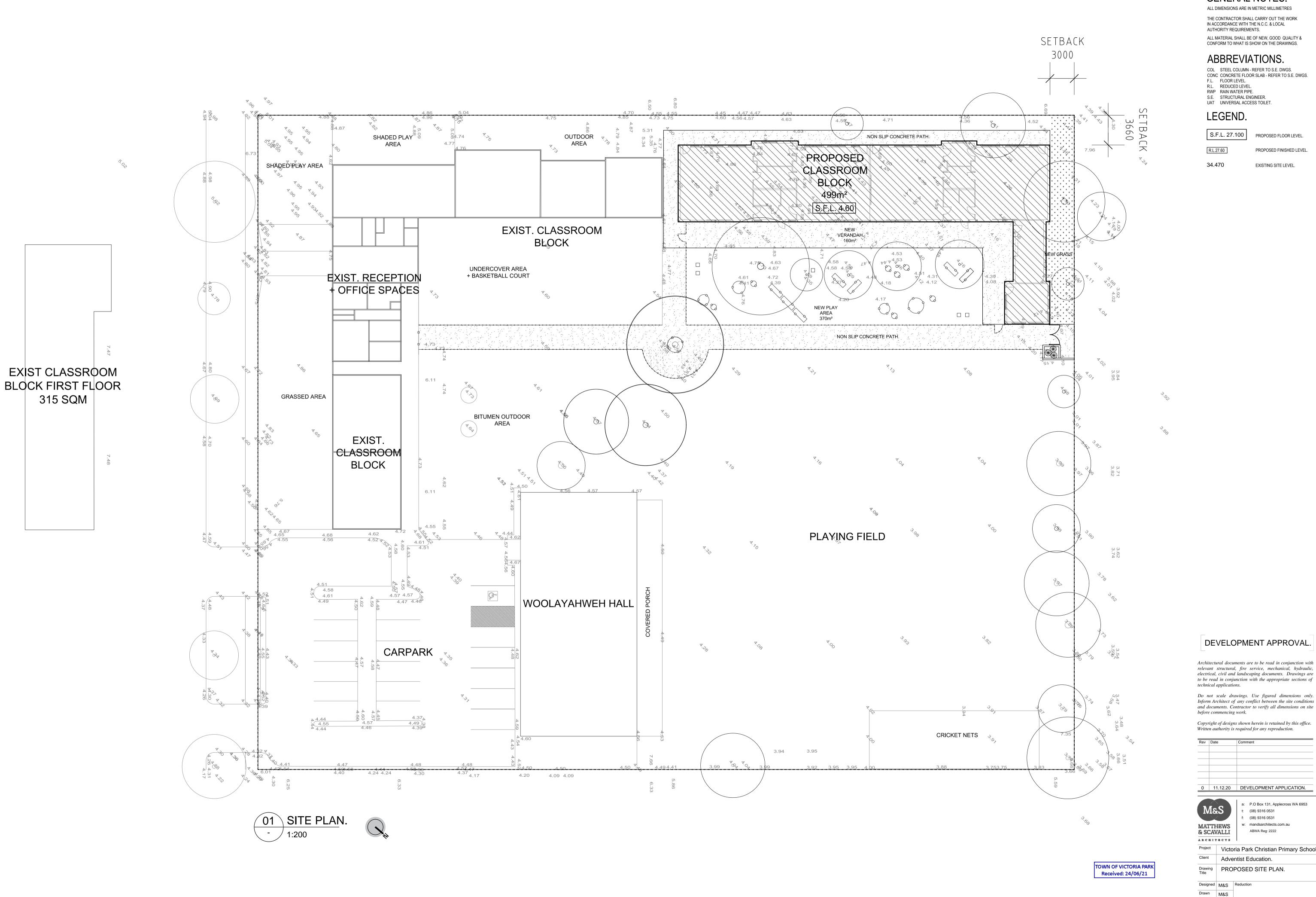
Additionally, noise received at the neighbouring premises from children playing in the outdoor areas would comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed operating times.

With the air conditioning condensing units located, as shown on the plan attached in Appendix A and the screening to the plant as shown on Figure 5.1, noise emissions from the mechanical services has been assessed to also comply with the relevant assigned noise levels for the proposed operating times.

With the screening of the air conditioning condensing units, as shown in Figure 5.1, noise emissions from the proposed child care centre, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all times.

