HERRING STORER ACOUSTICS

PROPOSED TRANSPORT DEPOT

543 KING ROAD
OLDBURY

ENVIRONMENTAL ACOUSTIC ASSESSMENT

AUGUST 2020

OUR REFERENCE: 26134-2-20155

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FOR

ALTUS PLANNING

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APPENDICIES

1. INTRODUCTION

Herring Storer Acoustics were commissioned by Altus Planning to undertake an acoustic assessment of noise emissions associated with the transport depot facility to be located at 543 King Road, Oldbury.

This report assesses noise emissions from the premises with regards to compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997* and has been requested to accompany the retrospective planning approval application for the site.

From assessment of similar facilities, and discussions of the operations on site we believe that the noise sources that need to be considered as part of this assessment include :

- Truck movements on site;
- Pumping of material.

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

2. SUMMARY

The neighbouring residences of concern to this development are located to the north east and west of the proposed transport depot. As the facility is proposed to only operate between 7am and 7pm, Monday – Saturday, the pertinent Assigned Noise Level is the day period in accordance with the *Environmental Protection (Noise) Regulations 1997*.

Based on the proposed number of trucks that would be accessing the site, analysis of the truck movements shows that this would occur for less than 10% of the time. Hence, noise received at the neighbouring residences would need to comply with the Assigned L_{A1} noise levels.

Similarly, the transfer of material via pumping only occurs for less than 10% of the time.

From the analysis undertaken, noise emissions from the proposed development has been assessed against the requirements of the *Environmental Protection (Noise) Regulations 1997* and found to be compliant during the relevant time periods.

It is noted that the assessment of the noise impact is considered conservative as the influencing factor at the neighbouring premises has been estimated at 0 dB, ignoring any industrial/commercial land uses in the area.

Additionally, the noise modelling did not include any barrier effect that the trucks themselves would have during the pumping process.

3. CRITERIA

The allowable noise level for noise sensitive premises in the vicinity of the proposed Facility site is prescribed by the *Environmental Protection (Noise) Regulations 1997*. Regulations 7 and 8 stipulate maximum allowable external noise levels or assigned noise levels that can be received at a premise from another premises. For residential premises, this noise level is determined by the calculation of an influencing factor, which is then added to the base levels shown below. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. The base noise levels for residential premises and the assigned noise levels for industrial premises are listed in Table 3.1.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	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: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} 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_{Apeak} and $L_{Amax(Slow)}$ 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_{AFast} or is more than 3 dB L_{AFast} in any one-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 **tonality** is present	Where **modulation** is present	Where **impulsiveness** 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 residential premises of concern are located, as shown on Figure 3.1 below.

FIGURE 3.1 – AREA AROUND PROPOSED DEVELOPMENT

The influencing factor at the nearest residential locations to the site have been assumed at 0 dB, however it is noted that this is conservative (underestimation) as the land uses in the area include industrial premises in the form of the transport depot and what appears to be a sand quarry to the north.

Thus, the Assigned Noise Levels would be as summarised in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL
NEIGHBOURING RESIDENCE R1 AND R2

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises : Highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	45	55	65
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40	50	65
	1900 - 2200 hours all days (Evening)	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35	45	55

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.

4. PROPOSAL

The proposed development is for a transport depot.

It is understood that the facility is proposed to operated 7am -5pm, Monday to Friday and 7am – 12pm Saturdays.

We understand that there are no more than two trucks operating on-site at once, with in total, no more than ten daily movements (in and out) in any one day.

Transfer of material from one truck to another can occur up to approximately 3 times a week. The transfer process takes between 10 – 15 minutes at a time.

5. MODELLING

Modelling of the noise propagation from the proposed development was carried out using an environmental noise modelling computer program, "SoundPlan". Calculations were carried out using the EPA worst case weather conditions as stated in the Environmental Protection Authority's *"Draft Guidance for Assessment of Environmental Factors No.8 - Environmental Noise"*.

