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Manly Golf Club

Noise Impact Assessment

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Project ID	20211466.1
Document Title	Noise Impact Assessment
Attention To	Manly Golf Club Limited

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	15/12/2021	20211466.1/1512A/R0/AR	AR		AR
1	17/12/2021	20211466.1/1712A/R1/AR	AR		AR

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1 INTRODUCTION

This report examines potential noise impacts from the proposed development at the Manly Golf Club located at 38-40 Balgowlah Road, Manly. The proposal includes the demolition of the existing maintenance shed and existing sand/soil stock piles, and addition of a new maintenance facility building with six proposed soil and sand bays with retractable weather covers.

In this report we will:

- Identify properties which are potentially impacted by noise from the site.
- Identify potential noise generation by the site associated with the additions outlined above (primarily associated with the relocation of sand and soil bays).
- Identify noise emission criteria based on the requirements of Council DCP and NSW EPA.
- Determine acoustic treatments/management controls as necessary to ensure ongoing compliance with noise emission requirements.

This assessment has been undertaken based the Leffler Simes Pty Ltd Site Plan Drawing DA-06 dated 19th November 2021.

2 SITE LOCATION AND DEVELOPMENT PROPOSAL

2.1 SITE LOCATION AND RECEIVERS

The project site is located at 38-40 Balgowlah Road, Manly, adjacent to the intersection with Kenneth Road. The majority of land surrounding the project site is either associated with the golf course, or other outdoor activity areas (Manly Andrew "Boy" Charlton Swim Centre to the south across Kenneth Road. In light of the above, the nearest noise sensitive receivers are as follows:

- **Receiver R1**: Existing residential dwellings located east across Balgowlah Road.

Refer to Figure 1 below for a site map, and also receiver and noise measurement locations.

2.2 DEVELOPMENT PROPOSAL

The proposal includes the demolition of the existing maintenance shed and existing sand/soil stock piles, and addition of a new maintenance facility building with six proposed soil and sand bays with retractable weather covers.

This office has been advised that no new equipment is proposed from those currently used. The primary changes associated with the proposal is that the location of the sand/soil bays have changed, as well as the addition of 12 carspaces adjacent to the maintenance facility.

2.3 COUNCIL REQUESTS

We note that the Northern Beaches Council has requested the following as part of an RFI under the development application DA2021/1436

1. ***Environmental Health (Industrial) Comments***
   The plans show new soil bays to be located approximately 40 to 50 meters from residences. Environmental Health require a detailed account of machinery used to access sand and other materials in those bays, and to provide recommendations for the use of the bays regarding operational time limits e.g. acceptable use between 7am to 7pm. Alternatively, the applicant can submit an acoustic assessment on the impact of machinery on amenity.

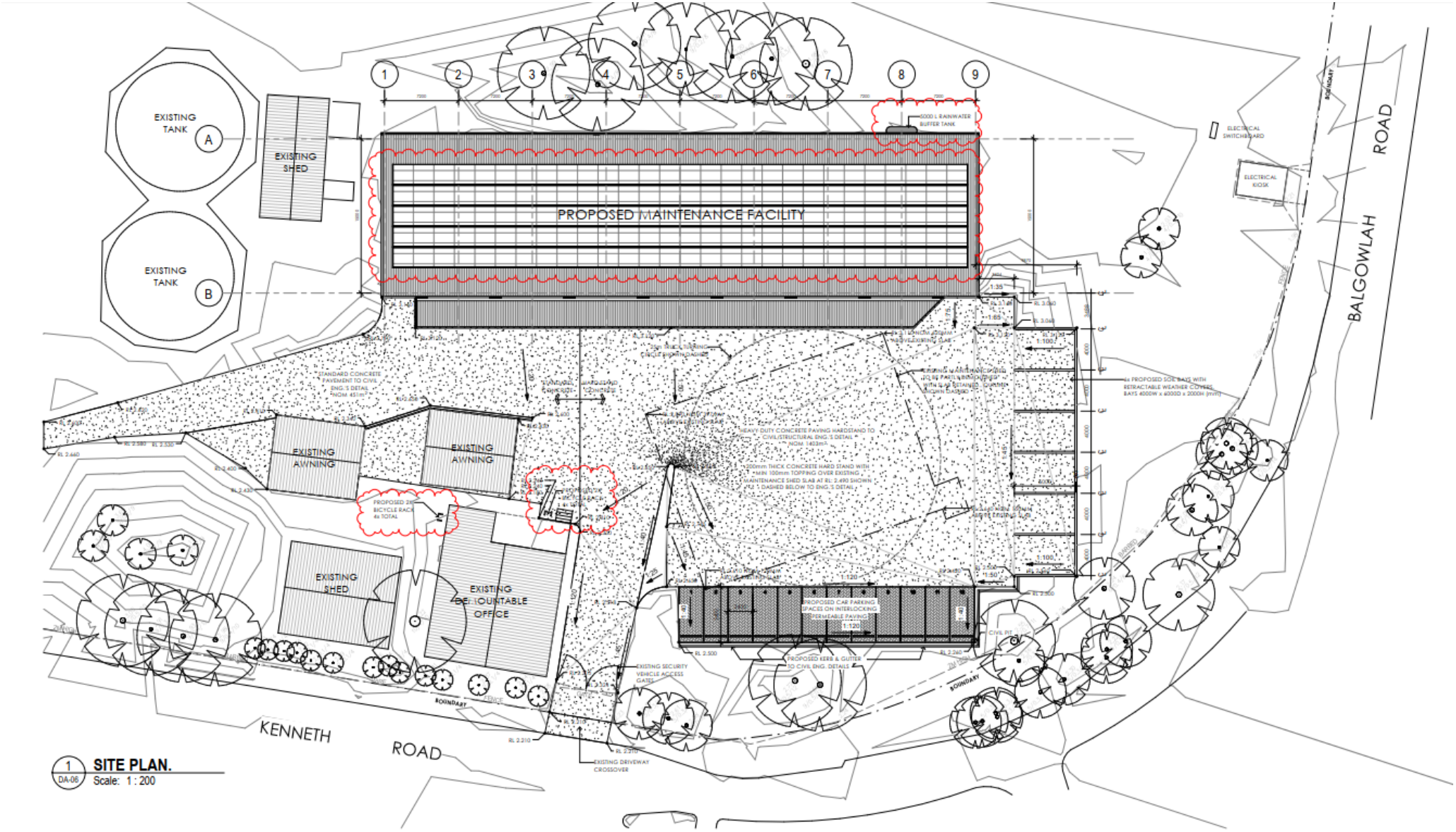


Figure 1 – Proposed Site Plan (as per Drawing DA-06 dated 19th November 2021)

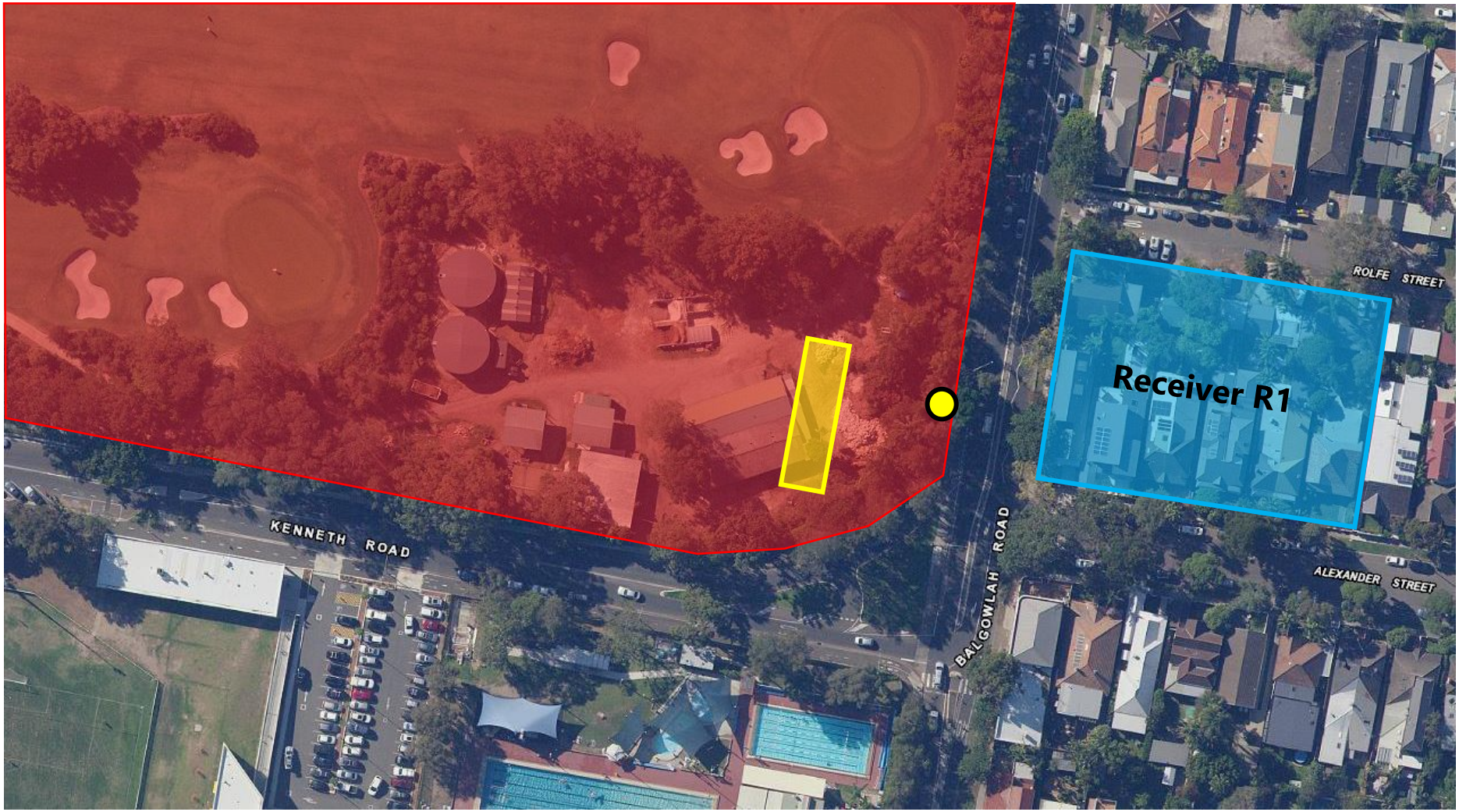


Figure 1: Site Map and Noise Monitor Location

(Source: Six Maps NSW)

3 AMBIENT NOISE ENVIRONMENT

Acoustic monitoring has been conducted at the site by Acoustic Logic to establish the background noise levels which will be used as basis for this assessment.

