CHAPTER 9: NOISE

Introduction

9.1 This chapter sets out the results of the study into the significance of the noise impacts associated with the redevelopment of town centre land at Barnsley Markets Site, Barnsley. The site is located between Kendray Street, Queen Street, Cheapside, Midland Street and the Harborough Hill Road. The majority of the site is located to the east side of the railway line, which splits the site.

9.2 The site currently comprises the existing Metropolitan Shopping Centre, Barnsley Market, multi-storey car park and, on the eastern side of the railway, CEAG works.

9.3 The application is for a mixed use development comprising retail, cafes, department store, a new market, cinema, new public amenity space, and car parking.

9.4 The potential sources of noise impacts associated with the proposed redevelopment are identified below:

- Road and Rail Traffic
- Car Park
- Operations within buildings forming part of the development,
- External activities on the site,
- Fixed Mechanical Plant
- Construction

9.5 The impacts of each of these sources of noise has been evaluated.

Methodology

General Noise Impact Assessment Guidelines

9.6 Noise emanating from the completed and operational development will generally be due to the activities normally associated with leisure operations such as customer arrivals and departures and delivery and servicing movements. In addition, noise from fixed plant and equipment will need to be considered. Off site, account needs to

be taken of noise generated by additional vehicle movements principally by cars, buses and commercial vehicles that are associated with the development.

9.7 Temporary noise and vibration sources during the construction of the Proposed Development will include construction vehicles, equipment, processes and activity at the study area, and construction vehicles moving to and from the study area on the surrounding highway network.

9.8 Local Planning Authorities typically require that fixed plant on new buildings be designed, installed and operated such that it does not cause a nuisance at the nearest potentially affected noise sensitive location. In objective terms, this usually means that the levels of plant noise at any nearby noise sensitive location shall not exceed a value that is more than 5dB below the existing background noise levels measured as the L_{90} index.

9.9 This approach is based on a good practice interpretation of the requirements of British Standard 4142.

9.10 With this in mind it is possible to set design standards for plant noise emission, based on the results of the noise measurements already undertaken at and around development site.

9.11 Noise limits are to apply:

- Where there is a noise sensitive property as a receptor, at a position 1m from the façade of the building
- Where there is no noise sensitive building, at a point 1.5m above ground level at the boundary of the noise sensitive area closest to the developed site.

9.12 The limits proposed shall also apply to the combined effect of all plant items that run for the development during any particular period. Plant that has a distinctive tonal or intermittent nature shall be subject to a further 5 dB(A) penalty, and plant which is for emergency use only may have a 10dB(A) relaxation on the criteria subject to the agreement of the Environmental Health department of Barnsley Metropolitan Borough Council.

9.13 Given the large number of individual tenants whose plant is likely to contribute to the overall noise levels at any particular location, plant noise limits will be written into the tenant specifications, to achieve those overall limits. This will then take into the account the fact that any individual tenant's plant will only contribute to the overall noise levels for the site and not be solely responsible for them.

9.14 Regarding delivery noise, this will be limited servicing for the cinema, market and retail use.

9.15 It is not possible to determine the servicing requirements of the retail units at this time, as the tenant occupation is unknown.

9.16 A suitable management plan will be required to control delivery hours to the tenants' retail units. There should not be any significant issues given that there are existing service routes that can be used which are largely in the commercial area.

9.17 Noise associated with a new development is assessed in one or both of the following ways:

- By comparing the levels of noise that are expected to be generated against absolute noise standards, such as those that indicate likely annoyance or disturbance with everyday activities
- By considering the change in ambient noise that is expected to occur relative to the existing noise climate (baseline) as a result of the proposed development

9.18 The noise impact assessment adopts both approaches using the methods set out below.

9.19 The Assessment procedure examines the predicted level of noise emitted from development sources in "development" and "no development" scenarios to establish the change in noise that would be expected due to the development.

9.20 Significance ratings are given in the Institute of Acoustics and Institute of Environmental Assessment and Management's draft guidance (IEMA/IOA) on the

assessment of environmental noise and in the February 2011 revision of the Design Manual for Roads and Bridges (DMRB).

