ATTACHMENT B

Laboratory Analytical Data

Remediation General Permit Notice of Intent,
Former Millbury Substation No. 1
33 Providence Road
Millbury, Massachusetts
MA DEP Release Tracking Nos. 2-14166 and 2-14312

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: Ransom Environmental

Address: Browns Wharf
Newburyport, MA 01950

Attn: Ms. Alison Bray

Project Number: 011069

Site: MILLBURY NPDES

Laboratory Job Number: L0515245

Date Received: 14-DEC-2005

Date Reported: 21-DEC-2005

Delivery Method: Client

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0515245-01	011069-FRAC-121405	MILLBURY, MA

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: _____
Technical Director

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0515245-01
011069-FRAC-121405
Sample Matrix: WATER

Date Collected: 14-DEC-2005 12:00
Date Received : 14-DEC-2005
Date Reported : 21-DEC-2005

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 10-Amber,4-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Solids, Total Suspended	ND	mg/l	5.0	4	160.2		1221 06:25	DT
Cyanide, Total	ND	mg/l	0.005	4	335.2	1216 13:00	1216 18:12	DD
Chlorine, Total Residual	ND	mg/l	0.05	4	330.1		1214 20:45	DP
TPH	ND	mg/l	4.40	74	1664A	1215 14:20	1216 10:00	AT
Phenolics, Total	ND	mg/l	0.03	4	420.1		1220 12:30	AT
Chromium, Hexavalent	ND	mg/l	0.02	30	3500CR-D	1215 01:30	1215 01:30	HS
Total Metals				19	200.7			
Antimony, Total	ND	mg/l	0.002	3	200.9	1215 11:00	1220 17:15	PY
Arsenic, Total	ND	mg/l	0.005	19	200.7	1215 11:00	1216 09:22	MG
Cadmium, Total	0.0005	mg/l	0.0002	4	213.2	1215 11:00	1219 12:37	PY
Chromium, Total	ND	mg/l	0.01	19	200.7	1215 11:00	1216 09:22	MG
Copper, Total	ND	mg/l	0.005	19	200.7	1215 11:00	1216 09:22	MG
Iron, Total	0.24	mg/l	0.05	19	200.7	1215 11:00	1216 09:22	MG
Lead, Total	0.009	mg/l	0.001	3	200.9	1215 11:00	1215 17:24	PY
Mercury, Total	ND	mg/l	0.0002	4	245.2	1219 16:45	1220 10:57	DM
Nickel, Total	0.015	mg/l	0.010	19	200.7	1215 11:00	1216 09:22	MG
Selenium, Total	ND	mg/l	0.005	19	200.7	1215 11:00	1216 09:22	MG
Silver, Total	ND	mg/l	0.0002	4	272.2	1215 11:00	1219 15:13	PY
Zinc, Total	0.070	mg/l	0.010	19	200.7	1215 11:00	1216 09:22	MG
Pesticides by GC 504				14	504.1	1221 10:30	1221 12:33	JB
1,2-Dibromoethane	ND	ug/l	0.019					
Volatile Organics by GC/MS 624				5	624		1216 11:18	MM
Methylene chloride	ND	ug/l	5.0					
1,1-Dichloroethane	ND	ug/l	1.5					
Chloroform	ND	ug/l	1.5					
Carbon tetrachloride	ND	ug/l	1.0					
1,2-Dichloropropane	ND	ug/l	3.5					
Dibromochloromethane	ND	ug/l	1.0					
1,1,2-Trichloroethane	ND	ug/l	1.5					
2-Chloroethylvinyl ether	ND	ug/l	10.					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0515245-01
011069-FRAC-121405

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
SVOC's by GC/MS 8270 cont'd				1, 8270C	1215 16:00	1219 14:16	RL
1,2,4-Trichlorobenzene	ND	ug/l	4.8				
Hexachlorobenzene	ND	ug/l	4.8				
Bis(2-chloroethyl)ether	ND	ug/l	4.8				
1-Chloronaphthalene	ND	ug/l	4.8				
2-Chloronaphthalene	ND	ug/l	5.8				
1,2-Dichlorobenzene	ND	ug/l	4.8				
1,3-Dichlorobenzene	ND	ug/l	4.8				
1,4-Dichlorobenzene	ND	ug/l	4.8				
3,3'-Dichlorobenzidine	ND	ug/l	48.				
2,4-Dinitrotoluene	ND	ug/l	5.8				
2,6-Dinitrotoluene	ND	ug/l	4.8				
Azobenzene	ND	ug/l	4.8				
Fluoranthene	ND	ug/l	4.8				
4-Chlorophenyl phenyl ether	ND	ug/l	4.8				
4-Bromophenyl phenyl ether	ND	ug/l	4.8				
Bis(2-chloroisopropyl)ether	ND	ug/l	4.8				
Bis(2-chloroethoxy)methane	ND	ug/l	4.8				
Hexachlorobutadiene	ND	ug/l	9.7				
Hexachlorocyclopentadiene	ND	ug/l	9.7				
Hexachloroethane	ND	ug/l	4.8				
Isophorone	ND	ug/l	4.8				
Naphthalene	ND	ug/l	4.8				
Nitrobenzene	ND	ug/l	4.8				
NDPA/DPA	ND	ug/l	14.				
n-Nitrosodi-n-propylamine	ND	ug/l	4.8				
Bis(2-ethylhexyl)phthalate	ND	ug/l	9.7				
Butyl benzyl phthalate	ND	ug/l	4.8				
Di-n-butylphthalate	ND	ug/l	4.8				
Di-n-octylphthalate	ND	ug/l	4.8				
Diethyl phthalate	ND	ug/l	4.8				
Dimethyl phthalate	ND	ug/l	4.8				
Benzo(a)anthracene	ND	ug/l	4.8				
Benzo(a)pyrene	ND	ug/l	4.8				
Benzo(b)fluoranthene	ND	ug/l	4.8				
Benzo(k)fluoranthene	ND	ug/l	4.8				
Chrysene	ND	ug/l	4.8				
Acenaphthylene	ND	ug/l	4.8				
Anthracene	ND	ug/l	4.8				
Benzo(ghi)perylene	ND	ug/l	4.8				
Fluorene	ND	ug/l	4.8				
Phenanthrene	ND	ug/l	4.8				
Dibenzo(a,h)anthracene	ND	ug/l	4.8				
Indeno(1,2,3-cd)pyrene	ND	ug/l	6.8				
Pyrene	ND	ug/l	4.8				
Benzo(e)pyrene	ND	ug/l	4.8				
Biphenyl	ND	ug/l	4.8				
Perylene	ND	ug/l	4.8				
Aniline	ND	ug/l	9.7				
4-Chloroaniline	ND	ug/l	4.8				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0515245-01
011069-FRAC-121405

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
SVOC's by GC/MS 8270 cont'd				1 8270C	1215 16:00	1219 14:16	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	33.0	%	21-120				
Phenol-d6	27.0	%	10-120				
Nitrobenzene-d5	64.0	%	23-120				
2-Fluorobiphenyl	60.0	%	43-120				
2,4,6-Tribromophenol	90.0	%	10-120				
4-Terphenyl-d14	80.0	%	33-120				
PAH by GC/MS SIM 8270M				1 8270C-M	1215 16:00	1219 17:03	RL
Acenaphthene	ND	ug/l	0.19				
2-Chloronaphthalene	ND	ug/l	0.19				
Fluoranthene	ND	ug/l	0.19				
Hexachlorobutadiene	ND	ug/l	0.48				
Naphthalene	ND	ug/l	0.19				
Benzo(a)anthracene	ND	ug/l	0.19				
Benzo(a)pyrene	ND	ug/l	0.19				
Benzo(b)fluoranthene	ND	ug/l	0.19				
Benzo(k)fluoranthene	ND	ug/l	0.19				
Chrysene	ND	ug/l	0.19				
Acenaphthylene	ND	ug/l	0.19				
Anthracene	ND	ug/l	0.19				
Benzo(ghi)perylene	ND	ug/l	0.19				
Fluorene	ND	ug/l	0.19				
Phenanthrene	ND	ug/l	0.19				
Dibenzo(a,h)anthracene	ND	ug/l	0.19				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.19				
Pyrene	ND	ug/l	0.19				
1-Methylnaphthalene	ND	ug/l	0.19				
2-Methylnaphthalene	ND	ug/l	0.19				
Pentachlorophenol	ND	ug/l	0.77				
Hexachlorobenzene	ND	ug/l	0.77				
Perylene	ND	ug/l	0.19				
Biphenyl	ND	ug/l	0.19				
2,6-Dimethylnaphthalene	ND	ug/l	0.19				
1-Methylphenanthrene	ND	ug/l	0.19				
Benzo(e)Pyrene	ND	ug/l	0.19				
Hexachloroethane	ND	ug/l	0.77				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	46.0	%	21-120				
Phenol-d6	36.0	%	10-120				
Nitrobenzene-d5	67.0	%	23-120				
2-Fluorobiphenyl	57.0	%	43-120				
2,4,6-Tribromophenol	69.0	%	10-120				
4-Terphenyl-d14	73.0	%	33-120				
Polychlorinated Biphenyls				5 608	1215 16:00	1220 20:47	SS
Aroclor 1221	ND	ug/l	0.269				
Aroclor 1232	ND	ug/l	0.269				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0515245

