89\01	53.83	53.83	0.00	0.0								
182\07	81.50	81.50	0.00	0.0								
182\06	87.21	87.21	0.00	0.0								
182\05	98.26	98.26	0.00	-0.0								
182\04	115.78	115.81	0.00	-0.0								
90\02	0.00	0.00	0.00	0.0								
90\01	0.00	0.00	0.00	0.0								
91\06	133.17	133.17	0.00	0.0								
91\05	133.17	133.17	0.00	-0.0								
91\04	216.45	216.45	0.00	-0.0								
91\03	216.45	216.45	0.00	-0.0								
91\02	216.45	216.45	0.00	-0.0								
91/01	53.85	53.85	0.00	0.0								
93\06	5.71	5.68	0.00	0.6								
93\05	23.20	23.22	0.00	-0.1								
93\04	92.53	92.54	0.00	-0.0								
93\03	292.86	292.85	0.00	0.0								
93\02	864.58	864.58	0.00	-0.0								
93\01	864.58	864.58	0.00	-0.0								
94\02	28.69	28.68	0.00	0.0								
94\01	48.87	48.87	0.00	-0.0								
95\03	10.41	10.41	0.00	-0.0								
95\02	15.23	15.22	0.00	0.1								
95\01	31.59	31.60	0.00	-0.0								
96\10	0.00	0.00	0.00	0.0								
96\09	0.00	0.00	0.00	0.0								
96\08	0.00	0.00	0.00	0.0								
96\07	0.00	0.00	0.00	0.0								
96\06	0.00	0.00	0.00	0.0								
96\05	77.69	77.69	0.00	0.0								
96\04	77.69	77.69	0.00	0.0								
96\03	228.78	228.78	0.00	0.0								
96\02	403.50	403.52	0.00	-0.0								
96\01	403.52	403.52	0.00	0.0								
98\01	174.74	174.72	0.00	0.0								
99\01	14.60	14.60	0.00	-0.0								
102\06	439.77	439.79	0.00	-0.0								
102\05	586.80	586.78	0.00	0.0								
102\04	593.05	593.38	0.00	-0.1								
102\03	593.38	593.38	0.00	0.0								
102\02	653.93	653.93	0.00	-0.0								
102\01	819.09	819.09	0.00	-0.0								
100\01	0.00	0.00	0.00	0.0								
102\14	0.00	0.00	0.00	0.0								
102\13	73.76	73.76	0.00	-0.0								
102\12	101.43	101.42	0.00	0.0								
102\11	175.93	175.91	0.00	0.0								
102\10	306.41	306.36	0.00	0.0								
102\09	306.36	306.34	0.00	0.0								
102\08	306.34	306.35	0.00	-0.0								
102\07	391.54	391.54	0.00	0.0								
103\04	0.00	0.00	0.00	0.0								
103\03	85.18	85.18	0.00	0.0								
103\02	85.18	85.18	0.00	0.0								
103\01	85.18	85.19	0.00	-0.0								
104\01	33.64	33.64	0.00	0.0								
105\01	43.16	43.16	0.00	0.0								
106\02	6.60	6.60	0.00	0.0								
106\01	6.60	6.27	0.00	5.0								
107\02	0.00	0.00	0.00	0.0								
107\01	209.97	209.94	0.00	0.0								
108\01	17.65	17.65	0.00	-0.0								
109\02	42.91	42.91	0.00	0.0								
109\01	42.90	42.91	0.00	-0.0								
110\05	0.00	0.00	0.00	0.0								
110\04	0.00	0.00	0.00	0.0								
110\03	0.89	0.38	0.00	57.6								
110\02	137.23	137.74	0.00	-0.4								
110\01	165.16	165.16	0.00	0.0								
111\03	81.50	81.50	0.00	0.0								
111\02	81.50	81.47	0.00	0.0								
111\01	504.72	504.74	0.00	-0.0								
112\01	0.00	0.00	0.00	0.0								
113\02	0.00	0.00	0.00	0.0								
113\01	0.00	0.00	0.00	0.0								
126\10	25.77	25.77	0.00	0.0								
126\09	25.77	25.76	0.00	0.0								
126\08	38.33	38.32	0.00	0.0								
126\07	38.32	38.32	0.00	-0.0								
126\06	49.62	49.62	0.00	-0.0								
126\05	49.62	49.62	0.00	0.0								
126\04	61.30	61.30	0.00	-0.0								
126\03	61.30	61.30	0.00	0.0								
126\02	77.42	77.43	0.00	-0.0								
126\01	82.12	82.09	0.00	0.0								
129\01	496.12	496.12	0.00	-0.0								
130\03	3812.80	3812.80	0.00	0.0								
130\02	3831.18	3831.16	0.00	0.0								
130\01	3831.16	3831.16	0.00	-0.0								
131\03	0.00	0.00	0.00	0.0								
131\02	0.00	0.00	0.00	0.0								
131\01	0.00	0.00	0.00	0.0								
133\02	44.81	44.81	0.00	0.0								

133\01	50.02	49.99	0.00	0.1
134-01	833.58	833.59	0.00	-0.0
134\03	0.00	0.00	0.00	0.0
134\02	107.27	107.25	0.00	0.0
135\03	0.00	0.00	0.00	0.0
135\02	83.15	83.15	0.00	-0.0
135\01	83.15	83.15	0.00	-0.0
136\01	9.39	9.39	0.00	0.0
137\02	1.27	0.42	0.00	67.1
137\01	830.95	831.79	0.00	-0.1
138\02	43.80	43.79	0.00	0.0
138\01	812.76	812.76	0.00	-0.0
139\04	11042.79	11042.79	0.00	-0.0
139\03	547.27	547.33	0.00	-0.0
139\02	763.21	763.25	0.00	-0.0
139\01	763.25	763.25	0.00	0.0
140\01	11258.85	11258.67	0.00	0.0
141\02	0.00	0.00	0.00	0.0
141\01	105.24	105.24	0.00	-0.0
145\01	444.71	444.66	0.00	0.0
144\01	619.87	619.74	0.00	0.0
142\05	10992.71	10992.62	0.00	0.0
142\04	165.00	165.01	0.00	-0.0
142\03	165.01	165.00	0.00	0.0
142\02	351.74	351.74	0.00	0.0
142\01	362.14	362.15	0.00	-0.0
143\01	10872.91	10872.91	0.00	0.0
144\07	22.09	22.09	0.00	-0.0
144\06	53.95	53.95	0.00	0.0
144\05	95.34	95.34	0.00	-0.0
144\04	115.40	115.40	0.00	-0.0
144\03	175.32	175.32	0.00	-0.0
144\02	175.32	175.21	0.00	0.1
145\04	11536.97	11537.11	0.00	-0.0
145\03	281.85	281.94	0.00	-0.0
145\02	339.45	339.47	0.00	-0.0
146\01	0.00	0.00	0.00	0.0
147\01	59.92	59.92	0.00	-0.0
148\02	20.06	20.06	0.00	-0.0
148\01	20.06	20.06	0.00	-0.0
149\01	25.26	25.26	0.00	-0.0
151\02	0.00	0.00	0.00	0.0
151\01	226.48	226.47	0.00	0.0
152\01	137.99	137.98	0.00	0.0
179\01	973.79	973.34	0.00	0.0
153\03	0.00	0.00	0.00	0.0
153\02	242.60	242.60	0.00	0.0
153\01	311.78	311.65	0.00	0.0
154\03	205.53	205.53	0.00	0.0
154\02	226.35	226.25	0.00	0.0
154\01	233.23	232.95	0.00	0.1
155\02	0.00	0.00	0.00	0.0
155\01	83.53	83.46	0.00	0.1
156\02	106.76	106.76	0.00	0.0
156\01	398.30	398.28	0.00	0.0
157\01	291.73	291.53	0.00	0.1
158\01	5.46	4.78	0.00	12.4
159\01	328.42	328.42	0.00	0.0
160\02	591.41	591.41	0.00	0.0
160\01	4026.89	4026.87	0.00	0.0
161\01	3321.17	3321.16	0.00	0.0
162\01	3147.32	3147.32	0.00	0.0
163\01	2982.82	2982.82	0.00	-0.0
164\01	2823.91	2823.91	0.00	0.0
165\01	0.00	0.00	0.00	0.0
166\01	3590.55	3590.49	0.00	0.0
167\01	0.00	0.00	0.00	0.0
168\01	138.25	139.37	0.00	-0.8
169\01	26.66	26.64	0.00	0.1
170\03	547.53	547.53	0.00	0.0
171\01	0.76	0.70	0.00	8.4
172\01	41.26	42.76	0.00	-3.6
173\01	2.92	2.92	0.00	0.2
174\01	36.82	36.81	0.00	0.0
175\01	11.17	11.16	0.00	0.1
176\01	57.63	57.58	0.00	0.1
177\01	30.09	30.00	0.00	0.3
178\01	0.00	0.00	0.00	0.0
179\02	821.87	821.85	0.00	0.0
180\02	79.60	79.43	0.00	0.2
180\01	268.97	268.97	0.00	0.0
181\01	44.81	44.81	0.00	0.0
182\09	11.68	11.68	0.00	0.0
182\08	19.93	19.93	0.00	0.0
183\02	0.00	0.00	0.00	0.0
184\01	200.33	200.32	0.00	0.0
185\01	69.31	69.31	0.00	0.0
186\02	1.40	0.47	0.00	66.0
186\01	0.47	0.47	0.00	-0.0
187\02	741.14	741.14	0.00	0.0
187\01	741.14	741.14	0.00	-0.0
188\01	28.06	28.06	0.00	0.0
189\01	0.00	0.00	0.00	0.0

