THE TIVOLI CARPARK REDEVELOPMENT
52 COSTIN STREET, FORTITUDE VALLEY
NOISE IMPACT ASSESSMENT

Prepared for:

Steve Sleswick

The Tivoli
52 Costin Street
Fortitude Valley QLD 4006

11 July 2025

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EXECUTIVE SUMMARY

It is proposed to redevelop the carpark for The Tivoli to improve its aesthetics and functionality when hosting functions and patrons before and after events. The site location is 52 Costin Street, Fortitude Valley. The real property description is Lot 5 on RP800278.

The Tivoli and surrounding uses are located in the Bowen Hills Priority Development Area and is such subject to the *Bowen Hills Priority Development Area Development Scheme* as administered by Economic Development Queensland.

SoundBASE Consulting Engineers have been commissioned by The Tivoli to prepare a Noise Impact Assessment for the proposed redevelopment.

Based upon the analysis presented in this report, it has been determined that:

- The noise sources from the proposed redevelopment that needed assessment were:
    - Amplified entertainment within the carpark;
    - Patrons; and
    - Mechanical plant and equipment.
- Entertainment noise from within The Tivoli did not need to be assessed. The building envelope of The Tivoli is not being modified in a way that will compromise it's noise containment ability, rather the addition of the sound locks will improve the noise containment.
- Vehicle usage did not need to be assessed as compared to current levels, vehicle usage of the carpark will decrease and noise emissions from vehicles will be reduced due to the screening provided by the new structures.
- When the carpark is redeveloped, the addition of the roof and other structures has the potential to alter the source limits due to changes in the reflections and screening the amplified entertainment will experience. It will be necessary to conduct entertainment noise testing at practical completion to derive the appropriate source limits to achieve compliance with the emission criteria specified in the *Amplified Music Venues Local Law 2006*.
- To ensure that patron noise emissions are controlled, the following noise amelioration measures are necessary:
    - A sound absorptive roof over the carpark;
    - Sound absorptive treatments to parts of the walls to the carpark to minimise reverberant noise build-up and reduce reflected noise off The Tivoli façade;
    - An enclosed gable at the northeast end of the roof to provide line-of-sight screening;
    - An acoustic barrier 6.0m high and 7.3m long at the eastern corner of the carpark to provide acoustic screening.

- Where sound absorptive treatments are required, they need to be designed so that the average Noise Reduction Coefficient (NRC) of the surface they are applied to is at least NRC 0.5.
- The acoustic screening materials will need to achieve a minimum superficial density of 12kg/m^2 if made from a single material. Incorporating air gaps and/or bulk insulation into the screening construction will reduce that minimum density requirement.
- The selections and locations of the mechanical plant and equipment are presently unknown. To ensure that amenity is preserved for nearby residents, all mechanical plant and equipment will need to be sited and acoustically treated to meet the following component limits at nearby noise-sensitive receivers:
    - Daytime (7:00am to 6:00pm): 54dBA $L_{Aeq, T}$
    - Evening (6:00pm to 10:00pm): 55dBA $L_{Aeq, T}$
    - Night-time (10:00pm to 7:00am): 47dBA $L_{Aeq, T}$

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The advice contained herein relates to acoustics only and no liability is accepted for design and construction issues falling outside of the area of acoustic engineering such as, but not limited to, structural engineering, fire engineering, thermal performance, buildability and waterproofing.

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1. INTRODUCTION

It is proposed to redevelop the carpark for The Tivoli to improve its aesthetics and functionality when hosting functions and patrons before and after events. The site location is 52 Costin Street, Fortitude Valley as indicated in Figure 1. The real property description is Lot 5 on RP800278.

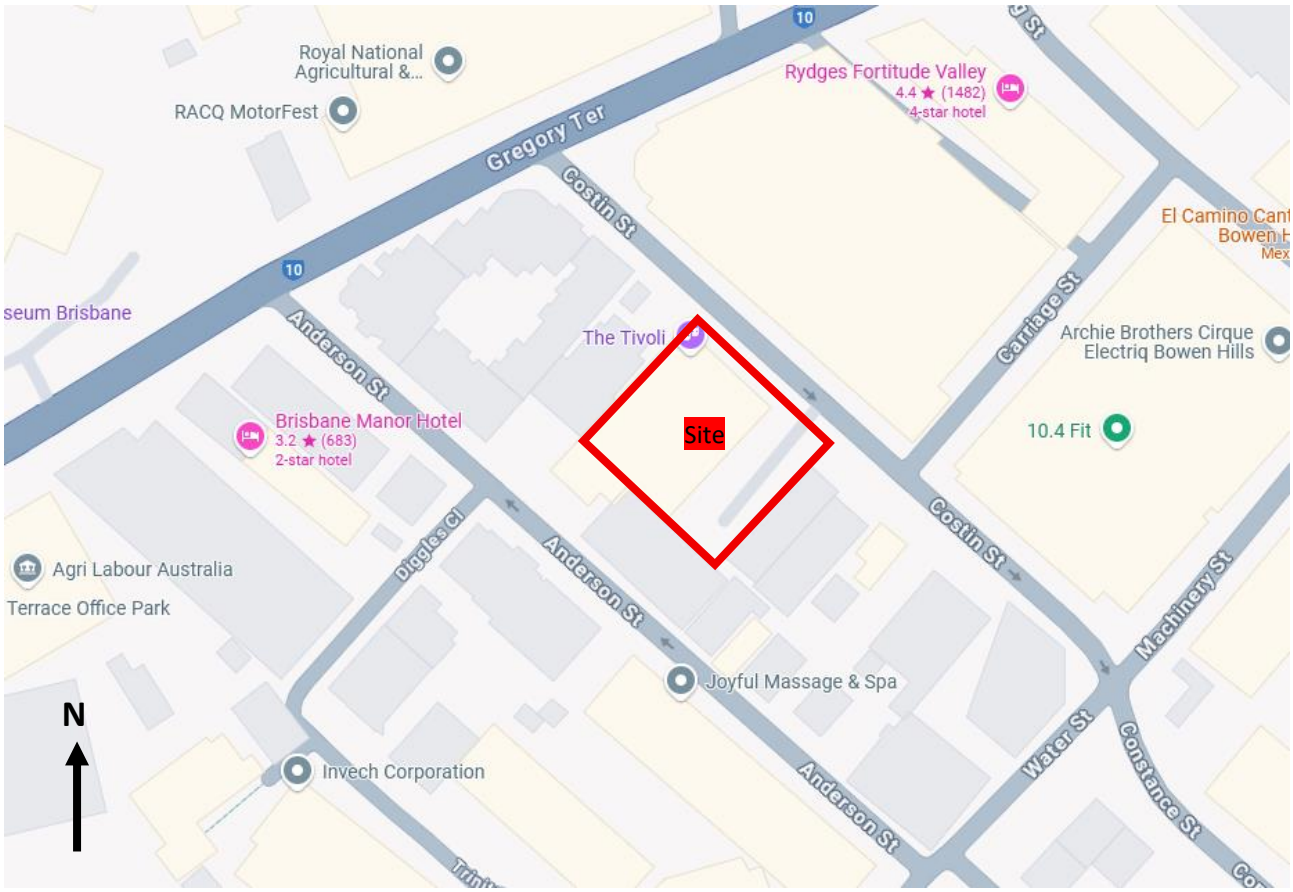


Figure 1: Site location (source: Google Maps)

The Tivoli and surrounding uses are located in the Bowen Hills Priority Development Area and is such subject to the *Bowen Hills Priority Development Area Development Scheme* as administered by Economic Development Queensland.

SoundBASE Consulting Engineers have been commissioned by The Tivoli to prepare a Noise Impact Assessment to meet the requirements of the *Bowen Hills Priority Development Area Development Scheme*.

2. SITE AND SURROUNDING AREA

2.1. Surrounding Uses

An aerial photograph of the site and surrounding area is presented in Figure 2. The Tivoli carpark is located on the southeast side of the building and immediately adjoins commercial properties to the southeast and southwest, with the remaining side adjoining Costin Street to the northeast.

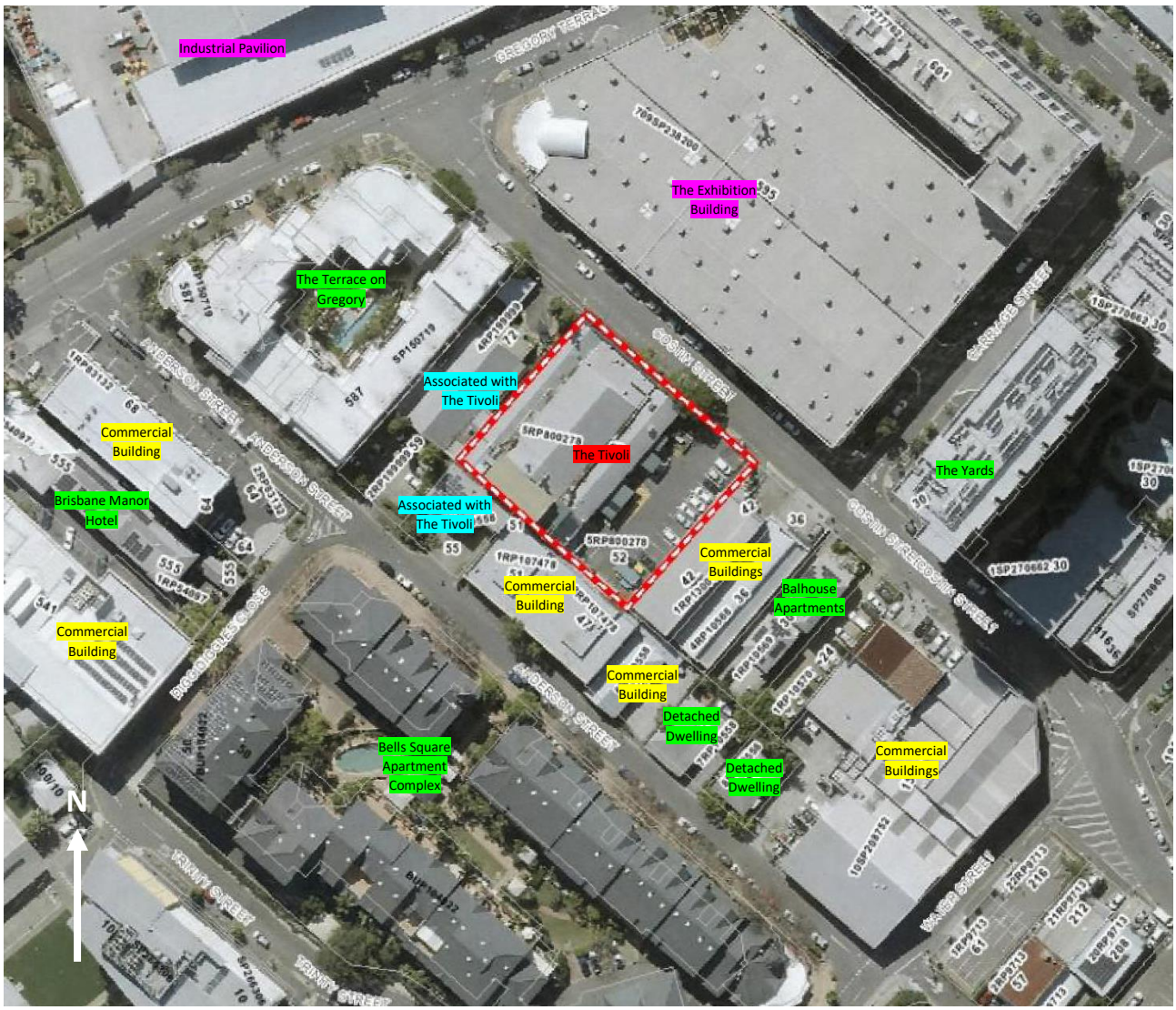


Figure 2: Aerial photograph of the site and surrounding area

To the northeast on the opposite side of Costin Street is The Exhibition Building, which is part of the R.N.A. Showgrounds. To the northwest and southwest of the Tivoli are buildings that are associated with The Tivoli. None of these buildings are considered to be noise-sensitive.

The nearest noise-sensitive receivers are indicated in green in Figure 2. The noise sensitive receiver that will potentially be impacted by the development is the multi-storey residents building (The Yards) located to the east. That building overlooks the site and had direct line-of-sight. Other nearby noise-sensitive receivers such as Balhouse Apartments to the southeast and residential uses along

Anderson Street will be screened by intervening buildings and the roof structure of the development.

2.2. The Tivoli

The Tivoli is located within the Special Entertainment Precinct SEA core B as shown in Figure 3. As such, entertainment noise emissions from the site must achieve specific criteria 1m from the boundary as in accordance with Brisbane City Council's *Amplified Music Venues Local Law 2006*.

The carpark at The Tivoli is used as parking for staff and visitors and a loading zone for the venue when events are not being held.

The carpark is regularly used to host events including:

- Up to six amplified music events per calendar year (as per the existing Liquor Licence), where there is an outdoor stage and food and alcohol are sold and consumed in that area (it is noted that the venue is allowed to host more than six events, with additional events requiring a special permit from the Division of Liquor and Gaming Regulation).
- Pub Choir events hosted monthly, which involve food being sold by food trucks and drinks via temporary bars.
- Private hire and corporate events such as gala dinners, awards night, product launches, networking events and parties, where the carpark is used for a red carpet welcome, second entertainment area or combined with internal spaces to allow a bigger function.

Generally, events involving the use of the carpark result in approximately 500 people being within that area for several hours anytime between 7:00am and midnight.

When The Tivoli hosts ticketed concerts and shows, the carpark is closed. Due to The Tivoli's capacity (1,500 people) and entry on Costin Street, long queues form along Costin Street to the southeast.

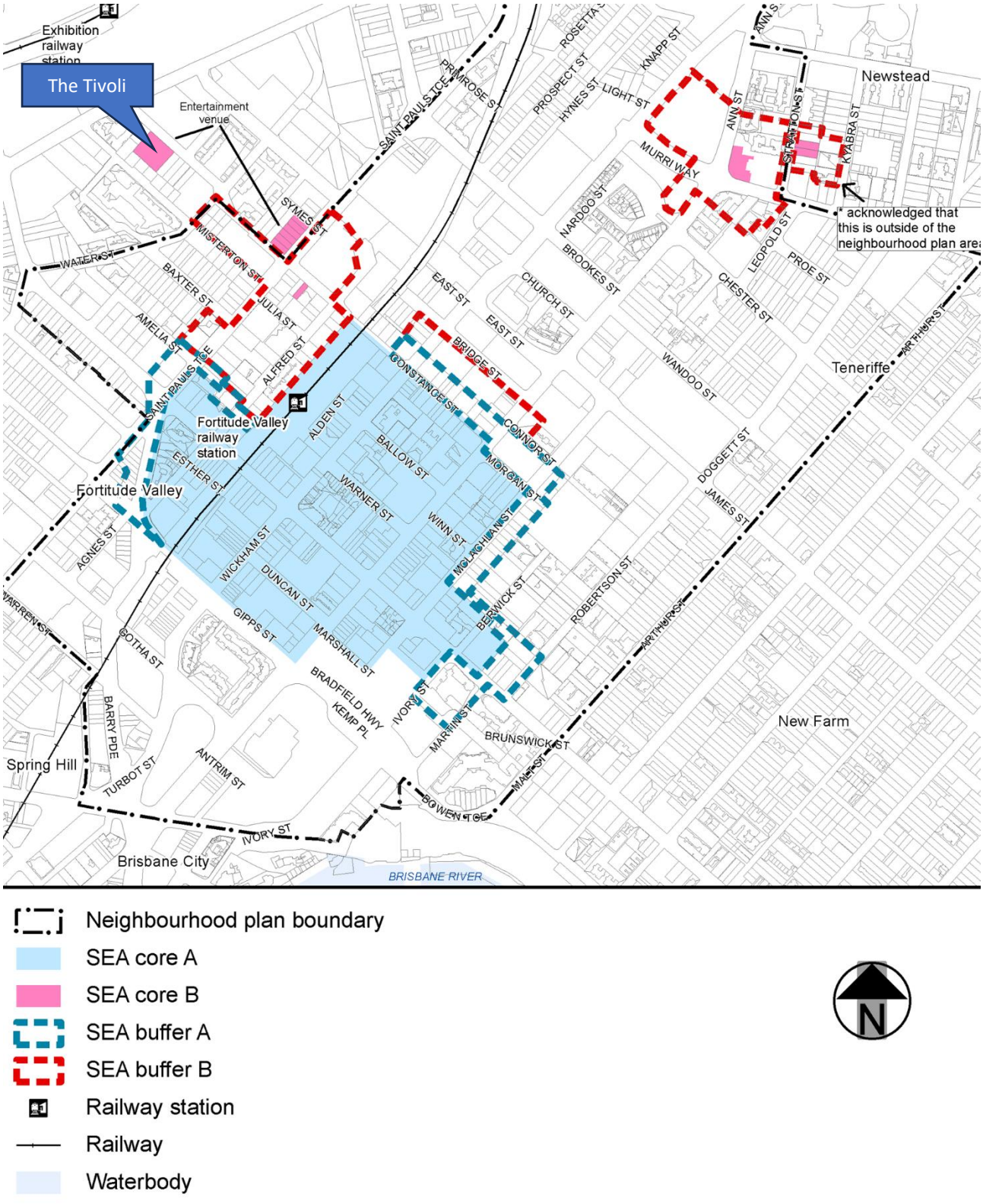


Figure 3: Special Entertainment Precinct zoning (source: *City Plan 2014*)

3. PROPOSED DEVELOPMENT

A plan of the proposed development is presented in Figure 4. A full set of architectural plans are contained in Appendix A.

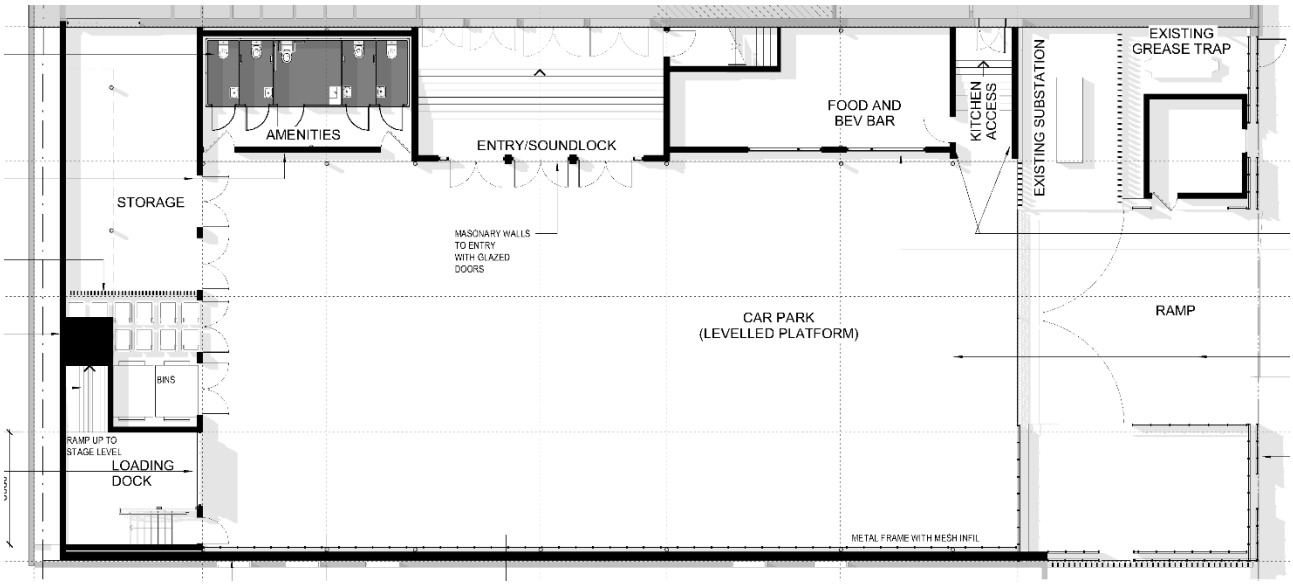


Figure 4: Site plan of the development

The purpose of the development is to improve the aesthetics and functionality of the carpark when it is used to host events and relocate the main entry to The Tivoli away from Costin Street to improve safety and reduce the impact of patrons queueing on neighbouring businesses and nearby noise-sensitive premises.

The proposed redevelopment consists of:

- Partially enclosing the existing carpark by constructing a roof over it to protect patrons and reduce noise emissions;
- Constructing a sound lock between The Tivoli and carpark to create a new main entry to the venue. Patrons waiting to enter the venue will congregate in the carpark rather than along Costin Street;
- Constructing a new food and beverage bar;
- Creating a VIP Deck (assessed via a sound lock);
- Installing a pre-fabricated building for ticketing;
- Constructing new amenities; and
- Reconfiguration the existing loading dock to provide better back stage access.

The sectional perspectives in Figure 5 and Figure 6 provide additional details of the layout, particularly the placement of the roof over the carpark. The roof structure will be lightweight and

incorporate both sound absorption treatments and clear panels to allow natural lighting.

The walls and roof that partially enclose the carpark will be acoustically treated to minimise reverberant noise build-up from patrons and ensure a favourable acoustic environment is achieved. The expected capacity of the carpark will be 500 patrons, similar to the numbers that are currently using that area for the events detailed in Section 2.

