

Project:

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Calculated:

9-1-2015 19:38/2.9.285



DECIBEL - Main Result

Calculation: 3xV112-3.3MW-119m

DUTCH RULES FOR NOISE CALCULATION.

The calculation is based on "Reken- en meetvoorschrift windturbines", February 2010

The calculation is based on ISO 9613-2 and assumes uniform directional distribution

The wind distribution is calculated for the Site center from <http://www.mp.nl/rekentoool/>

Noise values in calculation:

All noise values are Lden values



Scale 1:50.000

New WTG

Noise sensitive area

WTGs

RD1	East North Z			Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Setting	Noise data		Wind speed [m/s]	Status	LwA,ref [dB(A)]	Pure tones
	East	North	Z		Valid	Manufact.	Type-generator					Creator	Name				
1	145.638	444.118	0,0	VESTAS V112-3.3 Gridstreame 33...Yes	VESTAS	V112-3.3 Gridstreame-3.300	3.300	112,0	119,0	Day	EMD	Level 5 - Mode 5 - Estimated - 12-2013	6,9	Aggregated	100,0	No	
										Evening	EMD	Level 5 - Mode 5 - Estimated - 12-2013	7,0	Aggregated	100,2	No	
										Night	EMD	Level 5 - Mode 5 - Estimated - 12-2013	7,4	Aggregated	100,5	No	
2	146.164	443.855	0,0	VESTAS V112-3.3 Gridstreame 33...Yes	VESTAS	V112-3.3 Gridstreame-3.300	3.300	112,0	119,0	Day	EMD	Level 4 - Mode 4 - Estimated - 12-2013	6,9	Aggregated	98,1	No	
										Evening	EMD	Level 4 - Mode 4 - Estimated - 12-2013	7,0	Aggregated	98,3	No	
										Night	EMD	Level 4 - Mode 4 - Estimated - 12-2013	7,4	Aggregated	98,7	No	
3	146.631	443.622	0,0	VESTAS V112-3.3 Gridstreame 33...Yes	VESTAS	V112-3.3 Gridstreame-3.300	3.300	112,0	119,0	Day	EMD	Level 5 - Mode 5 - Estimated - 12-2013	6,9	Aggregated	100,0	No	
										Evening	EMD	Level 5 - Mode 5 - Estimated - 12-2013	7,0	Aggregated	100,2	No	
										Night	EMD	Level 5 - Mode 5 - Estimated - 12-2013	7,4	Aggregated	100,5	No	

Calculation Results

Sound Level

Noise sensitive area

No.	Name	RD1 East	North	Z	Imission height [m]	Noise [dB(A)]	Sound Level From WTGs [dB(A)]	Distance to noise demand [m]	Demands fulfilled ?
A	Hoeksedijk 2, 3961 ME Wijk bij Duurstede	146.926	443.424	0,0	5,0	47,0	44,9	85	Yes
B	Hoeksedijk 3, 3998 NM Schalkwijk	146.776	443.299	0,0	5,0	47,0	45,0	82	Yes
C	Beusichemseweg 146, 3998 NL Schalkwijk	145.997	443.658	0,0	5,0	47,0	47,0	0	Yes
D	Beusichemseweg 71, 3998 NL Schalkwijk	145.849	443.700	0,0	5,0	47,0	45,9	74	Yes
E	Beusichemseweg 69, 3998 NL Schalkwijk	145.670	443.765	0,0	5,0	47,0	45,9	57	Yes
F	Zuwedijk 6, 3998 NA Schalkwijk	145.113	444.143	0,0	5,0	47,0	41,5	255	Yes
G	Nachtdijk 25, 3997 MR 't Goy	145.250	444.593	0,0	5,0	47,0	40,2	344	Yes
H	Kapelleweg 25, 3997 MP 't Goy	145.654	444.526	0,0	5,0	47,0	43,9	134	Yes
I	Kapelleweg 20, 3997 MP 't Goy	145.796	444.554	0,0	5,0	47,0	43,1	186	Yes
J	Kapelleweg 6, 3945 LA Cothen	145.857	444.546	0,0	5,0	47,0	43,0	201	Yes
K	Noise sensitive point: Demands defined in calculation setup. (11)	144.797	444.916	0,0	5,0	47,0	33,9	890	Yes
L	Kapelleweg 11, 3945 LA Cothen	146.164	444.546	0,0	5,0	47,0	41,4	386	Yes
M	Kapelleweg 9, 3945 LA Cothen	146.239	444.571	0,0	5,0	47,0	40,8	457	Yes
N	Kapelleweg 7, 3945 LA Cothen	146.425	444.534	0,0	5,0	47,0	40,3	470	Yes
O	Nachtdijk 19, 3997 MR 't Goy	145.560	444.854	0,0	5,0	47,0	38,7	467	Yes
P	Kapelleweg 5, 3945 LA Cothen	146.665	444.539	0,0	5,0	47,0	39,2	587	Yes
Q	Kapelleweg 3, 3945 LA Cothen	146.857	444.529	0,0	5,0	47,0	38,3	643	Yes
R	Wijkersloot 33, 3961 MN Wijk bij Duurstede	147.703	443.944	0,0	5,0	47,0	34,8	846	Yes
S	Hoeksedijk 1, 3998 NM Schalkwijk	146.689	443.093	0,0	5,0	47,0	41,7	257	Yes
T	Lekdijk West 53, 3961 MD Wijk bij Duurstede	146.624	442.995	0,0	5,0	47,0	40,4	350	Yes
U	Lekdijk West 52, 3961 MD Wijk bij Duurstede	146.732	442.908	0,0	5,0	47,0	39,0	447	Yes
V	Noise sensitive point: Demands defined in calculation setup. (22)	144.393	445.171	0,0	5,0	47,0	29,4	1.361	Yes

