Appendix 4-4

Nitrogen Balance Worksheet for Scenario 3B To Meet Nitrogen TMDL

Name	Watershed ID#	% Attenuation	*Wastewater Evaluations*				*Projected Future Controllable Watershed Loads (Attenuated)*						
			Future Wastewater Watershed Load		MEP Existing % Wastewater Nitrogen Removals	% Sewering Required to Meet Target Threshold	Future Wastewater with Sewers	Future Lawn Fertilizers		Future Impervious Surfaces		Total Future Load Target Threshold Achievement	Target Threshold Watershed Load[1]
			kg/yr	kg/d			kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/d	kg/d
Little Pond System			6,302	17.27	-	-	1.97	681	1.87	492	1.35	5.36	5.36
Little Pond Salt	4, 5 & Jones Pond		3,896	10.67	-	-	0.36	575	1.50	382	1.05	2.91	-
Jones Pond	1	50%	130	0.36	100%	0%	0.36	26	0.07	6	0.02	0.45	-
Little Pond GT10	4		751	2.06	100%	100%	0.00	95	0.26	119	0.32	0.58	-
Little Pond LT10	5		3,015	8.26	100%	100%	0.00	428	1.17	257	0.70	1.88	-
Little Pond Stream	2 & 3	30%	2,406	6.59	-	-	1.61	106	0.41	111	0.43	2.46	-
Little Pond Stream GT10	2		1,520	4.16	60%	83%	0.71	107	0.29	101	0.28	1.28	-
Little Pond Stream LT10	3		1,917	5.25	60%	83%	0.90	44	0.12	57	0.16	1.17	-

Notes:

1. This is the "controllable" load
2. % Attenuation (1-% Attenuation) is multiplied through nitrogen input categories where % Attenuation is noted in the column.

