

Proposed Cultural Centre and Place of Worship
283-293 Logan Reserve Road
Logan Reserve

ACOUSTIC REPORT



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Queensland Nepalese
Cultural Centre Inc.
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1. Introduction

This report is in response to a request by Queensland Nepalese Cultural Centre Inc. for an environmental noise assessment of a proposed cultural centre and place of worship located at 283 – 293 Logan Reserve Road, Logan Reserve. To facilitate the assessment, unattended noise monitoring was conducted in the vicinity of nearby residences to establish the criteria for onsite activities. Based on the noise data obtained, onsite activities were assessed to sensitive receivers to determine any requirements for acoustic treatment and/or management controls.

2. Site Description

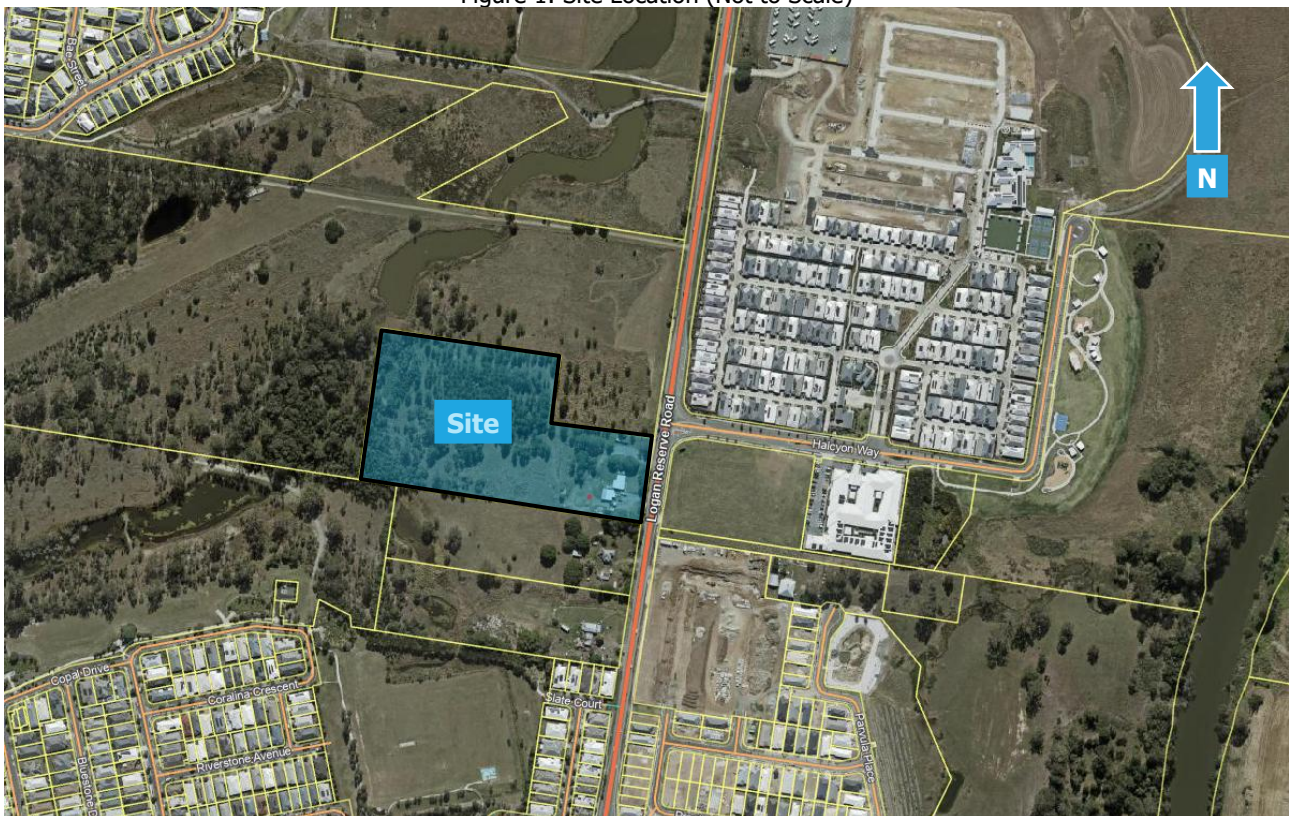
2.1 Site Location

The site is described by the following:

283 – 293 Logan Reserve Road, Logan Reserve
Lot 1 on RP162124

Refer to Figure 1 for site location.

Figure 1: Site Location (Not to Scale)



A comprehensive site survey was conducted on the 14th of March 2024 which identified the following:

- The site currently consists of bushland, a raised single storey residential dwelling, and a shed. The shed and dwelling are to be removed to make way for the proposed development.
- Vacant land is located adjacent the western and northern site boundaries, separating the development from residential land uses.
- Located to the south is a single storey residential dwelling.
- Logan Reserve Road bounds the site to the east, separating the development from residential land uses including 'Arcare Aged Care Logan Reserve'.

2.2 Proposal

The proposal seeks to develop a cultural centre and place of worship comprised of the following:

- Total site area of 40,850m².
- Stage 1:
 - Temple, entry, stupa, kitchen and amenities.
 - 69 car parking spaces with vehicular access via Logan Reserve Road.
- Stage 2:
 - Meeting rooms, courtyard and community hall.
- Proposed hours of operation are 7am to 7pm for the temple and 10am to 10pm for the community hall, 7 days a week.

2.3 Zoning

Review of the Logan Planning Scheme Interactive Mapping indicates that the proposed development is located within Emerging Community zone. Sensitive uses in the vicinity of the site are zoned Emerging Community and Low Density Residential.

2.4 Acoustic Environment

The surrounding area is primarily affected by road traffic noise associated with the local road network.

3. Equipment

The following equipment was previously used to record ambient noise levels:

- Rion NL42 Environmental Noise Monitor
- BSWA Technology Co. Ltd Sound Calibrator

The Rion NL42 Environmental Noise Monitor hold current NATA Laboratory Certification and was field calibrated before and after the monitoring period, with no significant drift from the reference signal recorded.

4. Receivers and Noise Monitoring Location

4.1 Receiver Locations

The nearest sensitive receiver locations were identified as follows:

1. Vacant land is located to the east at 1-15 Halcyon Way (Emerging Community zone). Due to the zoning, this assessment assumes that single storey residential dwellings are located at this location.
2. A single storey residential dwelling is located to the south of the site at 295-301 Logan Reserve Road (Emerging Community zone).
3. Vacant land is located to the north at 265-271 Logan Reserve Road (Emerging Community/Low Density Residential). Due to the zoning, this assessment assumes that single storey residential dwellings are located at this location.
4. On the same lot as receiver location 3 above, vacant land is located to the west at 265-271 Logan Reserve Road (Emerging Community/Low Density Residential). Due to the zoning, this assessment assumes that single storey residential dwellings are located at this location.

These locations were chosen as being representative of the nearest sensitive receivers to the proposed development. Refer to Figure 2 for these locations.

Figure 2: Receivers & Noise Monitoring Location



4.2 Unattended Noise Monitoring

A Rion NL42 environmental noise monitor was placed at 295 Logan Reserve Road to measure ambient noise levels (noise monitor 1 as specified in Figure 2 above). This location was selected as it was considered being representative of the residential receivers to the north, south and east. The monitor was located in a free field position with the microphone approximately 1.4 metres above ground surface level. The noise monitor was set to record noise levels between the 14th to the 21st of March 2024.

As requested by Council, an additional noise monitor Rion NL42 environmental noise monitor was placed at 295 Logan Reserve Road to measure ambient noise levels (noise monitor 2 as specified in Figure 2). This location was selected as it was considered being representative of the residential receiver to the west. The monitor was located in a free field position with the microphone approximately 1.4 metres above ground surface level. The noise monitor was set to record noise levels between the 29th of January to the 4th of February 2025.

The environmental noise monitors were set to record noise levels in "A" weighting, Fast response using 15 minute statistical intervals. Ambient noise monitoring was conducted in accordance with Australian Standard AS1055:2018 *Acoustics – Description and measurement of environmental noise* and *EPA Noise Measurement Manual 2000*. For the unattended noise monitoring locations refer to Figure 2.

5. Measured Noise Levels

The following tables present the measured ambient noise levels from the unattended noise survey and meteorological conditions.

5.1 Meteorological Conditions

Meteorological observations during the unattended noise monitoring survey were obtained from the Bureau of Meteorology website (<http://www.bom.gov.au/climate/data>), shown in Table 1 below. It is noted that data from Greenbank weather station was utilised where Logan City data was unavailable.

Table 1: Meteorological Conditions – Logan City and Greenbank

Day	Date	Rainfall (mm)	Wind			
			9am		3pm	
			Speed (km/h)	Direction	Speed (km/h)	Direction
Thursday	14/03/2024	-	6*	SSW*	6	NE
Friday	15/03/2024	8	2	W	7	SE
Saturday	16/03/2024	0	6	S	6*	SSE*
Sunday	17/03/2024	0.5	7	SE	6*	ESE*
Monday	18/03/2024	4*	6*	NNE*	6	NW
Tuesday	19/03/2024	0*	2*	W*	9*	NE*
Wednesday	20/03/2024	2	6*	SE*	2	E
Thursday	21/03/2024	0*	7*	S*	9	SE
Wednesday	29/01/2025	0*	6*	NNW*	7*	E*
Thursday	30/01/2025	0*	9*	E*	11*	NE*
Friday	31/01/2025	0*	6*	E*	11*	NE*
Saturday	1/02/2025	0*	9*	ESE*	13*	E*
Sunday	2/02/2025	0*	9*	SE*	7*	ESE*
Monday	3/02/2025	1.8*	11*	ESE*	11*	ESE*
Tuesday	4/02/2025	7.6*	4*	S*	11*	E*

*Data utilised from Greenbank weather station.

Rainfall recorded on the 15th, 17th, 18th and 20th of March 2024 and the 3rd of February 2025 was not found to have affected the measured noise levels, therefore the data for these periods was utilised. Rainfall recorded on the 4th of February 2025 was found to have affected the measured noise levels, therefore the data for this period was omitted.

5.2 Ambient Noise Levels

5.2.1 Noise Monitor 1 – Ambient Noise Levels

The ambient noise levels measured at monitoring location 1 (refer to Figure 2) are as follows:

Table 2: Measured Ambient Noise Levels – Monday to Saturday (Noise Monitor 1)

Day	Date	L90 dB(A)		
		Day	Evening	Night
Thursday	14/03/2024	51	50	41
Friday	15/03/2024	52	50	40
Saturday	16/03/2024	51	48	39
Monday	18/03/2024	50	50	44
Tuesday	19/03/2024	50	50	44
Wednesday	20/03/2024	51	50	43
Thursday	14/03/2024	53	-	42
Overall value		51	50	42

Table 3: Measured Ambient Noise Levels – Sunday (Noise Monitor 1)

Day	Date	L90 dB(A)		
		Day	Evening	Night
Sunday	15/03/2024	48	48	37

5.2.2 Noise Monitor 2 – Ambient Noise Levels

The ambient noise levels measured at monitoring location 2 (refer to Figure 2) are as follows:

Table 4: Measured Ambient Noise Levels – Monday to Saturday (Noise Monitor 2)

Day	Date	L90 dB(A)		
		Day	Evening	Night
Wednesday	29/01/2025	45	50	47
Thursday	30/01/2025	43	49	45
Friday	31/01/2025	44	50	46
Saturday	1/02/2025	48	51	45
Monday	3/02/2025	48	47	45
Tuesday	4/02/2025	45	-	45
Overall value		46	50	45

Table 5: Measured Ambient Noise Levels - Sunday (Noise Monitor 2)

Day	Date	L90 dB(A)		
		Day	Evening	Night
Sunday	2/02/2025	46	49	42

6. Noise Criteria

6.1 Logan City Council - Environmental Noise Criteria

The noise criteria for the receiver zone as applied by Logan City Council in SC6.2.3 Planning Scheme Policy 3 of the Logan Planning Scheme 2015 v 8.1 are detailed as follows:

6.1.1 Noise Emission Standards

Table 6 details the noise criteria for the protection of residential amenity.

As all residential receivers are located within an Emerging Community or Low Density Residential zones, the following criteria is applicable:

Table 6: Logan City Council Noise Criteria – Noise Emission Standards for The Protection of Residential Amenity

Noise Type	Time Period	Monday to Saturday	Sunday and Public Holidays
Non-steady sound	Daytime (7am - 6pm)	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5\text{dB(A)}$	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5\text{dB(A)}$
	Evening (6pm - 10pm)	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5\text{dB(A)}$	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 5\text{dB(A)}$
	Night (10pm - 7am)	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 0\text{dB(A)}$ and $L_{Amax} \leq 60\text{dB(A)}$	$L_{Aeq\ adj,T} \leq L_{A90} \text{ plus } 0\text{dB(A)}$ and $L_{Amax} \leq 60\text{dB(A)}$
Continuous noise	Anytime	$L_{A90,T} \text{ plus } 0\text{dB(A)}$	$L_{A90,T} \text{ plus } 0\text{dB(A)}$

6.1.1.1 Applicable Noise Criteria – Noise Emission Standards

Based on the measured ambient noise levels in Section 5.2, Table 7 and Table 8 detail the applicable criteria for residential receivers.

