Noise Impact Assessment Report

Undertaken at:

Trans Waste Recycling Ltd
Gibson Lane
North Ferriby
Hull

Site Work Date:	21st – 25th July 2019
Report Number:	OH19-07-031
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SUMMARY

Trans Waste Recycling Ltd has been operating for a number of years at their site at Gibson Lane, North Ferriby in Hull. The site is in a predominantly commercial area and there are residential areas to the north of the site. An ambient noise survey was carried out in October 2018 and this current survey was undertaken to assess if there have been any changes.

The company approached AirTech and Dr H S Sagoo – an experienced independent Noise and Vibration Consultant – to undertake the noise survey and prepare the requisite noise assessment.

Trans Waste is located in Gibson Lane in North Ferriby, about 10km west of Hull. The site is about 130m south of the railway line, and approximately 900m south of the A63 dual carriageway. There are many commercial and industrial premises along Gibson Lane between the railway and the River Humber shore. It is understood that there is a generator on the adjacent site and there is a depot for a supermarket chain nearby.

The nearest noise sensitive receptors are bungalows along Gibson Lane immediately north of the old garden centre and about 250m away from the entrance to the waste site. There are houses just north of the roundabout of Gibson Lane and Monks Way and these are about 650m away.

An earlier noise survey was undertaken in October 2018 to determine the noise impact on nearest noise sensitive receptors. Results of that survey concluded that an assessment in accordance with the BS4142 showed that the rating noise level caused by the dumpers and shovels operating in the yard exceeded the lowest measured ambient L_{A90} level at the time by 2 dB at the nearest residential dwellings. In accordance with BS4142, a difference of +5 dB could be an indication of a significant adverse impact, depending on the context. An impact of +2 dB, in the context of this area close to Gibson Lane which is predominantly industrial/commercial, is not likely to cause an adverse impact.

In accordance with the NPPF guidelines, the local council should recognise that existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them. Consequently, in the context of varying ambient noise levels due to various sources of noise in this predominantly industrial area, the council should not object to 24-hour working at the waste recycling site.

The aim of this noise survey is to assess any changes in the ambient noise levels. So, the survey is repeated following the same methodology including the same monitoring positions where possible. This ambient noise survey was undertaken from Sunday afternoon commencing around 17:00 hrs on 21st July 2019 until 17:00 hrs on the following Thursday.

The findings show; at Location 1, Latus office boundary close to 100 Gibson Lane, noise levels for 16-hr L_{Aeq} average for daytime were generally lower in July 2019. At night-time, noise levels show on average an increase of just more than 1.5 dB 8-hr L_{Aeq}. At Location 2, Biz Hub, noise levels show similar trend to Location 1, Latus office, i.e. daytime noise levels are lower in July 2019 and night-time levels are slightly higher. Perhaps the night-time works has increased but this cannot be confirmed. Noise levels on Trans Waste site are not directly comparable as the measurement locations were different, and in terms of noise impact on residential dwelling, noise levels on site are immaterial.

In conclusion, the present noise survey has shown that there are no significant changes in the ambient noise levels close to the residential areas along Gibson Lane.

CONTENTS

1. INTRODUCTION

Trans Waste Recycling Ltd has been operating for several years at their site at Gibson Lane, North Ferriby in Hull. The site is in a predominantly commercial area and there are residential areas to the north of the site. An ambient noise survey was carried out in October 2018 and this current survey was undertaken to assess if there have been any changes.

The company approached AirTech and Dr H S Sagoo – an experienced independent Noise and Vibration Consultant – to undertake the noise survey and prepare the requisite noise assessment.

The purpose of this report is to describe the site, the nearest residential areas, brief details of the operations and outline the assessment methodology including the findings of the noise survey, assessment of the noise impact in accordance with the appropriate national guidance, and finally, recommend noise mitigation measures as necessary.

2. DESCRIPTION OF THE SITE

Trans Waste Recycling Ltd is located in Gibson Lane in North Ferriby, about 10km west of Hull. The site is about 130m south of the railway line which has a level crossing for Gibson Lane, and approximately 900m south of the A63 dual carriageway. See map in Figure 1.

There are many commercial and industrial premises along and accessed off Gibson Lane between the railway and the River Humber shore. It is understood that there is a generator on the adjacent site and there is a depot for a supermarket chain nearby.

The nearest noise sensitive receptors are bungalows along Gibson Lane immediately north of new office building on the site of the old garden centre. These are about 250m away from the entrance to the Trans Waste site. There are houses just north of the roundabout of Gibson Lane and Monks Way at the head of Meltonwest Business Park and Biz Hub, these are about 650m away from Trans Waste site.

During the site visit, it was clear that Gibson Lane is very busy with heavy vehicles during the day. There are car and van movements during night-time along Gibson Lane which are not connected with Trans Waste site.

Trans Waste Recycling

It is understood that waste recycling has been operational at this site for a long time under different owners. Trans Waste is involved with sorting and recycling of all sorts of waste: clothes and fabric, plastic, timber, metal, etc.

Numerous HGVs arrive to deliver the waste and a large number takes out the sorted materials. The input waste comes from various sources including council, private companies and highway authorities by lorries and council waste wagons. The sorted waste is transported out of the site by lorries.

The site has a couple of large sheds that are equipped with conveyors with a mixture of automatic and attended sorting stations. See layout of premises in Figure 2. The site has several large shovels and dumpers to move material around the large site.

3. OBJECTIVE

It is understood that this waste transfer site already operates 24-hours. An ambient noise survey close to nearest residential properties to the waste site was carried out in October 2018 with findings summarised in our report 219/Rep 1/Rev 0/Oct 2018.

The objective of this repeat noise survey was to assess if there had been any changes in the ambient noise levels.

4. NOISE CRITERIA

National Planning Policy Framework and National Planning Practice Guidance

The National Planning Policy Framework (NPPF) was published on 27 March 2012. This is a key part of the Governments reforms to make the planning system less complex and more accessible, and to promote sustainable growth.

The NPPF states that 'good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people'. The NPPF retains a presumption in favour of sustainable development. This applies unless any adverse impacts of a development would 'significantly and demonstrably' outweigh the benefits.

As regards noise impacts the NPPF states in paragraph 123:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of the new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life from noise from new development, including through use of Conditions;
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
- Identify and protect areas of tranquility which have remained relative undisturbed by noise and are prized for their recreational and amenity value for this reason.

Industrial noise

British Standard 4142[1] gives guidance on measurement and assessment of industrial and commercial sound on nearby residents and to determine whether this is likely to give rise to

[1] British Standard 4142:2014 'Method for rating and assessing industrial and commercial sound'.

complaints.

In essence, the noise level and the character of noise caused by the specific source, called the rating level, is measured and rated against the measured ambient background noise level during the period of operation. The greater this difference the greater is the magnitude of the impact, as given in the table below. This standard states the reference time interval is 1 hr during the day, 07:00 to 23:00 hrs, and 15 minute during the night.

Difference in dB	Comment
+10 dB or more	Likely to be an indication that a significant adverse impact, depending on the context;
+5 dB	Could be an indication that a significant adverse impact, depending on the context;
The lower the rating level is relative to the measured background level	The less likely it is that there will be an adverse impact.

Table 1 BS 4142 Assessment Criteria

Acoustic Features

This standard allows a correction of up to 6 dB that can be added for source noises with a *"tone, whine, hiss, screech, hum, roar or other distinctive feature"*. In addition, a correction of up to 9 dB can be added for *"distinct impulses"* such as *"bangs, clicks, clatters or thumps"*. Their application depends upon the soundscape/context of the area.

5. NOISE MEASUREMENTS

Measurement methodology

The earlier noise survey was undertaken to determine the noise impact on nearest noise sensitive receptors, the basic principles of BS4142 were followed and these required measurement of the lowest background noise level in the absence of source noise together with the source noise during the period of operation, particular at night-time. The findings were summarised in the earlier report.

The aim of this noise survey is to assess any changes in the ambient noise levels. So, the survey is repeated following the same methodology including the same monitoring positions where possible.

Noise measurements

This ambient noise survey was undertaken from Sunday afternoon commencing just before 17:00 hrs on 21st July 2019 until 17:00 hrs on the following Thursday. Noise was measured at three locations as before. The on-site measurement location was moved away from the

weighbridge as the earlier findings showed too many extraneous vehicular movements. The revised location is described below.

Noise measurements were undertaken at the following locations:

- Location 1. One noise monitor was installed on the railing at the site boundary with the nearest residential bungalow at 100 Gibson Lane just north of the old garden nursery (this is now replaced with a new office and a large driveway for parking). For the earlier survey the meter was about 15m from the edge of the road and same distance as the bungalow. See Photo 1. By July 2019, two large container units had been placed by the railing on the garden centre side, as a result, the monitor was moved to about 20m from the road edge. See Photo 1A.
- Location 2. The noise meter was installed on the railing at the entrance to Biz Hub adjacent to a semi-detached house in Gibson Lane. See Photo 2.
- Location 3. In October 2018, a meter was installed at the staff entrance to the site next to the weighbridge for HGVs entering the waste recycling site. See Photo 3. In July 2019, the monitor was installed on the north site boundary along the access route to the staff welfare unit. See Photo 3A.

Measurements included the equivalent continuous noise level L_{Aeq}, the background noise level L_{A90}, the maximum level L_{Amax} and L_{A10} together with third octave frequency spectra and measurements were stored every 1 second. The noise monitors were set to record noise levels every second so as identify any peak events during the operation of the fans. Explanation of acoustical terminology is given in Appendix 1.

The weather in October 2018 was dry and sunny but cold. On 21st July 2019, the weather was sunny and warm with a south-westerly breeze of 1.6 m/s average with 4.4 m/s gusts. At collection of measuring equipment on Thursday the weather was dry and sunny with north-easterly wind 0.7 m/s average and 1.6 m/s maximum.

6. INSTRUMENTATION

Noise measurements were taken using three 01dB Solo Type 1 integrating sound level meters (serial no. 10485, 11649 and 60354) each fitted with a ½ inch microphone. These were calibrated using a 01dB Calibrator (serial no. 130366) in accordance with the manufacturer's instructions before and after the measurements, and no drift in calibration level was observed and were set-up to record the one third octave frequency spectra of the ambient noise.

The measurements were free-field and the microphones were mounted on secure tri-pod approximately 1.8 m above local ground. All measurements were conducted in accordance with the guidelines given in BS4142.

7. NOISE MEASUREMENT RESULTS

Measurement results

The time histories of the three measurements are given in Figure 3 for survey in October 2018 and Figure 3A for the present survey. The hourly averages are given in Appendix 3. The survey in October 2018 was over a period of 3 days and the repeat survey is over 4 days. The shortfall is filled by copying a whole days data to match; this is self-evident from the summary of the measurement results given in Appendix 3. The measured levels are directly comparable for Locations 1 and 2 but not for Location 3, onsite at Trans Waste, because the positions varied.
The results in Table 2 are average of the hourly values for 16-hr daytime and 8-hr night-time periods.

Day or night	Location 1: Latus office	Location 2: Entrance to Biz Hub	Location 3: on Trans Waste site
	Difference in noise levels of July 2019 and Oct 2018		
16-hr Daytime			
Sunday after 17:00 hrs	2.0	-1.2	4.1
Monday	-0.3	-2.0	-2.6
Tuesday	-0.6	-1.3	-0.2
Wednesday	-2.2	-1.8	-1.9
Thursday till 17:00 hrs	-2.3	-0.7	-4.6
8-hr Night-time			
Sunday	2.7	0.7	1.5
Monday	-0.3	-0.4	1.5
Tuesday	2.9	2.2	5.6
Wednesday	1.0	1.5	2.2

All noise levels are in dB

Table 2 Summary of changes in noise levels

8. FINDINGS OF THE NOISE SURVEY IN OCTOBER 2018

Ambient background noise levels

The ambient noise levels clearly vary from hour to hour and day to day and are influenced by weather including wind speed and direction. Therefore, it is difficult to compare the levels over a short-term survey and limited by the duration of the earlier survey.

