

Appendix F

Noise Impact Assessment (Vipac)



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Flyers Creek Wind Farm NSW – Noise Assessment of Planning Modification 4

Vipac Engineers & Scientists Ltd (Vipac) provides the following statement of the assessment of noise impacts of Planning Modification 4 to the Flyers Creek Wind Farm.

1 INTRODUCTION

A noise assessment has been performed of the Flyers Creek Wind Farm Planning Modification 4. This assessment is based on a review of the amendments proposed as part of the Planning Modification 4 to the Flyers Creek Wind Farm and an assessment of the noise impacts.

Vipac prepared the original noise assessment for the project in December 2010 [Ref 1] and also the updated assessment for the changes made to the Project as part of Planning Modification 3 [Ref 2]. This report has been prepared to update Vipac's previous assessments and assess the noise impacts arising as a result of Planning Modification 4. The original noise assessment was based on the original layout of up to 44 wind turbines while the current layout is 38 wind turbines (i.e. an overall reduction of 6 turbines).

2 PLANNING MODIFICATION 4

This report provides the noise assessment of the following proposed amendments as part of Planning Modification 4:

- Proposed increase in the maximum turbine dimensions. The noise model has been revised with an updated candidate wind turbine, which has a maximum blade tip height of 160m AGL and a corresponding hub height of up to approximately 92m AGL.
- The candidate wind turbine model is proposed to generate the worst-case Sound Power Levels given in Table 2-1 (from cut-in wind speed to rated power wind speed at hub height).
- This assessment has been based on one of the turbine models under consideration for installation at the site, noting that the final turbine model has not yet been selected by the Proponent.
- Reinstatement of a 132kV transmission line and associated switching station.

Table 2-1: Sound power levels (dB(A) re 1pW) at hub height integer wind speeds (using candidate turbine)

Hub Height Wind Speed (m/s)	3	4	5	6	7	8	9	10	11	12	13
Sound Power Level (dB(A) re 1pW)	92.5	92.5	94.5	98.5	101.9	105.0	106.5	107.0	107.0	107.0	107.0

The 1/3 octave band sound power level data for the candidate wind turbine was used for the noise spectrum in the noise model. All the relevant receivers are applicable as in Planning Modification 3 [Ref 2].

3 NOISE CRITERIA FOR RECEIVERS

The NSW "Wind Energy: Noise Assessment Bulletin" (DPE 2016) confirms that NSW has adopted the SA EPA "Wind farms – environmental noise guidelines" (SA 2009). The SA EPA guidelines [Ref 5] set base noise criteria of:

- *The predicted equivalent noise level ($L_{Aeq,10 \text{ minute}}$), adjusted for tonality and low frequency noise in accordance with these guidelines, should not exceed 35 dB(A) or the background noise ($L_{A90,10 \text{ minute}}$) by more than 5 dB(A), whichever is the greater, at all relevant receivers for wind speed from cut-in to rated power of the wind turbine generator and each integer wind speed in between.*

The SA EPA guidelines [Ref 5] also recognise that different considerations apply to landowners (who are associated with wind farm projects) and the guidelines confirm that for such associated landowners:

- *If the wind farm noise does not exceed 30dB(A) indoors and 45dB(A) outdoors at the localities belonging to the financial stakeholders it is considered acceptable. In particular situations the expected noise impact can be above the recommended limits. In this case the landowner has to agree in writing with the higher level of exposure and the developer should discuss the issue with the EPA.*

A complete criteria/limit table has been generated for wind speeds up to 13 m/s (at 92m AGL hub height wind speeds) for the key receivers at the five background noise monitoring locations (and is based on the noise monitoring at the 5 monitoring locations [Ref 1] including the latest noise monitoring results for R078 [Ref 3] and R089 [Ref 4]). This is provided in Table 3-1.

Table 3-1: Noise criteria at hub height wind speeds for key receivers

Monitoring Location & Key Receivers	Noise Criteria, dB(A), with Reference to Hub Height Wind Speed (ms^{-1} at 92m AGL)										
	3	4	5	6	7	8	9	10	11	12	13
Monitoring Location R012 R002, R010, R011, R012, R013, R014, R046, R048, R057, R071, R072, R074, R095, R102	35	35	36	37	38	39	40	41	42	43	44
Monitoring Location R025 R023, R024, R025, R043, R055, R090, R108	35	35	35	35	36	37	38	39	40	40	41
Monitoring Location R027 R027, R044	35	35	35	35	35	36	38	39	40	41	42
Monitoring Location R078 R056, R077, R078, R099	35	35	35	35	35	35	36	37	38	40	41
Monitoring Location R089 R089	35	35	35	35	37	39	40	42	43	43	43
All other non-associated residences	The higher of 35 dB(A) or the existing background noise level (L_{A90} (10-minute)) plus 5 dB(A)										

The assignment of all relevant receivers relative to the background monitoring locations is provided in Table 3-2. The receiver assignment into groups (for receivers assessed to likely have a similar background

noise environment to each representative background site) has been based on the consideration of the general terrain/topography, vegetation and prevailing winds in the vicinity of each receiver. Associated or non-relevant properties are not included because they are subject to a noise limit of 45dBA.

Table 3-2: Representative background sites and assigned relevant receivers with similar noise criteria

Background monitoring site	Sites considered to have a similar background noise characteristic
R012	R001, R005, R007, R008, R009, R010, R011, R012, R013, R014, R015, R016, R017, R046, R047, R048, R057, R058, R072, R073, R075, R085, R087, R095, R102, R106, R107, R109, R112, R126, R128, R129, R130, R131, R132, R158
R025	R023, R024, R025, R029, R030, R031, R033, R034, R041, R042, R043, R080, R082, R083, R084, R090, R098, R108, R114, R115, R116, R137, R152
R027	R020, R027, R028, R035, R036, R037, R044, R045, R091, R092, R093, R094, R096, R117, R118, R119, R120, R121, R122, R123, R124, R125, R127, R138, R139, R140, R141, R142, R143, R144, R145, R146, R153, R154, R155, R156, R157
R078	R056, R077, R078, R099, R100, R101, R110, R111, R133, R134, R136, R147, R148, R149, R150, R151
R089	R089

Regression graphs and equations (for curve of best fit polynomial) for all background monitoring locations (locations R012, R025, R027, R078 and R089) generated for 92m AGL hub height wind speeds up to 13m/s are presented in Appendix A.

