

BENCHMARK

ACOUSTICS

FORMER WASTE RECYCLING DEPOT LONGSIGHT RD, LANGHO NOISE IMPACT ASSESSMENT

PREPARED FOR:
ORRELLS COACH HIRE LTD

REPORT REF: BA-25101-RP01

REVISION: P03

DATE: 17/02/2026

PREPARED BY:

BENCHMARK ACOUSTICS LTD

STUDIO 35, HIGHERFORD MILL

BARROWFORD, LANCS

FORMER WASTE RECYCLING DEPOT, LANGHO NOISE IMPACT ASSESSMENT

REPORT REF:	BA-25101-RP01-P03
PROJECT:	FORMER WASTE RECYCLING DEPOT, LANGHO
	NOISE IMPACT ASSESSMENT
PREPARED FOR:	ORRELLS COACH HIRE LTD
PREPARED BY:	ALEX TAYLOR Bsc(Hons) MIOA
	PRINCIPAL ACOUSTICS CONSULTANT
	BENCHMARK ACOUSTICS LTD
ISSUED ON:	17/02/2026

DOCUMENT REVISION HISTORY

REVISION	COMMENTS	AUTHOR	ISSUED
P01	Draft issue for comment	AT	16/02/2026
P02	Updated with additional content	AT	17/02/2026
P03	Issued for planning	AT	17/02/2026

TABLE OF CONTENTS

1.0	EXECUTIVE SUMMARY	1
2.0	SCHEME PROPOSALS	2
2.1	PROPOSED OPERATING HOURS	3
2.2	OPERATIONAL ACTIVITIES	3
2.3	PERIMETER TIMBER FENCING	5
3.0	RELEVANT STANDARDS & GUIDANCE	6
3.1	NATIONAL PLANNING POLICY FRAMEWORK (NPPF)	6
3.2	NATIONAL POLICY STATEMENT FOR ENGLAND (NPSE)	6
3.3	BS8233:2014 'GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS'	7
3.4	BS 4142:2014+A1:2019 METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND	8
4.0	NOISE SENSITIVE RECEPTORS	9
5.0	SOUND LEVEL MEASUREMENTS	11
5.1	PROJECT SITE DESCRIPTION	11
5.2	EQUIPMENT / INSTRUMENTATION	11
5.3	WEATHER CONDITIONS	12
5.4	METHODOLOGY	12
5.5	MEASUREMENT POSITIONS	12
5.6	MEASURED SOUND LEVELS	14
5.7	REPRESENTATIVE BACKGROUND SOUND LEVELS (LA90)	15
6.0	3D NOISE MODELLING	17
6.1	MODELLING ASSUMPTIONS	17
6.2	MODELLING RESULTS	19
7.0	NOISE IMPACT ASSESSMENT	22
7.1	IMPACT ASSESSMENT OF COACH OPERATIONAL NOISE	22
7.2	IMPACT ASSESSMENT OF PRESSURE WASHER NOISE	29
7.3	UNCERTAINTY	34
7.4	ASSESSMENT CONCLUSION	35
8.0	APPENDIX I: GLOSSARY OF TERMS	36
9.0	APPENDIX II: NOISE SURVEY PLOTS	37
10.0	APPENDIX III: LOCAL WEATHER STATION HISTORY	40

1.0 EXECUTIVE SUMMARY

Benchmark Acoustics Ltd has been appointed by Orrells Coach Hire Ltd (*'the Client'*) to provide a noise assessment for a proposed coach yard at the former waste recycling depot on Longsight Rd, Langho (*'the Project'*).

We understand that the Project site has been used as a coach yard by the Client since October 2021, typically operating between the hours of 07:00 – 23:00 Monday – Sunday.

The Project proposals are to provide coach parking facilities for up to 5 no. coaches (4 operational coaches and 1 backup reserve coach), a storage cabin, and a dedicated area for washing the coaches.

A noise assessment has been undertaken to assess the potential impact on the closest noise sensitive receptors from coach vehicle movements and the use of a pressure washer to wash the coaches in the yard.

Background sound levels have been measured around the site at locations representative of the closest noise sensitive receptors, and operational activity noise levels have been measured and incorporated into a 3D computer noise modelling to inform the noise assessment.

The following restrictions on operating hours and site activities are proposed to minimise the potential noise impact on local NSRs:

- Coach departures from the yard restricted to 07:00 – 20:00
- Coach arrivals to the yard restricted to 07:00 – 22:00
- An open gate policy to prevent coaches from stopping and idling adjacent to residential properties at the entrance to the yard
- Pressure washing of coaches in the yard restricted to 09:00 – 18:00, Monday – Friday
- Wash station bay relocated to the corner of the site to maximise distance attenuation and potential acoustic screening from adjacent parked coaches

The initial BS4142 estimate of the noise impact from the proposed site activities has been modified based on context, including consideration of the activity noise levels with respect to BS8233 recommended external and internal absolute noise limits, and consideration of the limited number occurrences of coach movements and coaches being washed on site.

Taking context into account, it is considered that the impact from the proposed development at the worst affected noise sensitive receptors is likely to be below the 'Lowest Observed Adverse Effect Level' threshold as defined in the NPSE.

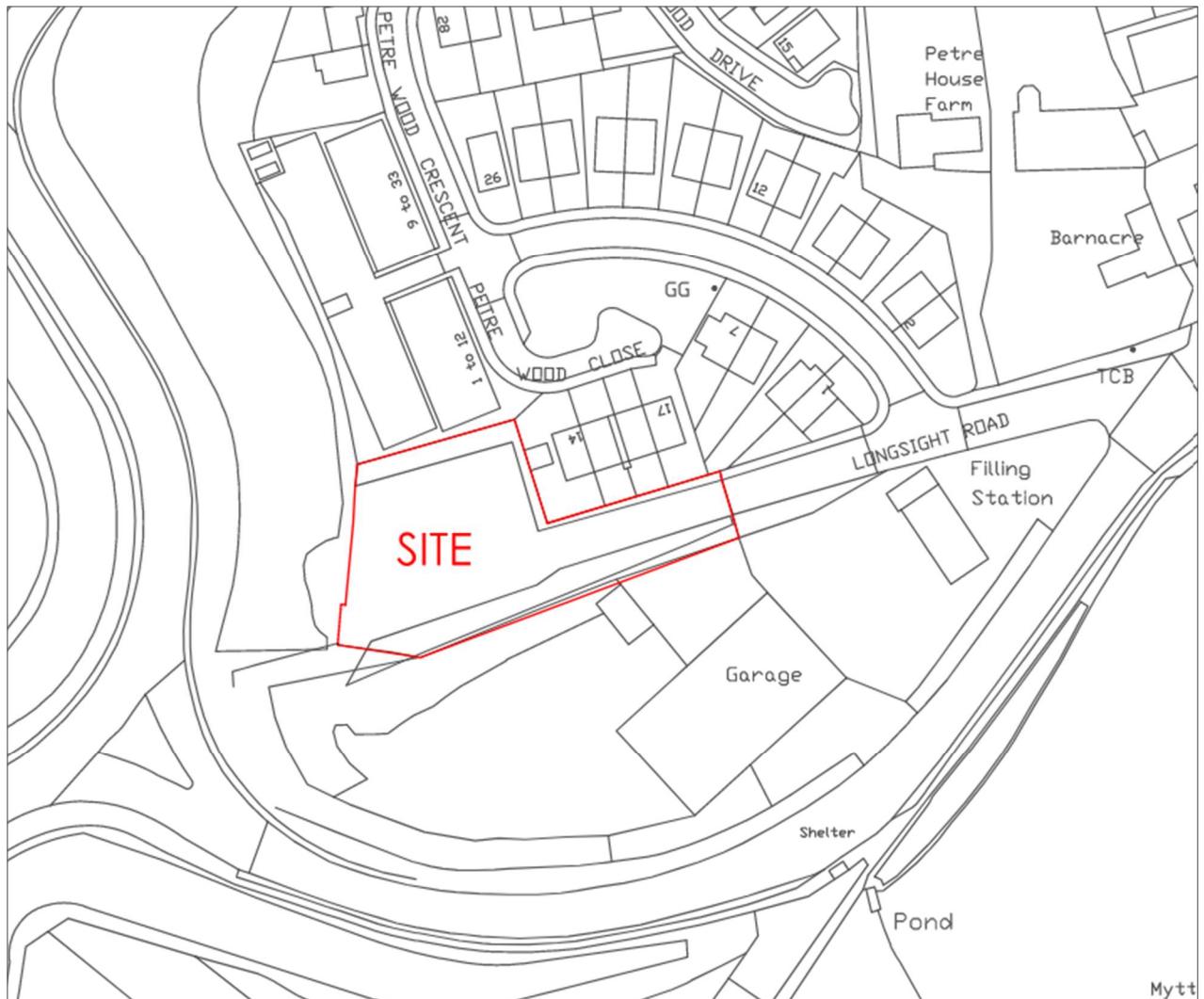
It is therefore considered that based on the proposed restrictions on operating hours and site activities, the proposed coach yard activities would not result in any significant adverse noise impacts at the noise sensitive receptors.

2.0 SCHEME PROPOSALS

The Project site is located at the site of the former recycling depot on Longsight Rd, Langho as shown in Figure 1, below.

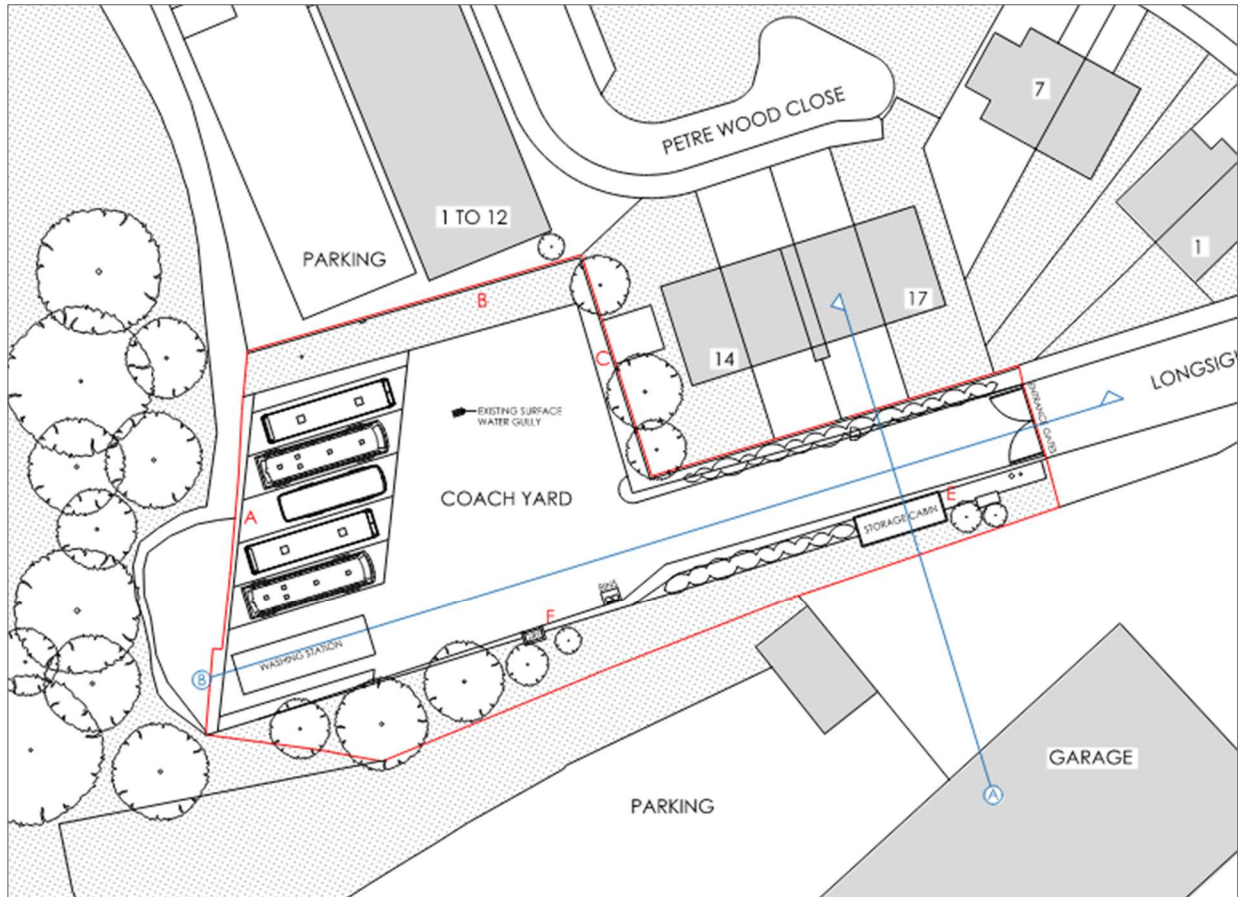
The proposals are to provide coach parking facilities for up to 5 no. coaches (4 operational and 1 reserve stand-by), a storage cabin, and a dedicated washing station area for washing the coaches with a pressure washer on site.