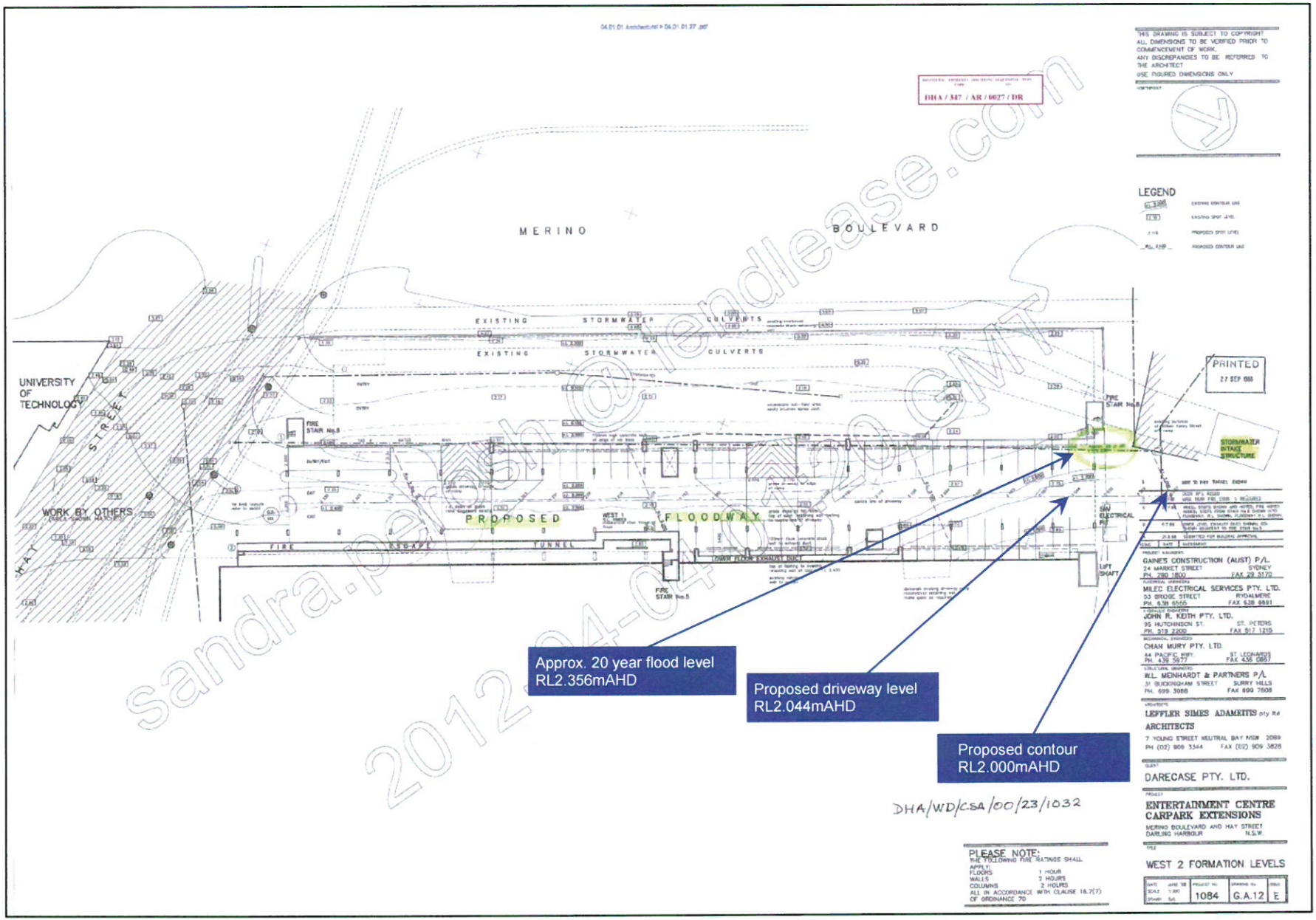
190\01	0.00	0.00	0.00	0.0
191\01	0.00	0.00	0.00	0.0
192\01	7.74	7.74	0.00	0.1
197\02	327.36	327.33	0.00	0.0
197\01	327.33	327.30	0.00	0.0
193\01	0.00	0.00	0.00	0.0
194\01	22.22	22.22	0.00	0.0
195\01	0.00	0.00	0.00	0.0
196\02	18.41	18.41	0.00	0.0
196\01	18.41	18.38	0.00	0.1
197\05	8840.55	8840.62	0.00	-0.0
197\04	255.82	255.76	0.00	0.0
197\03	319.62	319.62	0.00	-0.0
198\02	5376.28	5376.30	0.00	-0.0
198\01	5125.00	5121.80	0.00	0.1
199\01	235.74	235.75	0.00	-0.0
O 1\02	0.00	0.00	0.00	0.0
O 9\02	9026.39	9026.39	0.00	0.0
O 11\02	11030.06	11030.06	0.00	0.0
O 46\02	21434.07	21434.07	0.00	0.0
O 90\02	0.00	0.00	0.00	0.0
O 91\02	162.60	162.60	0.00	0.0
O 126\01	0.00	0.00	0.00	0.0
O 133\02	0.76	0.76	0.00	0.0
O 134\02	28.10	28.10	0.00	0.0
O 137\02	126.59	126.59	0.00	0.0
4-01	555.69	547.37	8.27	0.0
3-09	2915.41	2915.52	0.00	-0.0
3-08	2915.52	2915.52	0.00	0.0
3-07	2915.52	2915.52	0.00	0.0
3-06	10378.84	10378.98	0.00	-0.0
3-05	21204.23	21204.22	0.00	0.0
3-04	21563.50	21563.53	0.00	-0.0
3-03	21765.73	21765.61	0.00	0.0
3-02	21821.71	21821.72	0.00	-0.0
3-01	23433.38	23433.38	0.00	0.0
A-02	23433.38	23433.38	0.00	0.0
A-01	23433.38	23433.38	0.00	0.0
22-02	10471.66	10471.66	0.00	0.0
22-01	10825.35	10825.25	0.00	0.0
23-02	7415.28	7415.28	0.00	0.0
24-02	21.58	21.44	0.00	0.6
24A-02	6.98	6.95	0.00	0.5
24A-01	28.02	27.95	0.00	0.2
27-02	274.84	274.78	0.00	0.0
27-01	310.33	310.25	0.00	0.0
21-01	2583.62	2583.61	0.00	0.0
30-02	397.73	397.73	0.00	0.0
30-01	471.54	471.34	0.00	0.0
21-03	2006.96	2005.97	0.00	0.0
21-02	2032.49	2031.80	0.00	0.0
31-02	666.21	666.13	0.00	0.0
31-01	895.06	895.13	0.00	-0.0
29-01	1625.61	1626.34	0.00	-0.0
33-01	169.86	169.85	0.00	0.0
32-01	431.92	431.75	0.00	0.0
119-02	0.00	0.00	0.00	0.0
119-01	0.00	0.00	0.00	0.0
120-01	654.42	654.42	0.00	0.0
121-01	805.60	805.52	0.00	0.0
120A-01	0.00	0.00	0.00	0.0
119A-01	266.09	266.09	0.00	0.0
121-06	158.43	158.43	0.00	0.0
121-05	205.91	205.85	0.00	0.0
121-04	205.13	205.10	0.00	0.0
121-03	205.10	205.03	0.00	0.0
121-02	205.03	205.02	0.00	0.0
122-02	60.68	60.64	0.00	0.1
122-01	56.10	56.10	0.00	0.0
122A-01	0.00	0.00	0.00	0.0
123-02	202.20	202.20	0.00	0.0
123-01	202.20	202.21	0.00	-0.0
124-01	405.10	405.10	0.00	0.0
124A-02	889.11	888.86	0.00	0.0
124A-01	358.97	359.28	0.00	-0.1
125-02	497.64	497.64	0.00	0.0
125-01	497.64	497.64	0.00	0.0
127-01	29.45	29.36	0.00	0.3
132-02	308.49	308.48	0.00	0.0
132-01	308.48	308.48	0.00	0.0
N5971	529.90	529.90	0.00	0.0
3-11	30.92	30.92	0.00	0.0
3-10	39.93	39.86	0.00	0.2
29-02	644.67	644.66	0.00	0.0
32-03	227.36	227.36	0.00	0.0
32-02	464.63	464.53	0.00	0.0
21-04	275.86	275.86	0.00	0.0
28-01	251.74	251.74	0.00	-0.0
111A\01	187.50	187.50	0.00	0.0
N1000	0.00	0.00	0.00	0.0
Dummy 1	1068.27	1068.27	0.00	0.0
Dummy 3	949.58	949.58	0.00	0.0
Dummy 2	1218.33	1218.33	0.00	0.0