Relevant Project Approval Conditions [Ref 6] for the Flyers Creek Wind Farm are described as follows.

Condition F6 of the Project Approval requires the Project to be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) and requires all feasible and reasonable noise mitigation measures to be implemented to achieve this outcome. Similarly, condition F21(b) requires the preparation and implementation of a construction noise management plan detailing how construction noise and vibration impacts will be minimised and managed.

Condition G7 of the Project Approval sets operational noise criteria for wind turbine noise for all residences not associated with the Project based on the noise levels predicted for the currently approved Project layout and maximum turbine dimensions.

Condition G8 of the Project Approval sets operational noise criteria for the operation of ancillary infrastructure.

Condition G9 of the Project Approval requires operational noise levels to be confirmed by the operational noise monitoring and the turbines operated so as to achieve compliance with the noise limits specified in the Project Approval (as modified).

4 NOISE PREDICTIONS AND ASSESSMENT

The noise model used during the noise assessment undertaken at Planning Modification 3 has been updated to account for updated candidate turbine model with a maximum blade tip height of 160m (and corresponding hub height of up to approximately 92m). The new sound power level data and 1/3 octave spectral noise data for the candidate wind turbine were incorporated into the updated model. The standard ISO9613 noise propagation algorithm was used as before, with a ground absorption factor conservatively set to fully reflective (G factor set to 0), and the noise model run using the SoundPLAN ver7.0 software.

The predicted noise levels have been determined for all relevant and non-relevant receivers. The tabulated results and applicable noise criteria from cut-in wind speed (3m/s) to rated power wind speed (13m/s) are presented in Appendix B.

The predicted L_{Aeq} noise levels using the updated candidate turbine model and 92m AGL hub height meets the applicable criteria developed in accordance with the SA Environmental Noise Guidelines – Wind Farms [Ref 5] at all but two (2) relevant receivers (R077 and R078), where small exceedances of less than 1 dB were noted between the hub height wind speeds 8m/s to 10m/s.

As a result, some minor noise mitigation measures may need to be applied to ensure the applicable noise criteria are met at the affected hub height wind speeds. This will take the form of either micro-siting of the closest turbines and/ or turbine wind sector management using lower turbine power modes for one or two turbines for the range of hub height wind speeds from 8m/s to 10m/s.

It is noted that, given the conservative assumptions in the model (such as fully reflective ground factor and the assumption of wind blowing from all directions simultaneously from all turbines to the receivers), these measures may not be required in reality. The noise mitigation measures proposed will be sufficient to achieve compliance with the relevant criteria and that this would be verified by the operational noise monitoring required under Project Approval Condition G9.

The proposed 132kV overhead transmission line (to the west of the substation) is not likely to be proposed to be within 50m of any residences and as a result corona discharge noise or Aeolian noise is not likely to be an issue. Transmission line noise (due to corona or Aeolian noise) is not significant or potentially annoying at distances greater than about 50 to 100 metres from the lines. One receiver location (R017) could be located within about 60-70m of the transmission line and may occasionally notice low level noise from the lines on some occasions (e.g. during high humidity conditions) but is unlikely to be an issue. A small switching station may be located at the northern end of the 132kV transmission line (at the point of connection to the existing Orange North to Cadia transmission line) and is likely to comprise basic switchgear and circuit breakers (and no transformers). An assessment of the small switching station shows that it is unlikely to have any significant noise impact on the nearest receivers (which are located greater than 250m from the likely site of the switching station).

The original noise assessment [Ref 1] assessed the noise impact from wind farm construction activities and the operational impact of the proposed substation. The original assessment showed that the relevant noise criteria for construction and substation noise are likely to be achieved at all relevant receivers. The substation has not been moved or changed relative to the previous approval, and as a result the original assessment of no significant noise impact would still hold.

5 SUMMARY

In summary, the increased maximum turbine envelope proposed in Planning Modification 4 is likely to generate a slight increase in predicted noise levels at most receivers compared to the approved project layout. This could result in the predicted noise levels slightly exceeding (by less than 1 dB) the applicable criteria at receivers R077 and R078 between the hub height wind speeds 8m/s to 10m/s. As a result, some noise mitigation measures may need to be applied in the form of turbine micro-siting and turbine wind sector management using lower turbine power modes for one or two turbines during some wind speed conditions, to ensure the applicable noise criteria are met at nearby residences. It is noted that, given the conservative assumptions in the model (such as fully reflective ground factor and the assumption of wind blowing from all directions simultaneously from all turbines to the receivers), these measures may not be required.

The proposed 132kV overhead transmission line (to the west of the substation) is not likely to be proposed to be within 50m of any residences and as a result corona discharge noise or Aeolian noise is not likely to be an issue. The switching station (at the northern end of the 132kV overhead transmission line) is not

likely to cause any significant noise impact at the nearest receivers (located over 250m away). The original assessment showed that the relevant noise criteria for construction and substation noise are likely to be achieved at all relevant receivers, and as a result the original assessment of no significant noise impact would still hold.

The Project Approval conditions relating to noise will be sufficient to achieve compliance with the relevant criteria and this will be verified by the operational noise monitoring required under Condition G9.

