Pretty Prairie Wind Energy Center

Acoustic Assessment
Reno County, Kansas

March 2019

Prepared for Pretty Prairie Wind, LLC

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ACRONYMS AND ABBREVIATIONS

AGL	above ground level
CadnaA	Computer-Aided Noise Abatement Program
dB	decibel
dBA	A-weighted decibel
GE	General Electric
HH	hub height
Hz	Hertz
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
kHz	kilohertz
L_p	sound pressure level
L_w	sound power level
LNTE	Low Noise Trailing Edge
m/s	meters per second
mph	miles per hour
MVA	megavolt ampere
MW	megawatt
Pretty Prairie	Pretty Prairie Wind, LLC
NEMA	National Electrical Manufacturers Association
Project	Pretty Prairie Wind Energy Center
Tetra Tech	Tetra Tech, Inc.
UTM	Universal Transverse Mercator
WTG	wind turbine generator

1.0 INTRODUCTION

Pretty Prairie Wind, LLC (Pretty Prairie) proposes to construct and operate the Pretty Prairie Wind Energy Center (Project) in Reno County, Kansas. Pretty Prairie is proposing to construct up to 88 wind turbine generators (WTGs). The site layout dated February 6, 2019 includes 81 GE 2.5-127 WTGs, seven GE 2.3-116 WTGs, and three alternate GE 2.5-127 WTG locations. While no more than 88 WTGs will be built, one or more of the alternate WTG locations could be activated in the event that any of the primary WTG locations were eliminated. The GE 2.5-127 WTG model has a rotor diameter of 417 feet (127 meters) and a hub height of 292 feet (89 meters) and the GE 2.3-116 WTG model has a rotor diameter of 380 feet (116 meters) and a hub height of 262 feet (80 meters). For the purpose of this acoustic assessment, alternate locations were included, and all 91 WTG positions were modeled as GE 2.5-127 wind turbine models. The GE 2.5-127 WTGs are equipped with Low Noise Trailing Edge (LNTE) blade technology. An alternate layout using the GE 2.82-127 WTGs is also being considered; however, the hub height, rotor diameter and sound characteristics are expected to be identical to that of the GE 2.5-127 and the alternate layout would have fewer turbines. The alternate layout would therefore be expected to result in lower sound levels. To be conservative, only the primary layout was assessed. The proposed Project infrastructure also includes a collection substation to enable interconnection to the transmission system. Reference substation noise data were obtained from Pretty Prairie based on a 275-megavolt ampere (MVA) transformer.

An acoustic analysis was completed for the Project for WTG operation, providing insight on expected annual average received sound levels. Operational sounds levels resulting from the Project were analyzed at existing potential noise-sensitive receptors (e.g., residential structures).

1.1 Study Area

The land within the Study Area is primarily agricultural with farmstead and single-family residences. The turbines will be located on privately-owned land in Reno County. There are both occupied and unoccupied structures within the Study Area. Potential noise sensitive receptor locations within the Study Area and in the vicinity of proposed turbine locations were included in the acoustical analysis. A total of 475 potential residences were identified within the study area and included in the acoustic assessment.

2.0 ACOUSTIC MODELING METHODOLOGY AND RESULTS

One of the primary blade design features effecting noise emissions is the shape of the trailing edge of the blades. Sound reduction elements have been incorporated into the Project design including the use of Low Noise Trailing Edge blade (LNTE) blades designed to minimize noise generation. The addition of blade serrations has been demonstrated to reduce noise levels by 2 to 3 dBA below standard blade design types. The wind turbine analyzed on this Project, the GE 2.5/2.82-127, is equipped with LNTE blade technology as an optional noise mitigative feature to reduce audible noise.

2.1 Acoustic Modeling Software and Calculation Methods

The operational acoustic assessment was performed using the proposed Project WTG layout dated February 6, 2019. The operational acoustic assessment included an evaluation consisting of 91 WTG locations (88 planned WTG locations and an additional 3 alternate locations). For the purpose of this acoustic assessment, alternate locations were included, and all 91 WTGs were modeled as GE 2.5-127 wind turbine models. The GE 2.5-127 WTGs are equipped with Low Noise Trailing Edge (LNTE) blade technology. The Project would also include a collection substation with a 275 MVA transformer. WTG sound source data were obtained from GE (GE 2018) and representative substation transformer noise data performance were obtained from Pretty Prairie.

