VALSTYBĖS ĮMONĖ REGISTRŲ CENTRAS
Vinco Kudirkos g. 18-3, LT-03105 Vilnius

KADASTRO ŽEMĖLAPIO IŠTRAUKA

Mastelis 1:10000

Atspausdinta: 2018-07-04 13:07:32
Vykdytojas: MARIUS ŠILEIKA

00 Adreso numeris
000 Žemės sklypo numeris
00000000 Kadastro bloko numeris

Savivaldybės riba
Kadastro vietovės riba
Kadastro bloko riba
Inžineriniai statiniai

Geodeziškai matuoti sklypai
Preliminariai matuoti sklypai
Koreguotini sklypai

4 PRIEDAS

LR SAM 2014-10-08 RAŠTO „DĖL VĖJO JĖGAINIŲ KELIAMO TRIUKŠMO LYGIO TAIKYMO POVEIKIO VISUOMENĖS SVEIKATAI VERTINIME“ NR. (10.2.2.3-411)10-8808, 1 LAPAS

LIETUVOS RESPUBLIKOS SVEIKATOS APSAUGOS MINISTERIJA

Biudžetinė įstaiga, Vilniaus g. 33, LT-01506 Vilnius, tel. (8 5) 266 1400,
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Duomenys kaupiami ir saugomi Juridinių asmenų registre, kodas 188603472

UAB „Ekosistema“

2014-10-08 Nr. (10.2.2.3-411)10- 8808
Į 2014-10-02 Nr. 13-1584

DĖL VĖJO JĖGAINIŲ KELIAMO TRIUKŠMO LYGIO TAIKYMO POVEIKIO VISUOMENĖS SVEIKATAI VERTINIME

Atsakydami į Jūsų š. m. spalio 2 d. raštą, teikiame paaiškinimus dėl vėjo elektrinių statybos poveikio visuomenės sveikatai vertinimo metu taikomo vėjo elektrinių garso galios lygio nustatymo, atsižvelgiant į skirtingą vėjo greitį.

Informuojame, kad atsižvelgiant į Lietuvos standarto LST EN 61400-11:2003 „Vėjo turbinų generatorių sistemos. 11 dalis. Akustinio triukšmo matavimo metodai“ (tapatus IEC 61400-11:2002) standarto reikalavimus, vėjo elektrinių garso galingumo duomenys gaunami aplinkoje esant 6, 7, 8, 9 ir 10 m/s vėjo greičiui, kuris įvertinamas 10 m aukštyje nuo žemės paviršiaus ties vėjo elektrinės pagrindu. Vėjo elektrinių triukšmo prognostiniams skaičiavimams turėtų būti naudojama didžiausia vėjo elektrinės garso galios lygio vertė, nustatyta vėjo elektrinei veikiant aplinkoje, kurioje 10 m virš žemės paviršiaus vėjo greitis yra 6–10 m/s. Atitinkamais atvejais literatūros šaltiniuose ar vėjo elektrinių techninėse specifikacijose pateikiama informacija apie vėjo elektrinių garso galingumo lygius aplinkoje esant 8 m/s vėjo greičiui. Tokie duomenys gali būti naudojami atliekant vėjo elektrinių triukšmo įvertinimą kaip vieninteliai turimi patikimi vėjo elektrinių triukšmo emisijos duomenys, jei nėra informacijos apie vėjo elektrinių garso galingumo lygius esant didesniam nei 8 m/s vėjo greičiui.

