

ARCADIS



AECOM

Appendix Q

Cost Estimate
Supporting Information

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

GENERAL NOTES AND ASSUMPTIONS

- All costs include equipment, material, and labor, unless otherwise noted.
- Costs do not include fees for legal services, obtaining access, negotiations, or agency oversight.
- Unit costs are in 2010 dollars and are estimated from standard estimating guides (e.g., Means Site Work and Landscape Cost Data, vendors, professional judgment, and experience from other similar projects).
- All items and unit quantities based on GIS interpretation and manipulation performed by ARCADIS from data files provided by Anchor QEA and current site information project understanding.
- Additional guidance in preparing these costs was found in the USACE/EPA publication titled "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study" (August 2000).
- In accordance with the generally acceptable range of uncertainty for feasibility-level cost estimates and in accordance with the above-referenced guidance (USACE/EPA, 2000), the cost estimates presented are anticipated to be within the range of approximately -30% to +50% of the actual costs.
- The information in this cost estimate is based on available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. ARCADIS is not licensed to provide financial or legal consulting services; as such, this cost estimate information is being provided for the purpose of comparing potential remedial alternatives. Utilization of this cost estimate information beyond the stated purpose is at the risk of the user.

Sediment Alternatives

Cost Estimate

Appendix Q

Table 1 - Cost Summary for SED 1

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3.0	Removal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4.0	Backfill/Capping/Restoration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5.0	Transportation and Disposal (Staging/Access)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6.0	Environmental Monitoring	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Project/Construction Management (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Engineering and Administration (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Contingency (25%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	SUBTOTAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL OMM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

- There are no costs associated with this alternative.

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Table 2 - Cost Summary for SED 2

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3.0	Removal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4.0	Backfill/Capping/Restoration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5.0	Transportation and Disposal (Staging and Access)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6.0	Environmental Monitoring	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Project/Construction Management (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Engineering and Administration (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Contingency (25%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	SUBTOTAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$378,950	\$378,950
	TOTAL OMM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,962,750	\$4,962,750
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000,000	\$5,000,000

- The net present value of this alternative is estimated to be \$1,800,000

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Table 3 - Cost Summary for SED 3

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$3,492,089	\$269,527	\$205,858	\$0	\$0	\$409,430	\$0	\$0	\$0	\$0	\$4,376,904
2.0	Mobilization/Site Preparation/Demobilization	\$8,637,022	\$1,926,648	\$1,059,565	\$0	\$0	\$657,430	\$0	\$0	\$0	\$0	\$12,280,664
3.0	Removal	\$45,949,235	\$324,825	\$129,500	\$0	\$0	\$210,000	\$0	\$0	\$0	\$0	\$46,613,560
4.0	Backfill/Capping/Restoration	\$15,994,090	\$3,169,837	\$2,892,136	\$0	\$0	\$7,256,970	\$0	\$0	\$0	\$0	\$29,313,033
5.0	Transportation and Disposal (Staging and Access)	\$7,611,999	\$3,330,919	\$854,398	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,797,316
6.0	Environmental Monitoring	\$2,753,515	\$238,762	\$241,826	\$0	\$0	\$473,630	\$0	\$0	\$0	\$0	\$3,707,734
	Subtotal	\$84,437,950	\$9,260,518	\$5,383,283	\$0	\$0	\$9,007,460	\$0	\$0	\$0	\$0	\$108,089,211
	Project/Construction Management (5%)	\$4,221,898	\$463,026	\$269,164	\$0	\$0	\$450,373	\$0	\$0	\$0	\$0	\$5,404,461
	Engineering and Administration (5%)	\$4,221,898	\$463,026	\$269,164	\$0	\$0	\$450,373	\$0	\$0	\$0	\$0	\$5,404,461
	Contingency (25%)	\$21,109,488	\$2,315,130	\$1,345,821	\$0	\$0	\$2,251,865	\$0	\$0	\$0	\$0	\$27,022,303
	SUBTOTAL	\$113,991,233	\$12,501,700	\$7,267,431	\$0	\$0	\$12,160,071	\$0	\$0	\$0	\$0	\$145,920,435
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$190,000	\$30,000	\$0	\$0	\$15,000	\$0	\$0	\$0	\$508,950	\$1,118,950
	TOTAL O & M	\$1,875,000	\$950,000	\$150,000	\$0	\$0	\$75,000	\$0	\$0	\$0	\$6,392,750	\$9,442,750
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$115,900,000	\$13,500,000	\$7,400,000	\$0	\$0	\$12,200,000	\$0	\$0	\$0	\$6,400,000	\$155,000,000

• The net present value of this alternative is estimated to be \$114,000,000

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Table 4 - Cost Summary for SED 4

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$3,481,431	\$1,323,733	\$669,577	\$337,746	\$53,459	\$930,663	\$0	\$0	\$0	\$0	\$6,796,610
2.0	Mobilization/Site Preparation/Demobilization	\$8,556,648	\$3,538,524	\$2,202,827	\$584,746	\$148,459	\$1,178,663	\$0	\$0	\$0	\$0	\$16,209,867
3.0	Removal	\$45,949,235	\$15,514,676	\$203,000	\$189,000	\$24,500	\$6,747,521	\$0	\$0	\$0	\$0	\$68,627,931
4.0	Backfill/Capping/Restoration	\$15,850,656	\$7,655,778	\$10,908,394	\$5,766,568	\$808,444	\$10,736,419	\$0	\$0	\$0	\$0	\$51,726,259
5.0	Transportation and Disposal (Staging and Access)	\$7,863,435	\$3,776,566	\$3,716,195	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,356,195
6.0	Environmental Monitoring	\$2,753,515	\$1,089,420	\$746,894	\$552,356	\$141,231	\$881,326	\$0	\$0	\$0	\$0	\$6,164,743
	Subtotal	\$84,454,921	\$32,898,697	\$18,446,887	\$7,430,416	\$1,176,093	\$20,474,591	\$0	\$0	\$0	\$0	\$164,881,605
	Project/Construction Management (5%)	\$4,222,746	\$1,644,935	\$922,344	\$371,521	\$58,805	\$1,023,730	\$0	\$0	\$0	\$0	\$8,244,080
	Engineering and Administration (5%)	\$4,222,746	\$1,644,935	\$922,344	\$371,521	\$58,805	\$1,023,730	\$0	\$0	\$0	\$0	\$8,244,080
	Contingency (25%)	\$21,113,730	\$8,224,674	\$4,611,722	\$1,857,604	\$294,023	\$5,118,648	\$0	\$0	\$0	\$0	\$41,220,401
	SUBTOTAL	\$114,014,143	\$44,413,241	\$24,903,297	\$10,031,062	\$1,587,725	\$27,640,698	\$0	\$0	\$0	\$0	\$222,590,166
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$190,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$580,450	\$1,175,450
	TOTAL O & M	\$1,875,000	\$950,000	\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	\$7,023,250	\$9,998,250
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$115,900,000	\$45,400,000	\$25,100,000	\$10,000,000	\$1,600,000	\$27,600,000	\$0	\$0	\$0	\$7,000,000	\$233,000,000

- The net present value of this alternative is estimated to be \$147,000,000

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Table 5 - Cost Summary for SED 5

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$3,491,798	\$2,138,602	\$2,076,375	\$358,907	\$56,202	\$990,373	\$0	\$0	\$307,824	\$0	\$8,449,001
2.0	Mobilization/Site Preparation/Demobilization	\$8,634,991	\$4,602,483	\$3,722,806	\$605,907	\$151,202	\$1,238,373	\$0	\$0	\$838,989	\$0	\$18,823,671
3.0	Removal	\$45,949,235	\$28,283,579	\$5,242,508	\$189,000	\$24,500	\$6,828,021	\$0	\$0	\$143,500	\$0	\$86,660,342
4.0	Backfill/Capping/Restoration	\$15,990,015	\$10,255,625	\$14,179,114	\$6,189,793	\$863,307	\$11,774,674	\$0	\$0	\$5,132,837	\$0	\$64,385,365
5.0	Transportation and Disposal (Staging and Access)	\$7,612,345	\$5,902,006	\$2,925,366	\$0	\$0	\$0	\$0	\$0	\$646,627	\$0	\$17,086,343
6.0	Environmental Monitoring	\$2,753,515	\$1,768,956	\$1,037,833	\$552,356	\$141,231	\$956,771	\$0	\$0	\$348,981	\$0	\$7,559,644
	Subtotal	\$84,431,899	\$52,951,252	\$27,241,839	\$7,895,964	\$1,236,442	\$21,788,212	\$0	\$0	\$7,418,758	\$0	\$202,964,366
	Project/Construction Management (5%)	\$4,221,595	\$2,647,563	\$1,362,092	\$394,798	\$61,822	\$1,089,411	\$0	\$0	\$370,938	\$0	\$10,148,218
	Engineering and Administration (5%)	\$4,221,595	\$2,647,563	\$1,362,092	\$394,798	\$61,822	\$1,089,411	\$0	\$0	\$370,938	\$0	\$10,148,218
	Contingency (25%)	\$21,107,975	\$13,237,813	\$6,810,460	\$1,973,991	\$309,110	\$5,447,053	\$0	\$0	\$1,854,690	\$0	\$50,741,091
	SUBTOTAL	\$113,983,063	\$71,484,190	\$36,776,483	\$10,659,551	\$1,669,196	\$29,414,087	\$0	\$0	\$10,015,324	\$0	\$274,001,894
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$190,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$15,000	\$635,050	\$1,245,050
	TOTAL O & M	\$1,875,000	\$950,000	\$150,000	\$0	\$0	\$0	\$0	\$0	\$75,000	\$7,535,450	\$10,585,450
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$115,900,000	\$72,400,000	\$36,900,000	\$10,700,000	\$1,700,000	\$29,400,000	\$0	\$0	\$10,100,000	\$7,500,000	\$285,000,000

