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1. INTRODUCTION

Ramboll UK Limited (Ramboll) have been commissioned by Reading Borough Council (the client) to undertake a noise impact assessment (NIA) in relation to a planning application for a proposed development in Reading. This assessment will provide environmental information to be used in support of this application.

1.1 Application Description

The Application Proposal is for a gypsy and traveller transit site. A transit site is "A site intended for short-term use while in transit. The site is usually permanent and authorised, but there is a limit on the length of time residents can stay" (*glossary, Gypsy and Traveller Travelling Showpeople and Houseboat Dweller Accommodation Assessment, arc4 for Reading Borough Council (June 2017)*). It will comprise 7 pitches, bin store, outdoor seating area, play area, and a new access onto Island Road. Each pitch comprises a kitchen/toilet block and space for two caravans and two cars.

1.2 Site Description

The Application Site is overgrown scrubland. It is enclosed by mature, dense tree belts to the east and west which will be retained. To the north is Island Road which leads to the A33; to the east is car parking serving the Reading Sewage Treatment Works; to the south the scrubland narrows and continues; to the west is a watercourse beyond which the Reading Waste Management Park is located within a large warehouse building. This facility is served by both public vehicles and HGVs and is understood to be a 24-hour operation. The site location is shown in Figure 1-1.



Figure 1-1: Satellite image shown approximate site boundary and adjacent industrial premises

2. LEGISLATION, POLICY AND GUIDANCE

2.1 National Legislation

2.1.1 Control of Pollution Act, 1974, Part III - Noise

The Control of Pollution Act, 1974¹ (CPA) is a combination and refinement of earlier Acts including: The Public Health Act, 1936² (replaced by the Public Health Act 1990, Part III) and the Noise Abatement Act 1960³.

Section 60 enables a Local Authority to serve a notice on a person (this includes a company) who is carrying out, or who is planning to carry out, works of construction, demolition, road-works, railway maintenance etc. in order to control the noise from those operations.

Section 61 also enables such a person to apply to the Local Authority for consent in respect of such works. The Act introduces the concept of using 'Best Practicable Means' (BPM) to control the impact of noise, where significant impacts are likely to occur. BPM refers to the selection of plant, techniques and equipment to reduce noise whilst considering local conditions, current state of technical knowledge and the financial implications. Factors such as timing, duration, location and opportunities for acoustic screening or separation are employed; in order to ensure that impacts are controlled in so far as is reasonably practicable. The demonstrable use of BPM can also be used as a defence to enforcement action under nuisance legislation.

2.1.2 The Environmental Protection Act, 1990 (as amended)

Section 79 of the Environmental Protection Act 1990⁴ (EPA) declares that a number of matters, including noise, are to be statutory nuisances. Under the provisions of the Environmental Protection Act, the Local Authority is required to inspect its area periodically to detect any nuisance and, where a complaint of a statutory nuisance is made by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint.

2.1.3 National Planning Policy Framework, 2021

The NPPF adopted in July 2021 in England outlines the Government's planning policies and requirements for the planning system. The NPPF forms a material consideration in planning decisions and hence must be complied with for planning permission to be granted.

Paragraph 185 of the NPPF states that the planning system should seek to:

- *"Mitigation and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- *Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason".*

To achieve these aims the NPPF refers to the Noise Policy Statement for England 2010.

¹ Secretary of State, 1974, Control of Pollution Act, HMSO. Available: <http://www.legislation.gov.uk/ukpga/1974/40/contents>

² Secretary of State, 1960, Noise Abatement Act, HMSO.

³ Secretary of State, 1960, Noise Abatement Act, HMSO. Available: <http://www.legislation.gov.uk/ukpga/1960/68/section/1/enacted>

⁴ Secretary of State, 1990. Environmental Protection Act 1990, The Stationary Office. Available: <http://www.legislation.gov.uk/ukpga/1990/43/contents>

2.1.4 Noise Policy Statement for England, 2010

The Noise Policy Statement⁵ for England sets out the long-term vision of Government noise policy: to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

The NPSE outlines the following three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

- “Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.”

The guidance defines two concepts applied to noise impacts. These are:

- NOEL is defined as: “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 which is defined as: “This is the level above which adverse effects on health and quality of life can be detected.”; and
- SOAEL which is defined as the level above which significant adverse effects on health and quality of life occur.