BS4142 assessment

The results of the survey in October 2018 concluded that an assessment in accordance with the BS4142 showed that the rating noise level caused by the dumpers and shovels operating in the yard exceeds the lowest measured ambient L_{A90} level at the time by 2 dB at the nearest residential dwellings.

In accordance with BS4142, a difference of +5 dB could be an indication of a significant adverse impact, depending on the context. With an impact of +2 dB, in the context of this area close to Gibson Lane which is predominantly industrial/commercial, it is considered that use of the dumper/shovel are not likely to cause an adverse impact.

Planning matters

In accordance with the NPPF guidelines, the local council should recognise that existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them. Consequently, in the context of varying ambient noise levels due to various sources of noise in this predominantly industrial area, the council should approve the 24-hour working at the waste recycling site.

9. COMPARISON OF THE TWO NOISE SURVEYS

Ambient background noise levels

Full listing of the measurements for the three locations is given in Appendix 3 and the 16-hr daytime and 8-hr night-time averages are given in Table 2.

Results show that in the absence of any plant operating in the open yard at Trans Waste site the ambient background noise levels measured in October 2018 were in mid-40's dB and low-40's dB L_{A90} close to 100 Gibson Lane and houses close to Biz Hub, respectively. The present survey indicates a slight increase close to 100 Gibson Lane but not at Biz Hub.

At Location 1, Latus office boundary close to 100 Gibson Lane, noise levels for 16-hr L_{Aeq} average for daytime were generally lower in July 2019. At night-time, noise levels show on average an increase of just more than 1.5 dB 8-hr L_{Aeq}. The increase was due to consistent activity on Sunday night whereas on Tuesday night the increase was due a loud one-time impact/activity. In fact, some activity at 03:00 hrs on Wednesday, 24th July, caused a significant impact. This appears to be close to Locations 1 and 2, where the monitors had registered, but this impact was not registered at Location 3, on Trans Waste site. As a result, this activity may not be related to Trans Waste. It is noted that noise levels seem to start

increasing earlier before dawn, i.e. from about 04:00 hrs. So, perhaps night-time works has increased at Trans Waste, but this cannot be confirmed.

At Location 2, Biz Hub, noise levels show similar trend to Location 1, Latus office: daytime noise levels are lower in July 2019 and night-time levels are slightly higher – the increase on Tuesday night is due to a loud one-time activity.

The noise levels on Trans Waste site are not directly comparable as the measurement locations were different, and in terms of noise impact on residential dwelling, noise levels on site are immaterial.

10. MITIGATION MEASURES

For the noise survey in October 2018, it was found that no adverse noise impact was likely through the use of shovels/dumpers, and no mitigation measures were necessary.

The present noise survey has shown that there are no significant changes in the ambient noise levels close to the residential areas along Gibson Lane.

There are so many commercial premises and activities close to Gibson Lane and each operates at different time frames, and to isolate noises from activities at Trans Waste site is difficult. Therefore, it is recommended that future noise surveys be fully attended to help ascertain the major sources of noise particularly at night-time.

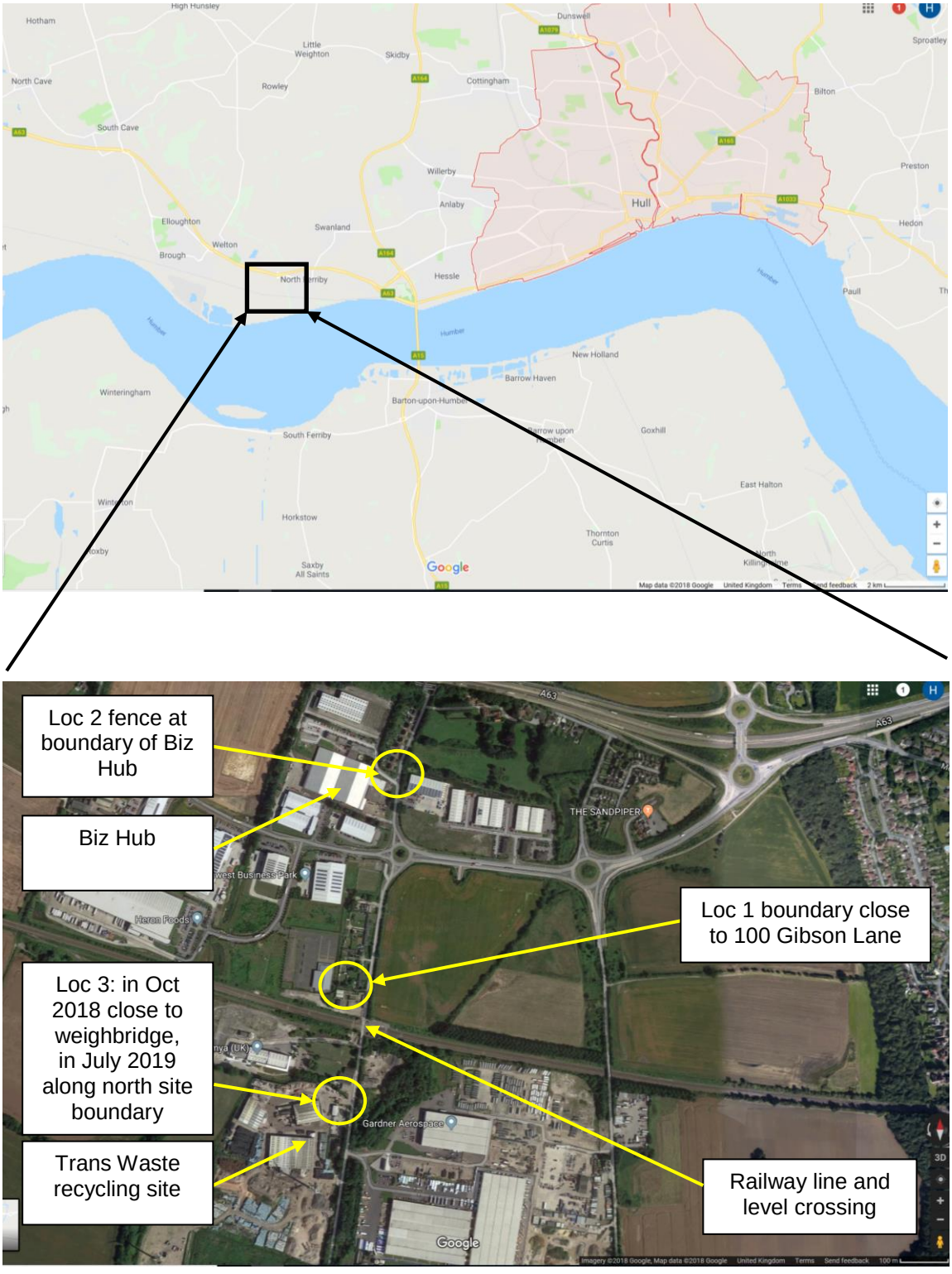


Figure 1 Map of Trans Waste Recycling site west of Hull and measurement locations

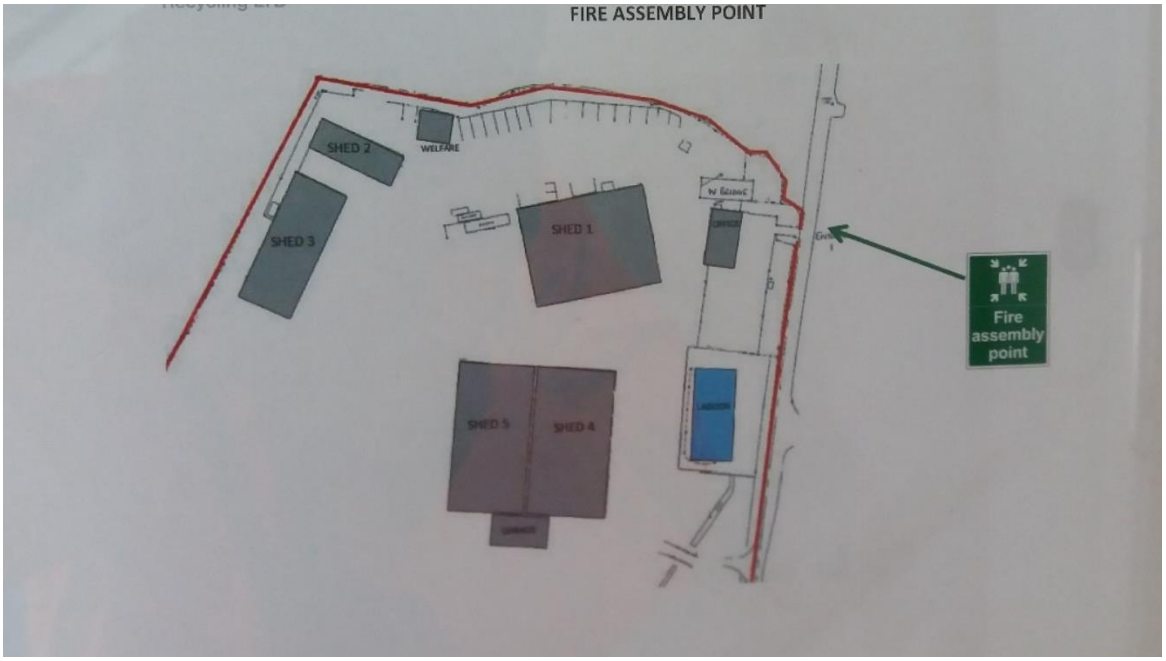
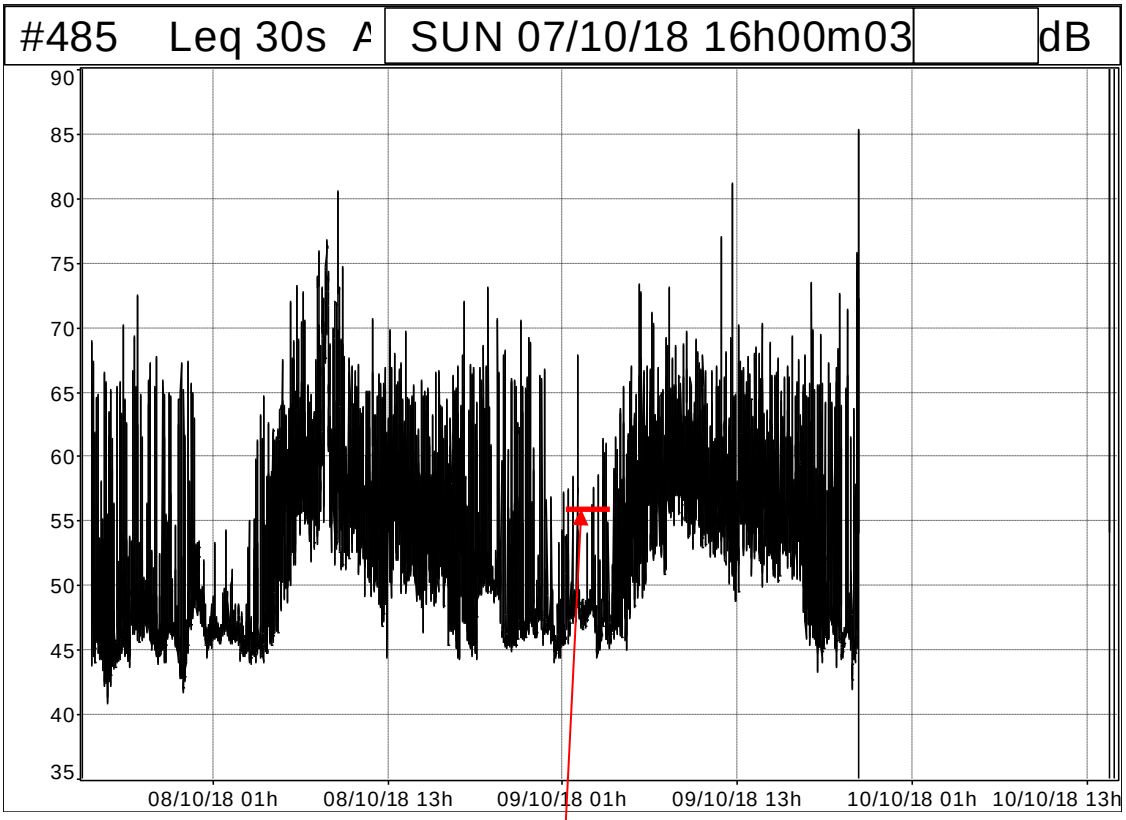
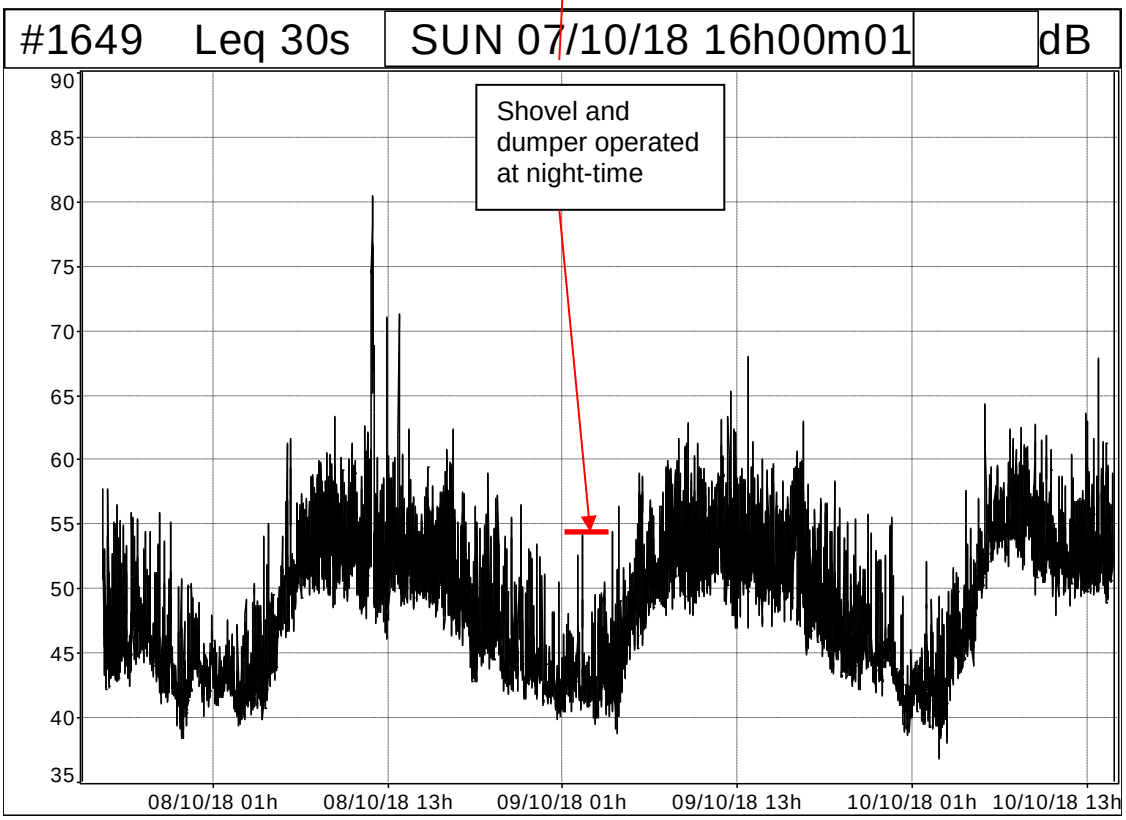


