

# SOUND LEVEL ASSESSMENT REPORT

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## Dakota Range III Wind Project Roberts & Grant Counties, South Dakota

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## 1.0 EXECUTIVE SUMMARY

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The Dakota Range III Wind Project (the Project) is a proposed wind power electric generation facility expected to consist of up to 36 wind turbines in Roberts and Grant Counties, South Dakota. The Project is being developed by Apex Clean Energy, Inc. (Apex). Epsilon Associates, Inc. (Epsilon) has been retained by Apex to conduct a sound level modeling study for the Project. This report presents results of the study.

A sound level modeling analysis was conservatively conducted for 45 turbines, including 36 proposed wind turbine locations and 9 alternate locations and a collector substation. All wind turbines for this Project are proposed to be Vestas V136-4.2 units with serrated trailing edge blades. The purpose of this assessment is to predict worst-case sound levels generated by the facilities in Roberts and Grant Counties when the wind turbines are operational and to compare the modeling results to applicable limits. Sound levels from wind energy systems (WES) are limited by ordinance to 50 dBA at the closest principal and accessory structures in Roberts County and at any offsite residences, businesses, and buildings owned and/or maintained by a governmental entity in Grant County.

Using the Project specific data provided by Apex, the  $L_{eq}$  sound levels modeled at principal and accessory structures in Roberts County did not exceed 43 dBA and  $L_{eq}$  sound levels modeled in Grant County did not exceed 44 dBA. All sound levels are well below the limit of 50 dBA in Roberts and Grant Counties. Therefore, the Project meets the counties' requirements with respect to sound in the regulations.

## 2.0 INTRODUCTION

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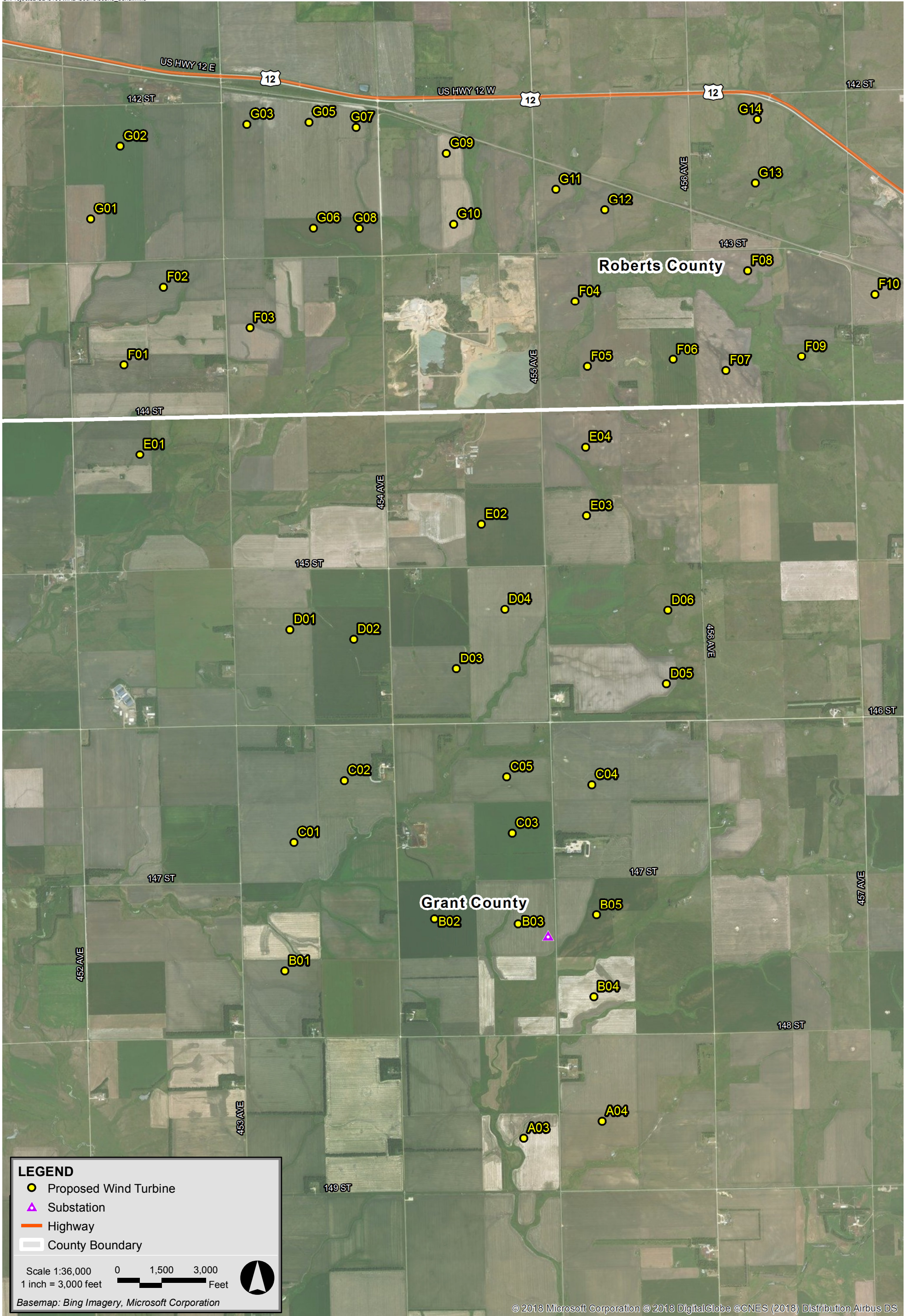
The Dakota Range III Wind Project to be located in Roberts and Grant Counties, South Dakota will consist of 36 Vestas wind turbines and a collector substation. A total of nine (9) alternate wind turbine locations are also proposed for the Project. The wind turbines will be Vestas V136-4.2 units with serrated trailing edge blades. The V136-4.2 wind turbines have a hub height of 105 meters and a rotor diameter of 136 meters. Figure 2-1 shows the locations of the 36 proposed and 9 alternate wind turbines over aerial imagery in Roberts and Grant Counties and the substation in Grant County.

A detailed discussion of sound from wind turbines is presented in a white paper prepared by the Renewable Energy Research Laboratory.<sup>1</sup> A few points are repeated herein. Wind turbine noise can originate from two different sources; mechanical sound from the interaction of turbine components and aerodynamic sound produced by the flow of air over the rotor blades. Prior to the 1990's, both sources were significant contributors to wind turbine noise. However, recent advances in wind turbine design have greatly reduced the contribution of mechanical noise. Aerodynamic noise has also been reduced in modern wind turbines due to slower rotational speeds and changes in materials of construction. Aerodynamic noise, in general, is broadband (has contributions from a wide range of frequencies). It originates from encounters of the wind turbine blades with localized airflow inhomogeneities and wakes from other turbine blades and from airflow across the surface of the blades, particularly the front and trailing edges. Aerodynamic sound generally increases with increasing wind speed up to a certain point, then typically remains constant, even with higher wind speeds. However, sound levels in general also increase with increasing wind speed with or without the presence of wind turbines.

This report presents the results of a sound level modeling analysis for the Project. The wind turbines were modeled with the Cadna/A software package using sound data from Vestas technical documents.

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<sup>1</sup> Renewable Energy Research Laboratory, Department of Mechanical and Industrial Engineering, University of Massachusetts at Amherst, Wind Turbine Acoustic Noise, June 2002, amended January 2006.



Dakota Range III Roberts County/Grant County, South Dakota

## 3.0 SOUND TERMINOLOGY

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There are several ways in which sound (noise) levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. The following information defines the sound level measurement terminology used in this analysis.

The decibel scale is logarithmic to accommodate the wide range of sound intensities found in the environment. A property of the decibel scale is that the sound pressure levels of two or more separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a 3-decibel increase (53 dB), which is equal to doubling in sound energy but not equal to a doubling in decibel quantity (100 dB). Thus, every 3-dB change in sound level represents a doubling or halving of sound energy. Relative to this characteristic, a change in sound levels of less than 3 dB is imperceptible to the human ear.

Another mathematical property of decibels is that if one source of noise is at least 10 dB louder than another source, then the total sound level is simply the sound level of the higher-level source. For example, a sound source at 60 dB plus another sound source at 47 dB is equal to 60 dB.

A sound level meter (SLM) that is used to measure sound is a standardized instrument.<sup>2</sup> It contains “weighting networks” (e.g., A-, C-, Z-weightings) to adjust the frequency response of the instrument. Frequencies, reported in Hertz (Hz), are detailed characterizations of sounds, often addressed in musical terms as “pitch” or “tone”. The most commonly used weighting network is the A-weighting because it most closely approximates how the human ear responds to sound at various frequencies. The A-weighting network is the accepted scale used for community sound level measurements; therefore, sounds are frequently reported as detected with a sound level meter using this weighting. A-weighted sound levels emphasize middle frequency sounds (i.e., middle pitched – around 1,000 Hz), and de-emphasize low and high frequency sounds. These sound levels are reported in decibels designated as “dBA”. Sound pressure levels for some common indoor and outdoor environments are shown in Figure 3-1.

Because the sounds in the environment vary with time, many different sound metrics may be used to quantify them. There are two typical methods used for describing variable sounds. These are exceedance levels and equivalent levels, both of which are derived from a large number of moment-to-moment A-weighted sound pressure level measurements. Exceedance levels are values from the cumulative amplitude distribution of all of the sound levels observed during a measurement period. Exceedance levels are designated  $L_n$ , where “n” is a value (typically an integer between 1 and 99) in terms of percentage. Equivalent

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<sup>2</sup> *American National Standard Specification for Sound Level Meters*, ANSI S1.4-1983 (R2006), published by the Standards Secretariat of the Acoustical Society of America, Melville, NY.

