

Project: Boddingtons Brewery, Manchester

This Noise Monitoring Plan should be utilised for the purpose of streamlining Noise Monitoring on site, with the ultimate objective of achieving effective management of nuisance noise. The Plan should be completed by a member of the Site Management Team, with advice and assistance obtained from the Project Environmental Manager.

1.0 NOISE RISK CLASSIFICATION:

MEDIUM RISK

Insert a noise risk classification, based on the risk classification diagram detailed below

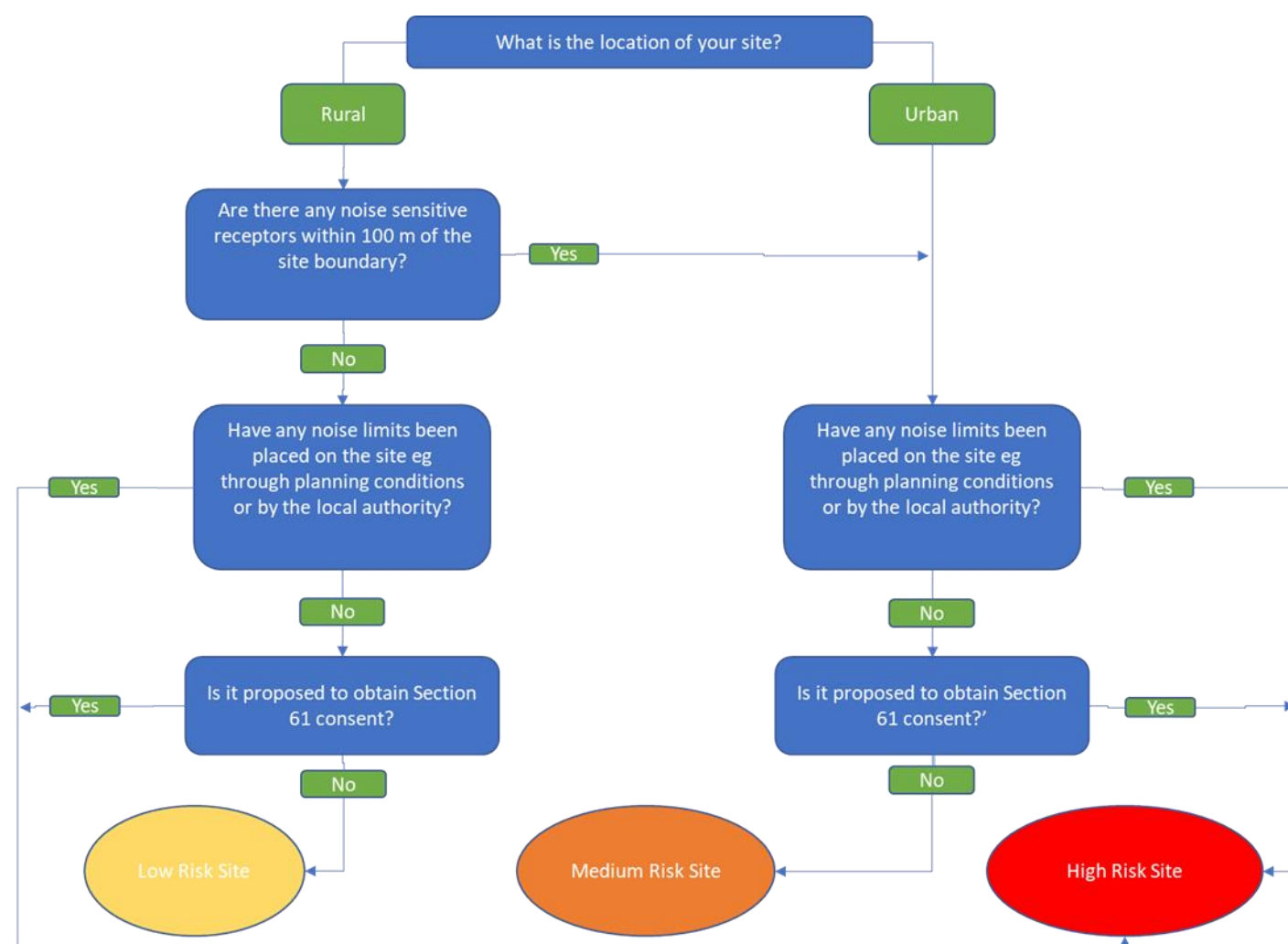


Figure 1 - Noise risk classification diagram

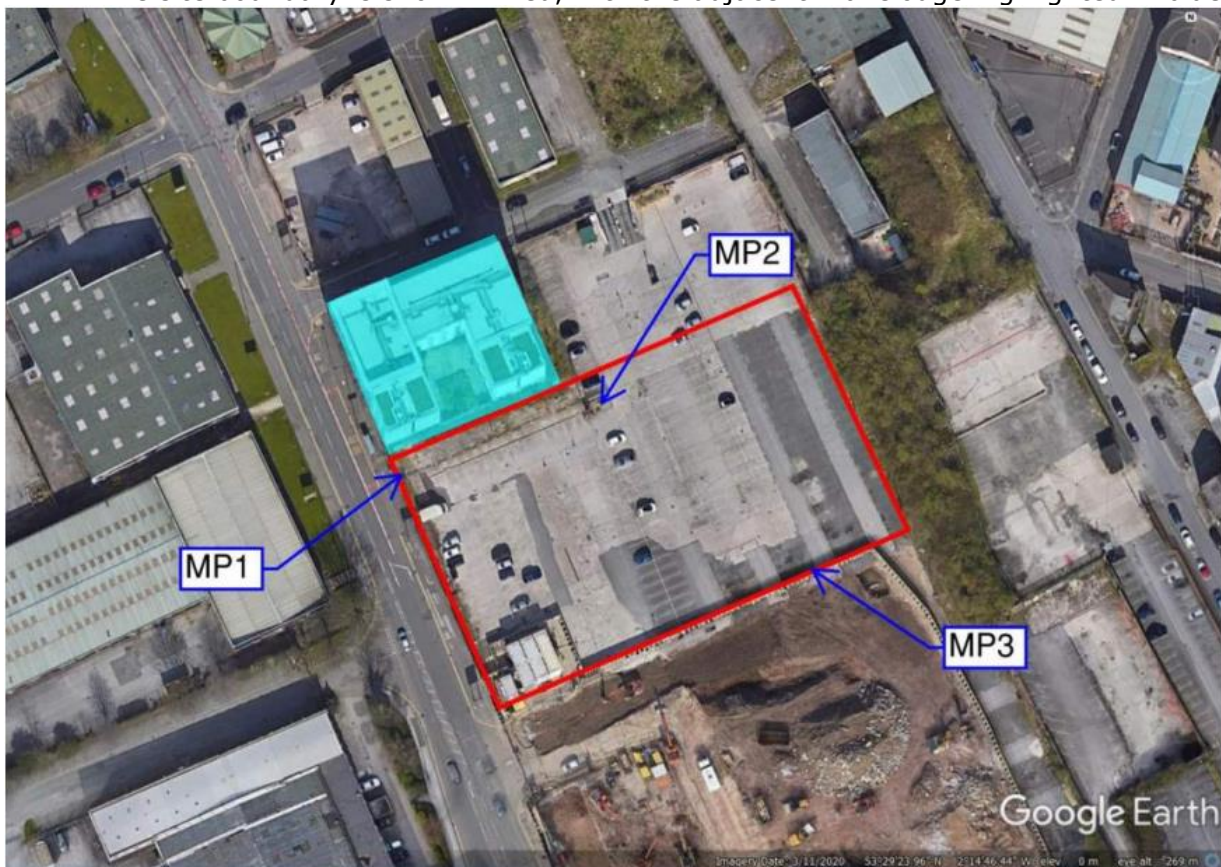
3.0 PRE-CONSTRUCTION BASELINE NOISE MONITORING:

In order to provide a baseline from which to determine the impact of construction related noise, pre-construction noise monitoring should be undertaken at the site boundary and any other relevant locations i.e., closest noise sensitive receptors.

Details of baseline surveys

- Baseline noise surveys were undertaken on August 2021 and January 2022
- The noise monitoring locations are presented below;
 - MP1 - Selected as being representative of typical noise climate at worst-case affected dwellings situated closest to Great Ducie Street
 - MP2 - Selected as being representative of background noise climate at closest façade of adjacent Travelodge Manchester Central Arena hotel
 - MP3 - Selected as being representative of the quieter noise climate towards the rear of the site

The site boundary is shown in red, with the adjacent Travelodge highlighted in blue.