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**DECIBEL - Main Result**

Calculation: 3xV112-3.3MW-119m

Distances (m)

	WTG		
NSA	1	2	3
A	1463	876	356
B	1402	827	354
C	583	258	635
D	468	351	785
E	355	502	971
F	525	1090	1605
G	613	1175	1688
H	408	843	1331
I	463	789	1251
J	481	756	1205
K	1159	1730	2244
L	679	691	1035
M	752	719	1027
N	890	727	935
O	740	1167	1632
P	1110	848	918
Q	1286	966	935
R	2072	1541	1119
S	1468	926	532
T	1494	975	626
U	1631	1104	721
V	1630	2206	2721

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**DECIBEL - Detailed results****Calculation: 3xV112-3.3MW-119m Noise calculation model: Dutch 2011 8,0 m/s**

Calculation Results

Noise sensitive area: A Hoeksedijk 2, 3961 ME Wijk bij Duurstede

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Wind speed [m/s]				
1	1.463	1.468	29,73	22,93	6,9	23,09	7,0	23,43	7,4	0,65
2	876	883	33,93	27,10	6,9	27,29	7,0	27,63	7,4	0,00
3	356	373	44,35	37,55	6,9	37,71	7,0	38,05	7,4	0,00
Sum	44,86									

Noise sensitive area: B Hoeksedijk 3, 3998 NM Schalkwijk

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Wind speed [m/s]				
1	1.402	1.407	30,32	23,52	6,9	23,68	7,0	24,02	7,4	0,53
2	827	835	34,51	27,67	6,9	27,87	7,0	28,21	7,4	0,00
3	354	372	44,38	37,58	6,9	37,74	7,0	38,08	7,4	0,00
Sum	44,96									

Noise sensitive area: C Beusichemseweg 146, 3998 NL Schalkwijk

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Wind speed [m/s]				
1	583	594	39,82	33,02	6,9	33,18	7,0	33,52	7,4	0,00
2	258	282	45,12	38,29	6,9	38,48	7,0	38,82	7,4	0,00
3	635	645	39,00	32,20	6,9	32,36	7,0	32,70	7,4	0,00
Sum	46,99									

Noise sensitive area: D Beusichemseweg 71, 3998 NL Schalkwijk

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Wind speed [m/s]				
1	468	482	41,89	35,09	6,9	35,25	7,0	35,59	7,4	0,00
2	351	369	42,60	35,76	6,9	35,96	7,0	36,30	7,4	0,00
3	785	794	36,91	30,11	6,9	30,27	7,0	30,60	7,4	0,00
Sum	45,86									

Noise sensitive area: E Beusichemseweg 69, 3998 NL Schalkwijk

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Wind speed [m/s]				
1	355	372	44,37	37,57	6,9	37,73	7,0	38,07	7,4	0,00
2	502	515	39,36	32,53	6,9	32,72	7,0	33,07	7,4	0,00
3	971	978	34,74	27,95	6,9	28,11	7,0	28,44	7,4	0,00
Sum	45,91									