To represent the noise emissions from the proposed development, noise modelling was undertaken for the following scenarios :

1 Truck movements around the hardstand.

2 Transferring of material between trucks (petrol pump).

The calculations were based in the sound pressure levels listed in Table 5.1. These noise levels were measured during a site visit on 3rd August 2020 and are therefore representative of the actual equipment utilised.

The petrol pump is understood to be representative of the noisiest pump on site, with other truck pumps consisting of power take off units that utilise the truck engine to power the pump (i.e. much quieter).

The noise modelling is considered conservative in that no barrier effect was included for parked trucks during the petrol pump transfer process.

TABLE 5.1 – SOURCE SOUND POWER LEVELS

Item of Equipment	Sound Pressure Level, (dB(A))
Rigid Truck Moving	74 @ 7m
Petrol Pump	83 @ 7m

6. RESULTS

Calculations were undertaken to all the residences noted on Figure 3.1.

TABLE 6.1 – CALCULATED NOISE LEVELS AT NOISE SENSITIVE PREMISES

Scenario	Location	Calculated Noise Levels (dB(A))
1 – Truck Movements	R1	46
	R2	46
2 – Pump Transfer	R1	47
	R2	35

For information, the noise contour plots are attached in Appendix B.

For information purposes, noise level monitoring was undertaken between the 3rd August 2020 and 7th August 2020, with noise levels monitored within the transport depot location itself.

Monitored noise levels aligned with the calculated noise levels, in that the levels align with those measured on 3rd August 2020. Figure 6.1 below shows the logger location.

FIGURE 6.1 – LOGGER LOCATION

7. ASSESSMENT

Noise levels attributable to the transport depot, due to the duration of the noise, are considered to be present for less than 10% of a representative time period, hence the L_{A1} parameter is the pertinent Assigned Noise Level for comparison purposes.

Based on the definitions of tonality, noise emissions from truck movements and pump transfer, being L_{A1}, being present for less than 10% of the time, would not be considered tonal. Thus, no penalties would be applicable, and the assessment would be as listed in Table 7.1

Table 7.1 shows the applicable Compliance Noise Levels for all periods and the assessable noise level emissions associated for the above scenarios.

TABLE 7.1 – ASSESSMENT OF L_{A1} NOISE LEVEL EMISSIONS

Scenario	Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Compliant L_{A1} Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
1 – Truck Movements	R1	46	0700 - 1900 hours Monday to Saturday (Day)	55	Complies
	R2	46	0700 - 1900 hours Monday to Saturday (Day)	55	Complies
2 – Pump Transfer	R1	47	0700 - 1900 hours Monday to Saturday (Day)	55	Complies
	R2	42	0700 - 1900 hours Monday to Saturday (Day)	55	Complies

8. DISCUSSION

From the analysis undertaken, noise emissions from the proposed development has been assessed against the requirements of the *Environmental Protection (Noise) Regulations 1997.*