The acoustic modeling analysis was conducted using the most recent version of DataKustic GmbH's computer-aided noise abatement program or CadnaA (v 169.4915). CadnaA is a comprehensive 3-dimensional acoustic software model that conforms to the International Organization for Standardization (ISO) standard ISO 9613-2 "Attenuation of Sound during Propagation Outdoors. The ISO 9613-2 standard accounts for ground absorption rates by assigning a numerical coefficient of G=0 for acoustically hard, reflective surfaces and G=1 for absorptive surfaces and soft ground. A mixed (semi-reflective) ground factor of G=0.5 was used in the Project acoustic modeling analysis. In addition to geometrical divergence, attenuation factors include topographical features, terrain coverage, and/or other natural or anthropogenic obstacles that can affect sound attenuation and result in acoustical screening. To be conservative, sound attenuation through foliage and diffraction around and over existing anthropogenic structures such as buildings was not included in the model.

The conservative assumptions included in the analysis consisted of the following:

- Applying the ISO 9613-2 standard, which assumes downwind conditions in all directions.
- Incorporating a ground absorption factor of 0.5 for the surrounding area and 0 near the turbines.
- Disregarding sound attenuation through foliage as well as diffraction around and over existing anthropogenic structures.
- Evaluating all WTGs with the GE 2.5/2.82-127 noise emission level.

2.2 Wind Turbine Acoustic Modeling Input Parameters

Sound power data were provided by GE for the GE 2.5/2.82-127 WTG assuming normal operating conditions correlated to 10 meter height integer wind speeds 10 meters above ground level (AGL). The sound power data is considered confidential by GE and is not presented within this report. Additional information regarding the WTG noise emission data can be requested directly from GE.

The specification for the WTGs provides an expected warranty confidence interval, or k-factor, of 2 dB, which was added to the nominal sound power level in the acoustic model. This confidence interval incorporates the uncertainty in independent sound power level measurements conducted, the applied probability level and standard deviation for test measurement reproducibility and product variability.

Wind turbines can be somewhat directional, radiating more sound in some directions than others. The IEC test measurement protocol requires that sound measurements are made for the maximum downwind directional location when reporting apparent sound power levels. Thus, it is assumed that WTG directivity and sound generating efficiencies are inherently incorporated in the sound source data and used in acoustic model development.

2.3 Substation Transformer Acoustic Modeling Input Parameters

The transformer at the proposed collection substation was included in the CadnaA noise modeled. Transformer sound source levels were provided based on a 275 MVA transformer. Table 1 presents the representative transformer sound source data by octave band center frequency calculated based on the estimated transformer National Electrical Manufacturers Association (NEMA) sound ratings and applying standardized engineering guidelines.

Table 1. Transformer Sound Power Level (L_w) by Octave Band Center Frequency

	Octave Band Sound Power Level (dB)								Broadband (dBA)
Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	
275 MVA Transformer	110.7	112.7	107.7	107.7	101.7	96.7	91.7	84.7	108.1

Transformers similar in size to the one proposed for the Project can potentially present noise concerns if the separation distance is less than a few hundred feet between the transformer and noise-sensitive receptors. The proposed transformer location is approximately 2,710 feet (826 meters) from the nearest noise sensitive receptor and poses little concern from a noise perspective. Substation transformer noise may be periodically audible at nearby receptors when background sound levels are very low.

