

Orora Pty Ltd

B9 Paper Mill – EPL Compliance Quarterly noise monitoring report



5 December 2017

Doc no. 16002-QM-RP-6-0

Orora Pty Ltd
B9 Paper Mill - EPL Compliance

| | |
|--------------|--|
| Title | Quarterly noise monitoring report |
| Document no. | Doc No. 16002-QM-RP-6-0 |
| Revision | Rev 0 |
| Date | 5 December 2017 |
| Author | Scott Hughes |
| Reviewer | |
| File name | 16002-QM-RP-6-0 Quarterly Monitoring Report - November 2017.docx |

Hutchison Weller Pty Ltd
ABN 34 603 174 518
102/1-3 Gurrigal Street
Mosman NSW 2008

www.hutchisonweller.com

Table of Contents

1. Introduction4

 1.1 Background4

 1.2 Objective4

 1.3 Operational noise limits4

2. Existing environment5

 2.1 Monitoring limitations5

 2.2 Receiver locations5

3. Operational noise monitoring7

 3.1 Method.....7

 3.2 Monitoring results.....8

 3.3 Comparison with previous monitoring surveys8

4. Summary17

Glossary

Acoustic and vibration related terms:

- **Acoustic Spectrum:** A representation of a sound sample (usually short term) of the amount of energy or sound level per frequency.
- **Ambient Noise:** Ambient noise encompasses all sound present in a given environment, being usually a composite of sounds from many sources near and far.
- **dB(A):** A unit of sound measurement which has frequency characteristics weighted so that it approximates the response of the human ear to sound waves
- **Heavy Vehicle:** A truck, transport or other vehicle with a gross vehicle weight above a specified level (for example: over 8 tonnes)
- **L_{A90}:** Is the noise level that is exceeded 90 per cent of the measurement time. This parameter is commonly referred to as the background noise level
- **L_{Aeq}:** Noise level that represents the energy average noise from the source during a specified time period, and is the equivalent continuous sound pressure level for a given period
- **L_{Aeq(15hr)}:** The Leq noise level for the period from 7 am to 10 pm.
- **L_{Aeq(9hr)}:** The Leq noise level for the period from 10 pm to 7 am.
- **NCA:** Noise Catchment Area. Grouping dwellings or receivers together in terms of similar noise environment.
- **Noise barrier:** Generally a wall or an earth mound that obstructs or restricts the passage of sounds waves from a noise source
- **Noise Logger:** A data logging (data and audio in some cases) which records noise. Usually used for unattended noise monitoring of background or ambient noise.
- **NML:** Noise Management Level as detailed in the NSW Interim Construction Noise Guideline. The NML is the noise goal for construction activities.
- **Octave Bands:** Sounds that contain energy over a wide range of frequencies are divided into sections called bands. A common standard division is in 10 octave bands identified by their center frequencies 31.5, 63, 250, 500, 1000, 2000, and 4000 Hz
- **RBL:** Rating Background Level is the overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used for determining the appropriate construction noise criteria.
- **RNP:** Road Noise Policy (OEH, 2011)
- **Sound Level Meter:** An instrument consisting of a microphone, amplifier and data analysis package for quantifying and measuring noise.
- **Sound Power Level (L_w):** Sound power level or acoustic power level is a logarithmic measure of the sound power in comparison to a specified reference level.
- **Sound Pressure Level (SPL or L_p):** The level of noise, usually expressed in dB(A), as measured by a standard sound level meter.

1. Introduction

1.1 Background

ORORA Packaging operates the B9 Paper Mill at its Botany site in Sydney, NSW. The Paper Mill is subject to operational noise conditions set out in the Ministers Conditions of Approval (MCoA) (including subsequent modifications) and the Environment Protection Licence (EPL) No. 1594.

As part of the EPL, there is a requirement to undertake quarterly monitoring at receivers surrounding the site to show compliance with set noise limits. This report covers the October - December 2017 quarter. At the time of preparing this report, the B9 paper machine has been in use for over 4 years and is currently operating at typical production capacity. Traffic currently accesses the site via Botany Road with product trucks and delivery vehicles exiting the site via McCauley Road as per the site traffic plan.

Recent modifications to the site layout include the demolition of the remains of the old B5 building, and construction of a new waste water treatment plant. Also a large warehousing development on the boundary of the site at the corner of McCauley Street and Australia Avenue was completed in 2016. This development has added a significant proportion of acoustic shielding for receivers directly north of the site, reducing noise sources in the south including Orora, Sydney Ports, and traffic on Botany Road.

Demolition of the B7 paper machine building has begun and was underway during the November noise monitoring survey. The façade of the building was mostly in place and a temporary noise wall constructed of shipping containers has been installed.

1.2 Objective

This report addresses operational licence conditions relating to measurements of the quarterly monitoring of the noise environment around the Orora site, ie Condition M6.1 and M6.2 of EPL 1594. These require:

- M6.1 The licensee must undertake noise monitoring at least once every three months to check compliance with the noise limits specified in Condition L4.1.
- M6.2 All monitoring required by this licence must be undertaken in accordance with Australian Standard 2659.1 – 1998: Guide to the use of sound measuring equipment – Portable sound level meters, or any revisions of that standard which may be made by Australian Standards Authority, and the compliance monitoring guidance provided in the NSW Industrial Noise Policy.

1.3 Operational noise limits

Operational noise limits for the new Orora Paper Mill are detailed in condition L4.1 of EPL 1594 and Condition 10 of the MCoA. These have been replicated in **Table 1**.

Table 1 Operational noise limits

| ID | Location | Day | Evening | Night | Night |
|----|--|--------------------------------|--------------------------------|--------------------------------|---------------------------|
| | | L _{Aeq,15min} , dB(A) | L _{Aeq,15min} , dB(A) | L _{Aeq,15min} , dB(A) | L _{Amax} , dB(A) |
| R1 | Corner of McCauley Street and Australia Avenue | 46 | 45 | 43 | 55 |
| R2 | Australia Avenue | 45 | 45 | 43 | 55 |
| R3 | Murrabin Avenue | 46 | 45 | 43 | 55 |
| R4 | Partanna Avenue | 42 | 41 | 41 | 55 |
| R5 | Corner of Partanna Avenue and Moorina Avenue | 42 | 42 | 39 | 55 |
| R6 | Moorina Avenue | 43 | 43 | 39 | 55 |

2. Existing environment

Typically, the noise environment around the Orora B9 paper Mill does not change over the short term. The influences are fairly consistent and constant in nature. The following details are general comments to describe these influences and their impact.

The site is located within a predominantly industrial area with residential properties located to the north and east of the site, as illustrated in Figure 1. The local noise environment beyond the Orora boundary varies throughout the day depending on the contribution of sources including trucks on Botany Road, aircraft, port noise, local business activities on McCauley Road, and local traffic movements.

The prevailing meteorological conditions include strong drainage flows for wind direction and also temperature inversions during the winter months influencing the propagation of noise. Weather conditions are also apparent as seasonal variations which are increasingly apparent in the long-term monitoring data for the local area.

2.1 Monitoring limitations

Total measured noise levels at monitoring locations are only partly due to Orora site operations. The local noise environment has been a feature of the area for many years. Direct monitoring of Orora noise emissions over this time has demonstrated that specific contribution from Orora cannot be provided with any certainty due to the contribution of other audible noise sources adjacent to the site.

2.2 Receiver locations

The EPL specifies six locations for quarterly monitoring. These are illustrated in **Figure 1** and described further in **Table 2**.

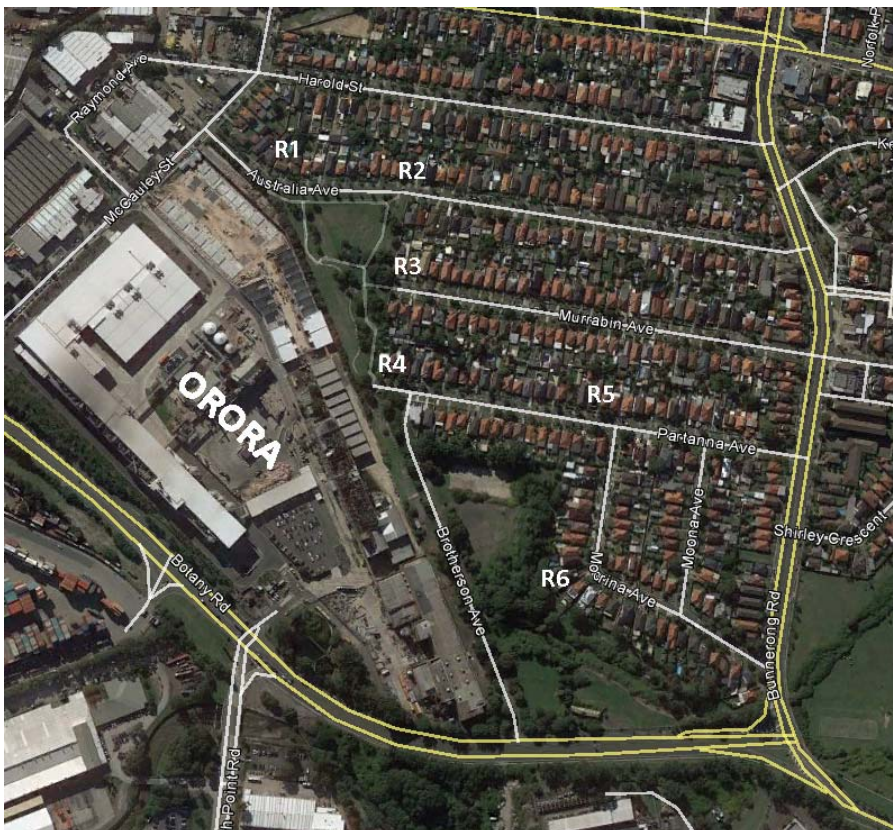


Figure 1 Site location and compliance monitoring locations (Source: Google Maps 2016)

Table 2 Description of monitoring locations

| Monitoring location | Description |
|---------------------|--|
| R1 | This location has a large degree of acoustic shielding from local noise sources due to the recent development of a warehousing facility on the corner of McCauley Avenue and Australia Avenue. The noise environment at this location is heavily influenced by traffic on McCauley Street, Perry Street and Beauchamp Road. Local industrial noise from Raymond Avenue is also audible during the day and night time. Some construction work was in progress at the property during the monitoring period. |
| R2 | This receiver is located opposite the bottom apex of the Purcell Park on Australia Avenue. At this location the residents have a clear line of sight to the paper mill. Noise walls have less effectiveness for the residences due to the large separation distances. Noise from port activities also has less shielding from the Orora site. Background noise levels are heavily dominated by road traffic noise from all sources. |
| R3 | The receivers at Partanna Avenue are physically closest to the Orora site but have the benefit of significant shielding of operational activities from the B7 paper machine building and the No. 7 reel store. Road traffic noise contributes to background noise for this receiver. Some construction work was in progress at the property during the monitoring period. |
| R4 | Furthest location from the Orora site, a higher degree of influence from Botany Road, Bunnerong Road and the port. Noise from the Orora site is generally inaudible at this location although significant noise from the Orora site has been observed here during adverse meteorological conditions. Some construction activity was noted at the adjacent property during the monitoring period. |
| R5 | In this location receivers are well shielded from operational noise from the Orora site due to the presence of the redundant No. 7 and No. 8 paper machine buildings. Noise levels at this location are heavily influenced by local bird colonies, port noise, traffic on Botany road and traffic on Bunnerong Road. |
| R6 | In this location receivers are well shielded from operational noise from the Orora site due to the presence of the redundant No. 7 and No. 8 paper machine buildings. Noise levels at this location are heavily influenced by local bird colonies, port noise, traffic on Botany road and traffic on Bunnerong Road. |

3. Operational noise monitoring

3.1 Method

Operational noise monitoring for the November monitoring period was completed between 1 and 8 November 2017, using automatic noise loggers deployed at six representative locations.

Monitoring was performed using Acoustic Research Laboratories brand Ngara Type 1 noise loggers, set to A-weighting, fast-response, and recording noise levels continuously over consecutive 24-hour periods at each location.

Weather conditions during the survey period were obtained from the Automatic Weather Station (AWS) maintained by the Bureau of Meteorology at Sydney Airport. Weather conditions for the monitoring period have been plotted showing daily trends in wind speed which are presented in Figure 2.

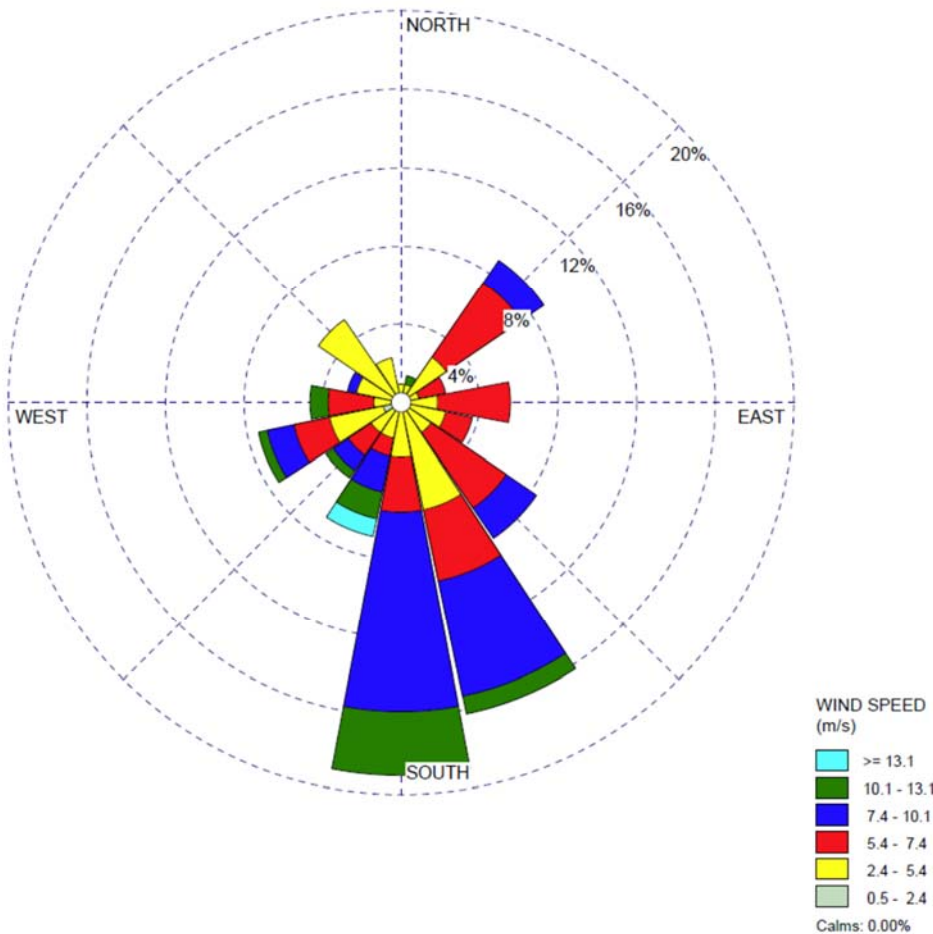


Figure 2 Wind speed and direction during monitoring period (1 November – 8 November 2017, source BoM 2017)

The plotted data indicates that the wind direction during the monitoring period was dominated by winds from the south with only minor variance to the south-south-east. About 40% of the total measurements were observed between 2.5 to 5.5 m/s. Wind speeds above 5.5 m/s were present for about 60% of the monitoring time.

Wind from the south and south easterly directions are expected to direct noise from the Orora site away from the nearest residential receivers minimising noise impacts related to the operations of the B9 paper mill. While the prevailing winds reduce noise from B9, they would tend to increase noise influences from Botany Road and

the Port facilities. The prevailing southerly winds during this time would enhance the influence from these other sources for receivers directly east of the paper mill.

3.2 Monitoring results

The measured L_{Aeq} noise levels taken across several days are affected by a multitude of noise sources such as road traffic, loud short-term noise such as birds, aircraft, and local heavy vehicle movements.

The Orora site itself has a noise profile consistent with plant and equipment that operate at more or less a steady state and therefore has little variability in noise emissions. This type of noise environment is most appropriately described using the L_{A90} statistical parameter, which has been presented in the results summary to be considered in conjunction with the L_{Aeq} noise level when assessing compliance of the Orora site.

General industrial noise sources are typically audible within the residential areas adjacent to the Orora site. The background noise levels recorded in February 2017 and December 2015 are similar to recent November 2017 results when viewed across all the sites.

The results of monitoring survey for November 2017 have been graphed and are shown in Appendix A. The parameters of L_{Aeq} and L_{A90} are used to provide information for comparison against the project criteria and the background noise environment.

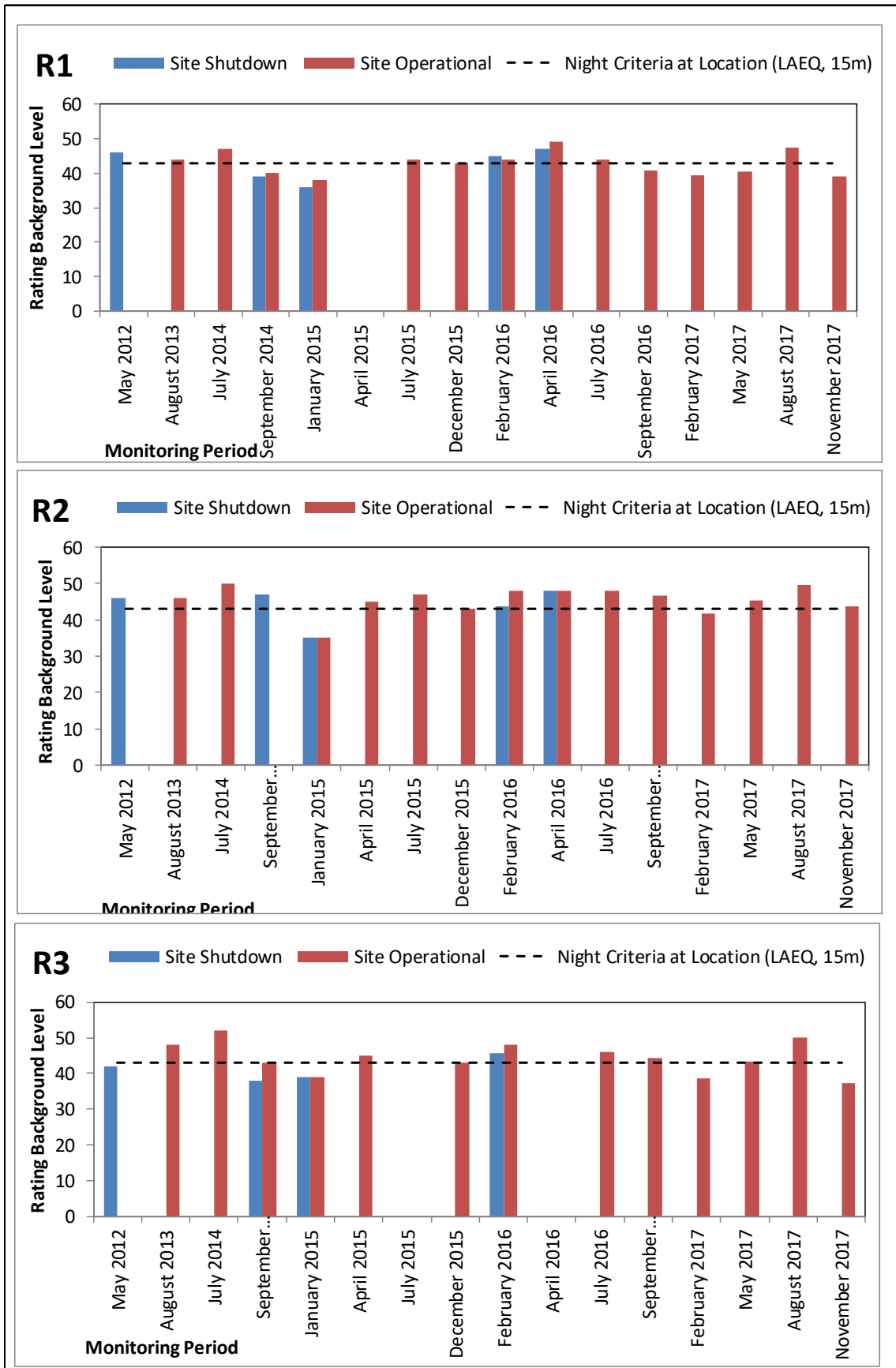
It has previously been shown to be impractical to directly measure the contribution of Orora operational noise emissions when monitoring at nearby receiver locations. Evidence of this fact is provided where the measured L_{Aeq} noise levels are consistently above the EPL criteria, even when the Orora site is not operational.