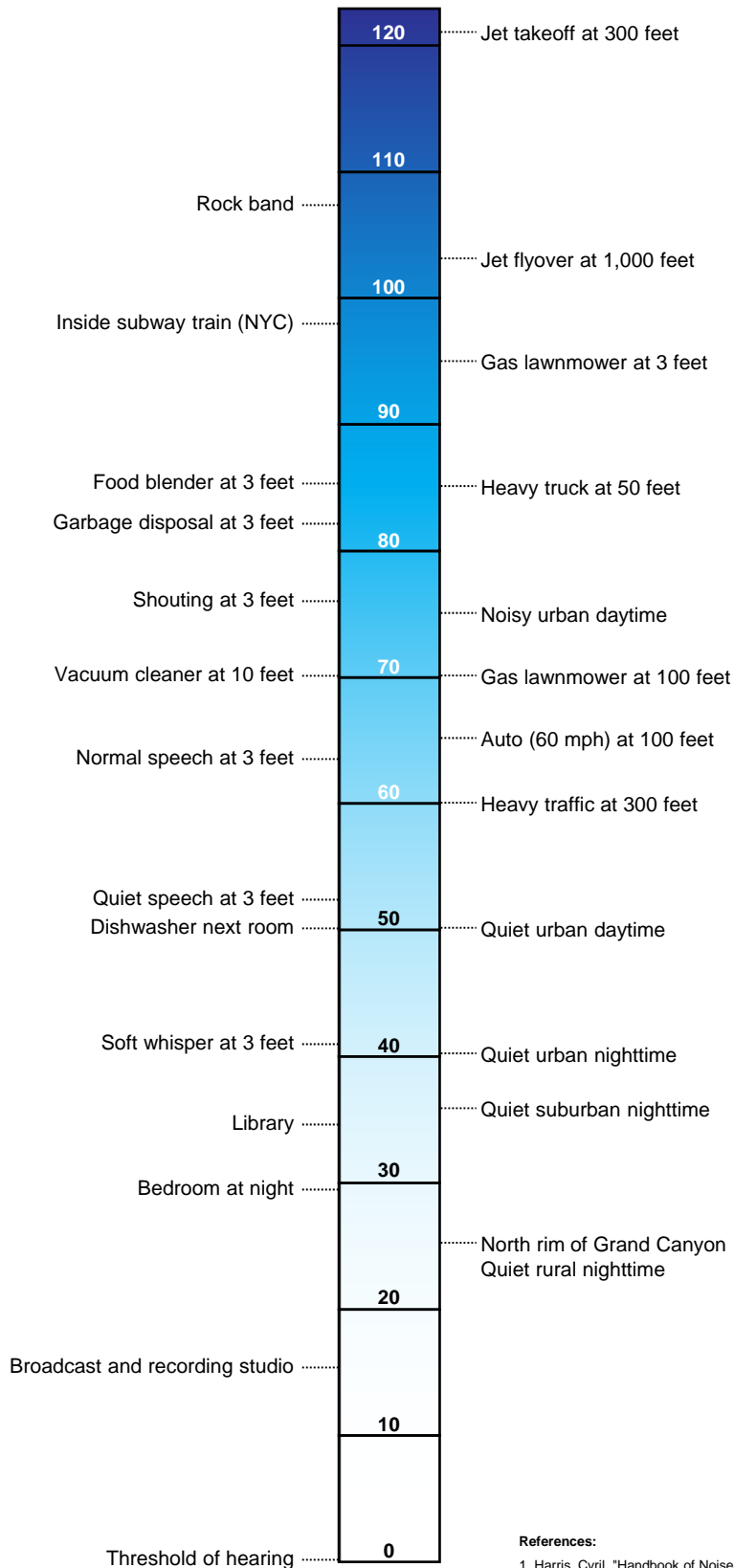
levels are designated  $L_{eq}$  and quantify a hypothetical steady sound that would have the same energy as the actual fluctuating sound observed. The two sound level metrics that are commonly reported in community noise monitoring and/or utilized in this report are described below.

- ◆  $L_{10}$  is the sound level exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The  $L_{10}$  is sometimes called the intrusive sound level because it is caused by occasional louder sounds like those from passing motor vehicles.
- ◆  $L_{90}$  is the sound level in dBA exceeded 90 percent of the time during a measurement period. The  $L_{90}$  is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when there are no obvious nearby intermittent noise sources.
- ◆  $L_{eq}$ , the equivalent level, is the level of a hypothetical steady sound that would have the same energy (*i.e.*, the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. The equivalent level is designated  $L_{eq}$  and is commonly A-weighted. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with time-averaged mean square sound pressure values, the  $L_{eq}$  is mostly determined by occasional loud noises.



Sound Pressure Level, dBA

**COMMON INDOOR SOUNDS** **COMMON OUTDOOR SOUNDS**



**References:**

- Harris, Cyril, "Handbook of Noise Acoustical Measurements and Noise Control", p 1-10., 1998
- "Controlling Noise", USAF, AFMC, AFDT, Elgin AFB, Fact Sheet, August 1996
- California Dept. of Trans., "Technical Noise Supplement", Oct, 1998

## 4.0 NOISE REGULATIONS

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### 4.1 Federal Regulations

There are no federal noise regulations applicable to this Project.

### 4.2 South Dakota State Regulations

There are no state noise regulations applicable to this Project.

### 4.3 Local Regulations

#### 4.3.1 *Roberts County*

The section of the proposed Dakota Range III Wind Project within Roberts County, SD is subject to the following sound level requirements in Section 1603.03(5) of Ordinance #20 of Roberts County, Noise subsection of General Provisions for Wind Energy System (WES) Requirements:

*Noise level shall not exceed 50 dB (A), average A-weighted Sound pressure<sup>3</sup> including constructive interference effects as measured at the exterior wall<sup>4</sup> of the closest principal and accessory structures.*

All receptors were evaluated in this analysis against the 50 dBA limit.

#### 4.3.2 *Grant County*

The section of the proposed Dakota Range III Wind Project within Grant County, SD is subject to the following sound level requirements in Section 1211.04(13) of the Zoning Ordinance for Grant County, Noise subsection of General Provisions for Energy Systems (WES):

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<sup>3</sup> Epsilon assumes the ordinance intends to read “sound pressure level” reported in dBA, whereas “sound pressure” is reported in units of Pascals.

<sup>4</sup> If sound levels were measured directly on or in front of an exterior wall, the sound level would be artificially higher due to reflections. It is assumed that this is not the intent of the ordinance; therefore, it is assumed compliance would be determined approximately 50 feet from the wall in the direction of the source.

*Noise level shall not exceed 50 dBA, average A-weighted Sound pressure<sup>5</sup> including constructive interference effects at the perimeter of the principal and accessory structures of existing off-site residences, businesses, and buildings owned and/or maintained by a governmental entity.*

All receptors were evaluated in this analysis against the 50 dBA limit.

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<sup>5</sup> Epsilon assumes the ordinance intends to read “sound pressure level” reported in dBA, whereas “sound pressure” is reported in units of Pascals.

## 5.0 FUTURE CONDITIONS

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### 5.1 Equipment and Operating Conditions

The sound level analysis conservatively includes 45 wind turbines, although only up to 36 turbines will be constructed (nine locations are alternate locations). Global coordinates for the 45 wind turbines are provided in Appendix A. All wind turbines are Vestas V136-4.2 serrated trailing edge blade units. The V136-4.2 wind turbines have a hub height of 105 meters and a rotor diameter of 136 meters. A technical report from Vestas<sup>6</sup> was provided by Apex which documented the expected sound power levels associated with the Vestas V136-4.2 wind turbine. These third octave-band sound power levels represent an “upper 95% confidence limit for the wind turbine performance” and do not include any additional uncertainty factor. Octave-band sound levels were calculated from the third octave-band levels representing the maximum sound power level for the sound modeling.

In addition to the wind turbines, there will be a collector substation associated with the Project. The substation is proposed to be located southwest of wind turbine #B03 as shown in Figure 5-1. One 167 megavolt-ampere (MVA) transformer is proposed for the substation. Epsilon has estimated octave-band sound power levels using the MVA rating provided by Apex and techniques in the Electric Power Plant Environmental Noise Guide (Edison Electric Institute), Table 4.5 Sound Power Levels of Transformers. Table 5-1 below summarizes the sound power level data used in the modeling.

**Table 5-1 Modeled Substation Transformer Sound Power Levels**

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Maximum Rating	Broadband dBA	Sound Power Levels per Octave-Band Center Frequency [Hz]								
		31.5 dB	63 dB	125 dB	250 dB	500 dB	1k dB	2k dB	4k dB	8k dB
167 MVA	102	98	104	106	101	101	95	90	85	78

### 5.2 Modeling Methodology

The noise impacts associated with the proposed wind turbines were predicted using the Cadna/A noise calculation software developed by DataKustik GmbH. This software uses the ISO 9613-2 international standard for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). The benefits of this software are a more refined set of computations due to the inclusion of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric

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<sup>6</sup> Vestas Wind Systems A/S, V136-4.0 MW Third octave noise emission, 2017. Confidential documentation and information.

absorption. The Cadna/A software allows for octave band calculation of sound from multiple sources as well as computation of diffraction.