Name	Watershed ID#	% Attenuation[2]	*Wastewater Evaluations*				*Projected Future Controllable Watershed Loads (Attenuated)*										
			Future Septic Sys Watershed Load		MEP Existing % Wastewater Nitrogen Removals	% Sewering Required to Meet Target Threshold	Future Septic Sys after Sewers	From Old Otis WWTF		From Rt. 151 Recharge		Future Lawn Fertilizers		Future Impervious Surfaces		Total Future Load Target Threshold Achievement	Target Threshold Watershed Load[1]
			kg/yr	kg/d			kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/d	kg/d
Great Pond System	**1 to 15**		**22,025**	**60.34**	**-**	**-**	**9.40**	**379**	**1.04**	**0**	**0.00**	**1,556**	**4.26**	**2,205**	**6.04**	**19.71**	**19.71**
Great Pond	15		9,099	24.93	-	-	0.71	0	0.00			513	1.41	845	2.31	4.43	-
Great Pond LT10	24		6,089	16.68	100%	100%	0.00	0	0.00			341	0.93	558	1.53	2.46	-
Great Pond GT10 W	22 + MP		1,793	4.91	-	-	0.24	0	0.00			103	0.28	171	0.47	0.99	-
Great Pond GT10 W	22		1,482	4.06	100%	100%	0.00	0	0.00			83	0.23	119	0.33	0.55	-
Mares Pond (MP)	12, 13 + CP, DRP	50%	311	0.85	-	-	0.24	0	0.00			20	0.05	51	0.14	0.44	-
Mares Pond GT10	12		78	0.21	<50%	71%	0.06	0	0.00			6	0.02	18	0.05	0.13	-
Mares Pond LT10	13		137	0.38	<50%	71%	0.11	0	0.00			8	0.02	8	0.02	0.15	-
Deer Pond (DRP)	11	50%	50	0.14	<50%	71%	0.04	0	0.00			0	0.00	3	0.01	0.05	-
Crooked Pond (CRP)	6, 7 + DP	50%	357	0.98	-	-	0.28	0	0.00			25	0.07	73	0.20	0.55	-
Crooked Pond GT10	6		76	0.21	<50%	71%	0.06	0	0.00			5	0.01	17	0.05	0.12	-
Crooked Pond LT10	7		490	1.34	<50%	71%	0.38	0	0.00			39	0.11	111	0.30	0.80	-
Deep Pond (DP)	*4, 5*	50%	147	0.40	-	-	0.12	0	0.00			7	0.02	18	0.05	0.18	-
Deep Pond GT10	4		0	0.00	<50%	71%	0.00	0	0.00			0	0.00	8	0.02	0.02	-
Deep Pond LT10	5		295	0.81	<50%	71%	0.23	0	0.00			14	0.04	28	0.08	0.35	-
Great Pond GT10 E	23 + SPP		1,217	3.33	-	-	0.46	0	0.00			70	0.19	116	0.32	0.97	-
Great Pond GT10 E	23		629	1.72	100%	100%	0.00	0	0.00			29	0.08	45	0.12	0.20	-
Spectacle Pond (SPP)	14 + JP + DRP	50%	588	1.61	-	-	0.46	0	0.00			41	0.11	71	0.19	0.77	-
Spectacle Pond	14		196	0.54	<50%	71%	0.15	0	0.00			13	0.04	10	0.03	0.22	-
Deer Pond (DRP)	11	50%	31	0.08	<50%	71%	0.02	0	0.00			0	0.00	2	0.01	0.03	-
Jenkins Pond (JP)	10 + SP + CP + RPS	50%	950	2.60	-	-	0.75	0	0.00			69	0.19	130	0.36	1.29	-
Perch Pond	14 + Mares + Spectacle Ponds		2,759	7.56	-	-	0.71	0	0.00			150	0.41	280	0.77	1.89	-
Perch Pond GT10	20		425	1.16	100%	100%	0.00	0	0.00			21	0.06	43	0.12	0.18	-
Perch Pond LT10	21		1,435	3.93	100%	100%	0.00	0	0.00			68	0.19	115	0.31	0.50	-
Mares Pond (MP)	12, 13 + CP, DRP	50%	311	0.85	-	-	0.24	0	0.00			20	0.05	51	0.14	0.44	-
Spectacle Pond (SPP)	14 + JP + DRP	50%	588	1.61	-	-	0.46	0	0.00			41	0.11	71	0.19	0.77	-
Coonamesset River			10,167	27.85	-	-	7.99	378	1.04			893	2.45	1,080	2.96	13.40	-
Upper Coonamessett River	12 + Coonamesset + Round + Deep + Round (S) Ponds	30%	4,198	11.50	-	-	3.30	1	0.00			587	1.61	575	1.57	6.48	-
Upper Coonamessett River GT10	3, 17 + CP		2,274	6.23	-	-	1.79	1	0.00			417	1.14	329	0.90	3.83	-
Upper Coonamessett River GT10	17		1,646	4.51	>50%	71%	1.29	0	0.00			172	0.47	133	0.36	2.13	-
Round Pond	3	50%	5	0.01	<50%	71%	0.00	0	0.00			0	0.00	1	0.00	0.01	-
Coonamessett Pond (CP)	1, 2, 3	50%	623	1.71	-	-	0.49	0	0.00			245	0.67	195	0.53	1.70	-
Coonamessett Pond GT10	1		59	0.16	<50%	71%	0.05	0	0.00			145	0.40	269	0.74	1.18	-
Coonamessett Pond LT10	2		1,174	3.22	<50%	71%	0.92	0	0.00			346	0.95	118	0.32	2.19	-
Round Pond	3	50%	12	0.03	<50%	71%	0.01	0	0.00			0	0.00	3	0.01	0.02	-
Upper Coonamessett River LT10	18 + CP + DP + RPS		3,723	10.20	-	-	2.93	0	0.00			421	1.15	491	1.35	5.42	-
Upper Coonamessett River LT10	18		2,780	7.62	>50%	71%	2.18	0	0.00			157	0.43	248	0.68	3.29	-
Coonamessett Pond (CP)	1, 2, 3	50%	623	1.71	-	-	0.49	0	0.00			245	0.67	195	0.53	1.70	-
Deep Pond (DP)	4, 5	50%	147	0.40	-	-	0.12	0	0.00			7	0.02	18	0.05	0.18	-
Round Pond (South) (RPS)	9 + DP	50%	174	0.48	-	-	0.14	0	0.00			11	0.03	31	0.08	0.25	-
Round Pond (South)	9		200	0.55	<50%	71%	0.16	0	0.00			15	0.04	43	0.12	0.32	-
Deep Pond (DP)	4, 5	50%	147	0.40	-	-	0.12	0	0.00			7	0.02	18	0.05	0.18	-
Lower Coonamesset River	13 + Spectacle + Round (S) + Jenkins + Flax + Crooked + Shallow Ponds	30%	5,968	16.35	-	-	4.69	377	1.03			306	0.84	506	1.39	6.91	-