• The net present value of this alternative is estimated to be \$164,000,000

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Table 6 - Cost Summary for SED 6

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$3,490,973	\$2,144,584	\$2,829,148	\$578,941	\$195,763	\$1,042,465	\$0	\$346,756	\$309,107	\$0	\$10,937,737
2.0	Mobilization/Site Preparation/Demobilization	\$8,634,166	\$4,610,446	\$4,679,378	\$825,941	\$290,763	\$1,290,465	\$0	\$1,813,344	\$854,856	\$0	\$22,999,360
3.0	Removal	\$45,932,738	\$28,397,579	\$36,250,493	\$4,118,057	\$1,816,785	\$7,069,400	\$0	\$133,000	\$143,500	\$0	\$123,861,552
4.0	Backfill/Capping/Restoration	\$15,990,015	\$10,259,284	\$17,071,054	\$6,550,657	\$1,785,269	\$12,574,119	\$0	\$4,756,933	\$5,143,905	\$0	\$74,131,238
5.0	Transportation and Disposal (Staging and Access)	\$7,702,945	\$5,864,999	\$4,005,965	\$0	\$0	\$0	\$0	\$1,364,297	\$737,227	\$0	\$19,675,433
6.0	Environmental Monitoring	\$2,753,515	\$1,768,956	\$1,411,185	\$663,107	\$218,208	\$957,779	\$0	\$578,598	\$348,981	\$0	\$8,700,329
	Subtotal	\$84,504,352	\$53,045,848	\$66,247,224	\$12,736,704	\$4,306,789	\$22,934,228	\$0	\$8,992,929	\$7,537,576	\$0	\$260,305,650
	Project/Construction Management (5%)	\$4,225,218	\$2,652,292	\$3,312,500	\$636,850	\$215,500	\$1,146,711	\$0	\$449,646	\$376,879	\$0	\$13,015,597
	Engineering and Administration (5%)	\$4,225,218	\$2,652,292	\$3,312,500	\$636,850	\$215,500	\$1,146,711	\$0	\$449,646	\$376,879	\$0	\$13,015,597
	Contingency (25%)	\$21,126,088	\$13,261,462	\$16,562,500	\$3,184,250	\$1,077,500	\$5,733,557	\$0	\$2,248,232	\$1,884,394	\$0	\$65,077,983
	SUBTOTAL	\$114,080,875	\$71,611,895	\$89,434,724	\$17,194,654	\$5,815,289	\$30,961,207	\$0	\$12,140,454	\$10,175,727	\$0	\$351,414,826
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$190,000	\$30,000	\$0	\$0	\$0	\$0	\$22,000	\$15,000	\$723,450	\$1,355,450
	TOTAL OMM	\$1,875,000	\$950,000	\$150,000	\$0	\$0	\$0	\$0	\$110,000	\$75,000	\$8,414,250	\$11,574,250
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$116,000,000	\$72,600,000	\$89,600,000	\$17,200,000	\$5,800,000	\$31,000,000	\$0	\$12,300,000	\$10,300,000	\$8,400,000	\$363,000,000

- The net present value of this alternative is estimated to be \$191,000,000

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Table 7 - Cost Summary for SED 7

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$4,264,882	\$2,447,775	\$2,831,560	\$673,644	\$203,374	\$1,467,217	\$0	\$635,115	\$375,198	\$0	\$12,898,764
2.0	Mobilization/Site Preparation/Demobilization	\$9,608,030	\$5,049,340	\$4,730,018	\$920,644	\$298,374	\$1,963,217	\$0	\$2,182,491	\$926,728	\$0	\$25,678,841
3.0	Removal	\$56,686,233	\$32,347,838	\$36,250,493	\$5,592,160	\$1,924,356	\$9,547,121	\$0	\$3,648,608	\$865,699	\$0	\$146,862,507
4.0	Backfill/Capping/Restoration	\$19,830,765	\$11,861,533	\$17,071,054	\$6,860,925	\$1,815,923	\$18,014,759	\$0	\$6,526,213	\$5,670,833	\$0	\$87,652,006
5.0	Transportation and Disposal (Staging and Access)	\$8,763,422	\$4,402,518	\$3,862,940	\$0	\$0	\$0	\$0	\$1,595,785	\$612,656	\$0	\$19,237,322
6.0	Environmental Monitoring	\$3,437,493	\$2,144,567	\$1,411,185	\$772,789	\$232,204	\$1,286,462	\$0	\$980,101	\$415,898	\$0	\$10,680,698
	Subtotal	\$102,590,825	\$58,253,572	\$66,157,250	\$14,820,161	\$4,474,230	\$32,278,776	\$0	\$15,568,313	\$8,867,012	\$0	\$303,010,138
	Project/Construction Management (5%)	\$5,129,541	\$2,912,679	\$3,307,862	\$741,008	\$223,712	\$1,613,939	\$0	\$778,416	\$443,351	\$0	\$15,150,507
	Engineering and Administration (5%)	\$5,129,541	\$2,912,679	\$3,307,862	\$741,008	\$223,712	\$1,613,939	\$0	\$778,416	\$443,351	\$0	\$15,150,507
	Contingency (25%)	\$25,647,706	\$14,563,393	\$16,539,312	\$3,705,040	\$1,118,558	\$8,069,694	\$0	\$3,892,078	\$2,216,753	\$0	\$75,752,534
	SUBTOTAL	\$138,497,614	\$78,642,322	\$89,312,287	\$20,007,218	\$6,040,211	\$43,576,347	\$0	\$21,017,222	\$11,970,466	\$0	\$409,063,686
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$190,000	\$30,000	\$0	\$0	\$0	\$0	\$22,000	\$15,000	\$700,050	\$1,332,050
	TOTAL O & M	\$1,875,000	\$950,000	\$150,000	\$0	\$0	\$0	\$0	\$110,000	\$75,000	\$8,250,450	\$11,410,450
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$140,400,000	\$79,600,000	\$89,500,000	\$20,000,000	\$6,000,000	\$43,600,000	\$0	\$21,100,000	\$12,000,000	\$8,300,000	\$420,000,000

• The net present value of this alternative is estimated to be \$191,000,000

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Table 8 - Cost Summary for SED 8

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$5,093,230	\$2,737,167	\$3,367,229	\$2,662,313	\$547,254	\$4,410,018	\$0	\$1,147,345	\$3,427,438	\$0	\$23,391,995
2.0	Mobilization/Site Preparation/Demobilization	\$15,168,048	\$5,422,851	\$5,500,194	\$2,909,313	\$642,254	\$4,906,018	\$0	\$2,870,023	\$4,643,469	\$0	\$42,062,172
3.0	Removal	\$64,554,140	\$36,288,927	\$40,258,111	\$20,636,909	\$5,112,785	\$30,269,452	\$0	\$8,280,494	\$25,934,776	\$0	\$231,335,594
4.0	Backfill/Capping/Restoration	\$23,077,814	\$13,394,679	\$22,980,453	\$29,376,247	\$5,142,267	\$53,529,516	\$0	\$11,092,384	\$38,218,646	\$0	\$196,812,006
5.0	Transportation and Disposal (Staging and Access)	\$9,534,432	\$6,652,942	\$7,417,099	\$0	\$0	\$0	\$0	\$2,242,556	\$3,490,015	\$0	\$29,337,044
6.0	Environmental Monitoring	\$4,157,832	\$2,374,049	\$1,973,049	\$2,986,114	\$595,032	\$3,905,400	\$0	\$1,851,335	\$3,179,313	\$0	\$21,022,125
	Subtotal	\$121,585,495	\$66,870,616	\$81,496,136	\$58,570,897	\$12,039,593	\$97,020,406	\$0	\$27,484,137	\$78,893,657	\$0	\$543,960,936
	Project/Construction Management (5%)	\$6,079,275	\$3,343,531	\$4,074,800	\$2,928,550	\$602,000	\$4,851,020	\$0	\$1,374,207	\$3,944,683	\$0	\$27,198,066
	Engineering and Administration (5%)	\$6,079,275	\$3,343,531	\$4,074,800	\$2,928,550	\$602,000	\$4,851,020	\$0	\$1,374,207	\$3,944,683	\$0	\$27,198,066
	Contingency (25%)	\$30,396,374	\$16,717,654	\$20,374,000	\$14,642,750	\$3,010,000	\$24,255,101	\$0	\$6,871,034	\$19,723,414	\$0	\$135,990,328
	SUBTOTAL	\$164,140,418	\$90,275,332	\$110,019,736	\$79,070,747	\$16,253,593	\$130,977,548	\$0	\$37,103,585	\$106,506,437	\$0	\$734,347,395
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$190,000	\$30,000	\$0	\$0	\$0	\$0	\$22,000	\$15,000	\$616,850	\$1,248,850
	TOTAL O & M	\$1,875,000	\$950,000	\$150,000	\$0	\$0	\$0	\$0	\$110,000	\$75,000	\$7,668,050	\$10,828,050
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$166,000,000	\$91,200,000	\$110,200,000	\$79,100,000	\$16,300,000	\$131,000,000	\$0	\$37,200,000	\$106,600,000	\$7,700,000	\$745,000,000