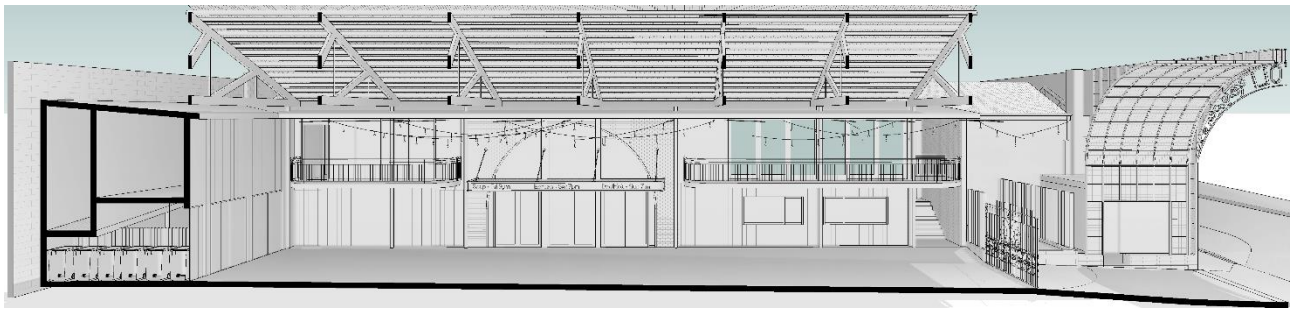


Figure 5: Sectional perspective looking northwest towards The Tivoli

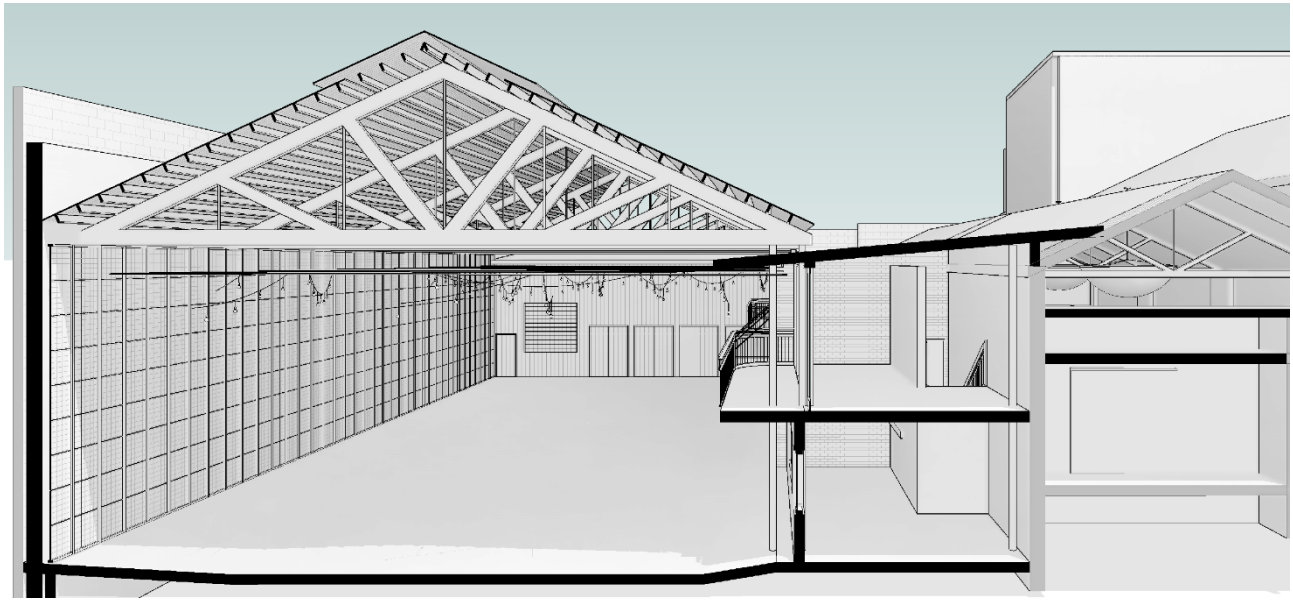


Figure 6: Sectional perspective looking towards the southwest

The hours of operation of the carpark range from 7:00am to midnight. However, the intensity of use over those hours vary, for example:

- On show days the carpark would be in-use between 4:00pm and midnight;
- General event/corporate bookings involving daytime usage of the carpark will occur over several hours between 7:00am and 6:00pm.

As part of the proposed development it is possible that additional refrigeration plant and kitchen supply and exhaust fans will be required.

Vehicle usage of the carpark will decrease compared to the current level of usage.

4. NOISE SOURCES REQUIRING ASSESSMENT

Based upon the current usage of The Tivoli and associated carpark, the noise sources from the proposed redevelopment that need to be assessed are:

1. Amplified entertainment within the carpark;
2. Patrons; and
3. Mechanical plant and equipment.

Entertainment noise from within The Tivoli does not need to be assessed. The building envelope of The Tivoli is not being modified in a way that will compromise it's noise containment ability, rather the addition of the sound locks will improve the noise containment.

Vehicle usage associated with the carpark has not been assess as compared to current levels, usage will decrease and noise emissions from vehicles will be reduced due to the screening provided by the new structures.

5. EXISTING AMBIENT NOISE LEVELS

To provide an indication of the typical ambient noise levels in the area, noise logging was conducted on the balcony at The Yards between Monday the 16th and Wednesday 25th of June 2025. The logger was located on the balcony of Unit S1302, located on the northwest side of the South Yard building on Level 13 as indicated in Figure 7. The microphone was located in façade-corrected conditions 1.35m above floor level.

Figure 7: Logging location (source: QLD Globe)

The test instrumentation consisted of:

- Norsonic Nor139 Class 1 Environmental Noise Meter, serial # 1392974
- Norsonic Nor1256 Class 1 Acoustic Calibrator: serial # 125626123

All of the instrumentation has current laboratory calibration certificates. Field calibrations taken before and after the measurements indicated there was no drift in the calibrations.

During the logging period analysis of the traces from a nearby weather station as presented in Appendix C were analysed to identify periods of rainfall. Those periods, along with periods when entertainment was held at The Tivoli as indicated in the logging traces in Appendix B, have been excluded from the analysis.

The noise logging results are presented in Table 1 and Appendix B. The results in Table 1 have been converted to their equivalent free-field levels and include the average[1] L_{Amax}[2], L_{A01}[3], L_{A10}[4], L_{Aeq}[5] and L_{A90}[6] parameters for each of the day, evening and night periods.

Table 1: Existing ambient noise levels

Parameter	Time of Day	Measured Level (dBA)		
		Minimum	Maximum	Average
L_{Amax}	Daytime (7:00am to 6:00pm)	67.3	71.4	69.1
	Evening (6:00pm to 10:00pm)	61.2	68.3	65.1
	Night-time (10:00pm to 7:00am)	61.1	64.9	62.6
L_{A01}	Daytime (7:00am to 6:00pm)	59.0	65.1	61.7
	Evening (6:00pm to 10:00pm)	55.5	59.5	57.8
	Night-time (10:00pm to 7:00am)	55.0	57.3	55.8
L_{A10}	Daytime (7:00am to 6:00pm)	54.0	61.1	57.1
	Evening (6:00pm to 10:00pm)	53.0	55.5	54.2
	Night-time (10:00pm to 7:00am)	51.6	53.8	52.5
L_{Aeq}	Daytime (7:00am to 6:00pm)	52.5	60.7	56.1
	Evening (6:00pm to 10:00pm)	50.0	54.4	52.4
	Night-time (10:00pm to 7:00am)	50.4	53.4	52.0
L_{A90}	Daytime (7:00am to 6:00pm)	49.7	53.2	51.8
	Evening (6:00pm to 10:00pm)	50.8	52.7	51.8
	Night-time (10:00pm to 7:00am)	48.9	50.7	49.7

From the logging results, the rating background levels (RBL), determined as the median of the daily 10th percentile of the L_{A90} noise levels, were:

- Daytime (7:00am to 6:00pm): 51dBA
- Evening (6:00pm to 10:00pm): 52dBA
- Night-time (10:00pm to 7:00am): 47dBA

The RBL during the evening is higher than the daytime RBL due to domestic noise from the South

[1] Averages are presented as the arithmetic average of the measured parameters over consecutive 15-minute intervals throughout each period of the day, evening and night, apart from L_{Aeq} data which are calculated as logarithmic averages.

[2] L_{Amax} is the maximum A-weighted sound pressure level occurring during the sample period

[3] L_{A01} is the A-weighted sound pressure level exceeded for 1% of the time

[4] L_{A10} is the A-weighted sound pressure level exceeded for 10% of the time

[5] L_{Aeq} is the equivalent or energy-averaged A-weighted sound pressure level

[6] L_{A90} is the A-weighted sound pressure level exceeded for 90% of the time

Yards building.

Based on observations made during the site visits, major noise sources in the local area included vehicle traffic on the surrounding road network, mechanical plant and equipment, domestic noise and activity noise at the R.NA. Showgrounds.

6. NOISE EMISSION CRITERIA

The Tivoli and surrounding uses are located in the Bowen Hills Priority Development Area and is such subject to the *Bowen Hills Priority Development Area Development Scheme* as administered by Economic Development Queensland.

Section 2.5.9.3 Noise – Transport Noise Corridors and Entertainment Venues in the *Bowen Hills Priority Development Area Development Scheme* states that a development must be designed and constructed to reduce the exposure of residential uses to noise impacts from lawfully operating entertainment venues. This requires residential buildings to be designed and constructed to achieve a minimum reduction in sound pressure level between the exterior of the building and the bedroom or living room, of $L_{Leq,\ T}$ 20dB at 63Hz where near a lawfully operating entertainment venue. Additionally, residents living near lawfully operating entertainment venues are made aware that noise levels will be relatively higher both inside and outside of residences.

The *Bowen Hills Priority Development Area Development Scheme* does not provide any noise emission criteria from entertainment venues. As such, reference has been made to appropriate sections of the Brisbane City Council (BCC) *City Plan 2014* and the *Environmental Protection Act 1994* (EPAct) as applied by other Priority Development Area Development Schemes.

6.1. Amplified Entertainment

The *Fortitude Valley Neighbourhood Plan Code* identifies that The Tivoli is located within the Special Entertainment Precinct SEA core B. The operating noise levels for entertainment is determined by the Amplified Music Venue Permit in accordance with the *Amplified Music Venues Local Law 2006*. The relevant emission criteria as specified in the *Amplified Music Venues Local Law 2006* are presented in Table 2.

Table 2: Amplified music emission criteria for SEA core B

Period	Amplified Music Emission Criteria
Friday & Saturday: 10:00am to midnight Sunday to Thursday: 10:00am to 11:30pm	$L_{Ceq,\ T}$ 88dBC
All other times	$L_{Ceq,\ T}$ 65dBC; and $L_{Leq,\ T}$ 55dB in any one-third octave band between and including 31.5Hz and 125Hz

The amplified noise emission criteria in Table 2 are applied at any point 1m external to the amplified music venue premises. The measurement time, T, is 3-minutes.

Entertainment noise testing was completed by Acoustic Works and a report issued on the 18th of February 2020 (Acoustic Works ref: 2016265 R01B The Tivoli, 52 Costin Street, Fortitude Valley.doc). That report derived the appropriate source levels for the Main Stage, What's Golden (main bar of The Tivoli) and carpark for different scenarios to meet the criteria in Table 2. The approved entertainment permit measurement plan is presented in Appendix D.

Measurement Location ML7 in the approved entertainment permit measurement plan is directly relevant to the carpark as it ensures that the intent of the Fortitude Valley Neighbourhood Plan Code is achieved at the nearest noise-sensitive receivers. Patrons

Bowen Hills Priority Development Area Development Scheme indicates that The Tivoli is located within a Mixed Use Zone. The Centre or Mixed Use Code from City Plan 2014 has been adopted to derive appropriate emission criteria for patrons.

The noise planning criteria from the Centre or Mixed Use Code (Table 9.3.3.3.F) for sensitive uses in a Mixed Use Zone have been extracted and are reproduced in Table 3. The night-time noise criteria (Table 9.3.3.3.H) are presented in Table 4. Low frequency noise criteria are not applicable to patron noise and as such have not been presented.

Table 3: Noise (planning) criteria

Criteria Location	Intrusive Noise Criteria (dBA)	Acoustic Amenity Criteria (dBA)		
	Day, evening and night $L_{Aeq,adj,T}$ are not greater than the RBL plus the value in this column for the relevant criteria location, where T equals: • **Day – 11hr** • **Evening – 4hr** • **Night – 9hr**	**Day, evening and night $L_{Aeq,adj,T}$ are not greater than the values in the columns below for the relevant criteria location, where T equals:** • **Day – 11hr** • **Evening – 4hr** • **Night – 9hr**		
		Day	**Evening**	**Night**
At a sensitive use in the Mixed Use Zone	5	60	55	50

Table 4: Night-time noise criteria

Criteria Location	Where the existing $L_{Aeq,9hr}$ night at the criteria location is:	Noise Criteria in dBA	
		Average of the highest 15 single L_{Amax} events over a given night (10pm–7am) period is not greater than the following values at the relevant criteria location	**The absolute highest single L_{Amax} event over a given night (10pm–7am) period is not greater than the following values at the relevant criteria location**
External to a sensitive use in the Mixed Use Zone	Not applicable	65	70

It can be seen in Table 3 that the intrusive noise limits are based upon the existing ambient noise levels, represented by the RBLs. Using the RBLs presented in Section 5, the intrusive noise limits can be derived as shown in Table 5.

Table 5: Derivation of the intrusive noise limits

Criteria Location	Time Period	RBL (dBA)	Noise Limit $L_{Aeq, adj, T}$ (dBA)	
			Measured	Component
At a sensitive use in the Mixed Use Zone	Day (7am to 6pm)	51	56	54
	Evening (6pm to 10pm)	52	57	55
	Night (10pm to 7am)	47	52	50

Comparing the component intrusive noise limits in Table 5 against the acoustic amenity limits in Table 3 (which are also component limits), it can be seen that the intrusive noise limits are equal to or lower than the intrusive noise limits.

6.2. Mechanical Plant and Equipment

The 440U Air-Conditioning Equipment and 440V Refrigeration Equipment default noise limits contained in the EPAct are applicable to any mechanical plant and equipment installed as part of the proposed development. For these default noise limits (which are identical), the applicable parameter is the $L_{Aeq, T}$, where T is a time representative of the noise source(s) under consideration.

To comply with 440U and 440V an occupier of a premises must not use, or permit the use of, the equipment on any day –

(a) Before 7:00am, if it makes a noise of more than 3dBA above the background level; or

(b) From 7:00am to 10:00pm, if it makes a noise of more than 5dBA above the background level; or

(c) After 10:00pm, if it makes a noise of more than 3dBA above the background level.

Taking the above criteria and the rating background levels determined from the ambient noise logging, the mechanical plant and equipment noise emission limits can be derived as presented in Table 6.

Table 6: Derived noise emission limits in accordance with the EPAct

Period	RBL (dBA)	Criteria	Derived Emission Limit, $L_{Aeq, T}$ (dBA)	
			Measured	Component
Daytime (7:00am to 6:00pm)	51	BG + 5dBA	56	54
Evening (6:00pm to 10:00pm)	52	BG + 5dBA	57	55
Night-time (10:00pm to 7:00am)	47	BG + 3dBA	50	47

7. ASSESSMENT OF NOISE EMISSIONS

7.1. Amplified Entertainment

The source levels limits derived in the Acoustic Works report for the carpark ensure that the emission criteria in Table 2 are achieved. The current source limits for amplified entertainment located at ML5 (situated 1m from the speaker) are:

- Friday & Saturday: 10:00am to midnight: 99dBA $L_{Ceq, 3min}$
- Sunday to Thursday: 10:00am to 11:30pm: 99dBA $L_{Ceq, 3min}$
- All other times: 75dBA $L_{Ceq, 3min}$

When the carpark is redeveloped, the addition of the roof and other structures has the potential to alter the source limits due to changes in the reflections and screening the amplified entertainment will experience. In addition, the location of the amplified entertainment is likely to change from what is indicated in Appendix D.

To maximise the allowable amplified entertainment source levels there are several options, such as:

- Positioning stand-alone speakers at the southern corner of the carpark (next to the loading dock), with the speakers pointing wards the northwest; or
- Changing to a distributed speaker system that allows the amplified entertainment to directed towards patrons throughout the speaker, with each speaker emitted a lower sound power level compared to a stand-alone system; or
- Creating permanent stage area (with or without a sound shell) equipped with speaker arrays that act like a line source and project the sound over a narrower coverage angle; or
- A combination of the above.

Whichever approach is chosen, it will be necessary to conduct entertainment noise testing to derive the appropriate source limits to achieve compliance with the criteria in Table 2. Therefore, to control amplified entertainment noise all that is necessary is a condition requiring entertainment noise testing at practical completion before amplified entertainment is held in the redeveloped carpark.

7.2. Patrons

The noise generated by groups of people can be described as a continuous hubbub which is punctuated by an occasional peal of laughter or loud exclamation. Research into crowd noise has determined that the sound power level from a group of people can be determined from the expressions[7]:

[7] Hayne, M.J., Taylor, J.C., Rumble, R.H. and Mee, D.J. 2011, 'Prediction of noise from small to medium sized crowds', Acoustics 2011 Conference, Gold Coast, Australia, 2-4 November.

$$L_{Aeq} = 15\log N + 64\text{dBA}$$

$$L_{A01} = 11\log N + 77\text{dBA}$$

Where N = number of patrons. While these equations were originally developed for small crowds, subsequent investigations have found that they provide a good estimate of patron noise levels in social situations for larger crowds as well. Using the source sound power levels given by the above equations, it is possible to add corrections due to reflections, screening, distance attenuation and tonality/impulsiveness to predict the noise levels at nearby receivers.

To allow the sound pressure levels to be calculated across the octave bands, average patron noise spectrums measured during the research for the Hayne et al. (2011) paper have been utilised. The L_{Aeq} and L_{A01} spectrums, based on a normalised spectrum totalling 100dBA, are presented in Table 7.

Table 7: Patron noise spectrums

Parameter	Sound Power Level in dBA at Frequency Hz						Total (dBA)
	63	125	250	500	1k	2k	
L_{Aeq}	76	85	89	96	96	93	100
L_{A01}	74	83	87	95	97	93	100

The number of patrons has been assumed to be 500, with the resulting source sound power level spectrums are presented in Table 8.

Table 8: Patron noise sound power spectrums

Location	Parameter	Sound Power Level in dBA at Frequency Hz						Total (dBA)
		63	125	250	500	1k	2k	
Carpark	L_{Aeq}	80	89	93	100	100	97	104
	L_{A01}	80	89	93	101	103	99	106

A 3D model of the site and surrounding area have been constructed using the SoundPLAN computer program. Topographic contours for the surrounding area are based upon digital elevation model data provided by the Queensland Government. Locations of surrounding features have been determined from architectural plans, aerial photographs and site inspection.

The source sound power levels have been applied as area sources located 1.5m above the ground. The patron noise level emissions have been predicted in accordance with International Standard ISO 9613-2:1996 *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation*. Receivers were placed on the nearest façade of the South Yard building which have ling-of-sight to The Tivoli carpark. An additional check receiver was placed to the southwest of the site at the Bells Square Apartment Complex to ensure that noise breakout via the opening in the southwest side of the roof did not cause problems.

A screen capture of the 3D SoundPLAN model is presented in Figure 8. The model has incorporated the following noise amelioration measures:

- A sound absorptive roof over the carpark;
- Sound absorptive treatments to parts of the walls to the carpark to minimise reverberant noise build-up and reduce reflected noise off The Tivoli façade;
- An enclosed gable at the northeast end of the roof to provide line-of-sight screening;
- An acoustic barrier 6.0m high and 7.3m long at the eastern corner of the carpark to provide acoustic screening.

Where sound absorptive treatments are required, they need to be designed so that the average Noise Reduction Coefficient (NRC) of the surface they are applied to is at least NRC 0.5.

The acoustic screening materials will need to achieve a minimum superficial density of 12kg/m^2 if made from a single material. Incorporating air gaps and/or bulk insulation into the screening construction will reduce that minimum density requirement.

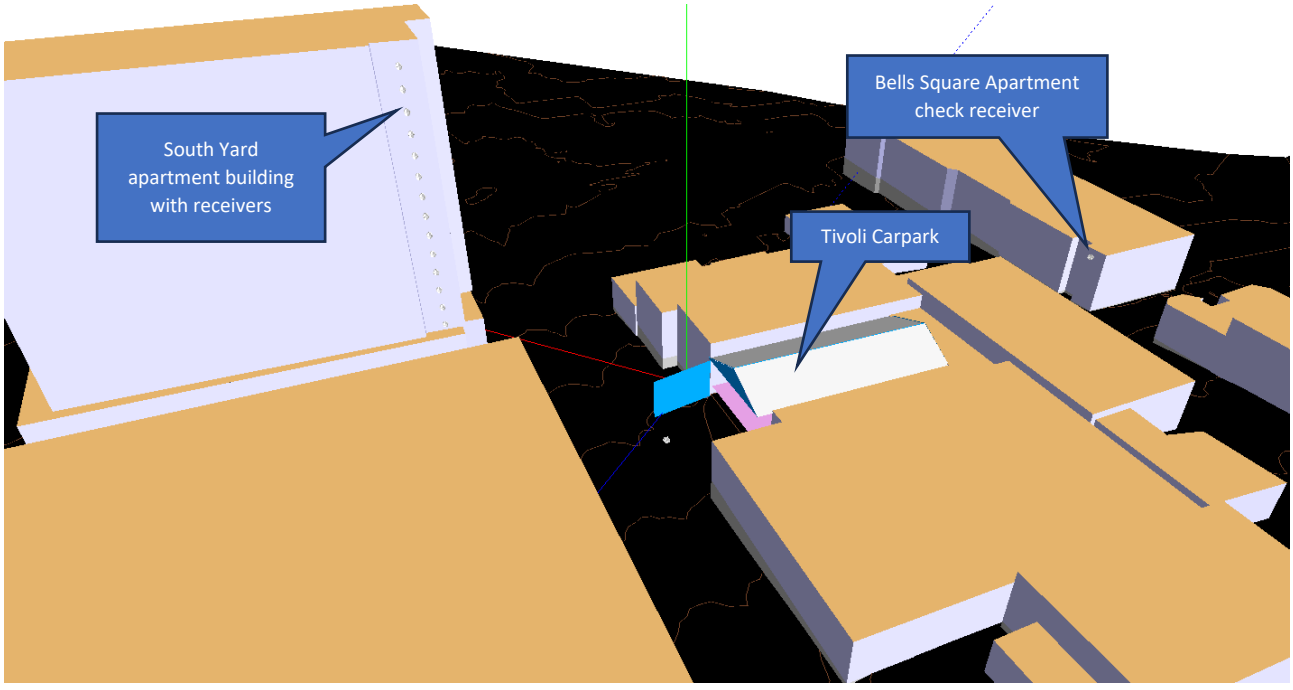


Figure 8: Screen capture of the 3D SoundPLAN model

The predicted noise emission results for the daytime, evening and night-time are presented in Table 9. In all instance compliance is achieved with the derived limits.