3.1 ENVIRONMENTAL NOISE DESCRIPTORS

Environmental noise constantly varies. Accordingly, it is not possible to accurately determine prevailing Ambient noise constantly varies in level from moment to moment, so it is not possible to accurately determine prevailing noise conditions by measuring a single, instantaneous noise level.

To quantify ambient noise, a 15-minute measurement interval is typically utilised. Noise levels are monitored continuously during this period, and then statistical and integrating techniques are used to characterise the noise being measured. The principal measurement parameters obtained from the data are:

Leq - represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. Leq is important in the assessment of noise impact as it closely corresponds with how humans perceive the loudness of time-varying noise sources (such as traffic noise).

L90 – This is commonly used as a measure of the background noise level as it represents the noise level heard in the typical, quiet periods during the measurement interval. The L90 parameter is used to set noise emission criteria for potentially intrusive noise sources since the disturbance caused by a noise source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L90 level.

L10 is used in some guidelines to measure noise produced by an intrusive noise source since it represents the average of the loudest noise levels produced at the source. Typically, this is used to assess noise from licenced venues.

Lmax is the highest noise level produced during a noise event, and is typically used to assess sleep arousal impacts from short term noise events during the night. It is also used to assess internal noise levels resulting from aircraft and railway ground vibration induced noise.

L1 is sometimes used in place of Lmax to represent a typical noise level from a number of high level, short term noise events.

3.2 EXTERNAL BACKGROUND NOISE LEVELS

The details of long-term unattended noise monitoring conducted by this office is summarised in the sections below.

3.2.1 Measurement Equipment

Unattended noise monitoring was conducted using one Acoustic Research Laboratories Pty Ltd noise logger. The logger was programmed to store 15-minute statistical noise levels throughout the monitoring period. The equipment was calibrated at the beginning and the end of each measurement using a Rion NC-73 calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode.

3.2.2 Measurement Location

The noise monitor was installed at the eastern boundary of the project site. Also refer to Figure 1 above for more detail.

3.2.3 Measurement Results

The measured background noise levels have been corrected for meteorological conditions (excessive wind and/or rain), as required by Section 3.4 of the EPA Noise Policy for Industry. The measured rating background noise levels summarised in the table below.

Table 1 – Measured Rating Background Noise Levels

Time of Day	Rating Background Noise Level dB(A)$L_{90(period)}$
Day (7am-6pm)[1]	55
Evening (6pm-10pm)	43
Night (10pm-7am)[1]	37

Note:

1. For Sundays and Public Holidays, Day is defined as 8am-6pm, and Night from 10pm-8am.

4 NOISE EMISSION CRITERIA

The existing conditions of consent under the notice of determination for development application No. 421/07 do not provide specific noise goals for the development. On this basis, this office will reference the following guidelines:

- Northern Beaches *(formerly Manly Council) Development Control Plan* (DCP) 2013.
- NSW Environmental Protection Authority (EPA) *Noise Policy for Industry* (NPfI) 2017.

4.1 NORTHERN BEACHES COUNCIL DCP

The DCP does not provide specific noise emission goals from the use of commercial development outside of licensed premises. On this basis, noise from the use of the development is to be assessed against the NSW EPA *Noise Policy for Industry*, which has been summarised below. this basis, the requirements of the NPfI are discussed below.

4.2 NSW EPA NOISE POLICY FOR INDUSTRY 2017

The NSW EPA NPfI provides guidelines for assessing noise impacts from developments. The recommended assessment objectives vary depending on the potentially affected receivers, the time of day and the type of noise source. The NPfI has two requirements which must both be complied with, namely an intrusiveness criterion and amenity criterion.

4.2.1 Intrusiveness Criteria

The guideline is intended to limit the audibility of noise emissions at residential receivers and requires that noise emissions measured using the L_{eq} descriptor not exceed the background noise level by more than 5dB(A). The intrusiveness criteria applicable to the development are presented in the table below.

Table 2 – NPfI Intrusiveness Criteria

Time of Day	Rating Background Noise Level dB(A)$L_{90(15min)}$	Intrusiveness Criteria dB(A)$L_{eq(15min)}$
Day (7am – 6pm)	55	60
Evening (6pm – 10pm)	43	48
Night (10pm – 7am)	37	42

4.2.2 Amenity Criteria

The guideline is intended to limit the absolute noise level from all noise sources to a level that is consistent with the general environment.

The Noise Policy for industry sets out acceptable noise levels for various land uses. Table 2.2 on page 11 of the policy has four categories to distinguish different residential areas. They are rural, suburban, urban and urban/industrial interface.

This assessment has been conducted in accordance with the 'Urban' category.

Table 3 – NPfI Amenity Criteria

Type of Receiver	Time of day	Recommended Project Acceptable Noise Level dB(A)$L_{eq(15\text{-}minutes)}$
Residential (Urban)	Day (7:00am-6:00pm)	58
	Evening (6:00pm-10:00pm)	48
	Night (10:00pm-7:00am)	43

4.2.3 Project Trigger Noise Level

The project trigger noise level is selected as the lower of the intrusiveness and amenity noise criterion.

Table 4 – Project Trigger Noise Level

Type of Receiver	Time of day	Project Trigger Noise Level dB(A)$L_{eq(15\text{-}minutes)}$
Residential (Urban)	Day (7:00am-6:00pm)	58
	Evening (6:00pm-10:00pm)	48
	Night (10:00pm-7:00am)	42

5 NOISE EMISSION ASSESSMENT

Noise emissions are to be assessed in accordance with the request by Northern Beaches Council, as outlined in Section 2.3 of this report. This primarily includes machinery associated with the use of the soil bays.

5.1 ACOUSTIC DATA AND ASSUMPTIONS

The following acoustic data and assumptions will be utilised in our assessment of potential noise impacts:

- This office has undertaken attended noise measurements of machinery associated with the soil and sand bays. This is limited to the following:
  - John Deere Gator utility vehicle with measured sound pressure level of 74dB(A)L_{eq} at 5m during typical operation.
  - Mustang 2044 front end loader with measured sound pressure level of 76dB(A)L_{eq} at 5m during typical operation.
  - Machinery will only be used during the day (from 7am to 6pm) and generally not used simultaneously. Front end loader typically used to move soil/sand and load up utility vehicles which then transport the soil/sand as required to other areas on the development.
- This office has been advised that soil and sand is delivered by a six-wheel tipper truck on a fortnightly basis during the day. The following assumptions have been made:
  - Tipper truck enters via Kenneth Road driveway and takes approximately 8-minutes to complete unloading of soil/sand delivery.
  - Tipper truck assumed sound power level of 105dB(A)L_{eq} based on data held by this office from other similar studies, and Table A1 of Australian Standard 2436-2010.

5.2 PREDICTED NOISE LEVELS

5.2.1 Use of Machinery at Soil Bays

The following noise levels have been predicted based on the information and assumptions above.

Table 5 – Predicted Noise Level from Machinery

Receiver	Machinery	Predicted Noise Level dB(A)$L_{eq(15min)}$	Noise Level Criterion dB(A)$L_{eq(15min)}$	Comment
Nearest Balgowlah Road Residences	Front End Loader (1 Off)	57	58	Generally complies with noise emission goal of 58dB(A). See discussion below.
	Utility Vehicle (1 Off)	55		Generally complies with noise emission goal of 58dB(A). See discussion below.
	Utility Vehicle (2 Off)	58		Generally complies with noise emission goal of 58dB(A). See discussion below.

With regard to the predicted noise levels above, we note the following:

- Assessment shows that the use of machinery (front end loader and utility vehicles) is capable of complying with EPA *NPfI* noise emission goals provided that these activities are carried out during the day.
- Noise levels have been predicted for the use of each machine separately. It is not expected that these machines will be used simultaneously at the soil bays for an extended period of time, as the front-end loader would first be used to load soil/sand onto the utility vehicles which then travel onto the golf course away from residences.
    - In light of the above, a minor and intermittent 2dB(A) exceedance could be expected on the rare occasion when both a front-end loader and utility vehicle are in use at the nearest point on the soil bays to residences.
    - A 2dB(A) exceedance is not readily perceptible by the human ear, as recognised by NSW EPA guidelines, and as such would be imperceptible from a strictly compliant noise level.
    - Once the utility vehicles travel west a distance of 40m away from the soil bays, they will not significantly contribute to any noise generated by a front-end loader operating at the nearest point to residential receivers.
- Considering the above, noise emissions from machinery associated with the soil bays will generally satisfy noise emission goals outlined in Section 4. On the rare occasion machinery is used simultaneously at the nearest point to residences, an infrequent and imperceptible exceedance of 2dB(A) is expected

5.2.2 Soil and Sand Delivery

The following noise levels have been predicted based on the information and assumptions above.

Table 6 – Predicted Noise Level from Soil/Sand Delivery

Receiver	Predicted Noise Level dB(A)$L_{eq(15min)}$	Noise Level Criterion dB(A)$L_{eq(15min)}$	Comment
Balgowlah Road Residences	62	65[1]	Yes, see discussion below.

