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Our Reference: 163248

6 February 2017

ACOUSTICS

NOISE MANAGEMENT PLAN

PROPOSED EXTENDING CHILDREN NUMBERS FOR THE EXISTING CHILDCARE CENTRE

AT

CORNER SWALLOW & PEPPERTREE DRIVE

ERSKINE PARK NSW

Prepared for
Penrith City Council NSW

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1.0 INTRODUCTION

Far West Consulting Engineers (NSW) has been commissioned by Mr. Jade Bradbury on behalf of Penrith City Council to prepare a Noise Management Plan (NMP) for the extending numbers of the children for the existing *Erskine Park Children's Centre* located at the Cnr. Peppertree and Sallow Drive, Erskine Park.

Penrith City Council seeking increasing numbers of the children to (110) OSHC at the existing *'Erskine Park Children's Centre'* and requires Noise Management Plan (NMP) to identify the noise sources, potential sensitive receivers, and outline noise control measures for the operations of the Child Care Centre (OSHC).

Part of the Noise Management Plan is based on a Noise Impact Assessment (NIA), and noise impact assessment has been carried out on the basis of implementation of the following standards & Guidelines:

- Association of Australia Acoustical Consultants – Guideline for Child Care Centre Acoustic Assessment – October 2013;
- EPA's Environmental Guidelines for Road Traffic Noise;
- Industrial Noise Policy;
- NSW/ EPA Draft Noise Guide for Local Government /November 2002;
- AS 2107 – 2000 recommended Design Sound Levels and Reverberation Times for Building Interiors;
- AS 3671 – 1989 – Building Siting and construction; and
- Penrith Development Control Plan 2014 – Part D5
- Building Code of Australia BCA 2016 – Part F5 – Sound Transmission.

The purpose of the assessment is to ensure that the use of the Child Care Centre and OSHC does not cause noise of an intrusive or offensive nature to the nearby residents.

2.0 DESCRIPTION OF THE SITE AND EXISTING AMBIENT NOISE SOURCES

The site located within commercial area surrounded by education, community centre and church buildings. Existing childcare centre has been considered compatible within the existing environment.

Erskine Park Community/Hall centre located approximately 67m to the south, and James Erskine Public School located furthest behind on Peppertree Drive.

Shopping centre located 56m to the west crossing Peppertree Drive; and Swallow Drive surrounded the subject site to the north. A block of the residential houses along Swallow Drive are between 56m to 123m far from the existing childcare.

Peppertree & Swallow Drives are service local road and carry low traffic volumes increasing during peak hours throughout the day; vehicle's speed permitted is 50 km/h and 40km/h for School zone.

Ambient noise source is mainly from traffic movement in the area particularly during drop off and pick up children. Road traffic noise contains an intermittent noise characteristic due to the noise level increases and decreases rapidly depending on the type and the speed of vehicles pass-by.

The following photo shows site location and the land use:

Photo – 1 Site location and the context of the surrounding area

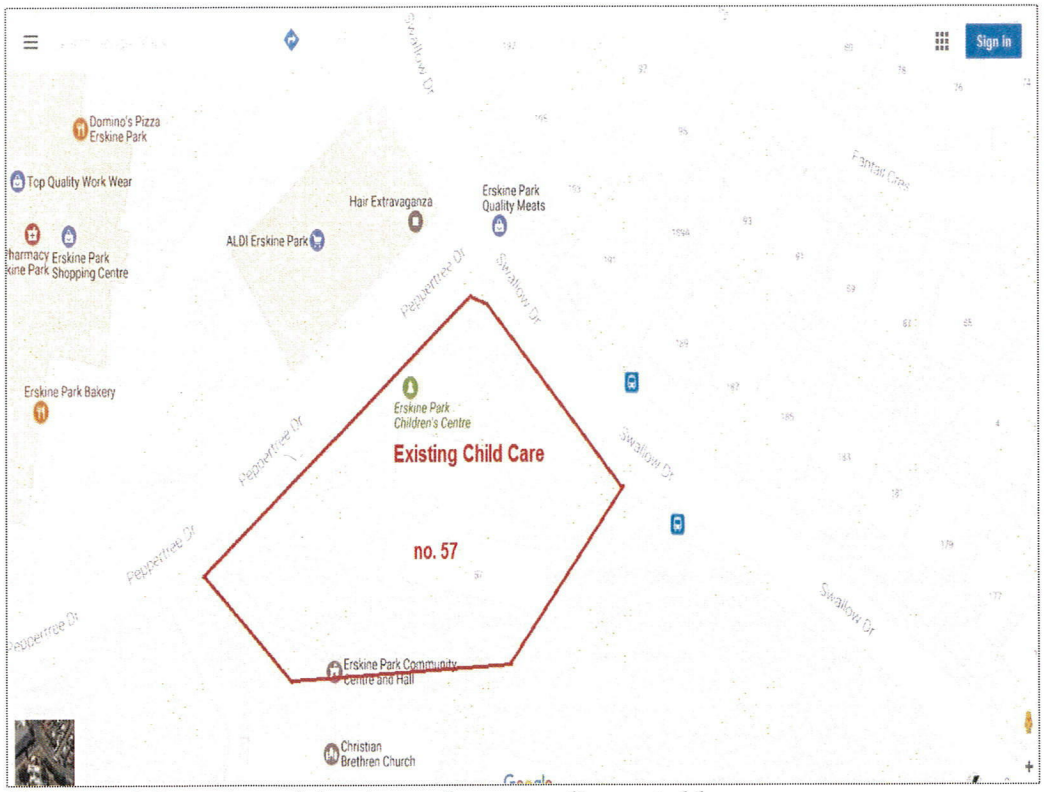


Figure – 1 Location of the site and surrounding neighbours

3.0 THE PROPOSAL AND THE RECEIVERS

Penrith City Council seeks an extending numbers of the existing Out of School Hours Care (OSHC) from (97) to (110) children with aged ranging (0 – 12) years at Erskine Park Childcare Centre. It has proposed also alterations to the existing verandah to be enclosed ($45m^2$) and to accommodate an extra of the (13) children to have a total numbers of (110) children.

Existing Childcare Centre consists of long day care building ($983m^2$), before & after school care building ($1784m^2$), outdoor play area ($1010m^2$) and car parking area ($1474m^2$).

The buildings included indoors play areas, passive play area, active play area, sleep area, office & staff room, kitchen dining area, bathrooms for preschool & children, staff toilet & laundry, storage rooms and quiet room.

The outdoor play area $212m^2$ and shaded external play area $91m^2$ surrounded the proposed enclosed verandah. A large portion of the land $1010m^2$ is used for outdoor play area ended to the boundary of the Swallow Drive to the north.

