



Store Property Investments Limited

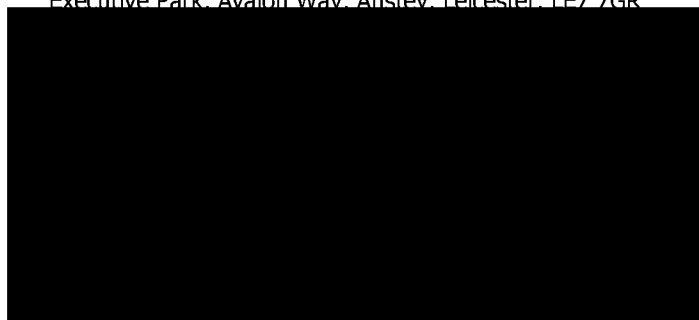
5 Arundel Road,

Littlehampton

Noise Assessment

June 2019

Executive Park, Avalon Way, Anstey, Leicester, LE7 7GR





Document Control

Project: 5 Arundel Road, Littlehampton
Client: Store Property Investments Limited
Job Number: A113884
File Origin: O:\Acoustics Air Quality and Noise\Active Projects\A113884

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Issue	Date	Status
1	19 th June 2019	First Issue
2	21 st June 2019	Second Issue – Minor Amendments
3	25 th June 2019	Third Issue – Minor Amendments
4		



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Executive Summary

Store Property Investments Limited commissioned WYG Environment (WYG) to prepare a Noise Assessment for the proposed change of use from Class A1 to Class A5; including the introduction of new building services plant at 5 Arundel Road, Littlehampton.

We have examined the proposed development and proposed noise mitigation measures and conclude that the proposed operations are not expected to have an adverse impact on health or quality of life at nearby dwellings.

Furthermore, the proposed development does not represent a noise sensitive use and, therefore, is not considered to be at risk of impact from noise generated by neighbouring businesses. Given the current commercial use of the site and car park, the inclusion of the screening around the proposed condenser unit and the favourable results of assessments as described above, it is considered that the proposals will not have a detrimental effect on the tranquillity of the area and local access to areas of greater tranquillity.

Therefore, it is considered that the proposed development will sufficiently control noise generated by the proposed use.



1.0 Introduction

1.1 Purpose of this Report

This report presents the findings of a noise assessment for the change of from Class A1 (shops) to Class A5 (hot food takeaways); including the introduction of new Building Services Plant (BSP) at 5 Arundel Road, Littlehampton.

A description of the existing noise environment in and around the site is provided. Noise surveys have been undertaken and the results used to verify predictions of the short-term and long-term effects of noise. The noise levels from the proposed development have been predicted at local representative receptors using CADNA noise modelling software which incorporates ISO 9613 methodologies and calculations.

A list of acoustic terminology and abbreviations used in this report is provided in Appendix A and a set of location plans and noise contour plots relevant to the assessment are presented in Appendix B.

1.2 Legislative Context (England)

This report is intended to provide information relevant to the local planning authority and their consultees in support of a planning application for the above proposed development. Policy guidance with respect to noise is found in the National Planning Policy Framework (NPPF), published on 19th February 2019. With regard to noise and planning, the NPPF contains the following statement at paragraph 170:

"170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans*

A further 2 short statements are presented at paragraph 180, which state:

"180. 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."*

Furthermore, paragraphs 182 and 183 state:

"182. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

183. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

Planning Practice Guidance (PPG): Noise provides further guidance with regard to the assessment of noise within the context of Planning Policy. The overall aim of this guidance, tying in with the principles of the NPPF and the Explanatory Note of the Noise Policy Statement for England (NPSE), is to, *'identify whether the overall effect of noise exposure is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.'*

A summary of the effects of noise exposure associated with both noise generating developments and noise sensitive developments is presented within the PPG and repeated as follows:

**Table 1.1 NPPG Noise Exposure Hierarchy**

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No Specific Measures Required
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No Specific Measures Required
Lowest Observed Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; closing windows for some of the time because of the noise. Potential for non-awakening sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. having to keep windows closed most of the time, avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Observed Adverse Effect	Prevent

The NPPF, NPSE and NPPG do not, however, present absolute noise level criteria which define SOAEL, LOAEL and NOEL which is applicable to all sources of noise in all situations. Therefore, within the context of the Proposed Development, national planning policy and appropriate guidance documents including 'BS 4142: 2014 Methods for Rating and Assessing Industrial and Commercial Sound' and 'BS 8233:2014: Guidance on sound insulation and noise reduction for buildings'. Section 2.0 presents the noise level criteria used as a basis of this assessment.

