

Town Planning Assessment Report

Appendix 8 – Noise Impact Assessment



Noise Impact Assessment

Jimboomba West Substation

Glynton Road, Riverbend QLD 4280

Energex Limited

Project No.: ATP241109

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Executive Summary

ATP Consulting Engineers (ATP) was engaged by Energex to prepare a noise impact assessment (NIA) for the construction of a substation at Glynton Road in Riverbend. This is a noise impact assessment to demonstrate that the proposed site is suitable for the intended use considering that the existing noise amenity will not be affected by the establishment and operation of the substation.

This report presents the results of the noise impact assessment, in accordance with the Logan City Council (LCC) *Planning Scheme 2015*.

Detailed noise propagation modelling was carried out considering all potential noise emissions associated with daytime (7:00am to 6:00pm), evening (6:00pm to 10:00pm), and night-time (10:00pm to 7:00am) operation of the proposed substation at Lots 1 & 2 on SP239500, Glynton Road in Riverbend. The noise emissions from the proposed substation were calculated considering all proposed noise generating equipment at the site including:

- Two (2) 33kV Transformers

The calculated noise levels were assessed against the relevant noise criteria from the Logan Planning Scheme 2015 at the boundaries of the surrounding properties.

The results of the operational noise assessment indicate that the noise emissions from the activities of the proposed substation, will comply with the relevant noise criteria at the nearest noise sensitive receptors, without requirement for noise mitigation measures.

Provided the equipment on the site are as specified in this report, there are no further acoustic constraints on the proposed substation at Lots 1 & 2 on SP239500, Glynton Road in Riverbend.

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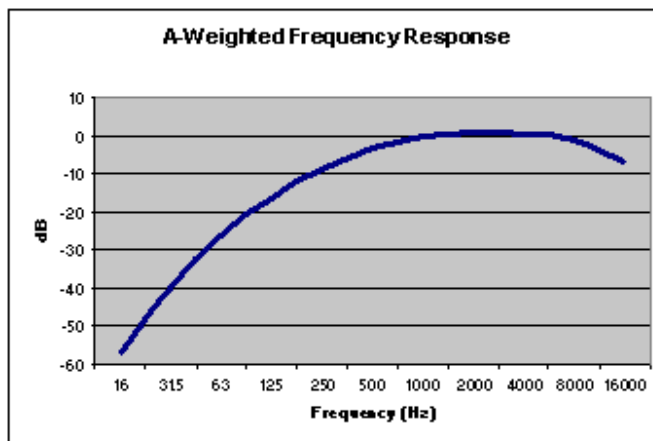
Appendix E – SoundPLAN Tabulated Results

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Acoustics Glossary

A-weighting

The A-weighting filter suppresses low frequency sounds and some of the higher frequency sounds to which the human ear is less sensitive. It is a correction to sound pressure levels to mimic the response of the human ear at low sound pressure levels. The A-weighted sound pressure level correlates well with the perceived loudness at low sound levels. The A-weighted sound pressure level is used extensively for general purpose noise measurements.



Broadband sound

Sound distributed across the whole audible frequency range.

dB(A)

The A-weighted sound pressure level.

Fast time-weighting

The Fast ("F") time-weighting is defined in AS 1259.1-1990. Instruments with F time weighting use a time constant of 125 milliseconds in their exponential averaging circuit.

Hz (Hertz)

Hertz is the standard measure of the frequency of oscillations in a wave motion. The frequency is most often measured in cycles per second (cps) or Hertz (Hz). Frequency of 1 Hz is one cycle per second.

Impulsive noise and impulsiveness adjustment

Noise having a high peak of short duration or a sequence of such peaks. Impulsive noise is present if the difference in A-weighted maximum noise levels between fast response and impulse response is greater than 2dB. Impulsiveness adjustment (penalty) of up to 5dB should be applied to the component noise level.

$L_{Aeq,T}$

"Average-energy" sound level used in situations where sound varies over time. $L_{Aeq,T}$ is the A-weighted sound pressure level that has the same energy as the fluctuating sound over the time period T sec.

$L_{A01,T}$

Measure of the maximum sound level. $L_{A01,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 1% of the measurement time T.

$L_{A10,T}$

$L_{A10,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 10% of the measurement time T.

$L_{A90,T}$

Background sound level. $L_{A90,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 90% of the measurement time T.

Noise

Unwanted sound.

Octave bands and 1/3 octave bands	A range of frequencies whose upper frequency limit is twice that of its lower frequency limit. In acoustics, the audible spectrum (20Hz to 20kHz) is divided into 10 parts (octaves) with centre frequencies of 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz and 16kHz. For more detailed frequency analysis, octave bands are further divided into more discrete bands. For examples, 1/3 octaves bands are where each octave band is divided into three parts. IEC 61260:1995, <i>Electroacoustics — Octave-band and fractional-octave band filters</i>
Sound power	The sound energy radiated per unit time by a sound source in all directions, measured in Watts (W).
Sound Power Level, L_w (SWL)	The sound power level in decibels (dB) is 10 times the base 10 logarithm of the ratio of the sound power in W to the reference sound power of 1×10^{-12} W (hearing threshold).
Sound pressure	The difference between the pressure caused by a sound wave and the ambient pressure of the medium the sound wave is passing through. Measured in Pascals (Pa).
Sound Pressure Level, L_p (SPL)	The sound power level in decibels (dB) is 20 times the base 10 logarithm of the ratio of the sound pressure in Pa to the reference sound pressure of 2×10^{-5} Pa (hearing threshold).
Tonal noise, tonality and tonality adjustment	Tonal noise is characterised by one or more distinct frequency components (“tones”) that emerge audibly from the total sound. For example, distinct tones may be emitted by fans, saws, grinders and other equipment. Tonal noise is generally far more annoying than non-tonal noise. Presence of tonal sound (“tonality”) can be identified by analysing the sound levels in adjacent 1/3 octave bands. AS1055.1-1997 and the DEHP Noise Measurement Manual 2013 provides guidance on how tonality should be assessed. If tonal components are clearly audible and they can be detected by 1/3 octave analysis (1/3 octave band exceeds neighbouring bands by at least 5dB), tonality adjustment (penalty) of up to 5dB should be applied to the component noise level.
Weighted Sound Reduction Index (R_w)	A single-number quantity which characterises the airborne sound insulation of a material or building element over a range of frequencies.

1. Introduction

1.1 Project background

ATP Consulting Engineers (ATP) was engaged by Energex to prepare a noise impact assessment (NIA) for the construction of a substation at Glynton Road in Riverbend. This is a noise impact assessment to demonstrate that the proposed site is suitable for the intended use considering that the existing noise amenity will not be affected by the establishment and operation of the substation.

The purpose of this report is to assess potential noise impacts from the activities of the proposed substation on the nearest noise sensitive places.

The assessment is carried out in accordance with the *Logan City Council (LCC) Planning Scheme 2015*.

1.2 Study objectives

Study objectives are as follows:

- Identification of nearest noise sensitive places to the proposed substation.
- Determination of the noise sources associated with the proposed substation components.
- Site inspection and background noise measurements at a location representative of the noise sensitive receptors to determine the background noise levels as per the requirements of AS1055:2018.
- Development of a 3D noise propagation model using SoundPLAN software considering the noise sources associated with operation of the substation, nearest noise sensitive places and local topography in the vicinity of the development.
- Noise propagation modelling to determine the noise levels at the nearest noise places as per *Logan Planning Scheme 2015* zoning overlay.
- Assessment of the calculated operational noise levels against the relevant criteria from the *Logan Planning Scheme 2015*.
- Recommendations for appropriate noise mitigation measures to ensure compliance with the noise criteria at the nearest noise sensitive places.

1.3 Subject site

The location of the proposed development is described as Lots 1 & 2 on SP239500, Glynton Road in Riverbend within Logan City Council (LCC) local government area. The site is currently zoned as *Rural Residential* under the *Logan Planning Scheme 2015*.

The location of the subject site is presented in Figure 1.1.



Figure 1.1 Site location

1.4 Proposed Development

A substation has been proposed to be situated at the corner of Glynton Road and Teviot Road in Riverbend. The new substation consists of:

- Two (3) 33kV Transformers; and
- Two (3) modular buildings.

The main noise generating equipment on the site will be the transformers.

1.5 Nearest noise sensitive places

The nearest noise sensitive places to the proposed substation are presented in Figure 1.2.

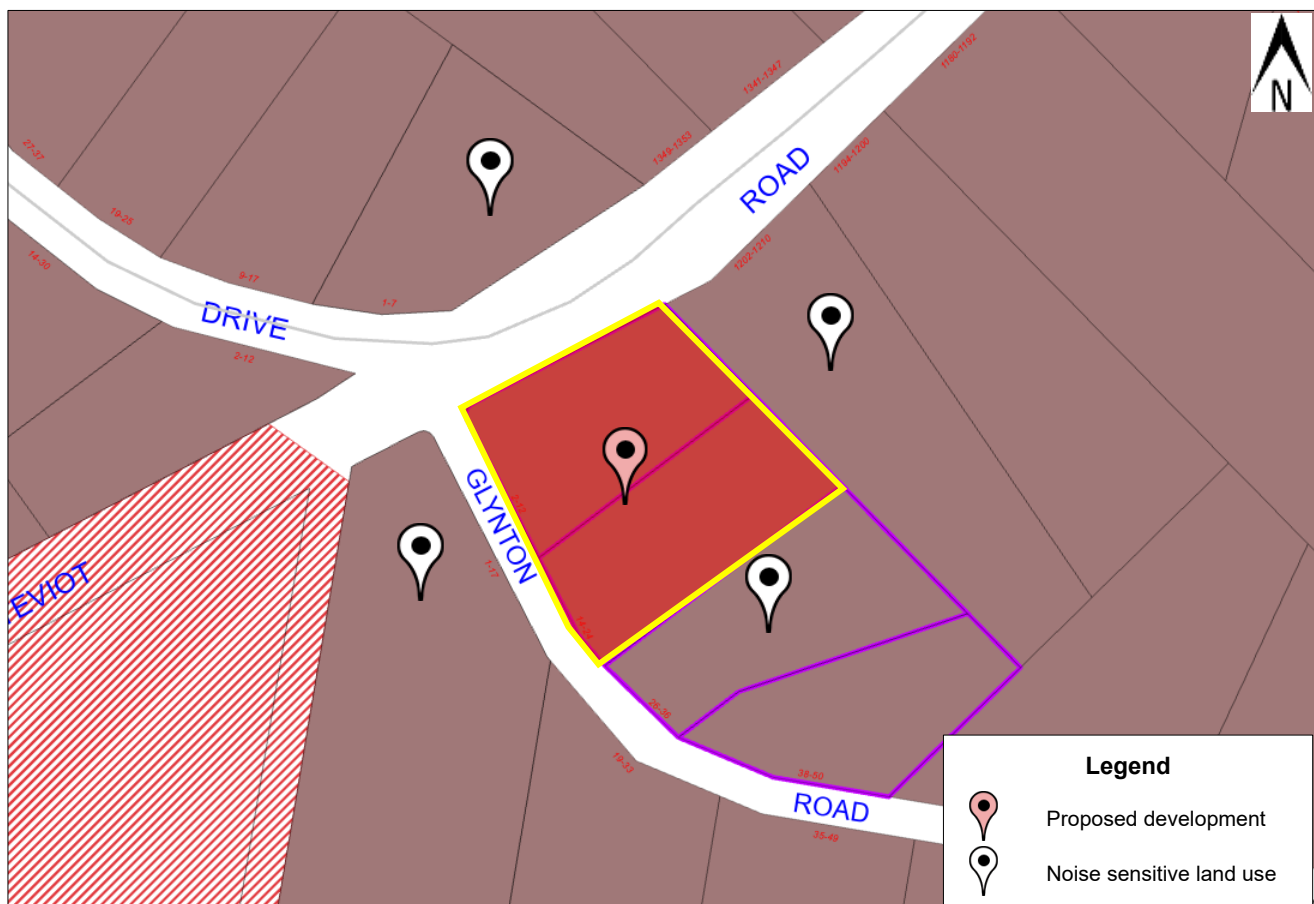


Figure 1.2 Nearest noise sensitive places

A description of the nearest noise sensitive land uses is presented in Table 1.1.

Table 1.1 Nearest noise sensitive land uses

Street Address	Current Zoning
1-17 Glynton Road	Rural Residential
26-36 Glynton Road	Rural Residential
1202-1210 Teviot Road	Rural Residential
1-7 Homestead Drive	Rural Residential

2. Existing Noise Amenity

2.1 Site-specific noise measurements

Noise measurements were carried out at the subject site using an automated noise logger to obtain information about the existing background noise levels during day, evening and night-time.

The noise measurement methodology is summarised in Table 2.1.

Table 2.1 Noise measurements

Relevant legislation, standards, and guidelines	The noise measurements were carried out in accordance with: Australian Standard AS 1055-2018 (<i>Acoustics – Description and measurement of environmental noise</i>).
Measurement location	The noise measurements were carried out at on the south-western boundary of the site, representative of the nearest noise sensitive receivers, as presented in Figure 2.1. Photos showing the noise measurement location are presented in Appendix B.
Measurement period	Continuous noise measurements were carried out 24 hours a day from 9 to 18 December 2024.
Measurement equipment	The following sound measurement equipment was used: - Environmental Logger – ARL Ngara (serial no. 878157); and - Calibration – RION NC-75 Sound Level Calibrator (Serial no. 34413140). The sound measurement instruments conform to Australian Standard AS IEC61672.1-2004. Calibration was performed during set up and download of the data from the noise logger. The calibration drift was <0.1 dB(A).
Meteorological conditions	The prevailing conditions during the noise measurement period were mostly fine, however rain was recorded on the 10, 14, and 16 December 2024, and the data from these days were excluded from the assessment. Full meteorological data over the noise measurement period is presented in Appendix C.
Analysis of data	The noise measurement data was analysed to determine the following noise descriptor: L_{A90,T}: Background noise level during daytime (7am to 6pm), evening (6pm to 10pm) and nighttime (10pm to 7am).



