

Figure E5 - Background Noise Level and Wind Speed vs. Time - House H30

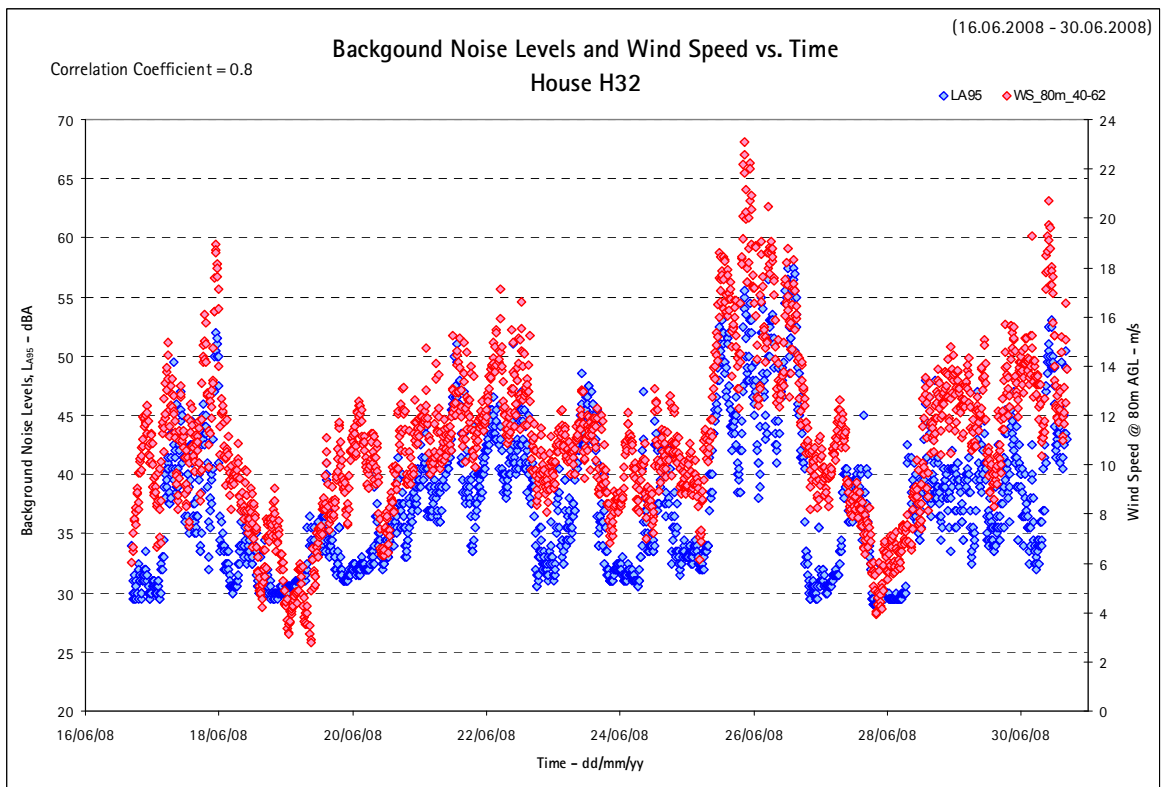


Figure E6 - Background Noise Level and Wind Speed vs. Time - House H32

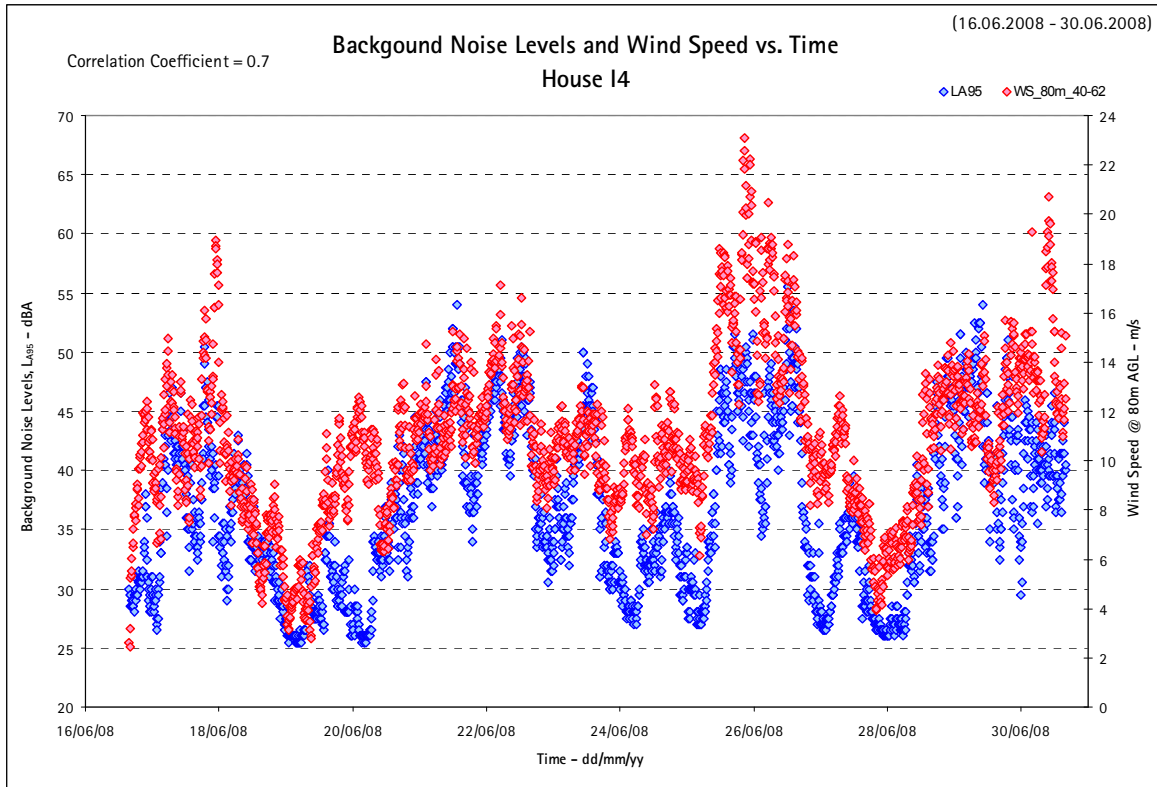


Figure E7 - Background Noise Level and Wind Speed vs. Time - House I4

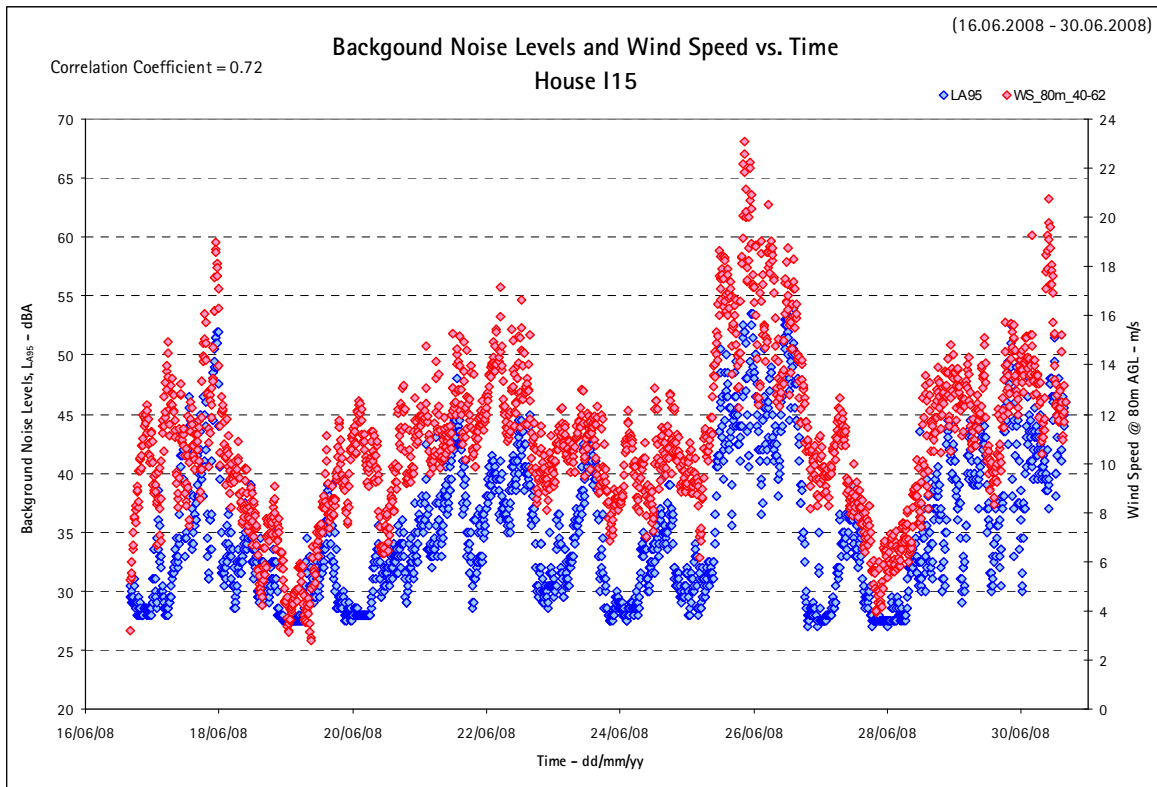


Figure E8 - Background Noise Level and Wind Speed vs. Time - House I15