Table Note:

1. Corrected from 58 as per Table C3 of the NPfI.

With regard to the predicted noise levels above, we note the following:

- Fact Sheet C of the NPfI provides corrections for certain noise characteristics such as tonality, intermittency, duration or dominant low-frequency content.
- Where a single-event noise is continuous for a period of less than two and a half hours in any assessment period (i.e. day, evening or night), an allowable exceedance of the $L_{Aeq(15min)}$ equivalent project noise trigger level is permitted based on the duration of the noise. As per Table C3, an allowable exceedance of 7dB(A) is permitted for noise events which last 6 to 15 minutes.
- This office has been informed that soil/sand deliveries occur once a fortnight, during the daytime and is completed in a time period of approximately 8 minutes typically.
- In consideration of the above, the predicted noise level of 62dB(A)$L_{eq(15min}$ satisfies the adjusted noise level criterion of 65dB(A)$L_{eq(15min)}$.

6 RECOMMENDATIONS

We recommend the following controls be adopted to minimise noise impacts to adjacent noise sensitive receivers:

- Use of machinery associated with the soil/sand bays, and delivery of soil/sand are permitted between the hours of 7am to 6pm.
- Where possible, machinery at soil bays should be turned off unless transporting or moving soil/sand.
- No new machinery is to be used in association with the sand/soil bays. Where requested by Council, new machinery should be reviewed by an acoustic consultant to ensure noise emission goals are capable of being satisfied.

7 CONCLUSION

This report presents an acoustic assessment of noise impacts associated with the addition of a maintenance facility at the Manly Golf Club, with regard to the relocation of sand and soil bays in proximity to nearby residences.

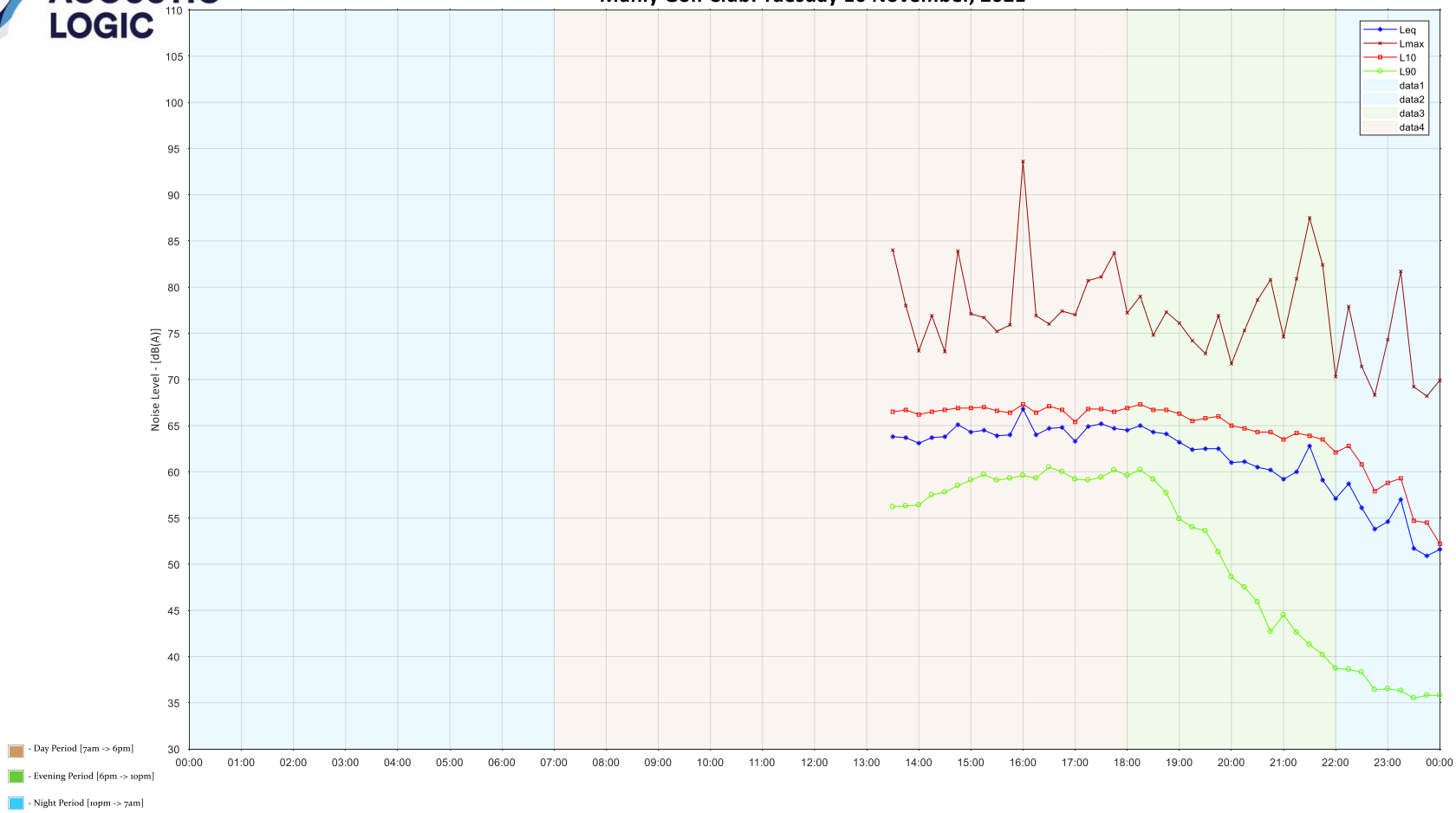
The proposed use has been assessment by this office and shown to be generally capable of complying with noise emission goals in line with the NSW EPA *Noise Policy for Industry* provided the recommendations in Section 6 are adopted.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Artie Rattananikom