Figure 2.1 Noise measurement location

2.2 Noise measurement results

The results of the background noise measurements undertaken from 9 to 18 December 2024 are presented in Table 2.2 and in Appendix D.

Table 2.2 Measured background noise levels

Date	Background noise levels L ₉₀ dB(A)		
	L _{90,11hr} day (7am–6pm)	L _{90,4hr} evening (6pm–10pm)	L _{90,9hr} night (10pm–7am)
9 December 2024 (Mon)	—	46	45
10 December 2024 (Tue)	51	49	48
11 December 2024 (Wed)	50	54	49
12 December 2024 (Thu)	50	51	50
13 December 2024 (Fri)	51	51	48
14 December 2024 (Sat)	50	50	47
15 December 2024 (Sun)	49	49	47
16 December 2024 (Mon)	50	49	48
17 December 2024 (Tue)	51	52	50
Average (All days)	50	50	48
Average (Monday – Saturday)	50	51	48
Average (Sun & Public holidays)	49	49	47

Rainfall recorded on this day. Data measured during periods of inclement weather was disregarded in the determination of background noise levels.

3. Noise Criteria

3.1 Logan Planning Scheme 2015 (LPS 2015)

The *LPS 2015* states that any development in the *Rural Residential* zone must be designed and constructed to meet the following objectives from Planning Scheme Policy 3:

- The requirements identified in Table 3.2.1.1 – Noise emission standards for the protection of residential amenity; and
- The requirements identified in Table 3.2.1.2 – Noise emission standards for the protection of general amenity.

The requirements for residential noise amenity at the residential zone boundary of the premises, taken from Table 3.2.1.1 of *LPS 2015*, are presented below in Table 3.1.

Table 3.1 Residential amenity noise criteria (LPS 2015)

Noise type	Time period	Noise criteria	Noise limits	
			L _{Aeq,adj,T}	L _{Amax}
Monday to Saturday criteria				
Non-steady sound	Day 7am – 6pm	L _{Aeq,adj,T} ≤ L _{A90} plus 5 dB(A)	55 (50 + 5)	–
	Evening 6am – 10pm	L _{Aeq,adj,T} ≤ L _{A90} plus 5 dB(A)	56 (51 + 5)	–
	Night 10pm – 7am	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A) and L _{Amax} ≤ 60 dB(A)	48 (48 + 0)	60
Continuous noise	Day 7am – 6pm	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A)	50 (50 + 0)	–
	Evening 6am – 10pm	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A)	51 (51 + 0)	–
	Night 10pm – 7am	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A)	48 (48 + 0)	–
Sunday and public holidays criteria				
Non-steady sound	Day 7am – 6pm	L _{Aeq,adj,T} ≤ L _{A90} plus 5 dB(A)	54 (49 + 5)	–
	Evening 6am – 10pm	L _{Aeq,adj,T} ≤ L _{A90} plus 5 dB(A)	54 (49 + 5)	–
	Night 10pm – 7am	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A) and L _{Amax} ≤ 60 dB(A)	47 (47 + 0)	60
Continuous noise	Day 7am – 6pm	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A)	49 (49 + 0)	–
	Evening 6am – 10pm	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A)	49 (49 + 0)	–
	Night 10pm – 7am	L _{Aeq,adj,T} ≤ L _{A90} plus 0 dB(A)	47 (47 + 0)	–

4. Noise Propagation Modelling

4.1 Modelling Methodology

A 3D model of the site and surroundings was developed using SoundPLAN noise propagation software considering the proposed activities at the development and location relative to the nearest noise sensitive places.

The calculations were carried out as per the procedures specified in the International Standard ISO9613 (*Acoustics – Attenuation of sound during propagation outdoors*).

The calculation method for a single frequency is as follows:

$$L_S = [L_W + K_0] - [A_{dl} + A_{div} + A_{gr} + A_{bar} + A_{atm} + d_{Lrefl} + d_{Lw}]$$

Where:	L_S	Sound pressure for a single frequency
	L_W	Sound power of source
	K_0	Correction for propagation in limited spatial angle
	A_{dl}	Mean directivity correction
	A_{div}	Mean attenuation due to geometrical spreading
	A_{gr}	Mean attenuation due to ground effect
	A_{bar}	Mean attenuation due to screening
	A_{atm}	Mean attenuation due to air absorption
	d_{Lrefl}	Level increase due to reflections
	d_{Lw}	Correction due to source operation time

The noise propagation losses are calculated as a combination of distance attenuation (geometrical spreading), screening, ground attenuation and other factors.

The results of noise modelling as per ISO9613 are in terms of L_{eq} . A conversion factor was applied to L_{eq} to obtain results in terms of the other assessment criteria L_{10} and L_{01} . The conversion factors are presented in Table 4.1.

Table 4.1 Noise descriptor conversion factors

Type of noise	Conversion factors	
	L_{eq} to L_{10}	L_{eq} to L_{01}
Continuous noise	$L_{10} = L_{eq}$	$L_{01} = L_{eq}$
Variable noise	$L_{10} = L_{eq} + 3 \text{ dB}$	$L_{01} = L_{eq} + 8 \text{ dB}$

The assumptions and data used in development of the operational noise propagation model are presented in Table 4.2.

Table 4.2 Data and assumptions – operational noise model

Proposed development	The plans of the proposed substation are presented in Appendix A.
Noise sources and operating times	Refer to Table 4.3.
Calculation receivers	- Free-field receivers were placed at a height of 1.5m above ground level along the applicable lot boundaries at the closest location to the subject site. 2.0m grid spacing was used for calculation of the noise contour maps.
Terrain	- Department of Natural Resources and Mines Airborne Laser Scanning (LiDAR) 1 metre data was used to determine the elevation of the development relative to the surrounds. - Ground surface absorption factor of 0 was applied to all paved surfaces and 1 for all grassed areas.
Noise control measures	Refer to Section 5 of this report for recommended noise control measures.
Distance attenuation	3D model of the subject site and surroundings was developed using cadastral data in SoundPLAN. The source-receiver distances and geometrical spreading are automatically calculated in SoundPLAN to a high level of accuracy in accordance with the ISO9613 procedure. - Separation distances and distance attenuation values are presented in Appendix E.
Barrier attenuation / screening	- Screening by buildings and acoustic barriers were calculated in SoundPLAN in accordance with the ISO9613 procedure. - Barrier attenuation / screening values are presented in Appendix E.
Ground attenuation	- Sound reflecting surfaces such as pavement are modelled with ground absorption coefficient of 0 (no absorption). Grassed and vegetated areas were modelled with ground absorption coefficient of 1 (100% absorption) in accordance with ISO9613. - Ground attenuation values are presented in Appendix E.

4.1.1 Noise Sources

Details of the noise sources associated with the alterations to the existing service station that were considered in the SoundPLAN model are presented in Table 4.3.

Table 4.3 Noise sources

Operational noise source	Location	Sound power level dB(A) (re 10 ⁻¹² W)	Operational scenario	Tonality/impulsiveness
Transformers	Proposed locations as per site layout	72.6dB(A) per unit. As specified by manufacturer at 100% Voltage in ODAF cooling mode.	<u>Day (7:00am to 6:00pm)</u> – Continuous operation <u>Evening (6:00pm to 10:00pm)</u> – Continuous operation <u>Night (10:00pm to 7:00am)</u> – Continuous operation	n/a

Excerpts from the SoundPLAN 3D noise propagation model are presented in Figures 4.1 and 4.2.

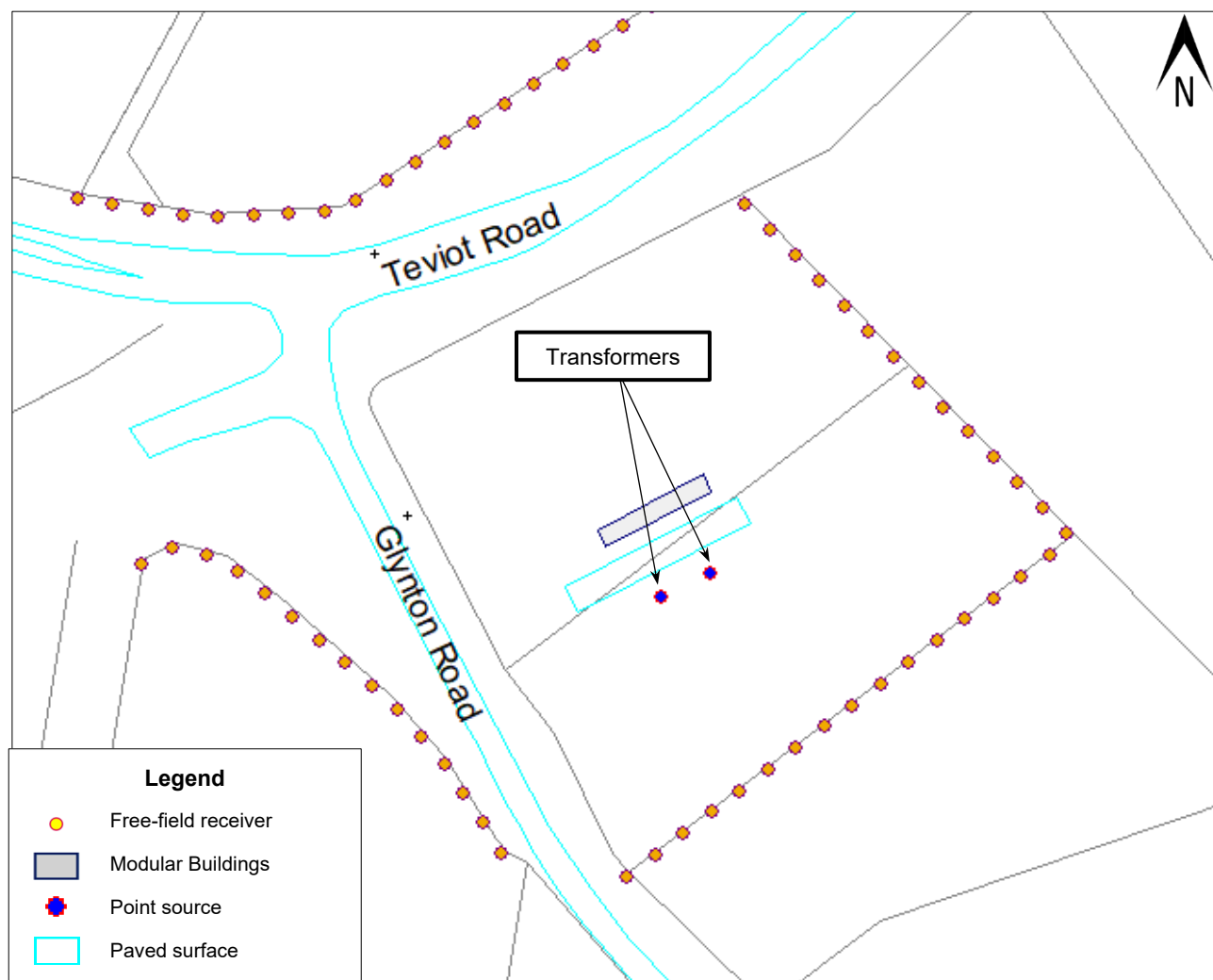


Figure 4.1 SoundPLAN Operational noise model

4.2 Operational Noise Calculation Results

4.2.1 Acoustic Quality Objectives

The potential noise impacts from the proposed substation on the nearest sensitive receivers was considered. The highest noise levels assessed against the LPS 2015 Residential Amenity noise criteria at the lot boundaries nearest noise sensitive receivers, are presented in Table 4.4.

Table 4.4 Operational noise levels – Residential Amenity

Receiver name	Calculated noise levels				Complies with noise criteria?
	Leq,adj,11hr Day dB(A)	Leq,adj,4hr Evening dB(A)	Leq,adj,9hr Night dB(A)	L _{max} Night dB(A)	
<i>LPS 2015 Residential Amenity – Monday to Saturday</i>					
Continuous noise	50	51	48	–	
Non-steady sound	55	56	48	60	
26-36 Glynton Road	33	33	33	–	Yes
1-17 Glynton Road	28	28	28	–	Yes
1202-1210 Teviot Road	29	29	29	–	Yes
1-7 Homestead Drive	21	21	21	–	Yes
<i>LPS 2015 Residential Amenity – Sundays and Public Holidays</i>					
Continuous noise	49	49	47	–	
Non-steady sound	54	54	47	60	
26-36 Glynton Road	33	33	33	–	Yes
1-17 Glynton Road	28	28	28	–	Yes
1202-1210 Teviot Road	29	29	29	–	Yes
1-7 Homestead Drive	21	21	21	–	Yes

SoundPLAN tabulated noise levels (cumulative noise impacts) are presented in Appendix E.

Separate acoustic impacts of the individual noise sources considered in the SoundPLAN model, and the noise propagation modelling factors as per International Standard ISO9613 (*Acoustics – Attenuation of sound during propagation outdoors*) calculation method are also presented in Appendix E.