9.21 It should be noted that whilst the criteria set out in DMRB relates specifically to free flowing traffic and not mixed sources, it is broadly in line with the IEMA. DMRB sets out a classification for the magnitude of long term noise impacts which is broadly equivalent to that set out in the IEMA/IOA guidance except that it introduces the term 'Negligible' for changes between 0.1 and 0.9 dB and does not subdivide the major effects as does IEMA.

9.22 On the basis that the main noise associated with the development is from the activities undertaken on the site, it is proposed to use the IEMA categories. Where changes are less than 1 dB, the additional category of 'Negligible' from DMRB shall be applied.

9.23 Taking these factors together, the assessment criteria are summarised in the table below.

Table 9.1: Magnitude and significance criteria for noise effects on humans

Predicted free-field noise level ($L_{Aeq, period}$)	**Change in Noise Level (L_{Aeq})**	**Significance**
Anonymous Noise Day < 55 dB (0700-2300h)	N/A	Negligible
Day ≥ 55 dB (0700-2300h)	0.0 0.1 to 0.9 dB 1.0 to 2.9 dB 3.0 to 4.9 dB 5.0 to 9.9 dB 10.0 dB or greater	None Negligible Slight Impact Moderate Impact Substantial Impact Severe Impact
Anonymous Noise Night < 45 dB (2300-0700h)	N/A	Negligible
Night ≥ 45 dB (2300-0700h)	0.0 0.1 to 0.9 dB 1.0 to 2.9 dB 3.0 to 4.9 dB 5.0 to 9.9 dB 10.0 dB or greater	None Negligible Slight Impact Moderate Impact Substantial Impact Severe Impact

9.24 It should be noted that the presentation of changes in sound level to one decimal place in the above table is not a reflection of the accuracy of any assessment undertaken but rather serves to provide a clear threshold between adjacent impact descriptions.

9.25 It is also important to note that where noise impacts are concerned, those identified to be of substantial or severe significance are not necessarily impacts that have effects of greater than local scale. Indeed, where developments of this type are concerned, any noise and vibration impacts are likely to be important on a local scale only.

9.26 Potential effects may be positive or negative and set in the short, medium or long term.

9.27 DMRB indicates within its procedures for assessing impacts that road traffic noise level increases of 3 dB or more (i.e. those of moderate or major significance) should be mitigated if possible:

"A change of 1 dB(A) in the short-term (e.g. when a project is opened) is the smallest that is considered perceptible. In the long-term, a 3 dB(A) change is considered perceptible, and such an increase should be mitigated if possible."

9.28 The indication is therefore that changes of less than 3 dB (i.e. those of slight or negligible significance) do not require mitigation.

9.29 Once an assessment of the effects identified is made, the significance is to be quantified in a clear and concise manner. Proposals for mitigation are then proposed where appropriate and the significance of any residual effects quantified.

9.30 The adopted assessment procedures have been summarised below.

- establish and review the existing (baseline) noise conditions and policies pertaining to the study area and the surrounding area,

- identify and assess the environmental noise effects of the activities involved in construction and operation of the development over the study area,
- develop measures that will be taken to remove, minimise or reduce these effects to acceptable levels,
- provide a framework for consultation with public authorities and interested parties.

9.31 The assessment standards used for evaluating the potential impacts of noise arising during demolition and construction are set out in Appendix 9.1.

Planning Policy Context

National Policy

9.32 PPG 24 considers the potential effect from a variety of environmental noise sources and identifies threshold day and night levels below which the particular noise under consideration would not be deemed to have any consequence for noise sensitive developments. The 'mixed sources' category identified in PPG24 is defined as comprising any combination of road, rail, air and industrial noise, and so is considered to fairly apply to certain aspects of the noise emission expected from the completed development as a whole.

9.33 In summary, Paragraph 1 of Annex 1 to PPG24 identifies Noise Exposure Categories (NECs) and states:

"When assessing a proposal for residential development near a source of noise, local planning authorities should determine into which of the four noise exposure categories (NECs) the proposed site falls, taking account of both day and night-time noise levels. Local planning authorities should then have regard to the advice in the appropriate NEC, as below:

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.

