Noise Monitoring Survey Report - 11 Addison Street, Ingleside, NSW.

Our ref; ASET32638 / 35818

23 May 2013

Prepared for:
Matthews Contracting
11 Addison Street
Ingleside
NSW.

Report by:
Australian Safer Environment & Technology Pty Ltd
ABN: 36088095112
710 / 90 George Street
Hornsby NSW 2077
Ph: 02 9987 2183
Fax: 02 9987 2151

DISTRIBUTION

Noise Monitoring Survey
11 Addison Street, Ingleside, NSW.

Copies	Recipient	Copies	Recipient
1	**Mr Kevin Matthews** Matthews Contracting 11 Addison Street Ingleside NSW.		

This document was prepared for the sole use of Matthews Contracting and the regulatory agencies that are directly involved in this project, the only intended beneficiaries of our work. No other party should rely on the information contained herein without the prior written consent of Australian Safer Environment & Technology Pty Ltd and Matthews Contracting.

By

Australian Safer Environment & Technology Pty Ltd

ABN: 36088095112
710 / 90 George Street,
Hornsby NSW 2077

By : **Date:** 23 May 2013

Mahen De Silva. BSc, MSc, Grad Dip (Occ.Hyg) Cert.Radiation Protection, Cert.Radio-Isotopes Occupational Hygienist.

CONTENTS

1 INTRODUCTION - NOISE MONITORING AND ASSESSMENT

Matthews Contracting has a depot situated at 11, Addison Street, Ingleside, NSW where heavy machinery such as Excavator machines, bob cats, dumper trucks, double cabs, jeeps etc are being used to carry out various tasks. This business has been in existence for the last 24 years at this location which is being used as the main depot. The total area of the property is 1.860 ha and the area used for business activities is 337m^2 mostly confined to the lower west side valley area, which is surrounded and shielded mostly by embankments of the higher ground towards north and east sides and out of 337m^2 the actual heavy machinery are being used in an area less than half the above area and the rest of area is being used for car parking and offices. The work hours are 7.00 am to 5.00 pm. In work processes involving such large machinery creates noise. At least one of the neighbours living in the north east direction to the property, has made complaints about excessive noise arising from the depot. In order to assess the noise levels and verify compliance a Noise Survey was undertaken by Australian Safer Environment & Technology Pty Ltd (ASET) at the site on 12 and 13 April 2013. ASET did not have access to No 13 Addison Street, Ingleside to measure the actual exposure levels close to the house. Therefore it was decided to measure noise levels at the boundary on a direct line between the house at 13 Addison Street and the noise producing area of the depot. The levels obtained at point this were extrapolated to obtain possible noise levels that may exist about 60 meters from the boundary towards 13 Addison Road property, although the house is said to be over 100 meters away.

Noise monitoring was carried out at four locations near perimeter boundaries as well as at the middle of the work area of the depot, in order to verify that the levels observed are complying to NSW Noise Policy 2010 as well as the Noise Guide for Local Government (Department of Environment Climate Change and Water) - 2010. Measurements were conducted over one fifteen minute period for each location during the day (7.00 am to 5.30 pm).

The $L_{A90,\ 15\ minutes}$ and $L_{Aeq,\ 15\ minutes\ ambient}$ were recorded for each location without any activity happening at the depot to obtain background levels and also $L_{Aeq,\ 15\ minutes}$ were recorded with activities happening at the depot to a somewhat maximum level.

The L_{A90} level is the A - weighted sound pressure level that is exceeded for 90 per cent of the time over which a given sound is measured. This is considered to represent the background noise.

The L_{Aeq} is an average of the sound energy level expressed in decibels. The equivalent continuous sound pressure 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 environmental noise and traffic noise.

The Field Technicians critically listened during each measurement period and noted the apparent sources of noises and the Meteorological observations were also recorded.

Sound pressure levels were recorded using an Optimus Type 1 sound level meter. Calibrated sound level meter's calibration was checked using a portable calibrator which was externally calibrated by a NATA accredited laboratory on 29 April 2013. Calibration was confirmed in the field before and after measurements using a Larsen Davies CAL200 calibrator. The sound level meter was set to A-weighted fast response and was located at approximately 1.3 metres above the ground. Wind speed, it's directions and temperature and other weather conditions were also recorded.