Noise propagation modelling contour maps are presented in Appendix F.

5. Discussion and Recommendations

Detailed noise propagation modelling was carried out considering all potential noise emissions associated with daytime (7:00am to 6:00pm), evening (6:00pm to 10:00pm), and night-time (10:00pm to 7:00am) operation of the proposed substation at Lots 1 & 2 on SP239500, Glynton Road in Riverbend. The noise emissions from the proposed substation were calculated considering all proposed noise generating equipment at the site including:

- Two (2) 33kV Transformers

The calculated noise levels were assessed against the relevant noise criteria from the Logan Planning Scheme 2015 at the boundaries of the surrounding properties.

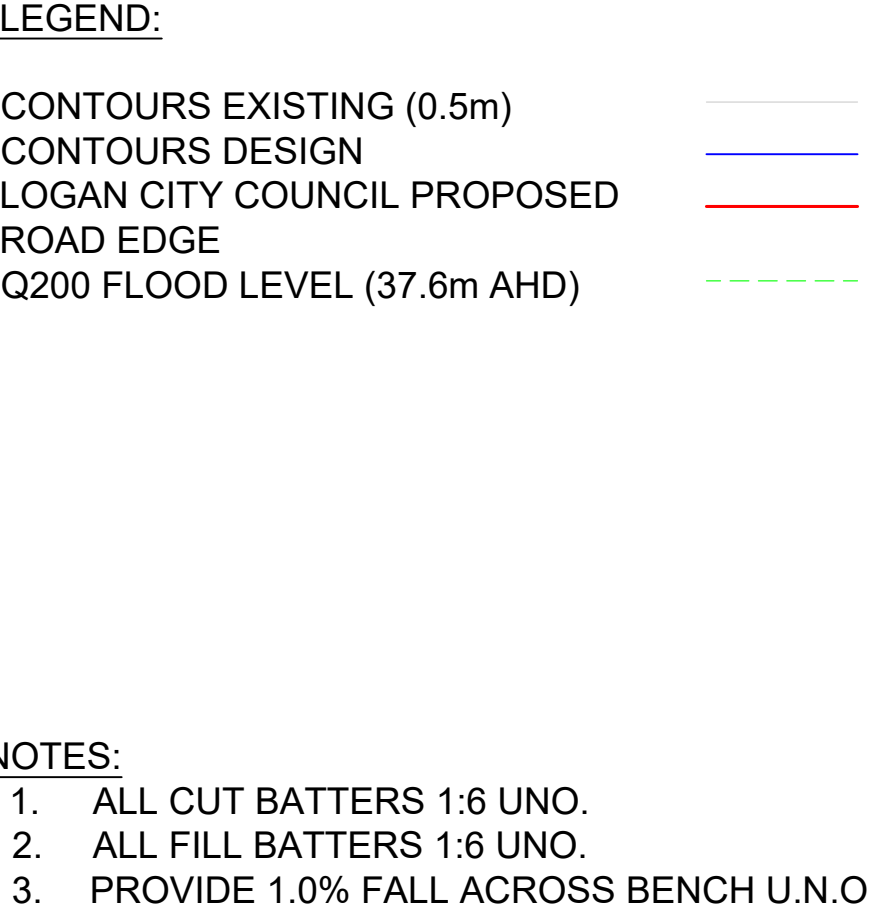
The results of the operational noise assessment indicate that the noise emissions from the activities of the proposed substation, will comply with the relevant noise criteria at the nearest noise sensitive receptors, without requirement for noise mitigation measures.

Provided the equipment on the site are as specified in this report, there are no further acoustic constraints on the proposed substation at Lots 1 & 2 on SP239500, Glynton Road in Riverbend.

6. References

- Australian Standard AS 1055:2018 (*Acoustics – Description and Measurement of Environmental Noise*)
- Australian Standard ASIEC61672.1-2004 (Electroacoustics – Sound level meters – Specifications)
- Colin H. Hansen, 1994, *Fundamentals of Acoustics*, University of Adelaide, Department of Mechanical Engineering, Adelaide, SA 5005
- International Standard ISO 9613 (*Acoustics – Attenuation of sound during propagation outdoors*)
- Logan *Planning Scheme 2015 – SC 6.3.2.1 Planning Scheme Policy (Noise)*

Appendix A – Plans of Substation



DOCUMENT CONTROL	
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JBW JIMBOOMBA WEST SUBSTATION
CIVIL MODEL
SKETCH

Drawing Status ---		
Project Number		
CIVIL	Sheet Number	Revision
Scale NTS		

Appendix B – Noise Measurement Location



Photo 1: Noise monitoring location, view due west



Photo 2: Noise monitoring location, view due south-east

Appendix C – Meteorological Data

Greenbank (Defence), Queensland
December 2024 Daily Weather Observations

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C					km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Su	22.1	29.0	29.0			ENE	24	15:11	24.5	93		N	6		27.8	78		ENE	11	
2	Mo	21.6	31.8	0			NNE	28	14:50	26.6	78		WSW	6		29.8	65		NNE	17	
3	Tu	22.2	30.7	0.6			N	26	15:23	27.3	67		N	17		29.7	54		NNE	11	
4	We	21.6	30.0	2.4			N	26	16:05	25.5	85			Calm		28.7	67		NE	11	
5	Th	22.7	30.8	19.4			NE	26	16:29	27.7	73		NNE	13		28.9	59		E	11	
6	Fr	19.5	31.4	0			N	24	12:43	26.3	67		WNW	4		29.9	56		NE	11	
7	Sa	20.4	32.1	0			NNE	28	16:19	26.5	67		NW	9		31.0	53		N	17	
8	Su	19.9	37.0	0			NNE	26	17:41	29.1	65		NW	9		36.3	41		WNW	9	
9	Mo	22.5	30.8	17.0			ENE	22	16:22	26.7	81		SW	4		29.6	72		NE	6	
10	Tu	23.9	28.3	0.2			W	22	13:54	25.3	93			Calm		20.8	96		N	11	
11	We	19.8	26.4	44.6			SSE	15	11:28	20.5	99		SSE	4		24.6	81			Calm	
12	Th	17.5	29.7	0.2			ENE	22	14:04	26.2	65		E	7		28.8	56		ENE	11	
13	Fr	18.8	31.0	0			ESE	24	16:03	27.4	69		SSE	7		30.3	55		E	11	
14	Sa	21.9	29.1	0			ESE	30	12:29	26.6	80		SSE	7		23.8	95		SE	2	
15	Su	20.9	30.2	4.8			SE	31	11:35	26.8	74		S	6		28.8	66		SE	9	
16	Mo	23.9	29.1	0.6			ESE	44	12:23	26.0	79		ESE	9		27.6	70		SE	13	
17	Tu	23.0	31.4	36.6			NNE	28	14:13	27.4	83		E	6		28.3	77		E	9	
18	We	23.4	29.4	13.4			SSE	26	23:28	27.8	80		N	2		23.5	98		SSE	6	
19	Th	19.0	27.4	19.4			SE	26	00:58	24.3	56		S	11		26.3	52		SE	7	
20	Fr	15.5	28.4	0			NNE	24	17:01	24.1	62		SW	6		28.0	53		ENE	7	
21	Sa	19.8	32.3	0			NNE	24	17:22	26.3	60		N	2		31.6	39		NE	9	
22	Su	17.9	32.2	0			N	28	14:58	26.8	66		N	4		30.6	46		N	17	
23	Mo	20.4	33.3	0			NNE	30	14:53	26.4	65		N	9		31.8	50		NNE	17	
24	Tu	18.4	30.4	0			E	31	15:56	26.9	57		SE	6		27.1	56		E	11	
25	We	15.6	29.4	0			NE	33	16:15	25.0	55		SSE	9		28.2	52		E	9	
26	Th	15.6	31.2	0			NNE	30	14:51	25.6	55		ENE	4		29.2	50		NE	15	
27	Fr	15.6	33.3	0			NNE	31	16:45	25.8	58		ENE	6		32.0	43		N	13	
28	Sa	21.7	35.5	0			NE	35	19:34	28.6	61		NNW	11		32.5	57		NNE	19	
29	Su	22.9	31.2	16.4			ENE	30	13:11	28.3	76			Calm		29.7	65		ENE	13	
30	Mo	21.5	30.1	0			ENE	30	13:34	27.8	64		SW	2		28.7	57		E	13	
31	Tu	21.6	30.5	0			ENE	22	16:20	25.8	77		S	4		27.6	61		ESE	9	
Statistics for December 2024																					
Mean		20.4	30.8							26.3	71			6		28.8	61			10	
Lowest		15.5	26.4							20.5	55			Calm		20.8	39			Calm	
Highest		23.9	37.0	44.6			ESE	44		29.1	99		N	17		36.3	98		NNE	19	
Total				204.6																	

Appendix D – Noise Measurement Results



Unattended Noise Measurements
Jimboomba West

Environmental Noise Levels Day, Evening and Night

Logger Location - South-western boundary of lot

ARL Environmental Noise Logger
Logger Serial Number 878157
Measurement Title Jimboomba West Substation
Measurement started at 9/12/2024
Measurement stopped at 18/12/2024
Frequency Weighting A
Time Averaging Fast
Statistical Interval 15 min
Pre-measurement Ref. 93.9
Post-measurement Ref. 94.1
Engineering Units dB SPL

		L _{Aeq,T} dB(A)			L _{A01,T} dB(A)			L _{A10,T} dB(A)			L _{A90,T} dB(A)		
Date	Day	D	E	N	D	E	N	D	E	N	D	E	N
9/12/2024	Monday	—	52	50	—	58	56	—	54	52	—	46	45
10/12/2024	Tuesday	56	53	53	62	60	61	57	55	55	51	49	48
11/12/2024	Wednesday	54	56	52	61	60	58	56	58	54	50	54	49
12/12/2024	Thursday	54	55	53	61	61	58	56	57	55	50	51	50
13/12/2024	Friday	55	55	51	62	60	56	57	56	53	51	51	48
14/12/2024	Saturday	54	54	51	61	61	56	56	56	52	50	50	47
15/12/2024	Sunday	54	54	51	60	60	57	56	55	53	49	49	47
16/12/2024	Monday	54	54	52	60	61	59	55	55	53	50	49	48
17/12/2024	Tuesday	55	55	52	62	61	57	57	56	54	51	52	50
Average		54	54	52	61	60	57	56	56	53	50	50	48