The three aims can therefore be interpreted as follows:

The first aim is to avoid noise levels above the SOAEL;

The second aim considers situations where noise levels are between the LOAEL and SOAEL. In such circumstances, all reasonable steps should be taken to mitigate and minimise the effects. However, this does not mean that such adverse effects cannot occur; and

The third aim considers situations where noise levels are between the LOAEL and NOEL. In these circumstances, where possible, reductions in noise levels should be sought through the pro-active management of noise.

The NPSE recognises that it is not possible to have single objective noise-based measures that define the SOAEL, LOAEL and NOEL that are applicable to all sources of noise in all situations. The levels are likely to be different for different noise sources, receptors and at different times of the day.

2.1.5 Planning Practice Guidance

The Government's PPG on noise provides guidance on the effects of noise exposure, relating these to people's perception of noise, and linking the effects to the NOEL and, as exposure increases, the LOAEL and SOAEL.

As exposure increases above the LOAEL, noise 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. As the noise exposure increases, it will then at some point cross the SOAEL boundary.

The LOAEL is described in PPG as the level above which “noise starts to cause small changes in behaviour and/or attitude e.g. turning up the volume of the television, speaking more loudly, or,

⁵ Ministry of Housing, Communities and Local Government, 2017. Planning practice guidance. HMSO. London.

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."

PPG identifies the SOAEL as the level above which "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."

For the purposes of this assessment, the magnitude of effect is assigned by reference to the guidance in PPG-Noise, as summarised in Table 2-1.

Table 2-1: PPG Guidance

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 (LOAEL)			
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 (SOAEL)			
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 Adverse 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

Factors to be considered in determining if noise is a concern are identified including the absolute noise level of the source, the existing ambient noise climate, time of day, frequency of occurrence, duration, character of the noise and cumulative impacts.

2.1.6 Planning policy for traveller sites

The planning policy for traveller sites⁶ provides general guidance about the suitability and location of traveller sites. It highlights that local planning authorities should provide proper consideration of the noise effect on the health and well-being of any travellers that may locate there or on others as a result of new development. The includes potential limiting which parts of a site may be used for business operations.

2.2 Local Policy

2.2.1 Reading Local Plan

The Reading Borough Local Plan⁷ adopted 2019 has several general requirements in relation to noise; primarily associated with reducing stress caused by traffic noise, safeguarding amenity and not damaging the environment including sensitive receptors. This applies to all developments and must be balanced with other factors where 'employment land' is proposed.

Specifically, EN16 states that *"proposals for development that are sensitive to the effects of noise...will only be permitted in areas where they will not be subject to high level of such pollution, unless adequate mitigation measures are provided to minimise the impact of such pollution". This is reiterated for residential areas in Central Reading in CR6 which reads "ii) Proposals for new residential developments within the central area will be required to demonstrate how the issue of potential noise disturbance from neighbouring land uses and other sources, and air quality implications of residential development, have been considered and if necessary, mitigated. New residential development should not be located next to existing town centre uses where those uses would give rise to unacceptable level of noise and disturbance to the occupiers of the new scheme, unless this can be mitigated."*

With reference to plant noise, EN17 requires that *"Where noise generating equipment is proposed, the noise source specific level (plant noise level) should be at least 10dBA below the existing background level as measured at the nearest noise sensitive receptor."* The Local Plan also impresses the importance of assessing cumulative impacts and not changing behaviours or attitudes of people as a result of noise.

Noise guidance in the Local Plan relating to advertising and drinking establishments is not considered relevant to the proposed development. Policy H13 relates to provision for gypsies and travellers; however, there is no specific mention of noise in relation to this.

2.2.2 Reading Core Strategy

The Reading Core Strategy adopted in 2008 and altered in 2015 highlights that inappropriate building design has resulted in noise disturbance from late-night commercial activity upon residential activity.

Implementation of the Core Strategy is via a set of strategic policies, with more detail given in the Reading Borough Local Development Framework. The following policy contain reference to noise

⁶ Department for Communities and Local Government, 2015. Planning Policy for Traveller Sites., Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/457420/Final_planning_and_travellers_policy.pdf

⁷ Reading Borough Council, 2019. Reading Local Plan, Reading Borough Council. Available: http://www.reading.gov.uk/media/10410/Reading-Borough-Council-Local-Plan/pdf/Local_Plan_Adopted_November_2019.pdf

- Policy CS34 – “development will only be permitted where it would not be damaging to the environment through air, land, noise or light pollution ... proposals for development that are sensitive to the effect of air, noise or light pollution will only be permitted in areas where they will not be subject to high levels of such pollution, unless adequate mitigation measures are provided to minimise the impact of such pollution.”