Table 9: Predicted patron noise emissions

Receiver	Noise Emission level (dBA)			Complies with Limit?		
	Daytime $L_{Aeq, adj, 11hr}$	Evening $L_{Aeq, adj, 4hr}$	Night $L_{Aeq adj, 9hr}$	Daytime 54dBA $L_{Aeq, adj, 11hr}$	Evening 55dBA $L_{Aeq, adj, 4hr}$	Night 50dBA $L_{Aeq, adj, 9hr}$
Bells Square Apts	42	46	39	Yes	Yes	Yes
The Yards South L1	53	56	49	Yes	Yes	Yes
The Yards South L2	53	56	49	Yes	Yes	Yes
The Yards South L3	53	56	50	Yes	Yes	Yes
The Yards South L4	52	56	49	Yes	Yes	Yes
The Yards South L5	52	56	49	Yes	Yes	Yes
The Yards South L6	52	56	49	Yes	Yes	Yes
The Yards South L7	52	56	49	Yes	Yes	Yes
The Yards South L8	52	55	49	Yes	Yes	Yes
The Yards South L9	51	55	48	Yes	Yes	Yes
The Yards South L10	51	54	48	Yes	Yes	Yes
The Yards South L11	50	54	47	Yes	Yes	Yes
The Yards South L12	50	53	47	Yes	Yes	Yes
The Yards South L13	49	53	46	Yes	Yes	Yes
The Yards South L14	49	52	46	Yes	Yes	Yes

7.3. Mechanical Plant and Equipment

The selections and locations of the mechanical plant and equipment are presently unknown. To ensure that amenity is preserved for nearby residents, all mechanical plant and equipment should be sited and acoustically treated to meet the component limits in Table 10 at the locations of all surrounding noise-sensitive premises.

Table 10: Emission limits for mechanical plant and equipment

Period	Component Limit, $L_{Aeq, T}$ (dBA)
Daytime (7:00am to 6:00pm)	54
Evening (6:00pm to 10:00pm)	55
Night-time (10:00pm to 7:00am)	47

8. CONCLUSIONS

Based on the assessment presented within this report:

- The noise sources from the proposed redevelopment that needed assessment were:
    - Amplified entertainment within the carpark;
    - Patrons; and
    - Mechanical plant and equipment.
- Entertainment noise from within The Tivoli did not need to be assessed. The building envelope of The Tivoli is not being modified in a way that will compromise it's noise containment ability, rather the addition of the sound locks will improve the noise containment.
- Vehicle usage did not need to be assessed as compared to current levels, vehicle usage of the carpark will decrease and noise emissions from vehicles will be reduced due to the screening provided by the new structures.
- When the carpark is redeveloped, the addition of the roof and other structures has the potential to alter the source limits due to changes in the reflections and screening the amplified entertainment will experience. It will be necessary to conduct entertainment noise testing at practical completion to derive the appropriate source limits to achieve compliance with the emission criteria specified in the *Amplified Music Venues Local Law 2006*.
- To ensure that patron noise emissions are controlled, the following noise amelioration measures are necessary:
    - A sound absorptive roof over the carpark;
    - Sound absorptive treatments to parts of the walls to the carpark to minimise reverberant noise build-up and reduce reflected noise off The Tivoli façade;
    - An enclosed gable at the northeast end of the roof to provide line-of-sight screening;
    - An acoustic barrier 6.0m high and 7.3m long at the eastern corner of the carpark to provide acoustic screening.
- Where sound absorptive treatments are required, they need to be designed so that the average Noise Reduction Coefficient (NRC) of the surface they are applied to is at least NRC 0.5.
- The acoustic screening materials will need to achieve a minimum superficial density of 12kg/m^2 if made from a single material. Incorporating air gaps and/or bulk insulation into the screening construction will reduce that minimum density requirement.
- The selections and locations of the mechanical plant and equipment are presently unknown. To ensure that amenity is preserved for nearby residents, all mechanical plant and

equipment will need to be sited and acoustically treated to meet the following component limits at nearby noise-sensitive receivers:

- Daytime (7:00am to 6:00pm): 54dBA $L_{Aeq, T}$
- Evening (6:00pm to 10:00pm): 55dBA $L_{Aeq, T}$
- Night-time (10:00pm to 7:00am): 47dBA $L_{Aeq, T}$

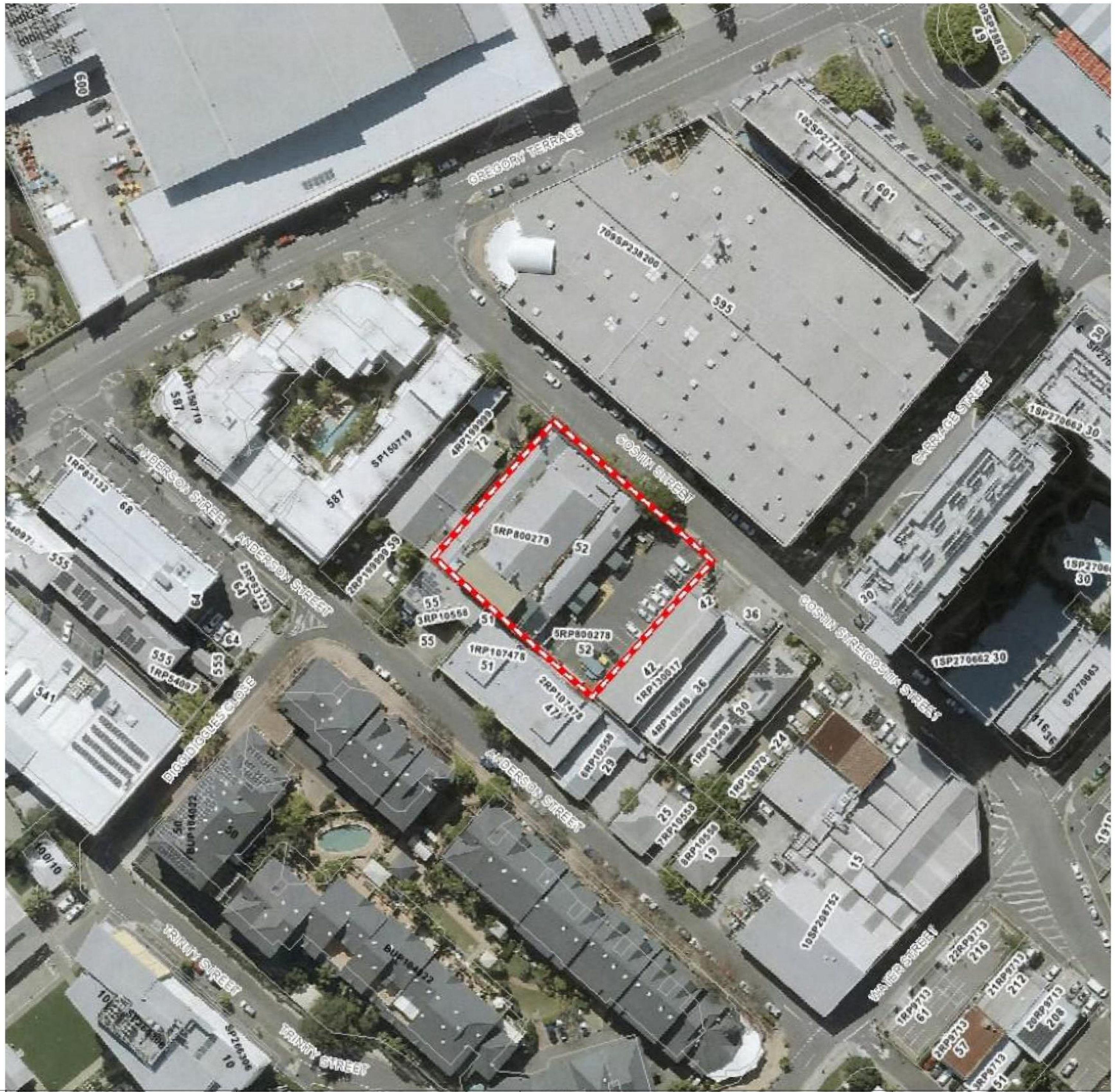
APPENDIX A: PLANS OF THE DEVELOPMENT

TIVOLI

52 COSTIN STREET, FORTITUDE VALLEY, 4006
Lot 5 on RP800278
Area: 2160m²
Ward: Central

DRAWING LIST

No.	NAME	REV.	DATE
001-01	COVER SHEET	D	10/07/25
100-01	SITE PLAN EXISTING	H	10/07/25
101-01	SITE PLAN PROPOSED	H	10/07/25
200-01	EXISTING/DEMO CARPARK DA PLAN	[illegible]	10/07/25
201-01	PROPOSED CARPARK DA PLAN	[illegible]	10/07/25
201-02	PROPOSED CARPARK UPPER LEVEL	I	10/07/25
201-03	PROPOSED CARPARK ROOF PLAN	H	10/07/25
300-01	COSTIN STREET ELEVATION + SECTIONAL PERSPECTIVES EXISTING/DEMO	I	10/07/25
301-01	COSTIN STREET ELEVATION + SECTIONAL PERSPECTIVES - PROPOSED	I	10/07/25
301-02	CARPARK ELEVATION	G	10/07/25
901-01	Image 01	I	10/07/25
901-02	Image 02	I	10/07/25
901-03	Image 03	I	10/07/25
901-04	Image 04	H	10/07/25



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2. USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED

REV	DATE	DESCRIPTION
D	10/07/25	DEVELOPMENT APPLICATION
C	02/07/25	DEVELOPMENT APPLICATION
B	12/06/25	DEVELOPMENT APPLICATION
A	19/12/24	CONCEPT 4

CLIENT: THE TIVOLI

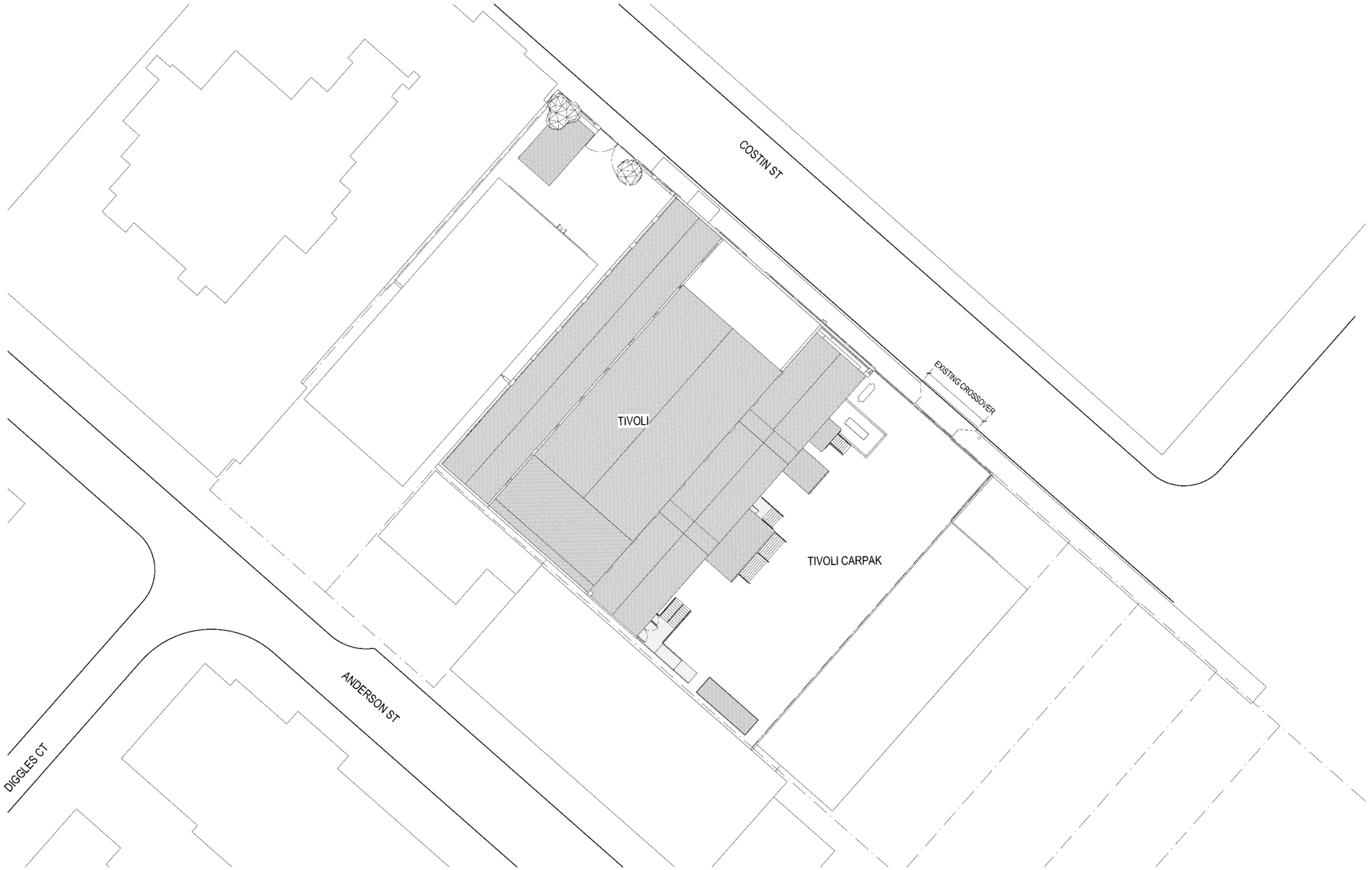
LOCATION: 52 COSTIN ST, FORTITUDE VALLEY QLD 4006

JOB NO.: 358
SCALE @ A1: 1 : 500
NORTH
DRAWN BY: LB
CHECKED BY: JDA
SCALE BAR: 5 0 5 10 15 20 25 30 35 m
SCALE 1:500 @A1
SCALE 1:1000 @A3

PROJECT: THE TIVOLI

DRAWING TITLE: COVER SHEET

DRAWING NO.: 358. 001-01 D



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F	12/09/25	DEVELOPMENT APPLICATION
E	27/06/25	CONCEPT FOR PRICING
D	20/03/25	CONCEPT
C	11/03/25	CONCEPT
B	03/03/25	CONCEPT
A	26/02/25	CONCEPT

CLIENT: THE TIVOLI

LOCATION: 52 COSTIN ST, FORTITUDE VALLEY QLD 4006

JOB NO.: 358
SCALE @ A1: 1 : 200
NORTH
DRAWN BY: LB
CHECKED BY: JDA
SCALE BAR: -2 0 2 4 6 8 10 12 14 m
SCALE 1:200 @A1
SCALE 1:400 @A3

PROJECT: THE TIVOLI

DRAWING TITLE: SITE PLAN EXISTING
DRAWING NO.: 358. 100-01
H

STAGE 1 WORKS
- FIRE RATED BOUNDARY WALLS
- NEW GROUND SLAB AND IN GROUND SEVICES
- NEW ROOF STRUCTURE AND SUPPORTING COLUMNS
- ENTRY SCREENING

COSTIN ST

ACCESS MAINTANED TO EXISTING ENERGEX SUB STATION

TIVOLI

STAGE 1 NEW ENTRY ARBOUR METAL FRAME WITH MESH INFILL

STAGE 1 NEW CONCRETE SLAB

TIVOLI CARPAK

STAGE 1 NEW ROOF STRUCTURE

STAGE 1 FIRE RATED BOUNDARY WALL

EXISTING TIVOLI BUILDING

PROPOSED STRUCTURE

ANDERSON ST

DIGGLES CT

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D	20/03/25	CONCEPT
C	11/03/25	CONCEPT
B	03/03/25	CONCEPT
A	26/02/25	CONCEPT

CLIENT: THE TIVOLI

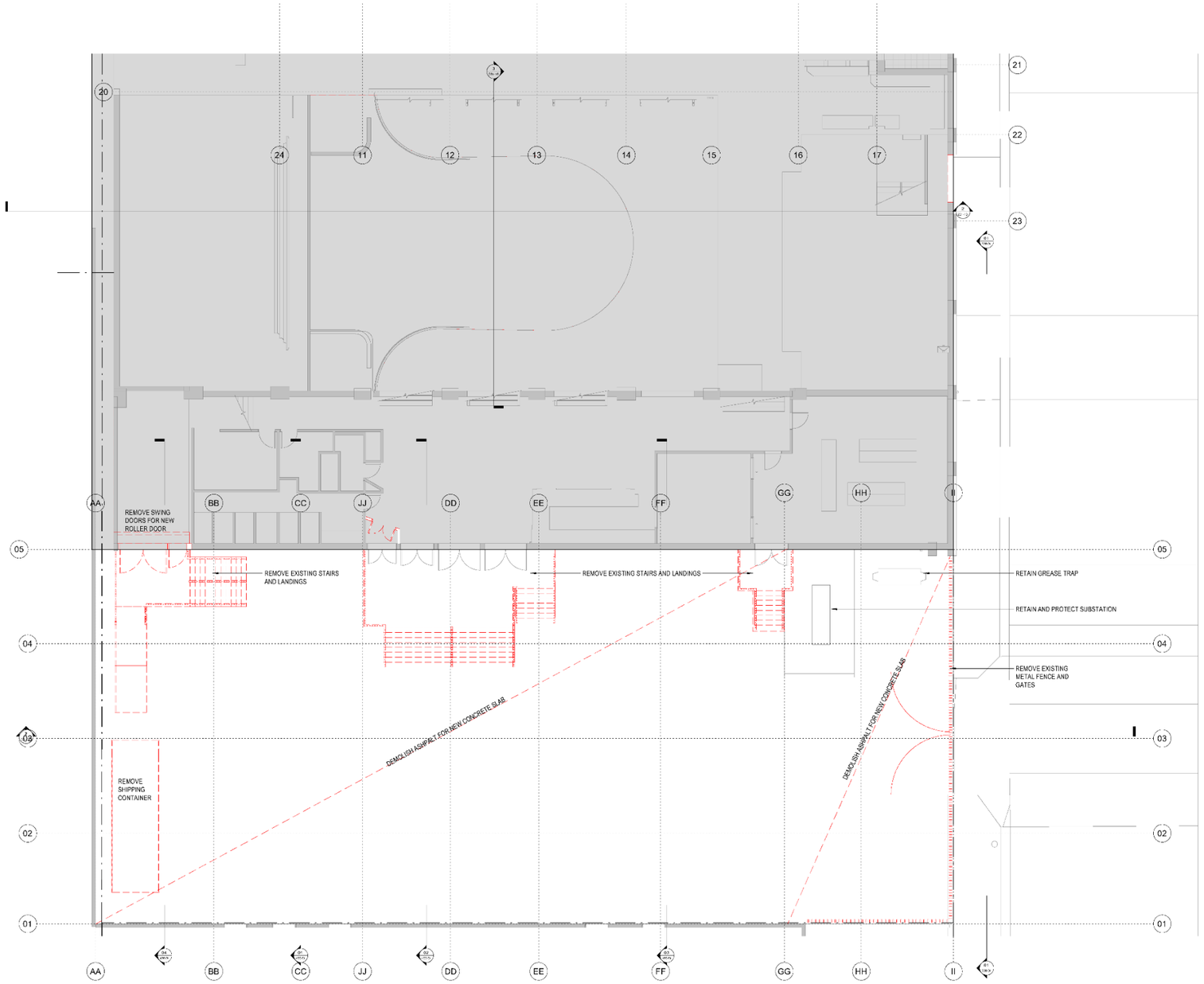
LOCATION: 52 COSTIN ST, FORTITUDE VALLEY QLD 4006

JOB NO.: 358
SCALE @ A1: 1 : 200
NORTH
DRAWN BY: LB
CHECKED BY: JDA
SCALE BAR: 2 0 2 4 6 8 10 12 14 m
SCALE 1:200 @A1
SCALE 1:400 @A3

PROJECT: THE TIVOLI

DRAWING TITLE: SITE PLAN PROPOSED

DRAWING NO.: 358. 101-01
H



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I	10/07/25	DEVELOPMENT APPLICATION
H	12/06/25	DEVELOPMENT APPLICATION
G	22/04/25	CONCEPT FOR PRICING
F	20/03/25	CONCEPT
E	11/03/25	CONCEPT
D	03/03/25	CONCEPT
C	26/02/25	CONCEPT
B	13/02/25	CONCEPT
A	19/12/24	CONCEPT 4

