



APPENDIX 5-4

**SHADOW FLICKER
ASSESSMENT RESULTS-
ALL SENSITIVE
PROPERTIES**

5.

POTENTIAL DAILY & ANNUAL SHADOW FLICKER EXCEEDANCES – FULL LIST

Table 5-11 Potential Daily & Annual Shadow Flicker Exceedances – Proposed Borrisbeg Wind Farm, Co. Tipperary

House ID	ITM Coordinates (Easting)	ITM Coordinates (Northing)	Distance to Nearest Turbine (metres)	Nearest Proposed Turbine No.	Max. Daily Shadow Flicker: Pre-Mitigation (hrs:min:sec)	Max. Annual Shadow Flicker: Pre-Mitigation (hrs:min:sec)	Max. Annual Shadow Flicker Adjusted for Average Regional Sunshine (hrs:min:sec)	Proposed Turbine(s) Giving Rise to Daly Shadow Flicker Exceedance	Mitigation Strategy Required
1	614722	676870	1303	T01	00:30:36	14:31:12	3:50:30	Yes	Yes
2	613783	677556	899	T01	00:31:12	15:15:36	4:02:15	Yes	Yes
3	613812	677585	937	T01	00:28:12	12:42:00	3:21:37	No	No
4*	612643	676702	659	T02	00:57:36	141:49:48	37:31:33	Yes	Yes
5*	611884	674005	614	T06	01:06:00	174:57:36	46:17:29	Yes	Yes
6*	611950	673742	696	T07	01:00:36	124:26:24	32:55:29	Yes	Yes
7*	611908	673866	668	T06	01:17:24	131:06:00	34:41:13	Yes	Yes
8	612396	673207	758	T09	00:47:24	37:19:12	9:52:27	Yes	Yes
9	612529	675639	748	T03	00:52:48	135:49:12	35:56:09	Yes	Yes
10	612031	675046	868	T06	00:38:24	103:10:12	27:17:49	Yes	Yes
11	613893	676097	773	T03	00:52:12	128:27:00	33:59:09	Yes	Yes
12	611890	674934	852	T06	00:49:48	110:51:00	29:19:45	Yes	Yes
13	613560	673088	789	T09	00:00:00	0:00:00	0:00:00	No	No
14	612357	676471	790	T02	00:49:12	101:45:36	26:55:26	Yes	Yes
15	611974	675012	866	T06	00:43:48	97:06:00	25:41:28	Yes	Yes



16	614177	674460	762	T08	00:51:00	131:39:36	34:50:06	Yes	Yes
17	614106	677858	1316	T01	00:07:12	0:58:48	0:15:33	No	No
18	614201	674431	777	T08	00:49:48	125:25:12	33:11:03	Yes	Yes
19**	613638	677641	934	T01	00:00:00	0:00:00	0:00:00	No	No
20	611883	674949	868	T06	00:48:36	106:35:24	28:12:07	Yes	Yes
21	612814	677164	751	T01	00:53:24	56:07:48	14:51:04	Yes	Yes
22	614238	674393	805	T08	00:48:00	116:59:24	30:57:13	Yes	Yes
23	614259	674364	821	T08	00:47:24	111:42:36	29:33:24	Yes	Yes
24	612317	676451	823	T02	00:47:24	91:23:24	24:10:49	Yes	Yes
25	613914	673345	956	T09	00:59:24	54:19:48	14:22:29	Yes	Yes
26	612701	676980	767	T01	00:51:00	79:23:24	21:00:19	Yes	Yes
27	611889	674985	893	T06	00:45:00	98:24:00	26:02:06	Yes	Yes
28	613659	673134	831	T09	00:32:24	17:54:36	4:44:19	Yes	Yes
29	613567	677623	903	T01	00:00:00	0:00:00	0:00:00	No	No
30	614073	673433	1025	T08	00:53:24	36:34:48	9:40:42	Yes	Yes
31	614208	676286	899	T01	00:47:24	131:52:12	34:53:26	Yes	Yes
32	612283	676428	851	T02	00:46:12	84:03:00	22:14:18	Yes	Yes
33	611897	675018	915	T06	00:42:36	91:55:12	24:19:14	Yes	Yes
34	614939	676796	1514	T01	00:27:00	10:15:36	2:42:53	No	No
35	614619	677788	1594	T01	00:27:36	23:46:48	6:17:30	No	No
36	613878	675070	768	T04	00:51:00	113:53:24	30:08:00	Yes	Yes
37	613698	673137	860	T09	00:40:12	27:53:24	7:22:45	Yes	Yes
38	612250	676404	879	T02	00:44:24	78:06:00	20:39:50	Yes	Yes
39	612501	672968	853	T09	00:00:00	0:00:00	0:00:00	No	No
40	613858	673260	935	T09	00:55:12	77:05:24	20:23:48	Yes	Yes
41	614131	677941	1400	T01	00:00:00	0:00:00	0:00:00	No	No
42	613831	673238	920	T09	00:54:00	73:43:12	19:30:18	Yes	Yes