2.2.3 Sustainable Design and Construction: Adopted Supplementary Planning Document July 2011

This document supplements the Local Plan and highlights the need to mitigate noise from infrastructure to residential development via sound insulation, bunds and noise barriers. In addition, it states that noise pollution should be kept to a minimum in areas near protected species in both the design and during construction phase. An updated version was consulted upon in late 2019 but has not yet been published.

2.3 Guidance

2.3.1 BS 4142:2014+A1 2019 - 'Methods for Rating and Assessing Industrial and Commercial Sound'

BS4142:2014 – Method for rating and assessing industrial and commercial sound provides a method for assessing the significance of noise emissions from industrial and/or commercial sound source.

The significance of industrial and commercial sound is assessed based on the difference between the rating level resulting from plant operation measured or predicted at the nearest noise sensitive premises, and the existing background noise level in the area, as determined by a noise survey. BS 4142 states:

- 'a) Typically, the greater this difference, the greater the magnitude of the impact.*
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- d) 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.'*
- e) A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value.'*

BS4142 also sets out the following rating penalties based on the characteristics of the noise source:

- Tonality: up to 6 dB rating penalty applicable depending on its perception;
- Impulsivity: up to 9 dB rating penalty applicable depending on its perception;
- *Other sound characteristics*: a 3 dB penalty applicable for readily distinctive sound feature characteristics that are neither tonal or impulsive;

- Intermittency: a 3 dB penalty applicable for specific sound that has identifiable on/off conditions.

2.3.2 BS 8233:2014– ‘Guidance on sound insulation and noise reduction for buildings’

Guidance on the acceptable noise levels within residential buildings is given in British Standard BS 8233:2014. In lieu of specific guidelines for internal noise levels within mobile homes, criteria from this standard have been used for this assessment. The internal noise levels depend on the use of each room and the sensitivity to noise of the activities expected to be conducted in the rooms. An extract of the indoor ambient noise levels for dwellings is reproduced in Table 2-2.

Table 2-2: BS8233 Indoor Ambient Noise Levels for Dwellings

Activity	Location	Daytime	Night-time
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room / area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Note 7 referring to Table 5 in BS 8233 states that where development is considered necessary or desirable, despite external noise levels above guideline values, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

For external amenity areas such as gardens, courtyards and terraces, BS 8233 specifies that it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ acceptable in noisier environments. However, it is also recognised that these guidelines values are sometimes not achievable in all circumstances where the development might be desirable.

2.3.3 Professional Practice Guidance on Planning and Noise (ProPG)

This document has been produced by industry bodies CIEH, IOA and ANC to provide guidance on the management of noise within the planning system in England. In this document, good acoustic design is encouraged through a recommended approach to determine the extent noise could pose a risk to the proposed development.

3. ASSESSMENT METHODOLOGY

3.1 Baseline noise survey

A baseline noise survey has been conducted on the site of the proposed development and is detailed in Section 4. The results of this survey inform the assessment. The survey and assessment methodology were confirmed to be acceptable to Reading Borough Council by Brian Conlon, Principal Planner on 20 October 2021.

3.2 Site suitability for travellers' site

The guidance provided above (BS8233 and ProPG) is designed to assess residential amenity. ProPG in particular is designed to assess the impact of transportation noise sources on residential development. A level 1 risk assessment from ProPG will be undertaken as the north end of the site is subject to transportation noise. However, as the majority of noise sources in the vicinity are industrial / commercial a BS4142 assessment will be undertaken.

3.3 Measurement parameters

The relevant parameters recorded are as follows:

- Background Sound Level – $L_{A90,T}$ – defined in the Standard as the 'A' weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, and quoted to the nearest whole number of decibels;
- Specific Sound Level – $L_{Aeq,Tr}$ – the equivalent continuous 'A' weighted sound pressure level produced by the specific sound source at the assessment location over a given time interval, T;
- Residual Sound Level – $L_{Aeq,T}$ – the equivalent continuous 'A' weighted sound pressure level at the assessment location in the absence of the specific sound source under consideration, over a given time interval, T; and
- Rating Level – $L_{Ar,Tr}$ – the specific sound level plus any adjustment made for the characteristic features of the noise.

Daytime noise activity at a location representative of both the east and west site boundaries have been measured. As multiple noise sources are expected to be audible from each industrial site, a specific noise source / plant item from each site was identified for assessment, and this selection was justified as per the requirement of BS 4142.