Table 7: Applicable Noise Criteria – Residential Amenity – Receivers 1, 2 and 3

Noise Type	Time Period	Monday to Saturday $L_{Aeq} \text{ dB(A)}$	Sunday and Public Holidays $L_{Aeq} \text{ dB(A)}$
Non-steady sound	Daytime (7am - 6pm)	56	53
	Evening (6pm - 10pm)	55	53
	Night (10pm - 7am)	42	37
Continuous noise	Anytime	$L_{A90,T} \text{ plus } 5\text{dB(A)}$	$L_{A90,T} \text{ plus } 5\text{dB(A)}$

Table 8: Applicable Noise Criteria – Residential Amenity – Receiver 4

Noise Type	Time Period	Monday to Saturday $L_{Aeq} \text{ dB(A)}$	Sunday and Public Holidays $L_{Aeq} \text{ dB(A)}$
Non-steady sound	Daytime (7am - 6pm)	51	51
	Evening (6pm - 10pm)	55	54
	Night (10pm - 7am)	45	42
Continuous noise	Anytime	$L_{A90,T} \text{ plus } 5\text{dB(A)}$	$L_{A90,T} \text{ plus } 5\text{dB(A)}$

6.2 Barrier Calculations

To determine barrier treatments for developments located within the Logan Council area, further reference was made to a previous advice note from LCC in relation to the variables for the calculation method as follows:

Advice Note: Generally, noise receivers of 1 meter (1m) high and 1 meter (1m) in from the acoustic barrier can be considered appropriate to determine the noise levels at the boundary of the premises.

7. Environmental Assessment

7.1 Onsite Activities

Noise associated with the development was assessed based on previous measurements of similar activities. The calculations assume that the nominated activities are located at the closest representative point within the development site to each receiver location. Any relevant shielding or building transmission loss is taken into account for these activities. The source of the terrain data used for offsite areas of the noise modelling was Elvis - Elevation and Depth - Foundation Spatial Data (2024) retrieved from <https://elevation.fsdf.org.au/>.

7.1.1 Noise Levels Due to Patrons

Noise associated with patrons is based on a technical paper '*Prediction of Noise from Small to Medium Sized Crowds*' (Hayne et al, 2011). The paper was based upon attended noise measurements conducted at a sample of premises to account for range of patron numbers. Based on the measured levels, the resulting analysis determined that the Sound Power Level (LAeq, T) of a small-medium crowd could be predicted by the following equation:

$$L_{WAeq} = 15 \log (\text{number of patrons}) + 64 \text{ dBA}$$

For the purposes of this assessment, the capacity of the development was determined to be approximately 210 patrons. Based on the above equation and the predicted number of patrons, the applicable source sound power levels are presented in Table 9.

Table 9: Predicted Sound Power Levels of Patrons

Location	Predicted Patron Number	Predicted Patron Sound Power Levels LAeq (dBA)	Predicted Patron Sound Pressure Levels @ 1m LAeq (dBA)
Passive recreation area	~50	89	81
Worship service - hall	~50	89	81
Courtyard	~50	89	81
Temple	~50	89	81
Meeting – hall upper floor	~10	79	71

The predicted source sound pressure levels (at 1m) are taken to be 8 dB lower than the sound power levels presented in Table 9.

7.1.2 Onsite Activities

The noise source levels and predicted impacts at the residential receiver locations during Monday to Saturday are shown below in Table 10.

Table 10: Noise Emission Standards (Receivers 1 to 4) – Day and Evening Periods, Monday to Saturday

Receiver	Receivers				Source Leq@1m dB(A)	Correction dB(A)*	Corrected Leq@1m dB(A)	No. of events per 15min Day	No. of events per 15min Eve	Duration per event	Distance (m)	Inc	Barrier (height (m))	Barrier screening dB	Building TL dB	Building Screening dB	Dist atten. @-6dB/did	LAeqadj, T ext. dB(A) Day	LAeqadj, T ext. dB(A) Eve	LAeq 15 min Compliance				
	Description		Day	Eve																				
1	1. 1-15 Halcyon Way (E) 2. 295-301 Logan Reserve Road (S) 3. 265-271 Logan Reserve Road (N) 4. 265-271 Logan Reserve Road (W)																							
	Criteria																				56	55		
	Waste collection		94	2	96	1	1	240	79									-38	52	52	Yes	Yes		
	Car passby		69		69	50	50	15	52									-35	33	33	Yes	Yes		
	Car start		74	2	76	50	50	2	52									-35	31	31	Yes	Yes		
	Car door closure		75	2	77	50	50	2	52									-35	32	32	Yes	Yes		
	Deliveries		92		92	1	1	60	79									-38	42	42	Yes	Yes		
	Crowd Noise - Worhsip Service - Hall		81		81	1	1	900	41					-16				-33	32	32	Yes	Yes		
	Crowd Noise - Courtyard		81		81	1	1	900	60						-20			-36	25	25	Yes	Yes		
	Crowd Noise - Temple		81		81	1	1	900	79									-38	33	33	Yes	Yes		
	Meeting/Conversation - Hall Upper Floor		71		71	1	1	900	41					-16				-33	22	22	Yes	Yes		
	Amplified Music - Hall		85		85	1	1	900	41					-16				-33	36	36	Yes	Yes		
	Amplified Speech - Hall		85		85	1	1	900	41					-16				-33	36	36	Yes	Yes		
	Voice Conversation - Carpark		70		70	1	1	450	52									-35	32	32	Yes	Yes		
	Handheld Bell		75	2	77	12	12	5	79									-38	27	27	Yes	Yes		
Total																		53	53	Yes	Yes			
2	Criteria																				56	55		
	Waste collection		94	2	96	1	1	240	44	2	-12							-33	45	45	Yes	Yes		
	Car passby		69		69	50	50	15	63	2	-13							-36	19	19	Yes	Yes		
	Car start		74	2	76	50	50	2	63	2	-13							-36	17	17	Yes	Yes		
	Car door closure		75	2	77	50	50	2	63	2	-13							-36	18	18	Yes	Yes		
	Deliveries		92		92	1	1	60	44	2	-12							-33	35	35	Yes	Yes		
	Crowd Noise - Worhsip Service - Hall		81		81	1	1	900	18	2	-12	-16						-26	27	27	Yes	Yes		
	Crowd Noise - Courtyard		81		81	1	1	900	17	2	-12			-20				-25	24	24	Yes	Yes		
	Crowd Noise - Temple		81		81	1	1	900	34	2	-12	-10						-31	28	28	Yes	Yes		
	Meeting/Conversation - Hall Upper Floor		71		71	1	1	900	18	2	-16							-26	29	29	Yes	Yes		
	Amplified Music - Hall		85		85	1	1	900	18	2	-12	-16						-26	31	31	Yes	Yes		
	Amplified Speech - Hall		85		85	1	1	900	18	2	-12	-16						-26	31	31	Yes	Yes		
	Voice Conversation - Carpark		70		70	1	1	450	63	2	-12							-36	19	19	Yes	Yes		
	Handheld Bell		75	2	77	12	12	5	34	2	-12							-31	22	22	Yes	Yes		
	Total																		46	46	Yes	Yes		
3	Criteria																				56	55		
	Waste collection		94	2	96	1	1	240	49	1.8	-23							-34	33	33	Yes	Yes		
	Car passby		69		69	50	50	15	30	1.8	-23							-30	15	15	Yes	Yes		
	Car start		74	2	76	50	50	2	30	1.8	-23							-30	13	13	Yes	Yes		
	Car door closure		75	2	77	50	50	2	30	1.8	-23							-30	14	14	Yes	Yes		
	Deliveries		92		92	1	1	60	49	1.8	-23							-34	23	23	Yes	Yes		
	Crowd Noise - Worhsip Service - Hall		81		81	1	1	900	75	1.8	-23	-16						-38	4	4	Yes	Yes		
	Crowd Noise - Courtyard		81		81	1	1	900	76	1.8	-23			-20				-38			Yes	Yes		
	Crowd Noise - Temple		81		81	1	1	900	59	1.8	-23	-10						-36	12	12	Yes	Yes		
	Meeting/Conversation - Hall Upper Floor		71		71	1	1	900	75	1.8	-16							-38	17	17	Yes	Yes		
	Amplified Music - Hall		85		85	1	1	900	75	1.8	-23	-16						-38	8	8	Yes	Yes		
	Amplified Speech - Hall		85		85	1	1	900	75	1.8	-23	-16						-38	8	8	Yes	Yes		
	Voice Conversation - Carpark		70		70	1	1	450	30	1.8	-23							-30	14	14	Yes	Yes		
	Handheld Bell		75	2	77	12	12	5	59	1.8	-23							-36	6	6	Yes	Yes		
	Total																		34	34	Yes	Yes		
4	Criteria																				51	55		
	Waste collection		94	2	96	1	1	240	248										-48	42	42	Yes	Yes	
	Car passby		69		69	50	50	15	274										-49	19	19	Yes	Yes	
	Car start		74	2	76	50	50	2	274										-49	17	17	Yes	Yes	
	Car door closure		75	2	77	50	50	2	274										-49	18	18	Yes	Yes	
	Deliveries		92		92	1	1	60	248										-48	32	32	Yes	Yes	
	Crowd Noise - Worhsip Service - Hall		81		81	1	1	900	285					-16					-50	15	15	Yes	Yes	
	Crowd Noise - Courtyard		81		81	1	1	900	266										-49	32	32	Yes	Yes	
	Crowd Noise - Temple		81		81	1	1	900	248					-10					-48	23	23	Yes	Yes	
	Meeting/Conversation - Hall Upper Floor		71		71	1	1	900	285					-16					-50	5	5	Yes	Yes	
	Amplified Music - Hall		85		85	1	1	900	285					-16					-50	19	19	Yes	Yes	
	Amplified Speech - Hall		85		85	1	1	900	285					-16					-50	19	19	Yes	Yes	
	Voice Conversation - Carpark		70		70	1	1	450	274										-49	18	18	Yes	Yes	
	Handheld Bell		75	2	77	12	12	5	248										-48	17	17	Yes	Yes	
	Total																		43	43	Yes	Yes		

*Correction due to tonality and impulsiveness as per AS1055:2018.

Compliance is predicted at the nearest receivers during the day and evening periods (7am to 10pm) on the condition the recommendations in Section 8 are implemented.

The noise source levels and predicted impacts at the residential receiver locations during Sunday are shown below in Table 11.

Table 11: Noise Emission Standards (Receivers 1 to 4) – Day and Evening Periods, Sunday

