



**111 Winchester Road
Chandler's Ford**

Plant Noise Assessment Report

1 July 2024

For
Chalk Stream Learning LLP

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Report Produced by	Nicholas Jones BEng(Hons) CEng MIOA	T: 07739 715411 E: njones@auricl.com	
auricl Limited www.auricl.com hello@auricl.com	107 Cheapside London EC2V 6DN	9 Greyfriars Road Reading RG1 1NU Registered Company 09824075	

SUMMARY

New external condenser units are proposed to the rear of 111 Winchester Road in Chandler's Ford.

The local authority has external noise requirements for new items of fixed mechanical plant, requiring a background noise survey and plant noise assessment to be undertaken.

A noise survey has therefore been undertaken to determine the typical background noise levels representative of the nearest noise sensitive properties to the development, during the periods when the proposed plant would be operational.

Subsequently, a noise assessment has been undertaken to predict noise emissions associated with the proposed external plant items at the nearest noise sensitive properties.

Results of the assessment show that the predicted noise levels at the nearest noise sensitive windows do not exceed the plant noise limit during the proposed periods when the plant is expected to be operational.

1.0 Introduction

New external condenser units are proposed to the rear of 111 Winchester Road in Chandler's Ford.

The local authority has external noise requirements for new items of fixed mechanical plant, requiring a background noise survey and plant noise assessment to be undertaken.

auricl has been commissioned to carry out a noise assessment of the new plant, in relation to the plant noise emission requirements.

This report presents the methodology and results of a noise survey to determine background noise levels that are representative of the nearest noise sensitive properties, as well as an acoustic assessment of the new plant to address the plant noise emission requirements.

2.0 Description of Site and Proposals

The proposed development site is located at 111 Winchester Road in Chandler's Ford, in a mixed commercial and residential area. A parade of commercial properties is located at ground floor level along Winchester Road. Residential flats are proposed at first and second floor level towards the front/south-east of the site. The remaining surrounding area predominantly consists of residential properties.

Three condenser units are proposed to the rear/north of the site, mounted on the western wall at high level.

Figure 2.1 shows the approximate site extent in **red**, and the proposed location of the condenser units indicated in **green** and the proposed residential units indicated in **blue**.

Figure 2.1 Existing Site Extent and Surroundings



3.0 Eastleigh Borough Council Requirements

Eastleigh Borough Council's typical requirements for external plant noise emissions are as follows:

"The external sound level emitted from plant, machinery or equipment at the development hereby approved shall be lower than the lowest existing background sound level by at least 5 dBA in order to prevent any adverse impact. The assessment shall be made in accordance with BS4142:2014 at the nearest and/or most affected noise sensitive premises, with all machinery operating together at maximum capacity."

As the site is understood to operate during daytime periods only (typically 15:30 – 19:30 hours on weekdays and 10:00 – 14:00 hours on Saturdays), we shall consider hourly periods as recommended by BS 4142: 2014+A1: 2019.

We will therefore base our assessment on the above.

4.0 Baseline Noise Survey

4.1 Methodology

An unmanned environmental noise survey was undertaken over a 4-day period between Thursday 20 June 2024 and Monday 24 June 2024. The noise survey period was selected to determine typical background noise levels during periods when the proposed plant is expected to be operational.

At the measurement position, the measurement microphone was mounted on the western edge of the roof at first-floor level in free-field.

The approximate measurement position is shown in **purple** on Figure 4.1.

Figure 4.1 Noise Measurement Location in Relation to Surroundings



The measurement position is considered to be representative of background noise levels at the nearest noise sensitive properties to the proposed external plant, which would be the proposed residential properties at first floor level, as indicated on Figure 2.1.

The equipment used for the noise survey is summarised in Table 4.1.

Table 4.1 Description of Equipment

Item	Make & Model	Serial Number
Type 1 automated logging sound level meter	O1dB Fusion	14147
Type 1 ½" microphone	GRAS 40CE	466821
Calibrator	Cirrus CR:515	95407

L_{Aeq} and L_{A90} sound pressure levels were measured throughout the noise survey.

Due to the nature of the noise survey, i.e. unmanned, we are unable to comment on the weather conditions throughout the entire noise survey period. However, at the beginning and end of the survey period, there was noted to be warm conditions with clear skies and only light wind. Weather conditions are not considered to have had any significant effect on the measured noise levels.

The noise monitoring equipment was calibrated before and after the noise survey period. No significant change was found to have occurred.

4.2 Noise Survey Results & Observations

Appendix B presents a time history graph showing the L_{Aeq} and L_{A90} sound pressure levels measured throughout the entire noise survey (shown as 15-minute intervals).

We would consider the levels measured to be reasonable, considering the location of the measurement positions and the dominant nearby noise sources.

Due to the nature of the unmanned noise survey, we are unable to comment on the exact noise climate throughout the entire survey period however, at the beginning and end of the survey period, the daytime noise climate was noted to consist of road traffic noise from surrounding roads, particularly Winchester Road.

The lowest measured background noise level during the proposed plant operating periods (15:30 – 19:30 hours on weekdays and 10:00 – 14:00 hours on Saturdays) was **50 dB L_{A90} (1 hour)**.

5.0 Plant Noise Assessment

This section presents our assessment and calculations of noise emissions from the new external plant, in relation to the Eastleigh Borough Council requirements and the proposed plant noise limit.

5.1 Proposed Plant

Three condenser units are located to the rear/north of the site, mounted on the western wall at high level as is indicated on Figure 2.1. The proposed condenser units are all Fujitsu AOYH30KMTB which operate at a sound power level of 69 dB L_{WA} according to the manufacturer's data.

The units are expected to emit consistent broadband noise and are not anticipated to be tonal, intermittent or impulsive, or contain any other distinctive audible characteristics.

5.2 Nearest Noise Sensitive Property

We have considered the nearest noise sensitive properties to be the proposed residential apartments at first-floor level directly above the development site, as indicated on Figure 2.1, with the nearest windows being approximately 11m from the proposed condenser units.

5.3 Plant Noise Limit

Based on the lowest measured background noise level and the Eastleigh Borough Council requirements, the proposed plant noise limit with all external plant operating simultaneously is $L_{Aeq,T}$ **45 dB** during the proposed plant operating periods (15:30 – 19:30 hours on weekdays and 10:00 – 14:00 hours on Saturdays).

5.4 Plant Noise Predictions

Our calculations to predict the plant noise level at the nearest noise sensitive windows are presented in Table 5.1.

Table 5.1 Plant Noise Emission Calculations

Element	Level (dB)
Unit Power Pressure Level (L_{pA})	69
Quantity Correction	+5
Attenuation due to Distance	-29
Predicted Sound Pressure Level at Nearest Residential Window	45
Noise Limit during Proposed Operating Periods	45

It can be seen that the total predicted plant noise level at the nearest noise sensitive windows does not exceed the plant noise limit during the proposed plant operating periods (15:30 – 19:30 hours on weekdays and 10:00 – 14:00 hours on Saturdays).

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
L_{A90} (15 min)	The noise level exceeded for 90% of the time (also referred to as the background noise level), measured over a 15 minute period

Appendix B – Time History Graph

