

DEVELOPMENT OF COMMUNITY NOISE STANDARDS FOR A NEW TOWN PLANNED FOR SOUTHERN VANCOUVER ISLAND

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1. BACKGROUND

A new community of approximately 12,000 residents is planned for the eastern slopes of the Malahat Mountain near Victoria B.C. The 650 Hectare site includes the former Bamberton Cement Plant property, part of which is currently utilized by Tilbury Cement as a barge-unloading, bulk storage and truck distribution centre for southern Vancouver Island. Since the Tilbury Cement operation is intended to be a long-term "neighbour", it was essential to assure its compatibility with the new community that will grow up around it over the next 15 to 25 years. The developers, South Island Development Corporation, asked the author to review the noise standards proposed by Tilbury Cement to determine if compliance with them would permit future residents to fully enjoy their unique living situation and would prevent any negative impact on the marketability of the homesites.

2. AMBIENT NOISE ENVIRONMENT

The location of the site on wooded slopes overlooking a narrow arm of the Saanich Inlet would, in the absence of the Tilbury operation, result in ambient noise levels being controlled by a combination of natural sources and the activities of the future residents. Such future background noise levels are not then expected to exceed 40 to 45 dBA during the day and 30 to 35 dBA during the night.

3. CEMENT OPERATION NOISE

The Tilbury Cement operation produces two principal types of noise: 1. steady, tonal noise from compressors and dry bulk blowers which transfer product from barges to dock silos and from the dock silos to the truck load-out silos (42 dBA at 200 m), and intermittent, impulsive noises created by the sudden release of compressed air within the truck-loading silo dust collection system and from the valve which controls the flow of cement into trucks (70 to 85 dBAI at 10 m from base of silo). Both types of noise would then, by their natures, tend to be more easily perceptible and therefore more annoying than noises which were neither tonal nor impulsive.

4. TILBURY'S NOISE STANDARDS

The noise standards proposed by Tilbury were based on noise by-laws long in use in Vancouver and other GVRD municipalities. Limits were specified for continuous and non-continuous sounds from stationary equipment. During Normal Hours of Operation (06:00 to 20:00 hours except for cement barge off-loading which may be a 24-hour operation), these limits were 55 dBA and 60 dBA for continuous sounds at residential and commercial points of reception respectively, and 75 dBA for non-continuous sounds at all points of reception.

5. REVISIONS TO NOISE STANDARDS

It was felt that the noise standards proposed by the operator, while perhaps valid as general guidelines for more urban areas, did not reflect the sensitivity of the Bamberton site nor the specific nature of the industrial noises being produced. In particular, since the proposed standards stated that cement trucks would comply with Federal and Provincial noise regulations, there was felt to be no need to include a non-continuous sound limit. Instead, in recognition of anticipated low background noise levels, limits for most continuous sounds during normal operating hours were reduced to 45 dBA at residential locations. Barge off-loading noise however, due to its potential 24-hour duration, was assigned a 35 dBA limit. Further, any continuous noise containing a perceptible tone would be assigned a 5 dBA penalty.

Finally, a 45 dBAI limit was assigned to impulsive noises from stationary sources. This was obtained by applying a 5 dBAI "low background noise" penalty to the 50 dBAI limit recommended in the Health and Welfare Canada's "National Guidelines for environmental Noise Control".

6. COMPLIANCE

While the recommended revised noise limits are much lower, given the current noise output from stationary equipment plus the planned 60 m minimum residential setback distance, the operator should not experience any undue hardship in achieving compliance.