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October 9, 2008

Thomas S. Burack, Chairman
NH Site Evaluation Committee
c/o NH Department of Environmental Services
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Re: Docket No. 2008-04 - Application of Granite Reliable Power, LLC for a certificate of Site and Facility for the Granite Reliable Power Wind Park in Coos County

Dear Chairman Burack:

Enclosed are an original and nine copies of the following two documents: (1) a Survey of Operational Sound Levels prepared by Hessler Associates, Inc., the consultants that have prepared the Environmental Sound Survey and Noise Impacts Assessment included in Granite Reliable Power, LLC's ("GRP") dated July 15, 2008 Application as Appendix 28. During the October 2, 2008 public hearing there was a question about whether there are any follow up studies on noise levels at wind parks that are operating. This survey addresses that issue; and (2) the High Elevation Mitigation and Avoidance Plan that also came up at the public hearing. GRP requests that these documents be treated as a supplement to the Application filed with the Committee on July 15, 2008 and that they be included as Appendices 39 and 40 respectively.

Thank you for your cooperation. Please let me know if you have any questions.

Sincerely,

Douglas L. Patch

cc. Service list in SEC Docket No. 2008-04

505724_1.DOC

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Granite Reliable Power High Elevation Avoidance and Mitigation Plan

I. Introduction

Granite Reliable Power, LLC ("GRP") proposes this High Elevation Avoidance and Mitigation Plan ("the Plan") to address concerns that have been raised about high elevation habitat loss and secondary development potential as a result of the project. While GRP has taken all possible measures to avoid and minimize disturbance to high elevation forest habitat, it is willing to go further to ensure greater protection to remaining high elevation habitat than would exist without the project by proposing this Plan. The Plan would accomplish two things: (1) permanent protection of approximately 460 acres of forest and habitat through conservation easement on areas that would otherwise be at risk as a result of logging, and other activities unrelated to the project; and (2) restriction of access to a total of 350 acres within high elevation areas to avoid any potential for the project itself to facilitate further disturbance of habitat. The total acreage to be conserved under this Plan is more than eight times larger than the proposed impact of the project on high elevation areas. In addition, the exact location of the mitigation area is based upon the recommendations of the New Hampshire Audubon Society, as well as GRP's assessment on maximizing prevention of secondary development.

II. Project Impact and Avoidance/Minimization Efforts

The GRP Application to the New Hampshire Site Evaluation Committee ("the Application") currently proposes removal of approximately 58 acres of high elevation Spruce and Spruce-Fir habitat, which represents less than 2% of the total high elevation habitat of the 3747 acres above 2700 feet on the project ridges. GRP acknowledges the importance of this habitat and has, therefore, taken significant measures to minimize any impact at all to these areas. The result is that GRP has been able to reduce total high elevation forest removal to 58 acres. This number includes removal necessitated by roadway improvements in the high elevation areas. The minimization efforts already incorporated into the pending Application include:

- Selecting an alternate turbine technology that allows for the reduction of turbine numbers and associated electrical collection and roads.
- Designing the collection system to be collocated with the access road, reducing the amount of additional right of way (ROW) needed as well as minimizing fragmentation.
- Employing specialized hauling equipment to reduce the length of roads and area needed to haul components to the turbine site. More specifically, the hauling equipment that will be used at the site is capable of taking tighter turns

and traveling steeper grades, which prevents the need for additional switchbacks and the amount of cut and fill required to smooth out "the bumps and dips" during travel.

In addition to the measures described above, GRP has also worked with the turbine manufacturer and general construction managers, both familiar with building turbines on ridgelines in New England, to minimize the site clearance needed for individual turbine construction. One example is the use of a single blade lift installation at each site as compared to the standard three blade installation typical at other projects. This helps reduce the amount of vegetation clearing and grading necessary to safely install a wind turbine.

Aware of the environmental concerns to high elevation habitat, GRP conducted a Natural Community Characterization within the Project site to determine the level of impact that the Project would have. This study, included as Appendix 16 to the Application, mapped the natural communities at and around the Project facilities to determine the amount of impact to high elevation Spruce and Spruce-Fir forest that would result from the Project. As currently designed the GRP project is expected to impact approximately 58 acres of high elevation Spruce or Spruce-Fir forest, which accounts for less than 2% of the high elevation forest available on the Project ridges (58 acres of the 3747 acres of lands that are above 2700 feet in elevation on the Project ridges). Please refer to Table E in the Application for a detailed breakout of numbers.

III. Current Site Conditions and Potential for Access

While concerns have been expressed about increased access to the ridgelines after construction of access roads and turbines, there is nothing in place now to ensure the long term protection of the high elevation habitat. Existing conditions at the project site provide access to at least two of the ridgelines. The proposed project ridges of Dixville Peak and Fishbrook already have vehicle access to the summit. More importantly, timber harvesting has occurred at or above the 2700-foot elevation on all of the subject ridges. Therefore, even if the project did not go forward, the potential for disturbance of the 58 acre area to be impacted by the project, as well as additional high elevation areas surrounding the proposed site, is quite high. Without the imposition of restrictions on these high elevation areas, timber harvesting, secondary development and other impact could well occur in the future regardless of whether the project proceeds forward. With that in mind, GRP has formulated a plan for protection and access restriction to critical segments of the ridgelines.

IV. Mitigation and Avoidance Plan

A. Overview of Conservation Easements

To increase protection of this high value habitat, GRP proposes to mitigate impacts to high elevation habitat by placing a 500 foot conservation easement around the Project facilities

located on Owlhead and Mt. Kelsey ridge tops and a 200 foot buffer around the new access road leading up to the ridge from the existing road. This will prohibit any additional disturbance or impacts to this area beyond the Project itself. The conservation easement will include the facilities of the Project, though there will be an exemption that makes allowance for the construction, operation and continual maintenance of the Project.

The protected area would represent approximately 250 acres of high elevation Spruce Forest or Spruce-Fir forest, and a total of approximately 350 acres above 2700 feet (over 9% of the habitat available above 2700 feet on the Project's proposed ridges). The total protected area, including the area below 2700 feet, will be approximately 460 acres. This Plan will ensure that the increased access created by the installation of roads to the ridge tops of both Owlhead and Mt. Kelsey will not lead to additional impacts or development. Having this conservation area surrounding the access road and turbine string eliminates the option of using this new access road as a means to commercially harvest and access other high elevation areas for any other additional development purposes beyond the limit of disturbance for GRP. Furthermore, during the wetland delineation effort for the Project, a number of wetlands and vernal pools were also identified within this conserved area and these will be protected under this mitigation and avoidance Plan.

A visual representation of the proposed mitigation area and a table from the Natural Communities Characterizations summarizing the impact of the Project is attached to this report.

Exact numbers may change based on final engineering plans.

B. Site Selection Process

The site selection process for this Plan incorporated a number of considerations, including recommendations by the NH Audubon Society. The proposed High Elevation Mitigation and Avoidance Plan would focus on protection of valuable high elevation spruce or spruce-fir forest and the forest, above 2,700 ft in elevation. This is important habitat for a number of species including the Bicknell Thrush and the American Marten. In addition to direct habitat loss, a concern was raised about the potential for secondary development resulting from the Project. GRP has worked closely with New Hampshire Fish and Game Department, the New Hampshire Audubon Society and consultants working on the Project to address these concerns.

GRP contacted NH Audubon, which conducted the breeding bird study for the Project, to assemble a list of priorities for conservation based on their study and knowledge of the property. A number of sites were identified for conservation throughout the property. The top five sites selected were:

- Mt. Kelsey
- Whitcomb Mountain

- Dixville Peak
- Millsfield Ridge
- Northwest Corner of the Philips Brook Tract

With this priority list GRP assessed each site for threat to the resource, ability to protect the site and landowner concerns. After this assessment, Mt. Kelsey appeared to be the site where GRP could do the most good with the resource available. Having identified the site for conservation and protection, GRP explored how it could best protect the resource. GRP considered the option of having the mitigation site all on one side of the ridge, or, alternatively on both sides, concluding that a conservation zone that surrounded the Project facilities would give the most protection to the resource, effectively eliminating the potential of the road for this project to be used for secondary development. GRP then designed the contour of the protection buffer to capture more high elevation forest and still provide the protection from secondary development from the new road.

V. Conclusion

GRP believes that this High Elevation Mitigation and Avoidance Plan addresses concerns about habitat loss and secondary development potential by either avoiding or minimizing disturbance to the habitat to the extent possible. In addition, through the conservation easement GRP believes that this Plan permanently protects high elevation habitat that would otherwise not be protected under current conditions.

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REPORT NO. 1834-091208-A

REV: A
DATE OF ISSUE: SEPTEMBER 18, 2008

SURVEY OF OPERATIONAL SOUND LEVELS
NOBLE BLISS WINDPARK

- SUMMARY OF RESULTS -

TOWN OF EAGLE
WYOMING COUNTY, NY

PREPARED FOR:

Noble Environmental Power

Prepared by:

David M. Hessler, P.E., INCE
Principal Consultant
Hessler Associates, Inc.

CONTENTS

1.0 INTRODUCTION

Hessler Associates, Inc. has been retained by Noble Environmental Power to conduct a field survey of the sound levels produced by the newly operational Noble Bliss Windpark Project in the Town of Eagle, NY. The principal objective of the study was to evaluate compliance with the local regulatory noise limit of 50 dBA at non-participating residences.

The survey was carried out over a 15 day period from July 9 to 24, 2008 under what may be considered typical summertime conditions.

This report briefly summarizes the results of the study.

2.0 SURVEY METHODOLOGY

2.1 GENERAL APPROACH

The principal technical challenge in carrying out such a survey centers around separating the project-only sound level due exclusively to the turbines from the concurrent background noise level associated with such things as foliage rustling, cars passing by, insects, etc. At typical setback distances of 1000 to 1500 ft. project and non-project sound levels are often of similar magnitudes, meaning that the total measured sound level is strongly influenced by both sources and therefore does not accurately characterize either one.

The quantity sought in this study is the project-only sound level since that is the value limited by local law and predicted by noise models. Because under most circumstances the background sound level is too significant to directly measure project-only noise, the only practical way of determining this value is to measure the total sound; measure, estimate, or otherwise deduce the background level occurring under identical wind and atmospheric conditions; and then subtract the background level from the total to derive the project-only level.