• The net present value of this alternative is estimated to be \$223,000,000

Appendix Q

Table 9 - Cost Summary for SED 9

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$1,580,721	\$1,737,699	\$2,580,613	\$1,028,873	\$1,302,445	\$0	\$891,069	\$674,827	\$0	\$9,796,248
2.0	Mobilization/Site Preparation/Demobilization	\$7,624,990	\$3,684,212	\$4,358,095	\$1,275,873	\$1,798,445	\$0	\$2,507,596	\$1,431,814	\$0	\$22,681,025
3.0	Removal	\$10,311,468	\$20,747,105	\$34,339,672	\$9,553,740	\$14,488,112	\$0	\$7,057,513	\$5,952,689	\$0	\$102,450,299
4.0	Backfill/Capping/Restoration	\$13,853,269	\$11,035,647	\$14,298,620	\$9,606,699	\$9,902,283	\$0	\$7,840,404	\$6,186,687	\$0	\$72,723,610
5.0	Transportation and Disposal (Staging and Access)	\$15,554,561	\$2,912,329	\$3,914,053	\$0	\$0	\$0	\$1,847,212	\$1,742,923	\$0	\$25,971,078
6.0	Environmental Monitoring	\$1,405,423	\$1,024,712	\$1,196,478	\$1,170,019	\$1,162,506	\$0	\$1,306,945	\$600,182	\$0	\$7,866,264
	Subtotal	\$50,330,433	\$41,141,704	\$60,687,529	\$22,635,204	\$28,653,791	\$0	\$21,450,740	\$16,589,122	\$0	\$241,488,524
	Project/Construction Management (5%)	\$2,516,522	\$2,057,085	\$3,034,376	\$1,131,750	\$1,432,690	\$0	\$1,072,537	\$829,456	\$0	\$12,074,416
	Engineering and Administration (5%)	\$2,516,522	\$2,057,085	\$3,034,376	\$1,131,750	\$1,432,690	\$0	\$1,072,537	\$829,456	\$0	\$12,074,416
	Contingency (25%)	\$12,582,608	\$10,285,426	\$15,171,882	\$5,658,750	\$7,163,448	\$0	\$5,362,685	\$4,147,281	\$0	\$60,372,080
	SUBTOTAL	\$67,946,085	\$55,541,300	\$81,928,164	\$30,557,454	\$38,682,618	\$0	\$28,958,499	\$22,395,315	\$0	\$326,009,436
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$30,000	\$30,000	\$0	\$0	\$0	\$22,000	\$15,000	\$768,950	\$1,240,950
	TOTAL O & M	\$1,875,000	\$150,000	\$150,000	\$0	\$0	\$0	\$110,000	\$75,000	\$8,732,750	\$11,092,750
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$69,800,000	\$55,700,000	\$82,100,000	\$30,600,000	\$38,700,000	\$0	\$29,100,000	\$22,500,000	\$8,700,000	\$337,000,000

• The net present value of this alternative is estimated to be \$214,000,000

Appendix Q

Table 10 - Cost Summary for SED 10

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7 Channel	Reach 7 Impoundments	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5%)	\$1,336,521	\$61,167	\$0	\$0	\$0	\$748,892	\$0	\$0	\$0	\$0	\$2,146,579
2.0	Mobilization/Site Preparation/Demobilization	\$3,622,905	\$497,696	\$0	\$0	\$0	\$1,576,754	\$0	\$0	\$0	\$0	\$5,697,355
3.0	Removal	\$16,660,698	\$37,806	\$0	\$0	\$0	\$13,322,935	\$0	\$0	\$0	\$0	\$30,021,439
4.0	Backfill/Capping/Restoration	\$6,490,382	\$646,373	\$0	\$0	\$0	\$197,263	\$0	\$0	\$0	\$0	\$7,334,019
5.0	Transportation and Disposal (Staging and Access)	\$3,974,148	\$1,340,131	\$0	\$0	\$0	\$1,923,209	\$0	\$0	\$0	\$0	\$7,237,488
6.0	Environmental Monitoring	\$1,292,950	\$102,623	\$0	\$0	\$0	\$629,781	\$0	\$0	\$0	\$0	\$2,025,354
	Subtotal	\$33,377,604	\$2,685,796	\$0	\$0	\$0	\$18,398,834	\$0	\$0	\$0	\$0	\$54,462,233
	Project/Construction Management (5%)	\$1,668,880	\$134,290	\$0	\$0	\$0	\$919,942	\$0	\$0	\$0	\$0	\$2,723,112
	Engineering and Administration (5%)	\$1,668,880	\$134,290	\$0	\$0	\$0	\$919,942	\$0	\$0	\$0	\$0	\$2,723,112
	Contingency (25%)	\$8,344,401	\$671,449	\$0	\$0	\$0	\$4,599,708	\$0	\$0	\$0	\$0	\$13,615,558
	SUBTOTAL	\$45,059,765	\$3,625,825	\$0	\$0	\$0	\$24,838,425	\$0	\$0	\$0	\$0	\$73,524,015
7.0	Annual O & M/Long Term Monitoring Program	\$375,000	\$190,000	\$0	\$0	\$0	\$15,000	\$0	\$0	\$0	\$446,550	\$1,026,550
	TOTAL O & M	\$1,875,000	\$950,000	\$0	\$0	\$0	\$75,000	\$0	\$0	\$0	\$5,825,950	\$8,725,950
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$46,900,000	\$4,600,000	\$0	\$0	\$0	\$24,900,000	\$0	\$0	\$0	\$5,800,000	\$82,200,000

• The net present value of this alternative is estimated to be \$68,000,000

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

SEDIMENT ALTERNATIVE NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 5% allowance for costs related to preparing, performing, and reporting pre-design investigation activities.
2. Mobilization/site preparation/demobilization includes costs related to mobilizing and demobilizing of equipment and personnel to and from the site; material, labor, and equipment costs related to the construction and maintenance of staging areas for the duration of construction; and other construction-related controls, such as water trucks, silt fence, oil booms, and silt curtains, are also included.
3. Removal costs include labor and equipment costs to remove sediment from the designated areas, including costs for debris removal; sheeting installation; dewatering; water treatment; and blending removed material with 5% stabilization agent for mechanical removal in the dry and 10% stabilization agent for mechanical removal in the wet and hydraulic removal.
4. Backfill/capping/restoration costs include material, labor, and equipment costs to place fill material in removal areas, place capping material in capping areas, and perform bank stabilization. Backfilling and engineered capping include placing sand over the surface to within 1 foot of the original grade with up to 1 foot of stone over the sand. Thin-layer capping includes placing 6 inches of sand over the surface. Material placement would be conducted with a shore-based excavator in the dry or a barge-mounted excavator in the wet. Also includes costs for restoring areas disturbed for staging areas and access roads (grading, placement of topsoil, seeding, mulching, and tree/shrub planting) and survey.
5. Transportation and disposal includes costs to transport and dispose of materials generated during the removal of staging areas and access roads after construction is complete. Transportation and disposal of removed sediment/soil is included separately in the treatment/disposition alternatives.
6. Environmental monitoring costs include equipment and labor for environmental and health and safety monitoring for the duration of the project. Air monitoring consists of three monitors operating continuously throughout the duration of construction. Air monitoring parameters include particulates and PCBs. Laboratory analysis would be performed once per month for each monitor. Water monitoring consists of one monthly grab sample for laboratory analytical testing and four continuous turbidity monitors.
7. A 5% allowance is included to provide for project and construction management costs during construction.
8. A 5% allowance is included to provide for engineering design and engineering administration costs during construction.
9. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
10. Annual O & M costs include equipment and labor to inspect and maintain the restored bank and sediment cap areas. Costs are incurred once annually for 5 years starting with the year following the end of construction.
11. Long-term monitoring costs include performing long-term, post-closure monitoring and maintenance activities for 100 years following the completion of construction, including the MNR programs. The MNR program includes visual inspection of remediated areas, and periodic collection of sediment, surface water, and fish samples for laboratory analysis.

Floodplain Alternatives

Cost Estimate

Appendix Q

Table 11 - Cost Summary for FP 1

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$0	\$0	\$0	\$0	\$0	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$0	\$0	\$0	\$0	\$0	\$0
3.0	Removal	\$0	\$0	\$0	\$0	\$0	\$0
4.0	Backfill/Restoration	\$0	\$0	\$0	\$0	\$0	\$0
5.0	Transportation and Disposal (Staging/Access)	\$0	\$0	\$0	\$0	\$0	\$0
6.0	Environmental Monitoring	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$0	\$0	\$0	\$0	\$0	\$0
	Project/Construction Management (5%)	\$0	\$0	\$0	\$0	\$0	\$0
	Engineering and Administration (5%)	\$0	\$0	\$0	\$0	\$0	\$0
	Contingency (25%)	\$0	\$0	\$0	\$0	\$0	\$0
	SUBTOTAL	\$0	\$0	\$0	\$0	\$0	\$0
7.0	Annual O & M	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL OMM	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$0	\$0	\$0	\$0	\$0	\$0

- *There are no costs associated with this alternative.*

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Table 12 - Cost Summary for FP 2

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$385,251	\$61,330	\$32,411	\$10,739	\$83,144	\$572,874
2.0	Mobilization/Site Preparation/Demobilization	\$886,851	\$241,657	\$123,792	\$15,794	\$168,797	\$1,436,891
3.0	Removal	\$1,488,851	\$119,400	\$70,957	\$40,012	\$270,921	\$1,990,141
4.0	Backfill/Restoration	\$1,514,699	\$262,078	\$129,147	\$43,371	\$386,199	\$2,335,494
5.0	Transportation and Disposal (Staging/Access)	\$335,832	\$524,445	\$35,522	\$1,742	\$480,016	\$1,377,557
6.0	Environmental Monitoring	\$154,734	\$20,826	\$16,415	\$13,581	\$47,091	\$252,647
	Subtotal	\$4,766,217	\$1,229,736	\$408,243	\$125,239	\$1,436,168	\$7,965,603
	Project/Construction Management (5%)	\$238,311	\$61,487	\$20,412	\$6,262	\$71,808	\$398,280
	Engineering and Administration (5%)	\$238,311	\$61,487	\$20,412	\$6,262	\$71,808	\$398,280
	Contingency (25%)	\$1,191,554	\$307,434	\$102,061	\$31,310	\$359,042	\$1,991,401
	SUBTOTAL	\$6,434,394	\$1,660,143	\$551,128	\$169,072	\$1,938,827	\$10,753,564
7.0	Annual O & M	\$58,000	\$14,000	\$3,000	\$3,000	\$14,000	\$92,000
	TOTAL O & M	\$290,000	\$70,000	\$15,000	\$15,000	\$70,000	\$460,000
	TOTAL COST OF ALTERNATIVE (Rounded)	\$6,700,000	\$1,700,000	\$600,000	\$200,000	\$2,000,000	\$11,200,000