Sveikatos apsaugos viceministras Erikas Mačiūnas

Valdas Uscila, tel. (8 5) 205 5292, el. p. valdas.uscila@sam.lt

5 PRIEDAS

TRIUKŠMO SKLAIDOS SKAIČIAVIMO REZULTATAI, 3 LAPAI

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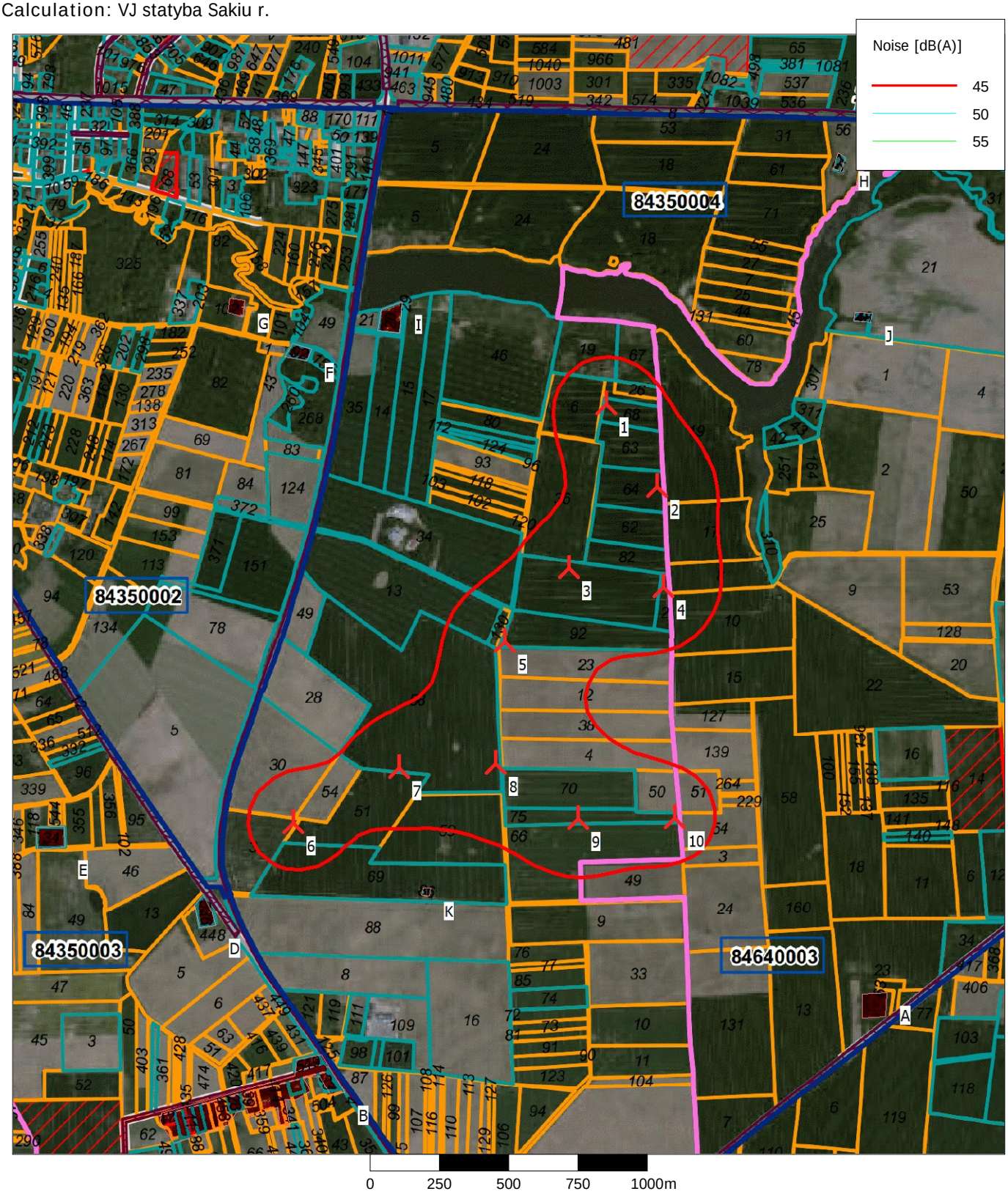
DECIBEL - Map 10,0 m/s

Calculation: VJ statyba Sakiu r.



Map: Sakiai otada , Print scale 1:20 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 441 714 North: 6 089 350

New WTG Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 10,0 m/s
Height above sea level from active line object

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DECIBEL - Main Result

Calculation: VJ statyba Sakiu r.