The NPPG also states that *neither the NPSE nor the NPPF (which reflects the Noise Policy Statement) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of the proposed development.*



2.0 Assessment Criteria

In order to enable the assessment of the proposed development in terms of LOAEL and SOAEL, Table 2.1 presents equivalent noise levels and associated actions with the target noise level criteria identified. The noise level criteria detailed below have been derived from standards and design guidance:

BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings – Code of practice'

BS 4142:2014 'Methods for rating and assessing industrial and commercial sound'

Table 2.1 Noise Level Criteria and Actions

Effect Level	Assessment	Noise Level Criteria	Action / Justification
No Observed Effect Level (NOEL)	Building Services Plant	BS4142 Score of zero or lower	No Action Required Score of zero or lower is an indication of the sound source having a low impact
	Combined Total Noise	Noise levels are below: Bedrooms: 30 dB $L_{Aeq,8hours}$ Living Rooms: 35 dB $L_{Aeq,16hours}$	Within BS8233 / WHO guideline criteria
Lowest Observed Adverse Effect Level (LOAEL)	Building Services Plant	BS4142 Score of +5 or lower	No Action Required Difference of +5 dB likely to be an indication of an adverse effect BS4142 Score of plus 5 or lower
	Combined Total Noise	Noise levels are below: Bedrooms: 30 dB $L_{Aeq,8hours}$ Living Rooms: 35 dB $L_{Aeq,16hours}$	Within BS8233 / WHO guideline criteria
Significant Observed Adverse Effect Level (SOAEL)	Building Services Plant	BS4142 Score greater than +5	Difference of up to +10 dB likely to be an indication of a significant adverse effect Mitigate to achieve: BS4142 Score of + 5 or lower
	Combined Total Noise	Noise levels are exceeded: Bedrooms: 30 dB $L_{Aeq,8hours}$ Living Rooms: 35 dB $L_{Aeq,16hours}$	Mitigate and reduce to achieve: Bedrooms: 30 dB $L_{Aeq,8hours}$ Living Rooms: 35 dB $L_{Aeq,16hours}$
Unacceptable Observed Adverse Effect Level (UOAEL)	Building Services Plant	BS4142 Score of + 10 or higher	Avoid Mitigate to achieve: BS4142 Score of 5 dB or lower
	Combined Total Noise	Internal noise levels exceed: Bedrooms: 35 dB $L_{Aeq,8hours}$ Living Rooms: 40 dB $L_{Aeq,16hours}$	Mitigate and reduce to achieve: Bedrooms: 30 dB $L_{Aeq,8hours}$ Living Rooms: 35 dB $L_{Aeq,16hours}$



2.1 Local Planning Guidance

Section 2.0 of the 'Planning Noise Advice Document: Sussex' (dated July 2015) outlines the following guidelines and criteria for new industrial and commercial noise sources:

2.2. Guidelines and Criteria

2.2.1. The starting point for designing any industrial/ commercial development should be to minimise noise "as far reasonably practicable". The rating level of the plant/process, when measured in accordance with BS4142:2014, should, where practicable, be no greater than the existing background levels when measured in accordance with BS4142:2014...



3.0 Assessment Methodology

3.1 Noise Modelling Methodology

Three-dimensional noise modelling has been undertaken based on the monitoring data to predict source noise levels at a large number of locations both horizontally and vertically. CADNA noise modelling software has been used. This model is based on the ISO 9613 noise propagation methodology and allows for detailed prediction of noise levels to be undertaken. The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. Input data, assumptions and model settings as given in the table below have been used.

