Happy Tails Dog Day Care – Revised Proposal

As the Application for the change of use wasn't a refusal at the 26th June Council Meeting we have made some changes to our proposal to comply with the City of Vincent's LA10 noise requirements.

The Adjustments that we are proposing will hopefully benefit the residents that surround the property who live behind a 5m brick wall, next to the funeral home and warehouses.

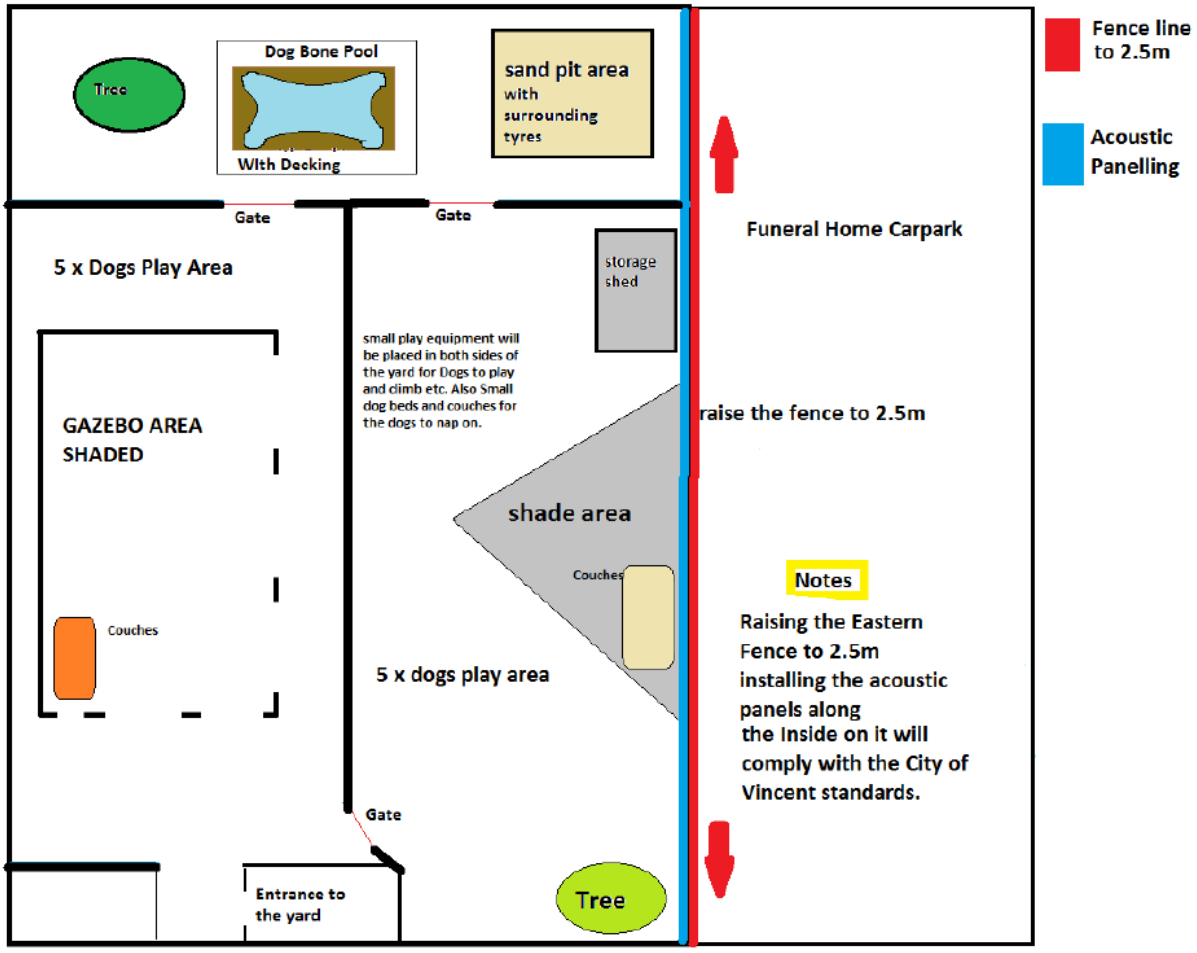
Our Aim is to work with the council and community in a positive way so that everyone can enjoy the service without having a negative impact on the residents. Out of the 230 + letters that went out only 10% of the community are concerned. We aim to reduce this 10% through the below measures.

Our acoustic engineer has demonstrated in his report (see attached) that if we raise the eastern fence to 2.5m we **Comply** with the standards set by the city, including the worst-case scenario of 10 dogs barking at one time.

We propose the following to ensure our noise levels are within limits and comply with the LA10 Requirements.

1. We will only have 10 dogs in the yard at one time.
2. All dogs will have an animal behaviourist in the yard with them at all times.
3. The other 20 will be kept inside and will go outside on a rotational basis (staying in 10 per group)
4. Raising the Eastern Fence to 2.5m to help Residents on the other side of the car park and also any noise that may affect the tenants in front of the house and away from the Backyard.
5. Placing Acoustic Panels down the eastern side of the property, designed to reduce noise levels by 30dB.
6. The Yard will be split in half, with 5 dogs on each side. (Please see attached Diagram)
7. All dogs undergo an extensive orientation process before attending Happy Tails Dog Day Care to rule out any behavioural issues.