As the noise sources / plant items associated with the operation of the site are already present and continuous throughout the daytime period, the time histories were examined closely, along with periods of observed activity, to ascertain periods which are representative of the specific noise level from offsite industrial activities. An alternative measurement location was identified and used to measure the residual sound level, as per paragraph 8.1.2 of BS 4142.

The ambient noise levels and the residual sound levels were extrapolated from these measurements in accordance with Example A.5 from BS 4142 and penalties applied in accordance with the methodology of this standard. The excess of rating noise level over background sound level was then used to determine the magnitude of impact as outlined in Table 3-1. Medium and high impacts are considered significant.

Table 3-1: Magnitude of Impact of Adjacent Industrial Sites

Rating level – background level (dB)	BS 4142 Descriptor	Adverse Effect Level	Magnitude of Impact
≥10	Indication of significant adverse effect, depending on context	SOAEL	High
5 to 9	Indication of adverse effect, depending on context	SOAEL	Medium
0 to 5	Indication of low adverse effect, depending on context	LOAEL	Low
≤0	Indication of low impact	NOAEL	Low

3.4 External amenity

BS 8233 specifies that it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ acceptable in noisier environments. If the ambient noise levels in the proposed amenity space are < 55 dB $L_{Aeq,T}$, no significant impact is expected. If the noise levels are in excess of 55 dB $L_{Aeq,T}$, mitigation options will be proposed.

To assess the suitability of noise levels at proposed external amenity locations, measured noise levels on the site of the proposal development will be compared to these guidance values.

BS 4142 considers external noise levels with respect to noise from industrial/commercial sources, and as such is also relevant to assess the external impact.

3.5 Noise emission from the site

The nearest noise-sensitive receptor is the Hilton hotel at 0.5 km away. At this distance a point source would have over 50 dB of attenuation due to distance alone. It is therefore considered that any fixed plant associated with the toilet block / office should easily meet the requirements of Reading Borough Council (10 dB below background). Similarly, any noise generated by the travellers' themselves is unlikely to have significant impact at 0.5 km away, especially given the proximity of the Hilton to the A33. As a result, a more detailed study has not been undertaken.

3.6 Internal amenity

In the absence of specific guidelines for mobile homes, internal amenity shall be assessed to British Standard BS 8233:2014. This standard provides guidance on the acceptable noise levels within dwellings, as presented in Table 2-2. In the absence of typical sound attenuation values achieved by the envelope of a mobile home, an attenuation of 10 dB will be applied to measured daytime and night-time noise levels on site and compared to these guideline values. This level of attenuation is the minimum typically expected from permanent housing with an open window, as suggested in the now superseded British Standard BS 8233:1999.

4. BASELINE NOISE SURVEY

4.1 Methodology

A noise survey was carried out by Michael Raven of Ramboll between Wednesday 27 October – Monday 1 November 2021. The survey comprised one unattended noise logger measuring continuously throughout the survey period (5 days), one attended 3-hour measurement, and 4 contiguous attended 15-minute measurements at two locations. All measurements were taken at 1.5m above the ground and at least 3m from other reflecting surfaces in accordance with BS7445-1.

During attendance of the site of the proposed development on both Wednesday 27 October and Monday 1 November, it was found that no activities from the sewage treatment works to the east of the site were audible. This was confirmed through examination of sound levels / audio from the noise logger. Therefore, the assessment of industrial noise solely considers the Waste Management Park to the west.

As the operation of the Waste Management Park is continuous throughout the daytime and night-time periods, an alternative location for the measurement of residual sound level was identified. This location is annotated ST3 in Figure 4-1. This location was deemed suitable for the following reasons:

- The alternative location is the same distance from residual sound sources (the A33) and sound from the Waste Management Park is acoustically screened by change in topography;
- The sound from the Waste Management Park is not distinguishable at the alternative location;
- Measurements of background and residual levels at this location were taken under the same meteorological conditions as when the measurements of the ambient sound level were conducted;
- A series of contiguous $L_{A90(15min)}$ measurements were conducted with variation in results not exceeding 1 dB;
- Ambient sound at the alternative location comprised the same sources as the assessment location, other than the specific sound source being rated;
- Both measurement locations have the same ground cover and are free from significant sound reflecting structures;
- Measurement heights above ground level are the same at the two locations;
- Background sound level and residual sound level measurements were conducted in the same daytime period as when the specific sound level was determined;
- There were no transient or other influencing noise events.