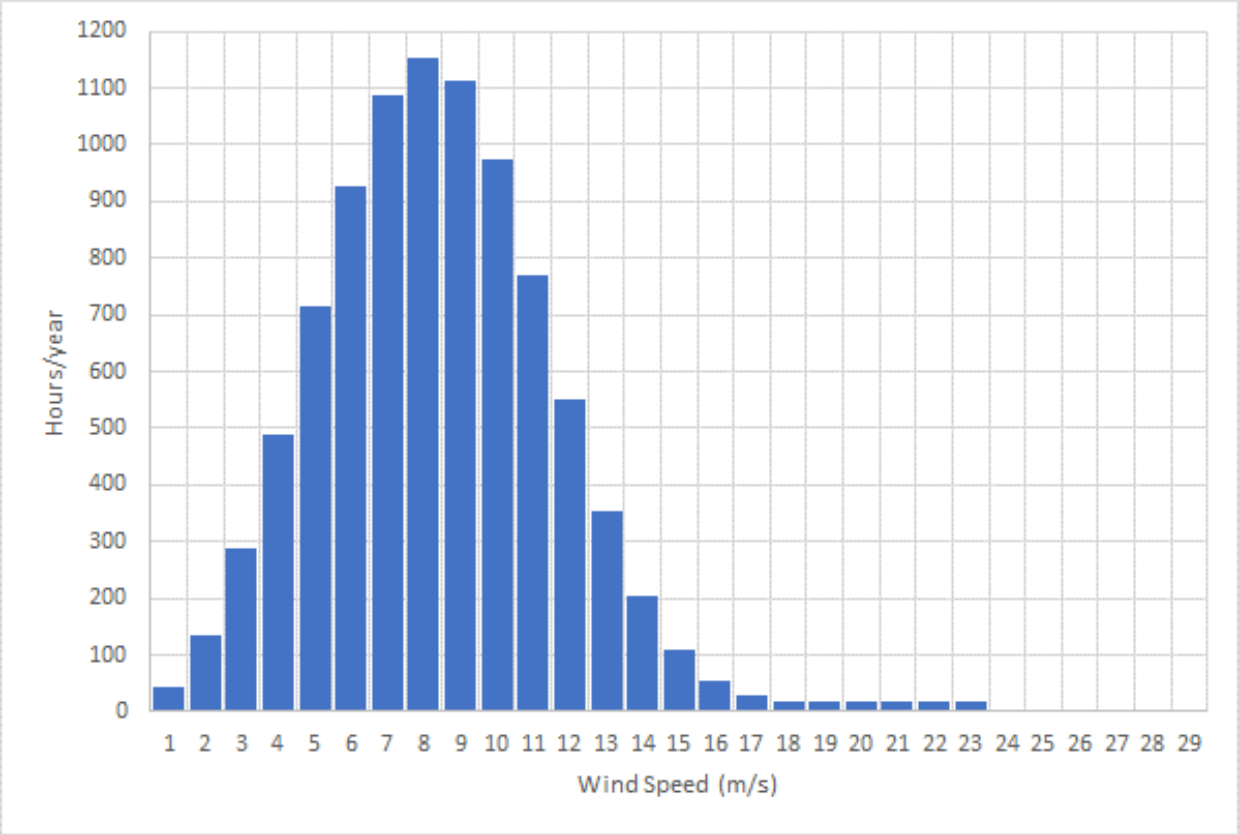
2.4 Acoustic Modeling Results

Acoustic modeling was completed for WTG operation, incorporating site-specific meteorological conditions. In addition, sound energy contribution from the Project substation transformer was

included in the acoustic modeling analysis. When calculating received sound levels, it was assumed that the Project substation and all WTGs were operating concurrently.

Historical meteorological data for the Study Area was reviewed and the distribution of wind speeds on an annual basis was determined. Figure 1 displays the expected distribution of wind speeds throughout the Study Area on an annual basis.

Figure 1. Wind Frequency Distribution for the Project Study Area



Using CadnaA, individual modeling runs were conducted for Project operation corresponding to each integer wind speed and received sound levels at each receptor were calculated. The received sound levels at each receptor were correlated with the expected annual frequency of that wind speed to yield a time-weighted annual average sound level value at each receptor.

A sound contour plot displaying Project operational sound levels in color-coded isopleths are provided in Figure 2. Figure 2 displays expected broadband operational sound levels observed throughout the Study Area on an annual basis. Table 2 summarizes the results of the Pretty Prairie Wind Energy Center acoustic modeling analysis and Table 3 presents the ID, Universal Transverse Mercator (UTM) coordinates, and the received sound level at each receptor. Received sound levels are rounded to the nearest whole number. No receptors are anticipated to typically experience received sound levels greater than 45 dBA.

Table 2. Summary of Acoustic Modeling Results

Received Sound Level Range (dBA)	Number of Receptors within Range
> 45 and ≤ 50	0
> 40 and ≤ 45	44
> 35 and ≤ 40	95
> 30 and ≤ 35	73
≤ 30	263
TOTAL	**475**

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
1	608708	4181972	33
2	602996	4190175	40
3	604036	4191831	40
4	603108	4190214	39
5	611174	4183640	36
6	606124	4189457	39
7	607731	4189840	39
8	607654	4188474	38
9	611045	4189408	39
10	611349	4183205	37
11	612800	4186579	39
12	609660	4185948	40
13	609675	4185735	40
14	612925	4185301	39
15	610647	4185172	39
16	611340	4182900	38
17	611512	4183574	36
18	610336	4183610	38
19	612066	4183575	37
20	610933	4183649	36
21	612849	4182951	41
22	611815	4182033	38