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Solids, Total Suspended for sample(s) 01 (L0515236-02, WG224581-2)					
Solids, Total Suspended	1600	1700	mg/l	6	20
Cyanide, Total for sample(s) 01 (L0514810-02, WG224104-4)					
Cyanide, Total	ND	ND	mg/l	NC	30
Chlorine, Total Residual for sample(s) 01 (L0515245-01, WG223918-3)					
Chlorine, Total Residual	ND	ND	mg/l	NC	
TPH for sample(s) 01 (L0515245-01, WG224139-3)					
TPH	ND	ND	mg/l	NC	34
Phenolics, Total for sample(s) 01 (L0515201-01, WG224612-4)					
Phenolics, Total	0.18	0.18	mg/l	0	
Chromium, Hexavalent for sample(s) 01 (L0515245-01, WG223903-4)					
Chromium, Hexavalent	ND	ND	mg/l	NC	
Total Metals for sample(s) 01 (L0515245-01, WG223983-1)					
Antimony, Total	ND	ND	mg/l	NC	
Arsenic, Total	ND	ND	mg/l	NC	
Cadmium, Total	0.0005	0.0005	mg/l	4	
Chromium, Total	ND	ND	mg/l	NC	
Copper, Total	ND	ND	mg/l	NC	
Iron, Total	0.24	0.23	mg/l	4	
Lead, Total	0.009	0.009	mg/l	1	
Nickel, Total	0.015	0.015	mg/l	0	
Selenium, Total	ND	ND	mg/l	NC	
Silver, Total	ND	ND	mg/l	NC	
Zinc, Total	0.070	0.071	mg/l	2	
Total Metals for sample(s) 01 (L0514810-01, WG224347-3)					
Mercury, Total	ND	ND	mg/l	NC	
Volatile Organics by GC/MS 624 for sample(s) 01 (L0515246-02, WG224313-2)					
Methylene chloride	ND	ND	ug/l	NC	30
1,1-Dichloroethane	ND	ND	ug/l	NC	30
Chloroform	ND	ND	ug/l	NC	30
Carbon tetrachloride	ND	ND	ug/l	NC	30
1,2-Dichloropropane	ND	ND	ug/l	NC	30
Dibromochloromethane	ND	ND	ug/l	NC	30
1,1,2-Trichloroethane	ND	ND	ug/l	NC	30
2-Chloroethylvinyl ether	ND	ND	ug/l	NC	30
Tetrachloroethene	ND	ND	ug/l	NC	30
Chlorobenzene	ND	ND	ug/l	NC	30
Trichlorofluoromethane	ND	ND	ug/l	NC	30
1,2-Dichloroethane	ND	ND	ug/l	NC	30
1,1,1-Trichloroethane	ND	ND	ug/l	NC	30
Bromodichloromethane	ND	ND	ug/l	NC	30

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0515245

Parameter	% Recovery	QC Criteria
Cyanide, Total LCS for sample(s) 01 (WG224104-2)		
Cyanide, Total	105	90-110
Chlorine, Total Residual LCS for sample(s) 01 (WG223918-2)		
Chlorine, Total Residual	100	
TPH LCS for sample(s) 01 (WG224139-2)		
TPH	85	64-132
Phenolics, Total LCS for sample(s) 01 (WG224612-2)		
Phenolics, Total	94	
Chromium, Hexavalent LCS for sample(s) 01 (WG223903-1)		
Chromium, Hexavalent	99	
Total Metals LCS for sample(s) 01 (WG223983-4)		
Antimony, Total	103	
Arsenic, Total	110	
Cadmium, Total	111	
Chromium, Total	105	
Copper, Total	104	
Iron, Total	98	
Lead, Total	108	
Nickel, Total	104	
Selenium, Total	119	
Silver, Total	104	
Zinc, Total	108	
Total Metals LCS for sample(s) 01 (WG224347-1)		
Mercury, Total	104	
Pesticides by GC 504 LCS for sample(s) 01 (WG224657-2)		
1,2-Dibromoethane	99	
Volatile Organics by GC/MS 624 LCS for sample(s) 01 (WG224313-5)		
Methylene chloride	91	10-221
1,1-Dichloroethane	96	59-155
Chloroform	91	51-138
Carbon tetrachloride	108	70-140
1,2-Dichloropropane	90	10-210
Dibromochloromethane	98	53-149
1,1,2-Trichloroethane	97	52-150
2-Chloroethylvinyl ether	98	10-305
Tetrachloroethene	101	64-148
Chlorobenzene	106	37-160
Trichlorofluoromethane	107	17-181
1,2-Dichloroethane	96	49-155
1,1,1-Trichloroethane	100	52-162
Bromodichloromethane	100	35-155

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0515245

Continued

Parameter	% Recovery	QC Criteria
SVOC's by GC/MS 8270 LCS for sample(s) 01 (WG224289-2)		
Anthracene	55	40-140
Pyrene	90	26-127
Hexachloropropene	54	40-140
P-Chloro-M-Cresol	77	23-97
2-Chlorophenol	60	27-123
2-Nitrophenol	73	30-130
4-Nitrophenol	41	10-80
2,4-Dinitrophenol	75	30-130
Pentachlorophenol	103	9-103
Phenol	23	12-110
Surrogate(s)		
2-Fluorophenol	20	21-120
Phenol-d6	16	10-120
Nitrobenzene-d5	38	23-120
2-Fluorobiphenyl	41	43-120
2,4,6-Tribromophenol	53	10-120
4-Terphenyl-d14	50	33-120
PAH by GC/MS SIM 8270M LCS for sample(s) 01 (WG224288-2)		
Acenaphthene	46	46-118
2-Chloronaphthalene	52	
Fluoranthene	76	
Anthracene	58	
Pyrene	73	26-127
Pentachlorophenol	57	9-103
Surrogate(s)		
2-Fluorophenol	52	21-120
Phenol-d6	39	10-120
Nitrobenzene-d5	73	23-120
2-Fluorobiphenyl	63	43-120
2,4,6-Tribromophenol	74	10-120
4-Terphenyl-d14	86	33-120
Polychlorinated Biphenyls LCS for sample(s) 01 (WG224019-2)		
Aroclor 1242/1016	89	30-150
Aroclor 1260	88	30-150
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	81	30-150
Decachlorobiphenyl	71	30-150
Cyanide, Total SPIKE for sample(s) 01 (L0514789-01, WG224104-3)		
Cyanide, Total	100	80-120

