

EXHIBIT E – Background Sound Levels of the Area

There are no reliable universal tools for determining community response to noise and thus assessing noise impact. This is particularly true in regard to low-level continuous, or substantially continuous, noise intrusions from a stationary noise source such as a power plant. There appears to be little evidence suggesting adverse health effects from exposure to low level environmental noise. Correspondingly, adverse noise impact would be associated with the level of annoyance within the community.

Excessive noise impact on the community would result in an increased number of noise related complaints. Excessive noise impact on the wildlife may result in the abandonment of the habitat. In view of the discussion of Exhibit D, it will be assumed for the purpose of this review that auditory sensitivity of herons is similar to that for humans. Consequently, the criteria for assessing noise impact on the area residents will be deemed as applicable to heron colonies.

It is generally accepted that the audibility of a steady-state, broadband acoustic signal is determined by what is called bandwidth adjusted signal to noise ratio. Here, the signal would be represented by the intrusive sound, such as from a stationary facility, while noise would be viewed as the ambient (background noise). Since audibility is a function of signal to noise ratio rather than the level of the signal itself, a low absolute level of the signal does not necessarily mean low audibility.

It is not unreasonable to expect that increased audibility of facility noise will result in increased levels of annoyance and thus increased noise impact. Therefore, a reasonable measure of the existing background levels is required for an appropriate noise impact assessment.

To assist in the present review, Whatcom County Planning and Development Services performed a series of overnight surveys at selected locations. These surveys were aimed at establishing existing ambient noise levels in A and C weighting. These two scales provide a good assessment for the overall perceived loudness of noise as well as the low frequency component of noise.

The following locations were chosen for monitoring nighttime levels:

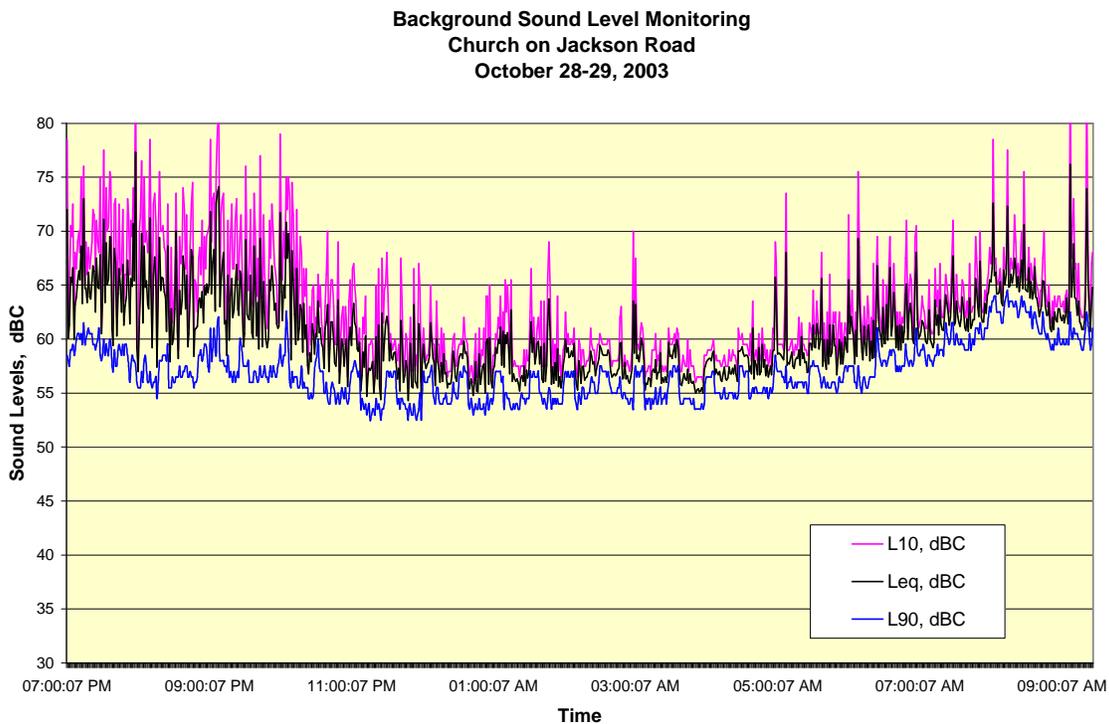
1. Church on Jackson Road. This location was similar to the previous measurement point 7, and was relevant to the heron colony near Birch Bay.
2. Bay Road. The measurement point was chosen 200 yards south of Bay Road and approximately half way between Blaine Road and Kickerville Road. This location was deemed relevant to the multitude of residential dwellings along Bay Road.
3. Blaine Road. The measurement point was located east and south of the nearest residence along Blain Road. The location was chosen as being relevant to the nearest and most impacted residences to the north and to the heron staging area in the wetlands north of Grandview road.

The measurements were taken over the entire nighttime periods in 1-minute durations. Energy equivalent level, Leq, as well as two statistical levels, L10 and L90, were taken with A and C weightings. Since only one instrument was available, the A and C weighted measurements at the same location were taken on different nights. This was not viewed as a major detriment in establishing background levels. Also, it is preferred that the background levels are monitored over two or three successive nights. However, this could not be accommodated in the present time frame.