The most recent round of compliance measurements provides an additional detail for the historical data collected during compliance monitoring. This data includes measurements of the noise environment both with the Orora site operational and without. Table 3 presents the assessment background noise levels and the rating background noise levels from the November 2017 survey as well as the L_{Aeq} , 15 minute for each assessment period.

Observations during the survey period suggest that typical operations within the Orora site were not specifically audible in the general acoustic environment and was not a dominant noise source. Monitoring results also indicate background noise levels were below the noise criteria while the L_{Aeq} 15 minute noise levels exceed at all locations except R1 in Australia Avenue.

3.3 Comparison with previous monitoring surveys

An indicator of the contribution of Orora operational noise to existing noise levels may be made using background noise levels measured during both shutdown and operational conditions. During the night time-period, fewer extraneous noise influences are present providing lower overall noise levels in the area. Under these conditions constant noise sources such as Orora operations are more likely to be apparent in the background noise levels measured during this time noting that the emission levels from the site remain relatively constant throughout the day, evening, and night time.



The data in Figure 3-3 and Figure 3-4 provides a chronological progression of the noise data measured during shutdown

and normal operations summarised for monitoring from 2012 to present. These results demonstrate the degree of variability in the noise environment at these locations as well as any trends due to seasonal and local influences. The measured data for the most recent monitoring in November 2017 indicates that L_{A90} noise levels were well below the L_{Aeq} , 15 minute criteria at all sites and typically low by historical standards.

The background noise levels from

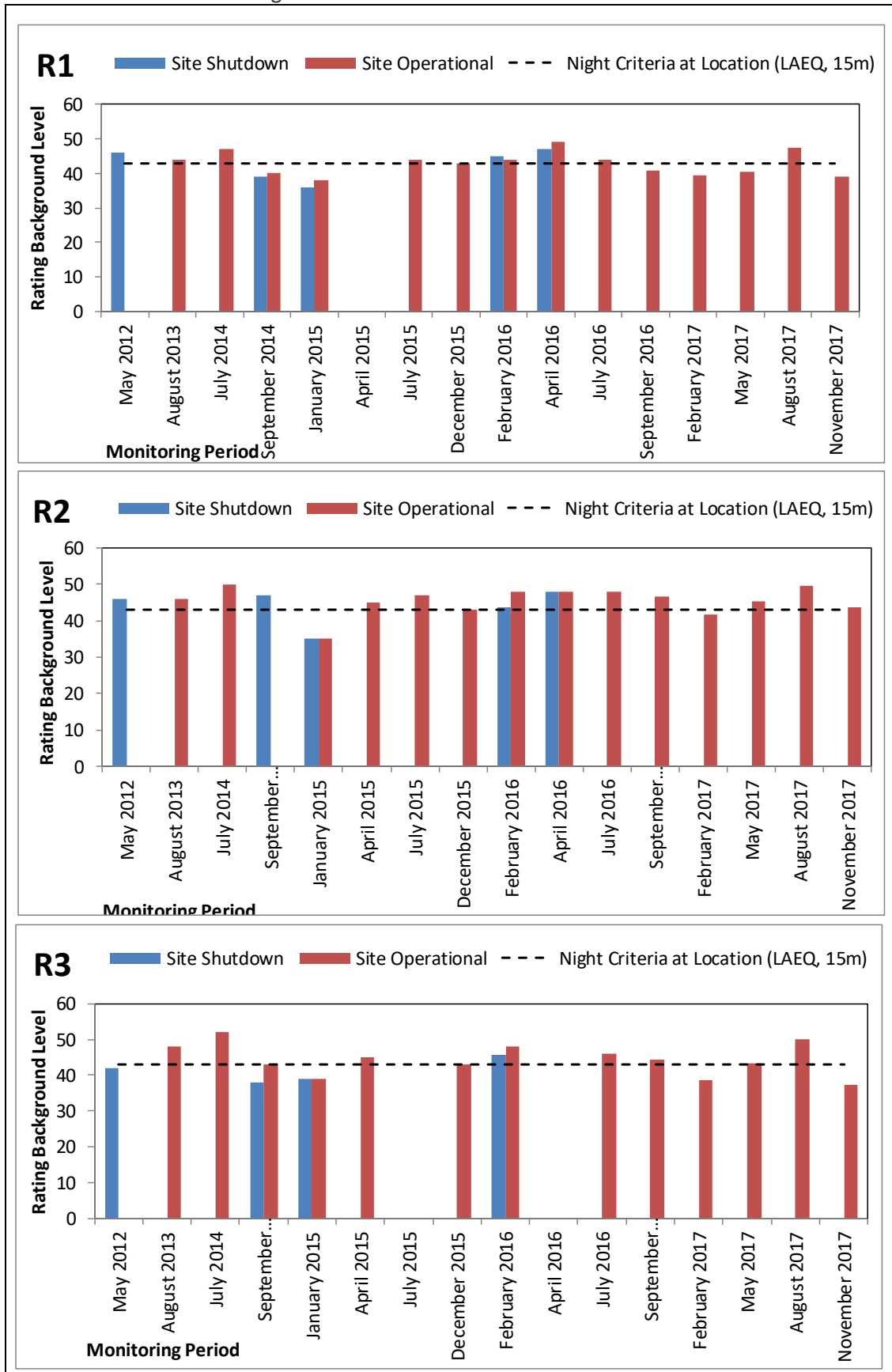


Figure 3-3 and

Figure 3-4 are not directly related to the L_{Aeq} criteria from the EPL; however, they provide an indication of the increase in background environmental noise levels corresponding to the regular noise surveys for the Orora site.

Table 3 Summary of noise monitoring

| Time and date* | Profile of Noise Environment - Noise Monitoring Location | | | | | | | | | | | |
|--|--|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|
| | R1 | | R2 | | R3 | | R4 | | R5 | | R6 | |
| Day 7:00:00 AM to 6:00:00 PM | | | | | | | | | | | | |
| Date | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period |
| Wednesday 1 November 2017 | 42.1 | 41.6 | 38.8 | 69.3 | 25.2 | 68.2 | 42.7 | 68.4 | 39.3 | 65.0 | 42.7 | 55.6 |
| Thursday 2 November 2017 | 42.8 | 42.4 | 40.3 | 52.2 | 40.2 | 56.7 | 44.2 | 57.4 | 40.8 | 52.3 | 43.6 | 49.3 |
| Friday 3 November 2017 | 42.2 | 41.6 | 40.8 | 55.1 | 41.7 | 53.3 | 42.7 | 56.2 | 42.2 | 54.5 | 40.1 | 49.2 |
| Saturday 4 November 2017 | 43.2 | 42.9 | 42.3 | 53.6 | 40.9 | 54.1 | 44.5 | 58.4 | 39.6 | 51.3 | 43.1 | 50.4 |
| Sunday 5 November 2017 | 42.2 | 41.7 | 38.1 | 51.1 | 37.5 | 46.9 | 42.0 | 55.7 | 39.6 | 50.0 | - | - |
| Monday 6 November 2017 | 44.1 | 43.6 | 44.1 | 55.2 | 45.0 | 55.4 | 45.5 | 58.1 | 45.4 | 56.0 | - | - |
| Tuesday 7 November 2017 | 47.6 | 47.1 | 48.5 | 55.0 | - | - | 49.3 | 59.8 | 45.9 | 54.2 | - | - |
| Wednesday 8 November 2017 | | | 27.2 | 66.5 | - | - | 49.1 | 58.5 | 44.4 | 58.1 | - | - |
| Median | 42.8 | 42.4 | 40.6 | 55.0 | 40.5 | 54.7 | 44.4 | 58.2 | 41.5 | 54.3 | 42.9 | 49.8 |
| Evening 6:00:00 PM to 10:00:00 PM | | | | | | | | | | | | |
| Date | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period |
| Wednesday 1 November 2017 | 43.3 | 42.9 | 44.9 | 52.7 | 41.8 | 46.4 | 44.8 | 54.5 | 39.2 | 47.3 | 42.1 | 49.2 |
| Thursday 2 November 2017 | 38.5 | 38.1 | 35.5 | 47.2 | 35.5 | 42.7 | 39.2 | 54.0 | 34.3 | 51.0 | 37.6 | 48.5 |
| Friday 3 November 2017 | 46.1 | 45.6 | 44.3 | 52.3 | 42.9 | 50.2 | 45.9 | 56.2 | 43.7 | 50.9 | 46.8 | 54.4 |
| Saturday 4 November 2017 | 40.3 | 40.0 | 38.3 | 48.0 | 36.9 | 42.3 | 41.0 | 49.4 | 35.8 | 46.8 | 40.7 | 47.0 |
| Sunday 5 November 2017 | 41.0 | 40.7 | 37.1 | 50.0 | 38.2 | 48.3 | 40.0 | 54.1 | 39.6 | 49.9 | - | - |
| Monday 6 November 2017 | 49.8 | 49.3 | 51.1 | 56.0 | 50.7 | 55.7 | 51.0 | 59.3 | 47.1 | 57.0 | - | - |
| Tuesday 7 November 2017 | 46.5 | 46.1 | 47.4 | 52.1 | - | - | 46.6 | 57.5 | 42.1 | 51.0 | - | - |
| Wednesday 8 November 2017 | - | - | - | - | - | - | - | - | - | - | - | - |
| Median | 43.3 | 42.9 | 44.3 | 52.1 | 40.0 | 47.4 | 44.8 | 54.5 | 39.6 | 50.9 | 41.4 | 48.9 |

ORORA – B9 COMPLIANCE NOISE MONITORING

| Time and date* | Profile of Noise Environment - Noise Monitoring Location | | | | | | | | | | | |
|--|--|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|
| | R1 | | R2 | | R3 | | R4 | | R5 | | R6 | |
| Night 10:00:00 PM to 7:00:00 AM | | | | | | | | | | | | |
| Date | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period | L90 (10th Percentile) | Leq - over period |
| Wednesday 1 November 2017 | 39.9 | 39.5 | 44.5 | 49.0 | 42.3 | 45.8 | 42.8 | 56.9 | 39.8 | 44.2 | 36.9 | 44.8 |
| Thursday 2 November 2017 | 36.1 | 35.8 | 34.4 | 46.8 | 35.5 | 44.0 | 37.6 | 58.7 | 33.4 | 44.5 | 32.3 | 42.5 |
| Friday 3 November 2017 | 40.0 | 39.6 | 43.7 | 49.0 | 40.4 | 46.4 | 41.5 | 49.1 | 35.4 | 46.4 | 37.9 | 47.1 |
| Saturday 4 November 2017 | 38.2 | 37.9 | 38.0 | 46.9 | 37.4 | 45.8 | 39.6 | 49.1 | 33.7 | 46.6 | - | - |
| Sunday 5 November 2017 | 37.7 | 37.3 | 35.2 | 47.7 | 36.6 | 48.6 | 38.0 | 52.6 | 36.6 | 49.6 | - | - |
| Monday 6 November 2017 | 43.2 | 42.9 | 47.9 | 51.7 | - | - | 46.7 | 51.0 | 43.4 | 48.2 | - | - |
| Tuesday 7 November 2017 | - | - | 45.8 | 50.4 | - | - | 43.7 | 56.0 | 38.7 | 46.7 | - | - |
| Wednesday 8 November 2017 | - | - | - | - | - | - | - | - | - | - | - | - |
| Median | 39.0 | 38.7 | 43.7 | 49.0 | 37.4 | 45.8 | 41.5 | 52.6 | 36.6 | 46.6 | 36.9 | 44.8 |

- No measurement dat

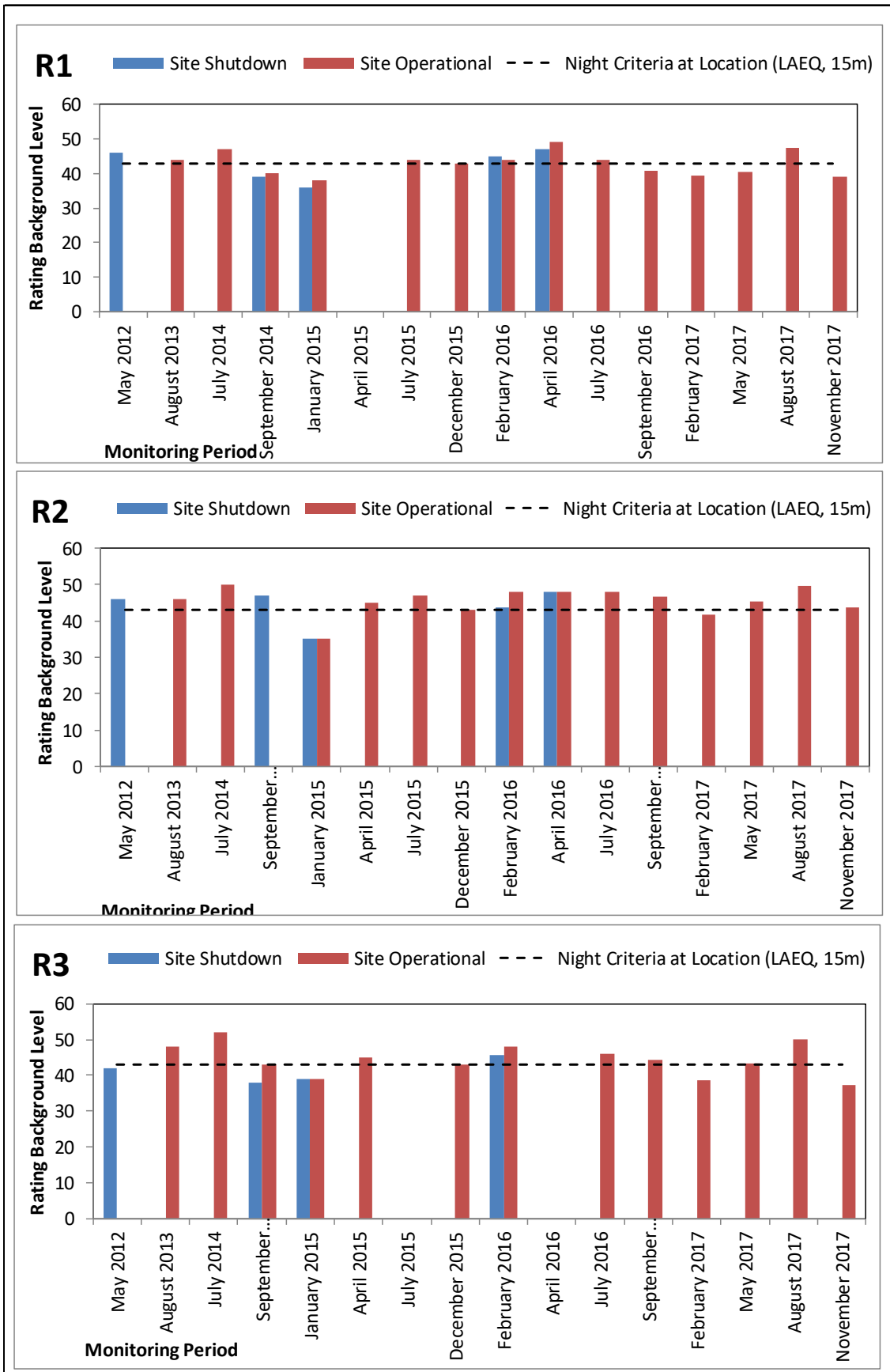


Figure 3-3:

Comparison of background noise levels at R1 – R3

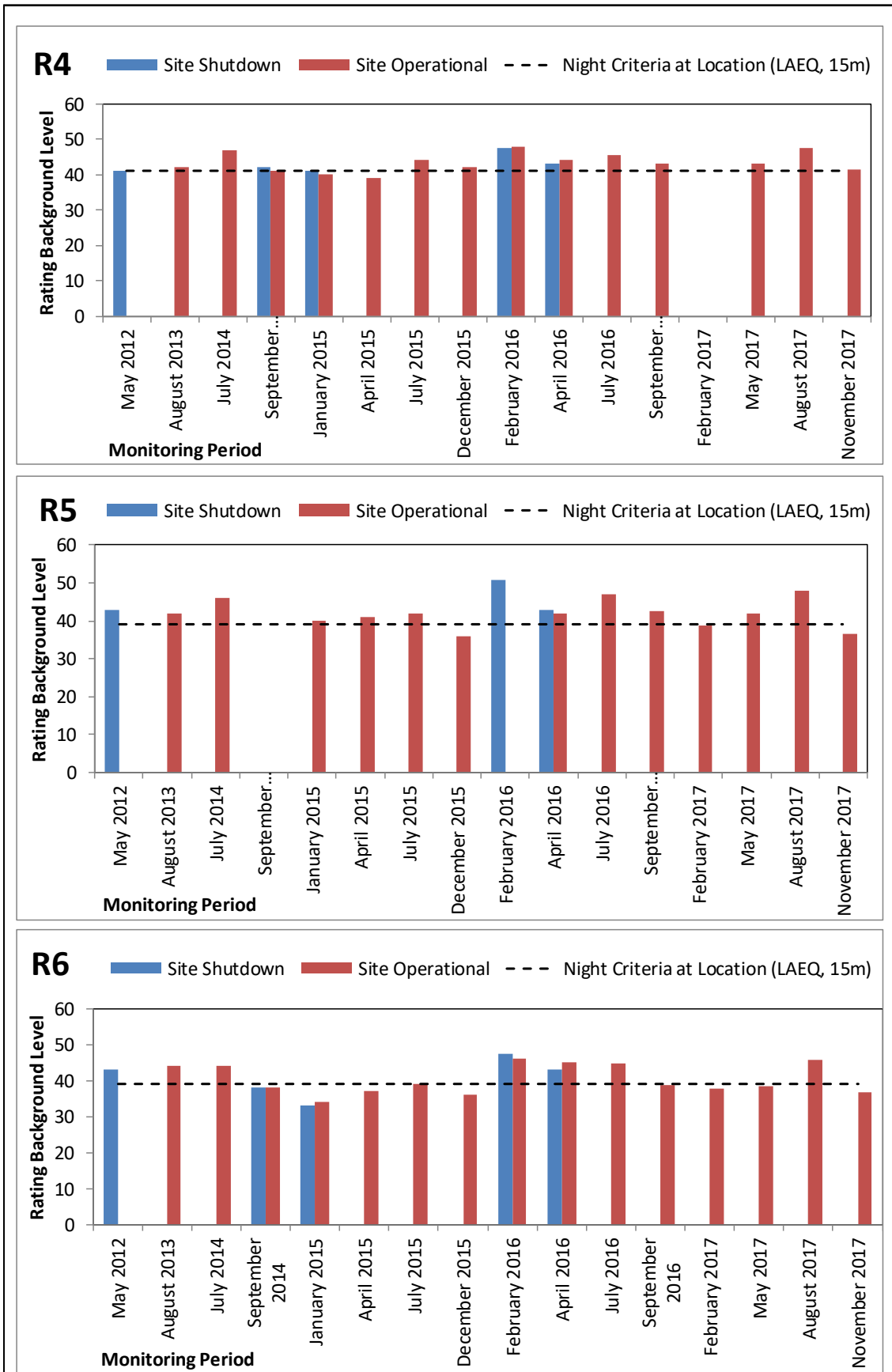


Figure 3-4: Comparison of background noise levels at R4 – R6

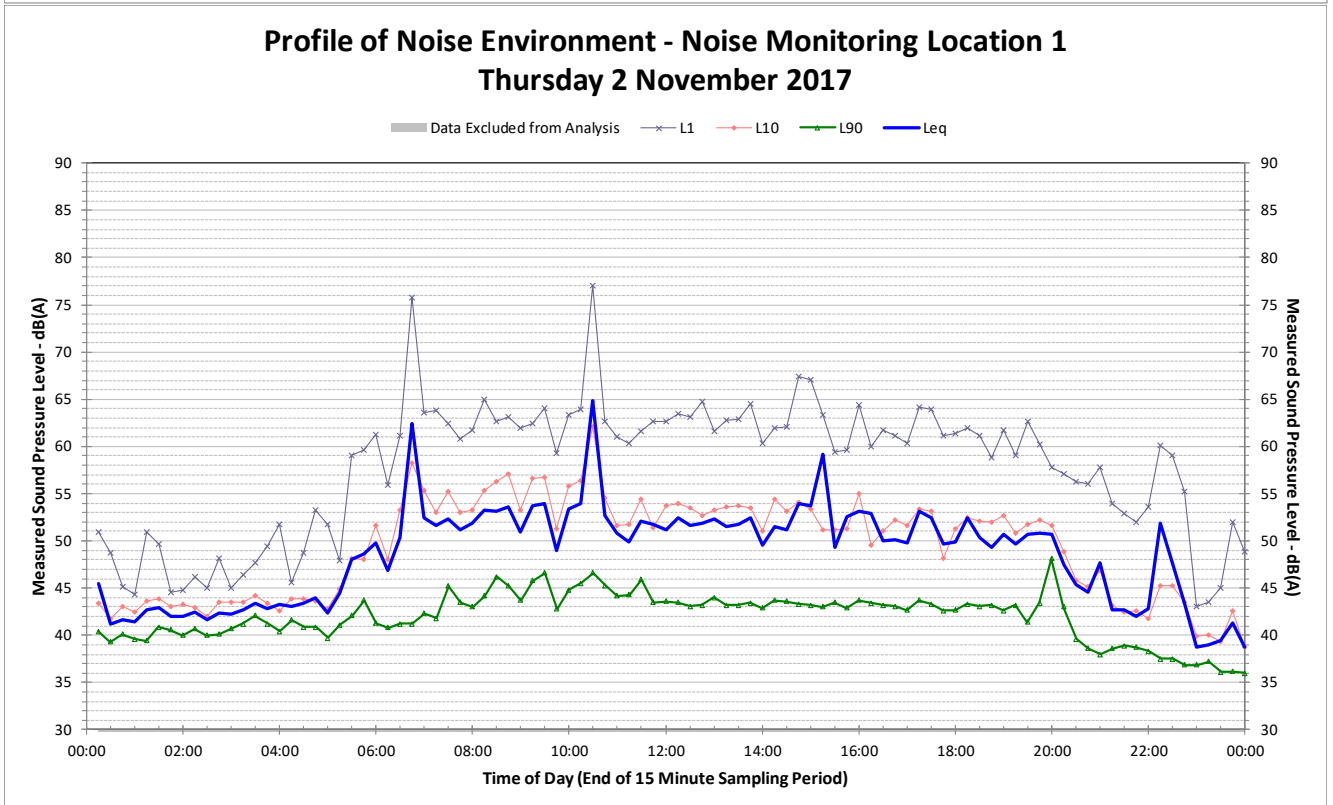
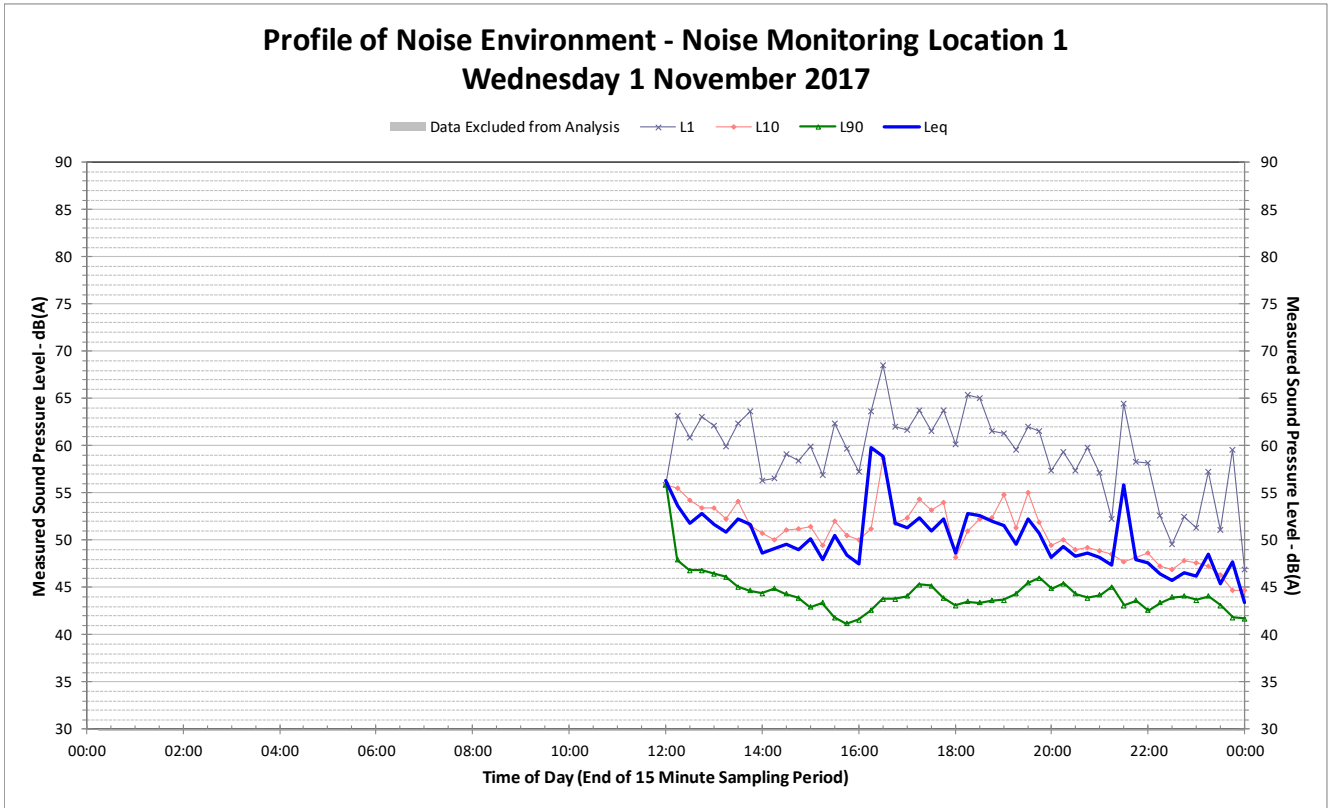
4. Summary

Historically, the Orora B9 Paper Mill quarterly monitoring surveys indicate L_{Aeq} measured noise levels that exceed the EPL criteria for day, evening, and night time whether the site is operational or shut down. The most recent results for the November 2017 monitoring period when the Orora site is operational, indicate that an exceedance of the EPL criteria is apparent at all the representative receiver locations with the exception of R1, which recorded and L_{Aeq} noise level lower than the noise criteria for that location. These exceedances are not directly attributable to the operations of the B9 paper mill.

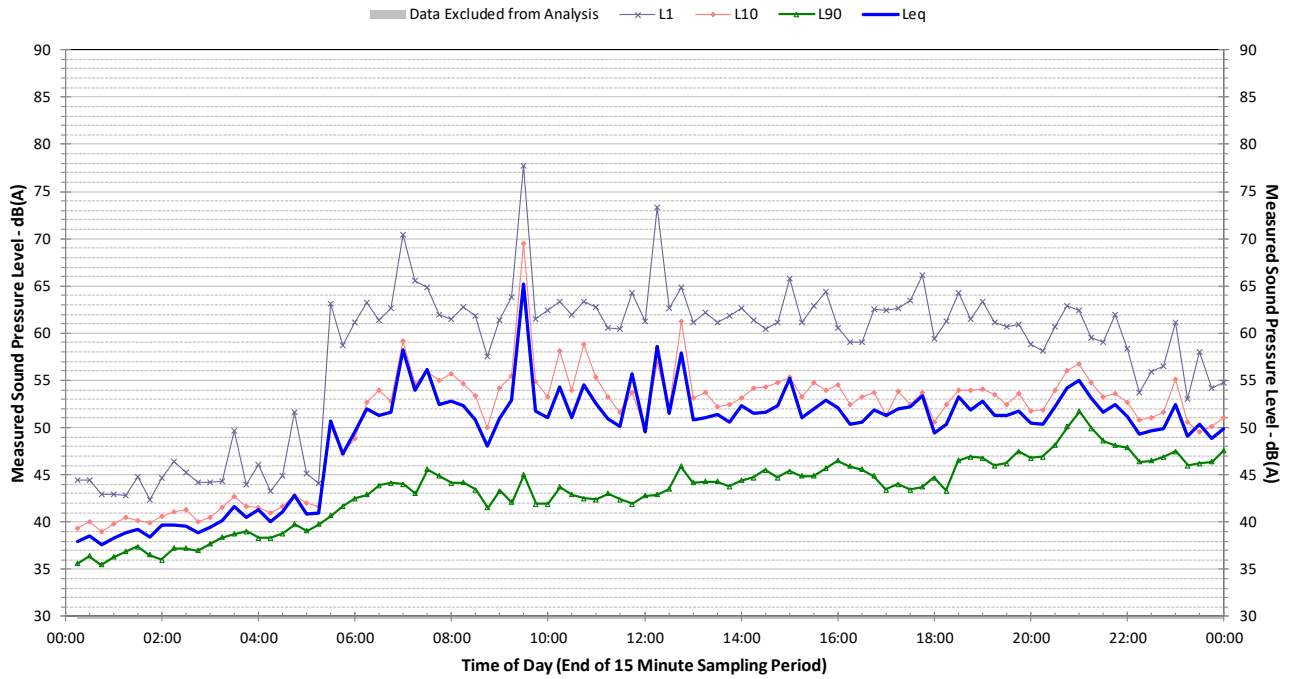
From the November 2017 quarterly monitoring the following conclusions may be drawn.

- The most recent noise monitoring results indicate that the measured L_{A90} noise levels are generally lower than other times and exhibit similar levels to other monitoring compared on a seasonal basis.
- Winds typically came from the south and south-south-easterly directions. These meteorological conditions influence noise from other sources such as Botany road and Port Botany.
- The recorded meteorological conditions during the monitoring period were typically favorable to the propagation of noise sources not related to the paper mill for residences to the east of and north east of the site.
- The ambient noise environment in the local area is a product of the combined influence of all noise sources within the Port Botany area including the Orora site.
- Overall L_{Aeq} noise levels at receivers at the western end of Australia Avenue have decreased due to the additional shielding from the warehouse development in MaCauley Avenue. Noise levels in this location have been consistently lower since about September 2016, consistently meeting the noise goals detailed in the EPL.

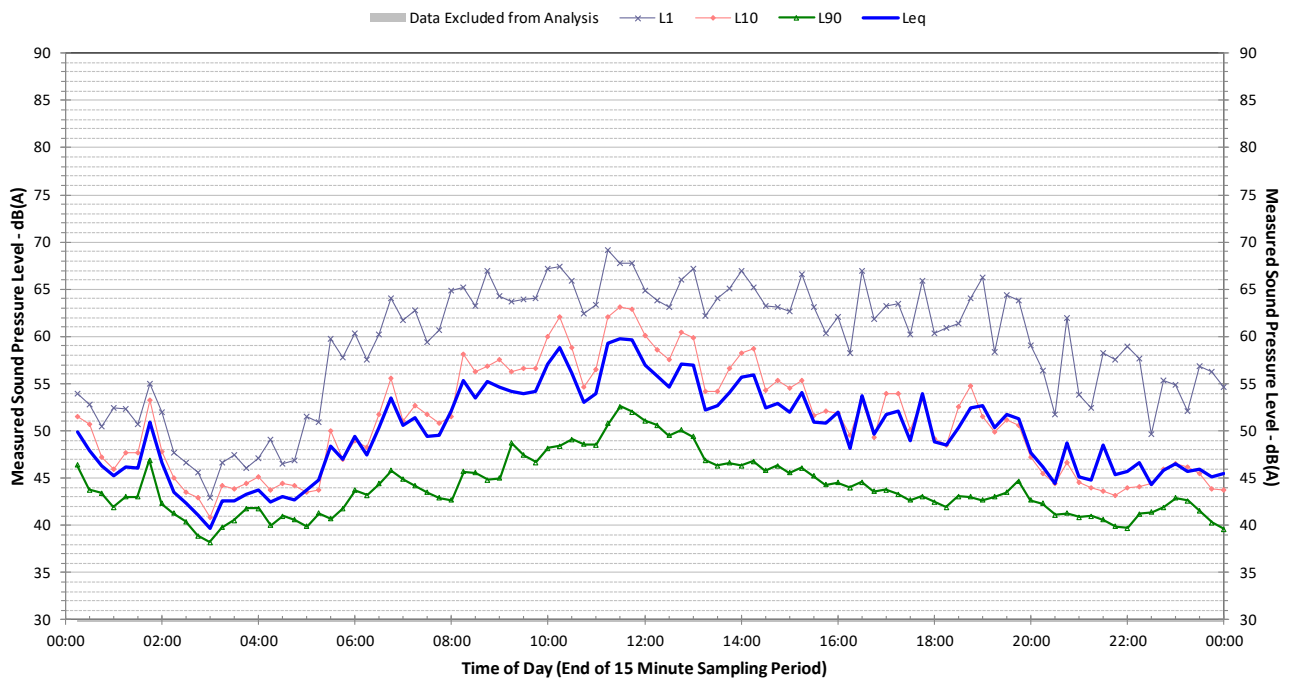
Appendix A. Noise logger graphs



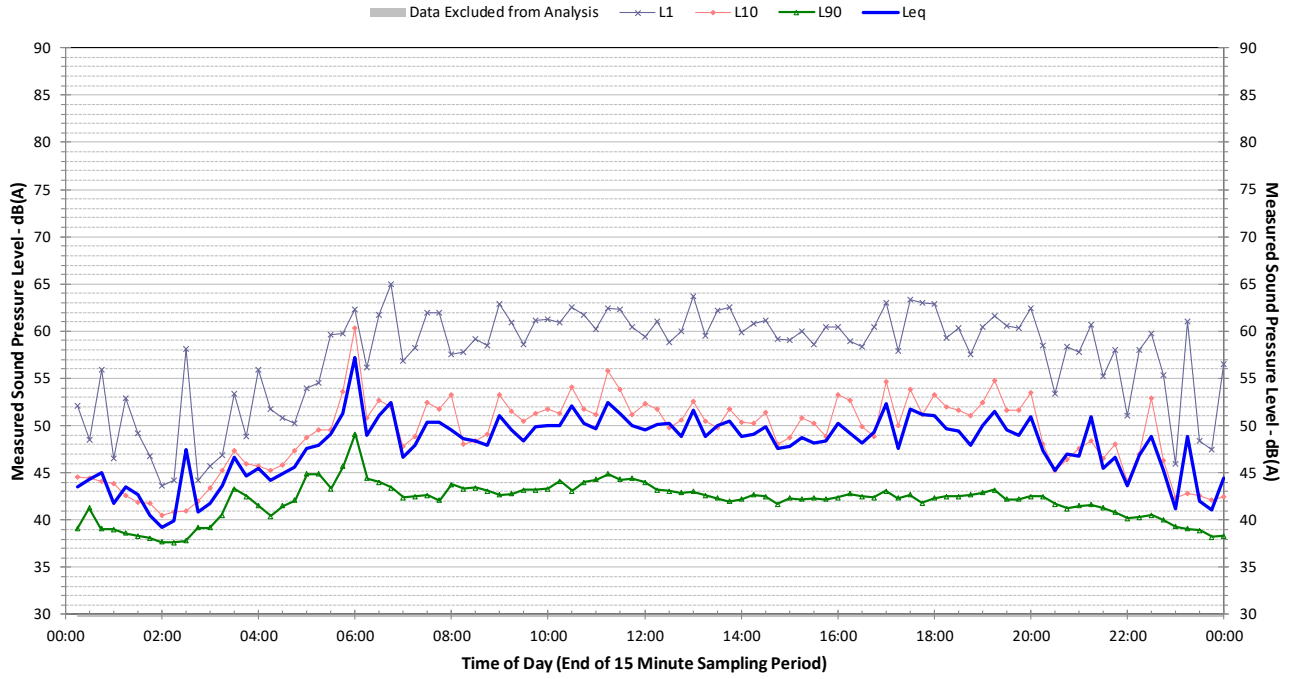
Profile of Noise Environment - Noise Monitoring Location 1 Friday 3 November 2017



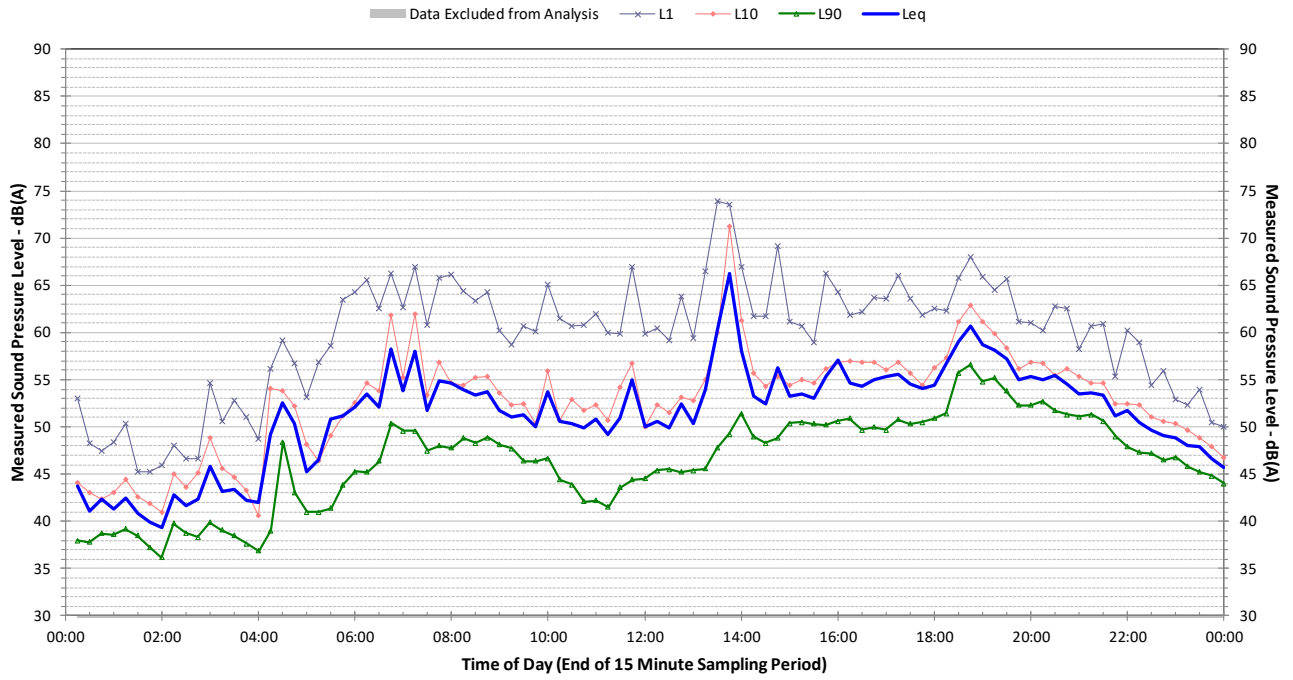
Profile of Noise Environment - Noise Monitoring Location 1 Saturday 4 November 2017