REFERENCES

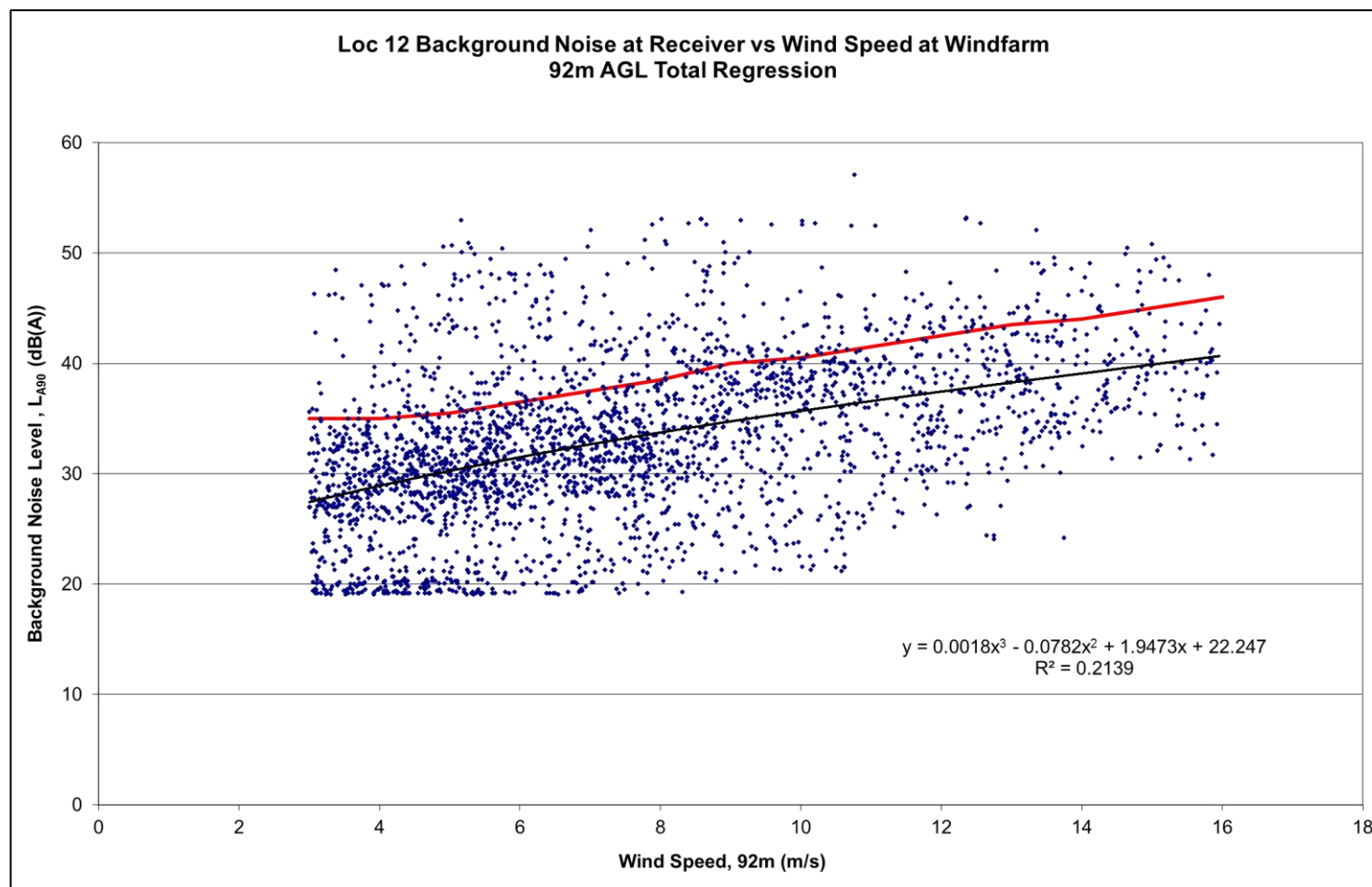
- Ref [1] Flyers Creek Wind Farm - Noise Impact Assessment, Vipac report 50B-08-0089-TRP-773906-2, dated 21 December 2010.
- Ref [2] Flyers Creek Wind Farm - Noise Assessment of Planning Modification 3, Vipac report 70Q-12-0329-TRP-541411-0, dated 19 April 2017.
- Ref [3] Flyers Creek Wind Farm – R78 Additional Background Noise Measurements, Vipac report 50B-08-0089-TRP-797028-0, dated 28 January 2015.
- Ref [4] Flyers Creek Wind Farm – Background Noise Monitoring at H89 (referenced to 91.5m wind speeds), Sonus report S3870C6, dated January 2016.
- Ref [5] Environmental Noise Guidelines – Wind Farms, SA Environment Protection Authority, South Australian Government, July 2009.
- Ref [6] Project Approval Conditions - Flyers Creek Wind Farm, Application No. MP 08_0252 (Mod 3, 30 November 2017), NSW Planning Assessment Commission.
- Ref [7] Flyers Creek Wind Farm – Planning Modification 3 Response to Submissions, Vipac report 70Q-12-0329-TRP-541979-1, dated 15 August 2017.
- Ref [8] Flyers Creek Wind Farm MP 08_0252 – Modification 3 - Further Information, Infigen letter, dated 30 October 2017.

Attachments:

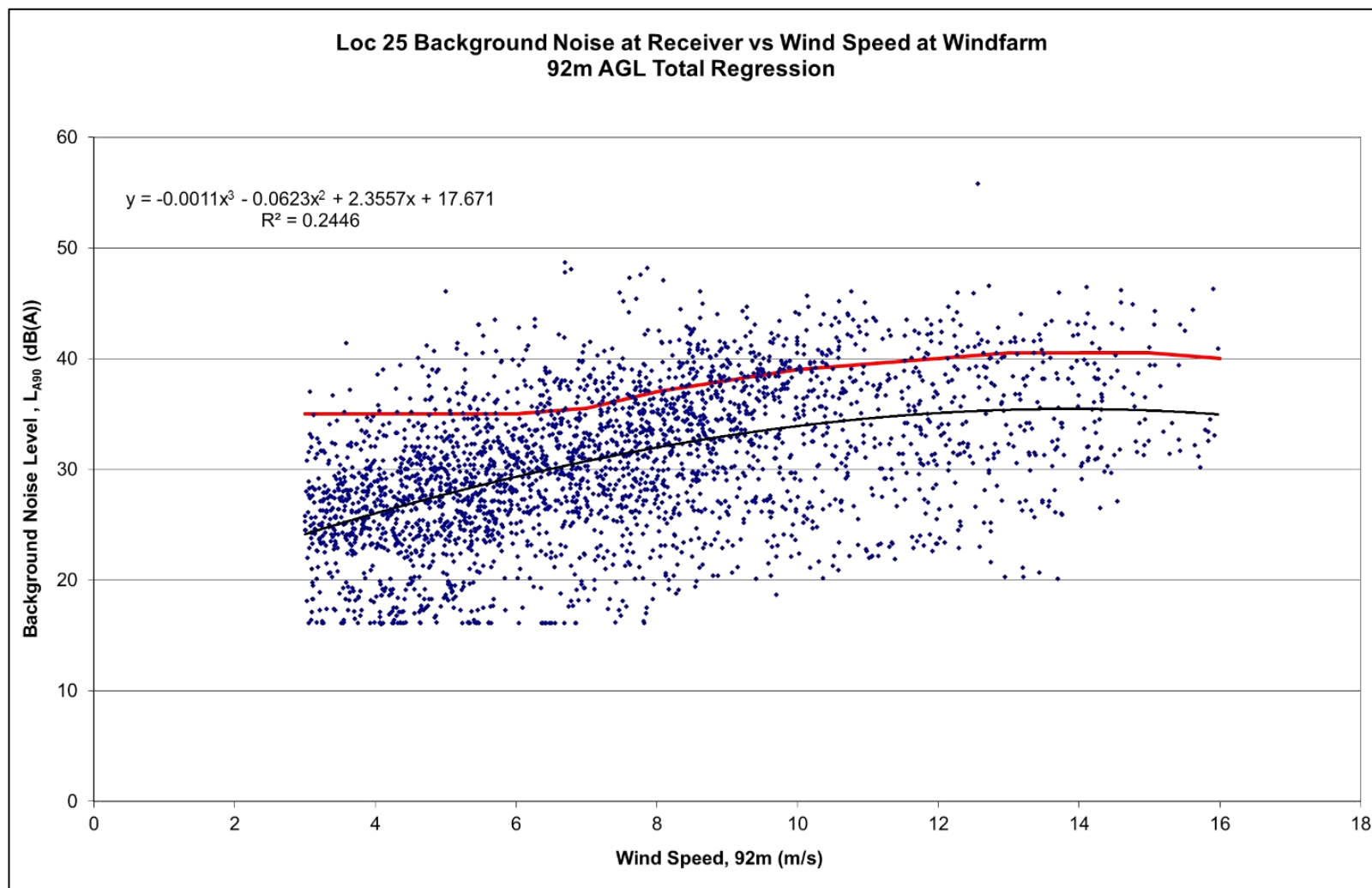
Appendix A – Figures: Regression graph and equation for each background monitoring location