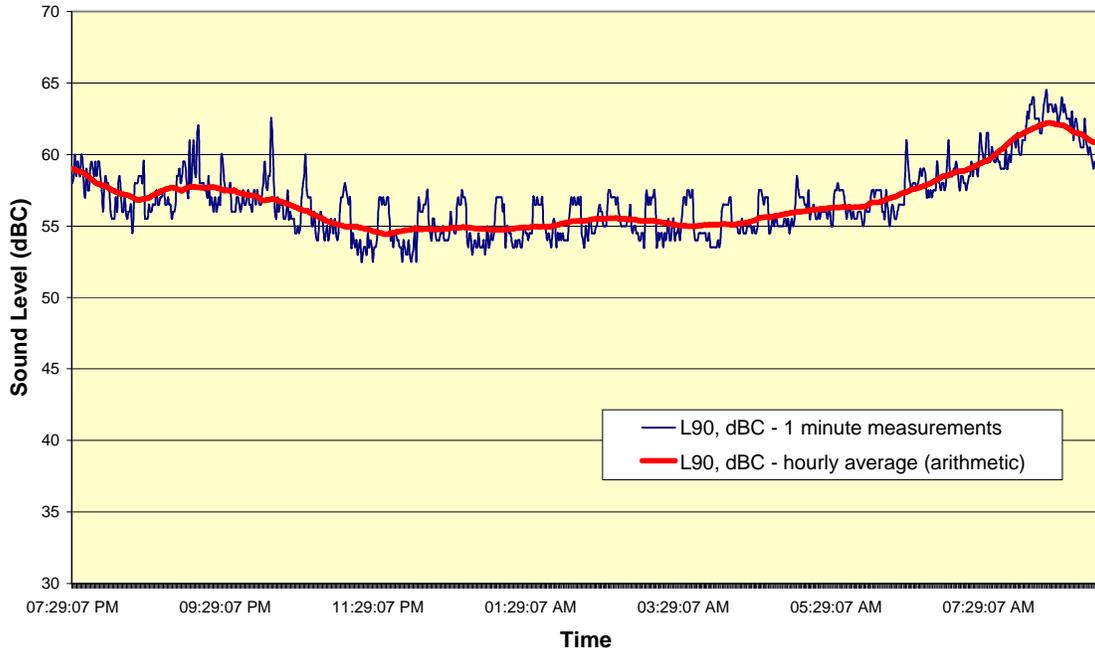
Based on my experience, a suitable measure of background levels is based on averaged L90 statistical levels as well as a minimum hourly energy equivalent level Leq (1). Data collected at each measurement location was processed to yield a suitable background level.

Charts below show the results from measurements.

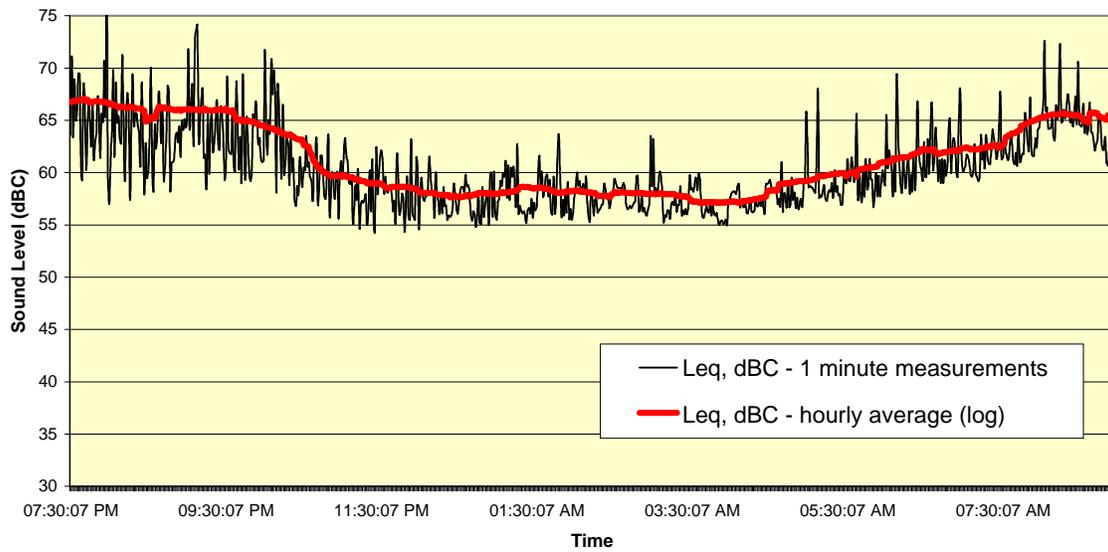
Church on Jackson Road – C-Weighted Levels