APPENDIX A – NOISE MONITORING RESULTS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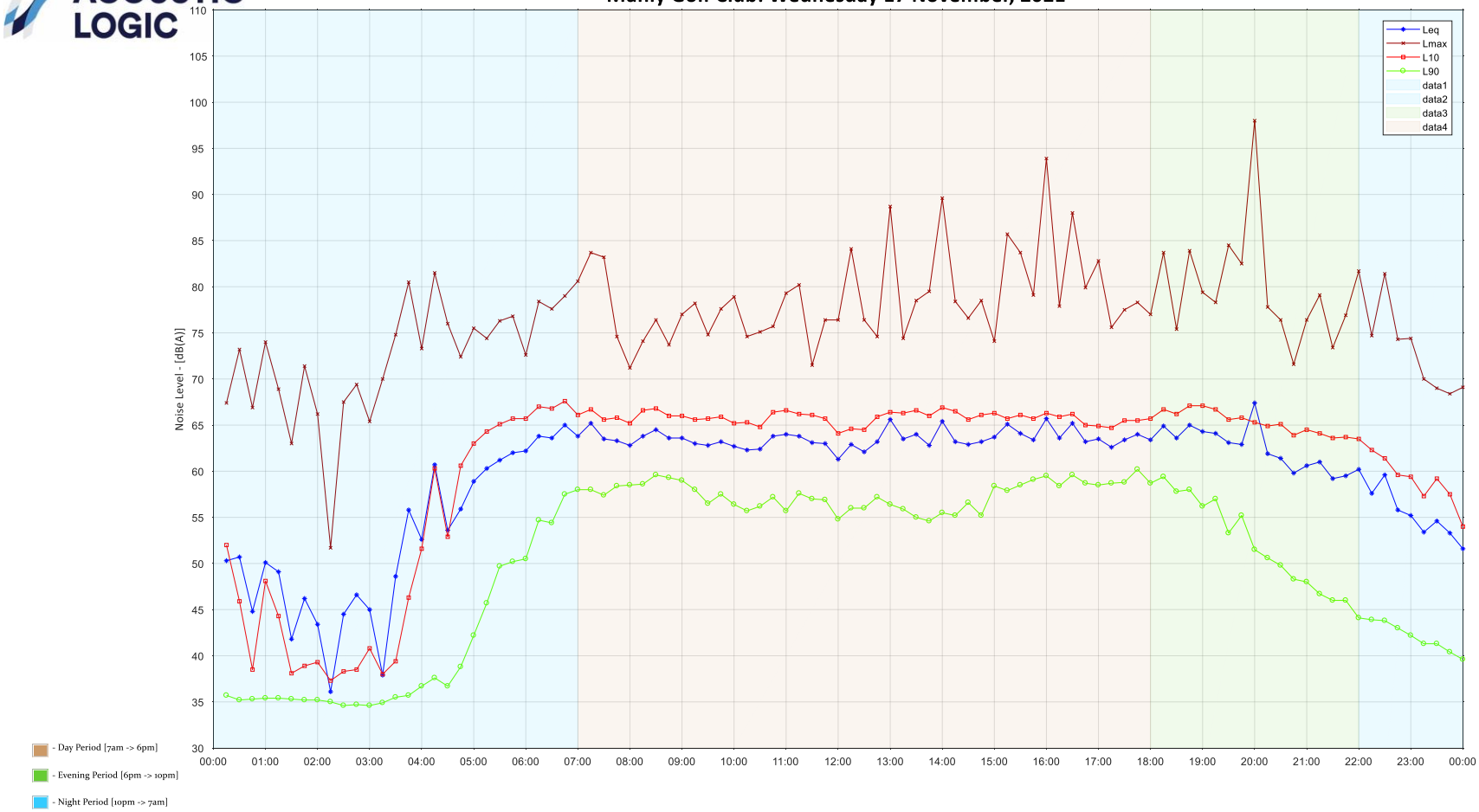
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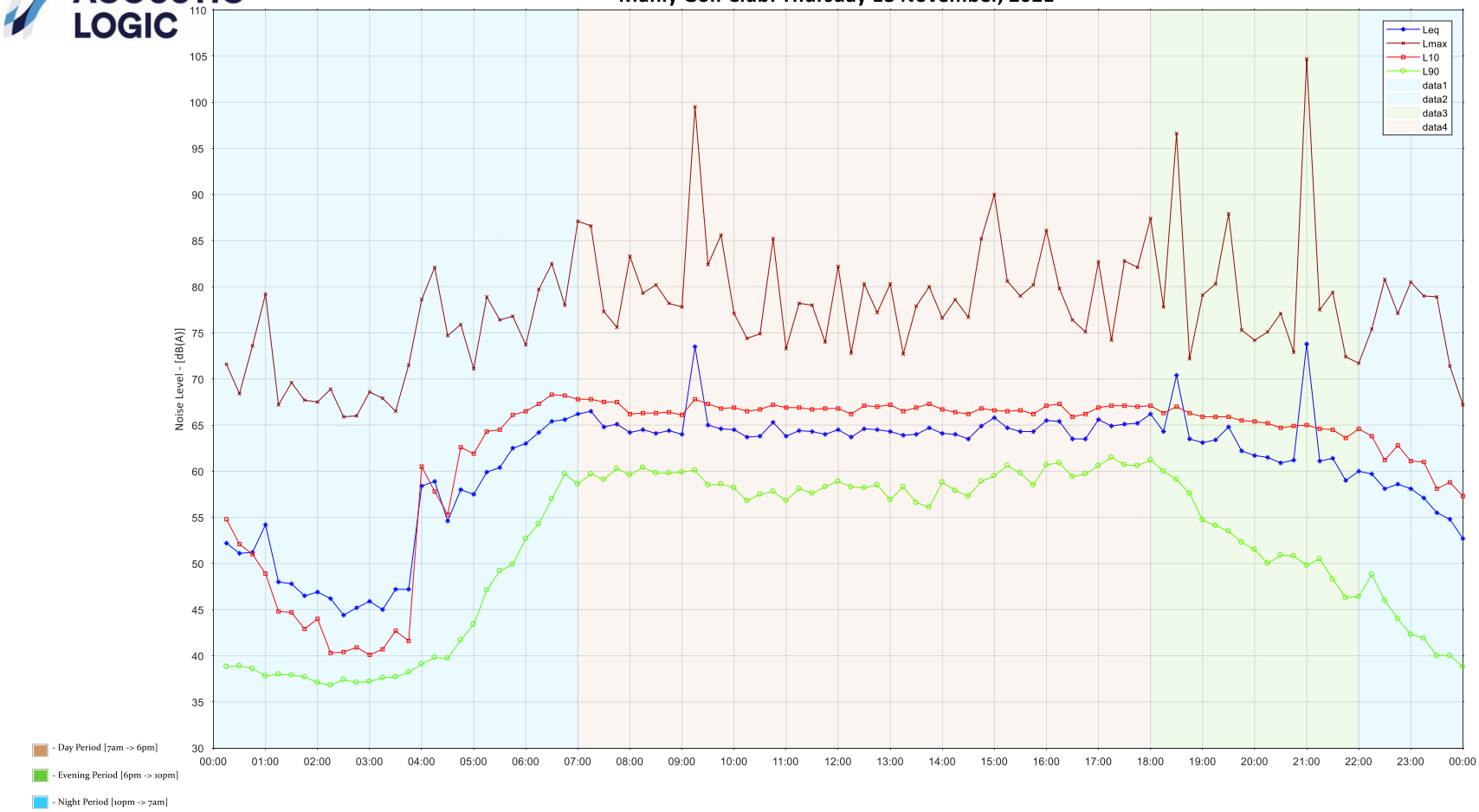
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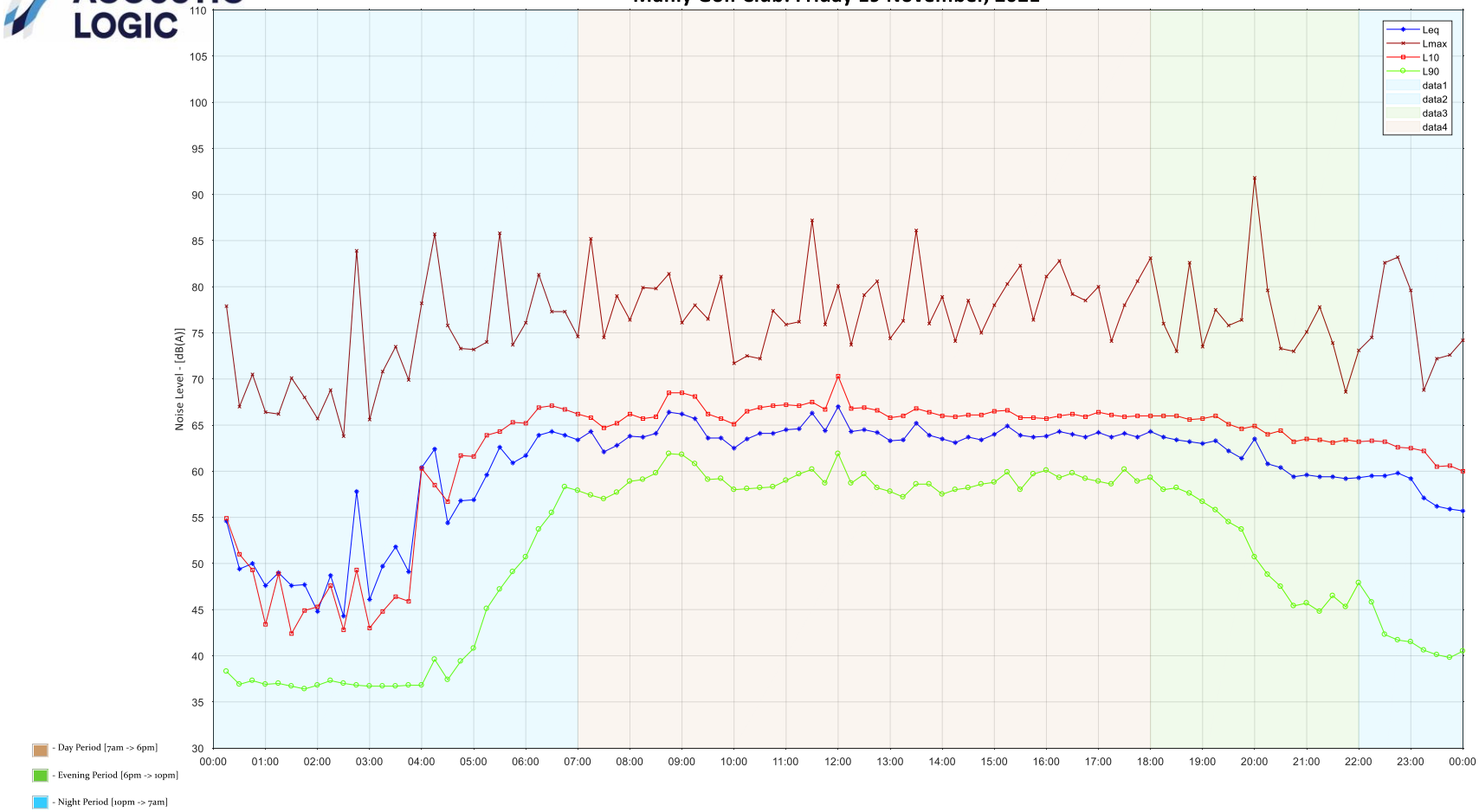
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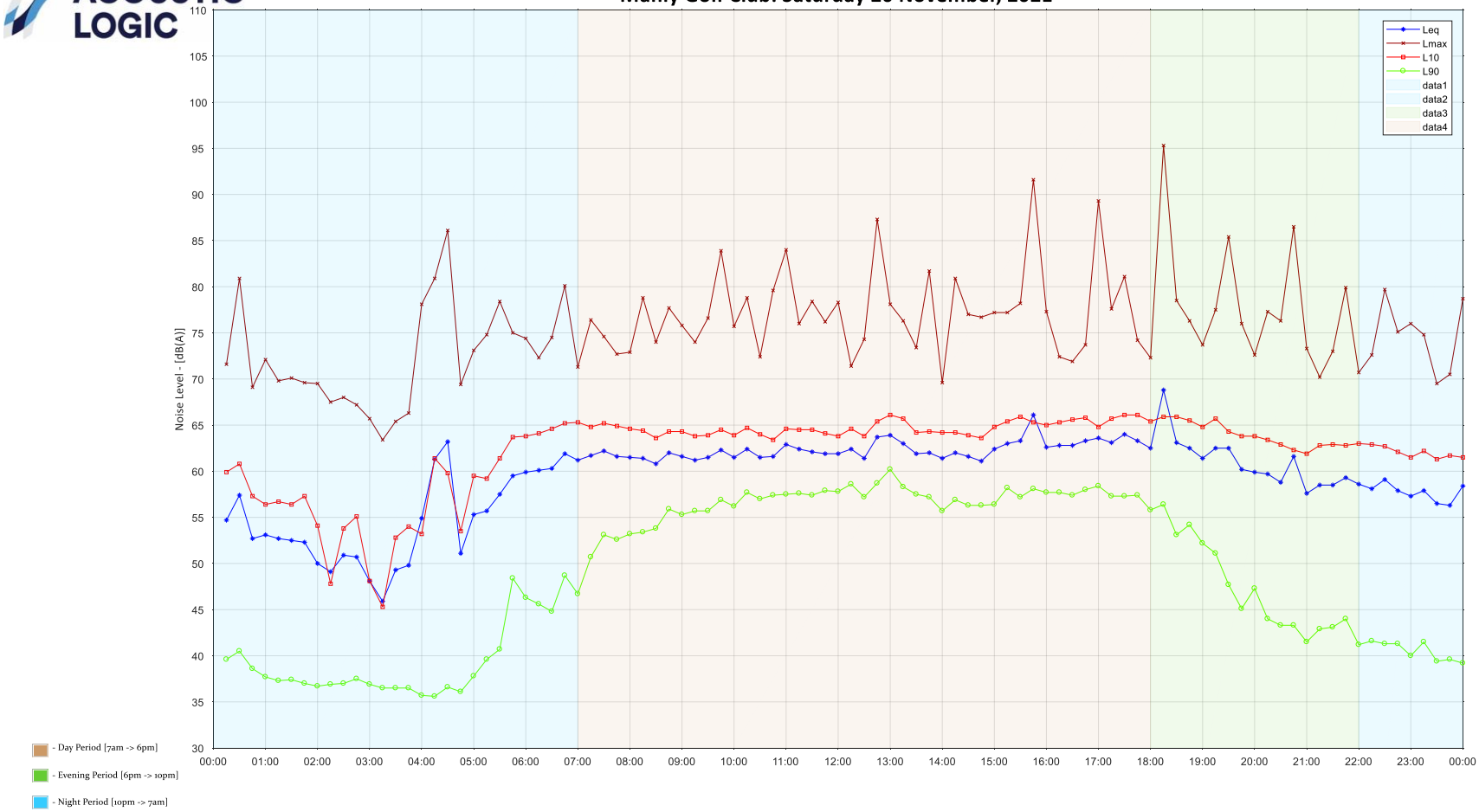
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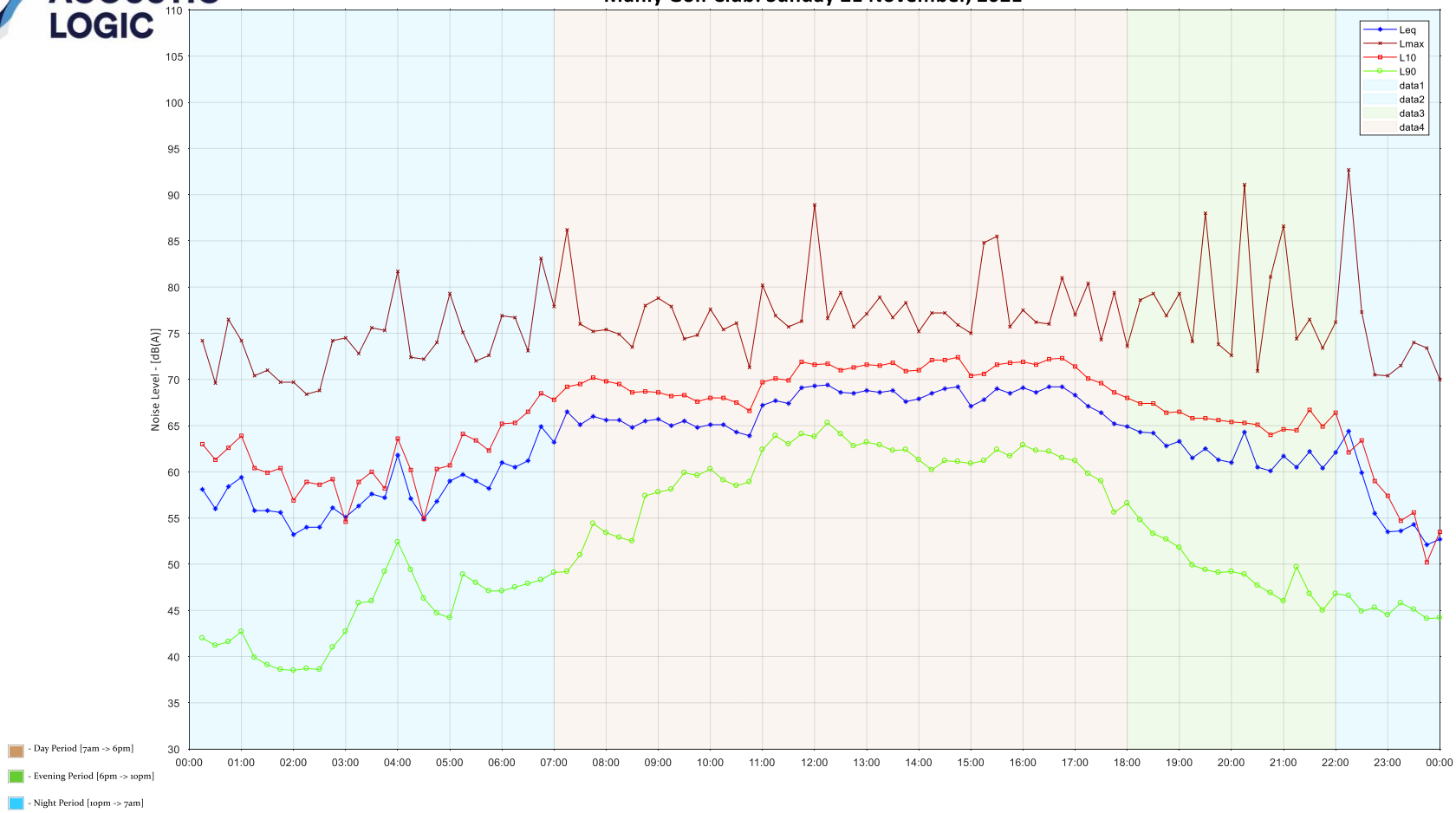
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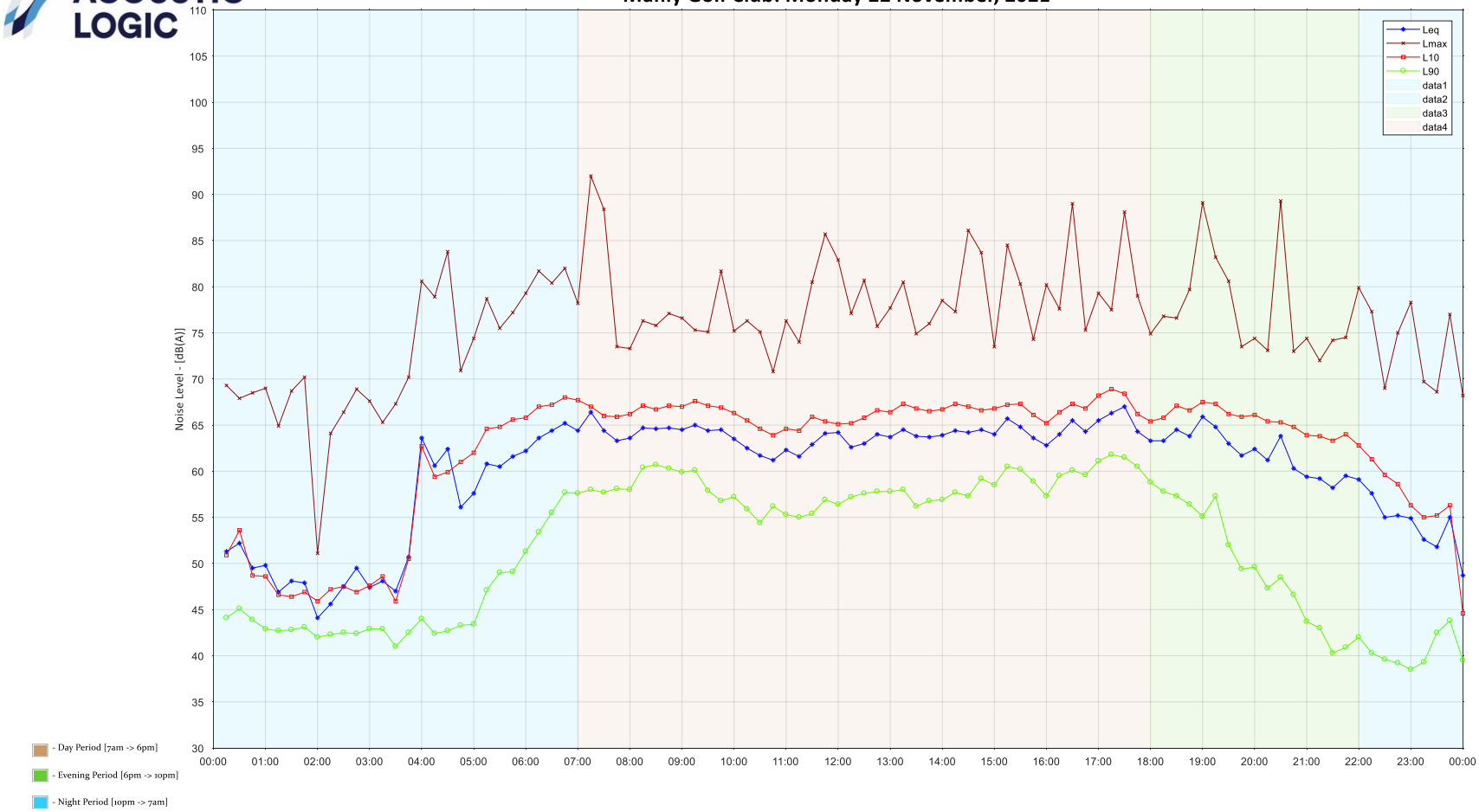
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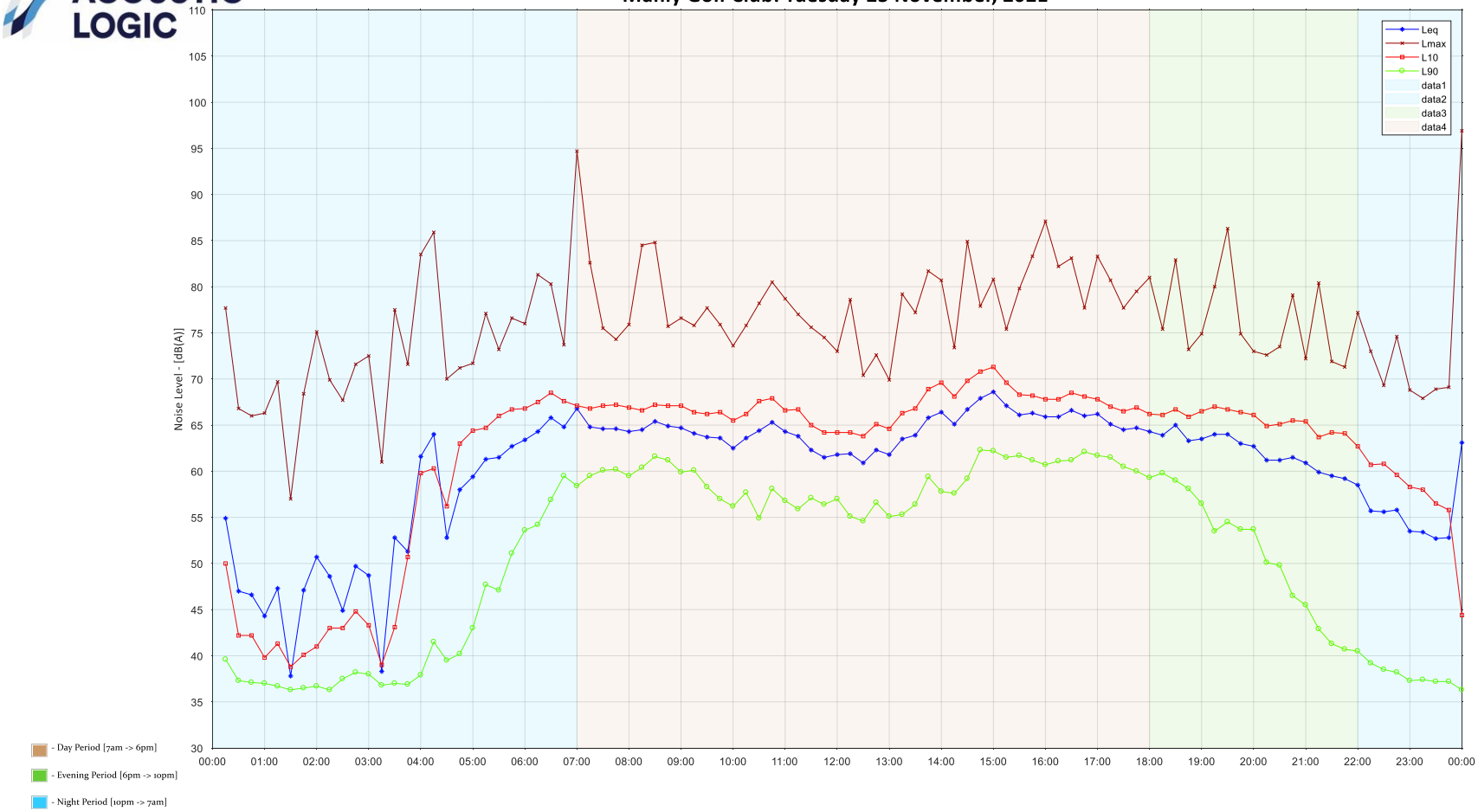
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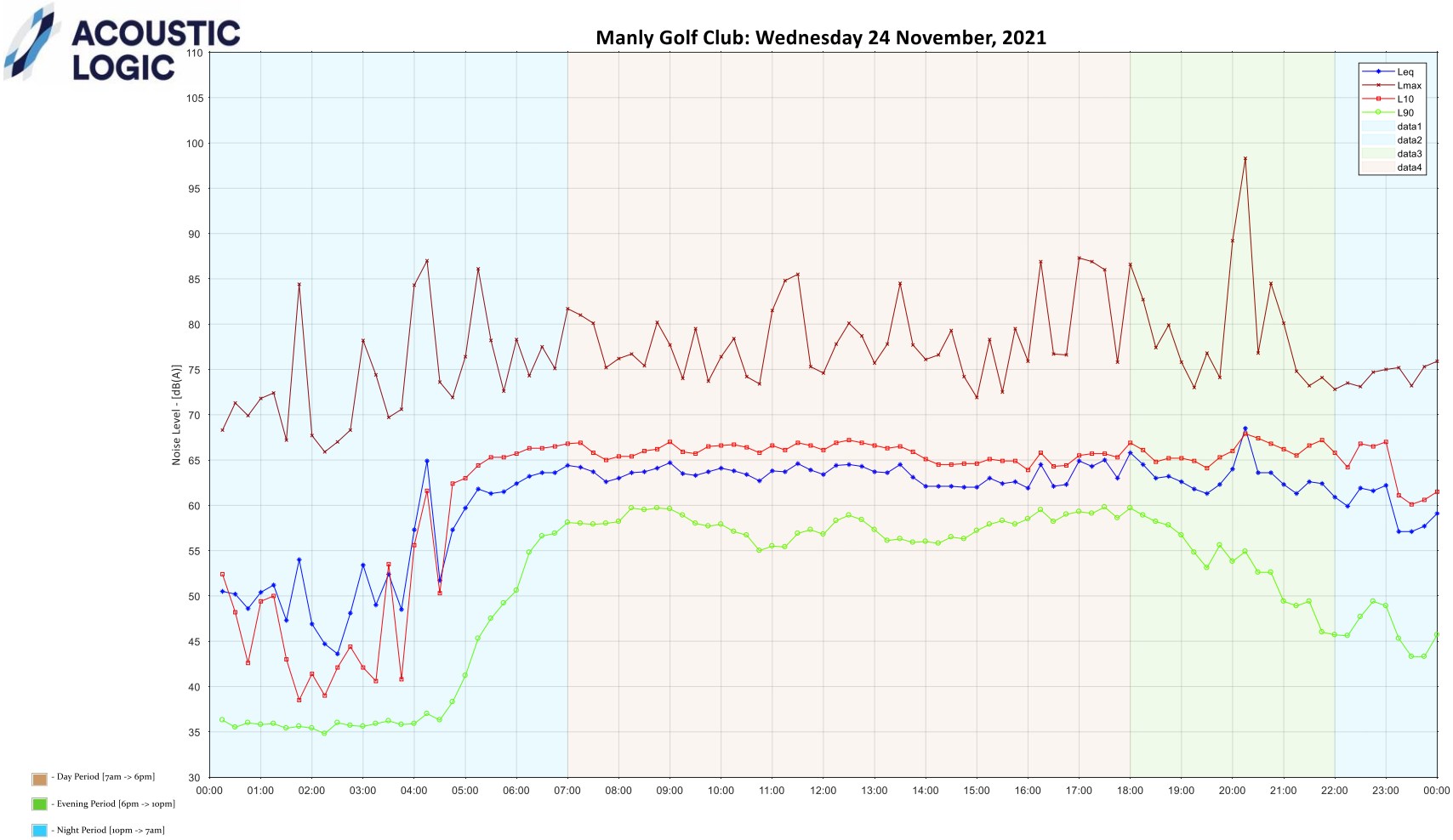
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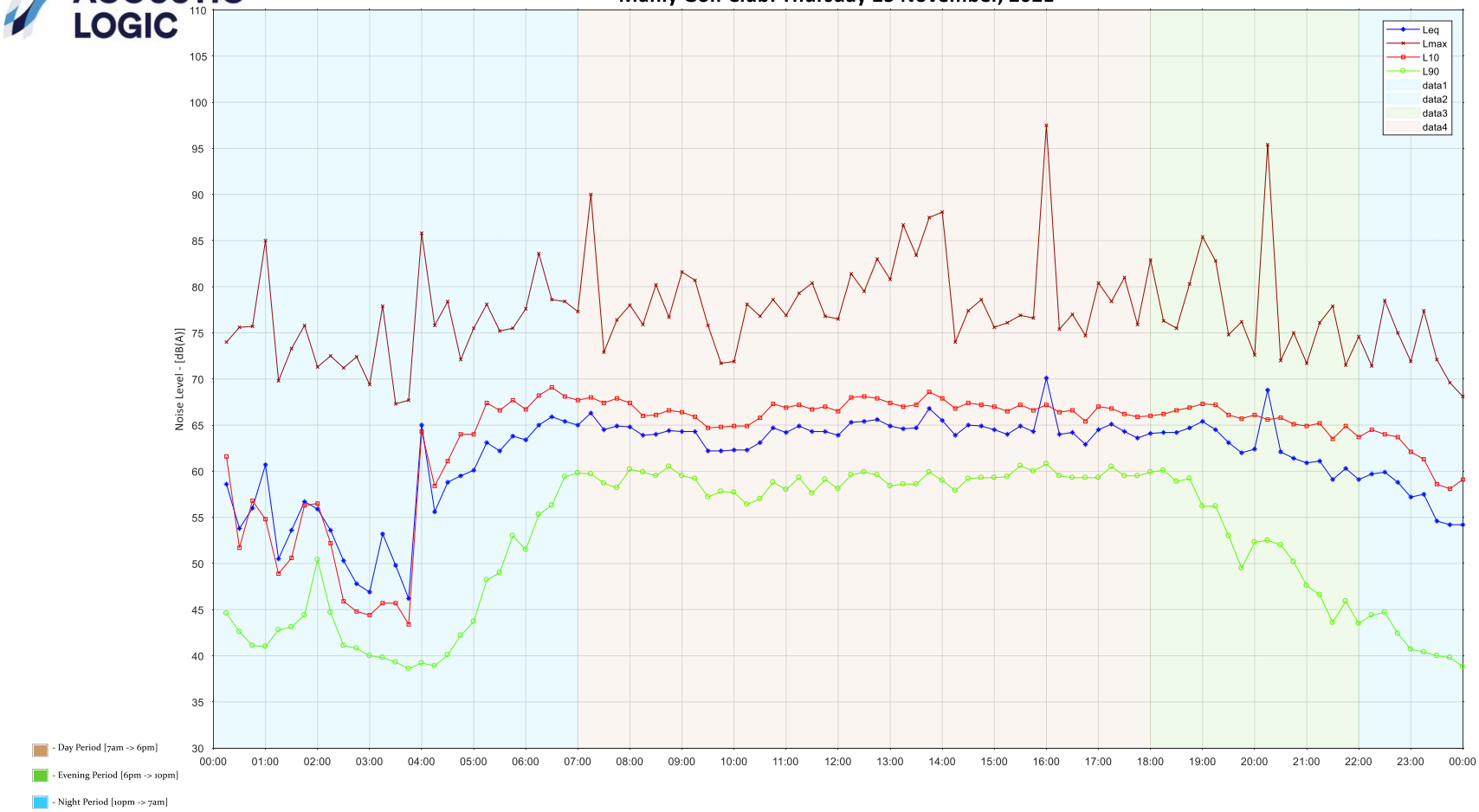
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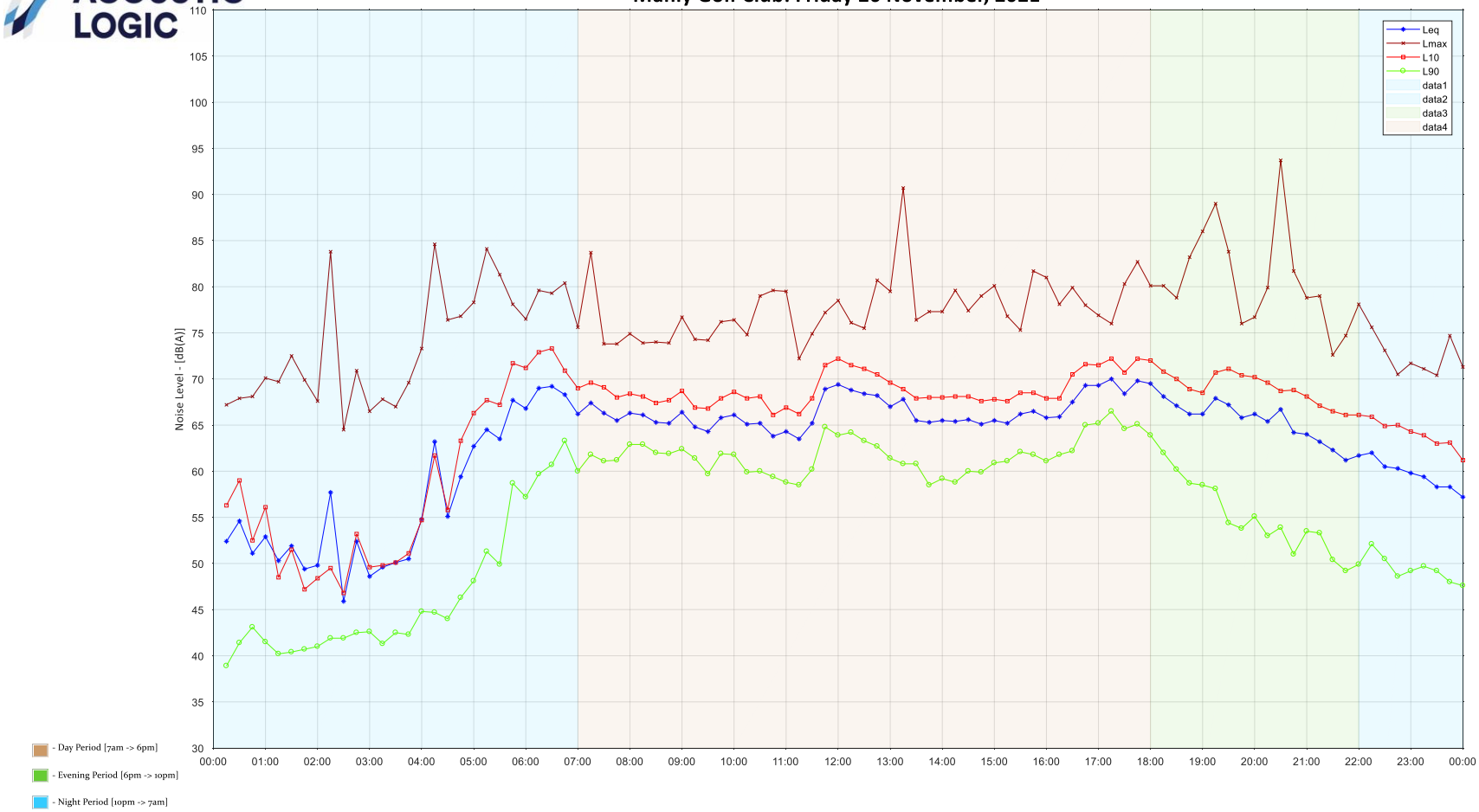
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


