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MONCKTON ENERGY LIMITED

MONCKTON – GAS PEAKING FACILITY

NOISE ASSESSMENT REPORT

OCTOBER 2017

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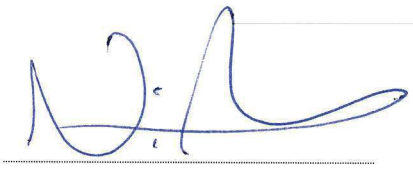
N C Auckland (MIOA) Senior Acoustic Consultant 

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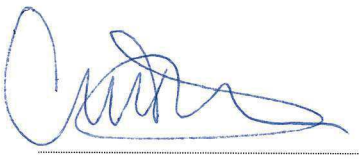
C M Dawson (MIOA) Technical Director 

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DRAWINGS

1 INTRODUCTION

1.1.1 By email instruction from Mr John Dickinson of WYG Planning Limited, on behalf of Monckton Energy Limited, Wardell Armstrong LLP was commissioned to undertake a noise assessment for a proposed 7MWGas Peaking Plant, at the former Monckton Coke and Chemical Works ('Coke Works'), Royston, South Yorkshire.

1.1.2 The proposed site for the gas peaking facility is located within the southern part of the Coke Works, at an existing disused biological effluent treatment plant. The plant will be demolished and the gas peaking facility will be situated in its place.

1.1.3 To the north, east, south, and west, the site is bordered by land within the Coke Works. To the south, the site is bordered by open woodland within the Coke Works, then the B6428, and a single residential dwellings known as Station House.

1.1.4 Four generators are to be installed at the site, and each will be housed within acoustically attenuated metal containers, each with adjoining air inlet and extractor attenuators, radiators and emissions flue.

1.1.5 The report assesses the results of a noise survey and assessment carried out in accordance with current guidance, including an assessment in accordance with BS4142:2014 and includes recommendations for noise mitigation as appropriate.

2 ASSESSMENT METHODOLOGY

2.1 Scope of Works

2.1.1 The scope of the noise assessment includes consideration of potential noise affecting existing sensitive receptors, i.e. existing residential areas, specifically in terms of the potential impact of noise from the gas peaking generators, and is in line with current guidance and best practice.

2.2 Noise Survey

2.2.1 As part of this assessment, Wardell Armstrong LLP has carried out an attended noise survey to assess the current background noise levels at a single existing sensitive receptor location. The survey is discussed in Section 3 of this report.

2.2.2 The sources of existing background noise comprise road traffic.

2.3 Assessment Methodology

2.3.1 An assessment is required to consider any potentially noise sensitive areas near the site. The potential impacts of the future sources of noise, at existing sensitive receptor locations, in the vicinity of the proposed development have been assessed with reference to;

- National Planning Policy Framework, 2012 (NPPF);
- Noise Policy Statement for England, 2010 (NPSE);
- Planning Practice Guidance, 2014 (PPG);
- World Health Organisation Guidelines For Community Noise 1999 (WHO);
- British Standard 8233: 2014 Guidance on Sound Insulation and noise reduction for buildings (BS8233); and
- British Standard 4142: 2014 Methods for Rating and assessing industrial and commercial sound.

2.4 National Policy and Guidance

National Planning Policy Framework

2.4.1 In March 2012 the 'National Planning Policy Framework' (NPPF) was introduced as national planning guidance within England. Paragraph 123 of the NPPF states:

'Planning policies and decisions should aim to:

- avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;

- mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the 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 tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.'

2.4.2 With regard to 'adverse impacts' the NPPF refers to the 'Noise Policy Statement for England' (NPSE), which defines three categories, as follows:

'NOEL – No Observed Effect Level

- This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

- This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

- This is the level above which significant adverse effects on health and quality of life occur'.

2.4.3 The Planning Practice Guidance (PPG) provides further detail about how the effect levels can be recognised. Above the NOEL noise becomes noticeable, however it has no adverse effect as it does not cause any change in behaviour or attitude. Once noise crosses the LOAEL threshold it begins to have an adverse effect and consideration needs to be given to mitigating and minimising those effects, taking account of the economic and social benefits being derived from the activity causing the noise. Increasing noise exposure further might cause the SOAEL threshold to be crossed. If the exposure is above this level the planning process should be used to avoid the effect occurring by use of appropriate mitigation such as by altering the

design and layout. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused. At the highest extreme the situation should be prevented from occurring regardless of the benefits which might arise.

2.4.4 The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided. The second aim refers to the situation where the impact lies somewhere between LOAEL and SOAEL, and it requires that all reasonable steps are taken to mitigate and minimise the adverse effects of noise. However, this does not mean that such adverse effects cannot occur. Table 1 summarises the noise exposure hierarchy.

Table 1: National Planning Practice Guidance noise exposure hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; closing windows for some of the time because of the noise. Potential for non-awakening sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. having to keep windows closed most of the time, avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to	Significant Observed Adverse Effect	Avoid

	sleep. Quality of life diminished due to change in acoustic character of the area.		
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

2.4.5 The Noise Policy Statement for England refers to the World Health Organisation (WHO) when discussing noise impacts. The WHO Guidelines for Community Noise 1999 suggest guideline values for internal noise exposure which take into consideration the identified health effects and are set, based on the lowest effect levels for general populations. Guideline values for annoyance which relate to external noise exposure are set at 50 or 55 dB(A), representing day time levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed respectively.

The following guideline values are suggested by WHO:

- 35 dB L_{Aeq} (16 hour) during the day time in noise sensitive rooms
- 30 dB L_{Aeq} (8 hour) during the night time in bedrooms
- 45 dB L_{Amax} (fast) during the night time in bedrooms
- 50 dB L_{Aeq} (16 hour) to protect majority of population from becoming moderately annoyed
- 55 dB L_{Aeq} (16 hour) to protect majority of population from becoming seriously annoyed

2.4.6 British Standard 8233 "Guidance on sound insulation and noise reduction for buildings" 2014 bases its advice on the WHO Guidelines. In addition, for internal noise levels it states;

"Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved."

Furthermore, with regard to external noise, the Standard states;

"For traditional external areas that are used for amenity space such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq.\ T}$ with an upper guidance value of 55 dB $L_{Aeq.\ T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited".

2.4.7 The PPG summarises the approach to be taken when assessing noise. It accepts that noise can override other planning concerns, but states:

"Neither the Noise Policy Statement for England nor the National Planning Policy Framework (which reflects the Noise Policy Statement) expects noise to be considered in isolation, separate from the economic, social and other environmental dimensions of proposed development".

British Standard 4142:2014 (BS4142), Method for rating and assessing industrial and commercial sound:

2.4.1 BS4142 is used to rate and assess sound of an industrial and/or commercial nature including:

- sound from industrial and manufacturing processes;
- sound from fixed installations which comprise mechanical and electrical plant and equipment;
- sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

2.4.2 The standard is applicable to the determination of the following levels at outdoor locations:

- rating levels for sources of sound of an industrial and/or commercial nature; and
- ambient, background and residual sound levels, for the purposes of:

1) Investigating complaints;

2) Assessing sound from proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and

3) Assessing sound at proposed new dwellings or premises used for residential purposes.

2.4.3 The purpose of the BS4142 assessment procedure is to assess the significance of sound of an industrial and/or commercial nature.

2.4.4 BS4142 refers to noise from the industrial source as the 'specific noise' and this is the term used in this report to refer to noise from the gas peaking generators. The 'specific noise' levels, of the existing operations have been measured and are detailed in Section 3 of this report.

2.4.5 BS4142 assesses the significance of impacts by comparing the specific noise level to the background noise level (L_{A90}). Section 3 provides details of the background noise survey undertaken.

2.4.6 Certain acoustic features can increase the significance of impacts over that expected from a simple comparison between the specific noise level and the background noise level. In particular BS4142 identifies that the absolute level of sound, the character, and the residual sound and the sensitivity of receptor should all be taken into consideration. BS4142 includes allowances for a rating penalty to be added if it is found that the specific noise source contains a tone, impulse and/or other characteristic, or is expected to be present. The specific noise level along with any applicable correction is referred to as the 'rating level'.

2.4.7 The greater the increase between the rating level over the background noise level, the greater the magnitude of the impact. The assessment criteria given by BS4142 are as follows:

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

2.4.8 During the daytime, BS4142 requires that noise levels are assessed over 1-hour periods. However, during the night-time, noise levels are required to be assessed over 15-minute periods.

2.4.9 Where the initial estimate of the impact needs to be modified due to context, BS4142 states that all pertinent factors should be taken into consideration, including:

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound; and
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

2.5 Existing Sensitive Receptors

2.5.1 The following existing sensitive receptor (ESR) has been identified as being closest to the site. Other receptors may be affected by noise from the proposed development, however the noise levels will be less than at the receptor identified. The existing sensitive receptor identified is shown in Table 2 below.

Table 2: Existing Noise Sensitive Receptor Locations

Receptor		Bearing from Site	Distance from Site Boundary
ESR1	Station House, Lund Hill Lane (B6428)	South	85m

3 NOISE SURVEY

3.1 Background Noise Survey

3.1.1 In order to measure the background noise level at the existing sensitive receptor, Wardell Armstrong LLP carried out a noise survey.

3.1.2 Unattended noise measurements were carried out at a single monitoring location, which is considered to be representative of ESR1 to the south of the site. The monitoring location is as follows, and is shown on Drawing Number LE13674-001 Rev A:

- Monitoring Location 1: To the south of the site. The monitoring location is considered to be representative of Station House (ESR1).

3.1.3 Table 3 below, details the periods when continuous noise monitoring was undertaken at the monitoring location.

Table 3: Noise Monitoring Periods

Period Start	Period End
Mon 05/09/2016 23:15	Tue 06/09/2016 18:00
Thu 20/10/2016 13:00	Sat 22/10/2016 14:00
Thu 15/06/2017 23:00	Fri 16/06/2017 18:00
Thu 15/06/2017 23:00	Tue 27/06/2017 22:00

3.1.4 Unattended noise monitoring was conducted during several periods, which included daytime and night time periods, covering weekday and weekend periods. Therefore, the monitoring data is considered to be robust and suitable for use within the assessment.