For this survey the total sound level was measured by continuously recording sound level monitors at 11 points of interest within the site area and the background level was measured by three additional monitors located in similar settings outside of the site area to the south, east and northwest. By averaging the sound levels at these three diametrically opposed locations a continuous record of the likely background level over the site area was created allowing all of the on-site measurements to be corrected for background contamination.

2.2 SITE DESCRIPTION AND MEASUREMENT POSITIONS

The Noble Bliss Windpark consists of 67 GE 1.5sle wind turbines, each with a 77 m three-bladed rotor on an 80 m tubular tower. The turbines are arranged in clusters of various sizes and distributed over a site area that is very roughly 5 miles east to west and a little over 4 miles north to south. The site area, which is just south of the village of Bliss in the Town of Eagle, is rural in nature with rolling hills, open fields, patches of woods and scattered farms. There are no major highways or industrial noise sources for many miles in all directions. Although the area is bucolic it is not uninhabited; there are numerous residences (on the order of roughly 100) intermixed with and in fairly close proximity to the turbines, including quite a few that are just beyond the minimum setback distance of 1000 ft.

Graphic A is a map of the project area showing the turbines and the selected monitoring positions.

Description:

Graphic A

Sound Monitoring Locations

Project:

Noble Bliss Windpark

Drawing Number:

NBW-Rev-A-1-2

Date:

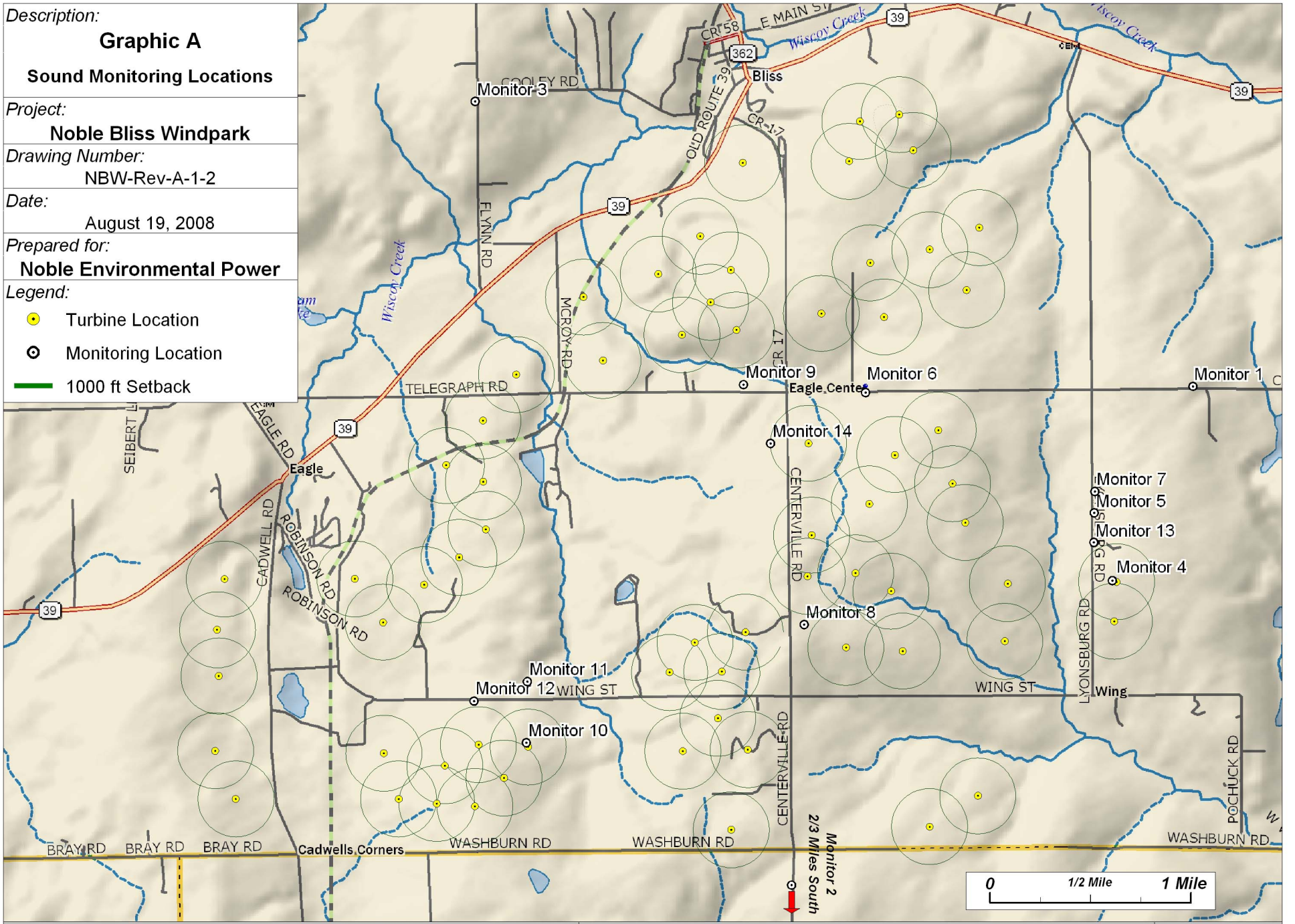
August 19, 2008

Prepared for:

Noble Environmental Power

Legend:

- Turbine Location
- Monitoring Location
- 1000 ft Setback



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W E
S

3.0 SURVEY RESULTS

3.1 REGULATORY NOISE LIMIT

The Town of Eagle enacted the Wind Energy Conversion Facilities Siting Law (Local Law No. 3) in December of 2005. Section 7 of this law limits noise:

> Wind Energy Conversion Facilities shall be operated so that the noise produced during operation shall not exceed fifty (50) dBA, measured at residential structures on parcels owned by persons not having a lease or noise easement with the project developer or owner.

3.2 BACKGROUND SOUND LEVELS

The background sound levels measured at the three off-site monitoring stations are plotted in Figure 3.2.1. This chart clearly shows that the sound level at each of these widely separated locations at any given moment is remarkably similar. It can be reasonably concluded that the background sound level in the site area surrounded by these monitoring stations would be very close to the arithmetic average of all three positions; i.e. there is no reason to believe that a substantially different sound level would exist between these three test points. This average, or design background level is plotted against wind speed in Figure 3.2.2.