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0515245

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS 624 SPIKE for sample(s) 01 (L0515246-02, WG224313-1)		
Vinyl chloride	104	10-251
Chloroethane	106	14-230
1,1-Dichloroethene	92	10-234
trans-1,2-Dichloroethene	90	54-156
cis-1,2-Dichloroethene	92	60-140
Trichloroethene	92	71-157
1,2-Dichlorobenzene	101	18-190
1,3-Dichlorobenzene	103	59-156
1,4-Dichlorobenzene	103	18-190
p/m-Xylene	112	40-160
o-Xylene	110	40-160
XYLENE (TOTAL)	111	40-160
Styrene	96	40-160
Acetone	108	40-160
Carbon disulfide	80	40-160
2-Butanone	85	40-160
Vinyl acetate	120	40-160
4-Methyl-2-pentanone	97	40-160
2-Hexanone	93	40-160
Acrolein	95	40-160
Acrylonitrile	103	40-160
Surrogate(s)		
Pentafluorobenzene	102	80-120
Fluorobenzene	103	80-120
4-Bromofluorobenzene	109	80-120
Polychlorinated Biphenyls SPIKE for sample(s) 01 (L0515225-01, WG224019-3)		
Aroclor 1242/1016	92	30-150
Aroclor 1260	84	30-150
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	81	30-150
Decachlorobiphenyl	38	30-150

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0515245

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01 (WG224581-1)								
Solids, Total Suspended	ND	mg/l	5.0	4	160.2		1221 06:25	DT
Blank Analysis for sample(s) 01 (WG224104-1)								
Cyanide, Total	ND	mg/l	0.005	4	335.2	1216 13:00	1216 17:52	DD
Blank Analysis for sample(s) 01 (WG223918-1)								
Chlorine, Total Residual	ND	mg/l	0.05	4	330.1		1214 20:45	DP
Blank Analysis for sample(s) 01 (WG224139-1)								
TPH	ND	mg/l	4.00	74	1664A	1215 14:20	1216 10:00	AT
Blank Analysis for sample(s) 01 (WG224612-1)								
Phenolics, Total	ND	mg/l	0.03	4	420.1		1220 12:30	AT
Blank Analysis for sample(s) 01 (WG223903-2)								
Chromium, Hexavalent	ND	mg/l	0.02	30	3500CR-D	1215 01:30	1215 01:30	HS
Blank Analysis for sample(s) 01 (WG223983-3)								
Total Metals				19	200.7			
Antimony, Total	ND	mg/l	0.005	3	200.9	1215 11:00	1220 17:01	PY
Arsenic, Total	ND	mg/l	0.005	19	200.7	1215 11:00	1216 09:18	MG
Cadmium, Total	ND	mg/l	0.0002	4	213.2	1215 11:00	1219 12:26	PY
Chromium, Total	ND	mg/l	0.01	19	200.7	1215 11:00	1216 09:18	MG
Copper, Total	ND	mg/l	0.005	19	200.7	1215 11:00	1216 09:18	MG
Iron, Total	ND	mg/l	0.05	19	200.7	1215 11:00	1216 09:18	MG
Lead, Total	ND	mg/l	0.001	3	200.9	1215 11:00	1215 17:10	PY
Nickel, Total	ND	mg/l	0.010	19	200.7	1215 11:00	1216 09:18	MG
Selenium, Total	ND	mg/l	0.005	19	200.7	1215 11:00	1216 09:18	MG
Silver, Total	ND	mg/l	0.0002	4	272.2	1215 11:00	1219 15:00	PY
Zinc, Total	ND	mg/l	0.010	19	200.7	1215 11:00	1216 09:18	MG
Blank Analysis for sample(s) 01 (WG224347-4)								
Total Metals								
Mercury, Total	ND	mg/l	0.0002	4	245.2	1219 16:45	1220 10:20	DM
Blank Analysis for sample(s) 01 (WG224657-1)								
Pesticides by GC 504				14	504.1	1221 10:20	1221 11:27	JB
1,2-Dibromoethane	ND	ug/l	0.020					

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0515245

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01 (WG224313-6)							
Volatile Organics by GC/MS 624 cont'd				1 624		1216 09:31	MM
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	100.	%	80-120				
Fluorobenzene	100.	%	80-120				
4-Bromofluorobenzene	113.	%	80-120				
Blank Analysis for sample(s) 01 (WG224289-1)							
SVOC's by GC/MS 8270				1 8270C	1215 16:00	1219 12:38	RL
Acenaphthene	ND	ug/l	5.0				
Benzidine	ND	ug/l	50.				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl)ether	ND	ug/l	5.0				
1-Chloronaphthalene	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	6.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	50.				
2,4-Dinitrotoluene	ND	ug/l	6.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Chlorophenyl phenyl ether	ND	ug/l	5.0				
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0				
Bis(2-chloroethoxy)methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachlorocyclopentadiene	ND	ug/l	10.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
NDPA/DPA	ND	ug/l	15.				
n-Nitrosodi-n-propylamine	ND	ug/l	5.0				
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a)anthracene	ND	ug/l	5.0				
Benzo(a)pyrene	ND	ug/l	5.0				
Benzo(b)fluoranthene	ND	ug/l	5.0				
Benzo(k)fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0515245

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01 (WG224289-1)							
SVOCs by GC/MS 8270 cont'd				1 8270C	1215 16:00	1219 12:38	RL
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
2,6-Dichlorophenol	ND	ug/l	10.				
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
2-Picoline	ND	ug/l	20.				
Pronamide	ND	ug/l	20.				
Methyl methanesulfonate	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	33.0	%	21-120				
Phenol-d6	28.0	%	10-120				
Nitrobenzene-d5	63.0	%	23-120				
2-Fluorobiphenyl	61.0	%	43-120				
2,4,6-Tribromophenol	75.0	%	10-120				
4-Terphenyl-d14	74.0	%	33-120				
Blank Analysis for sample(s) 01 (WG224288-1)							
PAH by GC/MS SIM 8270M				1 8270C-M	1215 16:00	1219 16:19	RL
Acenaphthene	ND	ug/l	0.20				
2-Chloronaphthalene	ND	ug/l	0.20				
Fluoranthene	ND	ug/l	0.20				
Hexachlorobutadiene	ND	ug/l	0.50				
Naphthalene	ND	ug/l	0.20				
Benzo(a)anthracene	ND	ug/l	0.20				
Benzo(a)pyrene	ND	ug/l	0.20				
Benzo(b)fluoranthene	ND	ug/l	0.20				
Benzo(k)fluoranthene	ND	ug/l	0.20				
Chrysene	ND	ug/l	0.20				
Acenaphthylene	ND	ug/l	0.20				
Anthracene	ND	ug/l	0.20				
Benzo(ghi)perylene	ND	ug/l	0.20				
Fluorene	ND	ug/l	0.20				
Phenanthrene	ND	ug/l	0.20				
Dibenzo(a,h)anthracene	ND	ug/l	0.20				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20				
Pyrene	ND	ug/l	0.20				
1-Methylnaphthalene	ND	ug/l	0.20				
2-Methylnaphthalene	ND	ug/l	0.20				
Pentachlorophenol	ND	ug/l	0.80				

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

3. Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

5. Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).

14. Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19. Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

74. Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 12/14/05

ALPHA Job #: L0515245

Eight Walkup Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Client Information

Client: Ransom Env
Address: Browns Wharf
Newburyport MA
Phone: 978 465-1822
Fax: 978 465-2986
Email: abray@ransomenv.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Hillbury NPDES
Project Location: Millbury MA
Project #: 011069
Project Manager: A. Bray
ALPHA Quote #: —

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: 12/21/05 Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria
EPA-Reg. 1	NPDES - RGP Permit

MCP PRESUMPTIVE CERTAINTY - THESE QUESTIONS MUST BE ANSWERED

☐ Yes ☒ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are Drinking Water Samples Submitted?
☐ Yes ☒ No Have you met minimum field QC requirements?

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE SEE ATTACHED SHEET WITH REQUIRED PROJECT SPECIFIC DETECTION LIMITS. THANK YOU

SAMPLE HANDLING

Filtration
☐ Done
☒ Not needed
☐ Lab to do

Preservation
☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Volatile Organics 624	504 Method (EDB)	Sample Specific Comments	
245.1	011069-FRAC-121405	12/14/05	12:00	GW	DPD	X	X		4

Container Type	V	V
Preservative	H	H

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP ?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12-14-05/1520	[signature]	12/14/05 15:20

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

CHAIN OF CUSTODY

PAGE 1 OF 2

THE ALPHA GROUP | 12/14/05 | ALPHA Work Order # L0515045

Eight Walkup Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Client Information

Client: Ransom Env.
Address: Browns Wharf
Newburyport MA
Phone: 978 465 1822
Fax: 978 465 2986
Email: dbray@ransomenv.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Millbury NPDES
Project Location: Millbury MA
Project #: 011069
Project Manager: A. Bray
ALPHA Quote #: —

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/21/05 Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria
EPA - Reg 1	NPDES - RGP Permit

MCP PRESUMPTIVE CERTAINTY - THESE QUESTIONS MUST BE ANSWERED

☒ Yes ☒ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are Drinking Water Samples Submitted?
☒ Yes ☒ No Have you met minimum field QC requirements?