4.2 Measurement locations

The measurement locations are shown in Figure 4-1 below. Prefixes ST and LT denote attended and unattended measurements respectively. Location ST3 is the alternative measurement location used to measure the residual and background sound levels. ST2 is representative of the closest pitch (pitch 6) to the Waste Management Park. Drawing E03883-HCC-00-XX-DR-A-1510 by HCC Property Services (Nov 2021) shows the proposed site plan, and this has been reproduced in Appendix 1.

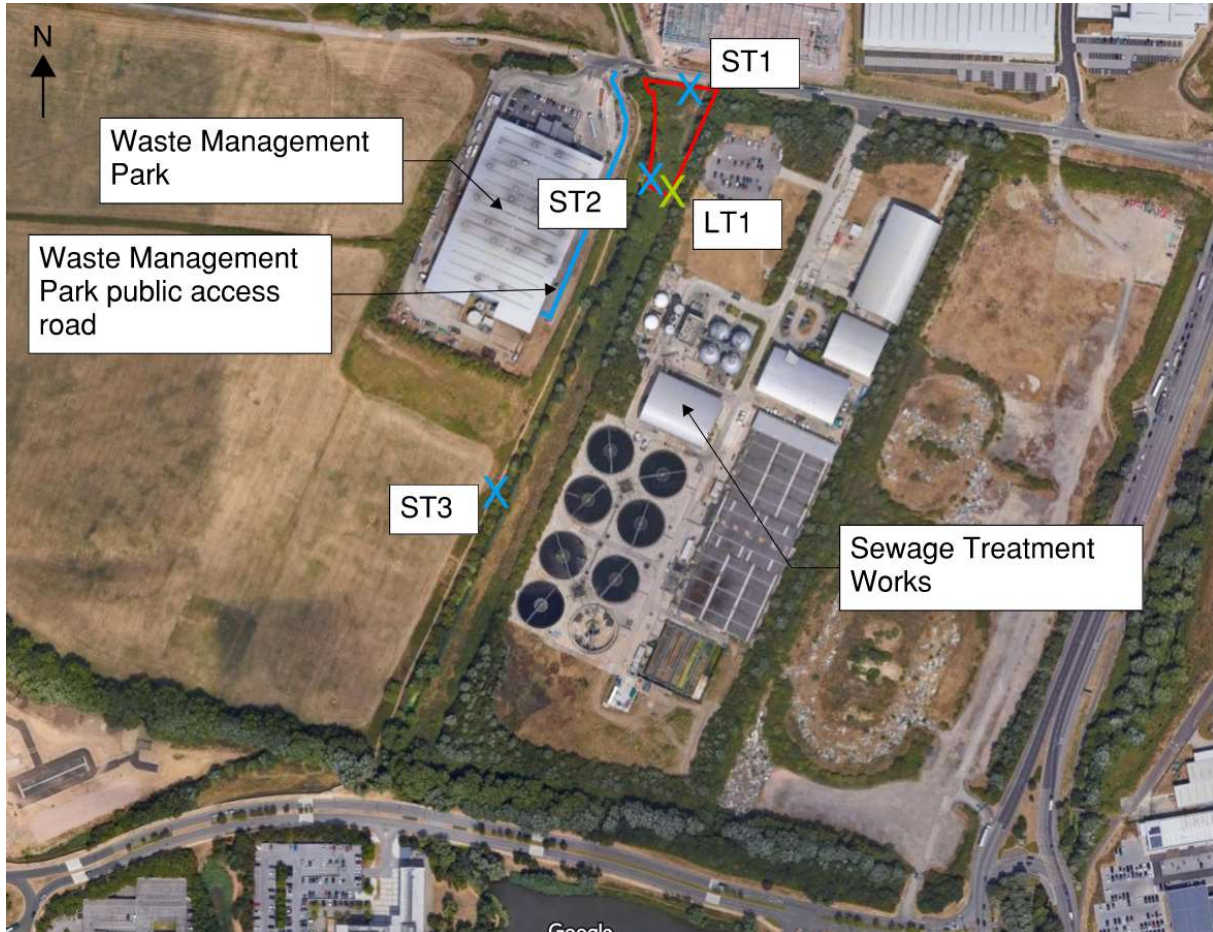


Figure 4-1: Noise measurement locations with approximate site boundary shown in red

4.3 Equipment

The equipment used for the survey is presented in Table 4-1.