We appreciate your reconsideration and look forward to working with the City of Vincent in this exciting new prospect for the community.


Tree
Dog Bone Pool
With Decking
sand pit area
with
surrounding
tyres
Gate
Gate
5 x Dogs Play Area
storage
shed
small play equipment will
be placed in both sides of
the yard for Dogs to play
and climb etc. Also Small
dog beds and couches for
the dogs to nap on.
GAZEBO AREA
SHADED
Couches
shade area
Couches
5 x dogs play area
Gate
Entrance to
the yard
Tree
Funeral Home Carpark
raise the fence to 2.5m
Notes
Raising the Eastern
Fence to 2.5m
installing the acoustic
panels along
the inside on it will
comply with the City of
Vincent standards.
Fence line
to 2.5m
Acoustic
Panelling

ACOUSTIC REPORT

FOR

HAPPY TAILS DOG DAYCARE PTY LTD

16 HOWLETT ST

NORTH PERTH WA 6006

2 July 2018

AES-170023-R01-1-02072018

Acoustic Engineering Solutions
www.acousticengsolutions.com.au

DOCUMENT CONTROL

Environmental Noise Impact Assessment

Prepared for: Happy Tails Dog Daycare Pty Ltd
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Acoustic Engineering Solutions
ABN: 64 451 362 914

EXECUTIVE SUMMARY

Acoustic Engineering Solutions (AES) has been commissioned by Happy Tails Dog Daycare Pty Ltd (HTDD) to prepare an acoustic report as a supporting document for the application of converting a premise into a Dog Daycare Centre (DDC). The DDC is proposed to accommodate up to 30 dogs, and open from 7:00am to 5:30pm for Mondays to Fridays excluding public holidays. This report presents an environmental noise assessment of the proposed DDC operations. The aim of this assessment is to determine whether or not the proposed DDC operations would comply with the Environmental Protection (Noise) Regulations 1997 (the Regulations).

An acoustic model has been created and two extreme worst-case scenarios have been modelled:

Scenario 1: Two dog groups (20 dogs) play inside the DDC house while one dog group (10 dogs) plays outdoor in the backyard. The 10 dogs playing in the backyard are assumed to bark simultaneously. Modular acoustic panel walls are used to build 2.1m partition fences in the backyard, and also assumed to the inner surface (face to the backyard) of the existing eastern backyard fence providing an absorption coefficient of 0.8.

Scenario 2: Scenario 1 with a 2.5m fence along the eastern backyard boundary. The modular acoustic panels are added to the inner surface (face to the backyard) of the 2.5m fence providing an absorption coefficient of 0.8.

The assumption of all 10 dogs in the backyard barking simultaneously rarely happens, especially at a dogcare centre where dogs are cared by experienced staffs. The above scenarios are expected to happen in much less than 10% of the DDC open hours.

For the above scenarios, the following sources are assumed:

- Three split air-conditioning units are operating; and
- In the grooming area inside DDC house, a dog is being trimmed by an electric trimmer and another dog is being washed in a basin.

Six neighbouring premises have been selected for the detailed assessment. Noise levels have been predicted for worst-case meteorological conditions. Dog barking noise is expected to exhibit tonality and impulsiveness, the predicted worst-case noise levels have been adjusted by adding 15 dB according to the Regulations. Then the adjusted noise levels have been assessed against the assigned noise levels L_{A1} set by the Regulations at all of the receiver locations for both scenarios. The compliance assessment concludes that full compliance is achieved for scenario 2 with the increase of existing eastern backyard fence to 2.5m.

TABLE OF CONTENTS

1.0 INTRODUCTION

Happy Tails Dog Daycare Pty Ltd (HTDD) has applied for converting a premise into a Dog Daycare Centre (DDC). The City of Vincent requires an acoustic report for undertaking a noise impact assessment to determine whether or not the proposed DDC operations would comply with the Environmental Protection (Noise) Regulations 1997 (the Regulations).

Acoustic Engineering Solutions (AES) has been commissioned by HTDD to prepare the acoustic report. This acoustic report presents an environmental noise impact assessment of the proposed DDC operations.

In March 2018, an acoustic model was developed to assess the environmental noise impact of the proposed operations[1]. Full compliance was predicted with one dog bark when they play in the backyard. In May 2018, an extreme case[2] was assessed where all (15) dogs are assumed to bark simultaneously when they play in the backyard. Although compliance was predicted for this extreme case at the selected noise-sensitive receivers, the worst-case noise contours indicated that potential noise exceedance may occur in three small backyard areas.

HTDD has revised the number of dogs playing outdoor, redesigned the dog play areas and proposed to install acoustic panels in the backyard. The acoustic model has accordingly been updated to reflect the revision and changes. This report presents the environmental noise impact assessment of the revised DDC operations.

1.1 DOG DAYCARE CENTRE

The DDC is proposed to operate at 16 Howlett Street North Perth. Figure 1 in APPENDIX A presents the aerial view of the proposed DDC site. The proposed DDC house is an old house with a large backyard, which is situated next to a large warehouse (in the West) and the parking premise (in the East) for a funeral home. A 1.8m high fence is installed along the eastern boundary (adjacent to the car park). Two gates secure either sides of the house. Three split air-conditioning units have been installed.