- *The net present value of this alternative is estimated to be \$10,800,000*

Appendix Q

Table 13 - Cost Summary for FP 3

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$877,828	\$371,699	\$264,494	\$21,965	\$79,124	\$1,615,110
2.0	Mobilization/Site Preparation/Demobilization	\$1,910,353	\$584,061	\$543,223	\$34,704	\$159,526	\$3,231,867
3.0	Removal	\$2,901,625	\$1,330,532	\$909,509	\$78,238	\$259,471	\$5,479,375
4.0	Backfill/Restoration	\$3,991,069	\$1,797,264	\$1,191,708	\$100,610	\$365,895	\$7,717,491
5.0	Transportation and Disposal (Staging/Access)	\$854,146	\$242,177	\$704,841	\$9,945	\$483,116	\$2,294,226
6.0	Environmental Monitoring	\$414,142	\$190,987	\$132,746	\$17,081	\$45,914	\$800,870
	Subtotal	\$10,949,162	\$4,516,720	\$3,746,521	\$262,543	\$1,393,047	\$20,867,993
	Project/Construction Management (5%)	\$547,458	\$225,836	\$187,326	\$13,127	\$69,652	\$1,043,400
	Engineering and Administration (5%)	\$547,458	\$225,836	\$187,326	\$13,127	\$69,652	\$1,043,400
	Contingency (25%)	\$2,737,291	\$1,129,180	\$936,630	\$65,636	\$348,262	\$5,216,998
	SUBTOTAL	\$14,781,369	\$6,097,572	\$5,057,803	\$354,433	\$1,880,613	\$28,171,790
7.0	Annual O & M	\$143,000	\$61,000	\$41,000	\$3,000	\$14,000	\$262,000
	TOTAL O & M	\$715,000	\$305,000	\$205,000	\$15,000	\$70,000	\$1,310,000
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$15,500,000	\$6,400,000	\$5,300,000	\$400,000	\$2,000,000	\$29,500,000

- *The net present value of this alternative is estimated to be \$26,400,000*

Appendix Q

Table 14 - Cost Summary for FP 4

**Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA**

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$1,300,334	\$590,287	\$385,913	\$31,830	\$79,246	\$2,387,610
2.0	Mobilization/Site Preparation/Demobilization	\$1,826,546	\$1,021,832	\$736,988	\$39,751	\$161,760	\$3,786,876
3.0	Removal	\$4,737,265	\$2,064,904	\$1,330,347	\$117,024	\$257,674	\$8,507,213
4.0	Backfill/Restoration	\$6,418,123	\$2,813,362	\$1,793,616	\$156,810	\$366,926	\$11,548,838
5.0	Transportation and Disposal (Staging/Access)	\$1,223,393	\$528,540	\$812,135	\$17,847	\$485,331	\$3,067,246
6.0	Environmental Monitoring	\$671,575	\$297,911	\$191,139	\$20,634	\$45,722	\$1,226,981
	Subtotal	\$16,177,236	\$7,316,836	\$5,250,140	\$383,895	\$1,396,659	\$30,524,766
	Project/Construction Management (5%)	\$808,862	\$365,842	\$262,507	\$19,195	\$69,833	\$1,526,238
	Engineering and Administration (5%)	\$808,862	\$365,842	\$262,507	\$19,195	\$69,833	\$1,526,238
	Contingency (25%)	\$4,044,309	\$1,829,209	\$1,312,535	\$95,974	\$349,165	\$7,631,191
	SUBTOTAL	\$21,839,268	\$9,877,729	\$7,087,688	\$518,258	\$1,885,490	\$41,208,433
7.0	Annual O & M	\$204,000	\$95,000	\$61,000	\$3,000	\$14,000	\$377,000
	TOTAL O & M	\$1,020,000	\$475,000	\$305,000	\$15,000	\$70,000	\$1,885,000
	TOTAL COST OF ALTERNATIVE (Rounded)	\$22,900,000	\$10,400,000	\$7,400,000	\$500,000	\$2,000,000	\$43,100,000

- *The net present value of this alternative is estimated to be \$38,300,000*

Appendix Q

Table 15 - Cost Summary for FP 5

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$959,581	\$415,485	\$663,443	\$47,856	\$74,087	\$2,160,452
2.0	Mobilization/Site Preparation/Demobilization	\$1,714,023	\$768,730	\$1,080,869	\$64,582	\$43,843	\$3,672,047
3.0	Removal	\$3,291,134	\$1,381,938	\$2,331,729	\$174,987	\$301,580	\$7,481,369
4.0	Backfill/Restoration	\$4,600,819	\$2,016,233	\$3,221,215	\$237,006	\$382,218	\$10,457,491
5.0	Transportation and Disposal (Staging/Access)	\$893,125	\$323,330	\$1,431,874	\$133,545	\$60,526	\$2,842,401
6.0	Environmental Monitoring	\$469,621	\$195,687	\$332,341	\$25,917	\$50,272	\$1,073,839
	Subtotal	\$11,928,303	\$5,101,403	\$9,061,472	\$683,893	\$912,527	\$27,687,598
	Project/Construction Management (5%)	\$596,415	\$255,070	\$453,074	\$34,195	\$45,626	\$1,384,380
	Engineering and Administration (5%)	\$596,415	\$255,070	\$453,074	\$34,195	\$45,626	\$1,384,380
	Contingency (25%)	\$2,982,076	\$1,275,351	\$2,265,368	\$170,973	\$228,132	\$6,921,899
	SUBTOTAL	\$16,103,210	\$6,886,894	\$12,232,987	\$923,255	\$1,231,911	\$37,378,257
7.0	Annual O & M	\$143,000	\$65,000	\$95,000	\$7,000	\$10,000	\$320,000
	TOTAL O & M	\$715,000	\$325,000	\$475,000	\$35,000	\$50,000	\$1,600,000
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$16,800,000	\$7,200,000	\$12,700,000	\$1,000,000	\$1,300,000	\$39,000,000

- *The net present value of this alternative is estimated to be \$35,700,000*

Appendix Q

Table 16 - Cost Summary for FP 6

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$2,488,414	\$1,769,068	\$1,551,153	\$210,374	\$78,611	\$6,097,620
2.0	Mobilization/Site Preparation/Demobilization	\$3,442,964	\$2,358,155	\$2,091,325	\$219,991	\$46,106	\$8,158,540
3.0	Removal	\$8,701,789	\$6,619,477	\$5,794,851	\$827,051	\$319,175	\$22,262,344
4.0	Backfill/Restoration	\$12,616,065	\$8,655,319	\$7,573,535	\$1,036,693	\$408,053	\$30,289,665
5.0	Transportation and Disposal (Staging/Access)	\$2,345,373	\$1,618,036	\$2,260,332	\$248,856	\$64,995	\$6,537,591
6.0	Environmental Monitoring	\$1,367,528	\$942,264	\$827,398	\$125,191	\$52,083	\$3,314,463
	Subtotal	\$30,962,134	\$21,962,319	\$20,098,593	\$2,668,156	\$969,021	\$76,660,223
	Project/Construction Management (5%)	\$1,548,107	\$1,098,116	\$1,004,930	\$133,408	\$48,451	\$3,833,011
	Engineering and Administration (5%)	\$1,548,107	\$1,098,116	\$1,004,930	\$133,408	\$48,451	\$3,833,011
	Contingency (25%)	\$7,740,533	\$5,490,580	\$5,024,648	\$667,039	\$242,255	\$19,165,056
	SUBTOTAL	\$41,798,880	\$29,649,131	\$27,133,101	\$3,602,010	\$1,308,179	\$103,491,301
7.0	Annual O & M	\$340,000	\$228,000	\$194,000	\$24,000	\$10,000	\$796,000
	TOTAL O & M	\$1,700,000	\$1,140,000	\$970,000	\$120,000	\$30,000	\$3,960,000
	TOTAL COST OF ALTERNATIVE (Rounded)	\$43,500,000	\$30,800,000	\$28,100,000	\$3,700,000	\$1,300,000	\$107,000,000

- *The net present value of this alternative is estimated to be \$71,700,000*

Appendix Q

Table 17 - Cost Summary for FP 7

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$4,265,719	\$2,243,241	\$2,073,464	\$157,923	\$2,339,924	\$11,080,270
2.0	Mobilization/Site Preparation/Demobilization	\$5,190,277	\$2,822,837	\$2,700,057	\$121,118	\$2,460,900	\$13,295,189
3.0	Removal	\$16,394,685	\$8,546,057	\$8,102,480	\$641,379	\$8,812,774	\$42,497,375
4.0	Backfill/Restoration	\$20,881,167	\$10,967,308	\$9,821,100	\$797,317	\$11,906,973	\$54,373,865
5.0	Transportation and Disposal (Staging/Access)	\$3,835,014	\$2,031,794	\$1,979,765	\$104,847	\$3,482,463	\$11,433,883
6.0	Environmental Monitoring	\$2,323,918	\$1,217,826	\$1,147,735	\$98,375	\$1,388,551	\$6,176,406
	Subtotal	\$52,890,780	\$27,829,063	\$25,824,601	\$1,920,960	\$30,391,585	\$138,856,989
	Project/Construction Management (5%)	\$2,644,539	\$1,391,453	\$1,291,230	\$96,048	\$1,519,579	\$6,942,849
	Engineering and Administration (5%)	\$2,644,539	\$1,391,453	\$1,291,230	\$96,048	\$1,519,579	\$6,942,849
	Contingency (25%)	\$13,222,695	\$6,957,266	\$6,456,150	\$480,240	\$7,597,896	\$34,714,247
	SUBTOTAL	\$71,402,553	\$37,569,235	\$34,863,211	\$2,593,296	\$41,028,640	\$187,456,935
7.0	Annual O & M	\$558,000	\$282,000	\$224,000	\$20,000	\$364,000	\$1,448,000
	TOTAL O & M	\$2,790,000	\$1,410,000	\$1,120,000	\$100,000	\$1,820,000	\$7,240,000
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$74,200,000	\$39,000,000	\$36,000,000	\$2,700,000	\$42,800,000	\$195,000,000

