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62-62A Copeland Street, Liverpool

Noise Impact Assessment

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1 INTRODUCTION

Acoustic Logic Consultancy (AL) has been engaged to conduct an acoustic assessment of potential noise impacts associated with the proposed development of 62-62A Copeland Street, Liverpool.

This document addresses noise impacts associated with the following:

- Noise intrusion to project site from adjacent roadways.
- Noise emissions from mechanical plant to service the project site.

AL have utilised the following documents and regulations in the noise assessment of the development;

- Liverpool City Council Local Environment Plan (LEP) 2008 and Development Control Plan (DCP) 2018 (including amendments dated 23 August 2017)
- NSW Department of Planning – '*Developments near Rail Corridors or Busy Roads – Interim Guideline';*
- NSW Department of Planning – *'State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021"*;
- NSW Department of Environment and Heritage, Environmental Protection Agency document – *Noise Policy for Industry* (NPI) 2017
- NSW Department of Environment and Heritage, Environmental Protection Agency document – *Interim Construction Noise Guidelines 2009*.

This assessment has been conducted based on the architectural drawings provided by *CD Architects* for this project (Job Number J22561D).

2 SITE DESCRIPTION

The proposed development comprises of two levels of underground parking with 11 levels above containing 43 units.

Investigation has been carried out by this office in regards to the existing properties and noise impacts surrounding the proposed development, which is detailed below:

- Residential development bounding the site to the south and east;
- Copeland & Moore Streets bounding the site to the north and west, which carry large volumes of vehicular traffic.

The section of Copeland Street (Hume Highway) and Moore Street bounding the site are both detailed as roadways under the Transport and Infrastructure SEPP as carrying traffic volumes in excess of 20, 000 vehicles per day.

The nearest noise receivers around the site include:

- **R1**: Residential Receiver 1 – Residential flat building bounding the site to the south along Copeland Street.
- **R2**: Residential Receiver 2 – Residential flat building bounding the site to the east along Moore Street
- **R3**: Residential Receiver 3 – Residential flat building across Moore Street to the North.

A site map, measurement description and surrounding receivers are presented in Figure 1 below.

Project Site

Residential Receivers

Figure 1 - Project Site
Source: NSW Six Maps

Attended Measurements

Unattended Noise Monitor

3 NOISE DESCRIPTORS

Environmental noise constantly varies. Accordingly, it is not possible to accurately determine prevailing environmental noise conditions by measuring a single, instantaneous noise level.

To accurately determine the environmental noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In analysing environmental noise, three-principle measurement parameters are used, namely L_{10}, L_{90} and L_{eq}. The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the 15 minute period. L_{eq} is important in the assessment of environmental noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of environmental noise.

The $L_{Amax,\ fast}$ parameter represents the A weighted maximum noise level during noise measurement period, with sound level meter set on fast response. This is used in the assessment of sleep disturbance from peak noise events during the night time period.

4 AMBIENT NOISE SURVEY

NSW EPA's Rating Background Noise Level (RBL) assessment procedure requires determination of background noise level for each day (the ABL) then the median of the individual days as set out for the entire monitoring period.

Appendices in this report present results of unattended noise monitoring conducted at the project site. Weather affected data was excluded from the assessment. The processed RBL (lowest 10th percentile noise levels during operation time period) are presented in Table 1.

4.1.1 Measurement Position

One unattended noise monitor was located along the eastern boundary of 62 Copeland Street, adjacent to nearby residential receivers. Noise monitor had a full view of traffic movements along both Moore and Copeland Streets, and was located approximately 12m from the kerb. Background noise levels at this location will be representative of ambient noise experienced by surrounding receivers. Refer to Figure 1 for detailed locations.

4.1.2 Measurement Period

Noise monitoring was conducted over the period of Friday 2nd of March to Tuesday 13th of March 2018

4.1.3 Measurement Equipment

Equipment used consisted of an Acoustic Research Laboratories Pty Ltd noise logger. The logger was set to A-weighted fast response and was programmed to store 15-minute statistical noise levels throughout the monitoring period. The monitor was calibrated at the start and end of the monitoring period using a Rion NC-73 calibrator. No significant drift was noted. Noise logger data is provided in Appendix 1.

4.1.4 Summarised Rating Background Noise Levels

Summarised rating background noise levels for the project site and immediate surroundings are presented below.

Table 1 – Measured Rating Background Noise Levels

Location	Time of day	Rating Background Noise Level dB(A)$_{L90(Period)}$
Surrounding Residential Receivers	Day (7am – 6pm)	54
	Evening (6pm – 10pm)	53
	Night (10pm – 7am)	48

5 EXTERNAL NOISE INTRUSION ASSESSMENT

Site investigation indicates that the major external noise sources around project site are from traffic movements along the adjoining roadways (Copeland and Moore Street).

A noise intrusion assessment has been conducted based on the requirements of the following acoustic noise criteria and standards;

- Liverpool City Council Local Environment Plan (LEP) 2008 and Development Control Plan (DCP) 2018 (including amendments dated 23 August 2017)
- NSW Department of Planning – '*Developments near Rail Corridors or Busy Roads – Interim Guideline';*
- NSW Department of Planning – *'State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021*';

5.1 LIVERPOOL CITY COUNCIL DEVELOPMENT CONTROL PLAN

The Liverpool DCP 2008 contains no specific numerical controls relating to internal noise levels. As such, noise intrusion criteria contained within the Department of Planning SEPP (Infrastructure) will be applied, as detailed in the following sections.

5.1.1 NSW Department of Planning – *State Environmental Planning Policy (SEPP) (Transport & Infrastructure) 2021*

Clause 2.120 of the NSW SEPP for road traffic noise stipulates

(1) This clause applies to development for any of the following purposes that is on land or adjacent to the road corridor for a freeway, a tollway or transit way or any other road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of TfNSW) and that the consent authority considers is likely to be adversely affected by road noise or vibration:

(a) A building for residential use,
(b) A place of public worship,
(c) A hospital,
(d) An education establishment or childcare centre.

(3) If the development is for the purposes of a building for residential use, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following L_{Aeq} levels are not exceeded:

(a) In any bedroom in the residential accommodation – 35 dB(A) at any time between 10pm and 7am,
(b) Anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway) – 40 dB(A) at any time."

5.1.2 NSW Department of Planning – *Development near Rail Corridors or Busy Roads – Interim Guideline*

Section 3.5 of the NSW Department of Planning's 'Development near Rail Corridors and Busy Roads (Interim Guideline)' states:

"The following provides an overall summary of the assessment procedure to meet the requirements of clauses 87 and 102 of the Infrastructure SEPP. The procedure covers noise at developments for both Road and Rail.

- *If the development is for the purpose of a building for residential use, the consent authority must be satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded:*
    - *in any bedroom in the building: 35dB(A) at any time 10pm-7am*
    - *anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time."*

Map 11C of the traffic volume maps for the Transport & Infrastructure SEPP classifies the section of Copeland Street (Hume Highway, A22) bounding the site as a carrying more than 20, 000 vehicles per day. Refer to Figure 2 for map and site location

Figure 2 - Site Location and SEPP (Infrastructure) 2007 Classified Roads

5.1.3 Summarised External Noise Intrusion Criteria

Summarised internal noise criteria adopted for each internal space is summarised below.

Table 2 – Adopted Internal Noise Levels

Space / Activity Type	Design Internal Noise Level
Bedrooms	35 dB(A) $L_{eq\ (9hr)}$ ***SEPP (Infrastructure) 2007***
Living Rooms	40 dB(A) $L_{eq\ (15hr)}$ ***SEPP (Infrastructure) 2007***

5.2 EXTERNAL NOISE MEASUREMENTS

This section of the report details noise measurements conducted at the site to establish surrounding environmental noise levels impacting the development.

5.2.1 Measurement Equipment

Attended short term measurements of traffic noise were undertaken by this office to supplement the unattended noise monitoring. Measurements were conducted using a Norsonic 140 Sound Analyser. The analyser was set to fast response and calibrated before and after the measurements using a Norsonic Sound Calibrator type 1251. No significant drift was noted.

Unattended noise monitoring was conducting using one Acoustic Research Laboratories Pty Ltd noise monitor. Monitor was programmed to continuously store 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.

5.2.2 Measurement Location

One unattended noise monitor was located along the eastern boundary of 62 Copeland Street, adjacent to nearby residential receivers. Noise monitor had a full view of traffic movements along both Moore and Copeland Streets, and was located approximately 12m from the kerb. Background noise levels at this location will be representative of ambient noise experienced by surrounding receivers.

Attended measurements were taken at the following locations;

- Copeland Street, Liverpool– Attended noise measurement conducted on Copeland Street near the boundary of project site. Sound level meter had an unobstructed view of traffic and was approximately 3m from the kerb. Refer to Figure 1 for detailed location.
- Moore Street, Liverpool - Attended noise measurement conducted at the boundary of the project site facing Moore Street. Sound level meter had an unobstructed view of traffic and was approximately 3m from the kerb. Refer to Figure 1 for detailed location.