CLIENT: THE TIVOLI

LOCATION: 52 COSTIN ST, FORTITUDE VALLEY QLD 4006

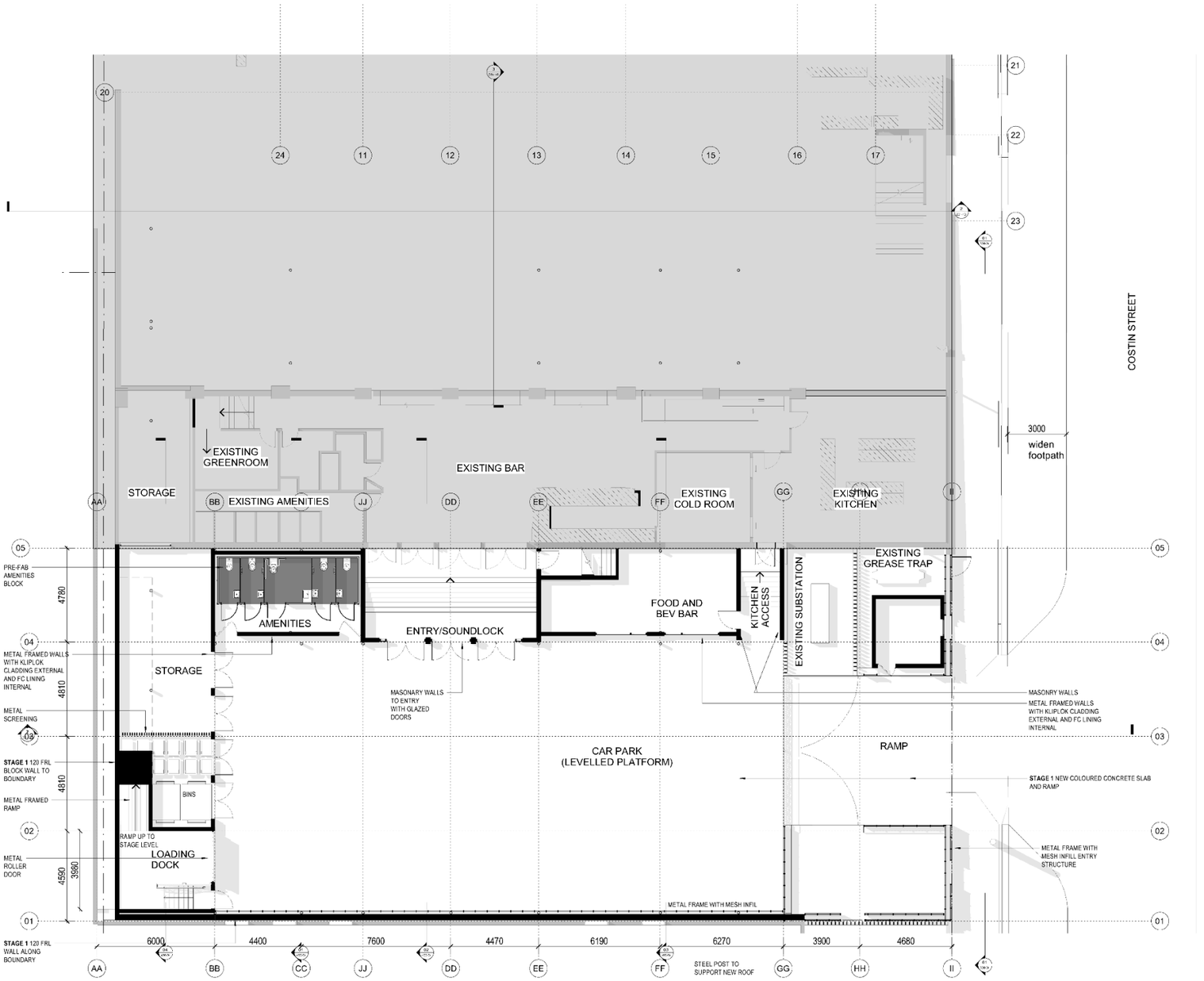
JOB NO.	SCALE @ A1	NORTH
358	1 : 100	
DRAWN BY: LB	CHECKED BY: JDA	

SCALE BAR
1 0 1 2 3 4 5 6 7 m
SCALE 1:100 @A1
SCALE 1:200 @A3

PROJECT: THE TIVOLI

DRAWING TITLE: EXISTING/DEMO CARPARK GA PLAN

DRAWING NO.: 358. 200-01 | J



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I	10/07/25	DEVELOPMENT APPLICATION
H	12/06/25	DEVELOPMENT APPLICATION
G	22/04/25	CONCEPT FOR PRICING
F	28/03/25	CONCEPT
E	11/03/25	CONCEPT
D	03/03/25	CONCEPT
C	26/02/25	CONCEPT
B	13/02/25	CONCEPT
A	19/12/24	CONCEPT 4

CLIENT: THE TIVOLI

LOCATION: 52 COSTIN ST, FORTITUDE VALLEY QLD 4006

JOB NO.: 358
SCALE @ A1: 1 : 100
NORTH
DRAWN BY: LB
CHECKED BY: JDA
SCALE BAR: 1 0 1 2 3 4 5 6 7 m
SCALE 1:100 @A1
SCALE 1:200 @A3

PROJECT: THE TIVOLI

DRAWING TITLE: PROPOSED CARPARK GA PLAN

DRAWING NO.: 358. 201-01
J


MAIN STAGE
BACK STAGE
EXISTING GREEN ROOMS
STORAGE
VIP DECK
FULL HEIGHT GLAZING
GLAZED SLIDING DOORS
AWNING OVER DOORS
STORAGE
1500
2200
METAL FRAMED WALLS WITH KLIPLOK CLADDING EXTERNAL AND FC LINING INTERNAL
METAL BALUSTRADES
STAGE 1 120 FRL BLOCK WALL TO BOUNDARY
METAL FRAMED RAMP
VOID TO CAR PARK BELOW
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I 10/07/25 DEVELOPMENT APPLICATION
H 12/06/25 DEVELOPMENT APPLICATION
G 22/04/25 CONCEPT FOR PRICING
F 30/03/25 CONCEPT
E 11/03/25 CONCEPT
D 03/03/25 CONCEPT
C 26/02/25 CONCEPT
B 13/02/25 CONCEPT
A 19/12/24 CONCEPT
CLIENT
THE TIVOLI
LOCATION
52 COSTIN ST, FORTITUDE VALLEY QLD 4006
JOB NO.
358
SCALE @ A1
1 : 100
NORTH
DRAWN BY
LB
CHECKED BY
JDA
SCALE BAR
SCALE 1:100 @A1
SCALE 1:200 @A3
PROJECT
THE TIVOLI
DRAWING TITLE
PROPOSED CARPARK UPPER LEVEL
DRAWING NO.
358. 201-02
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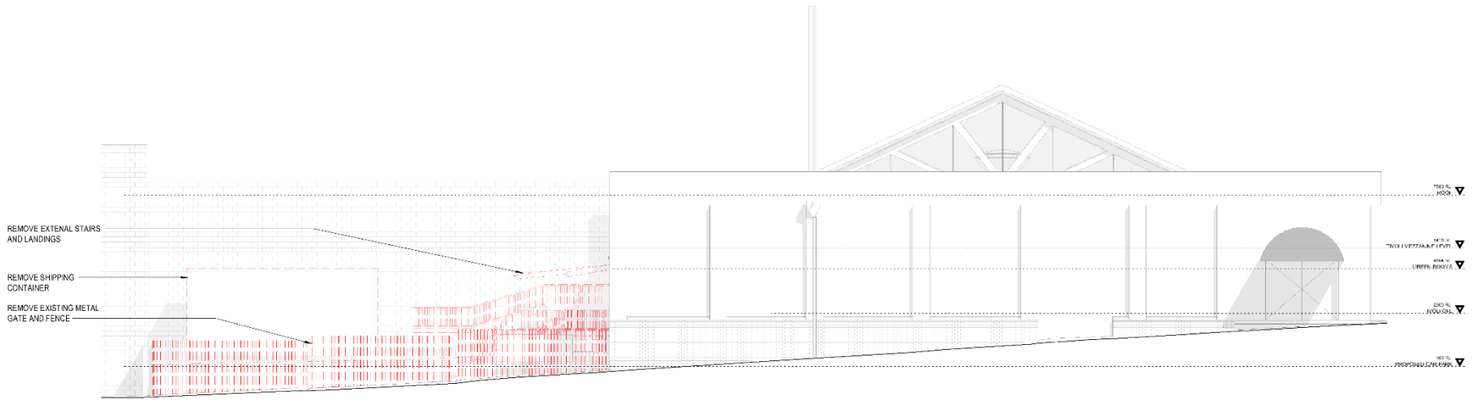
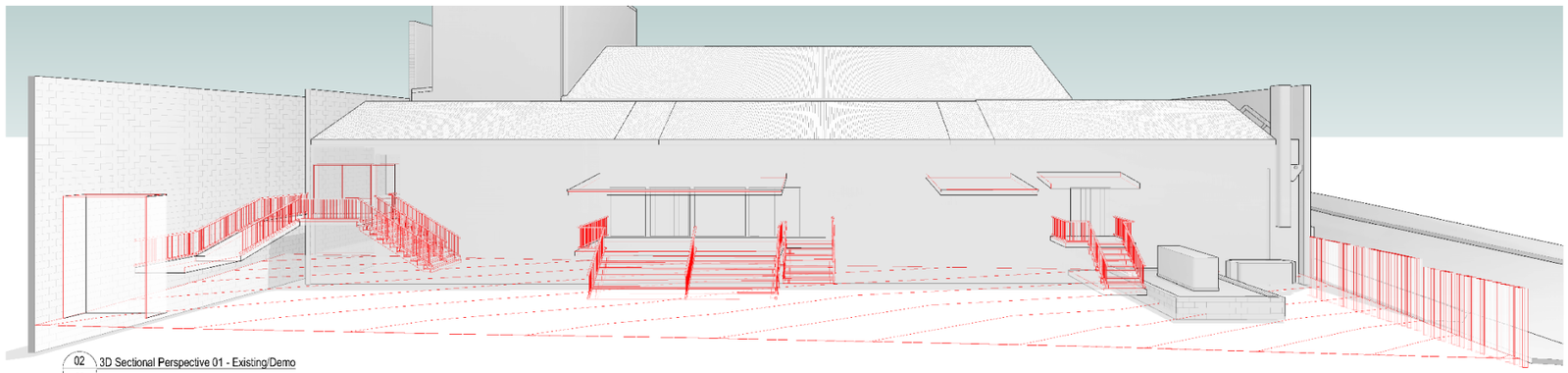
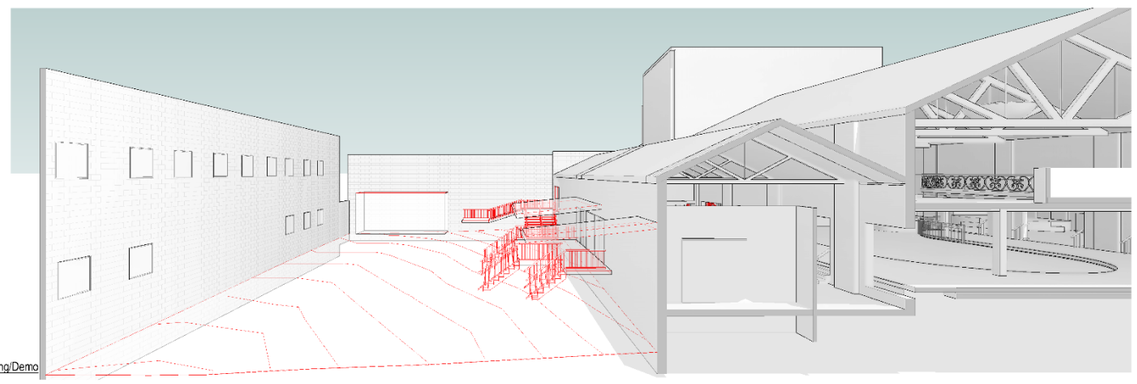


01 Costin Street Elevation - Existing/Demo
1 : 100



02 3D Sectional Perspective 01 - Existing/Demo



03 3D Sectional Perspective 02 - Existing/Demo

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H	03/07/25	DEVELOPMENT APPLICATION
G	12/06/25	DEVELOPMENT APPLICATION
F	27/04/25	CONCEPT FOR PRICING
E	30/03/25	CONCEPT
D	11/03/25	CONCEPT
C	03/03/25	CONCEPT
B	26/02/25	CONCEPT
A	13/02/25	CONCEPT

CLIENT: THE TIVOLI

LOCATION: 52 COSTIN ST, FORTITUDE VALLEY QLD 4006

JOB NO.: 358
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DRAWN BY: LB
CHECKED BY: JDA
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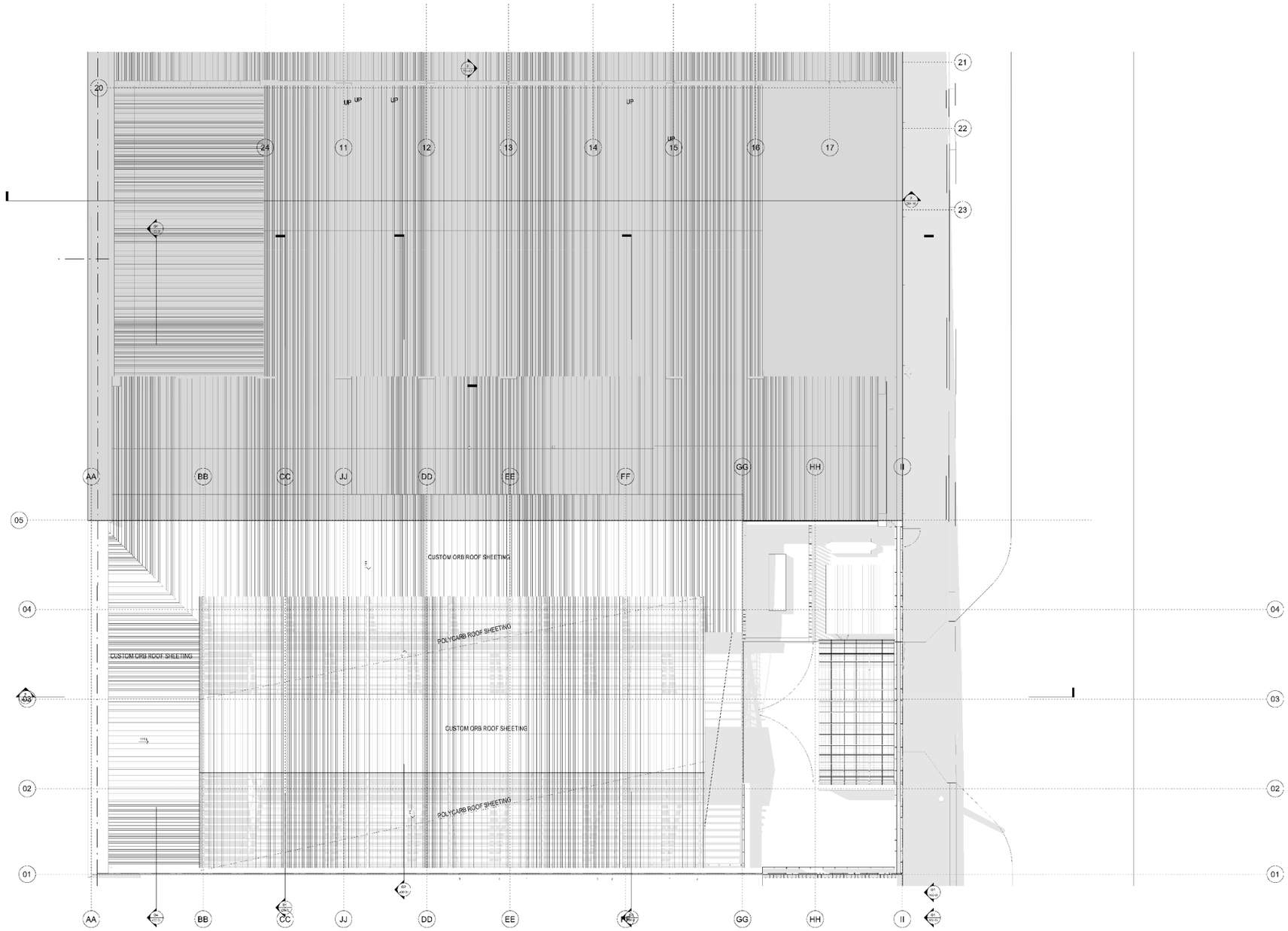
SCALE 1:200 @A3

PROJECT: THE TIVOLI

DRAWING TITLE: COSTIN STREET ELEVATION + SECTIONAL PERSPECTIVES EXISTING/DEMO

DRAWING NO.: 358. 300-01 | I



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E	27/06/24	CONCEPT FOR PRICING
D	20/03/24	CONCEPT
C	11/03/24	CONCEPT
B	07/03/24	CONCEPT
A	13/02/24	CONCEPT

CLIENT
THE TIVOLI

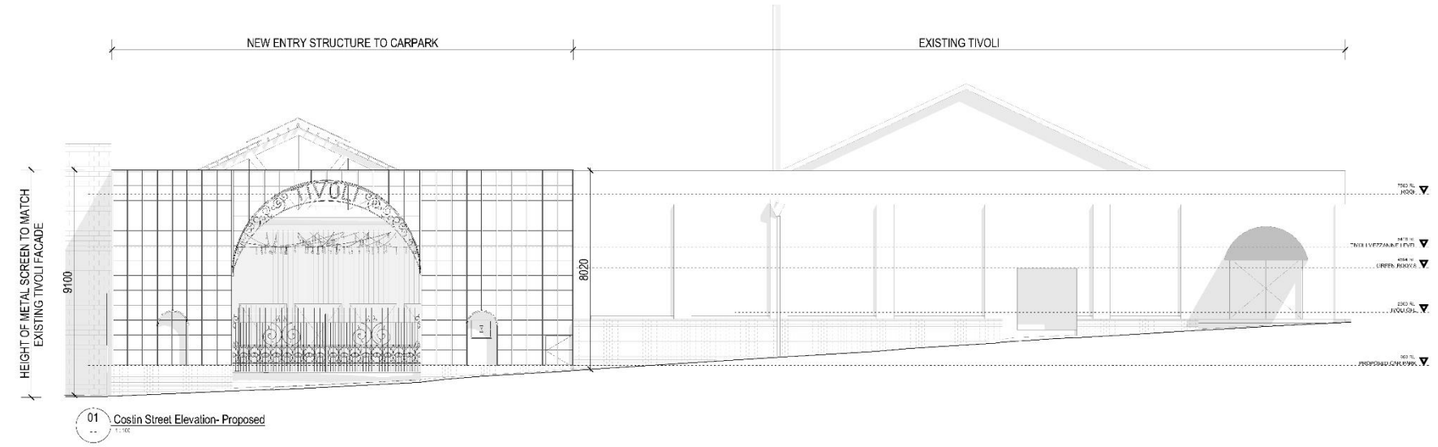
LOCATION
52 COSTIN ST, FORTITUDE VALLEY QLD 4006

JOB NO. 358
SCALE @ A1 1 : 100
NORTH
DRAWN BY LB
CHECKED BY JDA
SCALE BAR 1 0 1 2 3 4 5 6 7 m
SCALE 1:100 @A1
SCALE 1:200 @A3

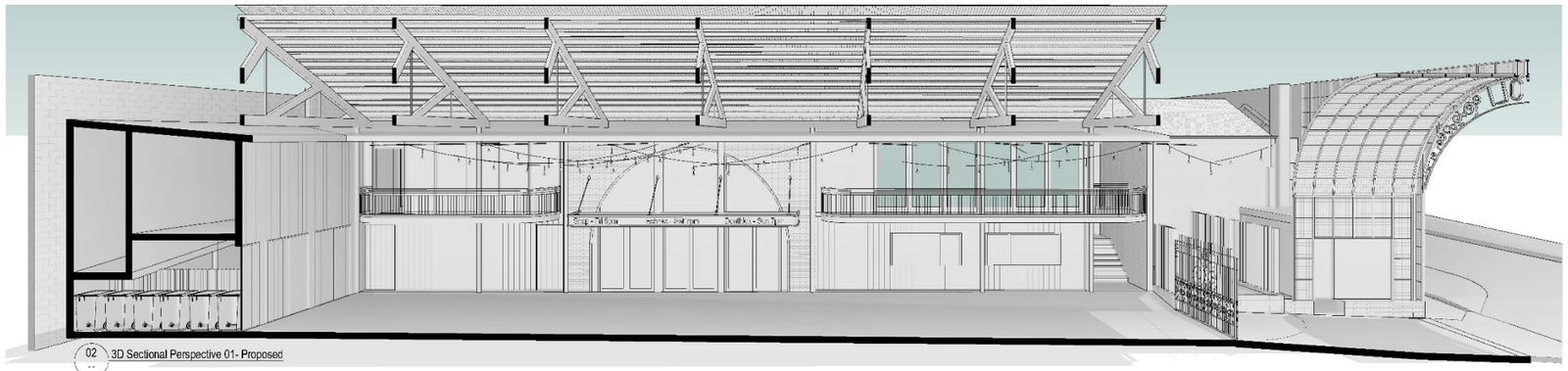
PROJECT
THE TIVOLI

DRAWING TITLE
PROPOSED CAPARK ROOF PLAN

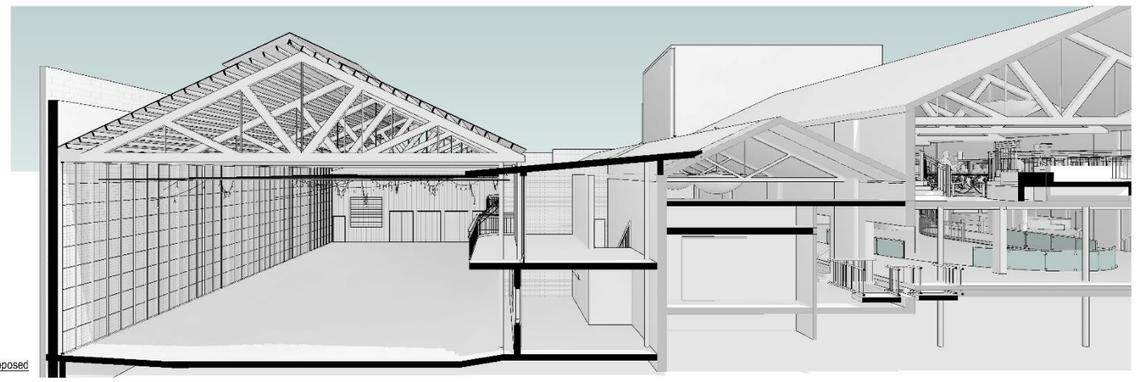
DRAWING NO.
358. 201-03 H



01 Costin Street Elevation- Proposed



02 3D Sectional Perspective 01- Proposed



03 3D Sectional Perspective 02 - Proposed

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F	23/04/25	CONCEPT FOR PRICING
E	16/03/25	CONCEPT
D	11/03/25	CONCEPT
C	10/03/25	CONCEPT
B	26/02/25	CONCEPT
A	13/02/25	CONCEPT

CLIENT: THE TIVOLI

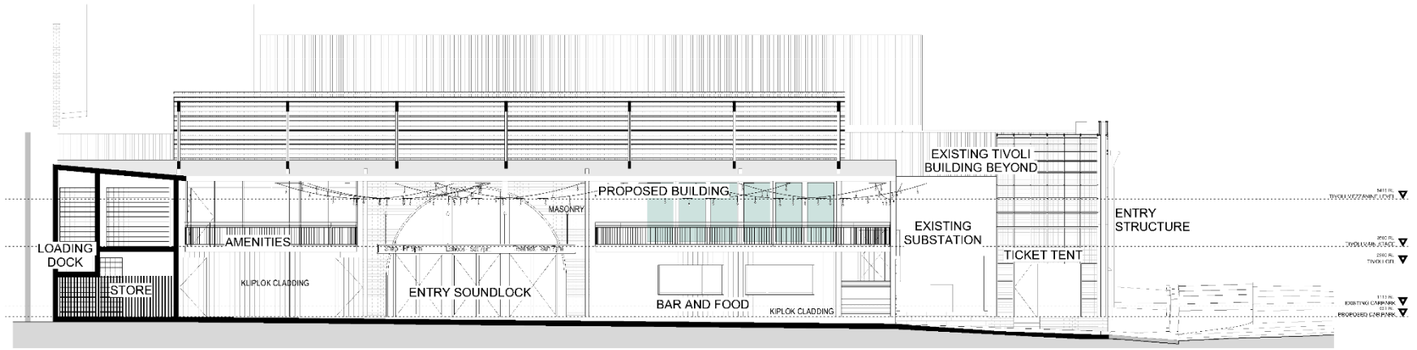
LOCATION: 52 COSTIN ST, FORTITUDE VALLEY QLD 4006