Vehicular access to the CCC is from the existing combined Entry/Exist driveway off Peppertree Drive on the west boundary.

Proposed increasing (13) children with aged ranging (6 – 12) years of the existing (97) children to accommodate (110) places for OSHC. The hours of the operation is from Monday to Friday; 6:30am to 6:00pm, and considered to be allocated as follows:
(0 – 2) years old – 30 children
(3 – 4) years old – 20 children
(4 – 5) years old – 30 children
(5 – 6) years old – 17 children
(6 – 12) years old – 13 children – *proposed new adding to the 97children OSHC.*

Consideration of noise sensitive receivers will be residents (single houses) located to the north boundary along Swallow Drive. A portion of the existing vegetation (outdoor play area) considered as a good barrier for noise attenuation.

4.0 NOISE MEASUREMENTS

Noise measurements have been performed to comply and to be in accordance with the Australian Standard AS 1055 – 1999 'Description and measurement of environmental noise – General Procedures'

4.1 Instrumentation

The instrumentation used during the noise survey consists of Type 1 Environmental Noise Logger, Serial no. 15-203-504 Model EL-315. *(Acoustic Research Labs Pty Ltd).*
The calibration of the logger was checked before and after measurement period with acoustic calibrator by *(Acoustic Research Labs Pty Ltd).* No significant drift occurred over the measurement period.

4.2 Measurement Procedure

The measurements were performed on Tuesday 17th to 24th January 2017 for ambient noise levels monitoring. The purpose of noise monitoring is to establish a background noise levels and to measure the noise emanating from the existing CCC.

Measurements taken place on the roof of the existing verandah/outdoor play area, and the meter was positioned on the roof at height of approximately 1.2m, sample measurements were taken continuously every 15 minutes sampling. All measurements were taken on A-weighted fast response mode.

4.3 Measurement Parameters

Noise levels are monitored on a continuous basic and statistical and integrating techniques are used to determine noise description parameters. These parameters are used to measure how much annoyance would be caused by a particular noise source. These main descriptors are:

L_{A90} – Represents noise level exceeded for 90% of a certain time period, and used as a background noise.

L_{A10} – Represents noise level exceeded for 10% of a certain time period, and used as the noise source

$L_{Aeq.}$ – Represents the average of noise energy during a certain time period.

$L_{AMax.}$ – Represents maximum noise level recorded within a certain time period.

L_{A1} – Represents noise level exceeded for 1% of a certain time period, and used as a noise disturbance

4.4 Noise Level Results

This section presents the statistical ambient noise levels recorded during an unattended noise monitoring taken place for one week from 17 to 24 January 2017 at outdoor play area. Logarithmic average of $L_{Aeq.15min.}$ for each monitoring period has been calculated and results are shown below for the existing ambient noise levels (noise emanating from existing CCC), and the red colour result shows a background noise level during weekend in which the CCC is not in use:

Table – 1 Existing Ambient Noise Level Results in dBA

Period	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday
	LAeq.						
Day	57	59	57	60	66	55	56
Evening	56	56	56	56	56	55	57
Night	52	51	51	51	51	54	52
	LA90						
Day	48	52	49	52	48	46	49
Evening	46	46	48	48	46	47	48
Night	45	41	41	39	37	45	47
	LA10						
Day	59	61	59	60	60	58	58.5
Evening	57	58	58	59	58	57	58
Night	52	51	51	52	51	52	53
	LAMax						
Day	70	75	72	72	73	70	69
Evening	72	72	71.5	71.5	73	73	75
Night	64	65	67	67	66	66	66

The following table-2 is a summary of daily average results for the three period's measurements time.

Table – 2 Daily average (Noise from outdoor playing children)

Period	LAeq. 15min.	LA90 15min.
Day (7:00am – 6:00pm)	58 dBA	49 dBA
Evening (6:00pm – 10:00pm)	56 dBA	47 dBA
Night (10:00pm – 7:00am)	52 dBA	42 dBA

Sensitive receivers at houses crossing Swallow Drive, the $L_{Aeq.}$ noise level is dominated by intermittent traffic noise in form of parents pick up and drop off children. However those receivers anticipated do not have any potential noise impacts from additional (13) children to the existing numbers of (97) due to its location of the nearest house is approximately 56m to the existing CCC boundary.

The following table-3 is a background noise levels during week end:

Table – 3 background Noise Levels

Period	LAeq. 15min.	LA90 15min.
Day (7:00am – 6:00pm)	57.5 dBA	47 dBA
Evening (6:00pm – 10:00pm)	56 dBA	46.5 dBA
Night (10:00pm – 7:00am)	53 dBA	41 dBA

5.0 PROJECT-SPECIFIC NOISE LEVELS

There is no specific Australian Standards to control noise emanating from Childcare Centre; reference has been made based on Association of Australian Acoustical Consultants AAAC – Technical guideline/ Childcare Centre Noise Assessment. AAAC suggested that a total time of 2 hours outdoor play per day (i.e. 1 hour in the morning and 1 hour in the afternoon) should allow an additional 5 dBA noise impact.

Up to 2 hours (total) per day – The $L_{Aeq.15min.}$ noise level emitted from the outdoor play area shall not exceed the background noise level by more than 10 dBA at the assessment location.

More than 2 hours per day – The $L_{Aeq.15min.}$ noise level emitted from the outdoor play area shall not exceed the background noise level by more than 5 dBA at the assessment location.

Referring to EPA Industrial Noise Policy table 2.1 & table 2.2; the project fits the description of residence/suburban, active recreation area (school playground) potential sensitive receivers along Swallow Drive, hence the acceptable noise level (ANL) are as follows:

- Residential receivers – 55 dBA during Day; 45 dBA Evening; and 40 dBA during Night
- Active recreation area (school playground) – 55 dBA when in use;

The intrusiveness criterion playing ***up to two hours (total) per a day*** is shown in the following Table-4:

Table – 4 Project-specific noise levels criteria

Period	**Intrusiveness criterion**
Day	**57 dBA** LAeq.15 min. (47 + 10)
Evening	56.5 dBA LAeq.15 min. (46.5 + 10)
Night	51 dBA LAeq.15 min. (41 + 10)

The intrusiveness criterion playing ***more than two hours per a day*** is shown in the following Table – 4a:

Period	**Intrusiveness criterion**
Day	**52 dBA** LAeq.15 min. (47 + 5)
Evening	51.5 dBA LAeq.15 min. (46.5 + 5)
Night	46 dBA LAeq.15 min. (41 + 5)

In accordance with AAAC guidelines, if the proposed Centre will have two hours outdoor playing per day, one hour in the morning and one hour in the afternoon, therefore the **57dBA** intrusiveness criterion will be applied; and **52 dBA** criterion will be applied for more than (2) hours per a day playing outdoor.