Inputs and significant parameters employed in the model are described below:

- ◆ *Project Layout:* A project layout dated October 2, 2018 was provided by Apex. The 36 proposed wind turbines and 9 alternates were input into the model. The substation transformer location was provided by Apex on April 27, 2018. The proposed wind turbines and substation are shown in Figure 5-1.
- ◆ *Modeling Locations:* A modeling receptor dataset was provided by Apex for occupied receptors within 1.5 miles of any proposed wind turbine in Roberts and Grant Counties on October 2, 2018. A second dataset was provided by Apex on October 5, 2018 that contained unoccupied structures. The total 572 receptors from these datasets (209 in Roberts County, 363 in Grant County) were input into the Cadna/A model. These were all conservatively evaluated as receptors and modeled as discrete points at a height of 1.5 meters above ground level to mimic the ears of a typical standing person. These locations are shown in Figure 5-1. Participation status for each of the 572 modeling receptors was assigned based on information provided in each dataset. The receptors are indicated as either participating or non-participating on Figure 5-1.
- ◆ *Terrain Elevation:* Elevation contours for the modeling domain were directly imported into Cadna/A which allowed for consideration of terrain shielding where appropriate. The terrain height contour elevations for the modeling domain were generated from elevation information derived from the National Elevation Dataset (NED) developed by the U.S. Geological Survey.
- ◆ *Source Sound Levels:* Octave-band sound power levels for the Vestas V136-4.2 wind turbines calculated from the provided third octave-band levels in technical report were input to the model. These sound levels represent “worst-case” operational sound level emissions. The substation transformer sound power levels as presented in Table 5-1 were input to the model.
- ◆ *Uncertainty factor:* No uncertainty factor was provided by the wind turbine manufacturer; however, based on experience with other wind turbine manufacturers, an uncertainty factor of 2.0 dBA was assumed and added to the sound power level for each modeled wind turbine.
- ◆ *Ground Attenuation:* Spectral ground absorption was calculated using a G-factor of 0.5 which corresponds to “mixed ground” consisting of both hard and porous ground cover.

The highest wind turbine sound power level for each wind turbine type including uncertainty was input into Cadna/A to model wind turbine generated sound pressure levels during conditions when worst-case sound power levels are expected. Sound pressure levels due to operation of all 45 wind turbines and the substation transformer were conservatively modeled at 572 receptors in Roberts and Grant Counties. In addition to modeling at discrete points, sound levels were also modeled throughout a large grid of receptor points, each spaced 25 meters apart to allow for the generation of sound level isolines.

Several modeling assumptions inherent in the ISO 9613-2 calculation methodology, or selected as conditional inputs by Epsilon, were implemented in the Cadna/A model to ensure conservative results (i.e., higher sound levels), and are described below:

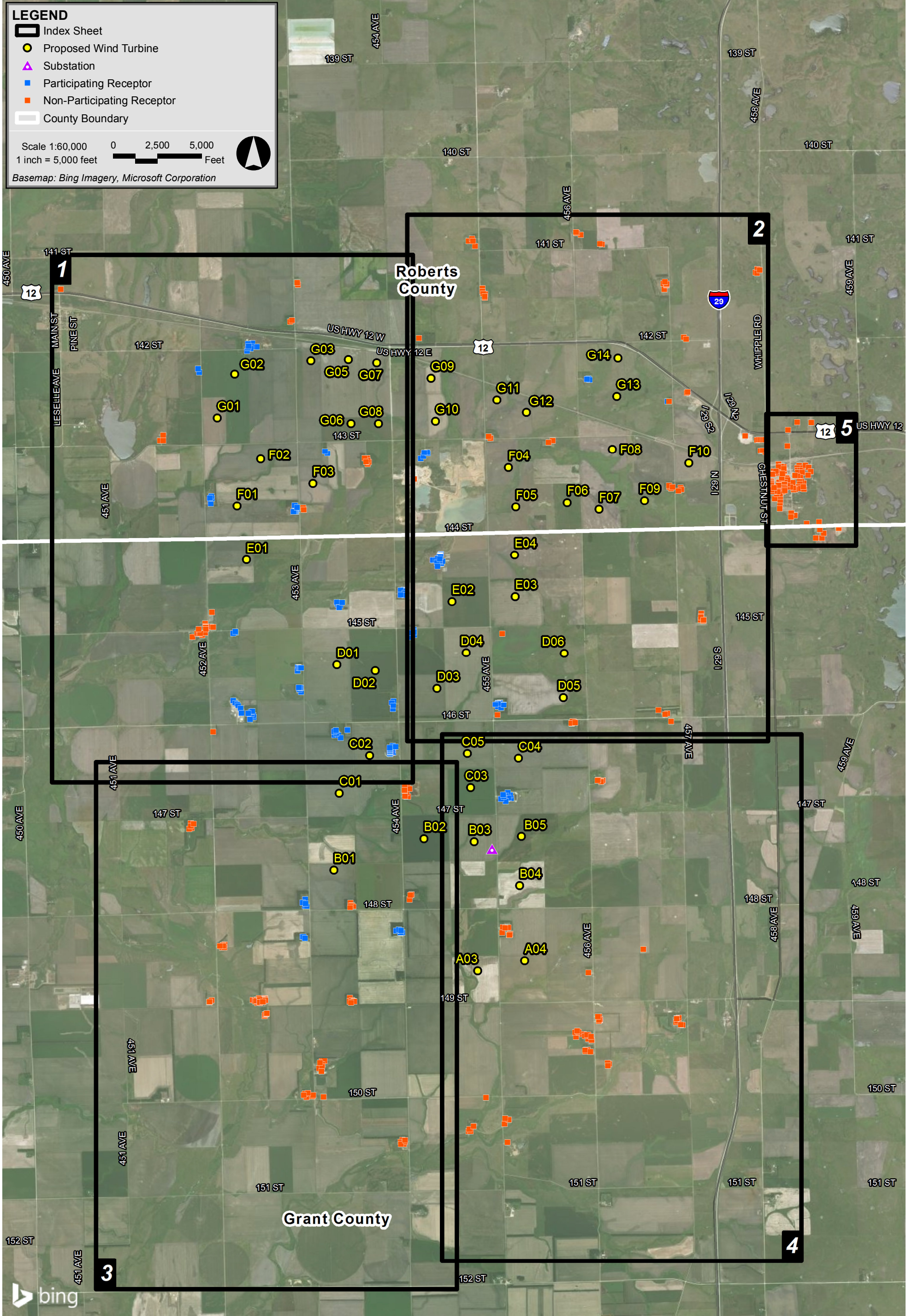
- ◆ All modeled sources were assumed to be operating simultaneously and at the design wind speed corresponding to the greatest sound level impacts.
- ◆ As per ISO 9613-2, the model assumed favorable conditions for sound propagation, corresponding to a moderate, well-developed ground-based temperature inversion, as might occur on a calm, clear night or equivalently downwind propagation.
- ◆ Meteorological conditions assumed in the model (temperature=10°C & relative humidity=70%) were selected to minimize atmospheric attenuation in the 500 Hz and 1 kHz octave bands where the human ear is most sensitive.
- ◆ No additional attenuation due to tree shielding, air turbulence, or wind shadow effects was considered in the model.

### 5.3 Sound Level Results

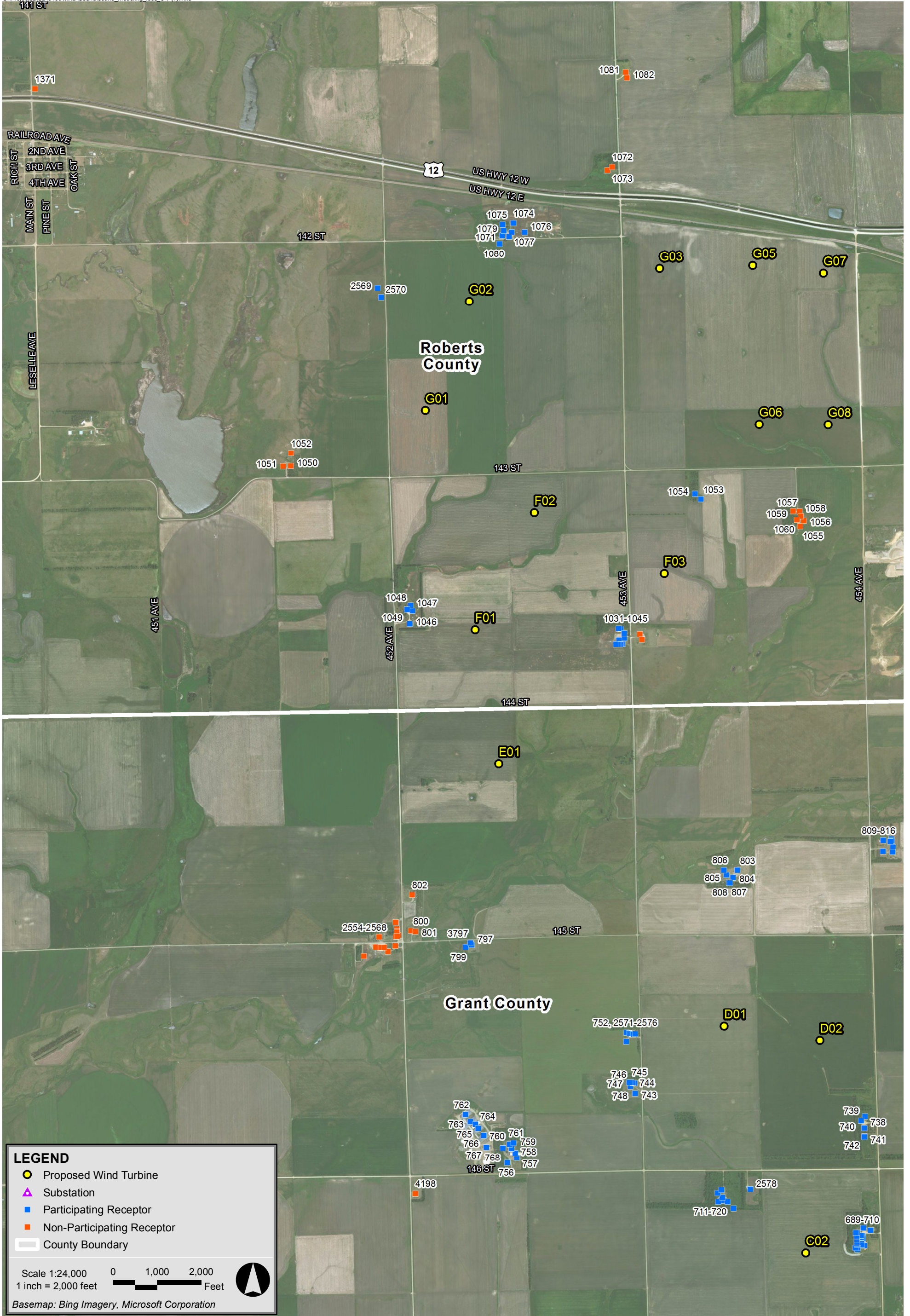
Table B-1 in Appendix B shows the predicted “Project-Only” broadband (dBA)  $L_{eq}$  sound levels under conditions specified in the previous section for the 209 receptors in Roberts County. These sound levels range from 27 to 43 dBA.