Receiver	Receivers		Source Leq@1m dB(A)	Correction dB(A)*	Corrected Leq@1m dB(A)	No. of events per 15 min Day	No. of events per 15 min Eve	Duration per event	Distance (m)	Inc	Barrier (height (m))	Barrier screening dB	Building TL dB	Building Screening dB	Dist atten. @ 6dB/dd	Leq adj. T ext. dB(A) Day	Leq adj. T ext. dB(A) Eve	LAeq 15 min Compliance		
	Description	Day																Eve		
	1. 1-15 Halcyon Way (E) 2. 295-301 Logan Reserve Road (S) 3. 265-271 Logan Reserve Road (N) 4. 265-271 Logan Reserve Road (W)																			
	Criteria																	53	53	
1	Waste collection	94	2	96	1	1	240	79							-38	52	52	Yes	Yes	
	Car passby	69		69	50	50	15	52							-35	33	33	Yes	Yes	
	Car start	74	2	76	50	50	2	52							-35	31	31	Yes	Yes	
	Car door closure	75	2	77	50	50	2	52							-35	32	32	Yes	Yes	
	Deliveries	92		92	1	1	60	79							-38	42	42	Yes	Yes	
	Crowd Noise - Worhsip Service - Hall	81		81	1	1	900	41				-16			-33	32	32	Yes	Yes	
	Crowd Noise - Courtyard	81		81	1	1	900	60					-20	-36	25	25	25	Yes	Yes	
	Crowd Noise - Temple	81		81	1	1	900	79				-10			-38	33	33	Yes	Yes	
	Meeting/Conversation - Hall Upper Floor	71		71	1	1	900	41							-16	-33	22	22	Yes	Yes
	Amplified Music - Hall	85		85	1	1	900	41				-16			-33	36	36	Yes	Yes	
	Amplified Speech - Hall	85		85	1	1	900	41				-16			-33	36	36	Yes	Yes	
	Voice Conversation - Carpark	70		70	1	1	450	52							-35	32	32	Yes	Yes	
	Handheld Bell	75		75	12	12	5	79							-38	25	25	Yes	Yes	
	Total																53	53	Yes	Yes
	Criteria																	53	53	
2	Waste collection	94	2	96	1	1	240	44	2	-12					-33	45	45	Yes	Yes	
	Car passby	69		69	50	50	15	63	2	-13					-36	19	19	Yes	Yes	
	Car start	74	2	76	50	50	2	63	2	-13					-36	17	17	Yes	Yes	
	Car door closure	75	2	77	50	50	2	63	2	-13					-36	18	18	Yes	Yes	
	Deliveries	92		92	1	1	60	44	2	-12					-33	35	35	Yes	Yes	
	Crowd Noise - Worhsip Service - Hall	81		81	1	1	900	18	2	-12	-16				-26	27	27	Yes	Yes	
	Crowd Noise - Courtyard	81		81	1	1	900	17	2	-12		-20			-25	24	24	Yes	Yes	
	Crowd Noise - Temple	81		81	1	1	900	34	2	-12	-10				-31	28	28	Yes	Yes	
	Meeting/Conversation - Hall Upper Floor	71		71	1	1	900	18	2	-16		-26			-29	29	29	Yes	Yes	
	Amplified Music - Hall	85		85	1	1	900	18	2	-12	-16				-26	31	31	Yes	Yes	
	Amplified Speech - Hall	85		85	1	1	900	18	2	-12	-16				-26	31	31	Yes	Yes	
	Voice Conversation - Carpark	70		70	1	1	450	63	2	-12					-36	19	19	Yes	Yes	
	Handheld Bell	75		75	12	12	5	34	2	-12					-31	20	20	Yes	Yes	
	Total																46	46	Yes	Yes
	Criteria																	53	53	
3	Waste collection	94	2	96	1	1	240	49	1.8	-23					-34	33	33	Yes	Yes	
	Car passby	69		69	50	50	15	30	1.8	-23					-30	15	15	Yes	Yes	
	Car start	74	2	76	50	50	2	30	1.8	-23					-30	13	13	Yes	Yes	
	Car door closure	75	2	77	50	50	2	30	1.8	-23					-30	14	14	Yes	Yes	
	Deliveries	92		92	1	1	60	49	1.8	-23					-34	23	23	Yes	Yes	
	Crowd Noise - Worhsip Service - Hall	81		81	1	1	900	75	1.8	-23	-16				-38	4	4	Yes	Yes	
	Crowd Noise - Courtyard	81		81	1	1	900	76	1.8	-23		-20			-38			Yes	Yes	
	Crowd Noise - Temple	81		81	1	1	900	59	1.8	-23	-10				-36	12	12	Yes	Yes	
	Meeting/Conversation - Hall Upper Floor	71		71	1	1	900	75	1.8		-16				-38	17	17	Yes	Yes	
	Amplified Music - Hall	85		85	1	1	900	75	1.8	-23	-16				-38	8	8	Yes	Yes	
	Amplified Speech - Hall	85		85	1	1	900	75	1.8	-23	-16				-38	8	8	Yes	Yes	
	Voice Conversation - Carpark	70		70	1	1	450	30	1.8	-23					-30	14	14	Yes	Yes	
	Handheld Bell	75		75	12	12	5	59	1.8	-23					-36	4	4	Yes	Yes	
	Total																34	34	Yes	Yes
	Criteria																	51	54	
4	Waste collection	94	2	96	1	1	240	248							-48	42	42	Yes	Yes	
	Car passby	69		69	50	50	15	274							-49	19	19	Yes	Yes	
	Car start	74	2	76	50	50	2	274							-49	17	17	Yes	Yes	
	Car door closure	75	2	77	50	50	2	274							-49	18	18	Yes	Yes	
	Deliveries	92		92	1	1	60	248							-48	32	32	Yes	Yes	
	Crowd Noise - Worhsip Service - Hall	81		81	1	1	900	285				-16			-50	15	15	Yes	Yes	
	Crowd Noise - Courtyard	81		81	1	1	900	266							-49	32	32	Yes	Yes	
	Crowd Noise - Temple	81		81	1	1	900	248				-10			-48	23	23	Yes	Yes	
	Meeting/Conversation - Hall Upper Floor	71		71	1	1	900	285				-16			-50	5	5	Yes	Yes	
	Amplified Music - Hall	85		85	1	1	900	285				-16			-50	19	19	Yes	Yes	
	Amplified Speech - Hall	85		85	1	1	900	285				-16			-50	19	19	Yes	Yes	
	Voice Conversation - Carpark	70		70	1	1	450	274							-49	18	18	Yes	Yes	
	Handheld Bell	75		75	12	12	5	248							-48	15	15	Yes	Yes	
	Total																43	43	Yes	Yes

*Correction due to tonality and impulsiveness as per AS1055:2018.

Compliance is predicted at the nearest receivers during the day and evening periods (7am to 10pm) on the condition the recommendations in Section 8 are implemented.

7.1.3 Onsite Waste Collection

Waste collection noise source levels and predicted impacts at the residential receiver locations during Monday to Saturday are shown below in Table 12 .

Table 12: Noise Emission Standards (Receivers 1 to 4) (Waste Collection) – Day and Evening Periods, Monday to Saturday

Receiver	Receivers														L _{Aeq} 15 min Compliance		
	Description	Source Leq@1m dB(A)	Correction dB(A)*	Corrected Leq@1m dB(A)	No. of events per 15min Day	No. of events per 15min Eve	Duration per event	Distance (m)	Inc	Barrier (height (m))	Barrier screening dB	Building TL dB	Building Screening dB	Dist atten. @-6dB/dd	L _{Aeq adj} Text. dB(A) Day	L _{Aeq adj} Text. dB(A) Eve	Day
	Criteria															56	55
1	Waste collection	94	2	96	1	1	240	64					-37	53	53	Yes	Yes
	Total													53	53	Yes	Yes
	Criteria															56	55
2	Waste collection	94	2	96	1	1	240	86	2	-12			-39	39	39	Yes	Yes
	Total													39	39	Yes	Yes
	Criteria															56	55
3	Waste collection	94	2	96	1	1	240	5	1.8	-21			-14	55	55	Yes	No
	Total													55	55	Yes	No
	Criteria															51	55
4	Waste collection	94	2	96	1	1	240	263					-49	41	41	Yes	Yes
	Total													41	41	Yes	Yes

*Correction due to tonality and impulsiveness as per AS1055:2018.

Noise emanating from waste collection is predicted to exceed the assessment criteria at receiver 3 during the evening period (6pm to 10pm), therefore we recommend that waste collection be conducted during the daytime period only (7am and 6pm) Monday to Saturday.

Waste collection noise source levels and predicted impacts at the residential receiver locations during Sunday are shown below in Table 13.

Table 13: Noise Emission Standards (Receivers 1 to 4) (Waste Collection) – Day and Evening Periods, Sunday

Receiver	Receivers														L _{Aeq} 15 min Compliance		
	Description	Source Leq@1m dB(A)	Correction dB(A)*	Corrected Leq@1m dB(A)	No. of events per 15min Day	No. of events per 15min Eve	Duration per event	Distance (m)	Inc	Barrier (height (m))	Barrier screening dB	Building TL dB	Building Screening dB	Dist atten. @-6dB/dd	L _{Aeq adj} Text. dB(A) Day	L _{Aeq adj} Text. dB(A) Eve	Day
	Criteria															53	53
1	Waste collection	94	2	96	1	1	240	64					-37	53	53	Yes	Yes
	Total													53	53	Yes	Yes
	Criteria															53	53
2	Waste collection	94	2	96	1	1	240	86	2	-12			-39	39	39	Yes	Yes
	Total													39	39	Yes	Yes
	Criteria															53	53
3	Waste collection	94	2	96	1	1	240	5	1.8	-21			-14	55	55	No	No
	Total													55	55	No	No
	Criteria															51	54
4	Waste collection	94	2	96	1	1	240	263					-49	41	41	Yes	Yes
	Total													41	41	Yes	Yes

*Correction due to tonality and impulsiveness as per AS1055:2018.

Noise emanating from waste collection is predicted to exceed the assessment criteria at receiver 3 during the day and evening periods (7am to 10pm). To minimise annoyance at this receiver, we recommend that waste collection be conducted during the daytime period (7am and 6pm) Monday to Saturday.

8. Recommendations

8.1 Acoustic Barriers

Acoustic barriers are recommended to be constructed to the height and extent shown in Figure 3. The barriers shall be constructed using materials that achieve a minimum surface density of 10kg/m². Suitable materials may include 15mm thick lapped timber (minimum 40% overlap), 10.38mm laminate glazing, masonry, 9mm fibre cement sheeting, Hebel, 15mm Perspex, 16mm plywood, or other material which satisfy the minimum surface density requirement. The barrier shall be constructed to the specified height above the finished level of the relative ground floor, recreation area and car park. A combination of retaining wall and acoustic barriers is acceptable to achieve the height requirements.

Figure 3: Recommended Acoustic Barriers



- █ Acoustic barrier 1.8 metres high above relative carpark level.
- █ Acoustic barriers 2.0 metres high above relative ground floor level.

Note: To ensure exiting vehicles have a direct line of site to vehicles traversing Logan Reserve Road, the last 2 metres of the eastern section of the barriers are to be tapered down to 1 metre in height.

8.2 Onsite Activities

Based on the predicted noise levels and subjective assessment of the site and surrounds for all time periods, noise impacts at the receiver locations are predicted to comply with the assessment criteria on the condition the following treatment and management plans are implemented:

- Deliveries shall be limited to the day and evening periods, between 7am and 10pm (within proposed hours of operation).
- Waste collection shall be limited to the daytime period, between 7am and 6pm (Monday to Saturday).
- Amplified music and speech shall be limited to the day and evening periods (7am to 10pm) with the following management strategies applicable:
 - Amplified speech within the hall shall be limited to a maximum of 85dB(A) measured at 1 metre from the speaker.
 - Outdoor amplified speakers are not permitted.
- The hall and courtyard windows and doors are to remain closed during services or functions.
- Temple bells are not to be used and are for decorative purposes only.
- The use of handheld bells is restricted to the temple area only.

8.3 Hall Construction

8.3.1 Glazing

The minimum glazing treatments presented in Table 14 are required to comply with the following:

- The minimum glass thickness specified shall not be reduced regardless of the R_w performance of the glass unless the glazier can provide a specific (non-generic) NATA Test report proving the proposed glazing system complies (the test report must be based on the same configuration proposed for the development). Note an estimation or calculated performance will not be accepted.
- If compliance cannot be achieved with the minimum R_w ratings, the glazing system shall be upgraded until compliance is achieved.
- Glazing specified with acoustic seals requires a seal that has been tested with a glazing system or door to achieve an R_w rating in accordance with AS/NZS ISO 717.1, mohair seals are not acceptable.
- The glazier shall provide NATA test reports on request to verify compliance with the minimum R_w ratings. Generic reports are not acceptable.

Table 14: Hall Glazing Treatments

Location	R_w Ratings			Glazing Thickness	Acoustic Seals
	Wall	Roof	Glazing		
Hall	40	40	31	6.38mm	Yes

8.3.2 Wall Construction

The wall construction recommendations are included in Table 15 below. Note that these are not the only allowable methods of construction for the proposed hall, and alternative constructions to achieve the required R_w ratings may also be provided.

Table 15: Hall Wall Construction

Wall R_w	Minimum Wall Treatments
40	1 layer of 9mm FC, 90mm timber stud with 75mm glasswool batts (density 11kg/m ³) and 1 layer of 13mm plasterboard internally. OR Concrete brickwork at least 110mm thick OR In-situ concrete at least 100mm thick OR Precast concrete at least 100mm thick and without joints.

8.3.3 Roof/Ceiling Construction

The roof/ceiling construction recommendations are included in Table 16 below. Note that these are not the only allowable methods of construction for the proposed hall, and alternative constructions to achieve the required R_w ratings may also be provided.

Table 16: Hall Roof Construction

Roof R_w	Minimum Roof Treatments
40	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m ³ or polyester insulation at least 50mm thick with a density of at least 20kg/m ³ in the cavity. OR Concrete suspended slab at least 100mm thick.

8.4 Onsite Mechanical Plant

No information regarding mechanical services was available at the time of the assessment. We recommend that any new mechanical plant is designed to comply with the criteria stated in Section 6 with an assessment by a qualified acoustic consultant to be conducted prior to installation.

9. Conclusion

An environmental noise assessment was conducted for the proposed cultural centre and place of worship located at 283 – 293 Logan Reserve Road, Logan Reserve. On the condition the recommendations detailed in Section 8 are implemented, compliance is predicted with Logan City Council assessment criteria.

If you should have any queries, please do not hesitate to contact us.

Report Prepared By



David Dadd (B. Applied Sc., MAAS)

Acoustic Consultant

acousticworks)))

10. Appendices

10.1 Development Plans

QUEENSLAND NEPALESE CULTURAL CENTRE



DRAWING LIST - DA

Dwg. no.	Sheet Name	Rev
00.01	Context & Locality Plans	F
01.01	Proposed Site Plan	H
03.01	Floor Plan - Ground	F
03.02	Floor Plan - First	F
04.01	Floor Plan	F
06.01	Elevations (Sheet 01)	F
06.02	Elevations (Sheet 02)	F
06.03	Elevations (Sheet 03)	F
10.01	Sections - Sheet 1	F
10.02	Sections - Sheet 2	F
10.03	Sections - Sheet 3	F
22.01	Renderers	G
22.02	Renderers	G

SITE INFORMATION

Real Property Description: Lot 1 RP 162124
 Local Authority: Logan City Council
 Site Classification: EC - Emerging Community

Site Area: 40850m²
 Site Cover: 847.8m²

Total Gross Building Area: 100,201m²

Gross Building Area (GBA) measured the portion of the site that is covered by a building or part thereof, measured to its outermost projection. This includes roof eaves and other overhead structures.