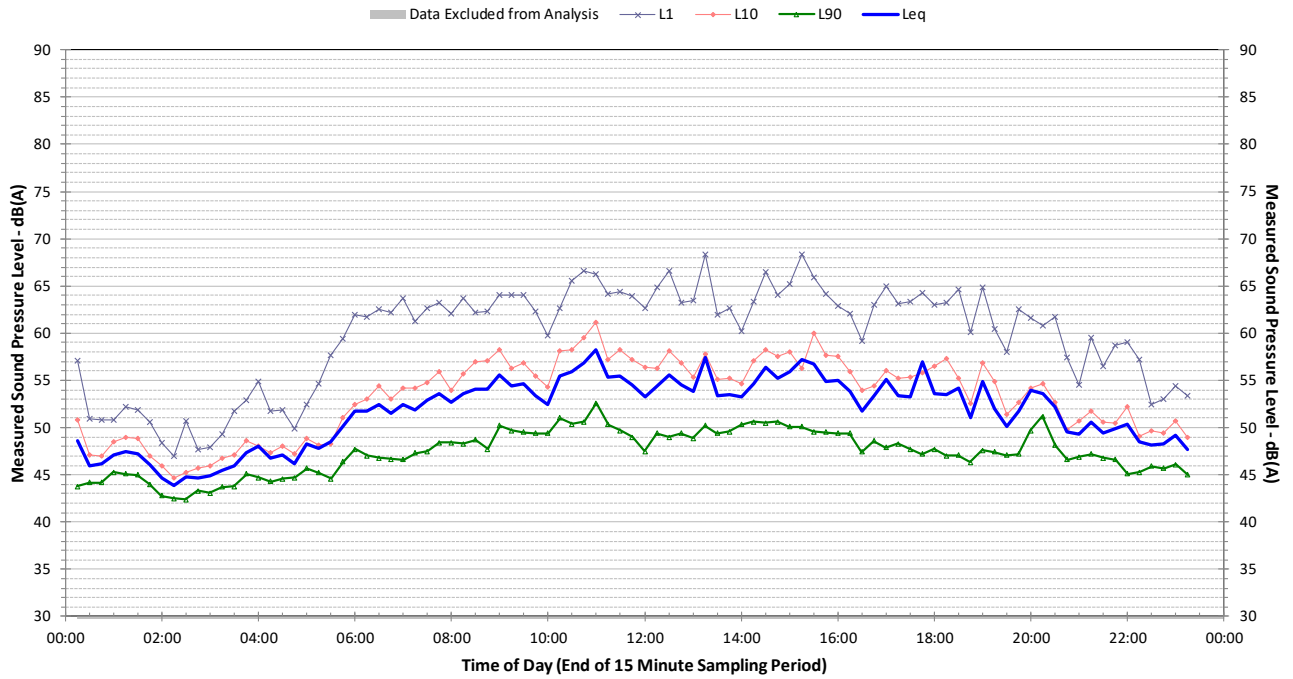
Profile of Noise Environment - Noise Monitoring Location 1 Sunday 5 November 2017



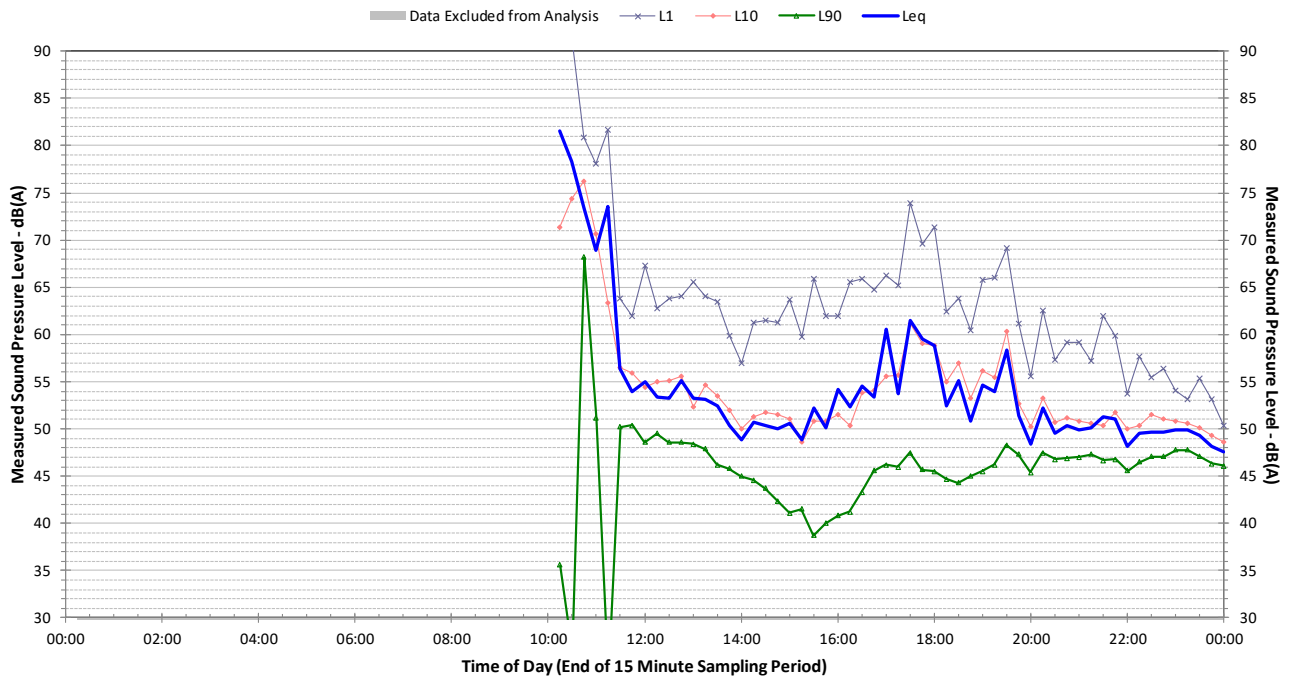
Profile of Noise Environment - Noise Monitoring Location 1 Monday 6 November 2017



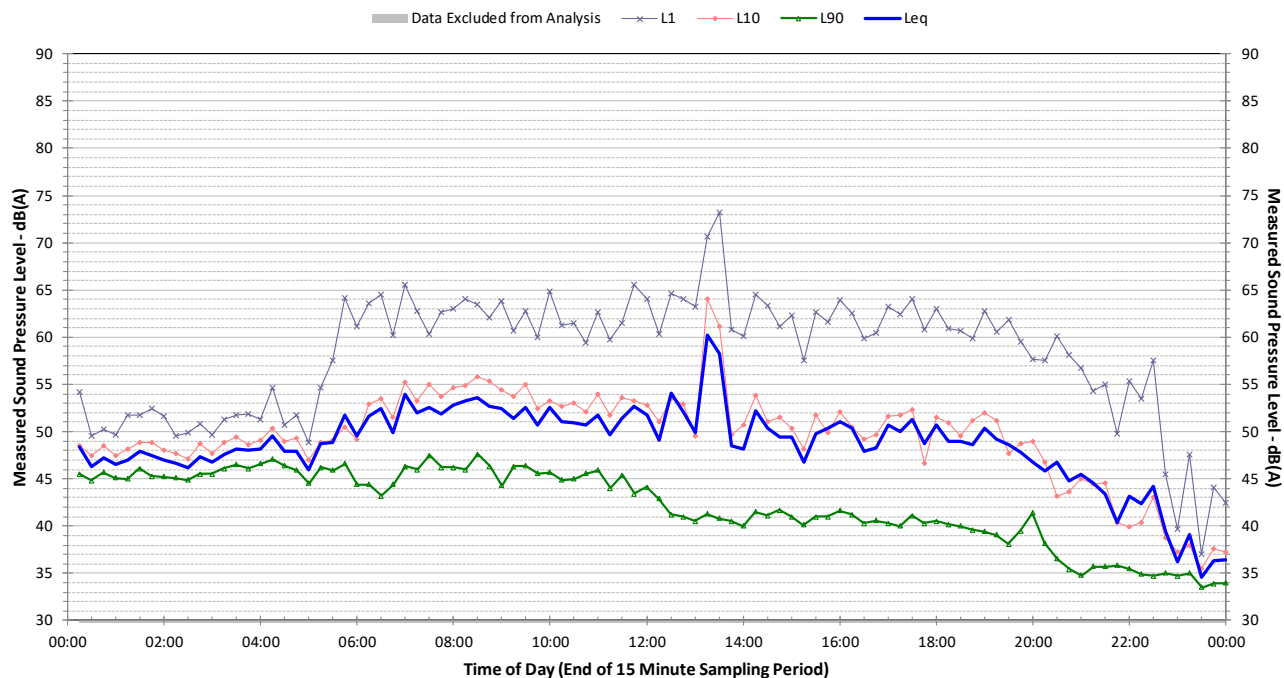
Profile of Noise Environment - Noise Monitoring Location 1 Tuesday 7 November 2017



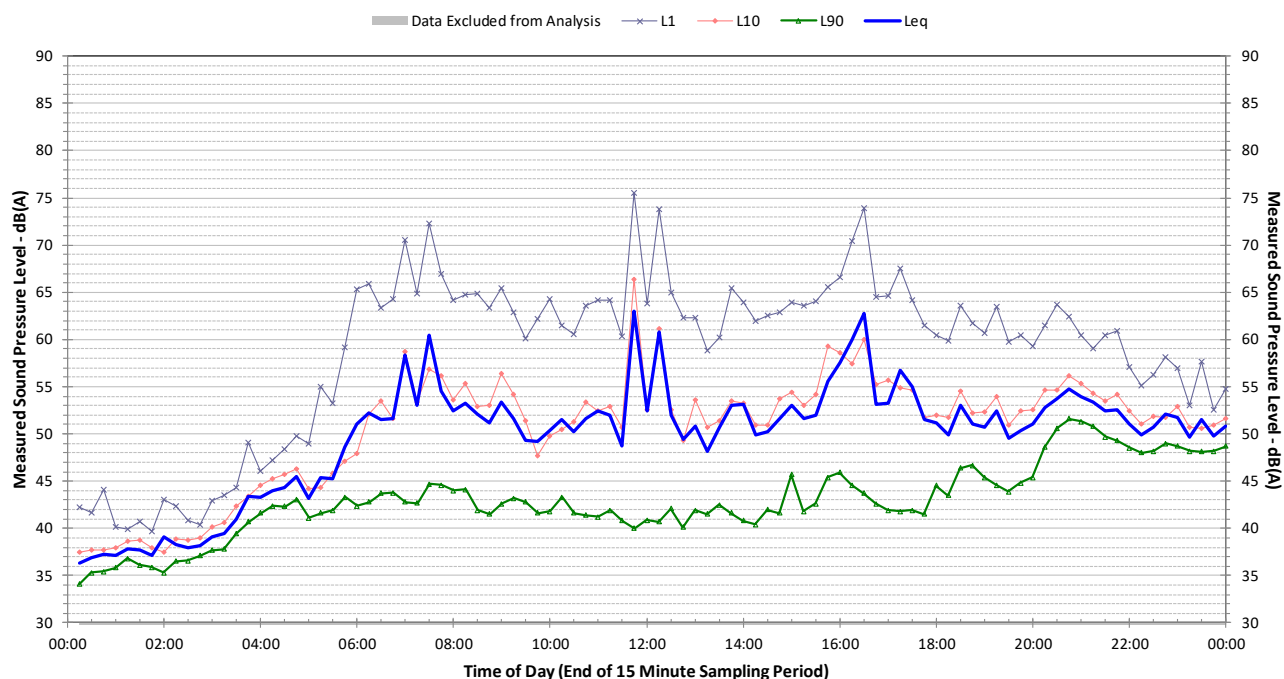
Profile of Noise Environment - Noise Monitoring Location 2 Wednesday 1 November 2017



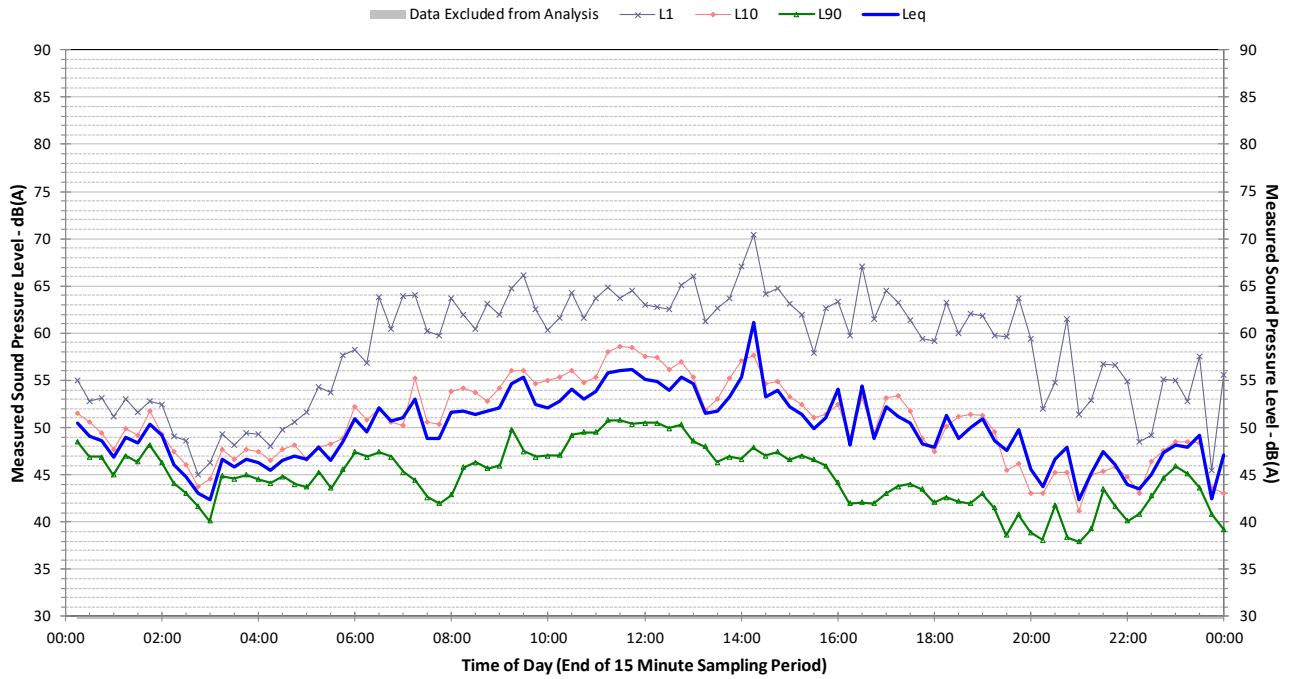
Profile of Noise Environment - Noise Monitoring Location 2 Thursday 2 November 2017



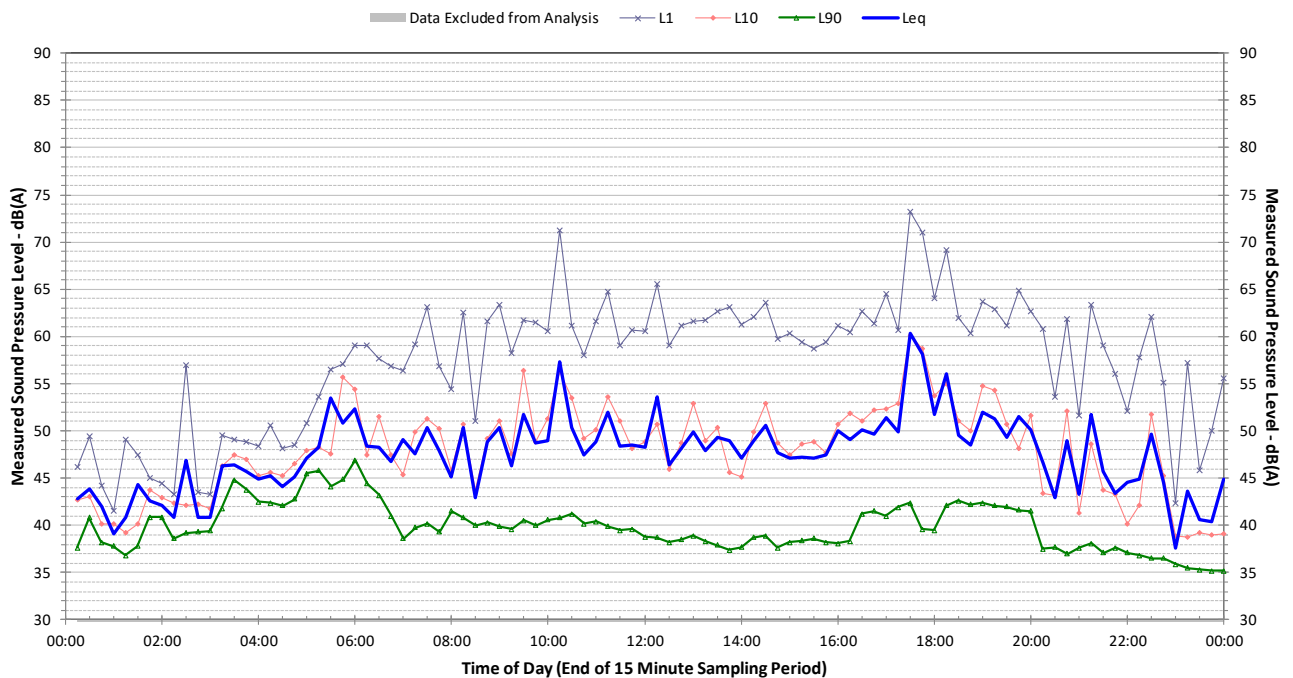
Profile of Noise Environment - Noise Monitoring Location 2 Friday 3 November 2017



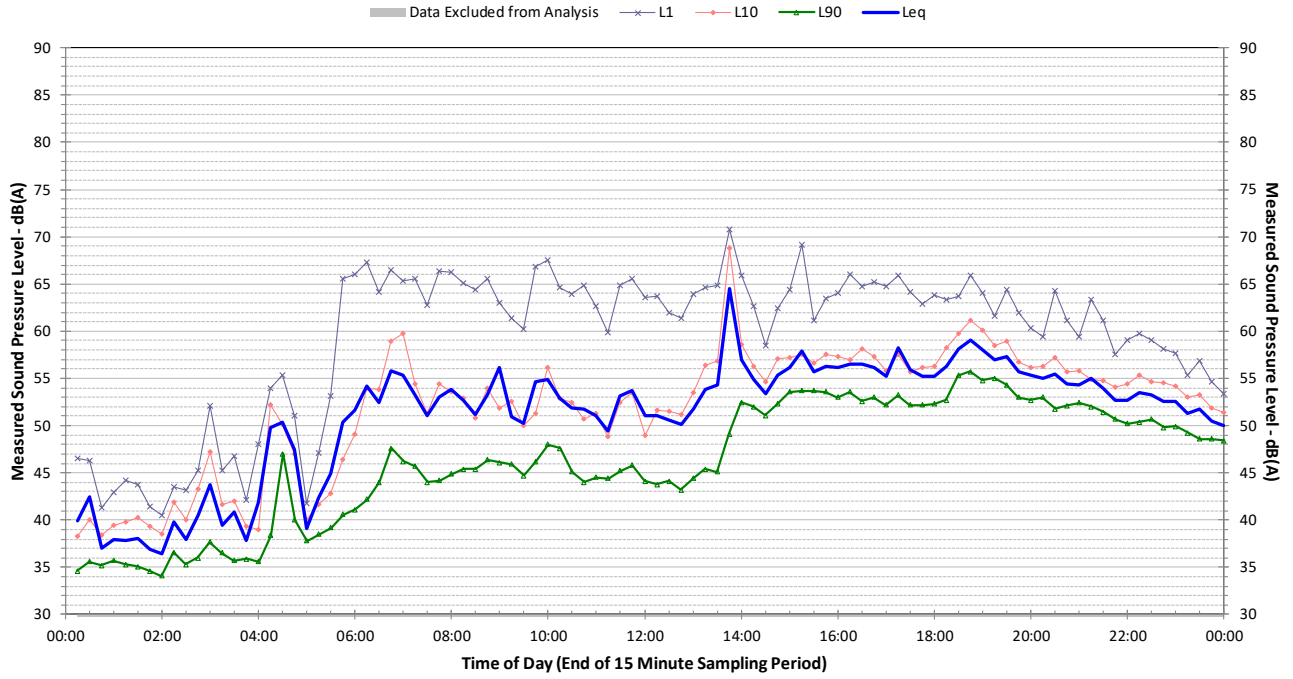
Profile of Noise Environment - Noise Monitoring Location 2 Saturday 4 November 2017