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
23	612649	4178798	29
24	613474	4178700	29
25	612586	4178800	29
26	612709	4178581	28
27	606357	4185925	37
28	602961	4190908	40
29	606327	4186279	39
30	604573	4192095	38
31	605195	4191680	35
32	605564	4190343	38
33	606325	4191097	36
34	606188	4190732	38
35	613256	4188773	41
36	603688	4191930	41
37	607345	4190382	37
38	605718	4191989	34
39	606110	4192465	34
40	606116	4192567	34
41	606452	4192291	35
42	607682	4192485	39
43	607952	4193451	36
44	612032	4191983	34
45	614128	4191332	34
46	612791	4193301	30
47	612943	4193293	29
48	613479	4192933	30
49	611291	4193728	31
50	611098	4193604	33
51	609689	4193640	34
52	606320	4185297	35
53	610983	4177096	23
54	610902	4177280	23
55	615734	4177270	22
56	601608	4191898	43
57	600212	4193391	38
58	600164	4193302	38

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
59	598170	4191852	33
60	596365	4190857	26
61	595095	4189823	22
62	594465	4190198	21
63	601208	4193990	36
64	601192	4194247	36
65	601540	4193530	38
66	599619	4193997	39
67	601222	4195055	34
68	600872	4195030	34
69	600369	4195039	34
70	598325	4194190	34
71	595127	4192211	23
72	603157	4193419	40
73	602926	4193979	39
74	603190	4195063	37
75	602958	4195242	38
76	602790	4196494	34
77	602786	4196557	34
78	602994	4196644	33
79	601268	4196260	31
80	601205	4196673	30
81	601262	4196819	29
82	601190	4197028	28
83	601293	4197148	28
84	599581	4196596	27
85	599578	4197045	26
86	599687	4197294	26
87	601255	4198214	25
88	601396	4198338	25
89	601382	4198170	26
90	602882	4197181	30
91	602886	4197090	30
92	602692	4198237	26
93	602726	4198266	26
94	602785	4198382	25

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
95	601043	4198123	25
96	601151	4198530	24
97	604354	4197190	28
98	604538	4197644	26
99	604869	4195051	33
100	604393	4194927	36
101	604088	4195146	35
102	604418	4195293	33
103	603627	4195166	35
104	605982	4196712	27
105	607714	4193683	36
106	607784	4193942	34
107	606196	4193820	33
108	609299	4194366	31
109	607932	4194408	32
110	601776	4195154	36
111	600994	4195408	32
112	609184	4180170	28
113	609647	4180135	29
114	609458	4180103	28
115	609670	4179904	28
116	609666	4179782	28
117	608815	4179720	27
118	608649	4179729	26
119	608995	4179699	27
120	609503	4179563	27
121	609546	4179646	27
122	609704	4179462	27
123	609330	4179267	26
124	609056	4178842	25
125	609450	4178746	25
126	609349	4178865	26
127	609367	4180188	29
128	609151	4180328	29
129	609088	4180234	28
130	608956	4180206	28

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
131	608753	4180187	28
132	608059	4180180	27
133	608233	4180192	27
134	608194	4179983	26
135	608196	4179689	26
136	608352	4179742	26
137	608213	4179890	26
138	607935	4180400	27
139	607984	4180010	26
140	608637	4180386	28
141	607972	4180603	28
142	608063	4180716	28
143	608052	4180950	29
144	608044	4181112	29
145	606542	4181309	27
146	607359	4181597	29
147	607244	4180679	27
148	607158	4180212	26
149	606541	4180569	26
150	606439	4180587	26
151	606455	4180521	26
152	606395	4180438	25
153	606389	4180407	25
154	606390	4180373	25
155	606319	4180420	25
156	606390	4180342	25
157	606336	4180336	25
158	606343	4180309	25
159	606391	4180310	25
160	606414	4180311	25
161	606401	4180255	25
162	606475	4180186	25
163	606458	4179736	24
164	607615	4179583	25
165	607455	4180084	26
166	607689	4180147	26