Background Sound Level Monitoring
Church on Jackson Road
October 28-29, 2003

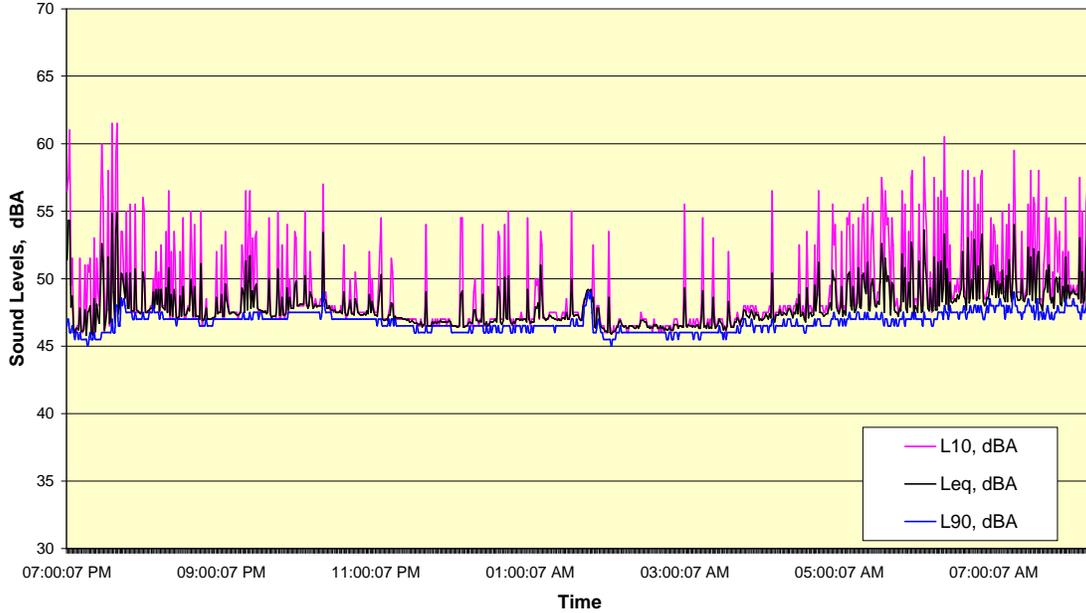


Background Sound Level Monitoring
Church on Jackson Road
October 28-29, 2003

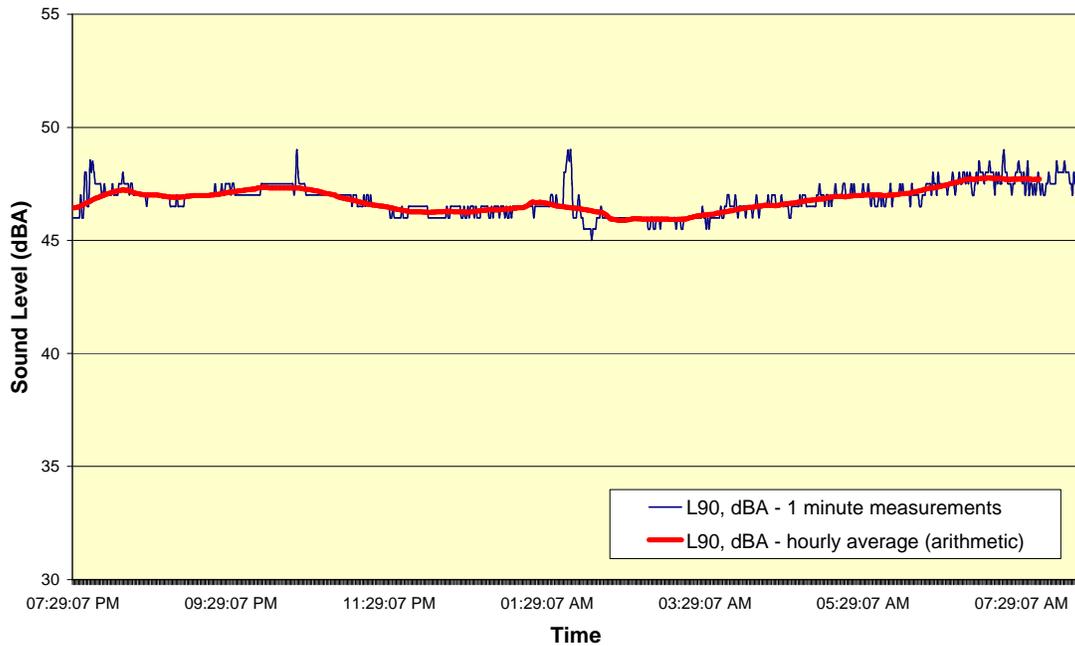


Church on Jackson Road – A-Weighted Levels

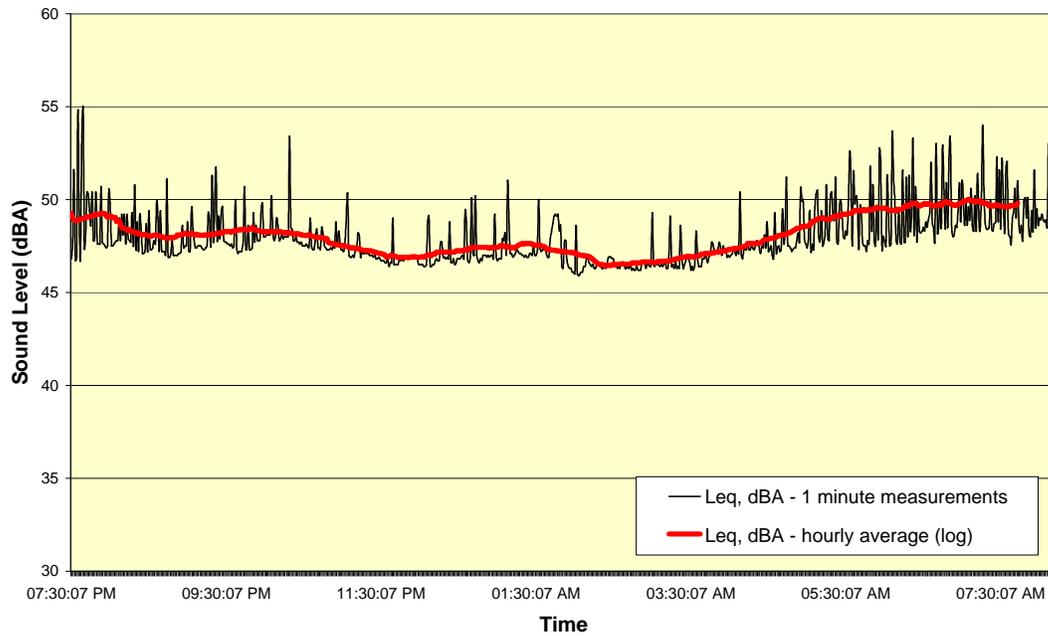
Background Sound Level Monitoring
Location at the Church on Jackson Road
November 3 - 4, 2003



Background Sound Level Monitoring
Location at the Church on Jackson Road
November 3 - 4, 2003