3.1.5 The noise measurements were made using a Class 1, integrating sound level meter. In accordance with guidance the microphone was mounted vertically on a tripod 1.5m above the ground and more than 3.5 metres from any other reflecting surfaces.

3.1.6 The sound level meter was calibrated to a reference level of 94dB at 1kHz both before, and on completion of, the noise survey. No drift in the calibration during the survey was noted.

3.1.7 The background noise measurements were undertaken during dry and calm weather conditions.

3.1.8 A-weighted[1] L_{90}[2] noise levels were measured to comply with the requirements of BS4142. A-weighted L_{eq}[3] and L_{10}[4] noise levels, together with the maximum and minimum sound pressure levels, were also measured to provide additional information. The measured noise levels are set out in full in Appendix A.

3.1.9 Attended noise monitoring allows observations and detailed notes to be made of the significant noise sources which contribute to each of the measured levels. The observations identified the following:

Road Traffic Noise: Noise from road traffic on the B6428 was audible at the monitoring location throughout the noise survey.

Other Sources: Noise from birdsong was also occasionally audible.

3.2 Uncertainty

3.2.1 To reduce measurement uncertainty the following steps have been taken:

- The background noise measurement location was selected to be representative of the background noise level at the closest receptor to the site. In accordance with guidance the microphone was mounted vertically on a tripod 1.5m above the ground. The monitoring location was also more than 3.5 metres from any other reflecting surfaces;
- The background noise measurements were undertaken during dry and calm weather conditions;
- The daytime background noise monitoring was undertaken during what is considered to be the representative periods of the daytime (0700 to 2300 hours);
- The daytime background noise monitoring was undertaken over 1 hour periods in accordance with the reference period required by BS4142;
- The night time background noise monitoring was undertaken during what is considered to be the representative periods of the daytime (2300 to 0700);

[1] A' Weighting — An electronic filter in a sound level meter which mimics the human ear's response to sounds at different frequencies under defined conditions

[2] L_{90} — The noise level which is exceeded for 90% of the measurement period.

[3] L_{eqs} — Equivalent continuous noise level; the steady sound pressure which contains an equivalent quantity of sound energy as the time-varying sound pressure levels.

[4] L_{10} — The noise level which is exceeded for 10% of the measurement period.

- The night time background noise monitoring was undertaken over 15 minute periods in accordance with the reference period required by BS4142;
- The results of each measurement period are reported to the nearest 0.1dB; and
- Noise measurements were made using a Class 1, integrating sound level meter.

3.3 Measured Noise Levels

3.3.1 The mean $L_{A90,T}$ background noise level measure during each period is detailed in Table 4.

Table 4: Mean $L_{A90,T}$ dB Background Noise Level

Date	Daytime (0700 – 2300)	Night Time (2300 - 0700)
Tue 06 Sep 2016	39	30
Thu 20 Oct 2016	37	-
Fri 21 Oct 2016	38	27
Sat 22 Oct 2016	37	28
Fri 16 Jun 2017	43	34
Thu 22 Jun 2017	41	33
Fri 23 Jun 2017	42	33
Sat 24 Jun 2017	40	32
Sun 25 Jun 2017	38	32
Mon 26 Jun 2017	35	31
Tue 27 Jun 2017	38	32

4 NOISE IMPACT ASSESSMENT

Industrial/Commercial Noise Assessment (BS4142)

4.1 Introduction

4.1.1 The proposed gas peaking facility compound area would located within an area approximately 0.2 hectares in size. Some 4 generator sets would be installed at the site, and the scheme will have a generation capacity of up to 7MW.

4.1.2 The Scheme would provide a flexible modular energy supply which could rapidly deliver between 2 to 7 MW of power in response to the demands of the National Grid. The generator sets would use a mains gas supply, which would be connected to the gas peaking plant, in order to generate electricity during periods of peak demand on the National Grid. It is anticipated that the generators would run around 800 hours per year as standby electricity generation when the local area is in shortage/stress, with peak times anticipated to be between 1600 to 1930 hours Monday to Friday during the months of November to March inclusive. In this respect, it is worth noting that without such contingencies electricity shortages could be experienced resulting in blackouts. As such, National Grid are supporting the development of small local distributed electricity generation to cover times of such potential shortage.

4.1.3 The Scheme provides for the installation of four generators to produce standby electricity generation for National Grid. Each proposed generator would be housed within an acoustically attenuated metal container. Each container would be approximately 12 metres in length (extending to 13 metres allowing for the above ground air outlet attenuators at the western end of the containers), by 3.2 metres in width and 3 metres in height (extending to 5.6 meters in height allowing for the air inlet and air cooler attenuators on top of the containers). The exhaust flue would be located at the side of each generator container and in total extend to 10 metres above ground level.

4.1.4 A BS4142 assessment has been carried out to assess the potential noise impact of gas peaking generators, at the existing sensitive receptor. The engines will need to be available to generate electricity 24 hours per day 365 days per year, however it is anticipated that the generators would typically operate during the daytime, at the peak demand period (1600 to 1930).

4.1.5 Therefore, a daytime and night noise assessment has been carried out.

4.2 Selection of the Background Noise

4.2.1 Section 8 of BS4142 provides guidance on the selection of the background sound to be used in the assessment. BS4142 states that the background sound levels used for the assessment should be representative of the period being assessed (i.e. daytime period), and that there is no "single" background sound level.

4.2.2 Therefore, some assessment of the measured noise levels is required to select the most appropriate and representative background sound level. An assessment has been carried out based upon the measured noise levels.

4.2.3 For the purposes of this assessment, the measured background noise level from monitoring location 1, is considered representative of the background noise level at sensitive receptor to the south of the site.

4.2.4 The background noise levels, to be used in the BS4142 assessment are the average of the L_{A90} levels measured during each representative period.

4.2.5 The background noise level has been averaged, to give a single background value for the daytime and night time periods. The single level for the daytime and night time periods, has then been compared to the measured background during each interval (i.e. 1 hour during the daytime and 15 minutes during the night time), to verify that it can considered to be representative of typical background noise levels during the period.

4.2.6 Measurements were carried out during a representative period, and the results are therefore considered robust. Full analysis of the background data can be found in Appendix A.

Daytime (0700 to 2300)

4.2.7 Analysis of the background data for the daytime period, has shown the representative background noise level to be 39dB L_{A90}.

Night Time (2300 to 0700)

4.2.8 Analysis of the background data for the night time period, has shown the representative background noise level to be 31dB L_{A90}.

Weekend

4.2.9 Analysis of the weekday and weekend background noise levels shows no significant decrease in the background noise level during the weekend. Therefore, weekend noise shall not be considered separately from weekday noise.

4.3 Assessment of Noise

Identification of the Specific Noise

4.3.1 Technical noise data has been provided by the manufacturer of the generators. It has been indicated that the sound pressure level at a distance of 10m from the generator, is 55dB(A).

4.3.2 However, the site will contain four generators, therefore the noise level has been logarithmically multiplied by a factor of 4. This gives a specific noise level of 61dB at 10m.

Acoustic Features and Rating Penalties

4.3.3 The specific noise from the generator will generally turn on/off once a day, and it is unlikely to turn on/off within the 1 hour reference period. Therefore, no penalty has been added for intermittency.

4.3.4 Third-octave band data is not available from the manufacturer, however it is believed the generators are unlikely to have any significant tonal components due to them being housed within acoustically attenuated containers.

4.3.5 Notwithstanding the above, it is likely the noise from the generators will only just be audible at the receptor, therefore if there are any tonal components, it is unlikely to be clearly perceptible.

4.3.6 Notwithstanding this, and in order to present a robust and worst case assessment, a 4dB correction will be applied as if tones were likely to be 'clearly perceptible'.

4.3.7 It is also unlikely that noise from the generators will be readily distinctive against the residual acoustic environment, given the close proximity to the B6428, therefore no additional penalties have been added.

Mitigation

4.3.8 The proposed layout for the peaking plant will include a 2.4m high acoustic fence along the south eastern and south western site boundary.

4.3.9 Barrier attenuation calculations have been undertaken accounting for the ground heights of the plant, barrier, and receptor, together with the height of the plant. The

calculation indicate that the barrier will attenuate the overall noise by 9dB.

Comparison of Background and Specific Noise Levels

Daytime

4.3.10 In accordance with BS4142, the specific noise level of the operations at the site in the vicinity of the existing sensitive receptor has been compared with the corresponding measured background noise level. The results of the BS4142 assessment are detailed in Table 5 below.

Table 5: BS4142 Assessment during the Daytime (0700 to 2300) at Existing Receptor to the South – (Figures in dB(A))

	ESR 1
Specific Noise Level at 10m	61
Barrier Attenuation	9
Specific Noise Level at the Receptor	34
Acoustic Feature Correction	4
Rating Level	38
Background Noise Level (dB L_{A90})	39
Excess of rating over background level	-1

4.3.11 BS4142 states that a difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

Night Time

4.3.12 In accordance with BS4142, the specific noise level of the operations at the site in the vicinity of the existing sensitive receptor has been compared with the corresponding measured background noise level. The results of the BS4142 assessment are detailed in Table 6 below.

Table 6: BS4142 Assessment during the Night time (2300-0700) at Existing Receptor to the South – (Figures in dB(A))

	ESR 1
Specific Noise Level at 10m	61
Barrier Attenuation	9
Specific Noise Level at the Receptor	34
Acoustic Feature Correction	4

Rating Level	38
Background Noise Level (dB L_{A90})	31
Excess of rating over background level	+7

4.3.13 BS4142 states that a difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

4.4 BS4142 Context Assessment

4.4.1 BS4142:2014 States; *"The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound sources exceeds the background sound level and the context in which the sound occurs"*.

4.4.2 The first requirement of this statement has been determined within the noise impact assessment section above. To determine the context in which the industrial sound will reside, three factors must be considered, these are;

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound; and,
- The sensitivity of the receptor.

Absolute level of Sound

4.4.3 The impact of a given difference between rating level and background noise level will depend upon whether the residual sound level is low or high.