DEVELOPMENT INFO

TOTAL GFA: 518.6m²

- Temple: 30.3m²
- Sanctuary & Kitchen: 30.3m²
- Hall (excluding service areas): 295.5m²
- Meeting room (Ground): 57.2m²
- Meeting Room (Level 1): 53.4m²

LANDSCAPE AND OPEN SPACE: 230.6m²

CARPARKS
 Place of Worship - 1 space per 10m² of GFA
 Community use - not specified
 Total GFA (Stages 1 & Stage 2): 518.6m²

Carparks required: 55
 Carparks provided: 69 + 1 x SRV

Notes

Gross Floor Area (GFA) of all storeys of a building is measured from the outside of the external walls. This excludes:

- building services, plant and equipment
- access between levels;
- ground floor open courtyard;
- parking and loading bays;
- unenclosed balconies

elevation architecture | Project: Queensland Nepalese Cultural Centre | Stage: Development | Approved: A/F | Project No.: 103043 | Context & Locality Plans | A-DA-00.01 | F



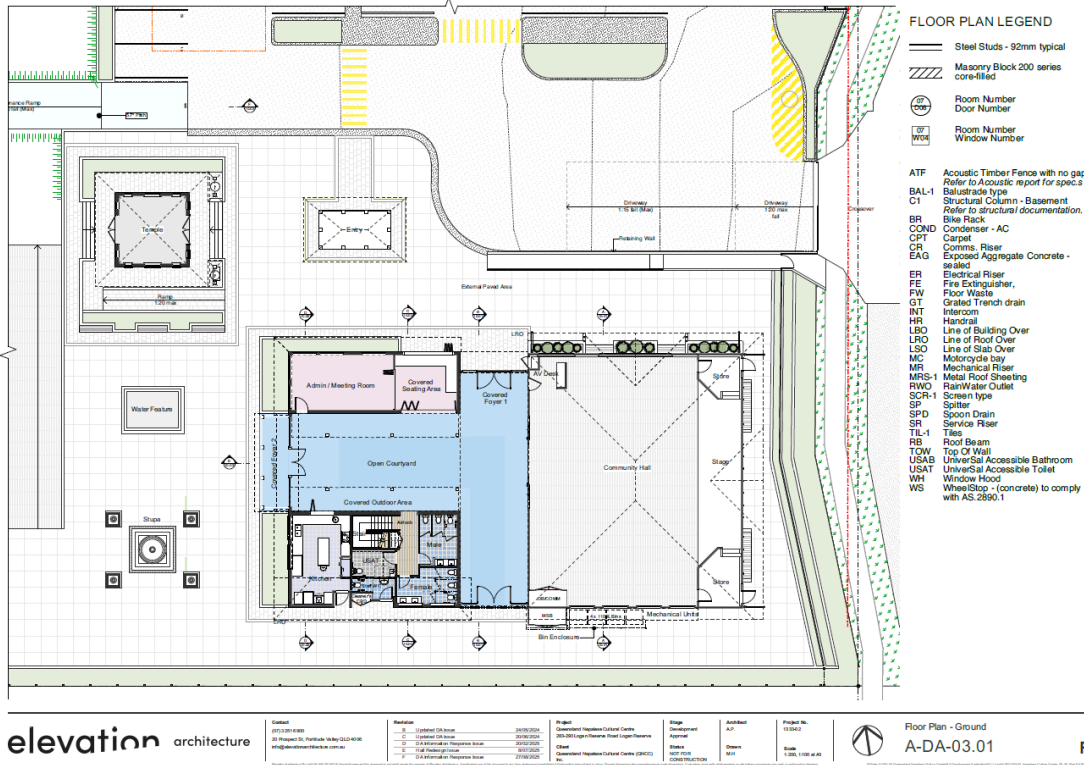
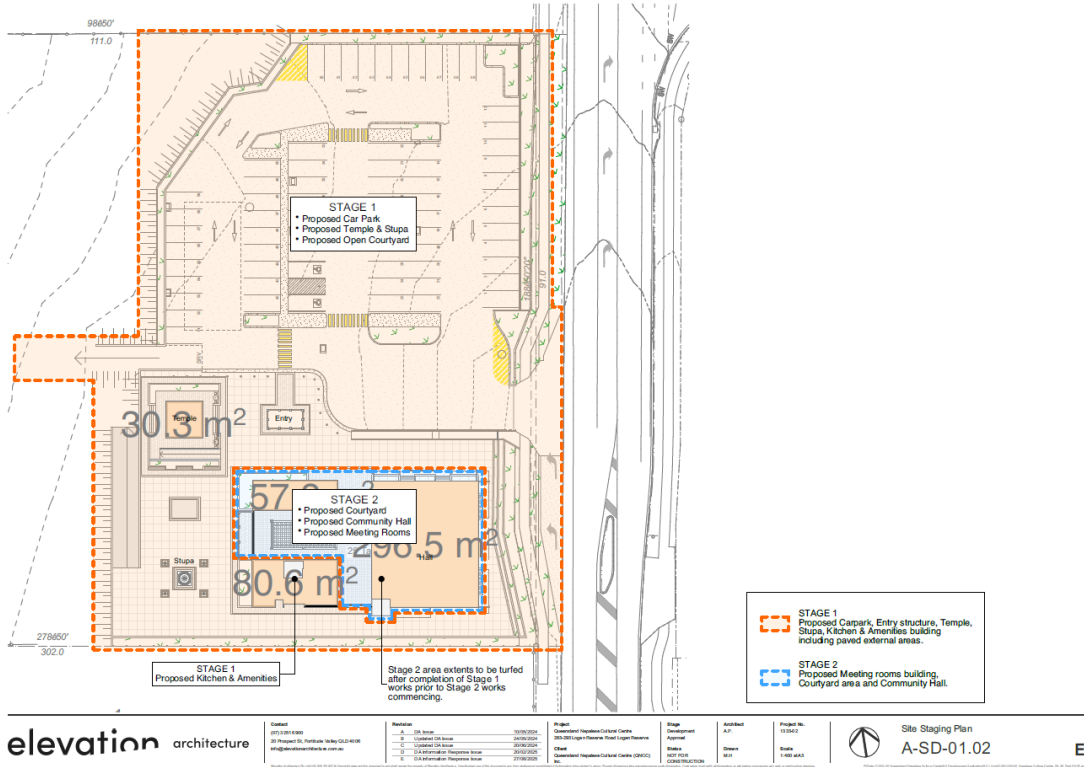
SITE PLAN LEGEND

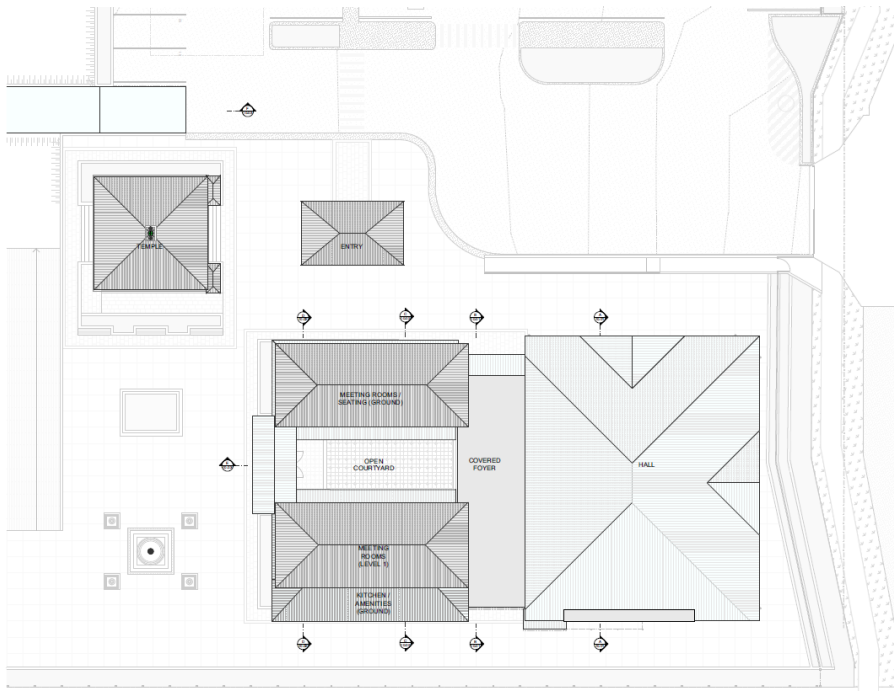
- ATF Acoustic Timber Fence with no gaps
- BDV Boundary
- BR Boundary
- EAG Exposed Agg Concrete - sealed
- C1 Structural Column - Ground Refer to structural documentation
- FCG Fire Booster Cabinet
- FEN-# Fence (if Denotes Type)
- GP Grated Pit
- HR-# Handrail (if Denotes Type)
- PD Planter Drainage Refer to Hydraulic documentation
- PV Paving
- SMH Sewer Manhole
- RL Reduced Level
- RWD Rain Water Outlet
- SCR Screen
- SWP Stormwater Pit
- TOW Top of Wall

NOTES

- Fencing to be constructed to engineer's specifications.
- All retaining walls over 1.0m in height to be structurally certified and comply with QDC.
- Landscaping to be constructed generally in accordance with approved Landscape Architects drawings.

elevation architecture | Project: Queensland Nepalese Cultural Centre | Stage: Development | Approved: A/F | Project No.: 103043 | Proposed Site Plan | A-DA-01.01 | H





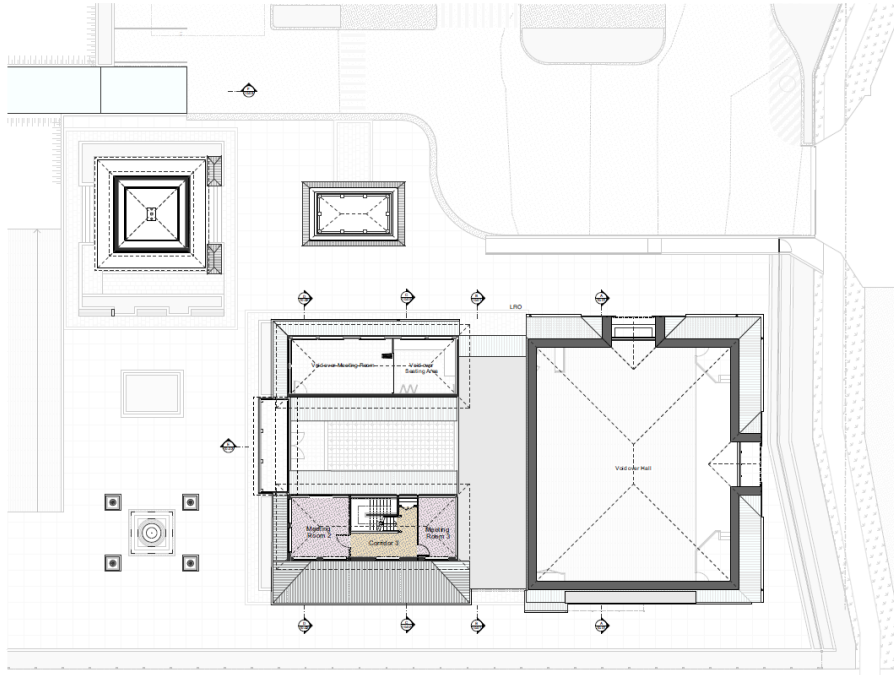
- ROOF LEGEND**
- AF Apron Flashing
 - BC Barge Capping
 - DP Downpipe
 - EG Eaves Gutter
 - LBB Line of Building Below
 - MR Mechanical Riser
 - MRS Metal Roof Sheeting
 - OH Overhang
 - RC Ridge Capping

- NOTES**
1. Provide insulation and roofing underlay to full extent of roof as per energy efficiency report.
 2. Refer to specification for full product details and warranties.
 3. Scribe flashings and capping to roof sheet profiles.
 4. Refer also to consultants documentation for all roof penetrations. Provide flashing as required to ensure water tightness.

elevation architecture

Client	Revision	Project	Stage	Architect	Project No.
2511301480 2511301480 - 2511301480 2511301480 - 2511301480	1 - Issued for Tender 2 - Issued for Tender 3 - Issued for Tender 4 - Issued for Tender	Queensland Hepatitis C Clinical Centre 250-283 Logan Reserve Road Logan Reserve Queensland Hepatitis C Clinical Centre (QHC2C) No.	Development Approval Approval CONSTRUCTION	A.P. A.P. A.P. A.P.	133003 133003 133003 133003
					Scale
					1:100 (SEE PLAN)

Roof Plan
A-DA-04.01 **F**



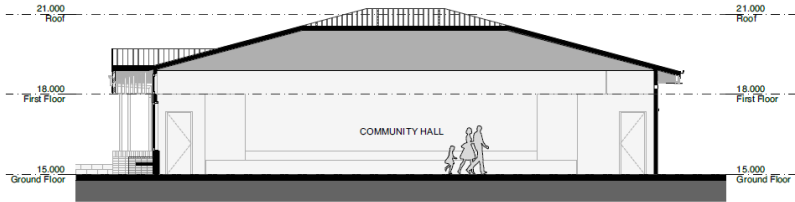
- FLOOR PLAN LEGEND**
- Steel Studs - 92mm typical
 - Masonry Block 200 series core-filled
 - Room Number
 - Door Number
 - Room Number
 - Window Number