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
167	608212	4179429	25
168	608314	4179487	26
169	608331	4179358	25
170	608191	4179293	25
171	608218	4179353	25
172	608241	4179510	26
173	608813	4179303	26
174	609339	4178755	25
175	609300	4178627	25
176	609385	4178603	25
177	609742	4178508	25
178	609618	4178431	25
179	609565	4178423	25
180	609728	4178294	25
181	609750	4178259	25
182	609753	4178205	25
183	609757	4178169	25
184	609708	4178141	24
185	609700	4178085	24
186	609620	4178068	24
187	609684	4178013	24
188	609760	4178002	24
189	609609	4177960	24
190	609574	4177989	24
191	609543	4178046	24
192	609758	4177942	24
193	609727	4177949	24
194	609762	4177881	24
195	609725	4177791	23
196	609331	4177072	21
197	609767	4176926	22
198	609583	4176444	20
199	609077	4176973	21
200	606482	4180345	25
201	606405	4180463	25
202	597531	4186517	24

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
203	597421	4186732	23
204	597537	4186801	24
205	597530	4186871	24
206	597475	4186908	24
207	597457	4186859	24
208	597409	4186934	24
209	597255	4186992	24
210	597074	4187019	23
211	597558	4186400	23
212	597552	4186331	23
213	614465	4184842	38
214	602907	4189028	41
215	609808	4187180	40
216	603892	4190306	40
217	602904	4189661	40
218	603336	4188675	40
219	602971	4189787	40
220	608991	4188691	44
221	606134	4189520	39
222	610623	4187211	42
223	606122	4189508	39
224	608179	4190319	39
225	604599	4188730	40
226	611028	4187148	40
227	608415	4188682	41
228	610426	4188730	43
229	613938	4187176	40
230	610061	4187068	40
231	611172	4186208	42
232	609562	4185744	41
233	609212	4187089	40
234	612686	4185308	40
235	609193	4185127	41
236	612697	4185215	40
237	612928	4184995	41
238	614456	4184891	39

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
239	614466	4184907	39
240	609583	4185076	40
241	614566	4184438	36
242	612824	4184167	40
243	611457	4184821	39
244	611010	4180440	32
245	609726	4183413	43
246	609879	4183482	40
247	614649	4181513	35
248	614628	4183736	35
249	614523	4181247	37
250	614532	4181267	36
251	614278	4181985	39
252	610162	4181846	36
253	611240	4181826	37
254	614633	4180940	36
255	611264	4182015	38
256	610330	4181988	37
257	611231	4181127	34
258	610304	4181876	37
259	611417	4181193	35
260	611267	4179136	28
261	611656	4178773	28
262	611386	4181632	36
263	610324	4179917	29
264	610366	4181968	37
265	611317	4178970	28
266	611448	4180478	33
267	611319	4179512	29
268	611333	4179253	29
269	611322	4179362	28
270	614534	4180256	36
271	611319	4179006	28
272	613256	4180420	42
273	613296	4178850	29
274	613057	4179402	32

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
275	602477	4191759	40
276	613292	4179359	32
277	613130	4178893	29
278	613220	4178855	29
279	613417	4178828	29
280	614564	4178886	29
281	613048	4178826	29
282	614359	4178884	29
283	614158	4178888	29
284	614272	4178872	29
285	613903	4178863	29
286	613999	4178856	29
287	613554	4178975	30
288	611193	4178786	27
289	611569	4178706	27
290	612584	4178818	29
291	610889	4178657	27
292	611760	4178701	28
293	611688	4178702	27
294	611723	4178694	27
295	611453	4178415	26
296	611789	4178725	28
297	611860	4178717	28
298	611645	4178701	27
299	611808	4178726	28
300	611857	4178773	28
301	611822	4178715	28
302	614047	4177365	24
303	611922	4178724	28
304	611742	4178772	28
305	613314	4177212	24
306	606027	4187128	39
307	605717	4187112	40
308	601269	4190705	43
309	606109	4187233	40
310	604739	4191221	38

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
311	601374	4190889	43
312	604386	4192285	42
313	605669	4191787	34
314	605625	4190332	38
315	607159	4191866	36
316	605753	4190364	38
317	605621	4187034	39
318	605628	4191828	34
319	610869	4190773	43
320	607704	4191919	38
321	606740	4191871	35
322	609415	4191372	39
323	611589	4190450	40
324	607561	4191089	38
325	610845	4190430	42
326	607813	4191250	41
327	611895	4190488	41
328	614152	4189202	39
329	602476	4191815	40
330	614181	4188192	39
331	613652	4187160	41
332	604466	4193035	39
333	604555	4193359	39
334	605105	4193451	36
335	606596	4193251	39
336	608558	4192015	44
337	609414	4192964	41
338	609410	4193154	38
339	612972	4192113	33
340	612748	4193339	30
341	612522	4193629	29
342	612669	4193549	29
343	609735	4193624	34
344	609904	4194240	31
345	614849	4192015	30
346	614950	4192097	29