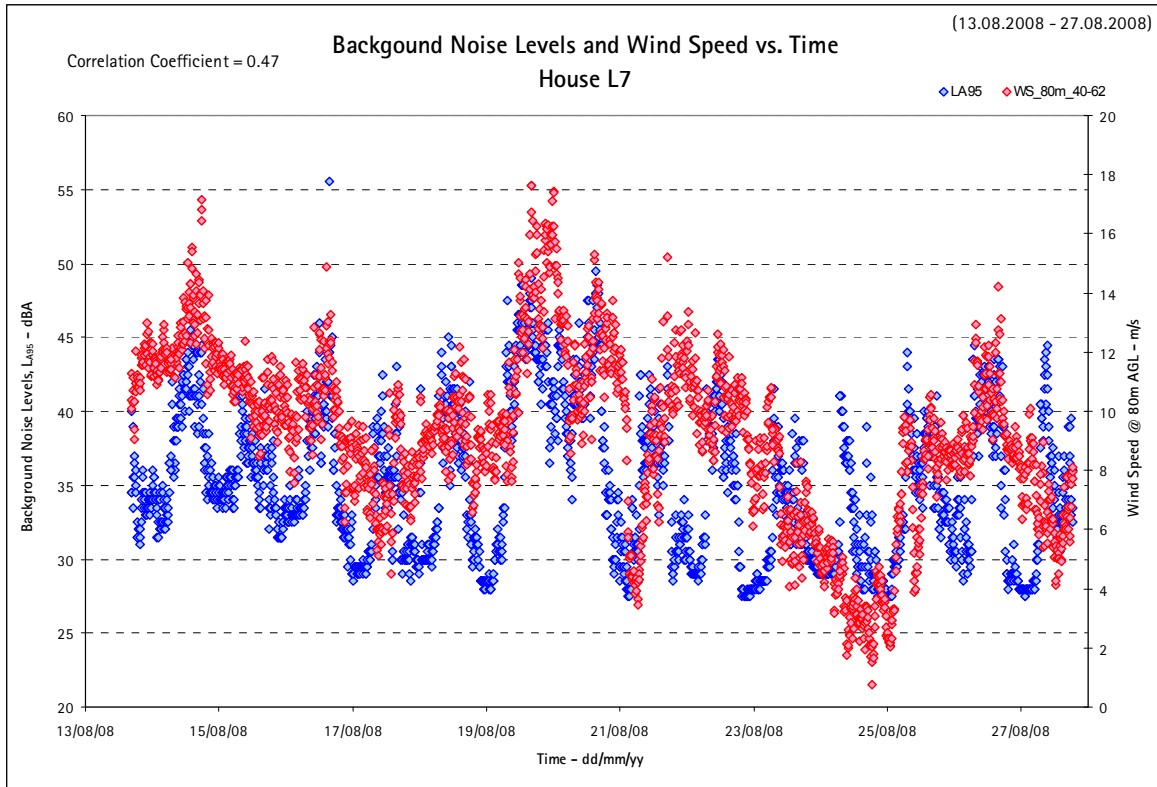


Figure E9 - Background Noise Level and Wind Speed vs. Time - House L7

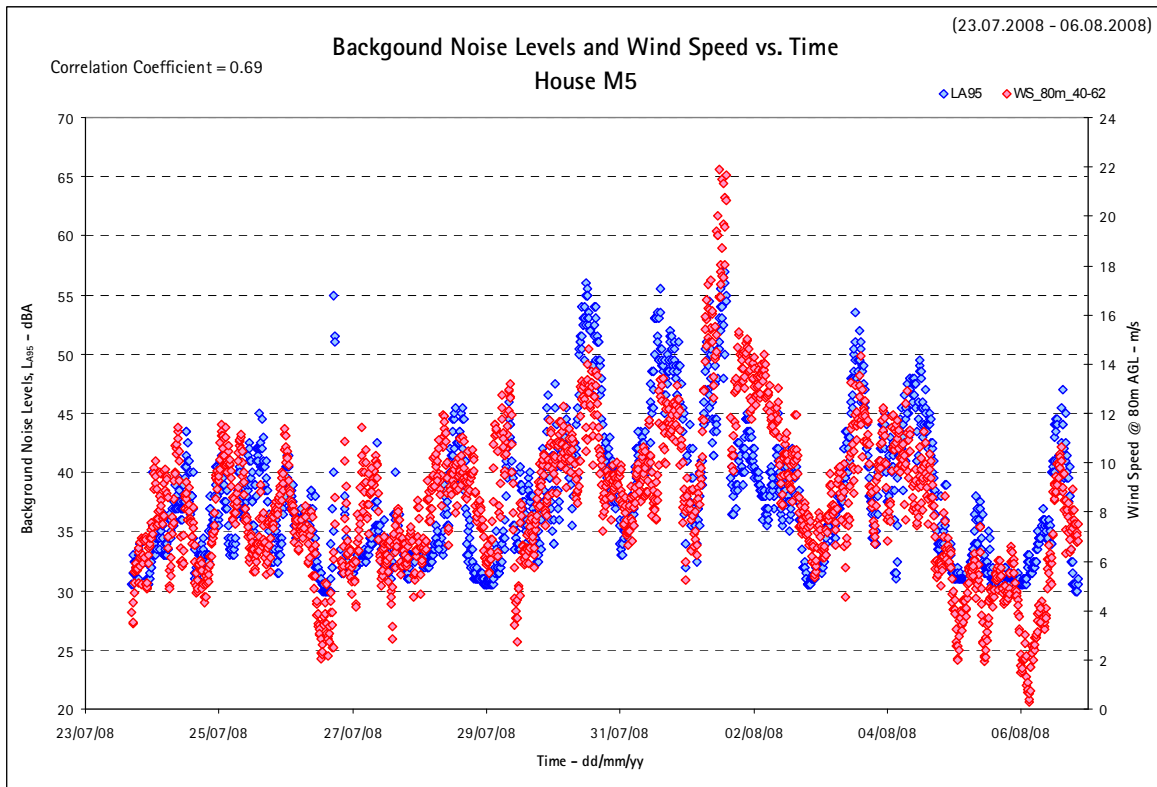


Figure E10 - Background Noise Level and Wind Speed vs. Time - House M5

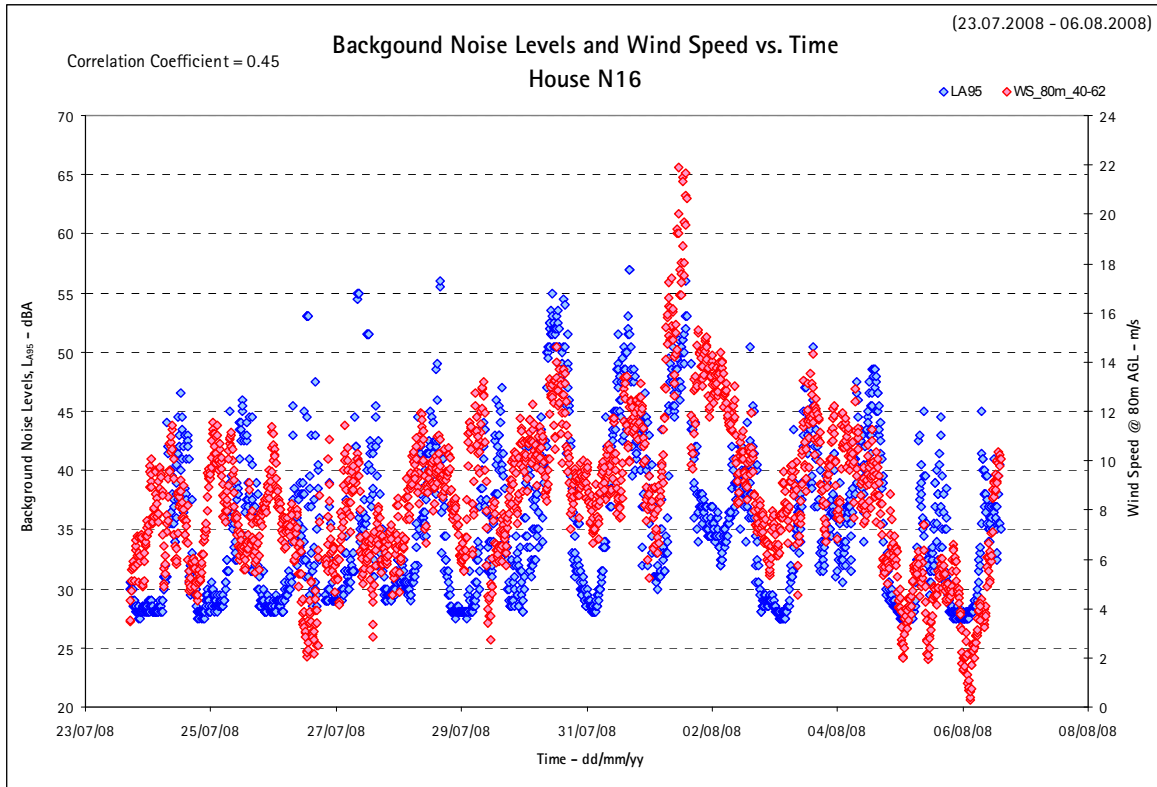


Figure E11 - Background Noise Level and Wind Speed vs. Time - House N16

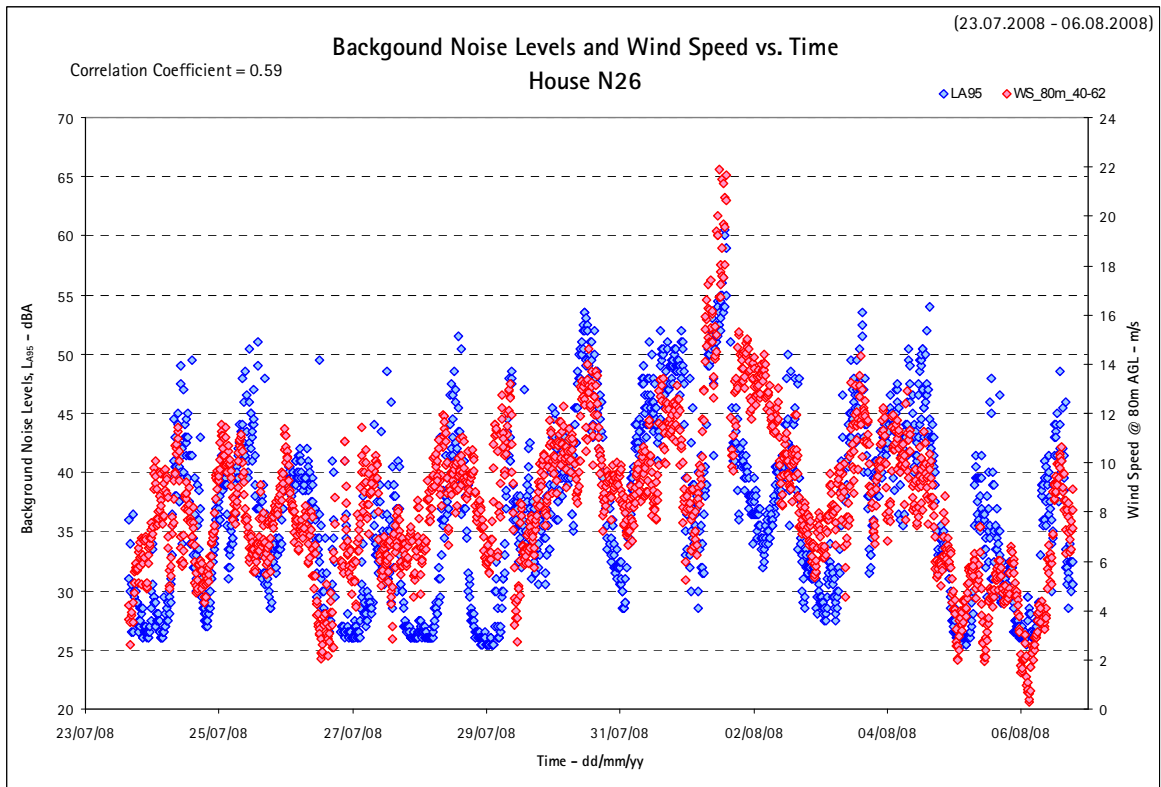


Figure E12 - Background Noise Level and Wind Speed vs. Time - House N26