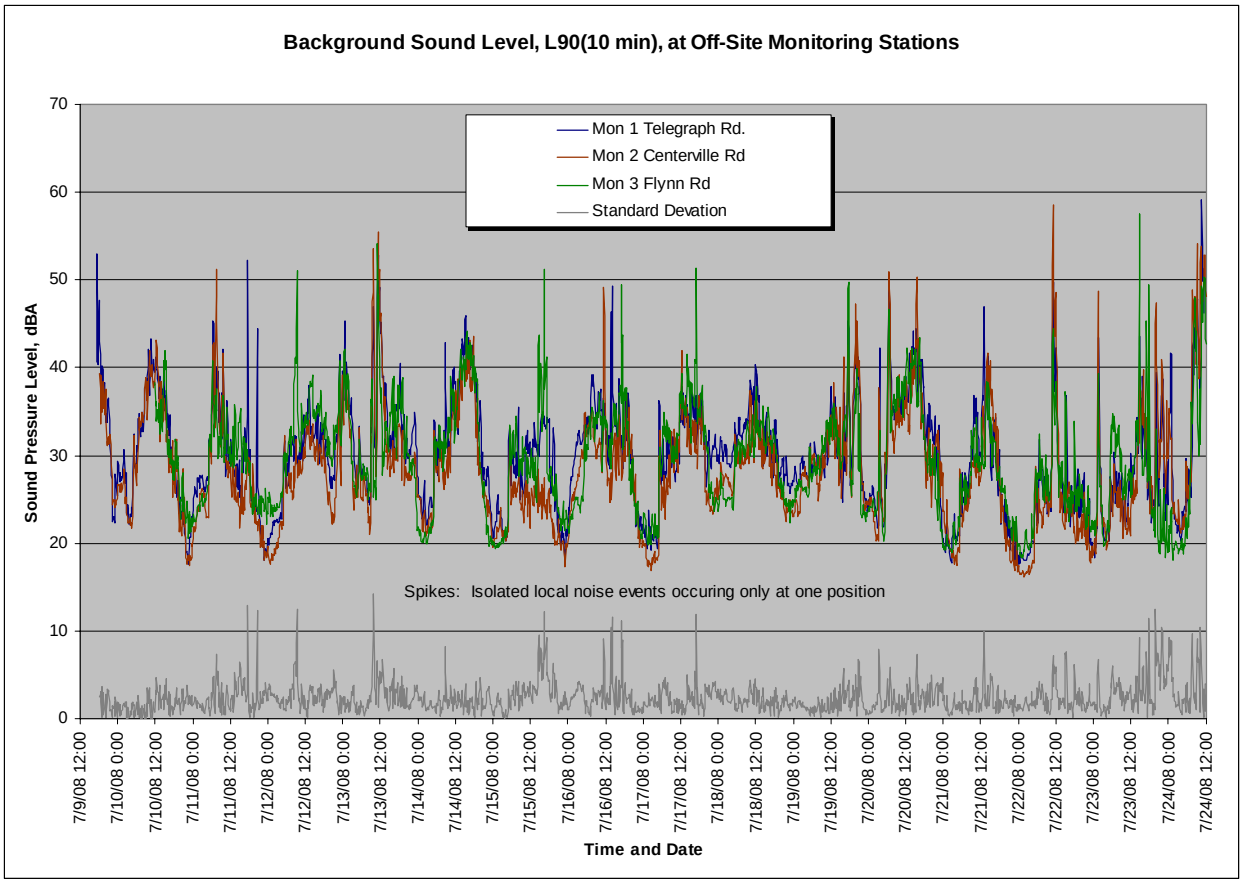

Figure 3.2.1 *Residual (L90) Background Sound Levels*

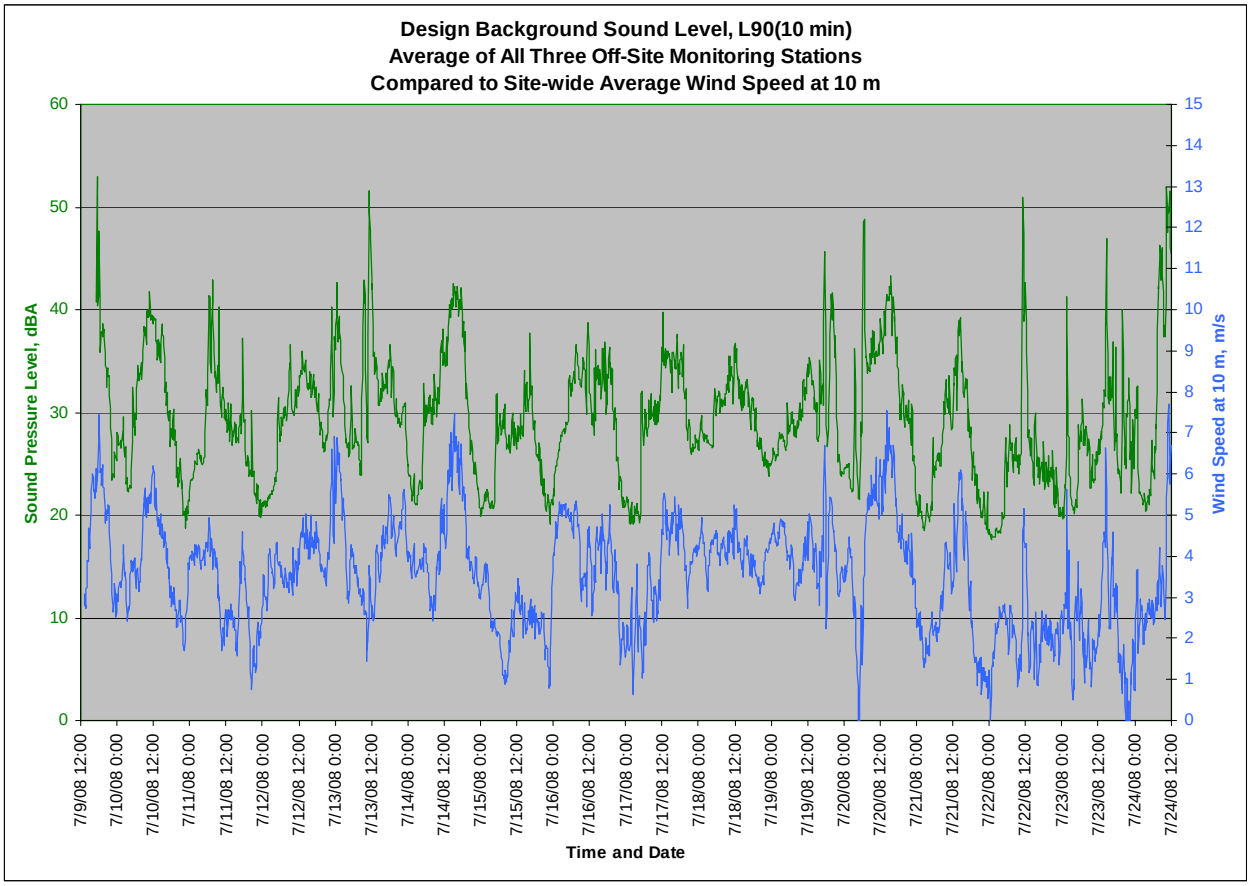

Figure 3.2.2 *Average Residual (L90) Background Sound Level – Design Background Level*

Averaging the three positions largely eliminates the features unique to only one of the positions and the only spikes that remain reflect area-wide sound events. Figure 3.2.2 shows that the background sound level is closely related to wind speed, or more specifically to wind-induced natural sounds.

It is important to note, particularly in Figure 3.2.1, that background sounds without any contribution from the project, whether natural or man-made in origin, frequently approach or exceed the 50 dBA noise limit permitted by the local ordinance. The relevance of this is that any excursion above 50 dBA in the measured levels within the project area cannot be automatically ascribed to the project or considered to be a violation of the ordinance. A local noise event, such as lawn mowing, could well be the source of the noise.

3.3 On-Site Monitor Results

Two principal graphics are presented for each of the six key measurement positions below. The first shows the total measured L90(10 min) sound level (containing both project and background noise) as a function of time over the 15 day survey period compared to the design background level and concurrent wind speed. Project noise is evident wherever the total sound level significantly exceeds the background level and, at the same time, parallels the wind speed curve. If the total level exceeds the background without a simultaneous rise in wind speed, the noise is

unlikely to be associated with the turbines and can be ascribed to some local noise event, such as lawn mowing or tractor activity.

The second graphic quantifies the project-only sound level measured at that location as a function of wind speed. This level was derived by subtracting the background sound level from the total measured level in instances where total level was higher than the background. It is this project-only sound level that may be compared to the local ordinance limit with the understanding that local noise events (noise spikes probably unrelated to the project) have not generally been excluded from this calculation unless it is very clear that they are extraneous. A mean trendline is drawn through the data at key wind speeds to compare predicted levels from a noise model of the site to actual measurements.

3.3.1 Position 8 – Flint Residence

The total sound level measured at Position 8 is plotted in Figure 3.3.1.1 along with the design background level and site average wind speed. Despite being closely surrounded by a number of turbines, this plot shows that the total sound level (containing both project and background noise) over this 15 day period generally remained below 50 dBA with most periods of elevated noise that appear to be associated with the project not exceeding about 46 dBA.

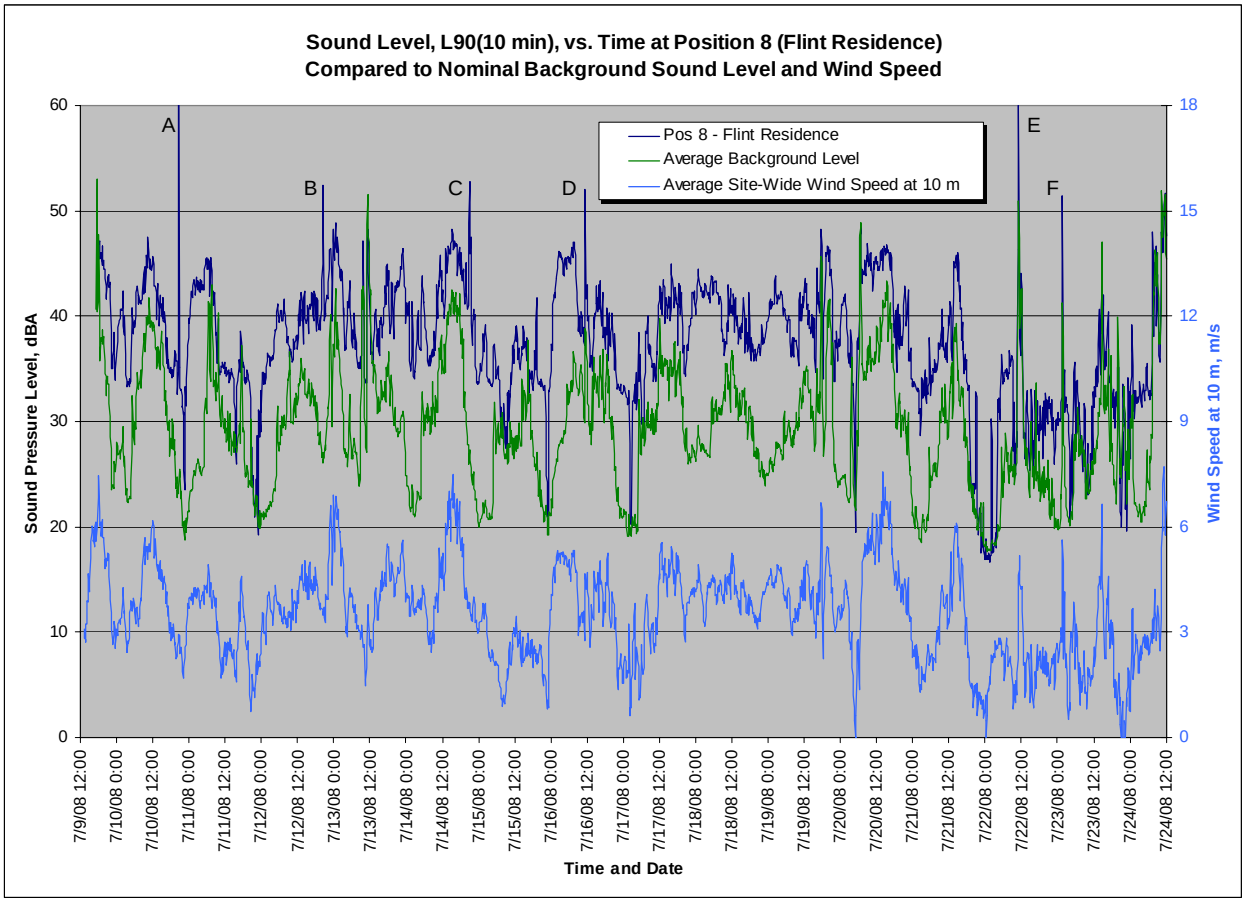

Figure 3.3.1.1

The brief noise peaks A, B and C with values higher than 50 dBA appear to be local noise events unrelated to the project since no sudden increase in wind occurred at those times. Spike D is questionable but Peaks E and F are either associated with aerodynamic noise from the nearest

turbines or thunderstorms, or both. These possible frontal systems or sudden storms caused, at least in case E, even the background level to exceed 50 dBA. If not a thunderstorm, these brief periods of what were probably gusty winds apparently interacted with the turbines to temporarily generate unusually high noise levels. Judging from 15 days of measurements these two 10 minute noise peaks appear to be aberrations and certainly don't represent a normal or common condition.

Figure 3.3.1.2 below shows the derived project-only sound level for this location over the survey period (not excluding Peaks E and F).

