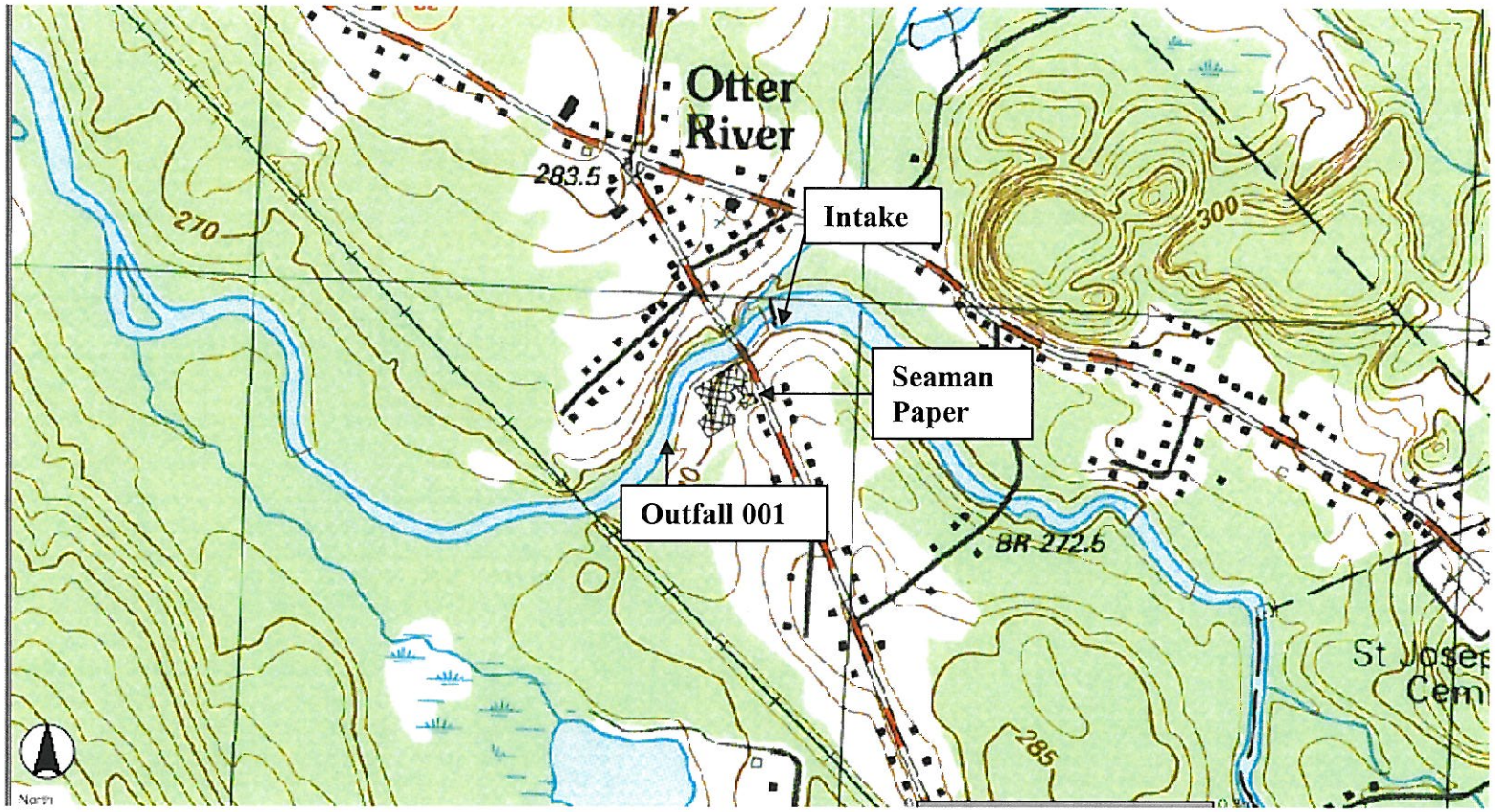
Attachments to Fact Sheet

Seaman Papers – MA0000469

Attachment A – Site Plan



Attachment B - DMR Summary
Seaman Paper Company - Outfall 001

Date	BOD (May-Oct)**		BOD (Nov-April)		Flow		DO (June-Sept)	pH		Phosphorus	TSS (May-Oct)**		TSS (Nov-April)		Temperature		Upstream Temperature (May-Oct)		BOD5 (May-Oct)		TSS (May-Oct)		Aluminum		LC50	C-NOEC	monthly ave ambient flows	PRTI
	150 lb/d	200 lb/d	400 lb/d	700 lb/d	1.1 Mgal/d	1.4 Mgal/d	Req. Mon. mg/L	6 SU	8.3 SU	.2 mg/L	150 lb/d	200 lb/d	700 lb/d	900 lb/d	Req. Mon. deg F	90 deg F	Req. Mon. deg F	Req. Mon. deg F	286 lb/d	400 lb/d	400 lb/d	600 lb/d	.38 mg/L	3.3 mg/L	100%	23%	USGS gage #01163200	calculated using
	MO AVG	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX	MINIMUM	MINIMUM	MAXIMUM	MO AVG	MO AVG	DAILY MX	MO AVG	DAILY MX	MO AV MN	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX	DAILY MN	DAILY MN	cfs	ave ambient flow
1/31/2005			104.2	260.6	0.9029	1.1573		6.35	7.5				127.5	193	64.1	67							0.044	0.044	100	50	96.6	
2/28/2005			38.3	98	0.8161	1.1608		6.2	7.05				71.1	97.6	66	70											75.9	
3/31/2005			71.9	132.7	0.8542	1.1178		6.4	7.05				103.8	163	66	72											106.2	
4/30/2005			42.8	67.4	0.8396	1.0226		6.5	7.25	0.162			77	97.3	68.6	70							0	0	100	50	230.6	
5/31/2005					0.8771	1.1182		6.45	7.2	0.171					68.9	77	66.5	67	55	90.5	76	108.9					112.5	0.1538
6/30/2005					0.8892	1.0796	6.8	6.35	7.3	0.166					81.2	88	77.9	78.8	47.4	100.5	59.8	100.5					69.5	0.2211
7/31/2005					0.8213	1.0497	6.2	6.35	7.55	0.186					85.7	89.6	76.5	77	39.5	64.1	74.1	93.3	0	0	100	50	50.3	0.4068
8/31/2005					0.9299	1.1839	6.4	6.2	7.4	0.12					84	88	78	80	34.5	49.3	73.4	93.1					16.8	0.8722
9/30/2005	46.7	66.5			0.8395	1.0414	6.2	6.4	7.35	0.12					80	86	62.5	64	42.5	117.1	74.3	108.9					10.3	3.4411
10/31/2005					0.879	1.0719		6.35	7.25	0.11					71	78	64.5	67	60	103.7	96.7	126.2	0.054	0.054	100	50	201.3	0.0906
11/30/2005			58.2	179.8	0.7398	0.9284		6.25	8.1				87.7	116.8	71	72											125	
12/31/2005			27.2	39	0.7295	0.8728		6.25	7.3				75.7	109.1	64.9	71											113.7	
1/31/2006			35.6	62.7	0.7172	0.8995		6.15	7.6				78.3	103.6	64.8	67							0.024	0.024	100	100	154	
2/28/2006			52.1	116.8	0.708	0.9292		6.55	7.2				89.2	120.1	66.2	68											127.4	
3/31/2006			40.1	49.3	0.718	0.9273		6.7	7.15				77	108.2	70.1	74											51.5	
4/30/2006			42.3	89.2	0.7462	0.9722		6.6	7.25	0.186			87.4	105	76.9	80							0.016	0.016	100	23	46.4	