Note

— No noise data available

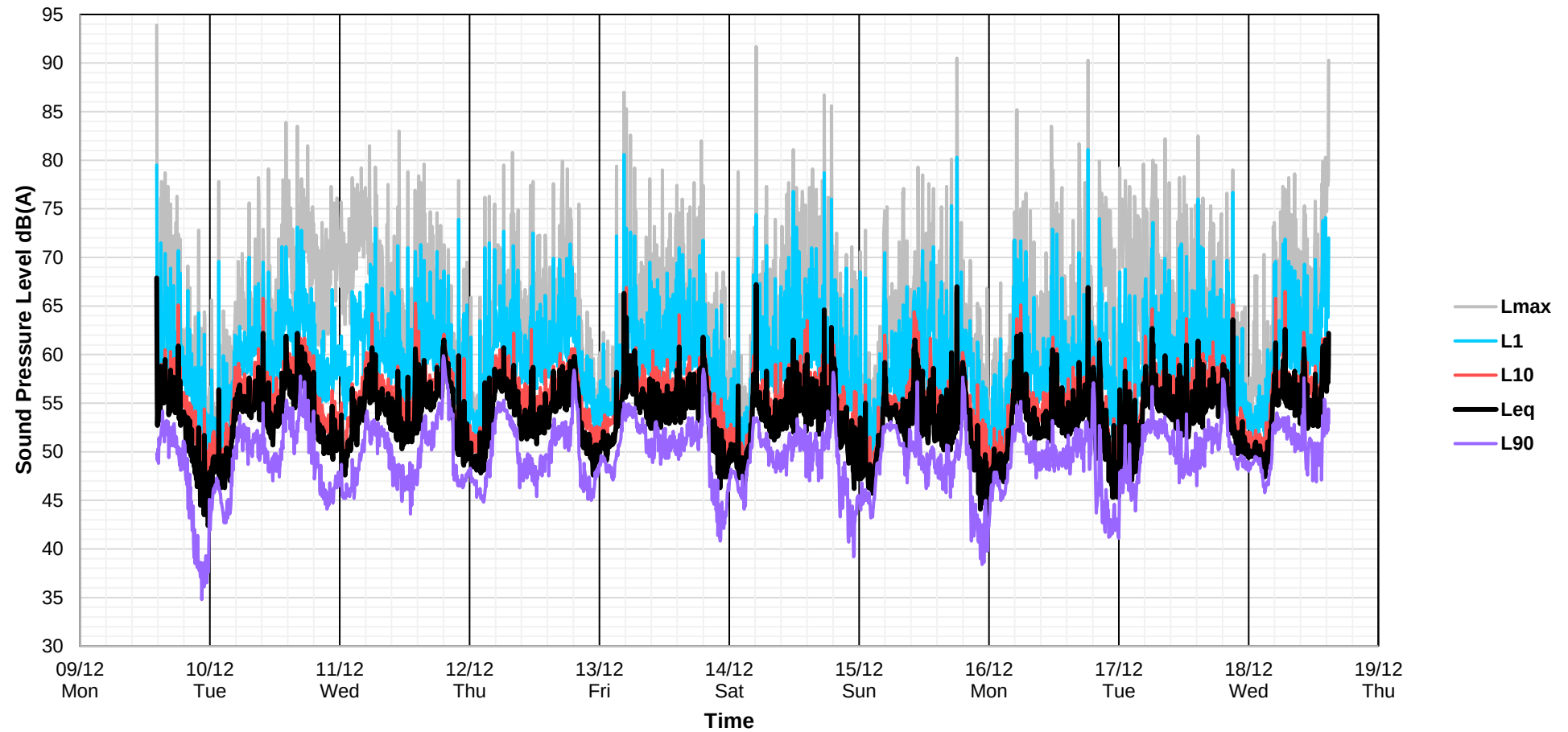
Day (D): 7:00am to 6:00pm

Evening (E): 6:00pm to 10:00pm

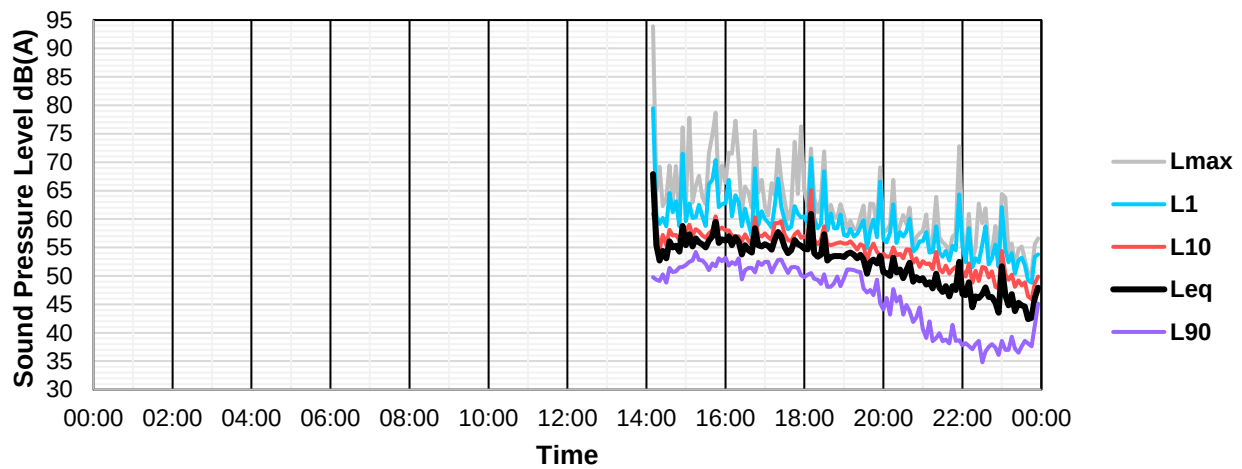
Night (N): 10:00pm to 7:00am

Rainfall recorded on this day

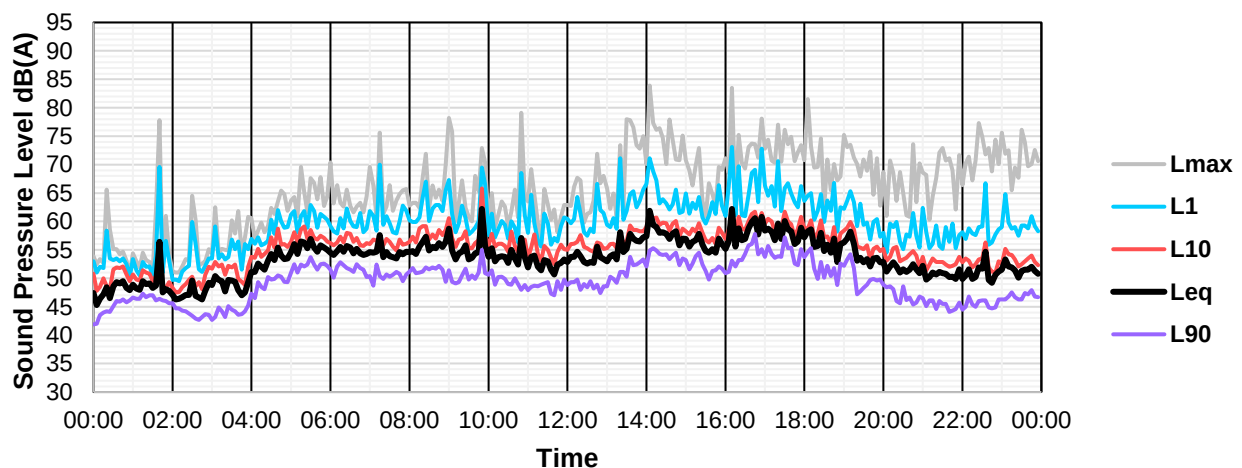
Unattended Noise Measurements 9 to 18 December 2024



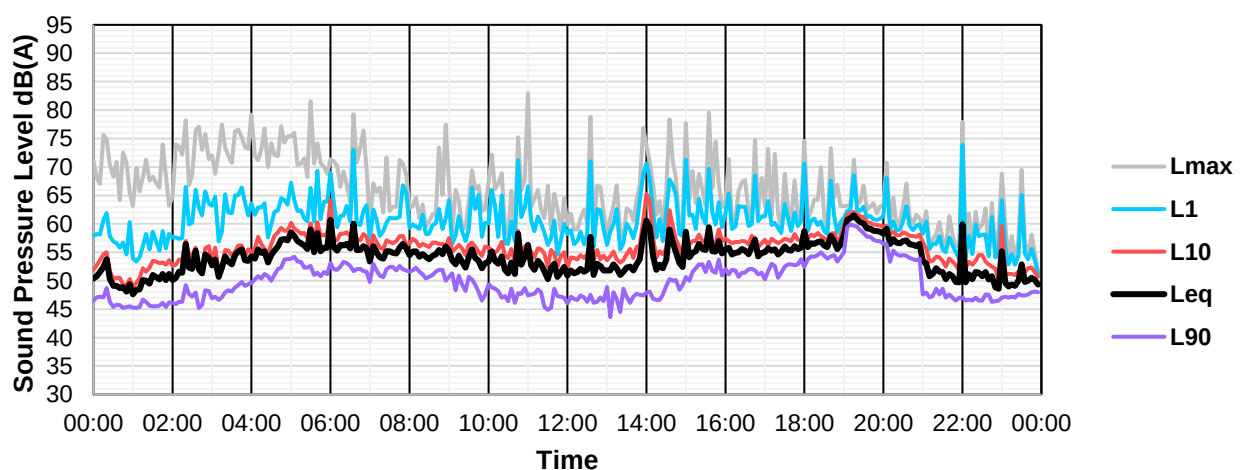
Unattended Noise Measurements Monday 9 December 2024



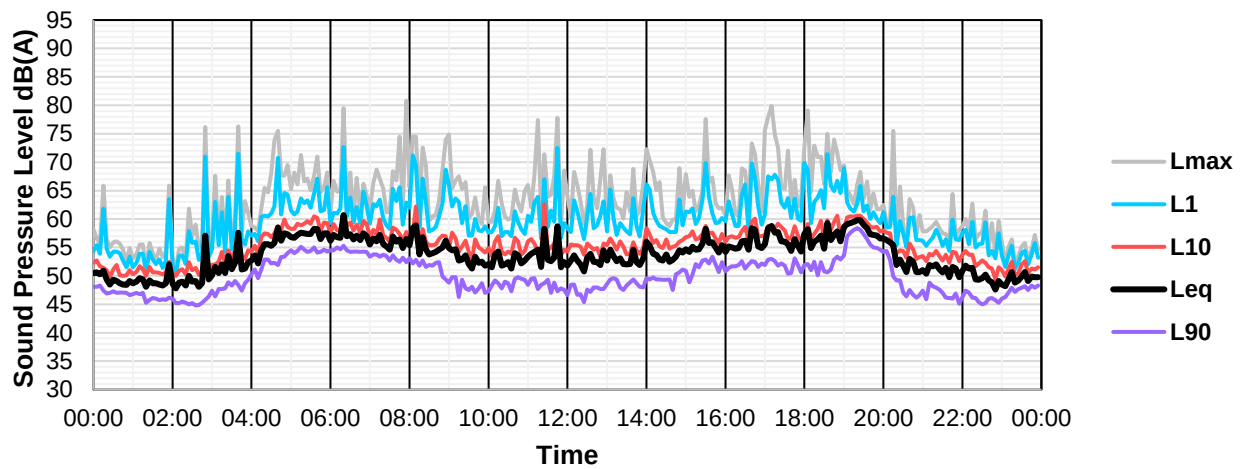
Unattended Noise Measurements Tuesday 10 December 2024



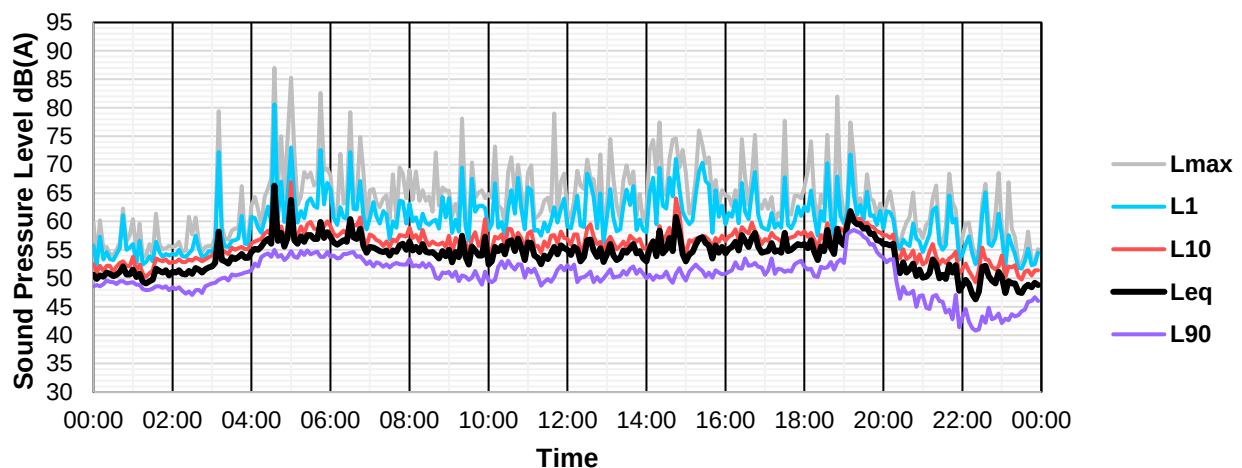
Unattended Noise Measurements Wednesday 11 December 2024



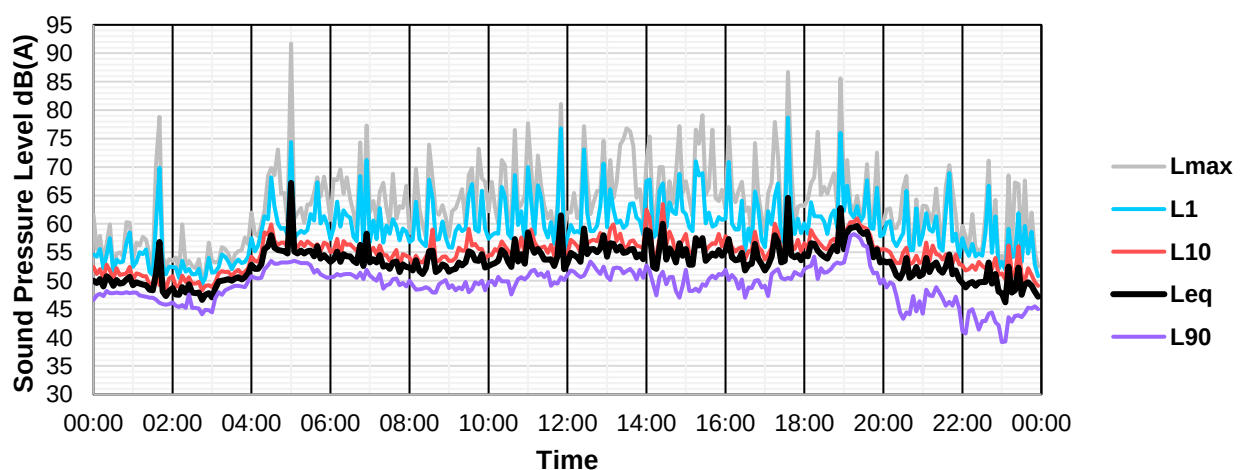
Unattended Noise Measurements Thursday 12 December 2024



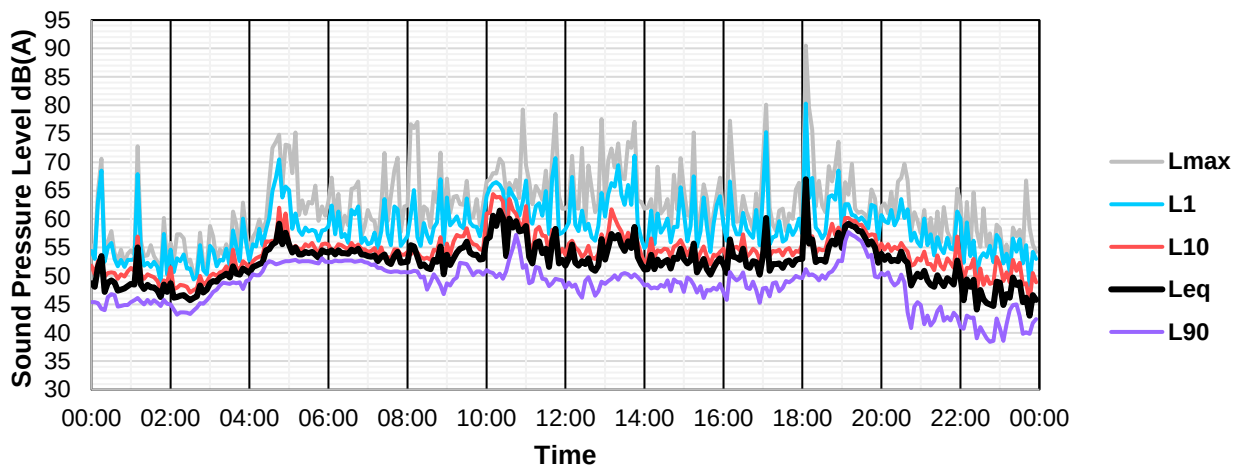
Unattended Noise Measurements Friday 13 December 2024