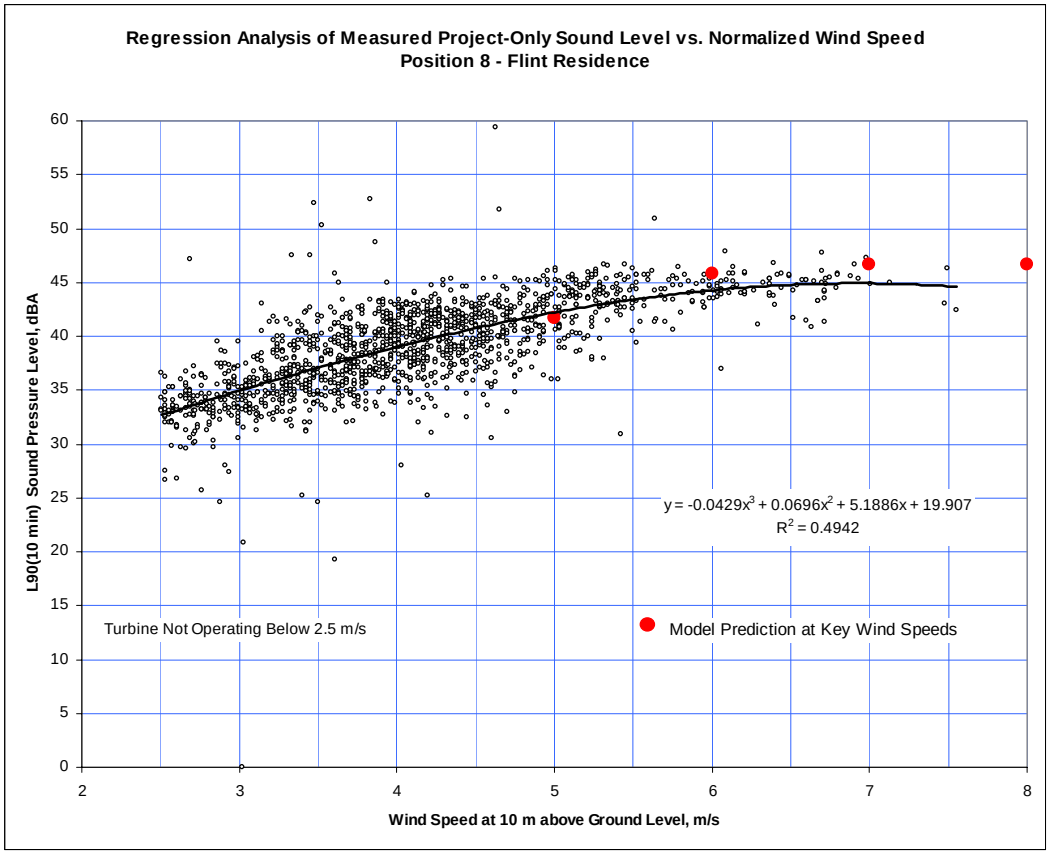

Figure 3.3.1.2

This analysis shows that the mean project-only sound level over the survey period ranged from less than 35 dBA during low wind conditions up to about 45 dBA when the turbine rotors were operating at maximum rpm. As can be seen, the mean trendline also agrees very well with the project-only sound level that was predicted for this location by the noise model of the project prepared prior to the survey.

There are 6 outlying points above 50 dBA that appear to be associated with the presence of the turbines. Four of these are spikes E and F caused by those two short-lived periods of gusty and unstable winds while the other two are spikes B and D, which may or may not be associated with the project. Within the context of the roughly 2000 10 minute measurements made over the entire survey period these five peaks mean that the project was in compliance with the local ordinance 99.7% of the time.

3.3.2 Position 9 – Graves Residence

The sound levels measured at Position 9 are shown in Figure 3.3.2.1.

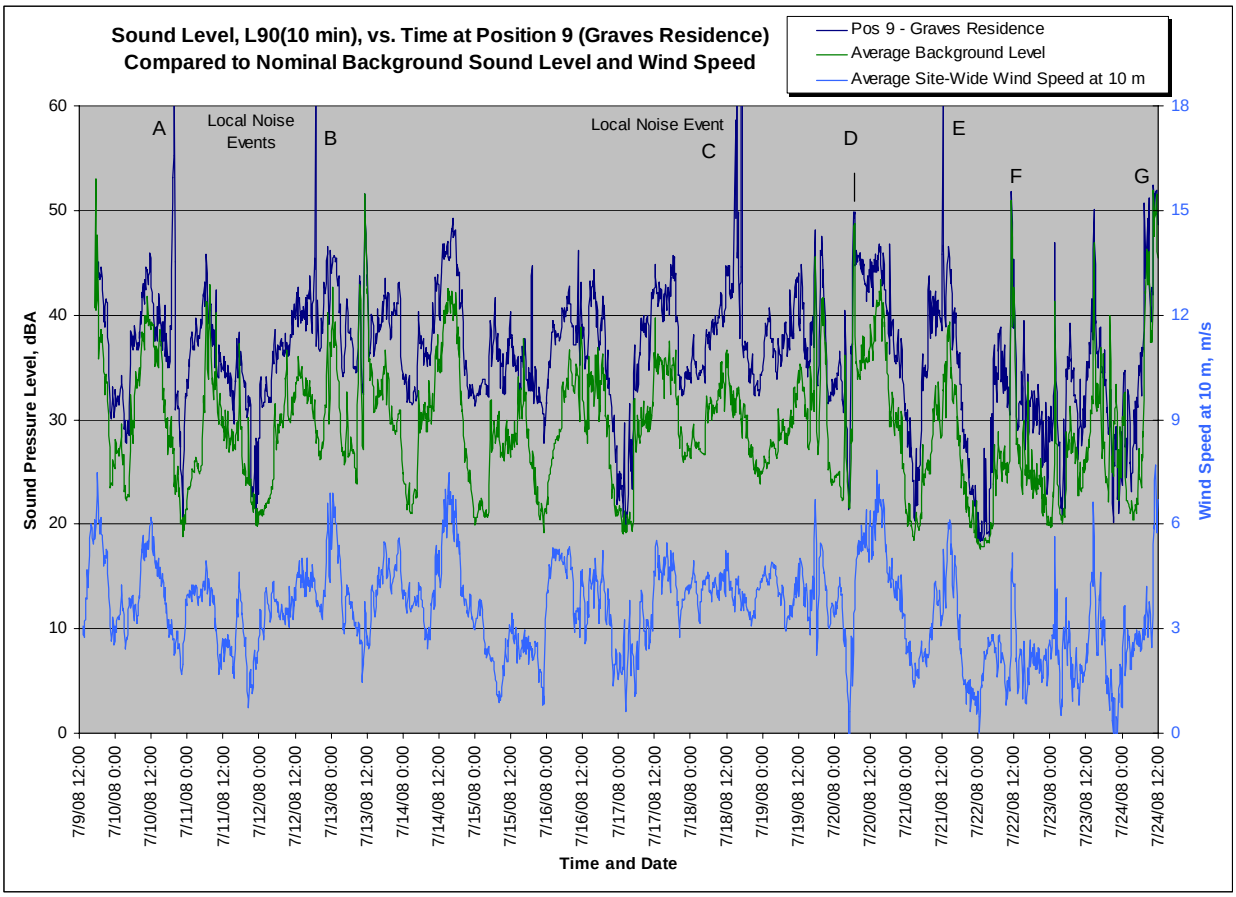

Figure 3.3.2.1

Sound levels at this relatively low location are somewhat similar to those at the higher Position 8 despite the differences in topographical setting. Peak levels of project noise, for the most part, do not rise above about 45 dBA. Peaks A, B and C appear to be unrelated to the project. Peak D is apparently associated with project noise. Peak E may have been a thunderstorm, since the noise was site-wide. Peak F on 7/22, which is comparable to the background level and corrects to a value of less 50 dBA, was the maximum peak observed at Position 8 (Peak E at 60 dBA in Figure 3.3.1.1).

Project-only sound levels for this position are plotted in Figure 3.3.2.2.

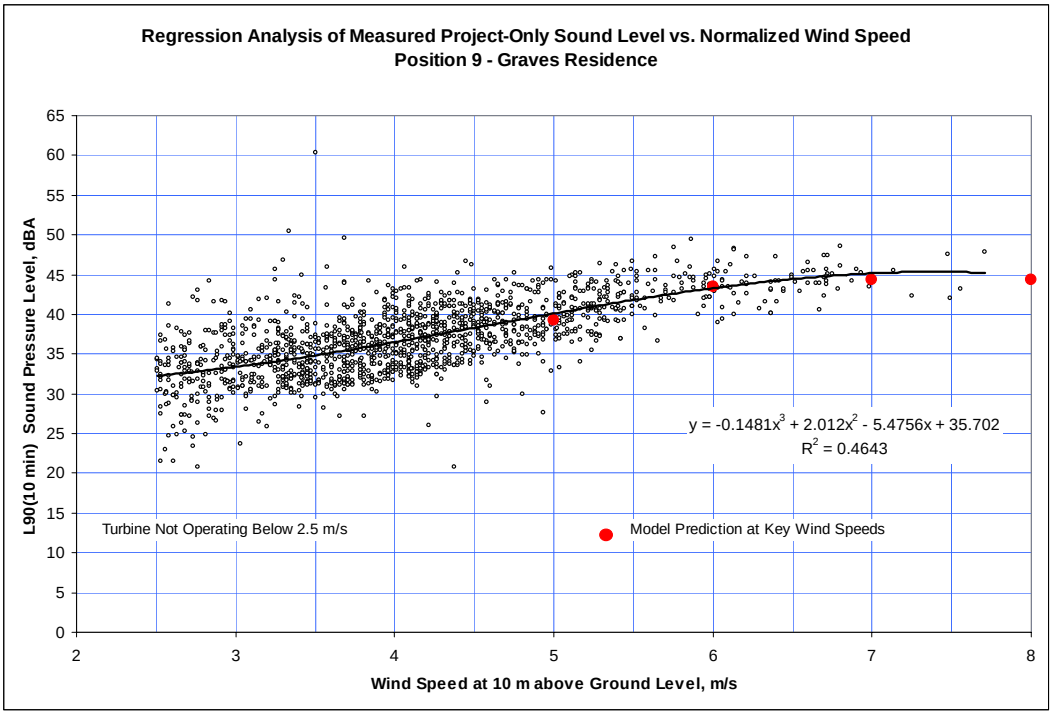

Figure 3.3.2.2

This plot shows that project sound levels are normally in 35 to 45 dBA range at this location – at least judging from this randomly selected 2 week period. Neglecting peaks A, B and C only two measurements greater than 50 dBA can be ascribed to the project, meaning that the Eagle noise ordinance was met 99.9% of the time during this survey.

