REPORT

LUCAS HEIGHTS RESOURCE RECOVERY PARK

LUCAS HEIGHTS, NSW

ANNUAL NOISE COMPLIANCE MONITORING
RWDI # 2302703
20 December 2023

SUBMITTED TO

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GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (LAmax) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

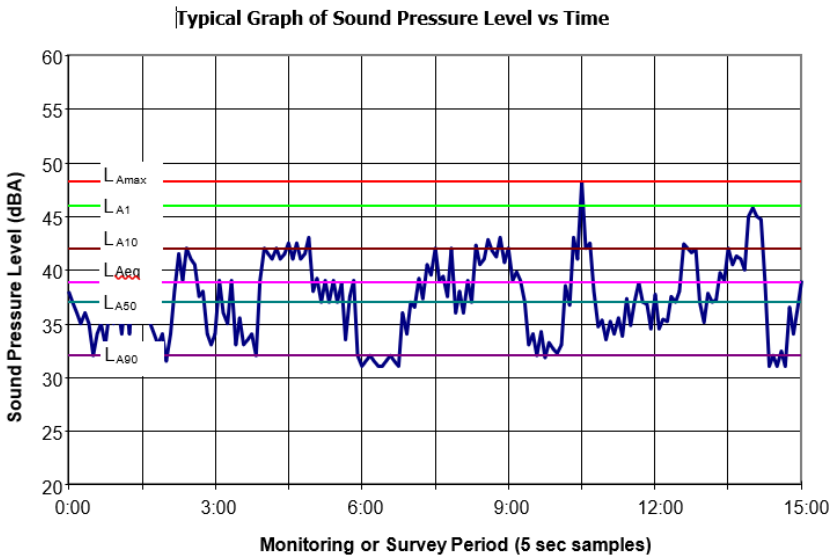
L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.



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1 INTRODUCTION

Cleanaway Recycling and Recovery (Cleanaway) operates a solid waste landfill at the Lucas Heights Resource Recovery Park (LHRRP). The LHRRP is licensed to accept solid waste from domestic and commercial sources that are suitable for disposal in a general solid (putrescible) waste landfill.

Activities on the site include:

- Landfill;
- A resource recovery centre and waste collection point;
- GO facility for processing garden organics;
- Truck parking area;

Other facilities/operations located at the LHRRP include:

- Renewable energy operations (operated by Energy Developments Ltd);
- Community use areas in the minibike area at the southern extent of the site run by Police Citizens Youth Club (PCYC) and the Sydney Clay Target Association (SICTA) on the leased land on the north western side of the site.

RWDI has been commissioned by Cleanaway to conduct compliance noise monitoring as required by the conditions outlined in Development Consent SSD 6835. The assessment has been conducted in accordance with the NSW EPA Industrial Noise Policy.

LHRRP is located in Lucas Heights, to the north of New Illawarra Road and East of Heathcote Road. To the north, west and south of the site is primarily bushland. Bushland, and the Australian Nuclear Science and Technology Organisation (ANSTO) are located to the east.

The nearest residential receivers, located to the north and east are described below:

- R1 – Engadine residences, approximately 2 km to the southeast;
- R2 – Barden Ridge residences, approximately 3 km to the east;
- R3 – Menai residences, approximately 3.3 km to the northeast.
- R8 – The Ridgeway residences, approximately 3.2 km to the northeast

Two areas marked as potential future residential developments have also been identified. These areas have been named R6 Gandangara and R7 Gandangara North, and are located approximately 1.5 km and 1.6 km respectively from LHRRP.

An overview of the area, including receiver locations, is presented in Figure 1.