- ATF Acoustic Timber Fence with no gaps Refer to Acoustic report for specs
- BAL-1 Balustrade type Refer to structural documentation
- C1 Structural Column - Basement Refer to structural documentation
- BR Blue Rink
- COND Condenser - AC
- CPT Carpet
- CR Corims - Riser
- EAG Exposed Aggregate Concrete - sealed
- ER Electrical Riser
- FE Fire Extinguisher
- FW Floor Waste
- GT Grated Trench drain
- INT Intercom
- HR Handrail
- LBO Line of Building Over
- LRO Line of Roof Over
- LSO Line of Slab Over
- MC Motorcycle bay
- MR Mechanical Riser
- MRS-1 Metal Roof Sheeting
- RWO Rain Water Outlet
- SCR-1 Screen type
- SP Splitter
- SPD Spoon Drain
- SR Service Riser
- TIL-1 Tiles
- RB Roof Beam
- TOW Top of Wall
- USAB Universal Accessible Bathroom
- USAT Universal Accessible Toilet
- WH Window Hood
- WS WheelStop - (concrete) to comply with AS 2890.1

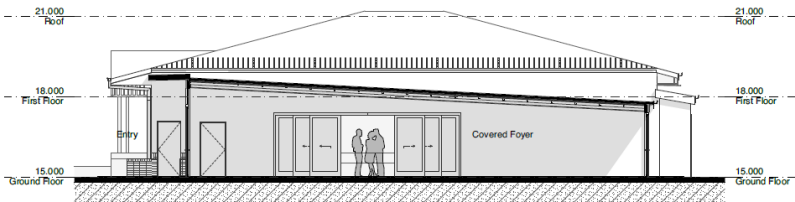
elevation architecture

Client	Revision	Project	Stage	Architect	Project No.
2511301480 2511301480 - 2511301480 2511301480 - 2511301480	1 - Issued for Tender 2 - Issued for Tender 3 - Issued for Tender 4 - Issued for Tender	Queensland Hepatitis C Clinical Centre 250-283 Logan Reserve Road Logan Reserve Queensland Hepatitis C Clinical Centre (QHC2C) No.	Development Approval Approval CONSTRUCTION	A.P. A.P. A.P. A.P.	133003 133003 133003 133003
					Scale
					1:100 (SEE PLAN)

Floor Plan - First
A-DA-03.02 **F**



1 Section A
Scale 1:100



2 Section B
Scale 1:100

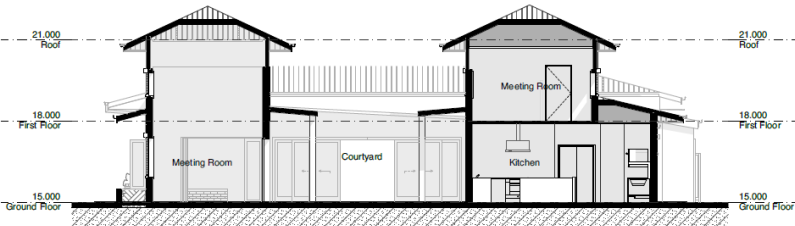
elevation architecture

Contact	Revisions	Project	Stage	Architect	Project No.
0753-281-8380 20 Prospect St, Fortville, WI 53127-4198 info@elevationarchitecture.com	1. 01 - Schematic Design 2. 02 - Conceptual Design 3. 03 - Preliminary Design 4. 04 - Final Design 5. 05 - Construction Documents	02042024 02052024 02062024 02072024 02082024	02042024 02052024 02062024 02072024 02082024	A/E/P A/E/P A/E/P A/E/P A/E/P	230003
					Scale 1:100/4:3

Sections - Sheet 1
A-DA-10.01 F



1 Section C
Scale 1:100

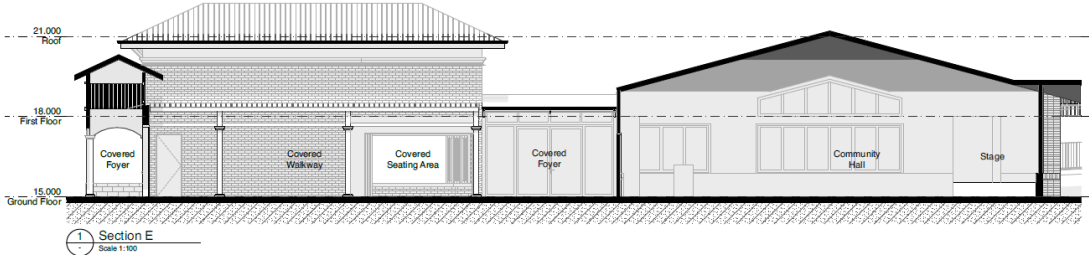


2 Section D
Scale 1:100

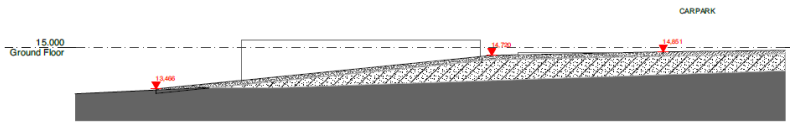
elevation architecture

Contact	Revisions	Project	Stage	Architect	Project No.
0753-281-8380 20 Prospect St, Fortville, WI 53127-4198 info@elevationarchitecture.com	1. 01 - Schematic Design 2. 02 - Conceptual Design 3. 03 - Preliminary Design 4. 04 - Final Design 5. 05 - Construction Documents	02042024 02052024 02062024 02072024 02082024	02042024 02052024 02062024 02072024 02082024	A/E/P A/E/P A/E/P A/E/P A/E/P	230003
					Scale 1:100/4:3

Sections - Sheet 2
A-DA-10.02 F



1 Section E
Scale 1:100



2 Section F
Scale 1:100

elevation architecture

Contact	Revision	Project	Stage	Author	Project No.
0713 2214 980 20 Poppy Rd, Northcote, Vic 3070-4516 info@elevationarchitects.com.au	R-1 Updated 01/2024 24/09/2024 R-2 Updated 01/2024 25/09/2024 R-3 Updated 01/2024 26/09/2024 R-4 Updated 01/2024 27/09/2024 R-5 Updated 01/2024 28/09/2024	283-293 Logan Reserve Road Logan Reserve Department of Infrastructure and Planning (DIPIC)	Design Development Approved Issue RCP 1018 CONSTRUCTION	A.P.J. Diana N.H.	151041 Scale 1:100 & A3

Sections - Sheet 3
A-DA-10.03 F

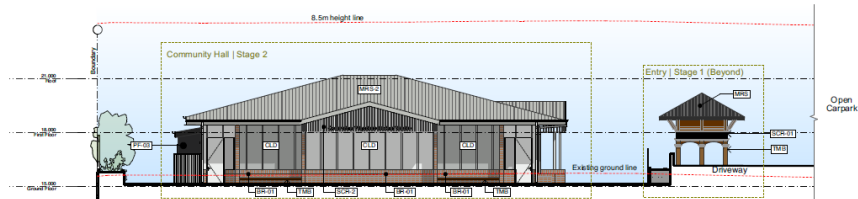
ELEVATION & SECTION LEGEND

- (# Denotes Type)
- BC Barge Capping
 - BR-# Brick Finish
 - FN-# Fencing Type
 - MC Metal Cladding
 - MRS Metal Roof Sheeting
 - PC Polycarbonate Roof Sheeting
 - PF Paint Finish
 - RB Roof Beam
 - RC Ridge Capping
 - RMI Rendered Masonry
 - RW Retaining Wall
 - SCR-# Screen
 - SP Sillier
 - TMB Timber Finish
 - TQW Top Of Wall
 - TP Timber Post
 - WH Window Hood

- NOTES
1. Provide insulation and building paper to all external walls
 2. Refer to specification for full product details and warranties.
 3. Refer to Civil drawings for all correct ground RLs
 4. Refer to schedules for material information.



1 East Elevation (Logan Reserve Road Streetscape) KEY
Scale 1:150



2 East Elevation (Community Hall & Entry)
Scale 1:150

BRICK FINISH BR-1 Standard Brickwork	BRICK FINISH BR-2 Standard Brickwork	PLASTER PL-1 Light Grey Plaster
METAL ROOF SHEET MRS-1 Standard Steel	METAL ROOF SHEET MRS-2 Standard Steel	POLYCARBONATE ROOF SHEETING PC-1 Standard
PAINT FINISH PF-1 White	PAINT FINISH PF-2 White	PAINT FINISH PF-3 White
PAINT FINISH PF-4 White	PAINT FINISH PF-5 White	PAINT FINISH PF-6 White
PAINT FINISH PF-7 White	PAINT FINISH PF-8 White	PAINT FINISH PF-9 White
PAINT FINISH PF-10 White	PAINT FINISH PF-11 White	PAINT FINISH PF-12 White
PAINT FINISH PF-13 White	PAINT FINISH PF-14 White	PAINT FINISH PF-15 White
PAINT FINISH PF-16 White	PAINT FINISH PF-17 White	PAINT FINISH PF-18 White
PAINT FINISH PF-19 White	PAINT FINISH PF-20 White	PAINT FINISH PF-21 White
PAINT FINISH PF-22 White	PAINT FINISH PF-23 White	PAINT FINISH PF-24 White
PAINT FINISH PF-25 White	PAINT FINISH PF-26 White	PAINT FINISH PF-27 White
PAINT FINISH PF-28 White	PAINT FINISH PF-29 White	PAINT FINISH PF-30 White
PAINT FINISH PF-31 White	PAINT FINISH PF-32 White	PAINT FINISH PF-33 White
PAINT FINISH PF-34 White	PAINT FINISH PF-35 White	PAINT FINISH PF-36 White
PAINT FINISH PF-37 White	PAINT FINISH PF-38 White	PAINT FINISH PF-39 White
PAINT FINISH PF-40 White	PAINT FINISH PF-41 White	PAINT FINISH PF-42 White
PAINT FINISH PF-43 White	PAINT FINISH PF-44 White	PAINT FINISH PF-45 White
PAINT FINISH PF-46 White	PAINT FINISH PF-47 White	PAINT FINISH PF-48 White
PAINT FINISH PF-49 White	PAINT FINISH PF-50 White	PAINT FINISH PF-51 White
PAINT FINISH PF-52 White	PAINT FINISH PF-53 White	PAINT FINISH PF-54 White
PAINT FINISH PF-55 White	PAINT FINISH PF-56 White	PAINT FINISH PF-57 White
PAINT FINISH PF-58 White	PAINT FINISH PF-59 White	PAINT FINISH PF-60 White
PAINT FINISH PF-61 White	PAINT FINISH PF-62 White	PAINT FINISH PF-63 White
PAINT FINISH PF-64 White	PAINT FINISH PF-65 White	PAINT FINISH PF-66 White
PAINT FINISH PF-67 White	PAINT FINISH PF-68 White	PAINT FINISH PF-69 White
PAINT FINISH PF-70 White	PAINT FINISH PF-71 White	PAINT FINISH PF-72 White
PAINT FINISH PF-73 White	PAINT FINISH PF-74 White	PAINT FINISH PF-75 White
PAINT FINISH PF-76 White	PAINT FINISH PF-77 White	PAINT FINISH PF-78 White
PAINT FINISH PF-79 White	PAINT FINISH PF-80 White	PAINT FINISH PF-81 White
PAINT FINISH PF-82 White	PAINT FINISH PF-83 White	PAINT FINISH PF-84 White
PAINT FINISH PF-85 White	PAINT FINISH PF-86 White	PAINT FINISH PF-87 White
PAINT FINISH PF-88 White	PAINT FINISH PF-89 White	PAINT FINISH PF-90 White
PAINT FINISH PF-91 White	PAINT FINISH PF-92 White	PAINT FINISH PF-93 White
PAINT FINISH PF-94 White	PAINT FINISH PF-95 White	PAINT FINISH PF-96 White
PAINT FINISH PF-97 White	PAINT FINISH PF-98 White	PAINT FINISH PF-99 White
PAINT FINISH PF-100 White		

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Contact	Revision	Project	Stage	Author	Project No.
0713 2214 980 20 Poppy Rd, Northcote, Vic 3070-4516 info@elevationarchitects.com.au	R-1 Updated 01/2024 24/09/2024 R-2 Updated 01/2024 25/09/2024 R-3 Updated 01/2024 26/09/2024 R-4 Updated 01/2024 27/09/2024 R-5 Updated 01/2024 28/09/2024	283-293 Logan Reserve Road Logan Reserve Department of Infrastructure and Planning (DIPIC)	Design Development Approved Issue RCP 1018 CONSTRUCTION	A.P.J. Diana N.H.	151041 Scale 1:100, 1:50, 1:100 & A3

