

Appendix 8.16: Proposed Development (Operational Phase) Impacts at Ecological Receptors (Cumulative Impacts)

APPENDIX 8.16 – PROPOSED DEVELOPMENT (OPERATIONAL PHASE) IMPACTS AT ECOLOGICAL RECEPTORS (CUMULATIVE IMPACTS)

Table 8.16.1: Predicted 2030 Annual Mean NO_x Concentration Change

Receptor	NO _x Annual Mean Concentration		PC Difference (µg/m ³)	% PC of Critical Level
	2030 Baseline (µg/m ³) PEC	2030 Baseline + Committed Developments + Proposed Development (µg/m ³) PEC		
MN.E1.R0	34.38	34.95	0.57	1.9%
MN.E1.R2	33.20	33.74	0.54	1.8%
MN.E1.R5	31.64	32.15	0.50	1.7%
MN.E1.R10	29.47	29.92	0.46	1.5%
MN.E1.R20	26.19	26.58	0.39	1.3%
MN.E1.R30	23.85	24.18	0.33	1.1%
MN.E1.R40	22.08	22.37	0.30	1.0%
MN.E1.R50	20.68	20.94	0.27	0.9%
MN.E1.R60	19.55	19.79	0.24	0.8%
MN.E1.R70	18.61	18.83	0.22	0.7%
MN.E1.R80	17.82	18.02	0.20	0.7%
MN.E1.R90	17.14	17.33	0.19	0.6%
MN.E1.R100	16.55	16.73	0.18	0.6%
MN.E1.R110	16.03	16.20	0.16	0.5%
MN.E1.R120	15.57	15.73	0.15	0.5%
MN.E1.R130	15.16	15.31	0.15	0.5%
MN.E1.R140	14.79	14.93	0.14	0.5%
MN.E1.R150	14.46	14.59	0.13	0.4%
MN.E1.R160	14.16	14.28	0.12	0.4%
MN.E1.R170	13.88	14.00	0.12	0.4%
MN.E1.R180	13.64	13.75	0.11	0.4%
MN.E1.R190	13.40	13.51	0.11	0.4%
MN.E1.R200	13.19	13.29	0.10	0.3%

Table 8.16.2: Predicted 2030 24-Hour Mean NO_x Concentrations

Receptor	24-Hour Mean NO _x Concentrations		PC Difference (µg/m ³)	% PC of Critical Level
	2030 Baseline (µg/m ³) PC	2030 Baseline + Committed Developments + Proposed Development (µg/m ³) PC		
MN.E1.R0	10.43	10.66	0.23	0.3%
MN.E1.R2	9.95	10.17	0.22	0.3%
MN.E1.R5	9.32	9.53	0.20	0.3%
MN.E1.R10	8.44	8.63	0.18	0.2%
MN.E1.R20	7.11	7.27	0.16	0.2%
MN.E1.R30	6.16	6.30	0.14	0.2%
MN.E1.R40	5.45	5.57	0.12	0.2%
MN.E1.R50	4.88	4.99	0.11	0.1%
MN.E1.R60	4.42	4.52	0.10	0.1%
MN.E1.R70	4.04	4.13	0.09	0.1%
MN.E1.R80	3.72	3.80	0.08	0.1%
MN.E1.R90	3.45	3.52	0.08	0.1%
MN.E1.R100	3.21	3.28	0.07	0.1%
MN.E1.R110	3.00	3.06	0.07	0.1%
MN.E1.R120	2.81	2.87	0.06	0.1%
MN.E1.R130	2.64	2.70	0.06	0.1%
MN.E1.R140	2.50	2.55	0.06	0.1%
MN.E1.R150	2.36	2.41	0.05	0.1%
MN.E1.R160	2.24	2.29	0.05	0.1%
MN.E1.R170	2.13	2.17	0.05	0.1%
MN.E1.R180	2.03	2.07	0.05	0.1%
MN.E1.R190	1.93	1.97	0.04	0.1%
MN.E1.R200	1.84	1.89	0.04	0.1%