N1012	0.00	0.00	0.00	0.0								
N1013	0.00	0.00	0.00	0.0								
200\04	0.00	0.00	0.00	0.0								
200\03	364.70	364.70	0.00	-0.0								
200\02	501.35	501.36	0.00	-0.0								
200\01	492.81	492.81	0.00	0.0								
201\01	152.01	152.00	0.00	0.0								
202\02	62.59	62.58	0.00	0.0								
202\01	128.72	128.67	0.00	0.0								
204\02	277.64	277.60	0.00	0.0								
204\01	236.03	236.03	0.00	0.0								
205\04	315.72	315.72	0.00	0.0								
205\03	315.72	315.72	0.00	-0.0								
205\02	332.18	332.13	0.00	0.0								
205\01	330.58	330.58	0.00	0.0								
206\03	6363.08	6363.07	0.00	0.0								
206\02	6363.08	6363.06	0.00	0.0								
206\01	6650.64	6650.58	0.00	0.0								
208\02	15671.28	15671.38	0.00	-0.0								
208\01	12169.34	12169.34	0.00	0.0								
207\02	20.06	20.06	0.00	0.0								
207\01	48.75	48.75	0.00	-0.0								
208\04	5991.91	5991.91	0.00	0.0								
208\03	8972.42	8972.35	0.00	0.0								
209\17	16.12	16.12	0.00	0.0								
209\16	39.74	39.72	0.00	0.0								
209\15	145.53	145.44	0.00	0.1								
209\14	264.72	264.62	0.00	0.0								
209\13	415.83	415.47	0.00	0.1								
209\12	500.83	500.44	0.00	0.1								
209\11	1006.55	1006.33	0.00	0.0								
209\10	1544.39	1545.02	0.00	-0.0								
209\09	1605.02	1605.52	0.00	-0.0								
209\08	1664.46	1664.12	0.00	0.0								
209\07	1746.22	1746.41	0.00	-0.0								
209\06	1854.60	1854.84	0.00	-0.0								
209\05	1903.68	1905.96	0.00	-0.1								
209\04	2643.45	2643.24	0.00	0.0								
209\03	2956.21	2963.92	0.00	-0.3								
209\02	2967.08	2967.11	0.00	-0.0								
209\01	2973.96	2973.90	0.00	0.0								
210\05	57.25	57.23	0.00	0.0								
210\04	166.97	166.90	0.00	0.0								
210\03	158.91	158.91	0.00	-0.0								
210\02	158.91	158.91	0.00	0.0								
210\01	158.91	158.91	0.00	0.0								
211\03	140.41	140.37	0.00	0.0								
211\02	346.67	346.65	0.00	0.0								
211\01	345.43	345.41	0.00	0.0								
212\01	48.88	48.84	0.00	0.1								
213\07	25.26	25.26	0.00	0.0								
213\06	90.51	90.44	0.00	0.1								
213\05	123.32	123.18	0.00	0.1								
213\04	200.49	200.37	0.00	0.1								
213\03	278.95	278.84	0.00	0.0								
213\02	518.90	518.78	0.00	0.0								
213\01	536.43	536.41	0.00	0.0								
214\02	60.43	60.42	0.00	0.0								
214\01	59.41	59.55	0.00	-0.2								
215\01	298.33	298.32	0.00	0.0								
216\01	43.93	43.93	0.00	0.0								
217\01	114.55	114.52	0.00	0.0								
218\01	85.72	85.69	0.00	0.0								
219\01	67.28	67.25	0.00	0.1								
220\02	49.51	49.46	0.00	0.1								
220\01	49.46	49.36	0.00	0.2								
221\01	53.95	53.95	0.00	0.0								
O 200\02	8.54	8.54	0.00	0.0								
O 201\01	15.35	15.35	0.00	0.0								
O 205\03	53.24	53.24	0.00	0.0								
O 205\02	1.55	1.55	0.00	0.0								
O 208\02	3501.67	3501.67	0.00	0.0								
O 210\05	1.60	1.60	0.00	0.0								
N1085	96.61	96.61	0.00	0.0								
N1086	96.61	96.61	0.00	0.0								
N1092	58.78	58.78	0.00	0.0								
N1094	58.78	58.78	0.00	0.0								
N1095	51.29	51.29	0.00	0.0								
N1096	118.82	118.82	0.00	0.0								
N1097	118.82	118.82	0.00	0.0								
N1099	119.08	119.08	0.00	0.0								
N1100	119.08	119.08	0.00	0.0								
N1101	47.35	47.35	0.00	0.0								
N1102	47.35	47.35	0.00	0.0								
N1103	10.16	10.16	0.00	0.0								
N1104	10.16	10.16	0.00	0.0								
N1105	11.68	11.68	0.00	0.0								
N1106	11.68	11.68	0.00	0.0								
N1107	68.04	68.04	0.00	0.0								
N1108	68.04	68.04	0.00	0.0								
N1109	264.05	264.05	0.00	0.0								
N1110	264.05	264.05	0.00	0.0								
N1111	51.29	51.29	0.00	0.0								

N1498	19761.01	19761.01	0.00	0.0								
46\10 weir	0.00	0.00	0.00	0.0								
Dummy DQ 1	393.92	393.92	0.00	0.0								
Dummy DQ 2	403.44	403.44	0.00	0.0								
Pit1483	13634.89	13634.89	0.00	0.0								
N1622	8240.65	8240.65	0.00	0.0								
N1703	19761.01	19761.01	0.00	0.0								
N1704	0.00	0.00	0.00	0.0								
N1705	36.78	36.78	0.00	0.0								
N1706	0.00	0.00	0.00	0.0								
N1707	0.00	0.00	0.00	0.0								
N1708	529.34	529.34	0.00	-0.0								
N1709	0.00	0.00	0.00	0.0								
N1710	0.00	0.00	0.00	0.0								
N1711	0.00	0.00	0.00	0.0								
N1712	0.00	0.00	0.00	0.0								
N1713	0.00	0.00	0.00	0.0								
N1714	9.02	9.02	0.00	0.0								
N1715	36.78	36.78	0.00	0.0								
N1716	0.00	0.00	0.00	0.0								
N1717	9.02	9.02	0.00	0.0								
N1718	16680.50	16680.50	0.00	0.0								
N1719	20290.35	20290.34	0.00	0.0								
N1720	36970.83	36970.86	0.00	-0.0								
N1721	45.80	45.80	0.00	-0.0								
N1722	37016.65	37016.65	0.00	0.0								
N1723	0.00	0.00	0.00	0.0								
N1724	1.31	1.31	0.00	0.0								
N1725	3575.24	3575.24	0.00	0.0								
N1726	0.71	0.71	0.00	0.0								
N1727	117.30	117.30	0.00	0.0								
N1728	4.22	4.22	0.00	0.0								
N1729	426.04	426.04	0.00	0.0								
Pit1563	81.50	81.50	0.00	0.0								
N1780	13018.18	13018.18	0.00	0.0								
Run Log for AA004399 run at 14:36:29 on 28/2/2013Water was lost from the system at 19\04.												
Is this correct? If this water re-enters the system further downstream you should draw an overflow route from this location.												
Upwelling occurred at more than 20 pits.												
Freeboard was inadequate at more than 20 pits.												
The maximum flow exceeded the safe value in the following overflow routes: OF1278, OF1272, OF1231, OF1207, OF1178, OF1177, OF1176, OF1175, OF1172, OF1125, OF1120, OF1110,												
The following overflow routes carried water uphill (adding energy): OF1057, F 202\01, F 206\03, F 206\02, F 208\03, F 209\10, F 209\04, F 209\03, F 209\02, F 209\01, F 210\04, F 211\02, F												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												

APPENDIX G3

SYDNEY ENTERTAINMENT CENTRE CARPARK



APPENDIX H

MUSIC MODELLING & WSUD

H.1 Proposed Development SICEEP PPP Stormwater Quality Management Strategy (Practical Treatment Scenario)

The treatment elements included in the proposed Stormwater Quality Management Strategy for the Proposed SICEEP PPP Development under the Practical Treatment Scenario are shown in Figure H.1.

