

SUMMARY

REVIEW OF NOISE REPORT FOR PROPOSED KHOLO CREEK HARD ROCK RESOURCE – TRANSPORTATION ROUTE

This is a review of a report prepared by PPK Environment & Infrastructure Pty Ltd titled *Kholo Creek Hardrock Reserve Consultancy for Road Transport Planning, Noise Assessment Report, Department of State Development, April 2001*.

In accordance with the Terms of Reference for the above report, issued by the Department of State Development (SD212/00), the following should be noted with respect to noise:

“... It is expected that the Consultant will pay particular attention to:

- Impacts on existing and future residences ... - issues to be considered include ... with noise, dust, air quality and waste issues being referenced to the environmental harm provisions under the Environmental Protection Act 1994, the Environmental Protection Policies for Air Water and Noise ...*
- Impact on the overall amenity/character of the area; ...”*

With respect to the PPK report, my comments relate broadly to:

- selection of noise limit;
- derivation of truck noise levels;
- number of truck movements;
- reference to out-dated World Health Organisation document;
- reporting, but not using measured ambient noise levels.

SELECTION OF NOISE LIMIT

PPK adopted a noise limit of 50 dB(A), with no reference to measured ambient noise levels. This 50 dB(A) noise limit was sourced from a 1995 World Health Organisation document.

In accordance with the Terms of Reference, reference should be made to the environmental harm provisions of the environmental protection legislation. In accordance with the Environmental Protection Act:

“... ‘Environmental harm’ is any adverse effect, or potential adverse effect ... on an environmental value. ...”

In accordance with the Environmental Protection (Noise) Policy, 1997:

“... The environmental values to be enhanced or protected under this policy are the qualities of the acoustic environment that are conducive to –

- (a) the well being of the community or aspect of the community, including its social and economic amenity; or*
- (b) the well being of an individual, including the individual's opportunity to have sleep, relaxation and conversation without unreasonable interference from intrusive noise. ...”*

Additionally, in accordance with the Policy, part of the definition of the acoustic quality objective is:

“... (3) It is not intended that, in achieving the acoustic quality objective, any part of the existing acoustic environment be allowed to significantly deteriorate. ...”

This is what should have been referenced in accordance with the Terms of Reference, in the establishment of an appropriate criteria for assessing the acceptability/unacceptability of the haul route. None of these appear to have been assessed in the PPK report. This, in my opinion, is a significant oversight, as the PPK selected criteria of 50 dB(A) L_{Aeq} does not take any account of the existing acoustic environment.

TRUCK NOISE LEVELS

No noise level measurements of trucks using an existing haul road were measured. This, in my opinion, is another significant oversight.

From my assessment of the PPK report, it appears that they have relied upon traffic noise data from “*Calculation of Road Traffic Noise*” Department of Transport, HMSO, Welsh Office, 1988. This is a document designed specifically for calculating traffic noise levels on public roads, freeways, etc, and has no relationship to a quarry haul route. The actual truck noise levels used to do the computer modelling are not detailed in the PPK report. Therefore, no verification of the relevance of the source noise levels can be conducted.

To enable the quarry haul route noise levels to be properly assessed, field noise level measurements should be taken of an existing quarry haul route, to account for the noise of:

- different types of trucks;
- different ages of trucks;
- conditions of the haul route surface (pot holes, etc);
- trucks full and empty;
- truck only, or truck with dog, B-double, etc;
- trucks accelerating, labouring up a hill in low gear fully loaded, braking, trailers banging empty over irregular road surfaces, etc.

NUMBER OF TRUCK MOVEMENTS

From the tonnages data provided by PPK, it is likely that there would be one or two trucks passing any given point along the haul route every one minute. As a result of this, it is likely that at some residences at least, trucks from the haul route will be audible for the complete twelve-hour shift, for every day that the quarry operates. A wind blowing from the haul route to the residences could result in the quarry truck noise levels being up to twice as loud as compared to no wind.

Currently, at a significant number of residences along the proposed/preferred haul route, there is little, if any, traffic noise audible. With the quarry haul route operating, trucks will be clearly audible all day long, from 6 am to 6 pm daily. In my opinion, this is outside the “acoustic quality objective” criterion, as it would be a significant deterioration to the existing acoustic environment.

WORLD HEALTH ORGANISATION

PPK reference the World Health Organisation document “*Guidelines for Community Noise*” (1995). This document has been replaced by a 1999 document of the same title. The 1999 document provides examples of noise levels not to be exceeded for an individual to have sleep, relaxation, or speech, as three separate criteria, not one overall criteria suggested by PPK, and used by them as the noise limit.

AMBIENT NOISE LEVELS

The audibility of the trucks on the quarry haul route will depend upon the ambient noise levels – the quieter the ambient noise levels, the louder the quarry trucks will be perceived. The acoustic quality objective is achieved if the existing acoustic environment is not significantly deteriorated. Knowledge of the existing acoustic environment, namely ambient noise level measurements, are required to enable determination of whether or not the haul route will result in “significant deterioration”. PPK made no reliance on their measurements of the existing acoustic environment.

In accordance with one reference text, a change in noise level of 3 dB(A) is just perceptible, whereas a change of 5 dB(A) is clearly perceptible and an increase of 10 dB(A) is a doubling. A “significant deterioration” would certainly be an increase of 10 dB(A) and possibly even 5 dB(A).

Therefore, to ensure that the existing acoustic environment did not change significantly, the noise level of the haul route should not change existing ambient noise levels by more than 3 to 5 dB(A). To achieve this, the noise level of the haul route itself must be no more than 0 to 3 dB(A) above the existing ambient noise levels.

The ambient noise level measurements conducted by PPK were at a time when they reported that there was moderate to strong westerly winds, which would have increased the noise levels. Ambient noise level monitoring should be reported at a more appropriate time, when winds are calm to slight, and insect noise is minimal.

SUMMARY

The PPK report is considered inadequate/incorrect for the following reasons:

- (a) Noise limit should be based on existing ambient noise levels +3 dB(A), not a WHO document.
- (b) Truck noise levels should be measured for an actual haul route, not calculated from a document designed specifically for public roads with predominantly passenger vehicles and some trucks.
- (c) Truck movements for the haul route will most likely be audible at some of the closest residences for the twelve-hour day (6 am to 6 pm). This is considered to be a significant deterioration of the existing acoustic environment, in which little, if any, transport noise is currently audible.
- (d) WHO reference used by PPK is an out-of-date version.
- (e) Ambient noise levels were elevated due to moderate to strong westerly winds.

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