Again there is excellent agreement between the predicted sound levels at key wind speeds and the mean level actually measured.

3.3.3 Position 11 – Geising Residence

Sound levels vs. time for this position, which is 1000 ft. from the nearest turbine, are shown below in Figure 3.3.3.1. In general, the sound levels measured at this position were higher than at any other location, including at other monitoring stations on the 1000 ft. setback line. Noise peaks A, C and E are extraneous noises unrelated to the project but the numerous remaining peaks are evidently associated with project noise.

One possible explanation for the relatively high levels at this location is that the monitor position was downwind of the nearest turbine much of the time; i.e. the wind was out of south for over half the survey period. In particular, the numerous spikes, designated as Peak B, occurred during a south, southeasterly wind.

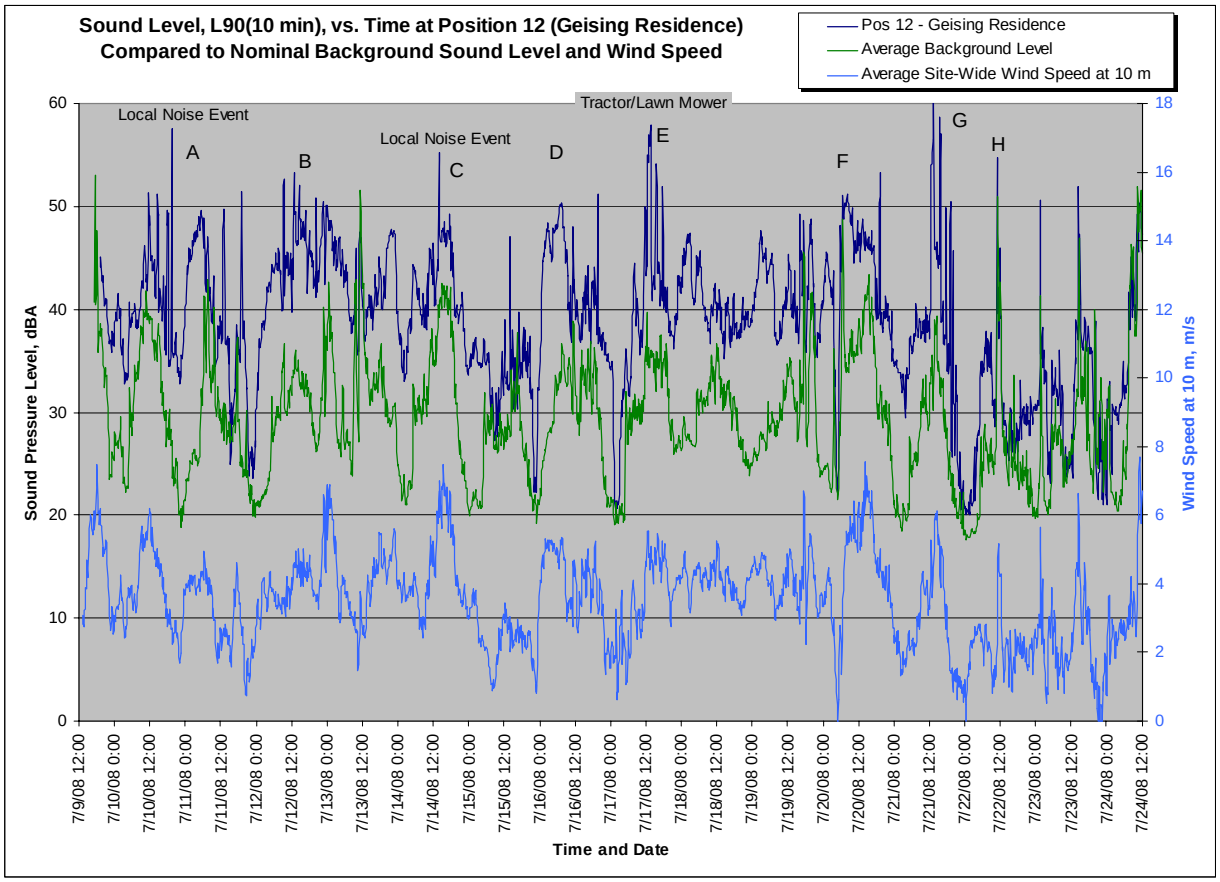

Figure 3.3.3.1

In any event, there is no question that relatively high project sound levels were observed intermittently at this measurement position.

A regression analysis of project-only sound levels at this position is shown below.

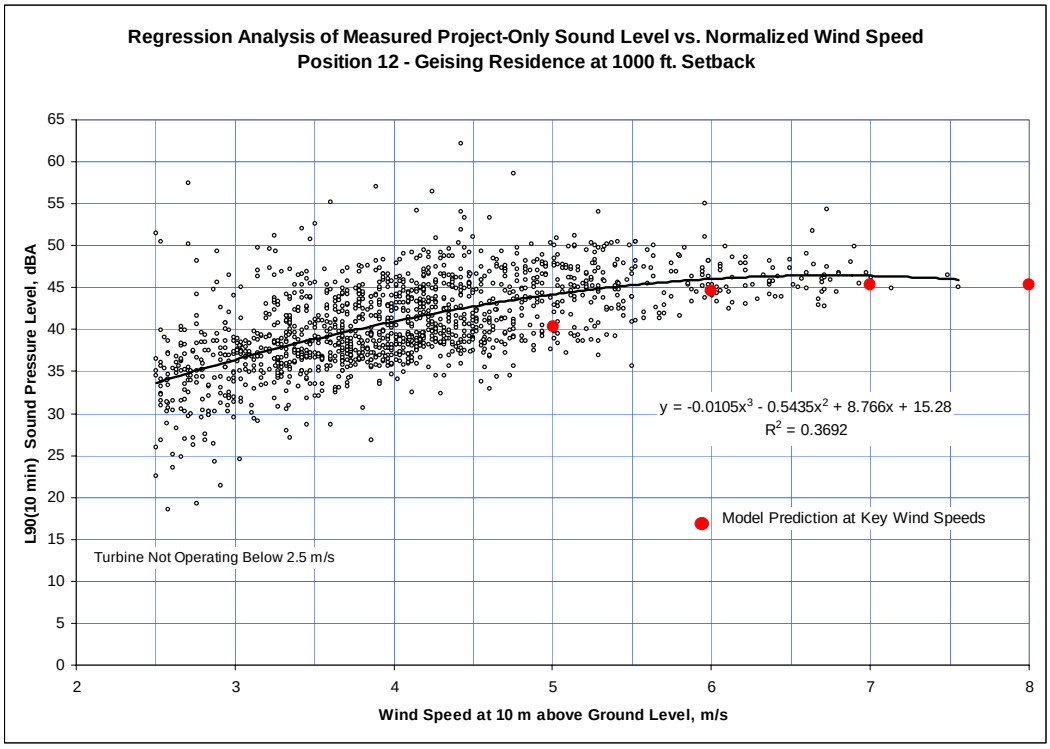

Figure 3.3.3.3

Despite the numerous noise peaks observed over the survey at this location, the mean sound level is only slightly higher than would be predicted and remains below 50 dBA the vast majority of the time; specifically 98.1% of the time given the 38 measurements over 50 dBA out of a total of 2000. Since this resident is a project participant the local noise ordinance limit of 50 dBA is not technically applicable in any event.

What the measurements at this location generally indicate is that a normal and predictable steady-state sound level occurs most of the time, but that wind conditions occasionally occur that can significantly raise the sound level produced by the turbines – although only for very brief periods. Such noise peaks are certainly noticeable and can be quite loud but they are atypical in the sense that they do not persist for more than a few minutes or intermittently over a few hours.

3.3.4 Position 12 – Zuwaski Residence

The measurement results for Position 12 are shown below.