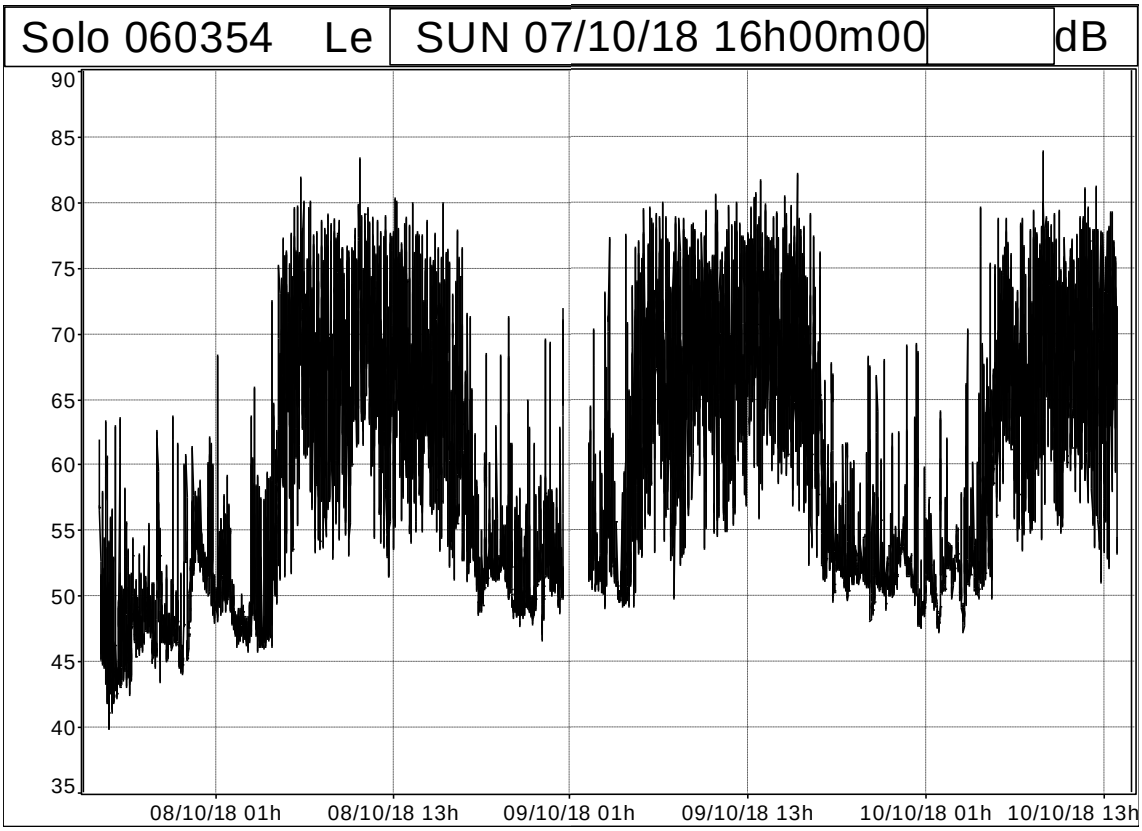
Figure 2 Layout of Trans Waste recycling site