4.4.4 In order to assess the noise from the generators, in the context of its environment and at the existing sensitive receptor, the predicted sound level from the generators has been added to the measured average ambient noise levels, at the existing sensitive receptor.

4.4.5 The results for the existing receptor location during the daytime and night time, are detailed within Tables 7 and 8 respectively.

Table 7: Context Assessment at Existing Sensitive Receptors – Proposed Site Operations - Daytime Between 0700 and 2300 hours Figures in dB L_{Aeq}	
Receptor	**ESR 1**
Average residual sound level over the noise monitoring period i.e. Existing sound level without the proposed operations	53

Predicted Specific Noise i.e. Noise from site operations	34
Total absolute level of sound i.e. Existing sound level plus site operations sound level	53
Difference between existing ambient sound levels and predicted future sound levels	0

Table 8: Context Assessment at Existing Sensitive Receptors – Proposed Site Operations - Daytime Between 2300 to 0700 hours Figures in dB L_{Aeq}	
Receptor	**ESR 1**
Average residual sound level over the noise monitoring period i.e. Existing sound level without the proposed operations	45
Predicted Specific Noise i.e. Noise from site operations	34
Total absolute level of sound i.e. Existing sound level plus site operations sound level	45
Difference between existing ambient sound levels and predicted future sound levels	0

4.4.6 The noise likely to be generated by generators during the daytime (0700 to 2300), is 19dB below the existing ambient noise level at the nearby sensitive receptor. There would be a no increase in the absolute noise at the ESR1.

4.4.7 The noise likely to be generated by generators during the night time (2300 to 0700), is 11dB below the existing ambient noise level at the nearby sensitive receptor. There would be a no increase in the absolute noise at the ESR1.

Character and Level of Residual Sound

4.4.8 The existing sensitive receptor is located in close proximity to the Coke Works, which has ceased coke production with some buildings having been demolished, but the refurbished offices remain in use. Other existing industrial uses are located to the north east of the existing sensitive receptor, beyond Rabbit Ings Country Park. The ambient noise is dominated by road traffic on the adjacent B6428, and to a lesser extent the surrounding road network.

4.4.9 The character of the residual noise (i.e. road traffic) contains low to mid frequency content. It is anticipated that the character of the specific noise from the Gas Peaking facility, will be similar, and therefore is in keeping with the character of the area, therefore the potential noise impact is lower.

4.4.10 Without further mitigation measures in place, noise from the generators will be below the residual noise level.

Sensitivity of Receptor and Existing Acoustic Conditions

4.4.11 The existing sensitive receptors are considered to be of moderate sensitivity due to the occupants' need for quiet rest and relaxation.

4.4.12 There are currently no visible mitigation measures in place at the receptor to reduce noise (i.e. fences/walls), and external areas have direct line of sight towards the B6428 and the proposed Gas Peaking facility. However, there will be no increase to the absolute noise level, which is already below the WHO external guideline value for outdoor living areas during the daytime. However, during the night time, residents would typically be residing indoors, and not in garden areas, therefore the impact during the night time would be further reduced by the attenuation provided of the facades of dwellings.

4.4.13 It was unclear from site observations what glazing and ventilation is installed at the existing sensitive receptor. As a worst case scenario, the dwelling can be assumed to be naturally ventilated with no specific mitigation measures to control noise ingress from the surrounding area.

4.4.14 Therefore, windows will need to be opened to provide adequate ventilation in habitable rooms within the dwellings. An open window typically provides 15dB(A) attenuation.

4.4.15 However, with windows open the specific noise from the generators would be 19dB, which is well below the WHO guideline values for bedrooms during the night time.

4.5 Summary of BS4142 Assessment

4.5.1 The results of the BS4142 assessment indicate that without further mitigation measures in place, noise from operations at the site are likely to be 1dB below the existing background sound level during the daytime, and 7dB above the background noise level during the night time.

4.5.2 When considering the site context, in accordance with BS4142, noise from operations at the site will cause a **low impact** at the existing sensitive receptor during both the daytime and the night time periods.

4.5.3 Therefore, when assessed in accordance with NPSE, the impact from the site is likely to be **No Observed Effect Level,** as the noise may be audible on occasions, but it is unlikely to cause any change in behaviour or attitude.

5 CONCLUSIONS

5.1.1 Wardell Armstrong has carried out a noise assessment for a proposed 7MW Gas Peaking Plant, at the Coke Works, Royston, South Yorkshire.

5.1.2 The proposed site for the gas peaking plant, is located within the southern part of the Coke Works, at an existing disused biological effluent treatment plant. The plant will be demolished and the gas peaking facility will be situated in its place.

5.1.3 Some four generator sets would be installed at the site, and they would be housed within acoustically attenuated metal containers, each with adjoining air inlet and extractor attenuators, radiators and emissions flue. The development will also include a 2.4m high acoustic fence along the south eastern and south western boundaries, which will attenuate noise at the existing sensitive receptor.

5.1.4 The operational activities associated with the site, specifically noise from the gas peaking generators, has the potential to create noise which might affect existing sensitive receptors in the vicinity of the development. Therefore, an industrial noise assessment has been carried out in accordance with BS4142.

5.1.5 A background noise survey has been undertaken at a single monitoring location considered representative of the existing sensitive receptor in the vicinity of the existing site, specifically ESR1 (i.e. existing sensitive receptor at Station House, Lund Hill Lane (B6428)).

5.1.6 In accordance with BS4142, the specific noise level of the generators, as received at the existing sensitive receptor, has been compared with the corresponding measured background noise levels during the daytime.

5.2 BS4142 Summary

5.2.1 When considering the site context, in accordance with BS4142, noise from operations at the site will cause a **low impact** at the existing sensitive receptor during both the daytime and the night time periods.

5.3 NPSE Summary

5.3.1 When assessed in accordance with NPSE, the impact operations at the site during all the periods assessed, is likely to be below the **No Observed Effect Level,** as the noise may be audible on occasions, but it is unlikely to cause any change in behaviour or attitude.

Appendix A

Noise Monitoring Results and Background Data Analysis

Appendix A

Noise Monitoring Results

Period Start	LAeq	LAmin	Lamax,f	LA90	LA10
Daytime					
Tue 06/09/2016 07:00	53.7	33.5	70.3	38.4	58.4
Tue 06/09/2016 08:00	53.3	33.2	70.4	38.4	57.9
Tue 06/09/2016 09:00	53.1	33.7	72.1	38.2	57.5
Tue 06/09/2016 10:00	55.0	34.4	84.9	38.5	57.1
Tue 06/09/2016 11:00	54.2	35.6	74.1	39.1	57.2
Tue 06/09/2016 12:00	52.5	34.0	71.3	38.7	56.8
Tue 06/09/2016 13:00	52.7	34.8	71.2	38.6	57.2
Tue 06/09/2016 14:00	52.6	35.0	73.6	38.9	56.9
Tue 06/09/2016 15:00	54.2	33.4	75.4	38.9	57.8
Tue 06/09/2016 16:00	54.1	32.7	80.9	39.1	58.0
Tue 06/09/2016 17:00	56.8	32.1	84.6	39.3	59.0
Tue 06/09/2016 18:00	53.5	32.9	77.0	37.5	57.8
Thu 20/10/2016 13:00	59.3	29.7	72.9	37.0	64.3
Thu 20/10/2016 14:00	59.5	33.3	74.6	39.7	64.3
Thu 20/10/2016 15:00	60.1	33.8	77.6	40.9	64.8
Thu 20/10/2016 16:00	61.2	35.5	75.3	42.4	65.8
Thu 20/10/2016 17:00	61.4	34.1	79.5	42.8	65.7
Thu 20/10/2016 18:00	59.8	31.5	76.3	37.2	64.6
Thu 20/10/2016 19:00	58.5	30.1	75.8	34.9	63.4
Thu 20/10/2016 20:00	57.6	29.1	83.3	32.7	61.3
Thu 20/10/2016 21:00	56.1	29.0	75.4	32.1	60.3
Thu 20/10/2016 22:00	55.7	27.5	74.0	30.8	58.4
Fri 21/10/2016 07:00	59.9	33.9	80.3	38.6	64.6
Fri 21/10/2016 08:00	60.0	35.7	79.8	40.4	65.0
Fri 21/10/2016 09:00	58.6	34.2	75.3	38.9	63.6
Fri 21/10/2016 10:00	58.8	32.3	75.1	37.6	63.4
Fri 21/10/2016 11:00	59.5	32.2	79.9	39.5	63.8
Fri 21/10/2016 12:00	59.2	30.5	74.8	38.3	64.2
Fri 21/10/2016 13:00	59.4	30.9	77.9	37.9	64.3
Fri 21/10/2016 14:00	59.2	29.0	76.7	37.5	64.1
Fri 21/10/2016 15:00	59.9	30.2	79.7	40.2	64.6
Fri 21/10/2016 16:00	61.1	29.6	75.5	41.2	65.5
Fri 21/10/2016 17:00	61.6	30.7	88.8	41.4	65.7
Fri 21/10/2016 18:00	61.5	30.8	91.9	40.2	64.8
Fri 21/10/2016 19:00	58.3	28.8	76.8	35.4	63.1
Fri 21/10/2016 20:00	57.9	29.3	75.7	36.5	62.5
Fri 21/10/2016 21:00	56.1	29.2	79.2	34.1	59.8
Fri 21/10/2016 22:00	55.4	29.7	74.6	32.9	58.5

Sat 22/10/2016 07:00	55.1	30.4	73.2	34.6	58.1
Sat 22/10/2016 08:00	58.4	33.1	75.2	37.3	63.1
Sat 22/10/2016 09:00	58.9	33.2	77.0	36.3	63.7
Sat 22/10/2016 10:00	59.7	32.3	81.4	37.4	64.5
Sat 22/10/2016 11:00	60.6	32.2	86.6	38.9	64.8
Sat 22/10/2016 12:00	59.8	31.3	82.1	39.2	64.2
Sat 22/10/2016 13:00	60.0	33.3	82.3	39.0	64.3
Sat 22/10/2016 14:00	59.9	29.8	80.5	36.8	64.4