Figure 1: Location plan



The proposed site plan is shown in Figure 2, below.

Figure 2: Proposed site plan



2.1 PROPOSED OPERATING HOURS

It is proposed to restrict the operational hours of the coach yard to minimise the noise impact for NSRs as follows:

- Coach departures from the yard restricted to 07:00 – 20:00, Monday - Sunday
- Coach arrivals to the yard restricted to 07:00 – 22:00, Monday - Sunday
- Pressure washing of coaches in the yard restricted to 09:00 – 18:00, Monday – Friday

2.2 OPERATIONAL ACTIVITIES

The coach operator has advised that there are no set patterns of coach movements on site, commenting that *'we run a seasonal operation with our busy times in the summer between the start of May and end of September. Although these months are the busy times, we often spend long periods away from the yard on European tours etc so a coach could leave the yard and not return for between 4 days or sometimes up to 10 days later, some days we don't have any movement in the yard at all..'*

It is noted therefore, that coach operations vary from day to week to month, with no regular school runs, for example where a vehicle leaves and returns to the yard at the same time every day. The following

information provided by the coach operator illustrates the range of operations based on historical activity logs from 2025:

- average monthly number days of activity in the yard was 17 days/month
- the lowest monthly number of days of activity in the yard was 9 days/month
- the highest monthly number of days of activity in the yard was 23 days/month.
- Approx 85% of coach movements in the yard occur between the hours of 07:00 and 19:00
- Approx 15% of coach movements in the yard occur between the hours of 19:00 and 23:00

2.2.1 OUTLINE SCHEDULE OF DAILY ACTIVITIES

Based on discussions with the coach operator, we understand that the proposed day-to-day operations are as follows:

Yard opening

Staff arrive by car and open the entrance gates to the yard before proceeding to park the car on the coach yard. The earliest site arrival time by staff is proposed to be 07:00 but could be later in the morning or afternoon depending on the coach schedule for the day. Up to 4 staff could arrive separately at the site.

Coach departures

- As coach departures are expected to generate the highest activity noise levels compared with arrivals, it is proposed to restrict coach departures to the yard to the hours of 07:00 – 20:00, to reduce the potential noise impact on NSRs.
- Prior to departure, the coach engine starts up and idles for up to 5 minutes whilst the driver completes pre-departure checks and the required air-brake pressure is achieved.
- Coaches will depart from site adhering to the 5 mph speed limit.
- The entrance gates to the site remain open throughout the day to ensure that there will be no coaches stopping and idling at the gates, to reduce the potential noise impact on NSRs.

Coach arrivals

- It is proposed to restrict the arrival of coaches to the yard to the hours of 07:00 – 22:00, to reduce the potential noise impact on NSRs.
- Coaches will return to the site adhering to the 5 mph speed limit.
- The entrance gates to the site remain open throughout the day to ensure that there will be no coaches stopping and idling at the gates, to reduce the potential noise impact on NSRs.
- On returning to the yard the coaches reverse park into the parking bays and may require the engine to idle for 1-2 minutes if it is dark to allow the driver to use the interior lighting to check the coach is empty prior to locking the vehicle.

Vehicle washing

- It is proposed to restrict the use of the pressure washer to wash coaches to the hours of 09:00 – 18:00, Monday – Friday to reduce the potential noise impact on NSRs.
- The proposed washing station bay has been set back approx 19m from the current position to the upper corner of the site to increase the distance attenuation to NSRs 14 – 17 and to provide a degree of acoustic screening to NSRs 7, 11 & 12 when coaches are parked in the adjacent bays, to reduce the potential noise impact on NSRs.

- Vehicles will typically be washed once per week in the designated washing station bay during periods when there are no coach activities planned for the yard (i.e. no departures and/or arrivals are planned) to minimise the potential cumulative noise impact on NSRs.
- A coach will park in the wash station bay on return to the site then washed using a pressure washer with an on-time of up to 40 mins over a 60 minute period.
- After washing, the coach will reverse park into one of the designated parking bays.
- Based on the above, it is expected that only 1 coach would be washed in any given 1 hour period, and a maximum of up to 4 coaches would be washed in the yard in a week.

Yard closing

Staff are expected to depart the site at approx 22:00 hrs at the latest, after the last coach has arrived back in the yard. The last staff member on site will depart by car, locking the entrance gates prior to departing site.

2.3 PERIMETER TIMBER FENCING

The proposed site benefits from existing perimeter timber fencing along the site boundary which will provide the residential noise sensitive receptors with a degree of mitigation against noise from the coach yard operations.

The perimeter timber fencing is understood to have been installed when the Petre Wood Close housing development was constructed whilst the proposed site was used as a waste recycling depot. The sound insulation performance of the timber fencing is assessed in section 6.1.2 below.

Indicative measurements show that the timber fencing to the gardens of 14 – 17 Petre Wood Close ranges in height between approximately 2.1 – 3.1 m above local ground level (including the height of the retaining brick wall supporting the fencing) along the access road to the yard, and approximately 3.5 m in the yard adjacent to the garden of 14 Petre Wood Close (including the height of the retaining brick wall supporting the fencing), which is expected to equate to a fence height of approximately 1.8m above local ground height in the residential gardens.

Indicative measurements show that the timber fencing to the boundary of the site with the apartments 1 – 12 Petre Wood Close ranges in height between approximately 1.8 – 3.0m above local ground level (including the height of the retaining brick wall supporting the fencing). We understand that this section of fencing is a replacement fence recently installed by the housing association responsible for the apartments after the previous fence was damaged. From our discussions with the coach operator, we understand that the replacement fence that is currently in-situ is both lower in height and is of a lower acoustic specification (i.e. single boarded rather than double boarded) than the previous fence.

3.0 RELEVANT STANDARDS & GUIDANCE

3.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

Paragraph 198 of the National Planning Policy Framework (NPPF) states that:

‘Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate 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*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.’*

With regard to adverse impacts from noise, the NPPF makes reference to the Explanatory Note to the Noise Policy Statement for England, 2010, which is discussed below.

3.2 NATIONAL POLICY STATEMENT FOR ENGLAND (NPSE)

The Noise Policy Statement for England, 2010 (NPSE) seeks to clarify the underlying principles and aims in existing policy documents, legislation and guidance that relate to noise, and sets out the long-term vision of Government noise policy, which is 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’*.

This long-term vision is supported by the following aims:

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- 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 NPSE goes on to define the following levels of impact:

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

LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

Based on the above, the NPSE requires that:

- a SOAEL should be avoided
- where the impact lies somewhere between LOAEL and SOAEL, all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.

3.3 BS8233:2014 'GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS'

3.3.1 INTERNAL NOISE LEVELS WITHIN DWELLINGS

British Standard BS 8233:2014 '*Guidance on sound insulation and noise reduction for buildings*' (BS8233) provides guidance on recommended internal ambient noise levels within dwellings.

BS8233 recommends that the internal ambient noise levels within dwellings do not exceed the guideline values in the table below.

Table 1: BS8233 desirable internal ambient noise limits for dwellings

Activity	Location	07:00 – 23:00 hrs	23:00 – 07:00 hrs
Resting	Living Room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

BS8233 comments that where development is considered necessary or desirable '*...the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.*'

With regard to the potential for sleep disturbance from individual events, BS8233 does not provide any guideline noise limits, but notes that:

'Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values.'

3.3.2 EXTERNAL NOISE LEVELS IN AMENITY SPACES

With regard to external noise BS8233 states that '*for traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.*'

BS8233 recognises that the guideline values may not be achievable in all circumstances where development might be desirable and states that '*...In higher noise areas, such as city centres or urban*

areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited'.

3.4 BS 4142:2014+A1:2019 METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND

British Standard BS 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' (BS4142) provides a method for assessing noise from items such as building services plant and loading and unloading of goods at industrial and/or commercial premises, when compared to the existing background sound levels at the noise sensitive receptor.

The assessment procedure involves measuring or predicting the 'rating level' of the sound source and comparing it to the 'background noise level' at the location of the noise sensitive receptor. The rating level is the level of the specific sound under consideration plus any adjustment for the characteristic features of the sound such as tonality, impulsivity, and intermittency.

BS4142 requires an initial estimate of the impact of the specific sound to be obtained by subtracting the background sound from the rating level, commenting that '*the significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs*', and goes on to comment that:

- 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.*

With regard to the context of the specific sound under assessment, BS4142 states that:

'...an effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessment and arriving at decisions, therefore, it is essential to place the sound in context...where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration including...the absolute level of sound...the character and level of the residual sound compared to the character and level of the specific sound...the sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions...'

BS4142 notes that adverse impacts include, but are not limited to, annoyance and sleep disturbance, and that not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

4.0 NOISE SENSITIVE RECEPTORS

For the purposes of this assessment, the following properties have been identified as the closest or most exposed noise sensitive receptors (NSRs).

Figure 3: Locations of assessed NSRs

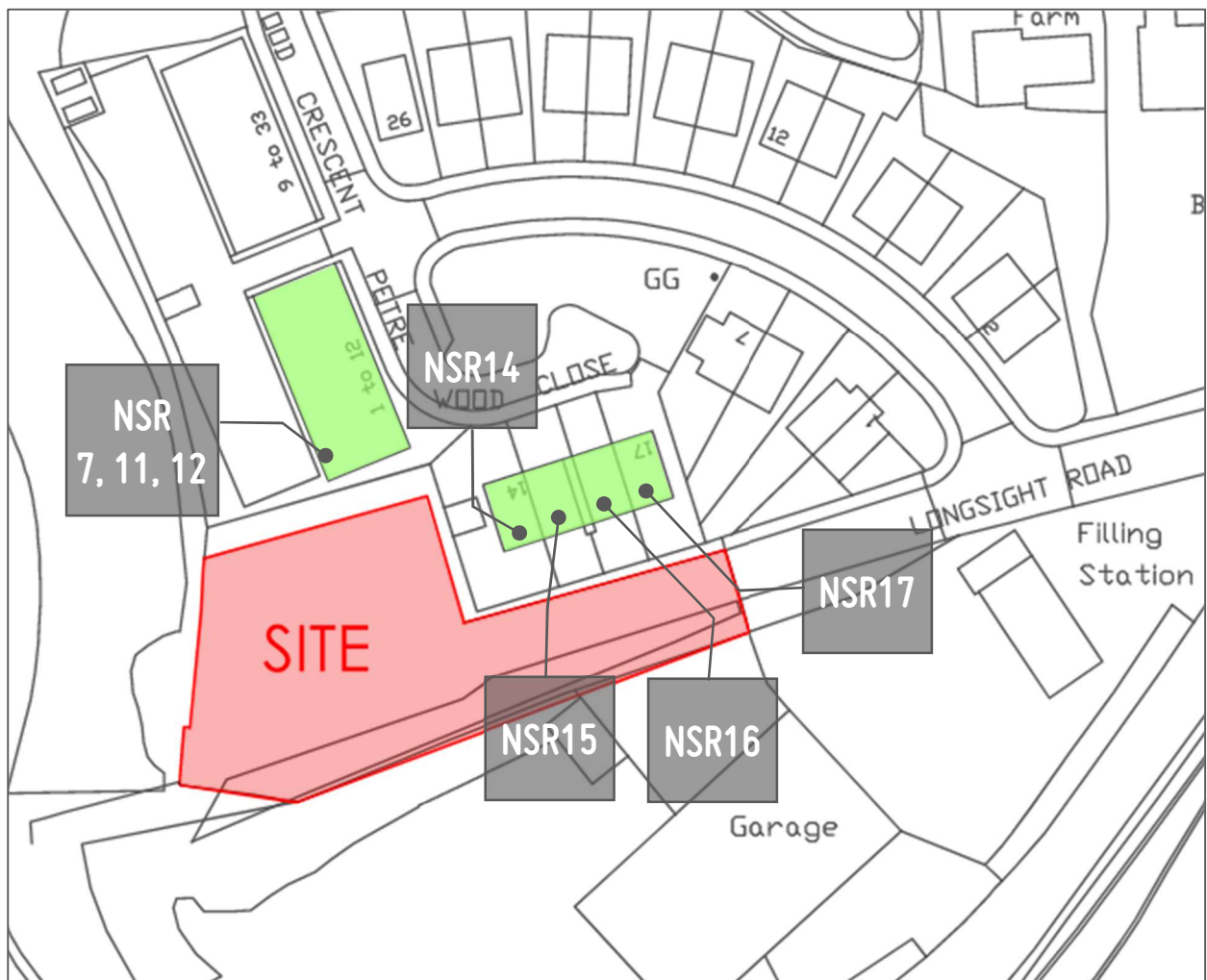


Table 2: Description of assessed NSRs

Receptor	Location	Comments
NSR 7	7 Petre Wood Close	Ground floor residential apartment closest to the yard
NSR 11	11 Petre Wood Close	First floor residential apartment closest to the yard
NSR 12	12 Petre Wood Close	Second floor residential apartment closest to the yard
NSR 14	14 Petre Wood Close	Residential property adjacent to the access road and the yard
NSR 15	15 Petre Wood Close	Residential property adjacent to the access road to the yard
NSR 16	16 Petre Wood Close	Residential property adjacent to the access road to the yard
NSR 17	17 Petre Wood Close	Residential property adjacent to the access road to the yard

The closest NSRs from each of the 3 floors of the apartment block overlooking the coach yard (7, 11, 12 Petre Wood Close) along with the 4 residential properties closest to the access road entrance to the yard (14 – 17 Petre Close) have been considered for this assessment.