Manly Golf Club: Friday 26 November, 2021
Noise Level - [dB(A)]
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
00:00
01:00
02:00
03:00
04:00
05:00
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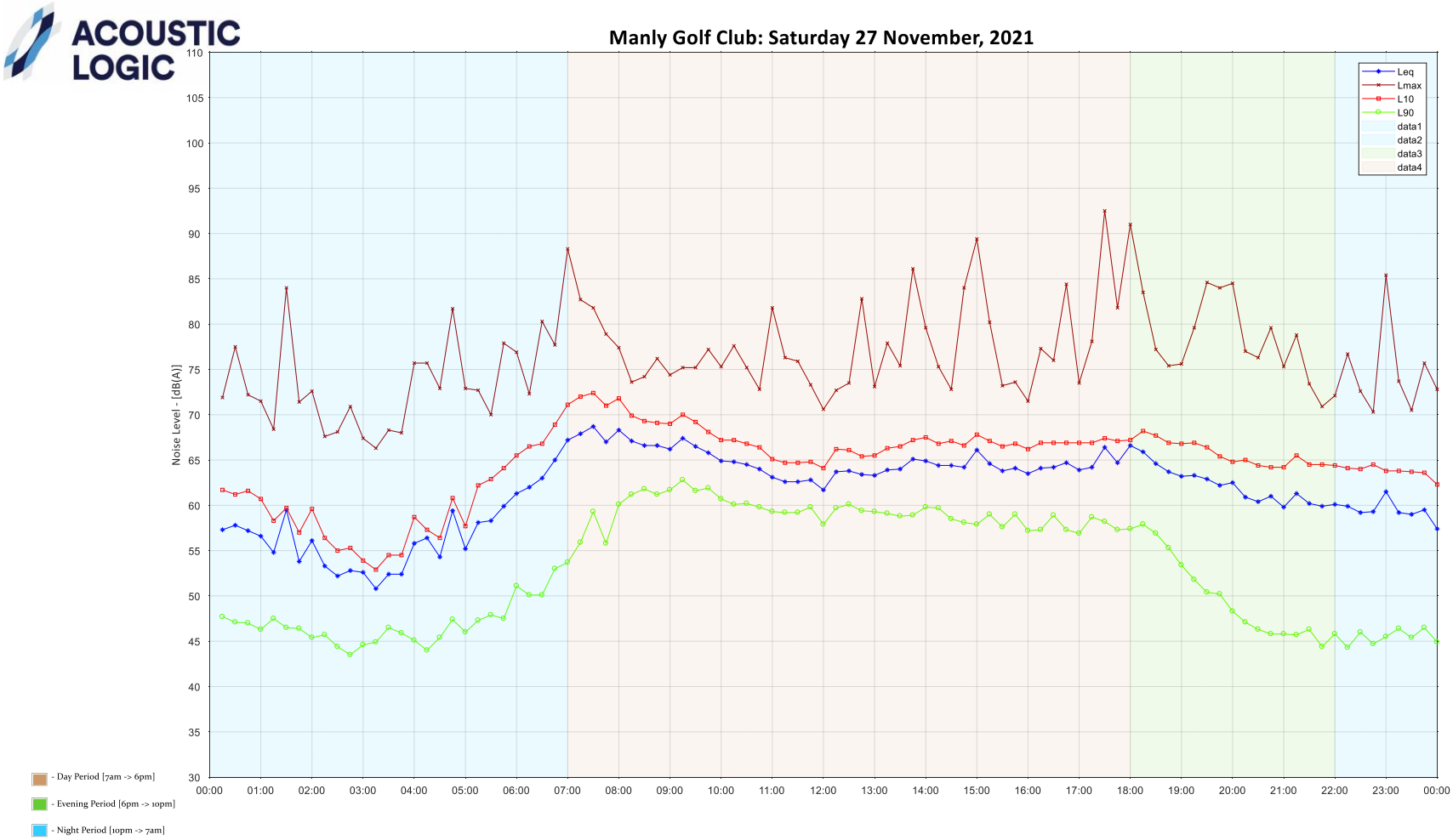
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Leq
Lmax
L10
L90
data1
data2
data3
data4
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