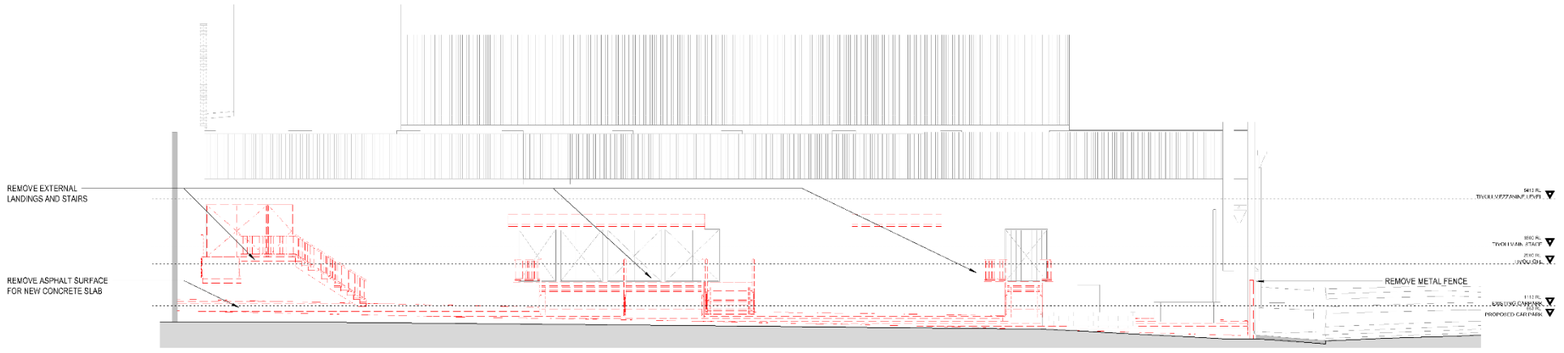
JOB NO.: 358
SCALE @ A1: 1 : 100
NORTH
DRAWN BY: LB
CHECKED BY: JDA
SCALE BAR: 1 0 1 2 3 4 5 6 7 m
SCALE 1:100 @A1
SCALE 1:200 @A3

PROJECT: THE TIVOLI

DRAWING TITLE: COSTIN STREET ELEVATION + SECTIONAL PERSPECTIVES - PROPOSED

DRAWING NO.: 358. 301-01 | I





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VIEW 01

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VIEW 02

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VIEW 03

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JDA JDA Co. p. 07 3392 3753 www.jdaco.com.au 611 Stanley Street Woolloongabba QLD 4102 DEVELOPMENT APPROVAL	NOTES 1. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SET OUT 2. USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED REV | DATE | DESCRIPTION I | 10/07/25 | DEVELOPMENT APPLICATION H | 03/07/25 | DEVELOPMENT APPLICATION G | 12/06/25 | DEVELOPMENT APPLICATION F | 27/05/25 | COUNCIL FEEDBACK E | 20/05/25 | COUNCIL RFI D | 11/03/25 | COUNCIL RFI C | 03/03/25 | COUNCIL RFI B | 26/02/25 | COUNCIL RFI A | 13/01/25 | COUNCIL RFI	CLIENT THE TIVOLI	LOCATION 52 COSTIN ST, FORTITUDE VALLEY QLD 4006	JOB NO. 358 | SCALE @ A1 1 : 1 | NORTH DRAWN BY LB | CHECKED BY JDA SCALE BAR	PROJECT THE TIVOLI	DRAWING TITLE Image 03 DRAWING NO. 358. 901-03 | I
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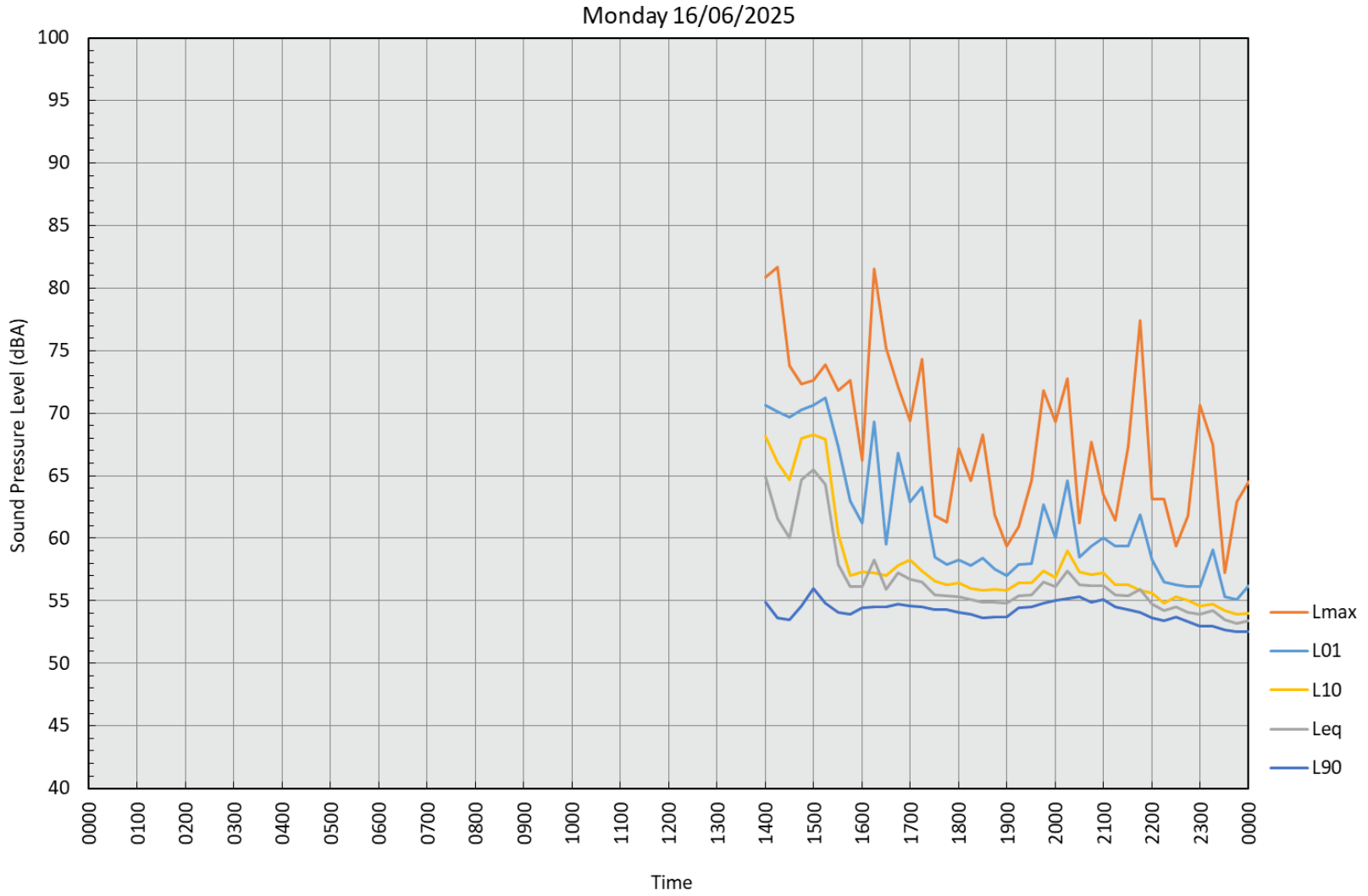
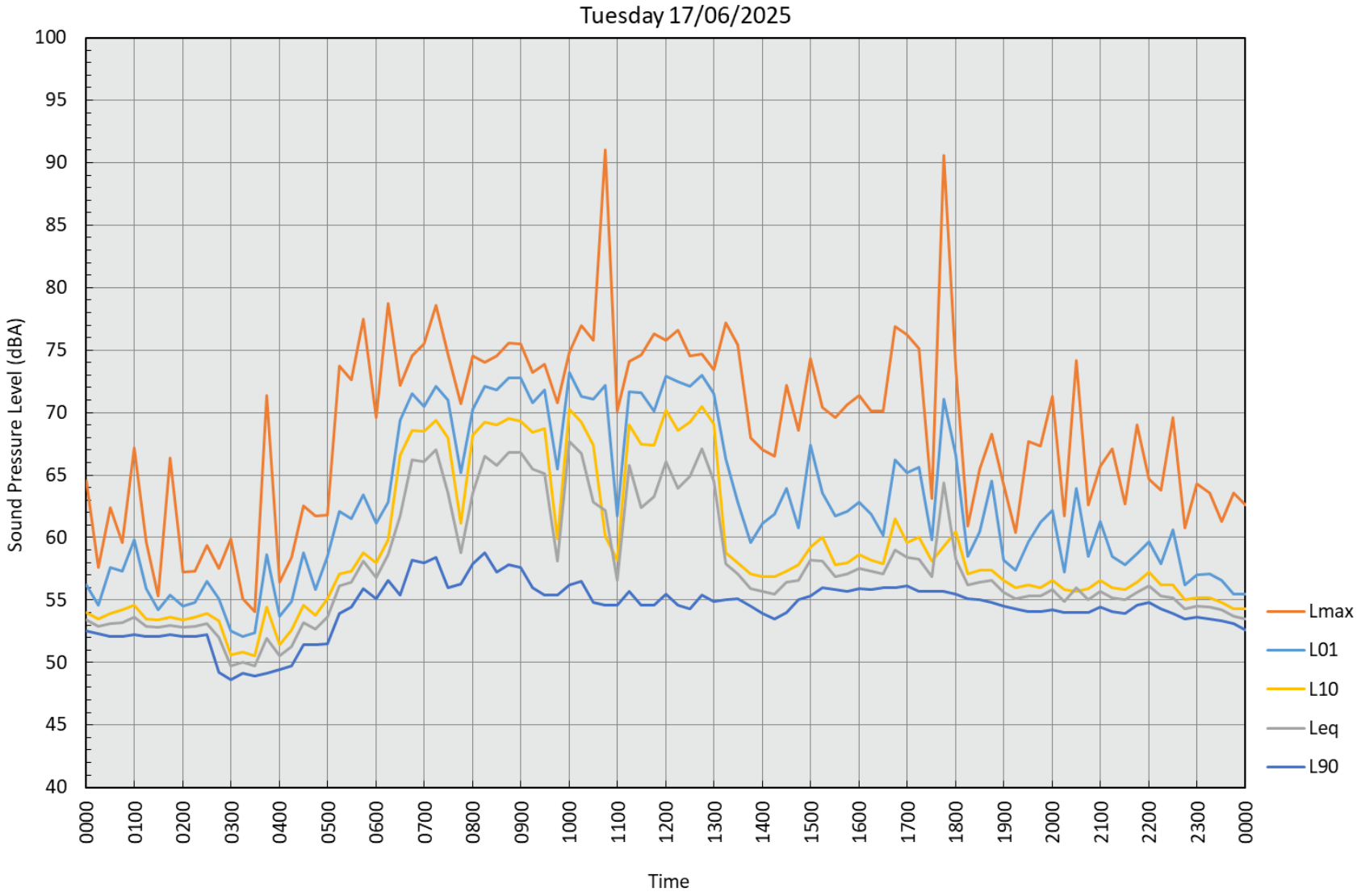
VIEW 04

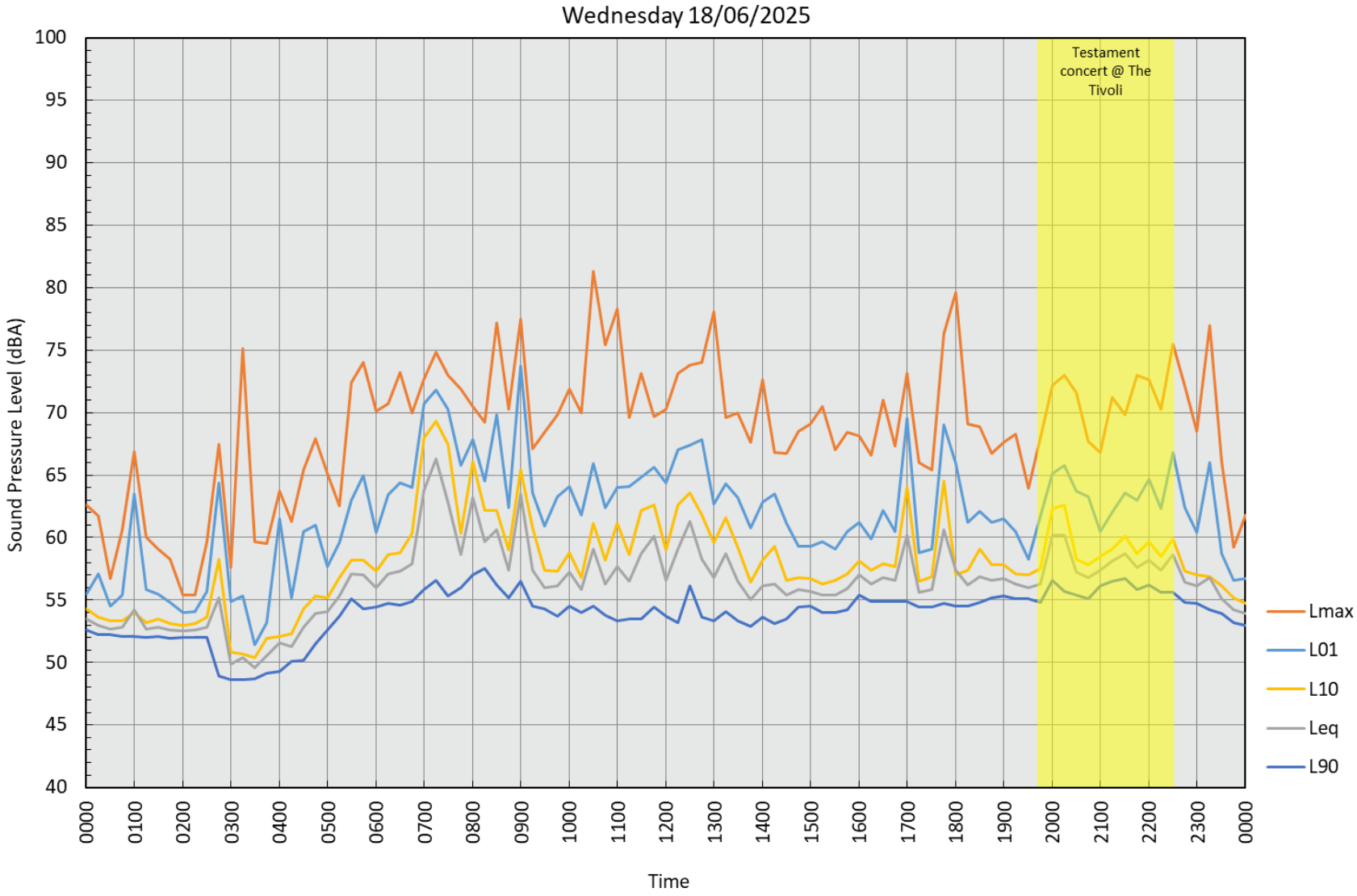
Images are artist's impression and for illustrative purposes only

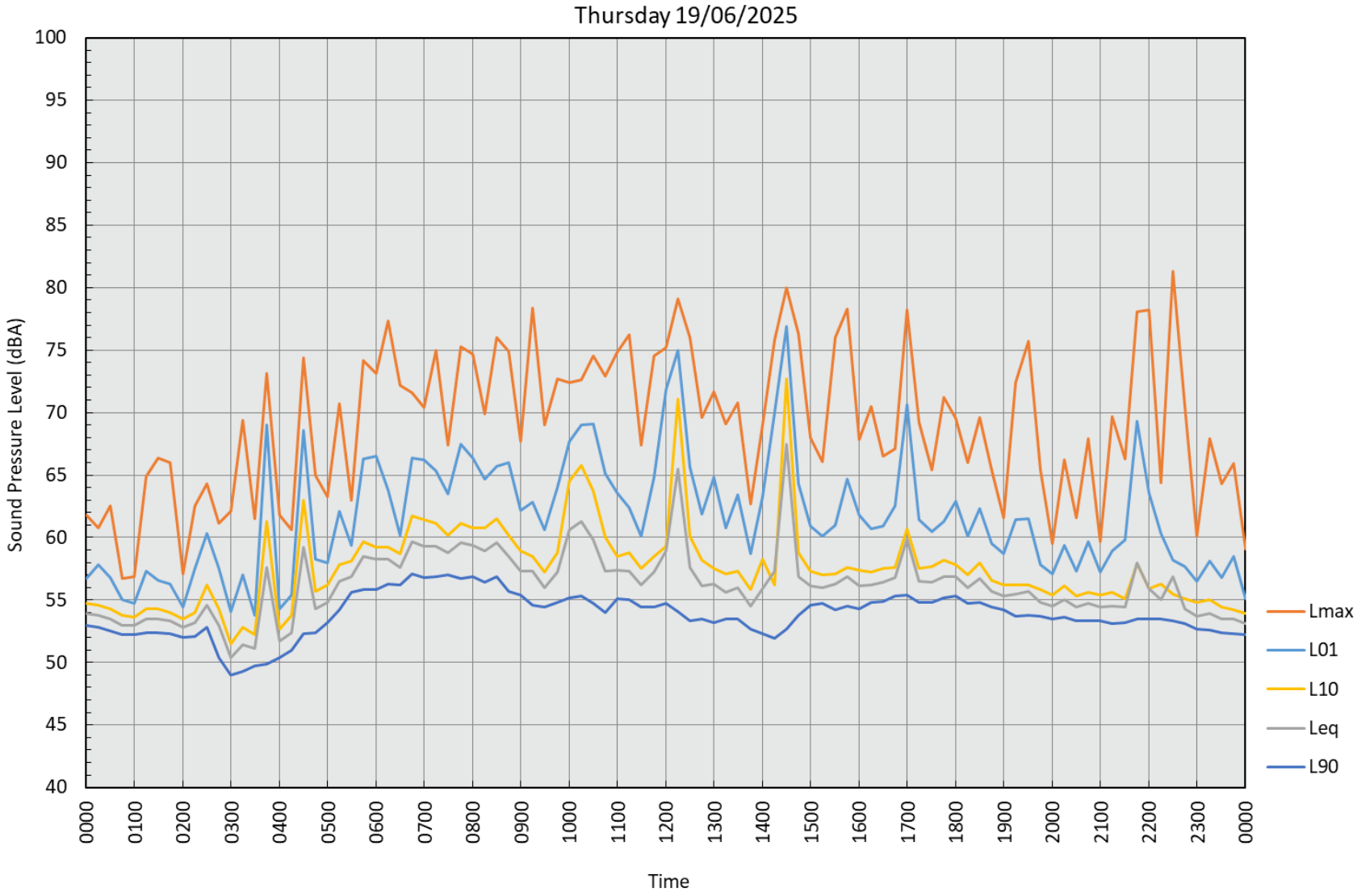
JDA JDA Co. p. 07 3352 3753 www.jdaco.com.au 911 Stanley Street, Woolloongabba QLD 4102 PRELIMINARY	NOTES 1. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SET OUT 2. USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED H 10/07/25 DEVELOPMENT APPLICATION G 02/07/25 DEVELOPMENT APPLICATION F 27/06/25 CONCEPT / CKH PISCINA E 20/03/25 CONCEPT D 11/03/25 CONCEPT C 03/03/25 CONCEPT B 26/02/25 CONCEPT A 13/01/25 CONCEPT REV DATE DESCRIPTION	CLIENT THE TIVOLI	LOCATION 52 COSTIN ST, FORTITUDE VALLEY QLD 4006	JOB NO. 358 SCALE @ A1 1 : 1 NORTH DRAWN BY LB CHECKED BY JDA SCALE BAR	PROJECT THE TIVOLI	DRAWING TITLE Image 04 DRAWING NO. 358. 901-04 H