2 LOCATIONS

Locations were selected around the perimeter boundary of the property at selected sides and also in the middle of the work area. **Background readings (L_{A90}) were taken when all equipment, heavy machinery were not being used and were at a standstill**. Background noise measurements were carried out in order to assess the effect of traffic noise, and any other noise from the neighbourhood. This was done as the general traffic noise seemed to be fairly high and causing a distinct hum over the

areas concerned. Background noise measurements were carried out to cover approximately first half of the day which was representative enough as traffic flow in Monavale Road is high and almost constant throughout the day. As the activities related to the business happens only during the day time, day time background was measured and the average taken.

Location 1 - South boundary – mid area near the fence.

Location 2 - South boundary – near fibre cement cottage (towards the entrance gate).

Location 3 - South western corner near the main entrance to the site close to metal work shop.

Location 4 - North west corner on northern boundary at the start of the driveway from the site to the owner's property.

Location 5 - South east corner on northern boundary near Addison Street.

Location 6 - Middle of the work area towards the west side of the property down in the Valley.

Location 7 - South east corner of the property near the entrance to owners house from Addison Street (start of the driveway area).

Location 8 - Mid northern boundary position on the straight line from noise producing area to property situated at 13 Addison Street, Ingleside.

Location 9 - At Monavale Road – By the side of the road.

3 OBSERVED SITE ACTIVITIES AND EQUIPMENT

The major site activities on the day of the measurement included;

- Large excavator machine being used to load and transport soil;
- Large truck with trailer movements;
- Double cab vehicle movements;
- Jeep movement.
- Compressor use and air release.
- Bob cat use.
- Car movements.

Off-site activities were noted as the major contributor to noise levels measured at the noise monitoring locations. Traffic noise, including trucks and cars, on Monavale Road and Addison Street was a dominant noise source/s for all locations.

4 WEATHER CONDITIONS

Weather conditions on the day of testing are shown in the following table;

Date	Time	Rainfall	Wind Speed (Ave)	Wind Direction	Temp ^{0}C
12/04/2013	10:00am – 12:00am	0	1.2 m/s	W - NW	24.0
12/04/2013	12:00am – 17:40pm	0	1.3 m/s	E - W	24.6
13/04/2013	06.30am – 08.30am	0	1.2 m/s	E - W	14.0

5 RESULTS OF THE NOISE MONITORING SURVEY

The results of noise monitoring are shown in the Table 4.1 and Table 4.2, following. Table 4.1 being background monitoring results and Table 4.2 lists Noise Monitoring results.

Table 4.1 - Background Noise Results
Day Time Noise Monitoring
12/04/2013

Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)	Temp^{0}C
Location 1	10:24	15	46.1	41.1	22.0

Observations
Onsite Noise: Site Activities not audible as they were stopped.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.

Table 4.1 - Background Noise Results Day Time Noise Monitoring 12/04/2013					
Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)	Temp^{0}C
Location 2	10:59	15	47.07	40.0	24.0

Observations

Onsite Noise: Site Activities not audible as they were stopped, except a car passed through the site to the office area.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.

Table 4.1 - Background Noise Results Day Time Noise Monitoring 12/04/2013					
Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)	Temp^{0}C
Location 3	11.17	15	48.0	39.8	24.0

Observations

Onsite Noise: Site Activities not audible as they were stopped, except a large truck was heard on the main road.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance and a dog barking at a distance.

Table 4.1 - Background Noise Results Day Time Noise Monitoring 12/04/2013					
Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)	Temp^{0}C
Location 4	11.38	15	62.41	41.9	24.0

Observations

Onsite Noise: Site Activities not audible as they were stopped. Truck or some other heavy machinery noise from another site.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Large truck/s movement heard on Monavale road. Bird calls in a distance. Some other machine use from other site.

Table 4.1 - Background Noise Results Day Time Noise Monitoring 12/04/2013					
Location*	**Start Time**	**Duration (mins)**	**L_{Aeq} dB(A)**	**L_{A90} dB(A)**	**Temp^{0}C**
Location 5	12.23	15	48.84	43.2	25.0
Observations **Onsite Noise:** Site Activities not audible as they were stopped. **Off Site Noise:** Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.					

Table 4.1 - Background Noise Results Day Time Noise Monitoring 13/04/2013					
Location*	**Start Time**	**Duration (mins)**	**L_{Aeq} dB(A)**	**L_{A90} dB(A)**	**Temp^{0}C**
Location 6	06.39	15	52.4	48.3	10.0
Observations **Onsite Noise:** Site Activities not audible as they were stopped. **Off Site Noise:** Traffic on Monavale Road is the very dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.					

