

Date: 14 January 2010
To: Karen Page, QLDC
From: Dr Stephen Chiles
Subject: Plan Change 27A - Hearing report

The following are my comments on the specific issues you have referred to me from submissions.

1. Use of NZS 6807:1994

Specific sources of transportation sound (including helicopters) are excluded from NZS 6802:1991 as the general assessment method is not appropriate. The District Plan specifies that noise limits are to be assessed using NZS 6802:1991 and therefore, under the current District Plan provisions there are in fact no explicit noise limits for helicopters. NZS 6802:1991 refers to other standards for these sound sources, although due to the order of publication dates there is still not an explicit link to NZS 6807:1994. However, the predecessor to NZS 6807:1994 was a 1987 Department of Health guideline, which used the same noise limits and method. Therefore, the current reference in the District Plan to NZS 6802:1991 can be followed to implicitly specify the noise limits and methodology in NZS 6807:1994. In practice, in the absence of any explicit noise limits in the District Plan, on the basis of expert advice, recent helicopter landing sites in the Queenstown Lakes District have all been assessed using NZS 6807:1994. Therefore, the plan change making this reference explicit does not alter the noise limits currently applied to helicopter landing sites under the District Plan.

The District Plan also includes assessment matters for airports in some zones. These can require consideration of issues beyond NZS 6807:1994 for helicopter noise. These assessment matters are not altered by the plan change.

2. Existing houses

NZS 6802:2008 does not seek to alter any future building rights; it simply alerts the reader to this being an issue that requires consideration (section 8.4.8). It does not specify that noise limits apply only at "existing" dwellings, but notes that this is a common provision in consents. The point in time at which noise limits apply is a legal matter that is not something defined by acoustics standards.

The plan change does not add the word "existing" to the plan rules, and this is not part of NZS 6802:2008. The legal position regarding whether or not noise limits apply retrospectively at future buildings should not be affected by this plan change.

3. Special audible characteristics

NZS 6802:2008 (section 6.3, Appendix B) contains the same special audible characteristics adjustment as NZS 6802:1991 (section 4.3, 4.4). However, there may be some confusion as in the 1991 version the adjustment was subtracted from the noise limit, whereas in the 2008 version the adjustment is now added to the measured sound level. For example:

- The noise limit is 50 dB
- The measured sound level is 48 dB
- The measured sound is deemed to have special audible characteristics
- Under the 1991 version:
 - Sound level = 48 dB
 - Noise limit = 50 dB – 5 dB = 45 dB
- Under the 2008 version:
 - Sound level = 48 dB + 5 dB = 53 dB
 - Noise limit = 50 dB
- Under both versions the sound level is 3 dB above the noise limit

The reason for the change is that with multiple sound sources usually only some of them have special audible characteristics. By keeping the limit fixed, only those sources with special audible characteristics are penalised.

The other difference with respect to special audible characteristics is that in the 2008 version more sophisticated objective methods have been added to confirm whether or not special audible characteristics exist, to resolve disputes over differing subjective assessments. A minor side-effect of adopting these international objective methods is that for tonality the adjustment can now be up to + 6 dB, which is 1 dB more stringent than the 1991 version. This is not significant.

4. Change from L_{10} to L_{eq}

The effect of changing the noise limit from 50 dB L_{A10} to 50 dB $L_{Aeq(15 \text{ min})}$ will vary for different sound sources. This is discussed in the section 32 evaluation. It is not possible to make an exact translation from one unit to the other. The original L_{A10} noise limits were set at round numbers rather than on the basis of an absolute scientific requirement. The same round numbers are still considered appropriate for the $L_{Aeq(15 \text{ min})}$ noise limits. The change will result in a comparable standard. From extensive experience with a wide range of different sound sources, there are no realistic situations known where this change would lead to significant degradation in amenity. However, the change will allow far more robust monitoring and enforcement which could provide a benefit.

5. Measurement periods

There are currently no measurement periods directly specified in the District Plan. NZS 6802:1991 (section 5.1) specifies between 10 or 15 minutes and an hour. NZS 6802:2008 (section 6.2.1) specifies a standardised time of 15 minutes. In practice, time periods used under the existing District Plan rules have generally been 10 or 15 minutes, so there is no significant difference under the plan change. The only change is that exclusion of longer time periods of up to an hour is marginally more stringent.

6. "Background plus"

NZS 6802:1991 (section 4.2.1) provides a supplementary guide for the assessment of sound levels using "background plus". This guidance has no bearing on the District Plan noise limits. It can optionally be used as an aid when assessing the effects of sound. It has tended to have been used more to justify higher noise limits than allowing for lower noise limits. However, it does not alter whether or not sound complies with the District Plan. This approach is no longer favoured

and has therefore been removed from the 1999 and 2008 versions of NZS 6802. The change does not materially alter the District Plan.

7. L90/L95

New Zealand Standards have been updated to use L90 rather than L95. However, the District Plan does not use either the L90 or L95, so this change has no effect. In any case, the difference between the L90 and L95 is generally less than 0.5 dB which is not significant.

8. Maximum noise levels

The descriptor Lmax has now been written more precisely as L_{AFmax} . There is no change in the meaning, but there is less scope for misinterpretation with the new notation.