### **APPENDIX A**

**PLANS** 



GENERAL NOTES.

ALL DIMENSIONS ARE IN METRIC MILLIMETRES

THE CONTRACTOR SHALL CARRY OUT THE WORK IN ACCORDANCE WITH THE N.C.C. & LOCAL AUTHORITY REQUIREMENTS.

ALL MATERIAL SHALL BE OF NEW, GOOD QUALITY & CONFORM TO WHAT IS SHOW ON THE DRAWINGS.

### ABBREVIATIONS.

S.E. STRUCTURAL ENGINEER.
UAT UNIVERSAL ACCESS TOILET.

PROPOSED FLOOR LEVEL.

PROPOSED FINISHED LEVEL.

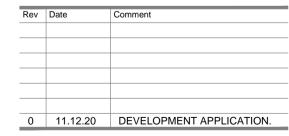
EXISTING SITE LEVEL.

DEVELOPMENT APPROVAL.

relevant structural, fire service, mechanical, hydraulic, electrical, civil and landscaping documents. Drawings are to be read in conjunction with the appropriate sections of

Do not scale drawings. Use figured dimensions only. Inform Architect of any conflict between the site conditions and documents. Contractor to verify all dimensions on site before commencing work.

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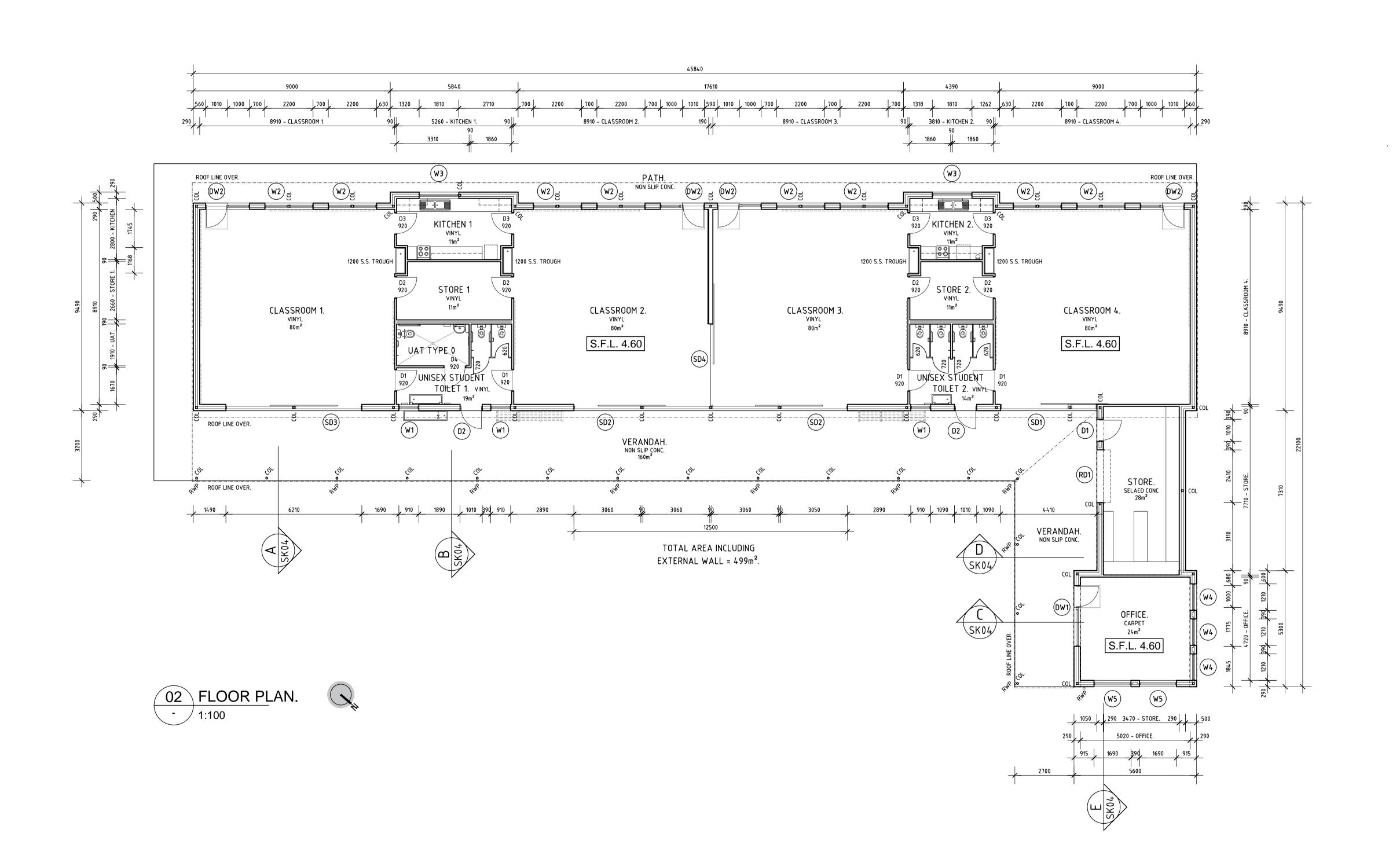
(08) 9316 0531 (08) 9316 0531

