

Friday 26 May 2017

Elf Farm Supplies Pty Ltd
Compaction and Soil Testing Services P/L
1/78 Owen Street
GLENDENNING NSW 2761

Our Reference 160787-03-04L-CF

For the attention of Mr Tete Awotedu

**Construction Noise Monitoring
Mulgrave Substrate Plant
108 Mulgrave Road, Mulgrave**

1.0 INTRODUCTION

Acoustic Consulting Engineers Pty Ltd was engaged by Elf Farm Supplies Pty Ltd to conduct a site attended construction noise audit for the construction activities associated with the upgrade works for the existing Mulgrave Substrate Plant.

The purpose of the attended audit was to assess noise emissions from construction activities with reference to the 'Construction Noise & Vibration Management Plant. Substrate Plant. Mulgrave' Report No. 46.6411.CNVMP_MUL:GD/DT/CF/2016 Rev07 prepared by Atkins Acoustics and compliance with Schedule 3 - Condition 18 of the Project Approval No. 08_0255 that states:

Construction Noise Criteria

18. The Proponent shall ensure that the construction noise generated at the Substrate Plant site does not exceed the criteria in Table 1.

Table 1: Construction Noise impact assessment criteria dB(A)

Receiver/Location	Day
	L _{Aeq} (15 minute)
R1 – 46 Mulgrave Road, Mulgrave	52
R2 – Mulgrave Industrial area	65
R3 – 2 Railway Road, Mulgrave	52
R4 – 126 Mulgrave Road, Mulgrave	52
R5 – Chisholm Place, South Windsor	51

Notes:

- Noise generated by the Project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

In addition the monitoring was to investigate noise levels at Chisholm Place following receipt of a noise complaint on 12 May 2017 by Elf Farm Supplies relating to concrete pouring activities.

2.0 SITE ATTENDED NOISE AUDIT

This report presents the results and findings of site attended noise audits conducted from approximately 10.00am to 1.45pm on Thursday 25 May 2017. Weather conditions during the audits were clear, dry and calm with occasional very light breeze from the north-east, east and south-east. The site attended noise measurements were conducted at five (5) reference residential receivers identified outlined in Project Approval No. 08_0255 as follows:

- R1** 46 Mulgrave Road (north)
- R2** Mulgrave Industrial Area (east)
- R3** 2 Railway Road (south-east)
- R4** 126 Mulgrave Road (south-east)
- R5** Chisholm Place (west)

The reference receiver locations are identified in *Figure 1*.

Figure 1: Reference Receiver Locations



Measurement instrumentation consisted of a Type 1 SVAN959 sound and vibration analyser and a Type 1 GRAS 40-AE prepolarised condenser microphone. The instrumentation was checked before and after the measurements with a SVAN SV30A acoustic calibrator and no drift in calibration was detected.

Measurements at each reference receiver location were conducted over two (2) fifteen (15) minute periods, instantaneous noise levels observed during the audit where appropriate were used to assess source noise contributions from construction activities.

At the time of the audit construction activities comprised of 3-5t excavator, scissor lifts, compressor, concrete trucks, concrete pump and crane with boom, and agitators for concrete pour. In addition there was occasional use of hand tools.

Construction noise from the upgrade works associated with the Mulgrave Substrate Plant were not audible at measurement locations R1, R2 and R3.

Construction activities associated with the use of hand tools and agitators were occasionally audible at measurement location R4. Whilst the scissor lifts, compressor, concrete trucks, concrete pump and crane with boom and agitators were audible at measurement location R5.

Table 1 provides a summary of the site observations and *Table 2* the measurement results and estimated noise from construction activities. It should be noted that the measured 15-minute statistical levels presented in *Table 2* are for information only and not due to construction activities.

Table 1 Site Observations

Location	Observation
R1	Construction noise from Mulgrave Substrate Plant inaudible. Noise environment controlled by local and distant road traffic, construction activities at measurement location, chickens, birds, planes, dog
R2	Construction noise from Mulgrave Substrate Plant inaudible. Noise environment controlled by local and distant road traffic, local industrial activities, birds, plane, train
R3	Construction noise from Mulgrave Substrate Plant inaudible. Noise environment controlled by local and distant road traffic, trains, birds, planes, level crossing
R4	Construction noise from Mulgrave Substrate Plant associated with hand tools and low level motor noise occasionally audible. Noise environment influences by distant road traffic, trains, birds, and plant in shed at measurement location
R5	Construction noise from Mulgrave Substrate Plant associated with scissor lifts, compressor, concrete trucks, concrete pump and crane with boom and agitators were audible. Noise environment also influenced by local road traffic, trains, planes, birds, chickens and dogs (5 Chisholm Place) and motorbike

Table 2 Noise Audit Measurement Results

Location	15-min Statistical Noise Levels (dB(A))			Estimated Construction Noise Contribution $L_{Aeq,15min}$	Construction Noise Limit $L_{Aeq,15min}$	Compliance
	L_{Aeq}	L_{A10}	L_{A90}			
R1	59.0	63.6	47.3	<37	52	√
	63.6	65.6	50.8			
R2	65.8	67.9	51.9	<42	65	√
	63.3	66.8	52.5			
R3	56.5	57.1	46.0	<36	52	√
	58.6	57.7	46.5			
R4	47.6	49.4	42.5	<43	52	√
	45.1	47.1	41.2			
R5	48.2	49.0	40.0	<46	51	√
	50.3	49.9	41.9			

It is noted that the instantaneous maximum noise levels (SPL) from the use of concrete agitators may approach or marginally exceed the noise limit at R5 (Chisholm Place), however this noise source is present for no more than five (5) minutes in any fifteen (15) minute assessment period and hence $L_{Aeq,15min}$ noise level is up to 5dB lower than the measured SPL. Accordingly although these activities are clearly audible at Chisholm Place and resulted in generation of a noise complaint, the construction noise levels comply with noise limits for construction activities.

The results of site attended measurements confirmed that $L_{Aeq,15min}$ noise levels from construction activities associated with the upgrade of the Mulgrave Substrate Plant satisfied the project noise goals in accordance with Schedule 3 -Condition 18 of Project Approval No. 08_0255.

Additional near-field audits were conducted at the construction site with reference levels recorded at seven (7) metres from the mobile compressor and the combined activity of concrete truck, pump, crane, boom and hand held agitator. *Table 3* presents the measured sound pressure levels and resultant sound power levels.

Table 3 Octave 1/1 Band Levels of Construction Activities (dB(A))

Noise Source	Frequency (Hz)									dB(A)
	31.5	63	125	250	500	1k	2k	4k	8k	
Mobile Compressor (SPL@7m)	86	93	75	70	68	66	62	56	54	71
Mobile Compressor (Lw@7m)	111	118	100	95	93	91	86	81	79	96
Concrete truck, pump, crane, boom, agitator (SPL@7m)	80	78	73	78	76	74	67	61	51	77
Concrete truck, pump, crane, boom, agitator (Lw@7m)	105	103	98	103	101	99	92	86	76	102

A review of the above audit measurements of construction activities confirm noise levels in accordance with the EA Noise Assessment for assessment of construction activities.

We trust the information in this letter is satisfactory. Please do not hesitate to contact our office should further information or clarification be required.

Yours sincerely,



Carl Fokkema
Senior Acoustic Engineer
Acoustic Consulting Engineers Pty Ltd