Figure 2 in APPENDIX A presents the proposed site layout and floor plan.

Room 1: Reception.
Room 2: Waiting area/orientation room.
Room 3: Storage.
Room 4: Indoor play area.
Room 5: Store room.
Room 6: Grooming area.

[1] Acoustic Report for Happy Tails Dog Daycare Pty LtD, AES 170023-R01-A-21032018, March 2018, AES Report.
[2] Acoustic Report for Happy Tails Dog Daycare Pty LtD, AES 170023-R01-0-16052018, May 2018, AES Report

The proposed DDC house is a brick and title structure. The external walls are double brick walls. The ceilings are (mostly flat) plaster board and fully insulated with fibreglass batts. All doors are made of solid timbers. All windows are glazed with timber frames. During the operation hours, all windows and doors are closed.

The DDC is proposed to accommodate up to 30 dogs, and open from 7:00am to 5:30pm on Mondays to Fridays excluding public holidays. The DDC will offer grooming; behavioural training and general day to day care of dogs. The DDC has 6 car parking bays at front of property for drop off and pick up.

1.2 DDC BACKYARD

To reduce dog barking noise emission, modular acoustic panels[3] are proposed to divide the DDC backyard into several areas, as shown in Figure 3. The modular acoustic panels will be built of 2.1m high and provide absorption coefficient of 0.8 for both surfaces. A gazebo area shed will replace the existing shed, which will be relocated next to the existing fence. A dog bone pool and a sand pit area will be located on the back of the yard.

The 30 dogs will be divided to three playing groups. Each group has 10 dogs. During the care hours, only one dog group is allowed to play outdoor (in the backyard) while the other two groups play inside the DDC house.

[3] ACOUSTIC WALLS & SPECIALISED PANEL SOLUTIONS, ModularWalls™.

2.0 NOISE CRITERIA

Noise management in Western Australia is implemented through the Environmental Protection (Noise) Regulations 1997 (the Regulations). The Regulations set noise limits which are the highest noise levels that can be received at noise-sensitive (residential), commercial and industrial premises. These noise limits are defined as 'assigned noise levels' at receiver locations. Regulation 7 requires that "noise emitted from any premises or public place when received at other premises must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind".

Table 2-1 presents the assigned noise levels at various premises.

Table 2-1: Assigned noise levels in dB(A)

Type of Premises Receiving Noise	Time of Day	Assigned Noise Levels in dB(A)[4]		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises: highly sensitive area	0700 to 1900 hours Monday to Saturday	45 + Influencing factor	55 + Influencing factor	65 + Influencing factor
	0900 to 1900 hours Sunday and public holidays	40 + Influencing factor	50 + Influencing factor	60 + Influencing factor
	1900 to 2200 hours all days	40 + Influencing factor	50 + Influencing factor	60 + Influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35 + Influencing factor	45 + Influencing factor	55 + Influencing factor
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises other than those in the Kwinana Industrial Area	All hours	65	80	90

[4] Assigned level L_{A1} is the A-weighted noise level not to be exceeded for 1% of a delegated assessment period. Assigned level L_{A10} is the A-weighted noise level not to be exceeded for 10% of a delegated assessment period. Assigned level L_{Amax} is the A-weighted noise level not to be exceeded at any time.

For highly noise sensitive premises, an "influencing factor" is incorporated into the assigned noise levels. The influencing factor depends on road classification and land use zonings within circles of 100 metres and 450 metres radius from the noise receiver locations.

2.1 CORRECTIONS FOR CHARACTERISTICS OF NOISE

Regulation 7 requires that that "noise emitted from any premises or public place when received at other premises must be free of:

(i) tonality;

(ii) impulsiveness; and

(iii) modulation.

when assessed under Regulation 9".

If the noise exhibits intrusive or dominant characteristics, i.e. if the noise is impulsive, tonal, or modulating, noise levels at noise-sensitive premises must be adjusted. Table 2-2 presents the adjustments incurred for noise exhibiting dominant characteristics. That is, if the noise is assessed as having tonal, modulating or impulsive characteristics, the measured or predicted noise levels have to be adjusted by the amounts given in Table 2-2. Then the adjusted noise levels must comply with the assigned noise levels. Regulation 9 sets out objective tests to assess whether the noise is taken to be free of these characteristics.

Table 2-2: Adjustments for dominant noise characteristics

Adjustment where noise emission is not music. These adjustments are cumulative to a maximum of 15 dB.			Adjustment where noise emission is music	
Where tonality is present	Where Modulation is present	Where Impulsiveness is present	Where Impulsiveness is not present	Where Impulsiveness is present
+5 dB	+5 dB	+10 dB	+10 dB	+15 dB

2.2 INFLUENCING FACTOR

Six neighbouring premises surrounding the DDC house have been selected for detailed assessment of noise impact, as shown in Figure 1 in APPENDIX A. R2, R4 and R6 are noise sensitive premises and the others are commercial premises.