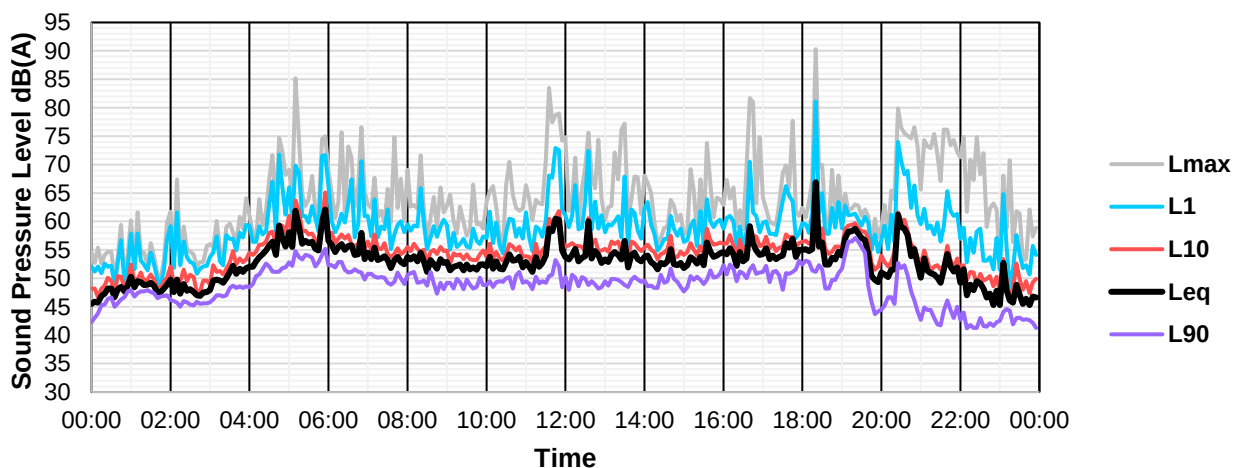
Unattended Noise Measurements Saturday 14 December 2024



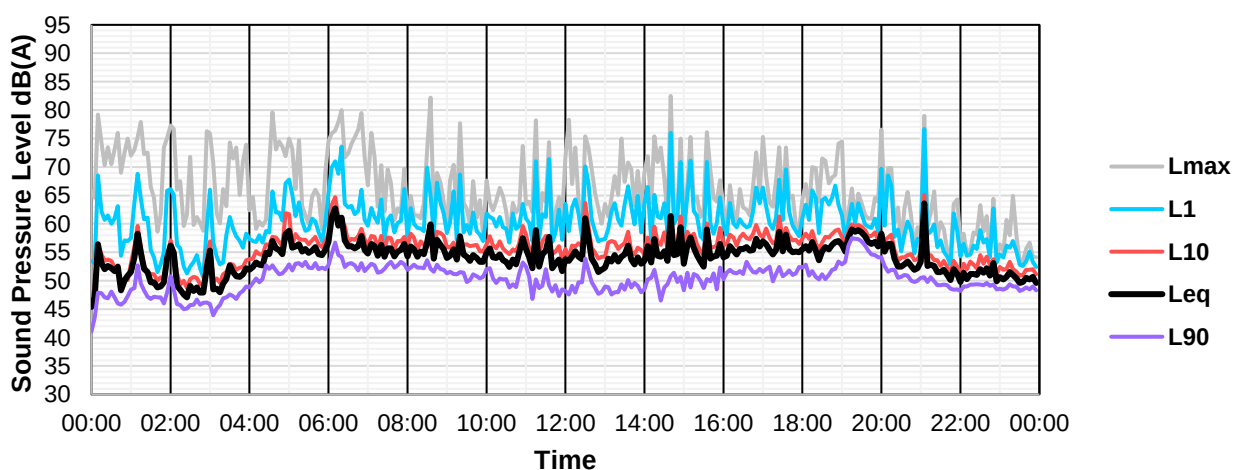
Unattended Noise Measurements Sunday 15 December 2024



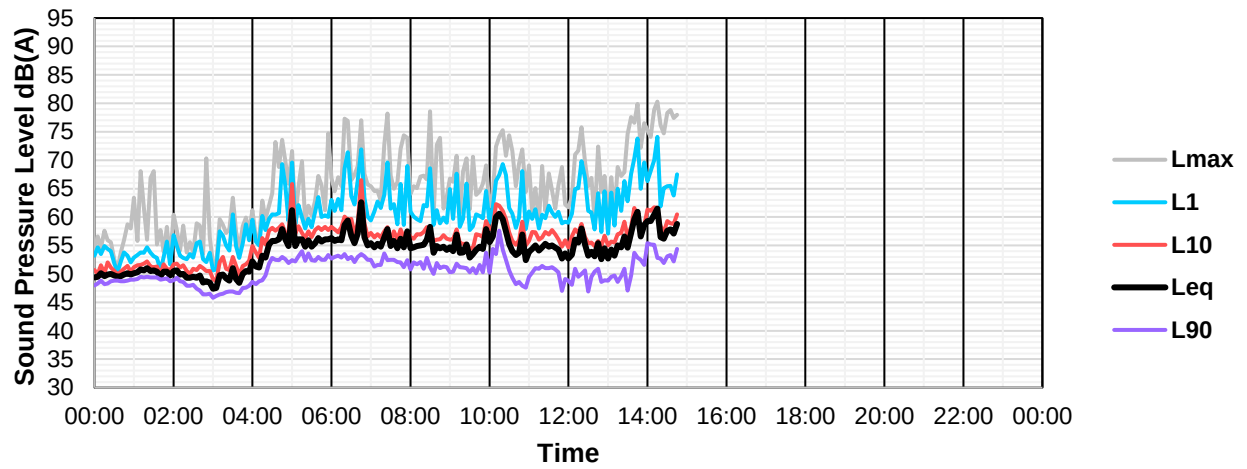
Unattended Noise Measurements Monday 16 December 2024



Unattended Noise Measurements Tuesday 17 December 2024



Unattended Noise Measurements Wednesday 18 December 2024



Appendix E – SoundPLAN Tabulated Results

**NIA Jimboomba West Substation
Predicted Operational Noise Levels at the Boundary
From Activities at Proposed Development**

Receiver Name	Leq,adj,11	Leq,adj,4h	Leq,adj,9h	
	dB(A)	dB(A)	dB(A)	
1-7 Homestead Drive	32	28	25	
1-7 Homestead Drive	32	28	25	
1-7 Homestead Drive	32	28	24	
1-7 Homestead Drive	32	28	24	
1-7 Homestead Drive	33	29	26	
1-7 Homestead Drive	33	29	26	
1-7 Homestead Drive	33	29	26	
1-7 Homestead Drive	32	28	25	
1-7 Homestead Drive	32	28	23	
1-7 Homestead Drive	35	29	23	
1-7 Homestead Drive	35	30	23	
1-7 Homestead Drive	35	30	23	
1-7 Homestead Drive	32	28	24	
1-7 Homestead Drive	32	27	23	
1-7 Homestead Drive	32	27	23	
1-7 Homestead Drive	32	27	23	
1-7 Homestead Drive	33	29	26	
1-7 Homestead Drive	42	36	28	
1-7 Homestead Drive	41	36	28	
1-7 Homestead Drive	40	35	28	
1-7 Homestead Drive	40	35	28	
1-7 Homestead Drive	41	36	28	
1-7 Homestead Drive	41	36	28	
1-7 Homestead Drive	41	35	28	
1-7 Homestead Drive	41	36	28	
1-7 Homestead Drive	35	31	26	
1-7 Homestead Drive	35	30	26	
1-7 Homestead Drive	34	30	26	
1-7 Homestead Drive	33	29	26	
1-7 Homestead Drive	40	34	28	
1-7 Homestead Drive	39	33	28	
1-7 Homestead Drive	36	31	27	
1-7 Homestead Drive	37	32	27	
1-17 Glynton Road	44	39	30	
1-17 Glynton Road	46	40	31	
1-17 Glynton Road	46	41	32	
1-17 Glynton Road	39	34	29	
1-17 Glynton Road	44	39	31	
1-17 Glynton Road	43	38	30	
1-17 Glynton Road	37	33	29	
1-17 Glynton Road	46	41	33	
1-17 Glynton Road	44	39	30	
1-17 Glynton Road	44	38	30	
1-17 Glynton Road	44	38	30	
1-17 Glynton Road	43	37	29	
1-17 Glynton Road	45	39	32	
1-17 Glynton Road	42	37	30	
1-17 Glynton Road	40	35	29	
1-17 Glynton Road	45	40	30	
1-17 Glynton Road	39	34	27	
1-17 Glynton Road	41	35	27	
1-17 Glynton Road	42	36	28	
1-17 Glynton Road	40	34	27	

**NIA Jimboomba West Substation
Predicted Operational Noise Levels at the Boundary
From Activities at Proposed Development**

Receiver Name	Leq,adj,11 dB(A)	Leq,adj,4h dB(A)	Leq,adj,9h dB(A)	
1-17 Glynton Road	40	34	26	
1-17 Glynton Road	40	34	26	
1-17 Glynton Road	40	34	27	
1-17 Glynton Road	42	36	28	
1-17 Glynton Road	45	39	29	
1-17 Glynton Road	45	40	30	
1-17 Glynton Road	45	40	30	
1-17 Glynton Road	45	39	29	
1-17 Glynton Road	42	37	28	
1-17 Glynton Road	43	37	29	
1-17 Glynton Road	44	38	29	
1-17 Glynton Road	43	38	30	
1-17 Glynton Road	41	36	29	
1-17 Glynton Road	42	36	29	
1-17 Glynton Road	42	37	29	
1-17 Glynton Road	42	37	29	
1-17 Glynton Road	42	37	29	
26-36 Glynton Road	46	41	36	
26-36 Glynton Road	47	42	37	
26-36 Glynton Road	46	41	36	
26-36 Glynton Road	47	42	35	
26-36 Glynton Road	48	43	37	
26-36 Glynton Road	49	44	37	
26-36 Glynton Road	49	44	37	
26-36 Glynton Road	48	43	37	
26-36 Glynton Road	44	39	31	
26-36 Glynton Road	44	39	32	
26-36 Glynton Road	44	39	32	
26-36 Glynton Road	45	39	33	
26-36 Glynton Road	47	42	35	
26-36 Glynton Road	45	40	34	
26-36 Glynton Road	45	40	33	
26-36 Glynton Road	44	38	31	
26-36 Glynton Road	45	41	36	
26-36 Glynton Road	45	41	36	
26-36 Glynton Road	46	41	36	
26-36 Glynton Road	46	42	36	
26-36 Glynton Road	46	41	35	
26-36 Glynton Road	47	41	35	
26-36 Glynton Road	46	41	35	
26-36 Glynton Road	47	42	36	
26-36 Glynton Road	47	42	36	
26-36 Glynton Road	46	41	36	
26-36 Glynton Road	47	42	37	
26-36 Glynton Road	47	42	37	
26-36 Glynton Road	48	42	36	
26-36 Glynton Road	49	43	36	
26-36 Glynton Road	49	44	36	
26-36 Glynton Road	49	44	36	
1202-1210 Teviot Road	49	44	40	
1202-1210 Teviot Road	46	42	39	
1202-1210 Teviot Road	46	42	39	
1202-1210 Teviot Road	49	45	39	

NIA Jimboomba West Substation
Predicted Operational Noise Levels at the Boundary
From Activities at Proposed Development

Receiver Name	Leq,adj,11 dB(A)	Leq,adj,4h dB(A)	Leq,adj,9h dB(A)	
1202-1210 Teviot Road	49	44	40	
1202-1210 Teviot Road	49	45	40	
1202-1210 Teviot Road	47	43	38	
1202-1210 Teviot Road	46	41	36	
1202-1210 Teviot Road	48	42	35	
1202-1210 Teviot Road	46	41	35	
1202-1210 Teviot Road	48	43	38	
1202-1210 Teviot Road	48	43	38	
1202-1210 Teviot Road	45	41	37	
1202-1210 Teviot Road	49	44	38	
1202-1210 Teviot Road	47	42	33	
1202-1210 Teviot Road	47	42	34	
1202-1210 Teviot Road	48	42	34	
1202-1210 Teviot Road	46	40	32	
1202-1210 Teviot Road	47	41	32	
1202-1210 Teviot Road	47	41	33	
1202-1210 Teviot Road	48	43	35	
1202-1210 Teviot Road	49	43	37	
1202-1210 Teviot Road	48	43	37	
1202-1210 Teviot Road	48	43	38	
1202-1210 Teviot Road	49	43	35	
1202-1210 Teviot Road	49	43	35	
1202-1210 Teviot Road	48	43	36	

NIA Jimboomba West Substation
ISO9613 Calculation Method
Predicted Operational Noise Levels at Adjacent Uses
From Activities at Proposed Development