Other Project Specific Requirements/Comments/Detection Limits:
PLEASE SEE ATTACHED SHEET WITH REQUIRED DETECTION LIMITS (PROJECT SPECIFIC).
THANK YOU

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TSS (160.2)	TRC (350.5)	TPH (1664)	Sb, Cd, Pb, Se, As graphite furnace	As, Cr, Cu, Ni, Zn - ICP	Fe	Mercury	Hexavalent Chromium	Total Phenols	8270 / PAH low	PCBs - 608	total cyanide - 335.4	Sample Specific Comments	
5	011069-FRAC-121405	12/14/05	12:00	GW	DPD	X	X	X	X	X	X	X	X	X	X	X	X		14
Container Type						P	P	A	P	P	P	P	P	A	A	A	P		
Preservative						A	A	B	C	C	C	C	A	D	A	H	E		

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP ?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12-14-05/1520	[signature]	12/14/05 1500

FORM NO: 01-01(rev. 14-May-04)

ATTACHMENT C

Metals Discharge Calculations

Remediation General Permit Notice of Intent,
Former Millbury Substation No. 1
33 Providence Road
Millbury, Massachusetts
MA DEP Release Tracking Nos. 2-14166 and 2-14312

RANSOM Environmental Consultants, Inc.

Newburyport, Massachusetts 978-465-1822
East Providence, Rhode Island 401-433-2160
Portsmouth, New Hampshire 603-436-1490
Portland, Maine 207-772-2891
Hamilton, New Jersey 609-584-0090

PROJECT NO. 011069 SITE MILLBURY
SHEET NO. 1 OF 3
CALCULATED BY DPD DATE 1/11/06
CHECKED BY DATE
SCALE

ITEM 3. CONTAMINANT INFORMATION

C) DISCHARGE OF METALS

STEP 2

DILUTION FACTOR (DF) = (Qd + Qs)/Qd

WHERE: Qd = MAX FLOW RATE OF DISCHARGE (CFS)
Qs = RECEIVING WATER 7Q10 FLOW (CFS)
CFS = CUBIC FEET PER SECOND

Qd = 50 GPM = 0.11 CFS ⇒ BASED ON THE CARBON TREATMENT UNIT SIZE AND PRESUMED PUMP FLOW RATE FOR THE SYSTEM.

Qs: SPECIFIC 7Q10 DATA FROM THE MILLBURY BLACKSTONE RIVER GAUGING STATION WAS NOT AVAILABLE BECAUSE THE GAUGING STATION HAS ONLY BEEN IN EXISTANCE FOR 3.5 YEARS (ATTACHMENT 3.C.2.a). IN ADDITION, THE SENSOR IS LOCATED BELOW A WASTEWATER TREATMENT PLANT, MAKING IT DIFFICULT TO OBTAIN A "REAL" 7Q10 FLOW (ATTACHMENT 3.C.2.b). THEREFORE, RANSOM IS ESTIMATING THE 7Q10 FLOW VALUE.

REFERENCING OCTOBER 2005 DAILY MEAN VALUES FOR 3 YEARS OF RECORD FROM THE BLACKSTONE RIVER GAUGING STATION IN MILLBURY, MASSACHUSETTS, RANSOM USED STREAMFLOWS FROM OCTOBER 5 THROUGH

Reorder From NEBS CUST&M™ printing service 1-800-886-6327 NEBS, Inc. Peterborough, NH 03458 www.nebs.com Ref. No: G 311900806

OCTOBER 11, 2005, TO ESTIMATE THE 7Q10 FLOW VALUE (ATTACHMENT 3.C.2.C). THESE DATES PROVIDE THE LOWEST MEAN 7-DAY FLOW RATE OF 62 CFS. ASSUMING THE 7Q10 FLOW IS 25% LESS THAN THIS MEAN VALUE, THE 7Q10 FLOW IS ESTIMATED TO BE 47 CFS (Q_s).

USING THESE Q_d AND Q_s VALUES, THE DILUTION FACTOR IS ESTIMATED:

$$DF = (0.11\ cfs + 47\ cfs)/0.11\ cfs = 428$$

BASED ON THE APPENDIX IV TABLE (ATTACHMENT 3.C.2.D), THE DILUTION FACTOR COULD BE AS LOW AS 10-50 BEFORE CADMIUM, LEAD, AND ZINC WOULD EXCEED THE EFFLUENT LIMITS. THIS EQUATES TO AN ESTIMATED 7Q10 FLOW OF 5.39 CFS, AS SHOWN BELOW:

$$Q_s = (DF \times Q_d) - Q_d$$

$$Q_s = (50 \times 0.11) - 0.11 = 5.39\ cfs$$

THIS FLOW IS ONLY 11.5% OF THE ESTIMATED 7Q10 FLOW OF 47 CFS FOR THE BLACKSTONE RIVER.

THEREFORE, IT IS RANSOM'S UNDERSTANDING THAT NO TREATMENT OF METALS IS REQUIRED PRIOR TO THE SHORT-TERM DISCHARGE OF THE PCB TREATED EFFLUENT INTO THE BLACKSTONE RIVER.

Reprint from NEBS CUSTOM printing service 1-800-225-6380 NEBS Inc. Deerfield, NH 03037-1554 www.nebs.com Ref. No. C-31100

RANSOM Environmental Consultants, Inc.

Newburyport, Massachusetts 978-465-1822
East Providence, Rhode Island 401-433-2160
Portsmouth, New Hampshire 603-436-1490
Portland, Maine 207-772-2891
Hamilton, New Jersey 609-584-0090

PROJECT NO. _____ SITE _____
SHEET NO. 3 OF 3
CALCULATED BY DPD DATE 1-11-06
CHECKED BY _____ DATE _____
SCALE _____

IN ADDITION, ALTHOUGH 2005 WAS NOT A DRAUGHT YEAR, DATA FROM A NEARBY, DOWNSTREAM GAUGING STATION IN NORTHBRIDGE, MASSACHUSETTS, SHOWED THE ANNUAL MEAN STREAM FLOW FOR A DRAUGHT YEAR (1965) OF 128 CFS AND FOR A FLOOD YEAR (1972) OF 451 CFS (ATTACHMENT 3.c.2.e). THE DRAUGHT YEAR AVERAGE FLOW WAS 28% OF THE FLOOD YEAR FLOW. IF THIS PERCENTAGE IS APPLIED TO THE ESTIMATED 7Q10 FLOW, ASSUMING IT IS AS HIGH AS WOULD BE ENCOUNTERED DURING THE LOW FLOW OF A FLOOD YEAR, THE DRAUGHT YEAR 7Q10 FLOW COULD BE ASSUMED AT APPROXIMATELY 28% OF 47CFS, WHICH IS 13 CFS. THIS IS STILL 2+ TIMES HIGHER THAN THE FLOW REQUIRED BEFORE CADMIUM, LEAD, AND ZINC WOULD EXCEED THE EFFLUENT LIMITS SPECIFIED IN APPENDIX IV.

Reorder From NEBS CUSTOM™ printing service 1-800-868-6327 NEBS, Inc. Peterborough, NH 03458 www.nebs.com Ref. No: G 311900605

ATTACHMENT 3.C.2.a

Diana P. Deming

From: Linda Y Comeau [lcomeau@usgs.gov]
Sent: Monday, January 09, 2006 9:27 AM
To: Diana P. Deming
Subject: RE: Site No: 01109730

Hi Diana
This site 0119730 has only been around since July 2002, making it hard to get the 7Q10. You can try to estimate one from our web site using stream stats. The web address is

http://ma.water.usgs.gov/

Then select stream stats, there is a tutorial to help you get started and you can call myself or Peter Steeves (508 490 5054) for help if you need it.