Appendix B – Noise Prediction Results

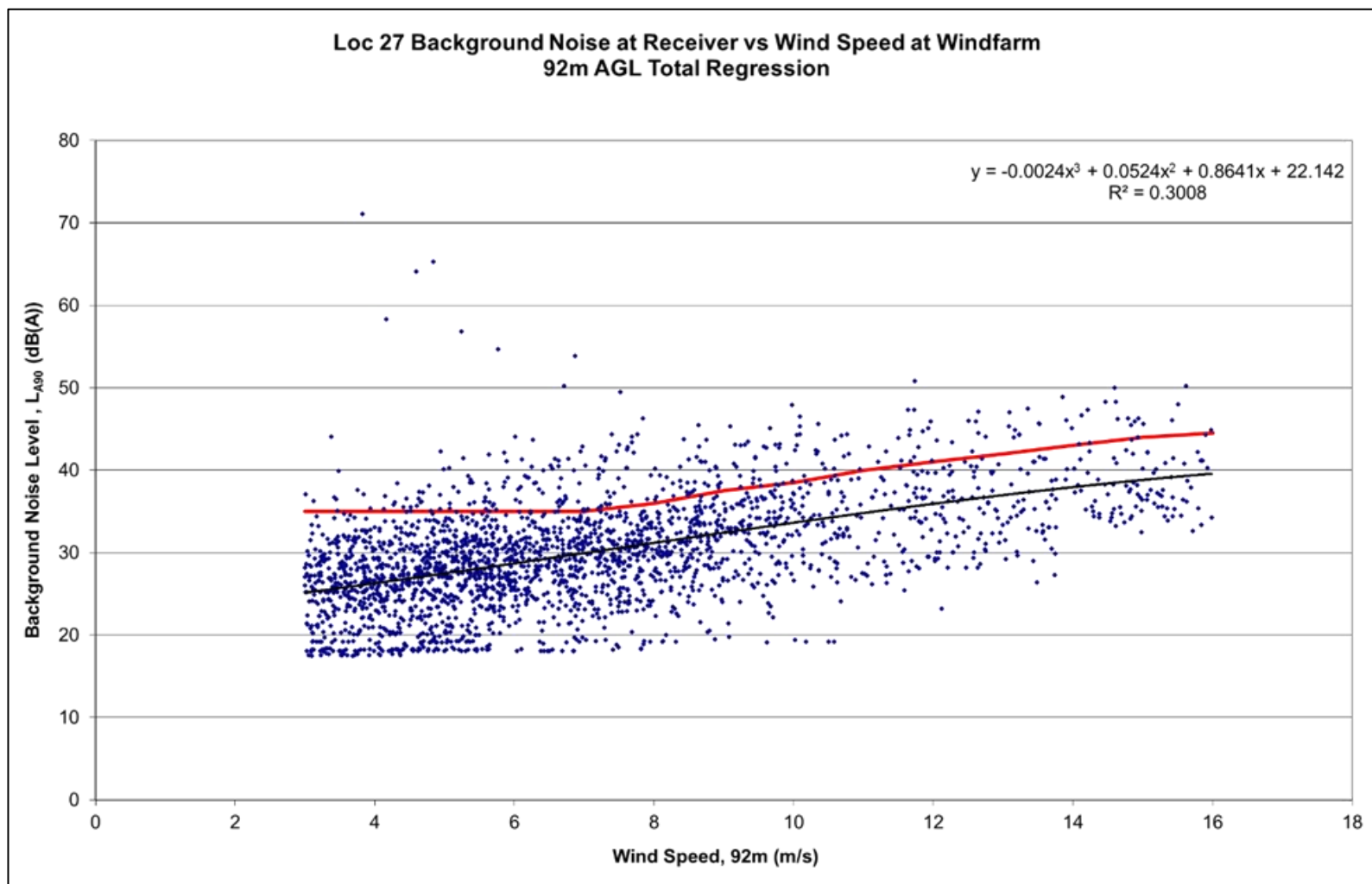
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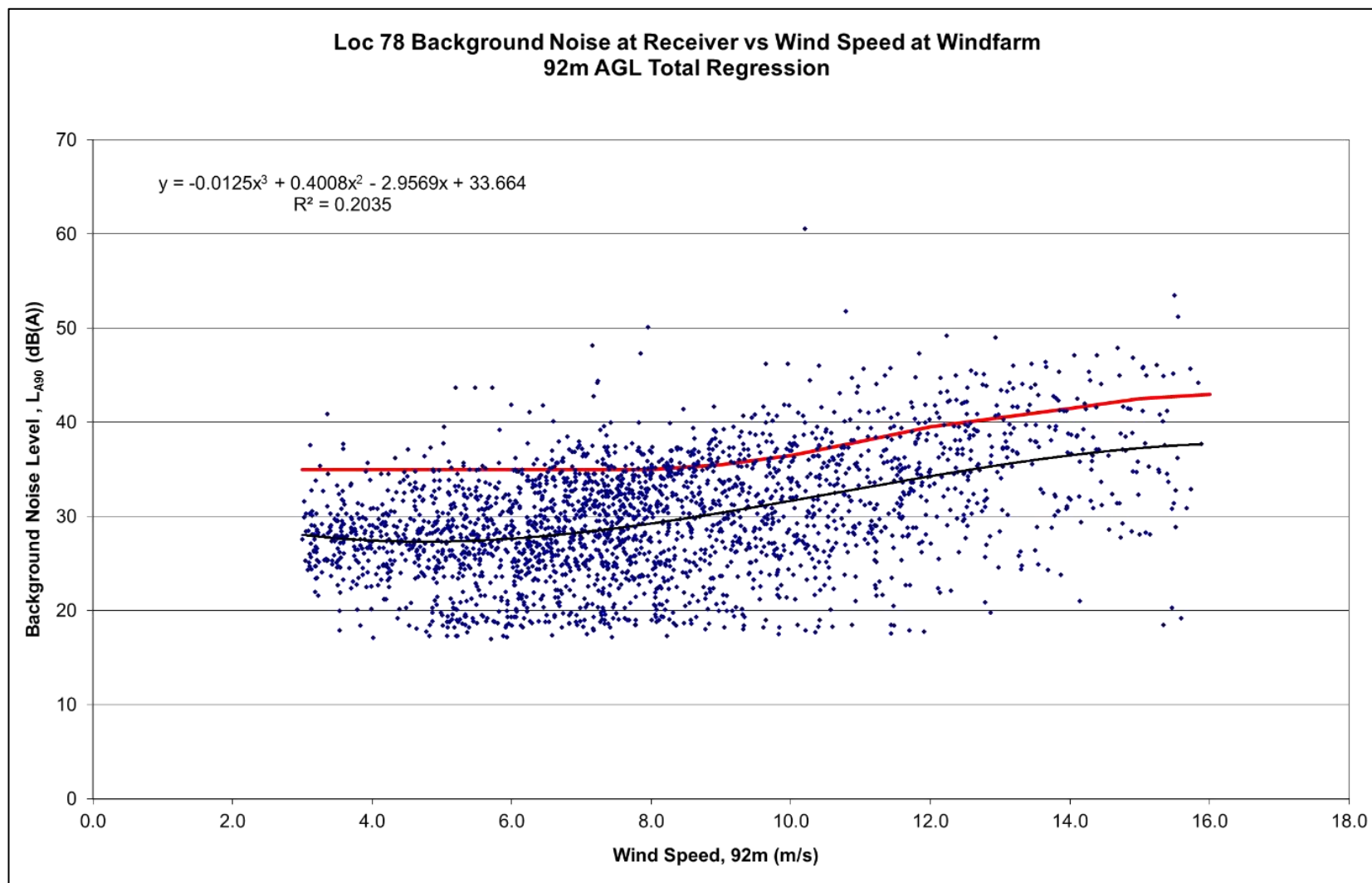
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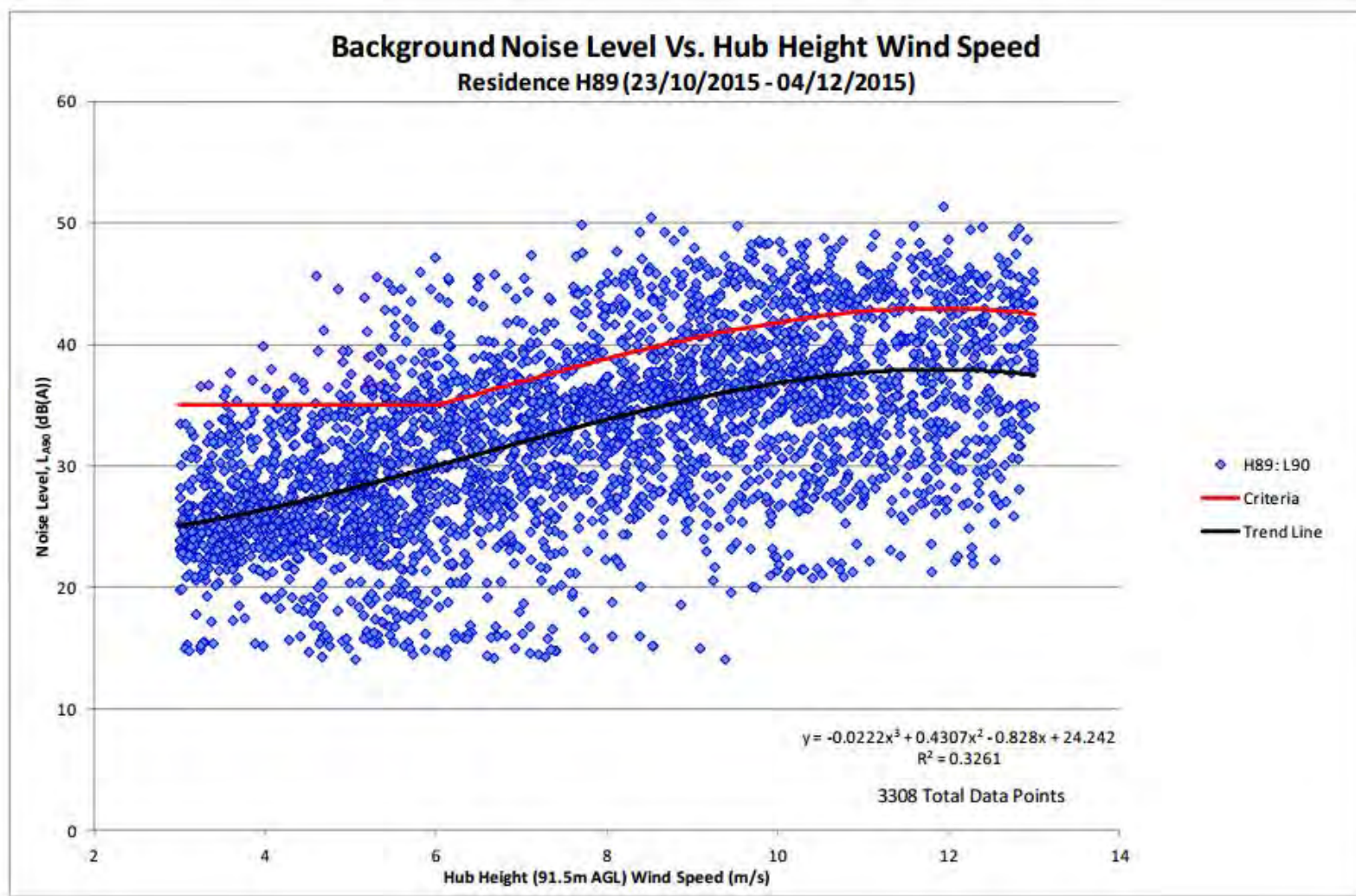
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Appendix B – Noise Prediction Results*