Name	Watershed ID#	% Attenuation[2]	*Wastewater Evaluations*				*Projected Future Controllable Watershed Loads (Attenuated)*										
			Future Septic Sys Watershed Load		MEP Existing % Wastewater Nitrogen Removals	% Sewering Required to Meet Target Threshold	Future Septic Sys after Sewers	From Old Otis WWTF		From Rt. 151 Recharge		Future Lawn Fertilizers		Future Impervious Surfaces		Total Future Load Target Threshold Achievement	Target Threshold Watershed Load[1]
			kg/yr	kg/d			kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/d	kg/d
Lower Coonamessett River	19		6,386	17.50	>50%	71%	5.02	0	0.00			292	0.80	456	1.25	7.07	-
Ashumet Plume			0	0.00	<50%	71%	0.00	539	1.48								-
Round Pond (South) (RPS)	9 + DP	50%	174	0.48	-	-	0.14	0	0.00			11	0.03	31	0.08	0.25	-
Spectacle Pond (SPP)	14 + JP + DRP	50%	588	1.61	-	-	0.46	0	0.00			41	0.11	71	0.19	0.77	-
Flax Pond (FP)	15, 16	50%	428	1.17	-	-	0.34	0	0.00			25	0.07	35	0.10	0.50	-
Flax Pond GT10	15		129	0.35	>50%	71%	0.10	0	0.00			7	0.02	18	0.05	0.17	-
Flax Pond LT10	16		727	1.99	>50%	71%	0.57	0	0.00			42	0.12	52	0.14	0.83	-
Jenkins Pond (JP)	10 + SP + CP + RPS	50%	950	2.60	-	-	0.75	0	0.00			69	0.19	130	0.36	1.29	-
Jenkins Pond	10		1,140	3.12	<50%	71%	0.90	0	0.00			86	0.23	114	0.31	1.44	-
Round Pond (South) (RPS)	9 + DP	50%	174	0.48	-	-	0.14	0	0.00			11	0.03	31	0.08	0.25	-
Crooked Pond (CRP)	6, 7 + DP	50%	357	0.98	-	-	0.28	0	0.00			25	0.07	73	0.20	0.55	-
Shallow Pond (SP)	8 + CP	50%	230	0.63	-	-	0.18	0	0.00			16	0.04	41	0.11	0.34	-
Shallow Pond	8		103	0.28	<50%	71%	0.08	0	0.00			6	0.02	10	0.03	0.12	-
Crooked Pond (CRP)	6, 7 + DP	50%	357	0.98	-	-	0.28	0	0.00			25	0.07	73	0.20	0.55	-
Green Pond System	**16, 17, 21 + Ashumet Pond**		**7,457**	**20.43**	**-**	**-**	**0.10**	**174**	**0.48**	**2,450**	**6.71**	**499**	**1.37**	**545**	**1.49**	**9.68**	**10.16**
Green Pond	17		6,390	17.51	74%	100%	0.00	0	0.00	0.00	0.00	281	0.77	434	1.19	1.96	-
Mill Pond (MP)	21 + Backus Brk	50%	1,067	2.92	-	0%	0.10	174	0.48	2,450.00	6.71	218	0.60	111	0.30	7.72	-
Mill Pond	35		870	2.38	0%	100%	0.00	0	0.00	0.00	0.00	0	0.00	73	0.20	0.20	-
Backus Brook	16 + Ashumet Pond	30%	1,265	3.47	-	-	0.21	348	0.95	4,900.00	13.42	436	1.19	149	0.41	15.24	-
Backus Brook LT10	26		1,024	2.81	0%	100%	0.00	0	0.00	3,500.00	9.59	453	1.24	82	0.23	11.06	-
Backus Brook GT10	25		673	1.84	0%	100%	0.00	0	0.00	3,500.00	9.59	170	0.46	63	0.17	10.23	-
Ashumet Pond (AP)		0%	109	0.30	0%	0%	0.30	0	0.00	0.00	0.00	0	0.00	67	0.18	0.48	-
Ashumet Plume					-	-	0.00	497	1.36	0.00	0.00	0	0.00	0	0.00	0.00	-
Bournes Pond System	**18, 19, 20 + Ashumet Pond**		**5,834**	**15.98**	**-**	**-**	**0.08**	**0**	**0.00**	**322**	**0.88**	**469**	**1.29**	**496**	**1.36**	**3.60**	**3.55**
Israels Cove	19		696	1.91	100%	100%	0.00	0	0.00	0	0.00	30	0.08	57	0.16	0.24	-
Bournes Pond	20		3,401	9.32	-	-	0.00	0	0.00	0	0.00	176	0.48	274	0.75	1.23	-
Bournes Pond GT10	31		1,223	3.35	100%	100%	0.00	0	0.00	0	0.00	66	0.18	120	0.33	0.51	-
Bournes Pond LT10	32		2,178	5.97	100%	100%	0.00	0	0.00	0	0.00	110	0.30	154	0.42	0.72	-
Bournes Brook	18 + Ashumet Pond	30%	1,738	4.76	-	-	0.08	0	0.00	322	0.88	263	0.72	166	0.45	2.13	-
Bournes Brook GT10	28		1,212	3.32	55%	100%	0.00	0	0.00	230	0.63	112	0.31	95	0.26	1.20	-
Bournes Brook LT10	29		1,231	3.37	55%	100%	0.00	0	0.00	230	0.63	265	0.72	118	0.32	1.68	-
Ashumet Pond (AP)		0%	40	0.11	55%	0%	0.11	0	0.00	0	0.00	0	0.00	24	0.07	0.18	-