5/31/2006					0.7956	0.9565		6.7	7.25	0.211					78.3	84	63	64	53.9	140.4	90.6	121.9					89.1	0.3322
6/30/2006					0.8533	1.113	6.4	6.4	7.2	0.124					80.1	84	74.5	75	46.8	96.2	67.7	104.6					108.7	0.1426
7/31/2006					0.857	1.0285	6.3			0.16					83.6	88	75.5	76			77	101.7	0.057	0.057	100	12.5	50.1	0.3811
8/31/2006					0.8266	1.0658	6	6.4	7.15	0.122					82.5	89.5	74	80	28	36.7	80.9	111.4					37.5	0.4177
9/30/2006					0.7957	1.061	6.2	6.7	7.25	0.191					76.5	79	63.5	64	66.3	115	86	138.1					22.2	1.1091
10/31/2006					*	0.9266		6.7	7.4	0.13					70.8	76	50	52	57.1	159.1	82.4	119.3	0.03	0.03	100	100	74.6	0.4612
11/30/2006			42.8	78.6	0.7906	1.088		6.45	7.3				95.2	139.2	69.9	76											123.5	
12/31/2006			42.3	82.2	0.8426	1.0068		6.25	7.3				95.1	156.1	67.8	72											62.7	
1/31/2007			39.7	91.8	0.8106	0.9387		6.5	7.4				90.4	119.5	62.4	68							0.033	0.033	100	12.5	74.5	
2/28/2007			50.8	68	0.08072	1.0373		6.45	6.95				136.2	186.3	61.1	67											31	
3/31/2007			33	49.1	0.8204	0.9781		6.45	7.05				78.6	146.8	67.3	72											104.3	
4/30/2007			57.9	103.2	0.9494	1.237		6.6	7.45	0.132			88.3	130.6	70.1	81							0.019	0.019	100	50	188.2	
5/31/2007					0.8106	0.977		6.6	7.35	0.177					79.3	81			33.4	60.1	73.1	106.8					97	
6/30/2007					0.905	1.172	7	6.85	7.3	0.113					83.1	88	67.5	71	37.9	58.2	76.9	97.7					46.3	0.6657
7/31/2007					0.9083	1.1416	6.7	6.65	7.4	0.133					83	88	64.5	65	47.9	84.5	94.1	141.6	0.036	0.036	100	50	31	1.3103
8/31/2007					0.8127	1.1407	6.2	6.8	7.45	0.136					81.1	86	70.5	71	48.2	100.3	71.2	122.2					13.7	1.9321
9/30/2007					0.757	0.9678	6.8	6.55	7.64	0.105					75.6	82	65	68	29.5	59.4	71.8	102.8					12.7	1.6505
10/31/2007					0.7624	0.9711		6.31	7.55	0.132					77.1	82.5	61.5	63.3	28.1	40.5	72.6	132.7	0.027	0.027	100	50		
11/30/2007			22.4	28.4	0.6152	0.8971		6.25	7.17				61.4	100.4	70.8	74												
12/31/2007			31.1	59.7	0.6838	0.8536		6.16	6.9				58.6	112.7	65.5	68.9												
Average	46.7	66.5	46.3	92.0	0.7910	1.0303	6.4	6.452	7.31	0.147			87.7	128.1	73.2	77.9	68.0	69.6	44.5	86.8	77.7	112.9	0.028	0.028	100	49.8	83.49	0.8492
Maximum	46.7	66.5	104.2	260.6	0.9494	1.2370	7	6.850	8.1	0.211	0	0	136.2	193	85.7	89.6	78	80	66.3	159.1	96.7	141.6	0.057	0.057	100	100	230.6	3.44
Current Limit	150	200	400	700	1.1	1.4	Req. Mon. mg/L	6	8.3	0.2	150	200	700	900	Req. Mon. deg F	90 deg F	Req. Mon. deg F	Req. Mon. deg F	286	400	400	600	0.38	3.3	100	23		
Exceedences	0	0	0	0	0	0	NA	0	0	1	0	0	0	0	NA	0	NA	NA	0	0	0	0	0	0	0	2		