Legend

Source		Source name
Source type		Type of source (point, line, area)
time slice		Name of time slice
Li	dB(A)	Level inside
R'w	dB	Rated transmission loss
L'w	dB(A)	Sound power per m, m ²
Lw	dB(A)	Sound power per unit
I or A	m,m ²	Size of source (Length or area)
KI	dB	Correction for source impulsiveness
KT	dB	Correction for source tonality
Ko	dB	Correction for propagation in limited spacial angle
S	m	Distance source - receiver
Adiv	dB	Mean attenuation due to geometrical spreading
Agr	dB	Mean attenuation due to ground effect
Abar	dB	Mean attenuation due to screening
Aatm	dB	Mean attenuation due to air absorption
Amisc	dB	Mean attenuation due to foliage, industrial areas and building areas
ADI	dB	Mean directivity correction
dLrefl	dB(A)	Level increase due to reflections
Ls	dB(A)	Unassessed sound pressure level at receiver $L_s = L_w + K_o + ADI + A_{div} + A_{gr} + A_{bar} + A_{atm} + A_{fol_site_house} + A_{wind} + dL_{refl}$
dLw	dB	Correction due to source operation time
Cmet	dB	Meteorological correction
ZR	dB	Correction for rest periods
Lr	dB(A)	Assessed level of time slice

**NIA Jimboomba West Substation
ISO9613 Calculation Method
Predicted Operational Noise Levels at Adjacent Uses
From Activities at Proposed Development**

Source	Source type	time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	l or A m,m²	KI dB	KT dB	Ko dB	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Amisc dB	ADI dB	dLrefl dB(A)	Ls dB(A)	dLw dB	Cmet dB	ZR dB	Lr dB(A)
Receiver 1202-1210 Teviot Road FI GF Lr,lim dB(A) Lr,lim dB(A) Lr,lim dB(A) Leq,adj,11 49 dB(A) Leq,adj,4h 45 dB(A) Leq,adj,9h 39 dB(A)																							
Inverter 1-Power Inverter 1	Area	Leq,adj,11			86.2	87.6	1.4	0.0	5.0	3	57.23	-46.1	-0.3	-9.8	-0.3	0.00	0.0	0.9	34.9	0.0	0.0	0.0	39.9
Inverter 1-Power Inverter 1	Area	Leq,adj,4h			86.2	87.6	1.4	0.0	5.0	3	57.23	-46.1	-0.3	-9.8	-0.3	0.00	0.0	0.9	34.9	-6.0	0.0	0.0	33.9
Inverter 1-Power Inverter 1	Area	Leq,adj,9h			86.2	87.6	1.4	0.0	5.0	3	57.23	-46.1	-0.3	-9.8	-0.3	0.00	0.0	0.9	34.9		0.0		
Inverter 1-Power Inverter 2	Area	Leq,adj,11			86.3	87.6	1.4	0.0	5.0	3	57.83	-46.2	-0.4	-12.0	-0.2	0.00	0.0	6.5	38.2	0.0	0.0	0.0	43.2
Inverter 1-Power Inverter 2	Area	Leq,adj,4h			86.3	87.6	1.4	0.0	5.0	3	57.83	-46.2	-0.4	-12.0	-0.2	0.00	0.0	6.5	38.2	-6.0	0.0	0.0	37.2
Inverter 1-Power Inverter 2	Area	Leq,adj,9h			86.3	87.6	1.4	0.0	5.0	3	57.83	-46.2	-0.4	-12.0	-0.2	0.00	0.0	6.5	38.2		0.0		
Inverter 3-Power Inverter 3	Area	Leq,adj,11			86.0	87.6	1.4	0.0	5.0	3	60.63	-46.6	-1.0	-12.4	-0.2	0.00	0.0	8.3	38.7	0.0	0.0	0.0	43.7
Inverter 3-Power Inverter 3	Area	Leq,adj,4h			86.0	87.6	1.4	0.0	5.0	3	60.63	-46.6	-1.0	-12.4	-0.2	0.00	0.0	8.3	38.7	-6.0	0.0	0.0	37.7
Inverter 3-Power Inverter 3	Area	Leq,adj,9h			86.0	87.6	1.4	0.0	5.0	3	60.63	-46.6	-1.0	-12.4	-0.2	0.00	0.0	8.3	38.7		0.0		
Inverter 4-Power Inverter 4	Area	Leq,adj,11			86.2	87.6	1.4	0.0	5.0	3	61.33	-46.7	-1.1	-13.9	-0.2	0.00	0.0	0.4	29.0	0.0	0.0	0.0	34.0
Inverter 4-Power Inverter 4	Area	Leq,adj,4h			86.2	87.6	1.4	0.0	5.0	3	61.33	-46.7	-1.1	-13.9	-0.2	0.00	0.0	0.4	29.0	-6.0	0.0	0.0	28.0
Inverter 4-Power Inverter 4	Area	Leq,adj,9h			86.2	87.6	1.4	0.0	5.0	3	61.33	-46.7	-1.1	-13.9	-0.2	0.00	0.0	0.4	29.0		0.0		
North-Exhaust 1	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	52.51	-45.4	-0.2	-4.3	-0.2	0.00	0.0	0.9	32.8	0.0	0.0	0.0	32.8
North-Exhaust 1	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	52.51	-45.4	-0.2	-4.3	-0.2	0.00	0.0	0.9	32.8	-3.6	0.0	0.0	29.2
North-Exhaust 1	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	52.51	-45.4	-0.2	-4.3	-0.2	0.00	0.0	0.9	32.8	-6.0	0.0	0.0	26.7
North-Exhaust 2	Area	Leq,adj,11			71.7	82.0	10.7	0.0	0.0	0	46.11	-44.3	-0.2	-4.1	-0.2	0.00	0.0	0.0	33.2	0.0	0.0	0.0	33.2
North-Exhaust 2	Area	Leq,adj,4h			71.7	82.0	10.7	0.0	0.0	0	46.11	-44.3	-0.2	-4.1	-0.2	0.00	0.0	0.0	33.2	-3.6	0.0	0.0	29.6
North-Exhaust 2	Area	Leq,adj,9h			71.7	82.0	10.7	0.0	0.0	0	46.11	-44.3	-0.2	-4.1	-0.2	0.00	0.0	0.0	33.2	-6.0	0.0	0.0	27.2
North-Intake 1	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	53.64	-45.6	-0.7	-11.6	-0.1	0.00	0.0	7.7	32.7	0.0	0.0	0.0	32.7
North-Intake 1	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	53.64	-45.6	-0.7	-11.6	-0.1	0.00	0.0	7.7	32.7	-3.6	0.0	0.0	29.1
North-Intake 1	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	53.64	-45.6	-0.7	-11.6	-0.1	0.00	0.0	7.7	32.7	-6.0	0.0	0.0	26.7
North-Intake 2	Area	Leq,adj,11			72.5	80.0	5.7	0.0	0.0	3	47.38	-44.5	-0.9	-8.0	-0.1	0.00	0.0	0.0	29.4	0.0	0.0	0.0	29.4
North-Intake 2	Area	Leq,adj,4h			72.5	80.0	5.7	0.0	0.0	3	47.38	-44.5	-0.9	-8.0	-0.1	0.00	0.0	0.0	29.4	-3.6	0.0	0.0	25.8
North-Intake 2	Area	Leq,adj,9h			72.5	80.0	5.7	0.0	0.0	3	47.38	-44.5	-0.9	-8.0	-0.1	0.00	0.0	0.0	29.4	-6.0	0.0	0.0	23.4
North-Intake 3	Area	Leq,adj,11			72.5	80.0	5.7	0.0	0.0	3	44.70	-44.0	-0.1	0.0	-0.2	0.00	0.0	0.0	38.7	0.0	0.0	0.0	38.7
North-Intake 3	Area	Leq,adj,4h			72.5	80.0	5.7	0.0	0.0	3	44.70	-44.0	-0.1	0.0	-0.2	0.00	0.0	0.0	38.7	-3.6	0.0	0.0	35.1
North-Intake 3	Area	Leq,adj,9h			72.5	80.0	5.7	0.0	0.0	3	44.70	-44.0	-0.1	0.0	-0.2	0.00	0.0	0.0	38.7	-6.0	0.0	0.0	32.6
North-Intake 4	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	51.40	-45.2	-0.3	0.0	-0.2	0.00	0.0	0.0	37.3	0.0	0.0	0.0	37.3
North-Intake 4	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	51.40	-45.2	-0.3	0.0	-0.2	0.00	0.0	0.0	37.3	-3.6	0.0	0.0	33.7
North-Intake 4	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	51.40	-45.2	-0.3	0.0	-0.2	0.00	0.0	0.0	37.3	-6.0	0.0	0.0	31.3
South-Exhaust 1	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	56.45	-46.0	-0.8	-4.4	-0.2	0.00	0.0	0.8	31.3	0.0	0.0	0.0	31.3



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Source	Source type	time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	l or A m,m²	KI dB	KT dB	Ko dB	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Amisc dB	ADI dB	dLrefl dB(A)	Ls dB(A)	dLw dB	Cmet dB	ZR dB	Lr dB(A)	
South-Exhaust 1	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	56.45	-46.0	-0.8	-4.4	-0.2	0.00	0.0	0.8	31.3	-3.6	0.0	0.0	27.7	
South-Exhaust 1	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	56.45	-46.0	-0.8	-4.4	-0.2	0.00	0.0	0.8	31.3	-6.0	0.0	0.0	25.3	
South-Exhaust 2	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	50.49	-45.1	-1.2	-3.5	-0.2	0.00	0.0	0.1	32.1	0.0	0.0	0.0	32.1	
South-Exhaust 2	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	50.49	-45.1	-1.2	-3.5	-0.2	0.00	0.0	0.1	32.1	-3.6	0.0	0.0	28.5	
South-Exhaust 2	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	50.49	-45.1	-1.2	-3.5	-0.2	0.00	0.0	0.1	32.1	-6.0	0.0	0.0	26.1	
South-Intake 1	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	57.96	-46.3	-1.7	-12.2	-0.1	0.00	0.0	3.4	26.2	0.0	0.0	0.0	26.2	
South-Intake 1	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	57.96	-46.3	-1.7	-12.2	-0.1	0.00	0.0	3.4	26.2	-3.6	0.0	0.0	22.6	
South-Intake 1	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	57.96	-46.3	-1.7	-12.2	-0.1	0.00	0.0	3.4	26.2	-6.0	0.0	0.0	20.2	
South-Intake 2	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	52.06	-45.3	-2.0	-8.2	-0.1	0.00	0.0	2.9	30.4	0.0	0.0	0.0	30.4	
South-Intake 2	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	52.06	-45.3	-2.0	-8.2	-0.1	0.00	0.0	2.9	30.4	-3.6	0.0	0.0	26.8	
South-Intake 2	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	52.06	-45.3	-2.0	-8.2	-0.1	0.00	0.0	2.9	30.4	-6.0	0.0	0.0	24.3	
South-Intake 3	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	48.84	-44.8	-1.2	0.0	-0.2	0.00	0.0	0.0	36.8	0.0	0.0	0.0	36.8	
South-Intake 3	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	48.84	-44.8	-1.2	0.0	-0.2	0.00	0.0	0.0	36.8	-3.6	0.0	0.0	33.2	
South-Intake 3	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	48.84	-44.8	-1.2	0.0	-0.2	0.00	0.0	0.0	36.8	-6.0	0.0	0.0	30.7	
South-Intake 4	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	55.13	-45.8	-0.9	-5.8	-0.1	0.00	0.0	3.0	33.3	0.0	0.0	0.0	33.3	
South-Intake 4	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	55.13	-45.8	-0.9	-5.8	-0.1	0.00	0.0	3.0	33.3	-3.6	0.0	0.0	29.7	
South-Intake 4	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	55.13	-45.8	-0.9	-5.8	-0.1	0.00	0.0	3.0	33.3	-6.0	0.0	0.0	27.3	
Transformer (N)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	32.32	-41.2	-2.3	-2.6	-0.1	0.00	0.0	1.1	27.4	0.0	0.0	0.0	27.4	
Transformer (N)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	32.32	-41.2	-2.3	-2.6	-0.1	0.00	0.0	1.1	27.4	0.0	0.0	0.0	27.4	
Transformer (N)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	32.32	-41.2	-2.3	-2.6	-0.1	0.00	0.0	1.1	27.4	0.0	0.0	0.0	27.4	
Transformer (S)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	89.36	-50.0	-1.3	-1.1	-0.3	0.00	0.0	0.0	19.8	0.0	0.0	0.0	19.8	
Transformer (S)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	89.36	-50.0	-1.3	-1.1	-0.3	0.00	0.0	0.0	19.8	0.0	0.0	0.0	19.8	
Transformer (S)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	89.36	-50.0	-1.3	-1.1	-0.3	0.00	0.0	0.0	19.8	0.0	0.0	0.0	19.8	
Transformer (W)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	85.21	-49.6	-2.9	-5.1	-0.3	0.00	0.0	2.8	17.5	0.0	0.0	0.0	17.5	
Transformer (W)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	85.21	-49.6	-2.9	-5.1	-0.3	0.00	0.0	2.8	17.5	0.0	0.0	0.0	17.5	
Transformer (W)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	85.21	-49.6	-2.9	-5.1	-0.3	0.00	0.0	2.8	17.5	0.0	0.0	0.0	17.5	