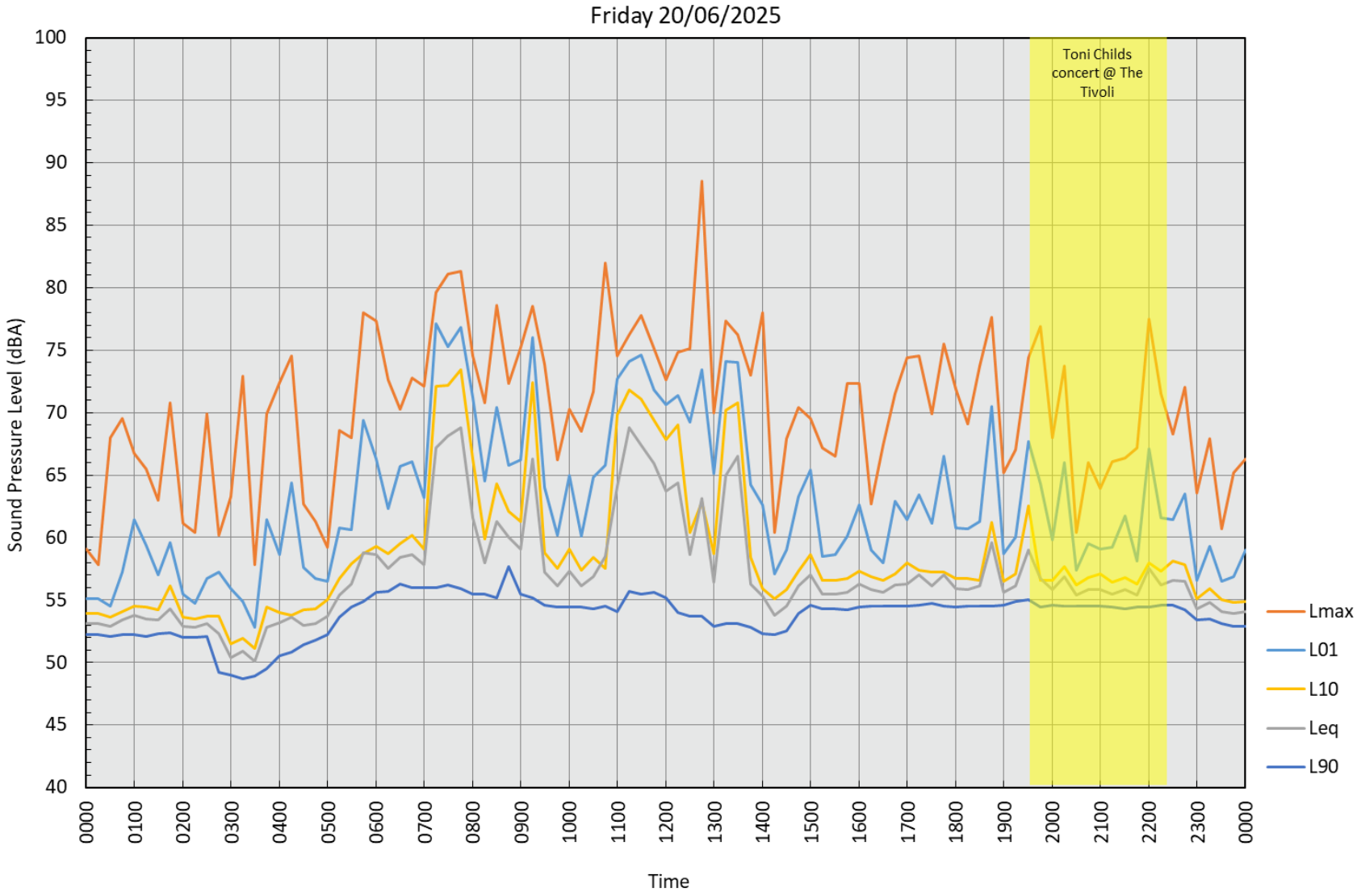
APPENDIX B: NOISE LOGGING TRACES

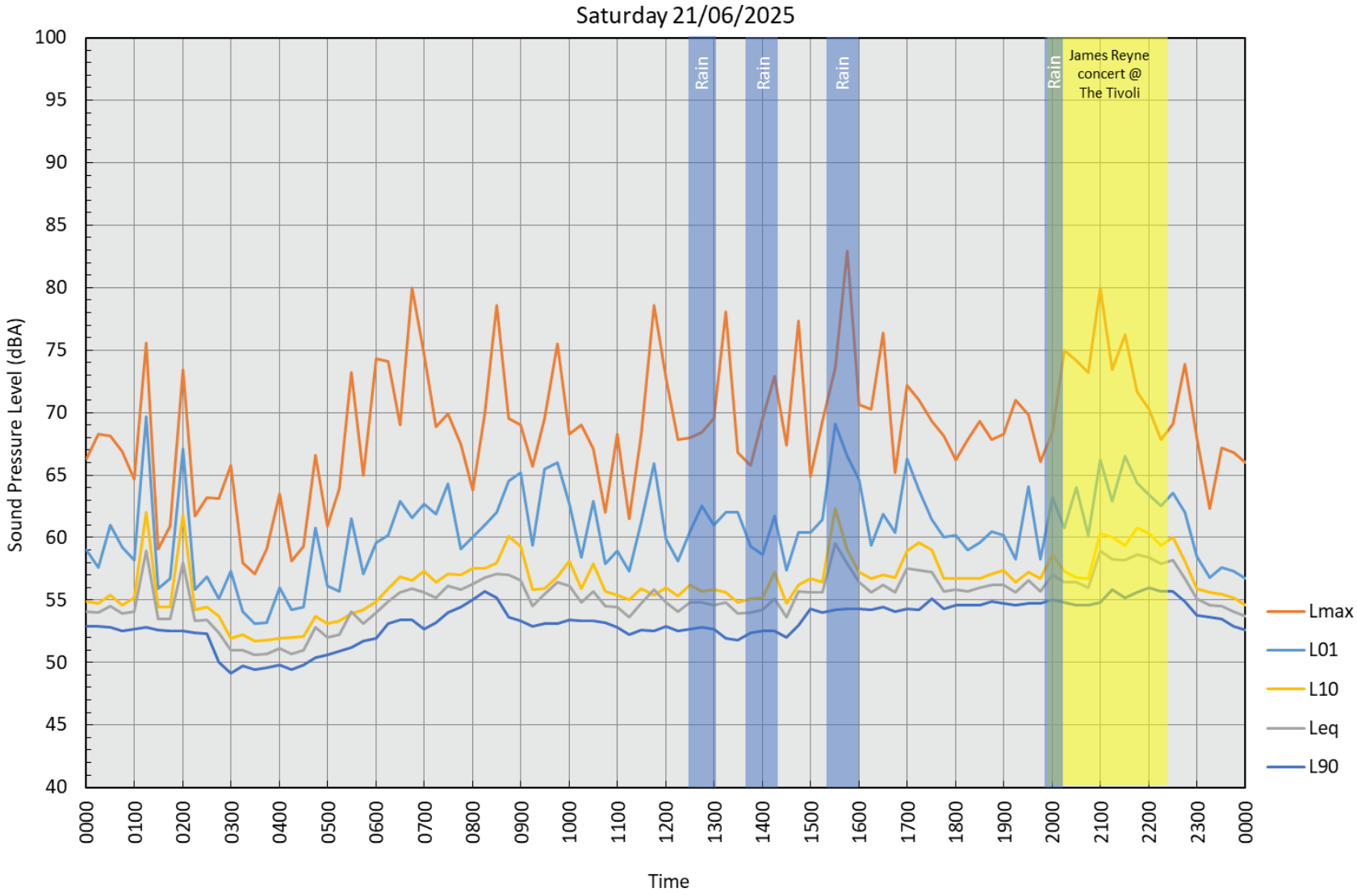


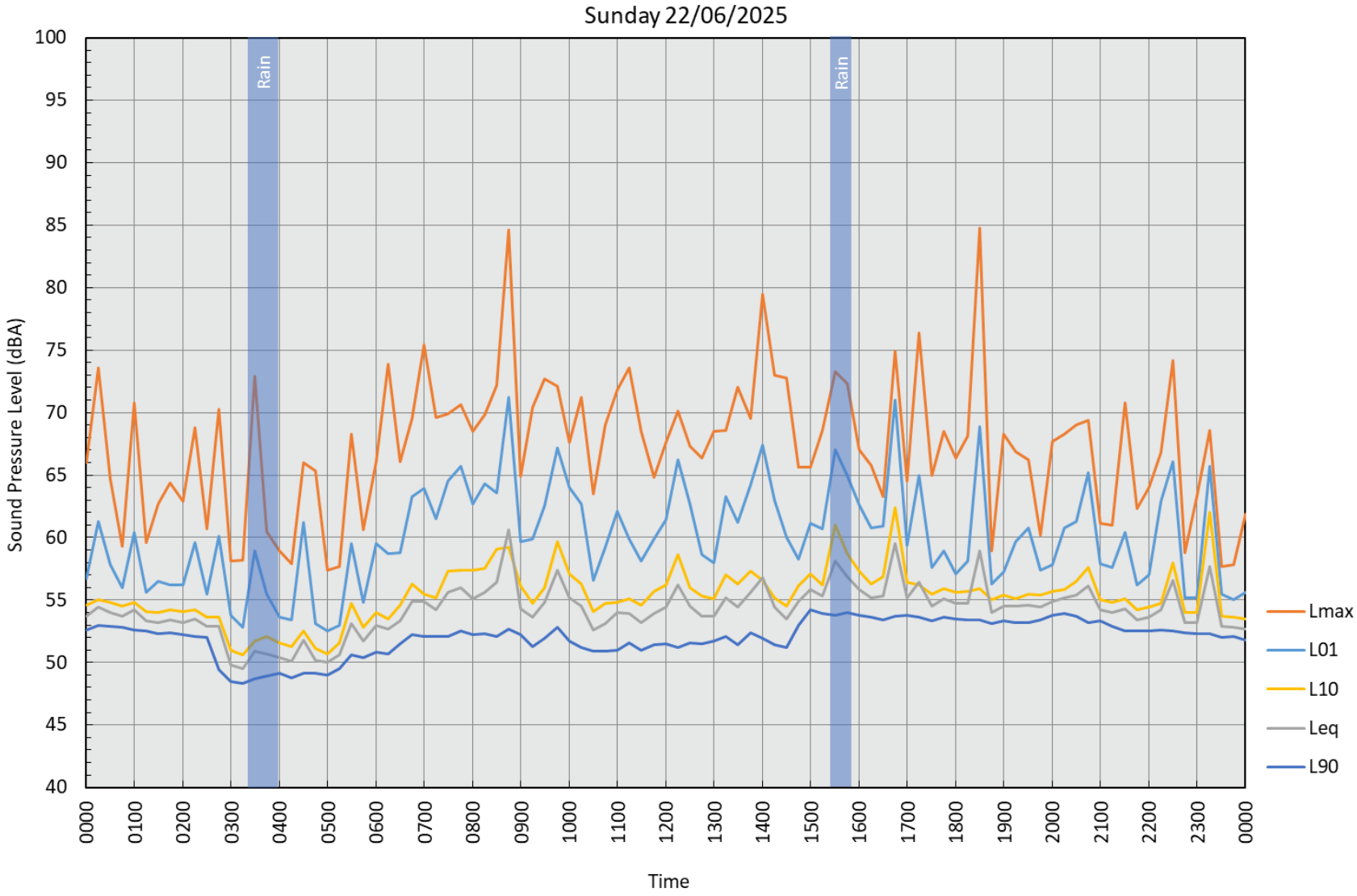

Tuesday 17/06/2025
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

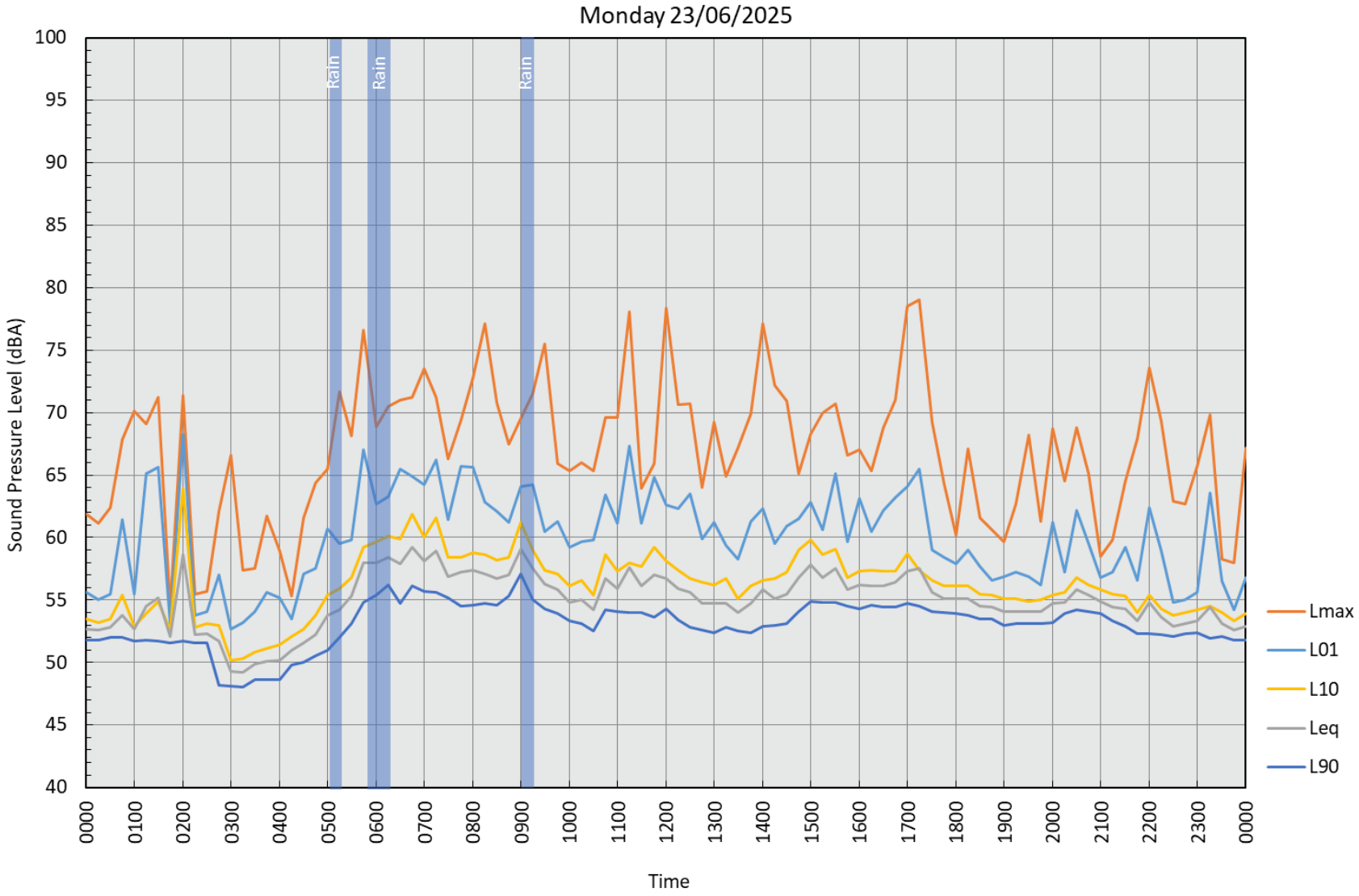

Wednesday 18/06/2025
Testament concert @ The Tivoli
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

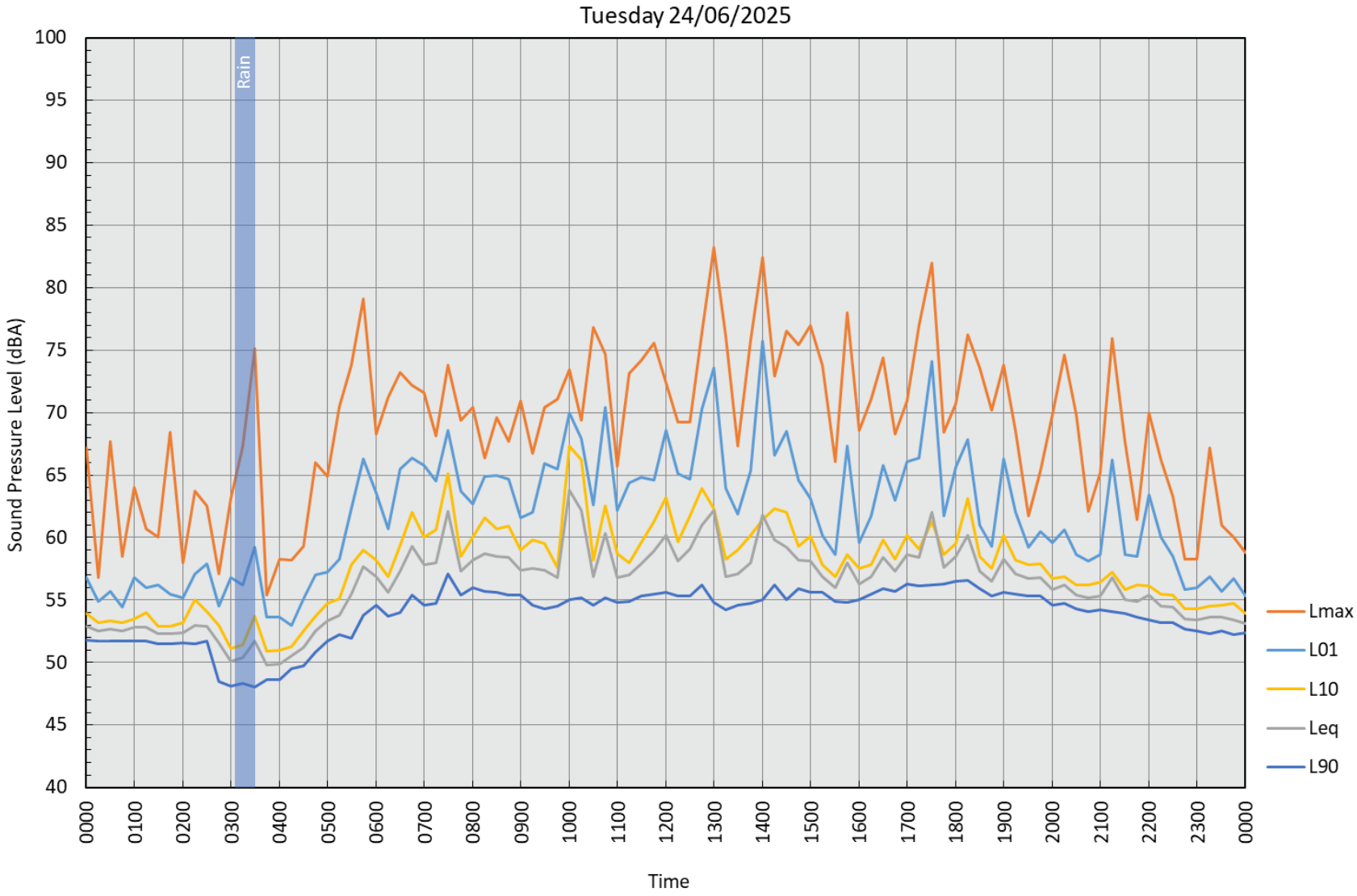

Thursday 19/06/2025
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

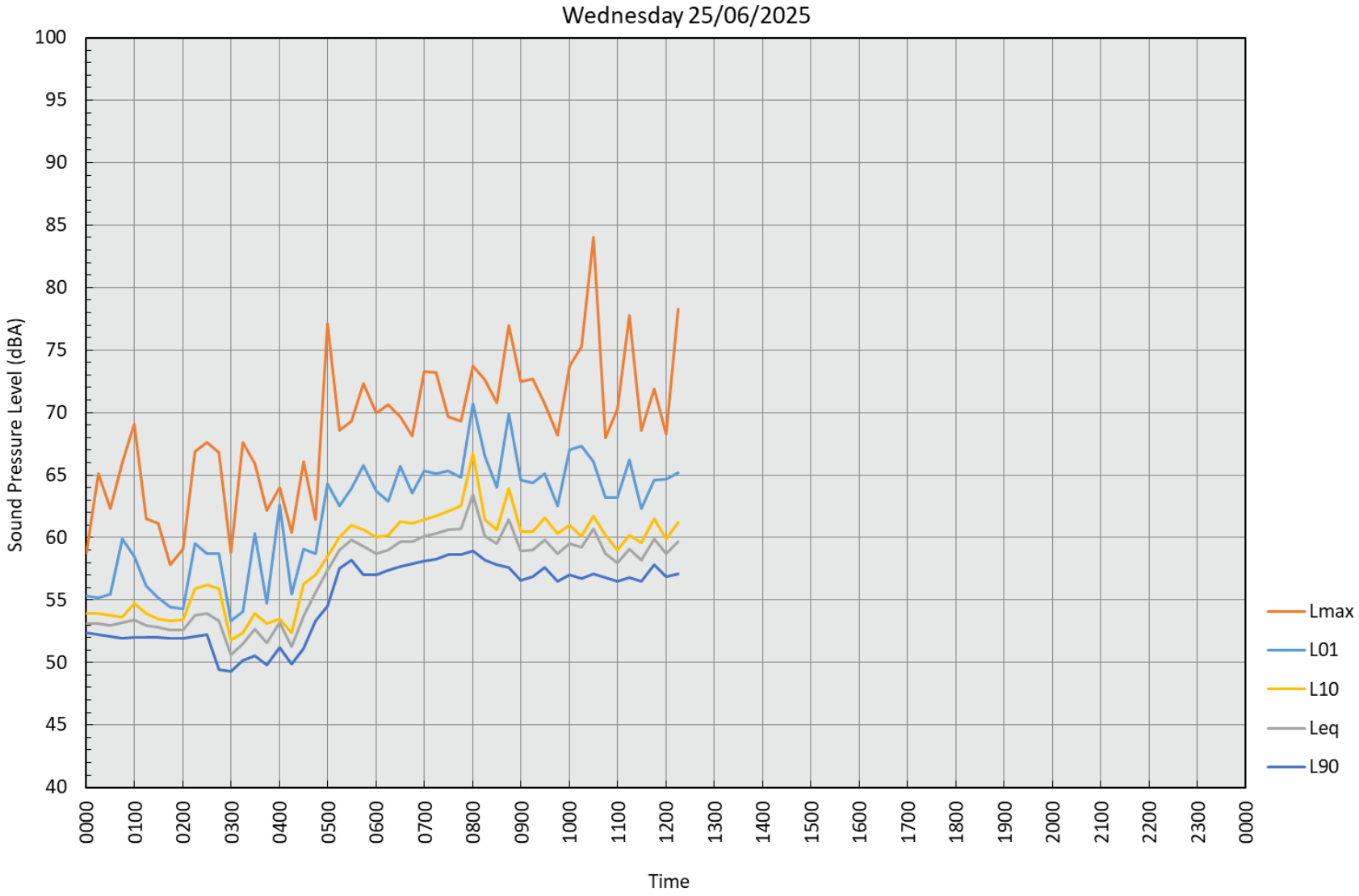

Friday 20/06/2025
Toni Childs concert @ The Tivoli
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90


Saturday 21/06/2025
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
Rain
Rain
Rain
Rain
James Reyne concert @ The Tivoli
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