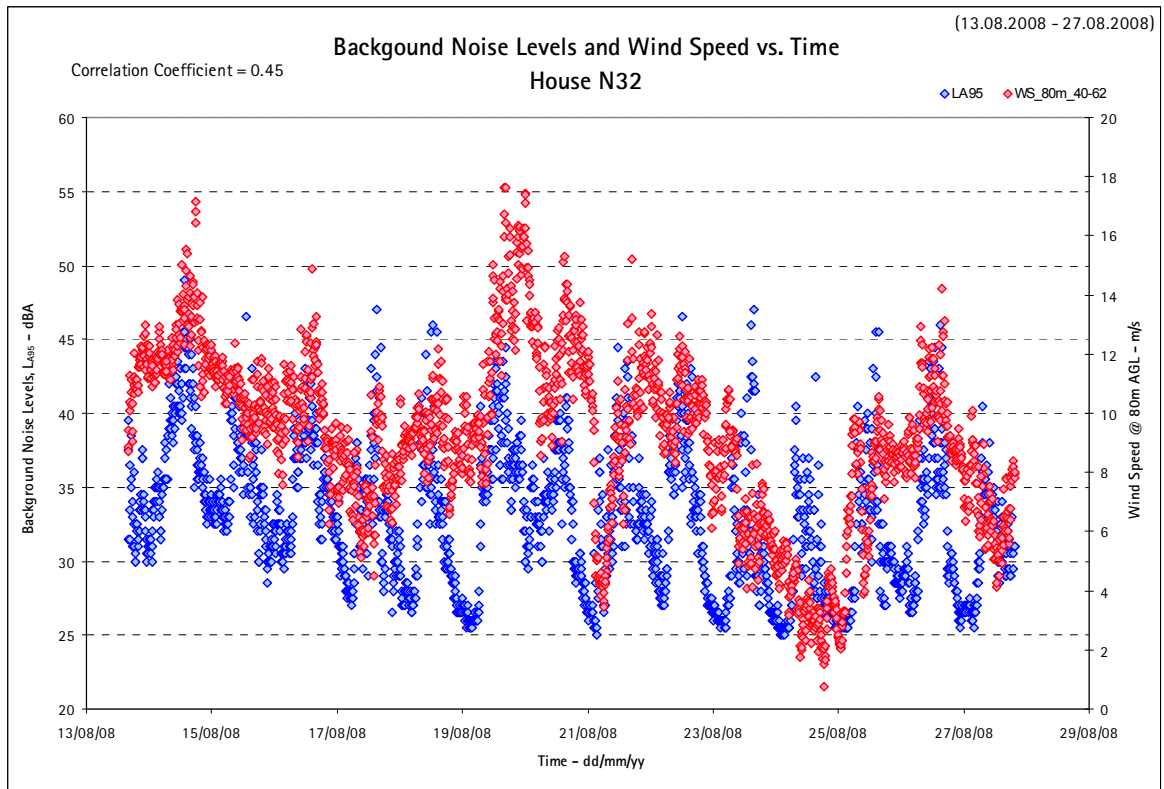


Figure E13 - Background Noise Level and Wind Speed vs. Time - House N32

APPENDIX F

PREDICTED NOISE vs. NOISE LIMITS

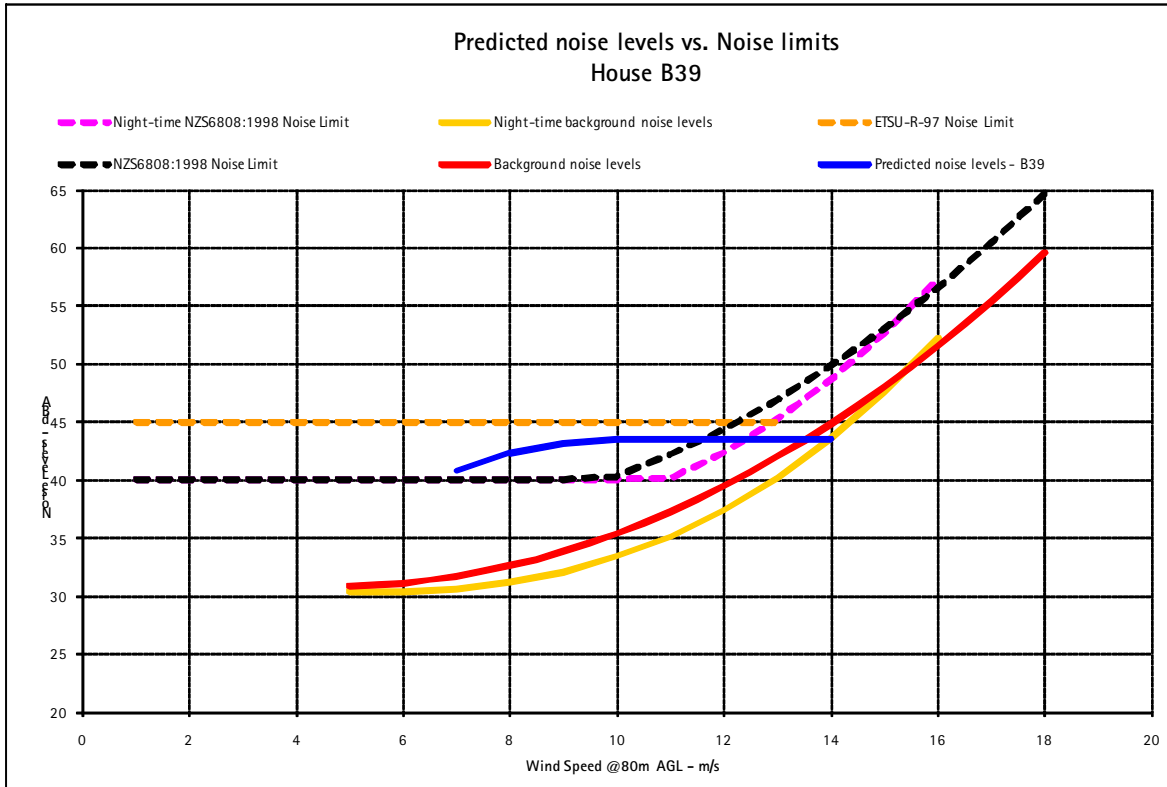


Figure F1 - Predicted WTG noise vs. noise limits – House B39 (stakeholder)

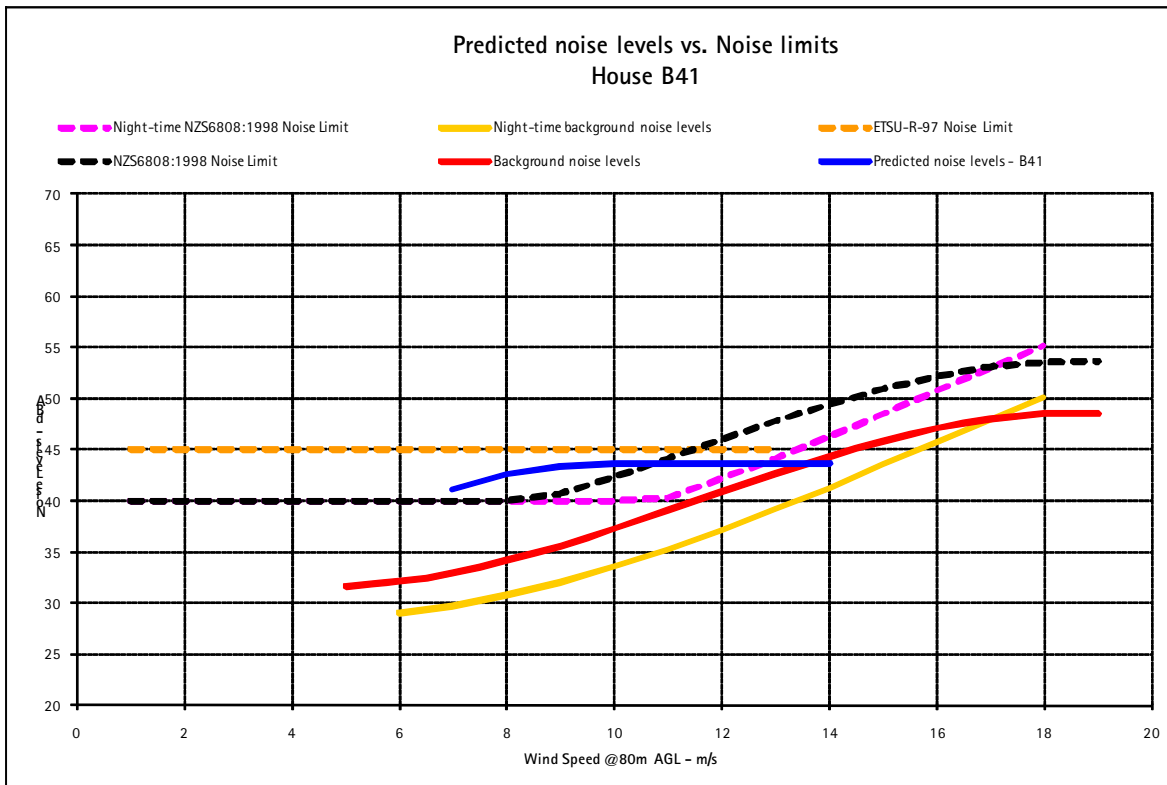


Figure F2 - Predicted WTG noise vs. noise limits – House B41 (stakeholder)