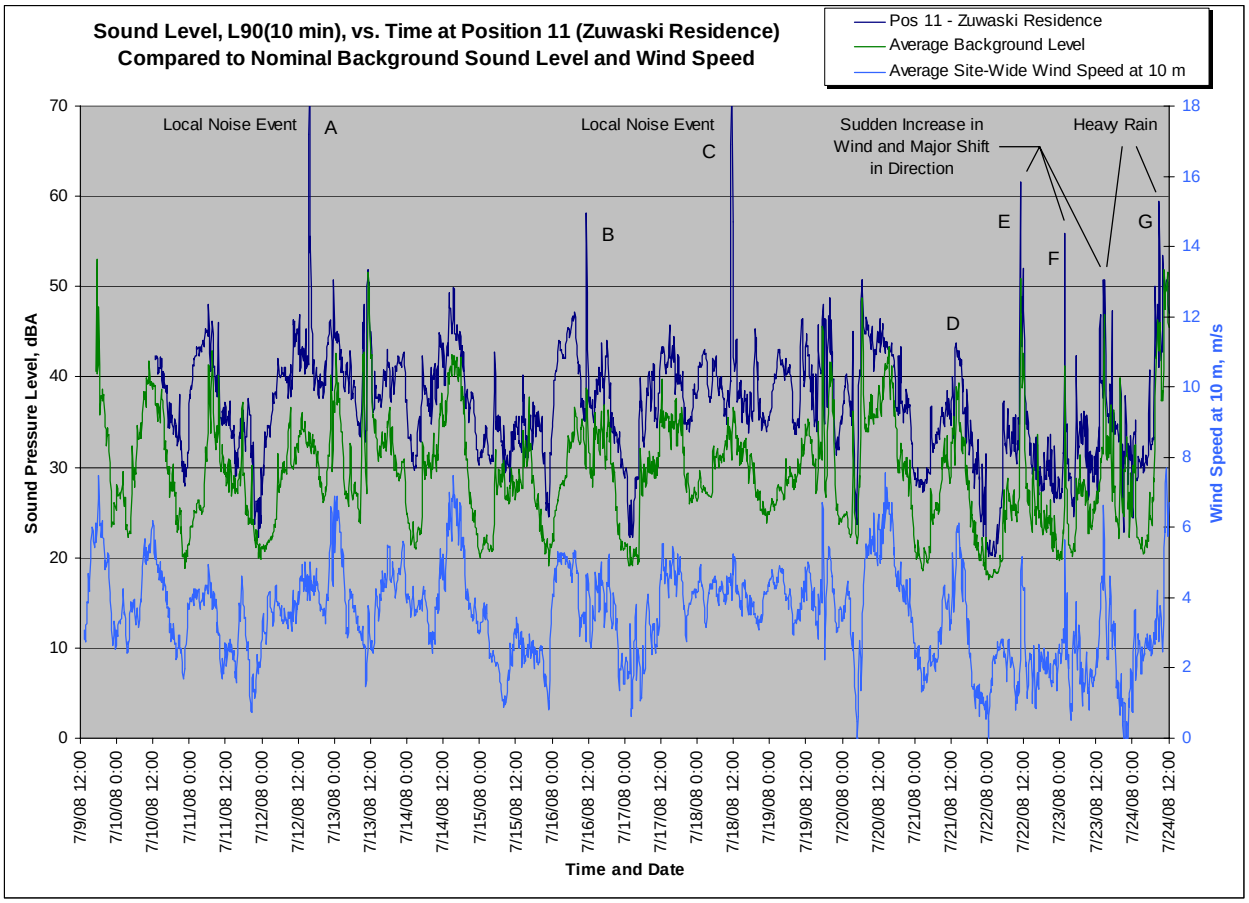

Figure 3.3.4.1

For the most part, total sound levels were measured in the 35 to 45 dBA range. Peaks A and C appear to be local noise events unrelated to the project. Peak B, on the other hand, occurs simultaneously with a minor spike in both wind speed and background level so it is apparently related to the project. Peaks E and F are the same sudden but brief increases in noise seen elsewhere due to wind gusts, rapidly changing wind direction and/or a thunderstorm. Peak G is associated with a period of heavy rain and may be a record of rainfall noise rather than an increase in wind turbine noise.

The project-only sound levels for the survey period at this measurement location are plotted in Figure 3.3.4.2.

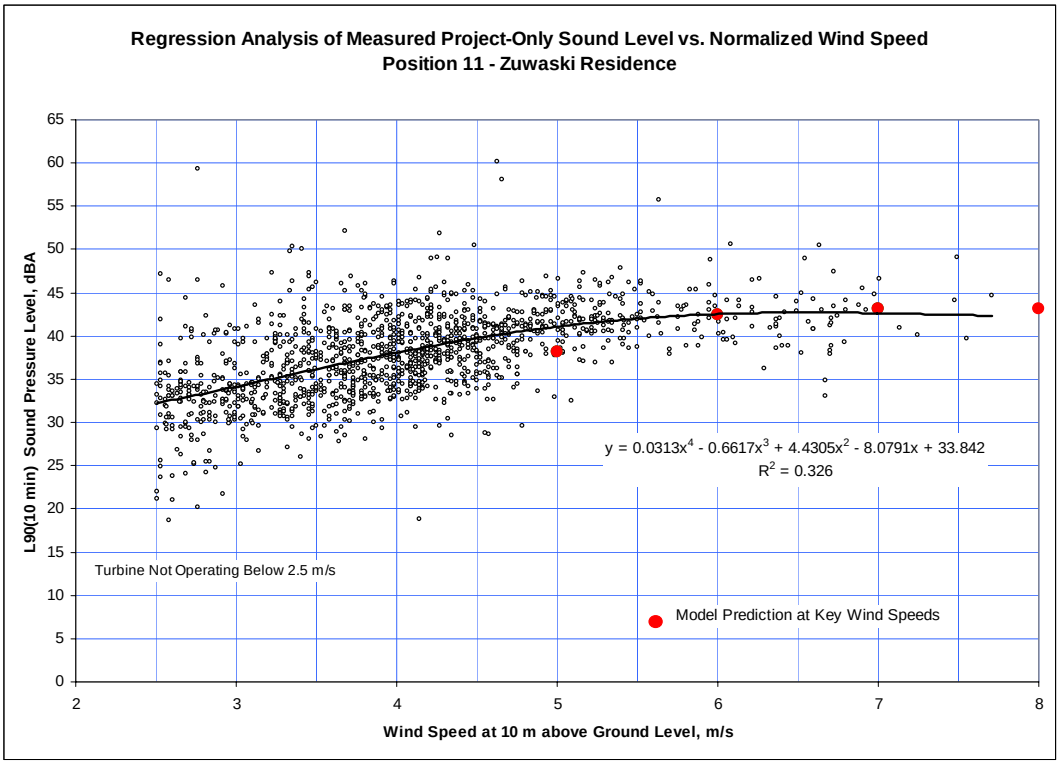

Figure 3.3.4.2

Project-only sound levels are overwhelmingly in the 30 to 45 dBA range. There are 10 instances of project noise briefly exceeding 50 dBA, which means that compliance was achieved 99.5% of the time.

3.3.5 Position 6 – Poust Residence

The sound levels measured at Position 6 - at the home of a project participant - are plotted in Figure 3.3.5.1.

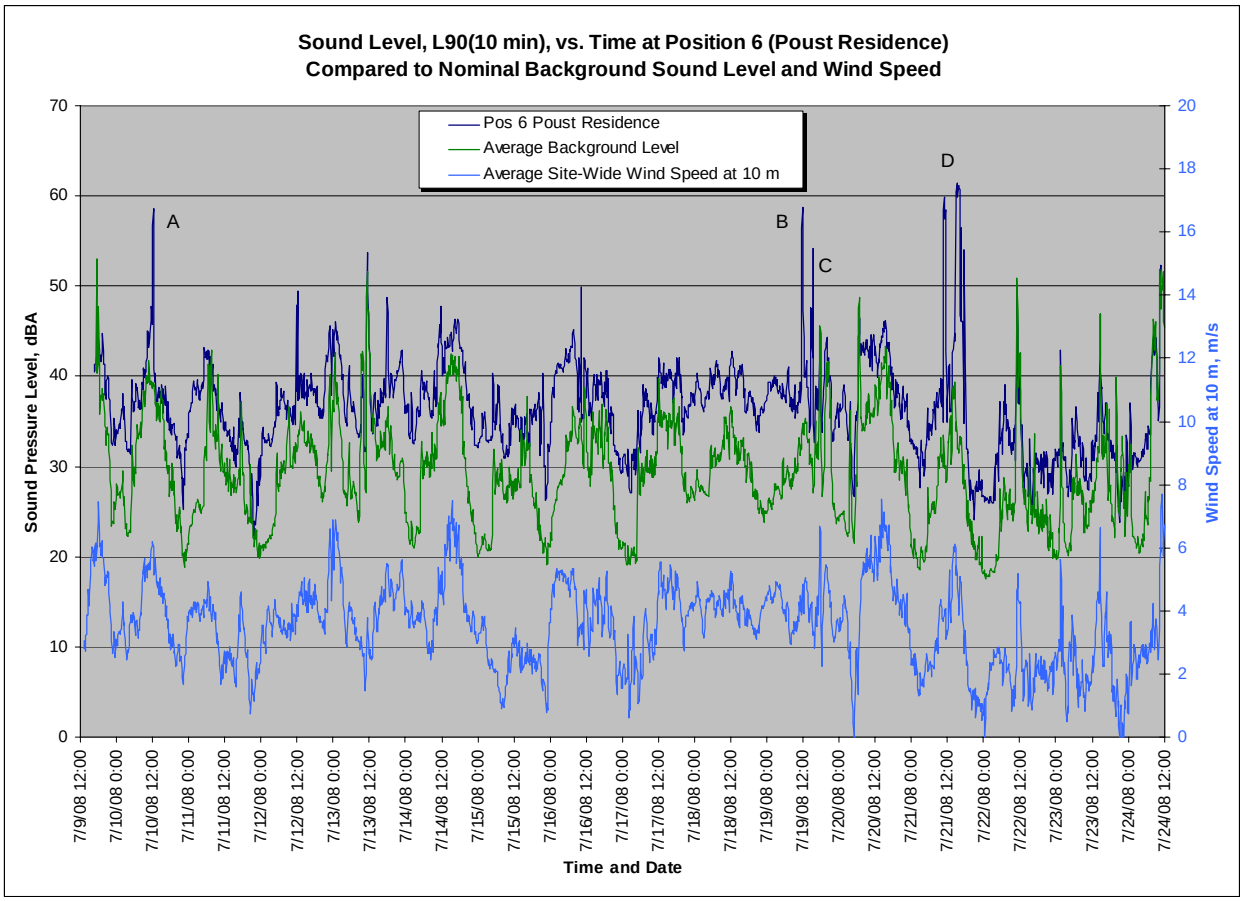

Figure 3.3.5.1

Peaks A, B and C do not appear to be project-related because no peaks were observed at any other positions at those particular times and there is nothing unusual happening with the wind. The large peaks at D, however, parallel the high noise spikes observed at Position 12, which is 2.5 miles away in another part of the project area.

Project-only sound levels for this position are plotted below in Figure 3.3.5.2 without eliminating peaks A, B and C since their origin is not certain. Even including these questionable sound spikes sound levels from the project remained below 50 dBA at this location 99.0% of the time, or for 1980 samples out of 2000.

As with all other positions there is good correlation between the mean measured project-only sound levels and the model predictions.

