PROFESSIONAL CONSULT
FUTURE ENVIRONMENTS

Noise Impact Assessment

Proposed Anaerobic Digestion Facility – Streetly Hall Farm

Client: **Streetly Hall Estate**

Reference: **22.095.1.R2**

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Comments	-	-		

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EXECUTIVE SUMMARY

This Assessment has been undertaken to identify the key sources of noise associated with the proposed Anaerobic Digestion Facility at Streetly Hall Farm which may produce adverse noise impacts upon the closest residential receptors to the Development. Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.

This Assessment has shown that during the daytime, the rated level of noise proposed by the proposed Development does not exceed the typical background sound level at the closest residential receptor. Additionally, during the night-time period, the level of noise falls below the internal noise criteria level for bedrooms.

With regards to HGV noise on the new access road, this Assessment has shown that the predicted noise levels from HGVs accessing and egressing the Site fall below the predicted level of noise from the A1307. As such, no noise mitigation measures are required.

This assessment has shown that during the construction phase, the predicted noise level falls below the guidance contained in BS5228 for rural areas.

In summary, the low predicted level of noise at the receptor, accords with the 'No Observed Adverse Effect Level' as detailed in the PPG.

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1 INTRODUCTION

1.1 Appointment

1.1.1 Professional Consult Limited was instructed by Cornerstone Planning Limited, on behalf of Streetly Hall Estate ('the Applicant'), to prepare a Noise Impact Assessment ('the Assessment') for a proposed Anaerobic Digestion Facility ('the Development') located on land at Streetly Hall Farm in West Wickham, Cambridge CB21 4RR, to be referred to hereafter as 'the Facility'.

1.1 The Development

1.1.1 The Development will comprise of an AD Facility located west of the applicant's Streetly Hall Complex. As part of the proposals a new access road will be built from Webb's Road to the south connecting to the A1307.

1.1.2 The proposed operating hours for the facility are 7am to 7pm over 7 days.

1.2 The Site, Locality & Existing Soundscape

1.2.1 The Site currently exists as agricultural land and is located to the south of Webb's Road and east of Deans Road.

1.2.2 The closest residential receptor to the Development is known as Old Streetly Hall to the southeast.

1.2.3 The sound climate in the area close to the residential receptor is comprised of distant road traffic noise from vehicles on the A1307 and intermittent movements of agricultural machinery.

1.3 Purpose of Assessment

1.3.1 Pre-application consultation has been held with Cambridgeshire County Council and the following has been requested with regards to noise:

> *'A planning application would need to be accompanied by a noise impact assessment which identifies all sensitive receptors and takes into account the construction and operational phases of the proposed development including traffic movements into and out of the site. Transporting the feedstock from Grange Farm through Balsham is likely to have an impact on the amenity of the occupiers of the many properties which front onto the access route. The route from the A1307 using Mill Road would pass only 5 dwellings, most of which are set back from the road.'*

1.3.2 Accordingly, this Assessment has been undertaken to identify the key sources of noise associated with the Development which may produce adverse noise impacts upon the closest residential receptors to the Development. This Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.'

1.3.3 This Assessment has relied upon a background sound survey completed in a location considered to be representative of the sound climate at the closest residential receptor.

1.4 Limitations

1.4.1 The limitations of this report are presented in Appendix 1.

1.5 Confidentiality

1.5.1 Professional Consult has prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2 POLICY & GUIDANCE

2.1 National Planning Policy Framework & National Planning Practice Guidance

2.1.1 The Government updated the National Planning Policy Framework (NPPF) on 20th July 2021 and its associated National Planning Practice Guidance (NPPG) on 24th June 2021. Together, the NPPF and NPPG set out what the Government expects of local authorities. The overall aim is to ensure the planning system allows land to be used for new homes and jobs, while protecting valuable natural and historic environments.

2.1.2 The NPPG adds further context to the NPPF and it is intended that the two documents should be read together.

2.1.3 Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.

2.1.4 Local planning authorities' plan-making and decision making should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

2.1.5 In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

2.1.6 The Observed Effect Levels are as follows:

- Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur;
- Lowest observed adverse effect level: this is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
- No observed effect level: this is the level of noise exposure below which no effect at all on health or quality of life can be detected.

2.1.7 Table 1 summarises the noise exposure hierarchy, based on the likely average response.

Table 1. 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; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported 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. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Effect	Avoid
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

2.1.8 The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation.

2.1.9 These factors include:

- The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day - this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;
- For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- the spectral content of the noise and the general character of the noise. The local topology and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.

2.1.10 More specific factors to consider when relevant:

- where applicable, the cumulative impacts of more than one source should be taken into account along with the extent to which the source of noise is intermittent and of limited duration;
- Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on

windows being kept closed most of the time. In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations; and

- If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

2.2 BS4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

2.2.1 This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- 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 processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Facility.

2.2.2 The procedure detailed in the standard compares the measured or predicted noise level 'the specific noise level' from any of the above detailed noise sources with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is 'typical.'

2.2.3 The specific noise level also acknowledges the following reference time intervals depending upon whether the noise source operates during daytime or night-time periods:

- Daytime (07:00 - 23:00): 1-hour; and
- Night-time (23:00 - 07:00): 15-minutes.

2.2.4 There are a number of 'penalties' which can be attributed to the specific sound level, either subjectively or objectively, depending upon the 'acoustic features' of the sound level under investigation as follows. These penalties vary in their weighting depending upon the severity of the acoustic feature, as follows (with regards to the subject method):

<u>Tonality</u>

- +2dB: where the tonality is just perceptible;
- +4dB: where the tonality is clearly perceptible; and
- +6dB: where the tonality is highly perceptible.

<u>Impulsivity</u>

- +3dB: where the impulsivity is just perceptible;
- +6dB: where the impulsivity is clearly perceptible; and
- +9dB: where the impulsivity is highly perceptible.

Intermittency

- +3dB: where the intermittency is readily distinctive against the acoustic environment.

2.2.5 Where the assessment is carried out using the objective method, the tonality penalty is either 0dB or 6dB and the impulsivity penalty can range from 0dB up to 9dB in increments of 1dB, depending on the level of impulsivity identified.

2.2.6 In addition to the above acoustic features, there is a penalty for 'other sound characteristics' of +3dB where a sound exhibits characteristics that are neither tonal nor impulsive, though is readily distinctive against the acoustic environment.

2.2.7 BS4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.

2.2.8 Assessment of the rating level relative to the background noise level can yield the following commentary:

- Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of impact;
- 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; and
- 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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

2.2.9 Whilst the amended 2019 Standard does make various references to it not being intended to assess noise impacts at indoor locations, section 1.1 does state 'The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident'. Example 6 in the Standard states 'In addition to the rating/background sound level comparison shown in Table A.6, the primary concern is the potential for disturbance of residents who could be sleeping with open bedroom windows. Other guidance, such as BS 8233, might also be applicable in this instance'.