- During the noise survey, it was observed that the dominant sources of noise originated from the A56 running adjacent to the site, with some contribution from other distant roads

- The results of the baseline noise measurements are presented below

Position	Date	L _{Aeq,30min} dB	L _{AFmax} dB	L _{A90,30min} dB
MP1	23/08/2021 12:34-13:04	71	88	62
	23/08/2021 14:31-15:01	71	83	61
	24/08/2021 00:16 - 00:46	67	79	48
	24/08/2021 02:05 - 02:35	65	79	45
	26/08/2021 07:08 - 07:38	72	92	62
	26/08/2021 05:10 - 05:40	65	81	45
MP2	23/08/2021 13:20 - 13:50	62	83	54
	23/08/2021 15:07 - 15:37	58	74	54
	24/08/2021 00:52 - 01:22	54	71	43
	24/08/2021 02:41 - 03:11	50	65	40
	26/08/2021 07:42 - 08:12	60	85	56
	26/08/2021 05:48 - 06:18	55	68	46
MP3	23/08/2021 13:56 - 14:26	57	80	51
	23/08/2021 15:45 - 16:15	56	79	51
	24/08/2021 01:27 - 01:57	47	61	39
	24/08/2021 03:26 - 03:56	45	61	36
	26/08/2021 08:18 - 08:48	62	88	53
	26/08/2021 06:27 - 06:57	53	72	48

- At the time of the August 2021 survey, it was not possible to undertake a survey during a music performance at the AO Arena due COVID-19 related event postponements. Separate attended measurements of noise impacts during an AO Arena event were subsequently undertaken on 24 January 2022 during the 'Big Night of Musicals' event at the Arena
- The noise monitoring locations are presented below;
 - MP4A - Selected as being representative of typical noise climate at worst-case area of current car park (Note: Measurement position was outside of the Development red line boundary, in a position which allowed for direct line-of-sight to the AO Arena)
 - MP4B - Selected as being positioned closer to the AO area in a location more screened from the A56 Great Ducie Street due to the massing of the Manchester College scheme which is nearing completion

The site boundary is shown in red, with the adjacent Travelodge highlighted in blue.



- Details of what was observed during the noise survey are outlined below

Position	Observations	
	Before music event	During music event
MP4A	Noise climate dominated by road traffic along A56 Great Ducie Street with some contribution from other surrounding roads.	Road traffic along Great Ducie Street remained the dominant noise source, although low-frequency music contributions were audible between lulls in local traffic. Peaks in $L_{AF,max}$ and low-frequency noise from the AO Arena were noted to be lower than from the highest contributions due to loud music from passing vehicles.
MP4B	Noise climate dominated by road traffic along A6042 Ring Road with some contribution from other surrounding roads.	Road traffic along A6042 Ring Road remained the dominant noise source, although low-frequency music contribution was just audible throughout most of the measurement.

- The results of the baseline noise measurements are presented below

Locations	Start (hh:mm)	Duration (h:mm:ss)	$L_{Aeq,T}$ dB	$L_{Aeq,T}$ @ 63 Hz dB	L_{AFmax} dB
MP4A	18:10	0:14:55	49	37	66
MP4B	18:30	0:14:40	50	37	66
MP4A	18:47	1:12:05	49	34	68
MP4B	20:00	0:14:15	50	36	59
MP4A	20:18	0:41:44	50	35	67

Details of noise and vibration receptors

- At the north boundary of the site is the Travelodge Manchester Central Arena hotel, at the corner of Great Ducie Street and Francis Street, with warehousing units and HMP Strangeways beyond to the north. East of the site are a couple of vacant lots, with mixed retail and open-air car parking areas beyond.
- At the south boundary of the site is an ongoing development of a new five-storey educational development for The Manchester College beyond which is the internal Ring Road and the AO Manchester Arena.

Details of possible noise and vibration impacts and assessment

The Main Noise and Vibration sources relevant to the works are:

- Construction Noise
- Construction Traffic Noise
- Construction Vibration

According to the noise assessment the Noise effects during construction are not considered to be significant

4.0 CONSTRUCTION NOISE LIMIT THRESHOLD LEVELS:

In the absence of any contractual or consented noise limits, BS5228-1 provides guidance on significance criteria for assessing the potential noise impacts associated with the construction phase of large projects (for daytime works only). Where no other significance criteria has been set by the local authority, the BS5228-1 ABC Method (outlined below) can be utilised.

The ABC Method for determining significance criteria requires the ambient noise levels at existing sensitive receptors to be determined. The ambient noise levels at each existing receptor location are then rounded to the nearest 5dB(A) to determine the appropriate threshold value in accordance with the category value, A, B or C as detailed below.

Assessment Category and Threshold Value Period (LAeq)	Threshold Value, in decibels (dB)		
	Category A *1	Category B *2	Category C *3
Daytime (0700 to 1900 hours) and Saturdays (0700 to 1300 hours)	65	70	75
*1 Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than this value.			
*2 Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as Category A values.			
*3 Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than Category B values.			

The above noise threshold values are intended as a guide to indicate when construction related noise has potential to cause a nuisance to local noise sensitive receptors.