* Note: The receiver assignment (assessed as being similar to the representative background sites) has been based on the consideration of the general terrain/topography, vegetation and prevailing winds in the vicinity of each receiver (see also section 3).

Table B-1: Predicted Noise Levels (L_{Aeq} dB(A)) for Relevant Sites at Different Wind Speeds Using ISO9613.

Relevant Receiver	Wind Speed ms^{-1} (at 92m AGL)										
	3	4	5	6	7	8	9	10	11	12	13
Criteria set: R012 - Errowanbang											
Criteria	35	35	36	37	38	39	40	41	42	43	44
R001	17.4	17.4	19.4	23.4	26.8	29.9	31.4	31.9	31.9	31.9	31.9
R005	19.0	19.0	21.0	25.0	28.4	31.5	33.0	33.5	33.5	33.5	33.5
R007	7.6	7.6	9.6	13.6	17.0	20.1	21.6	22.1	22.1	22.1	22.1
R008	8.2	8.2	10.2	14.2	17.6	20.7	22.2	22.7	22.7	22.7	22.7
R009	19.2	19.2	21.2	25.2	28.6	31.7	33.2	33.7	33.7	33.7	33.7
R010	21.3	21.3	23.3	27.3	30.7	33.8	35.3	35.8	35.8	35.8	35.8
R011	19.1	19.1	21.1	25.1	28.5	31.6	33.1	33.6	33.6	33.6	33.6
R012	17.4	17.4	19.4	23.4	26.8	29.9	31.4	31.9	31.9	31.9	31.9
R013	17.4	17.4	19.4	23.4	26.8	29.9	31.4	31.9	31.9	31.9	31.9
R014	21.4	21.4	23.4	27.4	30.8	33.9	35.4	35.9	35.9	35.9	35.9
R015	15.7	15.7	17.7	21.7	25.1	28.2	29.7	30.2	30.2	30.2	30.2
R016	16.6	16.6	18.6	22.6	26.0	29.1	30.6	31.1	31.1	31.1	31.1
R017	16.6	16.6	18.6	22.6	26.0	29.1	30.6	31.1	31.1	31.1	31.1
R046	18.9	18.9	20.9	24.9	28.2	31.4	32.9	33.3	33.3	33.3	33.3
R047	16.7	16.7	18.7	22.7	26.1	29.2	30.7	31.2	31.2	31.2	31.2
R048	19.1	19.1	21.1	25.1	28.5	31.6	33.1	33.6	33.6	33.6	33.6
R057	18.7	18.7	20.7	24.7	28.1	31.2	32.7	33.2	33.2	33.2	33.2
R058	11.0	11.0	13.0	17.0	20.4	23.5	25.0	25.5	25.5	25.5	25.5
R072	20.8	20.8	22.8	26.8	30.2	33.3	34.8	35.3	35.3	35.3	35.3
R073	17.3	17.3	19.3	23.3	26.7	29.8	31.3	31.8	31.8	31.8	31.8
R075	15.7	15.7	17.7	21.7	25.1	28.2	29.7	30.2	30.2	30.2	30.2
R085	17.9	17.9	19.9	23.9	27.3	30.4	31.9	32.4	32.4	32.4	32.4
R087	14.5	14.5	16.5	20.5	23.9	27.0	28.5	29.0	29.0	29.0	29.0
R095	22.0	22.0	24.0	28.0	31.4	34.5	36.0	36.5	36.5	36.5	36.5
R102	19.9	19.9	21.9	25.9	29.3	32.4	33.9	34.4	34.4	34.4	34.4