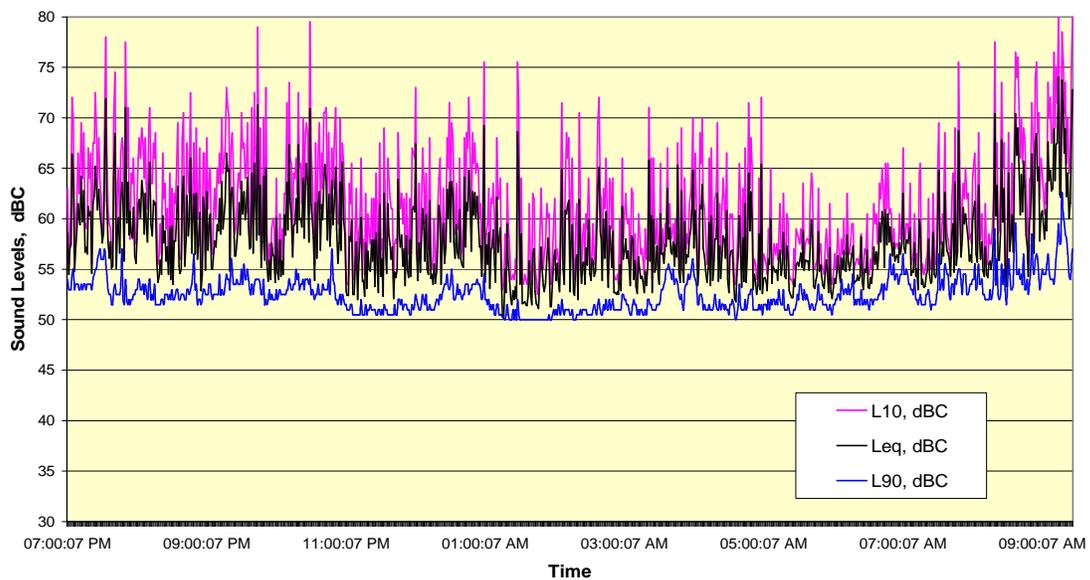


**Background Sound Level Monitoring
Location at the Church on Jackson Road
November 3 - 4, 2003**

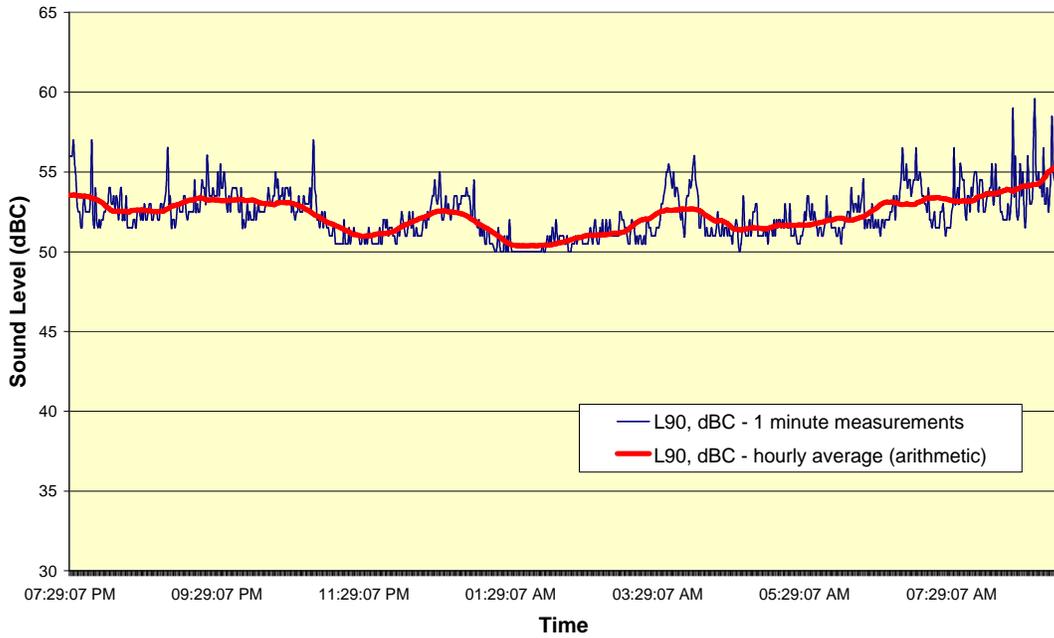


Blaine Road – C-Weighted Levels

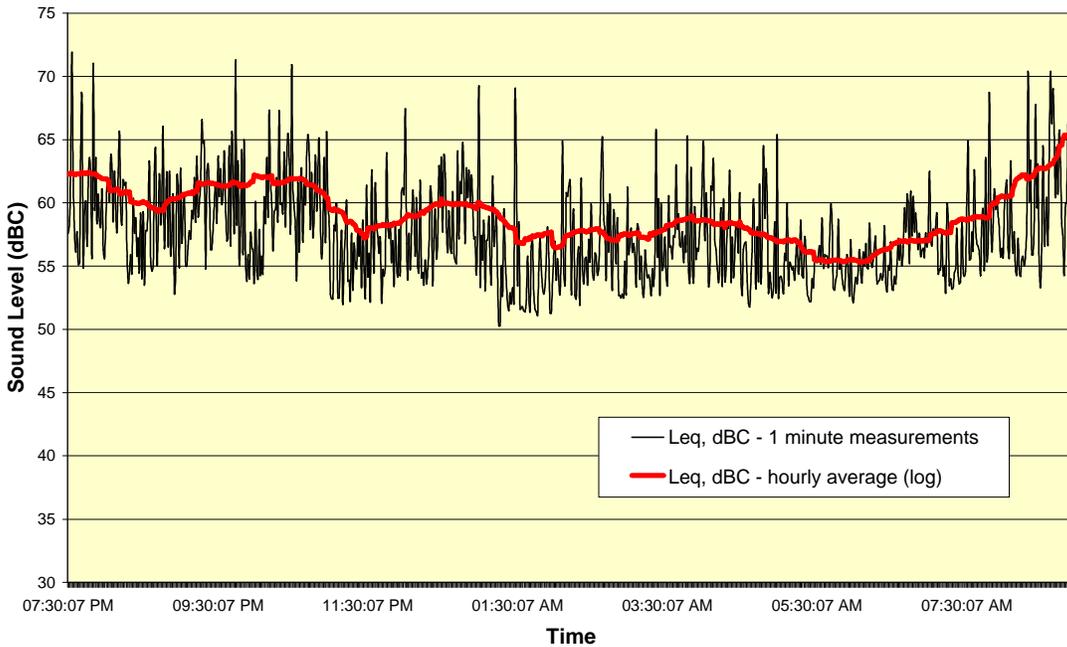
**Background Sound Level Monitoring
Location along Blaine Road
October 29 - 30, 2003**



