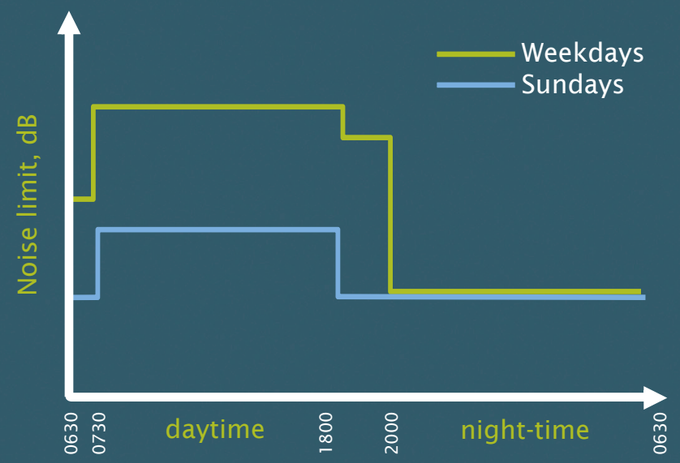
NEW ZEALAND STANDARD 6803

In New Zealand, noise from most construction and maintenance work, including roads, is managed in accordance with New Zealand Standard NZS 6803:1999 'Acoustics – Construction Noise'. The NZTA manages and minimises potentially unreasonable noise effects during road construction and maintenance, so far as is practicable, in accordance with this standard.

For construction and maintenance works NZS 6803 provides guideline noise limits, which vary for different times of day, days of the week and length of construction. The graph shows indicative daily variations of the noise limits. The limits apply outside neighbouring houses (one metre from the façades).



For each time period there are two noise limits: an average ($L_{Aeq(t)}$) and a maximum (L_{Amax}). For typical daytime construction lasting less than 20 weeks, the guideline limits are 75 dB $L_{Aeq(t)}$ and 90 dB L_{Amax}.

During the day, most people tolerate higher noise levels from temporary activities, compared to permanent activities. Therefore the guideline limits for temporary work are higher. However, at night the limits are similar to those for permanent activities to prevent sleep disturbance.

If it is necessary and justified to do construction and maintenance at night then in many locations noise limits will need to vary from the standard. The NZTA should still ensure that alternative night-time noise limits are both reasonable and practicable. Variations may also be required for specific daytime activities, particularly where neighbouring houses are immediately adjacent to the works.

For further information on transport noise please visit
www.acoustics.nzta.govt.nz

NZ TRANSPORT AGENCY
WAKA KOTAHI

New Zealand Government

Construction and Maintenance Noise from Roads

v2

INTRODUCTION

The NZ Transport Agency (NZTA) recognises that noise associated with road construction and repairs can be particularly intrusive and disturbing, especially at night. The effective management of such noise is essential to avoid unreasonable effects on communities and individuals.

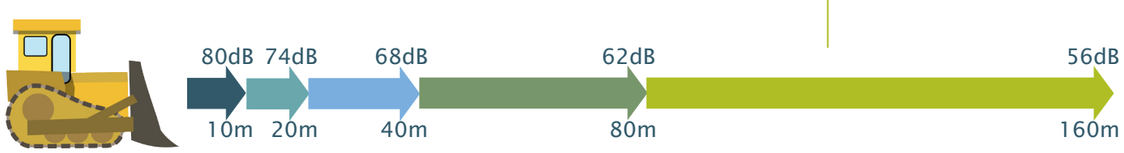
The NZTA has a legal obligation to manage noise and has set a formal objective to 'Manage construction and maintenance noise to acceptable levels' (Objective N3, Environmental Plan, June 2008).

MITIGATION

A range of construction noise management measures are available. Depending on the circumstances, measures that may be appropriate for road construction projects include:

- Limiting working hours to weekday and Saturday daytimes,
- Selecting low noise equipment or processes,
- Not leaving vehicles and plant idling unnecessarily,
- Fitting engine exhausts with suitable and well maintained silencers,
- Using localised enclosures or screening equipment,
- Locating noisy fixed plant away from neighbouring houses.

Noise reduces the further you are from the source. Levels are about 6 dB lower each time you double your distance from the source.



CONSTRUCTION NOISE MANAGEMENT PLAN

The most effective method to control construction noise is through proactive management. To ensure this occurs for all significant construction projects, the NZTA should include a noise management component in construction management plans or equivalent documentation. This is commonly called a Construction Noise Management Plan. This plan should detail consultant and contractor obligations during the construction, and will include details such as:

- applicable noise limits,
- consent/designation condition requirements,
- identification of the most affected houses where noise limits apply,
- description of the works, anticipated equipment/processes and durations,
- assessment of construction noise levels,
- appropriate noise mitigation measures to be implemented,
- monitoring and reporting requirements,
- staff training/awareness programme,
- procedures for maintaining contact with stakeholders and managing noise complaints,
- contact numbers for key construction staff, staff responsible for noise assessment and council officers.