Noise calculation model:
ISO 9613-2 General
Wind speed (in 10 m height):
10,0 m/s
Ground attenuation:
General, Ground factor: 0,6
Meteorological coefficient, C0:
0,0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tones penalty is added to total noise impact at receptors
WTG catalogue
Height above ground level, when no value in NSA object:
1,5 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0,0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0,0 dB(A)

Scale 1:75 000
New WTG
Noise sensitive area

WTGs

	Y	X	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	Wind speed	LwA,ref	Pure tones
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	
1	442 159	6 090 108	50,0	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
2	442 343	6 089 811	52,6	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
3	442 022	6 089 516	51,9	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 09 - 100.5 dB(A) - octave	10,0	100,5	No
4	442 365	6 089 446	53,3	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
5	441 791	6 089 249	52,0	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
6	441 022	6 088 592	51,3	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
7	441 405	6 088 791	53,7	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 07 - 102.5 dB(A) - octave	10,0	102,5	No
8	441 755	6 088 807	54,9	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	164,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
9	442 055	6 088 609	53,0	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	164,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
10	442 405	6 088 612	53,9	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 07 - 102.5 dB(A) - octave	10,0	102,5	No

Calculation Results

Sound level

Noise sensitive area No.	Name	Y	X	Z	Imission height	Demands Noise	Sound level From WTGs	Distance to noise demand	Demands fulfilled ? Noise
				[m]	[m]	[dB(A)]	[dB(A)]	[m]	
A	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (1)	443 083	6 087 975	57,9	1,5	45,0	33,3	782	Yes
B	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (2)	441 124	6 087 754	49,8	1,5	45,0	34,9	674	Yes
C	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (3)	441 904	6 086 780	50,7	1,5	45,0	28,6	1 624	Yes
D	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (4)	440 696	6 088 334	53,8	1,5	45,0	39,2	255	Yes
E	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (5)	440 193	6 088 579	54,1	1,5	45,0	33,7	667	Yes
F	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (6)	441 076	6 090 268	52,4	1,5	45,0	34,1	909	Yes
G	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (7)	440 842	6 090 427	49,6	1,5	45,0	32,0	1 172	Yes
H	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (8)	442 983	6 090 961	51,2	1,5	45,0	31,6	999	Yes
I	Noise sensitive area: German TA Lärm - User defined (9)	441 412	6 090 366	51,2	1,5	40,0	35,8	355	Yes
J	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (10)	443 056	6 090 411	52,0	1,5	45,0	34,7	712	Yes
K	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (11)	441 521	6 088 357	53,0	1,5	45,0	42,0	215	Yes

Distances (m)

	WTG									
NSA	1	2	3	4	5	6	7	8	9	10
A	2324	1979	1870	1636	1814	2151	1865	1567	1207	930
B	2571	2391	1977	2098	1637	844	1074	1227	1264	1542
C	3338	3063	2739	2706	2472	2015	2072	2033	1835	1899
D	2299	2212	1776	2005	1427	416	843	1158	1369	1708
E	2491	2478	2055	2339	1733	829	1231	1579	1861	2211
F	1084	1344	1209	1529	1245	1677	1513	1611	1926	2123
G	1355	1622	1491	1811	1512	1843	1730	1859	2185	2395
H	1186	1316	1735	1636	2086	3075	2683	2479	2528	2417
I	791	1084	1047	1325	1180	1810	1575	1597	1871	2016

To be continued on next page...

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2018-07-11 11:56/3.2.701

DECIBEL - Main Result

Calculation: VJ statyba Sakiu r.

...continued from previous page

	WTG									
NSA	1	2	3	4	5	6	7	8	9	10
J	947	932	1368	1187	1718	2729	2313	2065	2061	1913
K	1863	1670	1262	1378	932	525	441	507	591	920