Relevant Receiver	Wind Speed ms ⁻¹ (at 92m AGL)										
	3	4	5	6	7	8	9	10	11	12	13
R106	16.2	16.2	18.2	22.2	25.6	28.7	30.2	30.7	30.7	30.7	30.7
R107	16.7	16.7	18.7	22.7	26.1	29.2	30.7	31.2	31.2	31.2	31.2
R109	7.0	7.0	9.0	13.0	16.4	19.5	21.0	21.5	21.5	21.5	21.5
R112	14.1	14.1	16.1	20.1	23.5	26.6	28.1	28.6	28.6	28.6	28.6
R126	18.8	18.8	20.8	24.8	28.2	31.3	32.8	33.3	33.3	33.3	33.3
R128	12.8	12.8	14.8	18.8	22.2	25.3	26.8	27.3	27.3	27.3	27.3
R129	16.7	16.7	18.7	22.7	26.1	29.2	30.7	31.2	31.2	31.2	31.2
R130	17.2	17.2	19.2	23.2	26.6	29.7	31.2	31.7	31.7	31.7	31.7
R131	12.1	12.1	14.1	18.1	21.5	24.6	26.1	26.6	26.6	26.6	26.6
R132	14.9	14.9	16.9	20.9	24.3	27.4	28.9	29.4	29.4	29.4	29.4
R158	17.9	17.9	19.9	23.9	27.3	30.4	31.9	32.4	32.4	32.4	32.4
Criteria set: R025 – Bromley											
Criteria	35	35	35	35	36	37	38	39	40	40	41
R023	21.7	21.7	23.6	27.6	31.0	34.1	35.6	36.1	36.1	36.1	36.1
R024	14.5	14.5	16.5	20.5	23.9	27.0	28.5	29.0	29.0	29.0	29.0
R025	15.8	15.8	17.6	21.7	25.1	28.1	29.7	30.2	30.2	30.2	30.2
R029	5.6	5.6	7.6	11.6	15.0	18.1	19.6	20.1	20.1	20.1	20.1
R030	9.8	9.8	11.8	15.8	19.2	22.3	23.8	24.3	24.3	24.3	24.3
R031	7.0	7.0	9.0	13.0	16.4	19.5	21.0	21.5	21.5	21.5	21.5
R033	8.4	8.4	10.3	14.2	17.7	20.7	22.3	22.7	22.7	22.7	22.7
R034	5.6	5.6	7.6	11.6	15.0	18.1	19.6	20.1	20.1	20.1	20.1
R041	11.4	11.4	13.4	17.4	20.8	23.9	25.4	25.9	25.9	25.9	25.9
R042	6.6	6.6	8.6	12.6	16.0	19.1	20.6	21.1	21.1	21.1	21.1
R043	15.2	15.1	17.2	21.2	24.5	27.7	29.1	29.7	29.7	29.7	29.7
R080	10.4	10.4	12.4	16.4	19.8	22.9	24.4	24.9	24.9	24.9	24.9
R082	11.8	11.8	13.6	17.9	21.3	24.4	26.0	26.4	26.4	26.4	26.4
R083	5.0	5.0	7.0	11.0	14.4	17.5	19.0	19.5	19.5	19.5	19.5
R084	4.5	4.5	6.5	10.5	14.0	17.0	18.5	19.0	19.0	19.0	19.0
R090	20.3	20.3	22.3	26.3	29.7	32.8	34.3	34.8	34.8	34.8	34.8
R098	7.2	7.2	9.2	13.2	16.6	19.7	21.2	21.7	21.7	21.7	21.7
R108	21.6	21.6	23.6	27.6	31.0	34.1	35.6	36.1	36.1	36.1	36.1
R114	6.4	6.4	8.4	12.4	15.8	18.9	20.4	20.9	20.9	20.9	20.9
R115	9.6	9.6	11.5	15.6	19.0	22.0	23.6	24.1	24.1	24.1	24.1
R116	7.4	7.4	9.4	13.4	16.8	19.9	21.4	21.9	21.9	21.9	21.9

Relevant Receiver	Wind Speed ms ⁻¹ (at 92m AGL)										
	3	4	5	6	7	8	9	10	11	12	13
R137	5.8	5.8	7.7	11.7	15.1	18.2	19.7	20.2	20.2	20.2	20.2
R152	3.7	3.7	5.7	9.7	13.1	16.2	17.7	18.2	18.2	18.2	18.2
Criteria set: R027 – Willow Creek East											
Criteria	35	35	35	35	35	36	38	39	40	41	42
R020	14.1	14.1	16.1	20.1	23.5	26.6	28.1	28.6	28.6	28.6	28.6
R027	17.9	17.9	19.9	23.9	27.3	30.4	31.9	32.4	32.4	32.4	32.4
R028	10.2	10.2	12.1	16.1	19.5	22.6	24.2	24.6	24.6	24.6	24.6
R035	5.2	5.2	7.2	11.2	14.6	17.7	19.2	19.7	19.7	19.7	19.7
R036	10.2	10.2	12.2	16.2	19.6	22.7	24.2	24.7	24.7	24.7	24.7
R037	14.8	14.8	16.8	20.8	24.2	27.3	28.8	29.3	29.3	29.3	29.3
R044	16.6	16.5	18.5	22.6	25.9	29.1	30.5	31.1	31.1	31.1	31.1
R045	13.6	13.5	15.5	19.5	22.8	26.0	27.5	28.0	28.0	28.0	28.0
R091	7.2	7.2	9.1	13.2	16.6	19.6	21.2	21.7	21.7	21.7	21.7
R092	7.7	7.7	9.7	13.7	17.1	20.2	21.7	22.2	22.2	22.2	22.2
R093	6.6	6.6	8.6	12.7	16.1	19.1	20.6	21.2	21.2	21.2	21.2
R094	15.4	15.4	17.4	21.4	24.8	27.9	29.4	29.9	29.9	29.9	29.9
R096	7.3	7.3	9.3	13.3	16.7	19.8	21.3	21.8	21.8	21.8	21.8
R117	10.2	10.2	12.2	16.2	19.5	22.7	24.2	24.6	24.6	24.6	24.6
R118	4.5	4.5	6.5	10.5	13.9	17.0	18.5	19.0	19.0	19.0	19.0
R119	1.8	1.8	3.3	7.3	10.7	13.8	15.3	15.8	15.8	15.8	15.8
R120	4.8	4.8	6.7	10.7	14.1	17.2	18.7	19.2	19.2	19.2	19.2
R121	5.0	5.0	6.8	10.7	14.1	17.1	18.8	19.2	19.2	19.2	19.2
R122	4.2	4.2	6.2	10.2	13.6	16.7	18.2	18.7	18.7	18.7	18.7
R123	1.9	1.9	3.9	7.9	11.3	14.4	15.9	16.4	16.4	16.4	16.4
R124	1.9	1.9	3.9	7.9	11.3	14.4	15.9	16.4	16.4	16.4	16.4
R125	1.7	1.7	3.7	7.7	11.1	14.2	15.7	16.2	16.2	16.2	16.2
R127	5.3	5.3	7.3	11.3	14.7	17.8	19.3	19.8	19.8	19.8	19.8
R138	2.5	2.5	4.5	8.5	11.9	15.0	16.5	17.0	17.0	17.0	17.0
R139	2.1	2.1	4.1	8.1	11.5	14.6	16.1	16.6	16.6	16.6	16.6
R140	3.1	3.1	5.1	9.1	12.5	15.6	17.1	17.6	17.6	17.6	17.6
R141	2.6	2.6	4.6	8.6	12.0	15.1	16.6	17.1	17.1	17.1	17.1
R142	1.6	1.6	3.6	7.6	11.0	14.1	15.6	16.1	16.1	16.1	16.1
R143	0.9	0.9	2.9	6.9	10.3	13.4	14.9	15.4	15.4	15.4	15.4
R144	2.3	2.3	4.2	8.2	11.6	14.7	16.2	16.7	16.7	16.7	16.7