It is noted that other receptors around the site may be subject to a potential noise impact from the site, however any impact is expected to be lower than that experienced by the receptors identified above due to distance attenuation, acoustic screening effects, or exposure to increased background sound levels.

5.0 SOUND LEVEL MEASUREMENTS

A series of attended and unattended sound level surveys were undertaken to determine the background sound levels around the site and to measure operational sound levels from the coach activities during the following dates and times:

- Tuesday 14/10/25, 18:01 hrs - Thursday 16/10/25, 13:01 hrs (unattended)
- Thursday 16/10/25, 13:45 – Sunday 19/10/25, 22:00 hrs, (unattended)
- Wednesday 19/11/25, 13:36 – 14:10 hrs (attended)
- Thursday 20/11/25, 12:31 – 13:15 hrs (attended)

Details of the sound level measurements are presented in the following sections.

5.1 PROJECT SITE DESCRIPTION

The Project site is a former waste recycling depot located off Longsight Road, Langho.

The site is bounded by residential properties on Petre Wood Close to the north and east, and the A59 Langho roundabout to the west.

The site is bounded to the south by commercial properties and land use including Petre Garage, a car mechanics garage providing vehicle repairs, MOTs, and pressure washing facilities; Monks Contractors, specific operations are unknown but appear to store and repair/maintain plant and HGV vehicles on the site overlooking the proposed coach yard; and a former petrol station forecourt overlooking the access road to the coach yard, which is used as a car valeting business incorporating the use of pressure washers.

Due to the topography of the site, the surrounding land and associated uses are elevated compared to the coach yard, with the A59 roundabout located approx 9 m above the lowest point in the coach yard. The site location is shown in Figure 1, above.

5.2 EQUIPMENT / INSTRUMENTATION

The following equipment was used for the sound level measurements.

Table 3: Summary of noise survey measurement equipment

Equipment	Model	Serial No.	Lab Calibration Due
Sound Level Meter	NTi XL2-TA	A2A-10831-E0	16/09/2026
Preamplifier	NTi MA220	5628	16/09/2026
Microphone	NTi MC230	9033	16/09/2026
Sound Level Meter	Rion NA-28	00170250	14/03/2027
Preamplifier	Rion NH-23	80932	14/03/2027
Microphone	Rion UC-59	01054	14/03/2027
All-weather windscreen	Rion WS-15	n/a	n/a
Calibrator	Larson Davis CAL200	13371	10/09/2026

5.3 WEATHER CONDITIONS

A summary of the historical weather data over the course of the noise surveys from a nearby weather station is presented in Appendix III.

With the exception of a period of significant rainfall between 15:30 – 17:15 on Sunday 19/10/25, the weather conditions were considered to be suitable for noise measurements at the site. The background noise level data measured during the periods of significant rainfall has been excluded from the assessment. The measurement periods where noise level data has been excluded due to rainfall are identified on the noise survey plots presented in Appendix II.

5.4 METHODOLOGY

All measurements were undertaken by a Suitably Qualified Acoustician holding full membership of the Institute of Acoustics (MIOA).

Measurements were undertaken in accordance with the principles of BS 7445: 2003: '*Description and measurement of environmental noise*' with a sound level meter mounted at a height of approximately 1.5 m above local ground level and at least 3.5m from any reflecting surface other than ground, unless noted otherwise in the following sections below.

The sound level meter was field calibrated prior to the start and after the end of each survey with no significant drift in sensitivity observed.

5.5 MEASUREMENT POSITIONS

Figure 4 below illustrates the approximate location of the measurement positions. A description of the measurement positions and the observed noise sources is provided in Table 4, below.

Table 4: Description of measurement positions and observed noise sources

Pos	Description
1	Long-term unattended survey position located in the coach yard at the site boundary with the apartments at 1-12 Petre Wood Close. The microphone was positioned level with and approx 1m away from the top of the boundary timber fence and in line with the rear facade of the at the apartment block. The measurement microphone was located at a height of approx 2.6 m above the local ground level in the yard, equating to the approximate mid-height of the ground floor window of the apartments at 1-12 Petre Wood Close. Sources of noise at this position include contributions from local and distant road traffic, occasional movements of cars on the apartment car park, occasional coach movements and activities in the coach yard, and noise from the commercial activities on the land overlooking the site to the south. The measured background noise levels at this position are expected to be representative of the ground floor apartment NSRs at 1-12 Petre Wood Close.
2	Long-term unattended survey position located in the centre of the rear garden of 16 Petre Wood Close, 1.5m above local ground level. Sources of noise at this position include contributions from local and distant road traffic, occasional coach movements on the access road to, and activity in, the coach yard, birdsong and psithurism of leaves from surrounding trees and foliage, and noise from the commercial activities on the land overlooking the garden to the south. The measured background noise levels at this position are

Pos	Description
	expected to be representative of the ground floor receptors in the rear gardens of 14 - 17 Petre Wood Close.
3	Short-term sample measurements located in the garden of 15 Petre Wood Close, approx 1 m from the facade. This measurement position was used to measure noise from coach departure and arrival pass-by activities and to calibrate the 3D noise model in conjunction with the simultaneous noise measurements taken at position 4. Measured noise levels at this position included pass-by noise from a coach departing from, and returning to, the coach yard via the access road.
4	Short-term sample measurements located on the access road to the yard, approx 1 m from the garden fence of 17 Petre Wood Close. This measurement position was used to measure noise from coach departure and arrival pass-by activities and to calibrate the 3D noise model in conjunction with the simultaneous noise measurements taken at position 3. Measured noise levels at this position included pass-by noise from a coach departing from, and returning to, the coach yard via the access road.

Figure 4: Approximate locations of noise level measurement positions

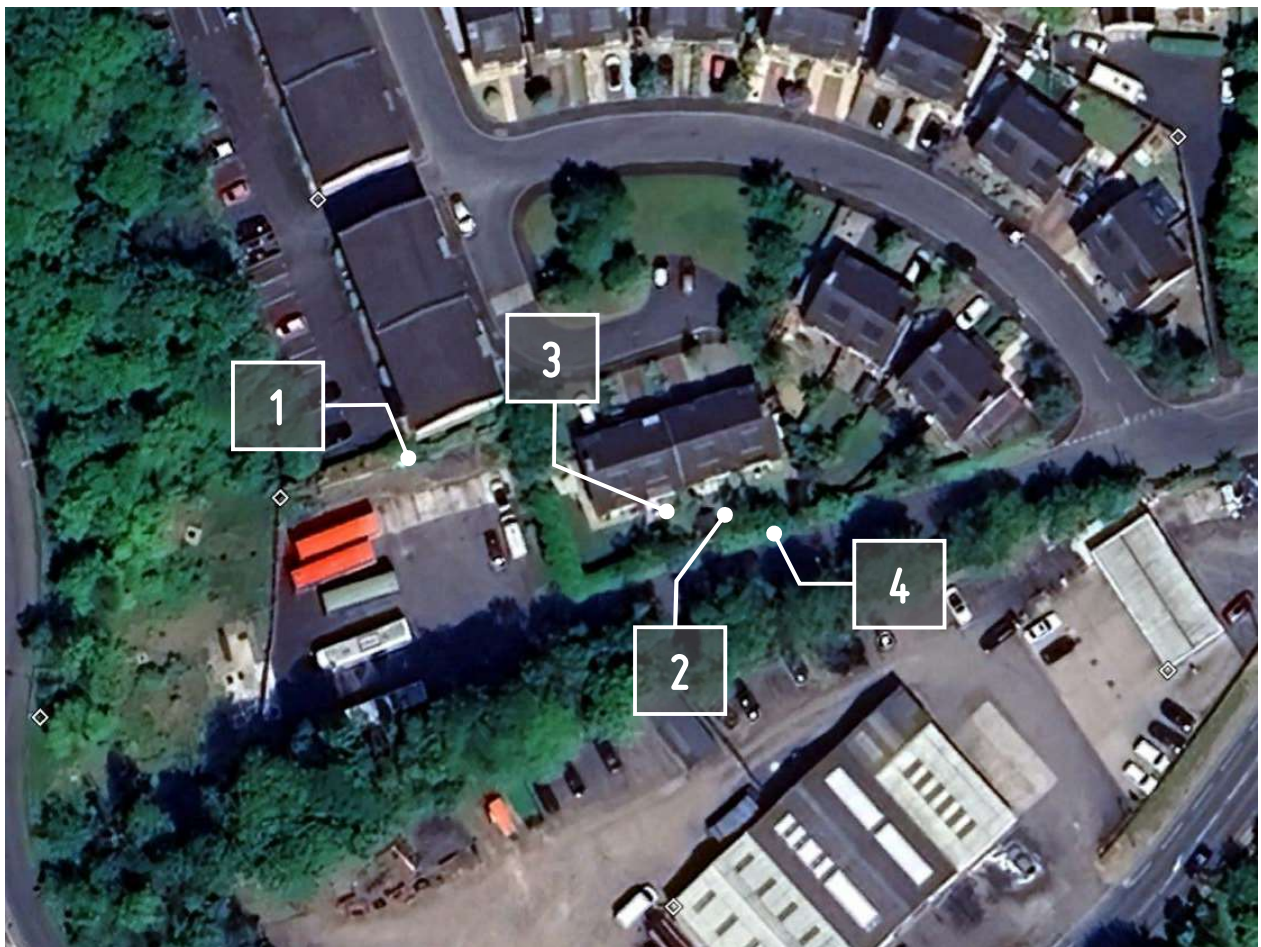


Image copyright Airbus / Google Earth

5.6 MEASURED SOUND LEVELS

A summary of the measured sound levels at the long-term measurement positions over the proposed operating periods is provided in Table 5 below.

Full plots of the measured sound levels at each measurement position are provided Appendix II.

Table 5: Summary of measured long term sound levels for proposed operating periods

Pos	Date	Period, T	L _{Aeq,T} dB	L _{Aeq,15min} dB	L _{A90,15min} dB	L _{AFmax,15min} dB
1	14/10/25	18:01 - 20:01	46	43 - 49	37 - 45	52 - 63
1	14/10/25	20:01 - 22:01	43	40 - 45	31 - 38	48 - 63
1	15/10/25	07:01 - 20:01	50	44 - 57	39 - 49	52 - 79
1	15/10/25	20:01 - 22:01	44	41 - 50	32 - 39	50 - 67
1	16/10/25	07:01 - 13:01	54	46 - 61	41 - 49	59 - 89
2	16/10/25	13:45 - 20:00	48	45 - 50	40 - 47	52 - 79
2	16/10/25	20:00 - 22:00	43	41 - 44	33 - 39	50 - 68
2	17/10/25	07:00 - 20:00	50	44 - 59	39 - 47	52 - 79
2	17/10/25	20:00 - 22:00	44	43 - 49	37 - 40	51 - 71
2	18/10/25	07:00 - 20:00	48	43 - 54	36 - 47	53 - 88
2	18/10/25	20:00 - 22:00	45	43 - 48	39 - 42	51 - 64
2	19/10/25	07:00 - 20:00	49	42 - 56	38 - 52	53 - 72
2	19/10/25	20:00 - 22:00	46	45 - 48	39 - 44	54 - 58

Note: measurements for position 1 quoted as facade corrected free-field equivalent levels

5.6.1 COACH YARD ACTIVITY LOG

The following coach yard operational activity log covering the duration of the sound level surveys has been provided by the coach operator based on tachograph/tracker logs and site observations.

