

PROPOSED TEMPORARY FUNCTION CENTRE - CHANTICLEER GARDENS

4 HENSTOCK ROAD, ARCADIA

DA NOISE IMPACT ASSESSMENT

RWDI # 2104326

3 February 2023

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GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

Typical Graph of Sound Pressure Level vs Time

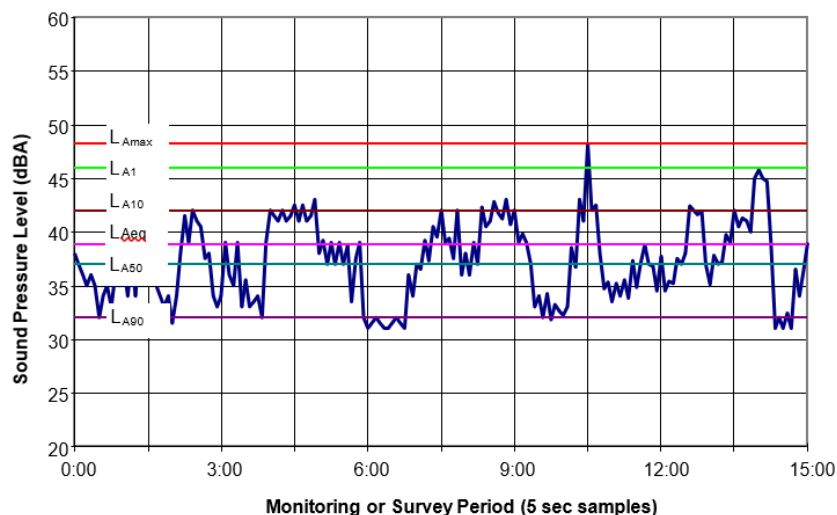




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1 INTRODUCTION

RWDI Australia Pty Ltd has been commissioned by Barker Ryan Stewart on behalf of Peter and Grada Shipway to update the assessment of noise emissions associated with the use of the property known as “Chanticleer” at 4 Henstock Road, Arcadia, a temporary function venue.

This report was prepared to support an application made to Hornsby Shire Council seeking approval for temporary use of the site to host events on the grounds and within the secondary residence on the property.

The reason for this updated report is to address Hornsby Shire Council request for a Revised Acoustic Assessment and Plan of Management in a letter dated 16 December 2022.

Assessment of operational noise from the proposed development has been documented in a previous Wilkinson Murray/RWDI DA report dated 10 August 2021, referenced 2104326 and named Proposed Temporary Function Centre Chanticleer Gardens 4 Henstock Road, Arcadia DA Noise Impact Assessment Ver A;

This report documents further acoustic modelling and assessment. The assumptions, modelling and results included have been developed collaboratively with Acoustic Directions Pty Ltd who act as peer reviewer for the project. Extensive redesign of operations has been required in order to satisfy the objectives of Clause 2.8 of Hornsby Local Environmental Plan 2013 in relation to “Temporary use of land”.

This assessment makes reference to the following environmental planning instruments, policies and guidelines:

- Hornsby Local Environmental Plan 2013;
- Hornsby Development Control Plan 2013;
- Policy and Guidelines for Noise and Vibration Generating Development (2000);
- Noise Guide for Local Government (EPA 2013);
- Liquor & Gaming NSW (L&G NSW);
- NSW Noise Policy for Industry (EPA 2017);
- NSW Road Noise Policy (EPA 2011).



2 PROJECT DESCRIPTION

2.1 Site Location

Chanticleer is a 5-acre property located at 4 Henstock Road, Arcadia. Two dwellings are constructed on the site, the principal residence and a secondary residence (refer to Figure 2-1).

The secondary dwelling is Exempt Development in accordance with Part 6 Short term rental accommodation Housing SEPP 2021. The proposed secondary dwelling will only be used for these purposes when the temporary event/function use is not operating on site.

The site and the nearby surrounding receivers are located within a RU4 zoning for Primary Production Small Lots under Hornsby LEP 2013. Surrounding receivers are residential including several properties involved in primary production. The nearest residential receivers surrounding the site are as identified in Table 2-1 and shown in Figure 2-1.

Table 2-1 Nearest Noise-Sensitive Receivers

Receiver ID	Address	Receiver Type
R01	19 Cobah Road, Arcadia	Single Storey Residential Dwelling
R02	17 Cobah Road, Arcadia	Single Storey Residential Dwelling
R03	15 Cobah Road, Arcadia	Single Storey Residential Dwelling
R04	11 Cobah Road, Arcadia	Double Storey Residential Dwelling
R05	1 Henstock Road, Arcadia	Single Storey Residential Dwelling
R06	6 Henstock Road, Arcadia	Single Storey Residential Dwelling
R07	9 Henstock Road, Arcadia	Single Storey Residential Dwelling
R08	23 Cobah Road, Arcadia	Single Storey Residential Dwelling

Figure 2-1 Existing Site and Surrounding Receivers



2.2 Development Proposal

The proposed development involves the use of the property to host ceremonies and events for up to 70 patrons. Outdoor ceremonies and informal gatherings would be held in the central garden colonnade area. No food or drink would be served in this area. The secondary residence would accommodate 70 patrons in the covered veranda and an external western informal spill-out area. These are the only areas where the functions are proposed to operate. Food and drink will be served only within the verandah, not in the external area.

Figure 2-2 shows the proposed layout of the site.

The proposed hours of operation and occupancy are presented in Table 2-2.

Table 2-2 Function Centre Maximum Occupancy Rates

TEMPORARY FUNCTION CENTRE		
Location	Maximum people	Hours (Monday – Saturday)
Function Area	Maximum 70	10.30am – 6pm
Staff & Sub-consultants	Approx. 10 – 15	10.30am – 6pm ¹

Note 1: see note re deliveries to site below.



Figure 2-2 Proposed Temporary Use - Function Centre Layout

All functions will utilise sub-contractors for catering, food/drink service, waste management. Food and drink service will be undertaken from food trucks or the like, where preparation is undertaken off site. Catering and food trucks services would be located on the north-western side of the site (See Figure 2-2).



Food waste is contained within the food truck or removed from the premises by the sub-contractor. Service of food and alcohol will be undertaken by the sub-contractors in accordance with Food & Alcohol service regulations.

At the central garden colonnade, music is proposed through one on-site speaker system (equipped with a microphone) and/or live unamplified music. The live unamplified music at the central garden colonnade must be limited to an acoustic duet (singer and accompanist) with no acoustic drums, wind or brass instruments.

Each event would involve a limited number of delivery vehicle movements. Delivery of port-a loos would involve nominally a small capacity (3t) truck with other deliveries, such as food, flowers etc by commercial capacity vans and will occur outside of the function time slot, but within normal business hours of 9am to 5pm, 7 days per week.

On site vehicular parking would be located on the open grassed area at the front of the property. It is understood that approval is sought to host 28 events per calendar year.



3 AMBIENT NOISE ENVIRONMENT

3.1 Ambient Noise Survey

Ambient noise in the surrounding area is principally controlled by environmental influences, birdlife, insects, local traffic, typical residential community and agricultural sources.