2.2.10 With the above in mind, and for a clear need to ensure that any potential commercial or industrial noise impacts at the building façade do not give rise to internal noise level which causes sleep disturbance in bedrooms, this Assessment will ensure that the predicted rating level (specific sound level including any character corrections) does not exceed 30dB in bedrooms.

2.3 BS5228:2009+A1 2014 Noise and Vibration Control on Construction and Open Sites Part 1: Noise

2.3.1 BS 5228-1: 2009 sets out techniques required to predict and assess the likely noise effects from construction works, based on detailed information on the type and number of plant being used, their location, and the length of time they are in operation. The noise prediction method is used to establish likely noise levels in terms of the $L_{Aeq,T}$ over the core working day.

2.3.2 BS 5228-1: 2009 also documents a database of information, comprising previously measured sound power levels for a variety of different construction plant undertaking various common activities. Example criteria are presented for the assessment of the significance of noise effects. Such criteria maybe concerned with fixed noise limits

and/or ambient noise level changes. With respect to fixed noise limits, BS 5228-1 presents the following noise limits which are taken as an average over a 10-hour working day:

- 70dB (A) in rural, suburban and urban areas away from main road traffic and industrial noise: and
- 75dB (A) in urban areas near main roads and heavy industrial areas.

2.4 South Cambridgeshire District Council's Environmental Health Department

2.4.1 Professional Consult issued the following consultation to South Cambridgeshire District Council on 10th February 2023 which stated:

'We have been appointed by a client to complete a Noise Impact Assessment for a proposed Anaerobic Digestion Facility located on land at Streetly Hall Farm in West Wickham, Cambridge CB21 4RR. The Site currently exist as agricultural land and is located to the south of Webb's Road and east of Deans Road. The closest residential receptor to the Development is known as Old Streetly Hall to the southeast.

It is understood that pre-application advice has been sought from Cambridgeshire County Council and the following has been requested:

> *'You have not stated what the proposed hours of operation would be. AD is a continuous process so it is envisaged that there would be some sort of activity on the site round the clock. This would to an extent be determined by how much the transfer of the feedstock into the digesters is automated. The proposed hours of delivery of the feedstock should be provided. The closest noise sensitive properties to the proposed development site are those within the Streetly Hall Farm complex. The cottages would be afforded screening by the intervening farm buildings but Old Streetly Hall would be directly exposed to noise from the development site. The closest elements of the proposed development would be the covered digestate storage lagoon, surface water pond, straw sheds and CO2 fill station. It is considered likely that the greatest disturbance would be from the construction phase.*
>
> *A planning application would need to be accompanied by a noise impact assessment which identifies all sensitive receptors and takes into account the construction and operational phases of the proposed development including traffic movements into and out of the site. Transporting the feedstock from Grange Farm through Balsham is likely to have an impact on the amenity of the occupiers of the many properties which front onto the access route. The route from the A1307 using Mill Road would pass only 5 dwellings, most of which are set back from the road.'*

Since the original application the access route has been altered and a new access road is proposed from Webb's Road to the south east of the junction with Dean Street (A1037) running across agricultural land.

Professional Consult has completed a background sound survey in a location considered to be representative of the sound climate at the closest residential receptors to the Site, understood to be Old Streetly Hall to the southeast. The sound survey was completed over a full weekday and weekend period in order to capture the quietest period when the AD Facility can operate.

Professional Consult will complete the following assessments:

<u>Construction Phase</u>

- ***Construction Noise:*** *An assessment of the impact of construction noise will be assessed in accordance with the guidance given in BS5228-1:2009+A1 2014.*

Operational Phase

- ***Commercial Noise**: The noise impact produced by any proposed mechanical and electrical plant and HGV movements on Site and along the access road will be assessed in line with the guidance contained in BS4142:2014+A1:2019.*

Where any exceedances of criteria are identified, we will recommend noise mitigation measures to reduce any noise impacts.'

3 NOISE SURVEYS

3.1 Background Sound Survey

3.1.1 Professional Consult has completed a background sound survey in a location considered to be representative of the sound climate at the closest existing residential dwellings to the Site, as follows:

- **Measurement Position 1**: 10:30 Thursday 18th August 2022 – 10:15 Monday 22nd August 2022. The microphone of the sound level meter was located in free-field conditions. The sound climate at the microphone location comprised of distant road traffic noise from vehicles on the A1307 and intermittent movements of agricultural machinery.

3.1.2 Table 2 summarises the measured background sound levels at the microphone location over a typical weekday and weekend period.

Table 2. Summary of Measured Background Sound Levels

Measurement Position	Period	Range of Measured Background Sound Levels, $L_{A90,15mins}$ (dB)	Calculated Typical (Mode) Background Sound Level, $L_{A90,15mins}$ (dB)
NMP1	Daytime (07:00 – 23:00)	26.0 – 44.9	37
	Night-time (23:00 – 07:00)	20.4 – 45.3	27

3.2 Road Traffic Noise Survey – A1307

3.2.1 Professional Consult has completed noise measurements as follows:

- **Noise Measurement Position 2**: Located at a lay-by to the southeast of the Site 10m from the nearside kerbstone of the A1307 between 10:45 – 13:45 on Monday 22nd August 2022 in free-field conditions. Noise sources at the measurement position comprised of road traffic movements along the A1307.

3.2.2 Table 3 summarises the measured road traffic noise levels at the microphone location.

Table 3. Summary of Measured Road Traffic Noise Levels

Measurement Position	Period	Measured Sound Pressure Level (dB)		
		$L_{Aeq,1hr}$	$L_{A10,1hr}$	$L_{Amax,fast}$
NMP2 – Road Traffic	22/08/2022 10:45	73.3	77.1	85.4*
	22/08/2022 11:45	73.2	77.1	
	22/08/2022 12:45	73.4	77.3	
*10th highest $L_{Amax,fast}$				

3.3 Noise Survey Equipment

3.3.1 The following equipment was used for the Noise Surveys.

Table 4. Noise Measurement Equipment

Measurement Position	Equipment Description	Manufacturer & Type No	Serial No.	Calibration Due Date
NMP1 + NMP2	Sound Level Meter	01dB Fusion	12211	19th January 2024
	Pre-amplifier	01dB PRE22	1915082	
	Microphone	GRAS 40CE	331766	
	Calibrator	01dB CAL-31	89095	29 June 2023

3.3.2 The sound level meter was field calibrated prior to and following the surveys and no significant drift was identified.

3.3.3 During the noise surveys the weather conditions were conducive to the measurement of environmental noise, i.e. wind speeds of no more than 5m/s and dry conditions.

3.4 Proposed Mechanical & Electrical Plant Noise Levels – Library Noise Level Data

3.4.1 It is understood that an equipment supplier has not yet been selected and so it is necessary to adopt library noise level data from previous, similar AD Facilities that we have completed and the plant is detailed in Table 5.