Table 4.1 - Background Noise Results Day Time Noise Monitoring 13/04/2013					
Location*	**Start Time**	**Duration (mins)**	**L_{Aeq} dB(A)**	**L_{A90} dB(A)**	**Temp^{0}C**
Location 7	06.55	15	50.3	46.1	10.0
Observations **Onsite Noise:** Site Activities not audible as they were stopped. **Off Site Noise:** Traffic on Monavale Road is the very dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.					

Table 4.1 - Background Noise Results Day Time Noise Monitoring 13/04/2013					
Location*	**Start Time**	**Duration (mins)**	**L_{Aeq} dB(A)**	**L_{A90} dB(A)**	**Temp^{0}C**
Location 8	07.14	15	54.85	49.6	11.0
Observations **Onsite Noise:** Site Activities not audible as they were stopped. **Off Site Noise:** Traffic on Monavale Road is the very dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.					

Table 4.1 - Background Noise Results Day Time Noise Monitoring 13/04/2013					
Location*	**Start Time**	**Duration (mins)**	**L_{Aeq} dB(A)**	**L_{A90} dB(A)**	**Temp^{0}C**
Location 5	07.38	15	48.4	43.6	11.0
Observations **Onsite Noise:** Site Activities not audible as they were stopped. **Off Site Noise:** Traffic on Monavale Road is the very dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.					

\

Table 4.2 - Background Noise Results Day Time Noise Monitoring 13/04/2013					
Location*	**Start Time**	**Duration (mins)**	**L_{Aeq} dB(A)**	**L_{A90} dB(A)**	**Temp^{0}C**
Location 9 Addison Street right opposite the entrance to 13 Addison Street, Ingleside on the road at entrance	08.08	06	53.33	45.8	14.0
Observations **Onsite Noise:** Site Activities inaudible. **Off Site Noise:** Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.					

Table 4.2 - Operational Noise Results
Day Time Noise Monitoring
12/04/2013

Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)	Temp^{0}C
Location 3	13.14	15	55.93	50.2	25.0

Observations
Onsite Noise: Site Activities audible. Dumper truck and one large excavator machines working. Another truck
came into the site and also a double cab came into the site.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.

Observations
Onsite Noise: Site Activities audible. Large excavator machine and trucks working. One double cab vehicle left the site at approximately 13.43. Two trucks left with their loads around approximately 13.50.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance.

Table 4.2 - Operational Noise Results
Day Time Noise Monitoring
12/04/2013

Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)
Location 8	13.38	15	50.91	42.0

Observations
Onsite Noise: Site Activities audible. Dumper truck and one large excavator machines working.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. Bird
calls in a distance.

Table 4.2 - Operational Noise Results
Day Time Noise Monitoring
12/04/2013

Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)	Temp^{0}C
Location 5	14.04	15	43.78	38.8	26.0

Observations
Onsite Noise: Site Activities audible. Dumper truck and one large excavator machines working. Another Is being loaded.

Off Site Noise: Traffic on Monavale Road is the dominant noise. Includes trucks, cars and other vehicles. calls in a distance.

Table 4.2 - Operational Noise Results Day Time Noise Monitoring 12/04/2013					
Location*	Start Time	Duration (mins)	L_{Aeq} dB(A)	L_{A90} dB(A)	Temp^{0}C
Location 8	16.27	15	51.98	46.4	25.0
Observations; **Onsite Noise:** Site Activities audible. Banging noise from excavator picking up and dropping metal objects. **Off Site Noise:** Traffic on Monavale Road is a dominant noise. Includes trucks, cars and other vehicles. Bird calls in a distance. Noisy truck was running on the Monavale Road.					

* ***Locations described in section 2.0 and also see Plan attached under Appendix A***

6 CONCLUSIONS

Average Background level = 43.45 dB.
Intrusiveness Criteria = 48.45 dB.
Amenity Criteria = for Suburban areas 55dB acceptable level. 60 dB
Recommended
(Acceptable Noise Level) Maximum for daytime operations.

Noise created by the activities of the depot did not significantly elevate the background levels of noise at measured locations. All measurements taken complied with the amenity criteria given above although at the northern boundary the intrusive criteria were exceeded (Most probably due to this boundary being fairly close to the noise producing area of the depot).