6.0 LOCAL AUTHORITY REQUIREMENTS

6.1 Outdoor Playground Criteria

There are no certain criteria for controlling noise from facilities used by a childcare, schools and playgrounds. The local standard and criteria to be used for control noise emissions from commercial/industrial development is such 'EPA NSW Industrial Noise Policy' which require the acceptable intrusiveness criterion 'background noise plus 5'.

Referring to AAAC, members of this Association have issued a technical guideline for noise assessment emanating from the new child care Centre. This guideline sets out a recommended assessment procedure for the submission of noise impact assessments to accompany Development Application for child care centres, and provides typical recommendations for the control noise from such centres.

AAAC members regard that a total time limit of two hours outdoor play per day (e.g. 1 hour in the morning and 1 hour in the afternoon) should allow an additional 5 dBA noise impact. Hence 'background noise plus 10'and if the play hours more than two hours per a day, the $L_{Aeq.15min}$ noise level emitted from the outdoor play area shall not exceed the background noise level by more than 5 dBA at the assessment location.

6.2 Indoor Play Area, Mechanical Plant Criteria

The $L_{Aeq.15min}$ noise level emitted from the cumulative noise impact of children playing indoors, mechanical plant and traffic on the site shall not exceed the background noise level by more than 5 dBA at the assessment location.

6.3 Road Traffic Noise Criteria

Such report shall demonstrate compliance with AS 2107 – 2000 recommended Design Sound Levels and Reverberation Times for Building Interiors and AS 3671 – 1989 – Building Siting and Construction and the EPA's Environmental Guidelines for Road Traffic Noise. Environmental criteria for sensitive land use are given in the following table-5.

Table – 5 Road Traffic Noise Criteria for sensitive land use

Sensitive Land Use	**Criteria**	
	Day (7am – 10pm)	Night (10pm – 7am)
1. Proposed school classrooms	LAeq. (1hr) 40 dBA Internal	--
2. Passive recreation and School Playgrounds	Free ways LAeq. (15hr) 55 dBA	--
3. Active recreation / tennis courts	LAeq.(15h) 60 dBA	--

The building shall be designed and constructed taking into full account the requirements for effective sound insulation against external noise in accordance with the Australian Standard AS 2107 – 2000 'Recommended Design Sound Levels and Reverberation Time for Building Interiors'.

This standard recommended satisfactory levels for different areas of occupancy in the Educational Building. These are given in the following Table-6:

Table – 6 Interior Noise Design Criteria

Type of Occupancy	**Recommended Design Sound Level LAeq. dBA**	
Educational Buildings / Teaching spaces	Satisfactory	Maximum
Primary Schools	35	40
Staff common areas	40	45
Toilet/changing/showers	45	55

The Interior Noise Design Criteria shall be met for the existing Child Care Centre either with a natural or mechanical ventilation/ air conditioning system.

7.0 THE PROPOSAL AND NOISE LEVELS PREDICTION

The existing childcare Centre can be considered as an education/ commercial development; prediction of noise sources emanating from the CCC are mainly form children screaming, outdoor playing, and speaking loudly, increase the movements of traffic in locality due to pick up & drop off children.

The noise level of boys and girls are assumed to be very similar. A typical range of sound pressure levels for group of ten (10) children playing @3m is given below:

10 Children aged (0 – 2) years	60 – 63 dBA
10 Children aged (2 – 3) years	66 – 70 dBA
10 Children aged (3 – 6) years	67 – 73 dBA

Reference AAAC – Technical Guideline

Car parking for drop off & pickup children should be considered as another noise source associated with the operation of the CCC, and shall be considered as a compatible with the existing traffic movements from Community/hall centre and the existing Public School.

Our data base of noise levels for car parking established from our surveying of noise measurements and searching references are shown in the table below:

Noise measurements of intermittent noise sources @ 10 meters

Noise associate from car parking	**Range of noise level L_{Amax}. dBA**
Car door closing	50-72
Car starting	50-70
Car accelerating	50-70
Car moving	55-63
People talking (Relaxed, normal, raised)	44-56
Loud, very loud	62-68
Shouting	74

It is usual that the child care Centre has been provided with air conditioning system and mechanical ventilation/exhaust fans for kitchen, toilet & laundry. A typical range of sound pressure levels for mechanical plant is given below @1m from the source:

Small (single fan) condenser/ outdoor unit	57 dBA
Medium (double fan) condenser	62 dBA
Large (double fan) condenser	72 dBA
Small exhaust fan (toilet, garbage room)	52 – 57 dBA
Small kitchen exhaust fan	57 – 67 dBA

Reference AAAC – Technical Guideline

8.0 NOISE LEVELS ANALYSIS AND ASSESSMENT

8.1 External Noise Impacts

External noise must be taking into full account the likely impacts on children, our site investigation takes into consideration the existing ambient noise sources and it has been revealed that the site hasn't been potentially affected by local traffic roads. Peppertree Dr. & Swallow Dr. are service local road carry low traffic volumes and vehicles speed not exceeding 50 km/h will not have any adverse noise impacts on the children.

8.2 Noise Levels at Potential Residential Receivers

As mentioned earlier in this report, there are no actual potential receivers surrounding the existing CCC with exceptional of the existing single houses along Swallow Drive and has approximately 56m away from the CCC boundary.

A number of noise sources are associated with the operation of the proposed development as mentioned in clause 7 of this report.

Traffic Movements

Noise associated with parents activities leaving & arriving the Centre will have transient or intermittent noise characteristics in the form of voices, talking, starting up of car engines, doors slamming, music in cars, and movement of the cars.

The worst case scenario of maximum noise level is when parents screaming or talking loudly *(rare to happen)* will reach 74 dBA and closing door will reach 72 dBA at 10m to the neighbours.

We anticipate that the use of the existing car spaces at the front through a combined driveway off Peppertree Drive will not emanate a noise level above the existing noise levels causing by the existing Community & Hall centre.

Outdoor Playing

Major noise source emanating from children group when playing outdoor especially concentrated in the sand pits, swing set area at the middle. If we assume the children playing for two hours outdoor at playground at the rear with the nearest distance to the northern boundary 5m; therefore prediction noise emanating from children to the boundary at the rear will attenuate as follows:

10 Children aged (0 – 2) years	56 – 59 dBA
10 Children aged (2 – 3) years	62 – 66 dBA
10 Children aged (3 – 6) years	63 – 69 dBA
Assume noise emanating from the group	
15 Children aged (6 – 12) years	70 – 75 dBA

This indicate that the above results exceeded the project-specific noise level of the intrusiveness criterion for both options playing 2 hours outdoor a day **(57dBA)** and playing outdoor more than 2 hours a day **(52 dBA)** for all children aged groups.