Table 5. Library Noise Level Data

Plant	Measured Noise Level, $L_{Aeq,T}$ (dB)	Measurement Distance (m)	Plant Height Above Ground (m)	Plant On-time for Daytime Period (mins/60 mins)	Plant On-time for Night-time Period (mins/15 mins)
4x Fermenter Tanks - 4x mixer motors on each	62.0	2	4	20	15
2x Feeders	68.7	5	3	60	15
CHP	65.0	10	5	60	15
CO2 Recovery System	79.3	1	3	60	15
Gas Upgrade System	75.0	1	3	60	15

3.5 Telehandler & Heavy Goods Vehicle Noise Level Data – Library Noise Level Data

3.5.1 Professional Consult has recently measured vehicular activity associated with operation of the silage clamps at another AD Facility and the measured noise levels are detailed in Table 6.

Table 6. Measured Noise Levels for Mobile Plant on Site

Measured Plant	Measured Noise Level, $L_{Aeq,T}$ (dB)	Noise Measurement Distance (m)	Known 'On-time' / Hour (mins)	Known Quantity / Hour
Telehandler	74.3	4	60	1
HGV Tipper	77.8	8	30	1
HGV manoeuvring on site	71.5	5	10	1

3.5.2 For the proposed new access road Professional Consult has recently measured HGV pass-by is detailed in Table 7.

Table 7. Measured HGV Noise Levels, by Activity

HGV Activity	Measured Noise Level, SEL (dB)	Measured Maximum Noise Level, $L_{Amax,f}$ (dB)
Pass-by at 20mph	82.1 @5m	73.4 @5m

3.6 Internal Noise Levels for the Proposed Buildings

3.6.1 Professional Consult has been provided with the noise levels data for the plant items that are to be located in the Intake and Process Building, the noise levels are detailed in Table 8.

Table 8. Measured Noise Levels for Mobile Plant on Site

Measured Plant	Measured Noise Level, $L_{Aeq,T}$ (dB)	Noise Measurement Distance (m)	Plant On-time for Daytime Period (mins/60 mins)	Plant On-time for Night-time Period (mins/15 mins)
Briquette Press	90.9 Lwa	-	20	15
Straw Mill	97	1	60	15

4 NOISE IMPACT ASSESSMENT

4.1 Assessment Information & Inputs

4.1.1 The following noise sensitive residential dwelling has been identified and accounted for in this Assessment.

Table 9. Identified Receptors

Identifier	Receptor	Type	Noise Model Receiver Location
R1	Old Streetly Hall	Residential	Daytime: At boundary of garden area, 1.5m above ground; and Night-time: At dwelling façade, 4.5m above ground facing Development
R2	Streetly Hall	Residential	Daytime: At boundary of garden area, 1.5m above ground; and Night-time: At dwelling façade, 4.5m above ground facing Development
R3	Streetly Hall Cottages	Residential	Daytime: At boundary of garden area, 1.5m above ground; and Night-time: At dwelling façade, 4.5m above ground facing Development
R4	Dean Road Cottage	Residential	Daytime: At boundary of garden area, 1.5m above ground; and Night-time: At dwelling façade, 4.5m above ground facing Development
R5	The Farmhouse	Residential	Daytime: At boundary of garden area, 1.5m above ground; and Night-time: At dwelling façade, 4.5m above ground facing Development
R6	Mill House	Residential	Daytime: At boundary of garden area, 1.5m above ground; and Night-time: At dwelling façade, 4.5m above ground facing Development
R7	Bottle Hall	Residential	Daytime: At boundary of garden area, 1.5m above ground; and Night-time: At dwelling façade, 4.5m above ground facing Development

4.2 Calculation of Specific Noise Levels at Receptors

4.2.1 In order to include the measured noise levels within CadnaA, it is necessary to calculate a sound power level for the noise source and this is completed in Tables 10 and 11 for the external plant items.

4.2.2 The sound power level has been calculated based on the reference periods in BS4142:2014+A1:2019 which is 1-hour for the daytime period and 15-mins for the night-time period.

Table 10. Calculation of Sound Power Levels – Daytime Period

Plant	Measured Noise Level, $L_{Aeq,T}$ (dB)	Measurement Distance (m)	On-time/hr	Time-corrected Noise Level, $L_{Aeq,T}$ (dB)	Calculated Sound Power Level, L_{WA} (dB)
4x Fermenter Tanks - 4x mixer motors on each	62.0	2	4	57.2	71.2
2x Feeders	68.7	5	3	68.7	90.7
CHP	65.0	10	3	65.0	93.0
CO2 Recovery System	79.3	1	3	79.3	87.3
Gas Upgrade System	75.0	1	1	75.0	83.0
Telehandler*	74.3	4	60	74.3	88.3

HGV Tipper*	77.8	8	30	74.8	91.8
HGV manoeuvring on site*	71.5	5	10	63.7	78.7
*Daytime operation only					

Table 11. Calculation of Sound Power Levels – Night-time Period

Plant	Measured Noise Level, $L_{Aeq,T}$ (dB)	Measurement Distance (m)	On-time/15mins	Time-corrected Noise Level, $L_{Aeq,T}$ (dB)	Calculated Sound Power Level, L_{WA} (dB)
4x Fermenter Tanks - 4x mixer motors on each	62.0	2	15	62.0	76.0
2x Feeders	68.7	5	15	68.7	90.7
CHP	65.0	10	15	65.0	93.0
CO2 Recovery System	79.3	1	15	79.3	87.3
Gas Upgrade System	75.0	1	15	75.0	83.0

4.2.3 In additional to the external noise sources, it is also necessary to determine the impact of noise breakout from the proposed building. The following sound reduction indices are applicable for the various facades for the Process and Intake Building:

- South façade: Kingspan QuadCore KS1000RE LEC, 25dB R_w;
- East façade: Kingspan QuadCore KS1000RE LEC, 25dB R_w;
- North façade: Kingspan QuadCore KS1000RE LEC, 25dB R_w;
- West façade: Kingspan QuadCore KS1000RE LEC, 25dB R_w; and
- Roof: Kingspan QuadCore KS1000RE LEC, 25dB R_w.

4.2.4 In order to accurately calculate noise levels at the Receptor from the building, the calculation procedure detailed below has been adhered to:

1. Calculation of the sound pressure level immediately outside the building components by using the following equation:

- SPL outside = SPL inside - R - 6dB

Where: 'R' is the Sound Reduction Index for the building component

2. Calculation of the sound power level for each building component by using the following equation:

- L_w = SPL + 10 x log S

Where: 'S' is the surface area in square meters of the building component

4.2.5 Table 12 calculates the sound power levels for the facades. In the interests of a worst-case assessment, it is assumed the building will be generating noise at the same time during the daytime period.

Table 12. Calculated Sound Power Levels for Building Components

Noise Source	Façade	Calculated Sound Power Level for Building Component, L_{WA} (dB)
Process Building	North	73.4
	East	74.9
	South	73.4
	West	74.9
	Roof	86.5
Note – a 15-minute time-averaging period has been used to inform the daytime assessment also which ensures a worst-case assessment.		