Charles Street is classified as the Major Road from the Main Road traffic flow data (mrapps.mainroads.wa.gov.au/TrafficMap/, Site 0114, South of Elizabeth Street (SLK 1.68)). R6 is less than 98m away from Charles Street while the others are 110m to 170m away from Charles Street. Therefore, the transport factor is 6dB for R6 but 2 dB for R2 and R4.

Figure 4 in APPENDIX A presents map 1 of the town planning scheme and zone of the City of Vincent. The proposed DDC house is located in a commercial zone. No industrial zone is present in the vicinity of the selected closest noise sensitive premises. Table 2-3 presents the calculation of influencing factors and Table 2-4 presents the calculated assigned noise levels L_{A1} for the closest noise-sensitive and commercial premises.

Table 2-3: Calculation of influencing factors.

Closest Residents	Transport Factor in dB	Commercial Land			Influencing Factor in d(B)
		Within 100m Radius	Within 450m Radius	dB	
R2	2	33%	0.08%	2	4
R4	2	56%	0.08%	3	5
R6	6	80%	0.08%	4	10

Table 2-4: Assigned day-time noise levels L_{A1} for Mondays to Saturdays.

Closest Residences	Day[5] Monday to Saturday
	L_{A1}
R1	75
R2	59
R3	75
R4	60
R5	75
R6	65

[5] 0700 to 1900 hours for Monday to Saturday.

3.0 NOISE MODELLING

3.1 METHODOLOGY

An acoustic model has been developed using SoundPlan v8.0 program, and the CONCAWE[6,7] prediction algorithms have been selected for this study. The acoustic model has been used to predict noise levels at the selected receiver locations and generate noise level contours for the area surrounding the proposed DDC site.

The acoustic model does not include noise emissions from any sources other than from the DDC operations. Therefore, noise emissions from neighbouring commercial premises, aircrafts, road traffics, etc are excluded from the modelling.

3.2 NOISE MODELLING SCENARIOS

Five worst-case operational scenarios have been modelled and presented in the AES previous reports[1,2]. In this report, the following two worst-case operational scenarios are modelled:

Scenario 1: 20 dogs (two dog groups) play inside the DDC house while the other 10 dogs (one dog group) play outdoor in the backyard. The 10 dogs in the backyard are assumed to bark simultaneously. The 2.1m modular acoustic panel walls are installed in the backyard, as shown in Figure 3. The modular acoustic panels are also assumed to the inner surface (face to the backyard) of the existing eastern backyard fence providing an absorption coefficient of 0.8.

Scenario 2: Scenario 1 with a 2.5m fence along the eastern backyard boundary, as shown in Figure 5 in APPENDIX A. The modular acoustic panels are added to the inner surface (face to the backyard) of the 2.5m fence providing an absorption coefficient of 0.8

The assumption of all 10 dogs in the backyard barking simultaneously rarely happens, especially at a dogcare centre where dogs are attended and cared by experienced staffs.

For the above scenarios, the following sources are assumed:

- Three split air-conditioning units are operating; and
- In the grooming area inside the DDC house, a dog is being trimmed by an electric trimmer and another dog is being washed in a basin.

HTDD has advised that all of windows and doors of the DDC house are fully closed during the open hours.

[6] CONCAWE (Conservation of Clean Air and Water in Europe) was established in 1963 by a group of oil companies to carry out research on environmental issues relevant to the oil industry.
[7] The propagation of noise from petroleum and petrochemical complexes to neighbouring communities, CONCAWE Report 4/81, 1981.

3.3 INPUT DATA

3.3.1 Topography

HTDD advised that the proposed DDC site and surrounding area are flat. Therefore, a flat ground has been assumed in the acoustic model with averaged absorption of 0.6.

The buildings in the area of interest (including the DDC house) have been digitised to the acoustic model together with the (1.8m) property fences including the DDC boundary fence.

3.3.2 Noise Sensitive Premises

In consulting with HTDD, six neighbouring premises have been selected for the detailed assessment, as shown in Figure 1 in APPENDIX A. R2, R4 and R6 represent the noise sensitive premises and the others are the commercial premises.

3.3.3 Source Sound Power Levels

Site measurements of sound power levels are not possible because the HTDD dog daycare centre is not in operation yet.

Table 3-1 presents the sound power levels, which are obtained from the information provided by HTDD and from the AES database for similar equipment. The noises from dog barking, dryer and air-conditioners are expected to have tonality characteristics.

Table 3-1: Sound power levels.

Names	Octave Frequency Band Sound Power Levels in dB(lin)								Overall	
	63	125	250	500	1k	2k	4k	8k	dB(lin)	dB(A)
Dog Barks	70.6	66.4	64.0	82.3	90.1	84.7	69.4	59.0	**91.8**	**91.8**
Dryer	67.5	69.9	66.7	69.4	73.1	75.2	78.9	73.7	**82.6**	**82.6**
Hair Trimmer	69.6	69.8	67.5	65.6	64.4	62.2	57.2	48.7	**75.2**	**69.3**
Dog-Bath	73.7	76.9	75.1	70.8	69.5	70.0	68.8	66.3	**81.7**	**76.7**
Air-conditioner	73.3	70.9	64.9	58.9	57.0	53.2	47.6	39.3	**75.8**	**63.0**

3.4 METEOROLOGY

SoundPlan calculates noise levels for defined meteorological conditions. In particular, temperature, relative humidity, wind speed and direction data are required as input to the model. For this study the worst-case meteorological conditions[8] have been assumed, as shown in Table 3-2.