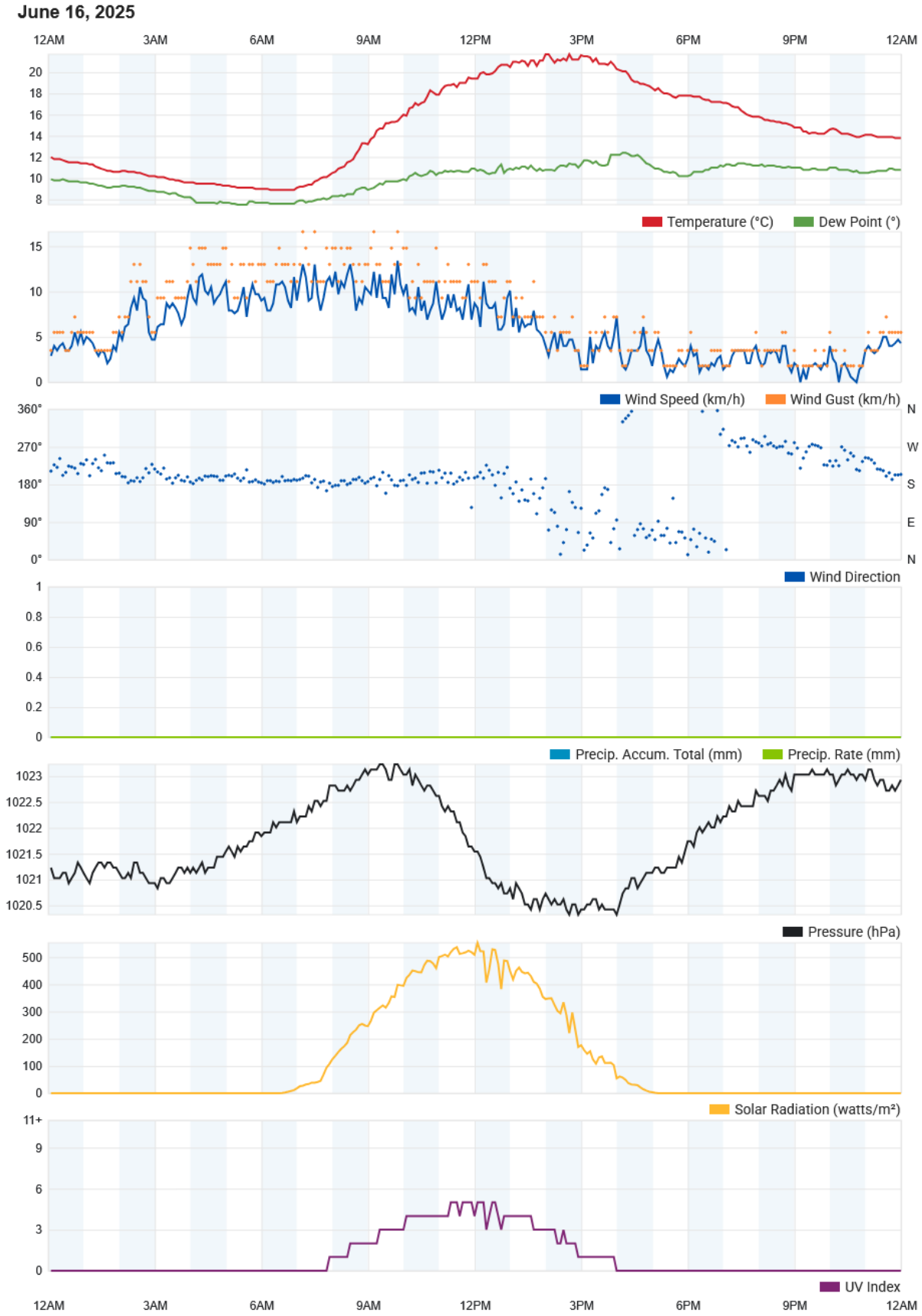

Sunday 22/06/2025
Rain
Rain
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

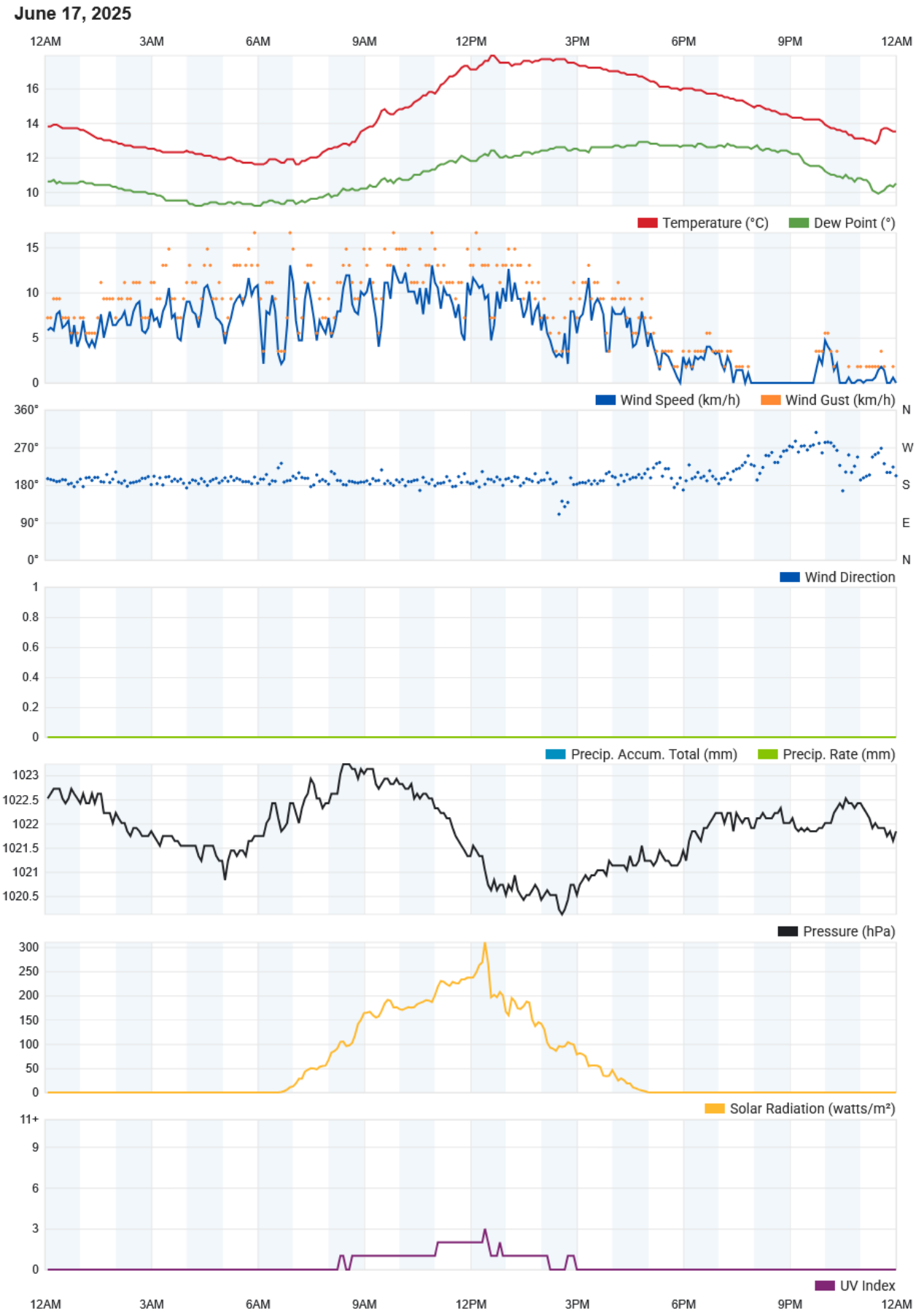

Monday 23/06/2025
Rain
Rain
Rain
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

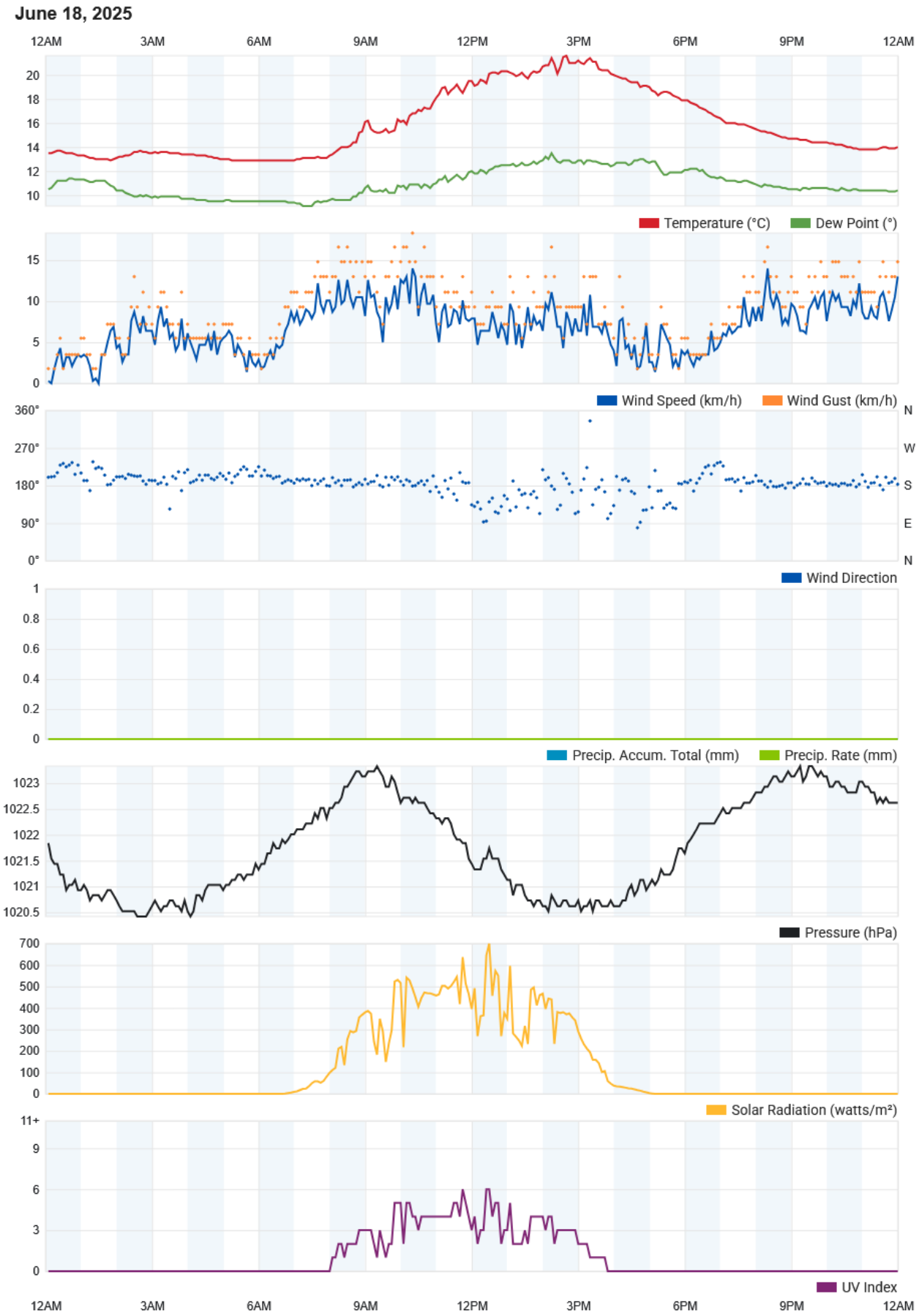

Tuesday 24/06/2025
Rain
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

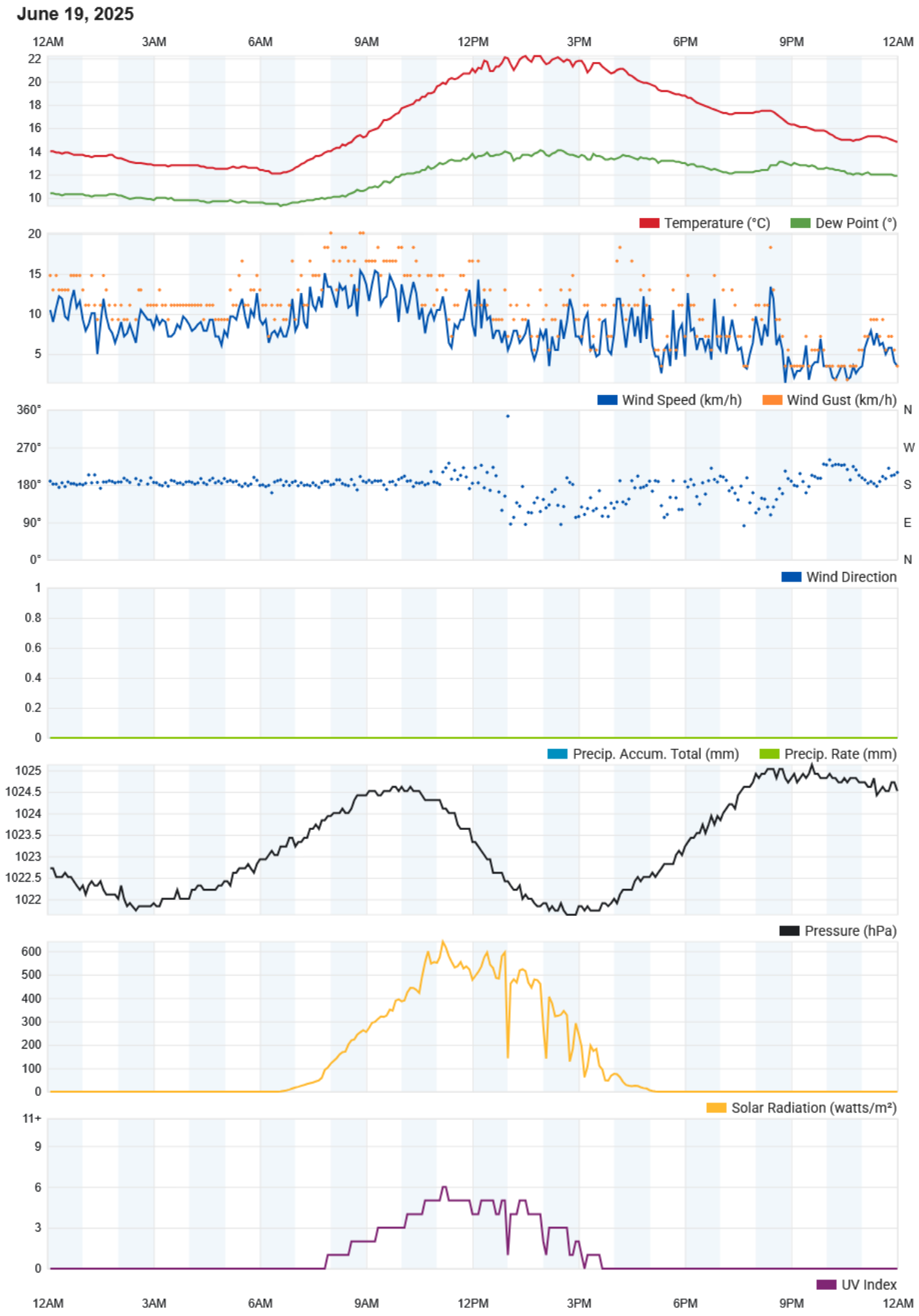

Wednesday 25/06/2025
Sound Pressure Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
0000
0100
0200
0300
0400
0500
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
0000
Time
Lmax
L01
L10
Leq
L90