The real problem with getting a 7Q10 from this site is the treatment plant, your summer flows would not be a "real" number since they discharge into the stream. If you have any concerns about this you can contact our surface water specialist Phil Zarriello at 508 490 5010, or email him at pzarriel@usgs.gov.

Let me know if you need anything else.
Linda

Linda Comeau
USGS
10 Bearfoot Rd
Northboro, Ma 01532
PH: 508 490 5058
Email: lcomeau@usgs.gov

ddeming@ransomenv.com

01/06/2006 12:53 PM

To gs-w-ma_NWISWeb_Data_Inquiries@usgs.gov
cc archive_ask@usgs.gov
Subject RE: Site No: 01109730

Transaction=GSFKDYG8 [06JAN2006 17:53:51UTC]
Customer email: ddeming@ransomenv.com
Customer: Diana Deming
Customer phone: 978-465-1822 ext 60
Customer address:
Brown's Wharf
Newburyport, MA 01950
Subject: RE: Site No: 01109730
Handling note: Feedback is generated from nadww01
Primary response: gs-w-ma_NWISWeb_Data_Inquiries@usgs.gov
Copies to: gs-w_NWISWeb_Feedback@usgs.gov
org_name: Ransom Environmental Consultants
referer_url: http://nwis.waterdata.usgs.gov/ma/nwis/dvstat/?site_no=01109730&agency_cd=USGS

USGS PERSONNEL: This email was generated through the Contact USGS system. When replying to the customer PLEASE BE SURE TO CC archive_ask@usgs.gov. (Customers, please do not send email to archive_ask, as it will not be answered.) If you answer by phone, simply forward this email to archive_ask@usgs.gov. You can see more information about replying to customers at <http://answers.usgs.gov/usgs/responding.htm> (USGS only). gs-w-ma_NWISWeb_Data_Inquiries@usgs.gov has primary responsibility for replying to ddeming@ransomenv.com. Others who wish to reply should coordinate their responses with gs-w-ma_NWISWeb_Data_Inquiries@usgs.gov.

Hello,
I am in the process of completing a NPDES Remediation General Permit - Notice of Intent. They are asking what the "annual minimum flow for 7 consecutive days with a recurrence interval of 10 years". Can you direct me to where I could locate that information. From this website, it looks like I could deduce it from the past two years, but it does not appear that the data is available from the past 10 years.
Thank you for your assistance.
Diana

ATTACHMENT 3.C.2.b

Water Resources

Data Category: Real-time | Geographic Area: Massachusetts | go

USGS 01109730 BLACKSTONE RIVER, W. MAIN ST., AT MILLBURY, MA

PROVISIONAL DATA SUBJECT TO REVISION

Available data for this site Real-time GO

LOCATION.--Lat 42°11'20", long 71°45'56", Worcester County, Hydrologic Unit 01090003, on right bank, instrument shelter on Elm Court, approximately 20 ft downstream from W. Main Street bridge, stage sensor approximately 50 ft upstream from W. Main Street bridge, at Millbury, MA.

DRAINAGE AREA.--71.4 mi^2.

PERIOD OF RECORD.--July 2002 to current year.

GAGE.--Water-stage recorder with satellite telemeter at station.

REMARKS.--Flows affected by effluent releases from Upper Blackstone Waste-Water Treatment Plant located approximately 2.5 mi upstream from gage. High flows may include diversion flood flows through Kettle Brook diversion system with mouth located approximately 2.0 mi upstream from gage.

COOPERATION.--Upper Blackstone Water Pollution Abatement District..

ATTACHMENT 3.C.2.b

Water Resources

Data Category: Site Information | Geographic Area: Massachusetts | go

USGS 01109730 BLACKSTONE RIVER, W. MAIN ST., AT MILLBURY, MA

Available data for this site Site home page GO

Site Description

LOCATION
Latitude 42°11'20", Longitude 71°45'56" NAD27,
Worcester County, Massachusetts , Hydrologic Unit 01090003

DRAINAGE AREA
71.4 square miles

GAGE
Datum of gage is 380 feet above sea level NGVD29.

SITE TYPE:
Stream or River

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Real-time	This is a real-time site		
Peak streamflow	2003-09-23	2004-04-14	2
Daily streamflow	2002-07-01	2004-09-30	823

OPERATION:
Record for this site is maintained by the USGS Massachusetts Water Science Center

CONTACT INFORMATION
Email questions about this site to Massachusetts NWISWeb Data Inquiries

Questions about data Massachusetts NWISWeb Data Inquiries
Feedback on this website Massachusetts NWISWeb Maintainer
Top
Explanation of terms

**** USGS 01109730 BLACKSTONE RIVER, W. MAIN ST., AT MILLBURY, MA**
http://waterdata.usgs.gov/ma/nwis/nwisman?

Retrieved on 2006-01-11 12:35:51 EST
Department of the Interior, U.S. Geological Survey
USGS Water Resources of Massachusetts
Privacy Statement || Disclaimer || Accessibility || FOIA
1.16 1.16 nadww01

ATTACHMENT 3.C.2.C

Water Resources

Data Category: Surface Water | Geographic Area: Massachusetts | go

Daily Streamflow Statistics for Massachusetts

USGS 01109730 BLACKSTONE RIVER, W. MAIN ST., AT MILLBURY, MA

Available data for this site Surface-water: Daily streamflow statistics GO

Worcester County, Massachusetts
Hydrologic Unit Code 01090003
Latitude 42°11'20", Longitude 71°45'56" NAD27
Drainage area 71.4 square miles
Gage datum 380 feet above sea level NGVD29

Output formats

HTML table of all data
Tab-separated data
Reselect output format

Day of month	Mean of daily mean values for this day for 3 years of record[1], in ft^3/s											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	205	92.0	126	782	203	236	86.7	83.0	56.0	62.5	159	115
2	276	104	253	787	195	216	102	101	103	56.0	140	108
3	240	102	256	435	210	189	80.7	78.3	71.7	74.0	138	101
4	236	150	206	380	285	161	72.3	183	71.3	67.5	129	97.0
5	255	128	199	347	231	174	72.7	155	62.0	66.0	161	95.5
6	225	134	208	307	199	143	66.0	120	57.7	55.0	217	98.0
7	202	188	190	272	177	198	62.3	81.7	54.3	61.0	172	102
8	183	137	183	256	169	201	67.0	115	59.0	65.0	148	97.5
9	174	117	183	242	171	174	73.7	84.7	153	62.0	138	96.0
10	169	114	169	230	161	168	78.3	84.7	94.0	61.0	132	96.5
11	155	109	153	293	148	187	80.0	76.0	74.0	65.5	146	263
12	149	101	154	365	175	170	71.3	78.7	62.0	131	158	275
13	146	96.5	152	560	141	214	71.3	101	57.7	105	227	200
14	137	96.5	145	910	130	200	66.0	70.0	53.7	92.0	159	355
15	130	89.5	140	533	123	171	60.3	96.7	54.7	232	138	376
16	122	83.5	150	386	115	143	56.7	81.3	124	166	124	274
17	119	80.5	207	311	109	124	57.3	80.3	97.0	143	199	386
18	120	86.0	270	267	102	132	60.3	74.3	348	102	227	666
19	118	89.0	276	243	138	137	97.7	78.0	193	87.0	170	325
20	113	93.0	242	221	108	115	68.0	84.3	120	80.5	189	420
21	106	94.0	523	201	102	107	59.7	128	88.7	76.5	160	408

22	103	170	499	201	94.0	456	69.0	107	75.7	69.5	177	297
23	102	309	367	267	103	549	88.7	85.0	225	84.0	164	253
24	100	222	288	246	117	302	304	65.3	132	70.5	146	338
25	95.0	178	253	211	172	214	123	63.3	91.0	64.0	140	387
26	93.5	150	236	340	337	179	88.3	58.0	82.0	165	125	313
27	95.5	135	260	403	345	146	72.3	55.3	109	211	125	260
28	94.5	125	233	319	272	126	98.7	53.0	224	190	123	227
29	95.5	90.0	251	260	214	113	89.3	90.7	231	453	135	210
30	94.0		376	222	177	102	66.3	92.0	150	245	122	199
31	92.5		457		152		58.7	67.3		179		191

1 -- Available period of record may be less than value shown for certain days of the year.