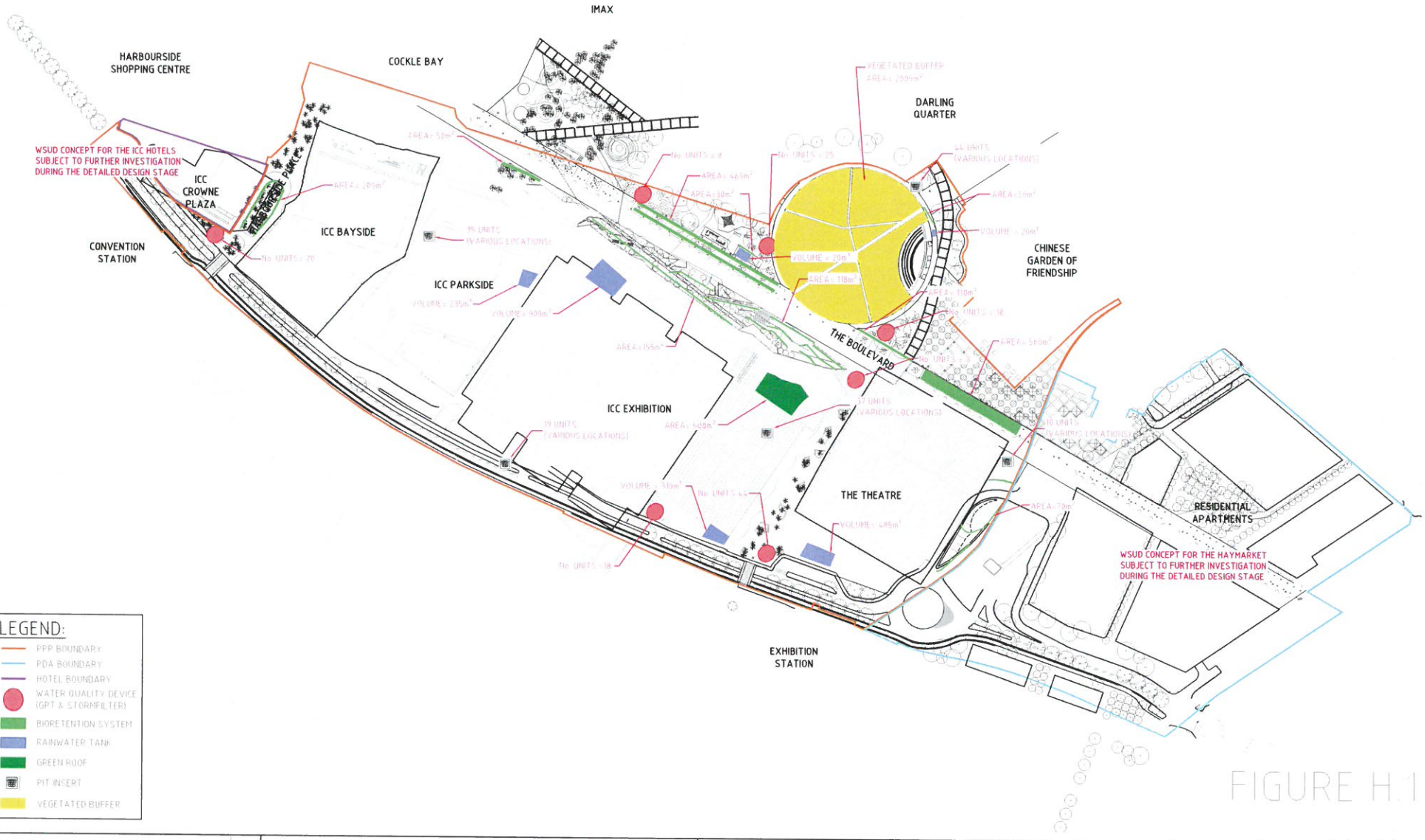


FIGURE H.1

P1 ISSUE FOR DEVELOPMENT APPLICATION 6/03/13

1 : 1250

Lend Lease

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales: 1:1250 (A1)
Original Size: A1
Height Datum: AHD
Grid:
Filename:

Current Issue Signatures
Drawn: AN
Designed: GD
Checked: ER
Approved:

SICEEP
DARLING HARBOUR PROJECT PRECINCT

STORMWATER QUALITY MANAGEMENT STRATEGY (PRACTICAL TREATMENT SCENARIO)

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No: SKC288 — Project No: AA004399 — Issue: P1

H.2 Proposed Development SICEEP PPP Stormwater Quality Management Strategy (Desirable Treatment Scenario)

The treatment elements included in the Stormwater Quality Management Strategy for the Proposed SICEEP PPP Development under the Desired Treatment Scenario are shown in Figure H.2.

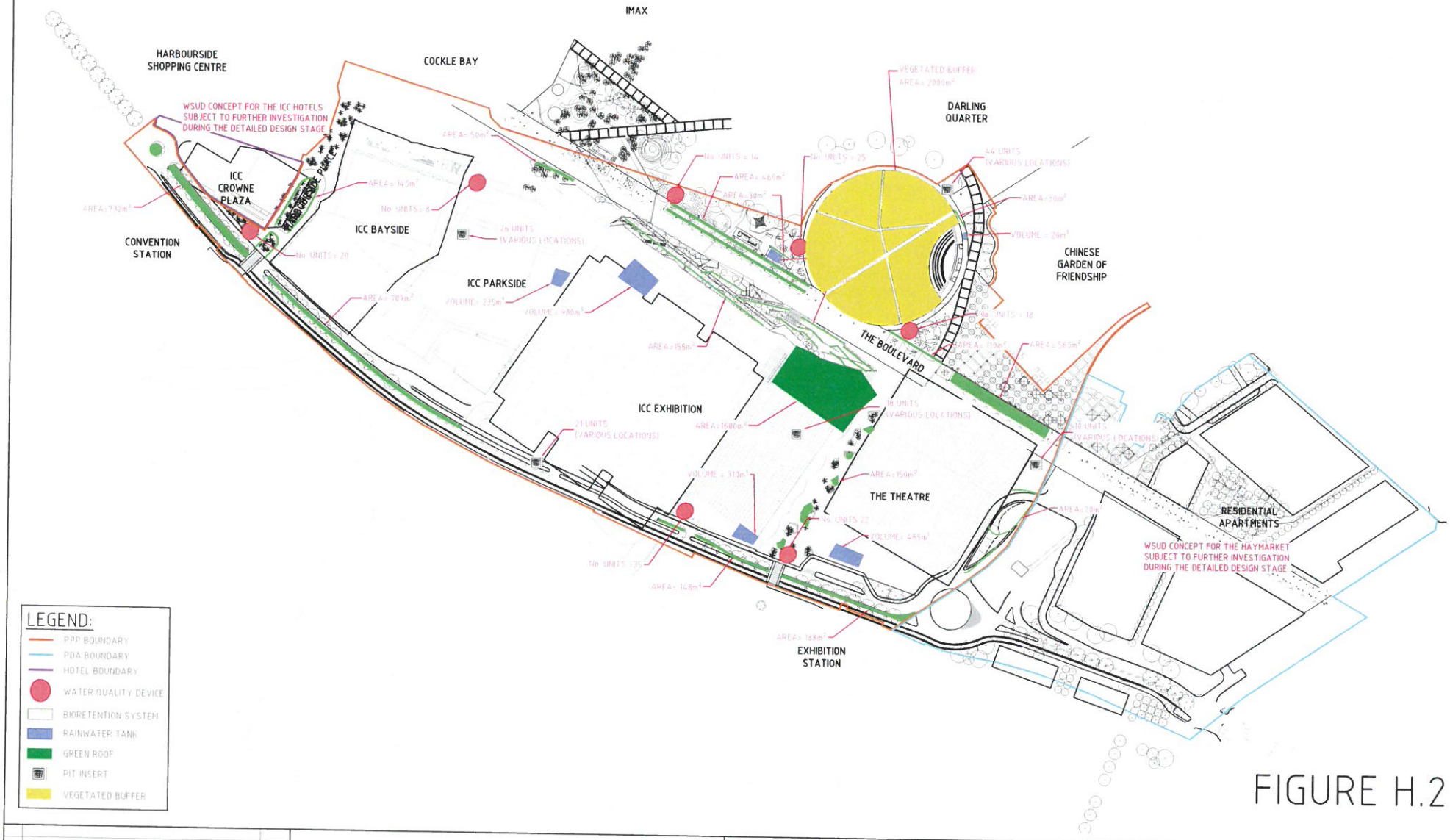


FIGURE H.2

1 : 1250

Lend Lease

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

SICEEP
DARLING HARBOUR
PROJECT PRECINCT

STORMWATER QUALITY MANAGEMENT STRATEGY (DESIRABLE TREATMENT SCENARIO)

HYDER CONSULTING PTY LTD
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Level 5, 141 Walker St
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Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No: SKC286 – AA004399 – P1

H.3 Existing SICEEP PPP MUSIC Model

The land use components and percentage imperviousness of the PPP site under existing conditions are summarised in Table H.1. The MUSIC model for this scenario is shown in Figure H.3.

Table H.1 Component land uses and percentage imperviousness of the PPP site

Subcatchment	Pervious (ha)	Roads (ha)	Flyovers (ha)	Roofs (ha)	General Urban (ha)	Total Imp (ha)	Total Area (ha)	% Imp
PPP	1.439	1.415	1.374	4.587	4.157	11.533	12.972	**89%**