Manly Golf Club: Saturday 27 November, 2021
Noise Level - [dB(A)]
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
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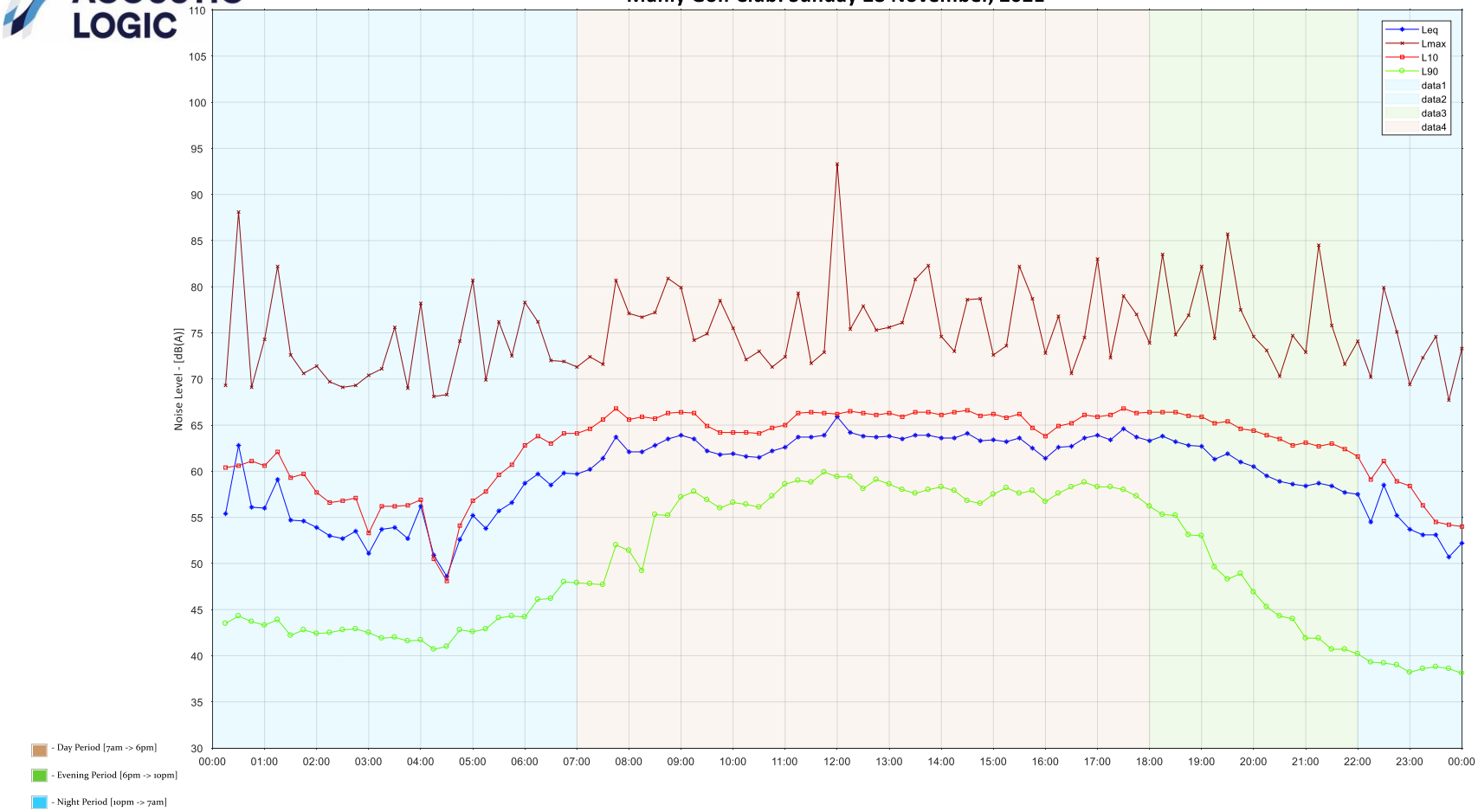
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Leq
Lmax
L10
L90
data1
data2
data3
data4
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