*7312 MGD for 10/31/2006 is an outlier and has therefore been removed from the calculation

**Apply when total daily flow measured at USGS Gage 01163200 is less than 17cfs for 30 consecutive days

PAPER MACHINE WASTEWATER

RETENTION TANK

SAVEALL No. 1

SAVEALL No.2

TO CHEST WHEN WASTING

MACHINE CHEST

RECYCLED WHITEWATER TO PULPING

DEWATERED SOLIDS TO LANDFILL OR COMPOST

1,308,000 GPD

BELT PRESS

MISC. PLANT WASTEWATER

OLD SUMP

NEW SUMP

POLYMER

50' Dia. CLARIFIER

TO FILTER BELT PRESS

PRIMARY SLUDGE PUMPS

250,000 GPD

REUSE/RECYCLE WATER

1,058,000 GPD

VACUUM SEAL WATER MAKEUP FOR PAPER MACHINE

PRESSURE FILTER

22' Dia. CLARIFIER

SLUDGE TO OLD SUMP

FERTILIZER FOR NUTRIENTS

AERATED LAGOON (600,000 GAL)

AERATED LAGOON (600,000 GAL)

432,000 GPD

Primary Effluent to Aeration

1,408,000 GPD

POLYMER, FERRIC CHLORIDE, NaOH

NEW FLOW METER

AERATION TANK (460,000 GAL)