Refer to Figure 1 for detailed locations.

5.2.3 Measurement Period

Noise monitoring was conducted over the period of Friday 2nd of March to Tuesday 13th of March. Attended measurements were taken on Tuesday 13th of March between 8:30am and 9:30am.

5.2.4 Attended Noise Measurements

Attended noise measurements have been summarised below for each location.

Table 3 – Attended Noise Measurements

Location	Measure Noise Level dB(A) $L_{Aeq\ (15hour)}$
Copeland Street, Liverpool Measurement was conducted 3m from kerb of Copeland Street	71 dB(A)$L_{eq(15min)}$
Moore Street, Liverpool Measurement was conducted 3m from kerb of Moore Street	70 dB(A)$L_{eq(15min)}$

5.2.5 Summarised External Noise Levels

The following noise levels for the site have been established based on short term attended measurements and long term noise monitoring.

Table 4 – Measured Traffic Noise Levels

Location	Time of Day	Noise Level – L_{eq}
Copeland Street (3m from kerb)	Daytime 7am – 10pm	71 dB(A) $L_{eq\ (15hr)}$
	Night Time 10pm – 7am	69 dB(A) $L_{eq\ (9hr)}$
Moore Street (3m from kerb)	Daytime 7am – 10pm	70 dB(A) $L_{eq\ (15hr)}$
	Night Time 10pm – 7am	68 dB(A) $L_{eq\ (9hr)}$

5.3 RECOMMENDED CONSTRUCTIONS

Assessment of façade requirements to achieve required indoor noise levels has been undertaken. Dimensions of rooms, setbacks from roadways, window openings and floor areas have been used.

5.3.1 Glazed Windows and Doors

The following constructions are recommended to comply with the project noise objectives. **Constructions below are indicative only and are to be reviewed/confirmed by the project acoustic consultant prior to construction, once final internal layouts have been confirmed.**

Aluminium framed/sliding glass doors and windows will be satisfactory provided they meet the following criteria. All external windows and doors listed are required to be fitted with Q-lon type acoustic seals. (**Mohair Seals are unacceptable**).

Thicker glazing may be required for structural, safety or other purposes. Where it is required to use thicker glazing than scheduled, this will also be acoustically acceptable. The recommended constructions are detailed in Table 5.

Table 5 - Recommended Glazing Construction

Façade	Area	Glazing Thickness	Acoustic Seals
North / West Facing Copeland & Moore Streets	Bedrooms/Living Rooms	10.38mm / 100mm Airgap / 6mm	Yes
South / East	Bedrooms / Living Rooms	12.38mm Laminated	Yes

Where rooms of apartments contain glazing along two façades, the higher glazing requirement will apply to both façades (e.g. Apartment A105 Bedroom 1).

It is recommended that only window systems having test results indicating compliance with the required ratings obtained in a certified laboratory be used where windows with acoustic seals have been recommended.

In addition to complying with the minimum scheduled glazing thickness, the R_w rating of the glazing fitted into open-able frames and fixed into the building opening should not be lower than the values listed in Table 6 for all areas. Where nominated, this will require the use of acoustic seals around the full perimeter of open-able frames and the frame will need to be sealed into the building opening using a flexible sealant.

Table 6 - Minimum R_w of Glazing Assembly (with Acoustic Seals)

Glazing Assembly	Minimum R_w of Installed Window
10.38mm / 100mm Airgap / 6mm	42
12.38mm Laminated	37
10.38mm Laminated	35
6mm	29

5.3.2 Entry Doors

Entry doors will be via internal corridors and subject to BCA requirements.

5.3.3 External Wall Construction

External walls are of masonry construction and acoustically acceptable without any further treatment. In the event any penetrations are required through the external lining of any of the system for other building services, gaps should be filled with acoustic sealant to ensure compliance with acoustic criteria stipulated within this report.

5.3.4 External Roof & Ceiling Construction

Roof is of masonry construction and acoustically acceptable without any further treatment. In the event any penetrations are required through the external lining of any of the system for other building services, gaps should be filled with acoustic sealant to ensure compliance with acoustic criteria stipulated within this report.

5.3.5 Mechanical Ventilation

With respect to natural ventilation of a dwelling, the NSW Department of Planning document *Development near Busy Roads and Rail Corridors - Interim Guideline* dictates that:

- *"If internal noise levels with windows or doors open exceed the criteria by more than 10dB(A), the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia."*

With windows open, the allowable internal noise goal is permitted to be 10dB(A) higher than when the windows are closed (i.e. – allowable level in bedrooms becomes 45dB(A) $L_{eq(9hr)}$, and 50dB(A) $L_{eq(15hr)}$ in living rooms).

- All areas of the development will require windows to be closed to achieve required internal noise levels.

Mechanical consultant to confirm if any supplementary ventilation system is required. Any supplementary ventilation system proposed to be installed should be acoustically designed to ensure that the acoustic performance of the acoustic treatments outlined above is not reduced and does not exceed Council criteria for noise emission to nearby properties.

6 NOISE EMISSION CRITERIA

The noise emission from the project site shall comply with the requirements of the following documents;

- Liverpool City Council Local Environment Plan (LEP) and Development Control Plan (DCP) 2008 (including amendments dated 23 August 2017)
- NSW Department of Environment and Heritage, *Environmental Protection Agency document – Noise Policy for Industry (NPI) 2017*.

6.1 LIVERPOOL CITY COUNCIL DEVELOPMENT CONTROL PLAN 2008

There is no specific acoustic criteria relating to noise emissions from the proposed development contained in the Liverpool City Council DCP 2008. In this regard, we intend to make reference to the NSW EPA Noise Policy for Industry (NPI) to formulate suitable criteria.

6.2 NSW EPA NOISE POLICY FOR INDUSTRY (NPI) 2017

The EPA NPI has two criteria which both are required to be satisfied, namely Intrusiveness and amenity. The NPI sets out acceptable noise levels for various localities. The policy indicates four categories to assess the appropriate noise level at a site. They are rural, suburban, urban and urban/industrial interface. Under the policy the nearest residential receivers would be assessed against the rural criteria.

Noise levels are to be assessed at the property boundary or nearby dwelling, or at the balcony or façade of an apartment.

6.2.1 Intrusiveness Criterion

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). Where applicable, the intrusive noise level should be penalised (increased) to account for any annoying characteristics such as tonality.

Background noise levels adopted are presented in Table 1. Noise emissions from the site should comply with the noise levels presented below when measured at nearby property boundary.

6.2.2 Project Amenity Criterion

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 EPA's NPI sets out acceptable noise levels for various localities. The recommended noise amenity area is based upon the measured background noise levels at the sensitive receiver. Based on the measured background noise levels detailed in Table 1, the Noise Policy for Industry suggests the adoption of the 'urban' categorisation.

The NPI requires project amenity noise levels to be calculated in the following manner;

$$L_{Aeq,15min} = \text{Recommended Amenity Noise Level} - 5\ dB(A) + 3\ dB(A)$$

The amenity levels appropriate for the receivers surrounding the project site are presented in Table 7

Table 7 – EPA Amenity Noise Levels

Type of Receiver	Time of day	Recommended Noise Level dB(A)$L_{eq(period)}$	Project Amenity Noise Level dB(A)$L_{eq(period)}$
Residential – Urban	Day	60	58
	Evening	50	48
	Night	45	43
Commercial premises	When in use	65	63
Industrial premises	When in use	70	68

The NSW EPA Noise Policy for Industry (2017) defines;

- Day as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
- Evening as the period from 6pm to 10pm.
- Night as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays

6.2.3 Sleep Arousal Criteria

The Noise Policy for Industry recommends the following noise limits to mitigate sleeping disturbance:

Where the subject development / premises night -time noise levels at a residential location exceed:

- *$L_{Aeq,15min}$ 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or*
- *L_{AFmax} 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater,*

a detailed maximum noise level even assessment should be undertaken.

Table 8 - Sleep Arousal Criteria for Residential Receivers

Receiver	Rating Background Noise Level (Night) dB(A)L_{90}	Emergence Level
Surrounding Residential Receivers Night (10pm – 7am)	43 dB(A) L_{90}	48 dB(A)$L_{eq,\ 15min}$; 58 dB(A)L_{Fmax}

6.3 SUMMARISED NOISE EMISSION CRITERIA

Table 9 – EPA NPI Project Noise Trigger Levels (Mechanical Plant)

Time Period	Assessment Background Noise Level dB(A)L_{90}	Project Amenity Criteria dB(A) $L_{eq(15min)}$	Intrusiveness Criteria $L_{eq(15min)}$	NPI Criteria for Sleep Disturbance
Day	54	**58**	59	N/A
Evening	53	**48**	58	N/A
Night	48	**43**	53	**48 dB(A)$L_{eq, 15min}$; 58 dB(A)L_{Fmax}**

Project noise trigger levels (PNTL) are indicated in bold above.