Background Sound Level Monitoring
Location along Blaine Road
October 29 - 30, 2003

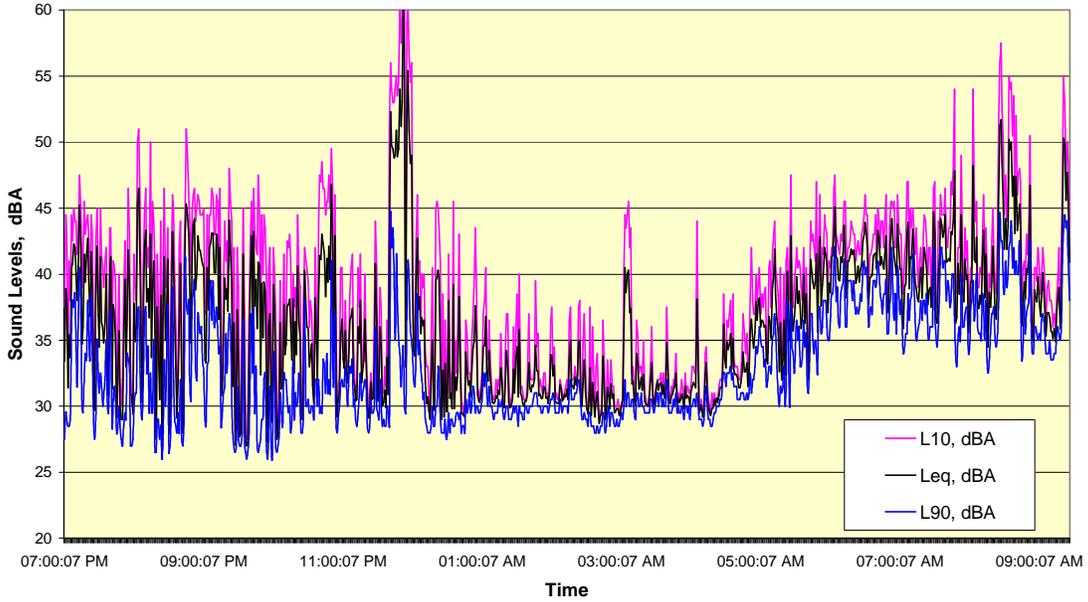


Background Sound Level Monitoring
Location along Blaine Road
October 29 - 30, 2003