Table 3.1 Modelling Parameters Sources and Assumptions

Parameter	Source	Details
Horizontal distances – around site	Ordnance Survey	Ordnance Survey
Ground levels – around site	Ordnance Survey	Ordnance Survey
Ground levels – other areas	Site Observations and Ordnance Survey	OS 1:25,000 contours and OS 1:10,000 spot heights.
Building heights – around site	WYGE Observations	8 m height for two storey residential properties, and 4 m for Bungalows. 3m per storey for multi-storey buildings.
Barrier heights	WYGE Observations	All existing barriers modelled following WYG site observations with the exception of hedges and trees which are assumed to offer no noise protection.
Receptor positions	WYGE	1 m from façade, 4 m for first floor facades, 7.5m for second floor facades. 1.5 m height for model grid.
Site Plans	Studio Lack Architecture	Drawing number: 1915-06C – 08C Dated: 30/03/19

It is acknowledged that a number of these assumptions will affect the overall noise levels presented in this report. However, it should be noted that certain assumptions made, as identified above, are worst-case.



3.2 Model Input Data

Building Services Plant Noise Data

A point sources has been included in the model to represent the proposed 'Glendon Karbox 2464' condensing unit which is proposed to be installed to the rear of the development. The following noise data has been included:

Description	Overall Noise Level (dBA) @ 1m
Glendon Karbox 2464 Condensing Unit	56.0

Car Park Noise Level Data

Noise levels within the proposed car parks have been based on measurements of a similar commercial premises. Average noise levels have been represented by an area source in the model whilst a maximum instantaneous noise level of a car-door slam have been represented by point sources.

Average $L_{Aeq,8hour}$ Noise Level

= 54.0 dB @ 1.5m

Maximum Noise Level L_{Amax} from car door slam

= 71.9 dB @ 3m

This is an existing carpark and the characteristics of the noise levels are not proposed to change. However, given the proposed use of the unit, it is considered that the carpark has the potential to be used at later hours than currently and therefore the noise from the carpark has been assessed below.

3.3 Sensitive Receptors

Table 3.2 below summarises the receptor locations that have been selected to represent worst-case residential receptors with respect to direct noise from the site. The locations of the receptors are shown on SK02 in Appendix B.

Table 3.2 Sensitive Receptor Locations

Ref	Description	Height (m)
R01	2 ND Floor Flat (Western Façade) Progress House	7.0
R02	2 ND Floor Flat (Northern Façade) Progress House	7.0
R03	1 Albert Road	4.0
R04	3 Albert Road	4.0
R05	4 Albert Road	4.0

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Ref.	Description	Height (m)
R06	7 Albert Road	4.0
R07	7 Drummond Court	4.0
R08	7 Arundel Road	4.0
R09	7a Arundel Road	4.0
R10	2 Arundel Road	4.0



4.0 Noise Survey

4.1 Noise Survey Methodology

A monitoring survey was undertaken to characterise baseline ambient noise levels currently experienced on the site and to establish the relative local background and traffic noise levels. Equipment used during the survey included:

Rion NL-52	Environmental Noise Analyser	s/n	620858
Rion NL-52	Environmental Noise Analyser	s/n	1021257
Rion NC-75	Sound Calibrator	s/n	35480543

The measurement equipment was checked against the appropriate calibrator at the beginning and end of the measurements, in accordance with recommended practice, a drift of +0.1 dB was observed. The accuracy of the calibrators can be traced to National Physical Laboratory Standards, calibration certificates for which are available on request.

A baseline monitoring survey was undertaken at five locations (as specified in the following table and shown in SK01 of Appendix B) from Friday 24th May 2019 to Wednesday 30th May 2019. Attended short term measurements were undertaken at four locations during day, evening and night-time periods with one additional location being measured unattended over a 142-hour period. The raw data collected from the long-term monitoring is available upon request.

Measurements were taken in general accordance with BS 7445-1:2003 *The Description and Measurement of Environmental Noise: Guide to quantities and procedures*. Weather conditions during the survey period were observed as being dry with scattered showers. Anemometer readings confirmed that wind speeds were less than 5 ms⁻¹ at all times during the survey, with a predominant north-easterly wind direction, during the survey.