Location 1 Boundary close to 100 Gibson Lane

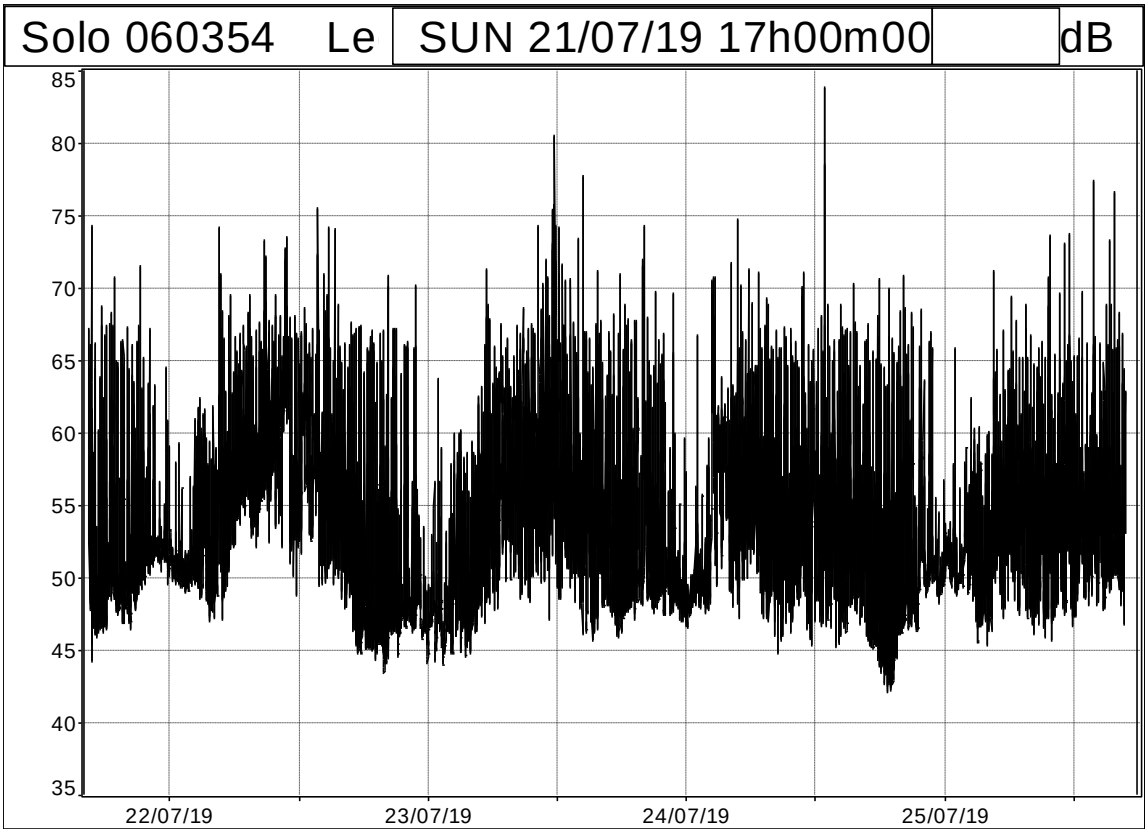


Location 2 Entrance to Biz Hub next to house

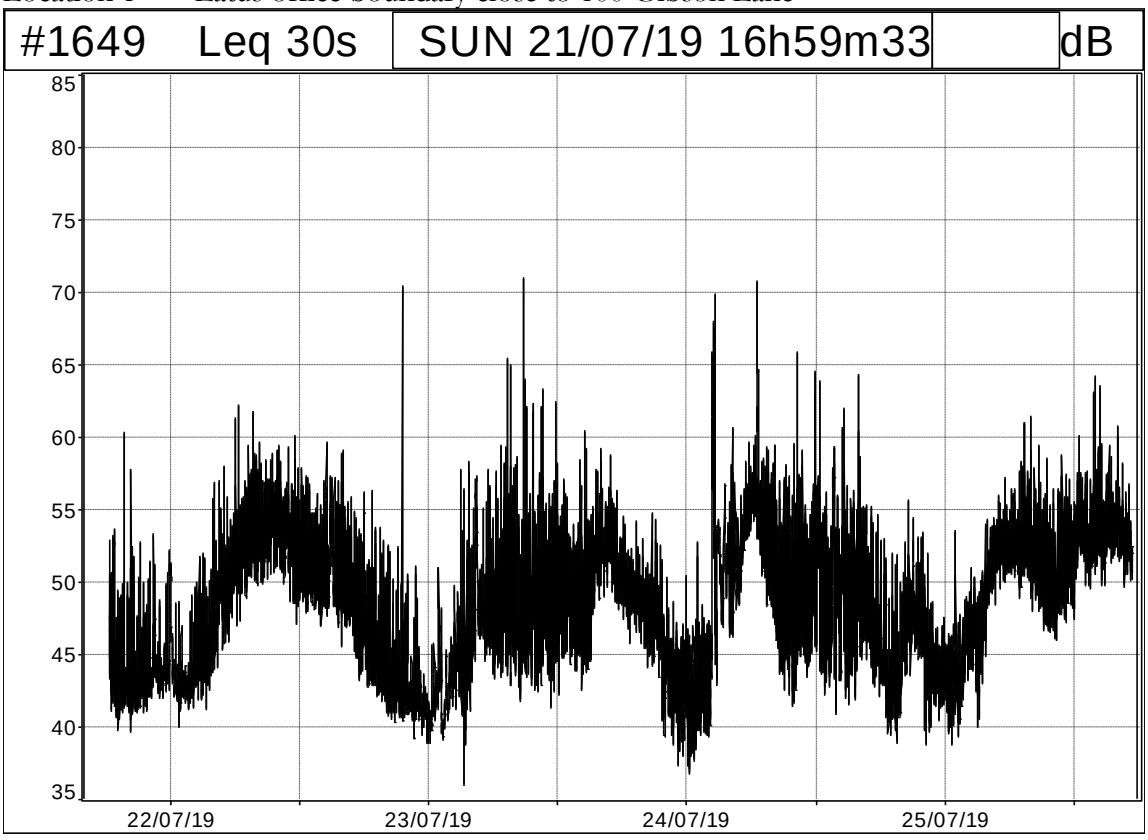


Location 3 On recycling site close to weighbridge

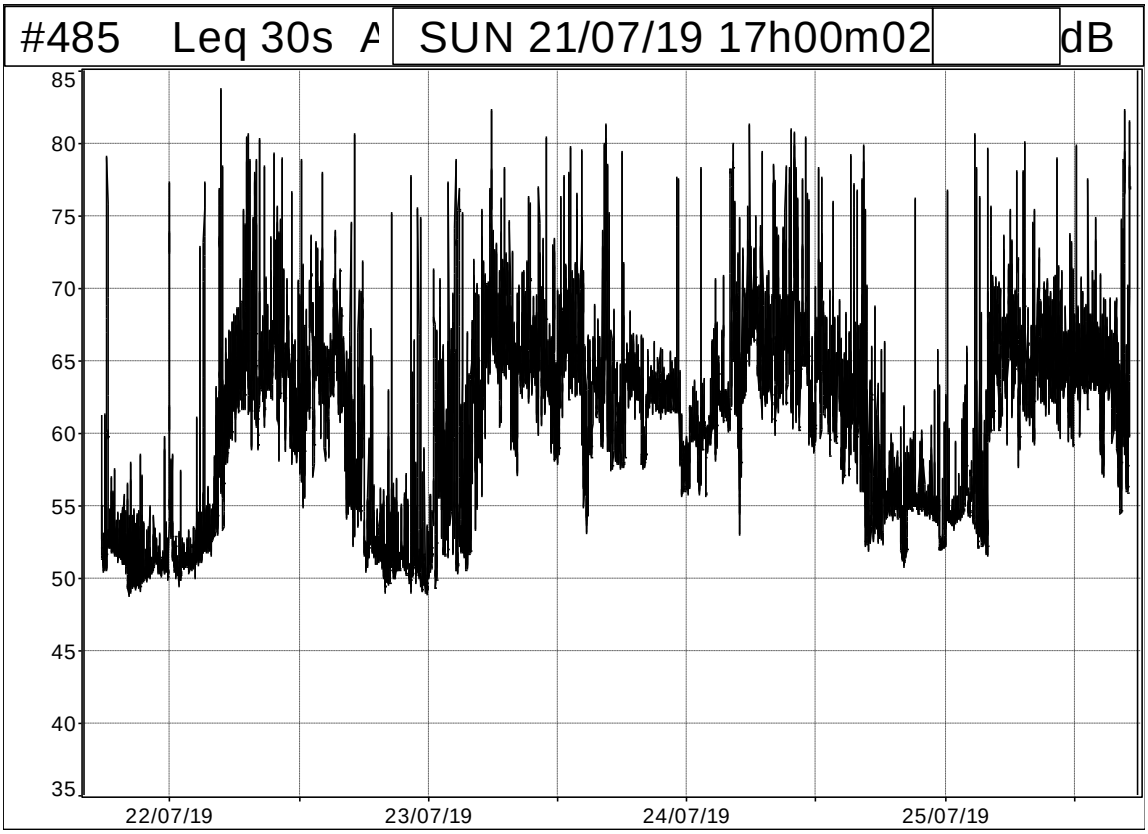
FIGURE 3 Measurement time histories at three locations in October 2018



Location 1 Latus office boundary close to 100 Gibson Lane



Location 2 Entrance to Biz Hub next to house



Location 3 On recycling site along north boundary

FIGURE 3A Measurement time histories at three locations in July 2019

Appendix 1 Acoustic Terminology

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Perception of sound. Sound is a rapid fluctuation in air pressure. The human ear can hear sensations of sound when the fluctuations occur between 20 times a second and 20,000 times a second. This is called the frequency of the sound and is measured in Hertz (Hz). The loudness of the sound depends on the amplitude of fluctuation in the air pressure. The ear has an approximately logarithmic response to the loudness of sound: for example, every doubling or halving in sound pressure gives an apparently equal step increase or decrease. In measuring environmental noise, sound pressure levels are therefore usually quoted in terms of a logarithmic unit known as a decibel (dB). Typically, the quietest sound that can be heard (the threshold of hearing) is 0 dB and the sound becomes painful at 120 dB. The sensitivity and frequency range of the ear varies somewhat from person to person and deteriorates with age and exposure to loud sounds

"A" Weighting. The human ear is not equally sensitive to sounds of different frequencies (i.e. pitch): it tends to be more sensitive in the frequency range of the human voice than at higher or lower frequencies. When measuring sound, compensation for these effects can be made by applying a frequency weighting, usually the so-called "A" weighting, although other weightings are sometimes used for special purposes. To signify that the "A" weighting has been applied, the symbol of dB(A) is often used. However, current practice tends to prefer the weighting letter to be included in the name of the measurement index, e.g. dB(A) L_{eq} and dB L_{Aeq} both refer to the "A" weighting equivalent continuous sound level in decibels.

$\mathbf{L_{AeqT}}$ is a unit that also takes into account fluctuations in sound pressure levels. This unit takes into account both steady and impulsive noises and is defined as the steady, continuous sound pressure level which contains the same energy as the actual, fluctuating sound pressure level. It is necessary to state the time period over which the sound is measured, e.g. $L_{Aeq,(12\text{-}hour)}$, typical in the case of daytime working and 5-minute for night-time.

$\mathbf{L_{A90}}$ is the level of A-weighted sound exceeded for 90% of the measurement period. It is generally used as a measure of the background noise in environment noise standards.

Appendix 2 Site Photographs

Photo 1 Measurement location 1 – site boundary close to 100 Gibson Lane

Photo 1A Location 1 – site boundary close to 100 Gibson Lane – July 2019

Photo 2 Measurement location 2 – entrance fence to Biz Hub next to house

Photo 2A Location 2 – entrance fence to Biz Hub next to house – July 2019

Photo 3 Measurement location 3 – at entrance to site near weighbridge

Photo 3A Location 3 – along north site boundary – July 2019

Appendix 3 Noise measurement results

All results are hourly averages and show measurements in Oct 2018 and July 2019

Table A3.1 Results of measurements at location 1 close to 100 Gibson Lane
Table A3.2 Results of measurements at location 2 house close to Biz Hub
Table A3.3 Results of measurements at location 3 on site

Location 1. Latus office (old garden centre)					Location 1. Latus office in October 2018					Difference			
Period start	Leq	Lmax	L90	L10	Period start	Leq	Lmax	L90	L10	Leq	Lmax	L90	L10
Sunday 21/07/2019 17:00	59.9	83.6	45.4	57.4	07/10/2018 17:00	54.6	74	42.3	53	5.3	9.6	3.1	4.4
21/07/2019 18:00	55.4	78.7	45.9	54.1	07/10/2018 18:00	54.4	76.8	43.6	50.6	1.0	1.9	2.3	3.5
21/07/2019 19:00	57.6	78.9	47.4	59.7	07/10/2018 19:00	56.3	78.2	44.7	51.7	1.3	0.7	2.7	8.0
21/07/2019 20:00	56	78.5	47.2	52.9	07/10/2018 20:00	54.2	73.3	45.3	50.2	1.8	5.2	1.9	2.7
21/07/2019 21:00	54.3	77.4	46.9	51.3	07/10/2018 21:00	54.1	73.6	44.2	48.9	0.2	3.8	2.7	2.4
21/07/2019 22:00	56.1	79	49.1	53.1	07/10/2018 22:00	53.6	74.9	42.9	48.2	2.5	4.1	6.2	4.9
								Average Leq		**2.0**			
21/07/2019 23:00	54.4	76.7	50.6	53	07/10/2018 23:00	53.8	74.9	43.5	51.6	0.6	1.8	7.1	1.4
22/07/2019 00:00	53	74.2	50.4	53	08/10/2018 00:00	47.9	57.8	45.2	49.5	5.1	16.4	5.2	3.5
22/07/2019 01:00	51.8	66.4	49.7	52.8	08/10/2018 01:00	47.2	60.1	45.5	48.3	4.6	6.3	4.2	4.5
22/07/2019 02:00	50.7	62.2	49	51.3	08/10/2018 02:00	46.8	56.9	44.9	47.9	3.9	5.3	4.1	3.4
22/07/2019 03:00	53.4	68.4	49.2	54.9	08/10/2018 03:00	47.3	65.8	44.1	46.6	6.1	2.6	5.1	8.3
22/07/2019 04:00	54.2	68.8	47.4	57	08/10/2018 04:00	52.2	70.5	44.4	52.1	2.0	-1.7	3.0	4.9
22/07/2019 05:00	59.6	82.8	48.2	60.3	08/10/2018 05:00	57.3	74.6	45.9	60.9	2.3	8.2	2.3	-0.6

22/07/2019 06:00	58	79.1	49.7	59.1	08/10/2018 06:00	61.4	79.5	50.4	64.2	-3.4	-0.4	-0.7	-5.1
Monday								**Average Leq**		**2.7**			
22/07/2019 07:00	59.8	77.9	53.1	61.8	08/10/2018 07:00	61.5	77	53.6	64.8	-1.7	0.9	-0.5	-3.0
22/07/2019 08:00	60.2	79	52.9	62.4	08/10/2018 08:00	69.8	78	54.1	74.6	-9.6	1.0	-1.2	-12.2
22/07/2019 09:00	61.9	81.4	53.1	63.4	08/10/2018 09:00	65.8	82.3	52.2	69	-3.9	-0.9	0.9	-5.6
22/07/2019 10:00	61.5	78.5	53.8	63.8	08/10/2018 10:00	59.7	74.9	51.7	62.6	1.8	3.6	2.1	1.2
22/07/2019 11:00	63.8	81.4	54.3	65.1	08/10/2018 11:00	59	73.1	50	62.6	4.8	8.3	4.3	2.5
22/07/2019 12:00	60.1	77.6	50.7	62.6	08/10/2018 12:00	58.1	73.4	47.5	61.2	2.0	4.2	3.2	1.4
22/07/2019 13:00	61.2	77.6	53.1	63	08/10/2018 13:00	60.8	74.8	49.8	64.3	0.4	2.8	3.3	-1.3
22/07/2019 14:00	61.9	89.2	51.8	62.6	08/10/2018 14:00	59.3	77	49.9	63.2	2.6	12.2	1.9	-0.6
22/07/2019 15:00	59.9	86.6	50	59.2	08/10/2018 15:00	57.6	72.6	48.5	60.5	2.3	14.0	1.5	-1.3
22/07/2019 16:00	58.9	84.6	49.7	59.3	08/10/2018 16:00	57.8	73.6	48.8	61.3	1.1	11.0	0.9	-2.0
22/07/2019 17:00	57.1	78.6	48.3	58.8	08/10/2018 17:00	57.3	74.1	45.1	60.2	-0.2	4.5	3.2	-1.4
22/07/2019 18:00	56.1	78.2	44.8	54.4	08/10/2018 18:00	57.8	79	45.4	58.6	-1.7	-0.8	-0.6	-4.2
22/07/2019 19:00	56.3	77.6	44.7	57.7	08/10/2018 19:00	57.8	78.1	47.9	54.9	-1.5	-0.5	-3.2	2.8
22/07/2019 20:00	54.8	77.3	44.4	57	08/10/2018 20:00	55.8	75.4	46.7	52.8	-1.0	1.9	-2.3	4.2