Table 3-2: Worst-case meteorological conditions.

Time of day	Temperature Celsius	Relative Humidity	Wind speed	Pasquill Stability Category
Day (0700 --- 1900)	20° Celsius	50%	4 m/s	E

[8] The worst case meteorological conditions were set by the EPA (Environmental Protection Act 1986) Guidance note No 8 for assessing noise impact from new developments as the upper limit of the meteorological conditions investigated.

4.0 MODELLING RESULTS

4.1 POINT MODELLING RESULTS

Table 4-1 presents the predicted worst-case noise levels. The highest worst-case noise level is predicted of at R5 for both scenarios. The predicted results indicate that the increase of eastern backyard fence height (scenario 2) reduces noise received at every receiver locations, especially at R4 to R6.

Table 4-1: Predicted worst-case noise levels in dB(A).

Receivers	Predicted Worst-case Noise Levels in dB(A)	
	Scenario 1	Scenario 2
R1	41.4	41.0
R2	40.0	39.5
R3	47.9	46.9
R4	46.4	41.9
R5	53.2	48.7
R6	44.2	40.0

4.2 NOISE CONTOURS

Figure 6 and Figure 7 in APPENDIX B present the worst-case noise level contours. These noise contours represent the worst-case noise propagation envelopes, i.e., worst-case propagation in all directions simultaneously.

5.0 COMPLIANCE ASSESSMENT

5.1 ADJUSTED NOISE LEVELS

Dog-barking noise is the dominant noise source in DDC. Dog barking noise may exhibit tonality and impulsive characteristics at receiver locations when it is much higher than local background noise levels. If the tonality and impulsiveness of dog barking noise are audible at the receiver locations, the predicted noise levels shown in Table 4-1 should be adjusted by adding 15 dB (5dB for tonality and 10 dB for impulsiveness) according to Table 2-2.

Table 5-1 presents the adjusted worst-case A-weighted noise levels.

Table 5-1: Adjusted worst-case noise levels in dB(A).

Receivers	Adjusted Worst-case Noise Levels in dB(A)	
	Scenario 1	Scenario 2
R1	56.4	56.0
R2	55.0	54.5
R3	62.9	61.9
R4	61.4	56.9
R5	68.2	63.7
R6	59.2	55.0

5.2 COMPLIANCE ASSESSMENT

As indicated in section 3.2, the assumption of all 10 dogs in the backyard barking simultaneously rarely happens at a dogcare centre. The two scenarios are expected to happen in much less than 10% of the DDC open hours (much less than 24 minutes over every 4 hour period). Therefore, the assigned noise levels L_{A1} should apply.

The DDC is open from 7:00am to 5:30pm for Mondays to Fridays excluding public holidays. Therefore, no assessment is required for the evening and night periods (7:00pm to 7:00am) and for Sundays and public holidays.

Table 5-2 presents a compliance assessment for the daytime period on Mondays to Fridays. The value above the assigned noise level is expressed in ***Bold Italic***. For scenario 1 the adjusted noise level is above the assigned noise level by 1.4 dB at R4. For scenario 2 the adjusted noise level is below the assigned noise level at all of the receiver locations.

Table 5-2: Compliance assessment for Mondays to Saturdays.

Receivers	Assigned Noise Levels L_{A1} in dB(A)	Adjusted Worst-case Noise Levels in dB(A)	
		Scenario 1	Scenario 2
R1	75	56.4	56.0
R2	59	55.0	54.5
R3	75	62.9	61.9
R4	60	***61.4***	56.9
R5	75	68.2	63.7
R6	65	59.2	55.0

Figure 6 in APPENDIX A shows that for scenario 1 the 45 dB(A) noise contours reach the backyard of R4 indicating the adjusted noise level is above 60 dB(A). The backyard of R4 has the calculated day-time assigned noise level L_{A1} of 60 dB(A). Therefore, exceedance is predicted at the backyard of R4 for scenario 1.

Figure 6 in APPENDIX A shows that for scenario 1 the 60 dB(A) noise contours cover a small area of driveway of the neighbouring car park. This means that the adjusted level is above 75 dB(A) in this small area. At the neighbouring car park the day-time assigned noise level L_{A1} is 75 dB(A). Therefore, compliance cannot be achieved at the neighbouring car park for scenario 1.

Figure 7 in APPENDIX A shows that the 60 dB(A) noise contours are confined inside the DDC premise for scenario 2. This means that the noise level is less than 60 dB(A) (or the adjusted level is below 75 dB(A)) at the neighbouring car park. Therefore, compliance is achieved at the neighbouring car park for scenario 2.

Figure 7 in APPENDIX A shows that the 45 dB(A) noise contours are out of all closest noise sensitive premises where the minimum day-time assigned noise level L_{A1} is 59 dB(A) (4 dB influencing factor including 2dB transport factor). This indicates that the adjusted noise levels at all closest noise sensitive premises will be below the day-time assigned noise level L_{A1}. It can be concluded that full compliance is achieved for scenario 2.