7 NOISE EMISSION ASSESSMENT

7.1 NOISE FROM MECHANICAL PLANT WITHIN PROPOSED SITE GENERALLY

Detailed plant selection and location has not been undertaken at this stage. Satisfactory levels will be achievable through appropriate plant selection, location and if necessary, standard acoustic treatments such as duct lining, acoustic silencers and enclosures.

Noise emissions from all mechanical services to the closest receivers should comply with the requirements of Section 6.

Detailed acoustic review should be undertaken at CC stage to determine acoustic treatments to control noise emissions to satisfactory levels.

7.2 PRELIMINARY ASSESSMENT OF CONSTRUCTION NOISE IMPACTS

7.2.1 Construction Noise Objectives

Noise associated with excavation and construction activities on the site will be assessed with reference to the NSW EPA Interim Construction Noise Guidelines.

7.2.1.1 EPA 'Interim Construction Noise Guidelines'

The EPA guidelines adopt differing strategies for noise control depending on the predicted noise level at the nearest residences:

- *"Noise affected" level*. Where construction noise is predicted to exceed the "noise effected" level at a nearby residence, the proponent should take reasonable/feasible work practices to ensure compliance with the "noise effected level". For residential properties, the "noise effected" level occurs when construction noise exceeds ambient levels by more than 10dB(A)$L_{eq(15min)}$.
- "*Highly noise affected level*". Where noise emissions are such that nearby properties are "highly noise effected", noise controls such as respite periods should be considered. For residential properties, the "highly noise effected" level occurs when construction noise exceeds 75dB(A)$L_{eq(15min)}$ at nearby residences.

A summary of the noise goals for the site is presented in Table 7-1 below.

Table 7-1 - Noise Emission Goals at Residential Receivers

Location	"Noise Affected" Level - dB(A)$L_{eq(15min)}$ Background + 10"	"Highly Noise Affected" Level - dB(A)$L_{eq(15min)}$
Surrounding residential receivers	64	75

7.2.2 Discussion

With respect to construction noise, the impact on nearby development will be dependent on the activity in question and where on the site the activity is undertaken. It is expected that the loudest typical construction activities will be from excavation and demolition works.

Loudest plant and equipment items associated with these activities will typically have sound power levels of approximately 110-115dB(A)$L_{eq(15min)}$. The most impacted sensitive receivers are expected to be residential dwellings bounding the site (Receivers 1,2 & 3 identified in Section 2).

Noise levels at the facades of these receivers is expected to be at or above the highly noise affected level for typically loud construction activities, such as excavation and hammering works. In order to minimise the potential impact on residents it is recommended that construction noise management processes be implemented for the project.

Ultimately, the type and duration of specific construction processes will determine the impact on neighbouring receivers, the detail of which is not currently known. However, potential ameliorative measures which could be enacted to minimise disturbance include:

- Selection of construction equipment and processes which minimises acoustic impact. For example, the use of bored piling rather than sheet piling will significantly reduce the noise and vibration impact to neighbouring properties;
- Community interaction and notification. Notification of construction works both before and during construction will enable nearby residents to plan for acoustic impacts associated with the development;
- Where possible, machinery should be located as far as practicable from neighbouring residents (i.e. towards the west of site);
- Deliveries and access to the site should be managed so that it does not unreasonably disturb neighbouring residents. Loading areas should be located away from nearby residents if possible.

8 CONCLUSION

This report presents an acoustic assessment of noise impacts associated with the residential development to be located at 62-62A Copeland Street, Liverpool.

Provided that the recommendations presented in Section 5.3 are adopted, internal noise levels for the proposed development will meet the acoustic requirements of the following documents:

- Liverpool City Council Local Environment Plan (LEP) 2008 and Development Control Plan (DCP) 2018 (including amendments dated 23 August 2017)
- NSW Department of Planning – '*Developments near Rail Corridors or Busy Roads – Interim Guideline';*
- NSW Department of Planning – *'State Environmental Planning Policy (SEPP) (INFRASTRUCTURE) 2007*";
- NSW Department of Environment and Heritage, Environmental Protection Agency document – *Noise Policy for Industry* (NPI) 2017

External noise emissions criteria have been established in this report to satisfy the requirements from the following documents:

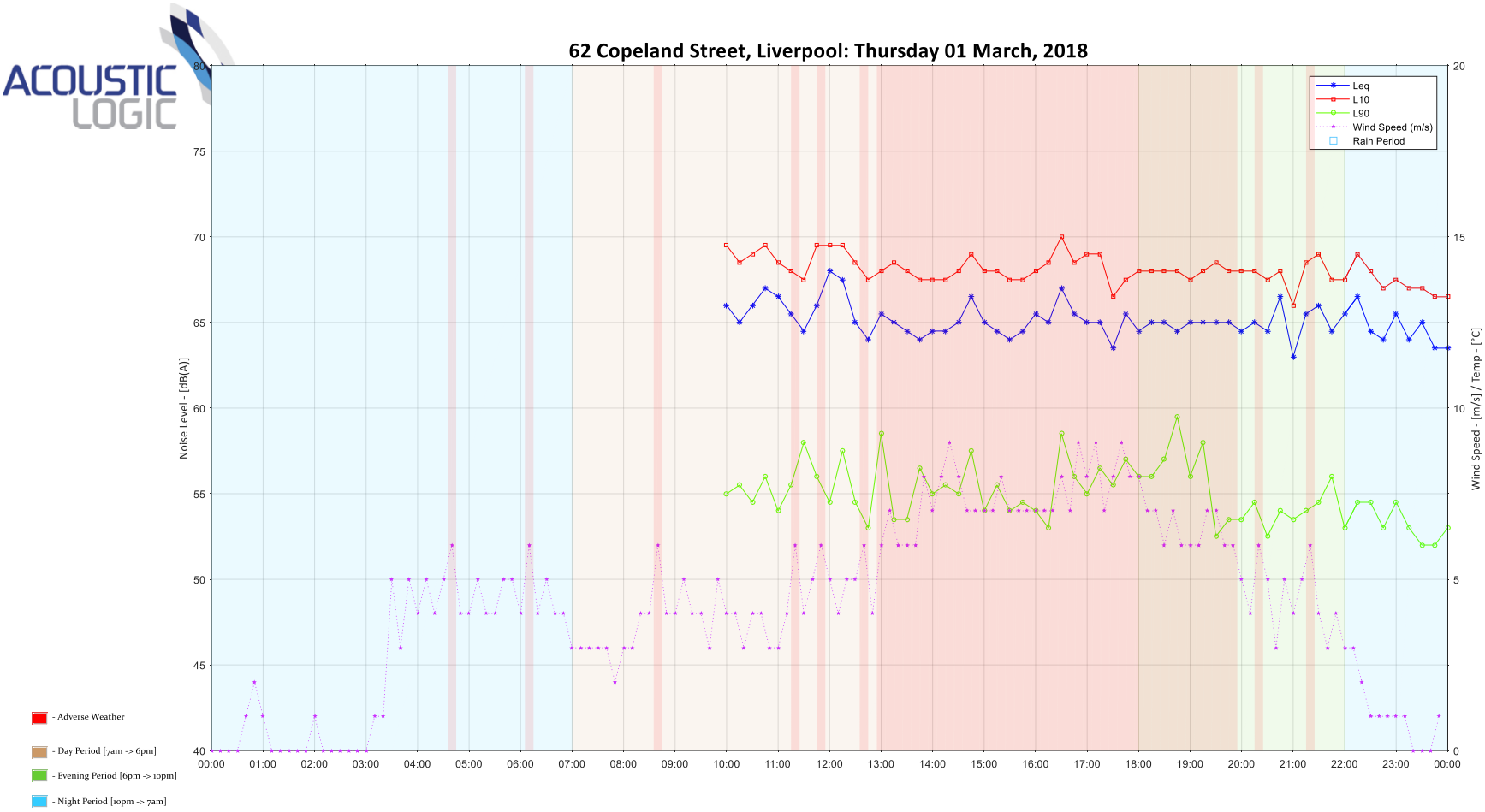
- Liverpool City Council Local Environment Plan (LEP) 2008 and Development Control Plan (DCP) 2018 (including amendments dated 23 August 2017)
- NSW Department of Environment and Heritage, Environmental Protection Agency document – *Noise Policy for Industry* (NPI) 2017
- NSW Department of Environment and Heritage, Environmental Protection Agency document – *Interim Construction Noise Guidelines 2009*.

Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Alex Washer

APPENDIX ONE – UNATTENDED NOISE MONITORING DATA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Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
80
75
70
65
60
55
50
45
40
20
15
10
5
0
00:00
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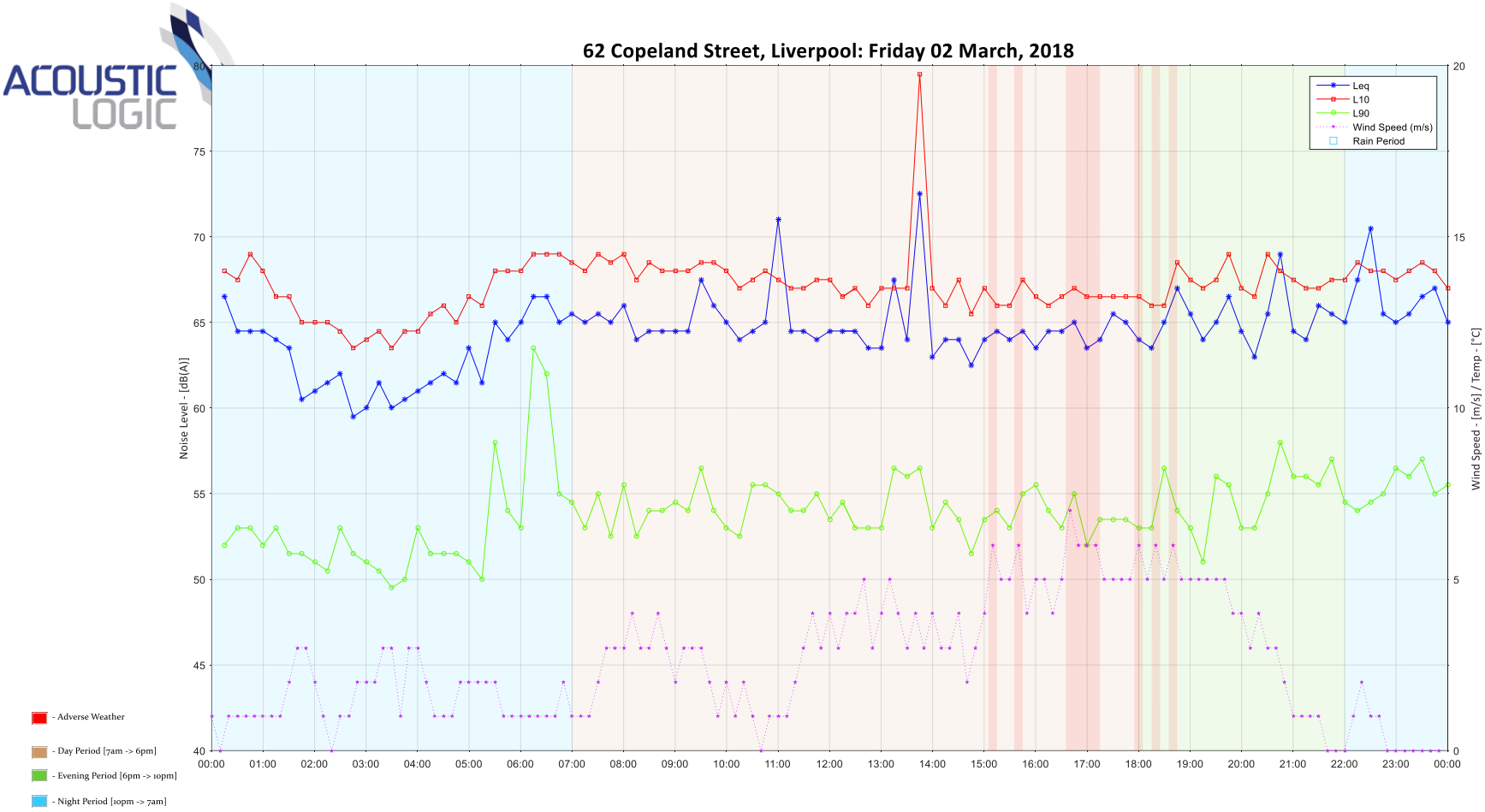
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]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Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
80
75
70
65
60
55
50