9.34 The PPG24 recommended range of free-field noise levels together with their associated NEC for mixed noise sources are set out below.

Noise Levels[0] Corresponding to the Noise Exposure Categories for New Dwellings, $L_{Aeq,T}$ dB					
Noise Source	Time Period	Noise Exposure Category			
		A	B	C	D
mixed sources[3]	0700-2300	<55	55-63	63-72	>72
	2300-0700[1]	<45	45-57	57-66	>66

0 Noise levels : the noise level(s) ($L_{Aeq,T}$) used when deciding the NEC of a site should be representative of typical conditions .

1 Night-time noise levels (2300 - 0700) : sites where individual noise events regularly exceed 82dB L_{Amax} (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the $L_{Aeq,8h}$ (except where the $L_{Aeq,8h}$ already puts the site in NEC D).

3 Mixed sources : this refers to any combination of road, rail, air and industrial noise sources. The "mixed source" values are based on the lowest numerical values of the single source limits in the table. The "mixed source" NECs should only be used where no individual noise source is dominant.

To check if any individual noise source is dominant (for the purposes of this assessment) the noise level from the individual sources should be determined and then combined by decibel addition (remembering first to subtract 2dB(A) from any aircraft noise contour values). If the level of any one source then lies within 2dB(A) of the calculated combined value, that source should be taken as the dominant one and the site assessed against the appropriate NEC for that source, rather than using the "mixed source" NECs. If the dominant source is industrial see Paragraph 19 of Annex 3.

If the contribution of the individual noise sources to the overall level cannot be determined by measurements and/or calculation, then the overall measured level should be used and the site assessed against the NECs for "mixed sources".

9.35 The values described above refer to noise levels on an open site, measured away from existing buildings and 1.2m to 1.5m above ground level.

9.36 Paragraph 19 of Annex 3 to PPG 24 points out that the likelihood of complaints about noise from industrial development can be assessed, where the standard is appropriate, using guidance in BS4142:1990 (since updated in 1997). For the standard to be appropriate, it is essential that the noise to be assessed is emitted by fixed plant or equipment, in which case the noise emitted by the plant or equipment is compared to the otherwise prevailing background levels. The degree to which the plant noise exceeds the background noise is indicative of the likelihood of complaints about that noise. Noise emitted by moving sources such as vehicles cannot be appropriately assessed using the guidance in BS4142.

9.37 In addition, guidance in BS8233:1999 and from the World Health Organisation can be used to determine what are considered reasonable internal and external noise levels at dwellings. Account is taken of the recommended good standards for noise in gardens as well as the recommended range of standards for internal noise in bedrooms and living rooms. These recommended standards can be used in combination with the guidance in PPG24 regarding the attenuation normally achieved through an open window.

9.38 On the basis of the above mentioned guidance in PPG24, below the following thresholds, noise emission from anonymous sources associated with the development to any nearby noise sensitive location around its borders would not be considered as significant:

- Day 0700-2300h 55 dB $L_{Aeq,T}$
- Night 2300-0700h 45 dB $L_{Aeq,T}$

9.39 Anonymous noise sources can be described as those which are not obviously associated with a specific localised operation. This would include transportation noise sources.

9.40 There is no statutory requirement to achieve these threshold noise levels, and they are included herein in the context of them being generally desirable.

9.41 If the noise levels due to the development are below existing ambient noise levels, it will be less noticeable and impacts less significant.

9.42 With respect to daytime noise Annex 2 to PPG24 indicates that general daytime outdoor noise levels of less than 55 dB L_{Aeq} are desirable to prevent significant community annoyance.

9.43 PPG24 also states:

"A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to a halving or doubling the loudness of a sound."

Regional Policy

Yorkshire and Humber Regional Plan

9.44 The Yorkshire and Humber Plan includes no policies of specific relevance to noise-related issues.

The South Yorkshire Residential Design Guide

9.45 The South Yorkshire Residential Design Guide has been considered, but this does not provide any specific noise related requirement that would be applicable to the noise impact assessment of this site.

Local Policy

Barnsley Unitary Development Plan (2000)

9.46 Policy ES1 relates to issues of pollution, including noise pollution, and states that proposals likely to result in housing, schools, hospitals or other sensitive land uses being subjected to excessive levels will be resisted.