Table 6: Summary activity log for coach yard operations during noise survey periods

Date	Time	Activity
Wed 15/10/25	09:35	1 coach returns to site
Wed 15/10/25	09:40	1 coach leaves site
Wed 15/10/25	10:45	Bin waggon arrives in yard and collects bins
Wed 15/10/25	13:05	1 coach returns to site
Wed 15/10/25	17:30	1 coach leaves site
Wed 15/10/25	19:40	1 coach leaves site
Wed 15/10/25	19:50	1 coach leaves site
Wed 15/10/25	20:40	1 coach returns to site

Date	Time	Activity
Thu 16/10/25	07:00	1 coach leaves site
Thu 16/10/25	08:05 – 11:55	Contractor in yard replacing windscreen on a coach
Thu 16/10/25	13:40	4 coaches return to site ¹
Fri 17/10/25	13:42 – 13:43	1 coach leaves site
Fri 17/10/25	14:20 – 14:30	1 coach leaves site
Fri 17/10/25	14:28 – 14:30	1 coach returns to site
Fri 17/10/25	15:10 – 15:15	1 coach returns to site
Fri 17/10/25	15:25 – 15:40	Vehicle wash
Fri 17/10/25	16:01 – 16:05	1 coach leaves site
Sat 18/10/25	07:35 – 07:50	1 coach leaves site
Sat 18/10/25	21:07 – 21:37	1 coach returns to site
Sun 19/10/25	13:10 – 13:30	1 coach leaves site
Sun 19/10/25	19:44 – 19:47	1 coach returns to site

¹ Note that the arrival of the 4 coaches occurred between long-term noise surveys, whilst the sound level meter was being installed at measurement position 2 in the garden of 16 Petre Wood Close after relocating the sound level meter following the end of the noise survey at position 1.

5.7 REPRESENTATIVE BACKGROUND SOUND LEVELS (L_{A90})

The L_{A90} background sound levels presented in Table 7 have been selected as representative of the proposed daytime operating periods at the assessed NSRs.

The arithmetic average of the mean, median, and mode background L_{A90} sound levels measured at each position over the relevant time periods, excluding periods of coach yard activity and significant rainfall, have been used to inform the BS4142 noise assessment detailed in section 7.0, below.

The measurement periods where sound level measurement data has been excluded due to coach yard activities and significant rainfall are identified on the sound level survey plots presented in Appendix II.

Table 7: Summary of representative background sound levels, $L_{A90,15min}$, dB used for BS4142 assessment

Measurement Position	Relevant NSRs	$L_{A90,15min}$ dB 07:00 – 20:00 hrs	$L_{A90,15min}$ dB 20:00 – 22:00 hrs	$L_{A90,15min}$ dB 09:00 – 18:00 hrs
1	1 – 12 Petre Wood Close	42	33	42
2	14 – 17 Petre Wood Close	44	39	45

Note that all background sound measurements were taken at approx 1.5 m above local ground level of the NSRs. It is expected that background sound levels would be higher for receptors on upper floors when compared to the ground floor measurements as the upper floors do not benefit from the same degree of

localised acoustic screening from road traffic and commercial activity noise provided by the perimeter fencing and/or topography of the site.

6.0 3D NOISE MODELLING

3D noise modelling software (iNoise v2026) utilising the ISO 9613-2:2024 (*Acoustics - Attenuation of sound during propagation outdoors, Part 2: Engineering method for the prediction of sound pressure levels outdoors*) methodology has been used to model the proposed site layout and specific noise sources associated with the operational activities of the coach yard.

6.1 MODELLING ASSUMPTIONS

The following modelling assumptions have been made for the 3D noise modelling exercise.

6.1.1 SOURCE SOUND LEVELS

Source sound levels have been measured at the site for a range of coach movements and pressure washer activities to determine representative sound power levels for the modelled sources, as summarised in the table below. The sound power levels used for the coach movements and pressure washer activity in the 3D noise model have been calibrated to match the noise levels measured on site.

Summary of noise sources and sound power levels assumed for 3D noise modelling

Activity	Sound power level	Modelled source type
Coach start up	L _w 96 dBA	Point source
Coach idling	L _w 89 dBA	Point source
Coach pull away from stationary parking position	L _w 103 dBA	Moving point source, avg 6 km/h
Coach departing along access road	L _w 104 dBA	Moving point source, avg 8 km/h
Coach arriving along access road	L _w 94 dBA	Moving point source, avg 8 km/h
Coach entering yard and reverse parking	L _w 95 dBA	Moving point source, avg 4 km/h
Pressure washer	L _w 90 dBA	Moving point source around perimeter of coach

6.1.2 TIMBER FENCING SRI

Timber fencing panel constructions, ranging between 11-22mm thick, are used for the internal garden fences and perimeter fencing around the site.

The following sound reduction index (SRI) performance values, calculated using INSUL sound insulation prediction software and incorporating a nominal 3 dB reduction for on-site losses, has been assumed for the noise modelling exercise.

An 11mm timber panel fencing SRI has been assumed for the perimeter fence to the access road, internal garden fences, and the perimeter fence to the apartment block. A 22mm timber panel fencing SRI has been assumed for the perimeter fence between the yard and the garden of 14 Petre Wood Close.

Table 8: Summary of modelled timber fencing SRI

Octave Band Centre Frequency, Hz	63	125	250	500	1k	2k	4k	R _w
11mm timber panel fencing, SRI (dB)	5	8	12	17	22	21	24	20
22mm timber panel fencing, SRI (dB)	10	14	18	23	22	24	30	24

6.1.3 CALCULATION SETTINGS

The key model calculation settings, assumptions, and references are summarised below for reference:

- Site layout and dimensions modelled from Peter Hitchen Architects planning issue drawings
- Topographical data for ground heights within proposed site sourced from Sunderland Peacock Associates existing site plan drawing ref 5625-01A from a previous planning application for the site in 2018
- Topographical data for ground heights surrounding the proposed site sourced from DEFRA 1 m resolution LIDAR survey data
- Ground factor = 0 for hard ground, e.g. roads, paving, tamped ground, hard standing, etc
- Ground factor = 1 for ground covered by grass, trees or other vegetation, e.g. fields, gardens, etc
- Building reflection coefficient = 0.9, barrier reflection coefficient = 0.8
- Maximum order of reflections = 2
- Receiver heights = 1.5 m above local ground level, 4m for first floor for 14-17 Petre Wood Close
- Receiver heights = 1.5 m above local ground level, 4.5m for first floor and 7.5m for second floor for apartments at 1-12 Petre Wood Close based on historical planning elevation drawings
- Perimeter timber fencing heights based on approximate site measurements
- Coach movements modelled as a moving point source located at position of closest engine air intake grille to NSRs with height = 1.0 m
- Coach engine starting and idling modelled as fixed point sources at position of closest engine air intake grille to NSRs with height = 1.0 m
- Pressure washer modelled as a moving point source around perimeter of coach with height = 1.9 m

6.1.4 OPERATIONAL ACTIVITIES

Based on the proposed site operations outlined in section 2.2 and consultation with the coach operator, the following indicative typical and upper range of vehicle movements and associated activities have been used for the noise assessment.

Table 9: Assumed coach vehicle activities for BS4142 assessment

Period	Activity	Typical ¹	Upper range ²
07:00 – 20:00	Coach departing yard	1 coach per hour	2 coaches per hour
	Engine start up prior to departure	1 event per hour	2 events per hour
	Engine idling prior to departure	1 x 5 mins per hour	2 x 5 mins per hour
	Coach arriving/parking in yard	1 coach per hour	2 coaches per hour
	Engine idling on return	1 x 2 mins per hour	2 x 2 mins per hour
20:00 – 22:00	Coach departing yard	n/a ³	n/a ³
	Engine start up	n/a ³	n/a ³
	Engine idling on prior to departure	n/a ³	n/a ³
	Coach arriving in yard	-	1 coach per hour
	Engine idling on return	-	1 x 2 mins per hour
Per day	Coach departing yard	-	4 coaches per day
	Coach arriving/parking in yard	-	4 coaches per day
<i>1 Note that the typical range is the lowest typical range of coach movements when coach movements occur in a 1-hour period. Given the limited number of operational coaches on site and the typical expected upper range of daily coach movements, there are likely to be extended hourly periods when there are no coach movements on site.</i> <i>2 Note that whilst there may be occasions when the upper range of hourly coach movements outlined above could be exceeded, e.g. 3 or 4 coaches departing and returning in the same hour, the coach operator has noted that based on their historical activities and the limited number of coaches operating on site, such worst-case occurrences would be uncommon and infrequent.</i> <i>3 As coach departures are the highest noise generating activities affecting NSRs, It is proposed to restrict departures to 07:00 - 20:00 hrs to reduce the potential for noise impact on NSRs</i>			

6.2 MODELLING RESULTS

Example screen shots of noise contour plots from the noise modelling exercise are presented in the figures below.

The predicted noise levels from the coach yard operations at each of the assessed NSRs have been used to inform the BS4142 assessment presented in section 7.0 below.

Figure 5: Noise contour plot at 1.5m above local ground level for indicative single coach departure, $L_{Aeq,1hr}$ dB

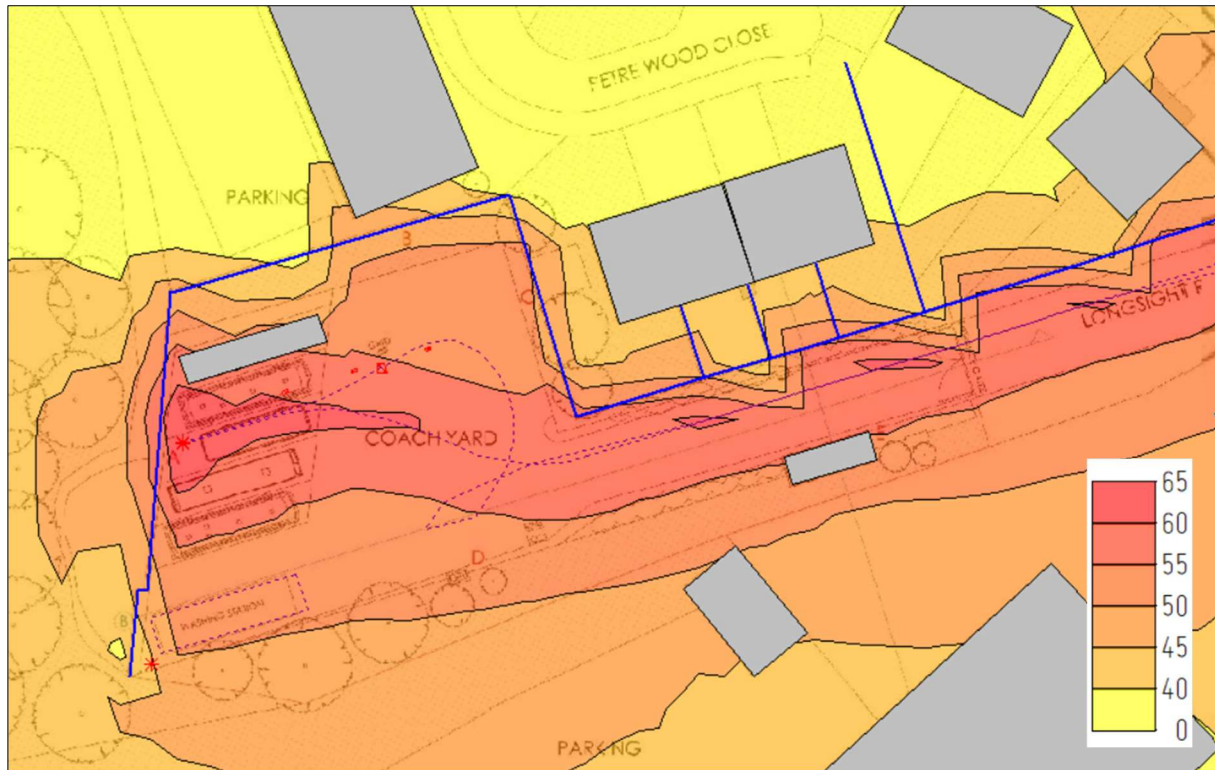


Figure 6: Noise contour plot at 1.5m above local ground level for indicative single coach arrival, $L_{Aeq,1hr}$ dB