45
40
20
15
10
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01:00
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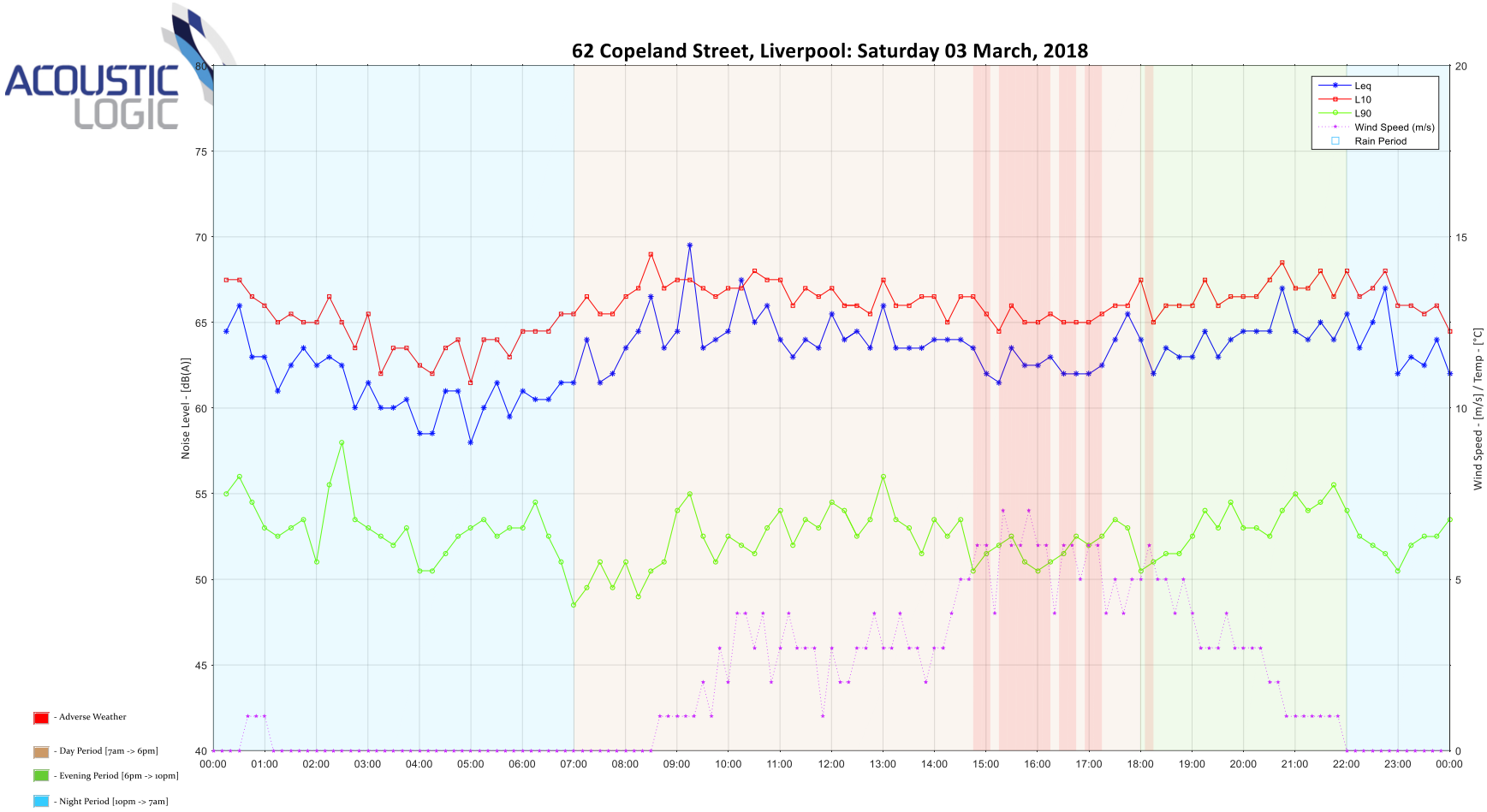
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]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L90
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Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
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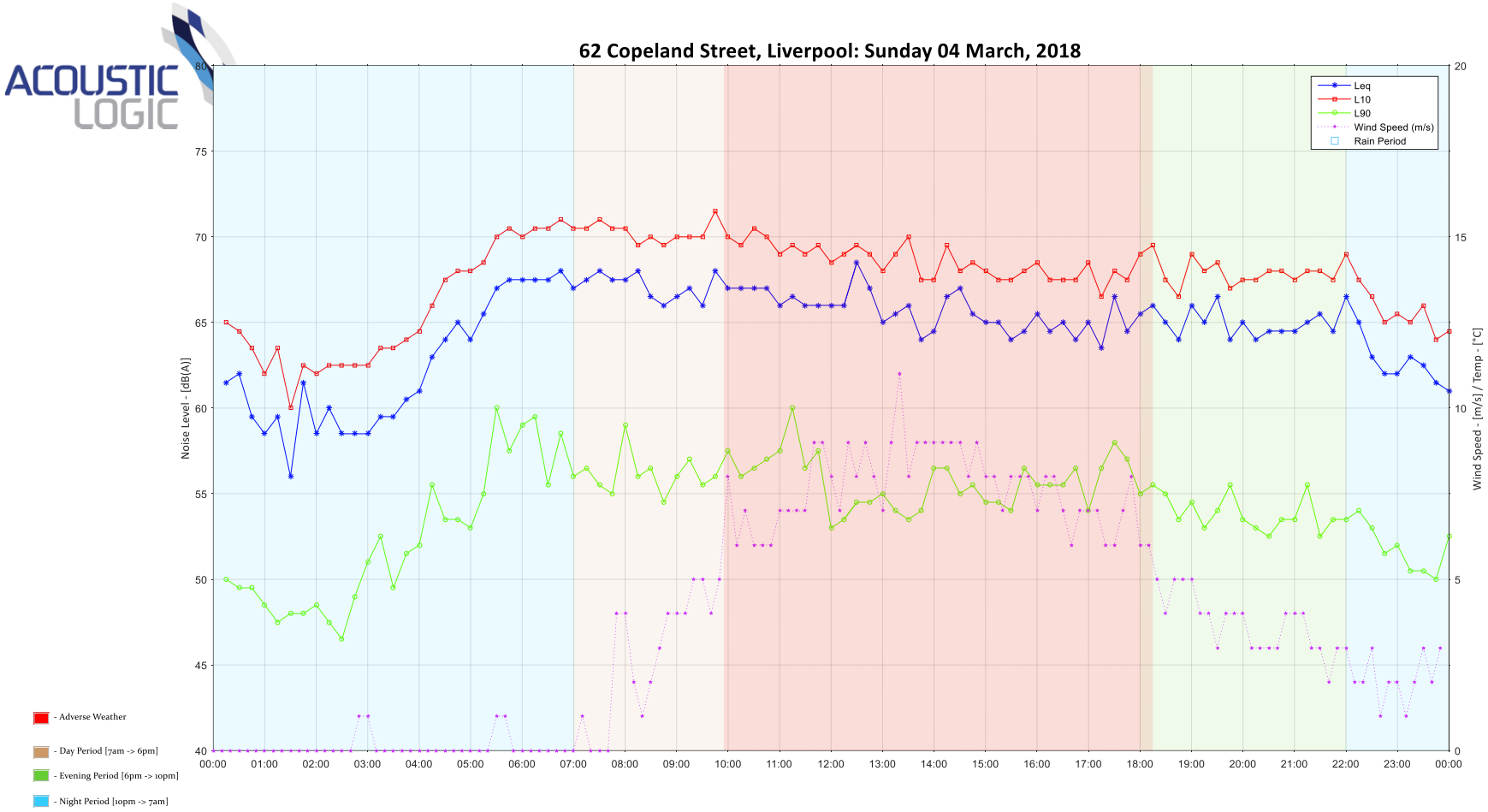
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]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L10