Long-term unattended noise monitoring was conducted between Friday 2 October and Monday 12 October 2020 in the north-eastern area of the site (refer Figure 2-1). Instrumentation for the survey comprised an Acoustic Research Laboratories (ARL) Ngara Environmental Noise Logger (serial no. 878094) fitted with microphone windshield. Calibration of the logger was checked prior to and following measurements. Drift in calibration did not exceed ±0.5 dBA. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

The logger continuously sampled noise levels over the entire survey period and calculated relevant statistical indices for each 15-minute interval. Data measured during periods of adverse weather, established through consultation with historical weather reports provided by the Bureau of Meteorology (BOM), has been excluded.

The ambient noise survey results are presented in graphical format in Appendix A. Periods of adverse meteorological conditions are identified on the charts by blue shading.

3.2 Ambient Noise Monitoring Results

A summary of the ambient noise monitoring results processed in accordance with NSW Noise Policy for Industry procedures is presented in Table 3-1.

Table 3-1 Ambient Noise Survey Results

Logger Location	Period ¹	Weekday Noise Level (dBA)	
		RBL (L _{A90})	L _{Aeq} ²
NE corner 4 Henstock Road, Arcadia	Day 7.00am – 6.00pm	32	46

Note 1: The RBL noise level is representative of the average minimum background sound level (in the absence of the source under consideration), or simply the background level.

Note 2: The L_{Aeq} is essentially the average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

The typical spectral content of the measured Rating Background Level (RBL) is presented in Table 3-2.

Table 3-2 Octave Band Background Noise Level

Descriptor	dBA	Octave Band Centre Frequency (Hz)								
		31.5	63	125	250	500	1K	2K	4K	8K
Measured Background Level L ₉₀	32	47	43	35	29	27	28	24	23	20



4 CRITERIA FOR NOISE ASSESSMENT

4.1 Hornsby DCP 2013

The Hornsby DCP 2013 contains objectives for controlling operational noise from development upon sensitive land uses. Council has a documented policy in regard to operational noise emissions entitled Policy and Guidelines for Noise and Vibration Generating Development (2000).

The DCP does not include quantitative criteria but requires noise assessment to be conducted in accordance with the NSW Industrial Noise Policy (superseded by the Noise Policy for Industry 2017) and any other EPA requirements.

The NSW Noise Policy for Industry (NPfI) provides a framework and process for deriving noise criteria for consents and licences that enable the EPA and others to regulate premises that are scheduled under the Protection of the Environment Operations Act 1997. Whilst specifically aimed at assessment and control of noise from industrial premises regulated by the EPA, the policy is also appropriate for use by other regulatory bodies such as Department of Planning & Environment (DPE) and local Councils when assessing development proposals.

Having been designed for large industrial and agricultural sources, the monitoring and assessment procedures may not be applicable to the smaller developments and noise sources regulated by local government. It is recognised however, that Councils may find the policy to be of assistance in noise assessment and land-use planning.

Operational noise is considered to limit intrusiveness (the level of the noise emission above the prevailing background sound level) and to maintain amenity by minimising the cumulative increase in the ambient noise level that may result from successive development.

For assessing intrusiveness, the background noise level (L_{A90}) is measured, and the Rating Background Level (RBL) determined (refer Table 3-1). The intrusiveness of a noise source may generally be considered acceptable if the equivalent continuous noise level (L_{Aeq}) of the source (measured over a 15-minute period) does not exceed the background noise level (RBL) by more than 5dBA (noting that a more stringent criteria has been assessed under Section 4.3 consistent with assessment undertaken pursuant the provisions of Clause 2.8 of the HLEP 2013).

The NPfI assumes minimum RBLs for intrusive noise assessment. During the daytime a minimum RBL of 35dBA is adopted. During the evening and night time periods a minimum RBL of 30dBA applies.

The intrusiveness criteria determined in accordance with NPfI procedures for assessment of operational noise at residential receivers are presented in Table 4-1.

Table 4-1 Intrusive Noise Criteria – $L_{Aeq,15min}$ dBA

Noise Receivers	Time of Day ¹	Intrusiveness Criteria $L_{Aeq,15min}$ dBA
Residential R01 – R06	Day	40
	Evening	37

Note 1: Daytime 7.00am-6.00pm; Evening 6.00pm-10.00pm.



Assessment of intrusiveness in accordance with the NPfl is also consistent with the procedure documented in the NSW Noise Guide for Local Government.

The amenity assessment is based on noise criteria specific to land use and associated activities. The amenity noise level aims to limit continuing increases in noise levels which may occur if the intrusiveness level alone is applied to successive development within an area.

The recommended amenity noise level represents the objective for total industrial noise at a receiver location. The project amenity noise level represents the objective for noise from a single industrial development at a receiver location.

To prevent increases in industrial noise due to the cumulative effect of several developments, the project amenity noise level for each new source of industrial noise is set at 5dBA below the recommended amenity noise level specific to the area in which the development is located.

An extract from the NSW NPfl that relates to the amenity noise levels for surrounding receivers is given Table 4-2.

Table 4-2 Amenity Noise Levels

Noise Amenity Area	Time of Day ¹	Recommended Amenity Noise Level L_{Aeq} (dBA)
Residential – Rural	Day	50
	Evening	45
	Night	40

Note 1: Daytime 7.00am-6.00pm; Evening 6.00pm-10.00pm; Night 10.00pm-7.00am.

Section 7.2.1 of the Hornsby Shire Council Policy and Guideline for Noise and Vibration Generating Development, includes the following recommended control guidelines for amplified music:

Under the Protection of the Environment Operations Act, 1997 the use of amplified sound equipment is restricted between the hours of midnight and 8.00 am any day. Where the sound is audible in a neighbour's residence during this time and a warning to this effect is ignored, the person operating the sound equipment is guilty of an offence under the Act.

Between the hours of 8.00 am and midnight, the sound must be deemed offensive before a noise control notice can be served. To minimise the likelihood of disturbance, the L_{Aeq} noise level due to the operation of amplified sound equipment shall not exceed the background L_{A90} sound level when measured in the immediate vicinity of the external structure of any nearby residence.



Under the current zoning, the proposed development may be permissible on a “temporary use of land” basis. The objective of HLEP 2013 Clause 2.8 is defined as:

“to provide for the temporary use of land if the use does not compromise future development of the land, or have detrimental economic, social, amenity or environmental effects on the land”

Subclause 3(b) requires:

“the temporary use will not adversely impact on any adjoining land or the amenity of the neighbourhood ”

In legal proceedings involving similar “temporary use” applications before the NSW Land & Environment Court, the meaning of “not adversely impact” has not been clearly defined in relation to noise emissions. For the purposes of this assessment, a “zero impact” approach has been adopted. An assessment criterion of **Background (RBL) + 0dBA** was agreed upon as representative of the intent of Subclause 3(b) and ensures a more stringent limitation on the proposed use.

4.2 Liquor & Gaming NSW

Licensed premises are controlled by Liquor & Gaming NSW (L&GNSW). The L&GNSW Standard Conditions for noise from licensed premises were developed principally for the assessment of entertainment noise emissions. The standard condition generally applied for daytime operations is summarised below:

“The L₁₀ noise emitted from the licensed premises shall not exceed the background noise level in any octave band frequency (31.5 Hz to 8 kHz inclusive) by more than 5 dBA between 7.00 am and midnight at the boundary at any affected residence”

The assessment of tonal characteristics, in accordance with the L&GNSW, is warranted for amplified music or entertainment noise emissions that may contain high levels of low or high frequency energy.