Relevant Receiver	Wind Speed ms ⁻¹ (at 92m AGL)										
	3	4	5	6	7	8	9	10	11	12	13
R145	4.2	4.2	6.2	10.2	13.6	16.7	18.2	18.7	18.7	18.7	18.7
R146	7.4	7.4	9.4	13.4	16.8	19.9	21.4	21.9	21.9	21.9	21.9
R153	2.6	2.6	4.6	8.6	12.0	15.1	16.6	17.1	17.1	17.1	17.1
R154	1.6	1.6	3.6	7.7	11.1	14.1	15.6	16.2	16.2	16.2	16.2
R155	1.0	1.0	3.0	7.1	10.5	13.5	15.0	15.6	15.6	15.6	15.6
R156	6.1	6.1	8.2	12.1	15.5	18.7	20.1	20.6	20.6	20.6	20.6
R157	7.9	7.9	9.8	13.9	17.3	20.4	21.9	22.4	22.4	22.4	22.4
Criteria set: R078 – House											
Criteria	35	35	35	35	35	35	36	37	38	40	41
R056	16.4	16.4	18.4	22.4	25.8	28.9	30.4	30.9	30.9	30.9	30.9
R077	22.2	22.2	24.2	28.2	31.6	34.7	36.2	36.7	36.7	36.7	36.7
R078	22.9	22.9	24.9	28.8	32.3	35.3	36.9	37.3	37.3	37.3	37.3
R099	19.6	19.6	21.6	25.6	29.0	32.1	33.6	34.1	34.1	34.1	34.1
R100	17.0	17.0	19.0	23.0	26.4	29.5	31.0	31.5	31.5	31.5	31.5
R101	12.6	12.6	14.6	18.6	21.9	25.1	26.6	27.1	27.1	27.1	27.1
R110	11.7	11.7	13.7	17.7	21.1	24.2	25.7	26.2	26.2	26.2	26.2
R111	11.5	11.5	13.5	17.5	20.9	24.0	25.5	26.0	26.0	26.0	26.0
R133	13.6	13.6	15.6	19.6	23.0	26.1	27.6	28.1	28.1	28.1	28.1
R134	12.0	12.0	14.0	18.0	21.4	24.5	26.0	26.5	26.5	26.5	26.5
R136	11.2	11.2	13.2	17.2	20.6	23.7	25.2	25.7	25.7	25.7	25.7
R147	7.7	7.7	9.7	13.7	17.1	20.2	21.7	22.2	22.2	22.2	22.2
R148	12.0	12.0	14.0	18.0	21.4	24.5	26.0	26.5	26.5	26.5	26.5
R149	7.8	7.8	9.8	13.8	17.2	20.3	21.8	22.3	22.3	22.3	22.3
R150	10.2	10.2	12.2	16.2	19.6	22.7	24.2	24.7	24.7	24.7	24.7
R151	9.8	9.8	11.8	15.8	19.1	22.3	23.8	24.3	24.3	24.3	24.3
Criteria set: R089 - House											
Criteria	35	35	35	35	37	39	40	42	43	43	42
R089	24.8	24.8	26.8	30.8	34.2	37.3	38.8	39.3	39.3	39.3	39.3

Table B-2: Predicted Noise Levels (L_{Aeq} dB(A)) for Non-Relevant Sites at Different Wind Speeds Using ISO9613.

Non Relevant Receiver	Wind Speed ms^{-1} (at 92m AGL)										
	3	4	5	6	7	8	9	10	11	12	13
Criteria	45	45	45	45	45	45	45	45	45	45	45
R002	21.5	21.5	23.5	27.5	31.0	34.0	35.5	36.0	36.0	36.0	36.0
R003	26.7	26.7	28.7	32.7	36.1	39.2	40.7	41.2	41.2	41.2	41.2
R004	24.8	24.8	26.8	30.8	34.2	37.3	38.8	39.3	39.3	39.3	39.3
R021	23.4	23.4	25.4	29.4	32.8	35.9	37.4	37.9	37.9	37.9	37.9
R022	23.8	23.8	25.8	29.8	33.2	36.3	37.8	38.3	38.3	38.3	38.3
R026	10.3	10.3	12.3	16.3	19.7	22.8	24.3	24.8	24.8	24.8	24.8
R049	22.8	22.8	24.8	28.8	32.2	35.3	36.8	37.3	37.3	37.3	37.3
R050	25.9	25.9	27.9	31.9	35.3	38.4	39.9	40.4	40.4	40.4	40.4
R051	24.0	24.0	26.0	30.0	33.4	36.5	38.0	38.5	38.5	38.5	38.5
R51B	24.0	24.0	26.0	30.0	33.4	36.5	38.0	38.5	38.5	38.5	38.5
R052	18.4	18.4	20.4	24.4	27.8	30.9	32.4	32.9	32.9	32.9	32.9
R054	24.3	24.3	26.3	30.3	33.7	36.8	38.3	38.8	38.8	38.8	38.8
R055	21.9	21.9	23.9	27.9	31.3	34.4	35.9	36.4	36.4	36.4	36.4
R071	24.9	24.9	26.9	30.9	34.3	37.4	38.9	39.4	39.4	39.4	39.4
R074	19.0	19.0	21.0	25.0	28.4	31.5	33.0	33.5	33.5	33.5	33.5
R076	24.2	24.2	26.2	30.2	33.6	36.7	38.2	38.7	38.7	38.7	38.7
R079	25.2	25.2	27.2	31.2	34.6	37.7	39.2	39.7	39.7	39.7	39.7
R086	18.6	18.6	20.6	24.6	28.0	31.1	32.6	33.1	33.1	33.1	33.1
R088	21.5	21.5	23.5	27.5	30.9	34.0	35.5	36.0	36.0	36.0	36.0