Noise sensitive area: F Zuwedijk 6, 3998 NA Schalkwijk

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Wind speed [m/s]				
1	525	538	40,81	34,01	6,9	34,17	7,0	34,51	7,4	0,00
2	1.090	1.096	31,67	24,84	6,9	25,03	7,0	25,38	7,4	0,00
3	1.605	1.609	27,98	21,18	6,9	21,34	7,0	21,68	7,4	1,39
Sum	41,51									

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**DECIBEL - Detailed results****Calculation: 3xV112-3.3MW-119m Noise calculation model: Dutch 2011 8,0 m/s****Noise sensitive area: G Nachtdijk 25, 3997 MR 't Goy**

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	613	624	39,34	32,54	6,9	32,70	7,0	33,04	7,4	0,00
2	1.175	1.180	30,88	24,05	6,9	24,24	7,0	24,58	7,4	0,00
3	1.688	1.692	27,36	20,56	6,9	20,72	7,0	21,06	7,4	1,44
Sum	40,15									

Noise sensitive area: H Kapelleweg 25, 3997 MP 't Goy

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	409	424	43,12	36,33	6,9	36,49	7,0	36,82	7,4	0,00
2	843	850	34,32	27,49	6,9	27,68	7,0	28,02	7,4	0,00
3	1.331	1.336	31,07	24,27	6,9	24,43	7,0	24,77	7,4	0,35
Sum	43,89									

Noise sensitive area: I Kapelleweg 20, 3997 MP 't Goy

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	464	477	41,98	35,18	6,9	35,34	7,0	35,68	7,4	0,00
2	790	798	34,98	28,14	6,9	28,34	7,0	28,68	7,4	0,00
3	1.251	1.256	32,04	25,24	6,9	25,40	7,0	25,74	7,4	0,04
Sum	43,12									

Noise sensitive area: J Kapelleweg 6, 3945 LA Cothen

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	481	494	41,63	34,84	6,9	35,00	7,0	35,33	7,4	0,00
2	756	765	35,41	28,57	6,9	28,77	7,0	29,11	7,4	0,00
3	1.206	1.211	32,48	25,68	6,9	25,84	7,0	26,18	7,4	0,00
Sum	42,97									

Noise sensitive area: K Noise sensitive point: Demands defined in calculation setup. (11)

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	1.159	1.165	32,90	26,10	6,9	26,26	7,0	26,60	7,4	0,00
2	1.730	1.734	25,15	18,31	6,9	18,51	7,0	18,85	7,4	1,51
3	2.244	2.247	23,12	16,32	6,9	16,48	7,0	16,82	7,4	2,43
Sum	33,95									

Noise sensitive area: L Kapelleweg 11, 3945 LA Cothen

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	679	688	38,35	31,56	6,9	31,72	7,0	32,05	7,4	0,00
2	691	701	36,30	29,46	6,9	29,66	7,0	30,00	7,4	0,00
3	1.036	1.042	34,08	27,28	6,9	27,44	7,0	27,78	7,4	0,00
Sum	41,36									

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**DECIBEL - Detailed results****Calculation: 3xV112-3.3MW-119m Noise calculation model: Dutch 2011 8,0 m/s****Noise sensitive area: M Kapelleweg 9, 3945 LA Cothen**

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	752	761	37,34	30,54	6,9	30,70	7,0	31,04	7,4	0,00
2	720	729	35,90	29,07	6,9	29,26	7,0	29,60	7,4	0,00
3	1.027	1.033	34,17	27,37	6,9	27,53	7,0	27,87	7,4	0,00
Sum	40,76									

Noise sensitive area: N Kapelleweg 7, 3945 LA Cothen

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	890	897	35,64	28,84	6,9	29,00	7,0	29,34	7,4	0,00
2	727	736	35,80	28,96	6,9	29,15	7,0	29,50	7,4	0,00
3	935	942	35,14	28,34	6,9	28,50	7,0	28,84	7,4	0,00
Sum	40,31									

Noise sensitive area: O Nachtdijk 19, 3997 MR 't Goy

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	740	749	37,50	30,70	6,9	30,86	7,0	31,20	7,4	0,00
2	1.167	1.173	30,94	24,11	6,9	24,30	7,0	24,65	7,4	0,00
3	1.633	1.637	28,02	21,22	6,9	21,38	7,0	21,72	7,4	1,16
Sum	38,75									