The applicable criterion is presented principally for informative purposes in Table 4-3.

Table 4-3 L&GNSW Noise Assessment Criteria for Daytime Operations

Descriptor	Octave Band Centre Frequency (Hz)								
	31.5	63	125	250	500	1K	2K	4K	8K
L ₁₀	52	48	40	34	32	33	29	28	25

4.3 Project Specific Assessment Criterion

Based on the objective of HLEP2013 Clause 2.8 subclause 3(b) and its objective of “zero impact” the project-specific assessment criterion adopted for function noise (crowd and music) is that noise emissions from the proposed development shall not exceed background noise level + 0dB in Octave bands (31.5 Hz to 8 kHz inclusive). For delivery vehicles and ute vehicles arriving and entering is background noise level + 0dB (L_{eq}).



The applicable criterion is presented in Table 4-4.

Table 4-4 Noise Assessment Criteria for Daytime Operations (11am to 6pm)

Descriptor	dBA	Octave Band Centre Frequency -Hz (Linear)								
		31.5	63	125	250	500	1k	2k	4k	8k
Crowd and music	32L ₁₀	47	43	35	29	27	28	24	23	20
Vehicle Noise	32L _{eq}									



5 PROPOSED PLAN OF NOISE MANAGEMENT

This proposal has been developed from numerous noise modelling iterations. The following noise mitigation and management options have been identified to meet the “zero impact” approach.

The following noise control measures have been included:

- Number of patrons permitted on site at any one time is to be limited to 70;
- At the central garden colonnade music is proposed through one on-site speaker system and/or live unamplified music. The live unamplified music at the central garden colonnade must be limited to an acoustic duet (singer and accompanist) with no acoustic drums, wind or brass instruments. The central garden will have one loudspeaker set for a maximum level of 80 dBA at 1 m with directionality. Directionality of the loudspeaker is a critical element in achieving noise compliance, it is essential that the loudspeaker is suitably directional. The recommended type is a 300 mm two-way system with a 60° horizontal x 40° dispersion pattern for the high frequency component (See Appendix B).
- Only pre-recorded music played through the fixed loudspeakers in the Function Centre should be presented for background music and wedding dance. The function holder is to be advised that only the on-site sound amplification equipment is to be used. The amplification in the function area can only occur through the fixed speakers on site. A noise limiter is to be applied to the speakers and their maximum operational levels set. The maximum reverberant noise level in the function centre should be limited to 77dBA. (See Figure 5-1 for the indicative speaker locations.)
- The western outdoor area adjacent the indoor event space is an informal spill out area and will only accommodate up to 30 guests due to limitations designed for the space including hedging, outdoor furniture, etc.
- Glazing to the south-western corner of the western elevation veranda (refer Figure 5-1).
- Glazing to northern and north-eastern elevation of veranda (refer Figure 5-1).
- Barriers as shown in **Figure 5-22** and **Figure 5-32** Figure 5-2.
- Temporary Portable Toilets (or Portaloo) are to be installed when events and functions are being held. They should be installed at the locations shown in **Figure 5-22**, behind the 2.4m fence to minimise noise impacts to the receivers to the west. Signs should be installed near the Portable Toilets to remind patrons to keep noise to a minimum.
- Food trucks and associated cool room equipment should be installed in the designated area shown in **Figure 5-22**. Mechanical plant item should have a combined sound power level no greater than 85dBA, or a sound pressure level of 77dBA at 1m. Equipment that exceeds this standard is not to be employed on site. Additional temporary shielding (portable fencing or enclosure) is to be employed where it cannot be demonstrated that equipment achieves these standards.
- The toilets area and catering area should be managed so as not to be used by patrons as a spill out space.
- Signs should be installed at the entry to remind drivers to keep noise to a minimum (no honking, no revving of the engine).
- High-powered motor vehicles and motorbikes should be discouraged from being utilised for wedding party vehicles through the terms of the POM. As it is difficult to prevent guests from driving to the venue in these vehicles, the following measures to mitigate any potential impact are to be implemented;
 - All high-powered motor vehicles and motorbikes are to park within the front setback parking area.
 - Management to install signage to discourage idling of vehicles as is custom for function centres and commercial carparks nearby residential receptors.

PROPOSED TEMPORARY FUNCTION CENTRE - CHANTICLEER GARDENS

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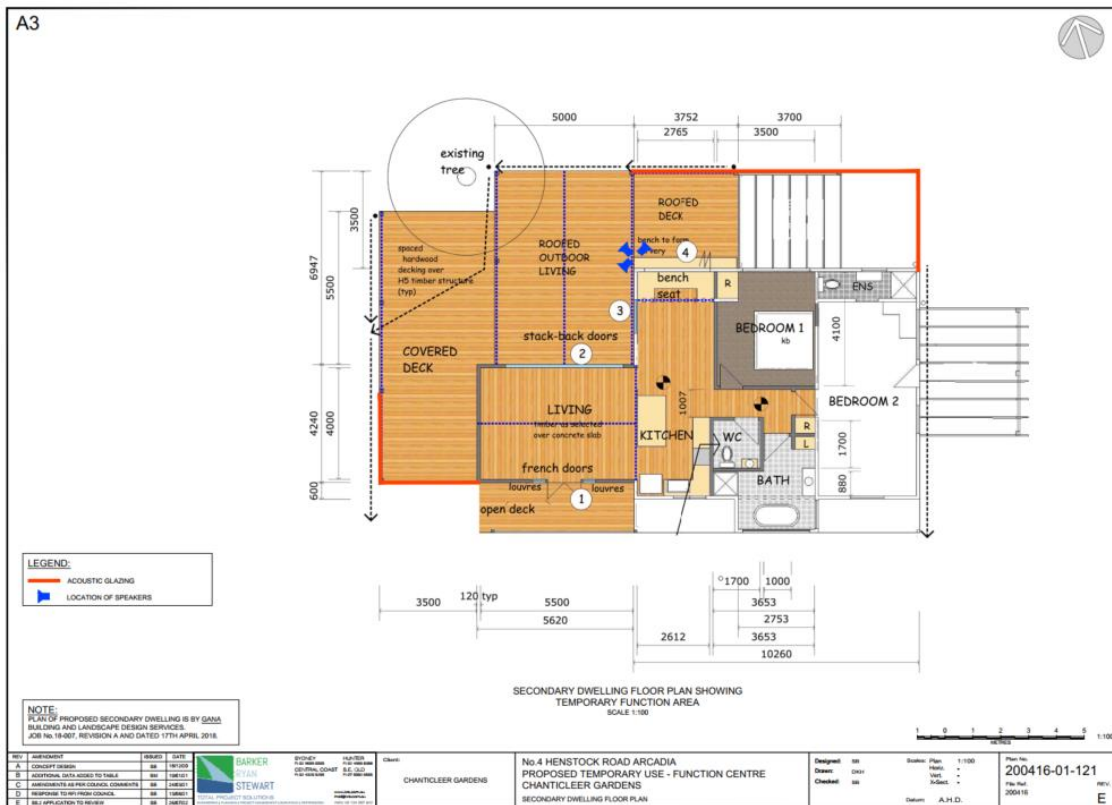


Figure 5-1 Proposed glazing to the Function Centre



Figure 5-2 Proposed Noise Barriers (The barrier locations are indicative and required to be adjusted for site conditions)



Figure 5-3 Proposed Noise Barriers (The barrier locations are indicative and required to be adjusted for site conditions.)