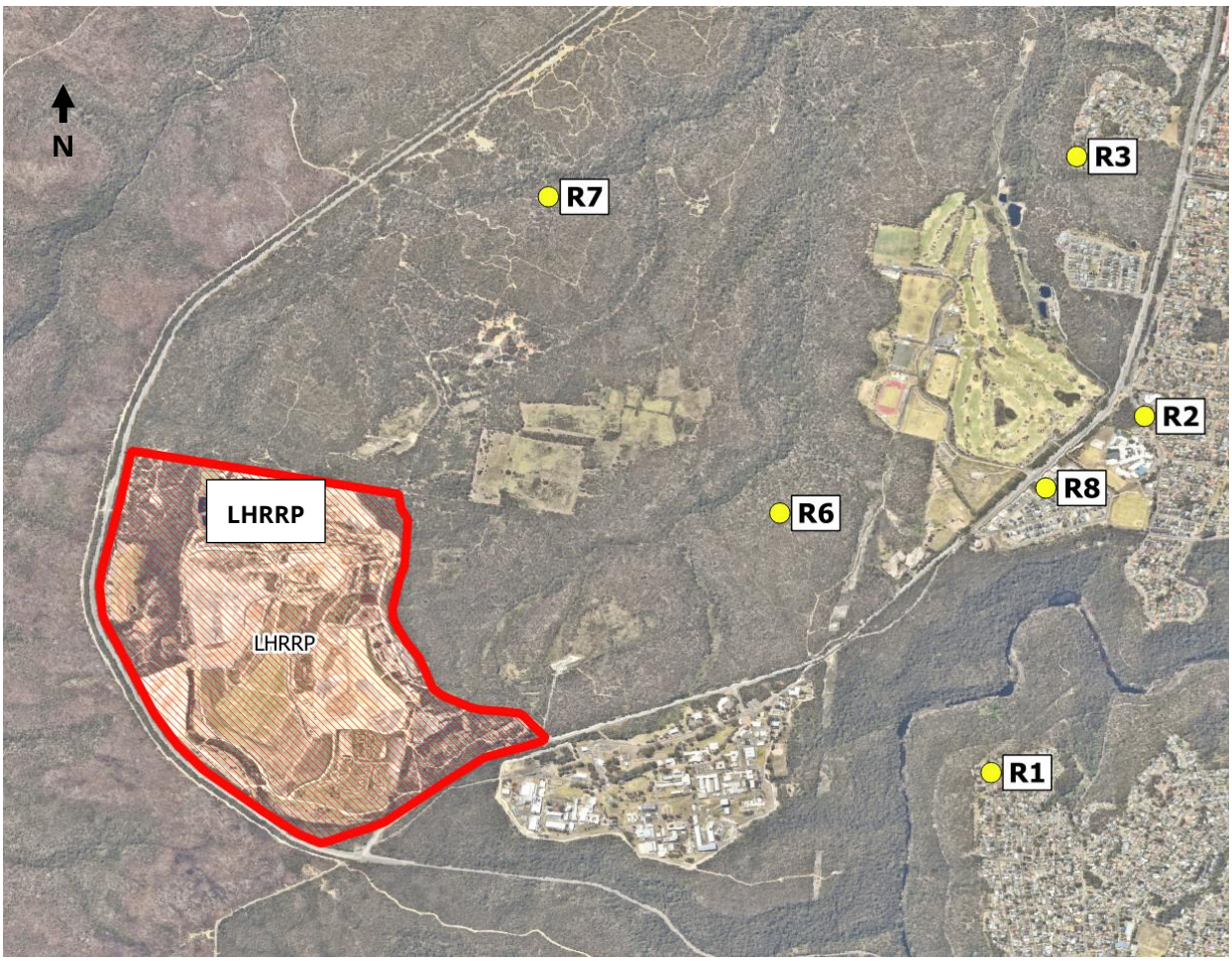

Figure 1: LHRRP and Surrounding Area

2 NOISE COMPLIANCE CONDITIONS

2.1 Lucas Heights Resource Recovery Park

Conditions for compliance have been outlined in Schedule C of Development Consent SSD 6835. Conditions from this consent relevant to noise are presented below:

C53. The Applicant shall comply with the hours detailed in Table 2, unless otherwise agreed in writing by the EPA or the Secretary.

Table 2: Hours of Work

Facility	Activity	Day	Time
Landfill	Construction	Monday – Friday Saturday – Sunday	7 am – 5 pm 8 am – 5 pm
	Operation	Monday – Friday Saturday Sunday	5 am – 5 pm 6 am – 5 pm 8 am – 5 pm
	Other operations	Monday – Sunday	Anytime
GO Facility	Construction	Monday – Friday Saturday – Sunday	7 am – 5 pm 8 am – 5 pm
	Operation	Monday – Friday Saturday – Sunday	6 am – 5 pm 8 am – 5 pm
	Other operations	Monday – Sunday	Anytime
ARRT Facility	Construction	Monday – Friday Saturday – Sunday	7 am – 5 pm 8 am – 5 pm
	Operation	Monday – Sunday	Anytime

C54. The Applicant shall ensure noise from the site does not exceed the noise limits in Table 3.

Table 3: Noise Limits dB(A)

No.	Location	Day $L_{eq(15min)}$	Evening $L_{eq(15min)}$	Night $L_{eq(15min)}$	Night $L_{1(1min)}$
R1	Engadine	35	35	35	45
R2	Barden Ridge	35	35	35	45
R3	Menai	35	35	35	45

No.	Location	Day $L_{eq(15min)}$	Evening $L_{eq(15min)}$	Night $L_{eq(15min)}$	Night $L_{1(1min)}$
R6	Gandangara	37	37	37	45
R7	Gandangara North	35	35	35	45
R8	The Ridgeway	35	35	35	35

C56. The Applicant shall monitor noise from the site to demonstrate compliance with the noise limits in Table 3. The monitoring shall be:

(a) undertaken annually, or to address genuine noise complaints that are related to the site as determined by the EPA or the Secretary;

(b) in accordance with the NSW Industrial Noise Policy; and

(c) reported to the EPA and the Secretary within one month of completing the monitoring, including details of management actions taken and the effectiveness of the actions to address any exceedances of the limits in Table 3.