Table 4.1 Noise Monitoring Locations

Ref	Description
LT1	In the north corner of the rear yard of the site.
ST1	Beside Arundel Road, outside number 2, opposite site car park.
ST2	On the north corner of Albert Road and Howard Road.
ST3	Beside Albert Road, opposite number 2.
ST4	On the north-west corner of Arundel Road and Terminus Road.



4.2 Noise Survey Results

The dominant noise sources in the area include road traffic noise from Arundel Road to the east of the site, Terminus Road to the south of the site and the roundabout to the south of the site; other noise sources in the area include frequent buses and noise from pedestrian footfall.

Ambient and background noise levels are usually described using the L_{Aeq} index (a form of energy average) and the L_{A90} index (i.e. the level exceeded for 90% of the measurement period) respectively. Road traffic noise is generally described using the L_{A10} index (i.e. the level exceeded for 10% of the measurement period).

Table 4.2 Meteorological Conditions during the Survey

Survey Location	Date & Time	Temperature (°C)	Wind Speed (m/s)	Wind Direction	Cloud Cover (Okta)	Dominant Noise Source
Daytime ST1	29/05/2019 14:54	12	0-1	NE	8	Road traffic noise (Arundel Road), footfall and pedestrian noise.
Daytime ST2	29/05/2019 14:37	12	0-1	NE	8	Road traffic noise (Terminus Road), infrequent road traffic noise (Albert Road, Howard Road, Gloucester Road), footfall and pedestrian noise.
Daytime ST3	29/05/2019 15:27	12	0-1	NE	8	Road traffic noise (Terminus Road), and infrequent road traffic noise (Albert Road).
Daytime ST4	29/05/2019 15:10	12	0-1	NE	8	Road traffic noise (Arundel Road, Terminus Road), footfall and pedestrian noise.
Evening ST1	29/05/2019 21:46	14	0-2	NE	8	Road traffic noise (Arundel Road, Terminus Road and the roundabout).
Evening ST2	29/05/2019 21:29	14	0-1	NE	8	Infrequent road traffic noise (Howard Road, Albert Road), and distant road traffic noise (Arundel Road, Terminus Road).
Evening ST3	29/05/2019 22:20	14	0-3	NE	8	Road traffic noise (Arundel Road, Terminus Road and the roundabout), footfall and pedestrian noise.
Evening ST4	29/05/2019 22:02	14	0-3	NE	8	Road traffic noise (Terminus Road).
Night-time ST1	29/05/2019 23:21	14	0-2	NE	8	Infrequent road traffic noise (Arundel Road).
Night-time ST2	29/05/2019 23:03	14	0-2	NE	8	Distant road traffic noise (Terminus Road, Arundel Road), infrequent road traffic noise (Albert road, Gloucester Road).
Night-time ST3	29/05/2019 23:54	14	0-3	NE	8	Road traffic noise (Terminus Road, Arundel Road, and the roundabout).
Night-time ST4	29/05/2019 23:37	14	0-3	NE	8	Road traffic noise (Terminus Road).



The results of the statistical measurements and frequency measurements conducted during the survey are summarised in the following table. All values are sound pressure levels in dB (re: 2×10^{-5} Pa). For the long-term (LT) locations, the presented $L_{Aeq,T}$ and $L_{A10,T}$ are average noise levels whilst the L_{A90} is the modal noise level of each 5 minute measurement over the stated survey period.

Table 4.3 Results of Baseline Noise Monitoring Survey (Average Levels)