6 NOISE MODELLING

Project-related noise emissions were modelled using the CadnaA noise prediction software. Factors that are addressed in the modelling include sound level emissions, screening from building and barriers, topography, receiver locations and ground and atmospheric absorption. Continuous cumulative operational noise levels have been predicted at the nearest receivers surrounding the site, using the ISO 9613-2 prediction algorithm.

The following operational noise scenarios have been considered:

- Scenario 1 - 70 guests in the central garden colonnade area for outdoor ceremony/gathering with one in two people speaking with a normal voice - one exterior loudspeakers included with directional characteristics as documented in Appendix B. Mechanical plant items associated with the catering area / food trucks (no greater than 85 dBA sound power level or 77 dBA at 1m) have been assumed to be operating simultaneously in the designated area. Two people with one speaking with a normal voice were assumed to waiting near the portable toilets.
- Scenario 2 - 30 guests on the western outdoor area (informal spill out area) (refer Figure 5-1), with 40 guests within the undercover verandas of the secondary dwelling function space with background music. In both area, one in two people have been assumed to speak with a raised voice. Mechanical plant items associated with the catering area / food trucks (no greater than 85 dBA sound power level or 77 dBA at 1m) have been assumed to be operating simultaneously in the designated area. Two people with one speaking with a normal voice were assumed to waiting near the portable toilets.
- Scenario 3 - 70 guests (one in two speaking with a raised voice) within the undercover verandas of the secondary dwelling function space with background music. Mechanical plant items associated with the catering area / food trucks (no greater than 85 dBA sound power level or 77 dBA at 1m) have been assumed to be operating simultaneously in the designated area. Two people with one of them speaking with a normal voice were assumed to waiting near the portable toilets.
- Scenario 4 - Delivery vehicles (two per 15-minute period); and
- Scenario 5 - Vehicular movements associated with the onsite carpark. As detailed in the noise management plan in Section 5, high powered vehicles and motorcycles have not been included in this assessment. as it is assumed that these will be used infrequently by guests and directed to the parking area adjacent to Henstock Road. These vehicles will be prevented from being incorporated as wedding party vehicles. Guests visiting the site with these vehicles will be directed to the parking area adjacent to the road and discouraged from idling. This will occur as part of the on site traffic management identified within the POM. It is unnecessary to include these vehicles in Scenario 5 as they are unlikely to generate noise levels above what would typically be experienced by surrounding primary production equipment (tractors and the like) or road noise were these vehicles travelling along Henstock Road which cannot be limited.

The noise emissions used for the noise modelling is presented in Table 6-1.



Table 6-1 Noise Emissions

Noise Source	dBA	Octave Band Centre Frequency -Hz (Linear)								
		31.5	63	125	250	500	1k	2k	4k	8k
Single talker Raised Voice sound power level L ₁₀	77 L ₁₀	54.2	70.2	59.2	67.2	72.2	73.2	68.2	62.2	56.2
Single talker Normal Voice sound power level L ₁₀	68 L ₁₀	46.0	52.0	50.0	61.0	64.0	65.0	60.0	54.0	48.0
2 vehicles per 15-min period assumed. Low speed movement L _w 74dBA per vehicle	74 L ₁₀	-	80	76	66	69	72	63	59	56
Carpark Driveway L _w based on 31 vehicles/15- min moving line source	58dBA/m L _{eq}									
Carpark L _w based on 31 vehicles/15- min area source	81 dBA L _{eq}									

Table 6-2 Scenario 1 – Predicted Octave Band Impact Results (1 in 2 people speaking with normal voice)

ID	Receiver	Octave Band Centre Frequency (Hz) – L _{A10}									L _{A10} dBA	Complies?
		32	63	125	250	500	1k	2k	4k	8k		
R01	19 Cobah Rd	-	-	1	8	17	21	16	6	-	23	Yes
R02	17 Cobah Rd	-	-	-	1	11	15	10	0	-	18	Yes
R03	15 Cobah Rd	-	-	1	6	15	19	15	6	-	22	Yes
R04	11 Cobah Rd	-	-	9	14	23	26	21	14	1	29	Yes
R05	1 Henstock Rd	-	-	4	10	19	18	11	3	-	22	Yes
R06	6 Henstock Rd	-	-	10	13	22	27	23	17	4	30	Yes
R07	9 Henstock Rd	-	-	0	3	13	17	12	2	-	19	Yes
R08	23 Cobah Rd	-	-	8	13	22	25	21	13	0	28	Yes
Criterion		47	43	35	29	27	28	24	23	20	32	



Table 6-3 Scenario 2 – Predicted Octave Band Impact Results (1 in 2 people speaking with raised voice)

ID	Receiver	Octave Band Centre Frequency (Hz) – L _{A10}									L _{A10} dBA	Complies?
		32	63	125	250	500	1k	2k	4k	8k		
R01	19 Cobah Rd	13	13	12	13	17	19	18	14	7	25	Yes
R02	17 Cobah Rd	3	3	3	5	7	7	5	0	-	14	Yes
R03	15 Cobah Rd	4	5	6	7	11	15	15	12	3	20	Yes
R04	11 Cobah Rd	9	10	12	11	17	21	21	19	12	27	Yes
R05	1 Henstock Rd	5	5	6	7	10	10	8	3	-	17	Yes
R06	6 Henstock Rd	11	12	14	12	19	24	23	20	12	28	Yes
R07	9 Henstock Rd	8	9	10	8	15	18	17	13	3	23	Yes
R08	23 Cobah Rd	13	14	15	14	21	25	24	21	13	30	Yes
Criterion		47	43	35	29	27	28	24	23	20	32	

Table 6-4 Scenario 3 – Predicted Octave Band Impact Results (1 in 2 people speaking with raised voice)

ID	Receiver	Octave Band Centre Frequency (Hz) – L _{A10}									L _{A10} dBA	Complies?
		32	63	125	250	500	1k	2k	4k	8k		
R01	19 Cobah Rd	-	4	3	11	20	23	16	7	-	25	Yes
R02	17 Cobah Rd	-	-	-	2	10	11	3	-	-	14	Yes
R03	15 Cobah Rd	-	-	-	3	10	11	4	-	-	15	Yes
R04	11 Cobah Rd	-	-	-	7	16	21	16	8	-	23	Yes
R05	1 Henstock Rd	-	-	-	4	13	14	7	-	-	18	Yes
R06	6 Henstock Rd	-	2	3	9	21	26	21	12	-	29	Yes
R07	9 Henstock Rd	-	2	3	6	20	27	22	14	-	29	Yes
R08	23 Cobah Rd	-	4	5	12	24	28	23	14	0	31	Yes