6.0 DISCUSSIONS

The assessments in the previous section are made based on the adjusted noise levels. An adjustment of 15 dB has applied to the predicted noise levels at all receiver locations. This is based on the assumption that the dog barking noise is much higher than local background noise. If local background noise is close to the predicted dog barking noise, the impulsiveness and tonality of dog barking noise may not be audible (measured), and then the 15 dB adjustment should not apply to the predicted noise levels. For most urban areas, day-time background noise level ranges from 40 dB(A) to 50 dB(A).

To prevent a group-dog barking, HTDD should develop and implement a noise management plan, including:

- Dog training programs.
- Dog daily exercise programs.
- Set a cooling area.
- "Barking prevent" procedures.

APPENDIX A AERIAL VIEW

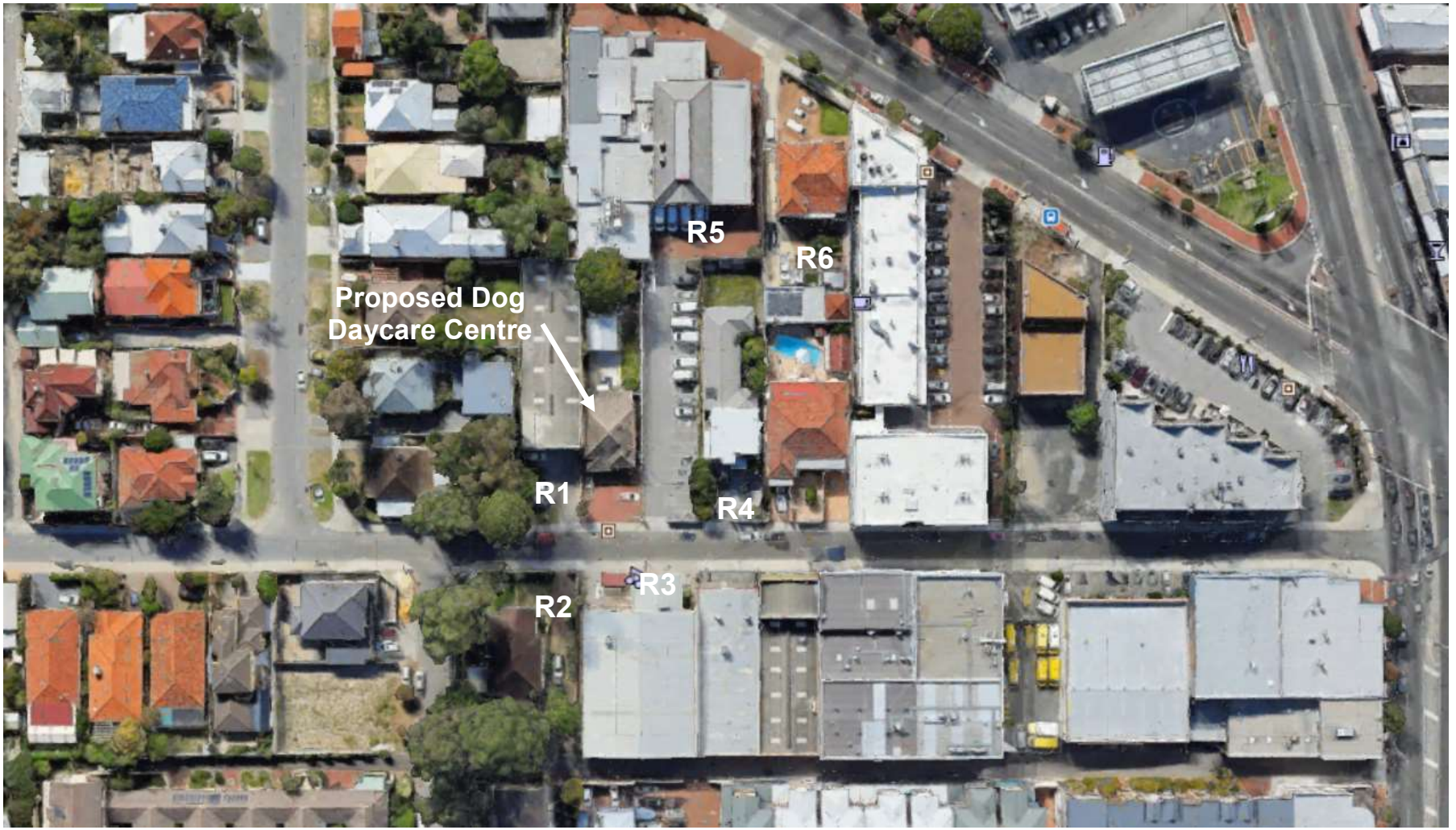

Figure 1: Aerial view of the proposed DDC site.