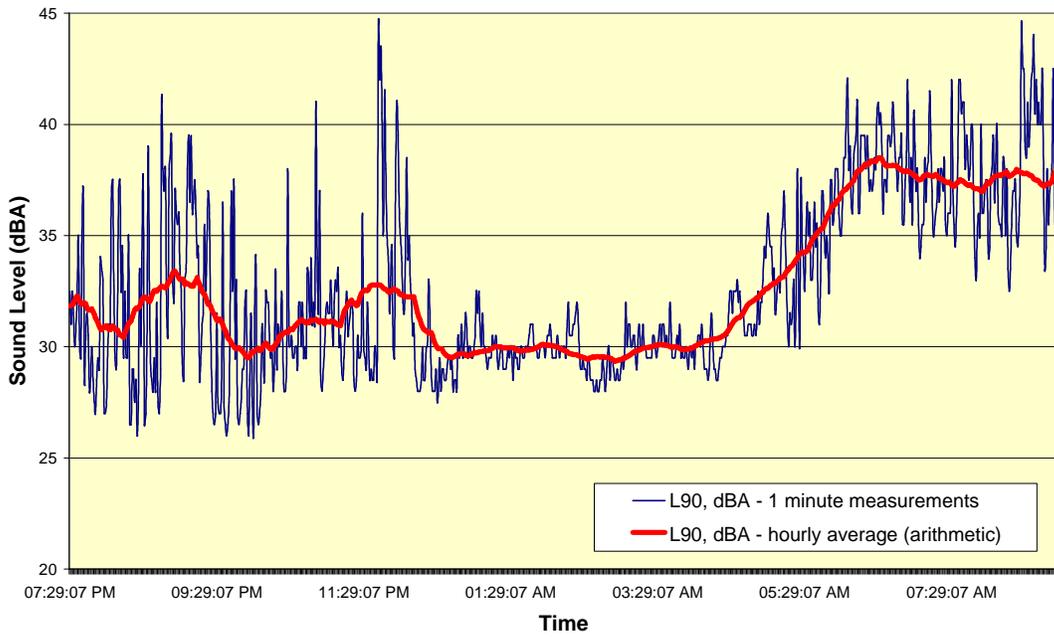


Blaine Road – A-Weighted Levels

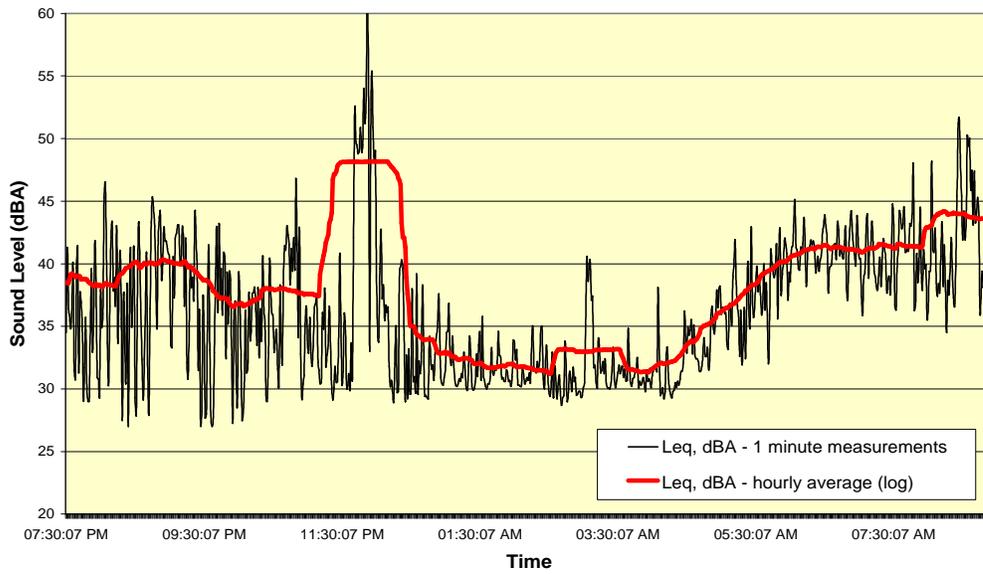
**Background Sound Level Monitoring
Location along Blaine Road
November 4 - 5, 2003**



**Background Sound Level Monitoring
Location along Blaine Road
November 4 - 5, 2003**

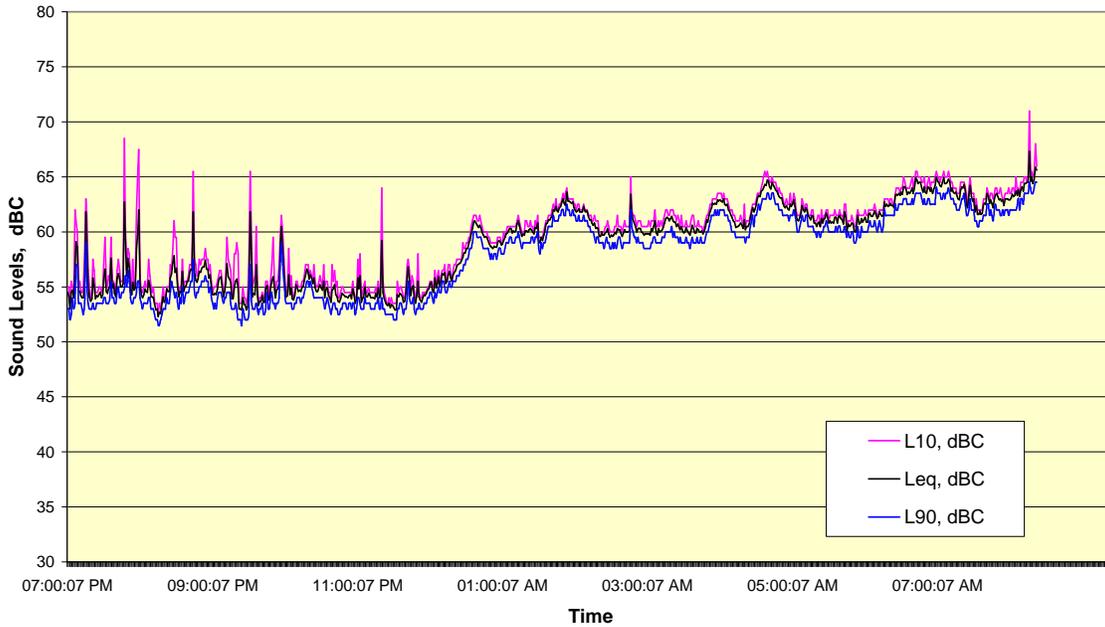


Background Sound Level Monitoring
Location along Blaine Road
November 4 - 5, 2003