ID	Receiver	Octave Band Centre Frequency (Hz) – L _{A10}									L _{A10} dBA	Complies?
		32	63	125	250	500	1k	2k	4k	8k		
	Criterion	47	43	35	29	27	28	24	23	20	32	

Table 6-5 Scenario 4 – Predicted L_{Aeq} Results

ID	Receiver	L _{Aeq}	Complies?
R01	19 Cobah Rd	31	Yes
R02	17 Cobah Rd	16	Yes
R03	15 Cobah Rd	22	Yes
R04	11 Cobah Rd	31	Yes
R05	1 Henstock Rd	28	Yes
R06	6 Henstock Rd	24	Yes
R07	9 Henstock Rd	22	Yes
R08	23 Cobah Rd	23	Yes

Table 6-6 Scenario 5 – Predicted L_{Aeq} Results

ID	Receiver	L _{Aeq}	Complies?
R01	19 Cobah Rd	16	Yes
R02	17 Cobah Rd	20	Yes
R03	15 Cobah Rd	23	Yes
R04	11 Cobah Rd	30	Yes
R05	1 Henstock Rd	29	Yes
R06	6 Henstock Rd	30	Yes
R07	9 Henstock Rd	19	Yes
R08	23 Cobah Rd	21	Yes

With the inclusion of the extensive noise control measures as documented, the project specific assessment criterion of 32dBA is not exceeded during any of the events or operational scenarios considered. Based upon the modelled results, noise emissions to surrounding residential receivers during typical operations of the function centre achieve a “zero impact” target consistent with the objectives of HLEP Clause 2.8 subclause 3(b).



7 ROAD TRAFFIC NOISE ASSESSMENT

7.1 Noise Criteria

Assessment of noise generated by additional road traffic is assessed in accordance with the guidelines recommended in the NSW Road Noise Policy (RNP).

The applicable RNP are presented in Table 7-1.

Table 7-1 Road Traffic Noise Criteria

Road Category	Type of Project / Land Use	Assessment Criteria – dB(A)	
		Day (7am–10pm)	Night (7am–10pm)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use development	L _{Aeq,1hr} 55 (external)	L _{Aeq,1hr} 50 (external)

Note: These criteria are for assessment against facade-corrected noise levels when measured at 1 m from the building facade.

7.2 Road Traffic Data

A traffic impact assessment report (ref: CC150093) was prepared by Barker Ryan Stewart. The report states that high percentage of carpooling will occur and that the average vehicle occupancy is considered to be 3.5 persons per vehicle. On this basis, approximately 20 vehicles could be expected for an event attended by 70 guests.

7.3 Road Traffic Noise Assessment

The Calculation of Road Traffic Noise (CoRTN) algorithm was used to predict existing road traffic noise levels and the increase in levels due to additional traffic movements generated by the proposed development.

The morning period experiences a greater traffic volume and so predictions were based on this period. Road traffic noise levels were predicted at the residential property at 3 Cobah Road, being the potentially worst-affected receiver.

The predicted existing daytime traffic noise level at this receiver location is L_{Aeq,1hr} 42dBA. The predicted L_{Aeq,1hr} road traffic noise level, including the traffic generated during an event with 70 people is 45dBA. The cumulative road traffic noise level including the additional traffic generated by the development achieves the recommended daytime guideline of 55dBA.



8 CONCLUSIONS AND RECOMMENDATIONS

An assessment has been undertaken to determine the potential impact of noise generated by the temporary use of the property known as "Chanticleer" located at 4 Henstock Road, Arcadia as a function centre.

Hornsby LEP 2013, Clause 2.8 subclause 3(b) requires:

"the temporary USE will not adversely impact on any adjoining land or the amenity of the neighbourhood".

A "zero impact" approach of Background RBL + 0dB (31.5 Hz to 8 kHz inclusive) has been adopted consistent with the intent of the HLEP 2013 requirement in relation to temporary use of land.

Assumed worst-case operational scenarios were modelled, including recommended mitigation measures. The predicted results have been assessed against the project specific "zero impact" target and applicable guidelines and regulatory requirements. **Provided the recommended mitigation measures are adopted and the noise management recommendations implemented, operational noise, including levels generated by additional road traffic, will achieve the Hornsby LEP 2013 requirement relating to temporary use of land, being no adverse impact.**

All noise mitigation and management measures identified in this report should be included in any future Plan Of Management (POM) for the site.