Noise sensitive area: P Kapelleweg 5, 3945 LA Cothen

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	1.110	1.116	33,35	26,55	6,9	26,71	7,0	27,05	7,4	0,00
2	848	856	34,26	27,42	6,9	27,62	7,0	27,96	7,4	0,00
3	918	925	35,33	28,53	6,9	28,69	7,0	29,03	7,4	0,00
Sum	39,16									

Noise sensitive area: Q Kapelleweg 3, 3945 LA Cothen

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	1.286	1.291	31,69	24,89	6,9	25,05	7,0	25,39	7,4	0,10
2	966	973	32,92	26,09	6,9	26,28	7,0	26,62	7,4	0,00
3	935	942	35,14	28,34	6,9	28,50	7,0	28,84	7,4	0,00
Sum	38,26									

Noise sensitive area: R Wijkersloot 33, 3961 MN Wijk bij Duurstede

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Evening [dB(A)]	Day [dB(A)]				
1	2.072	2.075	25,12	18,32	6,9	18,48	7,0	18,82	7,4	1,36
2	1.541	1.545	27,33	20,49	6,9	20,69	7,0	21,03	7,4	0,61
3	1.119	1.125	33,27	26,47	6,9	26,63	7,0	26,97	7,4	0,00
Sum	34,75									

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**DECIBEL - Detailed results****Calculation: 3xV112-3.3MW-119m Noise calculation model: Dutch 2011 8,0 m/s****Noise sensitive area: S Hoeksedijk 1, 3998 NM Schalkwijk**

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Evening [dB(A)]					
1	1.468	1.473	29,58	22,78	6,9	22,94	7,0	23,28	7,4	0,77	
2	925	932	33,37	26,53	6,9	26,73	7,0	27,07	7,4	0,00	
3	532	544	40,70	33,90	6,9	34,06	7,0	34,40	7,4	0,00	
Sum	41,71										

Noise sensitive area: T Lekdijk West 53, 3961 MD Wijk bij Duurstede

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Evening [dB(A)]					
1	1.494	1.499	29,28	22,48	6,9	22,64	7,0	22,98	7,4	0,88	
2	975	982	32,83	26,00	6,9	26,19	7,0	26,53	7,4	0,00	
3	626	637	39,14	32,34	6,9	32,50	7,0	32,84	7,4	0,00	
Sum	40,40										

Noise sensitive area: U Lekdijk West 52, 3961 MD Wijk bij Duurstede

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Evening [dB(A)]					
1	1.631	1.635	27,96	21,16	6,9	21,32	7,0	21,66	7,4	1,23	
2	1.104	1.110	31,53	24,70	6,9	24,89	7,0	25,23	7,4	0,00	
3	721	730	37,76	30,96	6,9	31,12	7,0	31,46	7,4	0,00	
Sum	39,04										

Noise sensitive area: V Noise sensitive point: Demands defined in calculation setup. (22)

No.	Distance [m]	Sound distance [m]	Lden(year)		L Annual mean		Wind speed [m/s]	Evening [dB(A)]	Night [dB(A)]	Wind speed [m/s]	Cmeteo [dB]
			Calculated [dB(A)]	Day [dB(A)]	Day [dB(A)]	Evening [dB(A)]					
1	1.630	1.634	27,95	21,15	6,9	21,31	7,0	21,64	7,4	1,25	
2	2.206	2.209	21,52	14,69	6,9	14,88	7,0	15,23	7,4	2,35	
3	2.721	2.724	20,31	13,51	6,9	13,67	7,0	14,00	7,4	2,97	
Sum	29,41										

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DECIBEL - Assumptions for noise calculation

Calculation: 3xV112-3.3MW-119m Noise calculation model: Dutch 2011 8,0 m/s

Noise calculation model:

Dutch 2011

Wind speed:

Aggregated

Ground attenuation:

General, Ground factor: 0,5

Meteorological coefficient, C0:

5,0 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 tone penalty are added to demand: 0,0 dB(A)

Height above ground level, when no value in NSA object:

5,0 m Allow override of model height with height from NSA object

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0,0 dB(A)

Setup for Lden calculation

Variant	Name	From hour	To hour	Hours	Penalty [dB]	Days per year
1	Day	7	19	12	0	365
2	Evening	19	23	4	5	365
3	Night	23	7	8	10	365

Octave data required

Air absorption

63	125	250	500	1.000	2.000	4.000	8.000
[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]
0,1	0,3	0,8	1,6	2,9	6,2	19,0	67,0

WTG: VESTAS V112-3.3 Gridstreame 3300 112.0 !O!