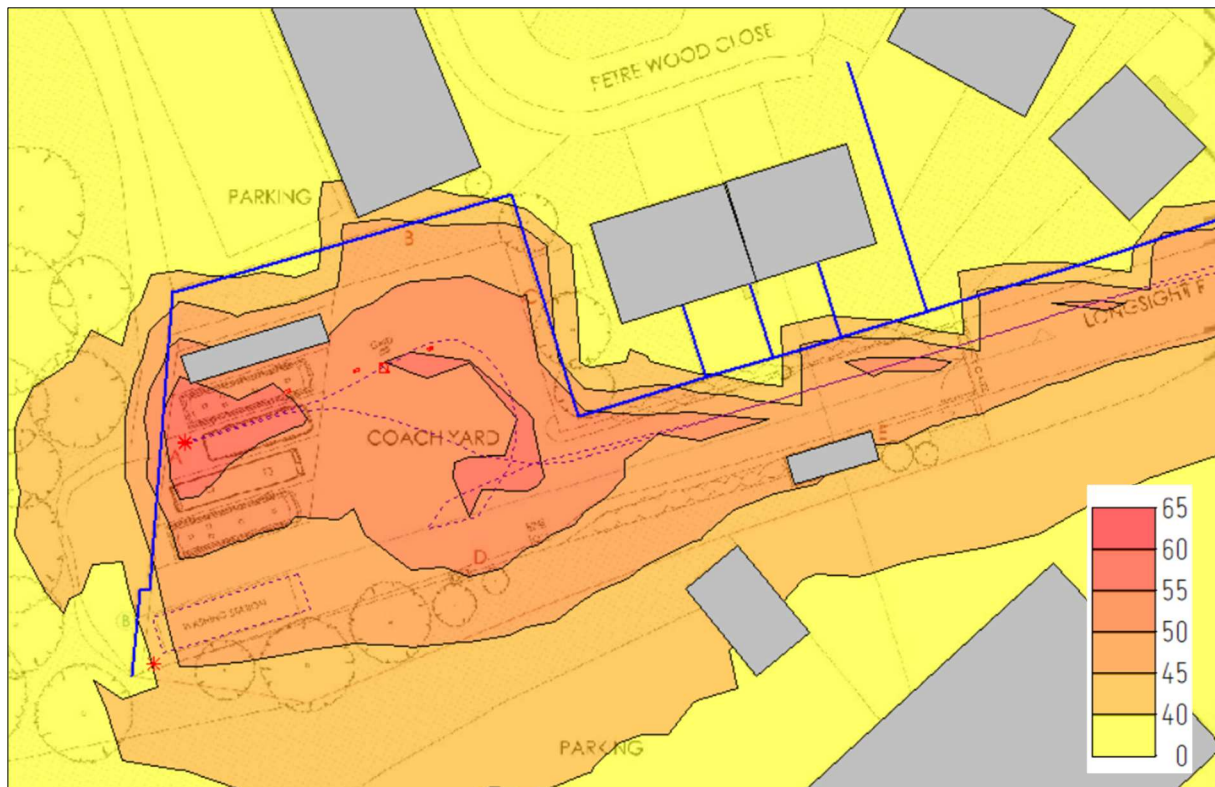
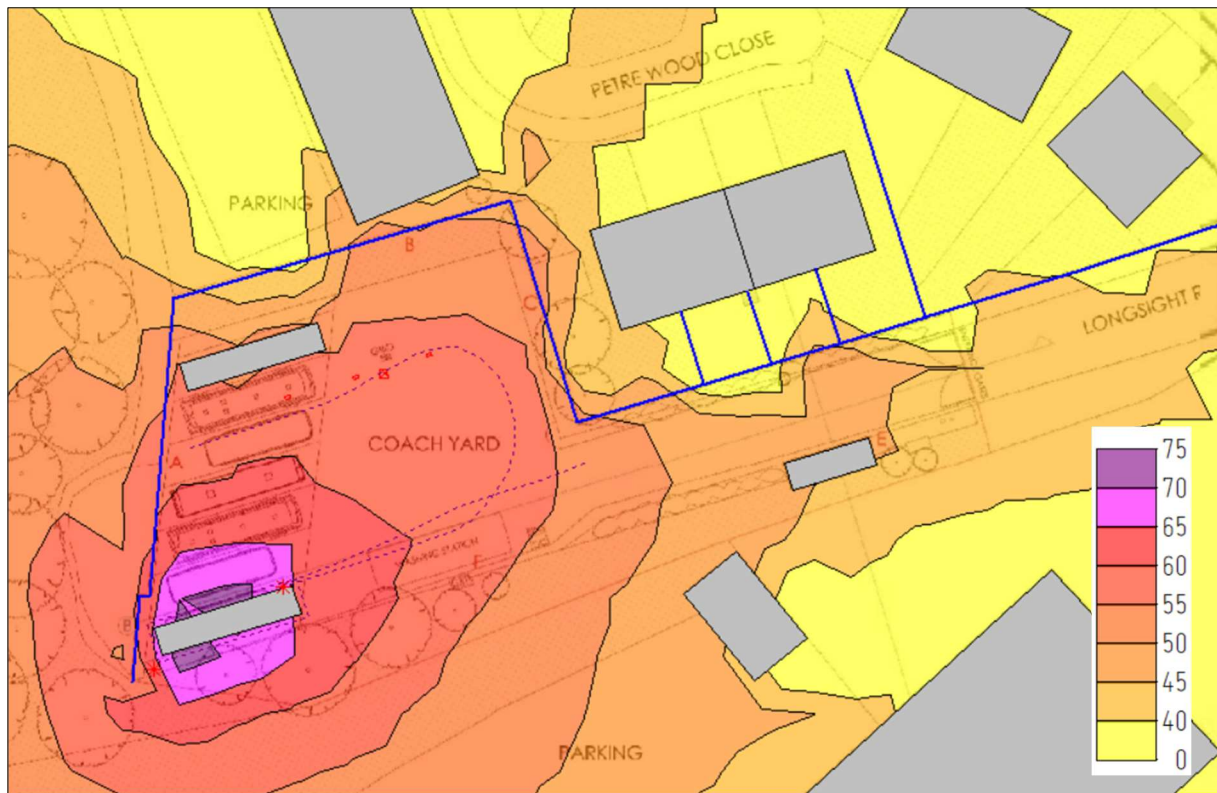


Figure 7: Noise contour plot at 1.5m above local ground level for a single coach wash, $L_{Aeq,1hr}$ dB



7.0 NOISE IMPACT ASSESSMENT

The sources of noise associated with the proposed coach yard operations include the following:

- Coach operating activities, i.e. coaches departing, arriving, and idling
- Pressure washer used for washing coaches

A noise impact assessment for both sources of noise is provided in the following sections.

7.1 IMPACT ASSESSMENT OF COACH OPERATIONAL NOISE

7.1.1 BS4142 INITIAL ESTIMATE OF NOISE IMPACT

The BS4142 assessment of the operational noise associated with the coach yard has been based on the following assumptions:

- Typical background sound levels as outlined in section 5.7
- Operational activity assumptions as outlined in 6.1.4
- Activity sound levels as outlined in section 6.1.1
- 3D noise model settings as outlined in section 6.1.3

The tables below summarise the BS4142 initial estimate of noise impact for each of the closest NSRs for the proposed operating periods. A separate assessment is provided for the typical and upper range of hourly movements.

BENCHMARK

ACOUSTICS

FORMER WASTE RECYCLING DEPOT, LANGHO
NOISE IMPACT ASSESSMENT

Table 10: Initial BS4142 estimate of impact for typical range of coach movements during daytime period 07:00 – 20:00 hrs

Description	NSR 7 L0	NSR 11 L1	NSR 12 L2	NSR 14 L0	NSR 14 L1	NSR 15 L0	NSR 15 L1	NSR 16 L0	NSR 16 L1	NSR 17 L0	NSR 17 L1	Comments
Reference time interval (daytime)	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	
Background sound level ($L_{A90,T}$), dB	42	42	42	44	44	44	44	44	44	44	44	
Specific sound level ($L_{Aeq,1hr}$), dB	37	44	45	46	48	45	48	46	48	44	47	
Acoustic feature correction, dB	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	Correction for intermittency
Rating Level, ($L_{A,T,r}$), dB	40	47	48	49	51	48	51	49	51	47	50	
Excess of rating level over background sound level	-2	+5	+6	+5	+7	+4	+7	+5	+7	+3	+6	
BS4142 Initial estimate Impact	Low	Adv	Adv	Adv	Adv	Min	Adv	Adv	Adv	Min	Adv	Initial estimate
<i>Low = likely to be an indication of low, or less than adverse impact, depending on the context</i> <i>Min = minor adverse, i.e. between low and adverse impact, depending on the context</i> <i>Adv = likely to be an indication of an adverse impact, depending on the context</i> <i>Sig = likely to be an indication of a significant adverse impact, depending on the context</i> <i>L0 = ground floor level, L1 = first floor level, L2 = second floor level</i>												

BENCHMARK

ACOUSTICS

FORMER WASTE RECYCLING DEPOT, LANGHO
NOISE IMPACT ASSESSMENT

Table 11: Initial BS4142 estimate for upper range of coach movements during daytime period 07:00 – 20:00 hrs

Description	NSR 7 L0	NSR 11 L1	NSR 12 L2	NSR 14 L0	NSR 14 L1	NSR 15 L0	NSR 15 L1	NSR 16 L0	NSR 16 L1	NSR 17 L0	NSR 17 L1	Comments
Reference time interval (daytime)	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	
Background sound level ($L_{A90,T}$), dB	42	42	42	44	44	44	44	44	44	44	44	
Specific sound level ($L_{Aeq,1hr}$), dB	40	47	48	49	51	48	51	49	51	47	50	
Acoustic feature correction, dB	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	Correction for intermittency
Rating Level, ($L_{A,T,r}$), dB	43	50	51	52	54	51	54	52	54	50	53	
Excess of rating level over background sound level	+1	+8	+9	+8	+10	+7	+10	+8	+10	+6	+9	
BS4142 Initial estimate Impact	Min	Adv	Adv	Adv	Sig	Adv	Sig	Adv	Sig	Adv	Adv	Initial estimate
<i>Low = likely to be an indication of low, or less than adverse impact, depending on the context</i> <i>Min = minor adverse, i.e. between low and adverse impact, depending on the context</i> <i>Adv = likely to be an indication of an adverse impact, depending on the context</i> <i>Sig = likely to be an indication of a significant adverse impact, depending on the context</i> <i>L0 = ground floor level, L1 = first floor level, L2 = second floor level</i>												

BENCHMARK

ACOUSTICS

FORMER WASTE RECYCLING DEPOT, LANGHO
NOISE IMPACT ASSESSMENT

Table 12: Initial BS4142 estimate for upper range of coach movements during the evening period 20:00 – 22:00 hrs

Description	NSR 7 L0	NSR 11 L1	NSR 12 L2	NSR 14 L0	NSR 14 L1	NSR 15 L0	NSR 15 L1	NSR 16 L0	NSR 16 L1	NSR 17 L0	NSR 17 L1	Comments
Reference time interval (daytime)	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	
Background sound level ($L_{A90,T}$), dB	33	33	33	39	39	39	39	39	39	39	39	
Specific sound level ($L_{Aeq,1hr}$), dB	31	39	39	40	40	36	39	38	39	35	38	
Acoustic feature correction, dB	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	Correction for intermittency
Rating Level, ($L_{A,T,r}$), dB	34	42	42	43	43	39	42	41	42	38	41	
Excess of rating level over background sound level	+1	+9	+9	+4	+4	0	+3	+2	+3	-1	+2	
BS4142 Initial estimate Impact	Min	Adv	Adv	Min	Min	Low	Min	Min	Min	Low	Min	Initial estimate
<i>Low = likely to be an indication of low, or less than adverse impact, depending on the context</i> <i>Min = minor adverse, i.e. between low and adverse impact, depending on the context</i> <i>Adv = likely to be an indication of an adverse impact, depending on the context</i> <i>Sig = likely to be an indication of a significant adverse impact, depending on the context</i> <i>L0 = ground floor level, L1 = first floor level, L2 = second floor level</i>												

Based on the above:

- the initial estimate of noise impact for the assumed typical range of coach movements during the daytime ranges between a low impact and an adverse impact, depending on the context
- the initial estimate of noise impact for the assumed upper range of coach movements during the daytime ranges between a minor adverse impact and a borderline significant adverse impact, depending on the context
- the initial estimate of noise impact for the assumed upper range of coach movements during the evening ranges between a low impact and an adverse impact, depending on the context

With regard to the initial estimate of impact BS4142 notes that *‘An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessment and arriving at decisions, therefore, it is essential to place the sound in context’*.