4.2.6 In order to calculate an accurate overall specific sound pressure level at the closest residential receptors, a noise model has been built using CadnaA and the following inputs have been included in the model:

- Proposed Scheme Layout;
- Site elevations have been calculated using 1m Lidar data and using the topo levels shown on the proposed Site plan;
- Point sources have been used for the plant items detailed in Tables 10 & 11 above with the exception of the HGVs manoeuvring on Site which have been included as a line source. For the Process building vertical area sources have been used for the façades and roof of the building;
- A reflection order of 2 and ground absorption of 0.8 has been used in all calculations; and
- Noise levels generated using ISO 9613-1 and ISO 9613-2 "Acoustics - Attenuation of sound during propagation outdoors" as incorporated into CadnaA software.

4.2.7 Figures 1 and 2 in Appendix 4 details the grid noise maps for the daytime and night-time periods and analysis of the grid noise map indicates the following calculated specific sound pressure levels at the closest receptor to the Site.

Table 13. Calculated Specific Sound Pressure Level at Receptor

Receptor	Period	Calculated Sound Pressure Level, $L_{Aeq,T}$ (dB)
R1	Daytime	23.2 $L_{Aeq,1hr}$

	Night-time	23.2 $L_{Aeq,15mins}$
R2	Daytime	21.4 $L_{Aeq,1hr}$
	Night-time	20.5 $L_{Aeq,15mins}$
R3	Daytime	21.4 $L_{Aeq,1hr}$
	Night-time	18.5 $L_{Aeq,15mins}$
R4	Daytime	22.4 $L_{Aeq,1hr}$
	Night-time	23.5 $L_{Aeq,15mins}$
R5	Daytime	17.5 $L_{Aeq,1hr}$
	Night-time	16.2 $L_{Aeq,15mins}$
R6	Daytime	13.6 $L_{Aeq,1hr}$
	Night-time	13.4 $L_{Aeq,15mins}$
R7	Daytime	16.2 $L_{Aeq,1hr}$
	Night-time	15.1 $L_{Aeq,15mins}$

4.2.8 The following has been considered in determining if any acoustic features exist in the predicted noise level at the closest residential receptor:

- Tonality: In determining if any tones exist in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the subjective method;
- Impulsivity: In determining if any impulsiveness is evident in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the subjective method;
- Intermittency: Whether or not the measured operations turn on or off during the assessment reference periods; and
- Other sound characteristics: Where no penalties are allocated for the above features, but there will be an audible noise at the closest receptor.

4.2.9 Table 14 allocates the character corrections.

Table 14. Allocation of Character Corrections

Noise Source	Tonality Correction (dB)	Impulsivity Correction (dB)	Intermittency Correction (dB)	Other Sound Characteristics Correction (dB)	Comments
Fixed mechanical plant	2	0	3	0	Potential for tonality and intermittency from various items of plant

Mobile plant	0	0	3	0	Intermittent activity and potential for impulsivity due to goods handling
Highest Correction	**+2**	**0**	**+3**	**0**	
Total Correction	**+5**				

4.2.10 Table 15 completes the BS4142 Assessment.

Table 15. BS4142 Assessment

Receptor	Period	Calculated Specific Noise Level at Receptor, $L_{Aeq,T}$ (dB)	Total Overall Character Correction (dB)	Calculated Rated Level, $L_{A,r}$ (dB)	Typical Background Sound Level ($L_{A90,15mins}$) (dB)	Difference +/- (dB)
R1	Daytime	23.2	5	28.2	37	-8.8
	Night-time	23.2	5	28.2	27	+1.2
R2	Daytime	21.4	5	26.4	37	-10.6
	Night-time	20.5	5	25.5	27	-1.5
R3	Daytime	21.4	5	26.4	37	-10.6
	Night-time	18.5	5	23.5	27	-3.5
R4	Daytime	22.4	5	27.4	37	-9.6
	Night-time	23.5	5	28.5	27	+1.5
R5	Daytime	17.5	5	17.5	37	-19.5
	Night-time	16.2	5	21.2	27	-5.8
R6	Daytime	13.6	5	15.4	37	-21.6
	Night-time	13.4	5	18.4	27	-8.6
R7	Daytime	16.2	5	16.6	37	-20.4
	Night-time	15.1	5	20.1	27	-6.9

4.2.11 A review of Table 15 indicates that during the daytime period, the rated level of noise falls below the typical background sound level and BS4142:2014+A1:2019 provides the following advice for this outcome:

> *'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.'*

4.2.12 Table 15 indicates that for the night-time period, there is an exceedance of the background sound climate by 1.2dB at R1 & 1.5 at R4, however it is unreasonable to expect that residents will be using their garden area during the night-time period and so, for this period, , it is of greater importance to consider internal noise impacts within a bedroom, as advocated in BS4142:2014+A1:2019 and this assessment is presented in Table 16. Internal noise impacts have been calculated with windows open.

Table 16. Calculation of Internal Specific Noise Level with an Open Window

Receptor	Overall Calculated Specific Noise Level at Receptor, $L_{Aeq\ t}$ (dB)	Sound Reduction of a Partially Open Window (dB)	Calculated Internal Noise Level, $L_{Aeq\ t}$ (dB)	Internal Noise Criteria for Bedrooms, $L_{Aeq\ 8hr}$ (dB)	Difference +/- (dB)
R1	28.2	15	13.2	30	-16.8
R2	25.5	15	10.5	30	-19.5
R3	23.5	15	8.5	30	-21.5
R4	28.5	15	13.5	30	-16.5
R5	21.2	15	6.2	30	-23.8
R6	18.4	15	3.4	30	-26.6
R7	20.1	15	5.1	30	-24.9

4.2.13 Table 16 shows that the internal level of noise falls below the 30dB internal noise criteria level at the closest receptor with a partially open window.

4.3 HGVs Using New Access Road

4.3.1 It is understood that there will be up to 25 HGVs which can access the Site during the busiest 24-hour period during harvest season. These HGVs will access and egress the Site using the access road off the A1307 which has existing residential dwellings close to it. Accordingly, it is necessary to compare the daytime and night-time predicted noise levels from HGVs accessing and egressing the Site with noise levels predicted from the A1307.

4.3.2 For the purposes of this assessment, the daytime and night-time average ($L_{Aeq,T}$) noise levels have been calculated based on the shortened measurement procedure detailed in CRTN. The respective daytime and night-time noise levels have been derived using the following calculations:

- Calculation of the $L_{A10,18hr}$ noise level by using the following formula:

$$L_{10,18hr} = L_{10,3hr} - 1dB$$

- Calculation of the $L_{Aeq,16hr}$ noise level by using the following formula:

$$L_{eq,16hr} - L_{10,18hr} - 2dB$$

- Derivation of the night-time $L_{Aeq,8hr}$ noise level by using the following formula:

$$L_{night}\ (L_{eq,8hr}) = 0.90 \times L_{10,18hr} - 3.77dB$$

4.3.3 Table 17 calculates the daytime and night-time noise levels for the A1307.

Table 17. Calculation of Road Traffic Noise Levels

Measurement Position	Period	Calculated $L_{Aeq,t}$ (dB)	10th Highest Measured $L_{Amax,fast}$ (dB)	Distance from Centre of Road (m)
NMP2	Daytime (07:00 – 23:00)	74.2	-	13.5
	Night-time (23:00 – 07:00)	64.8	85.4	

4.3.4 The predicted daytime and night-time noise levels have been distance corrected to the nearest receptors allowing for noise attenuation a 3dB per doubling of distance which results in a noise level of 71.5dB $L_{Aeq\ 16hr}$ and 62.1dB $L_{Aeq\ 8hr}$ at Mill House located 200m to the east of the proposed access road.