9.47 Policy ED4 states that proposals for economic development adjoining or close to housing will be assessed with particular regard to the likely impact on residential amenity in terms of, inter alia, noise from operations on, or traffic entering or leaving, the site.

Existing Situation

Location and Existing Noise Sources

9.48 The proposed development site is located in the centre of Barnsley town, adjacent to the railway and the busy Harborough Hill Road (A61). The site is located in a hollow in the landscape. The land rises from the site in all directions, and means that the residential areas to the south and east are elevated and overlook the town centre. To the north and west of the site the predominantly commercially dominated areas of the town extend the brow of the hill, before falling away to the residential areas. This creates screening to most of the noise sensitive receptors to the north and west of the site.

9.49 In noise terms the site is exposed to all the typical noise sources associated with medium sized market town centre environment. These are primarily road traffic (including buses from the nearby terminal), but also regular train movements and infrequent high level aircraft fly-overs during the day.

9.50 At night the operation of pubs and clubs in the town centre add to the continuing background of road traffic noise, and provides some lively vibrancy through the evening and into the early hours of the morning. There are very few train movements during the night-time period.

9.51 The vehicles using the roads around where a mixture of private cars, motorbikes, buses and commercial vehicles. Traffic volumes and speeds varied according to the time of day or night, but at all times it is road traffic from the elevated section of the A61 (Harborough Hill Road) that plays a dominant part of the environmental noise in the vicinity, and background noise levels around the existing site. The railway provides peak noise levels that intermittently affect the site during the day-time.

9.52 The only other noise sources that contribute to the noise environment in the town centre are the activities by the existing market, some localised plant noise sources associated with the commercial buildings, and pedestrian movements. These noise sources are not noticeable at the nearest noise sensitive receptors, outside the immediate town centre.

Noise Sensitive Receptors

9.53 The noise sensitive receptors are considered by this assessment to fall within two sub-categories:

- existing receptors that are within the immediate town centre
- existing receptors that are outside the immediate town centre

9.54 Those existing noise sensitive receptors located immediately within the town centre are few in number, and already experience a vibrant noise climate. This includes noise from road traffic, commercial activities, pedestrian activity, and noise from clubs and bars.

9.55 The receptors located outside the immediate town centre are less directly exposed to the bustle, and vibrancy of the town centre. The noise climate is dominated by road traffic noise from the elevated section of the A61, and local car and bus traffic and

railway noise. The receptors represent the majority of the residential dwellings in the area.

9.56 The receptors chosen to represent the closest noise sensitive receptors in each case are listed below in Table 9.2. These have been identified on the basis of mapping, site drawings and site visits as well as a consideration of the extent of the developed site, location of new buildings, and information from the Local Authority.

Table 9.2: Noise Sensitive Receptors Locations

Noise Sensitive Receptor	Receptor Number	Occupancy	Distance from nearest site boundary	Nature of Sensitivity
Within the Town Centre				
Flat above the "Room" Public House	1	Residential	55m	Night-time only: plant noise.
Flat above Groggers's Rest Public House	2	Residential	15m	Night-time only: plant noise.
Flat above retail units on Cheapside and New Street	3	Residential	19m	Night-time only: plant noise.
Flat above commercial on corner of Eastgate and Regents Street	4	Residential	190m	Day and night: amenity
New flats on Regents Street, corner of Royal Street, and nearby flats.	5	Residential	145m	Day and night: amenity
Property on corner of Wellington Street/ Peel Square	6	Residential	197m	Day and night: amenity
Occupied flats above pubs on Wellington Street, inc."The Shakespeare"	7	Residential	177m	Day and night: amenity
To the north of the site				
15 Harborough Hill Road/ Pontefract Road	8	Residential	207m	Day and night: amenity
17 Mottram Street	9	Residential	321m	Day and night: amenity
To the south and east of the site				
15 Quarry Street	10	Residential	195m	Day and night: amenity
18,20 Copper Close	11	Residential	200m	Day and night: amenity
25 Oakwell Lane	12	Residential	353m	Day and night amenity
6,8 Pontafract Road (on Bala Street)	13	Residential	180m	Day and night amenity

Noise Survey

9.57 A noise survey was previously carried out in June 2006 at the site to determine the existing noise climate.

9.58 As five years have passed, a new survey has been undertaken to cover the daytime ambient noise climate. Given that the scheme essentially will only operate during the daytime, an additional night time noise survey was not undertaken.