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Source	Source type	time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	l or A m,m²	KI dB	KT dB	Ko dB	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Amisc dB	ADI dB	dLrefl dB(A)	Ls dB(A)	dLw dB	Cmet dB	ZR dB	Lr dB(A)
Receiver 26-36 Glynton Road	FI GF	Lr,lim	dB(A)	Lr,lim	dB(A)	Lr,lim	dB(A)	Leq,adj,11	49 dB(A)	Leq,adj,4h	44 dB(A)	Leq,adj,9h	37 dB(A)										
Inverter 1-Power Inverter 1	Area	Leq,adj,11			86.2	87.6	1.4	0.0	5.0	3	47.88	-44.6	-2.0	-13.8	-0.2	0.00	0.0	2.5	32.6	0.0	0.0	0.0	37.6
Inverter 1-Power Inverter 1	Area	Leq,adj,4h			86.2	87.6	1.4	0.0	5.0	3	47.88	-44.6	-2.0	-13.8	-0.2	0.00	0.0	2.5	32.6	-6.0	0.0	0.0	31.6
Inverter 1-Power Inverter 1	Area	Leq,adj,9h			86.2	87.6	1.4	0.0	5.0	3	47.88	-44.6	-2.0	-13.8	-0.2	0.00	0.0	2.5	32.6		0.0		
Inverter 1-Power Inverter 2	Area	Leq,adj,11			86.3	87.6	1.4	0.0	5.0	3	46.78	-44.4	-2.0	-13.5	-0.2	0.00	0.0	5.6	36.2	0.0	0.0	0.0	41.2
Inverter 1-Power Inverter 2	Area	Leq,adj,4h			86.3	87.6	1.4	0.0	5.0	3	46.78	-44.4	-2.0	-13.5	-0.2	0.00	0.0	5.6	36.2	-6.0	0.0	0.0	35.2
Inverter 1-Power Inverter 2	Area	Leq,adj,9h			86.3	87.6	1.4	0.0	5.0	3	46.78	-44.4	-2.0	-13.5	-0.2	0.00	0.0	5.6	36.2		0.0		
Inverter 3-Power Inverter 3	Area	Leq,adj,11			86.0	87.6	1.4	0.0	5.0	3	42.37	-43.5	-1.9	-11.6	-0.2	0.00	0.0	5.5	38.9	0.0	0.0	0.0	43.9
Inverter 3-Power Inverter 3	Area	Leq,adj,4h			86.0	87.6	1.4	0.0	5.0	3	42.37	-43.5	-1.9	-11.6	-0.2	0.00	0.0	5.5	38.9	-6.0	0.0	0.0	37.8
Inverter 3-Power Inverter 3	Area	Leq,adj,9h			86.0	87.6	1.4	0.0	5.0	3	42.37	-43.5	-1.9	-11.6	-0.2	0.00	0.0	5.5	38.9		0.0		
Inverter 4-Power Inverter 4	Area	Leq,adj,11			86.2	87.6	1.4	0.0	5.0	3	41.41	-43.3	-1.9	-11.2	-0.2	0.00	0.0	4.9	38.9	0.0	0.0	0.0	43.9
Inverter 4-Power Inverter 4	Area	Leq,adj,4h			86.2	87.6	1.4	0.0	5.0	3	41.41	-43.3	-1.9	-11.2	-0.2	0.00	0.0	4.9	38.9	-6.0	0.0	0.0	37.9
Inverter 4-Power Inverter 4	Area	Leq,adj,9h			86.2	87.6	1.4	0.0	5.0	3	41.41	-43.3	-1.9	-11.2	-0.2	0.00	0.0	4.9	38.9		0.0		
North-Exhaust 1	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	51.76	-45.3	-1.6	-3.4	-0.2	0.00	0.0	1.4	32.9	0.0	0.0	0.0	32.9
North-Exhaust 1	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	51.76	-45.3	-1.6	-3.4	-0.2	0.00	0.0	1.4	32.9	-3.6	0.0	0.0	29.3
North-Exhaust 1	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	51.76	-45.3	-1.6	-3.4	-0.2	0.00	0.0	1.4	32.9	-6.0	0.0	0.0	26.8
North-Exhaust 2	Area	Leq,adj,11			71.7	82.0	10.7	0.0	0.0	0	56.38	-46.0	-1.7	-3.7	-0.2	0.00	0.0	2.1	32.6	0.0	0.0	0.0	32.6
North-Exhaust 2	Area	Leq,adj,4h			71.7	82.0	10.7	0.0	0.0	0	56.38	-46.0	-1.7	-3.7	-0.2	0.00	0.0	2.1	32.6	-3.6	0.0	0.0	29.0
North-Exhaust 2	Area	Leq,adj,9h			71.7	82.0	10.7	0.0	0.0	0	56.38	-46.0	-1.7	-3.7	-0.2	0.00	0.0	2.1	32.6	-6.0	0.0	0.0	26.5
North-Intake 1	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	49.66	-44.9	-2.2	-3.7	-0.2	0.00	0.0	0.6	32.6	0.0	0.0	0.0	32.6
North-Intake 1	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	49.66	-44.9	-2.2	-3.7	-0.2	0.00	0.0	0.6	32.6	-3.6	0.0	0.0	29.1
North-Intake 1	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	49.66	-44.9	-2.2	-3.7	-0.2	0.00	0.0	0.6	32.6	-6.0	0.0	0.0	26.6
North-Intake 2	Area	Leq,adj,11			72.5	80.0	5.7	0.0	0.0	3	55.02	-45.8	-2.2	-9.0	-0.1	0.00	0.0	4.1	30.1	0.0	0.0	0.0	30.1
North-Intake 2	Area	Leq,adj,4h			72.5	80.0	5.7	0.0	0.0	3	55.02	-45.8	-2.2	-9.0	-0.1	0.00	0.0	4.1	30.1	-3.6	0.0	0.0	26.5
North-Intake 2	Area	Leq,adj,9h			72.5	80.0	5.7	0.0	0.0	3	55.02	-45.8	-2.2	-9.0	-0.1	0.00	0.0	4.1	30.1	-6.0	0.0	0.0	24.0
North-Intake 3	Area	Leq,adj,11			72.5	80.0	5.7	0.0	0.0	3	58.61	-46.4	-2.1	-11.6	-0.1	0.00	0.0	8.5	31.3	0.0	0.0	0.0	31.3
North-Intake 3	Area	Leq,adj,4h			72.5	80.0	5.7	0.0	0.0	3	58.61	-46.4	-2.1	-11.6	-0.1	0.00	0.0	8.5	31.3	-3.6	0.0	0.0	27.7
North-Intake 3	Area	Leq,adj,9h			72.5	80.0	5.7	0.0	0.0	3	58.61	-46.4	-2.1	-11.6	-0.1	0.00	0.0	8.5	31.3	-6.0	0.0	0.0	25.3
North-Intake 4	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	53.48	-45.6	-2.1	-9.3	-0.1	0.00	0.0	6.4	32.3	0.0	0.0	0.0	32.3
North-Intake 4	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	53.48	-45.6	-2.1	-9.3	-0.1	0.00	0.0	6.4	32.3	-3.6	0.0	0.0	28.7
North-Intake 4	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	53.48	-45.6	-2.1	-9.3	-0.1	0.00	0.0	6.4	32.3	-6.0	0.0	0.0	26.3
South-Exhaust 1	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	45.86	-44.2	-1.5	-5.0	-0.1	0.00	0.0	1.3	32.5	0.0	0.0	0.0	32.5



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South-Exhaust 1	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	45.86	-44.2	-1.5	-5.0	-0.1	0.00	0.0	1.3	32.5	-3.6	0.0	0.0	28.9	
South-Exhaust 1	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	45.86	-44.2	-1.5	-5.0	-0.1	0.00	0.0	1.3	32.5	-6.0	0.0	0.0	26.4	
South-Exhaust 2	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	51.78	-45.3	-1.6	-5.0	-0.1	0.00	0.0	1.8	31.8	0.0	0.0	0.0	31.8	
South-Exhaust 2	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	51.78	-45.3	-1.6	-5.0	-0.1	0.00	0.0	1.8	31.8	-3.6	0.0	0.0	28.2	
South-Exhaust 2	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	51.78	-45.3	-1.6	-5.0	-0.1	0.00	0.0	1.8	31.8	-6.0	0.0	0.0	25.8	
South-Intake 1	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	44.23	-43.9	-2.1	-9.7	-0.1	0.00	0.0	2.4	29.6	0.0	0.0	0.0	29.6	
South-Intake 1	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	44.23	-43.9	-2.1	-9.7	-0.1	0.00	0.0	2.4	29.6	-3.6	0.0	0.0	26.0	
South-Intake 1	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	44.23	-43.9	-2.1	-9.7	-0.1	0.00	0.0	2.4	29.6	-6.0	0.0	0.0	23.6	
South-Intake 2	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	50.41	-45.0	-2.1	-9.2	-0.1	0.00	0.0	1.0	27.5	0.0	0.0	0.0	27.5	
South-Intake 2	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	50.41	-45.0	-2.1	-9.2	-0.1	0.00	0.0	1.0	27.5	-3.6	0.0	0.0	24.0	
South-Intake 2	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	50.41	-45.0	-2.1	-9.2	-0.1	0.00	0.0	1.0	27.5	-6.0	0.0	0.0	21.5	
South-Intake 3	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	53.38	-45.5	-2.0	-12.6	-0.1	0.00	0.0	6.2	29.0	0.0	0.0	0.0	29.0	
South-Intake 3	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	53.38	-45.5	-2.0	-12.6	-0.1	0.00	0.0	6.2	29.0	-3.6	0.0	0.0	25.4	
South-Intake 3	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	53.38	-45.5	-2.0	-12.6	-0.1	0.00	0.0	6.2	29.0	-6.0	0.0	0.0	22.9	
South-Intake 4	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	47.61	-44.5	-2.0	-9.7	-0.1	0.00	0.0	4.6	31.2	0.0	0.0	0.0	31.2	
South-Intake 4	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	47.61	-44.5	-2.0	-9.7	-0.1	0.00	0.0	4.6	31.2	-3.6	0.0	0.0	27.6	
South-Intake 4	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	47.61	-44.5	-2.0	-9.7	-0.1	0.00	0.0	4.6	31.2	-6.0	0.0	0.0	25.2	
Transformer (N)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	73.90	-48.4	-2.8	-4.3	-0.2	0.00	0.0	1.8	18.7	0.0	0.0	0.0	18.7	
Transformer (N)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	73.90	-48.4	-2.8	-4.3	-0.2	0.00	0.0	1.8	18.7	0.0	0.0	0.0	18.7	
Transformer (N)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	73.90	-48.4	-2.8	-4.3	-0.2	0.00	0.0	1.8	18.7	0.0	0.0	0.0	18.7	
Transformer (S)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	33.01	-41.4	-2.4	0.0	-0.2	0.00	0.0	0.0	28.7	0.0	0.0	0.0	28.7	
Transformer (S)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	33.01	-41.4	-2.4	0.0	-0.2	0.00	0.0	0.0	28.7	0.0	0.0	0.0	28.7	
Transformer (S)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	33.01	-41.4	-2.4	0.0	-0.2	0.00	0.0	0.0	28.7	0.0	0.0	0.0	28.7	
Transformer (W)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	52.66	-45.4	-2.3	0.0	-0.2	0.00	0.0	0.0	24.6	0.0	0.0	0.0	24.6	
Transformer (W)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	52.66	-45.4	-2.3	0.0	-0.2	0.00	0.0	0.0	24.6	0.0	0.0	0.0	24.6	
Transformer (W)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	52.66	-45.4	-2.3	0.0	-0.2	0.00	0.0	0.0	24.6	0.0	0.0	0.0	24.6	



**NIA Jimboomba West Substation
ISO9613 Calculation Method
Predicted Operational Noise Levels at Adjacent Uses
From Activities at Proposed Development**