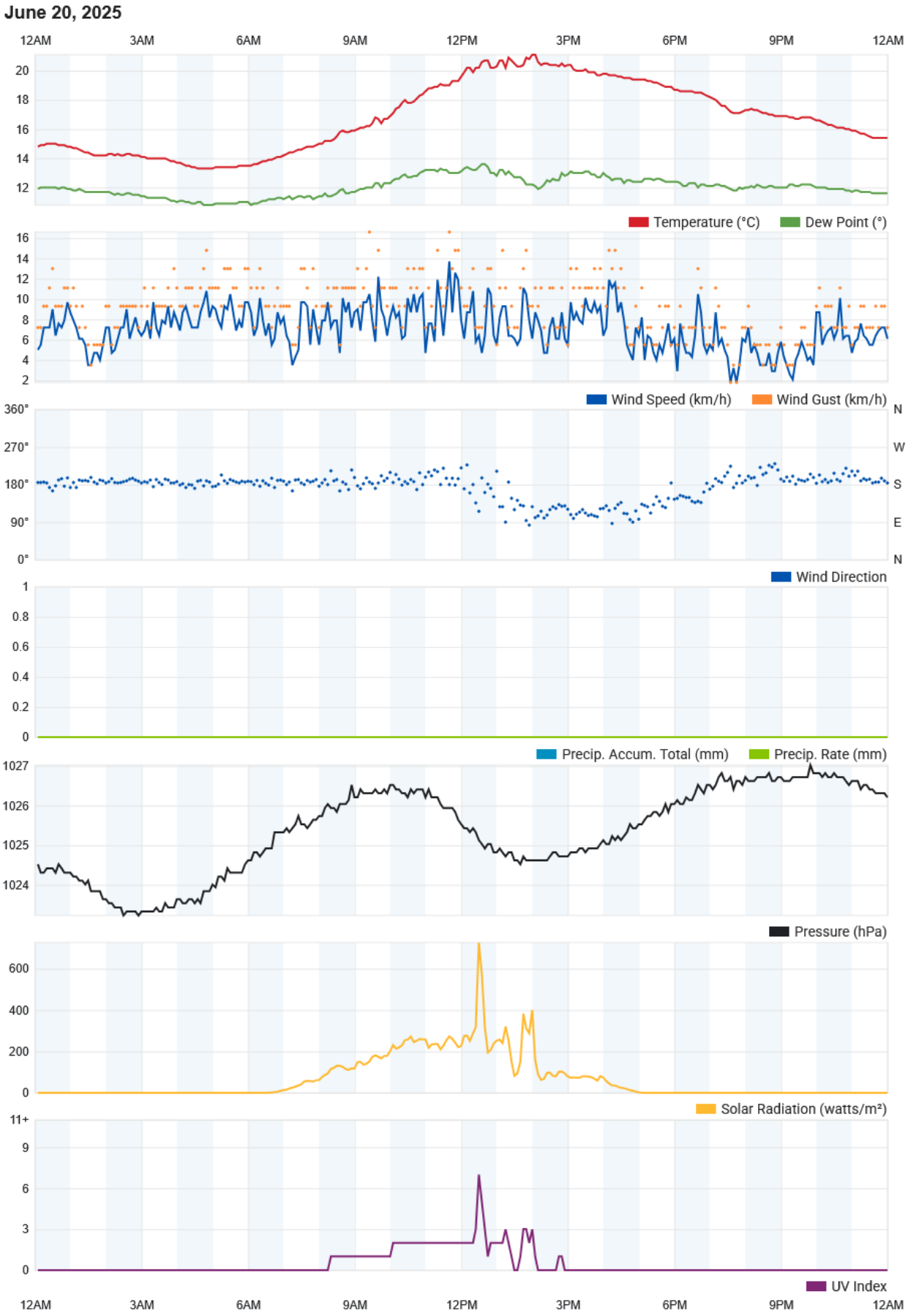
APPENDIX C: WEATHER TRACES

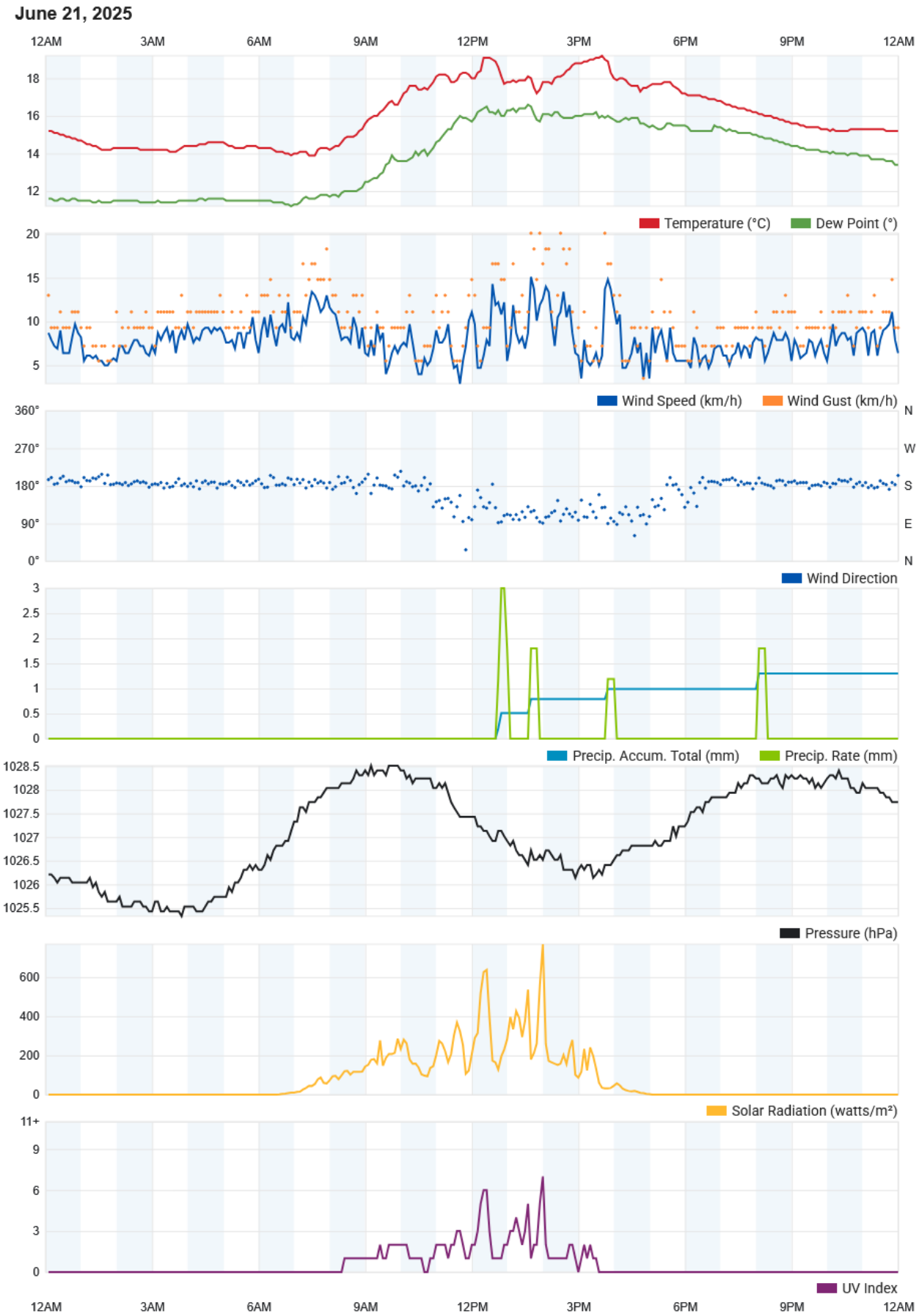


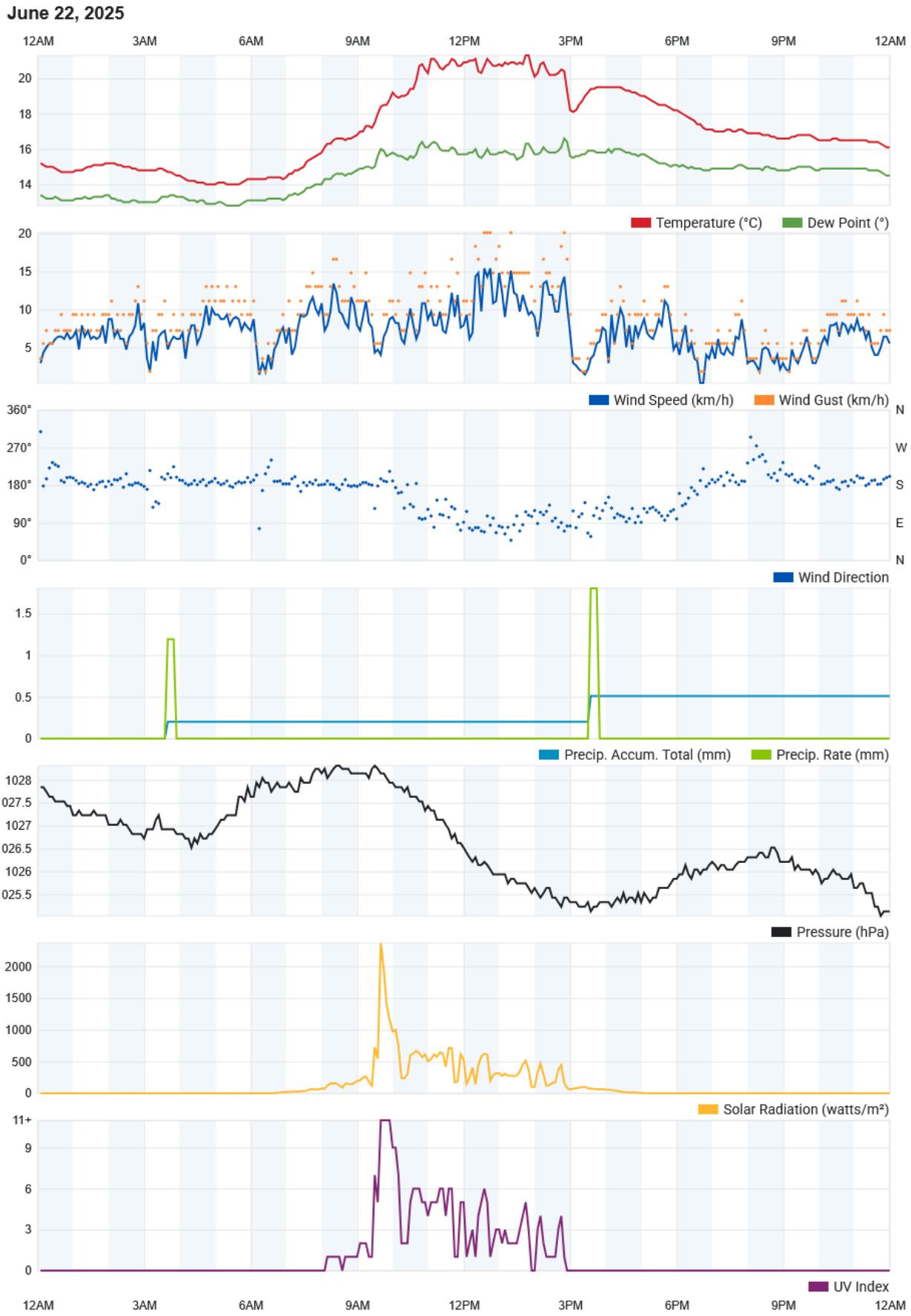

June 17, 2025
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
16
14
12
10
Temperature (°C)
Dew Point (°)
15
10
5
0
Wind Speed (km/h)
Wind Gust (km/h)
360°
270°
180°
90°
0°
N
W
S
E
N
Wind Direction
1
0.8
0.6
0.4
0.2
0
Precip. Accum. Total (mm)
Precip. Rate (mm)
1023
1022.5
1022
1021.5
1021
1020.5
Pressure (hPa)
300
250
200
150
100
50
0
Solar Radiation (watts/m²)
11+
9
6
3
0
UV Index
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM


June 18, 2025
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
Temperature (°C)
Dew Point (°)
Wind Speed (km/h)
Wind Gust (km/h)
N
W
S
E
N
Wind Direction
Precip. Accum. Total (mm)
Precip. Rate (mm)
Pressure (hPa)
Solar Radiation (watts/m²)
UV Index

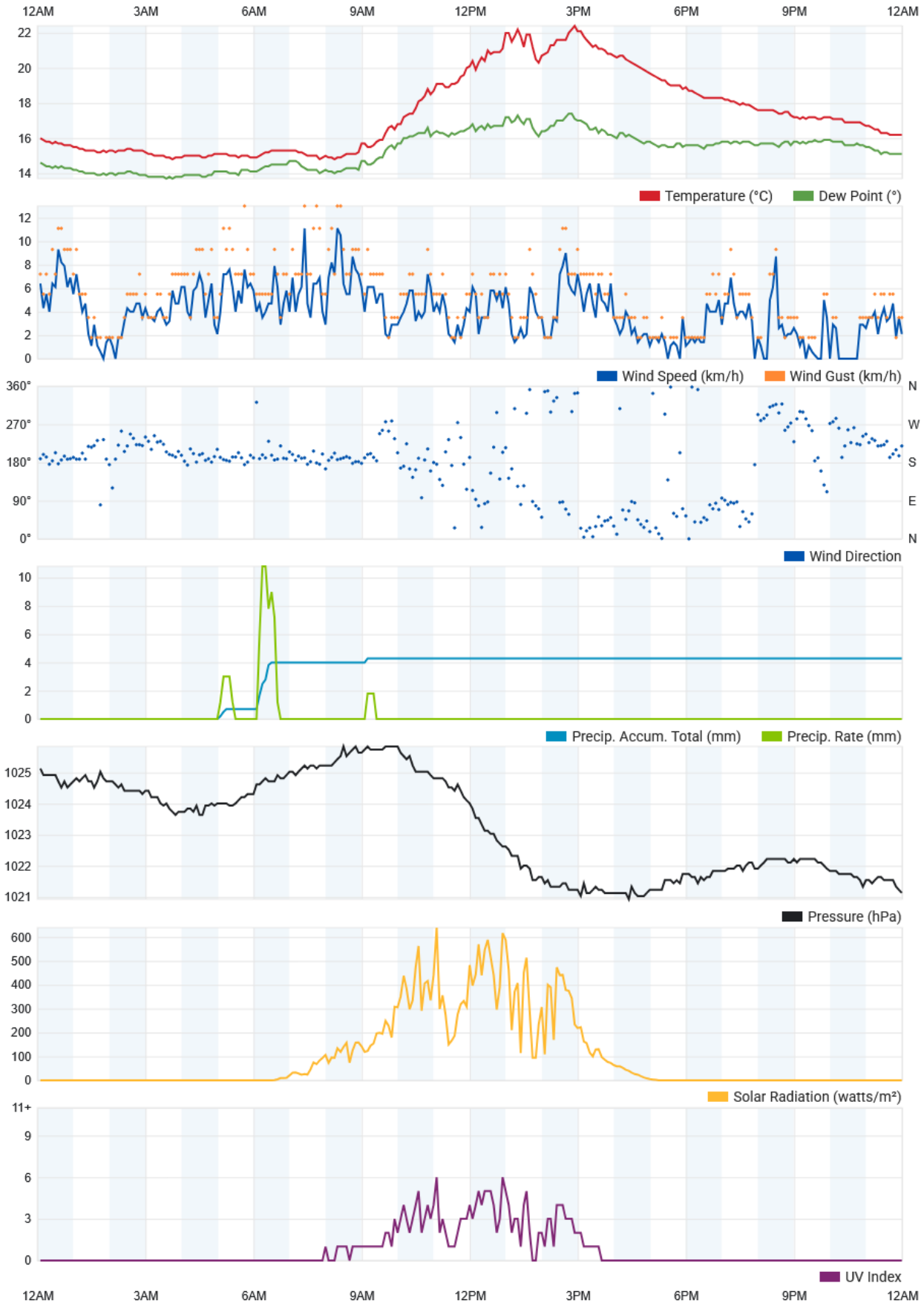

June 19, 2025
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
Temperature (°C)
Dew Point (°)
Wind Speed (km/h)
Wind Gust (km/h)
N
W
S
E
N
Wind Direction
Precip. Accum. Total (mm)
Precip. Rate (mm)
Pressure (hPa)
Solar Radiation (watts/m²)
UV Index


June 20, 2025
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
Temperature (°C)
Dew Point (°)
Wind Speed (km/h)
Wind Gust (km/h)
N
W
S
E
N
Wind Direction
Precip. Accum. Total (mm)
Precip. Rate (mm)
Pressure (hPa)
Solar Radiation (watts/m²)
UV Index

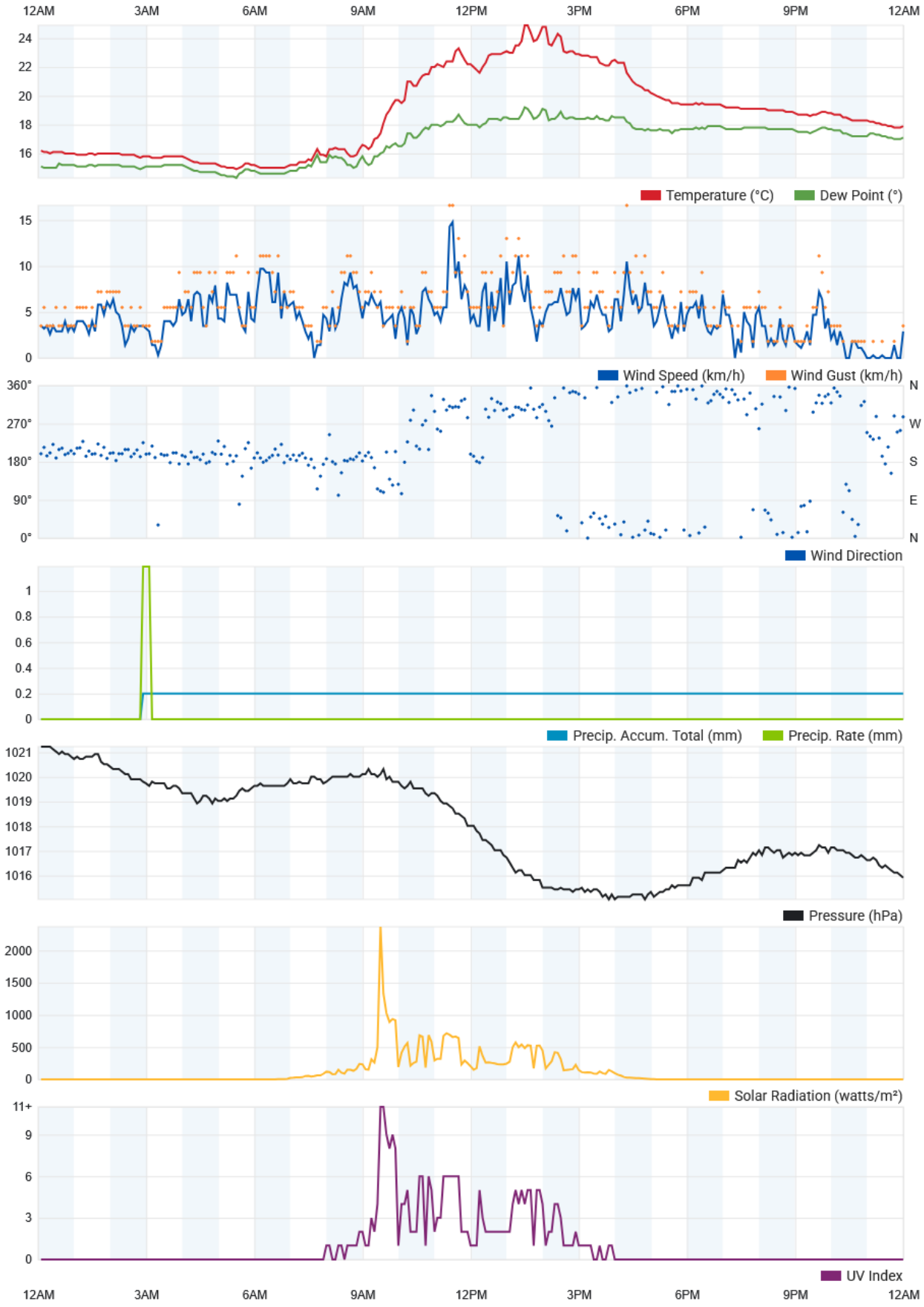

June 21, 2025
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
18
16
14
12
Temperature (°C)
Dew Point (°)
20
15
10
5
Wind Speed (km/h)
Wind Gust (km/h)
360°
270°
180°
90°
0°
N
W
S
E
N
Wind Direction
3
2.5
2
1.5
1
0.5
0
Precip. Accum. Total (mm)
Precip. Rate (mm)
1028.5
1028
1027.5
1027
1026.5
1026
1025.5
Pressure (hPa)
600
400
200
0
Solar Radiation (watts/m²)
11+
9
6
3
0
UV Index
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM


June 22, 2025
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
Temperature (°C)
Dew Point (°)
Wind Speed (km/h)
Wind Gust (km/h)
Wind Direction
Precip. Accum. Total (mm)
Precip. Rate (mm)
Pressure (hPa)
Solar Radiation (watts/m²)
UV Index

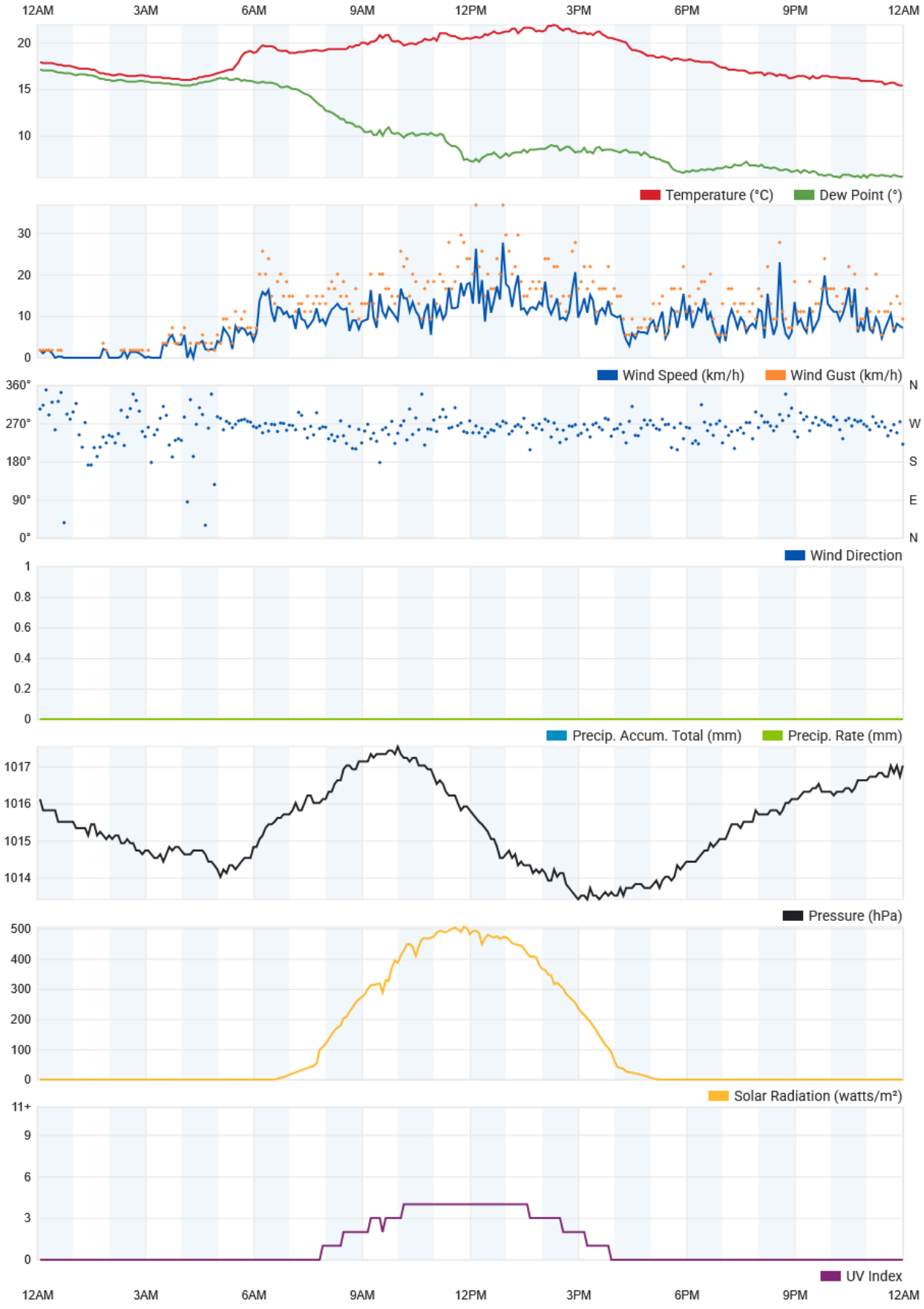
June 23, 2025


12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
22
20
18
16
14
Temperature (°C)
Dew Point (°)
12
10
8
6
4
2
0
Wind Speed (km/h)
Wind Gust (km/h)
360°
270°
180°
90°
0°
N
W
S
E
N
Wind Direction
10
8
6
4
2
0
Precip. Accum. Total (mm)
Precip. Rate (mm)
1025
1024
1023
1022
1021
Pressure (hPa)
600
500
400
300
200
100
0
Solar Radiation (watts/m²)
11+
9
6
3
0
UV Index
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM

June 24, 2025


12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
24
22
20
18
16
Temperature (°C)
Dew Point (°)
15
10
5
0
Wind Speed (km/h)
Wind Gust (km/h)
360°
270°
180°
90°
0°
N
W
S
E
N
Wind Direction
1
0.8
0.6
0.4
0.2
0
Precip. Accum. Total (mm)
Precip. Rate (mm)
1021
1020
1019
1018
1017
1016
Pressure (hPa)
2000
1500
1000
500
0
Solar Radiation (watts/m²)
11+
9
6
3
0
UV Index
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM

June 25, 2025


12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM
20
15
10
Temperature (°C)
Dew Point (°)
30
20
10
0
Wind Speed (km/h)
Wind Gust (km/h)
360°
270°
180°
90°
0°
N
W
S
E
N
Wind Direction
1
0.8
0.6
0.4
0.2
0
Precip. Accum. Total (mm)
Precip. Rate (mm)
1017
1016
1015
1014
Pressure (hPa)
500
400
300
200
100
0
Solar Radiation (watts/m²)
11+
9
6
3
0
UV Index
12AM
3AM
6AM
9AM
12PM
3PM
6PM
9PM
12AM

APPENDIX D: APPROVED ENTERTAINMENT PERMIT PLAN

acousticworks)))

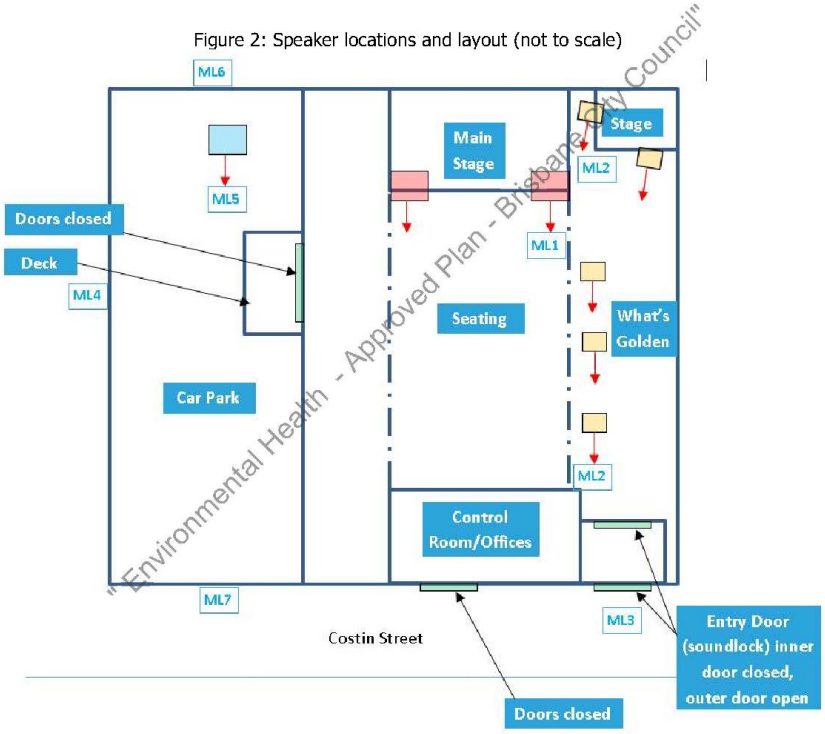
3. Speaker Locations

The tested sound systems were comprised of the following:

1. Main Stage – The existing sound system is located at the front of the main stage facing Costin Street.
2. Car Park – A 1 x 1000 watt speaker was located at the rear of the car park facing Costin Street.
3. What's Golden - The existing sound system is located at the front of the stage with an additional 3 ceiling mounted speakers throughout the bar, all facing Costin Street.

Note: As the front façade of the venue has a soundlock door system, the inner door was closed with the outer door open during testing. In addition, a test was conducted with both doors open to provide a worst case scenario. All other venue doors remained closed during testing.

Figure 2: Speaker locations and layout (not to scale)



"Environmental Health - Approved Plan - Brisbane City Council"

Brisbane City Council – Brisbane Lifestyle
Environmental Health
Compliance & Regulatory Services
APPROVED
Date: 19 Feb, 2020
Application Ref: A005352317
Permit Ref: AM01326945616
Officer: Pedro Caldeira-Santos