The following sections outline the context of the sound from the proposed coach yard activities.

7.1.2 ABSOLUTE SOUND LEVELS

BS4142 notes that *‘...where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.’*

The following sections therefore assess the absolute sound levels predicted for the coach yard activities with respect to the external noise level limits for external amenity spaces and the internal noise levels in dwellings recommend in BS8233.

7.1.3 BS8233 EXTERNAL NOISE LEVELS IN AMENITY SPACES

Table 13 below presents a summary of the predicted noise levels in the NSR external amenity spaces from operational activities from the coach yard. Predicted noise levels are provided the 16-hour daytime period 07:00 – 23:00 for the assumed upper range of total daily coach movements.

As the proposed coach operations are limited in both frequency of occurrence and duration, an assessment is also provided for the reduced, more stringent, assessment period of 1 hour based on the assumed upper hourly range of coach movements.

Table 13: Predicted coach park activity noise levels in NSR gardens based on the assumed upper range of daily and hourly operational activities

NSR	Location	BS8233 Limit, $L_{Aeq,T}$ dB	Predicted $L_{Aeq,16hr}$, dB	Predicted $L_{Aeq,1r}$, dB
NSR 7	Ground Floor	50	n/a*	n/a*
NSR 11	First Floor	50	n/a*	n/a*
NSR 12	Second Floor	50	n/a*	n/a*
NSR 14	Ground Floor	50	40	49
NSR 15	Ground floor	50	39	48
NSR 16	Ground floor	50	40	49
NSR 17	Ground floor	50	38	47

* Apartment NSRs have no external amenity areas, e.g. gardens or patios

As outlined in the table, the noise levels from the upper range of daily coach movements are predicted to be at least 10 dB below the BS8233 recommended $L_{Aeq,T}$ limit of 50 dB for NSR external amenity spaces over the 16-hour daytime period.

An assessment of the assumed upper range of hourly operational activities shows that all NSR external amenity areas are predicted to achieve the BS8233 recommended $L_{Aeq,T}$ limit of 50 dB over a more stringent shorter term 1-hour assessment period.

7.1.4 BS8233 INTERNAL NOISE LEVELS IN DWELLINGS

Table 14 below presents a summary of the predicted noise levels within each NSR dwelling from coach yard movements. Predicted noise levels are provided the 16-hour daytime period 07:00 – 23:00 for the assumed upper range of total daily coach movements, based on a 15 dB reduction from a facade incorporating a partially open window¹.

As the proposed coach operations are limited in both frequency of occurrence and duration, an assessment is also provided for the reduced, more stringent, assessment period of 1 hour based on the assumed upper hourly range of coach movements.

¹ BS8233:2014 notes that 'If partially open windows were relied upon for background ventilation, the insulation would be reduced to approximately 15 dB'

Table 14: Predicted coach yard activity noise levels within dwellings for the assumed upper range of daily and hourly coach movements

NSR	Location	BS8233 Limit, L _{Aeq,16hr} dB	Predicted L _{Aeq,16hr} dB	Predicted L _{Aeq,1hr} dB
NSR 7	Ground floor	35	16	25
NSR 11	First Floor	35	23	32
NSR 12	Second floor	35	24	33
NSR 14	Ground floor	35	21	30
NSR 14	First Floor	35	27	36
NSR 15	Ground floor	35	21	30
NSR 15	First Floor	35	27	36
NSR 16	Ground floor	35	21	30
NSR 16	First Floor	35	27	36
NSR 17	Ground floor	35	20	29
NSR 17	First Floor	35	26	35

As outlined in the table, the noise levels from the upper range of daily coach movements are predicted to be at least 8 dB below the BS8233 recommended L_{Aeq,16hr} limit of 35 dB within dwellings.

An assessment of the upper range of hourly coach movements shows that, with the exception of a minor exceedance of 1 dB for three of the first-floor receptors, the BS8233 recommended L_{Aeq,16hr} limit of 35 dB limit is achieved over a more stringent shorter term 1-hour assessment period. The 1 dB exceedances are considered to be negligible in acoustic terms, as it is generally accepted that a 1-2 dB difference is undetectable to normal human hearing.

Note that as the predicted internal noise levels within dwellings assume that windows are partially open, internal noise levels from coach activities would be reduced when windows are closed.

7.1.5 LIMITED OCCURANCES OF COACH MOVEMENTS

The BS4142 initial estimate of impact for the assumed upper range of coach movements is based on 2 coaches departing and 2 coaches arriving on site per hour. However, this upper range of hourly coach movements would not be expected to occur regularly throughout the day, or every day.

Based on the expected upper range of total daily coach movements of 4 coaches departing and 4 coaches arriving per day, the upper range of hourly coach movements would typically be expected to occur up to twice in a day during the period 07:00 – 20:00 (noting that it is proposed to restrict coach departures from the site after 20:00).

It is noted that whilst there may be occasions when the assumed upper range of hourly and daily coach movements could be exceeded, we understand that such occasions are uncommon and infrequent.

7.1.6 BACKGROUND NOISE LEVELS

The background noise levels used for the assessment of the worst affected upper floor receptors have been measured at ground floor level, however it is expected that background sound levels could be higher for upper floor receptors as they do not benefit from the same degree of localised acoustic screening from road traffic and commercial activity as the ground floor measurement positions. On this basis, there is a potential that the reported exceedances of rating level over background level, and consequently the initial estimate of impact, has been overestimated.

7.1.7 PREVIOUS SITE USE

We understand that the site's previous use was a waste recycling depot, and that the use of the site as a waste recycling depot was in-situ prior to the development of the adjacent land which now forms the residential housing and apartments on Petre Wood Close.

Typical noise generating activities associated with the use of the waste recycling depot could be expected to include regular vehicle movements from vehicles entering and exiting the site for recycling, unloading and sorting of items into recycling skips, and HGV's entering and exiting the site to collect and remove the waste from site.

It could therefore be expected that the residential NSRs around the site would experience a similar or reduced noise impact from the proposed coach yard compared to the original site use as a waste recycling depot, considering that the original use of the site would have generated similar, if not higher, operational noise levels than the proposed use as a coach yard, and that the perimeter timber fencing provided to mitigate noise from the waste recycling depot remains in place around the site.

7.1.8 MODIFIED ASSESSMENT OF IMPACT

Taking the context discussed in the sections above into account it is considered that the initial estimate of impact of the proposed coach yard activities at the worst affected NSRs could be modified to a minor adverse impact below the 'Lowest Observed Adverse Effect Level' threshold and therefore below the 'Significant Observed Adverse Effect Level' defined by the NPSE.

7.2 IMPACT ASSESSMENT OF PRESSURE WASHER NOISE

It is proposed to use a pressure washer to wash each of the 4 operational coaches on site up to once a week. It is assumed that the coaches will be washed during periods of inactivity on site, i.e. when there are no coaches scheduled to be departing or returning to the yard, and that only one coach can be washed in any hourly period.

It is proposed to restrict the use of the pressure washer to the hours of 09:00 – 18:00, Monday – Friday to reduce the potential noise impact on NSRs.

This assessment is based on the proposed relocated washing station position which has been set back approx 19m from the existing position to the upper corner of the site to increase the distance attenuation to NSRs 14 – 17 and to provide a degree of acoustic screening to NSRs 7, 11 & 12 when coaches are parked in the adjacent bays, to reduce the potential noise impact on NSRs.

7.2.1 BS4142 INITIAL ESTIMATE OF NOISE IMPACT

The BS4142 assessment of the pressure washer noise has been based on the following assumptions:

- Typical background sound levels as outlined in section 5.7
- Operational activity assumptions as outlined above
- Activity sound levels as outlined in section 6.1.1
- 3D noise model settings as outlined in section 6.1.3

The table below summarises the BS4142 initial estimate of noise impact for each of the closest NSRs.

Table 15: Initial BS4142 assessment for pressure washing activities during the proposed daytime operating period 09:00 – 18:00 hrs

Description	NSR 7 L0	NSR 11 L1	NSR 12 L2	NSR 14 L0	NSR 14 L1	NSR 15 L0	NSR 15 L1	NSR 16 L0	NSR 16 L1	NSR 17 L0	NSR 17 L1	Comments
Reference time interval (daytime)	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	1 hr	
Background sound level ($L_{A90,T}$), dB	42	42	42	45	45	45	45	45	45	45	45	
Specific sound level ($L_{Aeq,1hr}$), dB	37	48	49	44	47	37	45	41	43	33	39	
Acoustic feature correction, dB	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	Correction for intermittency
Rating Level, ($L_{A,Tr}$), dB	40	51	52	47	50	40	48	44	46	36	42	
Excess of rating level over background sound level	-2	+9	+10	+2	+5	-5	+3	-1	+1	-9	-3	
BS4142 Initial estimate Impact	Low	Adv	Sig	Min	Adv	Low	Min	Low	Min	Low	Low	Initial estimate
<i>Low = likely to be an indication of low, or less than adverse impact, depending on the context</i> <i>Min = minor adverse, i.e. between low and adverse impact, depending on the context</i> <i>Adv = likely to be an indication of an adverse impact, depending on the context</i> <i>Sig = likely to be an indication of a significant adverse impact, depending on the context</i> <i>L0 = ground floor level, L1 = first floor level, L2 = second floor level</i>												

Based on the above:

- the initial estimate of noise impact for the pressure washing activities range between a low impact and a borderline significant adverse impact, depending on the context.

7.2.2 CONTEXT FOR BS4142 INITIAL ESTIMATE OF IMPACT

With regard to the initial estimate of impact BS4142 notes that *'An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessment and arriving at decisions, therefore, it is essential to place the sound in context'*. The following sections outline the context of the sound from the proposed pressure washing activities.

7.2.3 ABSOLUTE SOUND LEVELS

BS4142 notes that *'...where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.'*

The following sections therefore assess the absolute sound levels predicted for the pressure washing activities with respect to the external noise level limits for external amenity spaces and the internal noise levels in dwellings recommend in BS8233.

7.2.4 BS8233 EXTERNAL NOISE LEVELS IN AMENITY SPACES

Table 16 below presents a summary of the predicted noise levels in the NSR external amenity spaces from pressure washing activities. Predicted noise levels are provided for the proposed 9-hour daytime operating period between 09:00 – 18:00 assuming the worst-case scenario where all 4 coaches could be washed during a single day.

As the proposed pressure washing activities are limited in both frequency of occurrence and duration, an assessment is also provided for a reduced, more stringent, assessment period of 1 hour based on a single coach being washed during the hour.

Table 16: Predicted worst-case pressure washer noise levels in NSR external amenity spaces

NSR	Location	BS8233 Limit, L _{Aeq,T} dB	Predicted L _{Aeq,9hr} , dB	Predicted L _{Aeq,1r} , dB
NSR 7	Ground floor	50	n/a	n/a
NSR 11	First floor	50	n/a	n/a
NSR 12	Second floor	50	n/a	n/a
NSR 14	Ground floor	50	40	44
NSR 15	Ground floor	50	33	37
NSR 16	Ground floor	50	38	41
NSR 17	Ground floor	50	30	33

As outlined in the table, the noise levels from the worst-case daily pressure washing activities are predicted to be at least 10 dB below the BS8233 recommended $L_{Aeq,T}$ limit of 50 dB for NSR external amenity spaces over the proposed 9-hour daytime operating period.

The assessment also demonstrates that all NSR external amenity areas are predicted to achieve the BS8233 recommended $L_{Aeq,T}$ limit of 50 dB over a more stringent shorter term 1-hour assessment period.

7.2.5 BS8233 INTERNAL NOISE LEVELS IN DWELLINGS

Table 17 below presents a summary of the predicted noise levels within each NSR dwelling from pressure washing activities assuming the worst-case scenario where all 4 coaches are washed during a single day during the proposed operating period 09:00 – 18:00, and for a 1-hour period assuming that 1 coach is washed during the hour, based on a 15 dB reduction from a facade incorporating a partially open window².

Table 17: Predicted worst-case pressure washer noise levels within NSR dwellings assuming partially open windows

NSR	Location	BS8233 Limit, $L_{Aeq,16hr}$ dB	Predicted $L_{Aeq,9hr}$ dB	Predicted $L_{Aeq,1hr}$ dB
NSR 7	Ground floor	35	19	22
NSR 11	First Floor	35	30	33
NSR 12	Second floor	35	30	34
NSR 14	Ground floor	35	23	27
NSR 14	First Floor	35	29	32
NSR 15	Ground floor	35	17	21
NSR 15	First Floor	35	27	30
NSR 16	Ground floor	35	22	25
NSR 16	First Floor	35	25	28
NSR 17	Ground floor	35	13	16
NSR 17	First Floor	35	20	24

As outlined in the table above, the noise levels from the worst-case daily pressure washer activities are predicted to be at least 5 dB below the BS8233 recommended $L_{Aeq,16hr}$ limit of 35 dB within dwellings.