Elevations (Sheet 01)
A-DA-09.01 F



1 Logan Reserve Road Streetscape



6 View from Carpark Entry crossover



3 View from Carpark Entry



8 View from Carpark crossing

elevation architecture

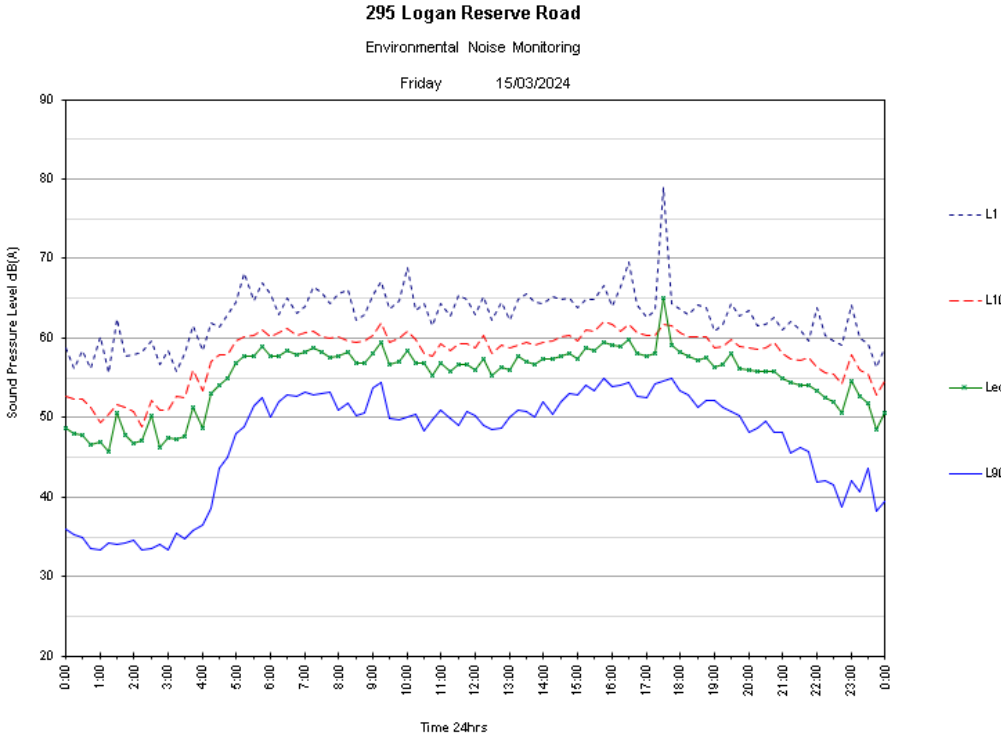
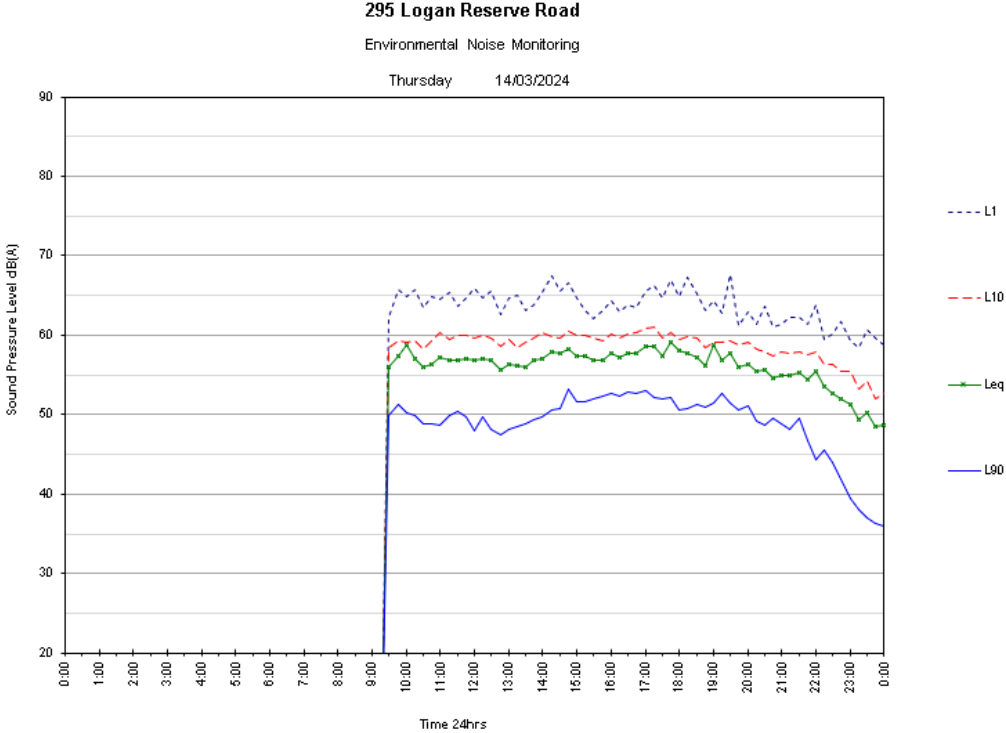
Contact	Revision	Project	Stage	Architect	Project No.
2511 3281 4180 2511 3281 4180 info@elevationarchitecture.com.au	<ul style="list-style-type: none"> 01 Concept Design 02 Preliminary Design 03 Final Design 04 Construction Documents 05 Construction Administration 	<ul style="list-style-type: none"> 2511 3281 4180 2511 3281 4180 2511 3281 4180 2511 3281 4180 2511 3281 4180 	<ul style="list-style-type: none"> Concept Design Development Approval Construction Handover 	AJT	13342
		Client	Site	Drawn	Scale
		Department of Health (DHHS)	2511 3281 4180	1/10	1:500 (A, B, C)
		Notes	Architect	Scale	Scale
			2511 3281 4180	1:500 (A, B, C)	1:500 (A, B, C)