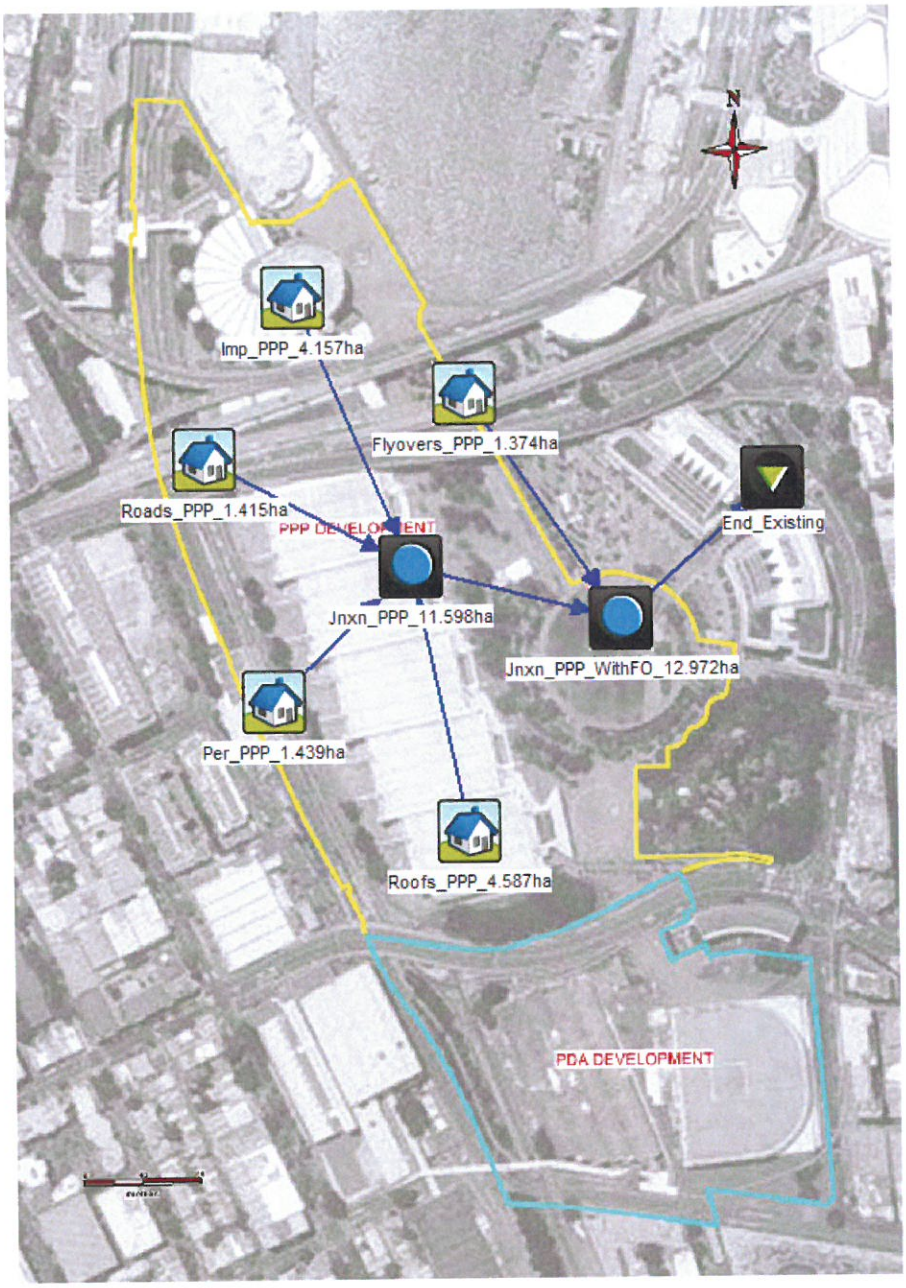


Figure H.3 MUSIC model for the PPP site under Existing conditions.

H.4 Proposed Development SICEEP PPP MUSIC Model (Base Scenario)

The land use components and percentage imperviousness of the PPP site under proposed development conditions are summarised in Table H.2. The MUSIC model for this scenario is shown in Figure H.4.

Table H.2 Component land uses and percentage imperviousness of the PPP site

Subcatchment	Pervious (ha)	Roads (ha)	Flyovers (ha)	Roofs (ha)	General Urban (ha)	Total Imp (ha)	Total Area (ha)	% Imp
PPP	1.998	1.617	1.374	4.337	3.646	10.974	12.972	**85%**

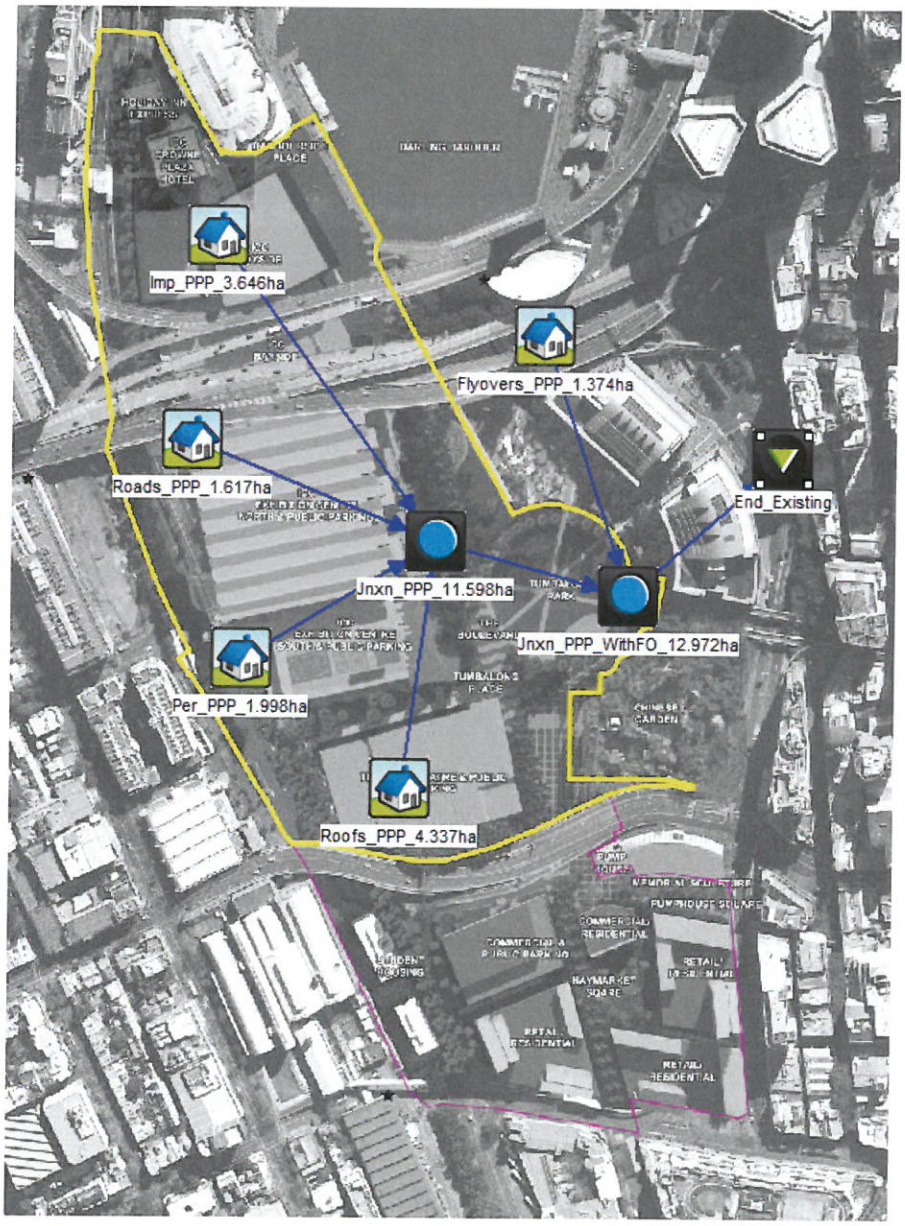


Figure H.4 MUSIC model for the PPP site under Proposed Development conditions.

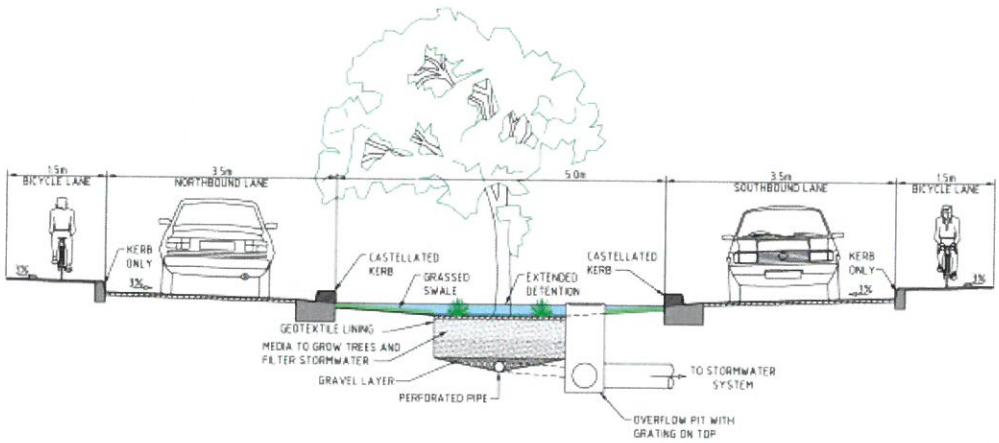
H.5 Proposed Development SICEEP PPP Subcatchments Percentage Imperviousness

Subcatchment	Area (ha)	Pervious Area (ha)	Impervious Areas (ha)				% Impervious
			Roads & Flyovers	Roofs	Other Impervious	Total Impervious	
Bayside	4.410	0.168	1.981	1.255	1.006	4.242	**96%**
North Exhibition	2.780	0.168	0.482	1.971	0.159	2.612	**94%**
South Exhibition	1.639	0.279	0.185	0.126	1.049	1.360	**83%**
The Theatre	1.734	0.175	0.343	0.985	0.231	1.559	**90%**
Tumbalong Park	2.409	1.208	0.000	0.000	1.201	1.201	**50%**
Entire SICEEP PPP Site	**12.972**	**1.836**	**2.991**	**4.337**	**3.808**	**11.136**	**85%**