Source	Source type	time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	l or A m,m²	KI dB	KT dB	Ko dB	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Amisc dB	ADI dB	dLrefl dB(A)	Ls dB(A)	dLw dB	Cmet dB	ZR dB	Lr dB(A)
Receiver 1-17 Glynton Road	FI GF	Lr,lim	dB(A)	Lr,lim	dB(A)	Lr,lim	dB(A)	Leq,adj,11	46 dB(A)	Leq,adj,4h	41 dB(A)	Leq,adj,9h	32 dB(A)										
Inverter 1-Power Inverter 1	Area	Leq,adj,11			86.2	87.6	1.4	0.0	5.0	3	116.55	-52.3	0.6	-8.9	-0.6	0.00	0.0	6.4	35.9	0.0	0.0	0.0	40.9
Inverter 1-Power Inverter 1	Area	Leq,adj,4h			86.2	87.6	1.4	0.0	5.0	3	116.55	-52.3	0.6	-8.9	-0.6	0.00	0.0	6.4	35.9	-6.0	0.0	0.0	34.9
Inverter 1-Power Inverter 1	Area	Leq,adj,9h			86.2	87.6	1.4	0.0	5.0	3	116.55	-52.3	0.6	-8.9	-0.6	0.00	0.0	6.4	35.9		0.0		
Inverter 1-Power Inverter 2	Area	Leq,adj,11			86.3	87.6	1.4	0.0	5.0	3	116.74	-52.3	0.5	-8.8	-0.6	0.00	0.0	3.3	32.6	0.0	0.0	0.0	37.6
Inverter 1-Power Inverter 2	Area	Leq,adj,4h			86.3	87.6	1.4	0.0	5.0	3	116.74	-52.3	0.5	-8.8	-0.6	0.00	0.0	3.3	32.6	-6.0	0.0	0.0	31.6
Inverter 1-Power Inverter 2	Area	Leq,adj,9h			86.3	87.6	1.4	0.0	5.0	3	116.74	-52.3	0.5	-8.8	-0.6	0.00	0.0	3.3	32.6		0.0		
Inverter 3-Power Inverter 3	Area	Leq,adj,11			86.0	87.6	1.4	0.0	5.0	3	117.83	-52.4	-0.5	-9.1	-0.6	0.00	0.0	7.1	35.1	0.0	0.0	0.0	40.1
Inverter 3-Power Inverter 3	Area	Leq,adj,4h			86.0	87.6	1.4	0.0	5.0	3	117.83	-52.4	-0.5	-9.1	-0.6	0.00	0.0	7.1	35.1	-6.0	0.0	0.0	34.1
Inverter 3-Power Inverter 3	Area	Leq,adj,9h			86.0	87.6	1.4	0.0	5.0	3	117.83	-52.4	-0.5	-9.1	-0.6	0.00	0.0	7.1	35.1		0.0		
Inverter 4-Power Inverter 4	Area	Leq,adj,11			86.2	87.6	1.4	0.0	5.0	3	118.14	-52.4	-0.9	-9.0	-0.7	0.00	0.0	5.5	33.1	0.0	0.0	0.0	38.1
Inverter 4-Power Inverter 4	Area	Leq,adj,4h			86.2	87.6	1.4	0.0	5.0	3	118.14	-52.4	-0.9	-9.0	-0.7	0.00	0.0	5.5	33.1	-6.0	0.0	0.0	32.1
Inverter 4-Power Inverter 4	Area	Leq,adj,9h			86.2	87.6	1.4	0.0	5.0	3	118.14	-52.4	-0.9	-9.0	-0.7	0.00	0.0	5.5	33.1		0.0		
North-Exhaust 1	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	121.45	-52.7	0.1	-4.2	-0.5	0.00	0.0	0.0	24.9	0.0	0.0	0.0	24.9
North-Exhaust 1	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	121.45	-52.7	0.1	-4.2	-0.5	0.00	0.0	0.0	24.9	-3.6	0.0	0.0	21.3
North-Exhaust 1	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	121.45	-52.7	0.1	-4.2	-0.5	0.00	0.0	0.0	24.9	-6.0	0.0	0.0	18.8
North-Exhaust 2	Area	Leq,adj,11			71.7	82.0	10.7	0.0	0.0	0	128.63	-53.2	0.1	-4.1	-0.5	0.00	0.0	0.0	24.3	0.0	0.0	0.0	24.3
North-Exhaust 2	Area	Leq,adj,4h			71.7	82.0	10.7	0.0	0.0	0	128.63	-53.2	0.1	-4.1	-0.5	0.00	0.0	0.0	24.3	-3.6	0.0	0.0	20.7
North-Exhaust 2	Area	Leq,adj,9h			71.7	82.0	10.7	0.0	0.0	0	128.63	-53.2	0.1	-4.1	-0.5	0.00	0.0	0.0	24.3	-6.0	0.0	0.0	18.3
North-Intake 1	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	121.84	-52.7	-0.1	-6.2	-0.3	0.00	0.0	0.0	23.7	0.0	0.0	0.0	23.7
North-Intake 1	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	121.84	-52.7	-0.1	-6.2	-0.3	0.00	0.0	0.0	23.7	-3.6	0.0	0.0	20.1
North-Intake 1	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	121.84	-52.7	-0.1	-6.2	-0.3	0.00	0.0	0.0	23.7	-6.0	0.0	0.0	17.7
North-Intake 2	Area	Leq,adj,11			72.5	80.0	5.7	0.0	0.0	3	129.00	-53.2	-0.2	-8.2	-0.2	0.00	0.0	0.1	21.2	0.0	0.0	0.0	21.2
North-Intake 2	Area	Leq,adj,4h			72.5	80.0	5.7	0.0	0.0	3	129.00	-53.2	-0.2	-8.2	-0.2	0.00	0.0	0.1	21.2	-3.6	0.0	0.0	17.7
North-Intake 2	Area	Leq,adj,9h			72.5	80.0	5.7	0.0	0.0	3	129.00	-53.2	-0.2	-8.2	-0.2	0.00	0.0	0.1	21.2	-6.0	0.0	0.0	15.2
North-Intake 3	Area	Leq,adj,11			72.5	80.0	5.7	0.0	0.0	3	128.35	-53.2	0.8	0.0	-0.5	0.00	0.0	0.0	30.1	0.0	0.0	0.0	30.1
North-Intake 3	Area	Leq,adj,4h			72.5	80.0	5.7	0.0	0.0	3	128.35	-53.2	0.8	0.0	-0.5	0.00	0.0	0.0	30.1	-3.6	0.0	0.0	26.5
North-Intake 3	Area	Leq,adj,9h			72.5	80.0	5.7	0.0	0.0	3	128.35	-53.2	0.8	0.0	-0.5	0.00	0.0	0.0	30.1	-6.0	0.0	0.0	24.1
North-Intake 4	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	121.06	-52.7	0.8	0.0	-0.5	0.00	0.0	0.0	30.7	0.0	0.0	0.0	30.7
North-Intake 4	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	121.06	-52.7	0.8	0.0	-0.5	0.00	0.0	0.0	30.7	-3.6	0.0	0.0	27.1
North-Intake 4	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	121.06	-52.7	0.8	0.0	-0.5	0.00	0.0	0.0	30.7	-6.0	0.0	0.0	24.7
South-Exhaust 1	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	122.83	-52.8	0.0	-4.1	-0.5	0.00	0.0	0.0	24.6	0.0	0.0	0.0	24.6



NIA Jimboomba West Substation
ISO9613 Calculation Method
Predicted Operational Noise Levels at Adjacent Uses
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Source	Source type	time slice	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	l or A m,m²	KI dB	KT dB	Ko dB	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Amisc dB	ADI dB	dLrefl dB(A)	Ls dB(A)	dLw dB	Cmet dB	ZR dB	Lr dB(A)	
South-Exhaust 1	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	122.83	-52.8	0.0	-4.1	-0.5	0.00	0.0	0.0	24.6	-3.6	0.0	0.0	21.0	
South-Exhaust 1	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	122.83	-52.8	0.0	-4.1	-0.5	0.00	0.0	0.0	24.6	-6.0	0.0	0.0	18.6	
South-Exhaust 2	Area	Leq,adj,11			72.4	82.0	9.2	0.0	0.0	0	130.17	-53.3	-0.1	-4.1	-0.5	0.00	0.0	0.0	24.1	0.0	0.0	0.0	24.1	
South-Exhaust 2	Area	Leq,adj,4h			72.4	82.0	9.2	0.0	0.0	0	130.17	-53.3	-0.1	-4.1	-0.5	0.00	0.0	0.0	24.1	-3.6	0.0	0.0	20.5	
South-Exhaust 2	Area	Leq,adj,9h			72.4	82.0	9.2	0.0	0.0	0	130.17	-53.3	-0.1	-4.1	-0.5	0.00	0.0	0.0	24.1	-6.0	0.0	0.0	18.1	
South-Intake 1	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	123.39	-52.8	-1.2	-5.7	-0.4	0.00	0.0	0.0	23.0	0.0	0.0	0.0	23.0	
South-Intake 1	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	123.39	-52.8	-1.2	-5.7	-0.4	0.00	0.0	0.0	23.0	-3.6	0.0	0.0	19.4	
South-Intake 1	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	123.39	-52.8	-1.2	-5.7	-0.4	0.00	0.0	0.0	23.0	-6.0	0.0	0.0	17.0	
South-Intake 2	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	130.71	-53.3	-0.9	-9.1	-0.2	0.00	0.0	0.0	19.4	0.0	0.0	0.0	19.4	
South-Intake 2	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	130.71	-53.3	-0.9	-9.1	-0.2	0.00	0.0	0.0	19.4	-3.6	0.0	0.0	15.8	
South-Intake 2	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	130.71	-53.3	-0.9	-9.1	-0.2	0.00	0.0	0.0	19.4	-6.0	0.0	0.0	13.4	
South-Intake 3	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	129.63	-53.2	-0.3	0.0	-0.6	0.00	0.0	0.0	28.9	0.0	0.0	0.0	28.9	
South-Intake 3	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	129.63	-53.2	-0.3	0.0	-0.6	0.00	0.0	0.0	28.9	-3.6	0.0	0.0	25.3	
South-Intake 3	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	129.63	-53.2	-0.3	0.0	-0.6	0.00	0.0	0.0	28.9	-6.0	0.0	0.0	22.9	
South-Intake 4	Area	Leq,adj,11			73.1	80.0	4.9	0.0	0.0	3	122.25	-52.7	-0.2	0.0	-0.5	0.00	0.0	0.0	29.5	0.0	0.0	0.0	29.5	
South-Intake 4	Area	Leq,adj,4h			73.1	80.0	4.9	0.0	0.0	3	122.25	-52.7	-0.2	0.0	-0.5	0.00	0.0	0.0	29.5	-3.6	0.0	0.0	25.9	
South-Intake 4	Area	Leq,adj,9h			73.1	80.0	4.9	0.0	0.0	3	122.25	-52.7	-0.2	0.0	-0.5	0.00	0.0	0.0	29.5	-6.0	0.0	0.0	23.5	
Transformer (N)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	135.99	-53.7	-2.2	-9.4	-0.2	0.00	0.0	0.0	7.0	0.0	0.0	0.0	7.0	
Transformer (N)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	135.99	-53.7	-2.2	-9.4	-0.2	0.00	0.0	0.0	7.0	0.0	0.0	0.0	7.0	
Transformer (N)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	135.99	-53.7	-2.2	-9.4	-0.2	0.00	0.0	0.0	7.0	0.0	0.0	0.0	7.0	
Transformer (S)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	85.27	-49.6	-0.5	0.0	-0.3	0.00	0.0	0.0	22.1	0.0	0.0	0.0	22.1	
Transformer (S)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	85.27	-49.6	-0.5	0.0	-0.3	0.00	0.0	0.0	22.1	0.0	0.0	0.0	22.1	
Transformer (S)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	85.27	-49.6	-0.5	0.0	-0.3	0.00	0.0	0.0	22.1	0.0	0.0	0.0	22.1	
Transformer (W)	Point	Leq,adj,11			72.6	72.6		0.0	0.0	0	82.75	-49.3	-2.3	-8.5	-0.1	0.00	0.0	0.3	12.6	0.0	0.0	0.0	12.6	
Transformer (W)	Point	Leq,adj,4h			72.6	72.6		0.0	0.0	0	82.75	-49.3	-2.3	-8.5	-0.1	0.00	0.0	0.3	12.6	0.0	0.0	0.0	12.6	
Transformer (W)	Point	Leq,adj,9h			72.6	72.6		0.0	0.0	0	82.75	-49.3	-2.3	-8.5	-0.1	0.00	0.0	0.3	12.6	0.0	0.0	0.0	12.6	

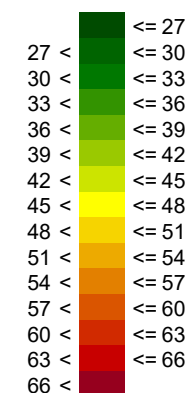
Appendix F – SoundPLAN Noise Contour Maps

Proposed Development NIA Jimboomba West Substation

Noise Levels Associated with Proposed Development

Free-field (1.5m AGL)

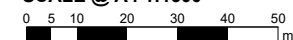
Operational Noise Level
Leq,adj,11hr Day dB(A)



Legend

-  Adjacent building
-  Ground absorption
-  Noise source (point)
-  Point receiver

SCALE @ A4 1:1500



Grid Spacing: 2m
Project Engineer: Liam von Holt
Created: 9/06/2026
Processed with SoundPLAN 9.1

Teviot Road

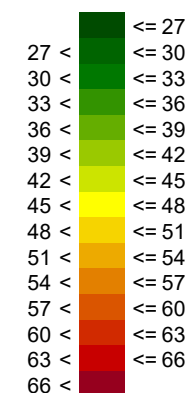
Glynton Road

Proposed Development NIA Jimboomba West Substation

Noise Levels Associated with Proposed Development

Free-field (1.5m AGL)

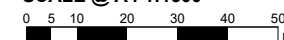
Operational Noise Level
Leq,adj,4hr Evening dB(A)



Legend

-  Adjacent building
-  Ground absorption
-  Noise source (point)
-  Point receiver

SCALE @ A4 1:1500



Grid Spacing: 2m
Project Engineer: Liam von Holt
Created: 9/06/2026
Processed with SoundPLAN 9.1

Teviot Road

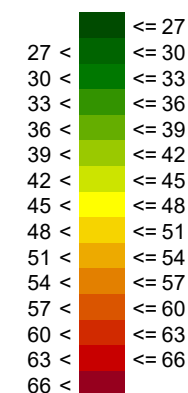
Glynton Road

Proposed Development NIA Jimboomba West Substation

Noise Levels Associated with Proposed Development

Free-field (1.5m AGL)

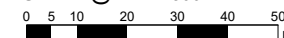
Operational Noise Level
Leq,adj,9hr Night dB(A)



Legend

-  Adjacent building
-  Ground absorption
-  Noise source (point)
-  Point receiver

SCALE @ A4 1:1500



Grid Spacing: 2m
Project Engineer: Liam von Holt
Created: 9/06/2026
Processed with SoundPLAN 9.1

Teviot Road

Glynton Road