In normal case as we know that the noise level increases by 3 dB for each doubling of the number of noise sources. This applies for noise sources operating simultaneously. In the case of outdoor children activities, doubling the number of children would increase the noise level by around 3 dB if they were close together and making the same noise (i.e. if they all were singing) however; this activity is usually done when the children are indoors.

Mechanical Ventilation Plant & Equipment

In the case of the noise emissions from mechanical ventilation, the existing building has provided with ducted A/C system consists of condensers outside the building, and exhaust fans for the toilet/bathroom discharging on the roof or on the external wall are away from any sensitive receiver.

Noise sources from all plant/ equipment to be used by the proposed childcare must comply with Protection of the Environment Operations Act 1997, and Industrial Noise Policy; *(noise source may be considered acceptable if the $L_{Aeq.\ (15\ min.)}$ noise source does not exceed the background noise levels measured in the absence of the noise source, by more than 5 dBA).*

Period	**Intrusiveness criterion**	**Amenity criterion**
Day	52 dBA LAeq.15 min. (47 + 5)	**48 dBA** (58 – 10)
Evening	51.5 dBA LAeq.15 min. (46.5 + 5)	**46 dBA** (56 – 10)
Night	46 dBA LAeq.15 min. (41 + 5)	**43 dBA** (53 – 10)

Assessment procedure provided in Industrial Noise Policy has two components; controlling intrusive noise impacts; and maintaining noise level amenity. The most stringent criterion must apply to the project.

9.0 RECOMMENDATION

Noise emanating from the existing CCC and the noise from the proposed increasing number of the existing children associated with children playing outdoor, screaming, parents car parking for pick up & drop off children are required a good **noise management practicing and control measures** to protect neighbour's amenity and keep noise level with the project-specific noise criteria through the following:

- Play times in outdoor areas should be scheduled by director/teachers for morning and afternoon time.
- Outdoor playing kids to be supervised by teacher.
- Uncontrolled crying of the kids shall be taken into inside the room.
- The proposed enclosed verandah building should be protected and good insulated against interior noise emanating from the children playing, screaming, crying through the following:

9.1 Noise Management Plan

One of the most effective measures that should be implemented in conjunction with the physical noise control is a noise management plan (NMP). The NMP should be incorporated within the Centre's overall management plan.
The following Noise Management Plan is to be implemented:

- Limiting the number of the children playing outdoor. A reduction in the number of children by half will reduce the noise impact by approximately 3 dBA;
- A separate daily program for both the warmer and cooler months should be established in order to regulate the total time spent outdoors and indoors;
- The program should be made publicly available to parents and neighbours;
- The total time spent outside in the play area to be suggested by teachers based on the childcare's program and weather conditions;
- Crying children should be taken inside the Centre and comforted;
- The behavior of children should be monitored and modified as required by adequately trained childcare worker;
- Staff should be educated to control the level of their voice while outside;
- Outdoor microphone can be used with restriction noise level not exceeding 55 dBA; and
- A contact phone number for the Centre's director should be made available to neighbours to facilitate communication and to resolve any neighbourhood issues that may arise due to operation of the Centre.

9.2 External Windows and Glazing

It is recommended that the glazing for the enclosed verandah must have minimum 10.5mm thick laminated with sound reduction not less than Rw 40 & acoustic seal Q-Lon type.

Care should be taken during installation of the glazing, as it considered as weak element regarding sound transmissions. All glazing frames must be completely fitted in walls and prevent gaps between walls and frame and acoustic seals must be fixed properly.

9.3 Ceiling/ Roofing System

The existing metal sheet of the verandah to be provided with 100mm thick glass wool batts Bradford insulation and water proofing membrane underside of metal roof above one layer of 13mm gyprock plasterboard ceiling.

9.4 External Wall

Brick veneer wall or solid brick wall 220mm to achieve Rw not less than 50.

9.5 Air Conditioning System

Ducted or split air conditioning system is required for the proposed enclosed verandah, a quiet unit should be considered during selection the system and installation to be complied with AS1668.2 and comply with project-specific noise for intrusiveness criteria in this report.

9.6 Outdoor Playing Area Fence

1.8m high capped & lapped timber fence to be surrounded the outdoor playground area along Swallow Drive to the north and along eastern boundary. This construction will be able to reduce noise level by 25 dBA.

10.0 CONCLUSION

Noise levels can vary with time due to various conditions and influences surrounding the area of the measurement period. Outdoor noise monitoring has been taken place for one week to cover all the conditions for the site development.

The assessment has been carried out on the basis of implementation of Industrial Noise Policy and AAAC–Technical Guideline – Child Care Centre Noise Assessment, EPA Industrial Noise Policy; and Criteria for Road Traffic Noise in addition to other statutory noise control guidelines.

The ambient background noise level has been established for the site during weekend while the existing CCC is not in operation. The land uses surrounding the site have described as commercial/residential premises and potential receivers are residential will not have potential impacts with a good noise management practicing and control measures.

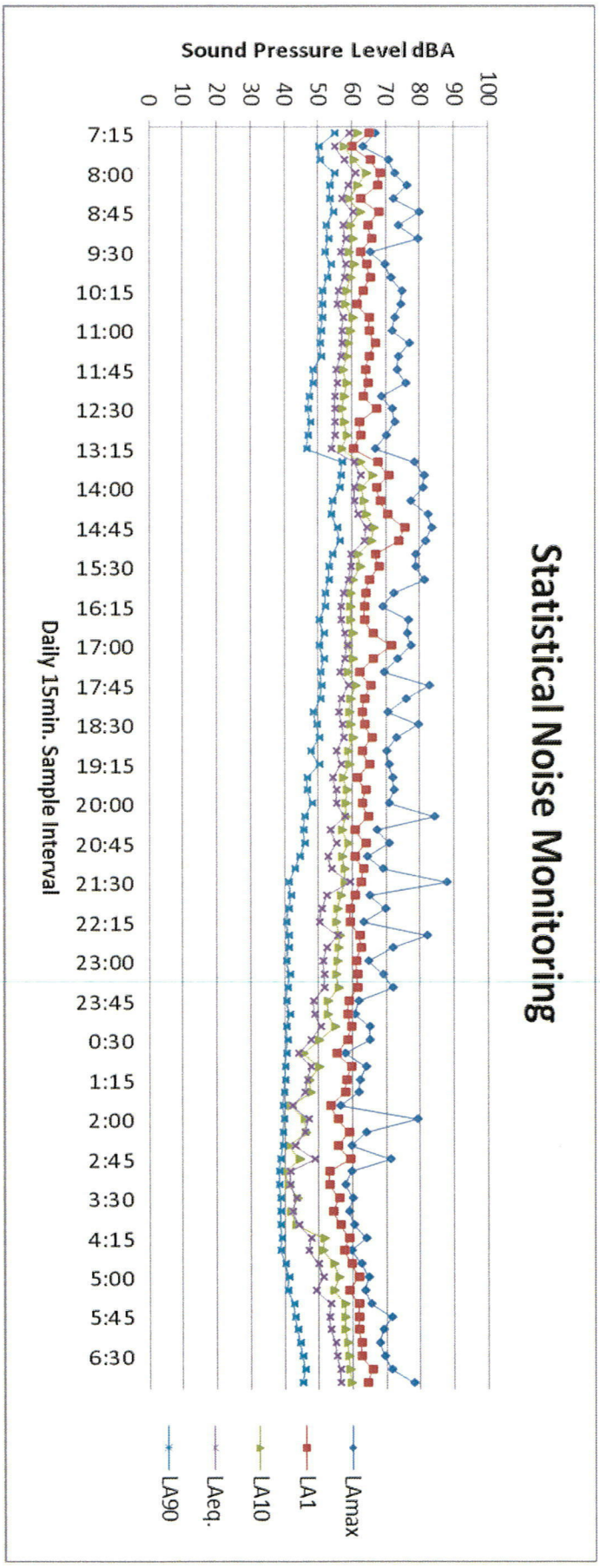
Acoustic treatment of the construction component has been carried out on the basis of implementation of AS 3671 – 1989 for Building Siting and construction, and Building Code of Australia for sound insulation for interior noise attenuation.