- *The net present value of this alternative is estimated to be \$97,100,000*

Appendix Q

Table 18 - Cost Summary for FP 8

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$1,687,854	\$793,446	\$864,015	\$29,879	\$153,843	\$3,529,037
2.0	Mobilization/Site Preparation/Demobilization	\$2,736,820	\$1,253,980	\$1,289,696	\$53,709	\$241,037	\$5,575,241
3.0	Removal	\$6,063,205	\$2,845,345	\$3,165,344	\$101,053	\$526,237	\$12,701,185
4.0	Backfill/Restoration	\$8,060,309	\$3,823,023	\$4,168,948	\$139,800	\$765,037	\$16,957,118
5.0	Transportation and Disposal (Staging/Access)	\$1,584,284	\$695,684	\$968,120	\$14,609	\$708,940	\$3,971,638
6.0	Environmental Monitoring	\$862,137	\$408,836	\$448,165	\$19,163	\$83,043	\$1,821,344
	Subtotal	\$20,994,611	\$9,820,314	\$10,904,287	\$358,212	\$2,478,138	\$44,555,563
	Project/Construction Management (5%)	\$1,049,731	\$491,016	\$545,214	\$17,911	\$123,907	\$2,227,778
	Engineering and Administration (5%)	\$1,049,731	\$491,016	\$545,214	\$17,911	\$123,907	\$2,227,778
	Contingency (25%)	\$5,248,653	\$2,455,078	\$2,726,072	\$89,553	\$619,535	\$11,138,891
	SUBTOTAL	\$28,342,724	\$13,257,424	\$14,720,788	\$483,587	\$3,345,487	\$60,150,010
7.0	Annual O & M	\$248,000	\$116,000	\$119,000	\$3,000	\$27,000	\$513,000
	TOTAL O & M	\$1,240,000	\$580,000	\$595,000	\$15,000	\$135,000	\$2,565,000
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$29,600,000	\$13,800,000	\$15,300,000	\$500,000	\$3,500,000	\$62,700,000

• *The net present value of this alternative is estimated to be \$41,700,000*

Appendix Q

Table 19 - Cost Summary for FP 9

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 6	Reach 7	Total
1.0	Pre-Design Investigation (10%)	\$402,387	\$105,022	\$62,470	\$12,539	\$85,534	\$667,952
2.0	Mobilization/Site Preparation/Demobilization	\$961,253	\$280,799	\$276,906	\$23,551	\$185,745	\$1,728,256
3.0	Removal	\$1,528,337	\$299,966	\$116,528	\$43,347	\$269,453	\$2,257,630
4.0	Backfill/Restoration	\$1,578,391	\$474,679	\$241,919	\$50,866	\$395,958	\$2,741,812
5.0	Transportation and Disposal (Staging/Access)	\$373,502	\$301,840	\$191,193	\$2,769	\$595,396	\$1,464,700
6.0	Environmental Monitoring	\$157,080	\$47,285	\$20,586	\$13,895	\$46,956	\$285,802
	Subtotal	\$5,000,950	\$1,509,591	\$909,603	\$146,967	\$1,579,043	\$9,146,153
	Project/Construction Management (5%)	\$250,047	\$75,480	\$45,480	\$7,348	\$78,952	\$457,308
	Engineering and Administration (5%)	\$250,047	\$75,480	\$45,480	\$7,348	\$78,952	\$457,308
	Contingency (25%)	\$1,250,237	\$377,398	\$227,401	\$36,742	\$394,761	\$2,286,538
	SUBTOTAL	\$6,751,282	\$2,037,948	\$1,227,964	\$198,405	\$2,131,708	\$12,347,306
7.0	Annual O & M	\$65,000	\$20,000	\$14,000	\$3,000	\$17,000	\$119,000
	TOTAL O & M	\$325,000	\$100,000	\$70,000	\$15,000	\$85,000	\$595,000
	TOTAL COST OF ALTERNATIVE (Rounded)	\$7,100,000	\$2,100,000	\$1,300,000	\$200,000	\$2,200,000	\$12,900,000

- *The net present value of this alternative is estimated to be \$12,500,000*

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

FLOODPLAIN ALTERNATIVE NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 10% allowance for costs related to preparing, performing, and reporting pre-design investigation activities.
2. Mobilization/site preparation/demobilization includes costs related to mobilizing and demobilizing of equipment and personnel to and from the site; material, labor, and equipment costs related to the construction and maintenance of staging areas for the duration of construction; and other construction-related controls, such as water trucks and silt fence.
3. Removal costs include labor and equipment costs to remove soil from the designated areas. Assumes saturated soils would be gravity dewatered in the staging areas and no additional blending or dewatering costs are necessary. Includes costs for water treatment, as appropriate.
4. Backfill/restoration costs include material, labor, and equipment costs to place fill and topsoil in removal areas. Assumes fill would be placed to within 6 inches of the original grade with 6 inches of topsoil over the fill. Also includes costs for restoring disturbed areas (grading, placement of topsoil, seeding, mulching, and tree/shrub planting) and survey (two full-time onsite surveyors plus office support for the duration of construction).
5. Transportation and disposal includes costs to transport and dispose of materials associated with staging areas and access roads once construction is complete. Transportation and disposal of removed soil is included separately in the treatment/disposition alternatives.
6. Environmental monitoring costs include equipment and labor for environmental and health and safety monitoring for the duration of the project. Air monitoring consists of three monitors operating continuously through the duration of construction. Air monitoring parameters include particulates and PCBs. Laboratory analysis would be performed once per month for each monitor.
7. A 5% allowance is included to provide for project and construction management costs during construction.
8. A 5% allowance is included to provide for engineering design and engineering administration costs during construction.
9. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
10. Annual O & M costs include equipment and labor to inspect and maintain the restored areas. Costs are incurred once annually for 5 years starting with the year following the end of construction.

ARCADIS

**Combined Sediment and
Floodplain Alternatives**

Cost Estimate

Appendix Q

Table 20 - Cost Summary for SED 2/FP 1

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5% for SED 2; 10% for FP 1)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3.0	Removal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4.0	Backfill/Capping/Restoration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5.0	Transportation and Disposal (Staging and Access)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6.0	Environmental Monitoring	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Project/Construction Management (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Engineering and Administration (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Contingency (25%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	SUBTOTAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$378,950	\$378,950
	TOTAL O & M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,962,750	\$4,962,750
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000,000	\$5,000,000

- The net present value of this alternative is estimated to be \$1,800,000

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Table 21 - Cost Summary for SED 3/FP 3

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5% for SED 3; 10% for FP 3)	\$4,142,971	\$569,282	\$430,956	\$0	\$0	\$439,161	\$85,091	\$0	\$0	\$5,051,164
2.0	Mobilization/Site Preparation/Demobilization	\$9,253,342	\$2,296,340	\$1,654,591	\$0	\$0	\$678,146	\$239,807	\$0	\$0	\$14,122,226
3.0	Removal	\$48,376,994	\$1,437,716	\$892,151	\$0	\$0	\$279,311	\$241,886	\$0	\$0	\$51,228,058
4.0	Backfill/Capping/Restoration	\$19,419,978	\$4,804,636	\$4,040,212	\$0	\$0	\$7,584,890	\$365,847	\$0	\$0	\$36,215,563
5.0	Transportation and Disposal (Staging and Access)	\$7,770,371	\$1,968,608	\$1,909,295	\$0	\$0	\$0	\$482,681	\$0	\$0	\$12,130,955
6.0	Environmental Monitoring	\$3,167,658	\$429,749	\$374,572	\$0	\$0	\$490,711	\$45,914	\$0	\$0	\$4,508,604
	Subtotal	\$92,131,314	\$11,506,331	\$9,301,778	\$0	\$0	\$9,472,218	\$1,461,226	\$0	\$0	\$123,256,569
	Project/Construction Management (5%)	\$4,606,566	\$575,317	\$465,089	\$0	\$0	\$473,611	\$73,061	\$0	\$0	\$6,162,828
	Engineering and Administration (5%)	\$4,606,566	\$575,317	\$465,089	\$0	\$0	\$473,611	\$73,061	\$0	\$0	\$6,162,828
	Contingency (25%)	\$23,032,829	\$2,876,583	\$2,325,444	\$0	\$0	\$2,368,055	\$365,306	\$0	\$0	\$30,814,142
	SUBTOTAL	\$124,377,274	\$15,533,547	\$12,557,400	\$0	\$0	\$12,787,494	\$1,972,654	\$0	\$0	\$166,396,368
7.0	Annual O & M/Long Term Monitoring Program	\$460,000	\$224,000	\$54,000	\$0	\$0	\$18,000	\$14,000	\$0	\$508,950	\$1,278,950
	TOTAL O & M	\$2,300,000	\$1,120,000	\$270,000	\$0	\$0	\$90,000	\$70,000	\$0	\$6,392,750	\$10,242,750
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$126,700,000	\$16,700,000	\$12,800,000	\$0	\$0	\$12,900,000	\$2,000,000	\$0	\$6,400,000	\$177,000,000