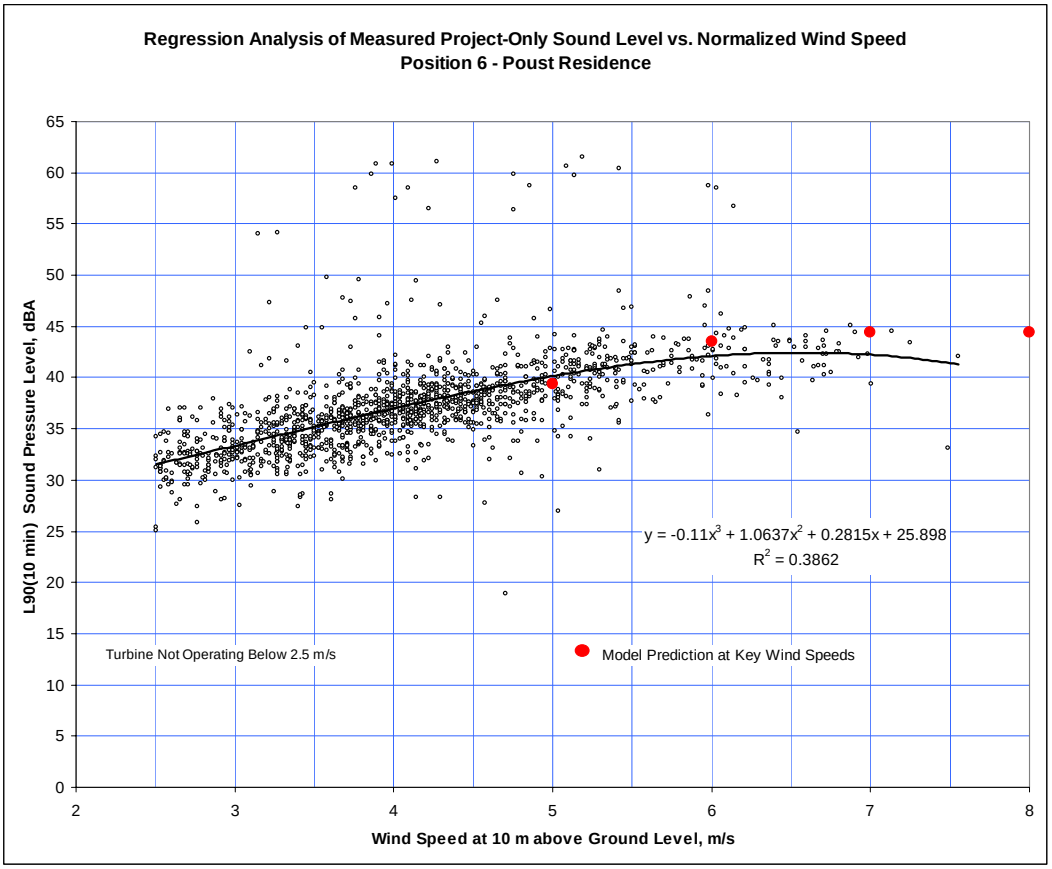

Figure 3.3.5.2

3.3.6 Position 14 – 1000 ft. West of T11

Position 14 was set up exactly at the minimum setback distance of 1000 ft. to the west of Turbine 11 near the Noble field office. This position lies on the opposite side of T11 from Position 6 just discussed. The levels recorded at this location are plotted below.

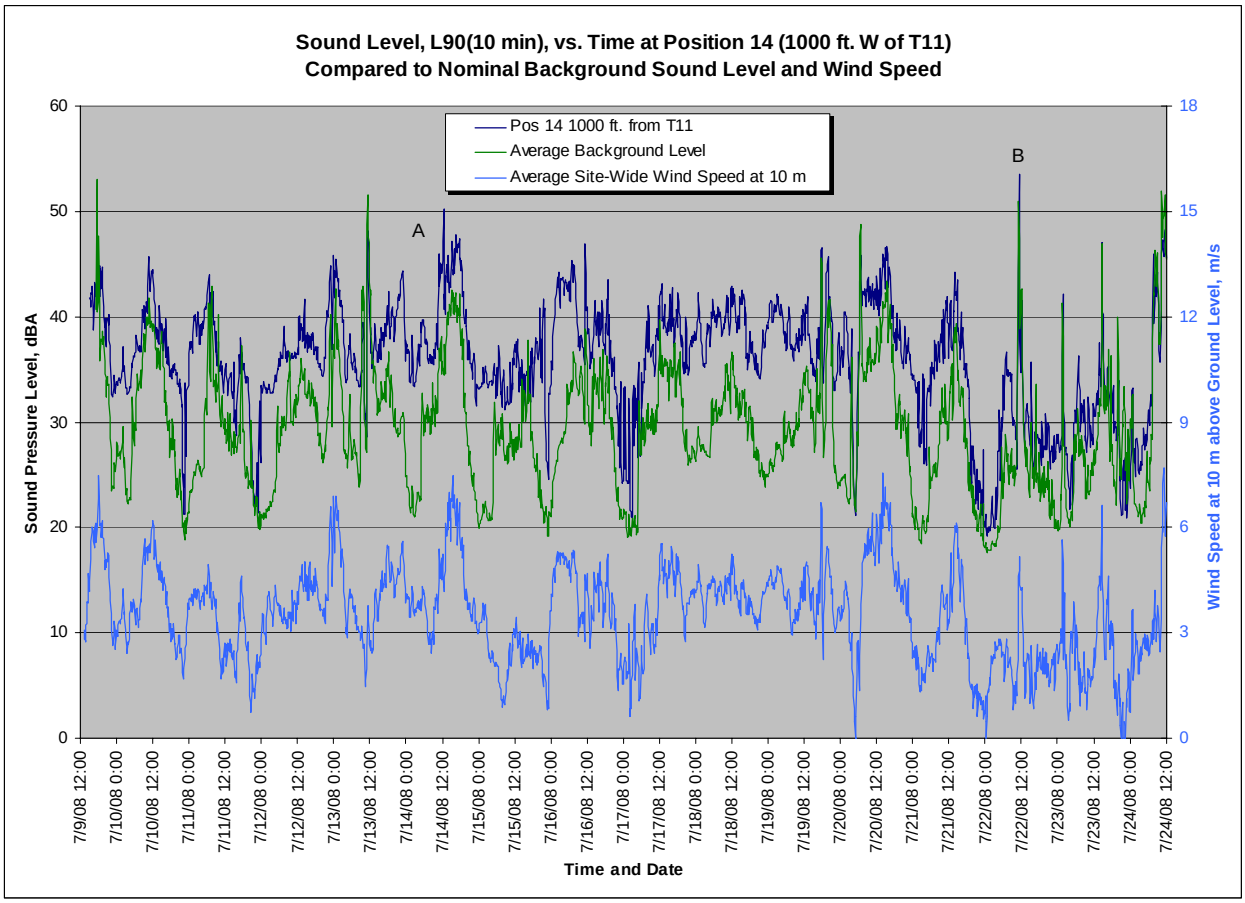

Figure 3.3.6.1

The measurements at this position, which is 1000 ft. from the nearest turbine, are remarkable in that sound levels essentially remained below 50 dBA all of the time. Peak A may well be an extraneous noise event. Peak B is the sudden period of gusty winds and dramatically changing wind direction that is evident at every position – and may, in fact, have been a thunderstorm. What is conspicuously absent are the noise peaks around noon on 7/21 that are so prominent at nearby Position 6 and at Position 12 further away. Apparently, the orientation of this monitoring station to the west and therefore upwind of the turbine was a factor in the relatively low sound levels, since the wind was generally out of the west or south for most of the survey.

The project-only sound levels at this position for the entire survey period are shown in Figure 3.3.6.2.

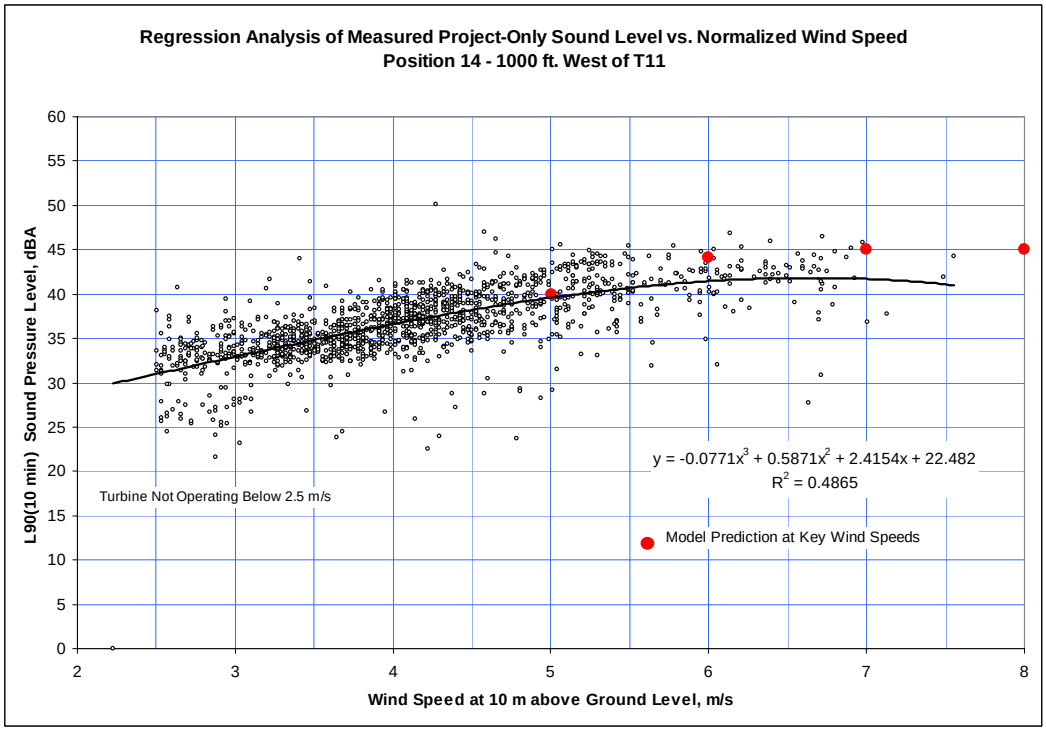

Figure 3.3.6.2

3.3.7 Position 13 – 1000 ft. Northwest of T7 – Byler Residence

Another monitor was also set up at the minimum 1000 ft. setback from Turbine 7 to evaluate sound levels at this critical distance. T7 was selected because it was somewhat isolated and could be studied without too much contaminating noise from other units. Position 13 was set up 1000 ft. northwest of the unit. The levels recorded over the survey are shown below.