6 PRIEDAS

TRIUKŠMO SKLAIDOS SKAIČIAVIMO REZULTATAI, KAI STATOMOS TIK PENKIOS VĖJO JĖGAINĖS, 4 LAPAS

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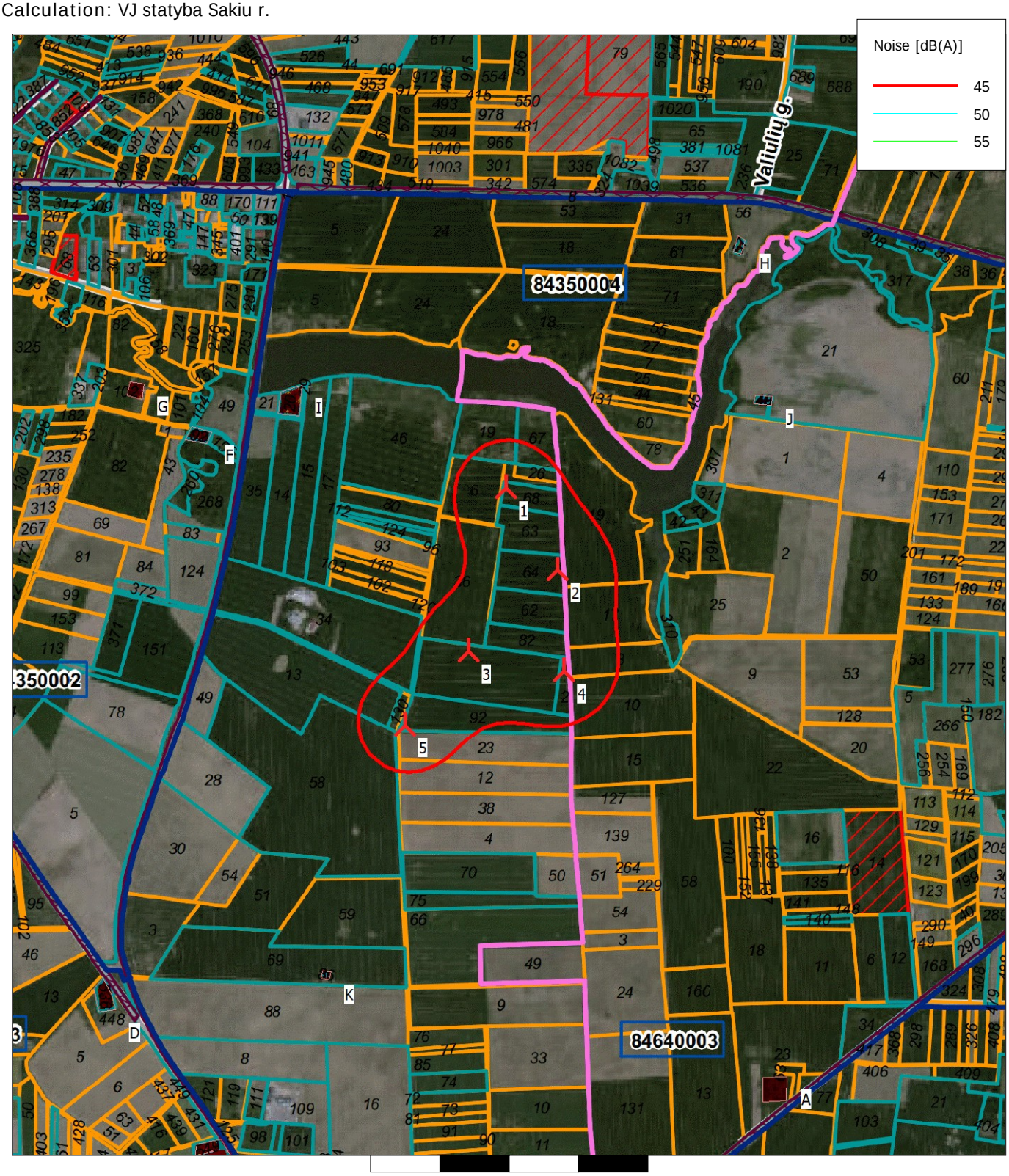
Calculated:
2018-07-11 14:52/3.2.701

DECIBEL - Map 10,0 m/s

Calculation: VJ statyba Sakiu r.



Map: Sakiai otada , Print scale 1:20 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 442 078 North: 6 089 650

New WTG Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 10,0 m/s
Height above sea level from active line object

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Calculated:
2018-07-11 14:52/3.2.701

DECIBEL - Main Result

Calculation: VJ statyba Sakiu r.