Table 4-1: Survey equipment details

Instrument Type	Instrument Name	Instrument Serial No.	Microphone	Measurement(s) used for
Sound level analyser	01dB FUSION	12077	GRAS 40CD SN. 224357	LT1 / ST1
Acoustic calibrator	Cirrus Research CR:515	96164	-	LT1 / ST1

Sound level analyser	Norsonic NOR-140	1403396	Norsonic 1225 SN. 112825	ST2
Acoustic calibrator	Norsonic 1251	32853	-	ST2

All equipment was calibrated before and after the survey and no significant drift was observed. All equipment owned or hired by Ramboll is subject to regular calibration checks traceable to national standards.

4.4 Weather

Climate data obtained from timeanddate.com confirms the meteorological conditions during the survey period were favourable. It is thought occasional rain showers were incident, but no sustained rainfall is suggested from online climate data.

Conditions during attended measurements are presented in Table 4-2.

Table 4-2: Attended measurement conditions

Measurement location	Date	Ground conditions	Cloud cover (oktas)	Temperature, °C	Average wind speed, m/s	Wind direction
ST1	27 October 2021	Hard, dry ground	7/8	15	0.7	N
ST2	27 October 2021	Soft, dry ground	7/8	15	0.7	NW
	01 November 2021	Soft, wet ground	2/8	12	0.6	E
ST3	01 November 2021	Soft, wet ground	2/8	12	1.3	SE

4.5 Observations

Observations on the noise climate around the site of the proposed development were made on both Wednesday 27 October and Monday 1 November 2021.

4.5.1 Waste Management Park operational noise

With the exception of public vehicles using the road to the east of the Waste Management Park site as annotated in Figure 4-1, all operational activity heard from this site originated from inside the warehouse building. A faint, “shuffling” sound was audible for periods of approximately 5 minutes, with frequent tonal reversing alarms being more noticeable.

The loudest observed activity from this site was heard on Monday 1 November. Although the exact source of this sound is not known, this rattling sound is believed to originate from the Waste Management Park.

Vehicle movements (including HGVs) to and from the facility dominated at the northern site boundary.

4.5.2 Sewage Treatment Works operational noise

No audible noise or signs of activity from this site were observed during the times the surveyor was present.

4.5.3 ST1 noise climate

Observations at this location were made on Wednesday 27 October. The noise climate at location ST1 was dominated by Island Road traffic. Three 5-minute traffic counts indicate this road had an average of 4 vehicles per minute, with an average HGV percentage of 24%. During breaks in the Island Road traffic, road traffic noise from the A33 dominates, with operational noise from the Waste Management Park frequently audible. Rustling vegetation and birdsong also contributed towards the overall noise climate at this location.

4.5.4 ST2 noise climate

On Wednesday 27 October, activity noise from the Waste Management Park and road traffic noise from A33 were the main two noise sources, with approximately equal contribution towards the noise climate. Other contributions at this location were wind through foliage, and occasionally audible noise from the train line to the west. On Monday 1 November, noise from the Waste Management Park dominated due to a light easterly wind.

4.5.5 LT1 noise climate

On Wednesday 27 October, road traffic noise from the A33 tended to dominate at this location, with occasional instances of impulsive / tonal noise from the Waste Management Park being more noticeable. Traffic from Island Road was also sometimes audible. Noise from the Waste Management Park dominated on Monday 1 November. Audio recordings from the noise logger indicate that activity noise from the Waste Management Park, including tonal reversing alarms, dominates throughout the night-time period. This is considered to be the case at other locations around the site.

4.5.6 ST3 noise climate

Observations at this location were made only on Monday 1 November. Distant road traffic noise dominated. Other contribution to the noise climate included impulsive noises from a distant construction site to the west, wind through trees, and birdsong. No sounds from Waste Management Park activities were audible at this location.

4.6 Results

The key measurement results used for this assessment are presented in the tables below.