- The net present value of this alternative is estimated to be \$133,000,000

Appendix Q

Table 22 - Cost Summary for SED 5/FP 4

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5% for SED 5; 10% for FP 4)	\$4,525,503	\$2,617,858	\$1,440,930	\$358,907	\$56,202	\$1,017,505	\$85,286	\$307,824	\$0	\$9,451,312
2.0	Mobilization/Site Preparation/Demobilization	\$9,090,166	\$5,257,996	\$3,641,758	\$605,907	\$151,202	\$1,251,939	\$242,652	\$838,989	\$0	\$21,080,611
3.0	Removal	\$49,912,193	\$30,012,981	\$6,356,696	\$189,000	\$24,500	\$6,928,583	\$240,256	\$143,500	\$0	\$93,807,709
4.0	Backfill/Capping/Restoration	\$21,673,331	\$12,743,028	\$15,908,641	\$6,189,793	\$863,307	\$11,924,794	\$366,876	\$5,132,837	\$0	\$74,802,606
5.0	Transportation and Disposal (Staging and Access)	\$7,747,163	\$5,452,447	\$4,599,275	\$0	\$0	\$0	\$484,879	\$646,627	\$0	\$18,930,390
6.0	Environmental Monitoring	\$3,425,090	\$2,066,867	\$1,228,972	\$552,356	\$141,231	\$977,405	\$45,722	\$348,981	\$0	\$8,786,625
	Subtotal	\$96,373,446	\$58,151,177	\$33,176,271	\$7,895,964	\$1,236,442	\$22,100,226	\$1,465,671	\$7,418,758	\$0	\$227,817,956
	Project/Construction Management (5%)	\$4,818,672	\$2,907,559	\$1,658,814	\$394,798	\$61,822	\$1,105,011	\$73,284	\$370,938	\$0	\$11,390,898
	Engineering and Administration (5%)	\$4,818,672	\$2,907,559	\$1,658,814	\$394,798	\$61,822	\$1,105,011	\$73,284	\$370,938	\$0	\$11,390,898
	Contingency (25%)	\$24,093,361	\$14,537,794	\$8,294,068	\$1,973,991	\$309,110	\$5,525,057	\$366,418	\$1,854,690	\$0	\$56,954,489
	SUBTOTAL	\$130,104,152	\$78,504,089	\$44,787,966	\$10,659,551	\$1,669,196	\$29,835,306	\$1,978,656	\$10,015,324	\$0	\$307,554,240
7.0	Annual O & M/Long Term Monitoring Program	\$518,000	\$248,000	\$67,000	\$0	\$0	\$3,000	\$14,000	\$15,000	\$635,050	\$1,500,050
	TOTAL O & M	\$2,590,000	\$1,240,000	\$335,000	\$0	\$0	\$15,000	\$70,000	\$75,000	\$7,535,450	\$11,860,450
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$132,700,000	\$79,700,000	\$45,100,000	\$10,700,000	\$1,700,000	\$29,900,000	\$2,000,000	\$10,100,000	\$7,500,000	\$319,000,000

- The net present value of this alternative is estimated to be \$193,000,000

Appendix Q

Table 23 - Cost Summary for SED 6/FP 4

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5% for SED 6; 10% for FP 4)	\$4,524,678	\$2,623,921	\$3,181,946	\$578,941	\$195,763	\$1,069,597	\$411,002	\$309,107	\$0	\$12,894,954
2.0	Mobilization/Site Preparation/Demobilization	\$9,089,341	\$5,266,985	\$5,894,071	\$825,941	\$290,763	\$1,304,031	\$1,901,928	\$854,856	\$0	\$25,427,917
3.0	Removal	\$49,895,696	\$30,126,981	\$37,364,681	\$4,118,057	\$1,816,785	\$7,169,963	\$373,256	\$143,500	\$0	\$131,008,919
4.0	Backfill/Capping/Restoration	\$21,673,331	\$12,747,371	\$18,836,325	\$6,550,657	\$1,785,269	\$12,724,239	\$5,098,099	\$5,143,905	\$0	\$84,559,195
5.0	Transportation and Disposal (Staging and Access)	\$7,747,163	\$5,324,689	\$5,855,615	\$0	\$0	\$0	\$1,519,823	\$646,627	\$0	\$21,093,916
6.0	Environmental Monitoring	\$3,425,090	\$2,066,867	\$1,602,324	\$663,107	\$218,208	\$978,412	\$624,320	\$348,981	\$0	\$9,927,310
	Subtotal	\$96,355,299	\$58,156,814	\$72,734,961	\$12,736,704	\$4,306,789	\$23,246,242	\$9,928,428	\$7,446,976	\$0	\$284,912,212
	Project/Construction Management (5%)	\$4,817,765	\$2,907,841	\$3,636,748	\$636,835	\$215,339	\$1,162,312	\$496,421	\$372,349	\$0	\$14,245,611
	Engineering and Administration (5%)	\$4,817,765	\$2,907,841	\$3,636,748	\$636,835	\$215,339	\$1,162,312	\$496,421	\$372,349	\$0	\$14,245,611
	Contingency (25%)	\$24,088,825	\$14,539,203	\$18,183,740	\$3,184,176	\$1,076,697	\$5,811,560	\$2,482,107	\$1,861,744	\$0	\$71,228,053
	SUBTOTAL	\$130,079,654	\$78,511,699	\$98,192,197	\$17,194,551	\$5,814,165	\$31,382,426	\$13,403,377	\$10,053,417	\$0	\$384,631,486
7.0	Annual O & M/Long Term Monitoring Program	\$518,000	\$248,000	\$67,000	\$0	\$0	\$3,000	\$32,000	\$15,000	\$723,450	\$1,606,450
	TOTAL OMM	\$2,590,000	\$1,240,000	\$335,000	\$0	\$0	\$15,000	\$160,000	\$75,000	\$8,414,250	\$12,829,250
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$132,700,000	\$79,800,000	\$98,500,000	\$17,200,000	\$5,800,000	\$31,400,000	\$13,600,000	\$10,100,000	\$8,400,000	\$397,000,000

• The net present value of this alternative is estimated to be \$219,000,000

Appendix Q
Table 24 - Cost Summary for SED 8/FP 7

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Large Backwaters	Reach 5 Small Backwaters	Reach 6 - Woods Pond	Reach 7	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5% for SED 8; 10% for FP 7)	\$8,687,095	\$4,681,282	\$5,014,734	\$2,662,313	\$547,254	\$4,553,052	\$3,434,998	\$3,416,809	\$0	\$32,997,539
2.0	Mobilization/Site Preparation/Demobilization	\$15,376,998	\$7,033,057	\$9,312,530	\$2,909,313	\$642,254	\$4,977,535	\$6,615,726	\$4,632,839	\$0	\$51,500,253
3.0	Removal	\$78,271,677	\$43,436,469	\$45,958,554	\$20,636,909	\$5,112,785	\$30,810,774	\$17,193,732	\$25,934,776	\$0	\$267,355,676
4.0	Backfill/Capping/Restoration	\$42,679,570	\$23,576,297	\$31,155,435	\$29,376,247	\$5,142,267	\$54,320,159	\$22,958,651	\$38,006,051	\$0	\$247,214,675
5.0	Transportation and Disposal (Staging and Access)	\$9,692,805	\$6,286,068	\$13,244,977	\$0	\$0	\$0	\$7,664,167	\$3,490,015	\$0	\$40,378,031
6.0	Environmental Monitoring	\$6,481,750	\$3,591,876	\$2,943,461	\$2,986,114	\$595,032	\$4,003,776	\$3,239,886	\$3,179,313	\$0	\$27,021,208
	Subtotal	\$161,189,895	\$88,605,049	\$107,629,691	\$58,570,897	\$12,039,593	\$98,665,297	\$61,107,160	\$78,659,802	\$0	\$666,467,383
	Project/Construction Management (5%)	\$8,059,495	\$4,430,252	\$5,381,485	\$2,928,545	\$601,980	\$4,933,265	\$3,055,358	\$3,932,990	\$0	\$33,323,369
	Engineering and Administration (5%)	\$8,059,495	\$4,430,252	\$5,381,485	\$2,928,545	\$601,980	\$4,933,265	\$3,055,358	\$3,932,990	\$0	\$33,323,369
	Contingency (25%)	\$40,297,474	\$22,151,262	\$26,907,423	\$14,642,724	\$3,009,898	\$24,666,324	\$15,276,790	\$19,664,951	\$0	\$166,616,846
	SUBTOTAL	\$217,606,358	\$119,616,816	\$145,300,083	\$79,070,710	\$16,253,450	\$133,198,150	\$82,494,667	\$106,190,733	\$0	\$899,730,967
7.0	Annual O & M/Long Term Monitoring Program	\$875,000	\$431,000	\$193,000	\$0	\$0	\$20,000	\$342,000	\$15,000	\$616,850	\$2,492,850
	TOTAL O & M	\$4,375,000	\$2,155,000	\$965,000	\$0	\$0	\$100,000	\$1,710,000	\$75,000	\$7,668,050	\$17,048,050
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$222,000,000	\$121,800,000	\$146,300,000	\$79,100,000	\$16,300,000	\$133,300,000	\$84,200,000	\$106,300,000	\$7,700,000	\$917,000,000