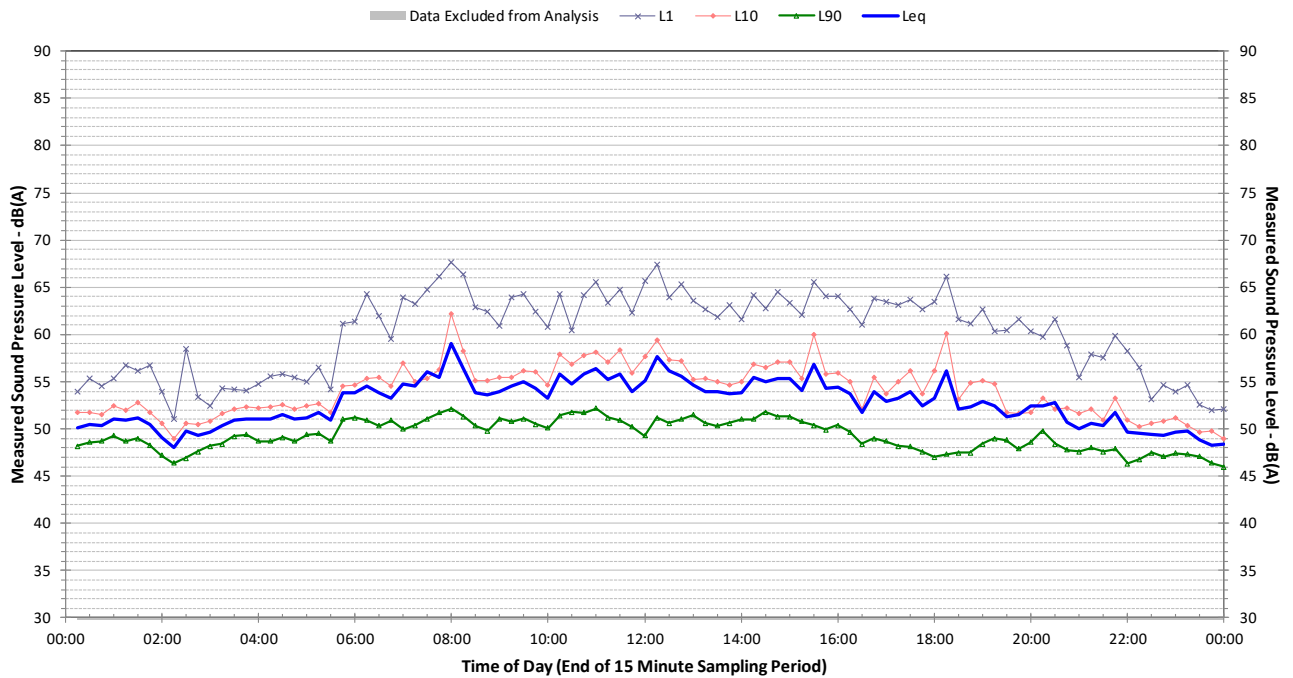
Profile of Noise Environment - Noise Monitoring Location 2 Sunday 5 November 2017



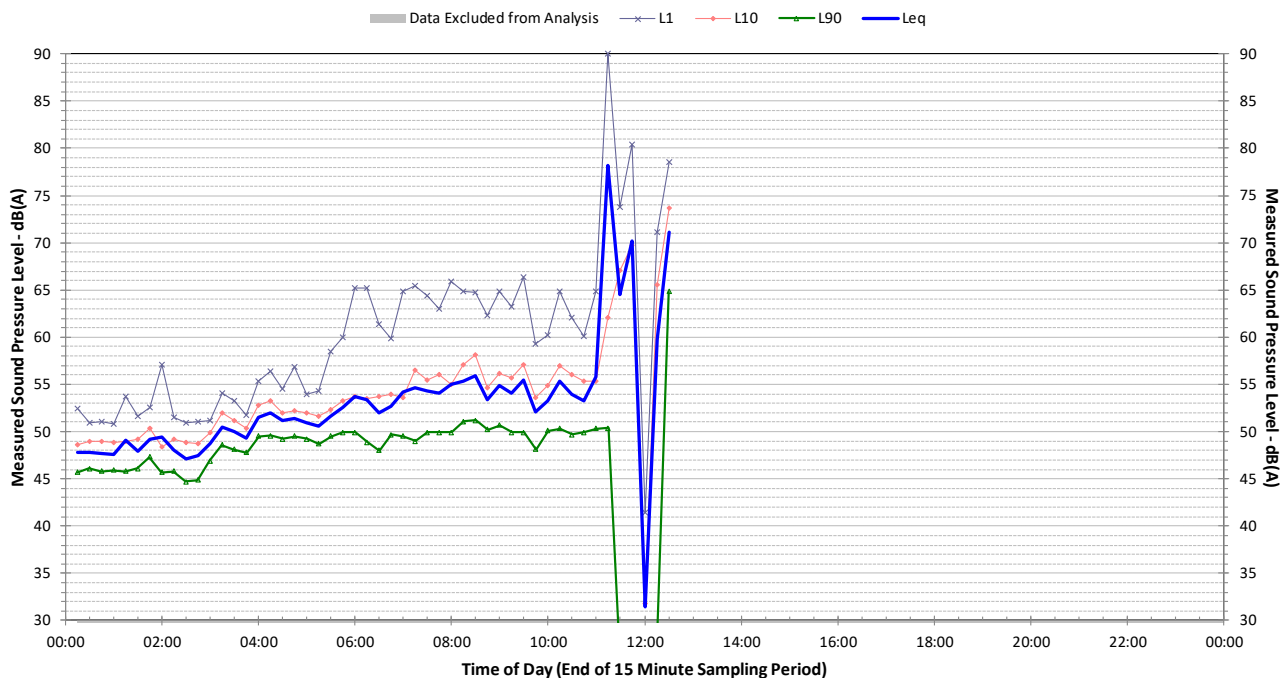
Profile of Noise Environment - Noise Monitoring Location 2 Monday 6 November 2017



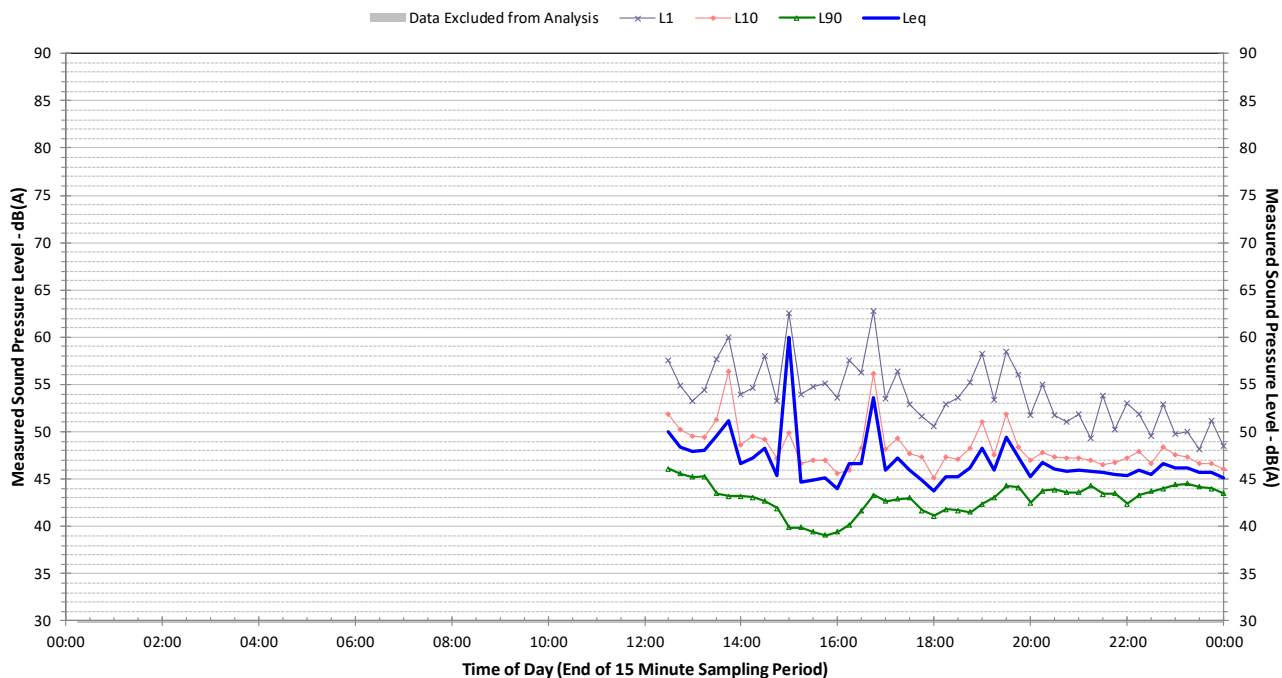
Profile of Noise Environment - Noise Monitoring Location 2 Tuesday 7 November 2017



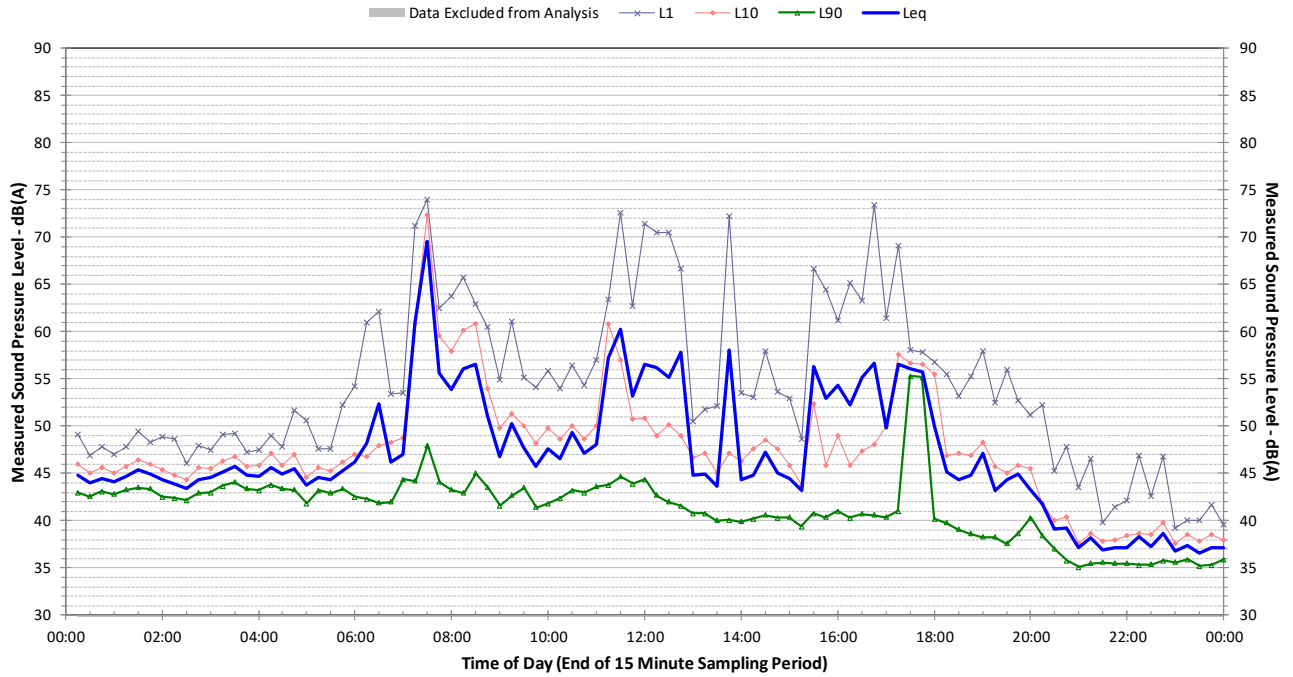
Profile of Noise Environment - Noise Monitoring Location 2 Wednesday 8 November 2017



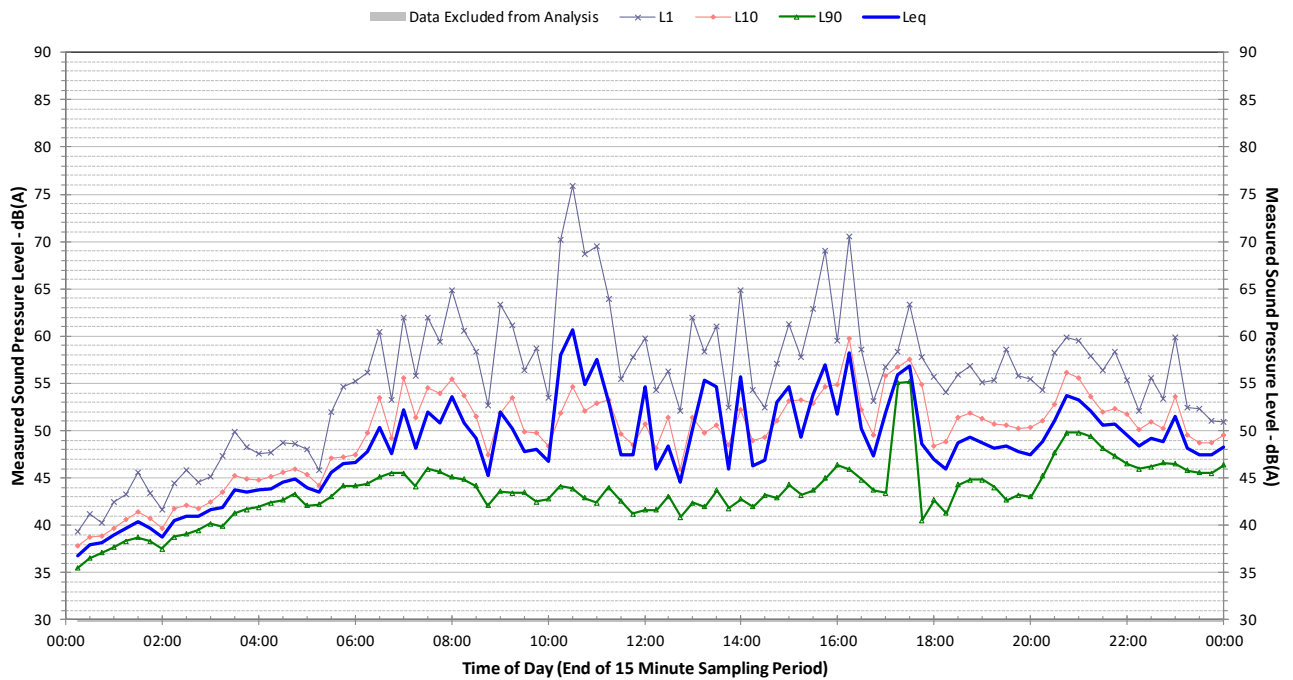
Profile of Noise Environment - Noise Monitoring Location 3 Wednesday 1 November 2017



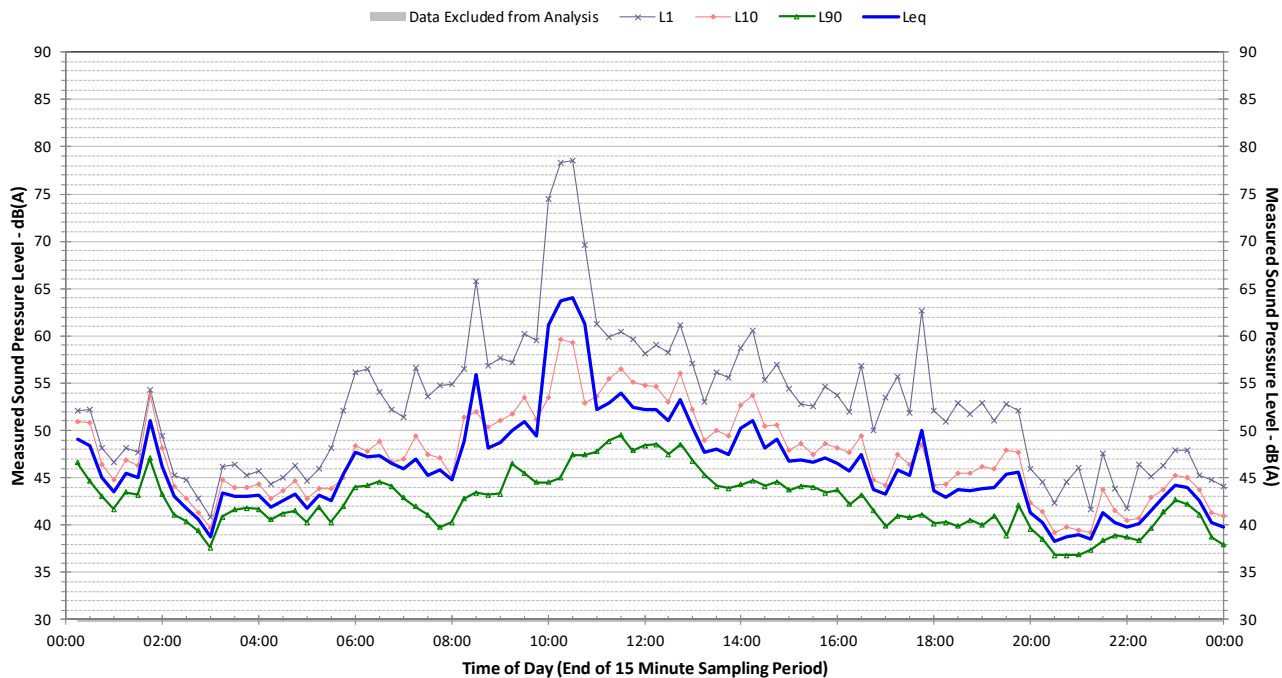
Profile of Noise Environment - Noise Monitoring Location 3 Thursday 2 November 2017



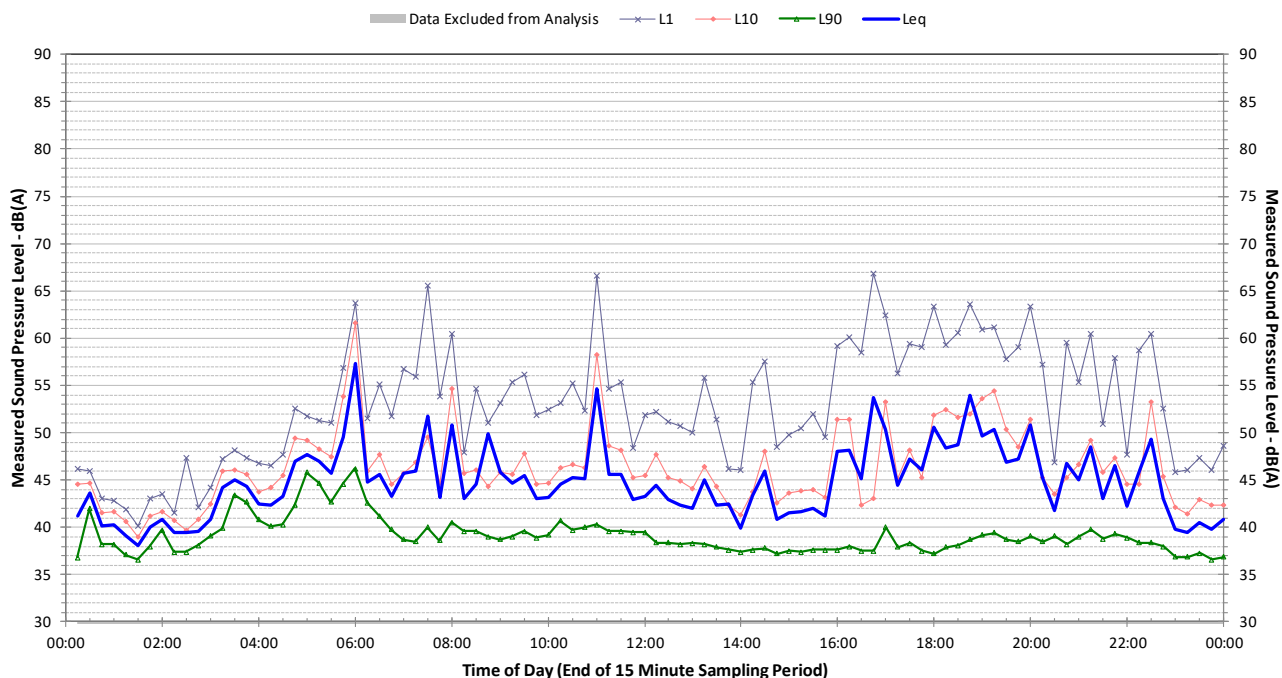
Profile of Noise Environment - Noise Monitoring Location 3 Friday 3 November 2017