4.3.5 Table 18 calculates the average noise levels at the existing dwellings from the additional HGV movements on the access road and compares this to the existing ambient noise climate at the dwellings.

Table 18. Predicted Average HGV Noise Levels & Comparison Against the Existing Ambient Noise Climate

Period	HGV Pass-by Noise Level, SEL (dB)	Noise Measurement Distance (m)	Distance to Closest Receptor (m)	Movements /period*	Calculated $L_{Aeq,T}$ at Receptor (dB)	Existing $L_{Aeq,T}$ at Receptor (dB)	Difference +/- (dB)
Day	82.1	5	200	2	21.5	71.5	-50.0
Night	82.1	5	200	2	62.1	62.1	-30.8

*25 movements / day rounds to 2 per 1-hour daytime period. As a worst-case assumption, a value of 2 HGVs has also been assumed for the night-time 15-minute period.

4.3.6 Table 18 shows that the predicted average noise levels for the daytime and night-time periods for HGVs using the A1307 falls below the existing ambient noise climate at the receptors and so no noise mitigation measures are required.

4.3.7 In addition to the average noise levels, maximum noise levels from HGV's using the A1307 must be considered for the night-time period. Table 19 compares the predicted maximum noise level, a distance correction of 6dB per doubling of distance has been applied to the measured maximum noise level. This has resulted in a level of 80.0dB $L_{Amax,fast}$ at the receptor due to exiting traffic on the A1307.

Table 19. Predicted Maximum HGV Noise Level

Period	HGV Pass-by Noise Level, $L_{Amax,fast}$ (dB)	Noise Measurement Distance (m)	Distance to Closest Proposed Receptor (m)	Calculated $L_{Amax,fast}$ at Receptor (dB)	Existing $L_{Amax,fast}$ at Receptor (dB)	Difference +/- (dB)
Night	73.4	5	200	41.4	80.0	-38.6

4.3.8 Table 19 indicates that the predicted level of noise from HGVs will fall below the predicted level of noise from the A1307.

4.4 Construction Noise

4.4.1 It is inevitable with any major development that there will be some disturbance caused to those nearby during the clearance and construction phases of the Site. However, disruption due to construction is only temporary, limited to the Site and is of medium-term duration.

4.4.2 The predictions have followed the methodology contained within BS 5228-1 and are in terms of the $L_{Aeq,T}$ over the core working day, which is 08:00 to 18:00 hours Monday to Friday and 08:00 to 13:00 on Saturdays. The predictions assume all plant being located at the closest boundary of the Site to each receptor to represent a worst case scenario.

4.4.3 Table 20 sets out the typical plant type, number and assumed utilisation (percentage 'on-time') used in the prediction of noise levels during the key construction activities.

Table 20. Construction Plant Details

Plant Type	Measured, L_{Aeq} at 10m (dB)	Number Operating on Site	Assumed % on-time
Excavators	88	2	60
Large Dump Trucks	86	3	60
Concrete Lorries	67	2	40
Concrete Boom Pump	80	2	40
Construction Tools	85	1	40
Generator	94	1	100
Mobile Telescopic Crane	77	2	40

4.4.4 Predictions have been carried out to determine noise levels likely to be generated during the construction phase for the development. For the purpose of these predictions, it was assumed that the intervening ground between the construction noise sources, and the receivers will be acoustically hard such that there will be no additional attenuation of sound due to ground absorption, and that no acoustic barriers such as local buildings will be present, thus informing a worst-case assessment.

4.4.5 Noise predictions have been undertaken for the seven off-Site noise sensitive receptors R1 to R7.

4.4.6 Table 21 sets out the average predicted unmitigated earthworks and construction noise levels for the construction stage of the works. A 70dB assessment criterion has been adopted in accordance with guidance contained in BS 5228 for rural areas. Any exceedances are highlighted in bold.

Table 21. Predicted Noise Levels at Receptors during the Construction Phase

Receptor	Distance to Receptor from Boundary of the Site (m)	Predicted Noise Level $L_{Aeq,10hr}$ (dB)
R1	290	67.0
R2	315	66.3
R3	400	64.2
R4	600	60.7
R5	840	57.8
R6	705	59.3
R7	1150	55.1

4.4.7 A review of Table 21 identifies that the calculated unmitigated construction noise level is not exceeded at receptors. Therefore, no mitigation measures will be required as all receptors fall below the 70dB $L_{Aeq,10hour}$ criterion adopted for this assessment.

4.4.8 It should be noted that these predictions are worst case in that it is assumed that any mitigation measures, or screening afforded by site hoardings have not been implemented. Furthermore, it should be noted that it is unlikely that operations are to be conducted on the sections of the Site closest to each of the identified receptors for significant periods of time. For the majority of the construction phase, it is expected that activities will be conducted at greater distances from the receptors.

5 MITIGATION

5.1.1 The previous section has indicated a low impact noise level from the Development and so there is no requirement to consider noise mitigation measures.

6 CONCLUSION

6.1.1 Professional Consult Limited was instructed by Cornerstone Planning Limited, on behalf of Streetly Hall Estate, to prepare a Noise Impact Assessment for a proposed Anaerobic Digestion Facility located on land at Streetly Hall Farm in West Wickham, Cambridge CB21 4RR.

6.1.2 The Development will comprise of an AD Facility located west of the applicant's Streetly Hall Complex. As part of the proposals a new access road will be built from to the south to connect with the A1307. The proposed operating hours for the facility are 7am to 7pm over 7 days a week.

6.1.3 The Site currently exists as agricultural land and is located to the south of Webb's Road and east of Deans Road. The closest residential receptor to the Development is known as Old Streetly Hall to the southeast.

6.1.4 The sound climate in the area close to the residential receptor is comprised of distant road traffic noise from vehicles on the A1307 and intermittent movements of agricultural machinery.

6.1.5 Pre-application consultation has been held with Cambridgeshire County Council and the following has been requested with regards to noise:

> *'A planning application would need to be accompanied by a noise impact assessment which identifies all sensitive receptors and takes into account the construction and operational phases of the proposed development including traffic movements into and out of the site. Transporting the feedstock from Grange Farm through Balsham is likely to have an impact on the amenity of the occupiers of the many properties which front onto the access route. The route from the A1307 using Mill Road would pass only 5 dwellings, most of which are set back from the road.'*

6.1.6 Accordingly, this Assessment has been undertaken to identify the key sources of noise associated with the Development which may produce adverse noise impacts upon the closest residential receptors to the Development. This Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.'

6.1.7 This Assessment has relied upon a background sound survey completed in a location considered to be representative of the sound climate at the closest residential receptor. The assessment has used CadnaA noise modelling software to accurately model the predicted level of noise at the closest receptors to the Site.