L90
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Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
80
75
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65
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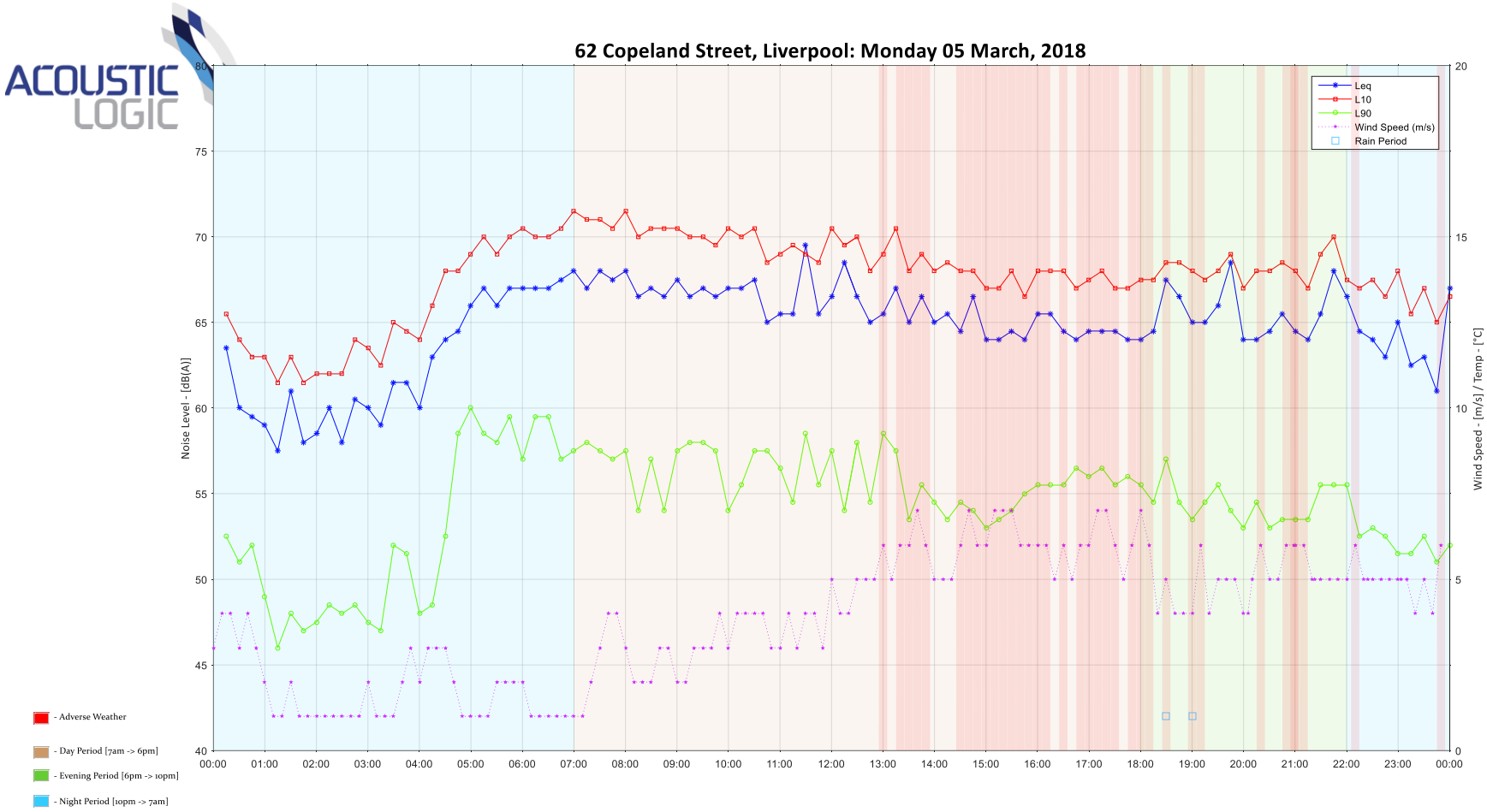
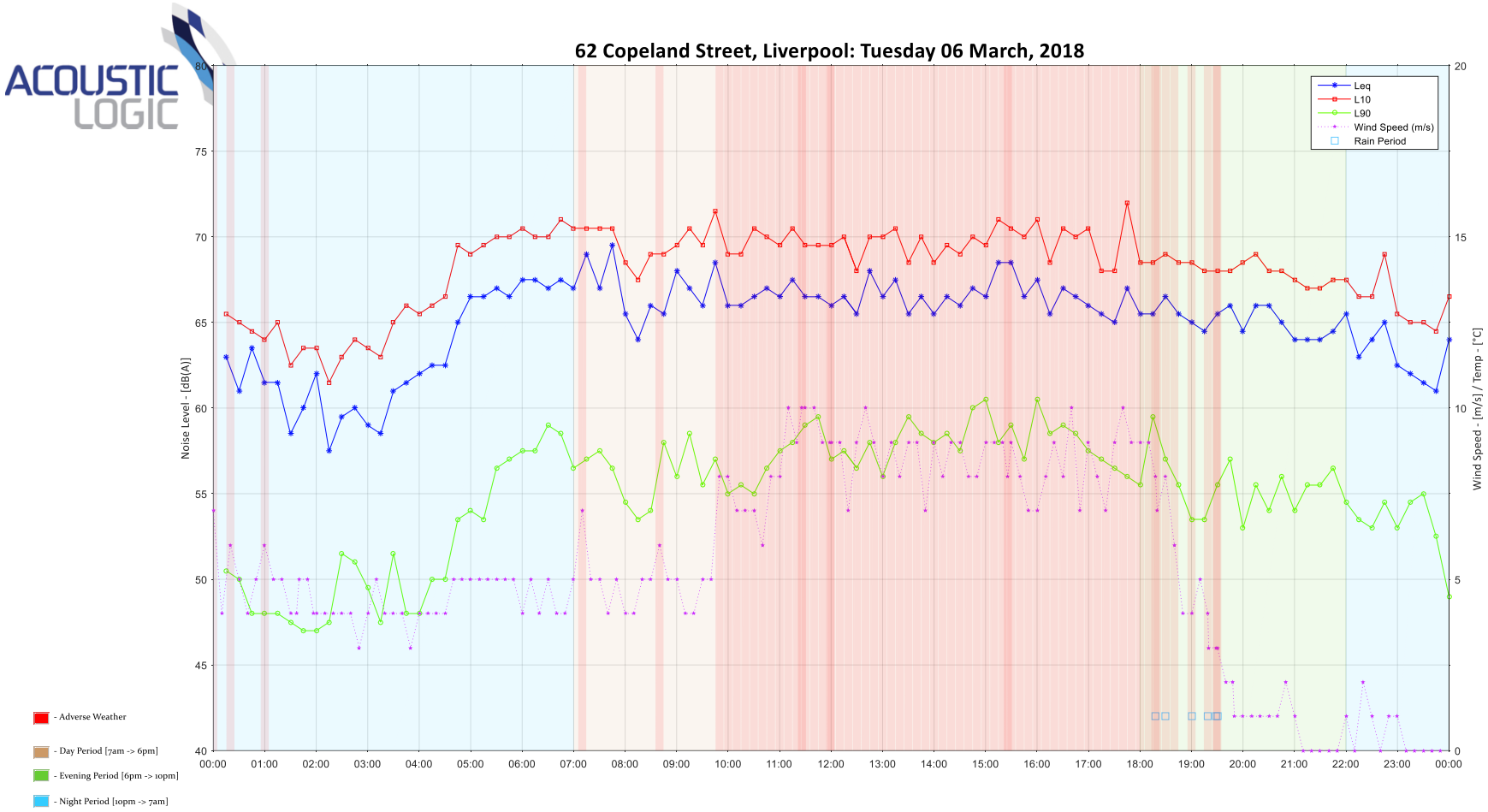
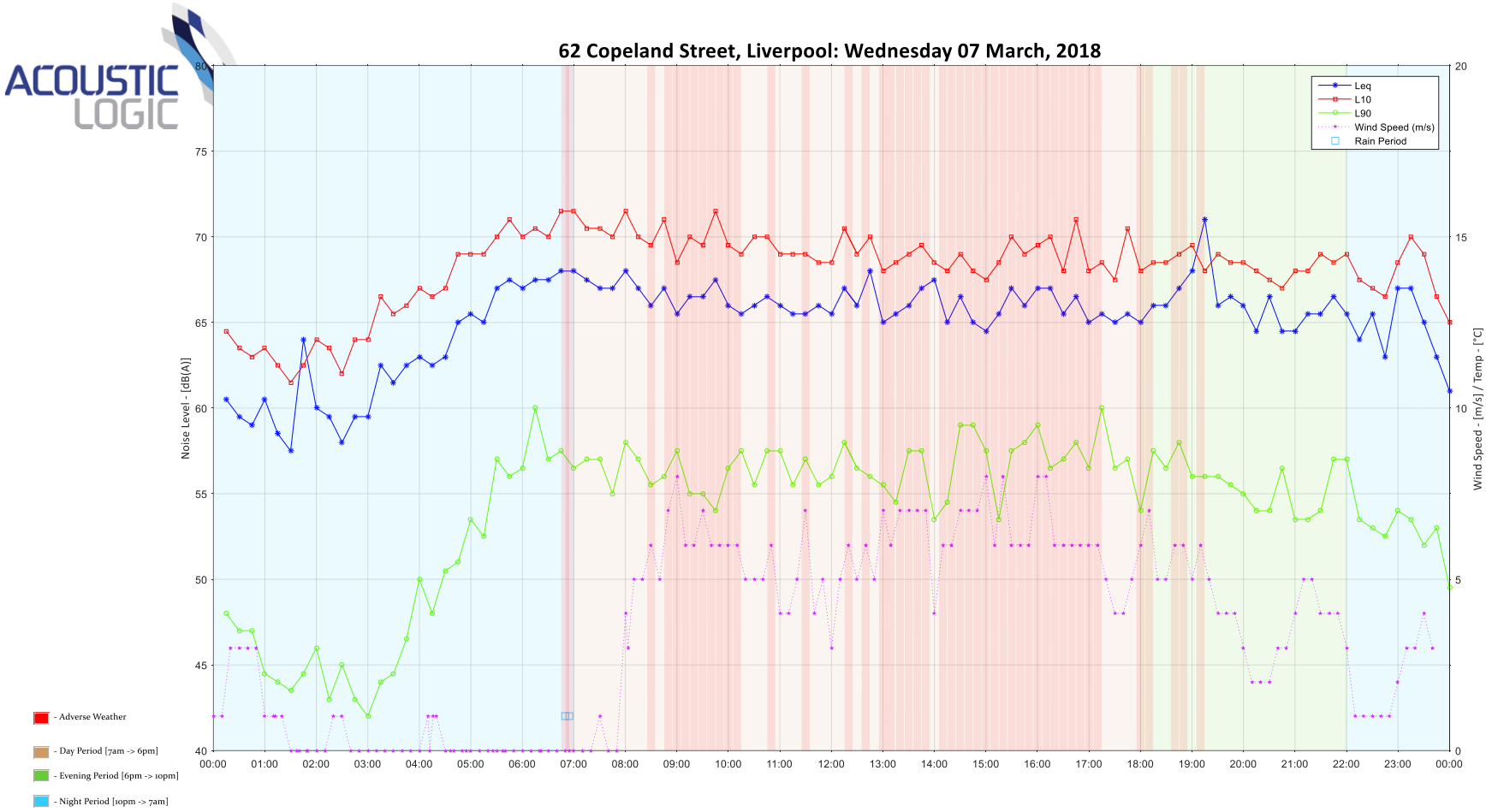
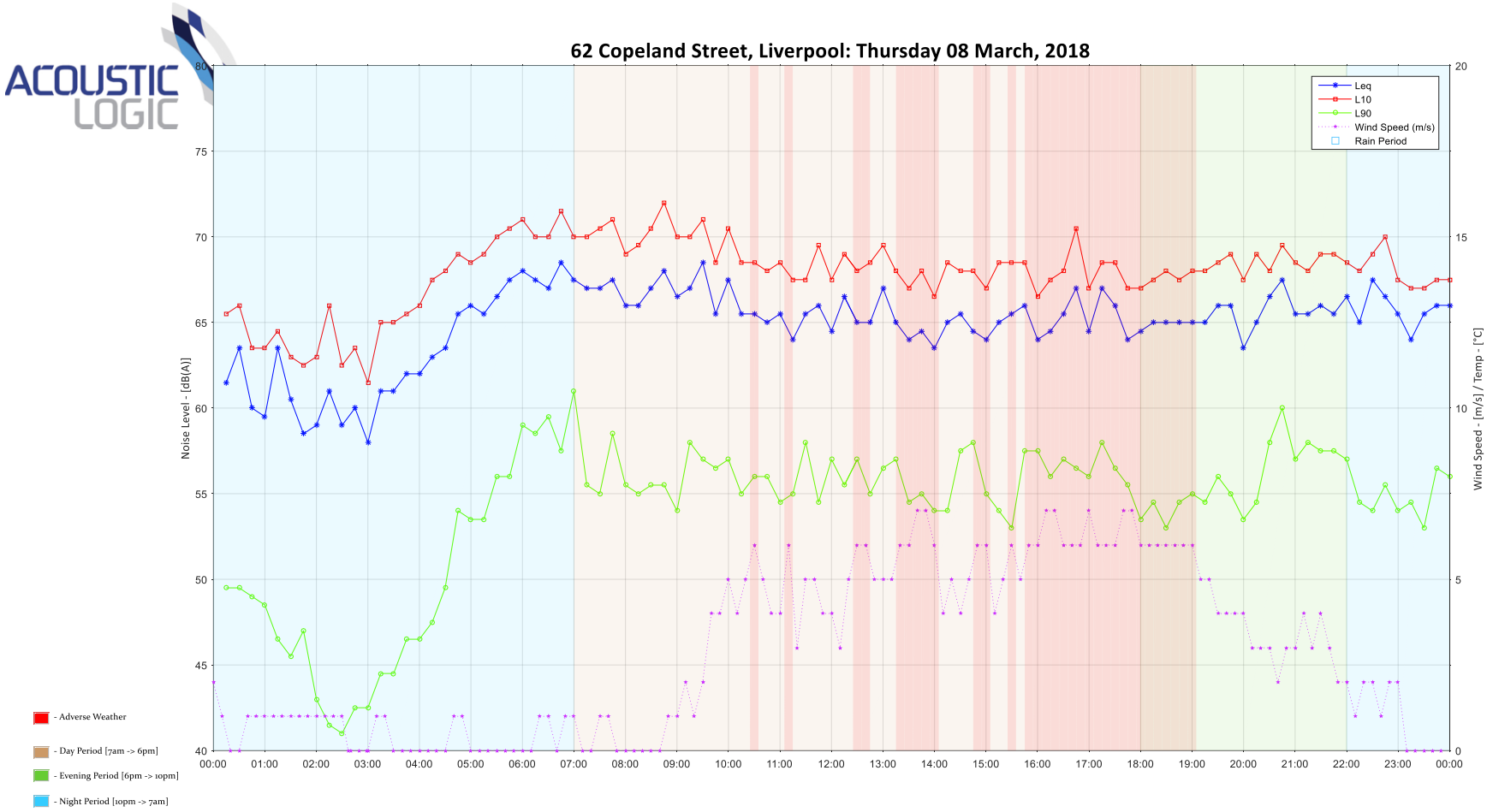
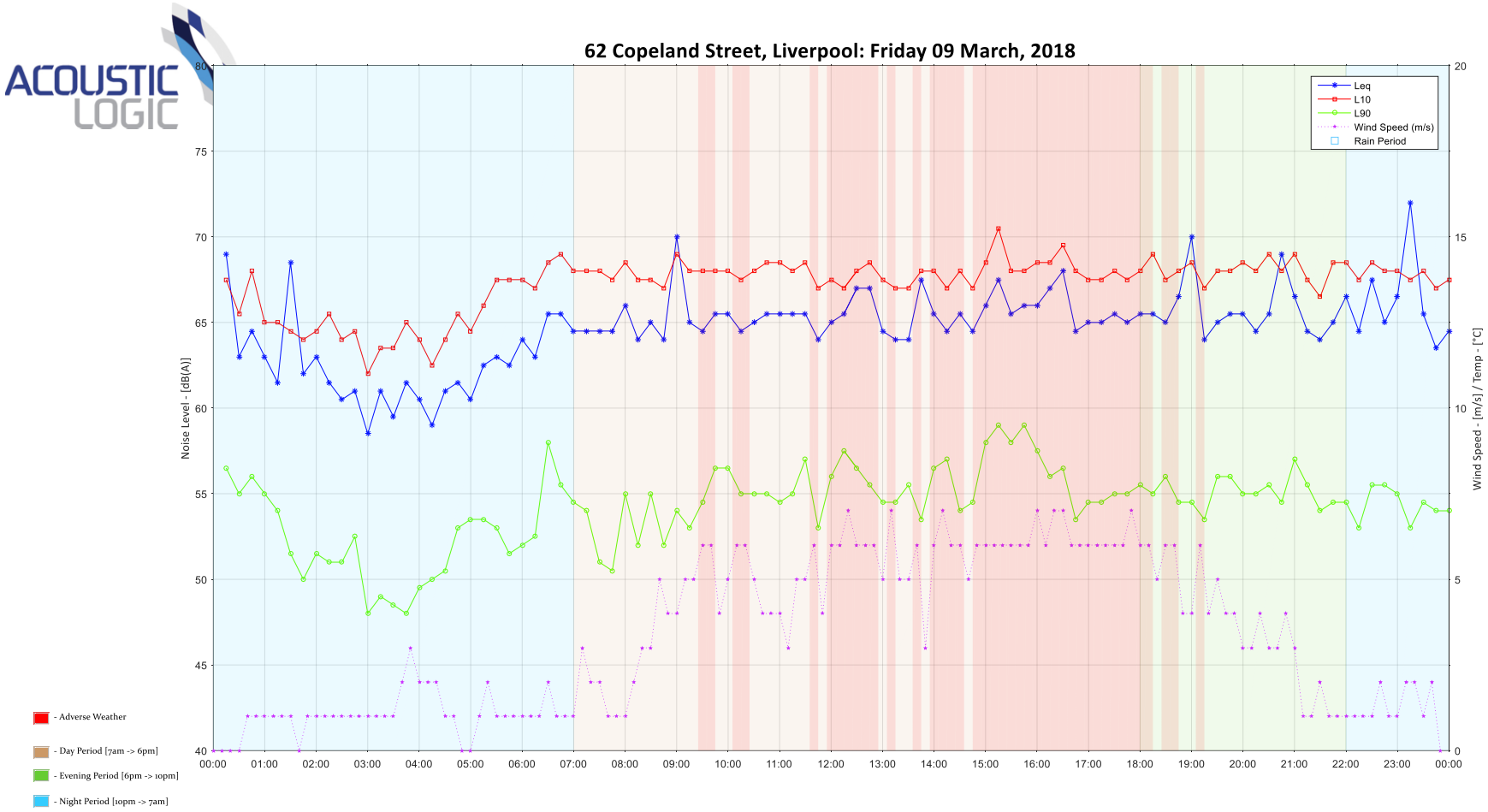
00:00
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]