9.59 Given that some plant may run at night, plant noise levels for the night time period shall be derived from the previous 24 hour noise data obtained in 2006.

9.60 This is a reasonable approach given that night time conditions are unlikely to have changed significantly since the first survey, as the predicted traffic flows on the major routes have not changed significantly.

9.61 The noise survey was carried out on 8th April 2011.

9.62 The equipment used is as follows:

- Norsonic 118 Sound Level Analyser
- Norsonic 1251 Calibrator

9.63 The sound level analyser was calibrated before and after the survey and found not to have drifted.

9.64 The sound level analyser was fitted with a windshield during the survey.

9.65 The weather conditions were dry, warm, clear and with a light breeze.

9.66 The measured results are used to ascertain the baseline conditions, and to calibrate the acoustic model used to determine the impact of the proposed development.

9.67 The measurement positions are shown in the attached Figure 9.1, together with the assessment positions used in determining the impact of the development.

9.68 The measurements obtained at position MP3 were façade incident and so have been converted into free field levels by subtracting 2.5 dB, in accordance with the requirements of CRTN.

9.69 The measurement results can be found in schedule 11/0900/SCH1 included in Appendix 9.2.

9.70 The lowest measured background noise level at night obtained in June 2006 was 35 dB(A). This will be used to set plant noise limits for any plant operating between 23:00 and 07:00. The lowest evening background noise level was 40 dB(A), which will be used to set noise limits for any plant operating between 19:00 and 23:00. The lowest daytime background noise level was 48 dB(A).

9.71 This shall apply at 1m from the nearest residential premises.

Impact of Development

9.72 A computer model has been created using a proprietary acoustic modelling package called Woelfel IMMI.

9.73 This model uses the traffic flow data provided to determine noise levels due to the road traffic. It also uses the car park occupancy levels provided to determine noise levels from the car park use.

9.74 A model of the existing site was used to determine the existing conditions and also the 2013 'do minimum' scenario.

9.75 The model of the existing site was also used to calibrate the model against the measured noise data at position MP3 / AP8. This was dominated by road traffic noise on Harborough Hill / Pontefract Road.

9.76 The predicted noise level for the existing site was found to be within 0.5 dB of the measured noise levels at this location, and so the model is considered to be representative.

9.77 The results of the model are shown in the following figures:

- Figure 9.2 shows an overhead view of the model.
- Figure 9.3 shows the existing scenario.
- Figure 9.4 shows the 2013 'do minimum' scenario.
- Figure 9.5 shows the 2013 'with development' scenario.

9.78 It should be noted that assessment positions 10 - 12 are not covered by the model as they are outside the development area. The principal noise source at these locations is the A61 Sheffield Road North and A635 Doncaster Road. The change in traffic associated with these positions has been undertaken separately from an examination in the change in traffic flows.

9.79 A summary of the impact at the relevant assessment positions contained within the model are shown below:

Table 9.3: Change in Noise Levels Predicted in IMMI Model

Assessment Position	**2009 ($L_{Aeq, 16hr}$)**	**2013 'Do Min' ($L_{Aeq, 16hr}$)**	**2013 'With Dev' ($L_{Aeq, 16hr}$)**	**Change in Noise Level (L_{Aeq})**	**Significance**
1	35.2	35.4	36.1	0.7	None
2	56.8	57.1	57.3	0.2	Negligible
3	38.1	38.3	41.8	3.5	None
4	42.4	42.6	42.5	-0.1	None
5	41.5	41.8	41.8	0.0	None
6	36.1	36.4	37.4	1.0	None
7	48.6	48.9	48.9	0.0	None
8	72.4	72.6	72.6	0.0	None
9	54.8	55.0	55.1	0.1	None
13	68.1	68.3	68.4	0.1	None