Estimated noise exposure level into 60 meters from the northern boundary into 13 Addison Street property was comparable to normal background noise levels in the area and it is very unlikely that noise created at the depot will elevate the noise levels inside or closer to the house situated at 13, Addison Street, Ingleburn, but it may receive elevated noise from other sources nearby.

The noise created due to the operation of heavy machinery and vehicles inside the depot were acceptable and were in line with regards to the Amenity criteria given in the NSW Industrial Noise Policy – 2010 for a day time operation.

7 DISCUSSION OF NOISE RESULTS

As indicated the background measurements L_{A90} obtained were considerably high due to constant flowing of traffic on the Monavale Road which is a main road. $L_{eq\ ambient}$ readings also reflect the same, and although some other industries exist in the area, most of the audible continuous hum is largely due to the traffic on the Monavale Road. One of the background $L_{eq\ ambient}$ reading obtained was 62.41 dB at the North western boundary which was probably due to heavy traffic possibly a larger vehicle/s movement or due to some extraneous noise from another nearby business.

In order to investigate the complaint the noise levels at the closest point to the property at 13 Addison Street on the northern boundary of the Depot were verified. As this was the closest point falling on a direct straight line from the middle of the noise producing area of the site towards No 13 Addison Street, two noise readings and background readings were obtained. As indicated in the results, the background was 49.6 dB for L_{A90} and 54.85 for $L_{eq\ ambient}$.

With the machines being operated at peak level the noise readings obtained at this point were 50.91dB and 51.98dB respectively. No 13 Addison Street property is situated approximately more than 100 meters away from the closest point on a direct line drawn from the noise creating area of the site to this property. Calculations were done to obtain possible exposure figures at 80 and 60 meters away from this point at the northern boundary. The calculated possible exposure levels were 42.4 dB and 39.9 dB respectively for the two readings obtained assuming that the noise generation area could be taken as a point source due to that being a small area and taking into account the large distance between the depot and the affected house. The above calculated figures are in line with the background reading taken in front of 13 Addison Street near the entrance to the driveway on the road, which was 45.8 dB. Therefore it can be concluded that the effect of noise created at 80m from the noise sources inside the property (approx; 60 meters away from the northern boundary of the depot) is comparable to the background noise levels observed at that distance which is largely due to the traffic noise. The noise levels inside the house, if measured should be much less than the above two readings as the actual distance from the source to the receiver is likely to be more than 80 meters.

It is also important to take into account the topography of the site. Towards the Addison Street it is a steep climb from the western border of the property. Towards No 13, Addison Street is also a similar climb and is situated uphill from the depot. No13 Addison street property is well shielded by the embankment from the noise producing area of the depot. Most of the sound waves should get absorb into this rock faces and/ or reflect over it and should be travelling towards opposite direction towards south side, away from the property concerned.

Intrusive or tonal noise produced during the survey were of very short term (less than 5 mins) and the levels observed were below the accepted levels for a suburban zone (Council classifies the site as belonging to a "non-urban zone" - given on the council web site). Therefore the zone was taken as "suburban" as described in the NSW Industrial Noise Policy – 2010. Amenity criteria used from Table 2.1 of the NSW Industrial Noise Policy – 2010 for Suburban daytime ANL – Acceptable Noise Level - is 55 dB and the recommended maximum is 60 dB.

It is also important to note that one of the background measurements had L_{eq} ambient 62.1dB. This may have been due to some extraneous noise created by a larger truck/s on Monavale Road or from the other similar industries that exist west and north of 13 Addison Street property. It is suspected that the complaint may have been based largely on such other noise created by other industries which are said to be surrounding No 13 Addison Street, Ingleside, NSW. According to the data obtained, based on the activities that occurred on the day of the monitoring, any contribution of noise from this depot has to be extremely minute at 13 Addison Street, taking into account the topography and shielding it provides towards the property concerned, and the large distance that exist between the sources of noise at the depot and the property said to have been affected (This distance is said to be more than 100m).

8 RECOMMENDATIONS

As Australian Safer Environment Pty Ltd had no access to the affected property, the measurements could only be carried out at the northern boundary of the depot which was the closest point to the noise creating area of the depot. Actual measurements at the property concerned should be carried out if further investigations are required so that actual exposure levels could be ascertained.

9 NOISE MONITORING LOCATIONS - MAP

The map indicating noise monitoring locations is attached under **Appendix A** at the rear of this report.

Appendix – A
Noise Monitoring Locations