22/07/2019 21:00	56.4	80.6	44.4	56.1	08/10/2018 21:00	54.4	75.6	45.1	50.3	2.0	5.0	-0.7	5.8
22/07/2019 22:00	54.2	77.2	45.7	51.3	08/10/2018 22:00	56.8	77.1	45.9	51.6	-2.6	0.1	-0.2	-0.3
								Average Leq		**-0.3**			
22/07/2019 23:00	55.1	79.6	46.5	50	08/10/2018 23:00	52.9	74	45.8	49.9	2.2	5.6	0.7	0.1
23/07/2019 00:00	48.7	64.3	45.7	50.3	09/10/2018 00:00	46.9	61.8	44.7	47.4	1.8	2.5	1.0	2.9
23/07/2019 01:00	47.7	62.3	45	48.3	09/10/2018 01:00	49.6	64.5	45.5	51	-1.9	-2.2	-0.5	-2.7
23/07/2019 02:00	49.7	74.9	44.7	49.4	09/10/2018 02:00	51.4	73.3	46.8	49.4	-1.7	1.6	-2.1	0.0
23/07/2019 03:00	52.3	66.7	45.8	54.8	09/10/2018 03:00	49.8	66.8	45.1	49.4	2.5	-0.1	0.7	5.4
23/07/2019 04:00	51.6	67.3	44.9	53.9	09/10/2018 04:00	50.9	67	45.6	50.6	0.7	0.3	-0.7	3.3
23/07/2019 05:00	54.3	72.4	46.3	57.4	09/10/2018 05:00	57.3	73.9	46.1	60.7	-3.0	-1.5	0.2	-3.3
23/07/2019 06:00	58.4	79.1	47.9	59.1	09/10/2018 06:00	61.1	77.8	49.5	63.2	-2.7	1.3	-1.6	-4.1
Tuesday								**Average Leq**		**-0.3**			
23/07/2019 07:00	58.9	78.5	48.6	62.9	09/10/2018 07:00	60.9	76.9	52.2	64.3	-2.0	1.6	-3.6	-1.4
23/07/2019 08:00	59.6	76.3	49.4	62.8	09/10/2018 08:00	61.8	78.5	53.2	64.8	-2.2	-2.2	-3.8	-2.0
23/07/2019 09:00	60.1	77.7	48.3	62.9	09/10/2018 09:00	61.2	77.2	54.2	64.5	-1.1	0.5	-5.9	-1.6
23/07/2019 10:00	59.3	79.5	48.3	61.4	09/10/2018 10:00	60.8	76.4	53.3	63.9	-1.5	3.1	-5.0	-2.5

23/07/2019 11:00	61.1	87.2	49.9	62.2	09/10/2018 11:00	60.7	80.2	52.5	62.3	0.4	7.0	-2.6	-0.1
23/07/2019 12:00	67.2	92.8	49	66	09/10/2018 12:00	62.8	88	50.3	62.8	4.4	4.8	-1.3	3.2
23/07/2019 13:00	61.4	85	48.6	61.9	09/10/2018 13:00	60.3	77.3	51.6	63.1	1.1	7.7	-3.0	-1.2
23/07/2019 14:00	59.7	85.6	49.5	60.4	09/10/2018 14:00	60.2	78	51.6	62.7	-0.5	7.6	-2.1	-2.3
23/07/2019 15:00	60.1	92.5	47.4	59	09/10/2018 15:00	58.6	75.8	50.4	61.6	1.5	16.7	-3.0	-2.6
23/07/2019 16:00	58	85.4	46.4	59.1	09/10/2018 16:00	59.2	74.6	51.2	62	-1.2	10.8	-4.8	-2.9
23/07/2019 17:00	57.1	77.5	48	57.6	09/10/2018 17:00	58.7	73.5	47.4	61.5	-1.6	4.0	0.6	-3.9
23/07/2019 18:00	56.1	80.2	46.3	55.1	09/10/2018 18:00	58.5	80.5	44.5	58.5	-2.4	-0.3	1.8	-3.4
23/07/2019 19:00	57.4	79.6	47.2	59.5	09/10/2018 19:00	55.6	75.4	45.2	53.4	1.8	4.2	2.0	6.1
23/07/2019 20:00	57.1	84.6	48	59.5	09/10/2018 20:00	56.5	77.9	44.3	48.8	0.6	6.7	3.7	10.7
23/07/2019 21:00	58.9	87.8	48	58.5	09/10/2018 21:00	65.6	92.9	-0.1	49	-6.7	-5.1	48.1	9.5
23/07/2019 22:00	56.1	79.2	47.8	57.7	08/10/2018 22:00	56.8	77.1	45.9	51.6	-0.7	2.1	1.9	6.1
								Average Leq		**-0.6**			
23/07/2019 23:00	53.8	79.1	47.7	51.6	08/10/2018 23:00	52.9	74	45.8	49.9	0.9	5.1	1.9	1.7
24/07/2019 00:00	49.5	68.7	47.2	50.4	09/10/2018 00:00	46.9	61.8	44.7	47.4	2.6	6.9	2.5	3.0
24/07/2019 01:00	49.4	65.3	47.2	50.3	09/10/2018 01:00	49.6	64.5	45.5	51	-0.2	0.8	1.7	-0.7

24/07/2019 02:00	51.8	77.8	48.1	51.8	09/10/2018 02:00	51.4	73.3	46.8	49.4	0.4	4.5	1.3	2.4
24/07/2019 03:00	61.8	80.8	48.7	66.3	09/10/2018 03:00	49.8	66.8	45.1	49.4	12.0	14.0	3.6	16.9
24/07/2019 04:00	57.8	70.3	52.8	60.2	09/10/2018 04:00	50.9	67	45.6	50.6	6.9	3.3	7.2	9.6
24/07/2019 05:00	59.3	82.7	48.6	60	09/10/2018 05:00	57.3	73.9	46.1	60.7	2.0	8.8	2.5	-0.7
24/07/2019 06:00	59.8	79.1	50.1	61.3	09/10/2018 06:00	61.1	77.8	49.5	63.2	-1.3	1.3	0.6	-1.9
Wednesday								**Average Leq**		**2.9**			
24/07/2019 07:00	59.2	78.4	50.8	61.1	09/10/2018 07:00	60.9	76.9	52.2	64.3	-1.7	1.5	-1.4	-3.2
24/07/2019 08:00	58.9	77.2	47.1	61.6	09/10/2018 08:00	61.8	78.5	53.2	64.8	-2.9	-1.3	-6.1	-3.2
24/07/2019 09:00	57.7	77.5	46.1	60.2	09/10/2018 09:00	61.2	77.2	54.2	64.5	-3.5	0.3	-8.1	-4.3
24/07/2019 10:00	58	77.7	46.5	60	09/10/2018 10:00	60.8	76.4	53.3	63.9	-2.8	1.3	-6.8	-3.9
24/07/2019 11:00	59.3	81.5	48.1	59.7	09/10/2018 11:00	60.7	80.2	52.5	62.3	-1.4	1.3	-4.4	-2.6
24/07/2019 12:00	56.6	77	46.7	58.4	09/10/2018 12:00	62.8	88	50.3	62.8	-6.2	-11.0	-3.6	-4.4
24/07/2019 13:00	64.9	97.4	46.5	59	09/10/2018 13:00	60.3	77.3	51.6	63.1	4.6	20.1	-5.1	-4.1
24/07/2019 14:00	57.2	76.7	46.6	58.8	09/10/2018 14:00	60.2	78	51.6	62.7	-3.0	-1.3	-5.0	-3.9
24/07/2019 15:00	57.6	78	46.1	58.2	09/10/2018 15:00	58.6	75.8	50.4	61.6	-1.0	2.2	-4.3	-3.4
24/07/2019 16:00	57.2	78.4	47.6	58.2	09/10/2018 16:00	59.2	74.6	51.2	62	-2.0	3.8	-3.6	-3.8

24/07/2019 17:00	56.2	78.1	46.3	57.5	09/10/2018 17:00	58.7	73.5	47.4	61.5	-2.5	4.6	-1.1	-4.0
24/07/2019 18:00	55.6	76.6	44.9	56	09/10/2018 18:00	58.5	80.5	44.5	58.5	-2.9	-3.9	0.4	-2.5
24/07/2019 19:00	56.2	80.3	42.8	54.9	09/10/2018 19:00	55.6	75.4	45.2	53.4	0.6	4.9	-2.4	1.5
24/07/2019 20:00	55.8	78.4	42.9	56.9	09/10/2018 20:00	56.5	77.9	44.3	48.8	-0.7	0.5	-1.4	8.1
24/07/2019 21:00	56.6	79.7	46.4	58	09/10/2018 21:00	65.6	92.9	-0.1	49	-9.0	-13.2	46.5	9.0
24/07/2019 22:00	56.1	77.8	46.6	57.9	08/10/2018 22:00	56.8	77.1	45.9	51.6	-0.7	0.7	0.7	6.3
								Average Leq		**-2.2**			
24/07/2019 23:00	55.1	78.3	49.2	54.9	08/10/2018 23:00	52.9	74	45.8	49.9	2.2	4.3	3.4	5.0
25/07/2019 00:00	50.4	61.7	48.7	51	09/10/2018 00:00	46.9	61.8	44.7	47.4	3.5	-0.1	4.0	3.6
25/07/2019 01:00	51.6	62.1	49.9	52.7	09/10/2018 01:00	49.6	64.5	45.5	51	2.0	-2.4	4.4	1.7
25/07/2019 02:00	52.3	77.2	49.2	52.8	09/10/2018 02:00	51.4	73.3	46.8	49.4	0.9	3.9	2.4	3.4
25/07/2019 03:00	53.6	67.9	48.7	55.3	09/10/2018 03:00	49.8	66.8	45.1	49.4	3.8	1.1	3.6	5.9
25/07/2019 04:00	52.3	69.1	46.3	54.2	09/10/2018 04:00	50.9	67	45.6	50.6	1.4	2.1	0.7	3.6
25/07/2019 05:00	56.4	74.4	47.3	57.5	09/10/2018 05:00	57.3	73.9	46.1	60.7	-0.9	0.5	1.2	-3.2
25/07/2019 06:00	56	76.9	48	58.1	09/10/2018 06:00	61.1	77.8	49.5	63.2	-5.1	-0.9	-1.5	-5.1
Thursday								**Average Leq**		**1.0**			

25/07/2019 07:00	57.8	76.3	48.7	59.2	09/10/2018 07:00	60.9	76.9	52.2	64.3	-3.1	-0.6	-3.5	-5.1
25/07/2019 08:00	57.4	77.1	48	59.3	09/10/2018 08:00	61.8	78.5	53.2	64.8	-4.4	-1.4	-5.2	-5.5
25/07/2019 09:00	56.8	76.8	46.7	58.8	09/10/2018 09:00	61.2	77.2	54.2	64.5	-4.4	-0.4	-7.5	-5.7
25/07/2019 10:00	59	85.2	46.8	58.7	09/10/2018 10:00	60.8	76.4	53.3	63.9	-1.8	8.8	-6.5	-5.2
25/07/2019 11:00	56.9	78.3	47.4	59	09/10/2018 11:00	60.7	80.2	52.5	62.3	-3.8	-1.9	-5.1	-3.3
25/07/2019 12:00	60.2	84.5	47.6	61.3	09/10/2018 12:00	62.8	88	50.3	62.8	-2.6	-3.5	-2.7	-1.5
25/07/2019 13:00	57.3	81.5	48.7	59.1	09/10/2018 13:00	60.3	77.3	51.6	63.1	-3.0	4.2	-2.9	-4.0
25/07/2019 14:00	59.6	91.1	48.5	59.2	09/10/2018 14:00	60.2	78	51.6	62.7	-0.6	13.1	-3.1	-3.5
25/07/2019 15:00	56.6	77	48.3	59	09/10/2018 15:00	58.6	75.8	50.4	61.6	-2.0	1.2	-2.1	-2.6
25/07/2019 16:00	60.5	88.7	49.2	59.1	09/10/2018 16:00	59.2	74.6	51.2	62	1.3	14.1	-2.0	-2.9
25/07/2019 17:00	57.3	80.2	48.4	58.1	09/10/2018 17:00	58.7	73.5	47.4	61.5	-1.4	6.7	1.0	-3.4
								Average Leq		**-2.3**			