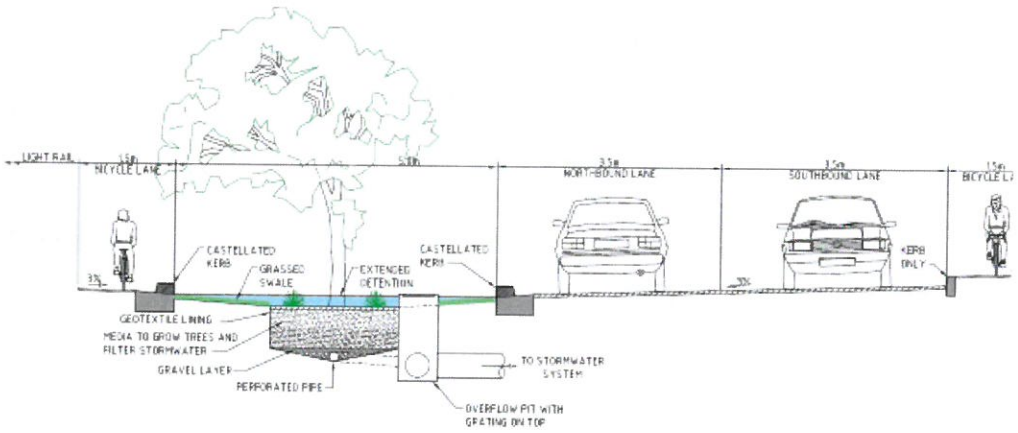
H.6 Proposed Development SICEEP PPP MUSIC Model (Desirable Treatment Scenario)

H.6.1 Darling Drive Bioretention Concept

In Figure H.5 are typical sections of Darling Drive showing medians or roadside areas as bioretention strips.



(a) Median Treatment



(b) Edge Treatment

Figure H.5 Typical sections of Darling Drive showing (a) Median Treatment and (b) Edge Treatment options for road drainage and WSUD strategy.

H.6.2 Desirable Treatment Scenario MUSIC Modelling and Results

The MUSIC models developed for all SICEEP PPP subcatchments for the Desirable Treatment Scenario are shown in Figures H.6 to H.10.