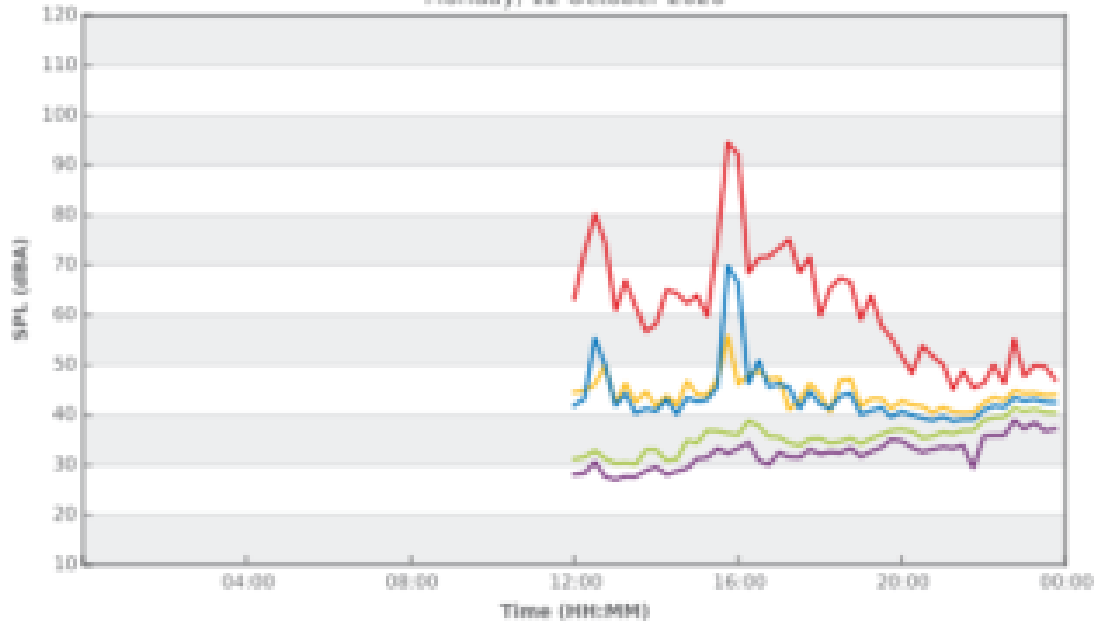
APPENDIX A – NOISE MEASUREMENT RESULTS



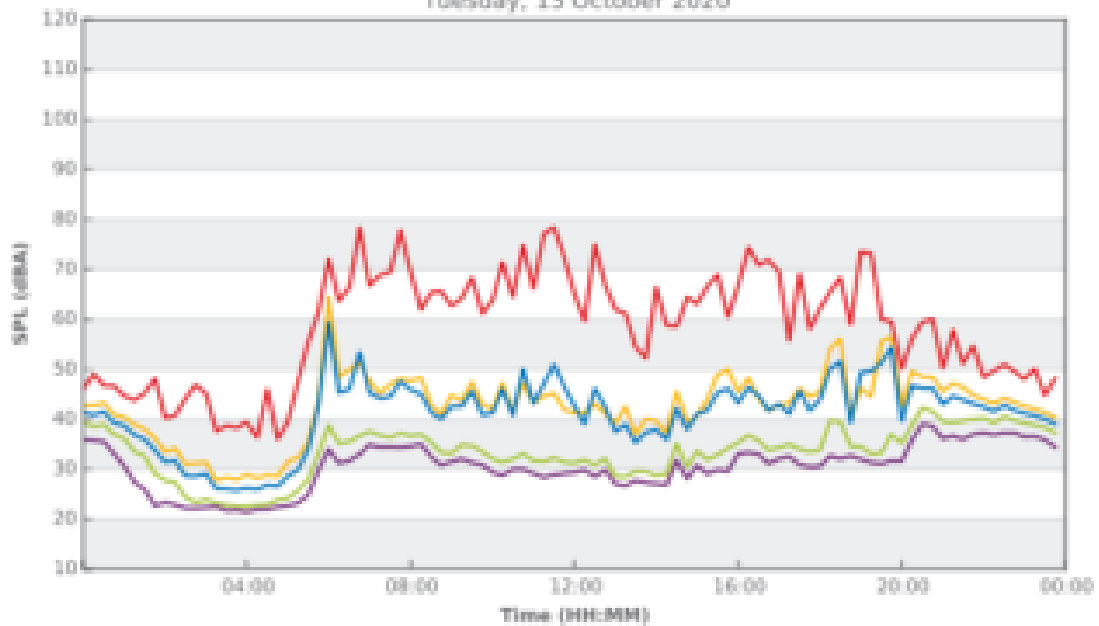
4 Henstock Road Arcadia



Monday, 12 October 2020

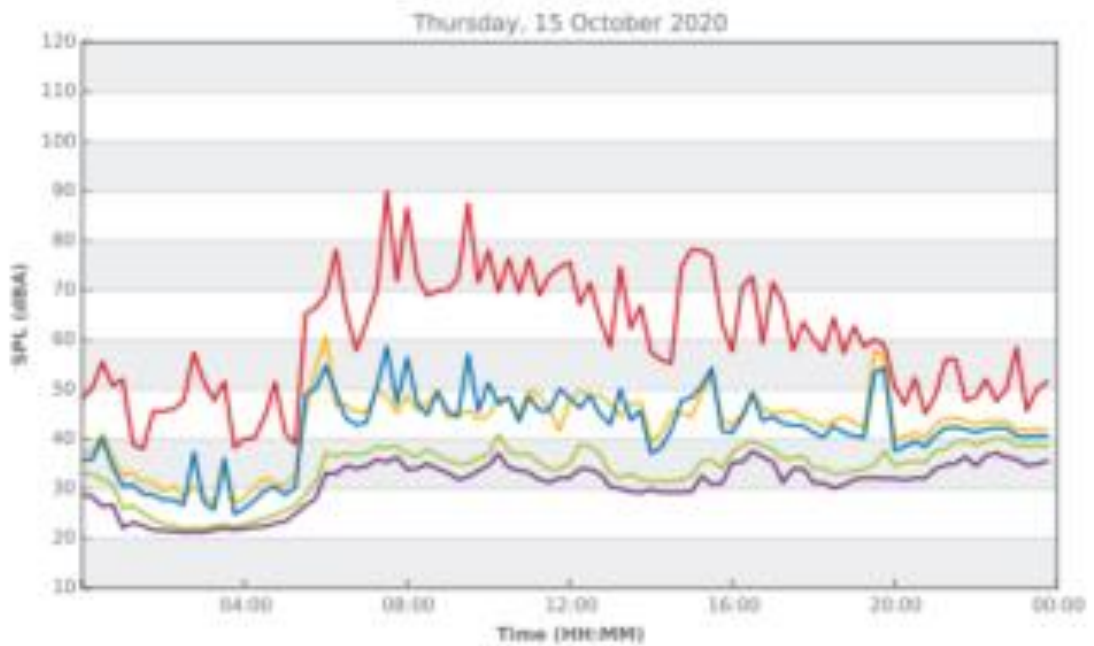
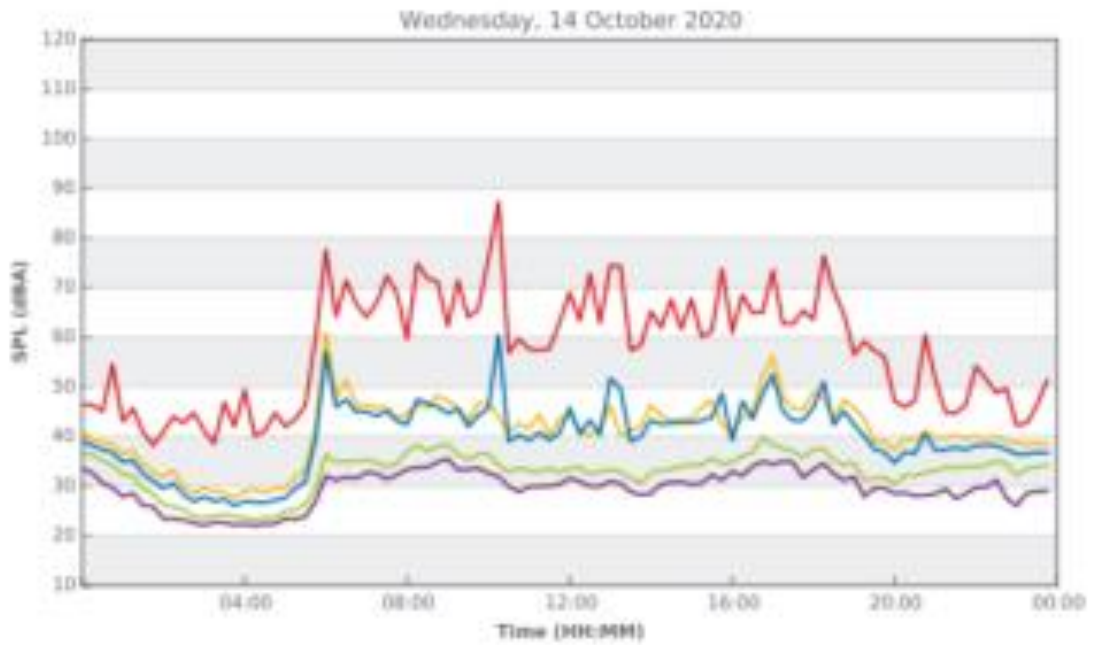