w: mandsarchitects.com.au

Victoria Park Christian Primary School.

Adventist Education. PROPOSED SITE PLAN.

@A1 Drawing No. Rev No. No. 20002 1:200. SKO1 0



TOWN OF VICTORIA PARK Received: 24/06/21

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## ABBREVIATIONS.

COL STEEL COLUMN - REFER TO S.E. DWGS.
CONC CONCRETE FLOOR SLAB - REFER TO S.E. DWGS.

F.L. FLOOR LEVEL.
R.L. REDUCED LEVEL.
RWP RAIN WATER PIPE.

S.E. STRUCTURAL ENGINEER. UAT UNIVERSAL ACCESS TOILET.

### LEGEND.

S.F.L. 27.100 PROPOSED FLOOR LEVEL.

PROPOSED FINISHED LEVEL. 34.470

EXISTING SITE LEVEL.

### DEVELOPMENT APPROVAL.

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Rev	Date	Comment
0	11.12.20	DEVELOPMENT APPLICATION.



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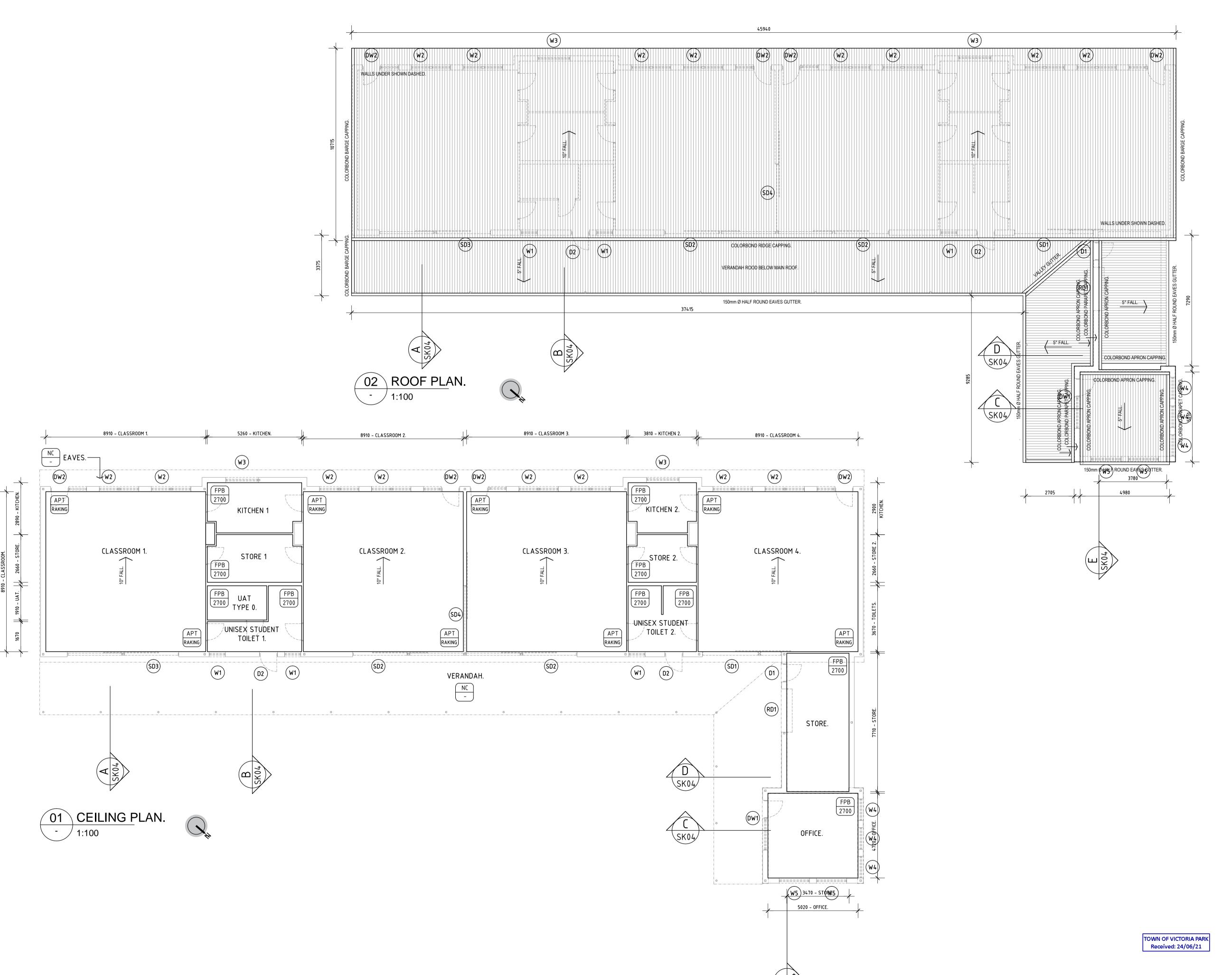
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Victoria Park Christian Primary School. Adventist Education.