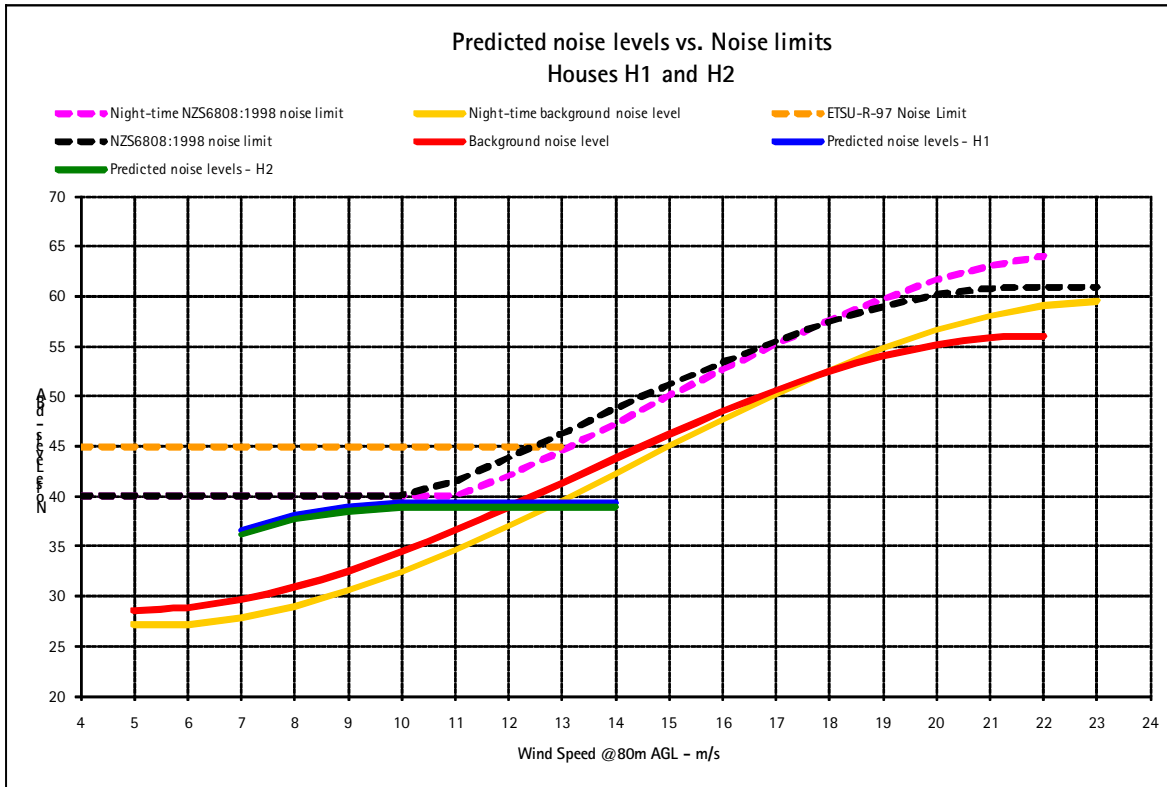


Figure F3 - Predicted WTG noise vs. noise limits – Houses H1 and H2 (stakeholder)

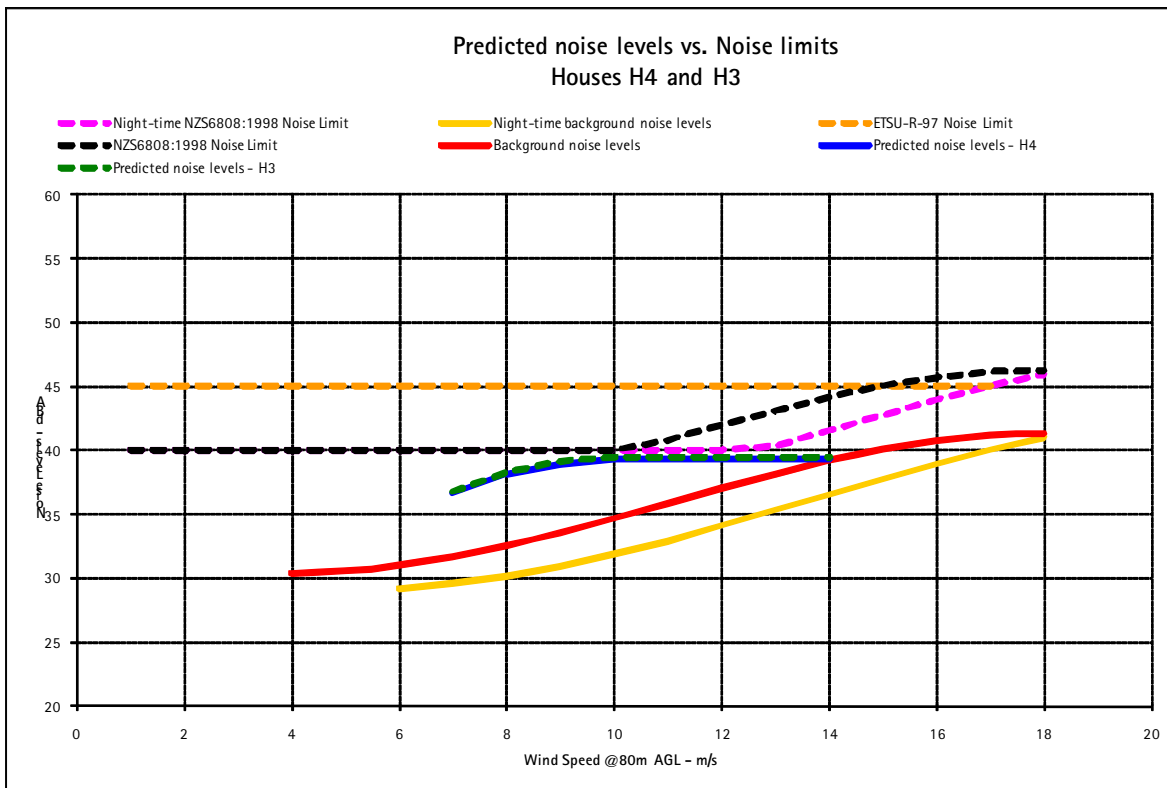


Figure F4 - Predicted WTG noise vs. noise limits – Houses H4 and H3 (stakeholder)

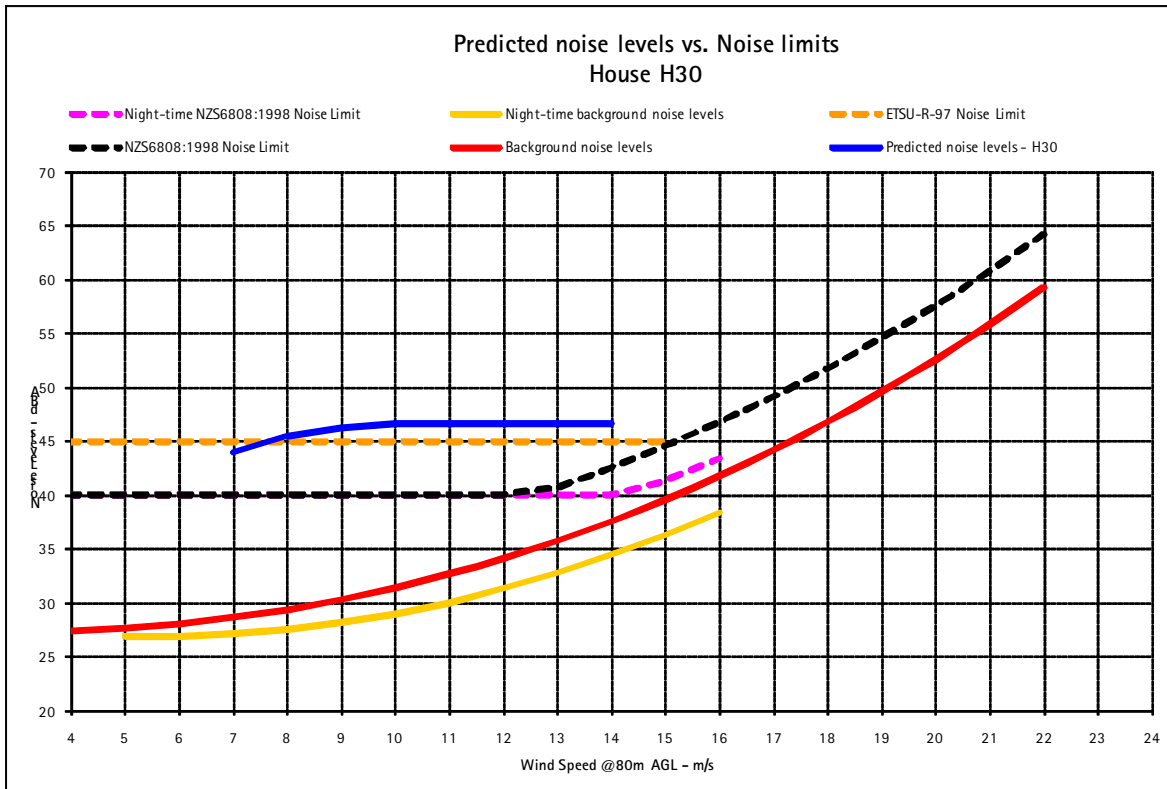


Figure F5 – Predicted WTG noise vs. noise limits – House H30 (optioned by Wind Power)