Fri 16/06/2017 07:00	56.5	36.6	84.4	41.3	56.5
Fri 16/06/2017 08:00	54.2	36.2	81.0	42.1	55.5
Fri 16/06/2017 09:00	53.2	37.0	71.3	42.4	55.5
Fri 16/06/2017 10:00	52.4	38.0	79.5	42.6	54.7
Fri 16/06/2017 11:00	52.3	36.8	70.6	42.3	55.1
Fri 16/06/2017 12:00	53.4	39.3	73.7	44.6	56.3
Fri 16/06/2017 13:00	51.8	39.8	66.2	43.6	55.3
Fri 16/06/2017 14:00	51.5	38.0	65.7	43.4	55.0
Fri 16/06/2017 15:00	51.6	38.2	65.5	42.5	55.2
Fri 16/06/2017 16:00	52.6	37.5	74.3	43.6	55.7
Fri 16/06/2017 17:00	52.3	37.4	71.2	43.3	55.8
Fri 16/06/2017 18:00	51.2	37.6	65.5	41.8	55.2

Thu 22/06/2017 07:00	50.6	33.1	75.1	39.3	54.3
Thu 22/06/2017 08:00	50.5	36.0	67.4	41.2	54.5
Thu 22/06/2017 09:00	50.2	33.5	70.1	39.5	53.8
Thu 22/06/2017 10:00	49.4	36.2	65.1	40.3	53.3
Thu 22/06/2017 11:00	50.8	36.7	71.8	41.1	53.8
Thu 22/06/2017 12:00	51.4	37.6	68.7	42.2	55.0
Thu 22/06/2017 13:00	51.6	37.4	66.8	42.7	55.1
Thu 22/06/2017 14:00	51.2	38.3	70.2	42.7	54.8
Thu 22/06/2017 15:00	51.9	37.3	75.9	41.8	55.0
Thu 22/06/2017 16:00	54.0	39.8	87.6	44.6	56.3
Thu 22/06/2017 17:00	52.4	39.2	68.1	43.8	55.8
Thu 22/06/2017 18:00	53.6	39.5	73.5	45.0	56.5
Thu 22/06/2017 19:00	52.6	38.3	78.1	42.9	55.4
Thu 22/06/2017 20:00	50.5	38.0	71.0	41.6	54.1
Thu 22/06/2017 21:00	47.0	34.6	66.8	37.9	50.6
Thu 22/06/2017 22:00	46.4	29.6	66.2	32.3	50.7

Fri 23/06/2017 07:00	50.6	37.4	64.7	40.1	55.0
Fri 23/06/2017 08:00	52.1	39.3	71.5	43.0	55.6
Fri 23/06/2017 09:00	51.1	38.0	63.7	42.7	55.1
Fri 23/06/2017 10:00	52.6	41.0	66.7	44.9	56.0
Fri 23/06/2017 11:00	53.9	41.8	69.9	45.9	56.9
Fri 23/06/2017 12:00	52.6	40.5	69.2	44.2	56.0
Fri 23/06/2017 13:00	52.1	40.5	73.8	44.0	55.5
Fri 23/06/2017 14:00	50.7	38.3	63.9	42.5	54.5
Fri 23/06/2017 15:00	52.2	37.8	68.5	43.5	55.7
Fri 23/06/2017 16:00	52.6	39.9	71.4	44.8	55.9

Fri 23/06/2017 17:00	52.8	39.2	70.5	44.5	56.2
Fri 23/06/2017 18:00	53.9	38.2	81.4	43.1	55.6
Fri 23/06/2017 19:00	51.3	38.2	67.8	42.5	55.1
Fri 23/06/2017 20:00	50.5	36.6	69.9	40.7	53.8
Fri 23/06/2017 21:00	47.0	31.8	62.8	36.5	51.0
Fri 23/06/2017 22:00	47.1	30.5	67.8	33.0	50.1

Sat 24/06/2017 07:00	47.7	33.1	76.0	37.1	51.5
Sat 24/06/2017 08:00	48.5	33.1	67.0	38.0	53.0
Sat 24/06/2017 09:00	51.0	38.1	69.0	42.4	54.7
Sat 24/06/2017 10:00	51.6	39.5	72.8	43.9	54.9
Sat 24/06/2017 11:00	51.2	38.8	66.0	43.4	54.6
Sat 24/06/2017 12:00	50.7	38.4	62.7	43.2	54.2
Sat 24/06/2017 13:00	51.2	38.4	76.0	41.7	54.3
Sat 24/06/2017 14:00	52.2	36.9	75.4	41.9	54.7
Sat 24/06/2017 15:00	53.4	38.6	82.5	43.4	54.5
Sat 24/06/2017 16:00	51.9	35.8	82.4	41.7	54.4
Sat 24/06/2017 17:00	51.1	36.5	76.7	41.8	54.2
Sat 24/06/2017 18:00	50.4	37.0	72.7	41.2	53.9
Sat 24/06/2017 19:00	50.1	34.4	71.1	39.6	53.7
Sat 24/06/2017 20:00	47.8	32.6	65.2	37.5	52.0
Sat 24/06/2017 21:00	47.2	31.8	63.1	35.1	51.4
Sat 24/06/2017 22:00	46.0	30.1	70.4	33.1	49.7

Sun 25/06/2017 07:00	44.6	29.0	61.9	34.0	47.7
Sun 25/06/2017 08:00	47.0	30.9	71.8	36.2	49.8
Sun 25/06/2017 09:00	48.8	34.1	69.3	37.9	53.0
Sun 25/06/2017 10:00	48.8	32.8	61.5	37.7	53.3
Sun 25/06/2017 11:00	51.8	35.1	74.1	40.1	54.1
Sun 25/06/2017 12:00	50.6	36.5	69.9	42.0	54.2
Sun 25/06/2017 13:00	49.7	36.5	66.4	40.4	53.6
Sun 25/06/2017 14:00	49.6	36.7	70.5	40.9	53.3
Sun 25/06/2017 15:00	50.0	36.3	65.9	41.0	53.7
Sun 25/06/2017 16:00	50.5	37.0	74.4	40.9	53.5
Sun 25/06/2017 17:00	51.1	37.4	70.7	41.4	54.6
Sun 25/06/2017 18:00	50.4	36.8	71.0	40.9	53.5
Sun 25/06/2017 19:00	48.8	33.8	66.4	38.1	53.0
Sun 25/06/2017 20:00	49.2	32.9	69.3	37.8	53.3
Sun 25/06/2017 21:00	47.1	28.3	68.0	33.8	50.6
Sun 25/06/2017 22:00	44.8	26.9	65.0	30.0	46.5

Mon 26/06/2017 07:00	51.9	33.0	74.9	37.9	56.2
Mon 26/06/2017 08:00	52.4	30.9	78.4	37.5	55.2
Mon 26/06/2017 09:00	49.2	32.8	63.7	37.2	53.6
Mon 26/06/2017 10:00	47.8	32.9	63.3	37.1	52.2
Mon 26/06/2017 11:00	48.7	31.4	69.9	35.8	52.5
Mon 26/06/2017 12:00	48.5	30.0	63.5	35.8	52.9
Mon 26/06/2017 13:00	47.5	29.8	66.0	34.7	52.0
Mon 26/06/2017 14:00	48.1	31.4	70.9	35.4	52.2
Mon 26/06/2017 15:00	50.7	30.6	77.6	35.1	53.2
Mon 26/06/2017 16:00	52.3	29.6	81.2	37.7	54.1
Mon 26/06/2017 17:00	50.1	28.4	66.3	35.6	54.2
Mon 26/06/2017 18:00	50.3	28.8	68.8	35.3	54.3
Mon 26/06/2017 19:00	48.2	27.8	62.9	34.2	52.7
Mon 26/06/2017 20:00	48.4	31.9	71.7	35.5	51.9
Mon 26/06/2017 21:00	46.2	29.5	63.0	32.4	50.7
Mon 26/06/2017 22:00	44.5	27.1	70.3	29.8	47.5

Tue 27/06/2017 07:00	51.9	34.4	68.5	38.0	55.9
Tue 27/06/2017 08:00	52.5	32.5	73.6	38.4	56.0
Tue 27/06/2017 09:00	49.5	31.8	63.3	36.0	54.0
Tue 27/06/2017 10:00	50.3	31.3	69.4	39.4	54.1
Tue 27/06/2017 11:00	51.5	36.9	73.9	42.3	54.7
Tue 27/06/2017 12:00	50.5	35.8	74.0	40.9	54.0
Tue 27/06/2017 13:00	50.1	35.1	65.5	41.2	54.1
Tue 27/06/2017 14:00	51.3	34.5	75.7	38.7	54.6
Tue 27/06/2017 15:00	50.9	32.8	70.3	39.3	54.6
Tue 27/06/2017 16:00	53.5	34.4	81.4	40.3	55.5
Tue 27/06/2017 17:00	51.6	34.2	73.9	40.3	55.1
Tue 27/06/2017 18:00	52.9	33.6	82.6	38.7	54.8
Tue 27/06/2017 19:00	50.1	30.6	68.2	36.5	54.6
Tue 27/06/2017 20:00	48.7	30.4	67.7	34.1	53.1
Tue 27/06/2017 21:00	46.7	28.8	64.3	31.7	51.2
Tue 27/06/2017 22:00	48.8	29.3	74.1	32.2	50.1