ATTACHMENT 3.a.2.d

APPENDIX IV
TOTAL RECOVERABLE METALS LIMITATIONS (ug/L) AT SELECTED DILUTION RANGES AND TECHNOLOGY BASED CEILING LIMITATIONS FOR FACILITIES LOCATED IN MASSACHUSETTS
(for discharges to freshwater at H = 50 mg/L CaCO3)[1]

PARAMETER	DILUTION RANGE CONCENTRATION					
	0 - 5	5 -10	10 - 50	50 - 100	>100	CEILING VALUE
1. Antimony	5.6	30	60	141	141	141 [2]
2. Arsenic	10	50	100	500	540	540 [3]
3. Cadmium	0.2	1.0 x	2.0	10.0	20.0	260
4. Chromium^{III} (Trivalent)	48.8	244	489	1,710	1,710	1,710
5. Chromium^{VI} (Hexavalent)	11.4	57	114	570	1,140	1,710 [4]
6. Copper	5.2	26	52	260	520	2,070
7. Lead	1.3	6.5	13 x	66	132	430
8. Mercury	0.9	2.3	2.3	2.3	2.3	2.3 [5]
9. Nickel	29.0	145	290	1,451	2,380	2,380
10. Selenium	5.0	25	50	250	408	408 [6]
11. Silver	1.2	6	12	57	115	240
12. Zinc	66.6 x	333	666	1,480	1,480	1,480
13. Iron	1,000	5,000	5,000	5,000	5,000	5,000

1. *Based on 7Q10 Flow.*

2. *Based on 40 CFR 437.42, "The Centralized Waste Treatment Point Source Category - Subpart D - Multiple Wastestreams - Best Practicable Control Technology" (BPT) daily maximum for Antimony*

3. *Based on 40 CFR 445.11, "RCRA Subtitle C Landfill Best Practicable Control Technology" (BPT) for Arsenic.*

4. *Assumes Hexavalent Chromium reduced to Tri-valent Chromium in treatment.*

5. *Based on 40 CFR 437.42, "The Centralized Waste Treatment Point Source Category - Subpart D - Multiple Wastestreams - Best Practicable Control Technology" (BPT) daily maximum for Mercury*

6. *Based on 40 CFR 437.42, "The Centralized Waste Treatment Point Source Category - Subpart D - Multiple Wastestreams - Best Practicable Control Technology" (BPT) daily maximum for Selenium*

ATTACHMENT 3.C.2.e

Water Resources

Data Category: Surface Water | Geographic Area: Massachusetts | go

Calendar Year Streamflow Statistics for Massachusetts

USGS 01110500 BLACKSTONE RIVER AT NORTHBRIDGE, MA

Available data for this site Surface-water: Annual streamflow statistics GO

Worcester County, Massachusetts
Hydrologic Unit Code 01090003
Latitude 42°09'13", Longitude 71°39'09" NAD27
Drainage area 141.00 square miles
Contributing drainage area 141 square miles
Gage datum 255.00 feet above sea level NGVD29

Output formats

HTML table of all data
Tab-separated data
Reselect output format

Year	Annual mean streamflow, in ft^3/s	Year	Annual mean streamflow, in ft^3/s	Year	Annual mean streamflow, in ft^3/s	Year	Annual mean streamflow, in ft^3/s
1940	267	1951	302	1962	314	1973	332
1941	132	1952	299	1963	218	1974	300
1942	200	1953	349	1964	204	1975	313
1943	222	1954	380	1965	128	1976	238
1944	167	1955	435	1966	172	1996	408
1945	265	1956	304	1967	295	1997	268
1946	236	1957	178	1968	272	1998	347
1947	208	1958	354	1969	260	1999	226
1948	280	1959	332	1970	269	2000	290
1949	173	1960	328	1971	231	2001	236
1950	200	1961	265	1972	451		

Questions about data Massachusetts NWISWeb Data Inquiries
Feedback on this website Massachusetts NWISWeb Maintainer

Top
Explanation of terms

Surface Water data for Massachusetts: Calendar Year Streamflow Statistics
http://waterdata.usgs.gov/ma/nwis/annual/calendar_year?

Retrieved on 2006-01-06 17:53:21 EST
Department of the Interior, U.S. Geological Survey
USGS Water Resources of Massachusetts
Privacy Statement || Disclaimer || Accessibility || FOIA
1.15 1.15 nadww01

ATTACHMENT D

Supporting Documentation

Remediation General Permit Notice of Intent,
Former Millbury Substation No. 1
33 Providence Road
Millbury, Massachusetts
MA DEP Release Tracking Nos. 2-14166 and 2-14312

U.S. Environmental Protection Agency

Total Maximum Daily Loads

Listed Water Information

CYCLE : 2002

Click here to see metadata for this report.

Cycle: 2002 **State:** MA **List ID:** MA51-03
Waterbody Name: BLACKSTONE RIVER
State Basin Name: BLACKSTONE
Listed Water Map Link: MAP 303(d)

Comments:
CONFLUENCE OF MIDDLE RIVER AND MILL BROOK (JUST DOWNSTREAM OF AMERICAN STEEL DAM), WORCESTER TO FISHERVILLE DAM, GRAFTON.

State List IDs:

Cycle	State List ID
2002	MA51-03_2002

State Impairments:

State Impairment	Parent Impairment	Priority	Rank	Targeted Flag	Anticipated TMDL Submittal
UNKNOWN TOXICITY					
PRIORITY ORGANICS					
METALS					
UNIONIZED AMMONIA					
CHLORINE					
NUTRIENTS					
ORGANIC ENRICHMENT/LOW DO					
PATHOGENS					
SUSPENDED SOLIDS					
TURBIDITY					

Potential Sources of Impairment:

There were no potential sources reported to EPA by the state.

Total Maximum Daily Load (TMDL) Information:

There were no TMDLs reported to EPA by the state.

Watershed Information:

Watershed Name	Watershed States
BLACKSTONE	MASSACHUSETTS RHODE ISLAND

Last updated on Wednesday, January 11th, 2006
URL: http://oaspub.epa.gov/pls/tmdl/enviro.control

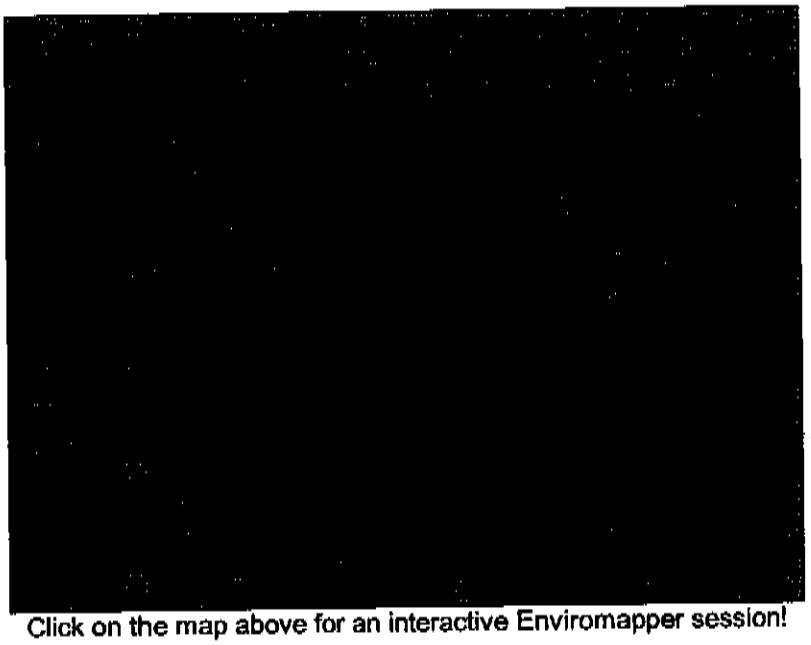
U.S. Environmental Protection Agency

Total Maximum Daily Loads

Section 303(d) List Fact Sheet for Watershed BLACKSTONE

- Number of Waters listed by State
- Waters Listed by Waterbody
- Impairments
- Approved TMDLs by Pollutant
- Approved TMDLs by Year
- TMDL Document Search
- Lawsuit Document Search

Click here to see metadata for this report.



Click on the map above for an interactive Enviromapper session!