Noise: Level 5 - Mode 5 - Estimated - 12-2013

Source Source/Date Creator Edited
 Manufacturer 5-12-2013 EMD 28-5-2014 15:23
 Based on Document no.: 0034-7282 V07.

Status	Wind speed [m/s]	Frequency				LwA,ref [dB(A)]	Pure tones	Octave data							
		Day [%]	Evening [%]	Night [%]	63 [dB]			125 [dB]	250 [dB]	500 [dB]	1000 [dB]	2000 [dB]	4000 [dB]	8000 [dB]	
ExtraPolated	3,0	7,4	5,0	4,2	89,5	No	Generic data	71,1	78,1	81,5	84,1	83,9	81,0	76,2	66,7
Interpolated	4,0	10,4	9,9	7,4	92,2	No	Generic data	73,8	80,8	84,2	86,8	86,6	83,7	78,9	69,4
Interpolated	5,0	12,0	12,8	10,5	94,9	No	Generic data	76,5	83,5	86,9	89,5	89,3	86,4	81,6	72,1
Interpolated	6,0	12,8	13,8	14,2	97,6	No	Generic data	79,2	86,2	89,6	92,2	92,0	89,1	84,3	74,8
Interpolated	7,0	12,7	14,1	16,6	100,3	No	Generic data	81,9	88,9	92,3	94,9	94,7	91,8	87,0	77,5
Interpolated	8,0	10,2	11,7	13,7	101,5	No	Generic data	83,1	90,1	93,5	96,1	95,9	93,0	88,2	78,7
Interpolated	9,0	8,2	8,5	9,5	102,3	No	Generic data	83,9	90,9	94,3	96,9	96,7	93,8	89,0	79,5
Interpolated	10,0	6,2	6,6	7,1	103,0	No	Generic data	84,6	91,6	95,0	97,6	97,4	94,5	89,7	80,2
Interpolated	11,0	4,3	5,0	4,6	103,7	No	Generic data	85,3	92,3	95,7	98,3	98,1	95,2	90,4	80,9
Interpolated	12,0	3,1	3,1	3,3	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	13,0	2,0	1,9	2,1	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	14,0	1,5	1,3	1,3	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	15,0	1,2	0,8	1,0	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	16,0	0,8	0,4	0,7	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	17,0	0,2	0,2	0,2	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	18,0	0,2	0,1	0,1	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	19,0	0,1	0,1	0,1	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	20,0	0,1	0,0	0,0	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2
Interpolated	21,0	0,1	0,0	0,0	104,0	No	Generic data	85,6	92,6	96,0	98,6	98,4	95,5	90,7	81,2

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DECIBEL - Assumptions for noise calculation

Calculation: 3xV112-3.3MW-119m Noise calculation model: Dutch 2011 8,0 m/s

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data							
					63	125	250	500	1000	2000	4000	8000
Aggregated, Day	119,0	6,9	100,0	No	81,6	88,6	92,0	94,6	94,4	91,5	86,7	77,2
Aggregated, Evening	119,0	7,0	100,2	No	81,8	88,8	92,2	94,8	94,6	91,7	86,9	77,4
Aggregated, Night	119,0	7,4	100,5	No	82,1	89,1	92,5	95,1	94,9	92,0	87,2	77,7

WTG: VESTAS V112-3.3 Gridstreame 3300 112.0 !O!

Noise: Level 4 - Mode 4 - Estimated - 12-2013

Source Source/Date Creator Edited
 Manufacturer 5-12-2013 EMD 28-5-2014 15:22
 Based on Document no.: 0034-7282 V07.