6.1.8 This assessment has shown that during the daytime, the rated level of noise proposed by the proposed Development does not exceed the typical background sound level at the closest residential receptor. Additionally, during the night-time period, the level of noise falls below the internal noise criteria level for bedrooms.

6.1.9 With regards to HGV noise on the new access road, this Assessment has shown that the predicted noise levels from HGVs accessing and egressing the Site fall below the precited level of noise from the A1307. As such, no noise mitigation measures are required.

6.2 This assessment has shown that during the construction phase the predicted noise level falls below the guidance contained in BS 5228 for rural areas.

6.2.1 In summary, the low predicted level of noise at the receptor, accords with the 'No Observed Adverse Effect Level' as detailed in the PPG.

APPENDIX 1: LIMITATIONS

This report and its findings should be considered in relation to the terms of reference and objectives agreed between Professional Consult Limited and the Client.

The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

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APPENDIX 2: GLOSSARY OF ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

An indication of the range of sound levels commonly found in the environment is given in the following table.

Table 1: Typical Sound Pressure Levels

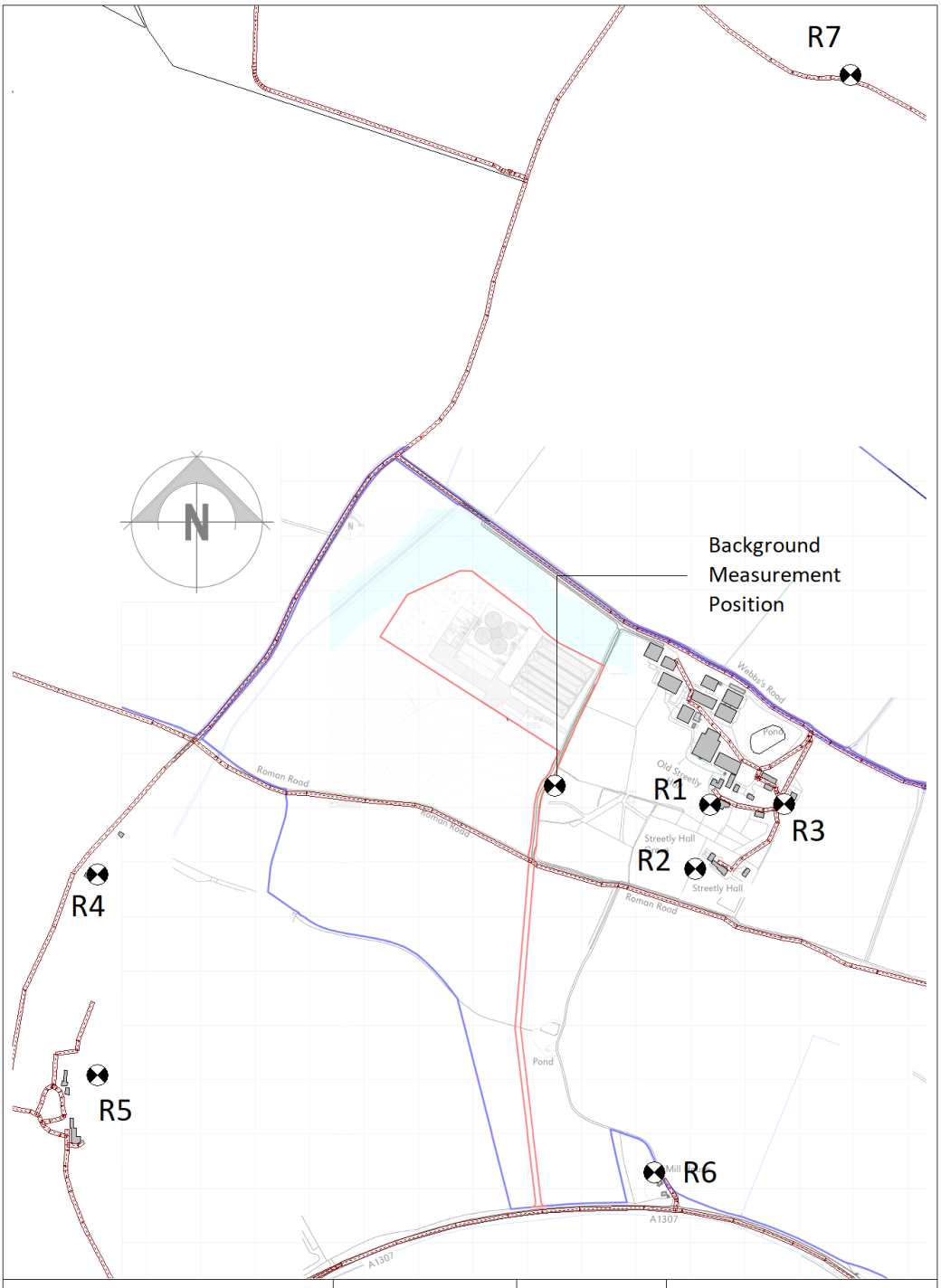
Sound Pressure Level (dB)	Location/Example
0	Threshold of hearing
20 - 30	Quiet bedroom at night
30 - 40	Living room during the day
40 - 50	Typical office
50 - 60	Inside a car
60 - 70	Typical high street
70 - 90	Inside factory
100 - 110	Burglar alarm at 1m away
110 - 130	Jet aircraft on take off
140	Threshold of pain

Table 2: Terminology

Descriptor	Explanation
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10-5Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq, T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L_{10} & L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
Free-field Level	2A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Fast	A time weighting used in the root mean square section of a sound level meter with a 125millisecond time constant.
Slow	A time weighting used in the root mean square section of a sound level meter with a 1000millisecond time constant.