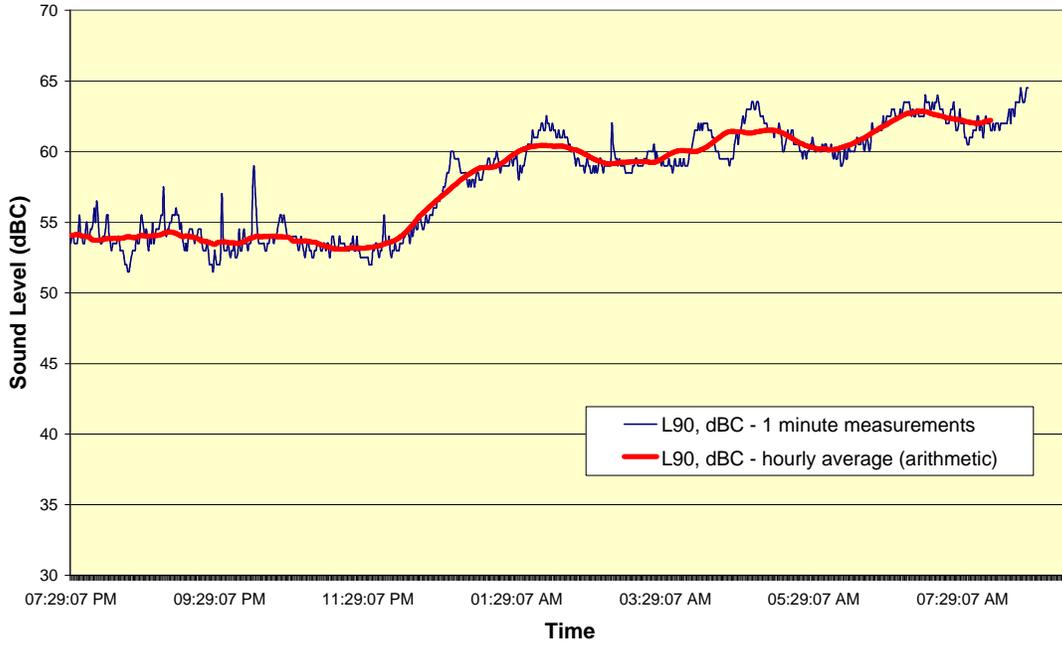


Bay Road – C-Weighted Levels

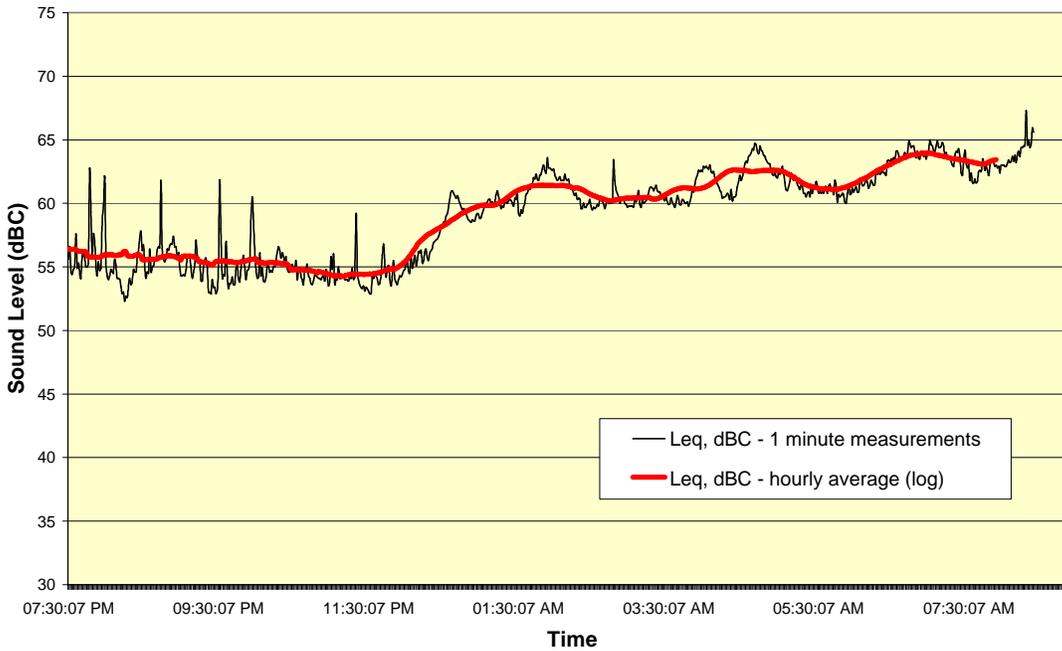
Background Sound Level Monitoring
Location along Bay Road
October 31 - November 1, 2003



Background Sound Level Monitoring
Location along Bay Road
October 31 - November 1, 2003

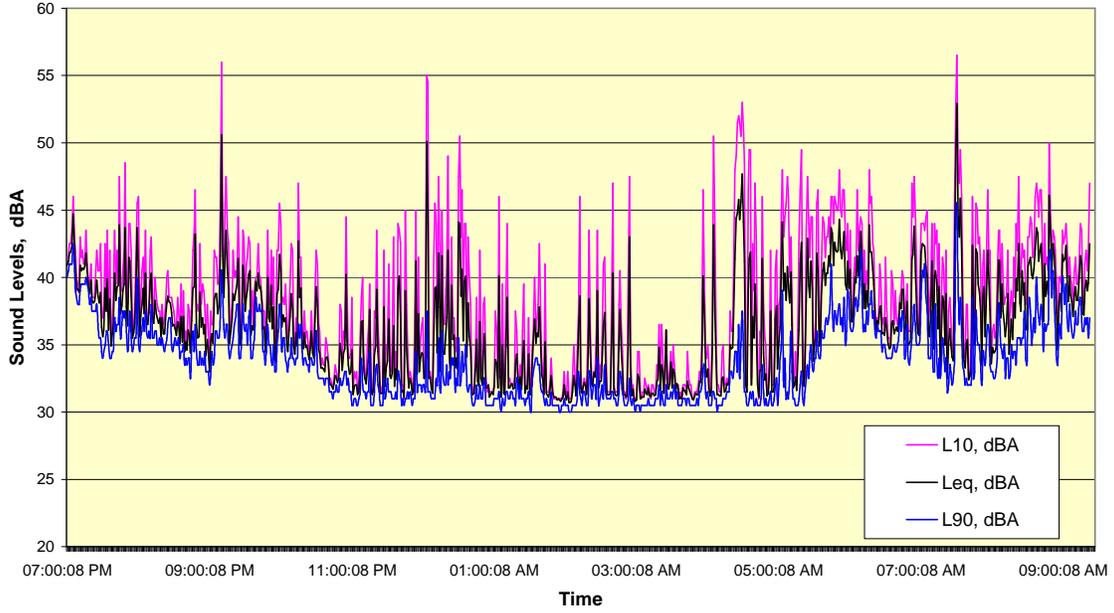


Background Sound Level Monitoring
Location along Bay Road
October 31 - November 1, 2003