Noise calculation model:
ISO 9613-2 General
Wind speed (in 10 m height):
10,0 m/s
Ground attenuation:
General, Ground factor: 0,6
Meteorological coefficient, C0:
0,0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tones penalty is added to total noise impact at receptors
WTG catalogue
Height above ground level, when no value in NSA object:
1,5 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0,0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0,0 dB(A)

Scale 1:75 000
New WTG
Noise sensitive area

WTGs

	Y	X	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	Wind speed	LwA,ref	Pure tones
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	
1	442 159	6 090 108	50,0	NORDEX N149/4.0-4.5 4500...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
2	442 343	6 089 811	52,6	NORDEX N149/4.0-4.5 4500...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
3	442 022	6 089 516	51,9	NORDEX N149/4.0-4.5 4500...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 08 - 102.0 dB(A) - octave	10,0	102,0	No
4	442 365	6 089 446	53,3	NORDEX N149/4.0-4.5 4500...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
5	441 791	6 089 249	52,0	NORDEX N149/4.0-4.5 4500...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No

Calculation Results

Sound level

Noise sensitive area No.	Name	Y	X	Z	Imission height	Demands Noise	Sound level From WTGs	Distance to noise demand	Demands fulfilled ? Noise
				[m]	[m]	[dB(A)]	[dB(A)]	[m]	
A	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (1)	443 083	6 087 975	57,9	1,5	45,0	28,0	1 448	Yes
B	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (2)	441 124	6 087 754	49,8	1,5	45,0	26,9	1 471	Yes
C	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (3)	441 904	6 086 780	50,7	1,5	45,0	22,9	2 301	Yes
D	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (4)	440 696	6 088 334	53,8	1,5	45,0	28,2	1 261	Yes
E	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (5)	440 193	6 088 579	54,1	1,5	45,0	26,3	1 566	Yes
F	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (6)	441 076	6 090 268	52,4	1,5	45,0	32,7	912	Yes
G	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (7)	440 842	6 090 427	49,6	1,5	45,0	30,4	1 176	Yes
H	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (8)	442 983	6 090 961	51,2	1,5	45,0	30,9	1 003	Yes
I	Noise sensitive area: German TA Lärm - User defined (9)	441 412	6 090 366	51,2	1,5	40,0	35,1	374	Yes
J	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (10)	443 056	6 090 411	52,0	1,5	45,0	34,1	717	Yes
K	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (11)	441 521	6 088 357	53,0	1,5	45,0	32,5	764	Yes

Distances (m)

	WTG				
NSA	1	2	3	4	5
A	2324	1979	1870	1636	1814
B	2571	2391	1977	2098	1637
C	3338	3063	2739	2706	2472
D	2299	2212	1776	2005	1427
E	2491	2478	2055	2339	1733
F	1084	1344	1209	1529	1245
G	1355	1622	1491	1811	1512
H	1186	1316	1735	1636	2086
I	791	1084	1047	1325	1180
J	947	932	1368	1187	1718
K	1863	1670	1262	1378	932