3 NOISE MEASUREMENTS

3.1 Lucas Heights Resource Recovery Park

Noise measurements were conducted on Tuesday 12 December 2023 at the six locations outlined in the Development Consent and in Figure 1. A 15-minute measurement was taken at each location. Based on the degree of audibility or likelihood of compliance further measurements would be taken up to a maximum of 1 hour at each location.

The weather during the measurements was slightly overcast with moderate wind.

All measurements were conducted using an NTi XL2 Sound Level Meter. This sound level meter conforms to AS IEC 61672.2-2019 Electroacoustics – Sound level meters Pattern evaluation tests as a Class 1 Precision Sound Level Meter which has an accuracy suitable for field and laboratory use. The A-Weighting filter of the meter was selected, and the time weighting was set to "Fast". The calibration of the meter was checked before and after the measurements with a B&K 4231 sound level calibrator and no significant drift was noted.

The sound level meter and sound level calibrator have been laboratory calibrated within the previous two years in accordance with our in-house Quality Assurance Procedures.

A summary of the measurements is presented in Table 1. A summary of the observed noise environment for each location is presented in the section below the table. Analysis of the noise contribution from LHRRP at these locations is presented in Section 4.

Table 1: Summary of Attended Measurements

Location	Start Time	$L_{Aeq,15\ min}$	$L_{A90,15\ min}$	Noise audible from LHRRP
R1 – Engadine	2:49 PM	41	34	No
R2 – Barden Ridge	1:51 PM	60	46	No
R3 – Menai	1:26 PM	47	42	No
R6 – Gandangara	11:28 AM	48	40	No
R7 – Gandangara North	9:08 AM	47	34	No
R8 – The Ridgeway	10:41 AM	60	48	No

R1 The measurement was taken near 42 Sierra Road, Engadine. The background level at this location was dominated by road noise from New Illawarra Road (A6) and by rustling leaves from wind through nearby trees. The L_{Aeq} level was dominated by local birds and intermittent insect noise and passing vehicles on Sierra Road. No noise from the LHRRP was audible at this location throughout the measurement period.

R2 This measurement was taken at 157 Old Illawarra Road, Barden Ridge. The background level was dominated by road noise originating from New Illawarra Road (A6) and by rustling leaves from wind through nearby trees. The L_{Aeq} level was controlled by local traffic along Old Illawarra Road as well as intermittent noise from birds and insects in the area. No noise from the LHRRP was audible at this location.

R3 This measurement was taken at 23 Windle Place, Menai. The background level at this location was once again dominated by the road noise from New Illawarra Road (A6) and by rustling leaves from wind through nearby trees. The L_{Aeq} level was controlled primarily by insect and bird noise in the local area. No noise from the LHRRP was audible throughout the measurement period.

R6 This measurement was taken at the location specified in Figure 1. The background level was dominated by road noise from the A6 Highway, and the L_{Aeq} level was controlled by intermittent insect and bird noise. No noise from the LHRRP site was audible throughout the measurement period.

R7 This measurement was taken at the location specified in Figure 1. The background level at this location was dominated by the constant hum of traffic from Heathcote Road and insect noise. The L_{Aeq} level was controlled primarily by birds and louder, intermittent insect noise. No noise from the LHRRP site was audible throughout the measurement period.

R8 This measurement was taken at 3 Gurrumul Street, Barden Ridge. The background level was dominated by road noise originating from New Illawarra Road (A6). The L_{Aeq} level was controlled by local traffic along New Illawarra Road (A6) and Gurrumul Street as well as intermittent noise from birds and insects in the area. No noise from the LHRRP was audible at this location.

4 NOISE ASSESSMENT

Considering that no noise from the site was audible at any of the measurement locations (as discussed in Section 3.1), noise level contributions from the LHRRP site have been derived based on the measurements taken on Tuesday December 12, 2023. Inaudibility is often defined as being at least 10 dB lower than the minimum noise level recorded, and the site noise contribution in Table 2 has been calculated using this metric.

Table 2: LHRRP Noise Compliance Summary

Location	Minimum Recorded Level	Estimated Site Noise Contribution L_{Aeq}	Noise limit $L_{Aeq,15min}$	Compliance
R1	36	< 26	35	Yes
R2	32	< 22	35	Yes
R3	38	< 28	35	Yes
R6	37	< 27	37	Yes
R7	32	< 22	35	Yes
R8	42	< 32	35	Yes

Given that no noise from the site was audible at any time at locations R1, R2, R3, R6, R7 or R8, the estimated noise from the LHRRP complies with the consent conditions at all locations.

5 CONCLUSIONS

The Lucas Heights Resource Recovery Park is required to conduct annual compliance noise monitoring as outlined in Development Consent SSD 6835. This report details the annual monitoring that took place on 12 December 2023.

Noise contributions from the LHRRP at the surrounding residential receivers have been measured and assessed. The assessment found that all the relevant noise requirements of the Development Consent have been complied with.

6 STATEMENT OF LIMITATIONS

This report entitled Lucas Heights Resource Recovery Park was prepared by RWDI Australia Pty Ltd ("RWDI") for Cleanaway ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.