43	613907	674975	769	T05	00:51:00	135:07:12	35:45:02	Yes	Yes
44	613615	677754	1040	T01	00:00:00	0:00:00	0:00:00	No	No
45	614335	674391	901	T08	00:43:12	102:16:12	27:03:32	Yes	Yes
46	613809	673212	913	T09	00:52:12	66:27:36	17:35:03	Yes	Yes
47	611938	675124	981	T06	00:34:12	72:23:24	19:09:11	Yes	Yes
48	614155	673417	1089	T08	00:49:12	31:28:48	8:19:45	Yes	Yes
49	613501	672885	912	T09	00:00:00	0:00:00	0:00:00	No	No
50	613962	674826	774	T05	01:12:00	188:13:48	49:48:09	Yes	Yes
51	613455	672846	922	T09	00:00:00	0:00:00	0:00:00	No	No
52	612199	676446	937	T02	00:42:00	70:00:36	18:31:25	Yes	Yes
53	613595	677783	1066	T01	00:00:00	0:00:00	0:00:00	No	No
54	612551	672854	921	T09	00:00:00	0:00:00	0:00:00	No	No
55	613506	672852	942	T09	00:00:00	0:00:00	0:00:00	No	No
56	612141	675265	982	T04	00:40:12	71:07:48	18:49:11	Yes	Yes
57*	612145	676140	974	T02	00:40:48	98:24:36	26:02:16	Yes	Yes
58	614268	673489	1116	T08	00:31:48	16:13:12	4:17:30	Yes	Yes
59	614198	675735	927	T03	00:42:36	107:45:00	28:30:32	Yes	Yes
60	612561	672827	940	T09	00:00:00	0:00:00	0:00:00	No	No
61	612040	675244	1044	T06	00:36:36	58:49:12	15:33:46	Yes	Yes
62	611501	674504	960	T06	00:41:24	44:57:36	11:53:44	Yes	Yes
63	614189	675892	949	T03	00:41:24	88:34:48	23:26:12	Yes	Yes
64	613375	672745	979	T09	00:00:00	0:00:00	0:00:00	No	No
65	612109	676141	1009	T02	00:39:36	93:31:48	24:44:47	Yes	Yes
66	614320	678035	1581	T01	00:04:12	0:19:48	0:05:14	No	No
67	613219	672692	983	T09	00:00:00	0:00:00	0:00:00	No	No
68	613339	672716	993	T09	00:00:00	0:00:00	0:00:00	No	No
69	612202	676627	990	T02	00:40:12	74:50:24	19:48:05	Yes	Yes



71	614419	673620	1156	T08	00:45:00	53:59:24	14:17:05	Yes	Yes
72*	614294	674665	946	T08	00:42:00	74:46:48	19:47:08	Yes	Yes
73	614524	674082	1090	T08	00:36:36	53:26:24	14:08:22	Yes	Yes
74	612080	676029	1055	T02	00:38:24	95:06:00	25:09:43	Yes	Yes
75	614254	676107	1036	T01	00:37:12	91:27:36	24:11:56	Yes	Yes
76	611435	674518	1027	T06	00:38:24	39:36:36	10:28:49	Yes	Yes
77	611498	674034	967	T06	00:42:00	63:31:48	16:48:32	Yes	Yes
78	612234	676764	1023	T02	00:39:36	70:48:00	18:43:57	Yes	Yes
79	611496	674010	975	T06	00:42:00	64:13:48	16:59:39	Yes	Yes
80	614293	675530	1021	T03	00:39:00	100:42:00	26:38:37	Yes	Yes
81	613018	672604	1049	T09	00:00:00	0:00:00	0:00:00	No	No
82	614536	674288	1090	T08	00:36:36	37:01:48	9:47:51	Yes	Yes
83	611504	673959	983	T06	00:42:00	68:10:48	18:02:21	Yes	Yes
84	611506	673944	986	T06	00:42:00	69:25:12	18:22:03	Yes	Yes
85	612985	672581	1072	T09	00:00:00	0:00:00	0:00:00	No	No
86	612063	676505	1083	T02	00:36:36	53:51:36	14:15:02	Yes	Yes
87	612054	675865	1124	T02	00:36:36	96:23:24	25:30:11	Yes	Yes
89	611407	674109	1041	T06	00:38:24	41:54:00	11:05:10	Yes	Yes
90	612959	672560	1094	T09	00:00:00	0:00:00	0:00:00	No	No
91	613150	672552	1110	T09	00:00:00	0:00:00	0:00:00	No	No
92	612940	672541	1114	T09	00:00:00	0:00:00	0:00:00	No	No
93	613018	672518	1135	T09	00:00:00	0:00:00	0:00:00	No	No
94	613941	678184	1542	T01	00:00:00	0:00:00	0:00:00	No	No
95	612964	672502	1152	T09	00:00:00	0:00:00	0:00:00	No	No
99	614456	675589	1180	T03	00:33:36	64:37:48	17:06:00	Yes	Yes
101	611275	674655	1219	T06	00:33:00	29:15:00	7:44:21	Yes	Yes
102	612853	672449	1214	T09	00:00:00	0:00:00	0:00:00	No	No