Table B-2 in Appendix B shows the predicted “Project-Only” broadband (dBA)  $L_{eq}$  sound levels for the 363 receptors in Grant County. These sound levels range from 25 to 44 dBA.

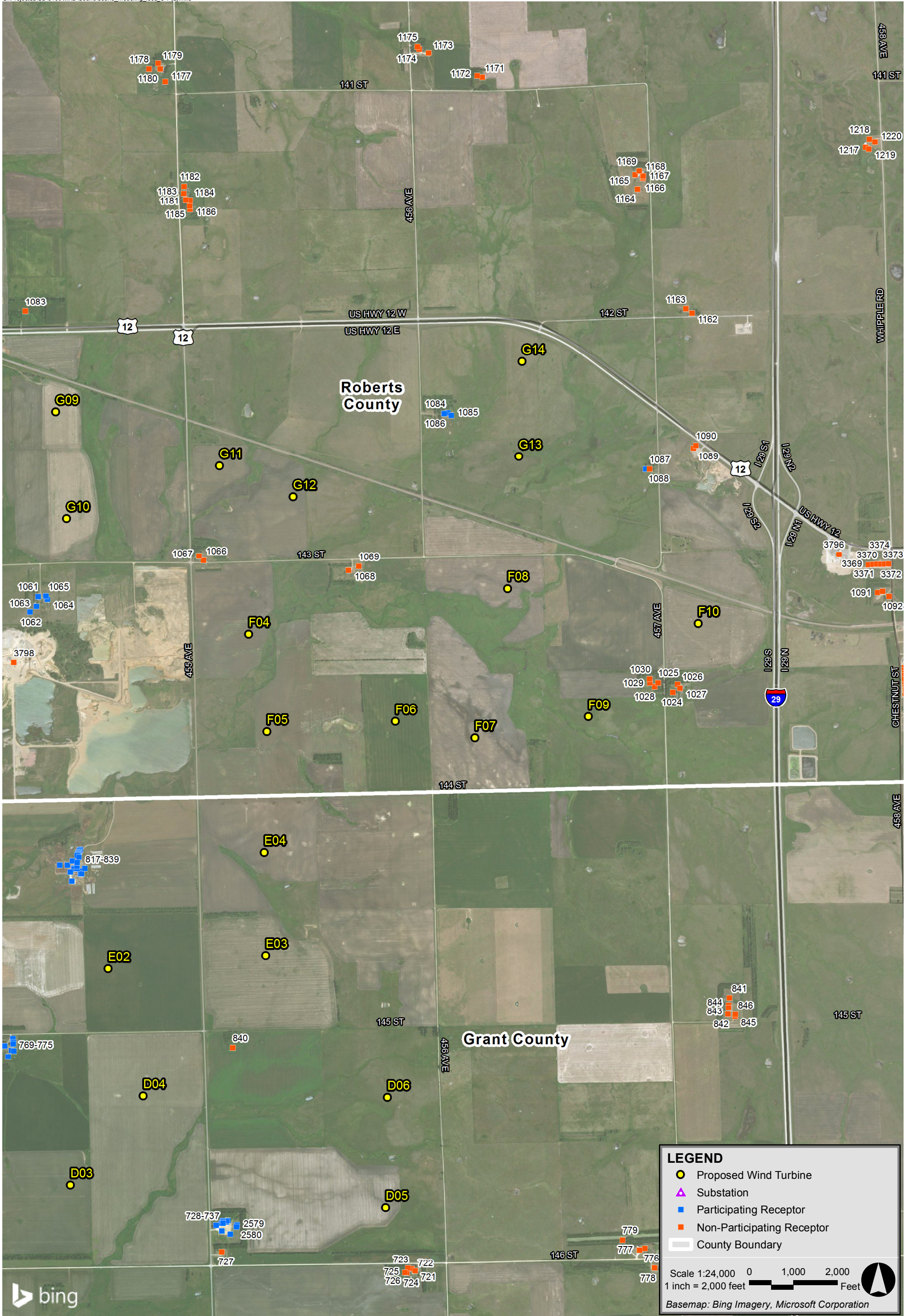
In addition to the 572 receptor points,  $L_{eq}$  sound level isolines generated from the modeling grid are presented in Figure 5-2.



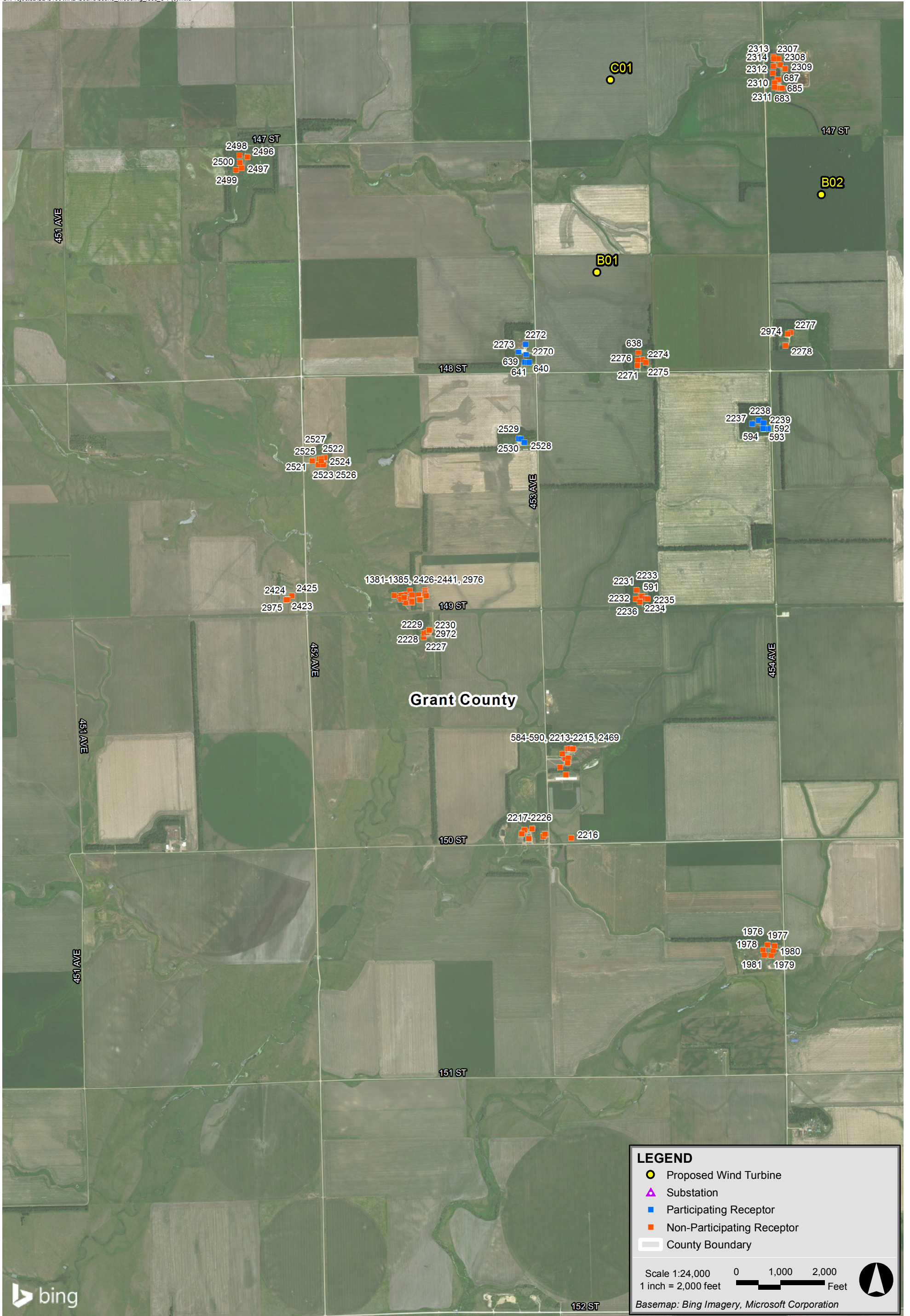
Dakota Range III Roberts County/Grant County, South Dakota