The assessment also demonstrates that the NSRs are predicted to achieve the BS8233 recommended $L_{Aeq,16hr}$ 35 dB limit over a more stringent shorter term 1-hour assessment period.

Note that as the predicted internal noise levels within dwellings assume that windows are partially open, internal noise levels would be reduced when windows are closed.

² BS8233:2014 notes that 'If partially open windows were relied upon for background ventilation, the insulation would be reduced to approximately 15 dB'

7.2.6 LIMITED OCCURANCES OF EVENTS

The BS4142 initial estimate of impact for the pressure washing activities is based on 1 coach being washed during a 1-hour period. However, these activities would occur infrequently, i.e. up to 4 times per week, as there are only 4 operational coaches on site which are proposed to be washed once per week.

7.2.7 BACKGROUND NOISE LEVELS

The background noise levels used for the assessment of the worst affected upper floor receptors have been measured at ground floor level, however it is expected that background sound levels could be higher for upper floor receptors as they do not benefit from the same degree of localised acoustic screening from road traffic and commercial activity as the ground floor measurement positions. On this basis, there is a potential that the reported exceedances of rating level over background level, and consequently the initial estimate of impact, has been overestimated.

7.2.8 MODIFIED ASSESSMENT OF IMPACT

Taking the context discussed in the sections above into account, it is considered that the initial estimate of impact of the pressure washing activities at the worst affected NSRs could be modified to a minor adverse impact below the 'Lowest Observed Adverse Effect Level' threshold and therefore below the 'Significant Observed Adverse Effect Level' defined by the NPSE.

7.2.9 ADDITIONAL RECOMMENDATIONS

It is recommended that an acoustic enclosure for the pressure washer compressor, or a quieter model of compressor if the compressor unit is to be replaced, is considered to further reduce the noise from the pressure washing activities, where practicable.

7.3 UNCERTAINTY

Reasonably practicable measures have been taken to reduce the uncertainty associated with the sound level measurements and the calculation methodology of the noise assessment.

The level of uncertainty associated with the background sound level measurement measurements is considered to be low given the extended durations of the surveys undertaken at each measurement positions and the exclusion of periods of adverse weather conditions or site activities that could affect the measured background sound levels.

Background sound levels used to inform the assessment have been measured at ground floor level and may therefore be lower than the background sound levels experienced by the worst affected receptors on upper floors. This is expected to result in a worst-case assessment for the upper floor receptors.

The level of uncertainty associated with the calculation methodology is considered to be low given the use of 3D modelling software utilising the ISO 9613-2:2024 calculation methodology, and the use of on-site sound level measurements to calibrate the modelled sound sources under consideration for the assessment.

This assessment is based on the typical upper range of hourly and daily coach movements as advised by the coach operator. It is noted that whilst there may be occasions when the assumed upper range of hourly

and daily coach movements could be exceeded, such occasions are expected to be uncommon and infrequent.

7.4 ASSESSMENT CONCLUSION

The following restrictions on operating hours and site activities are proposed to minimise the potential noise impact on local NSRs:

- Coach departures from the yard restricted to 07:00 – 20:00
- Coach arrivals to the yard restricted to 07:00 – 22:00
- Implementation of an open gate policy to prevent coaches from stopping and idling adjacent to residential properties at the entrance to the yard
- Pressure washing of coaches in the yard restricted to 09:00 – 18:00, Monday – Friday
- Wash station relocated to the corner of the site to maximise distance attenuation and potential acoustic screening from adjacent parked coaches

The BS4142 initial estimate of the noise impact from the proposed site activities has been modified based on context, including consideration of the activity noise levels with respect to BS8233 recommended external and internal absolute noise limits, and consideration of the limited number of occurrences of coach movements and coaches being washed on site.

Taking context into account, it is considered that the impact from the proposed development at the worst affected noise sensitive receptors is likely to be a minor adverse impact below the 'Lowest Observed Adverse Effect Level' threshold as defined in the NPSE.

It is therefore considered that based on the proposed restrictions on operating hours and site activities, the proposed coach yard activities would not result in any significant adverse noise impacts at the noise sensitive receptors.

8.0 APPENDIX I: GLOSSARY OF TERMS

Background sound level, $L_{A90,T}$

The A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval

Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, T , has the same mean-squared pressure as a sound that varies with time

Rating level, $L_{Ar,Tr}$

The rating level is the specific sound level plus any adjustment for the characteristic features of the sound

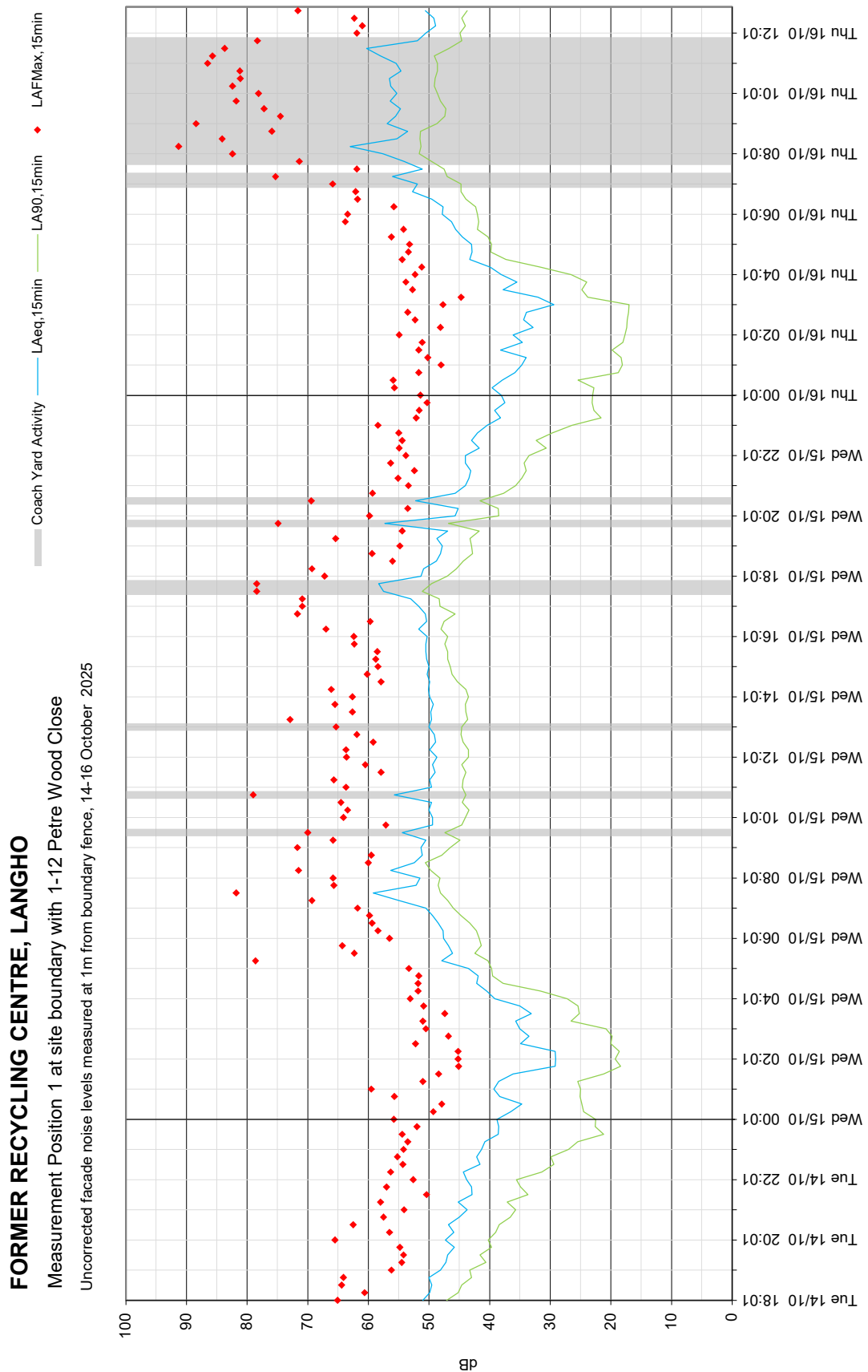
Reference time interval, T_r

The specified interval over which the specific sound level is determined. This is 1 hr during the day from 07:00 hrs to 23:00 hrs, and a shorter period of 15 min at night from 23:00 hrs to 07:00 hrs