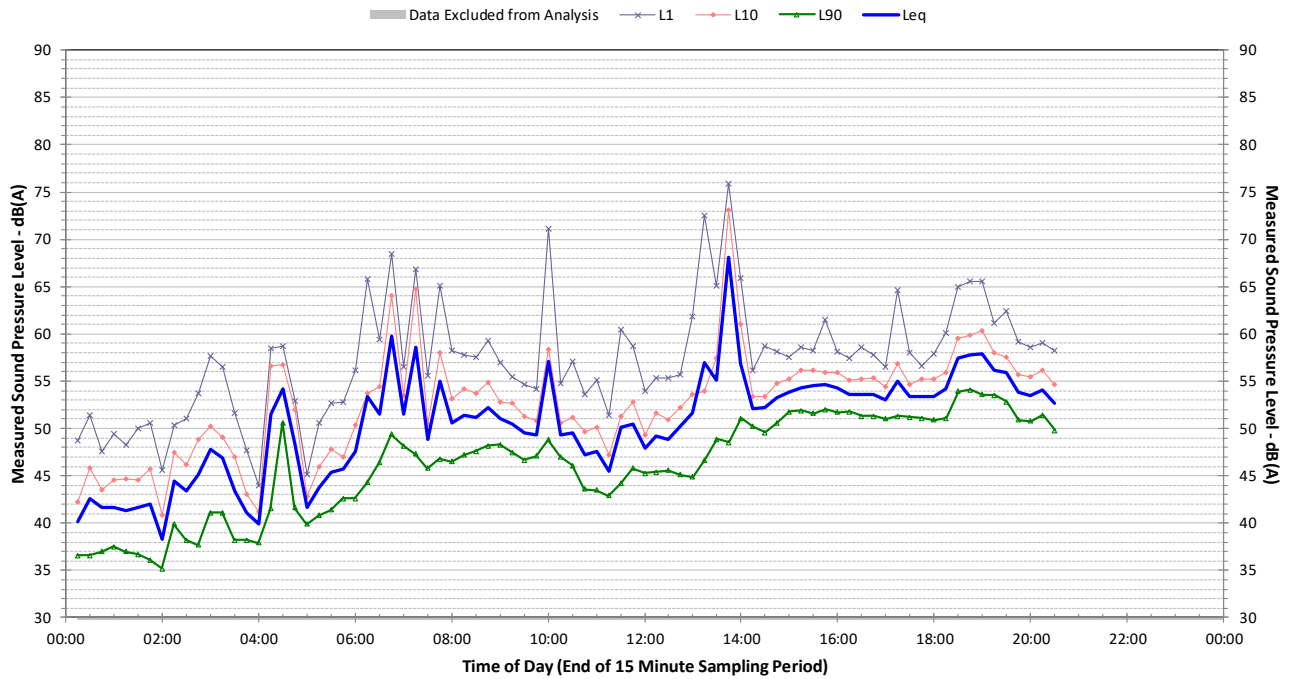
Profile of Noise Environment - Noise Monitoring Location 3 Saturday 4 November 2017



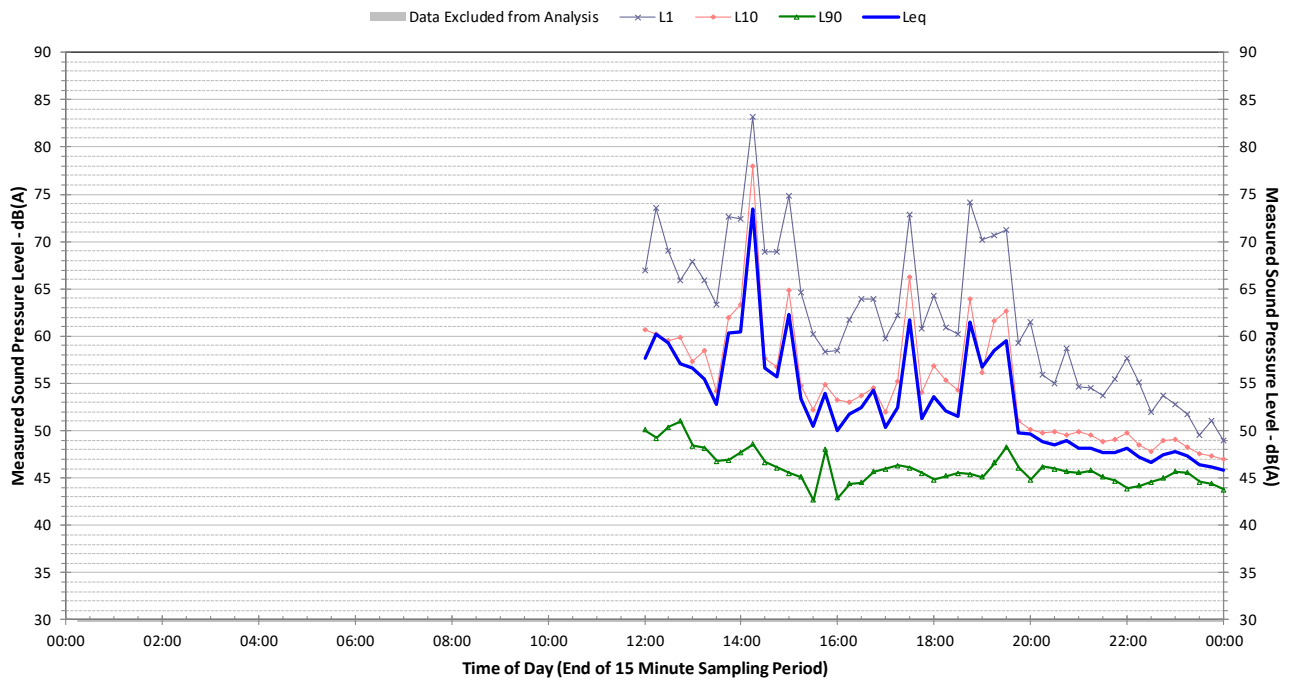
Profile of Noise Environment - Noise Monitoring Location 3 Sunday 5 November 2017



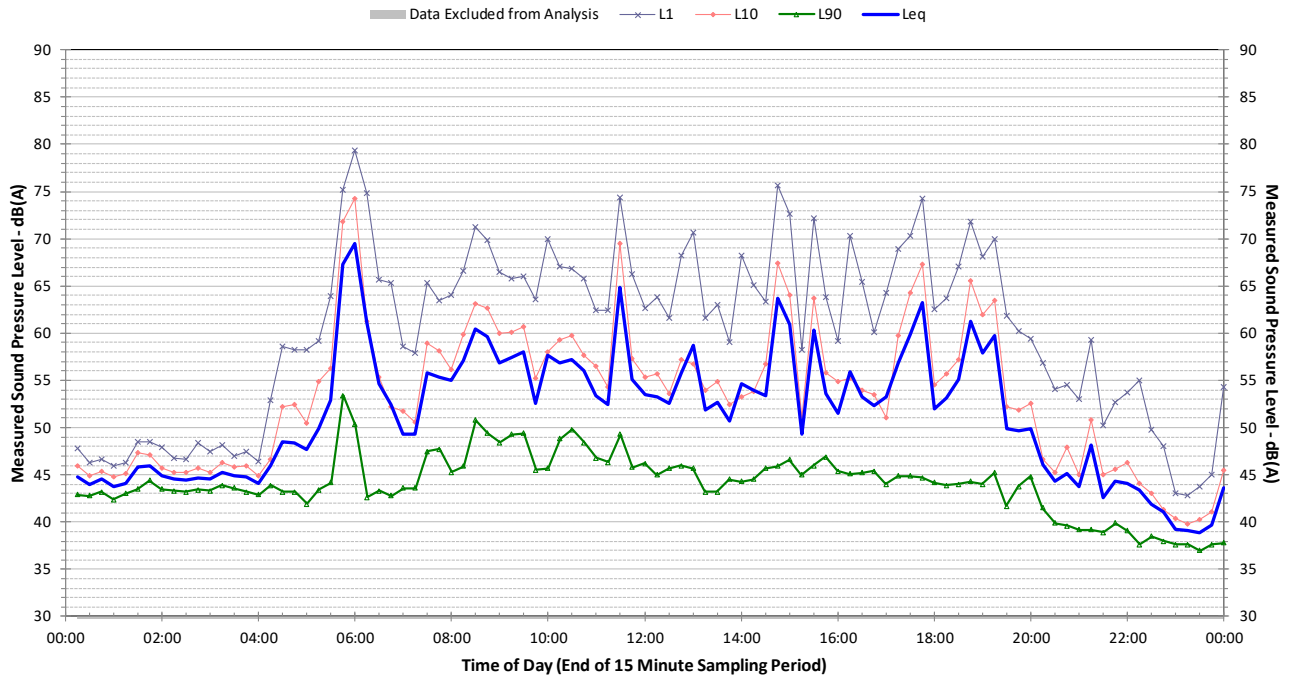
Profile of Noise Environment - Noise Monitoring Location 3 Monday 6 November 2017



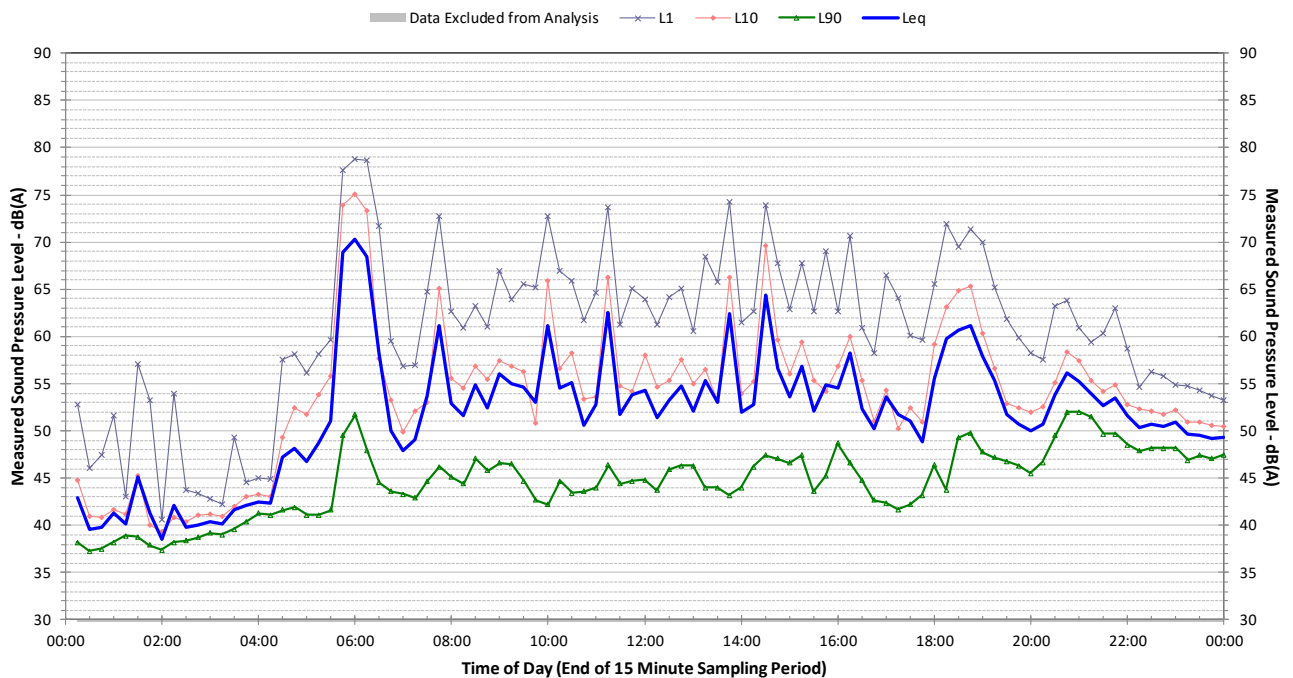
Profile of Noise Environment - Noise Monitoring Location 4 Wednesday 1 November 2017



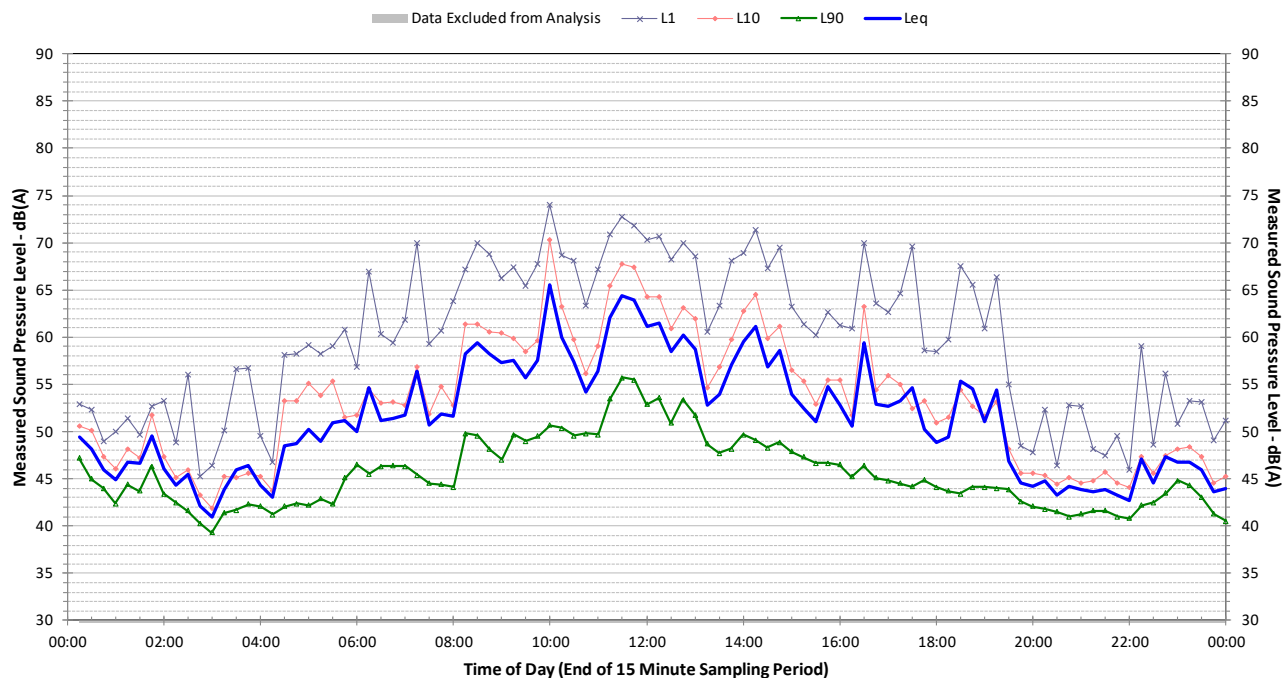
Profile of Noise Environment - Noise Monitoring Location 4 Thursday 2 November 2017



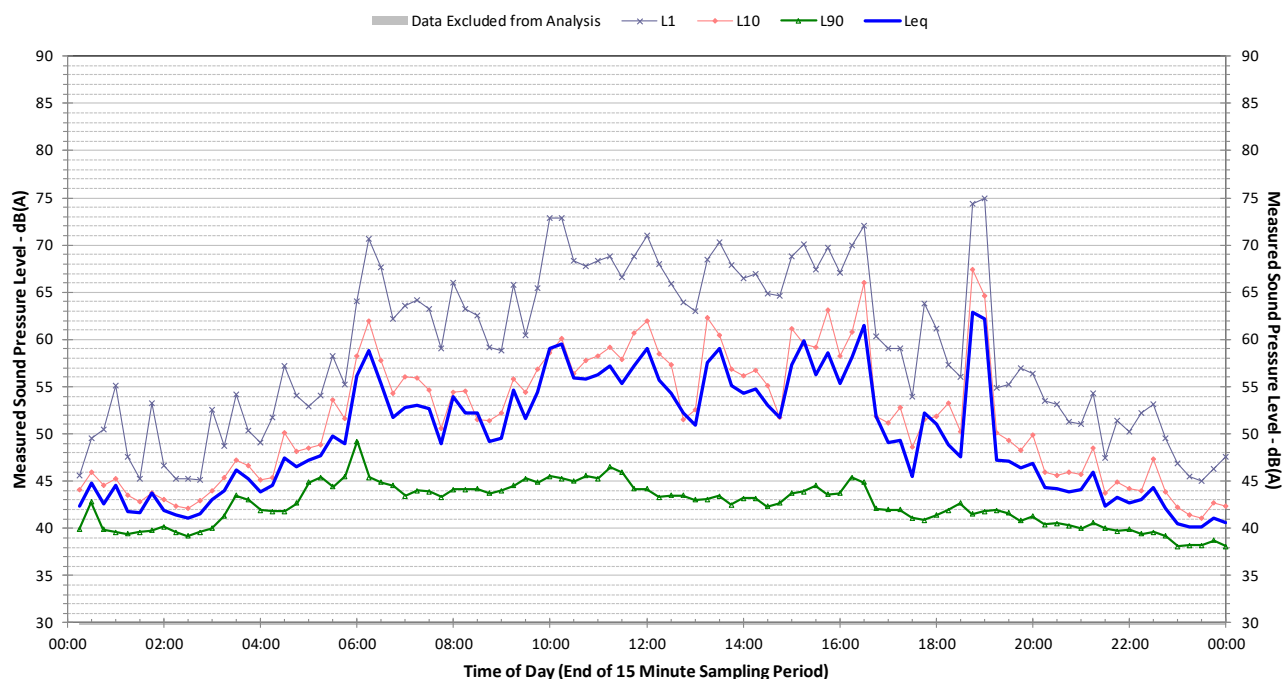
Profile of Noise Environment - Noise Monitoring Location 4 Friday 3 November 2017



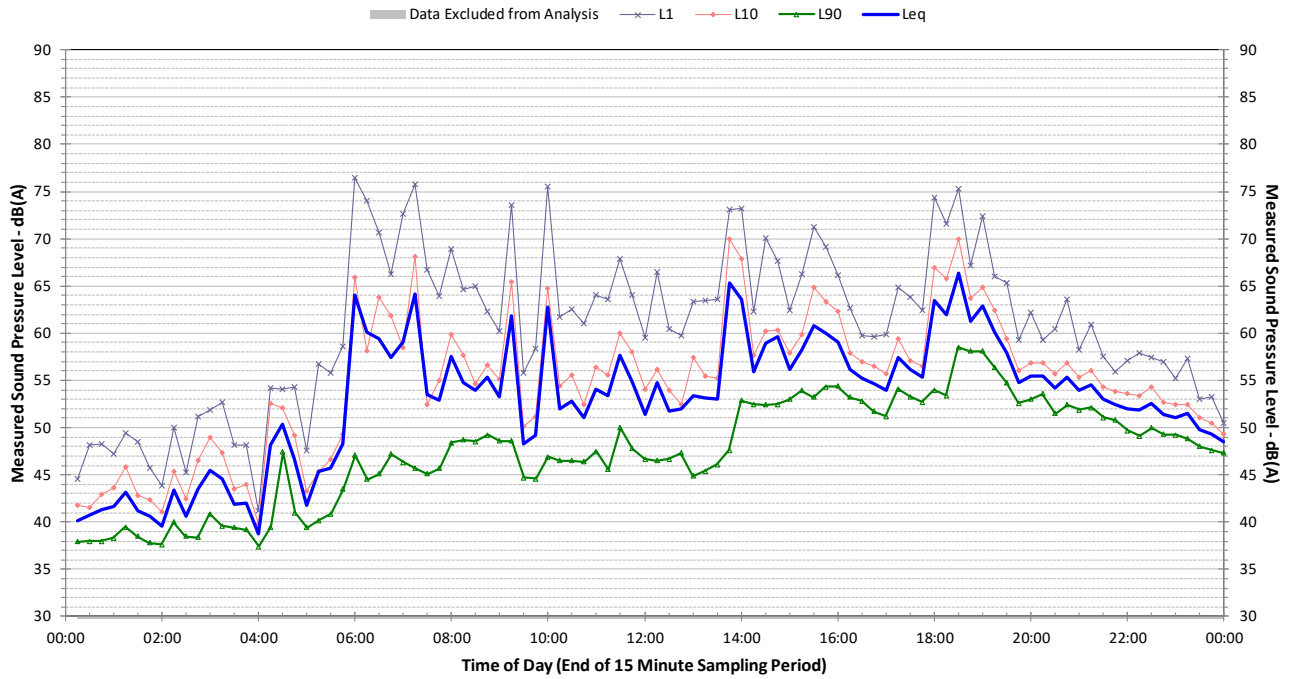
Profile of Noise Environment - Noise Monitoring Location 4 Saturday 4 November 2017