Table 8.16.3: Predicted 2030 Annual Mean NH₃ Concentration Change

Receptor	NH ₃ Annual Mean Concentration		PC Difference (µg/m ³)	% PC of Critical Level
	2030 Baseline (µg/m ³) PEC	2030 Baseline + Committed Developments + Proposed Development (µg/m ³) PEC		
MN.E1.R0	3.74	3.80	0.06	6.28%
MN.E1.R2	3.64	3.70	0.06	5.98%
MN.E1.R5	3.50	3.56	0.06	5.58%
MN.E1.R10	3.31	3.36	0.05	5.02%
MN.E1.R20	3.03	3.08	0.04	4.19%
MN.E1.R30	2.83	2.87	0.04	3.59%
MN.E1.R40	2.68	2.71	0.03	3.14%
MN.E1.R50	2.56	2.59	0.03	2.79%
MN.E1.R60	2.47	2.50	0.03	2.51%
MN.E1.R70	2.39	2.42	0.02	2.28%
MN.E1.R80	2.33	2.35	0.02	2.09%
MN.E1.R90	2.27	2.29	0.02	1.93%
MN.E1.R100	2.22	2.24	0.02	1.79%
MN.E1.R110	2.18	2.20	0.02	1.66%
MN.E1.R120	2.15	2.16	0.02	1.55%
MN.E1.R130	2.11	2.13	0.01	1.46%
MN.E1.R140	2.09	2.10	0.01	1.37%
MN.E1.R150	2.06	2.07	0.01	1.30%
MN.E1.R160	2.04	2.05	0.01	1.23%
MN.E1.R170	2.02	2.03	0.01	1.17%
MN.E1.R180	2.00	2.01	0.01	1.12%
MN.E1.R190	1.98	1.99	0.01	1.06%
MN.E1.R200	1.96	1.97	0.01	1.02%

Table 8.16.4: Predicted 2030 Total Acid Deposition

Receptor ID	2030 Baseline (kgN/ha/yr) PEC	2030 Baseline + Committed Developments + Proposed Development (kgN/ha/yr) PEC	PC Difference (kgN/ha/yr)	% PC of Critical Load
MN.E1.R0	2.39	2.40	0.01	2.9%
MN.E1.R2	2.38	2.38	0.01	2.9%
MN.E1.R5	2.36	2.37	0.01	2.6%
MN.E1.R10	2.34	2.34	0.01	2.4%
MN.E1.R20	2.30	2.31	0.00	2.0%
MN.E1.R30	2.28	2.28	0.00	1.8%
MN.E1.R40	2.26	2.26	0.00	1.6%
MN.E1.R50	2.24	2.24	0.00	1.4%
MN.E1.R60	2.23	2.23	0.00	1.3%
MN.E1.R70	2.22	2.22	0.00	1.3%
MN.E1.R80	2.21	2.21	0.00	1.2%
MN.E1.R90	2.20	2.20	0.00	1.0%
MN.E1.R100	2.19	2.19	0.00	0.9%
MN.E1.R110	2.19	2.19	0.00	0.9%
MN.E1.R120	2.18	2.18	0.00	0.9%
MN.E1.R130	2.18	2.18	0.00	0.8%
MN.E1.R140	2.17	2.17	0.00	0.7%
MN.E1.R150	2.17	2.17	0.00	0.8%
MN.E1.R160	2.16	2.17	0.00	0.7%
MN.E1.R170	2.16	2.16	0.00	0.7%
MN.E1.R180	2.16	2.16	0.00	0.6%
MN.E1.R190	2.16	2.16	0.00	0.6%
MN.E1.R200	2.15	2.15	0.00	0.6%

Table 8.16.5: Predicted 2030 Total Nitrogen Deposition

Receptor ID	2030 Baseline (keq ha/year) PEC	2030 Baseline + Committed Developments + Proposed Development (keq ha/year) PEC	PC Difference (keq ha ⁻¹ year ¹)	% PC of Critical Load
MN.E1.R0	48.17	48.73	0.56	3.7%
MN.E1.R2	47.23	47.76	0.54	3.6%
MN.E1.R5	45.99	46.49	0.50	3.3%
MN.E1.R10	44.25	44.70	0.45	3.0%
MN.E1.R20	41.64	42.02	0.38	2.5%
MN.E1.R30	39.77	40.09	0.32	2.2%
MN.E1.R40	38.36	38.65	0.29	1.9%
MN.E1.R50	37.26	37.51	0.25	1.7%
MN.E1.R60	36.37	36.60	0.23	1.5%
MN.E1.R70	35.63	35.84	0.21	1.4%
MN.E1.R80	35.01	35.20	0.19	1.3%
MN.E1.R90	34.49	34.67	0.18	1.2%
MN.E1.R100	34.04	34.20	0.16	1.1%
MN.E1.R110	33.64	33.79	0.15	1.0%
MN.E1.R120	33.29	33.44	0.14	1.0%
MN.E1.R130	32.98	33.12	0.13	0.9%
MN.E1.R140	32.71	32.84	0.12	0.8%
MN.E1.R150	32.46	32.58	0.12	0.8%
MN.E1.R160	32.24	32.35	0.11	0.8%
MN.E1.R170	32.04	32.15	0.11	0.7%
MN.E1.R180	31.86	31.97	0.10	0.7%
MN.E1.R190	31.70	31.80	0.10	0.6%
MN.E1.R200	31.54	31.64	0.09	0.6%