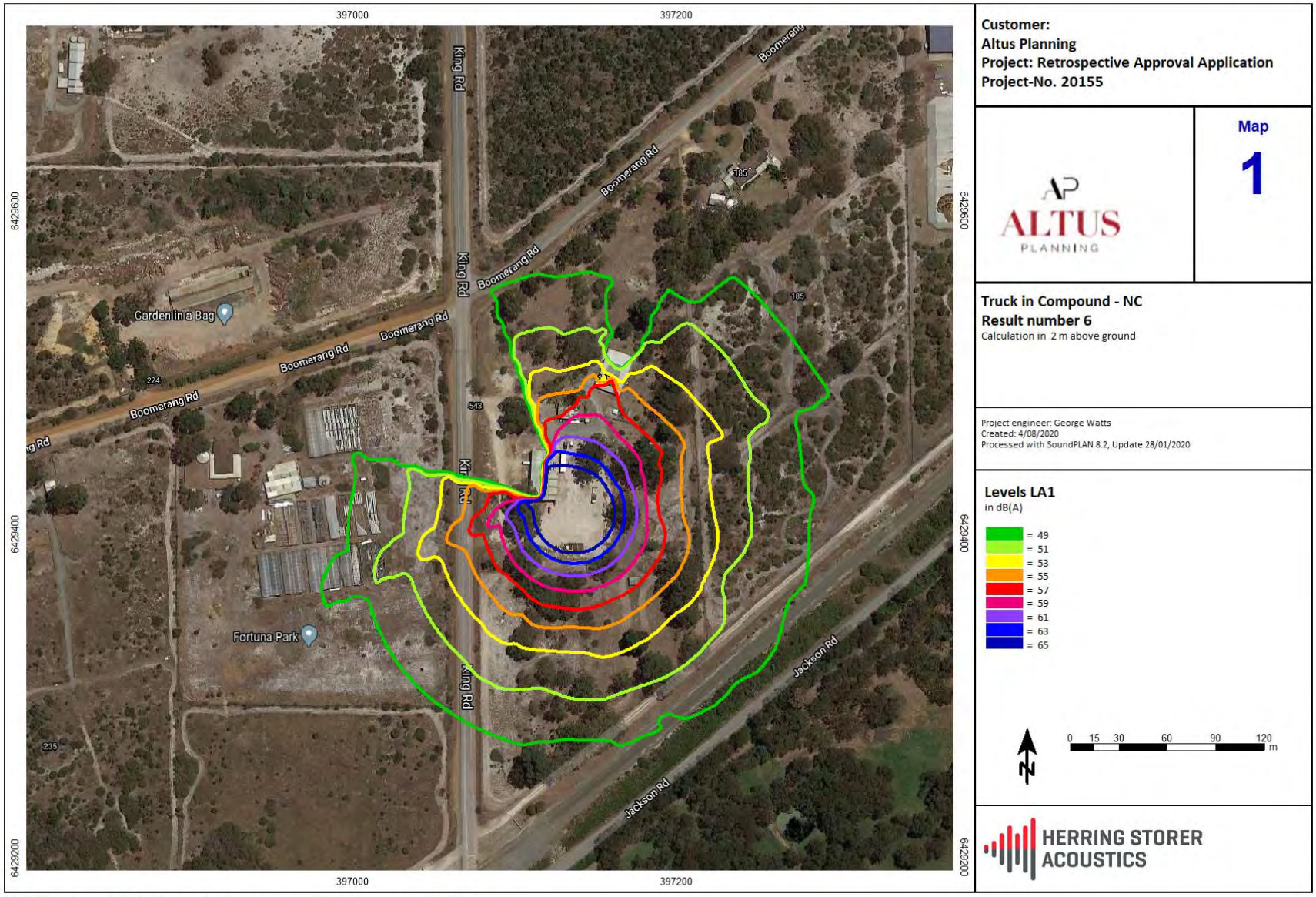
Based on the proposed number of trucks that would be accessing the site, analysis of the truck movements shows that this would occur for less than 10% of the time. Hence, noise received at the neighbouring residences would need to comply with the Assigned L_{A1} noise levels.

Similarly, the use of the pump transfer would occur for less than 10% of the time. Hence, noise received at the neighbouring residences would need to comply with the Assigned L_{A1} noise levels.

Utilising a conservative assessment of the influencing factor for the surrounding noise sensitive premises (i.e. underestimation of the allowable noise level), noise levels associated with the transport depot have been found to be compliant with the applicable Assigned Noise Levels at all pertinent times.