Status	Wind speed [m/s]	Frequency Day [%]	Frequency Evening [%]	Frequency Night [%]	LwA,ref [dB(A)]	Pure tones	Octave data								
							63	125	250	500	1000	2000	4000	8000	
							[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	
ExtraPolated	3,0	7,4	5,0	4,2	89,7	No	Generic data	71,3	78,3	81,7	84,3	84,1	81,2	76,4	66,9
Interpolated	4,0	10,4	9,9	7,4	91,7	No	Generic data	73,3	80,3	83,7	86,3	86,1	83,2	78,4	68,9
Interpolated	5,0	12,0	12,8	10,5	93,7	No	Generic data	75,3	82,3	85,7	88,3	88,1	85,2	80,4	70,9
Interpolated	6,0	12,8	13,8	14,2	95,8	No	Generic data	77,4	84,4	87,8	90,4	90,2	87,3	82,5	73,0
Interpolated	7,0	12,7	14,1	16,6	98,6	No	Generic data	80,2	87,2	90,6	93,2	93,0	90,1	85,3	75,8
Interpolated	8,0	10,2	11,7	13,7	100,2	No	Generic data	81,8	88,8	92,2	94,8	94,6	91,7	86,9	77,4
Interpolated	9,0	8,2	8,5	9,5	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	10,0	6,2	6,6	7,1	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	11,0	4,3	5,0	4,6	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	12,0	3,1	3,1	3,3	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	13,0	2,0	1,9	2,1	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	14,0	1,5	1,3	1,3	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	15,0	1,2	0,8	1,0	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	16,0	0,8	0,4	0,7	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	17,0	0,2	0,2	0,2	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	18,0	0,2	0,1	0,1	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	19,0	0,1	0,1	0,1	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	20,0	0,1	0,0	0,0	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2
Interpolated	21,0	0,1	0,0	0,0	101,0	No	Generic data	82,6	89,6	93,0	95,6	95,4	92,5	87,7	78,2

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data							
					63	125	250	500	1000	2000	4000	8000
Aggregated, Day	119,0	6,9	98,1	No	79,7	86,7	90,1	92,7	92,5	89,6	84,8	75,3
Aggregated, Evening	119,0	7,0	98,3	No	79,9	86,9	90,3	92,9	92,7	89,8	85,0	75,5
Aggregated, Night	119,0	7,4	98,7	No	80,3	87,3	90,7	93,3	93,1	90,2	85,4	75,9

NSA: Hoeksedijk 2, 3961 ME Wijk bij Duurstede-A

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Hoeksedijk 3, 3998 NM Schalkwijk-B

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Beusichemseweg 146, 3998 NL Schalkwijk-C

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

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DECIBEL - Assumptions for noise calculation

Calculation: 3xV112-3.3MW-119m **Noise calculation model:** Dutch 2011 8,0 m/s

NSA: Beusichemseweg 71, 3998 NL Schalkwijk-D

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Beusichemseweg 69, 3998 NL Schalkwijk-E

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Zuwedijk 6, 3998 NA Schalkwijk-F

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Nachtdijk 25, 3997 MR 't Goy-G

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Kapelleweg 25, 3997 MP 't Goy-H

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Kapelleweg 20, 3997 MP 't Goy-I

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Kapelleweg 6, 3945 LA Cothen-J

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Noise sensitive point: Demands defined in calculation setup. (11)-K

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Kapelleweg 11, 3945 LA Cothen-L

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

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Calculated:

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DECIBEL - Assumptions for noise calculation

Calculation: 3xV112-3.3MW-119m **Noise calculation model:** Dutch 2011 8,0 m/s

NSA: Kapelleweg 9, 3945 LA Cothen-M

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Kapelleweg 7, 3945 LA Cothen-N

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Nachtdijk 19, 3997 MR 't Goy-O

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Kapelleweg 5, 3945 LA Cothen-P

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Kapelleweg 3, 3945 LA Cothen-Q

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Wijkersloot 33, 3961 MN Wijk bij Duurstede-R

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Hoeksedijk 1, 3998 NM Schalkwijk-S

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Lekdijk West 53, 3961 MD Wijk bij Duurstede-T

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

NSA: Lekdijk West 52, 3961 MD Wijk bij Duurstede-U

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:

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Calculated:

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DECIBEL - Assumptions for noise calculation