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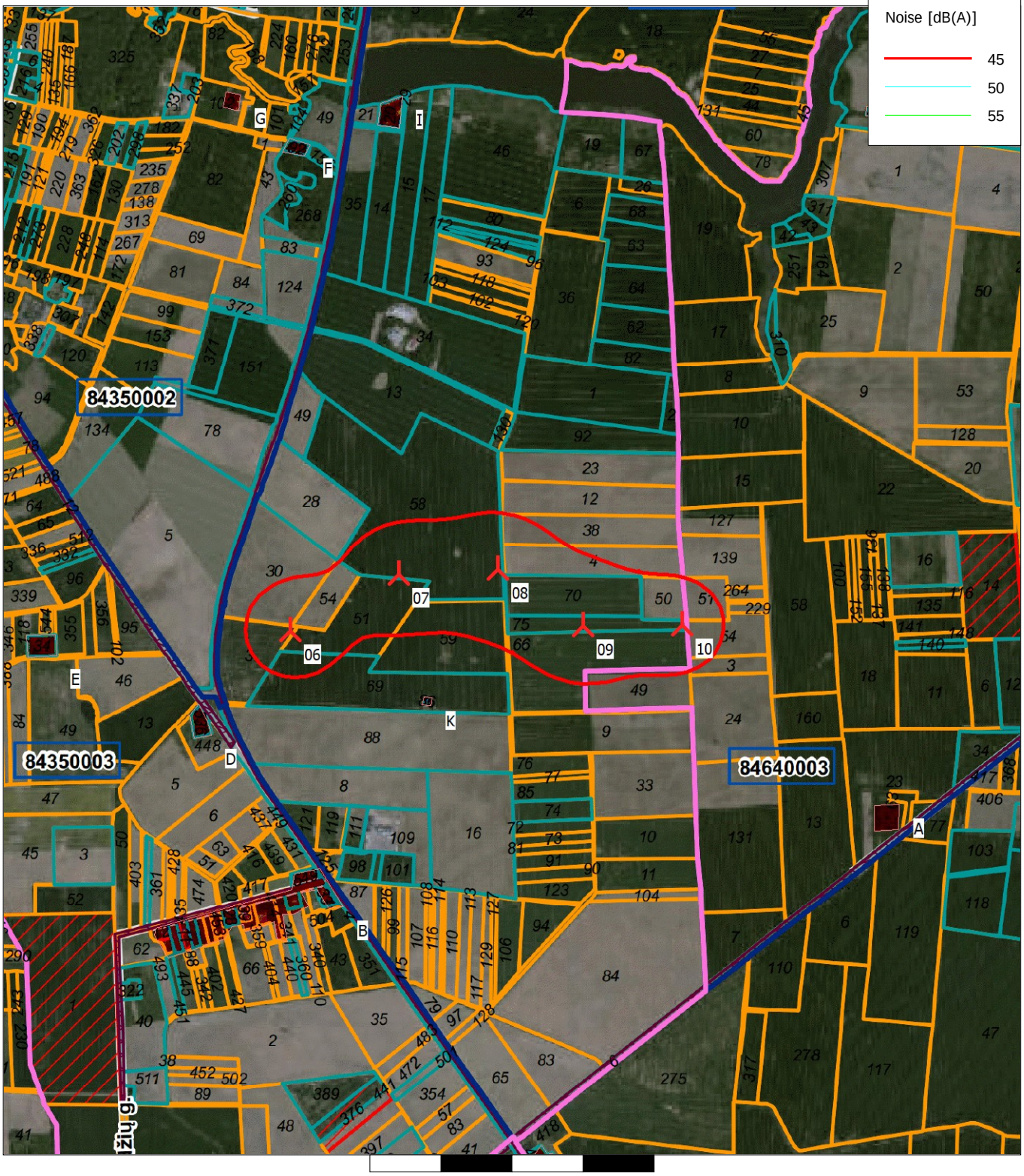
DECIBEL - Map 10,0 m/s

Calculation: VJ statyba Sakiu r.



Map: Sakiai otada , Print scale 1:20 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 441 714 North: 6 088 699

New WTG Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 10,0 m/s
Height above sea level from active line object

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Calculated:
2018-07-11 15:08/3.2.701

DECIBEL - Main Result

Calculation: VJ statyba Sakiu r.

Noise calculation model:
ISO 9613-2 General
Wind speed (in 10 m height):
10,0 m/s
Ground attenuation:
General, Ground factor: 0,6
Meteorological coefficient, C0:
0,0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tones penalty is added to total noise impact at receptors
WTG catalogue
Height above ground level, when no value in NSA object:
1,5 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0,0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0,0 dB(A)

Scale 1:75 000
New WTG
Noise sensitive area

WTGs

	Y	X	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	Wind speed	LwA,ref	Pure tones
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	
06	441 022	6 088 592	51,3	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
07	441 405	6 088 791	53,7	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 06 - 103.0 dB(A) - octave	10,0	103,0	No
08	441 755	6 088 807	54,9	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	164,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
09	442 055	6 088 609	53,0	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	164,0	EMD	Serrations Mode 05 - 103.6 dB(A) - octave	10,0	103,6	No
10	442 405	6 088 612	53,9	NORDEX N149/4.0-4.5 4500 ...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	EMD	Serrations Mode 06 - 103.0 dB(A) - octave	10,0	103,0	No