Tuesday, 13 October 2020



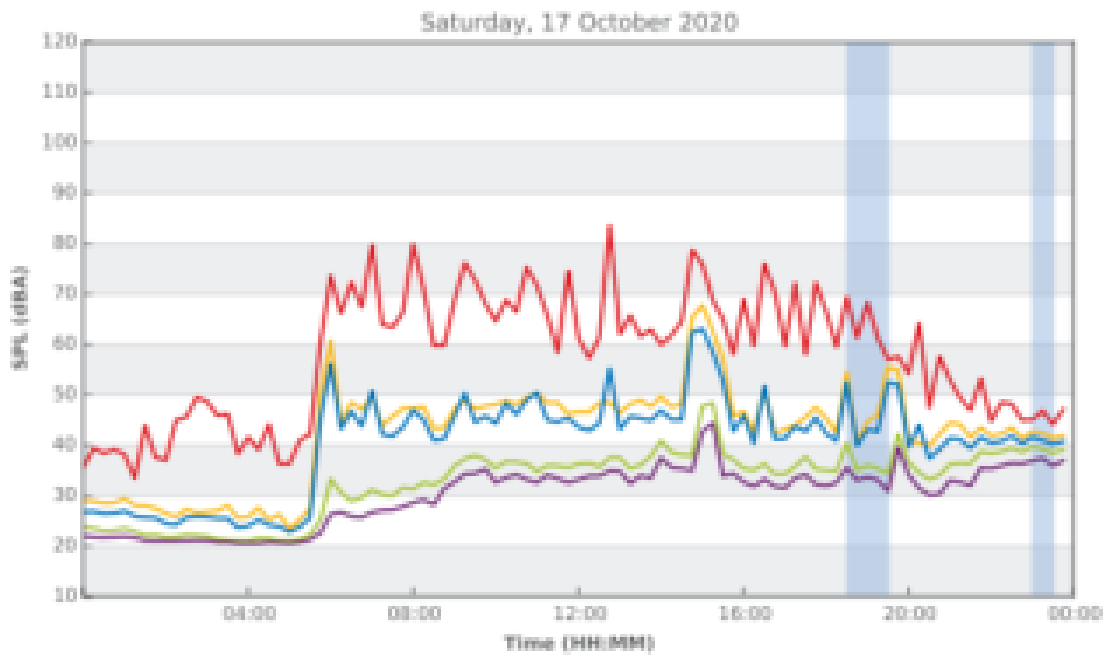
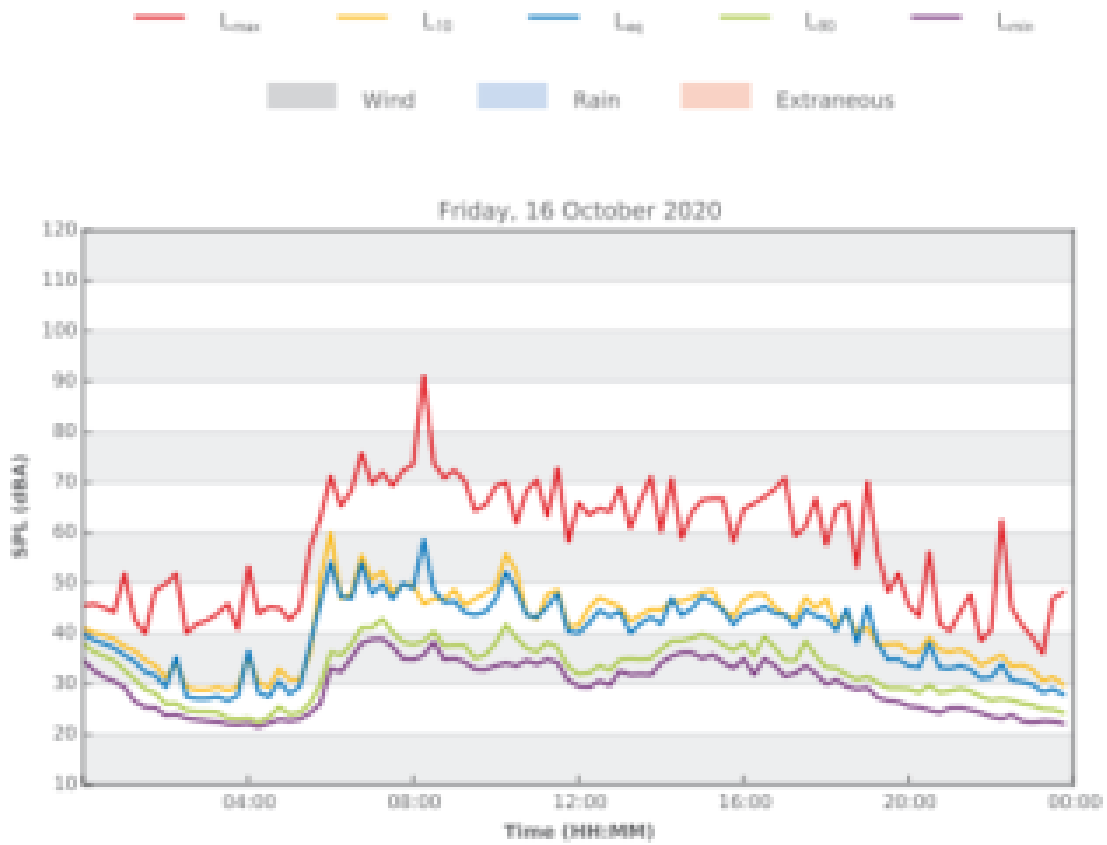