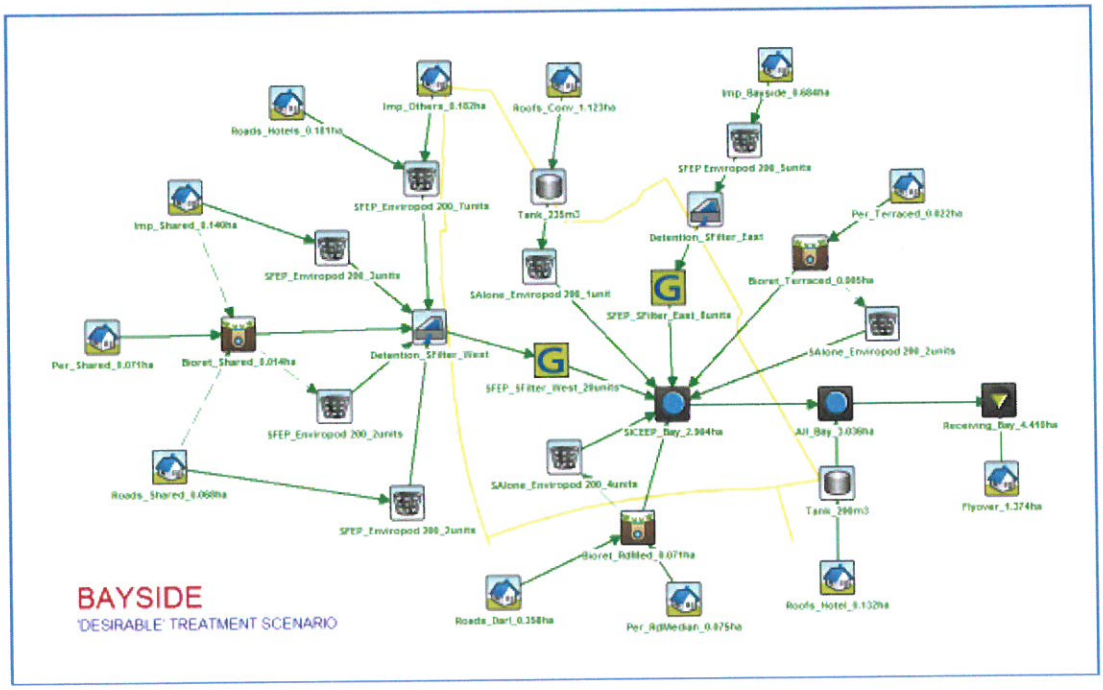


Figure H.6 MUSIC model layout for the Bayside subcatchment

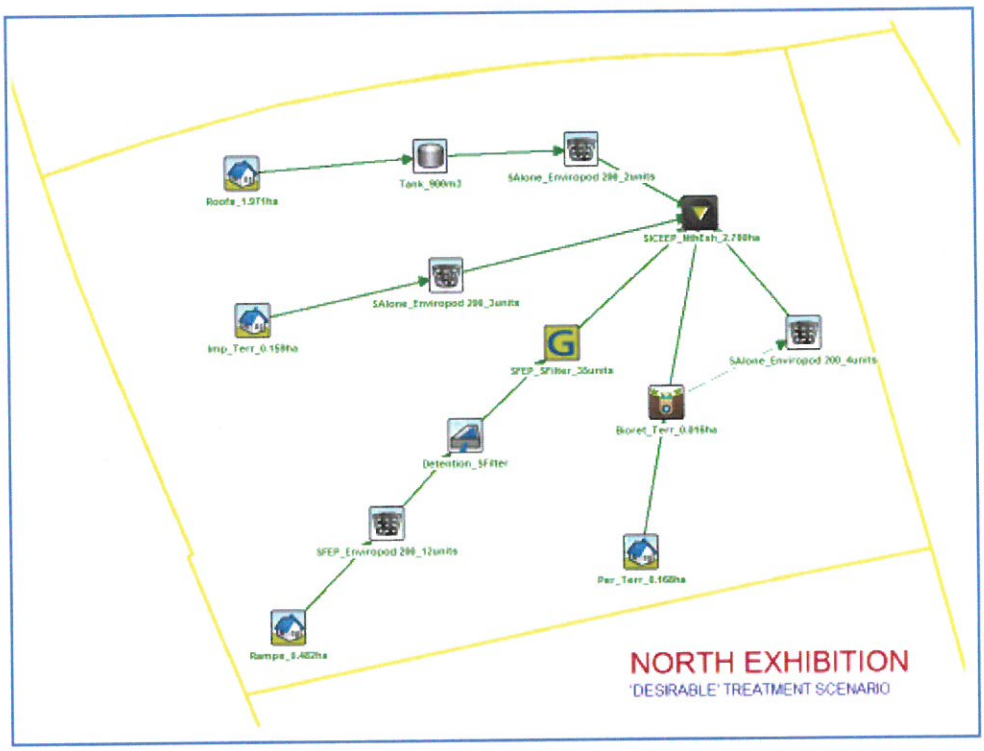


Figure H.7 MUSIC model layout for the North Exhibition subcatchment

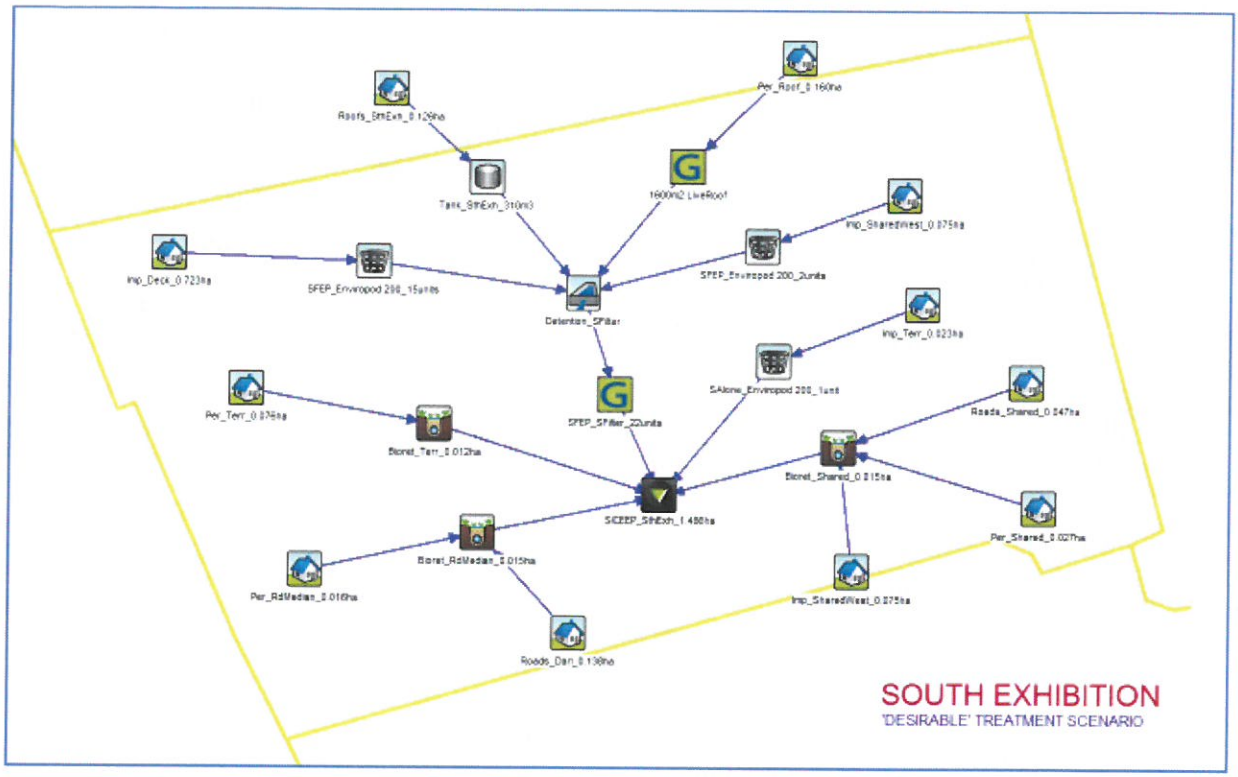


Figure H.8 MUSIC model layout for the South Exhibition subcatchment

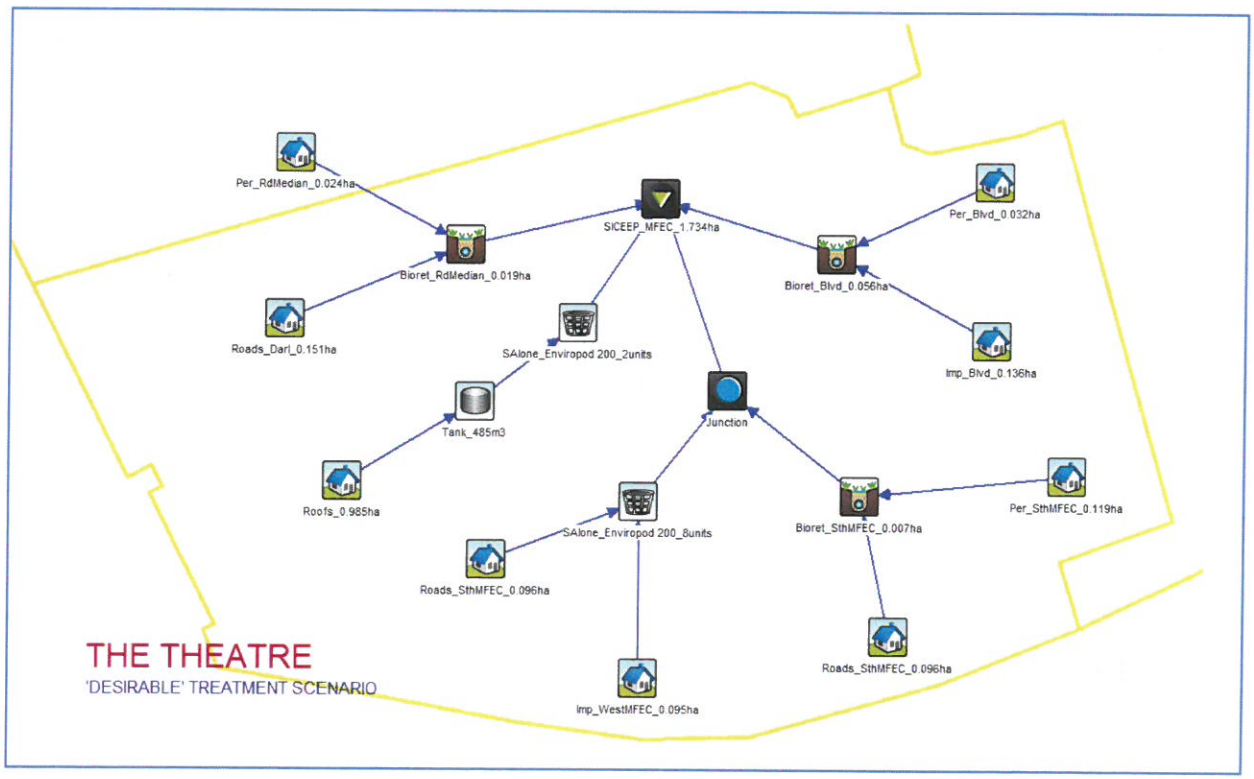


Figure H.9 MUSIC model layout for The Theatre subcatchment

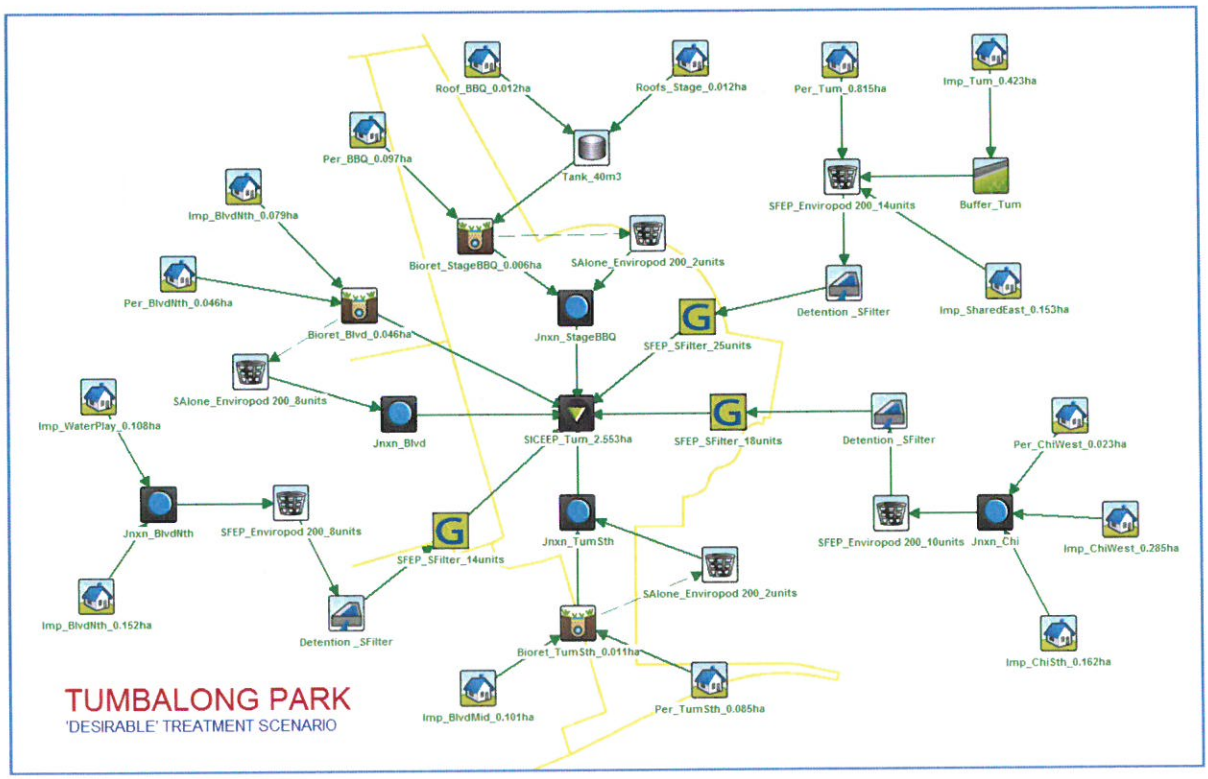


Figure H.10 MUSIC model layout for the Tumbalong Park subcatchment

The results of the MUSIC modelling for all SICEEP PPP subcatchments, taken either individually or collectively, for the Desirable Treatment Scenario are summarised in Tables H.3 to H.8.

Table H.3 Summary of estimated mean annual pollutant loads and reductions for the Bayside subcatchment *(Reporting Node in MUSIC model: SICEEP_Bay_2.904ha).*

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	724	4830	9.37	69.5
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	651.6	4105.5	6.1	31.3
Total Residual Load to Darling Harbour (kg/yr)	0.00	580.00	2.90	34.00
Total Reduction Achieved (kg/yr)	724.0	4250.0	6.5	35.5
Total Reduction Achieved (%)	**100%**	**88%**	**69%**	**51%**

Table H.4 Summary of estimated mean annual pollutant loads and reductions for the North Exhibition subcatchment *(Reporting Node in MUSIC model: SICEEP_NthExh_2.780ha).*

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	691	2880	7.14	66.4
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	621.9	2448.0	4.6	29.9
Total Residual Load to Darling Harbour (kg/yr)	0.00	485.00	2.69	29.20
Total Reduction Achieved (kg/yr)	691.0	2395.0	4.5	37.2
Total Reduction Achieved (%)	**100%**	**83%**	**62%**	**56%**

Table H.5 Summary of estimated mean annual pollutant loads and reductions for the South Exhibition subcatchment *(Reporting Node in MUSIC model: SICEEP_SthExh_1.486ha).*

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	325	2700	4.66	32.7
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	292.5	2295.0	3.0	14.7
Total Residual Load to Darling Harbour (kg/yr)	0.00	290.00	1.40	13.90
Total Reduction Achieved (kg/yr)	325.0	2410.0	3.3	18.8
Total Reduction Achieved (%)	**100%**	**89%**	**70%**	**57%**

Table H.6 Summary of estimated mean annual pollutant loads and reductions for The Theatre subcatchment *(Reporting Node in MUSIC model: SICEEP_Thea_1.517ha).*

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	458	2210	4.99	43
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	412.2	1878.5	3.2	19.4
Total Residual Load to Darling Harbour (kg/yr)	0.00	333.00	1.60	16.00
Total Reduction Achieved (kg/yr)	458.0	1877.0	3.4	27.0
Total Reduction Achieved (%)	**100%**	**85%**	**68%**	**63%**

Table H.7 Summary of estimated mean annual pollutant loads and reductions for the Tumbalong Park subcatchment *(Reporting Node in MUSIC model: SICEEP_Tum_2.553ha).*

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	394	3330	5.73	44.9
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	354.6	2830.5	3.7	20.2
Total Residual Load to Darling Harbour (kg/yr)	0.00	359.00	1.99	22.00
Total Reduction Achieved (kg/yr)	394.0	2971.0	3.7	22.9
Total Reduction Achieved (%)	**100%**	**89%**	**65%**	**51%**

Table H.8 Summary of estimated mean annual pollutant loads and reductions for the entire PPP development.