Specific sound level, L_s

The equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r

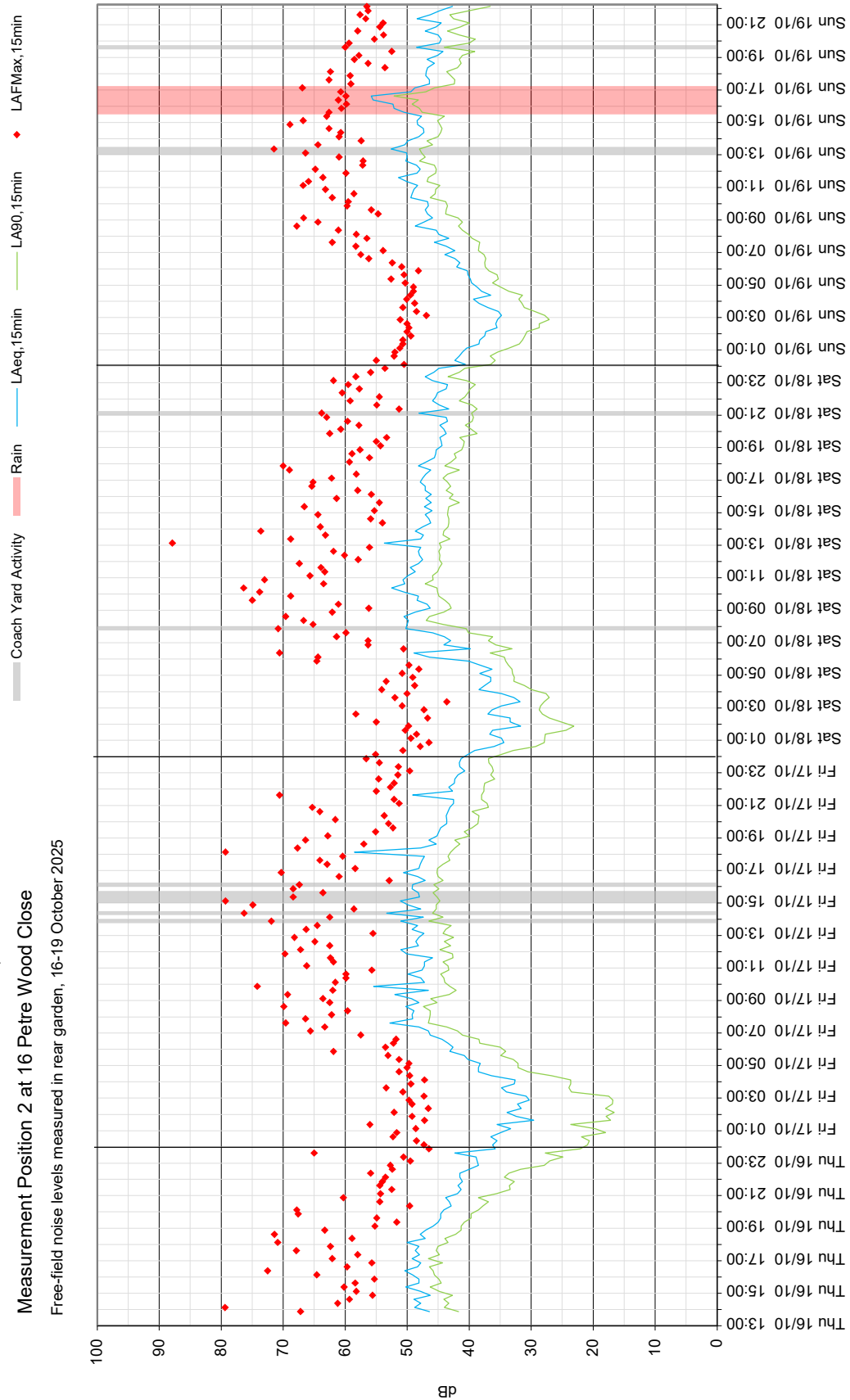
9.0 APPENDIX II: NOISE SURVEY PLOTS



FORMER RECYCLING CENTRE, LANGHO

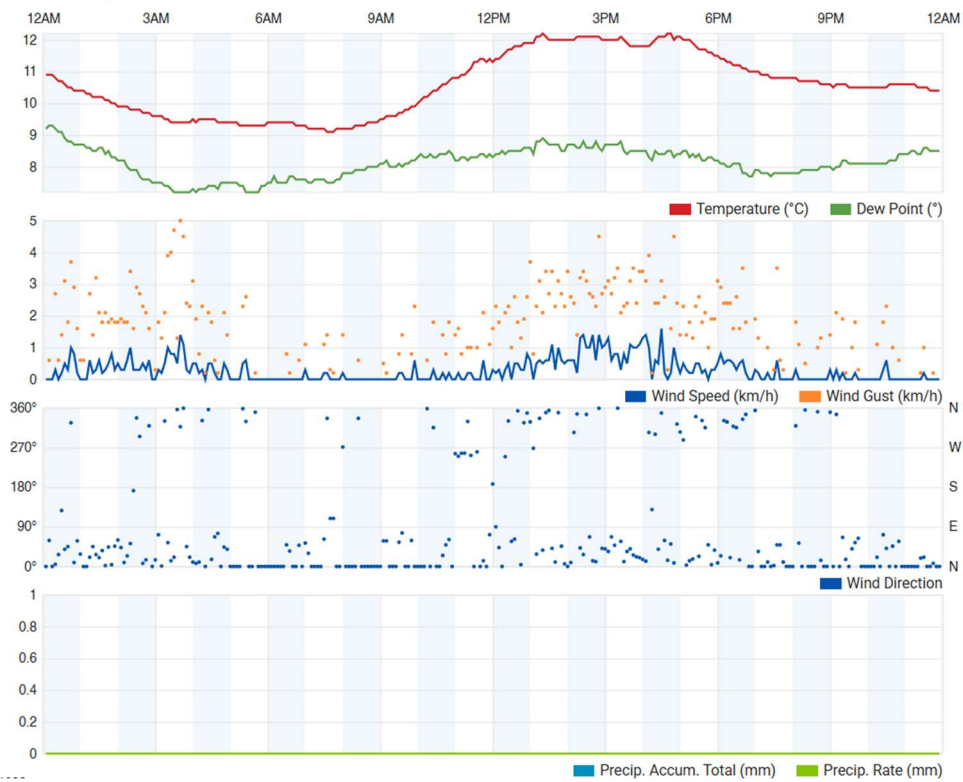
Measurement Position 2 at 16 Petre Wood Close

Free-field noise levels measured in rear garden, 16-19 October 2025

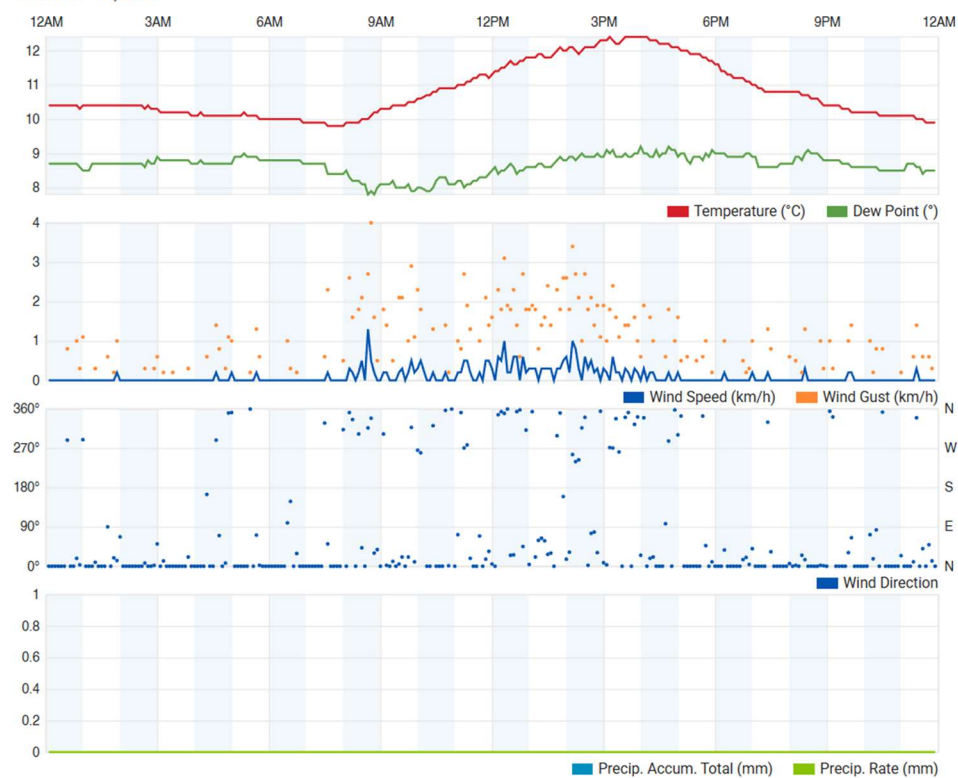


10.0 APPENDIX III: LOCAL WEATHER STATION HISTORY

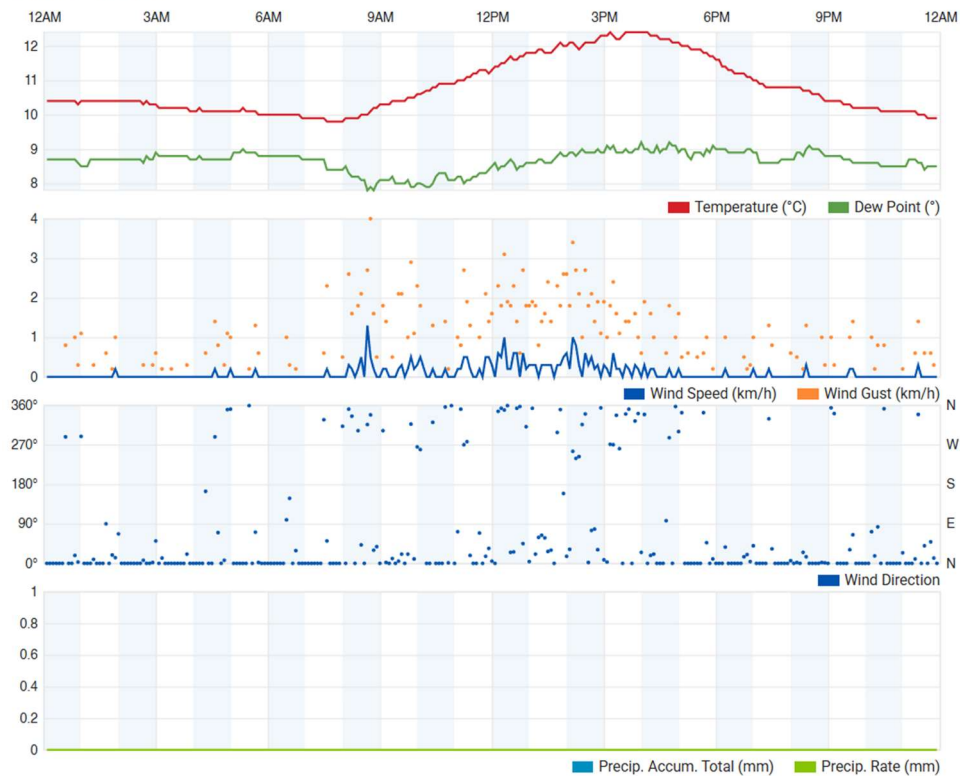
October 15, 2025



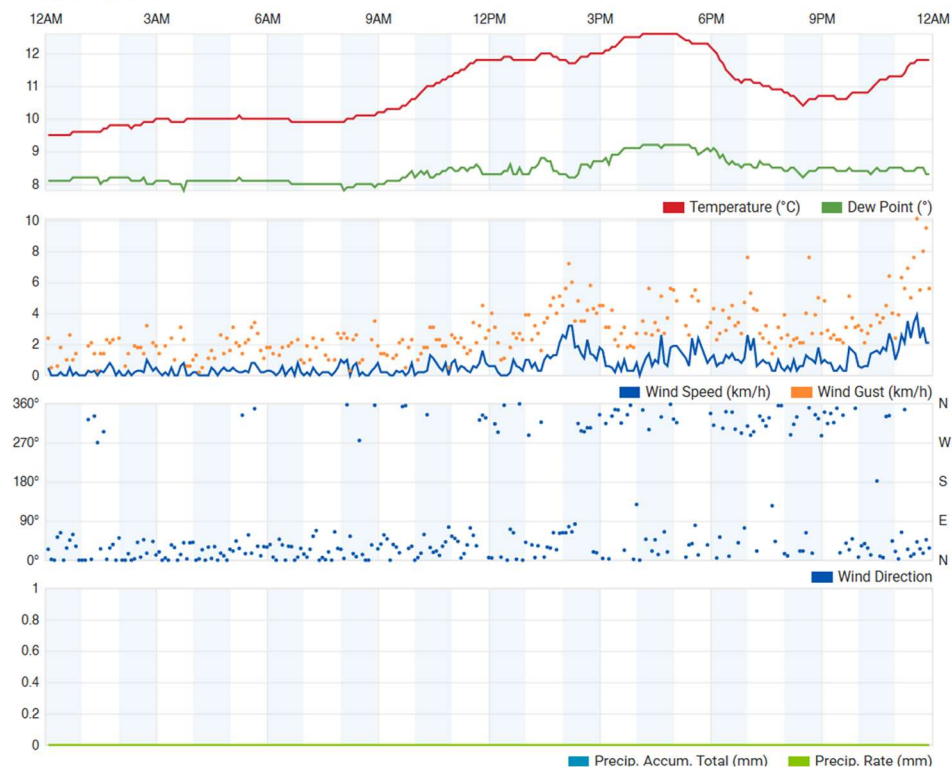
October 16, 2025



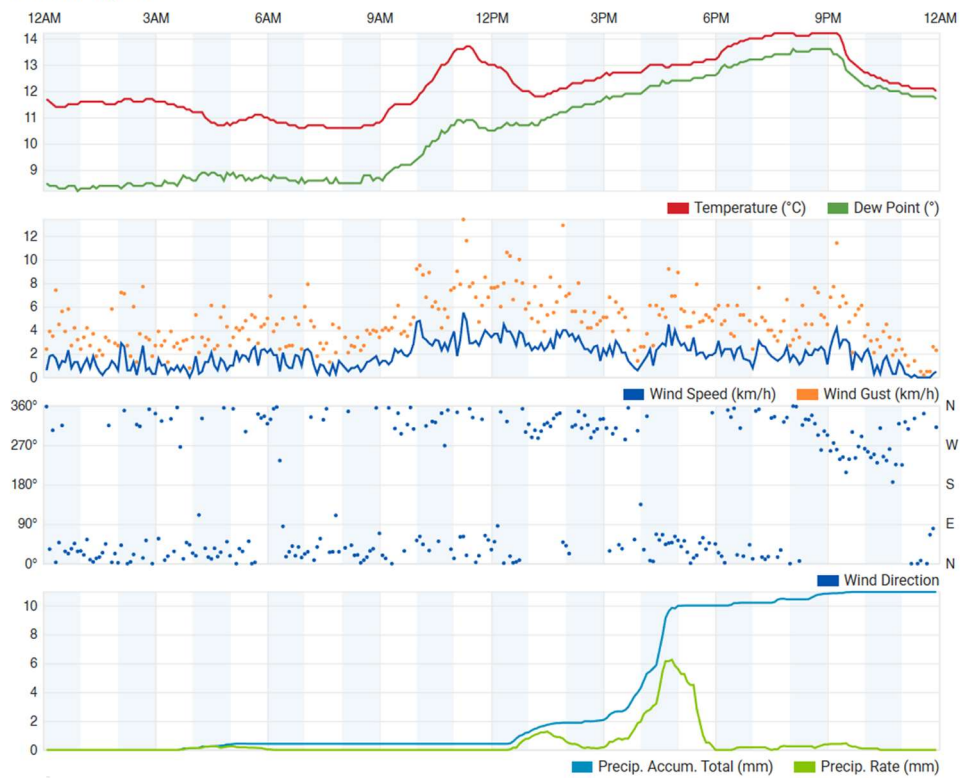
October 17, 2025



October 18, 2025



October 19, 2025



Historical weather data sourced from wunderground.com for weather station IBLACK274 at Brockhall Village

BENCHMARK

ACOUSTICS