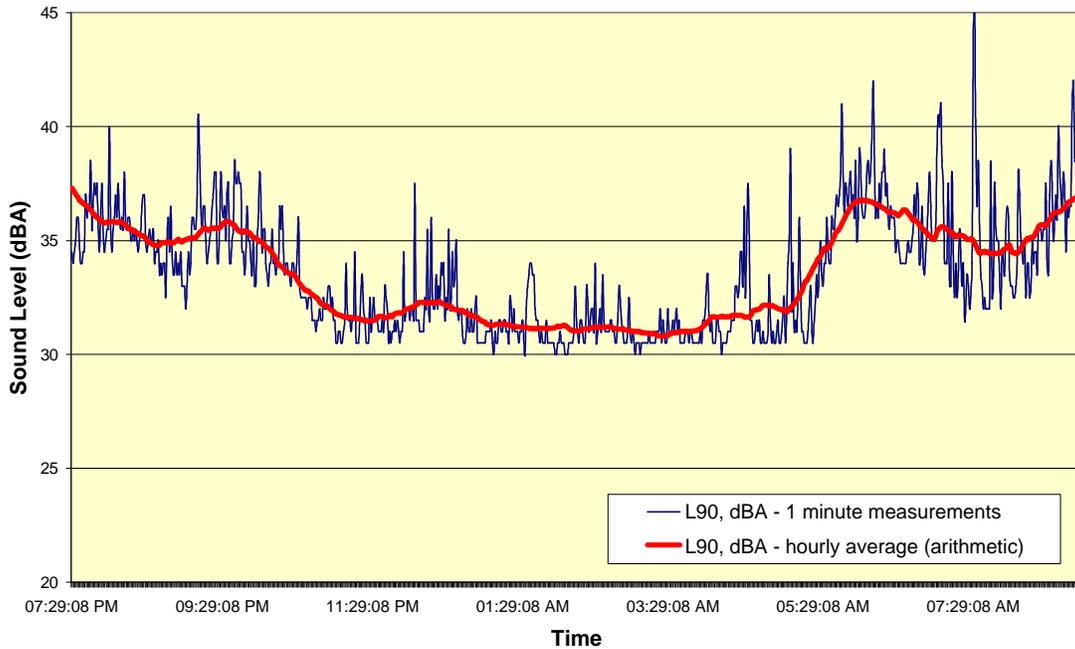


Bay Road – A-Weighted Levels

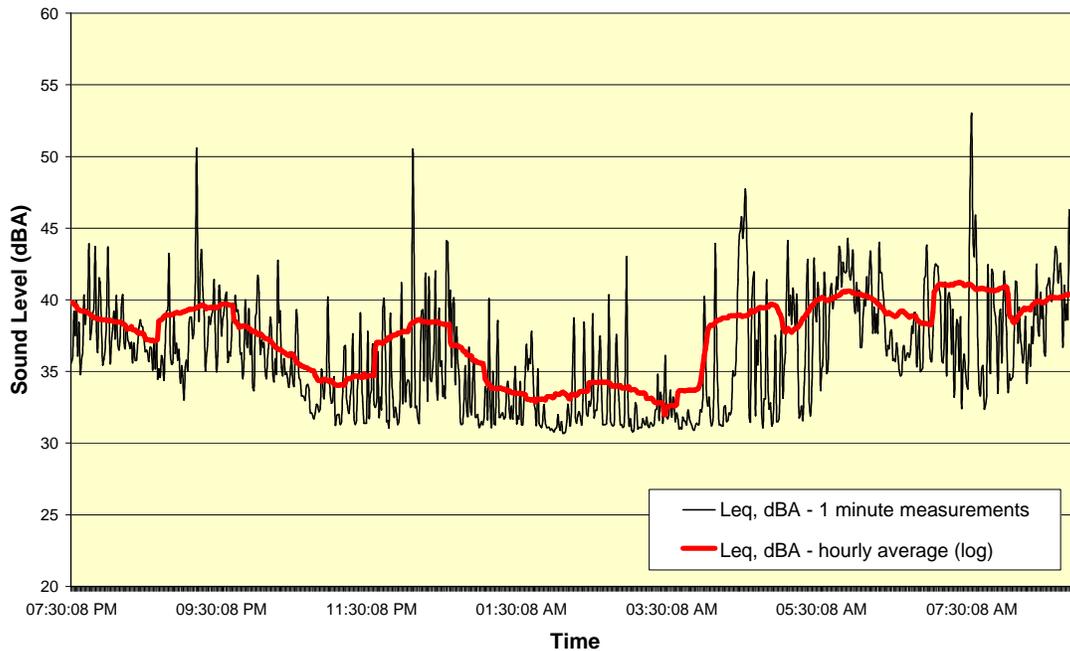
Background Sound Level Monitoring
Location along Bay Road
November 1 - 2, 2003



Background Sound Level Monitoring
Location along Bay Road
November 1 - 2, 2003



**Background Sound Level Monitoring
Location along Bay Road
November 1 - 2, 2003**



On the basis of the collected data as presented in the above charts, the following representative levels of the ambient noise were identified:

- Church on Jackson Road: **46 dBA, 55dBC**
(a humming noise from the nearby transformers was reported at this location)
- Blaine Road: **32 dBA, 52 dBC**
- Bay Road: **34 dBA, 53 dBC**
(an unexplained increase in C weighted levels occurred at about 12:00 am)

The observed levels, particularly the A-weighted values, towards the northern points of reception were considerably quieter than expected. At these receivers, differences of 20 dB were observed between the A-weighted and C-weighted levels, which implies a relatively. October 29 – 30 measurements (Blaine Road, C-weighted) could have been affected by the winds.