Period	Duration (T)	Monitoring Date and Times	Location	$L_{Aeq,T}$ (dB)	$L_{Amax,T}$ (dB)	$L_{Amin,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
Weekday Daytime 07:00 - 23:00	62 Hours	24/05/2019 - 30/05/2019 07:00 - 23:00	LT1	54.1	91.0	29.3	55.7	47.0
Weekday Night-time 23:00 - 07:00	32 Hours	24/05/2019 - 30/05/2019 23:00 - 07:00		50.4	79.8	22.9	46.6	30.0
Weekend Daytime 07:00 - 23:00	32 Hours	25/05/2019 - 26/05/2019 07:00 - 23:00		53.6	88.0	31.4	55.4	47.0
Weekend Night-time 23:00 - 07:00	16 Hours	25/05/2019 - 26/05/2019 23:00 - 07:00		50.7	78.7	26.0	48.8	32.0
Daytime 07:00 - 19:00	15 Mins	29/05/2019 14:54	ST1	69.5	84.5	56.3	67.5	65.1
	15 Mins	29/05/2019 14:37	ST2	57.0	80.1	42.4	53.8	48.4
	15 Mins	29/05/2019 15:27	ST3	61.8	79.5	47.1	58.7	54.5
	15 Mins	29/05/2019 15:10	ST4	66.0	81.9	55.6	65.5	64.5
Evening 19:00 - 23:00	15 Mins	29/05/2019 21:46	ST1	61.4	74.8	38.8	56.9	53.8
	15 Mins	29/05/2019 21:29	ST2	51.3	82.2	35.9	45.9	39.3
	15 Mins	29/05/2019 22:20	ST3	55.8	79.4	32.2	49.2	41.0
	15 Mins	29/05/2019 22:02	ST4	61.5	79.6	41.1	58.7	62.3
Night-time 23:00 - 07:00	15 Mins	29/05/2019 23:21	ST1	60.6	80.6	32.1	51.8	48.4
	15 Mins	29/05/2019 23:03	ST2	43.4	60.8	31.3	42.6	39.7
	15 Mins	29/05/2019 23:54	ST3	48.3	67.5	30.1	43.0	37.9
	15 Mins	29/05/2019 23:37	ST4	57.7	76.3	37.4	52.6	42.5

All values are sound pressure levels in dB re: 2×10^{-5} Pa



5.0 Assessment of Effects

5.1 Building Services plant - BS4142:2014 Assessment

This assessment has been undertaken in order to establish the effect of noise from the proposed building services plant. The assessment compares the predicted average noise rating levels from proposed plant with the measured pre-installation daytime and night-time background noise L_{A90} at the nearest noise sensitive properties.

In accordance with section 9.2 of BS4142:2014 an overall +3 dB character correction has been applied to account for identifiable on/off conditions the plant may have. The assessment presented below has been undertaken with the plant operating at full capacity and continuously.

The scheme is inclusive of a 1.8m fence that surrounds the condenser unit which is shown illustratively within SK02.

Table 5.2 BS4142 Assessment for Proposed Plant

Reference	Measured Background L_{A90}		Rating level from plant		BS 4142 Score	
	Daytime	Night-time	Daytime	Night-time	Daytime	Night-time
R01	47	30	21	21	-26	-9
R02	47	30	20	20	-27	-10
R03	47	30	20	20	-27	-10
R04	47	30	20	20	-27	-10
R05	47	30	29	29	-18	-1
R06	47	30	24	24	-24	-7
R07	47	30	20	20	-27	-10
R08	47	30	21	21	-26	-9
R09	47	30	17	17	-30	-13
R10	47	30	11	11	-36	-19

The assessment above shows that plant noise rating levels (inclusive of a +3 dB correction) are predicted to be below background noise levels during the daytime and night-time period at the closest sensitive receptor locations, which is an indication of a low impact. Noise levels from the building services plant fall within the No Observed Adverse Effect Level (NOAEL).



5.2 Combined Noise Intrusion Assessment

Table 5.2 below presents the external noise levels at nearby sensitive receptors from combined sources of potential noise associated with the proposed development, including; car parking and building services plant. Internal L_{Aeq} noise levels have been assessed both with windows open, where a reduction from a partially open window of 15 dB has been used, and with windows closed where an assumption of single glazing with a sound reduction of 30 dB has been used.

It should be reiterated that the carpark is already existing, and the characteristics of the noise levels are not proposed to change. However, given the proposed use of the unit, it is considered that the carpark has the potential to be used at later hours than currently and therefore the noise from the carpark has been assessed below.