FINAL CLARIFIER

RIPPLEWAY

850,000 GPD

OUTFALL TO OTTER RIVER

250,000 GPD

RECYCLED ACTIVATED SLUDGE (RAS)

21,000 GPD

WASTE ACTIVATED SLUDGE (WAS) TO OLD SUMP

200,000 GPD

Effluent Recycled to Mill Water System

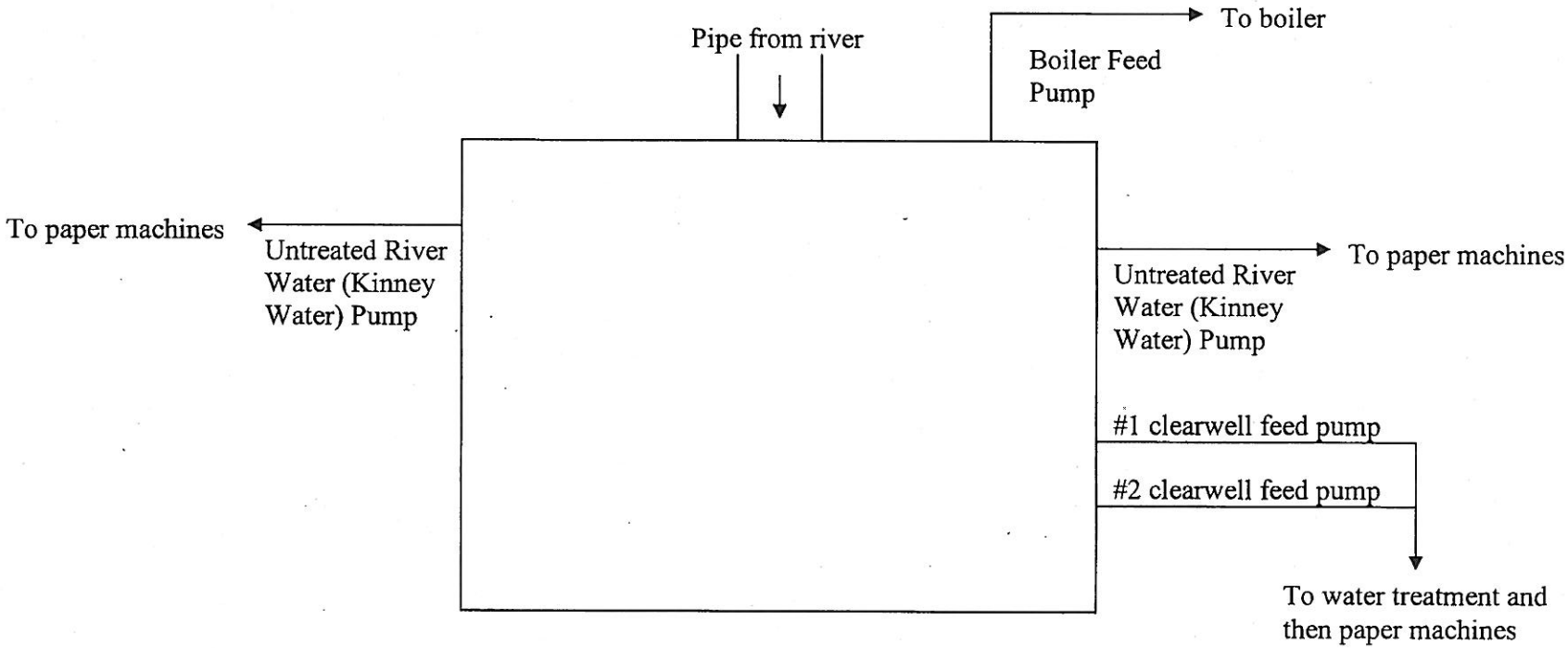
SEAMAN PAPER COMPANY OF MASSACHUSETTS INC.

OTTER RIVER, MASSACHUSETTS

Attachment C FLOW SCHEMATIC

Attachment D

Schematic of Intake Structure



Attachment E

pH-Dependent Values of the CMC (Acute Criterion)

CMC, mg N/L		
pH	Salmonids Present	Salmonids Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Attachment F

Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present

CCC for Fish Early Life Stages Present, mg N/L										
pH	Temperature, C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

The National Criterion for Ammonia in Fresh Water - EPA's Aquatic Water Quality Criteria for Ammonia, 1999 Update