We certify that the childcare Centre with OSHC children located at Cnr Swallow Drive & Peppertree Drive, Erskine Park will meet the requirements as mentioned in this report provided that our recommendations will be fully implemented.

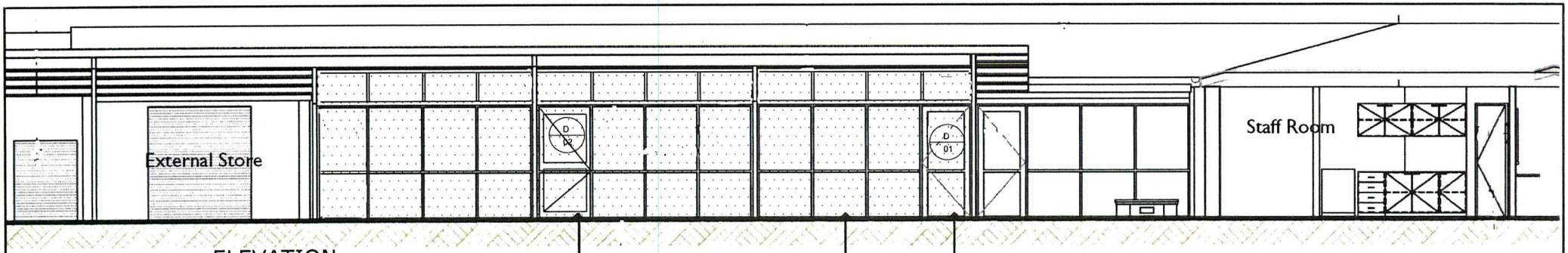
We trust that the information detailed in this report is satisfactory to meet your requirements but should you need any further details please contact us on 8838 2300.

Shony Toma A.A.A.S
Acoustic Engineer
MS. Env. Eng. Mgt.
B. Sc.

Appendix – A
Daily Statistical Noise Levels Monitoring Graphic-Results



Appendix – B
Project Architectural Plan

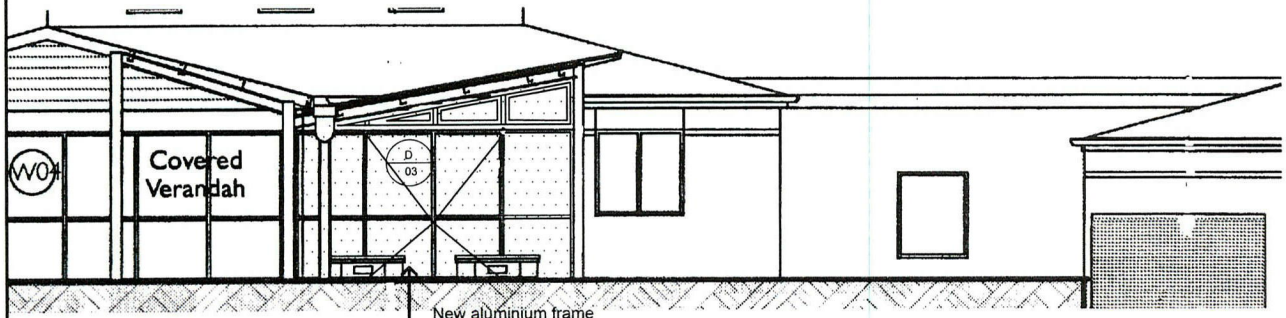


3 ELEVATION
1:100

Relocate existing Door.
Relocate existing glazing.

Note: Extent of works shown hatched.

Relocate existing Door.



New aluminium frame
Double door

2 ELEVATION
1:100

LEGEND
Site
Extend of works

1 LOCALITY PLAN
NTS

REV.	DATE	DESCRIPTION	BY
A	19.12.16	Pre DA discussion	RMC

PHASE
FOR DA SUMBISSION

CLIENT
PENRITH CITY COUNCIL
CHILDCARE SERVICES

ARCHITECT

PENRITH CITY COUNCIL
Major Projects Department

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PROJECT
ALTERATIONS - OOSH Erskine Park
Crn Peppertree and Shallow Drive,
ERSKINE PARK