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
347	610199	4195319	28
348	610343	4195645	27
349	609828	4195163	28
350	611792	4195217	27
351	610982	4195371	27
352	611150	4195761	26
353	611084	4195729	26
354	610859	4196555	24
355	610276	4196856	24
356	610253	4197174	23
357	609228	4195888	27
358	609238	4196704	25
359	610998	4196398	24
360	614093	4194937	25
361	614153	4195094	24
362	613428	4195333	25
363	612059	4195845	25
364	612309	4196298	23
365	612589	4196113	23
366	612626	4195968	24
367	612647	4196020	24
368	611308	4196895	23
369	611440	4197001	22
370	611634	4196891	22
371	612535	4197174	21
372	612548	4196827	22
373	606480	4183947	32
374	607106	4183437	32
375	607205	4183384	32
376	607268	4183575	32
377	606954	4183522	32
378	607026	4183709	32
379	607042	4183541	32
380	606283	4183498	30
381	606407	4183531	31
382	606410	4183504	31

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
383	607162	4181967	29
384	607583	4181943	30
385	607914	4181836	30
386	607571	4181825	30
387	607848	4181706	30
388	608019	4181606	30
389	604382	4182796	27
390	604590	4182714	27
391	604334	4182642	26
392	604511	4182646	26
393	604241	4183865	28
394	604422	4183555	28
395	604738	4183699	29
396	604757	4183762	29
397	604744	4184973	31
398	601703	4183265	24
399	602901	4183309	26
400	601607	4184189	26
401	601623	4184060	26
402	600090	4184867	25
403	599949	4186746	28
404	600649	4185045	26
405	601582	4186326	31
406	600979	4186856	31
407	600626	4187129	31
408	600214	4188359	32
409	600078	4188697	32
410	598127	4187005	25
411	606337	4181768	27
412	606281	4181812	27
413	606191	4181696	27
414	611238	4187462	42
415	610780	4177125	23
416	609813	4179265	27
417	609838	4179392	27
418	609889	4176254	20

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
419	610379	4176747	22
420	608828	4177051	21
421	608450	4176930	20
422	608519	4177178	21
423	607330	4176618	18
424	607379	4176542	17
425	607107	4176538	17
426	609553	4178542	25
427	609693	4178530	25
428	609564	4178506	25
429	609310	4178932	26
430	609674	4175554	18
431	610647	4175574	20
432	611411	4176348	21
433	611310	4175633	20
434	611568	4175589	20
435	612323	4175744	21
436	612927	4175619	20
437	614388	4175660	20
438	613861	4175977	21
439	614612	4175711	20
440	614745	4175753	20
441	614560	4175961	20
442	615367	4175703	19
443	614744	4176211	21
444	616202	4177357	22
445	615038	4178904	28
446	615299	4178914	27
447	615247	4178751	27
448	615755	4179225	27
449	616014	4185101	31
450	615991	4185089	31
451	614889	4185311	36
452	615115	4185312	34
453	615991	4185704	31
454	614877	4183699	34

Table 3. Acoustic Modeling Results by Receptor Location

Receptor ID	UTM Coordinates (meters)		Received Sound Levels (dBA)
	Easting	Northing	Annual Average Sound Pressure
455	615298	4183703	33
456	615836	4183701	31
457	616061	4183880	30
458	615279	4181993	33
459	615683	4181175	30
460	616098	4180294	28
461	615215	4187175	34
462	615255	4187181	34
463	615979	4186389	31
464	615753	4188687	31
465	615148	4190410	32
466	615621	4192109	28
467	615703	4192261	27
468	615778	4187344	32
469	607889	4187446	40
470	612926	4181106	41
471	612913	4186207	39
472	612725	4184465	40
473	611288	4184938	39
474	611314	4184813	38
475	610418	4183495	38

3.0 CONCLUSIONS

Project operational sound has been calculated and results show that received sound levels at receptors are expected to remain below 45 dBA. Acoustic modeling analysis per ISO 9613-2, inclusive of a number of conservative assumptions, demonstrates that normal Project operation will generate low level sound within the Study Area.

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Figure 2. Received Sound Levels—Wind Turbines with LNTE, Annual Average Sound Pressure