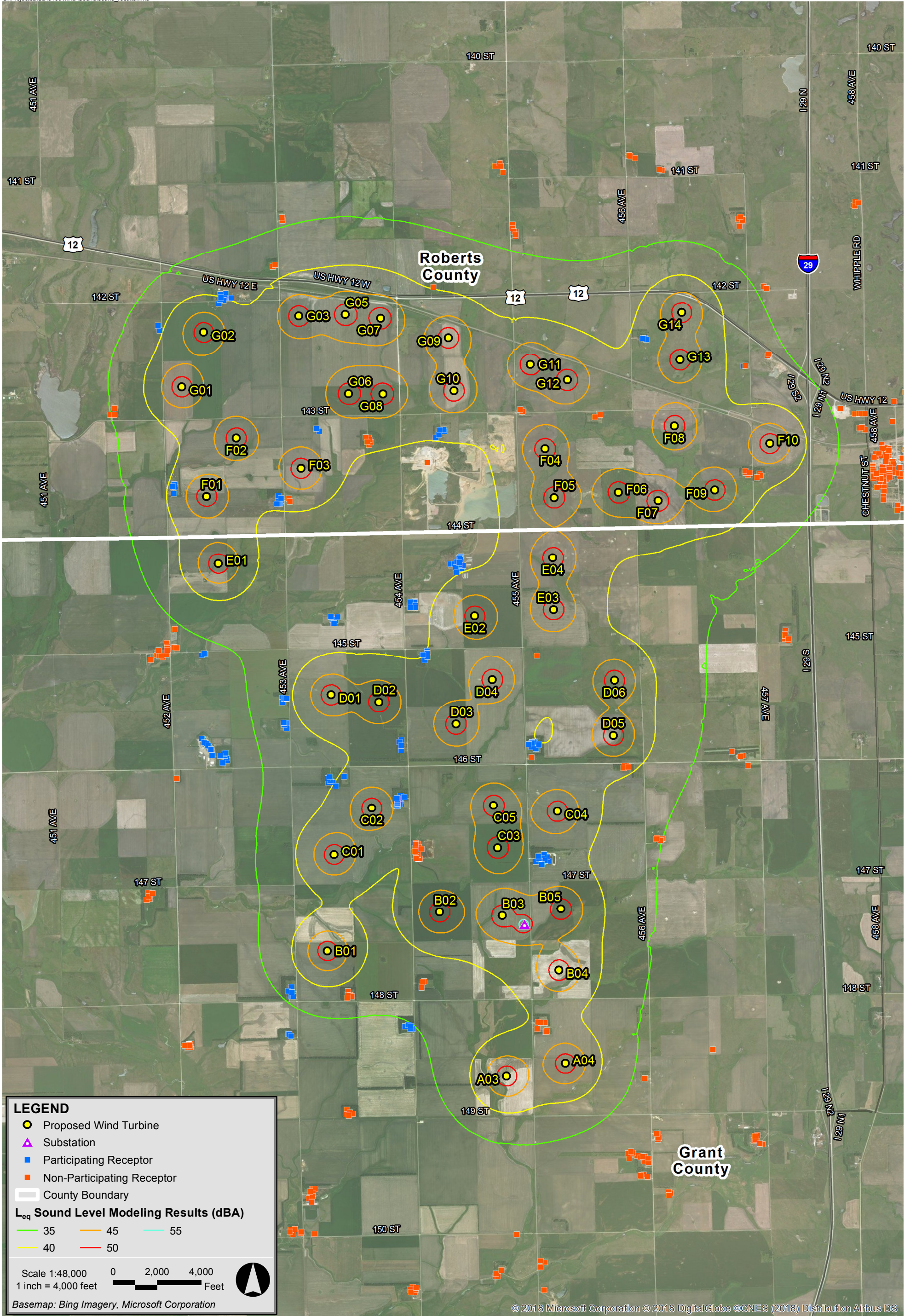
Dakota Range III Roberts County/Grant County, South Dakota







Dakota Range III Roberts County/Grant County, South Dakota



Dakota Range III Roberts County/Grant County, South Dakota

## 6.0 CONSTRUCTION NOISE

The majority of the construction activity related to the Dakota Range III Wind Project will occur around each of the wind turbine sites. By its very nature, construction activity moves around the site. Full construction activity will generally occur at one wind turbine site at a time, although there will be some overlap at adjacent sites for maximum efficiency. There are generally three phases of construction at a wind energy project – excavation, foundations, and turbine erection. Table 6-1 presents the equipment sound levels for the louder pieces of construction equipment expected to be used at this site along with their phase of construction. Reference sound source information in Table 6-1 was obtained from either Epsilon field measurements or the FHWA’s Roadway Construction Noise Model database.

Construction of the Project is expected to take multiple months. Construction of a single wind turbine from excavation to foundation pouring to turbine erection is roughly a three week process. However, work will not proceed in that order for each wind turbine to be erected. For example, all foundations will typically be poured before any turbine erection work begins. Excavation work is expected to occur from early morning to the evening. Concrete foundation work and turbine erection work could extend into the overnight hours depending on the weather and timing of a concrete pour which must be continuous. Excavation work will typically be daytime only.

**Table 6-1 Sound Levels for Construction Noise Sources**

Phase	Equipment	Sound Level at 50 feet (dBA)
Excavation	Grader	85
Excavation	Bulldozer	82
Excavation	Front-end loader	79
Excavation	Backhoe	78
Excavation	Dump truck	76
Excavation	Roller	80
Excavation	Excavator	81
Excavation	Rock drill	89
Foundation	Concrete mixer truck	79
Foundation	Concrete pump truck	81
Foundation	Concrete batch plant	83
Turbine erection	Large crane #1	81
Turbine erection	Large crane #2	81
Turbine erection	Component delivery truck	84
Turbine erection	Air compressor	78

## 7.0 EVALUATION OF SOUND LEVELS

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### 7.1 Modeled Sound Levels

All modeled sound levels, as output from Cadna/A and presented in Appendix B, are A-weighted equivalent sound levels ( $L_{eq}$ , dBA).

### 7.2 Roberts County Evaluation

The Project is subject to the requirements contained in the zoning ordinance of Roberts County, South Dakota for WES. The sound level limit in this regulation for a WES is 50 dBA at the closest principal and accessory structures. The predicted worst-case  $L_{eq}$  sound levels from the Dakota Range III Wind Project are below the 50 dBA limit at all modeled structures in Roberts County. A review of Table B-1 in Appendix B shows the highest  $L_{eq}$  sound level for an occupied structure to be 43 dBA. Therefore, the Project meets the requirements with respect to sound in the county regulation.

### 7.3 Grant County Evaluation

The Project is subject to the requirements contained in the zoning ordinance for Grant County, South Dakota for WES. The sound level limit in this regulation for a WES is 50 dBA at the perimeter of the principal and accessory structures of existing offsite residences, businesses, and buildings owned and/or maintained by a governmental entity. The predicted worst-case  $L_{eq}$  sound levels from the Dakota Range III Wind Project are below the 50 dBA limit at all modeled structures in Grant County. A review of Table B-2 in Appendix B shows the highest  $L_{eq}$  sound level for an occupied structure to be 43 dBA. Therefore, the Project meets the requirements with respect to sound in the county regulation.

## 8.0 CONCLUSIONS

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A comprehensive sound level analysis was conducted for the proposed Dakota Range III Project within Roberts and Grant Counties. A total of 36 wind turbines are proposed for this Project. Sound levels resulting from the operation of 36 wind turbines and 9 alternates were calculated at 203 receptor points (i.e., existing off-site residences, businesses, churches, and buildings owned and/or maintained by a governmental entity), and isolines were generated from a grid encompassing the area surrounding the wind turbines using the proposed layout. The  $L_{eq}$  sound levels modeled at occupied receptors in Roberts County<sup>7</sup> were at or below 43 dBA and sound levels modeled at occupied receptors in Grant County<sup>8</sup> were at or below 43 dBA. All  $L_{eq}$  sound levels are below the respective county limit of 50 dBA. Therefore, the Project meets the requirements with respect to sound in the regulations.

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<sup>7</sup> Excludes accessory structures for which sound levels ranged from 27 to 43 dBA in Roberts County.

<sup>8</sup> Excludes accessory structures for which sound levels ranged from 24 to 44 dBA in Grant County.



## Appendix A

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### Wind Turbine Coordinates

**Table A-1: Wind Turbine Coordinates (LAY-051)**

Wind Turbine ID	Coordinates NAD83 UTM Zone 14N (meters)	
	X (Easting)	Y (Northing)
G01	644069.37	5019682.13
G02	644372.97	5020436.04
F01	644413.60	5018170.33
F02	644820.83	5018977.35
G03	645684.00	5020660.46
F03	645716.57	5018555.79
D01	646129.26	5015433.54
C01	646172.00	5013227.00
G05	646326.44	5020682.18
C02	646692.12	5013869.38
D02	646789.72	5015334.55
G07	646814.64	5020629.19
G08	646847.63	5019583.70
G09	647748.85	5020361.86
G10	647824.65	5019627.47
D03	647852.00	5015027.00
E02	648111.37	5016522.39
D04	648354.10	5015642.49
C03	648428.99	5013322.19
G11	648880.05	5019991.34
F04	649080.58	5018830.64
E04	649188.49	5017323.04
E03	649199.33	5016610.85
F05	649206.60	5018155.00
C04	649252.00	5013827.00
B04	649274.15	5011633.29
B05	649302.08	5012478.13
D06	650038.45	5015632.43
D05	650025.44	5014871.27
F06	650093.66	5018226.66
F08	650866.95	5019143.94
F07	650640.88	5018111.76
G13	650943.57	5020055.05
G14	650965.75	5020710.65
F09	651423.03	5018259.05
F10	652182.12	5018903.20
E01	644576.16	5017243.74
B01	646078.29	5011898.34
C05	648372.00	5013907.00
G06	646372.00	5019587.00
B02	647627.16	5012437.01
B03	648491.74	5012385.54
A03	648550.55	5010167.89
A04	649361.55	5010341.75
G12	649388.59	5019776.99

## Appendix B

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### Predicted Wind Energy System Sound Levels at Receptors