Renders
A-DA-22.01

G

10.2 Noise Monitoring Charts

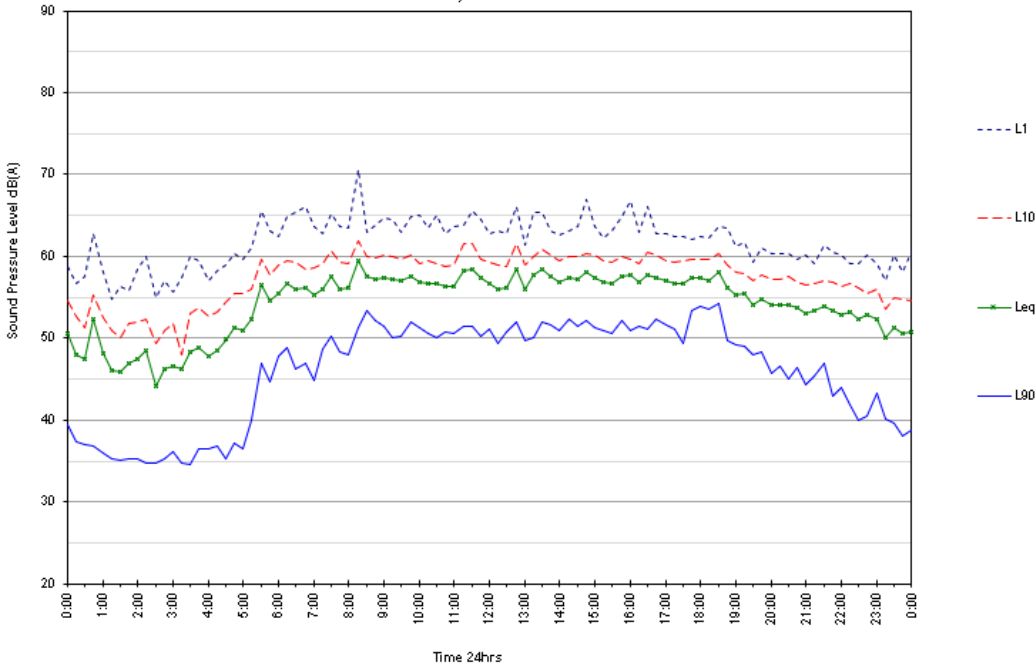
10.2.1 Noise Monitor 1



295 Logan Reserve Road

Environmental Noise Monitoring

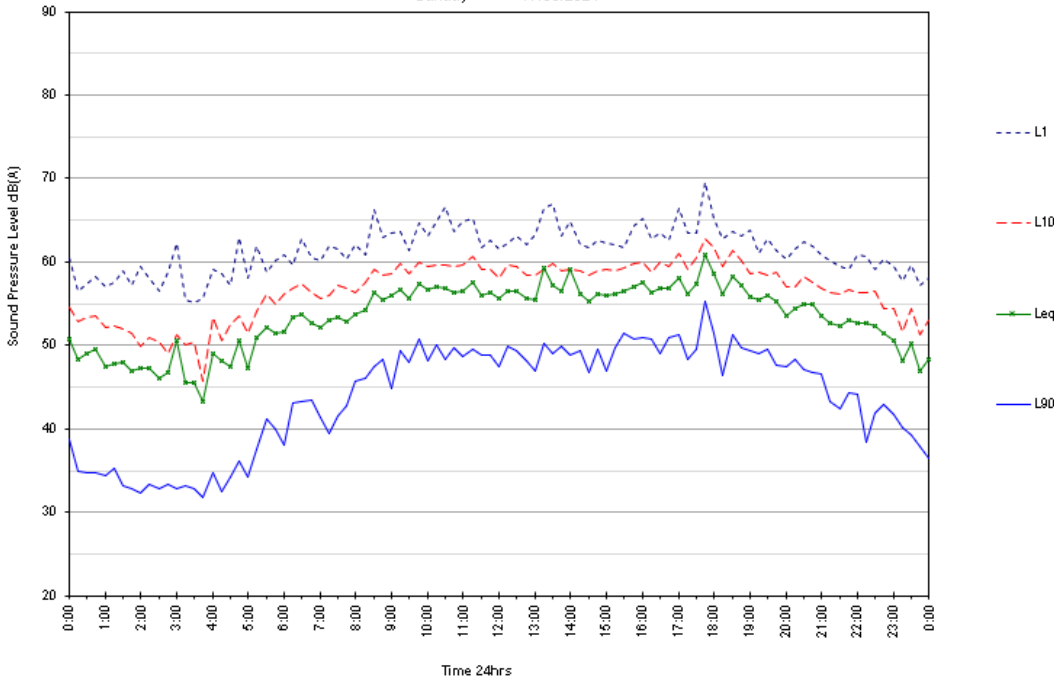
Saturday 16/03/2024



295 Logan Reserve Road

Environmental Noise Monitoring

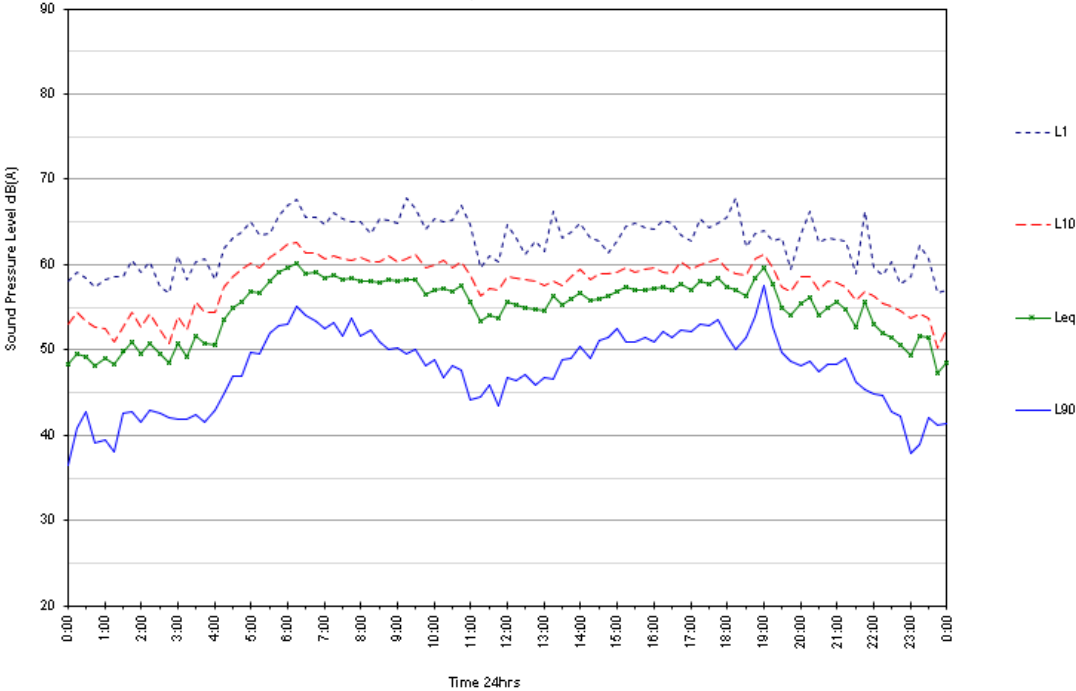
Sunday 17/03/2024



295 Logan Reserve Road

Environmental Noise Monitoring

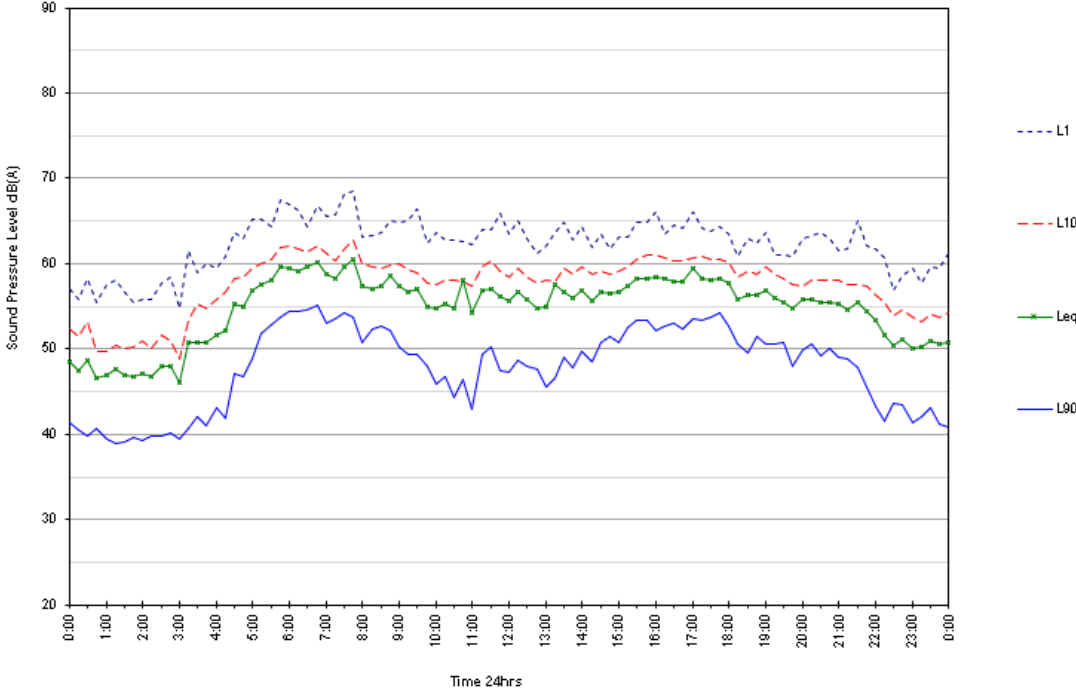
Monday 18/03/2024



295 Logan Reserve Road

Environmental Noise Monitoring

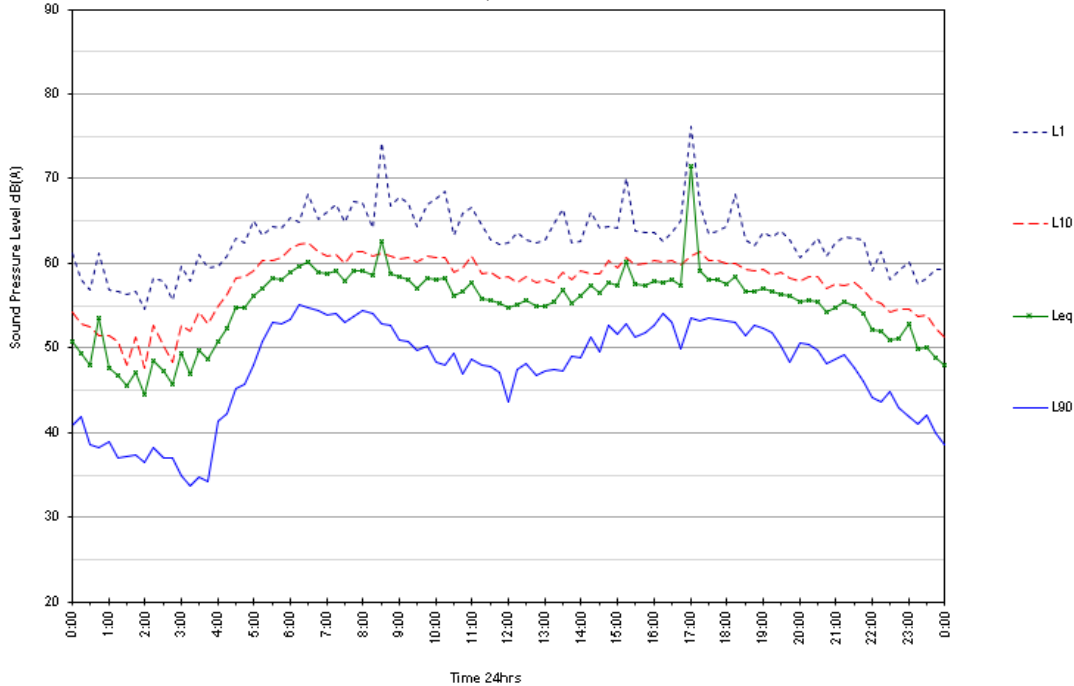
Tuesday 19/03/2024



295 Logan Reserve Road

Environmental Noise Monitoring

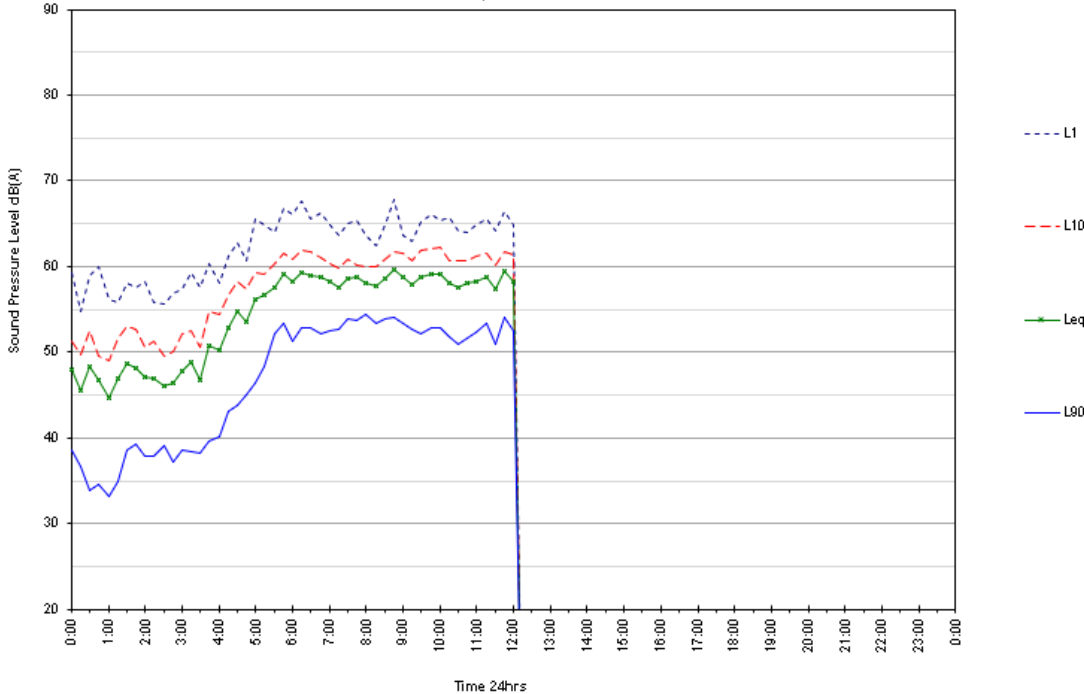
Wednesday 20/03/2024



295 Logan Reserve Road

Environmental Noise Monitoring

Thursday 21/03/2024

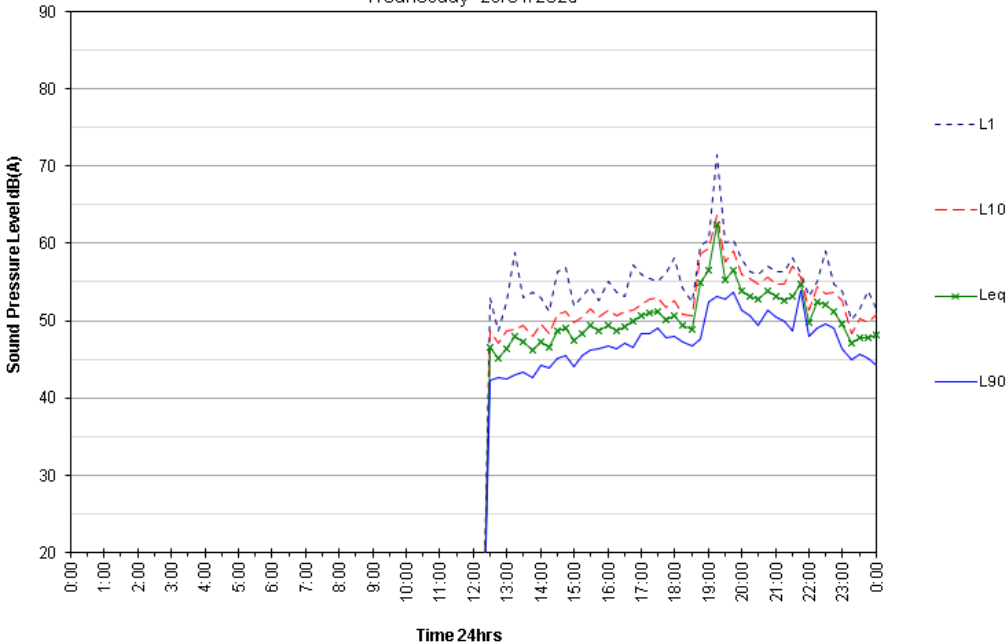


10.2.2 Noise Monitor 2

283-293 Logan Reserve Road, Logan Reserve

Environmental Noise Monitoring

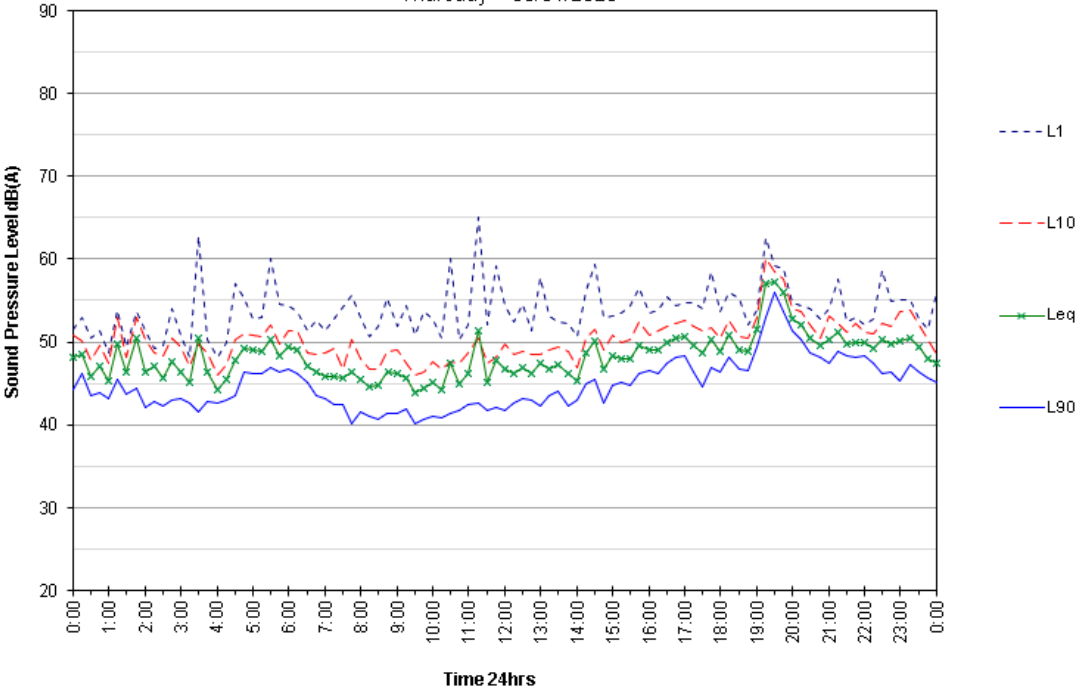
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283-293 Logan Reserve Road, Logan Reserve