• The net present value of this alternative is estimated to be \$300,000,000

Appendix Q

Table 25 - Cost Summary for SED 9/FP 8

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Backwaters	Reach 6 - Woods Pond	Reach 7	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5% for SED 9; 10% for FP 8)	\$2,991,840	\$2,449,659	\$3,370,777	\$1,028,873	\$1,326,497	\$1,023,544	\$674,827	\$0	\$12,866,017
2.0	Mobilization/Site Preparation/Demobilization	\$9,144,679	\$5,372,180	\$6,169,882	\$1,275,873	\$1,817,672	\$2,661,304	\$1,431,814	\$0	\$27,873,404
3.0	Removal	\$15,383,504	\$23,128,084	\$36,985,595	\$9,553,740	\$14,575,750	\$7,545,014	\$5,952,689	\$0	\$113,124,375
4.0	Backfill/Capping/Restoration	\$21,561,222	\$14,734,499	\$18,438,801	\$9,606,699	\$10,028,805	\$8,567,614	\$6,186,687	\$0	\$89,124,327
5.0	Transportation and Disposal (Staging and Access)	\$14,887,892	\$3,741,105	\$6,834,384	\$0	\$0	\$2,219,763	\$1,742,923	\$0	\$29,426,067
6.0	Environmental Monitoring	\$2,267,560	\$1,433,548	\$1,644,643	\$1,170,019	\$1,181,669	\$1,389,988	\$600,182	\$0	\$9,687,609
	Subtotal	\$66,236,697	\$50,859,075	\$73,444,081	\$22,635,204	\$28,930,392	\$23,407,226	\$16,589,122	\$0	\$282,101,798
	Project/Construction Management (5%)	\$3,311,835	\$2,542,954	\$3,672,204	\$1,131,760	\$1,446,520	\$1,170,361	\$829,456	\$0	\$14,105,090
	Engineering and Administration (5%)	\$3,311,835	\$2,542,954	\$3,672,204	\$1,131,760	\$1,446,520	\$1,170,361	\$829,456	\$0	\$14,105,090
	Contingency (25%)	\$16,559,174	\$12,714,769	\$18,361,020	\$5,658,801	\$7,232,598	\$5,851,807	\$4,147,281	\$0	\$70,525,449
	SUBTOTAL	\$89,419,540	\$68,659,752	\$99,149,509	\$30,557,526	\$39,056,030	\$31,599,756	\$22,395,315	\$0	\$380,837,427
7.0	Annual O & M/Long Term Monitoring Program	\$552,000	\$108,000	\$122,000	\$0	\$3,000	\$42,000	\$15,000	\$768,950	\$1,610,950
	TOTAL O & M	\$2,760,000	\$540,000	\$610,000	\$0	\$15,000	\$210,000	\$75,000	\$8,732,750	\$12,942,750
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$92,200,000	\$69,200,000	\$99,800,000	\$30,600,000	\$39,100,000	\$31,800,000	\$22,500,000	\$8,700,000	\$394,000,000

- The net present value of this alternative is estimated to be \$251,000,000

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Table 26 - Cost Summary for SED 10/FP 9

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Reach 5A	Reach 5B	Reach 5C	Reach 5 Backwaters	Reach 6 - Woods Pond	Reach 7	Reach 8 - Rising Pond	Long Term Monitoring	Total
1.0	Pre-Design Investigation (5% for SED 10; 10% for FP 9)	\$1,637,627	\$137,818	\$147,807	\$0	\$723,675	\$100,232	\$0	\$0	\$2,747,159
2.0	Mobilization/Site Preparation/Demobilization	\$4,045,402	\$659,805	\$1,071,057	\$0	\$966,605	\$345,254	\$0	\$0	\$7,088,124
3.0	Removal	\$18,019,380	\$291,768	\$100,158	\$0	\$13,364,118	\$250,959	\$0	\$0	\$32,026,383
4.0	Backfill/Capping/Restoration	\$7,870,173	\$1,092,034	\$360,169	\$0	\$116,316	\$409,270	\$0	\$0	\$9,847,961
5.0	Transportation and Disposal (Staging and Access)	\$3,782,335	\$876,021	\$1,688,904	\$0	\$792,456	\$705,032	\$0	\$0	\$7,844,748
6.0	Environmental Monitoring	\$1,450,030	\$149,908	\$20,586	\$0	\$643,676	\$46,956	\$0	\$0	\$2,311,156
	Subtotal	\$36,804,947	\$3,207,354	\$3,388,681	\$0	\$16,606,847	\$1,857,704	\$0	\$0	\$61,865,532
	Project/Construction Management (5%)	\$1,840,247	\$160,368	\$169,434	\$0	\$830,342	\$92,885	\$0	\$0	\$3,093,277
	Engineering and Administration (5%)	\$1,840,247	\$160,368	\$169,434	\$0	\$830,342	\$92,885	\$0	\$0	\$3,093,277
	Contingency (25%)	\$9,201,237	\$801,838	\$847,170	\$0	\$4,151,712	\$464,426	\$0	\$0	\$15,466,383
	SUBTOTAL	\$49,686,678	\$4,329,927	\$4,574,719	\$0	\$22,419,243	\$2,507,900	\$0	\$0	\$83,518,468
7.0	Annual O & M/Long Term Monitoring Program	\$409,000	\$382,000	\$3,000	\$0	\$18,000	\$17,000	\$0	\$446,550	\$1,275,550
	TOTAL O & M	\$2,045,000	\$1,910,000	\$15,000	\$0	\$90,000	\$85,000	\$0	\$5,825,950	\$9,970,950
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$51,700,000	\$6,200,000	\$4,600,000	\$0	\$22,500,000	\$2,600,000	\$0	\$5,800,000	\$93,500,000

- The net present value of this alternative is estimated to be \$78,000,000

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

COMBINED SEDIMENT AND FLOODPLAIN ALTERNATIVE NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 5% allowance for costs related to preparing, performing, and reporting pre-design investigation activities for sediment components of the alternative, and a 10% allowance for costs related to preparing, performing, and reporting pre-design investigation activities for floodplain components of the alternative.
2. Mobilization/site preparation/demobilization includes costs related to mobilizing and demobilizing of equipment and personnel to and from the site; material, labor, and equipment costs related to the construction and maintenance of staging areas for the duration of construction; and other construction-related controls, such as water trucks, silt fence, oil booms, and silt curtains, are also included.
3. Removal costs include labor and equipment costs to remove sediment and soil from the designated areas, including costs for debris removal; sheeting installation; dewatering; water treatment; and blending removed sediment material with 5% stabilization agent for mechanical sediment removal in the dry and 10% stabilization agent for sediment removal in the wet (i.e., both mechanical and hydraulic removal). Assumes saturated soils would be gravity dewatered in the staging areas and no additional blending or dewatering costs are necessary for removed soils.
4. Backfill/capping/restoration costs include material, labor, and equipment costs to place fill material and topsoil in soil removal areas, place capping material in capping areas, and perform bank stabilization. Backfilling and engineered capping include placing sand over the surface to within 1 foot of the original grade with up to 1 foot of stone over the sand. Thin-layer capping includes placing 6 inches of sand over the surface. Material placement would be conducted with a shore-based excavator in the dry or a barge-mounted excavator in the wet. Assumes fill in floodplain areas would be placed to within 6 inches of the original grade with 6 inches of topsoil over the fill. Also includes costs for restoring areas disturbed for staging areas and access roads (grading, placement of topsoil, seeding, mulching, and tree/shrub planting) and survey.
5. Transportation and disposal includes costs to transport and dispose of materials associated with staging areas and access roads after construction is complete. Transportation and disposal of removed sediment/soil is included separately in the treatment/disposition alternatives.
6. Environmental monitoring costs include equipment and labor for environmental and health and safety monitoring for the duration of the project. Air monitoring consists of three monitors operating continuously throughout the duration of construction. Air monitoring parameters include particulates and PCBs. Laboratory analysis would be performed once per month for each monitor. Water monitoring consists of one monthly grab sample for laboratory analytical testing and four continuous turbidity monitors.
7. A 5% allowance is included to provide for project and construction management costs during construction.
8. A 5% allowance is included to provide for engineering design and engineering administration costs during construction.
9. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
10. Annual O & M costs include equipment and labor to inspect and maintain the restored areas (including restored bank and sediment cap areas). Costs are incurred once annually for 5 years starting with the year following the end of construction.
11. Long-term monitoring costs include performing long-term, post-closure monitoring and maintenance activities for 100 years following the completion of construction, including the MNR programs. The MNR program includes visual inspection of remediated areas, and periodic collection of sediment, surface water, and fish samples for laboratory analysis.

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**Treatment /Disposition
Alternatives**

Cost Estimate

Appendix Q
Table 27 - Cost Summary for TD 1

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Minimum (SED3 & FP2)	Maximum (SED8 & FP7)
1.0	Off-Site Transport and Disposal	\$40,480,191	\$616,200,875
	Subtotal	\$40,480,191	\$616,200,875
	Project/Construction Management (5%)	\$2,024,010	\$30,810,044
	Engineering and Administration (5%)	\$2,024,010	\$30,810,044
	Contingency (25%)	\$10,120,048	\$154,050,219
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$55,000,000	\$832,000,000

- *The net present value of these alternatives are estimated to be \$40,000,000 and, \$220,000,000, respectively.*

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

TD 1 NOTES AND ASSUMPTIONS

1. Includes costs to transport and dispose of TSCA materials at a licensed facility in Model City, New York. Includes costs to transport and dispose of non-TSCA materials at a licensed facility in High Acres, New York.
2. A 5% allowance is included to provide for project and construction management costs during construction.
3. A 5% allowance is included to provide for engineering and administration costs during construction.
4. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.