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	2592	15950	31.89	256.5
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	2332.8	13557.5	20.7	115.4
Total Residual Load to Darling Harbour (kg/yr)	0.00	2047.00	10.58	115.10
Total Reduction Achieved (kg/yr)	2592.0	13903.0	21.3	141.4
Total Reduction Achieved (%)	**100%**	**87%**	**67%**	**55%**

H.7 Bioretention System Properties

The properties of the bioretention systems used in either the Practical or Desired Treatment Scenarios are summarised in Tables H.9 to H.12.

Table H.9 General properties of Bioretention Road Median Strips along Darling Drive ('Desirable' Scenario)

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	400
Orthophosphate Content of Filter Media (mg/kg)	20
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

Table H.10 General properties of Bioretention Tree Pits along The Boulevarde

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	400
Orthophosphate Content of Filter Media (mg/kg)	20
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

Table H.11 General properties of Bioretention Strips in Landscaped Areas

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	750
Orthophosphate Content of Filter Media (mg/kg)	55
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

Table H.12 General properties of Bioretention Strips in Terraced Landscaping

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	750
Orthophosphate Content of Filter Media (mg/kg)	55
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

H.8 Sample Tank Reliability Calculation Spreadsheet

CALCULATION OF TANK RELIABILITY TO SUPPY RAINWATER FOR TOILET FLUSHING & IRRIGATION

Tank Name	Bayside
Roof Area (m2)	11230
Capture Efficiency (%)	85
Capture Absorption (mm)	0.1
Diverted Rain (mm)	1
Diverted Volume (m3)	11.23
Daily Water Usage (m3)	25
Tank Storage Volume (m3)	235
Initial Storage Available (%)	0
Critical % Volume for Mains Switch	10%
Critical Volume for Mains Switch	23.5

Number of days tank overflows	26
Volume of water overflowing/bypassing tank (m3)	5722

Days in a Year with Water Left in Tank	168
Volume of mains water saved each year (m3)	4193
Days in a Year without Water Left in Tank	198
% Reliability	46%

Date	Rainfall mm/Day	Rain collected for the day (m3)	Stored rain at start of day (m3)	Stored rain at end of day (m3)	Adjusted Stored rain at end of day_No negatives (m3)	Count for Days With Rain in Tank (1,0)	Count for Days With Rain in Tank at Start of Day > Daily Demand (1,0)	Count for Days With Tank Overflowing (1,0)	Overflowing Volume (m3)
1/01/1957	0.15625	-10.69306563	0	-25	0	0	0	0	0
2/01/1957	0.09375	11.28965938	0	-25	0	0	0	0	0
3/01/1957	8.89	72.674945	0	47.674945	47.674945	1	0	0	0
4/01/1957	3.84	24.47017	47.674945	47.145115	47.145115	1	25	0	0
5/01/1957	0.22	-10.08454	47.145115	22.145115	22.145115	0	25	0	0
6/01/1957	1.78	4.80644	22.145115	1.951555	1.951555	0	22.145115	0	0
7/01/1957	0	-12.18455	1.951555	23.048445	0	0	1.951555	0	0
8/01/1957	0	-12.18455	0	-25	0	0	0	0	0
9/01/1957	1.02	-2.44814	0	-25	0	0	0	0	0
10/01/1957	0	-12.18455	0	-25	0	0	0	0	0
11/01/1957	0	-12.18455	0	-25	0	0	0	0	0
12/01/1957	0	-12.18455	0	-25	0	0	0	0	0
8/11/1966	105.16	991.62023	0	966.62023	966.62023	1	0	1	731.62023
9/11/1966	31.07	284.394135	235	494.394135	494.394135	1	25	1	259.394135
10/11/1966	2.03	7.192815	235	217.192815	217.192815	1	25	0	0
11/11/1966	4.32	29.05201	217.192815	221.244825	221.244825	1	25	0	0
12/11/1966	0.32	-9.12999	221.244825	196.244825	196.244825	1	25	0	0
13/11/1966	4.26	28.47928	196.244825	199.724105	199.724105	1	25	0	0
14/11/1966	0	-12.18455	199.724105	174.724105	174.724105	1	25	0	0
15/11/1966	0	-12.18455	174.724105	149.724105	149.724105	1	25	0	0
16/11/1966	0	-12.18455	149.724105	124.724105	124.724105	1	25	0	0
17/11/1966	0.25	9.798175	124.724105	99.724105	99.724105	1	25	0	0
18/11/1966	1.27	0.061765	99.724105	74.724105	74.724105	1	25	0	0
19/11/1966	0	-12.18455	74.724105	49.724105	49.724105	1	25	0	0
20/11/1966	0	-12.18455	49.724105	24.724105	24.724105	1	25	0	0
21/11/1966	0	-12.18455	24.724105	-0.275895	0	0	24.724105	0	0
22/11/1966	0	-12.18455	0	-25	0	0	0	0	0
23/11/1966	0	-12.18455	0	-25	0	0	0	0	0
24/11/1966	0	-12.18455	0	-25	0	0	0	0	0
25/11/1966	0	-12.18455	0	-25	0	0	0	0	0
26/11/1966	1.27	-0.061765	0	-25	0	0	0	0	0
27/11/1966	0	-12.18455	0	-25	0	0	0	0	0
28/11/1966	0	-12.18455	0	-25	0	0	0	0	0
29/11/1966	0	-12.18455	0	-25	0	0	0	0	0
30/11/1966	0	-12.18455	0	-25	0	0	0	0	0
1/12/1966	2.75	14.065575	0	-10.934425	0	0	0	0	0
2/12/1966	8.92	72.96131	0	47.96131	47.96131	1	0	0	0
3/12/1966	1.09	-1.779955	47.96131	22.96131	22.96131	0	25	0	0
4/12/1966	13.24	114.19787	22.96131	112.15918	112.15918	1	22.96131	0	0
5/12/1966	18.24	161.92537	112.15918	249.08455	249.08455	1	25	1	14.08455
6/12/1966	18.26	162.11628	235	372.11628	372.11628	1	25	1	137.11628
7/12/1966	7.42	58.64306	235	268.64306	268.64306	1	25	1	33.64306
8/12/1966	0	-12.18455	235	210	210	1	25	0	0
9/12/1966	7.12	55.77941	210	240.77941	240.77941	1	25	1	5.77941
10/12/1966	0	-12.18455	235	210	210	1	25	0	0
11/12/1966	0	-12.18455	210	185	185	1	25	0	0
12/12/1966	0	-12.18455	185	160	160	1	25	0	0
13/12/1966	0	-12.18455	160	135	135	1	25	0	0
14/12/1966	12.44	106.56147	135	216.56147	216.56147	1	25	0	0
15/12/1966	0	-12.18455	216.56147	191.56147	191.56147	1	25	0	0
16/12/1966	0	-12.18455	191.56147	166.56147	166.56147	1	25	0	0
17/12/1966	0	-12.18455	166.56147	141.56147	141.56147	1	25	0	0
18/12/1966	0	-12.18455	141.56147	116.56147	116.56147	1	25	0	0
19/12/1966	0	-12.18455	116.56147	91.56147	91.56147	1	25	0	0
20/12/1966	0	-12.18455	91.56147	66.56147	66.56147	1	25	0	0
21/12/1966	0	-12.18455	66.56147	41.56147	41.56147	1	25	0	0
22/12/1966	0	-12.18455	41.56147	16.56147	16.56147	0	25	0	0
23/12/1966	1.53	2.420065	16.56147	-6.018465	0	0	16.56147	0	0
24/12/1966	0	-12.18455	0	-25	0	0	0	0	0
25/12/1966	0	-12.18455	0	-25	0	0	0	0	0
26/12/1966	1.01	-2.543595	0	-25	0	0	0	0	0
27/12/1966	0	-12.18455	0	-25	0	0	0	0	0
28/12/1966	0.23	-9.989085	0	-25	0	0	0	0	0
29/12/1966	0	-12.18455	0	-25	0	0	0	0	0
30/12/1966	0.77	-4.834515	0	-25	0	0	0	0	0
31/12/1966	3.27	19.029235	0	-5.970765	0	0	0	0	0
							44240.78606	257	57223.68475

All Years	Total 1s		Total 1s	1677
	Total 0s		Total 0s	1975
	Total Days		Total Days	3652
	% Reliability		% Reliability	46%