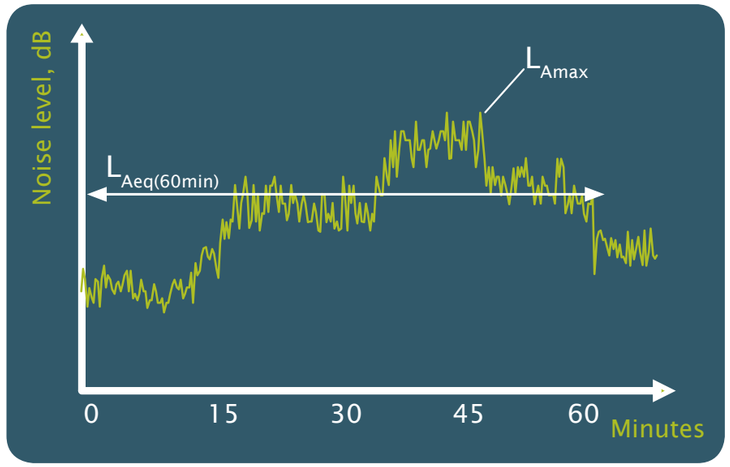
At the start of a project it might not be practical to make a detailed assessment of construction noise for all activities or locations. In that instance, schedules detailing the assessment for those specific activities or locations may be added to the Construction Noise Management Plan at a later stage (but still prior to work starting).

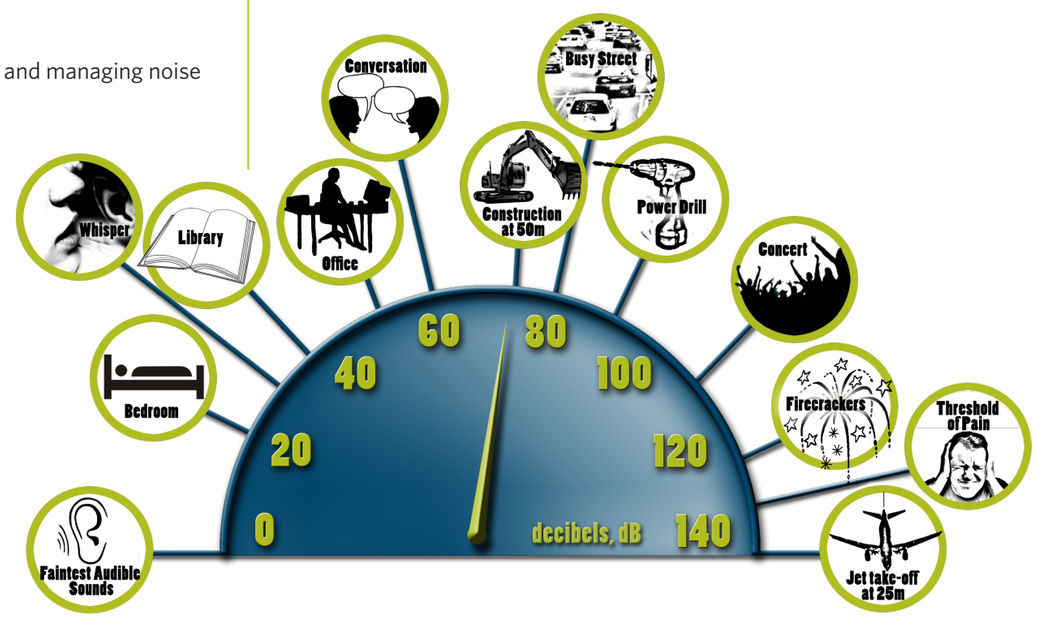
ACOUSTIC TERMS

Noise sources cause changes in air pressure which are detected by our ears. These changes can also be measured by a sound level meter. The pressure changes are expressed in decibels, which is written as "dB".

Noise can occur across a whole range of frequencies from low frequency rumbles to high frequency chirps. Measured noise levels include all frequencies, but as our hearing is less sensitive to lower frequencies, the measured levels are adjusted to correspond to human hearing. This adjustment is called "A weighting" and is identified by the letter A.

Noise levels fluctuate and therefore it is necessary to consider both average (L_{Aeq}) and maximum (L_{Amax}) values. For construction noise, average values are assessed over a time period (t) between fifteen minutes and one hour, as appropriate to the particular activities. The average and maximum levels are shown in the figure below. The $L_{Aeq(t)}$ is obtained from an 'energy' average of the decibel values; this results in a higher average level than normal arithmetic averaging.





NZ TRANSPORT AGENCY
WAKA KOTAHI