PROPOSED SITE PLAN. PROPOSED FLOOR PLAN.

Designed M&S Reduction

Scale @A1 Drawing No. Rev No. <sup>No.</sup> 20002 SHOWN. SK02 0



### GENERAL NOTES.

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ALL MATERIAL SHALL BE OF NEW, GOOD QUALITY & CONFORM TO WHAT IS SHOW ON THE DRAWINGS.

# ROOF LEGEND.

AUTHORITY REQUIREMENTS.



COLORBOND METAL DECKING AT X° PITCH on STEEL PURLINS AS SPECIFIED. REFER TO S.E. DWGS.



SELECTED TRANSLUCENT ROOF SHEETING AS SPECIFIED.







MECHANICAL EQUIPMENT. REFER TO MECH DWGS.



OVERFLOW POP FROM GUTTER.

RAINWATER OUTLET IN GUTTER. EXHAUST FAN REFER TO MECH DRAWINGS

### ROOF COWL FOR EXHAUST. REFER TO MECH DRAWINGS

BUILDER TO PROVIDE SAFE ACCESS CONNECTIONS TO ALL PARTS OF THE ROOF IN ACCORDANCE WITH AS 1657.

ROOF NOTES.

## CEILING LEGEND.

X TYPE OF CEILING

HEIGHT OF CEILING ABOVE MAIN FLOOR LEVEL (NOT PAVING LEVEL)

FLUSH PLASTERBOARD CEILING WITH 'RONDO' P50 SHADOW ANGLE CORNICE TO PERIMETER UNLESS OTHERWISE NOTED. ACOUSTIC PLY TIMBER PANEL CEILING ON SUSPENDED CONCEALED CEILING SYSTEM.

NO CEILING - UNDERSIDE OF ROOF INSULATION.

ACCESS PANEL WALLS BUILT UP TO UNDERSIDE OF ROOF SHEETING OR STEEL STRUCTURE.

DIRECTION OF FALL OF CEILING.

### DEVELOPMENT APPROVAL.

Architectural documents are to be read in conjunction with relevant structural, fire service, mechanical, hydraulic, electrical, civil and landscaping documents. Drawings are to be read in conjunction with the appropriate sections of technical applications.

Do not scale drawings. Use figured dimensions only. Inform Architect of any conflict between the site conditions and documents. Contractor to verify all dimensions on site before commencing work.