Table 5.2 Noise Intrusion Levels (Daytime / Night-time)

Location	External L_{Aeq} Noise Level at 1 metre from façade	Internal L_{Aeq} with windows open	Internal L_{Aeq} with windows closed	Criteria Internal L_{Aeq} dB Daytime / Night-time
R01	24.3	9.3	0.0	35 / 30
R02	24.0	9.0	0.0	35 / 30
R03	24.5	9.5	0.0	35 / 30
R04	25.4	10.4	0.0	35 / 30
R05	33.6	18.6	3.6	35 / 30
R06	34.0	19.0	4.0	35 / 30
R07	30.1	15.1	0.1	35 / 30
R08	38.4	23.4	8.4	35 / 30
R09	44.5	29.5	14.5	35 / 30
R10	38.4	23.4	8.4	35 / 30

All values are sound pressure levels in dB re: 2×10^{-5} Pa.

The assessment presented in the tables above demonstrates that internal daytime and night-time L_{Aeq} noise levels from the proposed development are predicted to be within the BS 8233/WHO noise intrusion criteria at all existing receptors with windows open and closed. Noise levels at all receptors fall within the No Observed Adverse Effect Level.

5.3 Maximum Instantaneous Noise Level (L_{Amax}) Comparison Assessment

The assessment below has been undertaken to compare the proposed L_{Amax} noise levels from the use of the car park to existing maximum noise levels experienced at the sensitive receptors. Predicted L_{Amax} noise levels from a car-door slam at the car park have been compared against an existing L_{Amax} noise level between the hours of 23:00 – 01:00. The existing measured noise level were determined from analysis of measured noise



levels at monitoring location LT1 and following the examination of the sound files (which are available on request) is attributable to car-passes on the surrounding road network.

It should be reiterated that the carpark is already existing, and the characteristics of the noise levels are not proposed to change. However, given the proposed use of the unit, it is considered that the carpark has the potential to be used at later hours than currently and therefore the noise from the carpark has been assessed below.

The comparison of maximum noise levels is presented below.

Table 5.3 L_{Amax} Noise Level Comparison Assessment

Ref.	Existing L _{Amax} Event (monitored between the hours of 23:00 – 01:00)	Predicted L _{Amax} (modelled) from Door-slam in car park	Difference
R01	72.2	42.3	-29.9
R02	72.2	41.4	-30.8
R03	72.2	41.3	-30.9
R04	72.2	43.5	-28.7
R05	72.2	52.1	-20.1
R06	72.2	53.8	-18.4
R07	72.2	50.2	-22.0
R08	72.2	57.9	-14.3
R09	72.2	61.8	-10.4
R10	72.2	57.4	-14.8

All values are sound pressure levels in dB re: 2x 10⁻⁵ Pa.

The results presented in the table above show that L_{Amax} noise levels from the proposed night-time use of the car park are predicted to be less than the existing L_{Amax} noise levels experienced at nearby sensitive receptors. Therefore, the use of the car park during these 'early' night-time hours is not expected to have a significant impact at existing sensitive receptor locations.



6.0 Conclusions of Noise Assessment

A noise assessment has been undertaken for change of use from Class A1 to Class A5; including the introduction of new building services plant at 5 Arundel Road, Littlehampton.

The NPPF provides test points against which the proposed development has been assessed. Considering these points, the following conclusions can be drawn:

NPPF paragraphs 170 (e) and 180 (a)

In considering paragraphs 170 and 180, an assessment (in accordance with BS4142:2014), which considers the worst-case noise levels, has shown that noise rating levels from the proposed building services plant are predicted to be below the existing background noise levels during the daytime and night-time.

A noise intrusion assessment, from all combined noise source including building services plant and car-parking, has shown that BS 8233 criteria will be achieved at all of the closest sensitive receptors during the daytime and night-time with windows open or closed.

Furthermore, a comparison of L_{Amax} noise levels level has shown that proposed use of the carpark during the 'early' night-time hours (23:00 – 01:00) will be less than is currently experienced at the closest sensitive receptors.

Accordingly, the proposed operations are not expected to have an adverse impact on health or quality of life at nearby dwellings and satisfies the relevant policy considerations set out in the NPPF.