4 Henstock Road Arcadia



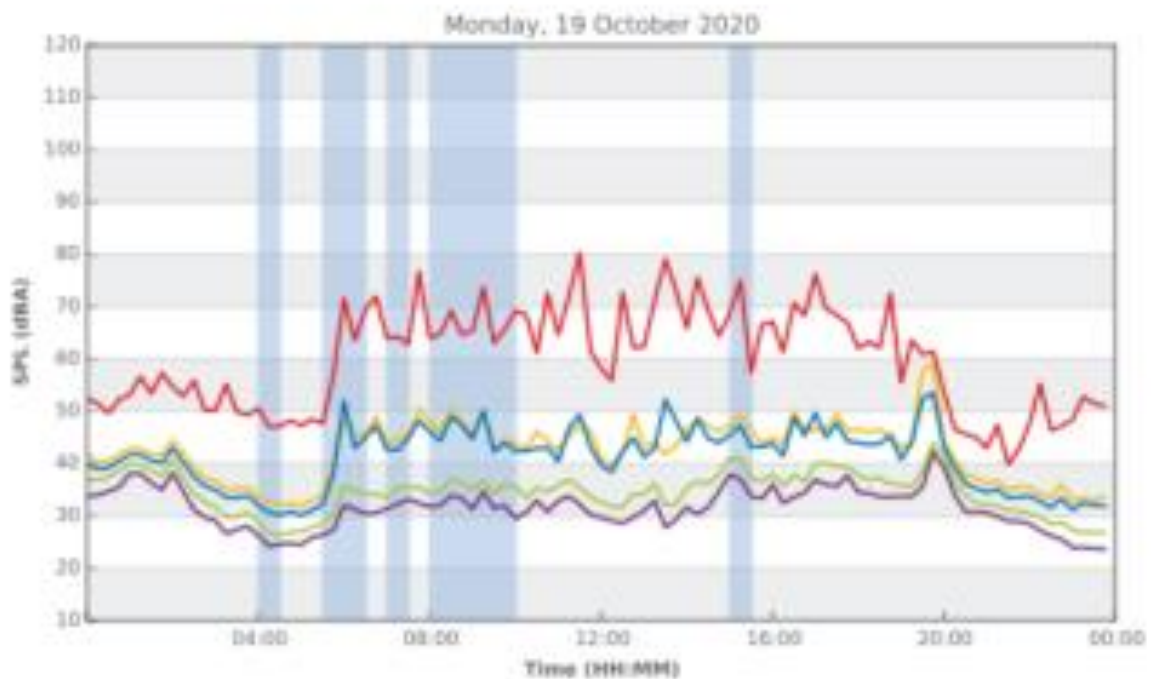
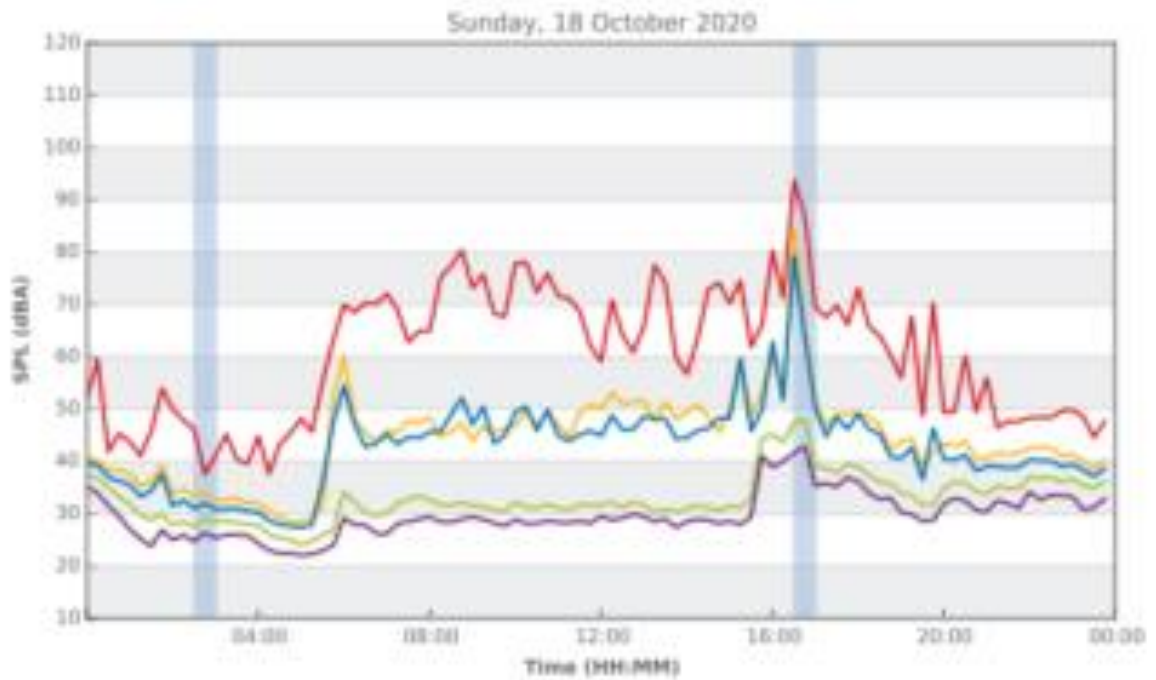


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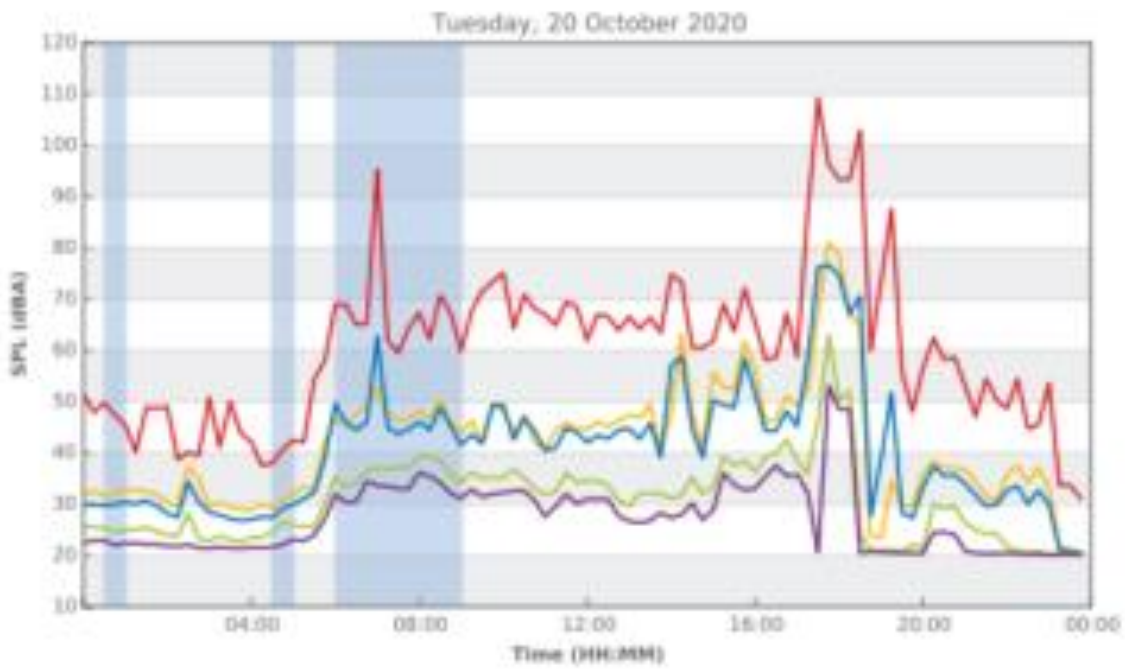


4 Henstock Road Arcadia





4 Henstock Road Arcadia





APPENDIX B – DIRECTIONAL CHARACTERISTICS OF EXTERIOR LOUDSPEAKERS

Angle	Loudspeaker: Powered Type RCF ART312A						
	off axis level relative to on axis						
	125	250	500	1000	2000	4000	8000
0	0	0	0	0	0	0	0
10	0	0	0	0	-1	0	-1
20	0	-1	-1	-1	-2	-1.5	-2
30	0	-1	-2	-2	-4	-4	-4
40	-1	-1.5	-2	-3	-5.5	-6	-6
50	-1.5	-2.5	-3.5	-4	-8	-9	-9
60	-2	-3	-5	-6	-11	-13	-13
70	-2.5	-4	-6.5	-8	-13.5	-14.5	-14.5
80	-4.5	-5	-7.5	-10	-15.5	-16.5	-16.5
90	-4	-6	-9	-12	-18	-18	-18
100	-4.5	-7.5	-10	-13	-20	-20	-20
110	-5	-9.5	-11	-14	-22	-22	-22
120	-5.5	-11	-12	-15	-24	-24	-24
130	-6	-11	-13	-15.5	-24.5	-24.5	-24.5
140	-6	-11	-14	-16.5	-25.5	-25.5	-25.5
150	-6.5	-11	-15	-17	-26	-26	-26
160	-7	-11	-14	-17	-26.5	-26.5	-26.5
170	-7.5	-11	-13	-17	-27.5	-27.5	-27.5
180	-8	-11	-12	-17	-28	-28	-28
DI	1.5	2.8	3.7	4	8	10	12