Table 4-3: Key attended measurement results

Location	Date	Time period	Ambient noise level / dB L _{Aeq,T} *	Background noise level / dB L _{A90,T} *	L _{A10,T} *	Maximum noise level / dB L _{AFmax,T} *
ST1	Wednesday 28 October 2021	10:05 – 11:05	64	51	69	81
		11:05 – 12:05	64	51	69	84
		12:05 – 13:05	64	51	68	81
ST2		11:15 – 11:30	51	49	52	65

	Wednesday 28 October 2021	11:55 – 12:10	52	50	53	62
		13:25 – 13:40	51	49	53	64
		14:15 – 14:30	54	50	57	66
	Monday 1 November	14:30 – 14:45	55	50	59	64
		14:45 – 15:00	52	50	53	72
		15:00 – 15:15	52	51	54	75
ST3	Monday 1 November	13:00 – 13:15	48	46	49	60
		13:15 – 13:30	47	45	49	59
		13:30 – 13:45	48	45	50	64
		13:45 – 14:00	49	45	49	68

*T = 15 minutes for each measurement, excluding those at location ST1

Table 4-4: Key unattended measurement results (location LT1)

Date	Period	Ambient noise level / dB L _{Aeq,T} *	Background noise level / dB L _{A90,T} *	L _{A10,T} *	Maximum noise level / dB L _{AFmax,T} *
Wednesday 27 October 2021	13:30 – 23:00 [†]	51	48	51	74
	23:00 – 07:00	48	45	49	75
Thursday 28 October 2021	07:00 – 23:00	51	49	52	77
	23:00 – 07:00	49	45	48	82
Friday 29 October 2021	07:00 – 23:00	52	48	53	75
	23:00 – 00:00 [†]	46	44	46	63
Saturday 30 October 2021	16:15 – 23:00 [†]	50	47	50	75
	23:00 – 07:00	48	44	47	76
Sunday 31 October 2021	07:00 – 23:00	55	49	54	85
	23:00 – 07:00	49	44	50	78
Monday 1 November 2021	07:00 – 15:00 [†]	54	50	56	79

*T = 16 hours during daytime (07:00-23:00), 8 hours during night-time (23:00-07:00)

[†] This period does not cover the full period and therefore may not be directly comparable with other complete time periods

These results indicate average daytime and night-time ambient noise levels of 53 dB L_{Aeq,16hour} and 48 dB L_{Aeq,8hour} respectively.

Comparison between simultaneous measurements at LT1 and ST2 indicate that noise levels at ST2 are typically higher than at LT1 by between 0 – 3 dB(A).

Comparison between simultaneous measurements at LT1 and ST3 indicate that the residual noise level (noise level in the absence of the specific sound source under consideration) is 6 dB below the ambient noise level.

5. ASSESSMENT

It is understood a retaining wall is proposed to be installed around the boundary of the proposed development, with gates on the northern boundary to allow access. For the purpose of this assessment, it is assumed this wall will be solid with the following specification:

- 2m height.
- Run continuously from ground level.
- Installed so there are no gaps / visible light at any point along the barrier.
- Have a minimum surface mass of 10kg/m².

5.1 Site suitability for travellers' site

A ProPG Level 1 Noise Risk Assessment indicates that, based on the measured noise levels at location LT1, the risk of the site being unsuitable for the proposed development is low. A noise model calibrated with measured levels from location ST1 in CadnaA, a proprietary noise modelling software, indicates the risk at the northern site boundary is low/medium. The retaining wall further reduces this risk.

5.2 Industrial noise assessment

An assessment of existing industrial noise has been carried out using the methodologies presented in Annex A of BS 4142:2014+A1:2019. This takes the specific noise level (activity noise attributed to the Waste Management Park), applies a correction factor to account for intermittency / tonality, and then compares the resultant rating level with the background. The parameter definitions are described in Section 3.3.

The daytime assessment uses measurements taken at LT1 between 14:00 - 15:00 on Friday 29 October. The night-time assessment uses measurements taken at LT1 between 03:00 - 03:15 on Thursday 28 October. These periods have been identified as 'worst-case'. A correction of +3 dB has been applied to these measurements to assess at the western boundary (pitch 6), as comparison between simultaneous measurements at LT1 and ST2 indicate this is the typical level difference between locations. Full calculations are presented in Table 5-1.

Table 5-1: BS4142 calculation for the Waste Management Park

Parameter	Daytime value	Night-time value	Commentary
Measured ambient noise level at LT2, dB L _{Aeq,T}	54	48	
Corresponding ambient noise level at ST2, dB L _{Aeq,T}	57	51	
Residual sound level, dB L _{Aeq,15min}	48	42	
Background sound level, dB L _{A90,15min}	45	36	
Specific sound level, dB L _{Aeq}	57	51	

Acoustic character correction	5	5	+3 dB for intermittency, +2 dB for tonality of occasional reversing alarms
Rating level, $L_{A,r}$ dB	62	56	
Excess of rating over background, dB	16	16	

This rating level indicates that site activities from the Waste Management Park are likely to have a high adverse impact at the western boundary of the proposed development, with 'a significant adverse effect depending on the context', as per the values presented in Table 3-1.