All noise levels are in dBA

Table A3.1 Comparison of measured noise levels at Location 1: On front driveway of Latus Offices boundary close to 100 Gibson Lane

Location 2. Entrance to Biz Hub					Location 2. Entrance to Biz Hub in Oct 2018					Difference			
Period start	Leq	Lmax	L90	L10	Period start	Leq	Lmax	L90	L10	Leq	Lmax	L90	L10
Sunday 21/07/2019 17:00					07/10/2018 17:00	48.6	62.7	42.6	50.1				
21/07/2019 18:00					07/10/2018 18:00	48.3	63.6	42.9	50.7				
21/07/2019 19:00	46.6	60.3	41.3	48.8	07/10/2018 19:00	48.3	62.4	43.5	50.6	-1.7	-2.1	-2.2	-1.8
21/07/2019 20:00	45.5	67.9	40.5	47	07/10/2018 20:00	47.3	61.1	43.9	49	-1.8	6.8	-3.4	-2.0
21/07/2019 21:00	44.9	65	40.8	45.7	07/10/2018 21:00	45.9	62.4	41.5	47.7	-1.0	2.6	-0.7	-2.0
21/07/2019 22:00	44.3	56.5	41.2	46	07/10/2018 22:00	44.6	61.6	39.1	47.6	-0.3	-5.1	2.1	-1.6
								Average Leq		**-1.2**			
21/07/2019 23:00	44.9	60.1	42.4	46.1	07/10/2018 23:00	44.5	53.8	40.5	46.6	0.4	6.3	1.9	-0.5
22/07/2019 00:00	44.4	55.7	42.3	45.3	08/10/2018 00:00	43.9	54.5	41.2	45.9	0.5	1.2	1.1	-0.6
22/07/2019 01:00	45.8	53	41.6	50	08/10/2018 01:00	43.2	50.4	41.1	44.8	2.6	2.6	0.5	5.2
22/07/2019 02:00	43.2	49.7	41.5	44.3	08/10/2018 02:00	42.5	50.1	40.1	44.2	0.7	-0.4	1.4	0.1
22/07/2019 03:00	45.5	55.8	41.8	48.2	08/10/2018 03:00	43.9	53.1	40.4	46.5	1.6	2.7	1.4	1.7
22/07/2019 04:00	46.4	62.2	42.7	48.9	08/10/2018 04:00	45.6	61.5	40.8	48	0.8	0.7	1.9	0.9
22/07/2019 05:00	49.7	63.5	45.2	51.8	08/10/2018 05:00	47.9	55.7	43.8	50.3	1.8	7.8	1.4	1.5

22/07/2019 06:00	50.3	65	46.5	52	08/10/2018 06:00	52.8	66.5	47.7	55.6	-2.5	-1.5	-1.2	-3.6
Monday								**Average Leq**		**0.7**			
22/07/2019 07:00	52.7	67.6	48.9	54	08/10/2018 07:00	53.3	65.2	49.7	55.3	-0.6	2.4	-0.8	-1.3
22/07/2019 08:00	54.3	65.9	49.9	57.4	08/10/2018 08:00	55.2	65.6	49.8	59.3	-0.9	0.3	0.1	-1.9
22/07/2019 09:00	54	65.7	49.9	56.1	08/10/2018 09:00	54.8	65.5	49.9	57.6	-0.8	0.2	0.0	-1.5
22/07/2019 10:00	54.5	63.8	51.1	56.4	08/10/2018 10:00	54.6	67.3	49.7	57.4	-0.1	-3.5	1.4	-1.0
22/07/2019 11:00	54.1	63.7	50.6	56.2	08/10/2018 11:00	64.8	81.6	48.3	62.9	-10.7	-17.9	2.3	-6.7
22/07/2019 12:00	53.1	65.2	48.8	55.7	08/10/2018 12:00	61	80.6	47.7	62.6	-7.9	-15.4	1.1	-6.9
22/07/2019 13:00	52.5	62.5	48.4	54.9	08/10/2018 13:00	55.9	76.2	49.3	57.5	-3.4	-13.7	-0.9	-2.6
22/07/2019 14:00	51.7	61.3	48.4	53.9	08/10/2018 14:00	53.4	67.3	48.9	55.7	-1.7	-6.0	-0.5	-1.8
22/07/2019 15:00	51.8	66.9	47.8	53.4	08/10/2018 15:00	52.9	65.4	49.1	55.5	-1.1	1.5	-1.3	-2.1
22/07/2019 16:00	52.3	63.1	47.5	55	08/10/2018 16:00	52.8	64.2	48	55.4	-0.5	-1.1	-0.5	-0.4
22/07/2019 17:00	51.8	62.5	46.9	55.4	08/10/2018 17:00	53.7	65.8	46.9	57.7	-1.9	-3.3	0.0	-2.3
22/07/2019 18:00	47.8	60.2	43.8	49.4	08/10/2018 18:00	50	62.3	43.9	52.2	-2.2	-2.1	-0.1	-2.8
22/07/2019 19:00	47.8	61.9	43	48.4	08/10/2018 19:00	49.4	62.2	44.2	51.8	-1.6	-0.3	-1.2	-3.4
22/07/2019 20:00	46.1	59.5	42	47.2	08/10/2018 20:00	48.1	64	44.1	49.3	-2.0	-4.5	-2.1	-2.1

22/07/2019 21:00	44.9	57.5	40.8	47	08/10/2018 21:00	46	59.4	42.1	47.3	-1.1	-1.9	-1.3	-0.3
22/07/2019 22:00	50.6	77.7	40.9	45.1	08/10/2018 22:00	46.5	61.3	42	49	4.1	16.4	-1.1	-3.9
								Average Leq		**-2.0**			
22/07/2019 23:00	43.2	54	40.3	44.5	08/10/2018 23:00	44.8	60.7	41.5	45.5	-1.6	-6.7	-1.2	-1.0
23/07/2019 00:00	41.9	51.7	39.9	43.2	09/10/2018 00:00	42.9	55	40.4	44.1	-1.0	-3.3	-0.5	-0.9
23/07/2019 01:00	41.8	48.7	39.7	43.3	09/10/2018 01:00	43.2	51.4	40.8	44.9	-1.4	-2.7	-1.1	-1.6
23/07/2019 02:00	43.1	55.6	39.6	44.5	09/10/2018 02:00	44.1	59.8	40.9	45.5	-1.0	-4.2	-1.3	-1.0
23/07/2019 03:00	44.8	53.7	41.9	47	09/10/2018 03:00	44.9	52.9	40.4	48.3	-0.1	0.8	1.5	-1.3
23/07/2019 04:00	47.1	64.9	40.5	47.6	09/10/2018 04:00	44.9	63	40	46.9	2.2	1.9	0.5	0.7
23/07/2019 05:00	49.9	61.7	44.2	52.9	09/10/2018 05:00	47.4	56.2	43.3	49.8	2.5	5.5	0.9	3.1
23/07/2019 06:00	49.3	62.1	45.2	50.6	09/10/2018 06:00	52.4	62.9	46.2	56.5	-3.1	-0.8	-1.0	-5.9
Tuesday								**Average Leq**		**-0.4**			
23/07/2019 07:00	49.3	63.9	43.9	50.7	09/10/2018 07:00	52	63	48.5	53.6	-2.7	0.9	-4.6	-2.9
23/07/2019 08:00	53.2	72.3	43.9	56.4	09/10/2018 08:00	55	64.7	49.1	59	-1.8	7.6	-5.2	-2.6
23/07/2019 09:00	54.6	76.2	43.1	54.9	09/10/2018 09:00	54.6	67.3	49	58	0.0	8.9	-5.9	-3.1
23/07/2019 10:00	51.8	69.1	43.4	51.4	09/10/2018 10:00	54	68.5	49.1	56.4	-2.2	0.6	-5.7	-5.0

23/07/2019 11:00	51.4	67.7	43.7	53.4	09/10/2018 11:00	54.8	67.8	50.2	57.5	-3.4	-0.1	-6.5	-4.1
23/07/2019 12:00	50.7	68.3	43.5	54.3	09/10/2018 12:00	55.5	70.3	48.3	59	-4.8	-2.0	-4.8	-4.7
23/07/2019 13:00	50.6	64.3	44.1	52.7	09/10/2018 13:00	54.8	71.6	48.8	56.6	-4.2	-7.3	-4.7	-3.9
23/07/2019 14:00	49.3	59.9	44.7	51.1	09/10/2018 14:00	53.6	66.3	48.7	56	-4.3	-6.4	-4.0	-4.9
23/07/2019 15:00	50.3	65.3	43.9	52.2	09/10/2018 15:00	52.8	65.8	48.2	54.7	-2.5	-0.5	-4.3	-2.5
23/07/2019 16:00	51.3	63.1	46.2	53.4	09/10/2018 16:00	53	64.7	48.3	56.3	-1.7	-1.6	-2.1	-2.9
23/07/2019 17:00	53.5	62.9	50.1	55.6	09/10/2018 17:00	54.6	67.2	46.4	58.9	-1.1	-4.3	3.7	-3.3
23/07/2019 18:00	51.7	62.4	48.7	53.1	09/10/2018 18:00	49.8	63.7	45.7	51.3	1.9	-1.3	3.0	1.8
23/07/2019 19:00	50.2	58.3	47.1	52.1	09/10/2018 19:00	48.9	63	44.2	50	1.3	-4.7	2.9	2.1
23/07/2019 20:00	49.4	60	46.5	51	09/10/2018 20:00	47.1	61.6	43.1	48.4	2.3	-1.6	3.4	2.6
23/07/2019 21:00	48.3	58.8	45	50.3	09/10/2018 21:00	47	58.1	43.1	49.2	1.3	0.7	1.9	1.1
23/07/2019 22:00	47.6	60.3	43.4	49.6	09/10/2018 22:00	47	61.9	42.4	49.3	0.6	-1.6	1.0	0.3
								Average Leq		**-1.3**			
23/07/2019 23:00	44	55.7	40.1	46.3	09/10/2018 23:00	46	60.6	42.5	46.6	-2.0	-4.9	-2.4	-0.3
24/07/2019 00:00	43.6	49.3	39.3	46.2	10/10/2018 00:00	42.1	53.2	39.5	43.5	1.5	-3.9	-0.2	2.7
24/07/2019 01:00	42.6	51.8	37.8	45.7	10/10/2018 01:00	42.5	49	40.1	44	0.1	2.8	-2.3	1.7