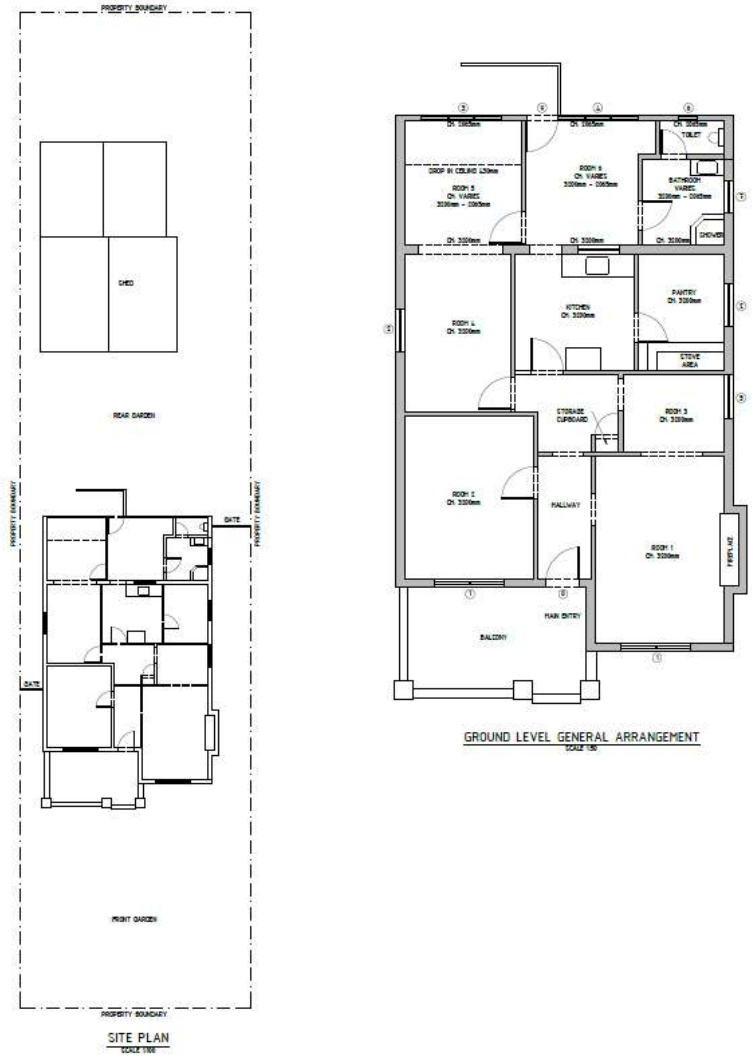

Figure 2: Site layout and floor plan.