Environmental Noise Monitoring

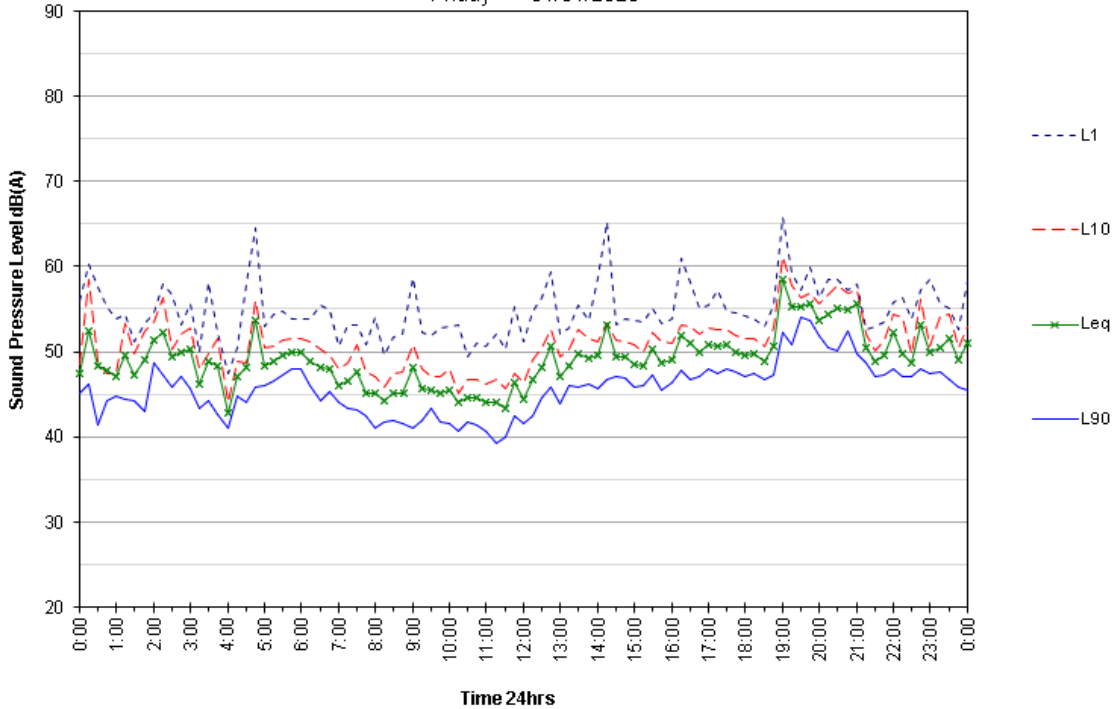
Thursday 30/01/2025



283-293 Logan Reserve Road, Logan Reserve

Environmental Noise Monitoring

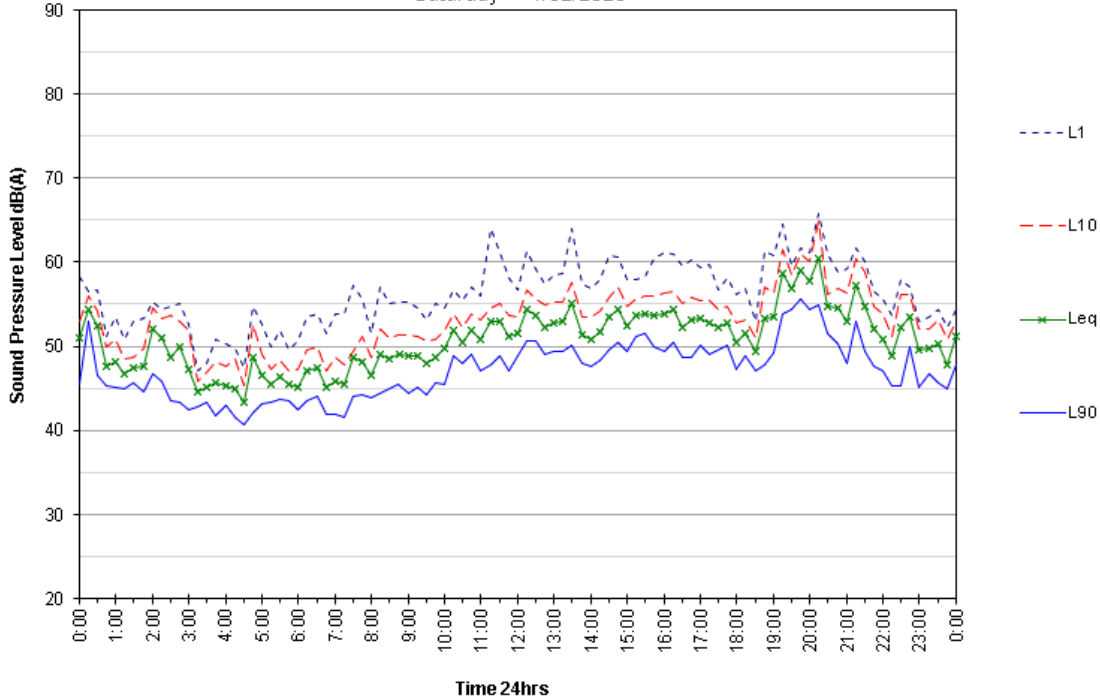
Friday 31/01/2025



283-293 Logan Reserve Road, Logan Reserve

Environmental Noise Monitoring

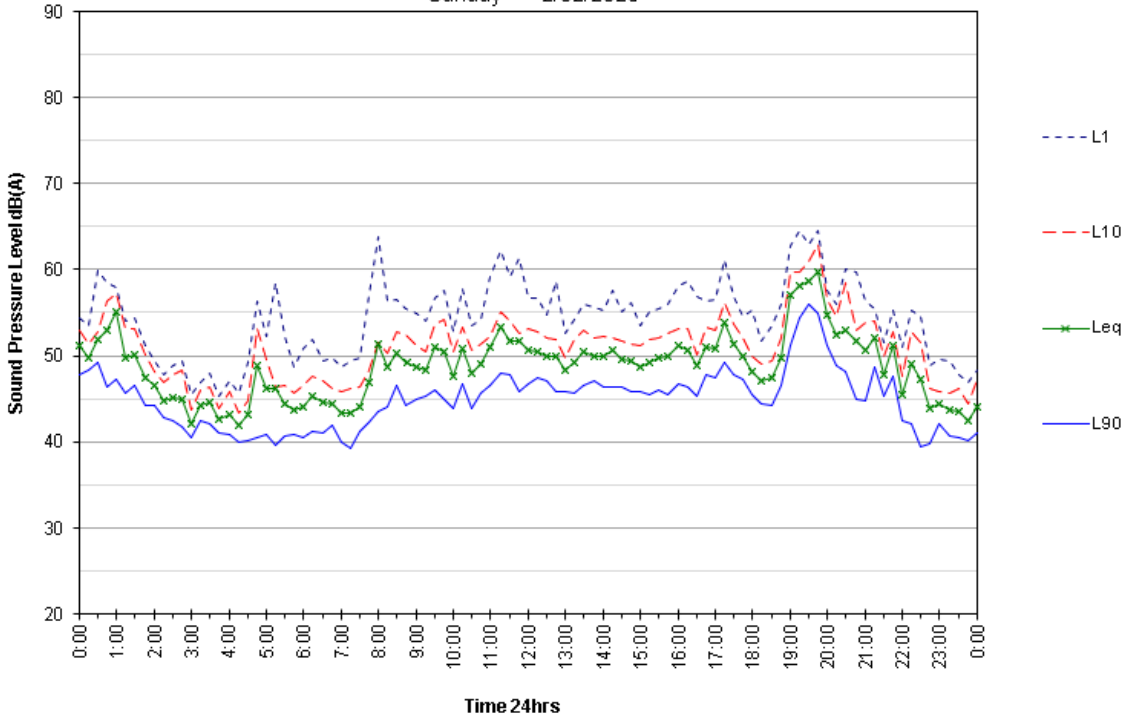
Saturday 1/02/2025



283-293 Logan Reserve Road, Logan Reserve

Environmental Noise Monitoring

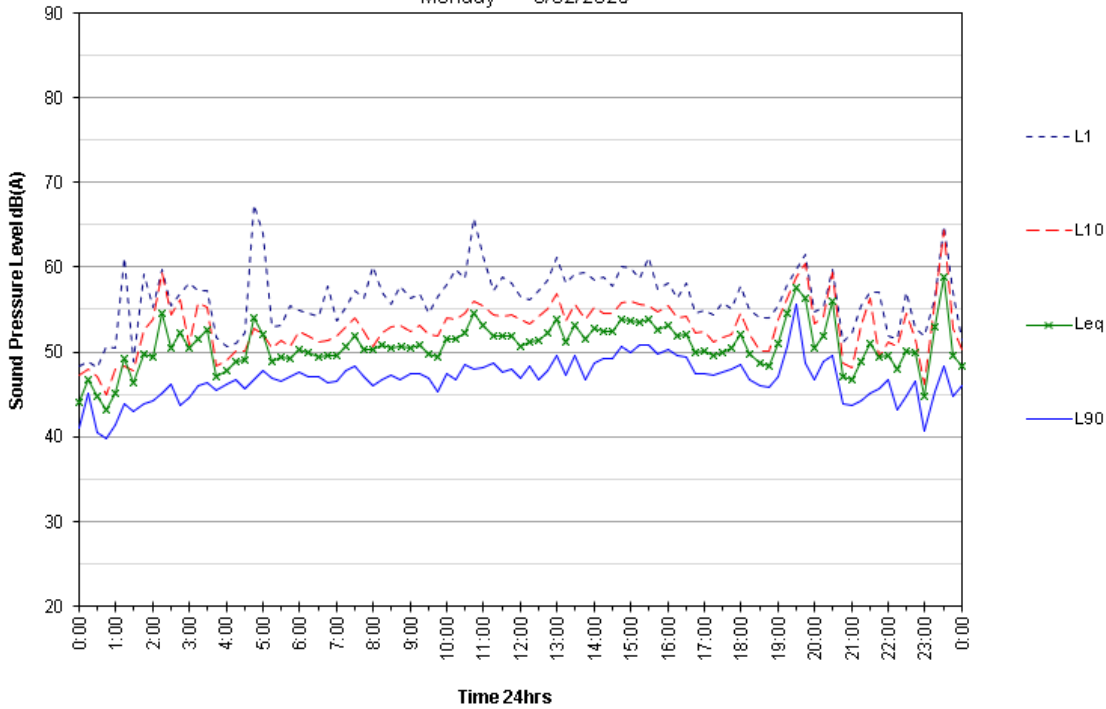
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283-293 Logan Reserve Road, Logan Reserve

Environmental Noise Monitoring

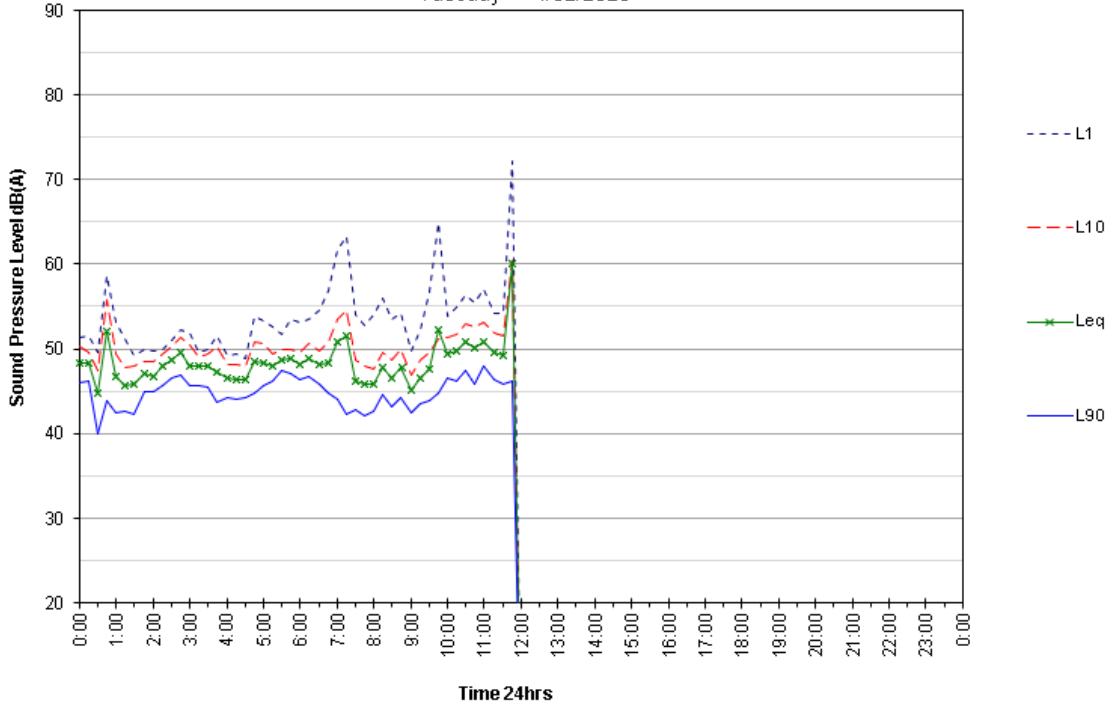
Monday 3/02/2025



283-293 Logan Reserve Road, Logan Reserve

Environmental Noise Monitoring

Tuesday 4/02/2025



10.3 Barrier Attenuation Calculations

Table 17: Barrier Attenuation Calculations

Receiver location	2	2	2	2	2	2	2	2	2	2	2	2
Source or road description	Car	Voice	Delivery	Hall GF	Temple GF	Waste	Passive Rec	Courtyard	Hand Held Bell	Music Hall	Courtyard Building screen	Stupa
Distance source to barrier (m)	62	62	43	17	33	85	32	16	33	17	4	10
Distance receiver to barrier (m)	1	1	1	1	1	1	1	1	1	1	12	1
Source height RL	15.5	16.5	17	16.8	16.8	17	15	16.8	17	17.5	16.8	16.8
Receiver height RL	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
Top of barrier RL	17	17	17	17	17	17	16.1	17	17	17	21	17
Base of barrier RL	15	15	15	15	15	15	13.5	15	15	15	16.8	15
Barrier height (m)	2	2	2	2	2	2	2.6	2	2	2	4.2	2
Maekawa attenuation dB(A)	13	12	12	12	12	12	1	12	12	12	24	12
Receiver location	3	3	3	3	3	3	3	3	3	3	3	3
Source or road description	Car	Voice	Delivery	Hall GF	Temple GF	Waste	Passive Rec	Courtyard	Hand Held Bell	Music Hall	Courtyard Building screen	Stupa
Distance source to barrier (m)	29	29	48	74	58	4	60	75	58	74	4	80
Distance receiver to barrier (m)	1	1	1	1	1	1	1	1	1	1	72	1
Source height RL	15.5	16.5	17	16.8	16.8	17	15	16.8	18	18	16.8	16.8
Receiver height RL	14	14	14	14	14	14	14	14	14	14	14	14
Top of barrier RL	16.8	16.8	16.8	16.8	16.8	16.8	15.3	16.8	16.8	16.8	21	16.8
Base of barrier RL	15	15	15	15	15	15	13.5	15	15	15	16.8	15
Barrier height (m)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	4.2	1.8
Maekawa attenuation dB(A)	23	23	23	23	23	21	18	23	23	23	23	23