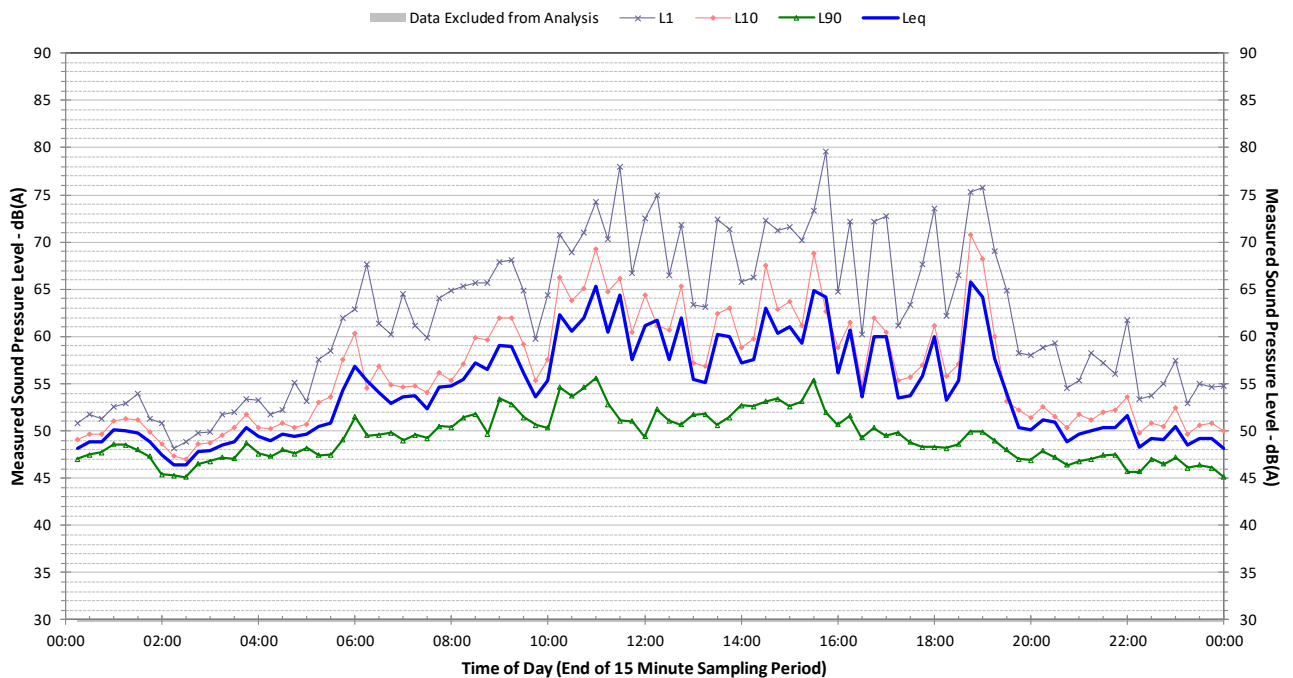
Profile of Noise Environment - Noise Monitoring Location 4 Sunday 5 November 2017



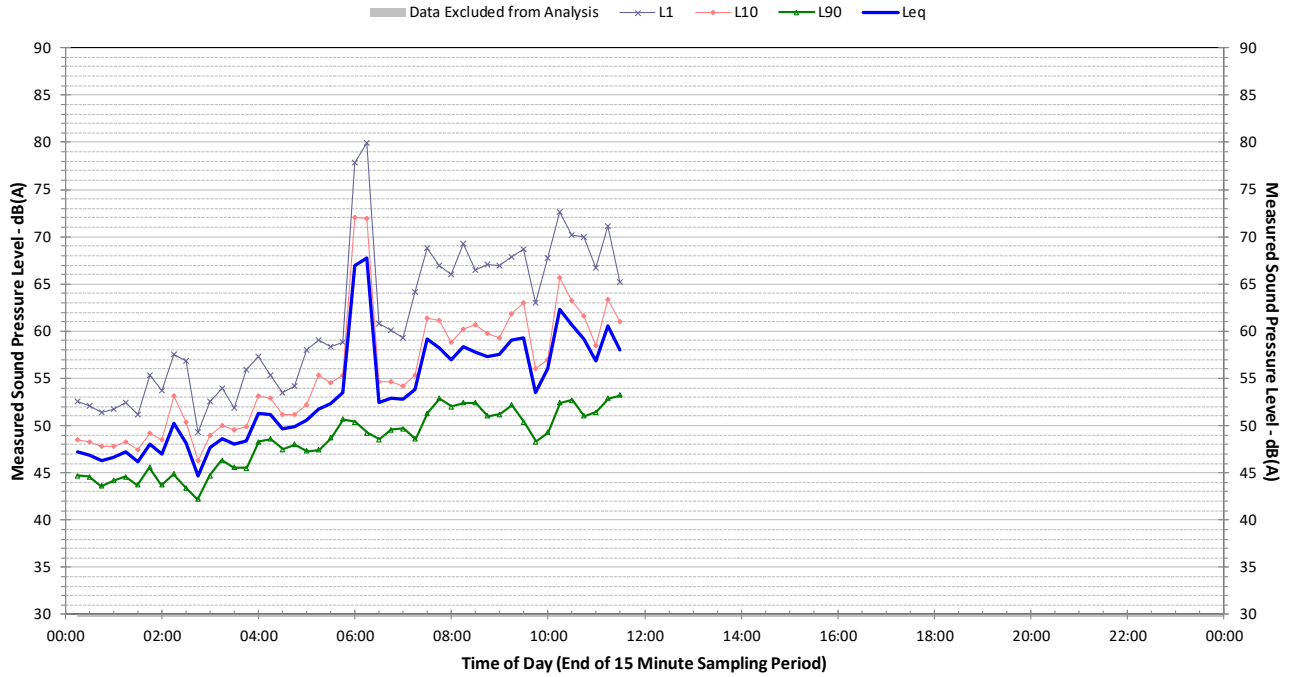
Profile of Noise Environment - Noise Monitoring Location 4 Monday 6 November 2017



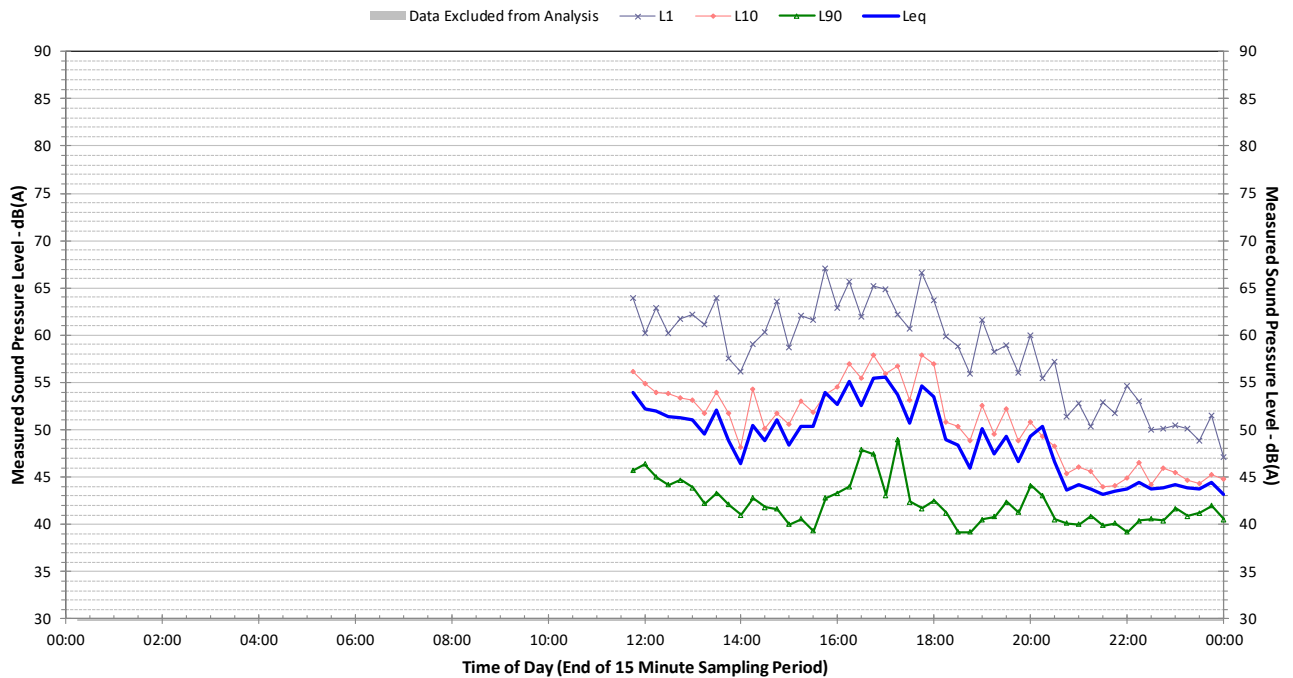
Profile of Noise Environment - Noise Monitoring Location 4 Tuesday 7 November 2017



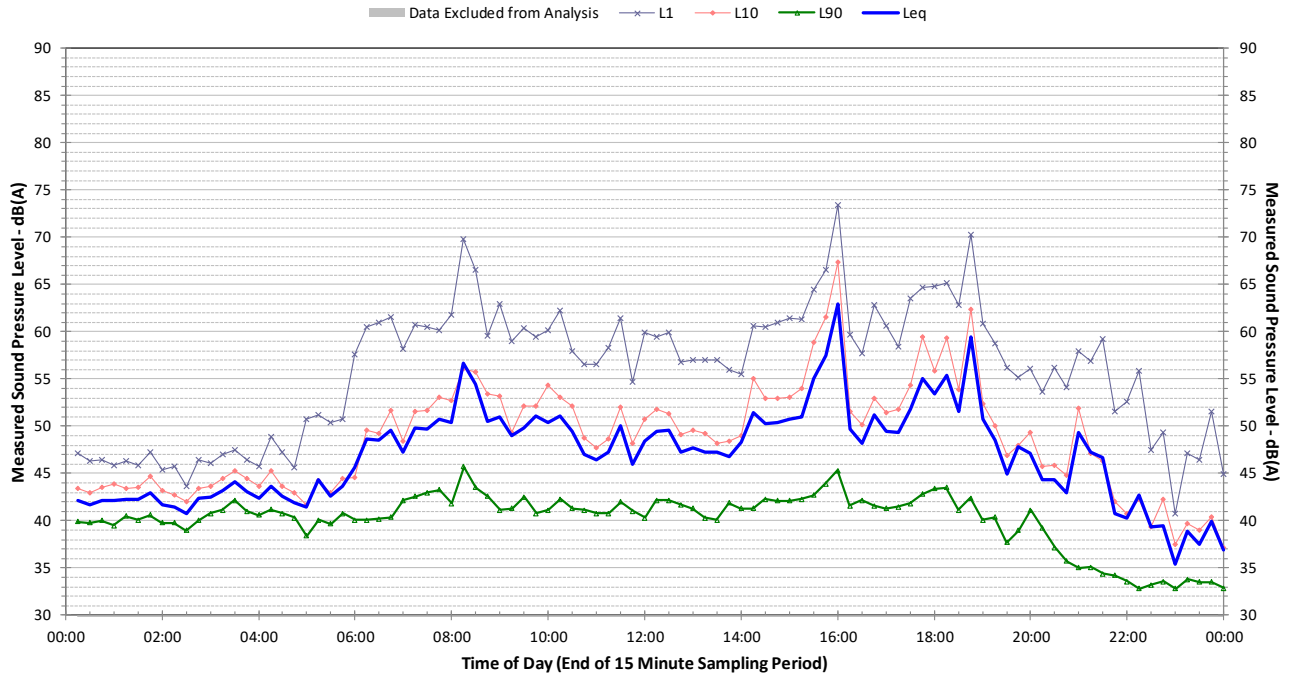
Profile of Noise Environment - Noise Monitoring Location 4 Wednesday 8 November 2017



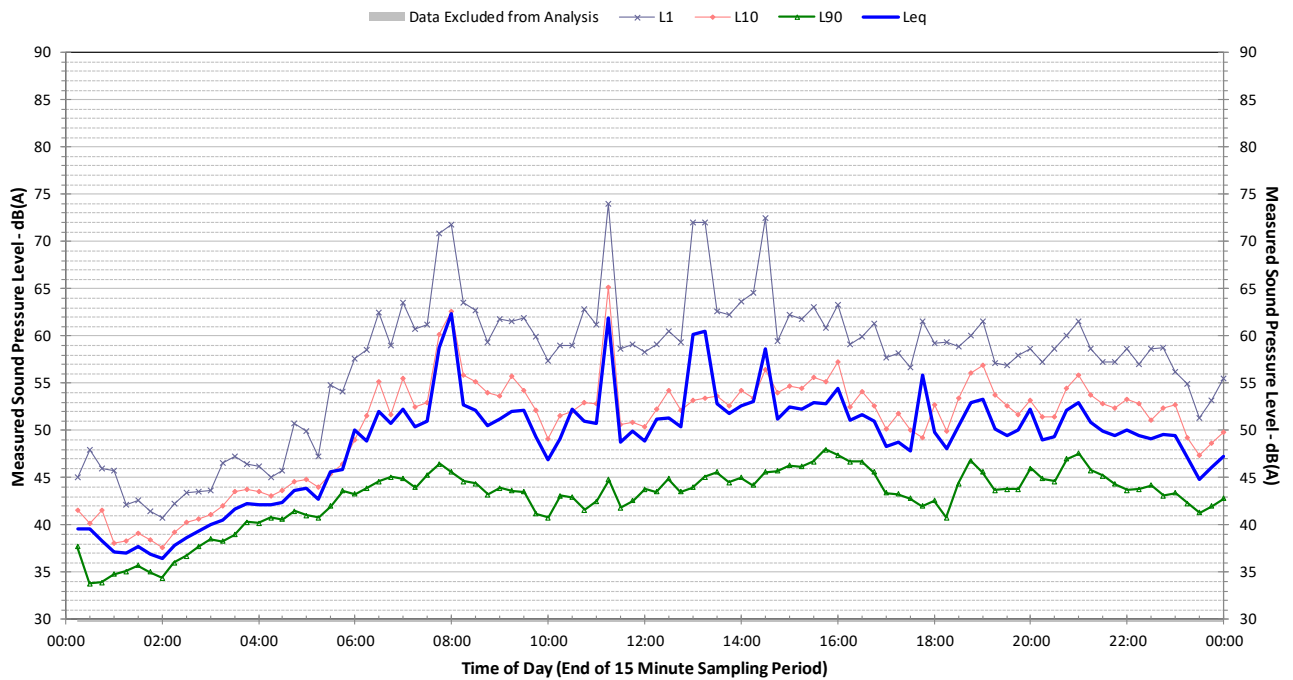
Profile of Noise Environment - Noise Monitoring Location 5 Wednesday 1 November 2017



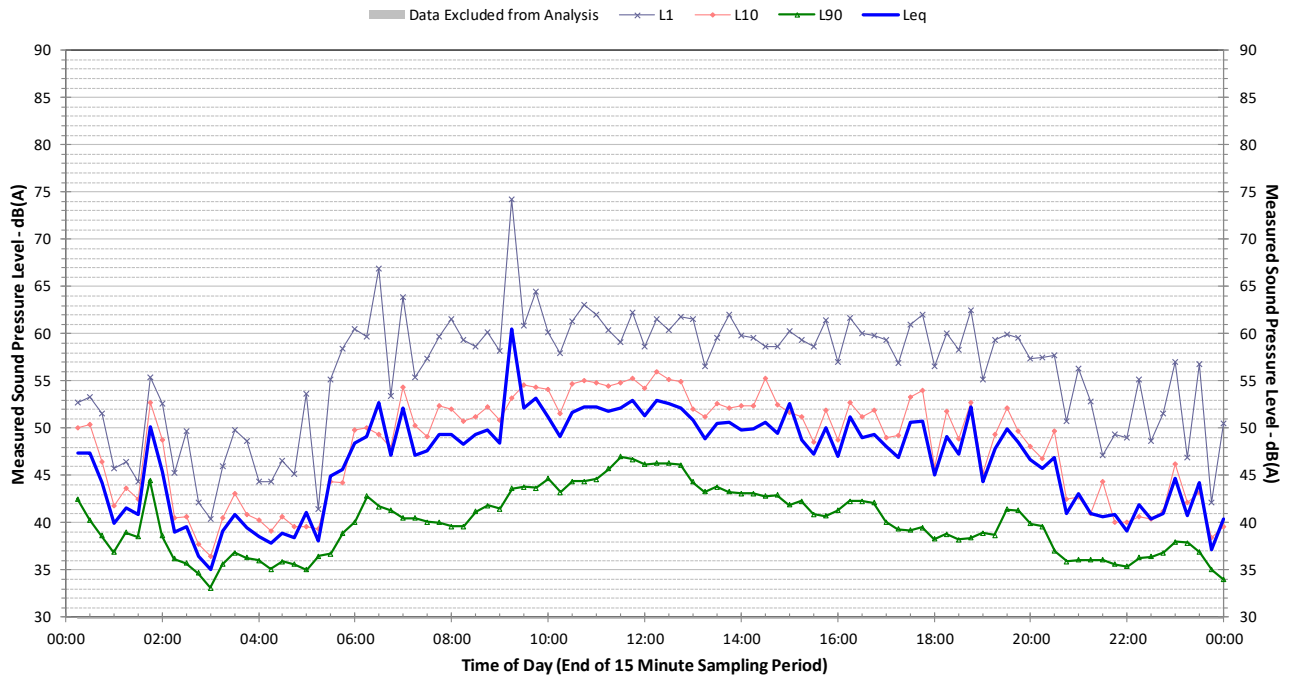
Profile of Noise Environment - Noise Monitoring Location 5 Thursday 2 November 2017



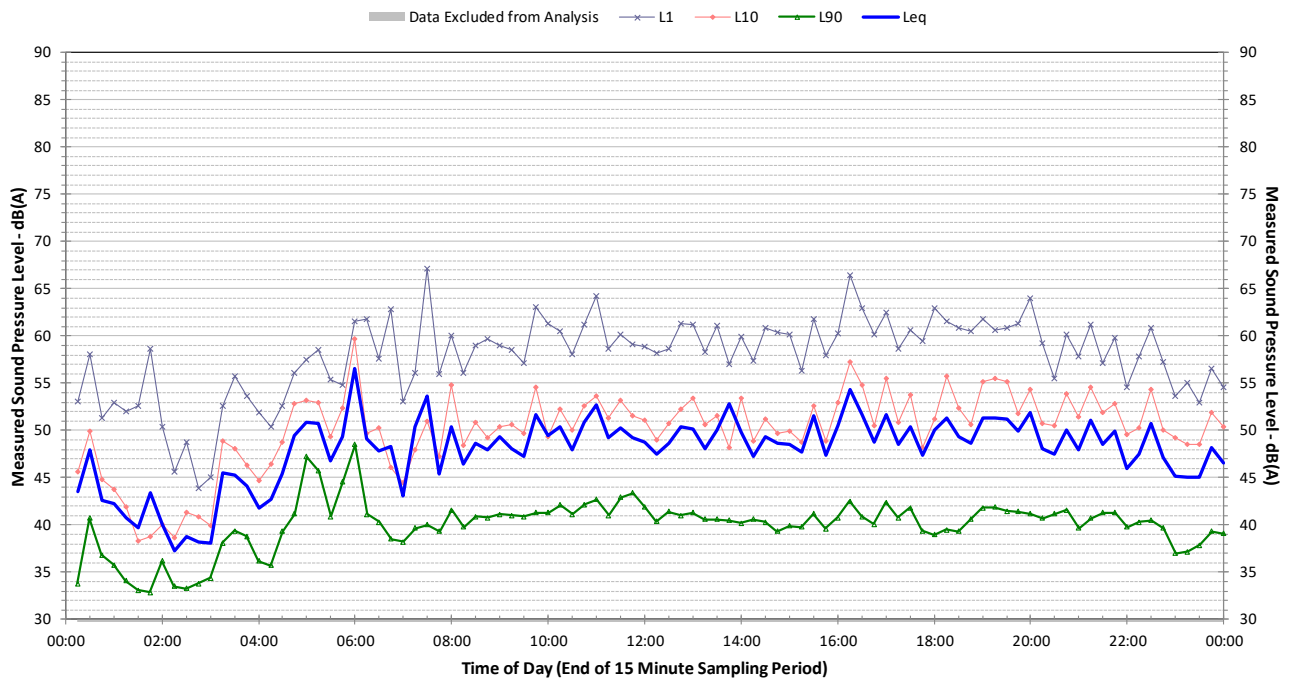
Profile of Noise Environment - Noise Monitoring Location 5 Friday 3 November 2017