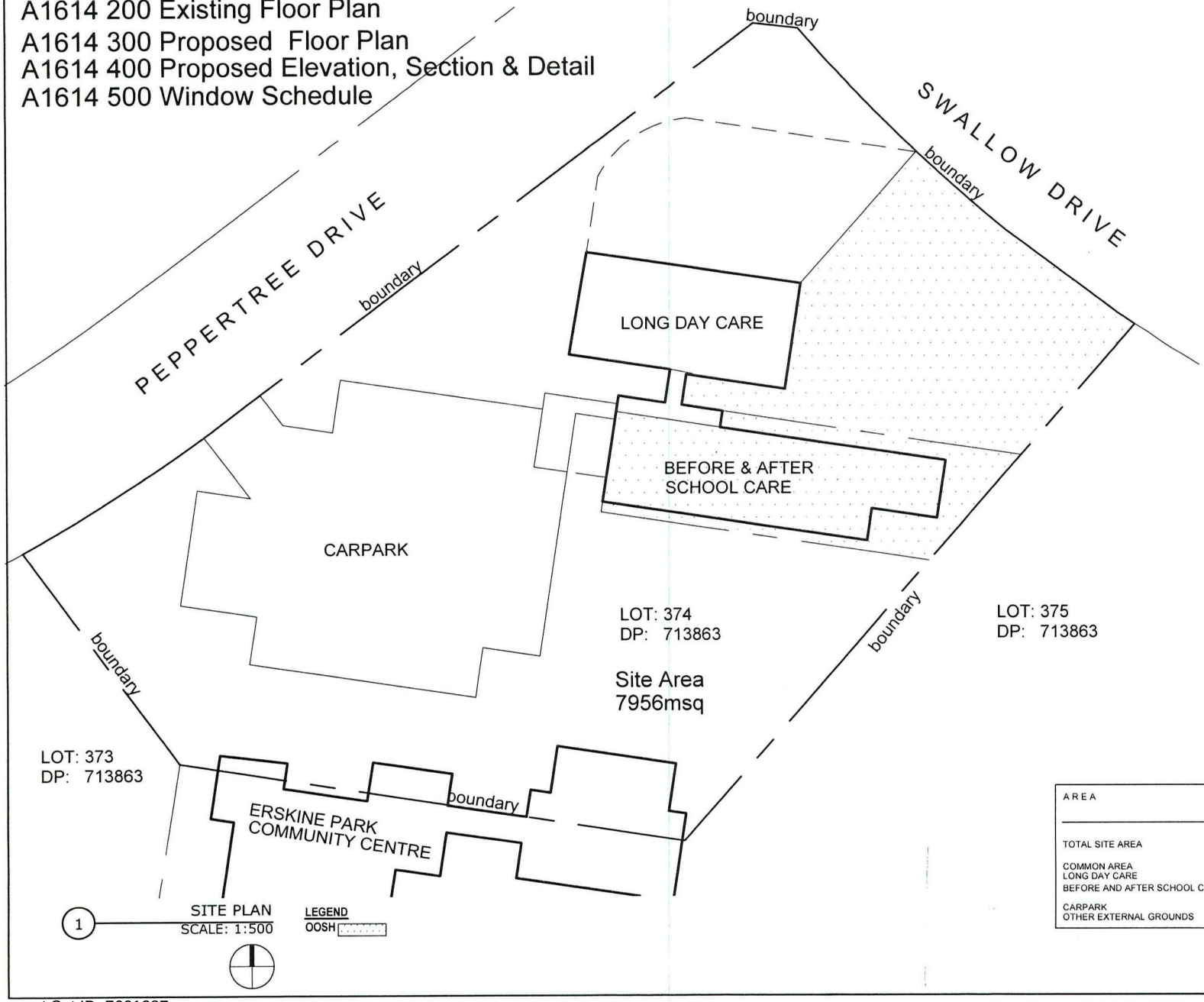
TITLE
NOTIFICATION PLAN

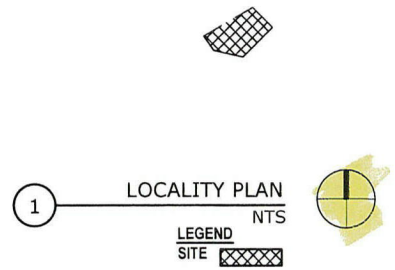
SCALE (A3)	DRAWN RMC	PROJECT CODE
DATE 22-10-2016	APPROVED	

SHEET NO.
A1614 - 000 REV[A]

DRAWING SCHEDULE

A1614 000 Notification Plan
A1614 100 Locality & Site Plan
A1614 200 Existing Floor Plan
A1614 300 Proposed Floor Plan
A1614 400 Proposed Elevation, Section & Detail
A1614 500 Window Schedule





AREA	
TOTAL SITE AREA	7956msq
COMMON AREA	126msq
LONG DAY CARE	983msq
BEFORE AND AFTER SCHOOL CARE(OOSH)	1784msq
CARPARK	1474msq
OTHER EXTERNAL GROUNDS	3609msq

REV	DATE	DESCRIPTION	BY
B	19.12.16	Pre DA discussion	RMC
A	29.10.16	For Discussion	RMC

PHASE
FOR DA SUMBISSION

CLIENT
PENRITH CITY COUNCIL
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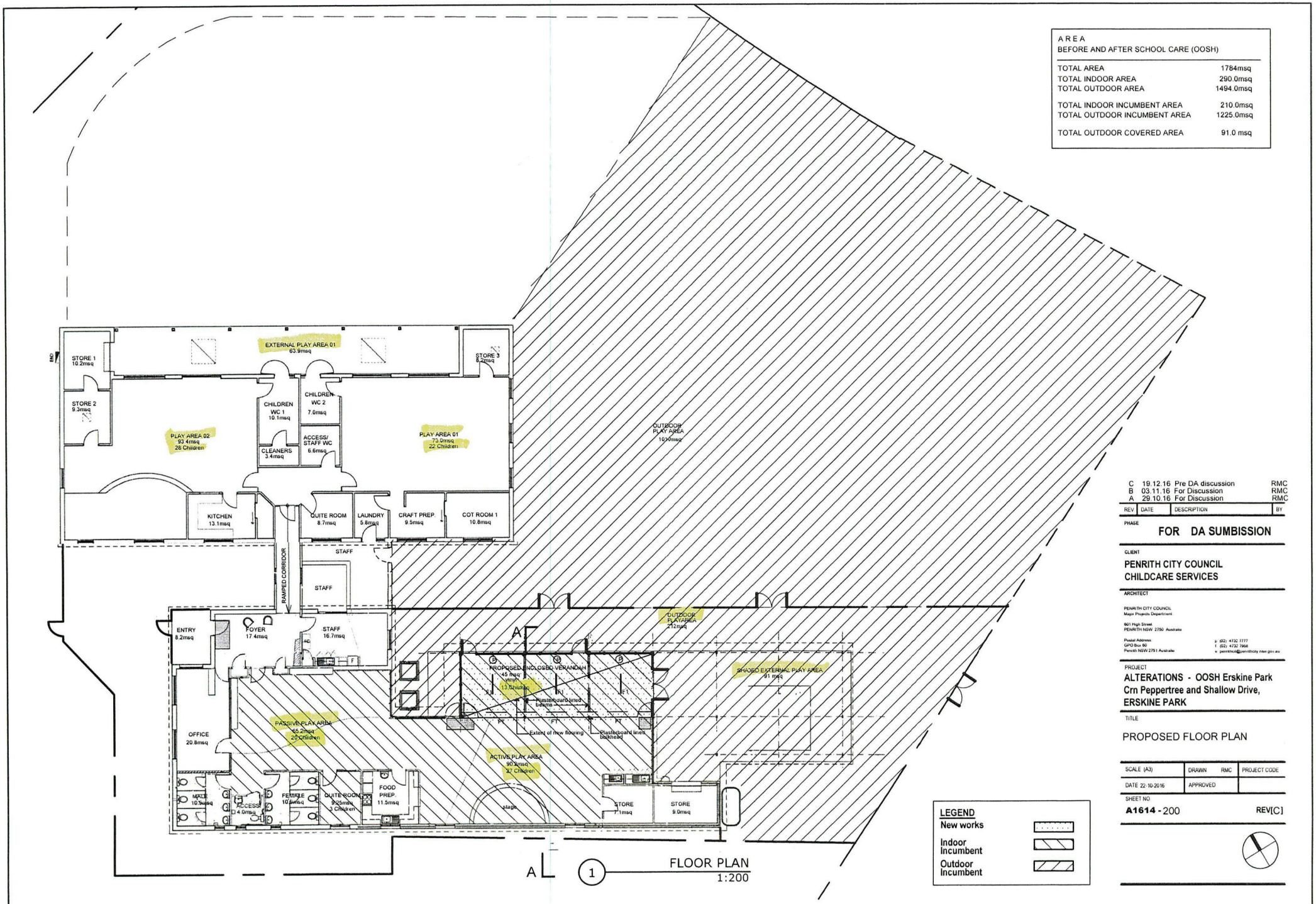
PROJECT
ALTERATIONS - OOSH Erskine Park
Crn Peppertree and Shallow Drive,
ERSKINE PARK