Period Start	LAeq	LAmin	Lamax,f	LA90	LA10
Night Time					
Mon 05/09/2016 23:15	54.3	29.1	85.9	30.8	51.9
Mon 05/09/2016 23:30	41.8	29.3	62.3	30.8	38.1
Mon 05/09/2016 23:45	35.6	27.1	56.6	28.9	34.3
Tue 06/09/2016 00:00	41.2	27.5	62.7	28.5	35.0
Tue 06/09/2016 00:15	40.6	25.7	64.1	27.2	32.8
Tue 06/09/2016 00:30	38.3	26.0	63.7	26.9	30.3
Tue 06/09/2016 00:45	37.2	26.5	61.5	27.4	32.6
Tue 06/09/2016 01:00	36.8	26.2	58.1	27.3	33.6
Tue 06/09/2016 01:15	31.7	27.5	42.5	28.2	33.5
Tue 06/09/2016 01:30	36.3	26.8	61.1	27.9	31.7
Tue 06/09/2016 01:45	42.8	26.6	68.5	27.4	33.4
Tue 06/09/2016 02:00	29.6	27.5	39.2	28.2	30.6
Tue 06/09/2016 02:15	35.1	27.7	57.6	28.3	32.5
Tue 06/09/2016 02:30	43.0	26.4	64.4	27.6	34.4
Tue 06/09/2016 02:45	40.6	28.1	61.8	29.4	33.1
Tue 06/09/2016 03:00	39.3	29.3	61.2	30.1	35.3
Tue 06/09/2016 03:15	40.6	27.7	60.8	28.5	35.8
Tue 06/09/2016 03:30	40.8	27.4	60.6	28.3	33.4
Tue 06/09/2016 03:45	37.2	26.2	57.9	27.4	31.3
Tue 06/09/2016 04:00	41.0	28.2	62.5	29.1	33.6
Tue 06/09/2016 04:15	41.9	29.7	62.7	30.5	36.9
Tue 06/09/2016 04:30	44.7	29.8	63.3	31.4	39.6
Tue 06/09/2016 04:45	45.2	28.7	63.9	30.8	45.1
Tue 06/09/2016 05:00	47.0	29.6	63.3	31.3	49.0
Tue 06/09/2016 05:15	49.4	29.4	65.2	31.5	53.8
Tue 06/09/2016 05:30	49.6	31.1	63.6	33.2	54.1
Tue 06/09/2016 05:45	50.6	31.9	65.9	34.5	55.2
Tue 06/09/2016 06:00	58.8	32.3	82.8	35.2	57.8
Tue 06/09/2016 06:15	51.9	33.2	67.1	35.5	57.4
Tue 06/09/2016 06:30	53.5	33.1	68.1	36.1	57.9
Tue 06/09/2016 06:45	52.7	33.9	64.2	36.9	58.2

Thu 20/10/2016 23:00	54.2	26.9	75.2	29.1	55.9
Thu 20/10/2016 23:15	53.3	26.7	74.7	28.3	52.7
Thu 20/10/2016 23:30	49.8	24.9	73.6	26.7	44.4
Thu 20/10/2016 23:45	48.7	24.8	70.2	26.8	42.3
Fri 21/10/2016 00:00	45.5	23.9	70.1	25.3	36.6
Fri 21/10/2016 00:15	49.7	24.5	73.5	25.8	38.0
Fri 21/10/2016 00:30	50.3	24.3	75.5	25.0	41.4
Fri 21/10/2016 00:45	41.6	23.2	65.7	24.1	29.5
Fri 21/10/2016 01:00	43.9	23.7	67.7	24.5	37.2
Fri 21/10/2016 01:15	44.2	24.1	69.0	24.7	30.4
Fri 21/10/2016 01:30	45.6	23.9	69.2	24.6	29.6
Fri 21/10/2016 01:45	51.8	23.8	77.2	24.9	43.6
Fri 21/10/2016 02:00	46.4	23.7	74.1	24.4	29.2
Fri 21/10/2016 02:15	26.7	24.1	34.4	24.4	28.5
Fri 21/10/2016 02:30	49.0	24.9	71.9	25.7	40.6
Fri 21/10/2016 02:45	45.1	23.5	69.2	24.5	28.3

Fri 21/10/2016 03:00	46.9	23.7	72.0	24.2	28.3
Fri 21/10/2016 03:15	42.8	24.3	71.3	24.9	28.4
Fri 21/10/2016 03:30	48.0	24.3	72.6	24.6	31.9
Fri 21/10/2016 03:45	45.8	23.6	68.6	24.2	34.4
Fri 21/10/2016 04:00	46.7	24.2	72.6	24.8	32.7
Fri 21/10/2016 04:15	43.2	23.8	70.4	24.7	28.8
Fri 21/10/2016 04:30	48.5	24.8	71.6	25.9	39.7
Fri 21/10/2016 04:45	51.9	25.4	72.9	26.6	49.6
Fri 21/10/2016 05:00	52.6	26.5	71.5	28.3	54.4
Fri 21/10/2016 05:15	54.8	28.2	73.8	30.1	57.3
Fri 21/10/2016 05:30	58.2	29.5	74.8	32.2	62.2
Fri 21/10/2016 05:45	55.7	28.0	76.7	29.9	57.7
Fri 21/10/2016 06:00	57.3	28.4	77.9	30.4	60.7
Fri 21/10/2016 06:15	57.1	32.5	75.9	33.7	60.4
Fri 21/10/2016 06:30	59.0	32.8	74.8	35.2	63.8
Fri 21/10/2016 06:45	59.5	32.5	73.3	35.5	64.3

Fri 21/10/2016 23:00	54.3	29.5	72.1	31.7	56.5
Fri 21/10/2016 23:15	55.4	29.7	76.7	32.7	56.3
Fri 21/10/2016 23:30	54.1	30.0	74.6	32.5	56.2
Fri 21/10/2016 23:45	52.6	28.8	80.6	31.4	51.9
Sat 22/10/2016 00:00	52.7	29.0	71.1	31.1	54.2
Sat 22/10/2016 00:15	53.7	28.8	75.1	30.7	54.2
Sat 22/10/2016 00:30	52.7	28.4	75.4	30.3	52.6
Sat 22/10/2016 00:45	46.7	26.0	71.2	27.6	35.4
Sat 22/10/2016 01:00	48.9	25.7	71.6	27.6	42.7
Sat 22/10/2016 01:15	49.0	26.1	69.3	27.1	46.6
Sat 22/10/2016 01:30	45.1	25.6	67.2	26.8	36.6
Sat 22/10/2016 01:45	41.2	25.1	67.1	26.1	30.5
Sat 22/10/2016 02:00	49.6	24.8	72.1	26.3	39.2
Sat 22/10/2016 02:15	47.0	25.3	71.6	25.9	36.1
Sat 22/10/2016 02:30	43.6	25.3	68.4	26.6	32.4
Sat 22/10/2016 02:45	47.4	24.6	69.6	25.3	41.5
Sat 22/10/2016 03:00	43.3	25.0	68.9	25.7	32.2
Sat 22/10/2016 03:15	30.7	26.6	44.2	27.8	32.3
Sat 22/10/2016 03:30	45.5	26.4	69.1	27.5	32.8
Sat 22/10/2016 03:45	44.2	25.0	70.0	25.5	28.5
Sat 22/10/2016 04:00	27.5	24.4	40.1	25.0	29.5
Sat 22/10/2016 04:15	49.3	25.3	71.7	25.9	38.5
Sat 22/10/2016 04:30	45.8	24.6	70.5	25.4	29.7
Sat 22/10/2016 04:45	46.3	25.0	68.5	26.6	39.9
Sat 22/10/2016 05:00	50.8	25.9	73.1	26.9	47.9
Sat 22/10/2016 05:15	51.6	26.5	73.0	27.7	49.1
Sat 22/10/2016 05:30	53.7	26.8	72.0	29.0	55.6
Sat 22/10/2016 05:45	53.5	27.3	74.4	29.4	54.9
Sat 22/10/2016 06:00	53.5	26.9	72.2	28.1	54.7
Sat 22/10/2016 06:15	54.2	28.5	72.8	30.4	56.3
Sat 22/10/2016 06:30	56.2	29.2	78.4	31.7	56.9
Sat 22/10/2016 06:45	55.4	28.4	72.5	30.9	57.5

Thu 15/06/2017 23:00	45.4	32.4	65.7	35.6	47.4

Thu 15/06/2017 23:15	44.4	30.6	59.3	34.5	47.8
Thu 15/06/2017 23:30	42.4	30.7	63.5	32.8	44.5
Thu 15/06/2017 23:45	44.8	29.5	66.1	33.8	46.7
Fri 16/06/2017 00:00	43.2	30.1	58.5	32.4	46.4
Fri 16/06/2017 00:15	40.9	28.0	62.5	29.5	38.4
Fri 16/06/2017 00:30	39.7	28.2	60.0	30.0	40.6
Fri 16/06/2017 00:45	37.5	28.9	56.7	30.1	39.7
Fri 16/06/2017 01:00	42.7	29.9	58.7	32.2	46.1
Fri 16/06/2017 01:15	43.0	28.4	61.7	30.7	44.6
Fri 16/06/2017 01:30	33.5	26.8	48.9	28.2	36.8
Fri 16/06/2017 01:45	38.9	27.5	55.2	29.3	42.0
Fri 16/06/2017 02:00	38.0	27.3	57.3	29.4	39.6
Fri 16/06/2017 02:15	40.5	27.6	61.0	28.9	40.6
Fri 16/06/2017 02:30	39.4	28.3	61.1	29.5	38.7
Fri 16/06/2017 02:45	38.8	26.7	56.5	28.0	41.8
Fri 16/06/2017 03:00	37.2	26.6	58.0	27.6	35.7
Fri 16/06/2017 03:15	39.0	26.7	58.5	27.7	37.7
Fri 16/06/2017 03:30	42.5	28.8	61.5	32.7	44.8
Fri 16/06/2017 03:45	50.8	36.9	68.0	40.4	54.3
Fri 16/06/2017 04:00	57.0	38.4	74.8	43.6	56.8
Fri 16/06/2017 04:15	48.6	35.6	60.7	41.1	52.2
Fri 16/06/2017 04:30	46.9	36.0	61.7	39.2	50.4
Fri 16/06/2017 04:45	53.0	33.1	71.8	39.6	54.2
Fri 16/06/2017 05:00	48.0	33.9	62.1	38.9	52.1
Fri 16/06/2017 05:15	51.0	34.1	77.0	37.6	53.1
Fri 16/06/2017 05:30	49.0	33.6	64.8	36.5	52.6
Fri 16/06/2017 05:45	50.4	33.7	70.0	38.7	53.3
Fri 16/06/2017 06:00	50.1	34.1	64.7	39.1	54.0
Fri 16/06/2017 06:15	51.0	35.7	64.9	41.0	54.9
Fri 16/06/2017 06:30	50.6	36.3	63.6	40.3	54.8
Fri 16/06/2017 06:45	50.0	36.8	64.0	40.5	54.3