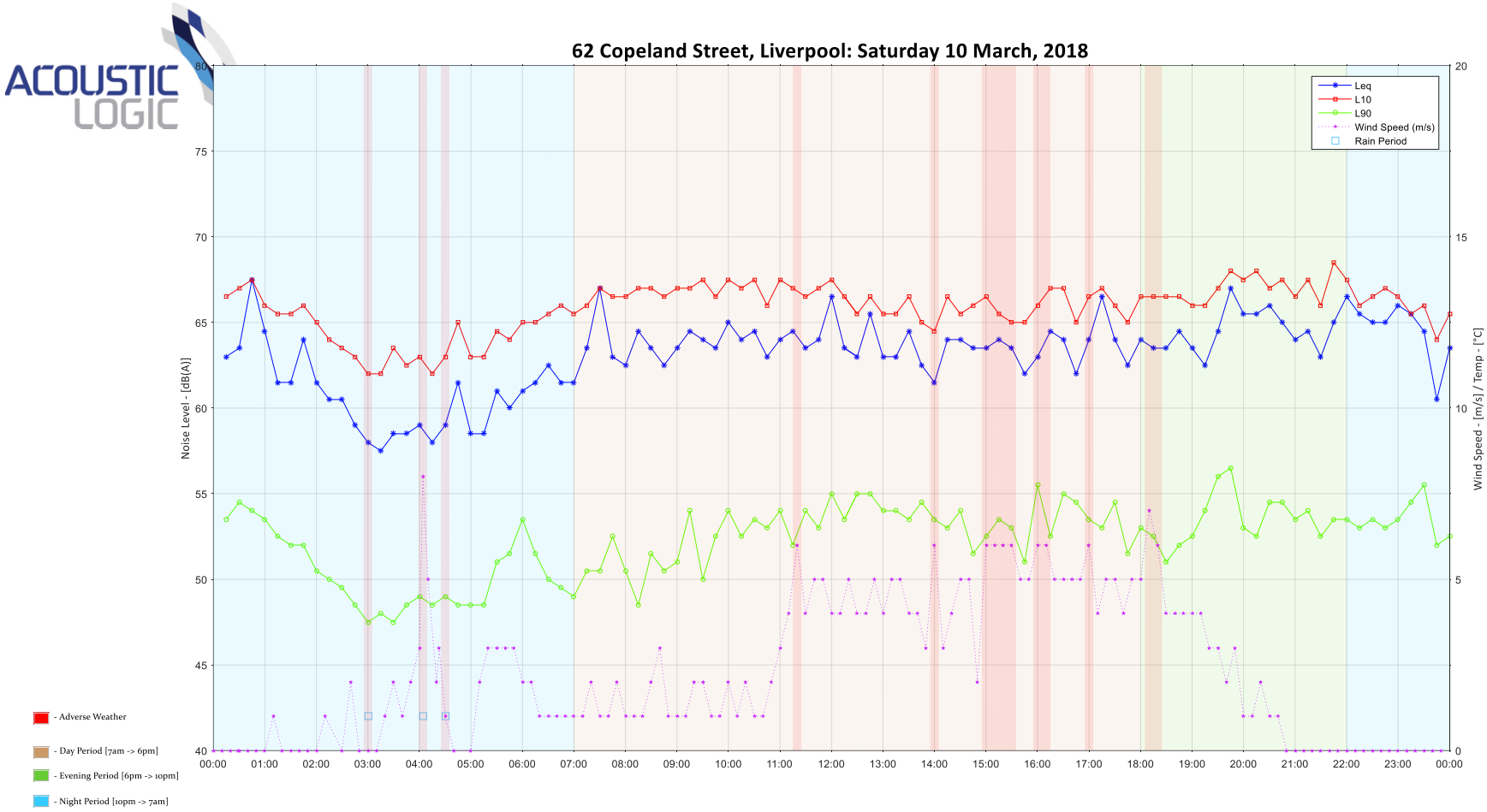

62 Copeland Street, Liverpool: Monday 05 March, 2018
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
L10
L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]