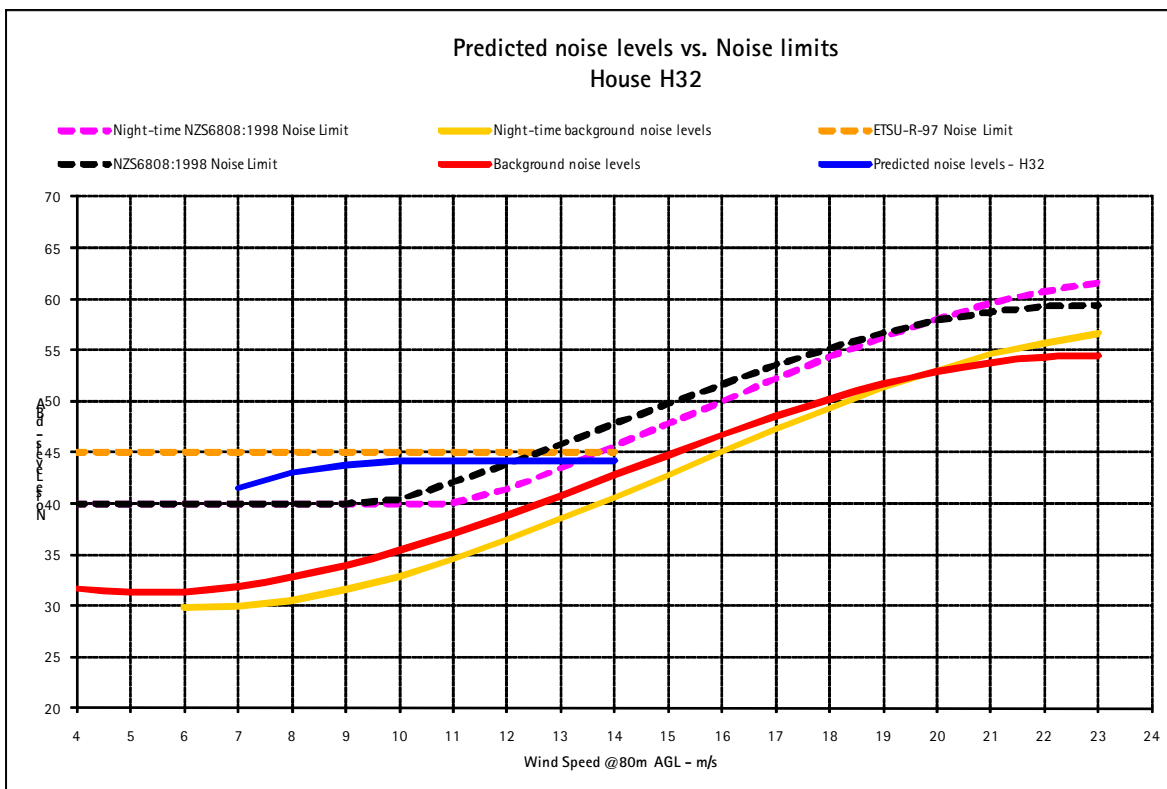


Figure F6 – Predicted WTG noise vs. noise limits – House H32 (stakeholder)