APPENDIX 3: FACILITY LOCATION PLAN

Figure 1 **Facility Plan**



APPENDIX 4: DAYTIME AND NIGHT-TIME GRID NOISE MAPS

Figure 1 **Daytime Grid Noise Map**

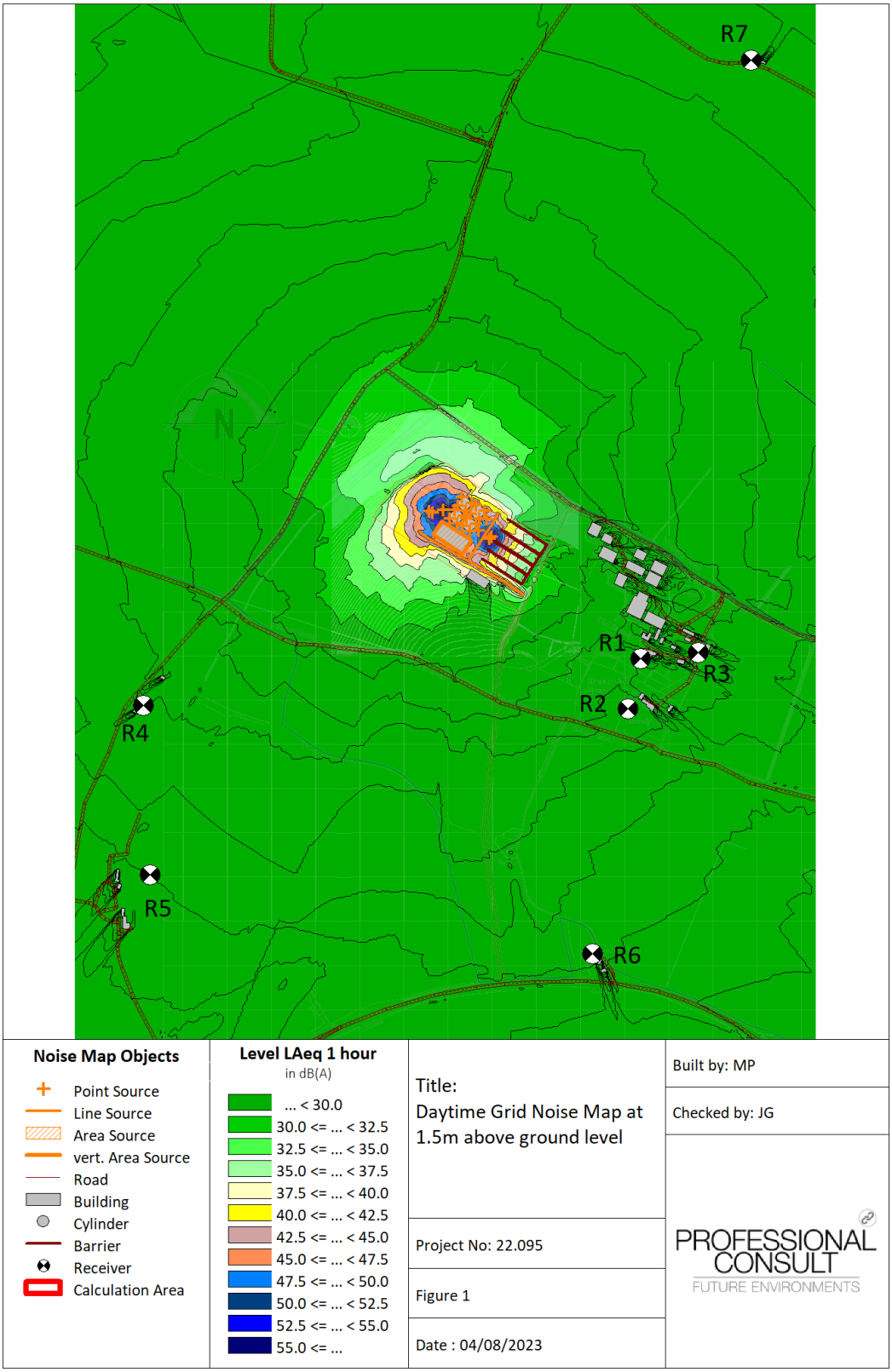
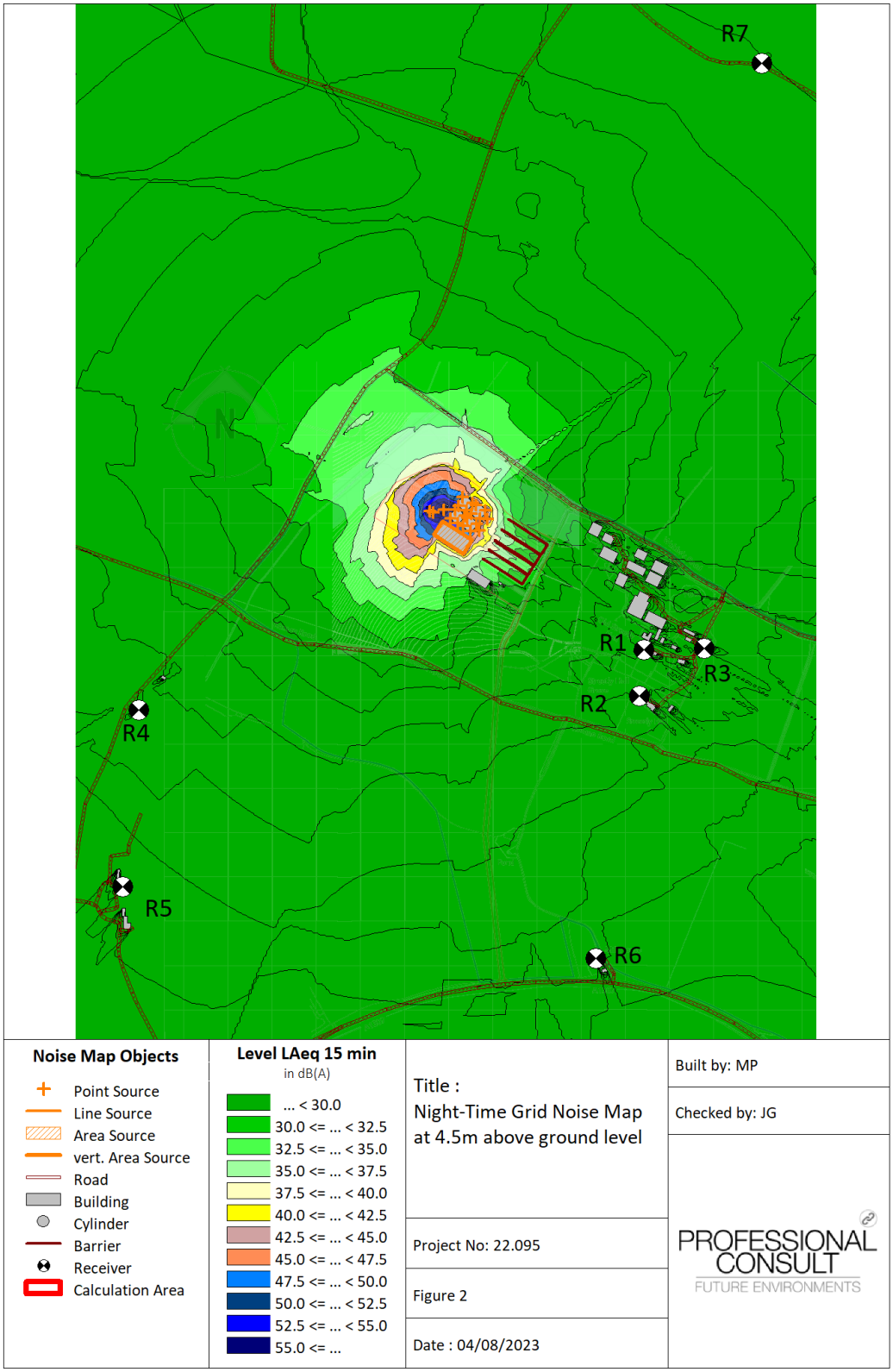