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
669	654426.49	5017892.36	Non-Participating	29
670	654209.18	5017869.34	Non-Participating	29
956	654009.01	5018003.84	Non-Participating	30
957	653947.62	5018047.23	Non-Participating	30
958	653727.49	5018884.37	Non-Participating	32
959	653644.94	5018764.78	Non-Participating	32
960	653647.06	5018716.10	Non-Participating	32
961	653686.22	5018751.02	Non-Participating	32
962	653727.49	5018733.03	Non-Participating	32
963	653732.78	5018803.94	Non-Participating	32
964	653775.12	5018820.87	Non-Participating	31
965	653779.35	5018775.37	Non-Participating	31
966	653796.28	5018756.32	Non-Participating	31
967	653812.16	5018729.86	Non-Participating	31
968	653789.93	5018684.35	Non-Participating	31
969	653801.57	5018650.48	Non-Participating	31
970	653830.15	5018654.72	Non-Participating	31
971	653872.48	5018648.37	Non-Participating	31
972	653824.86	5018766.90	Non-Participating	31
973	653821.68	5018837.81	Non-Participating	31
974	653773.00	5018844.16	Non-Participating	31
975	653729.61	5018837.81	Non-Participating	32
976	654082.03	5018861.09	Non-Participating	30
977	654097.91	5018818.76	Non-Participating	30
978	654051.34	5018819.82	Non-Participating	30
979	654060.87	5018781.72	Non-Participating	30
980	654100.02	5018783.83	Non-Participating	30
981	654098.97	5018738.32	Non-Participating	30
982	654058.75	5018740.44	Non-Participating	30
983	654134.95	5018784.89	Non-Participating	30
984	654136.01	5018744.67	Non-Participating	30
985	654104.26	5018656.83	Non-Participating	30
986	654054.52	5018682.23	Non-Participating	30
987	654011.12	5018692.82	Non-Participating	30
988	654193.16	5018864.27	Non-Participating	30
989	654247.13	5018830.40	Non-Participating	30
990	654284.17	5018758.43	Non-Participating	30
991	654237.61	5018695.99	Non-Participating	30
992	654160.35	5018557.35	Non-Participating	30
993	654118.02	5018592.27	Non-Participating	30
994	654088.38	5018585.92	Non-Participating	30
995	654096.85	5018546.77	Non-Participating	30
996	654075.68	5018498.08	Non-Participating	30
997	654075.68	5018466.33	Non-Participating	30
998	654167.76	5018458.92	Non-Participating	30
999	654156.12	5018498.08	Non-Participating	30
1000	654013.24	5018454.69	Non-Participating	30

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
1001	653986.78	5018446.22	Non-Participating	30
1002	653980.43	5018480.09	Non-Participating	31
1003	653975.14	5018568.99	Non-Participating	31
1004	653933.87	5018491.73	Non-Participating	31
1005	653876.72	5018492.79	Non-Participating	31
1006	653880.95	5018543.59	Non-Participating	31
1007	653833.32	5018607.09	Non-Participating	31
1008	653789.93	5018604.97	Non-Participating	31
1009	653789.93	5018572.17	Non-Participating	31
1010	653785.70	5018529.83	Non-Participating	31
1011	653792.05	5018446.22	Non-Participating	31
1012	653793.11	5018411.30	Non-Participating	31
1013	653755.01	5018415.53	Non-Participating	31
1014	653746.54	5018463.16	Non-Participating	31
1015	653702.09	5018464.22	Non-Participating	32
1016	653707.38	5018314.99	Non-Participating	31
1017	653758.18	5018316.05	Non-Participating	31
1018	653751.83	5018374.26	Non-Participating	31
1019	653660.82	5018297.00	Non-Participating	32
1020	653758.18	5018239.85	Non-Participating	31
1021	653751.83	5018171.06	Non-Participating	31
1022	653750.77	5018124.49	Non-Participating	31
1023	653942.33	5017978.44	Non-Participating	30
1024	652007.10	5018428.62	Non-Participating	42
1025	651904.31	5018493.71	Non-Participating	43
1026	652040.04	5018481.80	Non-Participating	42
1027	652055.92	5018455.21	Non-Participating	42
1028	651881.29	5018466.72	Non-Participating	43
1029	651848.75	5018492.91	Non-Participating	43
1030	651846.37	5018518.31	Non-Participating	43
1031	645549.34	5018139.28	Non-Participating	42
1032	645441.78	5018112.69	Participating	41
1033	645405.27	5018099.60	Participating	41
1034	645417.57	5018175.80	Participating	42
1035	645401.70	5018177.38	Participating	42
1036	645562.04	5018101.98	Non-Participating	42
1037	645441.78	5018144.84	Participating	42
1038	645429.08	5018071.42	Participating	41
1039	645424.32	5018071.42	Participating	41
1040	645417.57	5018071.42	Participating	41
1041	645412.41	5018071.02	Participating	41
1042	645405.27	5018070.62	Participating	41
1043	645398.13	5018069.83	Participating	41
1044	645391.78	5018069.83	Participating	41
1045	645384.63	5018069.43	Participating	41
1046	643962.03	5018210.66	Participating	42
1047	643979.49	5018300.61	Participating	42

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
1048	643968.38	5018335.54	Participating	41
1049	643942.45	5018308.02	Participating	41
1050	643141.20	5019297.31	Non-Participating	35
1051	643087.63	5019295.33	Non-Participating	35
1052	643142.39	5019386.61	Non-Participating	36
1053	645969.02	5019070.40	Participating	42
1054	645928.01	5019106.78	Participating	42
1055	646654.96	5018883.21	Non-Participating	41
1056	646678.77	5018921.57	Non-Participating	41
1057	646650.99	5018984.41	Non-Participating	42
1058	646657.60	5018952.66	Non-Participating	41
1059	646606.01	5018985.74	Non-Participating	42
1060	646631.14	5018927.53	Non-Participating	41
1061	647630.61	5019088.92	Participating	41
1062	647573.72	5018982.43	Participating	40
1063	647616.72	5019021.46	Participating	41
1064	647692.13	5019070.40	Participating	41
1065	647682.86	5019092.23	Participating	41
1066	648770.30	5019338.96	Non-Participating	43
1067	648739.88	5019368.72	Non-Participating	43
1068	649770.43	5019268.18	Non-Participating	42
1069	649840.55	5019297.28	Non-Participating	42
1071	644598.95	5020889.63	Participating	41
1072	645356.99	5021362.71	Non-Participating	38
1073	645326.03	5021338.90	Non-Participating	38
1074	644677.53	5020973.77	Participating	39
1075	644602.13	5020963.45	Participating	40
1076	644754.53	5020911.06	Participating	40
1077	644664.04	5020911.86	Participating	40
1078	644646.58	5020880.90	Participating	41
1079	644610.06	5020920.59	Participating	40
1080	644582.28	5020830.89	Participating	42
1081	645450.73	5022016.36	Non-Participating	34
1082	645459.86	5021977.07	Non-Participating	35
1083	647540.28	5021057.51	Non-Participating	40
1084	650455.16	5020356.05	Participating	42
1085	650478.98	5020337.00	Participating	42
1086	650430.29	5020350.23	Participating	41
1087	651845.75	5019968.54	Non-Participating	38
1088	651820.09	5019967.22	Participating	38
1089	652148.21	5020111.75	Non-Participating	36
1090	652165.41	5020130.93	Non-Participating	36
1091	653419.21	5019117.51	Non-Participating	33
1092	653498.58	5019091.05	Non-Participating	33
1093	653454.27	5019124.78	Non-Participating	33
1095	653878.92	5019204.82	Non-Participating	31
1096	653892.81	5019481.31	Non-Participating	31

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
1097	654050.90	5019609.63	Non-Participating	30
1098	654293.66	5019607.65	Non-Participating	29
1162	652138.05	5021042.12	Non-Participating	34
1163	652096.38	5021072.55	Non-Participating	34
1164	651763.66	5021900.70	Non-Participating	32
1165	651747.13	5021999.92	Non-Participating	32
1166	651799.38	5021975.44	Non-Participating	32
1167	651800.70	5021983.38	Non-Participating	32
1168	651802.69	5021991.98	Non-Participating	32
1169	651774.25	5022027.04	Non-Participating	32
1171	650692.76	5022671.96	Non-Participating	31
1172	650657.04	5022683.21	Non-Participating	31
1173	650323.00	5022839.31	Non-Participating	29
1174	650256.86	5022865.77	Non-Participating	29
1175	650244.29	5022880.98	Non-Participating	30
1177	648505.80	5022642.72	Non-Participating	31
1178	648394.67	5022729.51	Non-Participating	31
1179	648456.06	5022768.67	Non-Participating	31
1180	648470.34	5022730.04	Non-Participating	31
1181	648648.67	5021826.75	Non-Participating	34
1182	648635.97	5021919.35	Non-Participating	34
1183	648632.80	5021869.08	Non-Participating	34
1184	648676.72	5021823.04	Non-Participating	34
1185	648673.54	5021782.83	Non-Participating	34
1186	648675.66	5021761.13	Non-Participating	34
1217	653334.91	5022188.01	Non-Participating	28
1218	653362.03	5022242.91	Non-Participating	28
1219	653358.73	5022176.11	Non-Participating	28
1220	653401.72	5022226.38	Non-Participating	28
1371	641377.12	5021901.76	Non-Participating	27
2464	653885.69	5018617.60	Non-Participating	31
2569	643740.41	5020526.47	Participating	39
2570	643763.90	5020463.66	Participating	40
3369	653357.06	5019308.47	Non-Participating	33
3370	653386.66	5019309.46	Non-Participating	33
3371	653412.09	5019310.84	Non-Participating	33
3372	653442.11	5019311.42	Non-Participating	33
3373	653467.54	5019311.97	Non-Participating	33
3374	653494.22	5019312.94	Non-Participating	32
3769	653603.40	5018596.29	Non-Participating	32
3770	653604.82	5018578.43	Non-Participating	32
3771	653605.25	5018559.25	Non-Participating	32
3772	653606.32	5018544.38	Non-Participating	32
3773	653606.78	5018519.91	Non-Participating	32
3774	653738.12	5018572.85	Non-Participating	31
3775	653833.37	5018573.34	Non-Participating	31
3776	653746.30	5018527.91	Non-Participating	31

**Table B-1: Sensitive Receptor Results by Receptor - Roberts County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
3777	653783.39	5018643.52	Non-Participating	31
3778	653830.24	5018539.59	Non-Participating	31
3779	653824.23	5018486.98	Non-Participating	31
3780	653711.74	5018495.32	Non-Participating	32
3781	653836.59	5018462.57	Non-Participating	31
3782	653835.10	5018431.80	Non-Participating	31
3783	653698.14	5018375.86	Non-Participating	32
3784	653712.83	5018413.97	Non-Participating	32
3785	653654.57	5018423.59	Non-Participating	32
3786	653610.61	5018419.39	Non-Participating	32
3787	653608.95	5018483.21	Non-Participating	32
3788	653609.72	5018462.71	Non-Participating	32
3789	653612.12	5018445.52	Non-Participating	32
3790	653731.26	5018526.38	Non-Participating	32
3791	653653.83	5018482.45	Non-Participating	32
3792	653684.55	5018762.40	Non-Participating	32
3793	653822.23	5018807.10	Non-Participating	31
3794	653619.64	5018711.28	Non-Participating	32
3795	653796.87	5018723.96	Non-Participating	31
3796	653153.96	5019379.44	Non-Participating	34
3798	647460.57	5018633.20	Non-Participating	38