TITLE
SITE PLAN

SCALE (A3)	DRAWN RMC	PROJECT CODE
DATE 22-10-2016	APPROVED	

SHEET NO
A1614 - 100 REV[B]



LEGEND

GENERAL

(WX) Window number

(DX) Door number

FLOOR

FT Floor trim

Vinyl Floor vinyl to match existing.

CEILING

(P) Plasterboard

F1 Thorn weathershield 1200mm connected to motion sensor.

EMERGENCY SERVICES

(S) Smoke alarm

FE Emergency Sign

(E) Emergency light

(EX) Fire extinguisher

SCOPE OF WORKS

Demoltion:
Carefully remove existing window / door glazing sections for reuse.

Glazing:
Relocate existing glazing and door sections.
Supply and install new glazing section to match existing with double door.
Supply and install new operable glazing sections, (awning type) above new and relocated sections.
Supply and install Lockwood (or equal) elevations electric window actuator and touch display. (commerical grade)
Supply and install flyscreens to all elevated operable windows.
Ensure all new glazing to be safety glass, to be provided.
Install all glazing to manufacturers' recommendations.

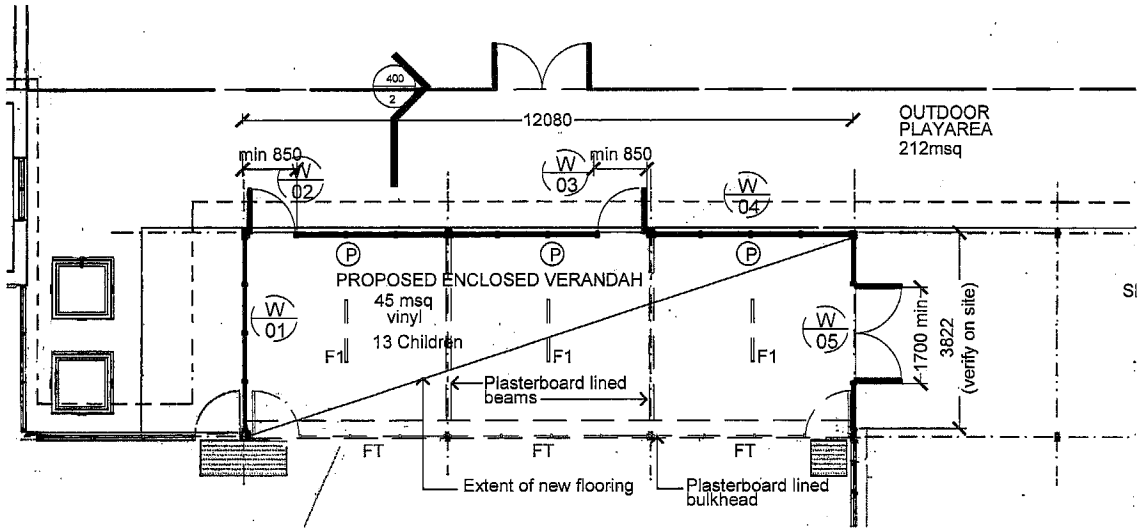
Flooring:
Waterproof membrane over concrete slab.
Andex or similar to level area and eliminate step.
New Vinyl flooring to area, with cover strips to change in material.
Install all flooring to manufacturers' recommendations.

Ceiling:
Create new plasterboard bulkhead, under box gutter, with access hatches.
Supply and install new plasterboard ceiling lining.
Encase verandah beams, set joints.

Emergency services:
Install fire exits signs, to match existing, to each door way (three in total) and provide Compliance Certificate.
Supply and install new emergency lights, to match and connect to existing system, provide Compliance Certificate.
Supply and install new smoke detectors and connect to existing system, provide Compliance Certificate.

Electrical Services:
Supply and install new lights.
Supply and install motion sensors to activate new lights

Mechanical Services:
Supply and install new air conditioning unit.
Provide allowance of $15,000 ex GST for supply and install.



1 PLAN
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REV.	DATE	DESCRIPTION	BY
B	19.12.16	Pre DA discussion	RMC
A	29.11.16	For Discussion	RMC

PHASE
FOR DA SUMBISSION

CLIENT
PENRITH CITY COUNCIL
CHILDCARE SERVICES

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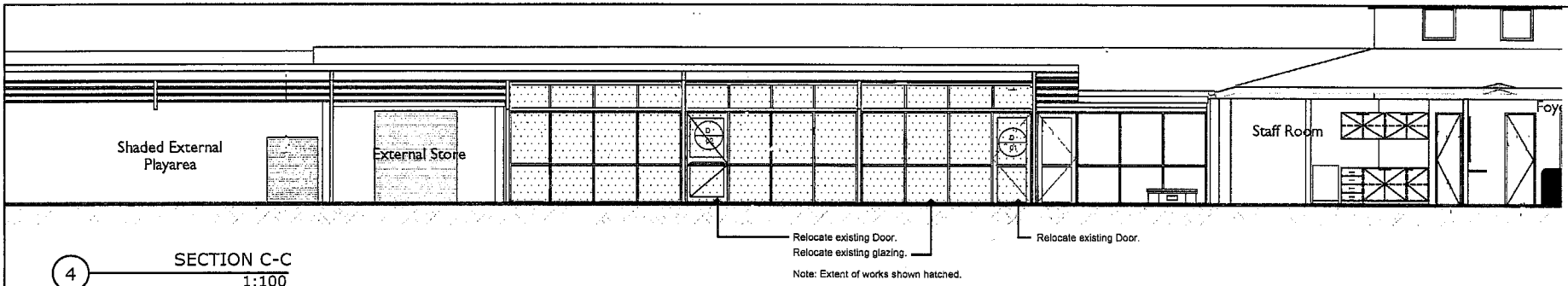
PROJECT
ALTERATIONS - OOSH Erskine Park
Crn Peppertree and Shallow Drive,
ERSKINE PARK