Figure 2 **Night-time Grid Noise Map**



APPENDIX 5: BACKGROUND SOUND LEVELS FROM HISTORIC BACKGROUND SOUND SURVEY

Start Date & Time	Measured Sound Pressure Level	
	$L_{Aeq,t}$	$L_{A90,t}$
18/08/2022 10:30	49.4	40
18/08/2022 10:45	44.3	38
18/08/2022 11:00	47.3	37
18/08/2022 11:15	42.3	37
18/08/2022 11:30	44	37
18/08/2022 11:45	43.3	36
18/08/2022 12:00	40.5	32
18/08/2022 12:15	38.4	32
18/08/2022 12:30	38	34
18/08/2022 12:45	38.2	33
18/08/2022 13:00	39.3	34
18/08/2022 13:15	40.1	36
18/08/2022 13:30	39.6	36
18/08/2022 13:45	37.8	35
18/08/2022 14:00	43.3	37
18/08/2022 14:15	43.8	39
18/08/2022 14:30	51	39
18/08/2022 14:45	42.3	39
18/08/2022 15:00	45	39
18/08/2022 15:15	47.9	39
18/08/2022 15:30	44.8	38
18/08/2022 15:45	43.4	37
18/08/2022 16:00	49	38
18/08/2022 16:15	45.8	37
18/08/2022 16:30	41.2	37
18/08/2022 16:45	42.6	36
18/08/2022 17:00	42.6	39
18/08/2022 17:15	40.8	39
18/08/2022 17:30	42.6	40
18/08/2022 17:45	42.9	39
18/08/2022 18:00	42.4	39
18/08/2022 18:15	41.5	37
18/08/2022 18:30	40.5	36
18/08/2022 18:45	41.5	36
18/08/2022 19:00	37.1	34
18/08/2022 19:15	39.4	35
18/08/2022 19:30	40.2	34
18/08/2022 19:45	41.9	33
18/08/2022 20:00	42.8	34
18/08/2022 20:15	41.1	34
18/08/2022 20:30	40.8	34
18/08/2022 20:45	37	33
18/08/2022 21:00	36.7	32
18/08/2022 21:15	34.8	31

18/08/2022 21:30	36.2	31
18/08/2022 21:45	37.2	33
18/08/2022 22:00	36.4	32
18/08/2022 22:15	36.7	33
18/08/2022 22:30	35.1	31
18/08/2022 22:45	39.2	31
18/08/2022 23:00	35.1	30
18/08/2022 23:15	36	31
18/08/2022 23:30	36.6	30
18/08/2022 23:45	36.5	28
19/08/2022 00:00	33	29
19/08/2022 00:15	34	29
19/08/2022 00:30	40.1	29
19/08/2022 00:45	35.8	31
19/08/2022 01:00	33.9	28
19/08/2022 01:15	33.5	28
19/08/2022 01:30	32.7	28
19/08/2022 01:45	37.6	28
19/08/2022 02:00	34.7	30
19/08/2022 02:15	32.9	28
19/08/2022 02:30	34.5	29
19/08/2022 02:45	33.7	28
19/08/2022 03:00	33.1	29
19/08/2022 03:15	32.2	27
19/08/2022 03:30	30.9	24
19/08/2022 03:45	32.9	27
19/08/2022 04:00	32.6	27
19/08/2022 04:15	31.6	26
19/08/2022 04:30	34.3	30
19/08/2022 04:45	34.6	30
19/08/2022 05:00	35.6	31
19/08/2022 05:15	38	34
19/08/2022 05:30	40.3	34
19/08/2022 05:45	36.4	33
19/08/2022 06:00	40.8	36
19/08/2022 06:15	40.3	38
19/08/2022 06:30	42.9	40
19/08/2022 06:45	41.9	39
19/08/2022 07:00	41.1	39
19/08/2022 07:15	40.4	38
19/08/2022 07:30	40.9	36
19/08/2022 07:45	37.6	34
19/08/2022 08:00	39.8	36
19/08/2022 08:15	41.7	37
19/08/2022 08:30	43.1	34
19/08/2022 08:45	40	36
19/08/2022 09:00	40.4	35

19/08/2022 09:15	40	35
19/08/2022 09:30	44.1	38
19/08/2022 09:45	41.7	38
19/08/2022 10:00	39.8	35
19/08/2022 10:15	40.3	35
19/08/2022 10:30	44.9	37
19/08/2022 10:45	43.1	37
19/08/2022 11:00	45.3	37
19/08/2022 11:15	48.7	38
19/08/2022 11:30	44.2	36
19/08/2022 11:45	46.3	39
19/08/2022 12:00	44	37
19/08/2022 12:15	42.3	36
19/08/2022 12:30	46.9	39
19/08/2022 12:45	46.3	37
19/08/2022 13:00	45.5	37
19/08/2022 13:15	47.1	36
19/08/2022 13:30	47.6	36
19/08/2022 13:45	48.3	39
19/08/2022 14:00	41.5	33
19/08/2022 14:15	43.3	37
19/08/2022 14:30	45.7	39
19/08/2022 14:45	44.8	38
19/08/2022 15:00	45.1	38
19/08/2022 15:15	47.1	40
19/08/2022 15:30	47.2	39
19/08/2022 15:45	46.6	41
19/08/2022 16:00	45.5	39
19/08/2022 16:15	48.1	39
19/08/2022 16:30	43.2	38
19/08/2022 16:45	45.4	36
19/08/2022 17:00	42.7	37
19/08/2022 17:15	43.4	39
19/08/2022 17:30	43.4	37
19/08/2022 17:45	40.5	34
19/08/2022 18:00	42.2	37
19/08/2022 18:15	40.8	37
19/08/2022 18:30	41.6	36
19/08/2022 18:45	40.3	36
19/08/2022 19:00	39.1	32
19/08/2022 19:15	37.8	35
19/08/2022 19:30	40	33
19/08/2022 19:45	35.4	31
19/08/2022 20:00	44.1	31
19/08/2022 20:15	37.9	31
19/08/2022 20:30	36.2	28
19/08/2022 20:45	36.3	29

19/08/2022 21:00	33.3	30
19/08/2022 21:15	34.4	28
19/08/2022 21:30	33.8	29
19/08/2022 21:45	36.2	28
19/08/2022 22:00	32.6	27
19/08/2022 22:15	32.7	27
19/08/2022 22:30	36.1	26
19/08/2022 22:45	30.8	27
19/08/2022 23:00	36.6	27
19/08/2022 23:15	32.6	27
19/08/2022 23:30	35.7	28
19/08/2022 23:45	36.2	27
20/08/2022 00:00	36.9	26
20/08/2022 00:15	32.1	26
20/08/2022 00:30	40.3	28
20/08/2022 00:45	40.1	27
20/08/2022 01:00	34	27
20/08/2022 01:15	31.5	28
20/08/2022 01:30	32.9	27
20/08/2022 01:45	30.9	24
20/08/2022 02:00	29.1	23
20/08/2022 02:15	30.6	25
20/08/2022 02:30	30.1	24
20/08/2022 02:45	29.9	22
20/08/2022 03:00	30.6	21
20/08/2022 03:15	27.3	22
20/08/2022 03:30	30.4	21
20/08/2022 03:45	28.9	22
20/08/2022 04:00	30.7	25
20/08/2022 04:15	30.5	21
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