24/07/2019 02:00	44.3	58.4	39.8	46.6	10/10/2018 02:00	43.4	55.5	39.1	45.9	0.9	2.9	0.7	0.7
24/07/2019 03:00	57.1	76.6	40.8	61.1	10/10/2018 03:00	44.5	55.7	39.8	46.6	12.6	20.9	1.0	14.5
24/07/2019 04:00	51.9	57.3	47.9	54.2	10/10/2018 04:00	47.7	63.3	43.6	49.6	4.2	-6.0	4.3	4.6
24/07/2019 05:00	51.7	66.8	47.1	53.5	10/10/2018 05:00	50.4	59.3	45.8	52.7	1.3	7.5	1.3	0.8
24/07/2019 06:00	54.1	64.6	50.3	55.9	10/10/2018 06:00	55.4	69.7	51.4	57.7	-1.3	-5.1	-1.1	-1.8
Wednesday								**Average Leq**		**2.2**			
24/07/2019 07:00	58.3	73.3	53.1	59.8	10/10/2018 07:00	55.5	65.2	53	56.9	2.8	8.1	0.1	2.9
24/07/2019 08:00	53.8	64.7	48.6	57.4	10/10/2018 08:00	57.1	66.3	52.2	60.9	-3.3	-1.6	-3.6	-3.5
24/07/2019 09:00	51.7	64.9	44.3	55.1	10/10/2018 09:00	55.6	64.9	51.1	59	-3.9	0.0	-6.8	-3.9
24/07/2019 10:00	50.2	64.7	43.2	53.5	10/10/2018 10:00	54.2	67.1	50	56.5	-4.0	-2.4	-6.8	-3.0
24/07/2019 11:00	52	72.1	43.6	54.2	10/10/2018 11:00	53	64.4	50	54	-1.0	7.7	-6.4	0.2
24/07/2019 12:00	51	67.7	44.3	53.7	10/10/2018 12:00	53.6	69.2	49.6	55.7	-2.6	-1.5	-5.3	-2.0
24/07/2019 13:00	53.2	69.6	43.9	56.5	10/10/2018 13:00	54.9	71.4	49.7	57.5	-1.7	-1.8	-5.8	-1.0
24/07/2019 14:00	52	63.9	42.9	56.6	10/10/2018 14:00	54.6	66.4	49.7	57.6	-2.6	-2.5	-6.8	-1.0
24/07/2019 15:00	51.6	66.9	43.5	53.9	09/10/2018 15:00	52.8	65.8	48.2	54.7	-1.2	1.1	-4.7	-0.8
24/07/2019 16:00	50.1	61.5	42.9	53.6	09/10/2018 16:00	53	64.7	48.3	56.3	-2.9	-3.2	-5.4	-2.7

24/07/2019 17:00	53.4	66.3	45.2	56.8	09/10/2018 17:00	54.6	67.2	46.4	58.9	-1.2	-0.9	-1.2	-2.1
24/07/2019 18:00	47.6	60.7	43.5	48.8	09/10/2018 18:00	49.8	63.7	45.7	51.3	-2.2	-3.0	-2.2	-2.5
24/07/2019 19:00	45.5	59.8	40.9	47.6	09/10/2018 19:00	48.9	63	44.2	50	-3.4	-3.2	-3.3	-2.4
24/07/2019 20:00	44.1	59	39.9	45.9	09/10/2018 20:00	47.1	61.6	43.1	48.4	-3.0	-2.6	-3.2	-2.5
24/07/2019 21:00	47.5	61.6	43.6	49.6	09/10/2018 21:00	47	58.1	43.1	49.2	0.5	3.5	0.5	0.4
24/07/2019 22:00	48.4	58	44.7	50.3	09/10/2018 22:00	47	61.9	42.4	49.3	1.4	-3.9	2.3	1.0
								Average Leq		**-1.8**			
24/07/2019 23:00	45.6	58.3	41	48	08/10/2018 23:00	44.8	60.7	41.5	45.5	0.8	-2.4	-0.5	2.5
25/07/2019 00:00	43.9	50.2	41.3	45.9	09/10/2018 00:00	42.9	55	40.4	44.1	1.0	-4.8	0.9	1.8
25/07/2019 01:00	43.4	49	40.4	45.2	09/10/2018 01:00	43.2	51.4	40.8	44.9	0.2	-2.4	-0.4	0.3
25/07/2019 02:00	44.7	57.8	40.7	46.7	09/10/2018 02:00	44.1	59.8	40.9	45.5	0.6	-2.0	-0.2	1.2
25/07/2019 03:00	46.9	52.5	43.6	49.1	09/10/2018 03:00	44.9	52.9	40.4	48.3	2.0	-0.4	3.2	0.8
25/07/2019 04:00	47.6	60.1	42.8	49.9	09/10/2018 04:00	44.9	63	40	46.9	2.7	-2.9	2.8	3.0
25/07/2019 05:00	51.6	58.3	48.7	53.3	09/10/2018 05:00	47.4	56.2	43.3	49.8	4.2	2.1	5.4	3.5
25/07/2019 06:00	52.6	61	50.4	54.1	09/10/2018 06:00	52.4	62.9	46.2	56.5	0.2	-1.9	4.2	-2.4
Thursday								**Average Leq**		**1.5**			

25/07/2019 07:00	52.5	61.9	50.4	53.4	09/10/2018 07:00	52	63	48.5	53.6	0.5	-1.1	1.9	-0.2
25/07/2019 08:00	54	66.4	49.7	57.1	09/10/2018 08:00	55	64.7	49.1	59	-1.0	1.7	0.6	-1.9
25/07/2019 09:00	52.6	67.9	48.5	54.9	09/10/2018 09:00	54.6	67.3	49	58	-2.0	0.6	-0.5	-3.1
25/07/2019 10:00	51.1	64.6	46.8	53.3	09/10/2018 10:00	54	68.5	49.1	56.4	-2.9	-3.9	-2.3	-3.1
25/07/2019 11:00	51.3	62.2	47	53.3	09/10/2018 11:00	54.8	67.8	50.2	57.5	-3.5	-5.6	-3.2	-4.2
25/07/2019 12:00	51.7	63.7	48	53.4	09/10/2018 12:00	55.5	70.3	48.3	59	-3.8	-6.6	-0.3	-5.6
25/07/2019 13:00	53.4	65.4	49.5	55.2	09/10/2018 13:00	54.8	71.6	48.8	56.6	-1.4	-6.2	0.7	-1.4
25/07/2019 14:00	53.9	66.5	50.2	55.5	09/10/2018 14:00	53.6	66.3	48.7	56	0.3	0.2	1.5	-0.5
25/07/2019 15:00	54.1	67.2	50.4	56.1	09/10/2018 15:00	52.8	65.8	48.2	54.7	1.3	1.4	2.2	1.4
25/07/2019 16:00	54.3	63.6	51.8	56	09/10/2018 16:00	53	64.7	48.3	56.3	1.3	-1.1	3.5	-0.3
25/07/2019 17:00	54.2	66.8	51	56	09/10/2018 17:00	54.6	67.2	46.4	58.9	-0.4	-0.4	4.6	-2.9
25/07/2019 18:00	52.8	61.6	50	54	09/10/2018 18:00	49.8	63.7	45.7	51.3	3.0	-2.1	4.3	2.7
								Average Leq		**-0.7**			

All noise levels are in dBA

Table A3.2 Comparison of measured noise levels at Location 2: At entrance to Biz Hub close to house

Location 3. On site by north boundary					Location 3. On site by weighbridge in Oct 2018					Difference			
Period start	Leq	Lmax	L90	L10	Period start	Leq	Lmax	L90	L10	Leq	Lmax	L90	L10
Sunday 21/07/2019 17:00					07/10/2018 17:00	51.8	71.8	41.2	53				
21/07/2019 18:00	53.2	68.5	50.4	54	07/10/2018 18:00	50.2	73.5	42	50.2	3.0	-5.0	8.4	3.8
21/07/2019 19:00	61.7	82.3	51.3	59.4	07/10/2018 19:00	48.2	60.5	43.7	50.6	13.5	21.8	7.6	8.8
21/07/2019 20:00	52.3	61.2	50.9	53.3	07/10/2018 20:00	48.6	65.6	45.1	50.3	3.7	-4.4	5.8	3.0
21/07/2019 21:00	51.5	62.4	49	53.7	07/10/2018 21:00	51	70	44.6	51.1	0.5	-7.6	4.4	2.6
21/07/2019 22:00	51.1	63.5	49.4	51.8	07/10/2018 22:00	51.3	74.3	44.3	52	-0.2	-10.8	5.1	-0.2
								Average Leq		**4.1**			
21/07/2019 23:00	51.3	58.7	50.1	52.2	07/10/2018 23:00	53.6	69.9	46.1	55.7	-2.3	-11.2	4.0	-3.5
22/07/2019 00:00	58.1	84.5	50	52.8	08/10/2018 00:00	54	72.7	48.5	54.9	4.1	11.8	1.5	-2.1
22/07/2019 01:00	60.2	82.7	50	54.7	08/10/2018 01:00	53.6	82.5	47.9	53.2	6.6	0.2	2.1	1.5
22/07/2019 02:00	51.5	59.8	50.3	52.2	08/10/2018 02:00	48.3	56.8	46	49.9	3.2	3.0	4.3	2.3
22/07/2019 03:00	55.4	80.1	50.6	54.3	08/10/2018 03:00	52.9	75.1	45.7	52.1	2.5	5.0	4.9	2.2
22/07/2019 04:00	62.3	77.9	51.6	56.2	08/10/2018 04:00	55.1	77.5	45.6	53.7	7.2	0.4	6.0	2.5
22/07/2019 05:00	67.7	87.3	52.9	71.2	08/10/2018 05:00	67.4	85.1	50.3	70.9	0.3	2.2	2.6	0.3

22/07/2019 06:00	62.5	71.8	57.4	65.5	08/10/2018 06:00	72.4	88.5	55.7	75.8	-9.9	-16.7	1.7	-10.3
Monday								**Average Leq**		**1.5**			
22/07/2019 07:00	65.8	78.5	61.3	68.6	08/10/2018 07:00	71.1	87.3	56.4	75.2	-5.3	-8.8	4.9	-6.6
22/07/2019 08:00	70.9	84.8	61	74.9	08/10/2018 08:00	70.8	85.7	53.9	74.9	0.1	-0.9	7.1	0.0
22/07/2019 09:00	68	85.8	59.8	67.4	08/10/2018 09:00	71.8	87.7	54.8	76	-3.8	-1.9	5.0	-8.6
22/07/2019 10:00	67.7	82	62.8	70	08/10/2018 10:00	72.7	86.5	58.5	76.7	-5.0	-4.5	4.3	-6.7
22/07/2019 11:00	67.4	84.8	60.1	69.7	08/10/2018 11:00	73	87.2	59.2	77.1	-5.6	-2.4	0.9	-7.4
22/07/2019 12:00	63.3	82.2	58.4	65.3	08/10/2018 12:00	70.7	88	52.8	74.5	-7.4	-5.8	5.6	-9.2
22/07/2019 13:00	64.1	85	56.5	65.5	08/10/2018 13:00	72.2	88.6	56.8	76.2	-8.1	-3.6	-0.3	-10.7
22/07/2019 14:00	67.5	79.8	60.7	70.9	08/10/2018 14:00	70.5	88.6	54.6	74.2	-3.0	-8.8	6.1	-3.3
22/07/2019 15:00	65.6	85	59.6	66.8	08/10/2018 15:00	69.5	88.7	56.3	73.3	-3.9	-3.7	3.3	-6.5
22/07/2019 16:00	67.1	79.9	62.3	70	08/10/2018 16:00	68.9	87.1	53.3	71.5	-1.8	-7.2	9.0	-1.5
22/07/2019 17:00	62.5	75.9	54.7	65.2	08/10/2018 17:00	67.2	88.6	52.5	70.4	-4.7	-12.7	2.2	-5.2
22/07/2019 18:00	63.7	87.9	54	66.7	08/10/2018 18:00	58.4	85.3	49.7	57.8	5.3	2.6	4.3	8.9
22/07/2019 19:00	55.9	69.3	50.8	58.8	08/10/2018 19:00	54.6	79.8	49.7	54.5	1.3	-10.5	1.1	4.3
22/07/2019 20:00	52.3	60.5	50.6	53.4	08/10/2018 20:00	56.5	85.9	50.2	53.9	-4.2	-25.4	0.4	-0.5