Manly Golf Club: Sunday 28 November, 2021
Noise Level - [dB(A)]
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
00:00
01:00
02:00
03:00
04:00
05:00
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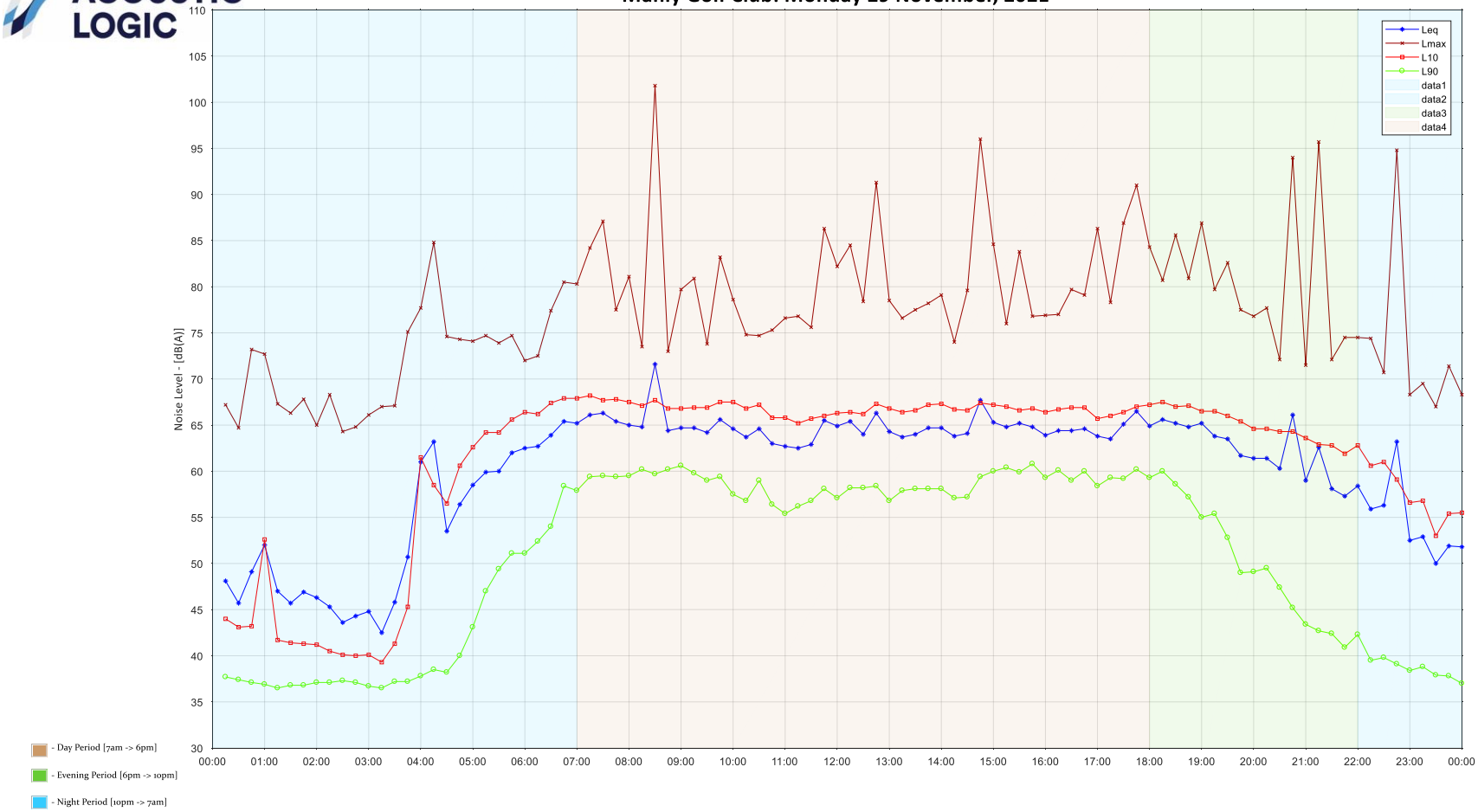
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Leq
Lmax
L10
L90
data1
data2
data3
data4
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