Calculation: 3xV112-3.3MW-119m **Noise calculation model:** Dutch 2011 8,0 m/s

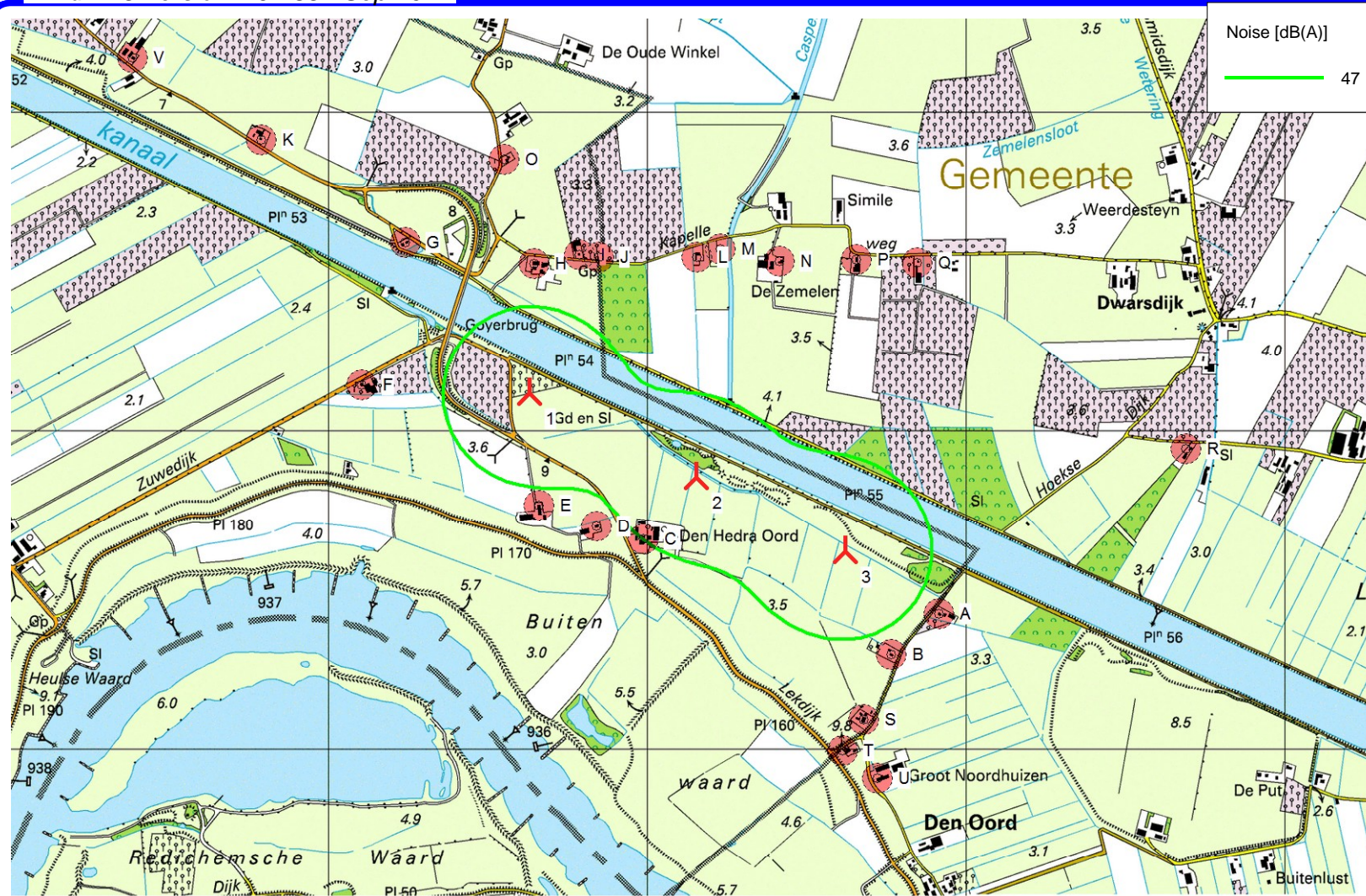
NSA: Noise sensitive point: Demands defined in calculation setup. (22)-V

Predefined calculation standard: Dutch Lden

Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 47,0 dB(A)

Distance demand:



Noise [dB(A)]
 ————— 47

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DECIBEL -
Map Aggregated
 Calculation:
 3xV112-3.3MW-119m
Noise calculation model:
 Dutch 2011 8,0 m/s

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Map: Bitmap map: 146957-442546-149634-445753.tif , Print scale 1:20.000, Map center RD1 East: 146.134 North: 443.870

⚡ New WTG

■ Noise sensitive area

Noise calculation model: Dutch 2011. Wind speed: Aggregated
 Height above sea level from active line object