22/07/2019 21:00	57.2	82.8	49.4	54.8	08/10/2018 21:00	51.3	71.1	47.7	51.9	5.9	11.7	1.7	2.9
22/07/2019 22:00	52.1	61.2	50.4	52.7	08/10/2018 22:00	52.9	75.3	48	53.3	-0.8	-14.1	2.4	-0.6
								Average Leq		**-2.6**			
22/07/2019 23:00	58.8	83.1	49.6	55.3	08/10/2018 23:00	56	83	48.8	55.5	2.8	0.1	0.8	-0.2
23/07/2019 00:00	61.6	77.7	49.1	57	09/10/2018 00:00	59.5	78.4	48.9	58	2.1	-0.7	0.2	-1.0
23/07/2019 01:00	60.1	74.5	50	63.6	09/10/2018 01:00								
23/07/2019 02:00	61.9	84.9	51.4	63.8	09/10/2018 02:00	57.1	82.1	49.9	56	4.8	2.8	1.5	7.8
23/07/2019 03:00	67	81.3	51	72.6	09/10/2018 03:00	61.3	90.6	49.7	59.3	5.7	-9.3	1.3	13.3
23/07/2019 04:00	59	77.9	51.1	61.3	09/10/2018 04:00	59.6	85.9	48.8	53.7	-0.6	-8.0	2.3	7.6
23/07/2019 05:00	64.8	81.1	55.3	68.6	09/10/2018 05:00	67.5	85.2	50.3	71.5	-2.7	-4.1	5.0	-2.9
23/07/2019 06:00	70.1	88.7	62.3	73.7	09/10/2018 06:00	71.5	89.2	55.4	75.1	-1.4	-0.5	6.9	-1.4
Tuesday								**Average Leq**		**1.5**			
23/07/2019 07:00	68.1	80.2	63.2	70.5	09/10/2018 07:00	70.6	85.5	54	74.6	-2.5	-5.3	9.2	-4.1
23/07/2019 08:00	67.6	82	60.8	69.9	09/10/2018 08:00	71	89	52.9	75.3	-3.4	-7.0	7.9	-5.4
23/07/2019 09:00	65.1	77.3	58.3	68.2	09/10/2018 09:00	71.7	89.7	58.7	75.4	-6.6	-12.4	-0.4	-7.2
23/07/2019 10:00	68.1	82.6	62.7	70.8	09/10/2018 10:00	71.5	92.1	56.4	74.7	-3.4	-9.5	6.3	-3.9

23/07/2019 11:00	66.7	84.2	61.1	69	09/10/2018 11:00	70.3	91.1	55.1	73.2	-3.6	-6.9	6.0	-4.2
23/07/2019 12:00	65.9	86.5	58.3	67	09/10/2018 12:00	71	91.6	56.4	74.6	-5.1	-5.1	1.9	-7.6
23/07/2019 13:00	67.6	85.3	59	69.9	09/10/2018 13:00	73.2	88.7	59.8	76.9	-5.6	-3.4	-0.8	-7.0
23/07/2019 14:00	69.1	85.6	62.7	71.6	09/10/2018 14:00	72.5	90.1	59.6	76.1	-3.4	-4.5	3.1	-4.5
23/07/2019 15:00	66.9	84.6	54.3	69.4	09/10/2018 15:00	71.7	90.7	58.6	74.4	-4.8	-6.1	-4.3	-5.0
23/07/2019 16:00	63.3	73.5	58.9	65.4	09/10/2018 16:00	71.9	92.1	56.6	75.2	-8.6	-18.6	2.3	-9.8
23/07/2019 17:00	70.9	87.6	58.9	74.2	09/10/2018 17:00	68.1	85.3	53.5	71.5	2.8	2.3	5.4	2.7
23/07/2019 18:00	61.7	74.4	57.6	63.9	09/10/2018 18:00	57.8	77.3	50.4	59.3	3.9	-2.9	7.2	4.6
23/07/2019 19:00	65	87	59.5	65.7	09/10/2018 19:00	53.7	73	50.1	54.2	11.3	14.0	9.4	11.5
23/07/2019 20:00	63.3	73.5	59	65.1	09/10/2018 20:00	53	72.2	50.7	53.8	10.3	1.3	8.3	11.3
23/07/2019 21:00	62.2	69.6	58.2	64.2	09/10/2018 21:00	56	81.2	49	55.5	6.2	-11.6	9.2	8.7
23/07/2019 22:00	63	69	61.3	64.6	09/10/2018 22:00	53.8	79.6	49.6	53.4	9.2	-10.6	11.7	11.2
								Average Leq		**-0.2**			
23/07/2019 23:00	63	69.7	61.4	64.5	09/10/2018 23:00	55.2	82.3	51	54.8	7.8	-12.6	10.4	9.7
24/07/2019 00:00	65	78.9	55.9	64.3	10/10/2018 00:00	55.4	83.7	47.5	53.4	9.6	-4.8	8.4	10.9
24/07/2019 01:00	60	68.3	56.7	61.6	10/10/2018 01:00	51.6	67.7	47.7	53.4	8.4	0.6	9.0	8.2

24/07/2019 02:00	61.6	86	56.3	61	10/10/2018 02:00	53.8	73.7	50	53.7	7.8	12.3	6.3	7.3
24/07/2019 03:00	62.6	76.7	58.9	65.1	10/10/2018 03:00	55.3	76.7	48.5	54.7	7.3	0.0	10.4	10.4
24/07/2019 04:00	62.5	75.4	60.8	63.2	10/10/2018 04:00	61.9	84.9	49.9	56.9	0.6	-9.5	10.9	6.3
24/07/2019 05:00	71.6	86.9	59.6	77.6	10/10/2018 05:00	65.8	83.3	51.8	67.8	5.8	3.6	7.8	9.8
24/07/2019 06:00	68	84.6	60.1	70.3	10/10/2018 06:00	70.5	85.6	58.6	74.3	-2.5	-1.0	1.5	-4.0
Wednesday								**Average Leq**		**5.6**			
24/07/2019 07:00	68.6	80.3	63.4	71.2	10/10/2018 07:00	68.3	87.7	55	70.3	0.3	-7.4	8.4	0.9
24/07/2019 08:00	66.7	86.7	61.7	68.7	10/10/2018 08:00	72	90.5	54.8	75.4	-5.3	-3.8	6.9	-6.7
24/07/2019 09:00	69.3	80.7	61.7	72.5	10/10/2018 09:00	72.5	89.2	57.8	76.3	-3.2	-8.5	3.9	-3.8
24/07/2019 10:00	69.9	83.4	61.9	73	10/10/2018 10:00	70.2	87	57.5	73.9	-0.3	-3.6	4.4	-0.9
24/07/2019 11:00	71.1	84.9	61.8	74.3	10/10/2018 11:00	71.7	87.4	58.4	75.1	-0.6	-2.5	3.4	-0.8
24/07/2019 12:00	66.2	85.3	59.2	67.5	10/10/2018 12:00	70.9	89.8	54.7	74.6	-4.7	-4.5	4.5	-7.1
24/07/2019 13:00	67.7	84.9	61.4	69.2	10/10/2018 13:00	71.1	88.3	54.5	74.7	-3.4	-3.4	6.9	-5.5
24/07/2019 14:00	63.8	82.1	59.3	65.1	09/10/2018 14:00	72.5	90.1	59.6	76.1	-8.7	-8.0	-0.3	-11.0
24/07/2019 15:00	63.2	72.4	57.3	66.1	09/10/2018 15:00	71.7	90.7	58.6	74.4	-8.5	-18.3	-1.3	-8.3
24/07/2019 16:00	66.5	86.6	57.9	67.6	09/10/2018 16:00	71.9	92.1	56.6	75.2	-5.4	-5.5	1.3	-7.6

24/07/2019 17:00	67	85.6	52.6	69.7	09/10/2018 17:00	68.1	85.3	53.5	71.5	-1.1	0.3	-0.9	-1.8
24/07/2019 18:00	57.9	72.5	52.6	62.4	09/10/2018 18:00	57.8	77.3	50.4	59.3	0.1	-4.8	2.2	3.1
24/07/2019 19:00	57.2	70.7	53.4	60.1	09/10/2018 19:00	53.7	73	50.1	54.2	3.5	-2.3	3.3	5.9
24/07/2019 20:00	56	65.6	54.1	57.4	09/10/2018 20:00	53	72.2	50.7	53.8	3.0	-6.6	3.4	3.6
24/07/2019 21:00	54.8	67.5	51.1	55.9	09/10/2018 21:00	56	81.2	49	55.5	-1.2	-13.7	2.1	0.4
24/07/2019 22:00	58.7	83.7	54.6	56.8	09/10/2018 22:00	53.8	79.6	49.6	53.4	4.9	4.1	5.0	3.4
								Average Leq		**-1.9**			
24/07/2019 23:00	55.3	64.6	54.2	55.8	09/10/2018 23:00	55.2	82.3	51	54.8	0.1	-17.7	3.2	1.0
25/07/2019 00:00	55.2	70	51.9	55.6	10/10/2018 00:00	55.4	83.7	47.5	53.4	-0.2	-13.7	4.4	2.2
25/07/2019 01:00	58.3	84	53.4	55.3	10/10/2018 01:00	51.6	67.7	47.7	53.4	6.7	16.3	5.7	1.9
25/07/2019 02:00	56.7	70.1	54	58.4	10/10/2018 02:00	53.8	73.7	50	53.7	2.9	-3.6	4.0	4.7
25/07/2019 03:00	65.3	84.2	53.9	61.8	10/10/2018 03:00	55.3	76.7	48.5	54.7	10.0	7.5	5.4	7.1
25/07/2019 04:00	62.5	79.5	52.1	61.4	10/10/2018 04:00	61.9	84.9	49.9	56.9	0.6	-5.4	2.2	4.5
25/07/2019 05:00	67.2	83.2	59.9	69.8	10/10/2018 05:00	65.8	83.3	51.8	67.8	1.4	-0.1	8.1	2.0
25/07/2019 06:00	66.7	78.9	60.6	69.7	10/10/2018 06:00	70.5	85.6	58.6	74.3	-3.8	-6.7	2.0	-4.6
Thursday								**Average Leq**		**2.2**			

25/07/2019 07:00	67.3	84.5	60.5	69.4	10/10/2018 07:00	68.3	87.7	55	70.3	-1.0	-3.2	5.5	-0.9
25/07/2019 08:00	67.1	87.1	61.5	67.7	10/10/2018 08:00	72	90.5	54.8	75.4	-4.9	-3.4	6.7	-7.7
25/07/2019 09:00	66.3	77.8	60.8	68.2	10/10/2018 09:00	72.5	89.2	57.8	76.3	-6.2	-11.4	3.0	-8.1
25/07/2019 10:00	66.1	75.4	61.9	68.6	10/10/2018 10:00	70.2	87	57.5	73.9	-4.1	-11.6	4.4	-5.3
25/07/2019 11:00	66.5	85.7	61.4	68.2	10/10/2018 11:00	71.7	87.4	58.4	75.1	-5.2	-1.7	3.0	-6.9
25/07/2019 12:00	65.2	78.1	60.4	67.1	10/10/2018 12:00	70.9	89.8	54.7	74.6	-5.7	-11.7	5.7	-7.5
25/07/2019 13:00	66.2	86	62.2	67.3	10/10/2018 13:00	71.1	88.3	54.5	74.7	-4.9	-2.3	7.7	-7.4
25/07/2019 14:00	65.8	83.2	62.4	67.6	09/10/2018 14:00	72.5	90.1	59.6	76.1	-6.7	-6.9	2.8	-8.5
25/07/2019 15:00	65.1	81.5	58.4	67.6	09/10/2018 15:00	71.7	90.7	58.6	74.4	-6.6	-9.2	-0.2	-6.8
25/07/2019 16:00	64.6	76	60.7	67.1	09/10/2018 16:00	71.9	92.1	56.6	75.2	-7.3	-16.1	4.1	-8.1
25/07/2019 17:00	70	84.2	55.4	75.9	09/10/2018 17:00	68.1	85.3	53.5	71.5	1.9	-1.1	1.9	4.4
								Average Leq		**-4.6**			

All noise levels are in dBA

Table A3.3 Comparison of measured noise levels at Location 3: On Trans Waste site