Number of Waters listed by State for Watershed

State Name	Waters on List	Effective Listing Cycle
MASSACHUSETTS	41	2002
RHODE ISLAND	14	2002

Total Number of Waters Listed: 55

Waters Listed By Waterbody

NOTE: Click on the underlined "Waters on List" value to see a listing of those waters.

Waterbody Name	Waterbody Type	Waters on List
FISH POND	LAKE/RESERVOIR/POND	1
DARK BROOK	STREAM/CREEK/RIVER	1
HAYES POND	LAKE/RESERVOIR/POND	1
LONG BROOK	STREAM/CREEK/RIVER	1
MILL RIVER	STREAM/CREEK/RIVER	2
RILEY POND	LAKE/RESERVOIR/POND	1
SCOTT POND	STREAM/CREEK/RIVER	1
SCOTT POND	LAKE/RESERVOIR/POND	1
WAITE POND	LAKE/RESERVOIR/POND	1
WELSH POND	LAKE/RESERVOIR/POND	1
WEST RIVER	STREAM/CREEK/RIVER	2
ARCADE POND	LAKE/RESERVOIR/POND	1
BARNEY POND	LAKE/RESERVOIR/POND	1
CLEAR RIVER	STREAM/CREEK/RIVER	1
GILBOA POND	LAKE/RESERVOIR/POND	1
HARRIS POND	LAKE/RESERVOIR/POND	1
LAKE RIPPLE	LAKE/RESERVOIR/POND	1
MARBLE POND	LAKE/RESERVOIR/POND	1
MEADOW POND	LAKE/RESERVOIR/POND	1
ALDRICH POND	LAKE/RESERVOIR/POND	1
BEAVER BROOK	STREAM/CREEK/RIVER	1
BRANCH RIVER	STREAM/CREEK/RIVER	1
CURTIS PONDS	LAKE/RESERVOIR/POND	1
KETTLE BROOK	STREAM/CREEK/RIVER	1
MIDDLE RIVER	STREAM/CREEK/RIVER	1
PETERS RIVER	STREAM/CREEK/RIVER	2
SUTTON FALLS	LAKE/RESERVOIR/POND	1
MANCHAUG POND	LAKE/RESERVOIR/POND	1
MUMFORD RIVER	STREAM/CREEK/RIVER	1
NUMBER 1 POND	LAKE/RESERVOIR/POND	1
TARKILN BROOK	STREAM/CREEK/RIVER	1
TATNUCK BROOK	STREAM/CREEK/RIVER	1
WOODBURY POND	LAKE/RESERVOIR/POND	1

WOOLSHOP POND	LAKE/RESERVOIR/POND	1
CITY FARM POND	LAKE/RESERVOIR/POND	1
FISKE MILLPOND	LAKE/RESERVOIR/POND	1
RICE CITY POND	LAKE/RESERVOIR/POND	1
SALISBURY POND	LAKE/RESERVOIR/POND	1
ASH SWAMP BROOK	STREAM/CREEK/RIVER	1
WEST RIVER POND	LAKE/RESERVOIR/POND	1
ABBOTT RUN BROOK	STREAM/CREEK/RIVER	1
BLACKSTONE RIVER	STREAM/CREEK/RIVER	5
ROBIN HOLLOW POND	STREAM/CREEK/RIVER	1
ROBIN HOLLOW POND	LAKE/RESERVOIR/POND	1
SPINDLEVILLE POND	LAKE/RESERVOIR/POND	1
UNNAMED TRIBUTARY	STREAM/CREEK/RIVER	1
VALLEY FALLS POND	LAKE/RESERVOIR/POND	1
BURNCOAT PARK POND	LAKE/RESERVOIR/POND	1
RIVERDALE IMPOUNDMENT	LAKE/RESERVOIR/POND	1
SLATERSVILLE RESERVOIR	LAKE/RESERVOIR/POND	1

Total Number of Listed Waters: 57

Impairments

NOTE: Click on the underlined "Impairments Reported" value to see a listing of those waters with the impairment.

Impairment Name	Impairments Reported	Percent of Reported
NOXIOUS AQUATIC PLANTS	21	13.46
PATHOGENS	18	11.54
TURBIDITY	15	9.62
METALS	10	6.41
NUTRIENTS	10	6.41
ORGANIC ENRICHMENT/LOW DO	9	5.77
PRIORITY ORGANICS	9	5.77
LEAD	8	5.13
BIODIVERSITY IMPACTS	6	3.85

PH	6	3.85
CAUSE UNKNOWN	5	3.21
TASTE, ODOR AND COLOR	5	3.21
SUSPENDED SOLIDS	5	3.21
COPPER	4	2.56
UNKNOWN TOXICITY	4	2.56
PHOSPHORUS	4	2.56
LOW DISSOLVED OXYGEN	3	1.92
SILTATION	3	1.92
CADMIUM	2	1.28
UNIONIZED AMMONIA	2	1.28
EXCESS ALGAL GROWTH	2	1.28
AMMONIA	1	.64
CHLORINE	1	.64
TOTAL COLIFORM	1	.64
SALINITY/TDS/CHLORIDES	1	.64
OIL AND GREASE	1	.64

Total Number of Impairments Reported: 156

Approved TMDLs by Pollutants since January 1, 1996

NOTE: Click on the underlined "Pollutant" value to see associated listed waters for which a TMDL was developed. Click on the underlined "Number of TMDLs Approved" value to see a listing of those approved TMDLs for the pollutant. EPA is in the process of collecting TMDL information from the states. Because these efforts are on-going, there may be additional approved TMDLs that were not included in the listings below.

Pollutant	Number of TMDLs Approved	Percent of Reported
PHOSPHORUS	13	59.09
TOTAL PHOSPHORUS	9	40.91

Total Number of Approved TMDLs since January 1, 1996: 22

Approved TMDLS by EPA Fiscal Year (September 30 through October 1) since October 1, 1995

Year	Number of TMDLs Approved	Percent Approved
2002	22	100.00

TMDL Document Search

Full Text Search of TMDL Documents is available here.

Last updated on Wednesday, January 11th, 2006
URL: http://oaspub.epa.gov/pls/tmdl/huc_rept.control

MASSACHUSETTS AREAS OF CRITICAL ENVIRONMENTAL CONCERN
November 2003

Total Approximate Acreage: 240,900 acres
Approximate acreage and designation date follow ACEC names below.

Bourne Back River
(1,850 acres, 1989) Bourne

Canoe River Aquifer and Associated Areas
(17,200 acres, 1991) Easton, Foxborough, Mansfield, Norton, Sharon, and Taunton

Central Nashua River Valley
(12,900 acres,1996) Bolton, Harvard, Lancaster, and Leominster

Cranberry Brook Watershed
(1,050 acres, 1983) Braintree and Holbrook

Ellisville Harbor
(600 acres, 1980) Plymouth

Fowl Meadow and Ponkapoag Bog
(8,350 acres, 1992) Boston, Canton, Dedham, Milton, Norwood, Randolph, Sharon, and Westwood

Golden Hills
(500 acres, 1987) Melrose, Saugus, and Wakefield

Herring River Watershed
(4,450 acres, 1991) Bourne and Plymouth

Hinsdale Flats Watershed
(14,500 acres, 1992) Dalton, Hinsdale, Peru, and Washington

Hockomock Swamp
(16,950 acres, 1990) Bridgewater, Easton, Norton, Raynham, Taunton, and West Bridgewater

Inner Cape Cod Bay
(2,550 acres, 1985) Brewster, Eastham, and Orleans

Kampoosa Bog Drainage Basin
(1,350 acres, 1995) Lee and Stockbridge

Karner Brook Watershed
(7,000 acres, 1992) Egremont and Mount Washington

Miscoe-Warren-Whitehall Watersheds
(8,700 acres, 2000) Grafton, Hopkinton, and Upton

Neponset River Estuary
(1,300 acres, 1995) Boston, Milton, and Quincy

Parker River/Essex Bay
(25,500 acres, 1979) Essex, Gloucester, Ipswich, Newbury, and Rowley