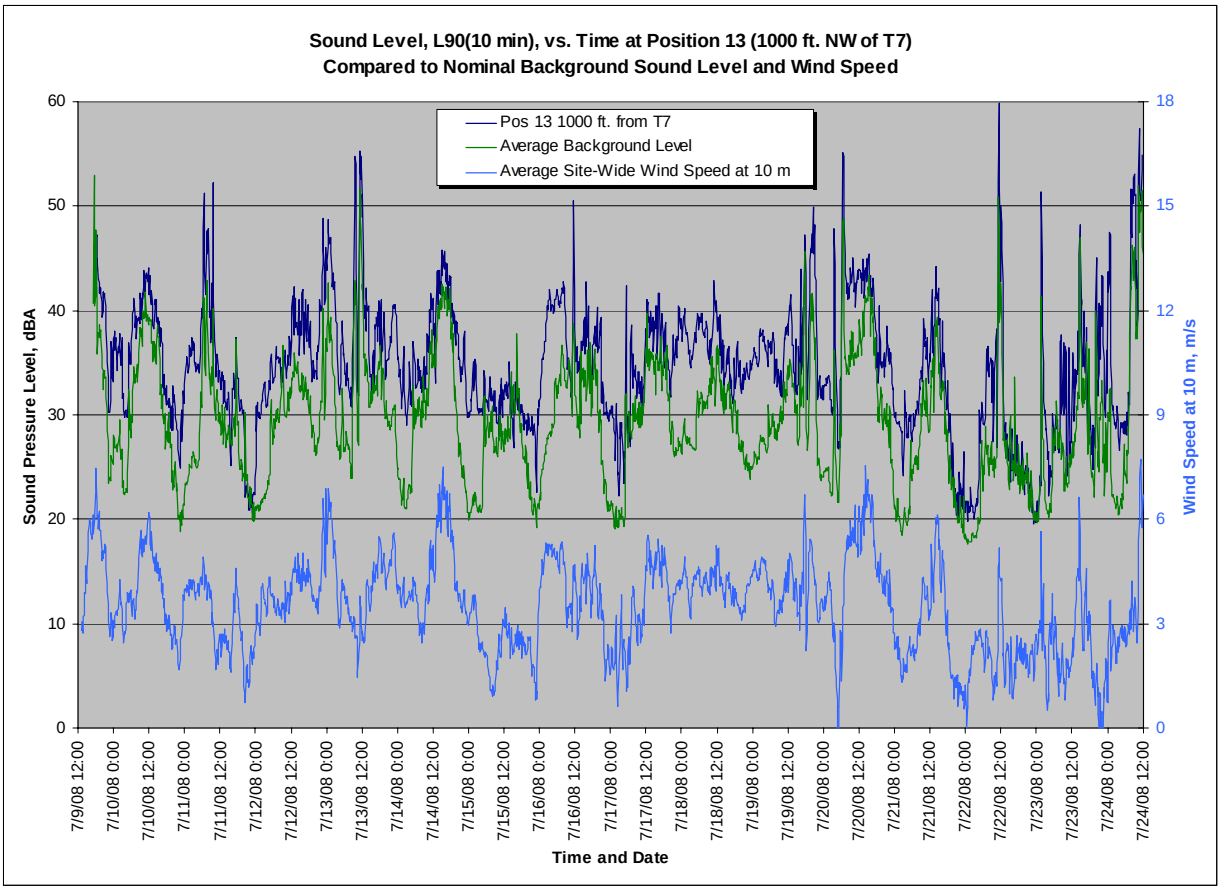

Figure 3.3.7.1

In contrast to Position 13, where sound levels at 1000 ft. were almost always below 50 dBA, several noise peaks above 50 dBA were observed at Position 14.

Project-only sound levels for this position are illustrated in Figure 3.3.7.2.

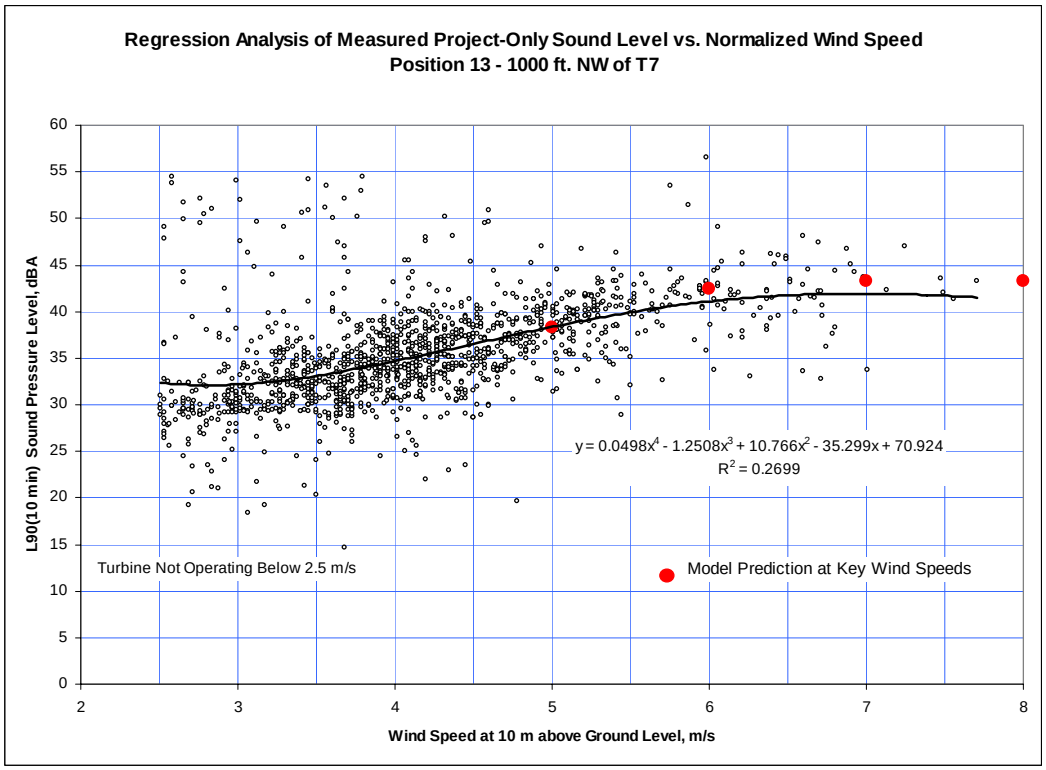

Figure 3.3.7.2

A comparison of this regression to others at 1000 ft. positions - Figure 3.3.6.2 (Pos. 14 – T11) and Figure 3.3.3.2 (Pos. 12 - Geising) – reveals that the mean sound levels occurring under normal conditions agree well with the model predictions and do not exceed the 43 to 45 dBA range[1] irrespective of what direction the test point was from the closest turbine. What differs is the prevalence and magnitude of noise extremes. The downwind monitoring stations, Positions 12 and 14, have a number of noise peaks, some of which are very pronounced, while the upwind location, Position 13, at the same 1000 ft. distance had almost no high noise spikes. Apparently wind direction is not a significant factor in day to day sound propagation but evidently plays a role in enhancing sound propagation during extreme or unstable wind conditions.

4.0 SUMMARY AND CONCLUSIONS

An extensive field survey has been carried out to measure the sound levels produced by the newly operational Noble Bliss Windpark Project in order to evaluate compliance with the local regulatory noise limit of 50 dBA at non-participating residences. A total of roughly 2000 10 minute samples were taken on a continuous basis over a 15 day period at each of 14 monitoring stations distributed throughout the project area and beyond.

Although winds were mostly light to moderate during the survey period, which ran from July 9 to July 24, 2008, readings were taken at all wind speeds up to 7.5 m/s (as measured at a standard elevation of 10 m). This upper wind speed was minimally sufficient to capture the full nominal range of noise from the GE Model 1.5sle wind turbines used in the project. At wind speeds of 7

[1] The range of predicted model values reflects varying contributions from neighboring turbines. The relatively low predicted maximum level of 43 dBA for the T7 1000 ft. position (Figure 3.3.7.2), for example, reflects this unit's isolation from other units.

m/s and higher the normal, steady-state sound emissions from this type of turbine remains constant – at least during normal wind conditions - since the rotor has reached its predetermined maximum rotational speed. Consequently, although it would have been preferable if higher wind speeds had occurred during the survey period, it is believed that the maximum noise levels under normal operating conditions were captured.

In general, it was found that sound levels produced exclusively by the project were substantially lower than the 50 dBA noise limit contained in the Town of Eagle's Wind Energy Conversion Facilities Siting Law (Dec. 2005) almost all of the time even at the closest residences to the project turbines. However, there were rare and intermittent occasions when project noise exceeded 50 dBA for brief periods, on the order of 10 to 20 minutes, during unsettled wind conditions. Quantitatively, these excursions were observed to occur 0.5% of the time at the one non-participating residences evaluated in the survey and up to 1.9% at participating residences at the minimum setback distance of 1000 feet. The specific results for the six critical receptor locations are tabulated below.

Table 4.0.1 *Summary of Results at Critical Receptor Positions*

Test Position	Project Participant	Applicable Noise Limit	Percentage of Time Sound Level Below 50 dBA (15 day Sample)
6 – Poust Residence	Y	n/a	99.0
8 – Flint Residence	Y	n/a	99.7
9 – Graves Residence	Y	n/a	99.9
11 – Zuwaski Residence	N	50	99.5
12 – Geising Residence	Y	n/a	98.1
13 – Byler Residence	Y	n/a	99.0

Prior to the survey an analytical noise model of the project was developed using standard assumptions of an omni-direction wind and a moderate ground absorption coefficient (per ISO 9613 [Ref. 4]) of 0.5. These predicted results were compared to actual measurements during 5, 6 and 7 m/s wind conditions at all positions and were found to agree extremely well with the mean measured levels at all positions, with some predictions slightly high, some slightly low and some right on the measured mean level.

In addition, the regression plots for each location indicate that turbine sound levels are not constant for any given wind speed or operating point and typically vary within a +/- 5 dBA band around the mean trend during normal conditions. This generally means that model predictions based on ISO 9613 with the above assumptions can be reliably interpreted as the actual level most likely to be observed at any moment - but that sound levels up to about 5 dBA higher *and* lower will occur on a regular basis. On rare occasions during unusual or unsettled wind conditions, such as a passing frontal system or sudden storm, sound levels may greatly increase by as much as 20 to 30 dBA over the predicted value at locations that are downwind of the nearest turbine or turbines but only for very short periods. The study results indicate that locations that are not downwind are unlikely to observe any significant increase in noise during these rare and short-lived occurrences.

END OF REPORT TEXT

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4. ISO 9613-2 *Acoustics – Attenuation of sound during propagation outdoors*, Part 2, "A general method of calculation", International Organization for Standardization, Geneva, Dec. 1989.

5. Program Policy *Assessing and Mitigating Noise Impacts*, New York State Department of Environmental Conservation (NYSDEC), Feb. 2001.