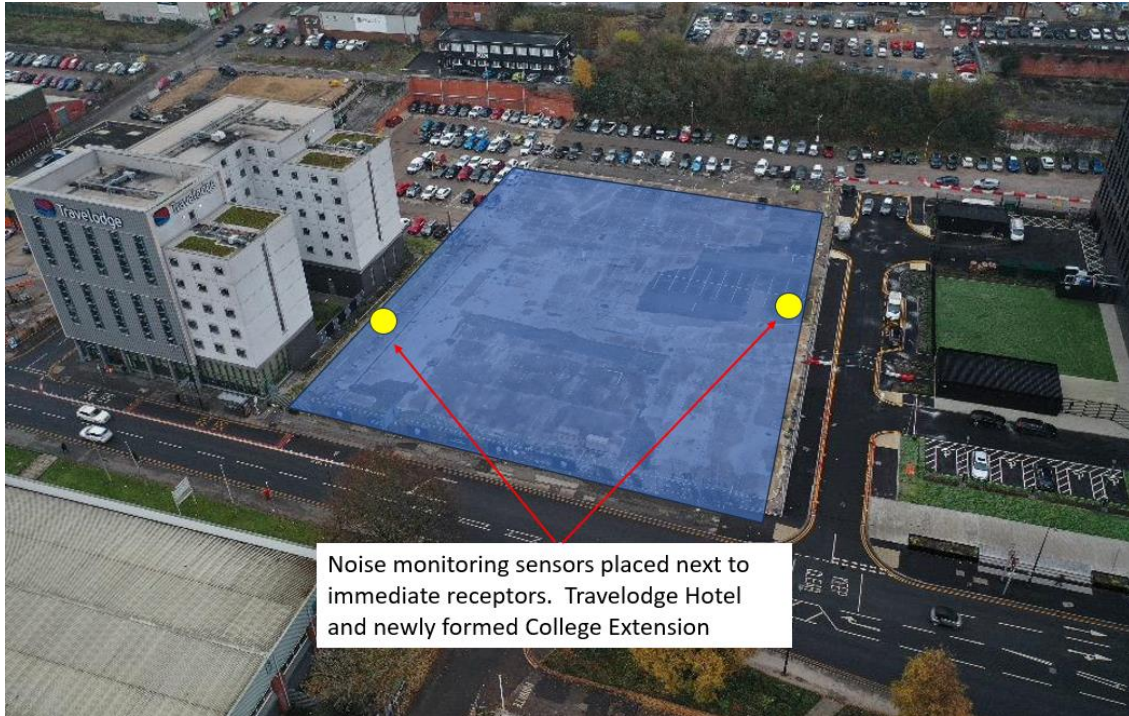
Where predicted or monitored construction noise levels are in exceedance of the noise threshold levels above, enhanced noise mitigation must be considered for implementation on site.

Based on the A,B,C method above, the noise limit to be applied on site shall not exceed 75dB.

5.0 CONSTRUCTION PHASE NOISE MONITORING:

No site is completely without risk of complaint of nuisance arising from construction activities, particularly if there are noisy or night time works taking place. Implementation of Best Practicable Means as detailed in the Construction Environmental Management Plan will help to minimise the risk. However we must also undertake noise monitoring in order to be in a position to robustly defend ourselves against any enforcement action.

Site plan with noise monitoring locations Fig 1



Noise monitoring will be continuous and outsourced. Monitoring equipment will be setup as per Figure 1 above which are located close to the nearest receptors.

Upon exceedance of the established 75dB limit, works will cease immediately until the cause of the exceedance has been identified and where necessary, the Site Manager will identify an alternative work method or mitigation measures to reduce the noise level.

6.0 MINIMUM STANDARDS FOR NOISE MONITORING EQUIPMENT

Minimum Standard Noise Monitoring Equipment

- 1 or more permanent unmanned noise meter erected in appropriate locations
- The capability for text or email alerts of breaches of specific noise limits to allow for immediate intervention.
- Data collated on an online portal such as Sonitus Cloud or equivalent. Any equivalent system should be comparable to the Sonitus system and allow for:
 - Viewing real-time data
 - The processing of hourly and daily averages
 - Customizable data output in line with the noise limit requirements of the site
 - The ability to generate reports
 - A user-friendly interface.

7.0 SUPPLIERS

Suppliers of Suppliers of Noise Monitoring Services include (GB): RVT, SRL, Campbell Associates, John F Hunt (London only): (NI/ROI) Sonitis, NVM Ltd. In addition, a small number of Class 1 Noise Monitors are available from GRAHAM Small Tools. These are suitable for use on high-risk sites when utilised in co-ordination with an online web-based platform providing suitable data analysis.