Thu 22/06/2017 00:00	41.8	29.8	59.7	30.9	42.0
Thu 22/06/2017 00:15	42.0	29.3	63.0	30.5	40.8
Thu 22/06/2017 00:30	47.0	31.2	80.8	32.0	39.5
Thu 22/06/2017 00:45	39.2	29.6	61.4	30.6	39.1
Thu 22/06/2017 01:00	39.9	27.5	61.3	29.0	38.8
Thu 22/06/2017 01:15	34.7	26.8	54.7	28.5	32.3
Thu 22/06/2017 01:30	35.3	27.6	58.7	28.3	31.8
Thu 22/06/2017 01:45	44.0	27.1	64.4	28.3	37.9
Thu 22/06/2017 02:00	38.5	27.2	58.6	28.1	35.5
Thu 22/06/2017 02:15	42.2	27.1	64.9	29.6	42.6
Thu 22/06/2017 02:30	40.4	25.4	64.2	26.6	33.0
Thu 22/06/2017 02:45	40.1	27.1	63.3	28.1	34.3
Thu 22/06/2017 03:00	30.0	26.7	41.1	27.7	31.3
Thu 22/06/2017 03:15	40.5	27.0	59.6	28.3	39.2
Thu 22/06/2017 03:30	46.4	30.4	61.0	36.4	50.2
Thu 22/06/2017 03:45	50.5	35.0	65.9	39.7	54.7
Thu 22/06/2017 04:00	50.4	33.0	62.0	39.5	54.9
Thu 22/06/2017 04:15	66.5	30.9	82.9	35.6	70.6
Thu 22/06/2017 04:30	57.8	30.6	82.3	35.3	57.0

Thu 22/06/2017 04:45	65.0	31.3	86.5	35.4	66.8
Thu 22/06/2017 05:00	66.2	31.4	84.2	36.2	66.0
Thu 22/06/2017 05:15	54.8	29.7	73.3	33.4	56.1
Thu 22/06/2017 05:30	56.1	31.4	71.8	37.4	60.7
Thu 22/06/2017 05:45	47.7	31.7	62.6	35.8	51.8
Thu 22/06/2017 06:00	48.4	34.1	63.8	37.0	52.3
Thu 22/06/2017 06:15	55.9	31.1	80.4	33.3	53.9
Thu 22/06/2017 06:30	52.9	32.7	71.5	35.5	55.5
Thu 22/06/2017 06:45	49.3	33.0	62.6	36.3	54.0

Thu 22/06/2017 23:00	45.7	30.0	61.5	33.9	49.5
Thu 22/06/2017 23:15	43.5	28.1	60.6	30.6	47.4
Thu 22/06/2017 23:30	42.4	28.5	59.9	29.5	43.3
Thu 22/06/2017 23:45	42.6	27.7	61.2	29.1	43.1
Fri 23/06/2017 00:00	41.5	26.2	61.1	28.1	40.1
Fri 23/06/2017 00:15	37.4	25.7	58.5	27.5	36.2
Fri 23/06/2017 00:30	38.9	26.7	57.2	27.7	36.5
Fri 23/06/2017 00:45	43.5	27.4	62.7	28.3	41.8
Fri 23/06/2017 01:00	35.7	27.6	58.3	28.8	33.1
Fri 23/06/2017 01:15	39.7	26.1	60.7	27.8	36.3
Fri 23/06/2017 01:30	38.5	27.2	59.0	28.4	37.9
Fri 23/06/2017 01:45	35.7	27.6	57.9	28.9	34.6
Fri 23/06/2017 02:00	30.6	27.6	41.4	28.6	32.2
Fri 23/06/2017 02:15	33.3	27.3	55.2	28.8	33.0
Fri 23/06/2017 02:30	34.8	28.8	53.9	30.2	36.2
Fri 23/06/2017 02:45	36.5	28.6	57.3	30.1	36.2
Fri 23/06/2017 03:00	40.4	29.8	61.0	31.2	38.7
Fri 23/06/2017 03:15	36.6	28.9	56.3	29.7	36.2
Fri 23/06/2017 03:30	43.1	29.9	62.5	31.6	43.5
Fri 23/06/2017 03:45	50.7	33.7	75.6	36.9	50.1
Fri 23/06/2017 04:00	51.3	35.8	70.3	40.4	55.5
Fri 23/06/2017 04:15	70.2	33.2	84.0	39.0	76.6
Fri 23/06/2017 04:30	67.8	33.8	84.9	37.0	68.5
Fri 23/06/2017 04:45	48.4	34.2	71.1	36.4	48.8
Fri 23/06/2017 05:00	49.6	34.6	66.5	37.2	52.7
Fri 23/06/2017 05:15	49.8	35.9	63.5	38.0	54.8
Fri 23/06/2017 05:30	47.8	35.4	62.8	37.5	52.1
Fri 23/06/2017 05:45	47.3	33.3	64.8	36.5	50.9
Fri 23/06/2017 06:00	53.5	35.7	73.6	38.1	55.2
Fri 23/06/2017 06:15	52.0	35.2	69.2	37.8	56.1
Fri 23/06/2017 06:30	48.5	35.4	62.2	39.1	52.7
Fri 23/06/2017 06:45	50.2	37.1	62.4	39.6	54.6

Fri 23/06/2017 23:00	43.1	29.9	64.8	31.7	43.7
Fri 23/06/2017 23:15	46.0	30.2	64.8	31.8	49.7
Fri 23/06/2017 23:30	43.9	30.0	64.8	31.4	46.1
Fri 23/06/2017 23:45	43.3	28.9	65.5	30.8	42.7
Sat 24/06/2017 00:00	41.7	29.9	59.4	32.9	43.2
Sat 24/06/2017 00:15	41.9	29.6	59.1	31.5	44.6
Sat 24/06/2017 00:30	42.1	29.3	62.1	31.0	41.6
Sat 24/06/2017 00:45	41.2	29.3	65.0	30.8	38.3

Sat 24/06/2017 01:00	39.6	28.1	58.5	29.4	36.8
Sat 24/06/2017 01:15	37.7	28.2	57.4	29.2	36.3
Sat 24/06/2017 01:30	38.4	28.0	58.3	29.1	35.7
Sat 24/06/2017 01:45	42.9	24.7	63.9	26.9	41.3
Sat 24/06/2017 02:00	40.3	26.3	58.7	28.5	42.6
Sat 24/06/2017 02:15	34.8	25.4	55.1	26.8	35.6
Sat 24/06/2017 02:30	38.4	28.3	55.1	30.8	40.4
Sat 24/06/2017 02:45	36.1	26.9	50.7	29.0	38.7
Sat 24/06/2017 03:00	36.2	25.9	57.1	27.1	35.5
Sat 24/06/2017 03:15	38.4	27.7	58.4	29.0	38.7
Sat 24/06/2017 03:30	44.7	30.4	58.7	35.4	48.4
Sat 24/06/2017 03:45	52.0	34.3	68.4	39.4	54.4
Sat 24/06/2017 04:00	51.5	33.8	62.9	38.8	55.7
Sat 24/06/2017 04:15	49.2	31.9	68.1	35.6	53.4
Sat 24/06/2017 04:30	46.2	31.6	64.4	34.3	51.5
Sat 24/06/2017 04:45	46.7	30.7	63.4	33.9	49.7
Sat 24/06/2017 05:00	44.4	29.8	60.4	33.7	47.3
Sat 24/06/2017 05:15	47.5	30.3	62.9	33.0	53.0
Sat 24/06/2017 05:30	43.0	30.8	62.3	32.7	43.7
Sat 24/06/2017 05:45	43.9	30.4	60.3	33.4	46.7
Sat 24/06/2017 06:00	44.6	31.7	61.0	33.8	47.2
Sat 24/06/2017 06:15	46.0	31.2	63.2	34.0	49.6
Sat 24/06/2017 06:30	48.4	32.9	65.4	36.6	53.0
Sat 24/06/2017 06:45	46.0	33.1	62.4	35.8	49.3