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Rev	Date	Comment
0	11.12.20	DEVELOPMENT APPLICATION



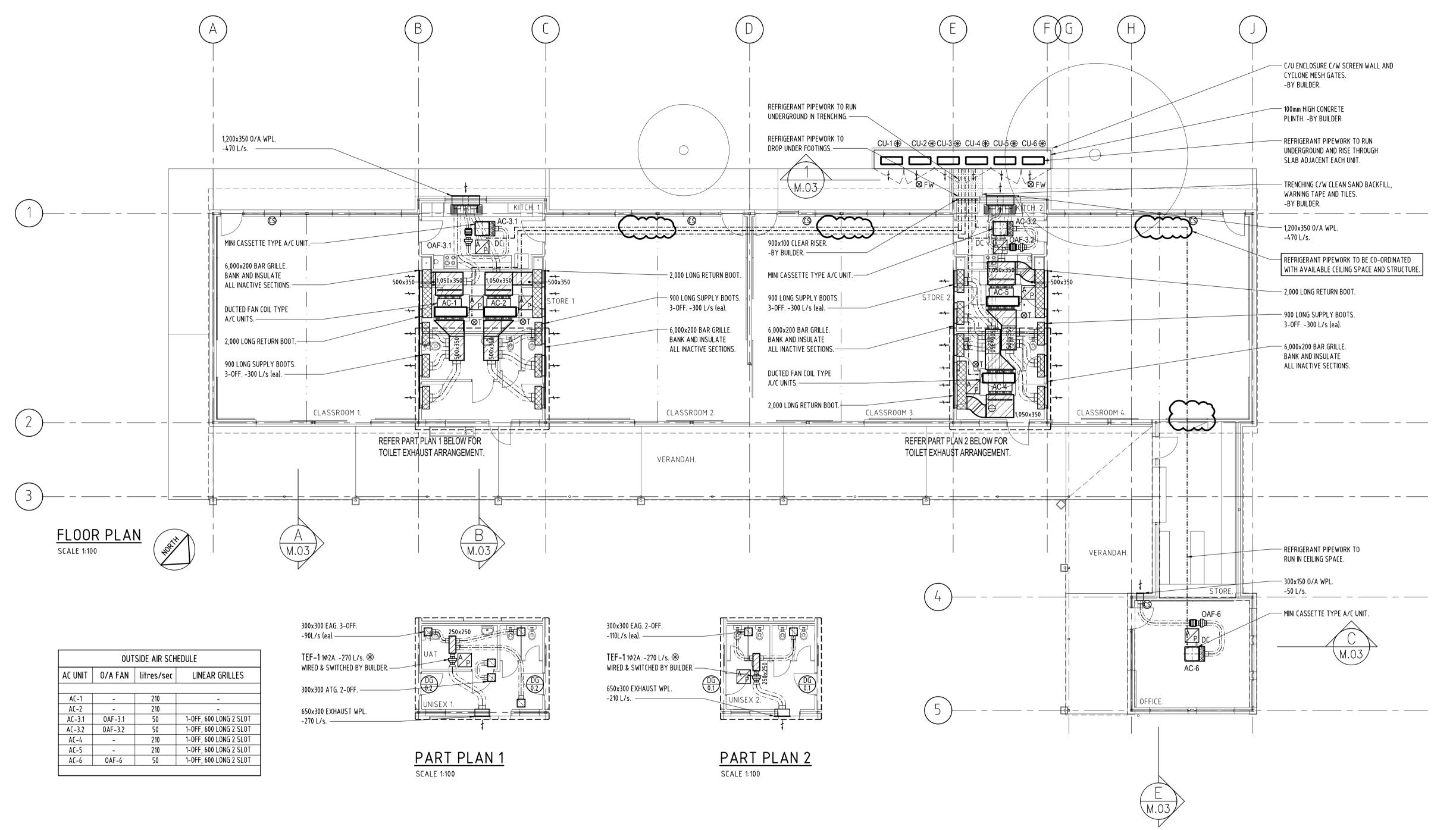
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Victoria Park Christian Primary School. Adventist Education.

Drawing PROPOSED CEILING PLAN. PROPOSED ROOF PLAN.

20002 shown. SK03



# PRELIMINARY

Α	ISSUE FOR INFORMATION	10.03.2021	TG
Rev.	REVISION	Date	Chkd

VICTORIA PARK CHRISTIAN PRIMARY SCHOOL CLASSROOM BLOCK

COLOMBO STREET, VICTORIA PARK



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TEL. (08) 9382 2711
FAX. (08) 9382 3853
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MECHANICAL SERVICES
FLOOR PLAN

| Drawn: | Date: | Job No. | Drawing No. | Revision: | DSA | 19.02.2021 | Checked: | Scale: | PV | 1:100@A1 | File: | 6225 M Series | 2 of 4