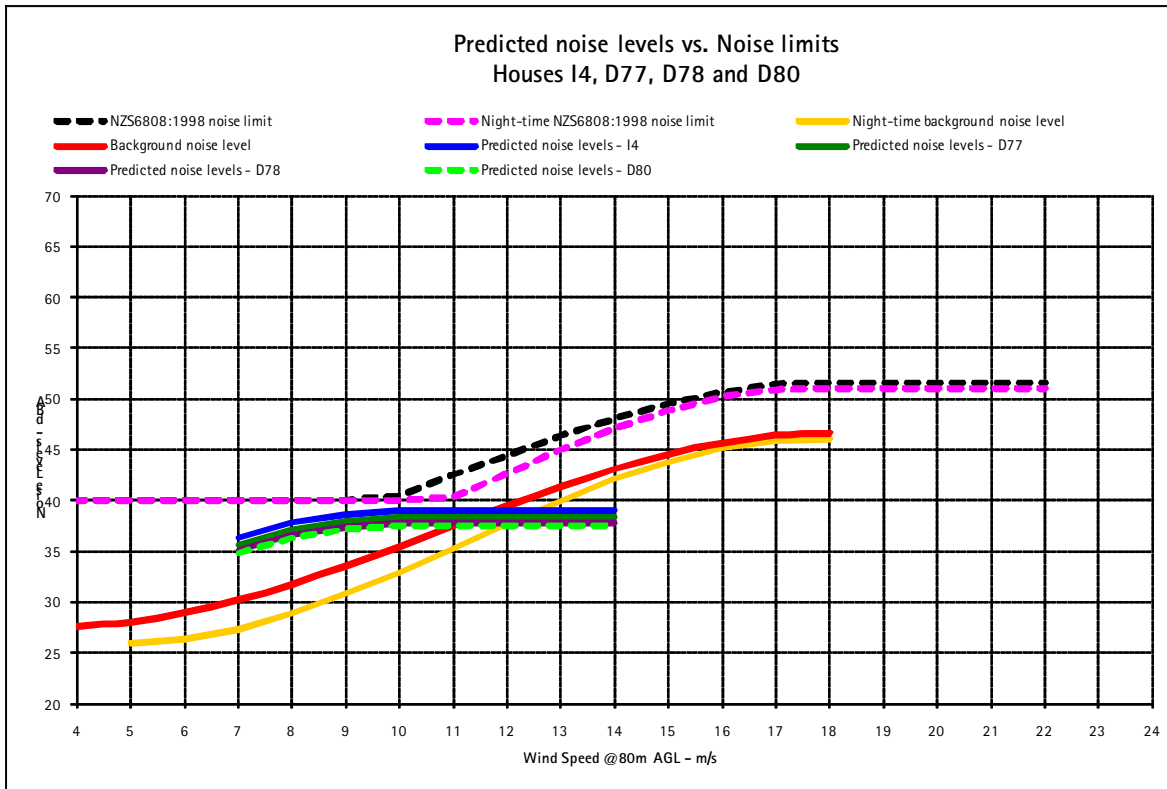


Figure F7 - Predicted WTG noise vs. noise limits – Houses I4, D77, D78 and D80

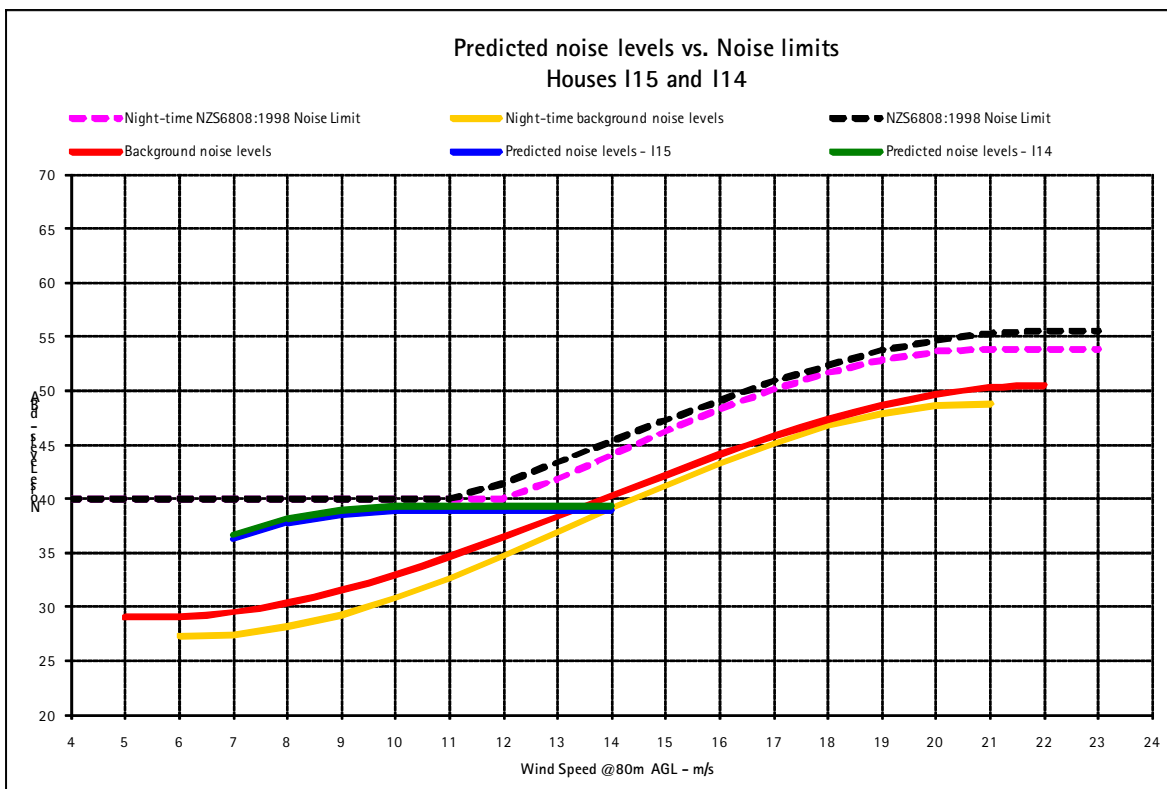


Figure F8 - Predicted WTG noise vs. noise limits – Houses I15 and I14

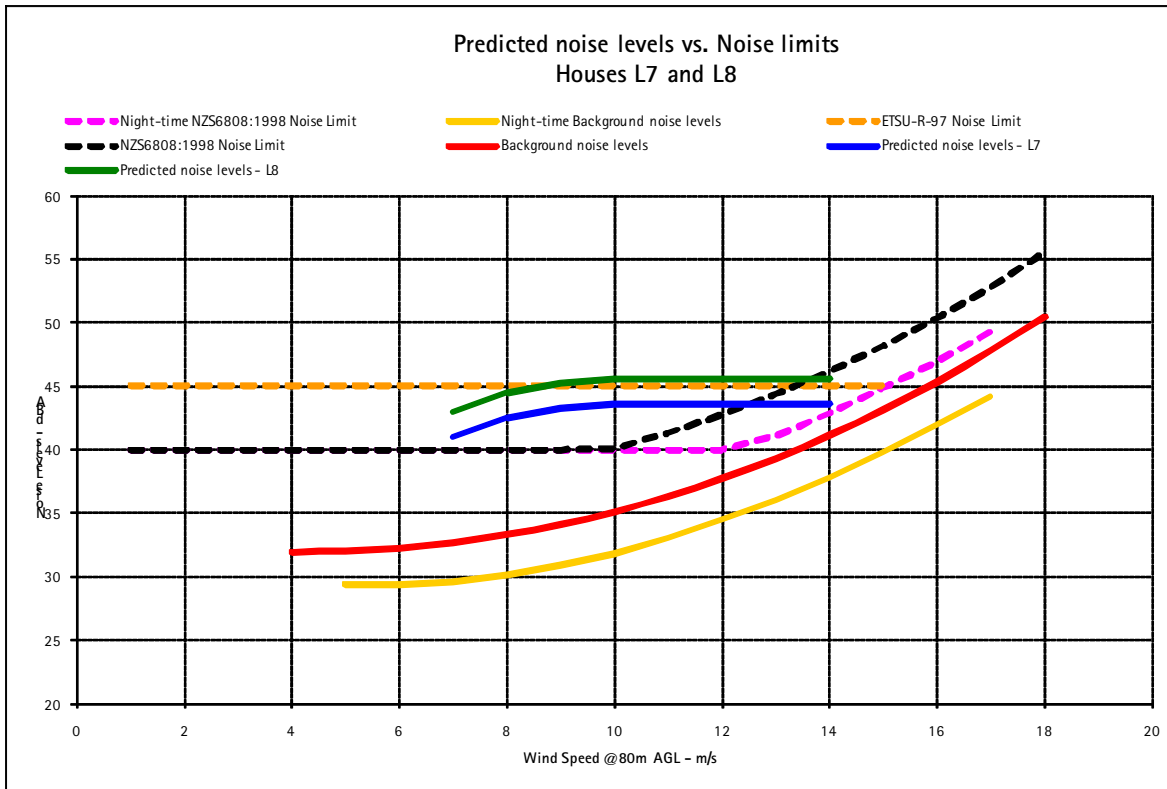


Figure F9 – Predicted WTG noise vs. noise limits – Houses L7 and L8 (stakeholders)

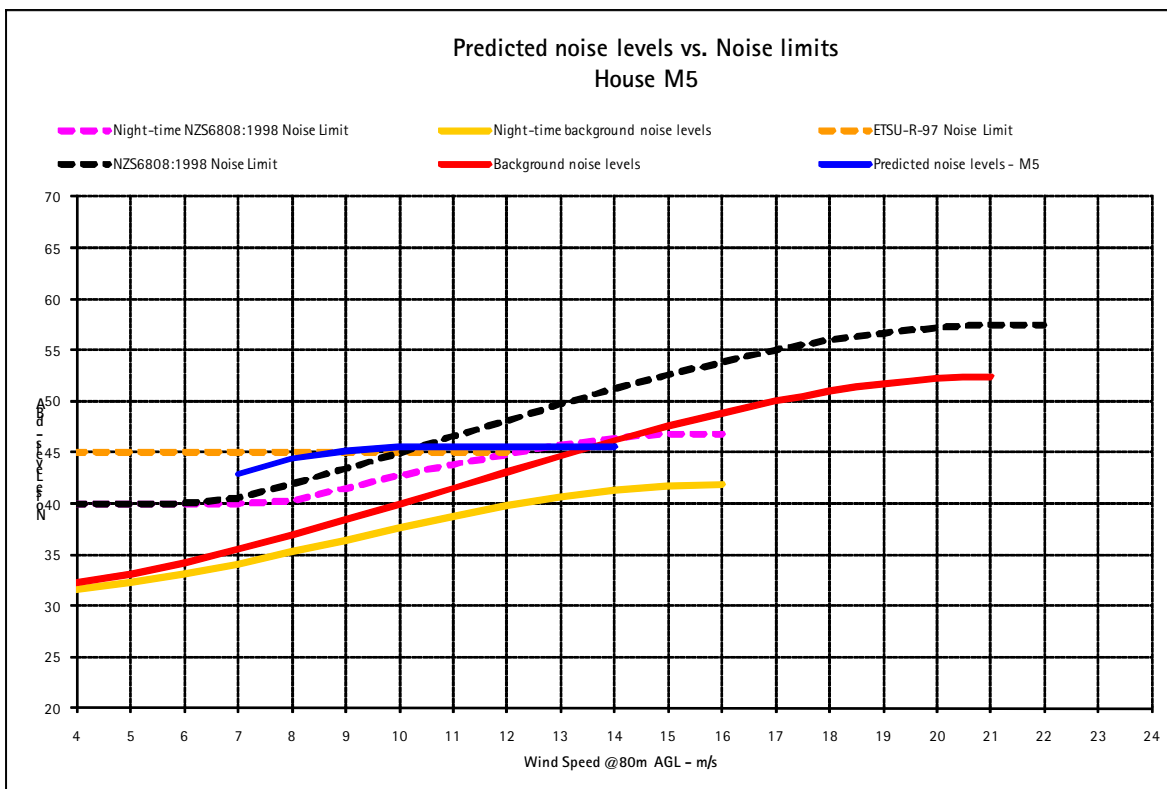


Figure F10 – Predicted WTG noise vs. noise limits – House M5 (stakeholder)

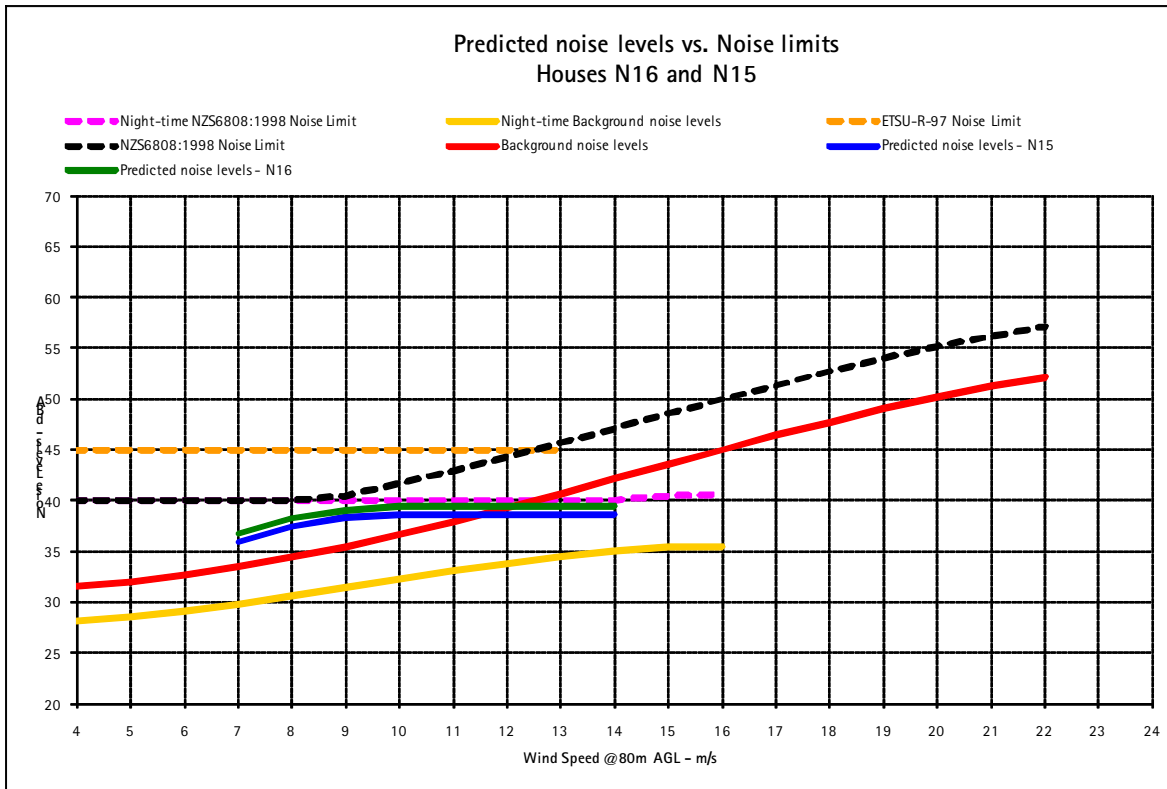


Figure F11 – Predicted WTG noise vs. noise limits – Houses N16 (stakeholder) and N15