The installation of the retaining wall as specified at the beginning of this section is predicted to provide up to 10 dB of attenuation to the assessed activity noise (providing it is installed between the Waste Management Park and the site). This would reduce the magnitude of impact to Medium based on Table 3-1; however, this would remain significant.

5.2.1 External amenity

Measurements taken at location LT1 indicate the average daytime ambient noise level at the southern end of the site of the proposed development is 53 dB $L_{Aeq,16hour}$. This is below the upper guideline value recommended in BS 8233.

It is understood an external amenity area is proposed for the northern end of the site. Attended measurements at location ST1 indicate the external noise level at the northern boundary is 64 dB. The daytime averaged noise level is likely to be slightly reduced due to reduced traffic flows in the evening, but is expected to exceed the BS 8233 upper guideline value. This is at the very northern site boundary. It is considered with the inclusion of the proposed retaining wall, the external noise levels in the amenity space will be up to 56 dBA.

5.2.2 Internal amenity

Measurements taken at location LT1 indicate the average daytime and night-time ambient noise levels on the site of the proposed development are 53 dB $L_{Aeq,16hour}$ and 48 dB $L_{Aeq,8hour}$ respectively.

As justified in Section 3.6, an attenuation of up to 10 dB is anticipated to be achieved by the envelope of a mobile home with an open window. Therefore, average daytime and night-time internal noise levels are predicted to be 43 dB $L_{Aeq,16hour}$ and 38 dB $L_{Aeq,8hour}$ respectively. The installation of the retaining wall is predicted to reduce these the exceedances of both BS8233 daytime resting and night-time sleeping acceptable noise levels to within 3 dB.

This exceedance must be balanced with the needs / requirements for development at this location.

6. SUMMARY

A noise impact assessment has been conducted in relation to a planning application for a proposed gypsy and traveller transit site on land south of Island Road, Reading. Measurements from a baseline noise survey have informed the assessment of site suitability for the intended use.

A Level 1 ProPG noise risk assessment has found that the risk of the site being unsuitable for the proposed development is low to medium in respect of traffic noise.

An assessment of existing industrial noise has found that noise arising from activities from the Waste Management Park to the west of the site is likely to have a high adverse impact at the western site boundary, indicating a significant adverse effect.

Noise levels for external amenity areas are not predicted to measurably exceed the upper guideline value in BS 8223:2014.

It is predicted that internal ambient noise levels in mobile homes will exceed the reasonable values for traditional dwellings during both daytime and night-time for resting and sleeping respectively.

APPENDIX 1

PROPOSED DETAIL SITE PLAN



General Notes

- This is a new site to be developed on the site of the former RBC Gypsy & Traveller Site. The site is located on the site of the former RBC Gypsy & Traveller Site.
- No other use is to be made of the site. The site is to be used for the purpose of the site plan.
- The site is to be used for the purpose of the site plan.
- The site is to be used for the purpose of the site plan.

- Notes:**
- KEY**
- Site Boundary
 - RBC Ownership Boundary
 - Outside Site
 - Existing Spot Level
 - Proposed Spot Level
 - Existing Trees Retained
 - Existing Trees Removed
 - Proposed New Trees
 - 2m High Brick Boundary Wall
 - Sliding Gate
 - Rolling Barrier
 - Pedestrian Gate Access
 - Sanitary Block
 - Sluice
 - Turf
 - Concrete with Pitch Markings
 - Wastepipe to Playground
 - Tarmac/Asphalt
 - Natural Habitat with Wild Flower Meadow Areas



PLANNING	2021-11-24	HC
Rev	By	Date
1	1	2021-11-24

Project Name: RBC Gypsy & Traveller Transit Site

Project Number: E03883-HCC-00-XX-DR-A-1510

Project Stage: A2 APPROVED FOR PLANNING STAGE

Scale: 1:200 @ A1

Drawn: LT

Checked: CHD

Approved: APV

Project Name: RBC Gypsy & Traveller Transit Site

Project Number: E03883-HCC-00-XX-DR-A-1510

Project Stage: A2 APPROVED FOR PLANNING STAGE

APPENDIX 2

UNATTENDED MEASUREMENT TIME HISTORY