Calculation Results

Sound level

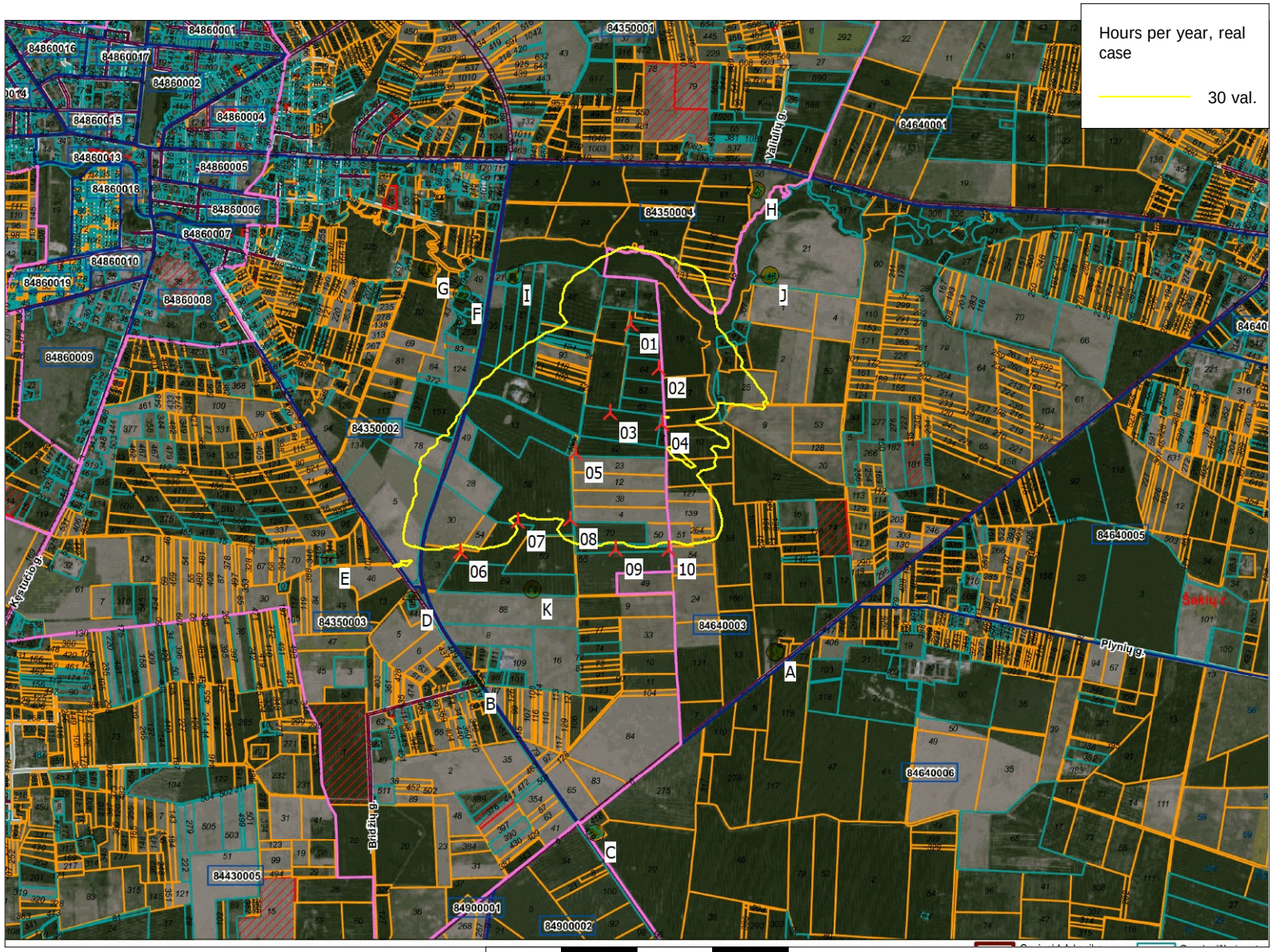
Noise sensitive area No.	Name	Y	X	Z	Imission height	Demands Noise	Sound level From WTGs	Distance to noise demand	Demands fulfilled ? Noise
				[m]	[m]	[dB(A)]	[dB(A)]	[m]	
A	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (1)	443 083	6 087 975	57,9	1,5	45,0	32,2	778	Yes
B	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (2)	441 124	6 087 754	49,8	1,5	45,0	34,3	679	Yes
C	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (3)	441 904	6 086 780	50,7	1,5	45,0	27,5	1 634	Yes
D	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (4)	440 696	6 088 334	53,8	1,5	45,0	38,9	260	Yes
E	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (5)	440 193	6 088 579	54,1	1,5	45,0	33,0	671	Yes
F	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (6)	441 076	6 090 268	52,4	1,5	45,0	29,1	1 332	Yes
G	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (7)	440 842	6 090 427	49,6	1,5	45,0	27,6	1 550	Yes
H	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (8)	442 983	6 090 961	51,2	1,5	45,0	23,9	2 254	Yes
J	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (10)	443 056	6 090 411	52,0	1,5	45,0	26,3	1 752	Yes
K	Noise sensitive area: German TA Lärm - Rural villages, Mixed areas (11)	441 492	6 088 359	53,0	1,5	45,0	41,7	222	Yes
Rekr	Noise sensitive area: German TA Lärm - User defined (9)	441 412	6 090 366	51,2	1,5	40,0	28,9	1 107	Yes