9.80 A summary of the impact of the change in traffic noise at assessment positions 10 - 12 are shown below:

Table 9.4: Change in Noise Levels due to Increased Traffic Flows

Assessment Position	2009 (18 hr Flow)	2013 'Do Min' (18 hr Flow)	2013 'With Dev' (18 hr Flow)	Change in Noise Level ($L_{A10, 18hr}$)	Significance
10	30588	32127	32437	0.0	None
11	30588	32127	32437	0.0	None
12	12214	12828	12969	0.0	None

9.81 It can be seen from Tables 9.3 - 9.4 that the impact is negligible or of no impact.

9.82 Although the change at assessment position 2 is 3.5 dB, the overall level is below 55 dB(A) and so no significance occurs.

9.83 It should be noted that the models cannot include the noise levels due to existing activities such as pedestrians and the existing shops. Therefore, noise levels may be higher than predicted within the town centre as non-vehicle sources are dominant in these locations.

9.84 Provided plant noise is controlled to be 5 dB below the lowest L_{90} relevant to the operating period, there will be no impact. This must apply for all plant associated with the scheme, including tenants' plant. This must be included within the tenant's requirement specification.

9.85 Noise breakout from the development itself is unlikely to be significant given that the fundamental use of the site has not changed with the redevelopment. The only additional use is that of the cinema.

9.86 Given that the cinema shell is designed to provide sufficient sound insulation to ensure that noise inside the cinema is sufficiently low, the noise breakout is also unlikely to be of any significant impact. The shell construction shall be designed such that the noise breakout will be controlled to be below 45 dB(A) at the nearest residential receptor and hence have no significant impact.

9.87 On this basis, the scheme itself will have no significant impact on the surrounding receptors.

Construction Noise and Vibration

9.88 At present, a detailed programme for the demolition and construction works is not available. On this basis, an initial assessment of typical plant noise has been undertaken.

9.89 A broad assessment of construction noise indicates that adverse effects can be expected at existing residential receptors during phases if the work requires the use of heavy plant and equipment.

9.90 The closest distance that plant is likely to operate is approximately 20m from the nearest receptor, and 100m from the middle of the site.

9.91 Given that heavy plant will generally generate noise levels of 80 to 90 dB(A) at 10m, there may be occasions when high noise levels occur at the closest receptors.

9.92 This would be a worst case scenario when equipment is very close and makes no allowance for the percentage of time the equipment is in operation.

9.93 It is recommended that allowance is made for the erection of site hoarding at the boundary of the construction site adjoining any residential noise sensitive receivers. It is expected that such hoarding will be at a height of 2.4m and constructed so as to be an effective noise barrier, requiring a minimum weight of 10 kg/m^2 and devoid of gaps or openings, and as a consequence will provide at least 10dB attenuation which will achieve noise levels below the mitigation threshold. With the provision of such screening, it is anticipated that the residual levels could still be above the value at which an effect is expected during busy periods. It should be borne in mind that these effects will be temporary, and provision is made through the proposed Code of Construction Practice and the possible setting up of a Section 61 Agreement with the Local Planning Authority, to take all practicable measures to minimise the construction noise effect.

9.94 This should allow noise levels to generally be within 65 - 75 dB $L_{Aeq,T}$ as a typical noise level.

9.95 The impact of the construction works is likely to be moderate but short term.

9.96 Construction vehicle movements on the surrounding road network can be expected to lead to increases in the ambient noise levels at off-site locations, although the degree of impact is generally slight.

Section 61 Agreements and Code of Construction Practice

9.97 The Environmental Protection Act 1990 gives Local Authorities powers to control noise from construction sites by reference to Sections 60 and 61 of the Control of Pollution Act 1974 (COPA). Section 61 facilitates a process by which a Contractor agrees a method of working with a Local Authority, often stipulating hours and methods of working and occasionally agreeing specific noise limits at sensitive locations. The advantage of such an agreement is that compliance with it protects the Contractor from being served with a notice to cease works on account of the noise and vibration impact. The Local Authority has the power under Section 60 of COPA to serve such a notice if it deems the construction noise to be causing a nuisance.