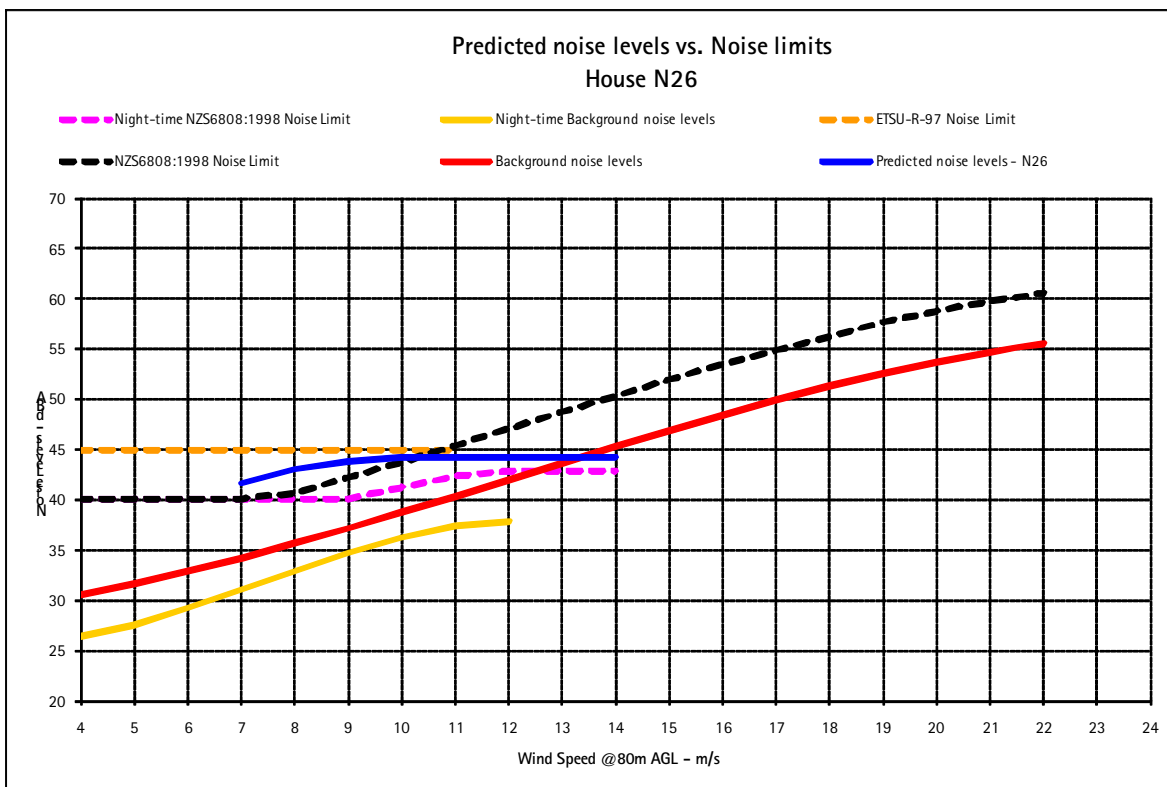


Figure F12 – Predicted WTG noise vs. noise limits – House N26 (stakeholder)

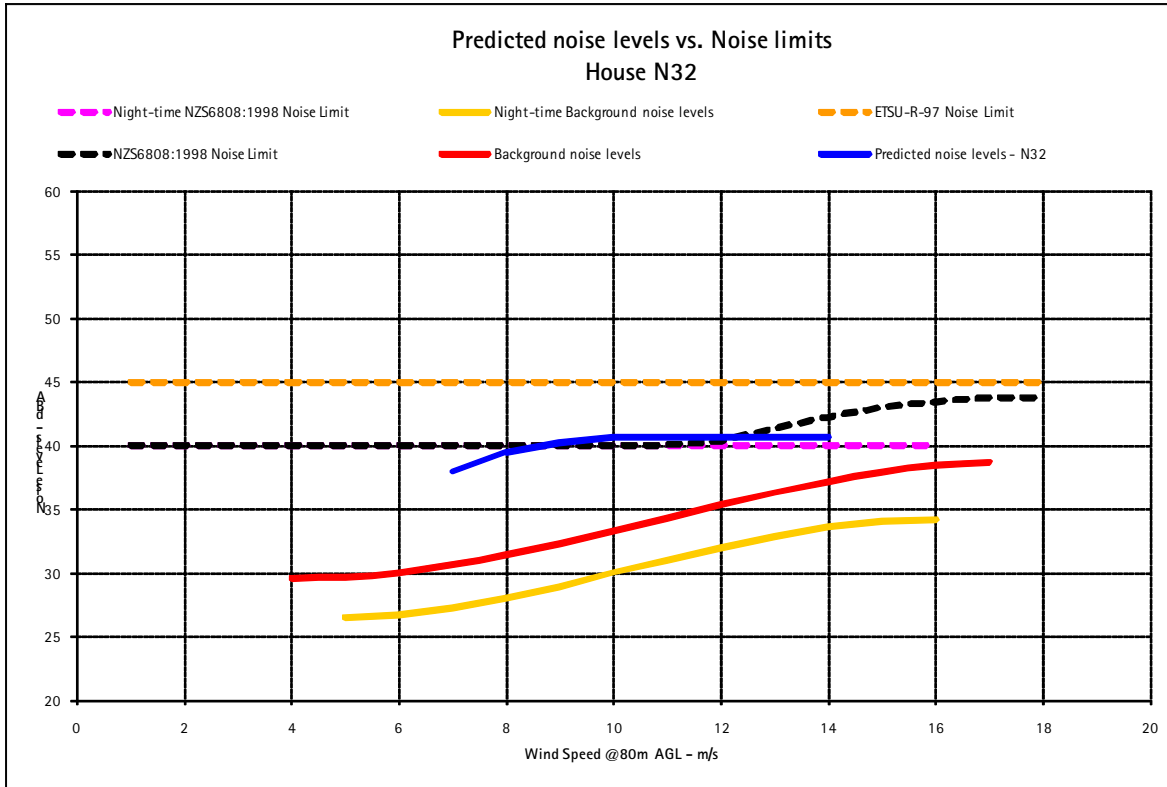


Figure F13 – Predicted WTG noise vs. noise limits – House N32 (stakeholder)

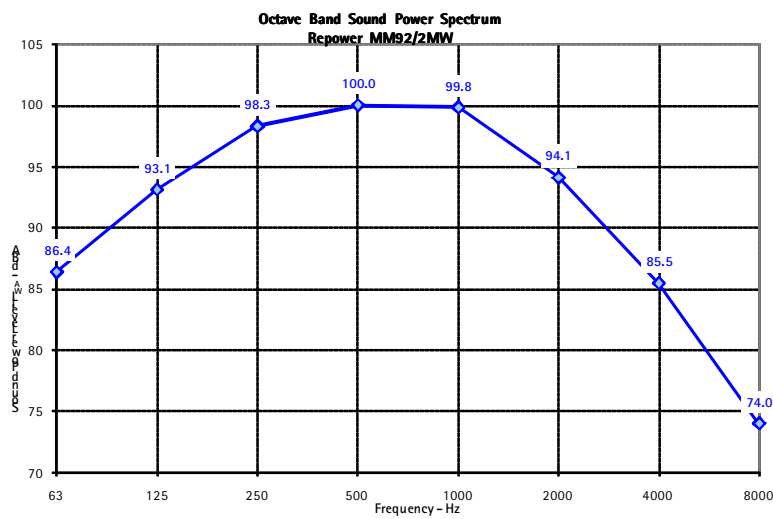
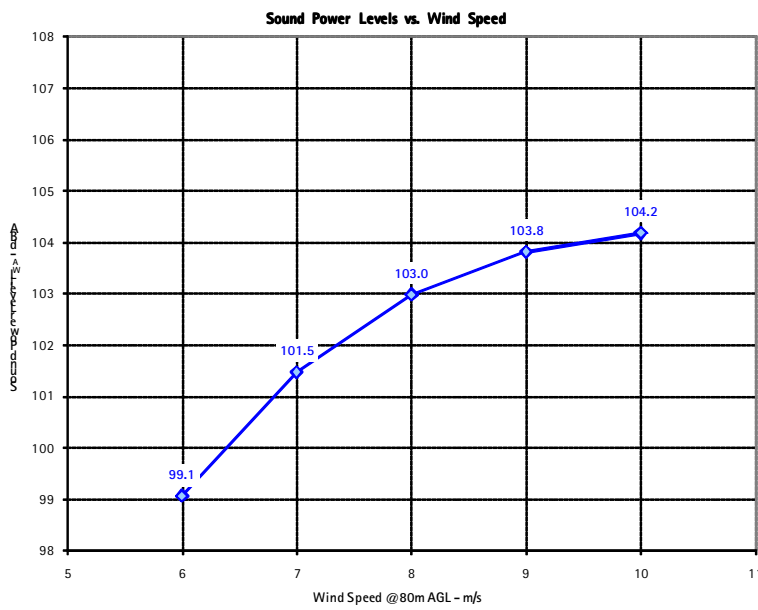
APPENDIX G

SUMMARY OF PARAMETERS

Parameters are summarized in accordance with documentation specification shown in section 6 of NZS6808:1998.

Parameters for noise prediction

(a) WTG sound power level at 80m AGL



(b) Air absorption in accordance with ISO9613-1:1996:

Frequency (Hz)	63	125	250	500	1k	2k	4k	8k
$\alpha_a$ (dBA/km)	0.13	0.44	1.11	2.05	3.90	10.37	35.33	125.97

- (c) Sound Attenuation due to screening – nil absorption due to screening
- (d) Source and method of calculation – NZS6808:1998
- (e) Make and model of selected WTG – REpower MM92-Evo/2MW
- (f) Hub height of WTG – eighty (80) metres
- (g) Topographical Map – see APPENDIX B
- (h) Coordinates – MGA94 Zone 54H

WTG coordinates

WTG	Eastings	Northings
T1	696868	5853108
T2	696940	5852658
T3	703137	5852595
T4	697977	5852393
T5	699853	5852249
T6	703358	5852221
T7	697402	5852197
T8	703914	5852120
T9	702772	5852079
T10	699612	5852021
T11	704373	5851985
T12	700171	5851968
T13	701767	5851942
T14	700767	5851938
T15	701128	5851909
T16	702178	5851857
T17	700484	5851843
T18	701444	5851769
T19	702955	5851498
T20	699335	5851479
T21	701247	5851435
T22	699165	5851229
T23	701015	5851115
T24	702970	5850998
T25	701247	5850798
T26	700719	5850678
T27	704743	5850634
T28	700334	5850585

