



Noise & Vibration Assessment

For

Melyn Close
Briton Ferry

Neath

SA11-2DH

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NOISE AND VIBRATION ASSESSMENT

DEMOLITION OF MELYN CLOSE, NEATH

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Introduction

As part of the arranged Scope of Works in relation to the Demolition of Melyn Close Flats, HCD have undertaken a Noise & Vibration assessment, and taking in to account the type of structure, ground type and make up, the distance from adjacent residential properties along and selected method of demolition we have determined that external monitoring is not required. This can be adequately carried out by HCD.

Letter Drop pre-commencement **BY PC**

It will contain contact details for the Principal Contractor and a detailed breakdown of the proposed demolition works. It will also provide details on the complaints procedure and further advice should the complainant feel the need to escalate the complaint to the Local Authority.

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Pollution Control

Dust control

The works will be undertaken, incorporating best practice guidance set out in “The Control of dust and emissions from construction and demolition”. All works will be conducted sympathetically to the surrounding environment.

Demolition dust will typically be controlled with the application of water suppression.

Noise pollution

Under the control of noise at work regulations 2005, and the British Standard 5228-1 2:2009 & A1:2014 : ‘Code of practice for noise and vibration control on construction and open sites – Part 1. we are committed to reducing excessive noise to as low as is reasonably practicable for both personnel on site and members of the public in nearby residential areas.

Frequent noise monitoring will be undertaken by HCD on this project.

Plant and machinery used will be fitted with silencers, mufflers and canopies where appropriate. When possible, the equipment will be fitted with noise reducing attenuation. With current good practice in mind we would use the “best practicable means” to control the generation and spread of noise.

During normal working hours, as defined above, the maximum LAeq, period noise levels measured 1 metre from the façade of any occupied or other building used for residential purposes, generated by construction plant and equipment, including the movement of vehicles to and from the site should not exceed the following limits:

Period	Hours	Residential / Commercial Premises	Schools or Hospitals
Monday to Friday	0800 – 1800	75 dB(A)	65 dB(A)
Saturday	0800 – 1300	75 dB(A)	65 dB(A)

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Vibration control

Vibration control will be implemented with reference to the British Standard 5228-1 2:2009 & A1:2014: 'Code of practice for noise and vibration control on construction and open sites – Part 2.

In accordance with best practice we would use the most practicable means to control the generation and spread of vibration.

All above ground demolition will be done using hydraulic rotating Pulveriser's or shear attachments on the 360° excavators. This methodology produces virtually no vibration.

Prior to taking up the ground floor slab we will ensure that it is separated from any adjacent building by saw cutting should this be required we would discuss cost with the client.

Breaking out of the floor slabs using hydraulic breakers creates some vibration, but this is attenuated by the ground around the sections being broken out. The floor slabs nearest to the site perimeters will be broken out last, so that they can be pulled away from adjacent properties where applicable the site boundary has roads two sides.

If required, vibration monitoring will be carried out during particular sections of the demolition works.

Detailed procedures for monitoring of vibration and any action levels will be agreed prior to starting structural demolition works to agreed areas of the site and complies with the CoCp along with all the above regulations the extract is below.

6.3 Vibration Standard

The Contractor shall select and utilise methods of working and items of plant so that the maximum measured ground vibrations do not exceed a peak particle velocity of 1mm per second at any occupied residential property and 3mm per second at any other property in any orthogonal direction.

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Monitoring

Noise

Assessment advice

Noise monitoring will be undertaken to ensure peak noise is not breached and constant noise is made variable. This is easily achieved by the choice of methodology. Progressive fragmentation as opposed to the deconstruction of large sections along with the selective use of breakers on the structure (breakers will only required in short periods for the slab and start of foundation removal).

Monitoring Locations

Figure 2 provides Mean noise measuring (over 3-time frames 0800- 0900 hrs, 1200-1300 hrs,1700-1800 hrs). The locations for Noise Monitoring during demolition will replicate these positions. 5 locations chosen each day relevant to the deconstruction works.

Triggers and actions

The trigger level to be adopted for the noise monitoring will be chosen and based on the Local Authority requirements and will include a correction for the distance between the location of the monitoring system and the nearest noise sensitive premises.

In the event of exceedances of the adopted trigger levels, the monitoring system will send a text and/or email message alert automatically to site management so that remedial measures can be taken, if required.

The monitoring system will also be capable of recording audio samples at the monitoring position. This can be used to differentiate between construction noise and noise from other sources and provide robust evidence should any complaints occur, or limits be exceeded.

In the event of any exceedance, the following action should be taken:

- A manager onsite investigates the cause of the alert.
- The manager ensures that the activity causing the exceedance(s) is carried out in such a way as to minimise noise and/or vibration emissions.

Vibration

Assessment advice

The proposed methodology of progressive fragmentation reduces vibration by 60% compared to traditional methods, as a result Monitoring for vibration on this project is not required as due to the solid nature of the bedrock the limit of peak particle velocity 1mm per second will not be breached. To further support this, the small nature of the site in this instance means that minimal tracking of the machine is required, this will prevent high speed tracking which is a potential for vibration.

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Qualifications and Experiences

Qualifications

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- IDE Foundation Degree in Demolition Management & Engineering
- Institute of Construction Management (Member)
- Institute of Demolition Engineers (Full Member)
- Institute of Occupational Safety & Health (Technical Member)
- NEBOSH Management of Health & Safety
- NTDG Certificate of Competence (Demolition Manager)
- NEBOSH National Certificate in Construction Health & Safety
- NEBOSH National Certificate in Fire Safety & Risk Management
- Temporary Works Co-ordinator

Experiences

My experience in noise and vibration is quite extensive in the last 20 years from doing explosive demolitions, working out air displacements and vibration impact along with noise this is something we do day in day out.

Figures 5 & 6 give an insight in to a recent project, and the relevant works frequently undertaken in respect of environmental pollution and subsequent monitoring.

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Reporting

As per the procedure identified above, reports can be prepared in response to validated complaints or upon request from the project team and/or the Local Planning Authority.

Please find an example of proposed monitoring reports and recording templates as completed on all applicable projects, Figure 5.

Appendices

- **Figure 1**, distance from site to residents and commercial including NWR.
- **Figure 2**, Mean noise measuring over 3-time frames 0800- 0900 hrs, 1200-1300 hrs,1700-1800 hrs
- **Figure 3**, Distance of noise and vibration travel.
- **Figure 4**, Sound levels of working excavator factoring in the deconstruction noise levels of progressive fragmentation from previous projects.
- **Figure 5**, EXAMPLE - Report St Martins Night Works
- **Figure 6**, EXAMPLE – Noise & Vibration St Martins Nights

The noise levels have been worked on the plant that will be on site and deconstructing the building. Using previous data and similar surroundings gives a very good accurate prediction.