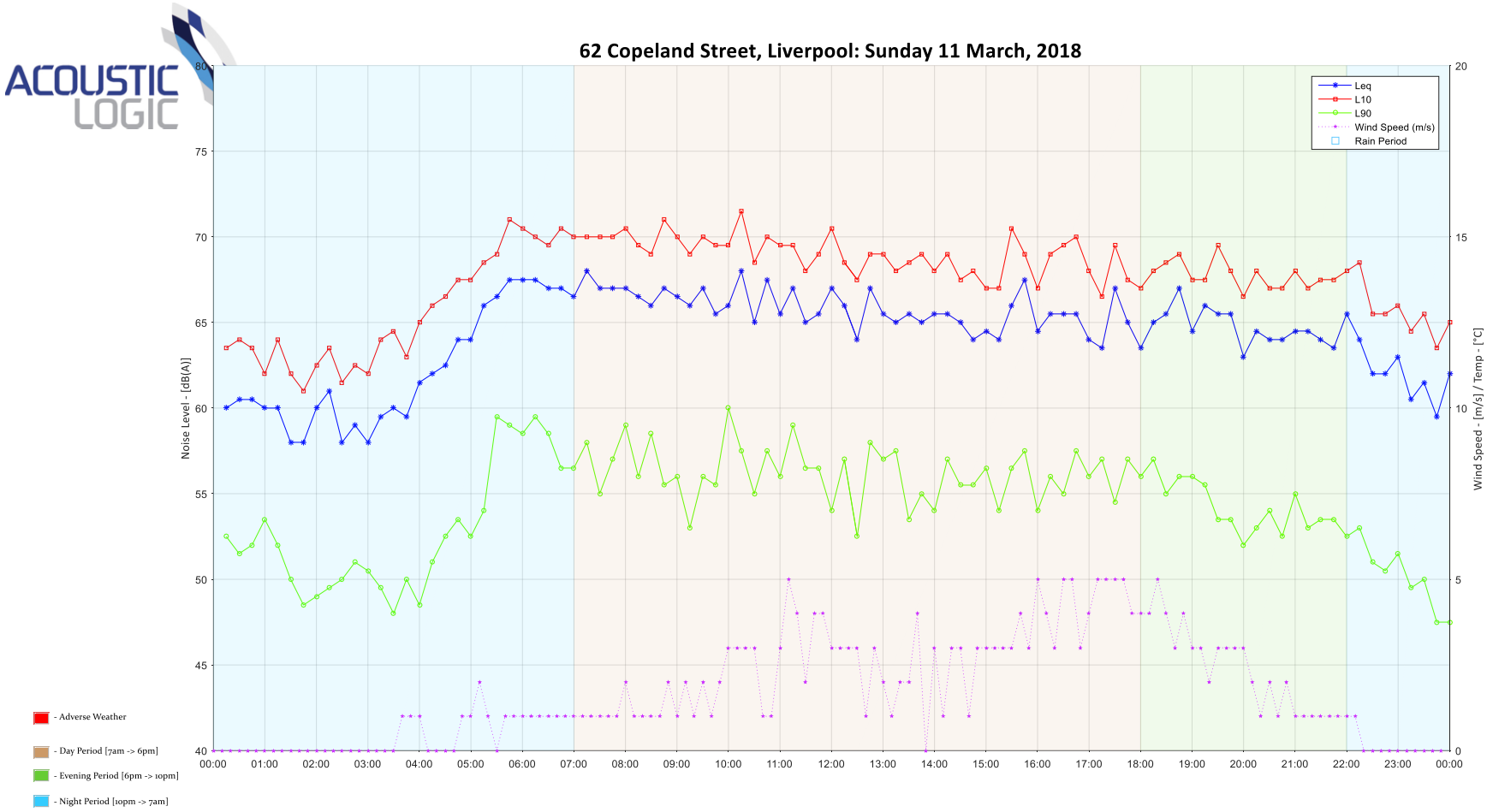

62 Copeland Street, Liverpool: Tuesday 06 March, 2018
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
80
75
70
65
60
55
50
45
40
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


62 Copeland Street, Liverpool: Wednesday 07 March, 2018
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
L10
L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


62 Copeland Street, Liverpool: Thursday 08 March, 2018
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
L10
L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


62 Copeland Street, Liverpool: Friday 09 March, 2018
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


62 Copeland Street, Liverpool: Saturday 10 March, 2018
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
L10
L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


62 Copeland Street, Liverpool: Sunday 11 March, 2018
Leq
L10
L90
Wind Speed (m/s)
Rain Period
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
80
75
70
65
60
55
50
45
40
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
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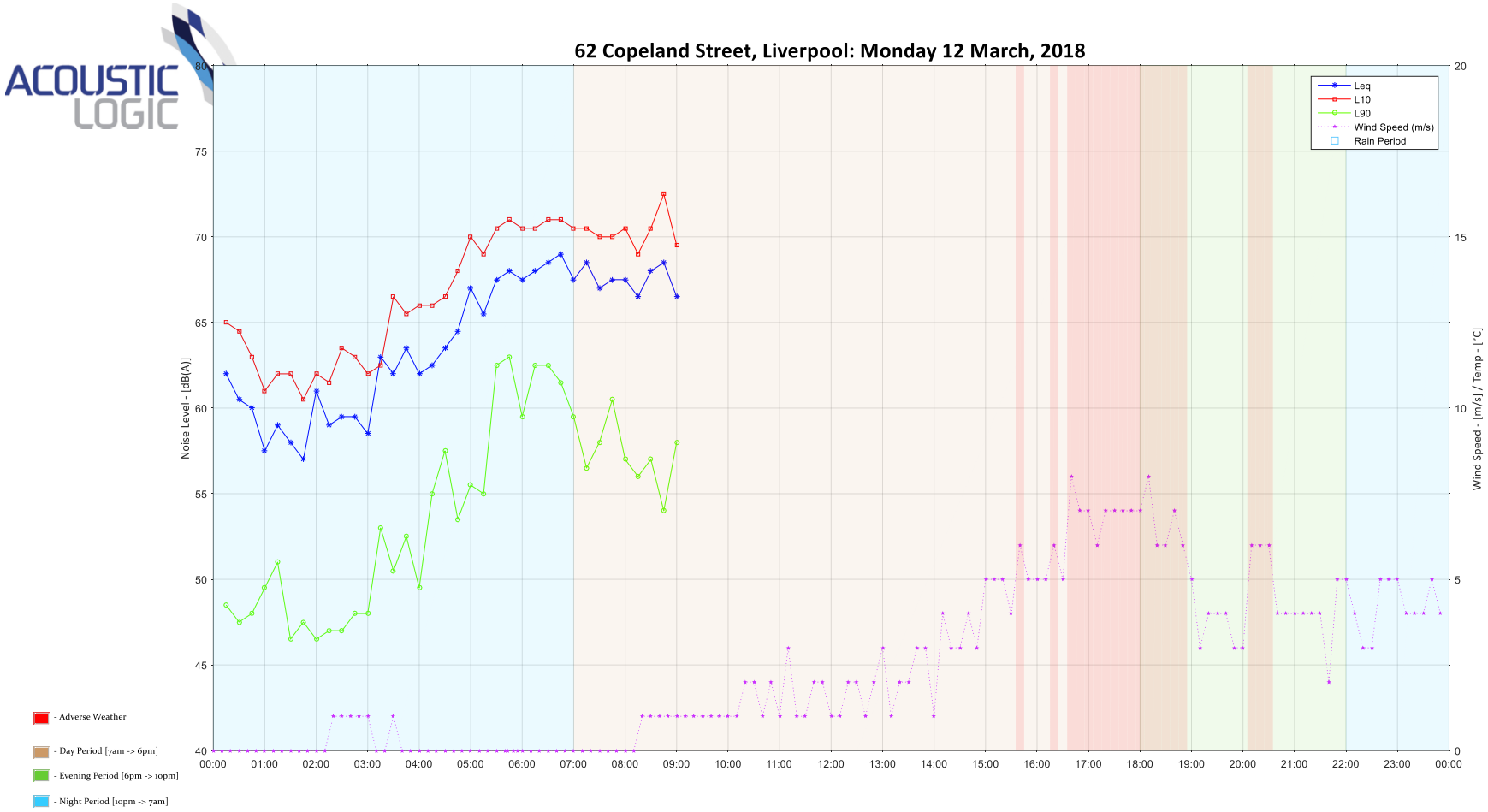
18:00
19:00
20:00
21:00
22:00
23:00
00:00
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]


62 Copeland Street, Liverpool: Monday 12 March, 2018
Noise Level - [dB(A)]
Wind Speed - [m/s] / Temp - [°C]
Leq
L10
L90
Wind Speed (m/s)
Rain Period
- Adverse Weather
- Day Period [7am -> 6pm]
- Evening Period [6pm -> 10pm]
- Night Period [10pm -> 7am]