9.98 As a means of minimizing the risk of noise disturbance and disruption, it is feasible for the Developer to make it a contractual obligation on the Contractor(s) to establish Section 61 Agreements with Barnsley Metropolitan Borough Council for the construction works to be carried out. The content of those agreements cannot as yet be defined in detail, but it is most likely that the following areas will be discussed and may be included.

9.99 Hours of working: limited to those times when the sensitivity of affected parties nearby is not so acute.

9.100 Methods and types of plant: particular construction or demolition methods may be disallowed on the site due to the severity of the noise typically generated, as may certain types of plant.

9.101 Low noise plant and noise mitigation: directives on the selection of low noise plant where practical may be included as well as specific types of mitigation for equipment or processes which lend themselves to the same.

9.102 Noise limits: occasionally and under specific circumstances it may be appropriate to set noise limits for certain periods and at certain locations.

9.103 Monitoring, liaison and reporting: the agreement may specify that noise and vibration monitoring is required at certain locations for record keeping and evaluation purposes. Particular parties responsible for liaison and reporting to the LPA and other nominated parties may also be identified.

9.104 Section 61 Agreements are a valuable tool which will enable Barnsley Metropolitan Borough Council to control the noise impact from construction activity while giving the Contractor an agreed framework within which the operations can be carried out. This minimises the risk of disruption to operations without leading to unacceptable consequences for noise sensitive parties.

9.105 In order to demonstrate the method of control that would be imposed by the Employer on any Contractor undertaking construction works on the site, Appendix 9 contains an example for of Code of Construction Practice dealing with noise and vibration generation.

Mitigation Measures

9.106 It can be seen from the assessment of the impacts that the proposed scheme will not produce any significant impacts, and as such will not need any mitigation measures.

9.107 Plant noise will need to be suitably designed to achieve the plant noise limits specified, such as attenuation of air handling units and fans, and where necessary, acoustic enclosures.

9.108 Best practicable means shall be applied during the construction phase to minimise the effects of the demolition and construction.

Summary and Conclusions

Introduction

9.109 The potential effects associated with the proposed development have been considered. The assessment of noise issues has covered potential effects on the surrounding community arising as a result of the proposed development, namely changes in road traffic noise, the car park use, the cinema, and temporary effects arising during the construction process. Best practicable means shall be applied during the construction phase to minimise the effects of the demolition and construction.

9.110 In carrying out the assessment and reporting the results, reference is made to Government Guidance on noise, relevant British Standards, WHO Guidelines and statutory instruments as appropriate.

Baseline Conditions

9.111 Noise measurements have been obtained to determine the baseline noise climate around the Application Site.

Likely Effects and Mitigation

9.112 Noise generated during the construction phase has been assessed as requiring a suitable form of mitigation in order to prevent levels at the nearest existing residences exceeding the value at which they will require sound insulation protection. It is recommended that the non-pervious hoarding be erected around the parts of the construction site boundary immediately adjacent to residential receptors in order to reduce noise emission to the surrounding residences. It is also recommended that a suitable code of construction practice be adopted in order to clearly define those measures to be employed to minimise the noise impact. Noise from construction traffic is expected to be slight.

9.113 Operational noise associated with the proposed development has been assessed as having a negligible or no noise effect on nearby existing residences.

9.114 Plant noise will need to be attenuated to achieve the plant noise limits specified earlier in this chapter. Compliance with these limits will ensure no impact occurs.

9.115 Increases in vehicular traffic flows on the existing road network have been assessed as leading to a negligible or no increase.

Conclusions

9.116 The residual noise effects associated with the proposed development are considered to be negligible.

9.117 Set out below is a summary of conclusions relating to noise effects resulting the various activities at, or associated with, the site taking account of the mitigation options available. The table aims to enable decision makers to easily understand the relative significance of any potential acoustic effects arising from the proposed development.

Table 9.5 Summary of Impacts

Description of Noise	**Relative Impact**	**Potential Impact Significance**	**Potential Duration**
Operations including Car Park and Deliveries	Adverse	Negligible	Long Term
Fixed Plant	Neutral	None	Long Term
Road Traffic	Neutral	None	Long Term
Construction	Adverse	Moderate	Short Term