APPENDIX A

NOISE CONTOUR PLOTS



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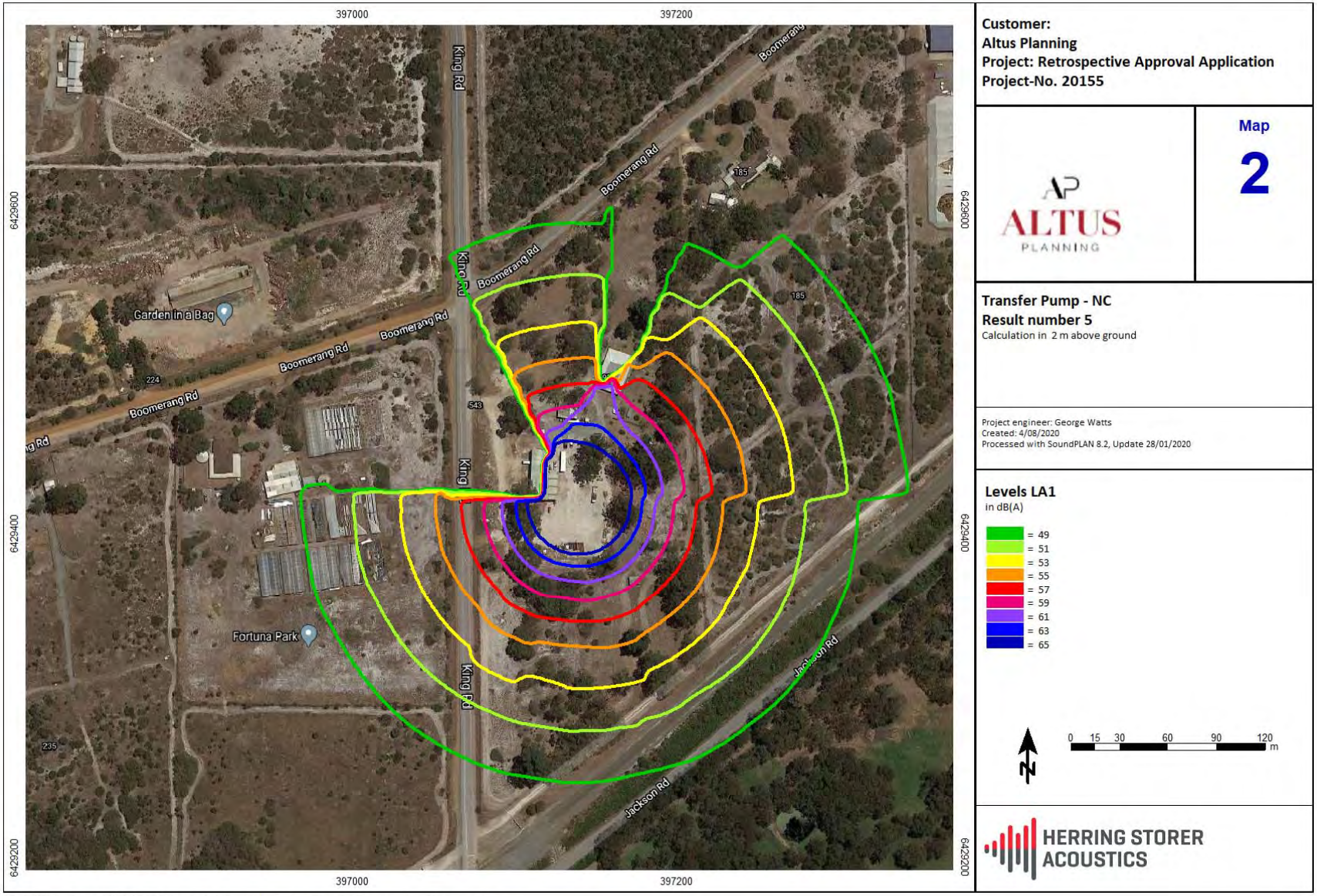

