

**NOISE ASSESSMENT OF
SITE AT
WAKEFIELD ROAD
MAPPLEWELL
BARNSELY**

Environmental Studies
August 2008

1. Background

It was proposed that the site of the planned development at Mapplewell be assessed so as to determine noise levels with particular reference to the adjacent A61 (Wakefield Road).

2. Criteria

In terms of road traffic noise, Local Planning Authorities use the guidance contained in the Department of Environment publication 'Planning Policy Guidance : Planning and Noise' (PPG 24). This document considers the daytime and night-time noise environment of a site and categorises it based upon these noise levels.

NOISE LEVELS CORRESPONDING TO THE NOISE EXPOSURE				
Categories for New Dwellings L_{AeqT} dB				
	NOISE EXPOSURE CATEGORY			
NOISE SOURCE	A	B	C	D
Road traffic				
07.00 – 23.00	<55	55 – 63	63 – 72	>72
23.00 – 07.00	<45	45 – 57	57 – 66	>66
Rail traffic				
07.00 – 23.00	<55	55 – 66	66 – 74	>74
23.00 – 07.00	<45	45 – 59	59 – 66	>66
Air traffic				
07.00 – 23.00	<57	57 – 66	66 – 72	>72
23.00 – 07.00	<48	48 – 57	57 – 66	>66
Mixed sources				
07.00 – 23.00	<55	55 – 63	63 – 72	>72
23.00 – 07.00	<45	45 – 57	57 – 66	>66

Where:-

NEC	
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

BS 8233:1999 ('Sound insulation and noise reduction for buildings – Code of practice') gives guidance on acceptable noise levels within dwellings (Table 5 Section 7.6.1.3). The following table shows the internal noise levels it recommends with regard to housing:-

Criterion	Typical Situations	Design range $L_{Aeq,T}$ dB	
		Good	Reasonable
Reasonable resting/sleeping conditions	Living Rooms	30	40
	Bedrooms	30	35

3. Method of Assessment

The site at Mapplewell was visited on 9th July 2008 and noise measurements were conducted at the perimeter of the site, facing on to Wakefield Road. The results were used to assess the site in terms of PPG 24, using the shortened measurement methodology embodied in the central government publication 'The Calculation of Road Traffic Noise' - this was used to calculate an L_{A10} (18 hour) noise value for this location which was then in turn used to derive an L_{Aeq} (16 hour) noise value.

4. Noise Measurements

Noise measurements were conducted on 9th July 2008 between 10.00 a.m. and 13.00 p.m.

Equipment used: CEL 268 Type 1 Environmental Noise Meter (serial no. 093146).

Calibration: Field calibration was carried out before and after the noise measures using CEL 284/2 Acoustical Calibrator (serial no. 05411626).

All equipment used was within manufacturer's spec. calibration.

Weather: At the time of the noise measures the weather was bright and sunny, dry with a slight easterly breeze.

Noise Sources: The site of the proposal is bordered by the A61 (Wakefield Road) - a busy road link between Wakefield and Barnsley.

5. Results

The measured noise values at the Mapplewell site were as follow:

Measured L_{A10} (3 hour) at perimeter fence = 69.0 dB

Corrected L_{A10} (3 hour) at proposed build-line (closest to A61)* = 62.0 dB

L_{Aeq} (16 hour) (converted from the above using PPG 24 methodology) = 59.0 dB

*Taken from J R Paley Associates 'Concept Layout' drawing (August 2008).

5.1 PPG 24 Assessment

Assessing the site in terms of PPG 24, the proposal falls into Noise Exposure Category 'B' for the daytime (and is highly likely to have the same categorization for the night-time period) whereby :

"Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise."

5.2 BS8233 Evaluation

In order to achieve the 'good' internal noise standard quoted in BS 8233, the windows fitted would need to reduce noise by at least 29.0 dB(A).

6. Discussion

Appendix 1 of this report details the noise attenuation values associated with various glazing configurations. As can be seen, standard sealed units (Reference 2) achieve sufficient noise reduction to achieve the 'good' standard of BS 8233. It would be prudent however to fit a sealed unit comprising of two different thicknesses of glass, in order to guard against resonant frequencies. The use of enhanced glazed units in habitable rooms (Living Rooms, Dining Rooms and Bedrooms) which face directly on to Wakefield Road would acoustically protect the development to within the good standard.

7. Recommendations

It is recommended that windows of an enhanced acoustic specification, giving a noise reduction of at least 29 dB (A) are fitted in habitable rooms (Living Rooms, Dining Rooms and Bedrooms) facing towards Wakefield Road. The provision of an alternative means of acoustical ventilation to these rooms (or alternatively a means of 'forced' ventilation with intakes to the façade of the properties facing away from the A61) would mean that the windows could remain closed.

Constructing a 2 metre high wall or close-boarded fence to the proposal's south-west boundary would afford acoustic protection to the garden areas of plots facing on to Wakefield Road such that daytime levels were of a level generally considered as being 'good' by local authorities for amenity gardens (a daytime L_{Aeq} of below 50 dB), and would also give additional acoustic protection to rooms facing this direction.

8. Conclusions

Whilst there is clearly an external noise source with the capability of affecting the site at Mapplewell, the recommendations detailed above would mean that the influence of this noise source would be minimised, such that a good acoustic environment was achieved.

APPENDIX 1

TYPICAL SOUND REDUCTION OF GLAZED UNITS

REF NO	UNIT	Noise Reduction In dB(A) (R_w)*
1.	Single, 4mm glass	30
2.	Sealed unit 4/6/4 (4mm glass/6mm space/4mm glass)	31
3.	Sealed unit 6/12/6	33
4.	Sealed unit 4/12/10	36
5.	Single 6.4 laminated glass	36
6.	Sealed unit 6.4/12/10	40
7.	Sealed unit 10/12/17	45
8.	Double 6/100/4 with lined reveals	46
9.	Double 4/150/4 with lined reveals	47
10.	Double 10/200/6 with lined reveals	49

All values based on published research by Pilkington Glass.

* R_w is the noise reduction index referred to in
Planning Policy Guidance 'Planning and Noise' (PPG 24)

Additional Noise Comments for Mapplewell site.

Following the production of a noise report for the site on Wakefield Road in Mapplewell in April 2008, it was proposed that the southern half of the site be given over to commercial development.

The following comments are based on the proposed development as shown in the John R Paley Associates Drawing No. D08 4145 SK01 – Rev C.

- The desired noise reduction for houses facing towards Wakefield Road of 29 dB(A) mentioned in the April 2008 report should now be adjusted to 31 dB(A) due to the most exposed properties now being closer to the road.
- Some noise mitigation measures are recommended for the boundary between the housing and the commercial units : the most exposed area of the boundary is between commercial unit 'F' and the northern most 'G'. It is recommended that some form of noise barrier is constructed along the boundary between these two points, taking the form of a solid fence/wall, an earth mound, or a combination of the two. An earth bund with a solid close-boarded fence on top could create an effective screen protecting the housing from the noise of lorries accessing commercial units 'G' and 'H'
- It is recommended that the façades of the commercial units which face towards the housing are blank (i.e. no doors or windows facing the housing) and that any vents/fans on the commercial units are positioned to point away from the housing.

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June 2009