**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
569	650655.61	5009314.95	Non-Participating	31
570	650655.44	5009322.09	Non-Participating	31
571	650655.88	5009328.95	Non-Participating	31
572	650812.37	5008555.08	Non-Participating	28
573	650357.33	5009074.91	Non-Participating	31
574	650361.64	5009076.05	Non-Participating	31
575	650367.78	5009075.16	Non-Participating	31
576	650373.62	5009074.85	Non-Participating	31
577	650353.13	5009075.55	Non-Participating	31
578	650418.63	5008803.51	Non-Participating	30
579	650424.60	5008803.66	Non-Participating	30
580	650430.12	5008803.94	Non-Participating	30
581	650435.65	5008803.92	Non-Participating	30
582	650440.88	5008804.04	Non-Participating	30
584	645856.45	5008543.80	Non-Participating	27
585	645863.36	5008543.59	Non-Participating	27
586	645872.28	5008610.60	Non-Participating	27
587	645881.05	5008610.62	Non-Participating	27
588	645893.33	5008612.76	Non-Participating	27
589	645913.20	5008609.50	Non-Participating	27
590	645825.23	5008480.74	Non-Participating	27
591	646381.49	5009661.58	Non-Participating	30
592	647256.80	5010821.58	Participating	35
593	647235.37	5010818.40	Participating	35
594	647223.68	5010820.21	Participating	35
595	649109.27	5010799.30	Non-Participating	41
596	649089.51	5010782.32	Non-Participating	41
597	649095.33	5010782.45	Non-Participating	41
598	649102.06	5010781.94	Non-Participating	42
638	646364.45	5011342.22	Non-Participating	38
639	645581.19	5011275.19	Participating	36
640	645600.32	5011274.27	Participating	36
641	645611.23	5011274.52	Participating	36
667	654477.01	5017621.71	Non-Participating	27
668	654369.31	5017619.71	Non-Participating	28
671	654440.66	5017764.63	Non-Participating	27
672	654505.30	5017699.22	Non-Participating	25
673	654765.63	5017786.32	Non-Participating	28
674	650706.84	5013445.00	Non-Participating	35
675	649055.08	5013130.33	Participating	43
676	649111.77	5013137.89	Participating	42
677	649127.84	5013136.95	Participating	42
678	649096.66	5013193.64	Participating	42
679	649108.94	5013193.64	Participating	42
680	649108.94	5013193.64	Participating	42
681	649000.27	5013158.68	Participating	43
682	648992.71	5013143.56	Participating	43

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
683	647329.54	5013167.93	Non-Participating	40
684	647338.47	5013168.60	Non-Participating	40
685	647346.08	5013169.92	Non-Participating	40
686	647355.67	5013170.25	Non-Participating	40
687	647323.59	5013228.79	Non-Participating	40
688	647329.54	5013228.79	Non-Participating	40
689	647139.01	5014024.33	Participating	42
690	647091.06	5014040.04	Participating	42
691	647096.85	5013921.81	Participating	43
692	647085.68	5013986.57	Participating	43
693	647086.24	5013976.65	Participating	43
694	647086.79	5013967.83	Participating	43
695	647076.86	5013967.83	Participating	43
696	647075.21	5013976.65	Participating	43
697	647075.21	5013987.12	Participating	43
698	647076.86	5013934.76	Participating	43
699	647078.52	5013924.84	Participating	43
700	647048.75	5013895.07	Participating	44
701	647049.30	5013905.54	Participating	44
702	647036.63	5013905.54	Participating	44
703	647046.55	5013925.94	Participating	44
704	647043.79	5013934.76	Participating	44
705	647045.45	5013943.03	Participating	44
706	647044.89	5013963.97	Participating	44
707	647044.34	5013978.86	Participating	43
708	647043.79	5013986.57	Participating	43
709	647045.45	5014008.62	Participating	43
710	647038.28	5014008.62	Participating	43
711	646127.95	5014229.11	Participating	40
712	646121.88	5014229.11	Participating	40
713	646115.27	5014229.11	Participating	40
714	646108.65	5014229.66	Participating	40
715	646089.91	5014221.39	Participating	39
716	646153.85	5014222.49	Participating	40
717	646195.19	5014175.09	Participating	40
718	646118.02	5014249.50	Participating	40
719	646084.40	5014279.82	Participating	39
720	646111.96	5014301.87	Participating	39
721	650227.89	5014434.71	Non-Participating	41
722	650207.50	5014449.60	Non-Participating	42
723	650200.88	5014449.60	Non-Participating	42
724	650171.67	5014421.48	Non-Participating	41
725	650180.49	5014452.90	Non-Participating	42
726	650160.64	5014422.59	Non-Participating	41
727	648895.05	5014567.56	Non-Participating	41
728	648857.57	5014749.46	Participating	40
729	648896.15	5014710.32	Participating	40

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
730	648954.58	5014688.27	Participating	40
731	648938.60	5014782.53	Participating	40
732	648893.40	5014764.34	Participating	40
733	648927.57	5014772.06	Participating	40
734	648928.12	5014779.77	Participating	40
735	648901.67	5014779.22	Participating	40
736	648903.32	5014772.61	Participating	40
737	648903.32	5014764.34	Participating	40
738	647097.54	5014730.16	Participating	41
739	647101.94	5014808.44	Participating	41
740	647073.83	5014779.77	Participating	41
741	647096.43	5014673.39	Participating	41
742	647096.43	5014667.88	Participating	41
743	645515.54	5014966.64	Participating	38
744	645511.35	5015039.18	Participating	38
745	645500.11	5015039.51	Participating	38
746	645488.20	5015041.82	Participating	38
747	645475.97	5015042.48	Participating	38
748	645483.57	5015016.03	Participating	38
752	645456.19	5015387.96	Participating	38
756	644633.40	5014490.63	Participating	33
757	644699.02	5014523.97	Participating	33
758	644688.97	5014556.78	Participating	33
759	644662.51	5014589.06	Participating	33
760	644650.87	5014618.69	Participating	33
761	644676.80	5014628.74	Participating	33
762	644346.60	5014822.95	Participating	32
763	644380.46	5014773.74	Participating	32
764	644415.39	5014756.80	Participating	33
765	644433.91	5014726.64	Participating	33
766	644471.48	5014679.01	Participating	33
767	644488.94	5014596.46	Participating	33
768	644603.24	5014591.17	Participating	33
769	647399.27	5015986.51	Participating	40
770	647454.83	5016038.43	Participating	40
771	647445.90	5015956.74	Participating	40
772	647422.42	5015911.76	Participating	40
773	647459.13	5016012.97	Participating	40
774	647461.45	5015953.10	Participating	40
775	647457.48	5016001.72	Participating	40
776	651813.15	5014591.35	Non-Participating	32
777	651778.23	5014579.18	Non-Participating	33
778	651881.15	5014455.09	Non-Participating	32
779	651659.69	5014649.03	Non-Participating	33
797	644388.43	5015993.78	Participating	34
799	644347.42	5015979.23	Participating	34
800	643969.72	5016091.68	Non-Participating	34

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
801	643999.49	5016084.40	Non-Participating	34
802	643977.66	5016340.39	Non-Participating	35
803	646221.99	5016509.06	Participating	37
804	646190.90	5016458.79	Participating	37
805	646145.92	5016476.65	Participating	37
806	646127.40	5016510.38	Participating	37
807	646163.78	5016423.73	Participating	37
808	646171.06	5016423.07	Participating	37
809	647283.77	5016724.17	Participating	38
810	647284.96	5016717.42	Participating	38
811	647286.15	5016710.28	Participating	38
812	647276.62	5016705.91	Participating	38
813	647227.01	5016714.64	Participating	38
814	647294.09	5016667.81	Participating	38
815	647292.90	5016636.46	Participating	39
816	647225.43	5016639.23	Participating	38
817	647920.06	5017342.93	Participating	39
818	647914.50	5017334.59	Participating	39
819	647910.93	5017326.66	Participating	39
820	647907.36	5017321.10	Participating	39
821	647904.58	5017314.75	Participating	39
822	647901.41	5017308.80	Participating	39
823	647897.83	5017302.45	Participating	39
824	647929.58	5017194.50	Participating	40
825	647921.25	5017194.50	Participating	40
826	647922.84	5017174.65	Participating	40
827	647929.58	5017175.84	Participating	40
828	647874.81	5017215.13	Participating	39
829	647876.80	5017207.59	Participating	39
830	647779.17	5017234.58	Participating	39
831	647831.16	5017234.18	Participating	39
832	647866.48	5017264.35	Participating	39
833	647950.22	5017211.56	Participating	39
834	647910.93	5017290.14	Participating	39
835	647897.44	5017210.37	Participating	39
836	647897.04	5017225.85	Participating	39
837	647851.40	5017188.15	Participating	39
838	647860.92	5017125.44	Participating	40
839	647898.23	5017253.63	Participating	39
840	648971.54	5015975.43	Non-Participating	42
841	652396.31	5016321.44	Non-Participating	32
842	652387.85	5016207.14	Non-Participating	32
843	652390.49	5016269.05	Non-Participating	32
844	652391.55	5016251.06	Non-Participating	32
845	652435.47	5016190.20	Non-Participating	31
846	652438.65	5016205.55	Non-Participating	31
1381	644892.87	5009700.02	Non-Participating	28