Petapawag
(25,630 acres, 2002) Ayer, Dunstable, Groton, Pepperell, Tyngsborough

Pleasant Bay
(9,050 acres, 1987) Brewster, Chatham, Harwich, and Orleans

Pocasset River
(150 acres, 1980) Bourne

Rumney Marshes
(2,600 acres, 1988) Boston, Lynn, Revere, Saugus, and Winthrop

Sandy Neck/Barnstable Harbor
(8,850 acres, 1978) Barnstable and Sandwich

Schenob Brook Drainage Basin
(13,750 acres, 1990) Mount Washington and Sheffield

Squannassit
(37,450 acres, 2002) Ashby, Ayer, Groton, Harvard, Lancaster, Lunenburg, Pepperell, Shirley, Townsend

Waquoit Bay
(2,550 acres, 1979) Falmouth and Mashpee

Weir River
(950 acres, 1986) Cohasset, Hingham, and Hull

Wellfleet Harbor
(12,350 acres, 1989) Eastham, Truro, and Wellfleet

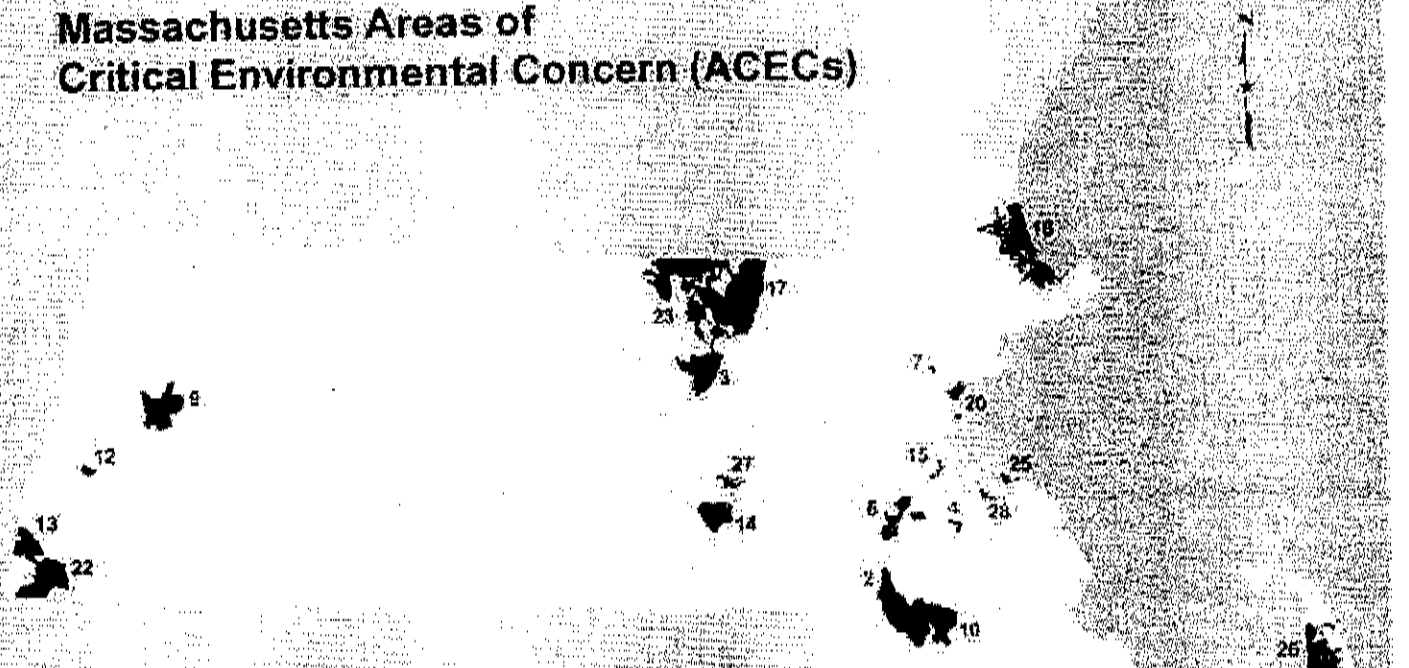
Westborough Cedar Swamp
(1,850 acres, 1975) Hopkinton and Westborough

Weymouth Back River
(950 acres, 1982) Hingham and Weymouth

Towns with ACECs within their Boundaries November 2003

TOWN	ACEC
Ashby	Squannassit
Ayer	Petapawag
	Squannassit
Barnstable	Sandy Neck/Barnstable Harbor
Bolton	Central Nashua River Valley
Boston	Rumney Marshes
	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Bourne	Pocasset River
	Bourne Back River
	Herring River Watershed
Braintree	Cranberry Brook Watershed
Brewster	Pleasant Bay
	Inner Cape Cod Bay
Bridgewater	Hockomock Swamp
Canton	Fowl Meadow and Ponkapoag Bog
Chatham	Pleasant Bay
Cohasset	Weir River
Dalton	Hinsdale Flats Watershed
Dedham	Fowl Meadow and Ponkapoag Bog
Dunstable	Petapawag
Eastham	Inner Cape Cod Bay
	Wellfleet Harbor
Easton	Canoe River Aquifer
	Hockomock Swamp
Egremont	Karner Brook Watershed
Essex	Parker River/Essex Bay
Falmouth	Waquoit Bay
Foxborough	Canoe River Aquifer
Gloucester	Parker River/Essex Bay
Grafton	Miscoe-Warren-Whitehall Watersheds
Groton	Petapawag
	Squannassit
Harvard	Central Nashua River Valley
	Squannassit
Harwich	Pleasant Bay
Hingham	Weir River
	Weymouth Back River
Hinsdale	Hinsdale Flats Watershed
Holbrook	Cranberry Brook Watershed
Hopkinton	Miscoe-Warren-Whitehall Watersheds
	Westborough Cedar Swamp
Hull	Weir River
Ipswich	Parker River/Essex Bay
Lancaster	Central Nashua River Valley
	Squannassit
Lee	Kampoosa Bog Drainage Basin
Leominster	Central Nashua River Valley
Lunenburg	Squannassit
Lynn	Rumney Marshes
Mansfield	Canoe River Aquifer
Mashpee	Waquoit Bay
Melrose	Golden Hills
Milton	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Mt Washington	Karner Brook Watershed
	Schenob Brook
Newbury	Parker River/Essex Bay
Norton	Hockomock Swamp
	Canoe River Aquifer
Norwood	Fowl Meadow and Ponkapoag Bog
Orleans	Inner Cape Cod Bay
	Pleasant Bay
Pepperell	Petapawag
	Squannassit
Peru	Hinsdale Flats Watershed
Plymouth	Herring River Watershed
	Ellisville Harbor
Quincy	Neponset River Estuary
Randolph	Fowl Meadow and Ponkapoag Bog
Raynham	Hockomock Swamp
Revere	Rumney Marshes
Rowley	Parker River/Essex Bay
Sandwich	Sandy Neck/Barnstable Harbor
Saugus	Rumney Marshes
	Golden Hills
Sharon	Canoe River Aquifer
	Fowl Meadow and Ponkapoag Bog
Sheffield	Schenob Brook
Shirley	Squannassit
Stockbridge	Kampoosa Bog Drainage Basin
Taunton	Hockomock Swamp
	Canoe River Aquifer
Truro	Wellfleet Harbor
Townsend	Squannassit
Tyngsborough	Petapawag
Upton	Miscoe-Warren-Whitehall Watersheds
Wakefield	Golden Hills
Washington	Hinsdale Flats Watershed
Wellfleet	Wellfleet Harbor
W Bridgewater	Hockomock Swamp
Westborough	Westborough Cedar Swamp
Westwood	Fowl Meadow and Ponkapoag Bog
Weymouth	Weymouth Back River
Winthrop	Rumney Marshes

Massachusetts Areas of Critical Environmental Concern (ACECs)



1 Bourne Back River
2 Canoe River Aquifer
3 Central Nashua River Valley
4 Cranberry Brook
5 Ellisville Harbor
6 Fowl Meadow, Ponkapoag Bog
7 Golden Hills
8 Herring River Watershed
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23 Squannassit
24 Waquoit Bay
25 Weir River
26 Wellfleet Harbor
27 Westborough Cedar Swamp
28 Weymouth Back River

0 10 20
SCALE IN MILES

DEM GIS
March 2003

ACEC PROGRAM