NPPF Paragraphs 180 (b), 182 & 183

The proposed development does not represent a noise sensitive use and, therefore, is not considered to be at risk of impact from noise generated by neighbouring businesses. Given the current commercial use of the site and car park, the inclusion of the screening around the proposed condenser unit and the favourable results of assessments as described above, it is considered that the proposals will not have a detrimental effect on the tranquillity of the area and local access to areas of greater tranquillity.

Planning Practice Guidance: Noise

The assessment has demonstrated that noise levels from proposed operations, including mitigation, at existing receptors are predicted to be within the No Observed Adverse Effect Level.

Noise Assessment



Appendices



Appendix A – Acoustic Terminology and Abbreviations

An explanation of the specific acoustic terminology referred to within this report is provided below.

- dB** Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise, i.e. whether it is high-pitched, low-pitched, or with no distinct tonal character. These measurements are usually undertaken in octave or third octave frequency bands. If these values are summed logarithmically, a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.
- dB(A)** Instead, the dBA figure is used, as this is found to relate better to the loudness of the sound heard. The dBA figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or third octave band values, before summing them logarithmically. As a result the single dBA value provides a good representation of how loud a sound is.
- L_{Aeq}** Since almost all sounds vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The L_{Aeq, 07:00 – 23:00} for example, describes the equivalent continuous noise level over the 12 hour period between 7 am and 11 pm. During this time period the L_{pA} at any particular time is likely to have been either greater or lower than the L_{Aeq, 07:00 – 23:00}.
- L_{Amin}** The L_{Amin} is the quietest instantaneous noise level. This is usually the quietest 125 milliseconds measured during any given period of time.
- L_{Amax}** The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.
- L_n** Another method of describing, with a single value, a noise level which varies over a given time period is, instead of considering the average amount of acoustic energy, to consider the length of time for which a particular noise level is exceeded. If a level of x dBA is exceeded for say, 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the L_{A10, 1 hr} = x dB.
- The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90}, the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise. L_{A1} and L_{Amax} are common descriptors of construction noise.
- R_w** The *weighted sound reduction index* determined using the above *measurement* procedure, but weighted in accordance with the procedures set down in BS EN ISO 717-1. Partitioning and building board manufacturers commonly use this index to describe the inherent sound insulation performance of their products.

Noise Assessment



An explanation of abbreviations used within this report is provided below.

CADNA – Computer Aided Noise Abatement

DMRB – Design Manual for Roads and Bridges

HGV – Heavy Goods Vehicle

UDP – Unitary Development Plan

UKAS – United Kingdom Accreditation Service

WYGE – WYG Environment



Appendix B – Sketches

- SK01 Noise Monitoring Locations
- SK02 Sensitive Receptor Locations and Proposed BSP Location
- SK03 Cumulative L_{Aeq} Noise Contour Plot