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
1382	644892.46	5009690.93	Non-Participating	28
1383	644892.94	5009681.23	Non-Participating	28
1384	644801.52	5009641.13	Non-Participating	28
1385	644802.36	5009635.06	Non-Participating	28
1976	647303.97	5007251.04	Non-Participating	26
1977	647254.71	5007256.45	Non-Participating	26
1978	647224.09	5007221.18	Non-Participating	26
1979	647282.08	5007185.04	Non-Participating	26
1980	647295.49	5007219.92	Non-Participating	26
1981	647232.96	5007186.75	Non-Participating	26
1982	648397.12	5007404.49	Non-Participating	26
1983	648429.08	5007405.89	Non-Participating	26
1984	648407.50	5007439.13	Non-Participating	26
1985	648480.56	5007489.68	Non-Participating	26
1986	649016.69	5007529.25	Non-Participating	27
1987	649083.23	5007600.36	Non-Participating	27
1988	649022.20	5007623.82	Non-Participating	27
1989	649067.37	5007215.51	Non-Participating	26
2186	652004.55	5009315.55	Non-Participating	26
2187	652011.48	5009353.67	Non-Participating	26
2188	651968.05	5009280.43	Non-Participating	26
2189	651984.41	5009299.06	Non-Participating	26
2190	652079.70	5009234.35	Non-Participating	25
2191	651974.01	5009343.47	Non-Participating	26
2192	651978.16	5009341.71	Non-Participating	26
2193	652045.23	5009239.11	Non-Participating	26
2194	650636.03	5009296.62	Non-Participating	31
2195	650621.29	5009376.36	Non-Participating	31
2196	650637.75	5009375.27	Non-Participating	31
2197	650640.57	5009319.36	Non-Participating	31
2198	650789.37	5008570.83	Non-Participating	28
2199	650792.95	5008524.02	Non-Participating	28
2200	650451.20	5008993.05	Non-Participating	30
2201	650511.28	5008972.89	Non-Participating	30
2202	650454.57	5009065.19	Non-Participating	31
2203	650397.34	5009047.01	Non-Participating	31
2204	650431.62	5009062.71	Non-Participating	31
2205	650503.26	5009033.74	Non-Participating	30
2206	650245.22	5009028.03	Non-Participating	31
2207	650227.43	5009105.24	Non-Participating	31
2208	650291.19	5009109.20	Non-Participating	31
2209	650266.51	5009129.39	Non-Participating	31
2210	650404.49	5008782.78	Non-Participating	30
2211	650402.75	5008799.12	Non-Participating	30
2212	650493.66	5008776.86	Non-Participating	29
2213	645881.03	5008546.97	Non-Participating	27
2214	645840.98	5008574.90	Non-Participating	27

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
2215	645876.21	5008512.81	Non-Participating	27
2216	645901.09	5007993.08	Non-Participating	26
2217	645708.61	5008004.25	Non-Participating	26
2218	645720.53	5008021.46	Non-Participating	26
2219	645631.03	5008056.63	Non-Participating	26
2220	645560.46	5008023.00	Non-Participating	26
2221	645560.46	5008023.00	Non-Participating	26
2222	645561.02	5008023.38	Non-Participating	26
2223	645631.03	5008056.63	Non-Participating	26
2224	645631.03	5008056.63	Non-Participating	26
2225	645608.28	5007990.03	Non-Participating	26
2226	645578.93	5008048.55	Non-Participating	26
2227	644883.47	5009382.64	Non-Participating	28
2228	644887.00	5009408.03	Non-Participating	28
2229	644906.27	5009414.05	Non-Participating	28
2230	644920.93	5009426.30	Non-Participating	28
2231	646350.92	5009704.64	Non-Participating	30
2232	646346.49	5009644.25	Non-Participating	30
2233	646389.71	5009664.22	Non-Participating	30
2234	646415.62	5009648.30	Non-Participating	30
2235	646427.10	5009646.11	Non-Participating	30
2236	646374.72	5009624.58	Non-Participating	30
2237	647150.23	5010852.56	Participating	35
2238	647194.50	5010875.61	Participating	35
2239	647229.03	5010859.63	Participating	35
2240	648982.24	5010914.63	Non-Participating	40
2241	649080.25	5010909.13	Non-Participating	41
2242	648974.09	5010822.91	Non-Participating	41
2243	650458.09	5010135.55	Non-Participating	34
2244	651399.84	5010537.19	Non-Participating	30
2270	645591.52	5011330.52	Participating	36
2271	646356.26	5011253.61	Non-Participating	37
2272	645585.78	5011401.80	Participating	37
2273	645538.58	5011347.66	Participating	36
2274	646389.47	5011293.14	Non-Participating	38
2275	646415.18	5011273.33	Non-Participating	37
2276	646361.55	5011290.46	Non-Participating	38
2277	647415.35	5011482.18	Non-Participating	37
2278	647379.17	5011394.43	Non-Participating	37
2293	650616.12	5013442.16	Non-Participating	35
2294	650696.44	5013445.94	Non-Participating	35
2295	650676.60	5013430.83	Non-Participating	35
2296	650673.76	5013421.38	Non-Participating	35
2297	650627.46	5013453.50	Non-Participating	35
2298	649069.25	5013233.33	Participating	43
2299	649041.85	5013179.47	Participating	43
2300	649080.59	5013142.62	Participating	43

**Table B-2: Sensitive Receptor Results by Receptor - Grant County**

Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
2301	649008.78	5013133.17	Participating	43
2302	649037.12	5013089.70	Participating	43
2303	648954.91	5013131.28	Participating	43
2304	648997.44	5013169.08	Participating	43
2305	648987.99	5013202.15	Participating	43
2306	647290.87	5013273.96	Non-Participating	40
2307	647329.61	5013373.18	Non-Participating	40
2308	647343.79	5013329.72	Non-Participating	40
2309	647376.86	5013304.20	Non-Participating	40
2310	647304.10	5013205.93	Non-Participating	40
2311	647304.10	5013176.64	Non-Participating	40
2312	647295.15	5013319.08	Non-Participating	40
2313	647295.81	5013385.89	Non-Participating	40
2314	647298.12	5013371.00	Non-Participating	40
2423	643933.96	5009635.42	Non-Participating	27
2424	643946.39	5009641.33	Non-Participating	27
2425	643975.79	5009665.94	Non-Participating	27
2426	644853.33	5009638.98	Non-Participating	28
2427	644862.14	5009641.30	Non-Participating	28
2428	644848.89	5009672.37	Non-Participating	28
2429	644901.25	5009666.58	Non-Participating	28
2430	644788.31	5009700.09	Non-Participating	28
2431	644753.13	5009673.55	Non-Participating	28
2432	644681.23	5009668.07	Non-Participating	28
2433	644718.39	5009658.52	Non-Participating	28
2434	644728.55	5009671.12	Non-Participating	28
2435	644759.74	5009620.13	Non-Participating	28
2436	644726.99	5009642.96	Non-Participating	28
2437	644749.25	5009654.50	Non-Participating	28
2438	644793.42	5009647.29	Non-Participating	28
2439	644803.12	5009672.33	Non-Participating	28
2440	644801.56	5009619.01	Non-Participating	28
2441	644801.96	5009626.88	Non-Participating	28
2469	645864.11	5008430.88	Non-Participating	27
2495	648692.68	5007983.40	Non-Participating	28
2496	643667.62	5012693.36	Non-Participating	30
2497	643627.55	5012618.92	Non-Participating	29
2498	643612.69	5012703.95	Non-Participating	29
2499	643588.71	5012604.37	Non-Participating	29
2500	643616.37	5012655.62	Non-Participating	29
2521	644116.25	5010595.94	Non-Participating	28
2522	644199.80	5010616.97	Non-Participating	27
2523	644157.37	5010568.03	Non-Participating	27
2524	644193.15	5010568.01	Non-Participating	27
2525	644166.97	5010609.29	Non-Participating	27
2526	644177.53	5010608.42	Non-Participating	27
2527	644178.38	5010595.40	Non-Participating	27

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Receptor ID	Coordinates UTM NAD83 Zone 14N		Participation Status	Project-Only Leq Broadband Sound Level (dBA)
	X (m)	Y (m)		
2528	645577.99	5010725.78	Participating	33
2529	645540.65	5010751.32	Participating	33
2530	645554.61	5010749.35	Participating	33
2554	643750.44	5016047.80	Non-Participating	33
2555	643882.17	5016060.13	Non-Participating	33
2556	643811.08	5015949.57	Non-Participating	33
2557	643861.64	5015986.64	Non-Participating	33
2558	643864.12	5016147.92	Non-Participating	33
2559	643643.91	5015915.41	Non-Participating	32
2560	643872.16	5016102.25	Non-Participating	33
2561	643872.81	5016086.78	Non-Participating	33
2562	643871.79	5016080.04	Non-Participating	33
2563	643866.02	5016051.00	Non-Participating	33
2564	643873.30	5016052.04	Non-Participating	33
2565	643727.73	5015980.11	Non-Participating	33
2566	643755.87	5015975.78	Non-Participating	33
2567	643766.66	5015976.32	Non-Participating	33
2568	643783.89	5015976.41	Non-Participating	33
2571	645455.16	5015327.96	Participating	38
2572	645476.01	5015383.27	Participating	39
2573	645485.86	5015380.02	Participating	39
2574	645493.52	5015381.73	Participating	39
2575	645504.71	5015378.12	Participating	39
2576	645515.66	5015380.47	Participating	39
2578	646310.24	5014306.02	Participating	41
2579	649001.28	5014751.92	Participating	40
2580	648997.19	5014739.07	Participating	40
2972	644922.56	5009429.71	Non-Participating	28
2973	649025.05	5010906.20	Non-Participating	41
2974	647394.85	5011472.38	Non-Participating	37
2975	643939.34	5009639.68	Non-Participating	27
2976	644856.17	5009637.68	Non-Participating	28
3797	644380.38	5016007.67	Participating	34
4198	644000.03	5014277.21	Non-Participating	31