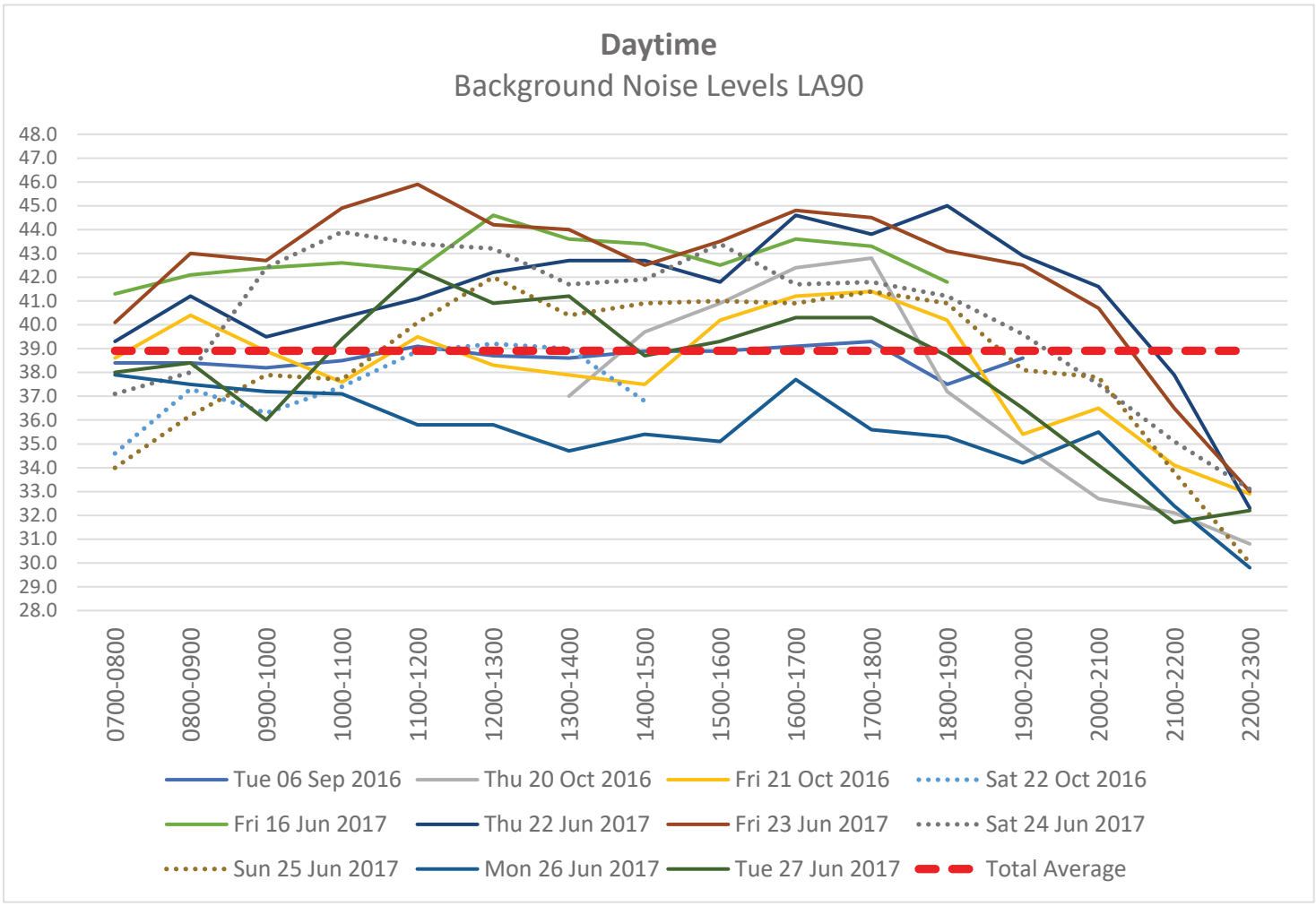
Sat 24/06/2017 23:00	44.7	29.6	61.8	32.0	48.1
Sat 24/06/2017 23:15	44.6	29.7	60.4	31.6	47.8
Sat 24/06/2017 23:30	44.2	26.8	64.5	29.4	47.2
Sat 24/06/2017 23:45	41.7	28.3	59.0	29.3	43.1
Sun 25/06/2017 00:00	40.6	28.0	58.3	29.5	39.6
Sun 25/06/2017 00:15	39.8	26.4	60.5	28.7	38.2
Sun 25/06/2017 00:30	38.6	26.9	56.5	27.9	37.6
Sun 25/06/2017 00:45	39.4	26.5	57.7	28.0	39.7
Sun 25/06/2017 01:00	40.2	26.4	60.8	27.8	38.5
Sun 25/06/2017 01:15	41.8	25.5	61.4	28.0	40.2
Sun 25/06/2017 01:30	41.9	25.9	61.5	27.4	42.0
Sun 25/06/2017 01:45	43.2	29.2	58.6	31.0	46.5
Sun 25/06/2017 02:00	43.2	26.3	62.8	28.6	43.5
Sun 25/06/2017 02:15	41.3	26.5	58.8	29.3	43.7
Sun 25/06/2017 02:30	40.1	26.0	63.5	27.2	36.4
Sun 25/06/2017 02:45	37.9	26.5	57.8	27.8	39.3
Sun 25/06/2017 03:00	40.0	27.3	60.5	29.4	40.7
Sun 25/06/2017 03:15	39.3	26.3	60.3	28.9	41.0
Sun 25/06/2017 03:30	39.2	26.3	61.3	28.3	41.9
Sun 25/06/2017 03:45	47.0	32.0	62.5	37.2	50.5
Sun 25/06/2017 04:00	51.7	33.1	65.4	39.1	56.0
Sun 25/06/2017 04:15	51.4	30.4	69.0	35.5	55.3
Sun 25/06/2017 04:30	56.7	29.4	72.0	34.1	61.9
Sun 25/06/2017 04:45	65.3	31.9	83.9	35.7	66.3
Sun 25/06/2017 05:00	61.9	31.0	84.0	35.2	54.5
Sun 25/06/2017 05:15	46.5	32.5	63.9	36.1	49.4

Sun 25/06/2017 05:30	47.0	29.7	72.5	33.6	45.9
Sun 25/06/2017 05:45	43.2	31.1	59.2	34.4	45.6
Sun 25/06/2017 06:00	45.3	32.3	64.3	35.5	48.0
Sun 25/06/2017 06:15	44.6	31.2	60.3	34.6	47.4
Sun 25/06/2017 06:30	47.3	30.3	63.2	33.8	51.9
Sun 25/06/2017 06:45	43.0	31.5	58.8	33.5	45.5

Sun 25/06/2017 23:00	43.6	28.1	64.3	30.0	43.7
Sun 25/06/2017 23:15	43.0	27.2	61.2	29.8	43.3
Sun 25/06/2017 23:30	41.9	24.8	61.4	27.7	39.6
Sun 25/06/2017 23:45	38.8	25.3	62.0	27.2	35.1
Mon 26/06/2017 00:00	43.8	25.4	63.4	27.2	45.1
Mon 26/06/2017 00:15	40.4	24.9	62.1	26.4	39.9
Mon 26/06/2017 00:30	39.4	23.4	58.9	24.9	38.7
Mon 26/06/2017 00:45	37.3	24.7	59.5	25.7	36.1
Mon 26/06/2017 01:00	36.7	23.8	59.6	25.6	37.7
Mon 26/06/2017 01:15	38.5	24.1	58.2	25.6	37.2
Mon 26/06/2017 01:30	37.4	23.5	59.8	24.5	33.6
Mon 26/06/2017 01:45	36.6	23.4	58.7	24.8	34.3
Mon 26/06/2017 02:00	38.3	23.1	61.4	24.1	37.6
Mon 26/06/2017 02:15	29.3	24.0	44.2	25.0	31.8
Mon 26/06/2017 02:30	39.1	26.3	63.2	27.4	35.1
Mon 26/06/2017 02:45	38.6	28.2	57.5	29.3	34.9
Mon 26/06/2017 03:00	39.1	26.3	61.4	28.4	34.3
Mon 26/06/2017 03:15	39.8	26.8	61.2	28.1	36.8
Mon 26/06/2017 03:30	44.3	29.5	58.8	33.1	47.4
Mon 26/06/2017 03:45	46.7	34.3	62.8	38.1	50.1
Mon 26/06/2017 04:00	55.9	32.2	72.0	38.6	58.1
Mon 26/06/2017 04:15	71.6	33.6	85.2	36.9	78.4
Mon 26/06/2017 04:30	48.8	32.0	61.5	36.2	54.4
Mon 26/06/2017 04:45	57.6	32.2	76.6	34.2	61.2
Mon 26/06/2017 05:00	46.9	32.1	63.6	35.4	50.8
Mon 26/06/2017 05:15	48.2	31.0	69.3	34.9	51.9
Mon 26/06/2017 05:30	53.6	33.6	78.2	36.7	54.6
Mon 26/06/2017 05:45	48.5	31.1	70.3	36.6	52.3
Mon 26/06/2017 06:00	47.7	32.1	62.0	35.6	52.4
Mon 26/06/2017 06:15	48.3	32.2	61.8	34.4	53.6
Mon 26/06/2017 06:30	48.5	31.4	61.6	35.3	53.1
Mon 26/06/2017 06:45	55.5	38.2	66.5	43.3	58.2

Mon 26/06/2017 23:00	42.5	32.7	58.7	33.6	44.4
Mon 26/06/2017 23:15	42.1	33.2	64.4	34.7	42.2
Mon 26/06/2017 23:30	43.3	34.0	58.0	36.1	45.0
Mon 26/06/2017 23:45	40.3	27.7	57.5	29.5	42.5
Tue 27/06/2017 00:00	39.7	28.0	58.7	29.0	38.9
Tue 27/06/2017 00:15	38.6	27.3	61.6	28.2	34.3
Tue 27/06/2017 00:30	39.4	27.9	60.3	29.1	39.3
Tue 27/06/2017 00:45	37.7	26.6	58.9	27.9	33.2
Tue 27/06/2017 01:00	41.4	26.2	63.1	27.3	32.4
Tue 27/06/2017 01:15	37.2	27.0	58.4	28.3	34.7
Tue 27/06/2017 01:30	39.6	25.8	62.8	27.3	33.1