Client:
Store Property
Investments Limited

Project:
5 Arundel Road

Project Number:
A113884

Drawing Title / Scenario:
Noise Monitoring Locations

Drawing Number:
SK01

Key

Scale : Not to scale

5 Arundel Road: -----

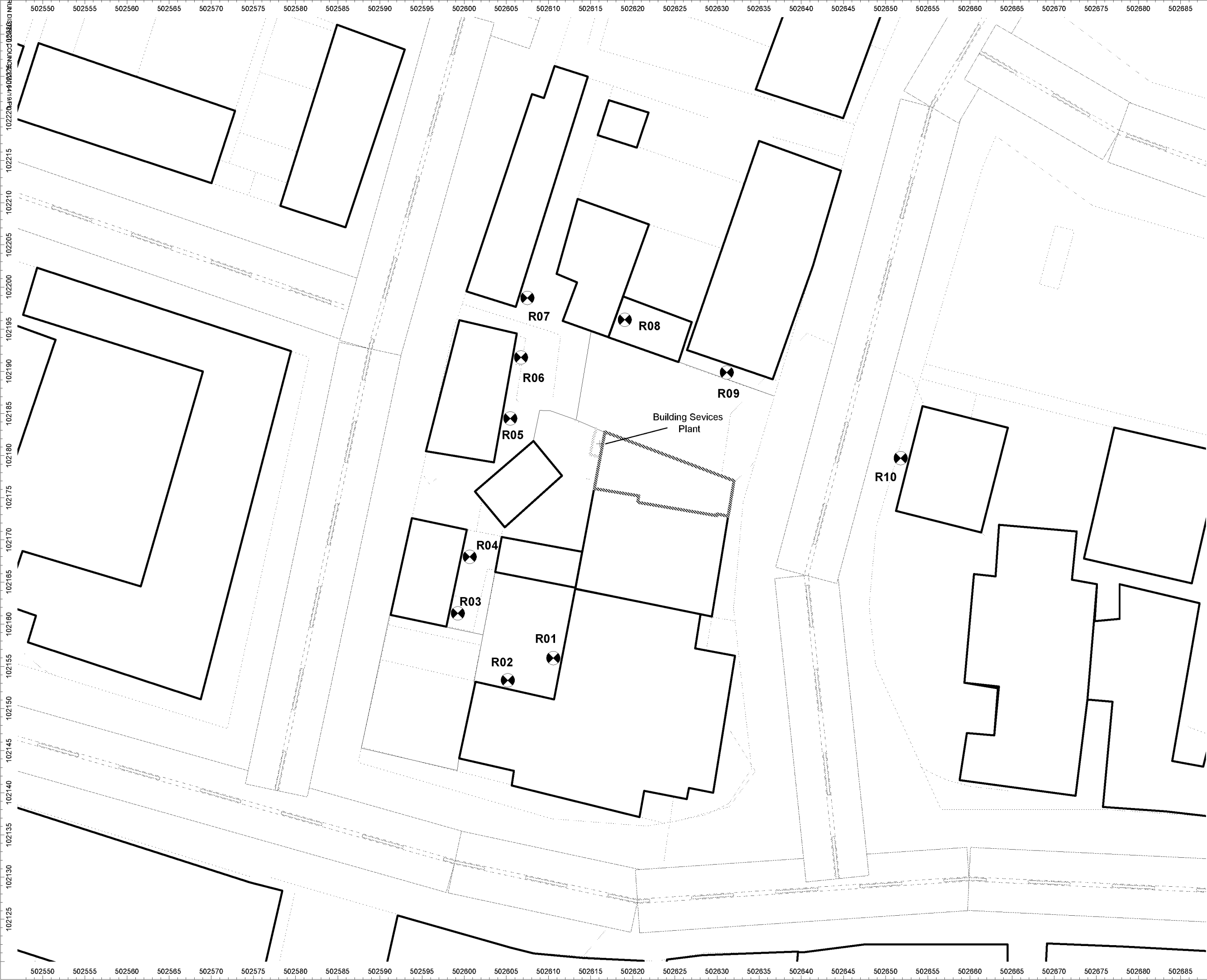
WYGE Leicester 19.06.19

Licence Number AL 553611



Executive Park
Avalon Way
Anstley
Leicestershire
LE7 7GR
Tel 0116 234 8000

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Client:
Store Property
Investments Limited

Project:
5 Arundel Road

Project Number:
A113884

Drawing Title / Scenario:
Sensitive Receptor
Locations and
Proposed BSP
Location

Drawing Number:
SK02

Key

Scale : Not to scale

5 Arundel Road: -----

1.8m Fence: - - - - -

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Executive Park
Avalon Way
Anstley
Leicestershire
LE7 7GR
Tel 0116 234 8000

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Client:
Store Property
Investments Limited

Project:
5 Arundel Road

Project Number:
A113884

Drawing Title / Scenario:
Cumulative LAeq
Noise Contour Plot

Drawing Number:
SK03

Key:
5 Arundel Road: - - - - -

0.0 - 40.0 dB
40.0 - 50.0 dB
50.0 - 60.0 dB
>60.0 dB

Scale : Not to scale

Please note: Noise contour
plots are for illustrative
purposes only

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Executive Park
Avalon Way
Anstey
Leicestershire
LE7 7GR
Tel 0116 234 8000

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Appendix C – Report Conditions

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The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.