Distances (m)

	WTG				
NSA	06	07	08	09	10
A	2151	1865	1567	1207	930
B	844	1074	1227	1264	1542
C	2015	2072	2033	1835	1899
D	416	843	1158	1369	1708
E	829	1231	1579	1861	2211
F	1677	1513	1611	1926	2123
G	1843	1730	1859	2185	2395
H	3075	2683	2479	2528	2417
J	2729	2313	2065	2061	1913
K	525	441	507	591	920
Rekr	1810	1575	1597	1871	2016

7 PRIEDAS

ŠEŠĖLIAVIMO SKLAIDOS REZULTATAI, 3 LAPAI



Map: Sakiai_otada , Print scale 1:40 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 442 050 North: 6 088 875

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: Sakiai_Otada2018_EMDGrid_0.wpg (1)

Project:
VJ statyba Sakiu r.

Description:
Modelis:

SHADOW - Map

Calculation:
Iki 10 Vj statyba Sakiu r.

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Calculated:
2018-07-19 15:02/3.2.701

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Calculated:
2018-07-19 15:02/3.2.701

SHADOW - Main Result

Calculation: Iki 10 Vj statyba Sakiu r.

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence	3 °
Day step for calculation	1 days
Time step for calculation	1 minutes

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

0	Sum
8 760	8 760

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Elevation Grid Data Object: Sakiai_Otada2018_EMDGrid
Obstacles used in calculation
Eye height for map: 1,5 m
Grid resolution: 1,0 m
Topographic shadow included in calculation

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

Scale 1:75 000

New WTG Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
01	442 159	6 090 108	50,0	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
02	442 343	6 089 811	52,6	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
03	442 022	6 089 516	51,9	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
04	442 365	6 089 446	53,3	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
05	441 791	6 089 249	52,0	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
06	441 022	6 088 592	51,3	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
07	441 405	6 088 791	53,7	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
08	441 755	6 088 807	54,9	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
09	442 055	6 088 609	53,0	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7
10	442 405	6 088 612	53,9	NORDEX N149/4.0-4.5 4500 14...	Yes	NORDEX	N149/4.0-4.5-4 500	4 500	149,0	165,0	1 805	10,7

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Degrees from south cw	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]	[°]		[m]
A	443 114	6 087 931	57,6	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
B	441 124	6 087 719	52,0	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
C	441 917	6 086 731	50,7	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
D	440 700	6 088 274	53,6	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
E	440 162	6 088 548	53,3	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
F	441 041	6 090 303	52,1	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
G	440 811	6 090 471	49,8	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
H	442 996	6 090 992	51,0	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
I	441 386	6 090 427	50,6	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
J	443 083	6 090 427	51,9	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0
K	441 501	6 088 345	53,0	1,0	1,0	1,0	0,0	90,0	"Green house mode"	2,0

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Calculated:
2018-07-19 15:02/3.2.701

SHADOW - Main Result

Calculation: Iki 10 Vj statyba Sakiu r.

Calculation Results

Shadow receptor

No.	Shadow, expected values Shadow hours per year [h/year]
A	6:56
B	3:23
C	0:00
D	0:00
E	0:00
F	11:08
G	6:14
H	7:07
I	15:36
J	13:11
K	21:38

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
01	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (1)	91:37	9:57
02	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (2)	76:55	10:43
03	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (3)	80:34	10:30
04	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (4)	58:11	7:31
05	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (5)	67:22	8:19
06	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (6)	33:35	6:52
07	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (7)	0:00	0:00
08	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (8)	25:59	5:55
09	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (9)	65:54	15:30
10	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 165,0 m (TOT: 239,5 m) (10)	48:32	9:25

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.