Tue 27/06/2017 01:45	39.1	27.1	58.0	28.7	38.8
Tue 27/06/2017 02:00	39.2	26.5	62.5	28.0	32.0
Tue 27/06/2017 02:15	35.0	26.1	58.2	27.1	31.9
Tue 27/06/2017 02:30	39.7	27.3	56.7	28.3	40.1
Tue 27/06/2017 02:45	30.7	27.8	36.4	29.0	32.1
Tue 27/06/2017 03:00	35.6	28.2	55.6	29.5	33.7
Tue 27/06/2017 03:15	38.1	28.0	62.8	29.3	32.8
Tue 27/06/2017 03:30	40.0	28.0	57.8	29.4	36.1
Tue 27/06/2017 03:45	40.1	28.7	55.8	30.4	44.5
Tue 27/06/2017 04:00	43.7	31.9	57.1	36.4	46.7
Tue 27/06/2017 04:15	49.4	32.7	62.6	37.0	53.8
Tue 27/06/2017 04:30	49.8	32.8	66.1	36.2	53.4
Tue 27/06/2017 04:45	43.1	32.6	59.1	34.7	45.6
Tue 27/06/2017 05:00	46.3	32.6	64.6	35.1	49.5
Tue 27/06/2017 05:15	47.4	32.6	65.8	34.9	51.3
Tue 27/06/2017 05:30	47.6	33.8	62.9	36.3	51.4
Tue 27/06/2017 05:45	46.8	32.8	60.3	35.0	50.8
Tue 27/06/2017 06:00	48.0	32.7	62.4	35.6	52.0
Tue 27/06/2017 06:15	49.0	32.7	62.3	37.0	53.5
Tue 27/06/2017 06:30	58.4	34.1	81.4	36.6	56.4
Tue 27/06/2017 06:45	54.8	34.1	74.5	36.4	56.4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40.0
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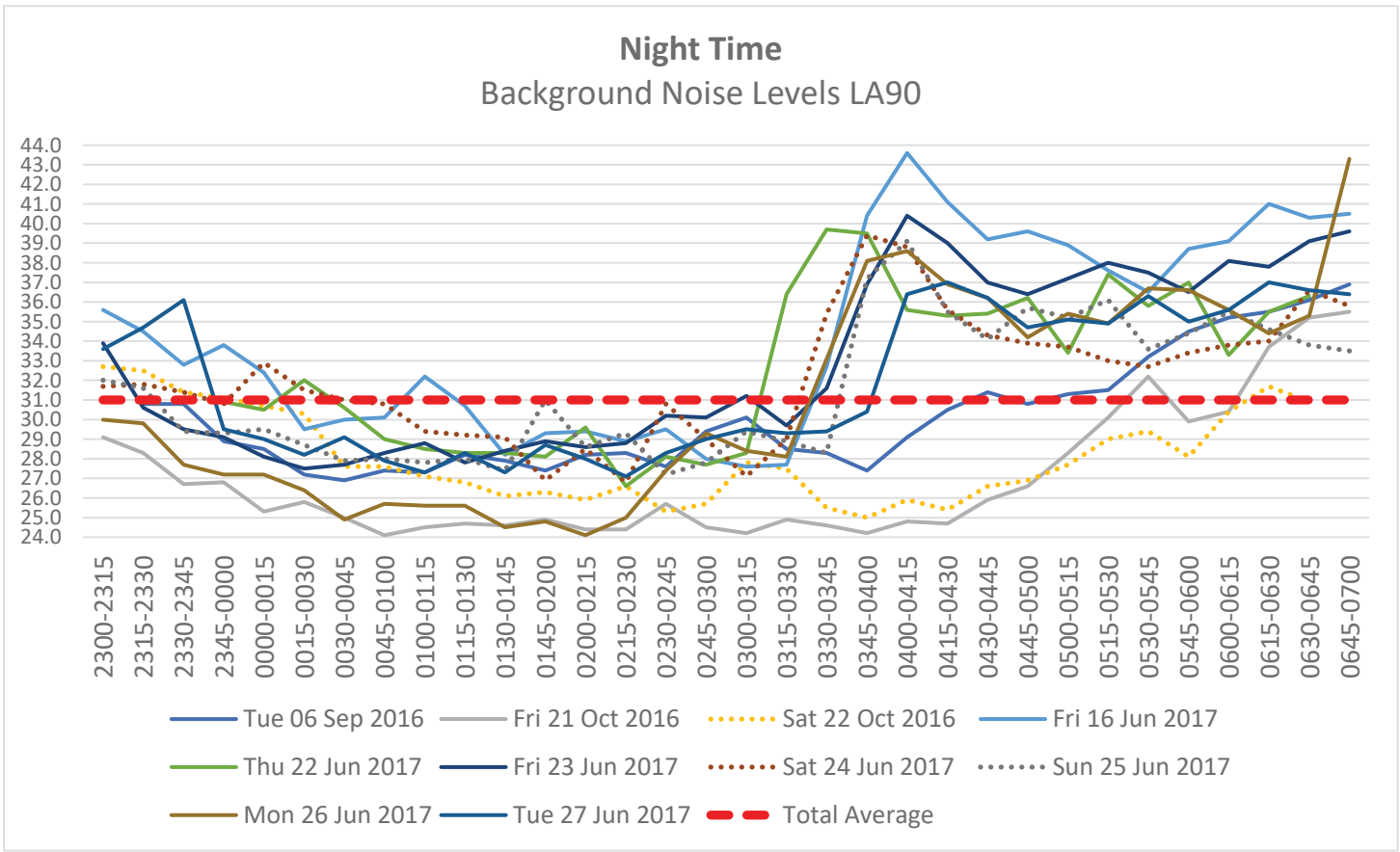
29.0
28.0
0700-0800
0800-0900
0900-1000
1000-1100
1100-1200
1200-1300
1300-1400
1400-1500
1500-1600
1600-1700
1700-1800
1800-1900
1900-2000
2000-2100
2100-2200
2200-2300
Tue 06 Sep 2016
Thu 20 Oct 2016
Fri 21 Oct 2016
Sat 22 Oct 2016
Fri 16 Jun 2017
Thu 22 Jun 2017
Fri 23 Jun 2017
Sat 24 Jun 2017
Sun 25 Jun 2017
Mon 26 Jun 2017
Tue 27 Jun 2017
Total Average


Night Time
Background Noise Levels LA90
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43.0
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41.0
40.0
39.0
38.0
37.0
36.0
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33.0
32.0
31.0
30.0
29.0
28.0
27.0
26.0
25.0
24.0
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2315-2330
2330-2345
2345-0000
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0015-0030
0030-0045
0045-0100
0100-0115
0115-0130
0130-0145
0145-0200
0200-0215
0215-0230
0230-0245
0245-0300
0300-0315
0315-0330
0330-0345
0345-0400
0400-0415
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0445-0500
0500-0515
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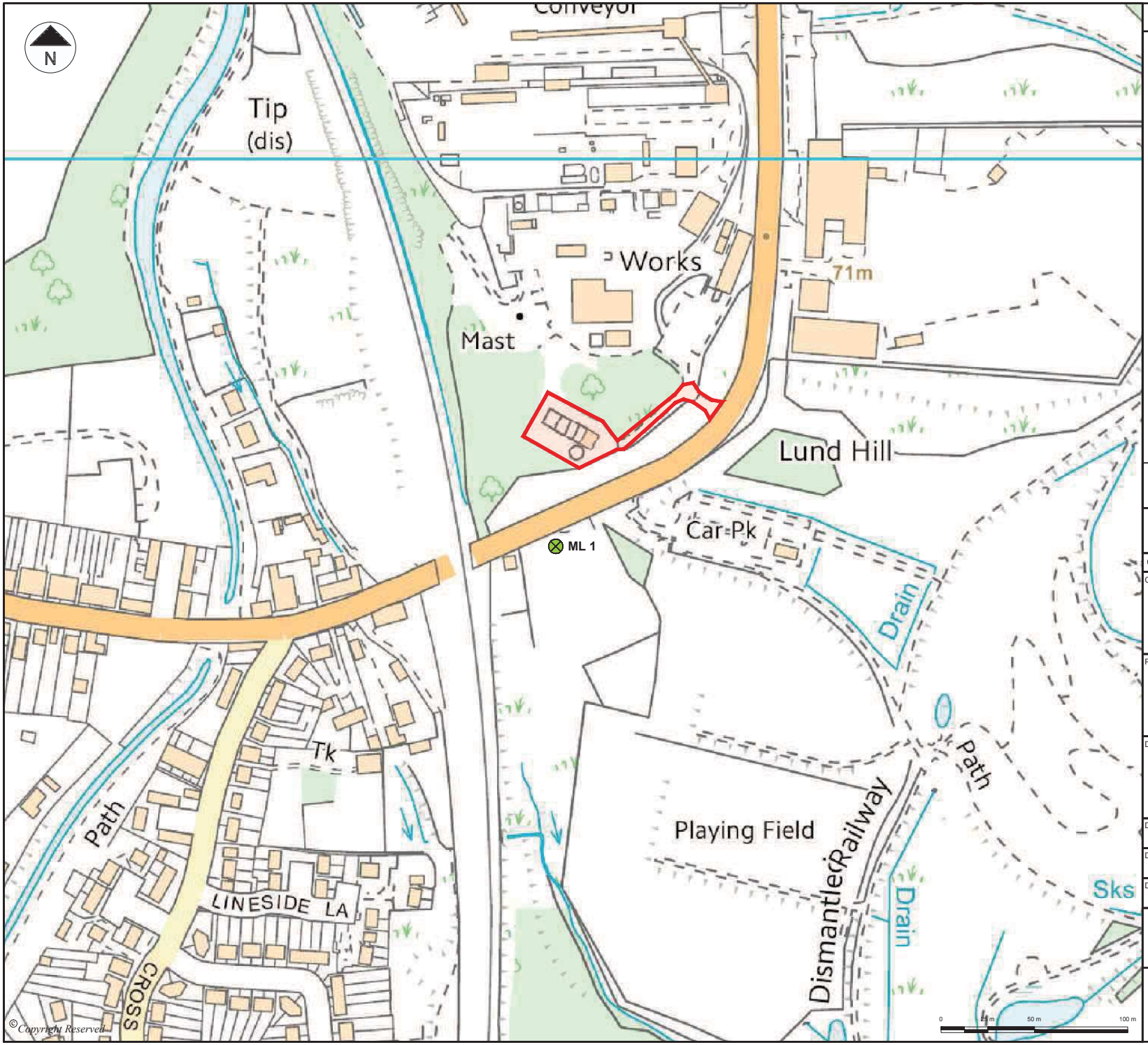
0645-0700
Tue 06 Sep 2016
Fri 21 Oct 2016
Sat 22 Oct 2016
Fri 16 Jun 2017
Thu 22 Jun 2017
Fri 23 Jun 2017
Sat 24 Jun 2017
Sun 25 Jun 2017
Mon 26 Jun 2017
Tue 27 Jun 2017
Total Average

Drawings

Noise Monitoring Location



DO NOT SCALE FROM THIS DRAWING

REFERENCE

SITE BOUNDARY

NOISE MONITORING RECEPTOR LOCATION

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D
B	Boundary Amended	15/09/16	PG	NA	MD
A	Boundary Added	14/09/16	PG	NA	MD

CLIENT

Monckton Energy Limited

PROJECT

Monckton Gas Peaking Facility

DRAWING TITLE

Noise Monitoring Location

DRG No.	REV
LE13674-001	A

DRG SIZE	SCALE	DATE
A3	1:2500	13/09/16

DRAWN BY	CHECKED BY	APPROVED BY
PG	NA	MD

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