WTG	Eastings	Northings
T29	701504	5850526
T30	704408	5850488
T31	701076	5850248
T32	701279	5849847
T33	708019	5849599
T34	714043	5849567
T35	700972	5849481
T36	700097	5849408
T37	711039	5849388
T38	700601	5849317
T39	710215	5849187
T40	712257	5849155
T41	709859	5848959
T42	700500	5848954
T43	708113	5848895
T44	707007	5848842
T45	706620	5848796
T46	711066	5848788
T47	713633	5848786
T48	707436	5848739
T49	700754	5848595
T50	709894	5848580
T51	707730	5848580
T52	712461	5848570
T53	710545	5848561
T54	713408	5848438
T55	711018	5848407
T56	708245	5848375
T57	707949	5848373
T58	706735	5848344
T59	712142	5848334
T60	707816	5847982
T61	708355	5847951
T62	709347	5847730
T63	706988	5847683
T64	709896	5847674
T65	706695	5847427
T66	706210	5847386

WTG	Eastings	Northings
T67	707298	5847319
T68	705785	5847306
T69	705309	5847200
T70	706124	5846908
T71	704536	5846907
T72	704978	5846874
T73	705044	5846510
T74	709968	5845121
T75	710638	5844993
T76	711338	5844676
T77	709978	5844414
T78	711801	5844214
T79	710846	5844106
T80	704433	5844074
T81	712367	5844039
T82	713221	5843935
T83	705723	5843873
T84	705120	5843800
T85	711549	5843735
T86	712122	5843643
T87	701762	5843528
T88	711108	5843206
T89	704326	5843181
T90	703129	5843074
T91	703682	5843074
T92	712003	5843027
T93	710992	5842642
T94	702005	5842614
T95	703975	5842584
T96	704597	5842272
T97	702236	5842078
T98	701711	5841977
T99	701240	5841808
T100	706148	5841419
T101	702617	5841384
T102	706458	5841239
T103	703947	5841234
T104	703257	5841109

WTG	Eastings	Northings
T105	704798	5841050
T106	701156	5841036
T107	701787	5840921
T108	705680	5840909
T109	706628	5840816
T110	702393	5840813
T111	704465	5840771
T112	703908	5840683
T113	706235	5840578
T114	703538	5840538
T115	702966	5840440
T116	706679	5840407
T117	701229	5840325
T118	704395	5840267
T119	703841	5840174
T120	701949	5840148
T121	706398	5840097
T122	698261	5840040
T123	707435	5839998
T124	702672	5839840
T125	699006	5839809
T126	700843	5839741
T127	704210	5839691
T128	706636	5839597
T129	703356	5839589
T130	701542	5839580
T131	698132	5839579
T132	709773	5839551
T133	704699	5839506
T134	710967	5839388
T135	707737	5839332
T136	702230	5839323
T137	707171	5839321
T138	699985	5839305
T139	705925	5839135
T140	703950	5839231
T141	700575	5839230
T142	699342	5839207

WTG	Eastings	Northings
T143	706426	5839169
T144	704893	5839135
T145	710352	5839098
T146	705373	5839071
T147	709017	5839030
T148	702781	5838952
T149	698031	5838889
T150	703558	5838882
T151	699851	5838823
T152	705730	5838811
T153	708406	5838791
T154	700519	5838761
T155	701240	5838729
T156	698666	5838721
T157	702175	5838677
T158	706335	5838641
T159	704389	5838612
T160	707073	5838598
T161	709963	5838589
T162	707777	5838541
T163	699236	5838531
T164	709217	5838444
T165	705112	5838387
T166	705704	5838264
T167	710799	5838257
T168	700233	5838255
T169	701018	5838210
T170	708409	5838167
T171	706272	5838075
T172	709022	5837844
T173	701707	5837833
T174	706974	5837671
T175	707730	5837532
T176	708459	5837359
T177	700362	5837333
T178	706275	5837332
T179	699666	5837240
T180	706790	5836978

WTG	Eastings	Northings
T181	699893	5836919
T182	700861	5836863
T183	708860	5836858
T184	707585	5836817
T185	708224	5836622
T186	707747	5836010
T187	706052	5835487
T188	712785	5834669
T189	706060	5834634
T190	706670	5834548
T191	713251	5834205
T192	714223	5834160
T193	712655	5834138
T194	712261	5833993
T195	713665	5833810
T196	712709	5833724
T197	711241	5833645
T198	714421	5833566
T199	712328	5833462
T200	713064	5833446
T201	710814	5833400
T202	713599	5833261
T203	711328	5833175
T204	714854	5833145
T205	713165	5833124
T206	711830	5833093
T207	713877	5832973
T208	712890	5832883
T209	712436	5832864
T210	713448	5832852
T211	715370	5832803
T212	709619	5832669
T213	713943	5832540
T214	715999	5832529
T215	709211	5832495
T216	713462	5832416
T217	713058	5832406
T218	707680	5832300

WTG	Eastings	Northings
T219	712599	5832185
T220	709670	5831931
T221	708102	5831897
T222	709130	5831881
T223	712047	5831876
T224	708475	5831779
T225	712595	5831692
T226	713177	5831549
T227	708948	5831449
T228	710165	5831431
T229	711479	5831186
T230	710695	5831050
T231	709457	5831044
T232	712488	5830972
T233	713258	5830831
T234	709919	5830710
T235	713814	5830566
T236	710777	5830549
T237	711537	5830409
T238	714641	5830405
T239	712357	5830193
T240	713134	5830081
T241	713824	5829942
T242	714525	5829811

Assessable residential site coordinates

House	Eastings	Northings
B37	695651	5853628
B38 (S)	695961	5853202
B39 (S)	697017	5851896
B40	698915	5853297
B40A	699081	5853513
B41 (S)	698995	5852322
B42 (S)	698409	5850995
B43 (S)	698274	5850428
C100	706972	5851777
C51	700943	5853521
C55	705306	5853644

House	Eastings	Northings
C55A	705083	5853659
C72	705895	5851752
C72A	706605	5851433
C72B	706737	5851857
C81	706713	5850548
C91	704777	5853649
C99	707306	5851747
D73	712419	5850899
D74	711989	5850969
D75	712117	5850655
D76	711791	5850931
D77	712701	5850234
D78	712786	5850338
D79	712833	5850699
D80	712790	5850384
D82 (S)	713929	5850701
G2	698102	5849512
G23 (S)	696932	5840842
G8A (S)	698351	5849121
H1	703278	5849485
H10 (S)	709858	5848031
H11	701437	5846769
H12 (S)	701579	5846427
H14 (S)	706705	5846346
H15	707855	5845963
H16 (S)	709623	5846924
H18 (S)	703666	5844436
H18B (S)	703728	5844770
H2 (S)	703163	5849249
H21 (S)	706438	5844847
H25 (S)	701380	5842799
H27 (S)	705091	5843052
H29 (O)	703243	5842092
H3 (S)	704918	5849066
H30 (O)	704506	5841547
H32 (S)	705384	5841864
H35 (S)	707787	5841019
H36 (S)	708500	5840518

House	Eastings	Northings
H4	704757	5848887
I11 (S)	711656	5847683
I12	714501	5847882
I13 (S)	714636	5848316
I14	711434	5846970
I15	711327	5846673
I16	714233	5847191
I18 (S)	711488	5845324
I19	712724	5845189
I33 (S)	710107	5842201
I36 (S)	710656	5840980
I37 (S)	711535	5840979
I37b	711516	5840928
I38	711322	5840668
I4	713028	5850071
I5 (S)	714412	5849632
L1 (S)	696587	5838653
L4 (S)	697423	5837889
L7 (S)	698979	5837874
L8 (S)	699647	5837851
M1 (S)	708404	5839745
M11 (S)	704428	5836948
M12 (S)	706893	5836340
M13 (S)	708905	5835003
M14 (S)	709505	5834994
M18	706518	5832414
M19 (S)	706915	5832957
M20 (S)	708373	5832651
M5 (S)	701154	5837552
M6 (S)	701684	5836660
M7 (S)	702332	5836497
M9 (S)	704569	5837080
N10 (S)	712920	5837833
N15	711563	5835716
N16 (S)	712039	5835649
N17A	713434	5836246
N18	714359	5836174
N21 (S)	714306	5834879

House	Eastings	Northings
N22	716270	5834805
N26 (S)	710991	5832179
N28 (S)	714106	5831545
N32 (S)	715232	5831362
N8 (S)	710304	5837057
N9 (S)	711254	5836845

(S) stakeholder (O) property optioned by Wind Power

### Background measurement

(a) Monitoring equipment - Environmental Noise Loggers Type EL-215 and EL-316 were used to conduct 24hr ambient noise level measurements.

(b) Anemometry equipment

Reference	Eastings	Northings	Height (m)	Make
Stockyard Hill	704919	5841122	60m	tubular

(c) Location of monitoring equipment - more than 5m from existing residence in accordance with NZS6808:1998, see photos APPENDIX D.

### Background noise monitoring sites

Reference	Eastings	Northings	Noise monitoring period
B39 (S)	697017	5851896	13 August 2008 to 27 August 2008
B41 (S)	698995	5852322	18 September 2008 to 2 October 2008
H1	703278	5849485	16 June 2008 to 2 July 2008
H4	704757	5848887	18 September 2008 to 2 October 2008
H30 (O)	704506	5841547	23 July 2008 to 8 August 2008
H32 (S)	705384	5841864	16 June 2008 to 30 June 2008
I4	713028	5850071	16 June 2008 to 30 June 2008
I15	711327	5846673	16 June 2008 to 30 June 2008
L7 (S)	698979	5837874	13 August 2008 to 27 August 2008
M5 (S)	701154	5837552	23 July 2008 to 6 August 2008
N16 (S)	712039	5835649	23 July 2008 to 6 August 2008
N26 (S)	710991	5832179	23 July 2008 to 6 August 2008
N32 (S)	715232	5831362	13 August 2008 to 27 August 2008

(d) Atmospheric conditions - see wind data, APPENDIX E.

(e) Time and duration of measurement - Measurements were taken at 10 minute intervals between 16 June 2008 and 2 October 2008.

(f) Averaging period – 10 minute intervals for all measurements, coordinated on the hour.

(g) Number of data pairs = approximately 1500-2100 depending on the site

(h) Regression analysis – Least squared second or third order polynomial regression depending on the site

(i) Regression analysis graphical outputs: see Section 8.0