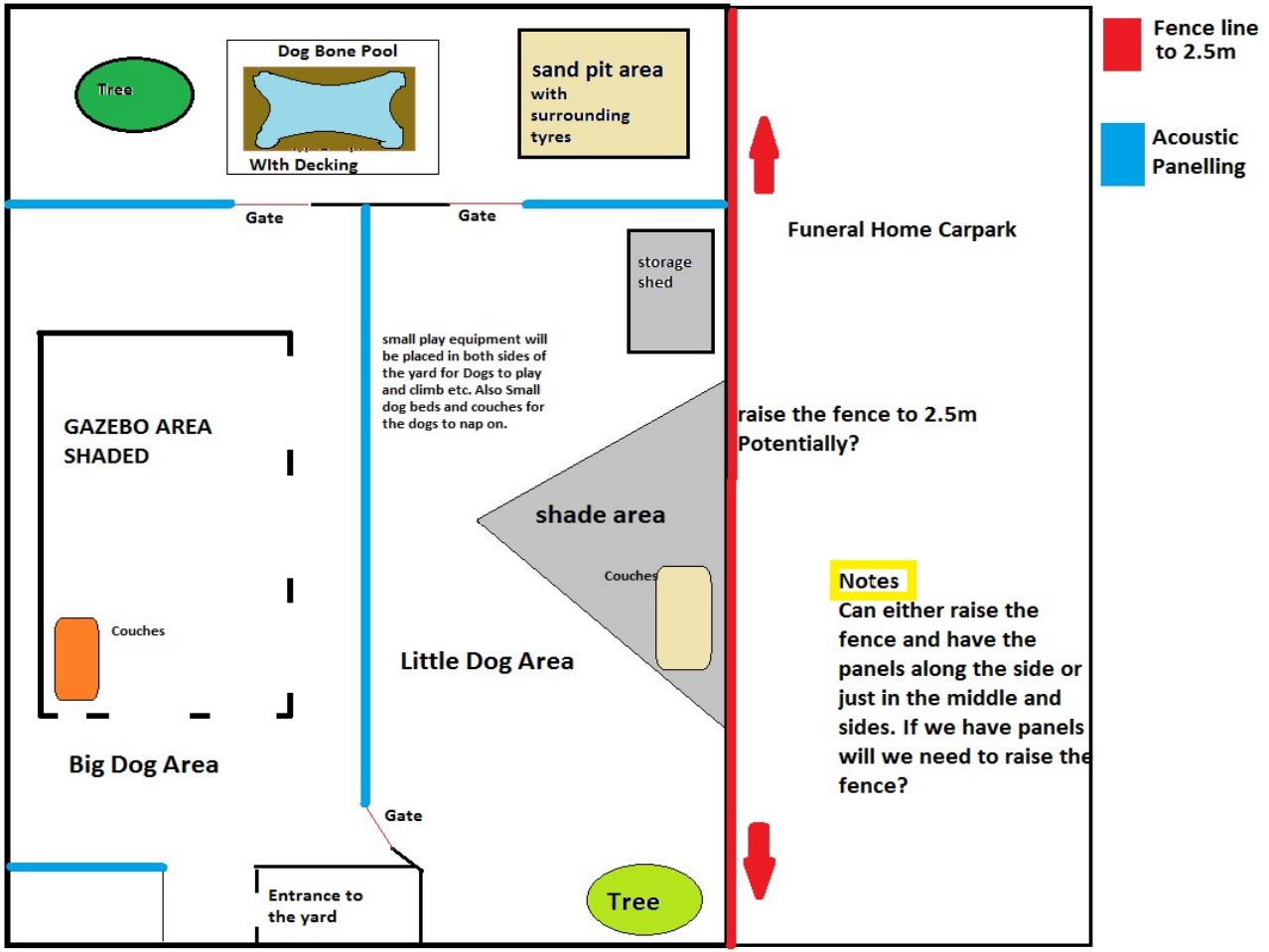

Figure 3: Backyard dog play areas.

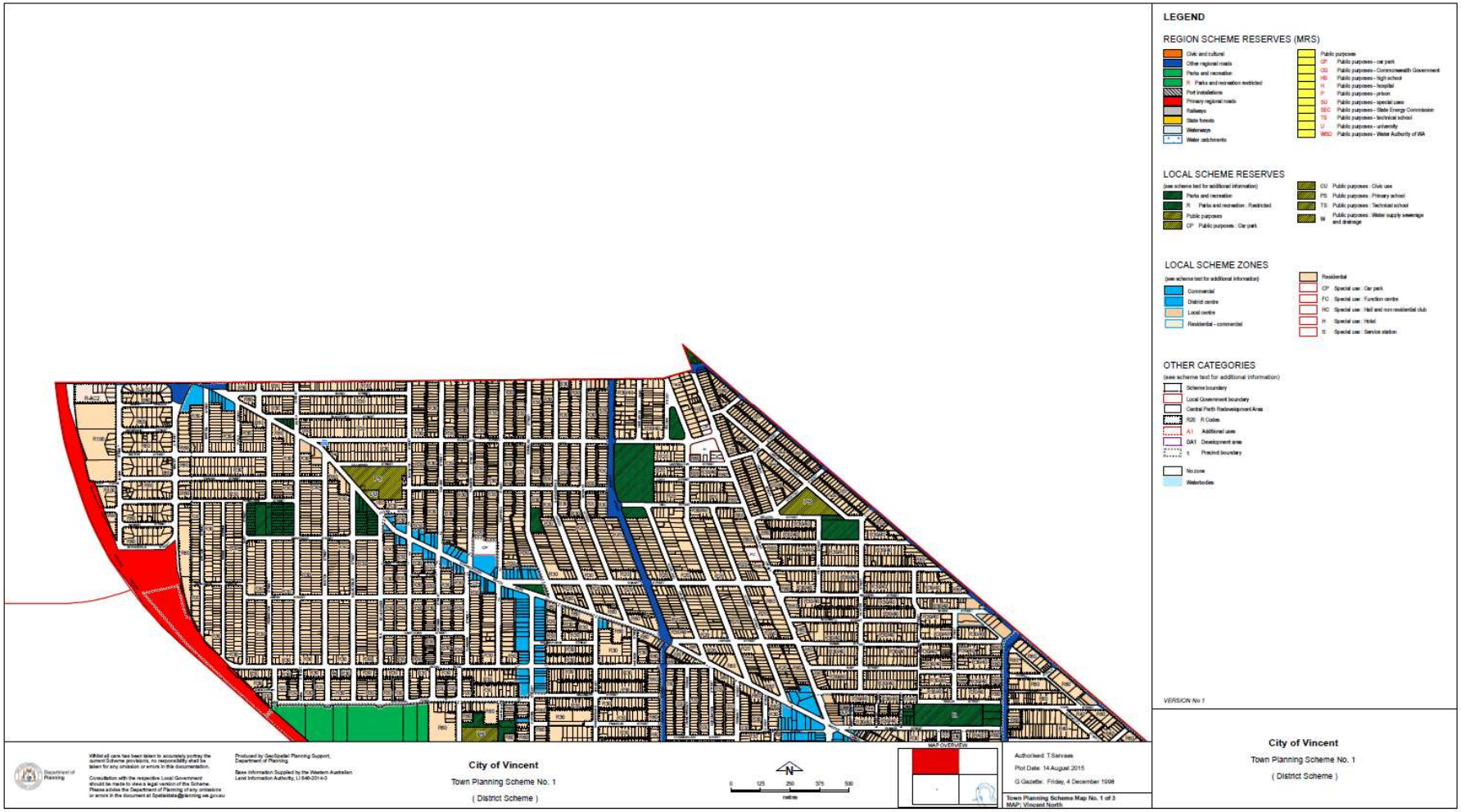

Figure 4: Town planning scheme map 1 of the City of Vincent.

Figure 5: Location of proposed 2.5m fence (red line).

APPENDIX B NOISE CONTOURS

Figure 6: Worst-case noise contours for scenario 1.

Figure 7: Worst-case noise contours for scenario 2.