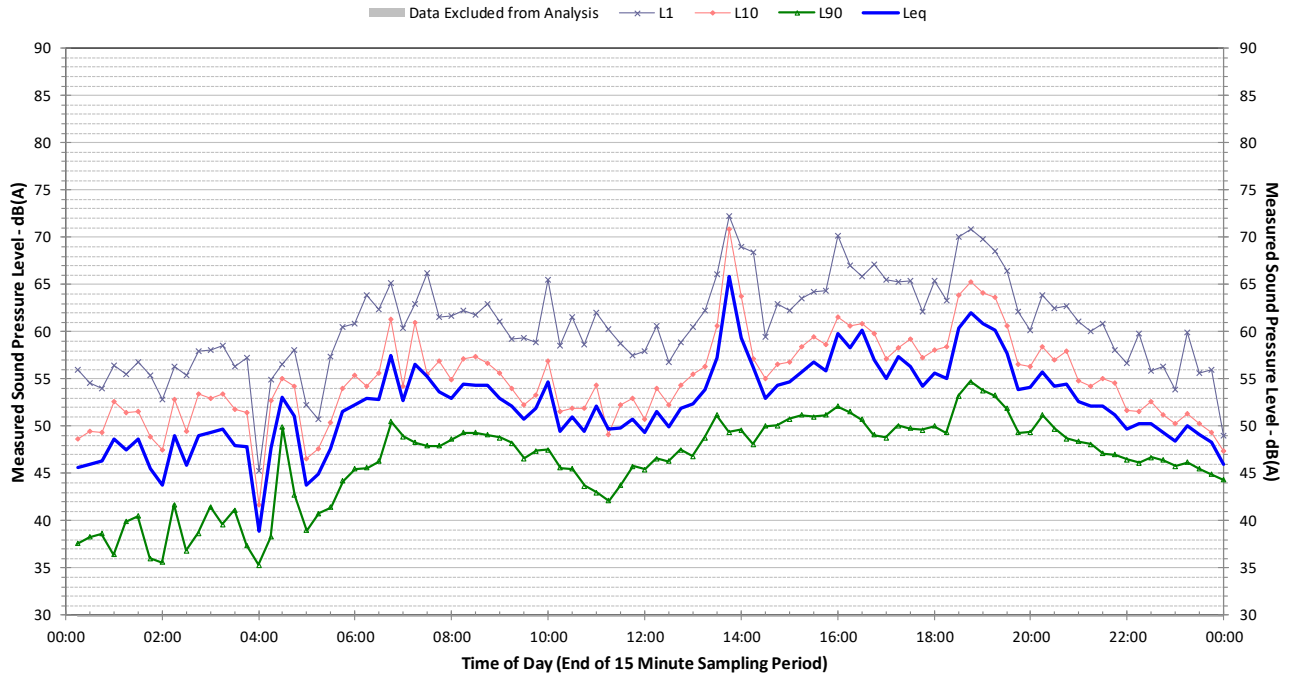
Profile of Noise Environment - Noise Monitoring Location 5 Saturday 4 November 2017



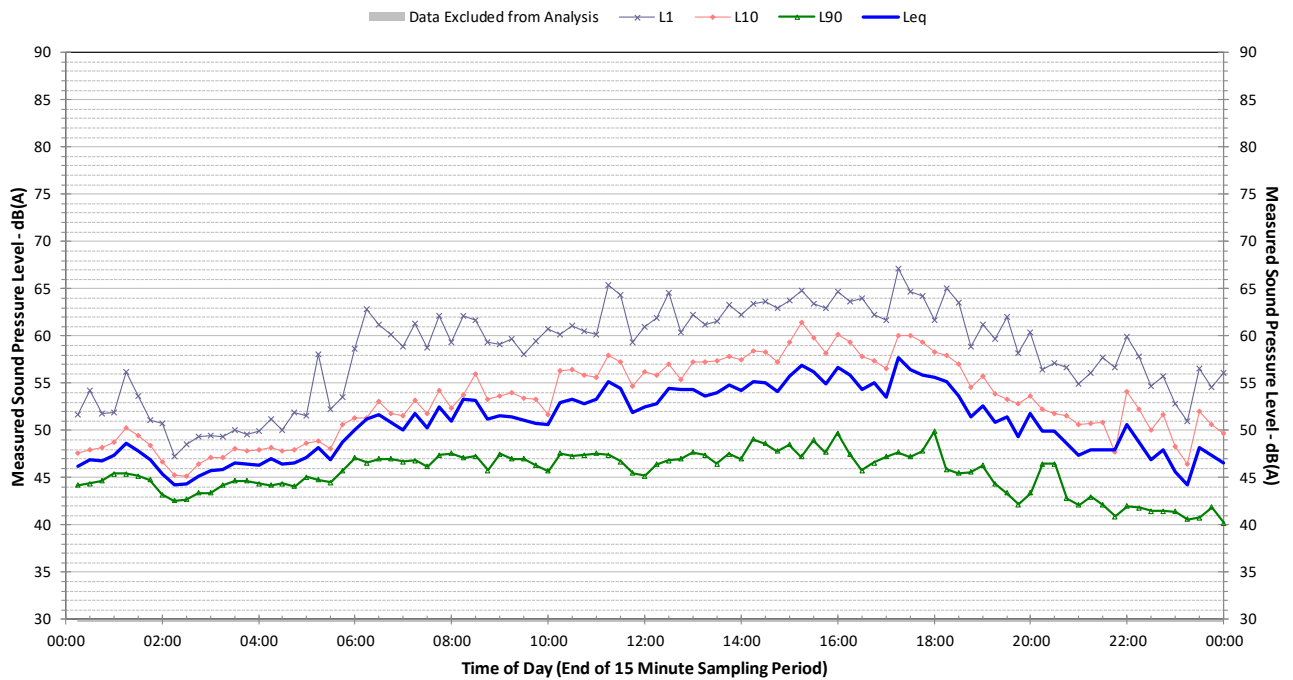
Profile of Noise Environment - Noise Monitoring Location 5 Sunday 5 November 2017



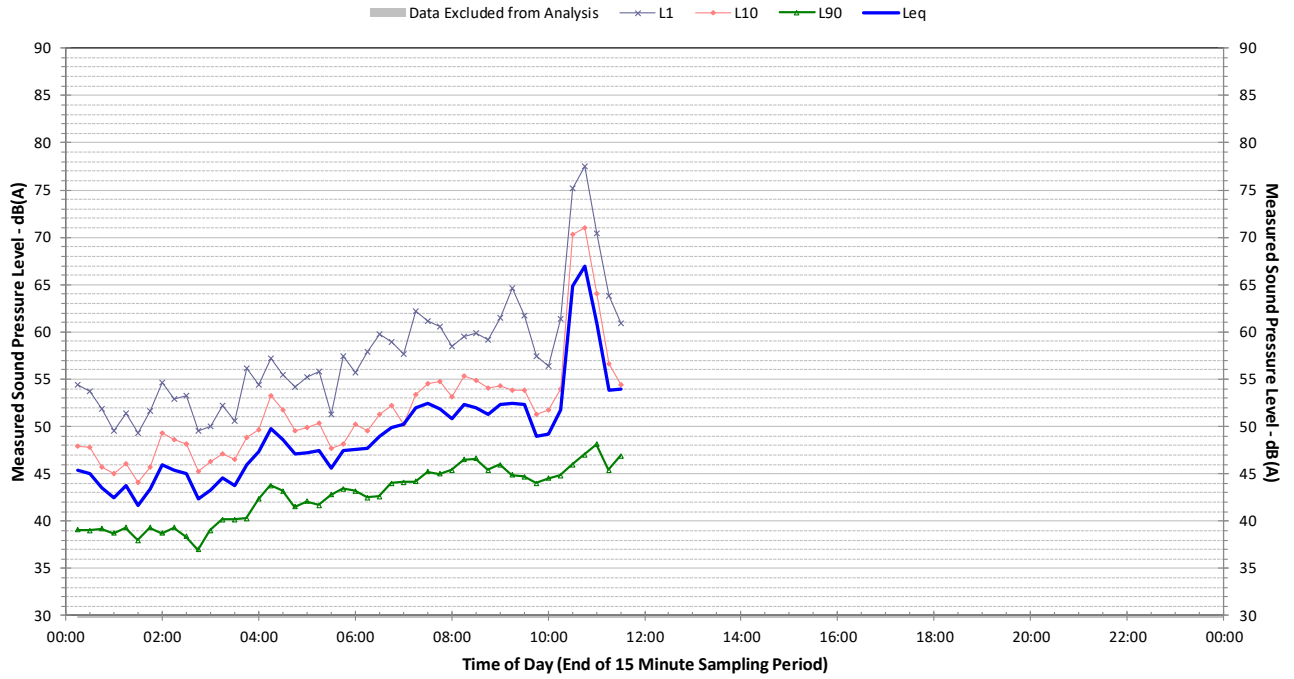
Profile of Noise Environment - Noise Monitoring Location 5 Monday 6 November 2017



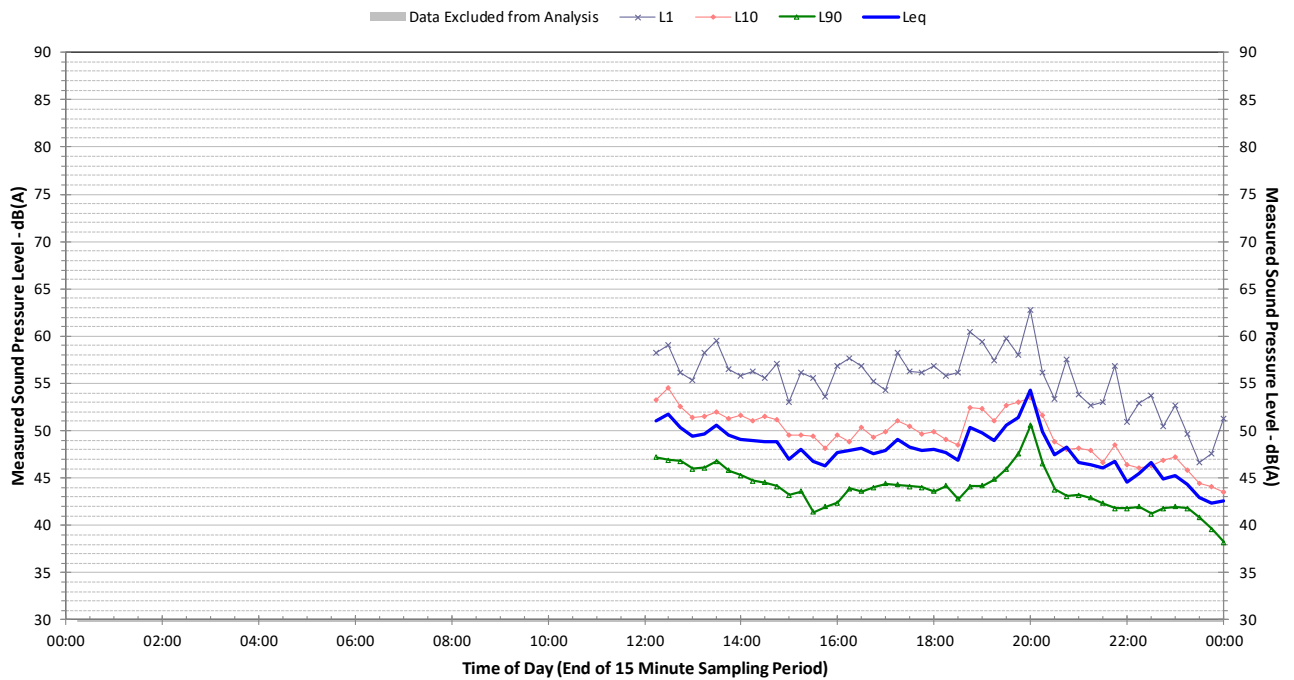
Profile of Noise Environment - Noise Monitoring Location 5 Tuesday 7 November 2017



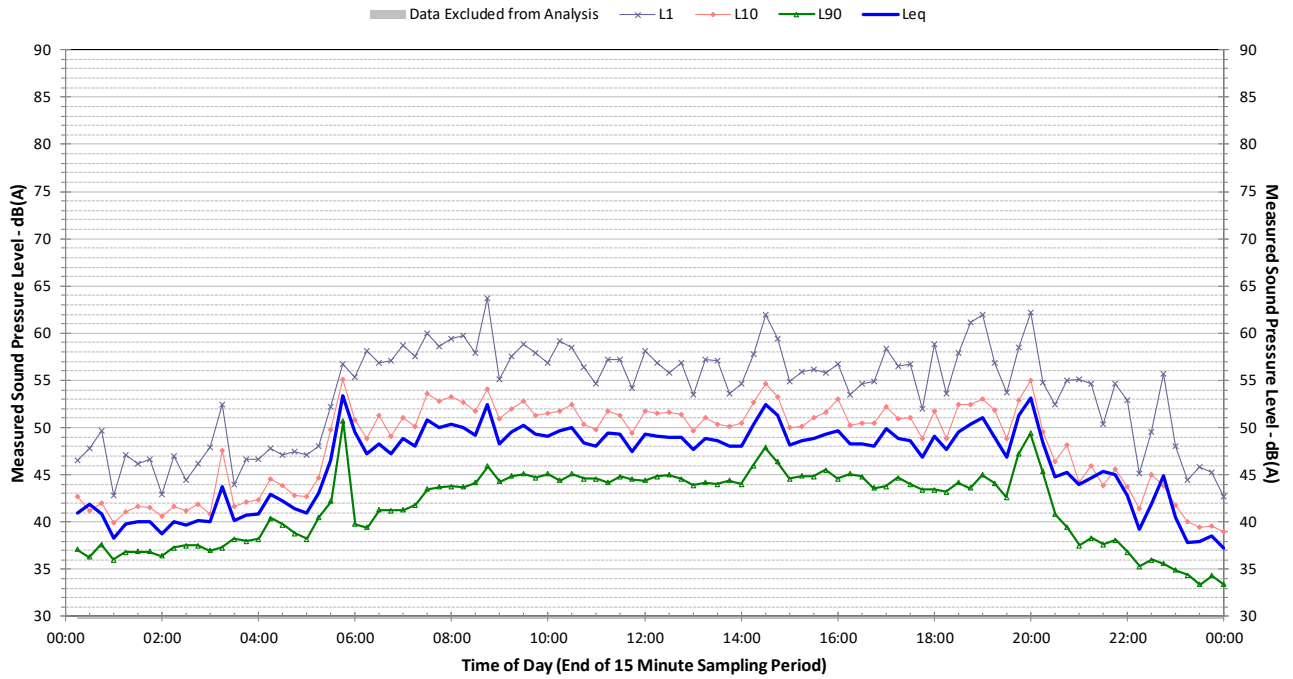
Profile of Noise Environment - Noise Monitoring Location 5 Wednesday 8 November 2017



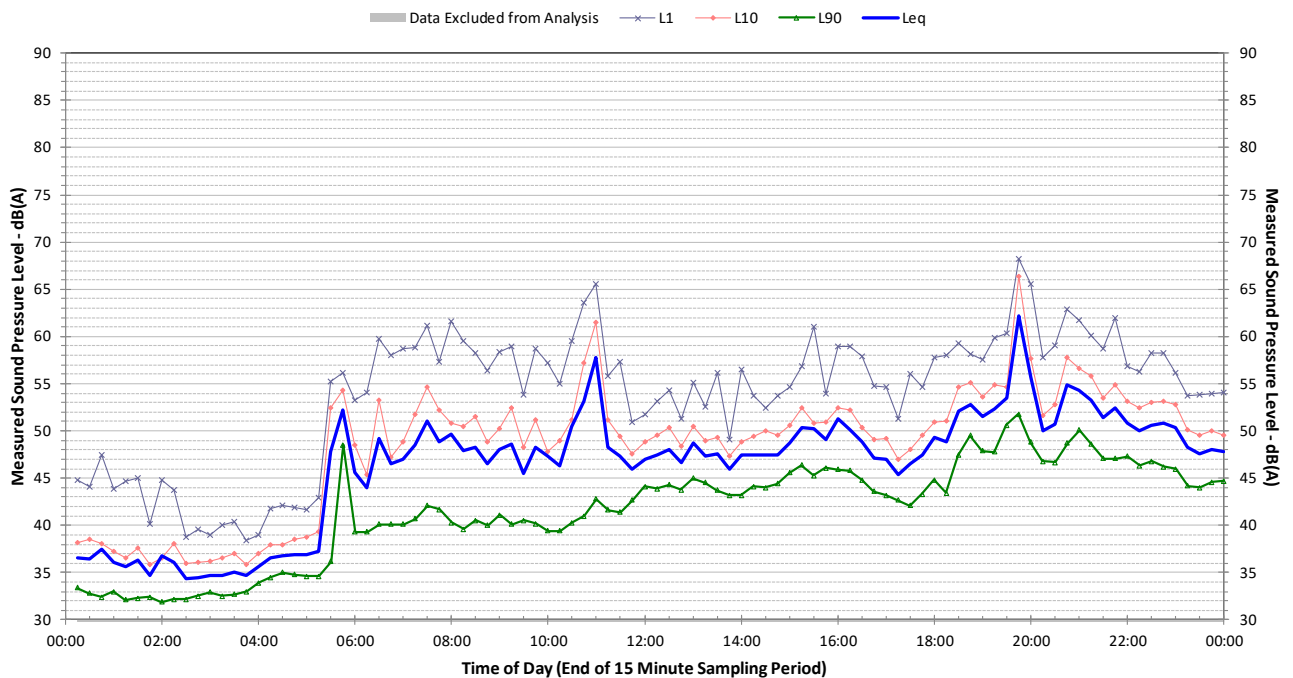
Profile of Noise Environment - Noise Monitoring Location 6 Wednesday 1 November 2017



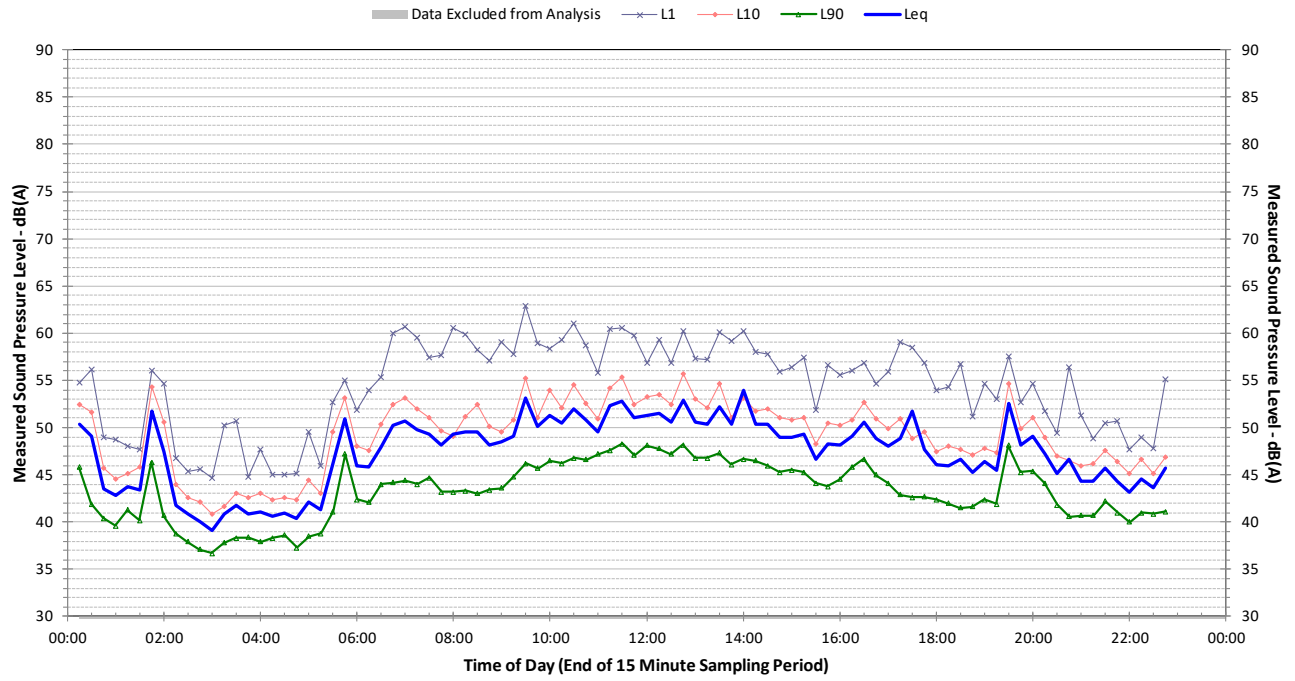
Profile of Noise Environment - Noise Monitoring Location 6 Thursday 2 November 2017



Profile of Noise Environment - Noise Monitoring Location 6 Friday 3 November 2017



Profile of Noise Environment - Noise Monitoring Location 6 Saturday 4 November 2017



hutchison weller

Hutchison Weller Pty Ltd
ABN 34 603 174 518
102, 1-3 Gurrigal Street, Mosman NSW 2088
www.hutchisonweller.com