104*	611495	673603	1156	T06	00:36:36	63:03:00	16:40:55	Yes	Yes
106*	611846	675477	1316	T04	00:30:36	74:13:48	19:38:24	Yes	Yes
107	611586	673315	1204	T07	00:36:00	56:28:12	14:56:28	Yes	Yes
109	613622	678195	1477	T01	00:00:00	0:00:00	0:00:00	No	No
110	612300	677176	1212	T01	00:33:36	49:50:24	13:11:13	Yes	Yes
111	612310	677228	1223	T01	00:33:36	44:04:12	11:39:37	Yes	Yes
112	614772	674355	1330	T08	00:30:00	24:34:48	6:30:12	No	No
113	614553	675609	1277	T03	00:31:12	40:25:12	10:41:40	Yes	Yes
114	613612	678250	1531	T01	00:00:00	0:00:00	0:00:00	No	No
116	614830	674023	1401	T08	00:29:24	13:37:48	3:36:23	No	No
117	612473	677567	1269	T01	00:33:36	31:54:36	8:26:34	Yes	Yes
118	613605	672465	1329	T09	00:00:00	0:00:00	0:00:00	No	No
121	611411	673490	1287	T07	00:32:24	47:52:12	12:39:56	Yes	Yes
123	611413	673462	1295	T07	00:32:24	43:22:12	11:28:30	Yes	Yes
124	611415	673432	1304	T07	00:32:24	39:17:24	10:23:44	Yes	Yes
125	612313	677413	1306	T01	00:31:48	24:15:00	6:24:58	Yes	Yes
126	612432	677580	1308	T01	00:32:24	28:36:00	7:34:01	Yes	Yes
128	611414	673395	1320	T07	00:31:48	35:41:24	9:26:35	Yes	Yes
129	611426	673366	1321	T07	00:32:24	35:22:12	9:21:30	Yes	Yes
130	612694	672321	1369	T09	00:00:00	0:00:00	0:00:00	No	No
131	614626	675552	1352	T03	00:29:24	22:40:48	6:00:03	No	No
132	612324	677462	1323	T01	00:31:48	19:46:48	5:14:00	Yes	Yes
133	611408	673312	1361	T07	00:31:12	26:51:36	7:06:24	Yes	Yes
134	612228	677371	1359	T01	00:30:36	32:18:36	8:32:55	Yes	Yes
135	614933	674028	1502	T08	00:27:36	11:40:12	3:05:16	No	No
137	614955	674043	1522	T08	00:27:00	11:14:24	2:58:26	No	No
138	614832	673459	1593	T08	00:27:36	26:06:00	6:54:20	No	No



139	611035	674691	1459	T06	00:28:12	11:30:00	3:02:34	No	No
140	611378	673278	1404	T07	00:30:36	26:24:00	6:59:06	Yes	Yes
141	614967	674099	1528	T08	00:27:00	10:46:12	2:50:58	No	No
142	614832	675814	1566	T03	00:25:48	9:00:36	2:23:02	No	No
144	612293	677619	1440	T01	00:30:00	20:21:36	5:23:13	No	No
148	611665	672780	1497	T07	00:27:36	28:15:36	7:28:38	No	No
150	611342	673140	1504	T07	00:29:24	31:30:36	8:20:13	No	Yes
151	611339	673116	1519	T07	00:28:48	30:28:12	8:03:43	No	Yes
155	611338	673088	1535	T07	00:28:48	28:48:00	7:37:12	No	No
159	611336	673056	1555	T07	00:28:48	26:25:12	6:59:25	No	No
162	611335	673024	1574	T07	00:28:12	23:31:12	6:13:23	No	No
164	611186	673258	1584	T07	00:27:00	23:06:00	6:06:43	No	No
165	612423	672135	1627	T09	00:00:00	0:00:00	0:00:00	No	No
167	612436	677975	1591	T01	00:24:36	13:42:00	3:37:29	No	No
173	611360	672910	1623	T07	00:16:48	7:34:12	2:00:10	No	No
364	613544	672528	1245	T09	00:00:00	0:00:00	0:00:00	No	No
370	614893	676982	1488	T01	00:27:00	10:46:48	2:51:08	No	No

*Potential Daily & Annual Shadow Flicker exceedances at involved landowners properties.

** Potential Daily & Annual Shadow exceedances at a derelict property.