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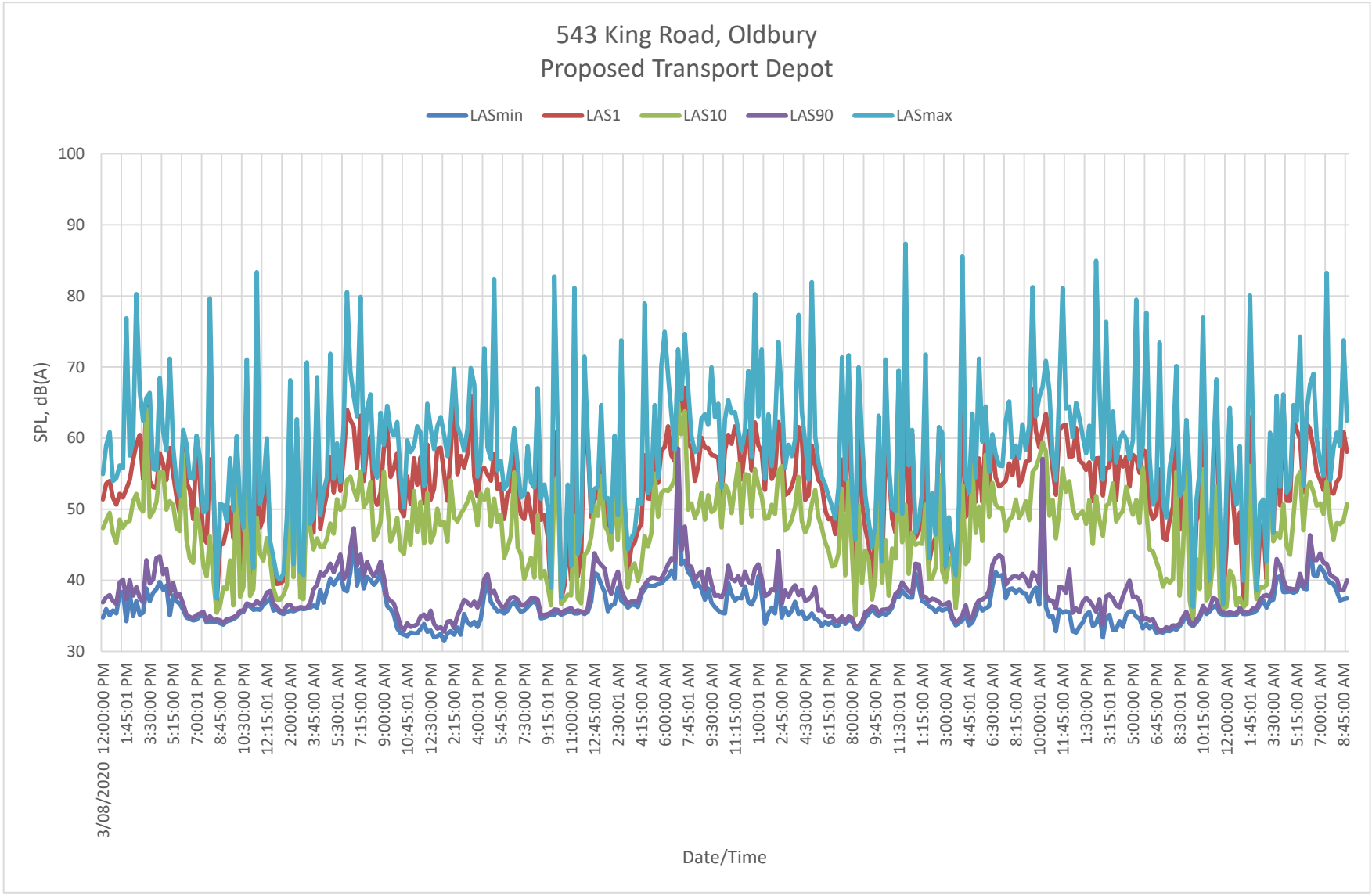
APPENDIX B

NOISE MONITORING


543 King Road, Oldbury
Proposed Transport Depot
LASmin
LAS1
LAS10
LAS90
LASmax
SPL, dB(A)
100
90
80
70
60
50
40
30
3/08/2020 12:00:00 PM
1:45:01 PM
3:30:00 PM
5:15:00 PM
7:00:01 PM
8:45:00 PM
10:30:00 PM
12:15:01 AM
2:00:00 AM
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