Notes:
1. This is the "controllable" load
2. % Attenuation (1-% Attenuation) is multiplied through nitrogen input categories where % Attenuation is noted in the column.

Name	Watershed ID#	% Attenuation[2]	*Wastewater Evaluations*				*Projected Future Controllable Watershed Loads (Attenuated)*										
			Future Septic Sys Watershed Load		MEP Existing % Wastewater Nitrogen Removals	% Sewering Required to Meet Target Threshold	Future Septic sys after Sewers	From old Otis WWTF		From New WWTF Recharge		Future Lawn Fertilizers		Future Impervious Surfaces		Total Future Load Target Threshold Achievement	Target Threshold Watershed Load[1]
			kg/yr	kg/d			kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/yr	kg/d	kg/d	kg/d
Waquoit-West System			**18,328**	**50.21**	**-**	**-**	**4.15**	**0**	**0.00**	**0**	**0.00**	**1,039**	**2.85**	**902**	**2.47**	**9.47**	**9.47**
Eel Pond (EP-2)		10.00%	9,323	25.54	55%	-	4.15	0	0.00	0	0.00	547	1.50	754	2.06	7.72	-
EP-2			9,118	24.98	55%	84%	4.06	0	0.00	0	0.00	406	1.11	776	2.13	7.30	-
Mashpee EP-2			1,241	3.40	55%	84%	0.55	0	0.00	0	0.00	202	0.55	61	0.17	1.27	-
Waquoit Bay (EP-1)			9,006	24.67	100%	100%	0.00	0	0.00	0	0.00	491	1.35	148	0.41	1.75	-

Notes:
1. This is the "controllable" load
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