TITLE
PROPOSED
SECTIONS & ELEVATIONS

SCALE (A3)	DRAWN RMC	PROJECT CODE
DATE 22-10-2015	APPROVED	

SHEET NO.
A1614 - 300 REV[B]



4 SECTION C-C
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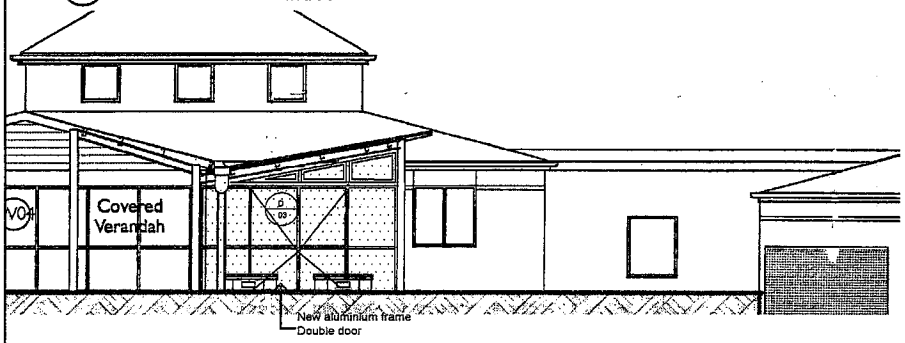

3 SECTION B-B
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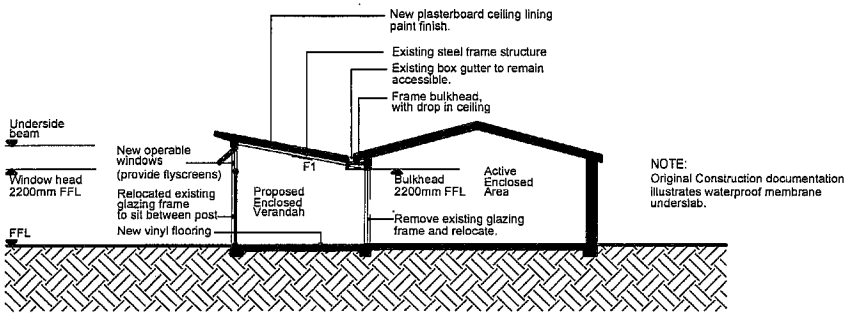

NOTE:
Original Construction documentation illustrates waterproof membrane underslab.

2 SECTION A-A
1:100

REV	DATE	DESCRIPTION	BY
B	19.12.16	Pre DA discussion	RMC
A	29.11.16	For Discussion	RMC

PHASE
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PENRITH CITY COUNCIL
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PROJECT
ALTERATIONS - OOSH Erskine Park
Crn Peppertree and Shallow Drive,
ERSKINE PARK

TITLE
PROPOSED
SECTIONS & ELEVATIONS

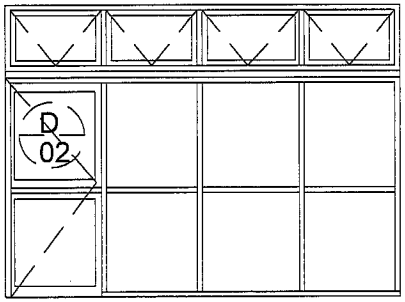
SCALE (A3)	DRAWN RMC	PROJECT CODE
DATE 22-10-2016	APPROVED	

SHEET NO.
A1614 - 400 REV[B]

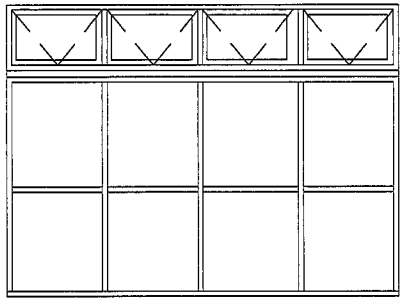
Underside beam

Window head 2200mm FFL

FFL



3 ELEVATION W 03
1:100



4 ELEVATION W 04
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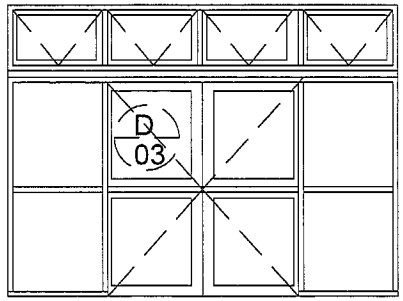
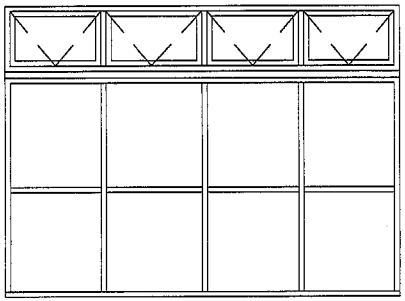


5 ELEVATION W 05
1:100

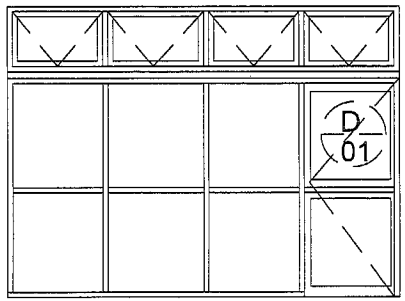
Underside beam

Window head 2200mm FFL

FFL



1 ELEVATION W 01
1:100



2 ELEVATION W 02
1:100

NOTE:
* Provide safety glass to all new windows
* High elevation operable windows to be tinted.
* Glazing sections to match existing.
* Door locks to match existing
* Door cylinders (Abloy) to be provided by Council installed by Contractor.

REV.	DATE	DESCRIPTION	BY
A	19.12.16	Pre DA discussion	RMC

PHASE
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PROJECT
ALTERATIONS - OOSH Erskine Park
Crn Peppertree and Shallow Drive,
ERSKINE PARK

TITLE
WINDOW SCHEDULE

SCALE (A3)	DRAWN RMC	PROJECT CODE
DATE 22-10-2016	APPROVED	

SHEET NO.
A1614 - 500 REV[A]