Manly Golf Club: Monday 29 November, 2021
Noise Level - [dB(A)]
110
105
100
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00:00
01:00
02:00
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19:00
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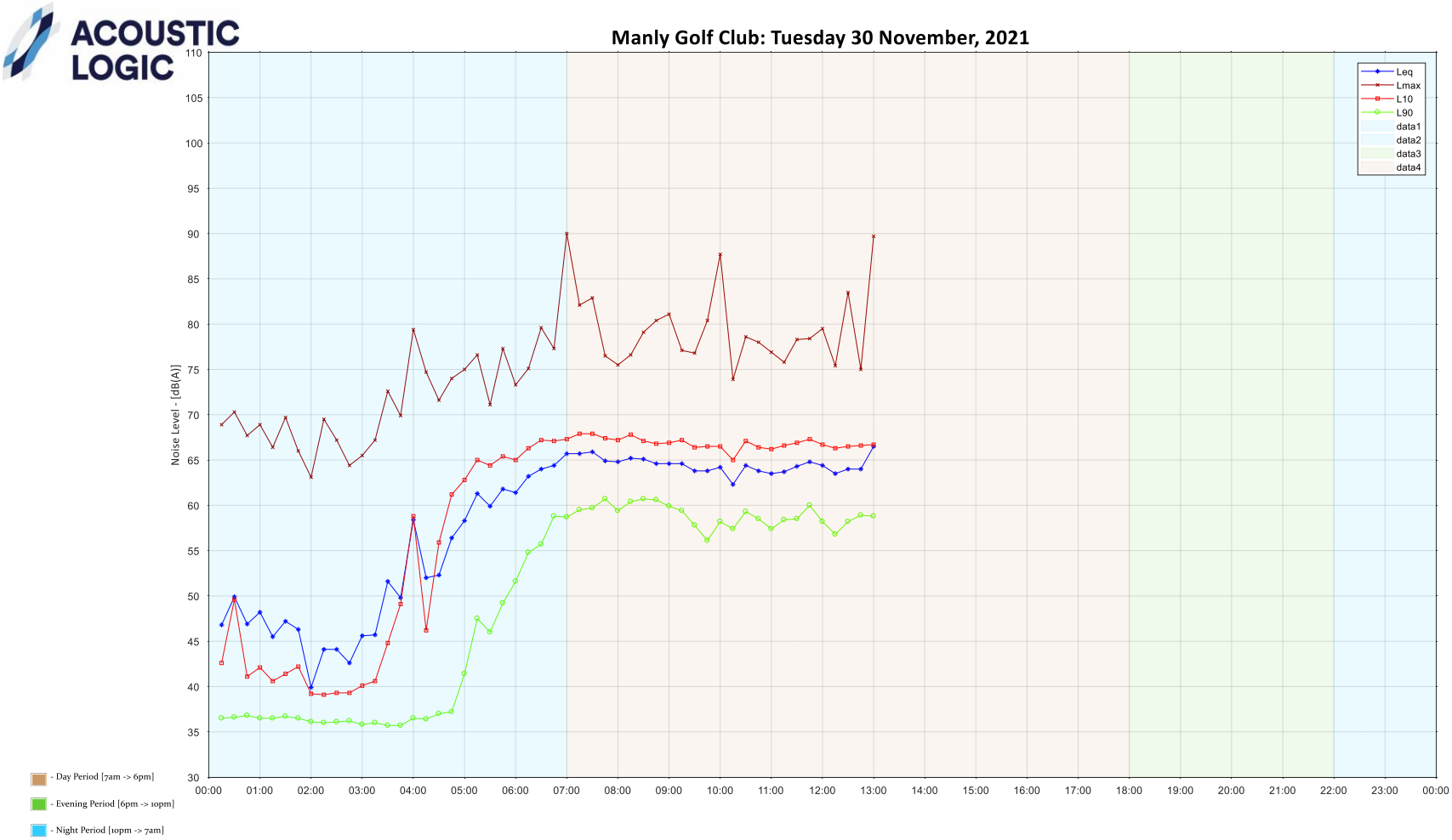
21:00
22:00
23:00
00:00
Leq
Lmax
L10
L90
data1
data2
data3
data4
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


Manly Golf Club: Tuesday 30 November, 2021
Noise Level - [dB(A)]
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
00:00
01:00
02:00
03:00
04:00
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20:00
21:00
22:00
23:00
00:00
Leq
Lmax
L10
L90
data1
data2
data3
data4
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]