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Table 28 - Cost Summary for TD 2

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Minimum (SED 6 & FP 2)	Maximum (SED 8 & FP 7)
1.0	Pre-Design Investigation (5%)	\$218,816	\$692,115
2.0	Mobilization/Demobilization (5%)	\$218,816	\$692,115
3.0	CDF Construction	\$4,376,329	\$13,842,296
	Subtotal	\$4,813,962	\$15,226,525
	Project/Construction Management (5%)	\$240,698	\$761,326
	Engineering and Administration (5%)	\$240,698	\$761,326
	Contingency (25%)	\$1,203,491	\$3,806,631
	SUBTOTAL	\$6,498,849	\$20,555,809
4.0	Annual Operations	\$1,224,410	\$1,222,562
	Total Operations	\$6,767,536	\$24,816,353
5.0	Annual O & M	\$202,400	\$402,400
	Total O & M	\$11,660,000	\$19,780,000
6.0	Total Transportation and Disposal	\$75,253,961	\$445,112,238
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$100,000,000	\$510,000,000

- *The net present value of these alternatives are estimated to be \$46,000,000 and \$131,000,000, respectively.*

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

TD 2 NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 5% allowance for costs related to preparing, performing, and summarizing pre-design investigation activities for the CDF.
2. Mobilization/demobilization includes a 5% allowance for costs related to mobilizing and demobilizing equipment and personnel to and from the site.
3. CDF construction costs include equipment, labor, and material costs to construct CDF and support facilities in selected Reach 5 Backwaters and/or Reach 6 (Woods Pond). Includes costs to construct a final cover for the facility.
4. A 5% allowance is included to provide for project and construction management costs during construction.
5. A 5% allowance is included to provide for engineering and administration costs during construction.
6. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
7. Daily operation costs include equipment and labor for daily tasks during the facility's operation. Tasks include material placement and environmental and health and safety monitoring for the duration of the project. Monitored parameters include, but are not limited to, particulates and PCBs.
8. Annual O & M costs include equipment and labor to inspect and maintain the facility following construction. Includes a part-time care taker. Costs are incurred once annually for 100 years starting with the year following the end of construction.
9. Transportation and disposal costs include costs to transport and dispose of removed materials that are not placed in the CDF at an appropriately-licensed off-site facility.

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Table 29 - Cost Summary for TD 3 - Woods Pond Site

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Minimum (SED 3 & FP 2)	Maximum (SED 8 & FP 7) 2.0 M cy
1.0	Pre-Design Investigation (10%)	\$1,104,336	\$3,078,075
2.0	Mobilization/Demobilization (5%)	\$552,168	\$1,539,038
3.0	Upland Disposal Facility Construction	\$11,043,361	\$30,780,752
	Subtotal	\$12,699,865	\$35,397,865
	Project/Construction Management (5%)	\$634,993	\$1,769,893
	Engineering and Administration (5%)	\$634,993	\$1,769,893
	Contingency (25%)	\$3,174,966	\$8,849,466
	SUBTOTAL	\$17,144,818	\$47,787,118
4.0	Annual Daily Operations	\$315,332	\$605,652
5.0	Annual Materials Handling and Transport	\$888,323	\$1,274,243
	Total Operations	\$9,509,566	\$54,669,903
6.0	Annual Post-Closure O & M	\$250,185	\$360,762
	Total Post Closure O & M	\$15,518,534	\$22,301,202
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$42,000,000	\$125,000,000

•The net present value of these alternatives are estimated to be \$21,000,000 to \$45,000,000, respectively.

Note that due to site-specific limitations, this TD 3 location does not accommodate the entire SED 8 & FP 7 remediation volume. Additional costs associated with the excess volume have not been included.

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Table 30 - Cost Summary for TD 3 - Forest Street Site

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Minimum (SED 3 & FP 2)	Maximum (SED 8 & FP 7) 1.0 M cy
1.0	Pre-Design Investigation (10%)	\$1,800,630	\$5,403,828
2.0	Mobilization/Demobilization (5%)	\$900,315	\$2,701,914
3.0	Upland Disposal Facility Construction	\$18,006,300	\$54,038,280
	Subtotal	\$20,707,245	\$62,144,022
	Project/Construction Management (5%)	\$1,035,362	\$3,107,201
	Engineering and Administration (5%)	\$1,035,362	\$3,107,201
	Contingency (25%)	\$5,176,811	\$15,536,006
	SUBTOTAL	\$27,954,781	\$83,894,430
4.0	Annual Daily Operations	\$315,948	\$541,846
5.0	Annual Materials Handling and Transport	\$888,323	\$1,274,243
	Total Operations	\$9,514,434	\$34,015,694
6.0	Annual Post-Closure O & M	\$251,090	\$367,750
	Total Post Closure O & M	\$15,609,000	\$23,000,000
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$53,000,000	\$141,000,000

•The net present value of these alternatives are estimated to be \$29,000,000 to \$68,000,000, respectively.

Note that due to site-specific limitations, this TD 3 location does not accommodate the entire SED 8 & FP 7 remediation volume. Additional costs associated with the excess volume have not been included.

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Table 31 - Cost Summary for TD 3 - Rising Pond Site

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

Item #	Description	Minimum (SED 3 & FP 2)	Maximum (SED 8 & FP 7) 2.9 M cy
1.0	Pre-Design Investigation (10%)	\$602,190	\$4,329,481
2.0	Mobilization/Demobilization (5%)	\$301,095	\$2,164,741
3.0	Upland Disposal Facility Construction	\$6,021,897	\$43,294,810
	Subtotal	\$6,925,181	\$49,789,032
	Project/Construction Management (5%)	\$346,259	\$2,489,452
	Engineering and Administration (5%)	\$346,259	\$2,489,452
	Contingency (25%)	\$1,731,295	\$12,447,258
	SUBTOTAL	\$9,348,995	\$67,215,193
4.0	Annual Daily Operations	\$312,710	\$714,463
5.0	Annual Materials Handling and Transport	\$1,139,524	\$2,027,847
	Total Operations	\$11,473,485	\$109,624,028
6.0	Annual Post-Closure O & M	\$246,335	\$378,040
	Total Post Closure O & M	\$15,133,545	\$24,029,000
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$36,000,000	\$201,000,000

•The net present value of these alternatives are estimated to be \$17,000,000 to \$49,000,000, respectively.

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

TD 3 NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 10% allowance for costs related to preparing, performing, and summarizing pre-design investigation activities for the Upland Disposal Facility.
2. Mobilization/demobilization includes a 5% allowance for costs related to mobilizing and demobilizing of equipment and personnel to and from the site.
3. Upland Disposal Facility construction costs include equipment, labor, and material costs to construct the Upland Disposal Facility at a location near the site [three possible locations have been proposed; Forest Street Site (maximum capacity of 1 million cubic yards), Woods Pond Site (maximum capacity of 2 million cubic yards), and Rising Pond Site(maximum capacity of 2.9 million cubic yards)]. Includes separate support and security facilities from the remedial construction. Includes costs to construct a final cover for the facility.
4. A 5% allowance is included to provide for project and construction management costs during construction.
5. A 5% allowance is included to provide for engineering and administration costs during construction.
6. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
7. Daily operation costs include equipment and labor for daily tasks during the facility's operation. Tasks include placing/removing tarps, grading, and environmental and health and safety monitoring for the duration of the project. Monitored parameters include, but are not limited to, particulates and PCBs.
8. Annual O & M costs include equipment and labor to inspect and maintain the facility following construction. Includes activities such as mowing and reseeding. Includes a part-time care taker. Maintenance costs are incurred annually for 100 years following the end of construction. Associated post-closure inspection and groundwater monitoring activities are performed periodically (i.e., 34 events) over 100 years.

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Table 32 - Cost Summary for TD 4

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

Item #	Description	Minimum (SED 3 & FP 2)	Maximum (SED 8 & FP 7)
1.0	Pre-Design Investigation (5%)	\$597,625	\$697,338
2.0	Treatment System	\$11,952,500	\$13,946,765
	Subtotal	\$12,550,125	\$14,644,103
	Project/Construction Management (5%)	\$627,506	\$732,205
	Engineering and Administration (5%)	\$627,506	\$732,205
	Contingency (25%)	\$3,137,531	\$3,661,026
	SUBTOTAL	\$16,942,669	\$19,769,539
4.0	Annual Operations	\$4,030,208	\$9,132,131
	Total Operations	\$31,840,968	\$365,057,488
5.0	Annual O & M	\$25,000	\$25,000
	Total O & M	\$125,000	\$125,000
6.0	Total Transportation and Disposal	\$39,743,853	\$614,326,876
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$89,000,000	\$999,000,000

- *The net present value of these alternatives are estimated to be \$70,000,000 and \$286,000,000, respectively.*

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

TD 4 NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 5% allowance for costs related to preparing, performing, and summarizing pre-design investigation activities for the treatment facility.
2. Treatment facility costs include labor, materials, and equipment costs to construct and operate an onsite treatment facility. Includes costs to handle and treat water generated during the liquid/solid separation process. Includes costs to install and transfer sediment to storage facilities.
3. A 5% allowance is included to provide for project and construction management costs during construction.
4. A 5% allowance is included to provide for engineering and administration costs during construction.
5. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
6. Chemical extraction treatment facility operation and maintenance costs include labor, material, and utility costs for operating and maintaining the facility throughout the project.
7. Total costs assume that all treated material would be classified as non-TSCA regulated waste and include provisions for transportation to and disposal at a licensed facility in High Acres, New York.

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Table 33 - Cost Summary for TD 5A (with Reuse)

**Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA**

Item #	Description	Minimum (SED 3 & FP 2)	Maximum (SED 8 & FP 7)
1.0	Pre-Design Investigation	\$595,200	\$6,959,600
2.0	Treatment System	\$14,284,800	\$167,030,400
	Subtotal	\$14,880,000	\$173,990,000
	Project/Construction Management (5%)	\$624,960	\$7,307,580
	Engineering and Administration (5%)	\$624,960	\$7,307,580
	Contingency (25%)	\$3,720,000	\$43,497,500
	SUBTOTAL	\$19,849,920	\$232,102,660
3.0	Annual Operations	\$5,313,418	\$16,061,214
	Total Operations	\$41,976,000	\$642,048,000
4.0	Annual O & M	\$25,000	\$25,000
	Total O & M	\$125,000	\$125,000
5.0	Additional Pre-Treatment Handling	\$5,033,261	\$56,093,177
6.0	Total Transportation and Disposal	\$36,179,206	\$517,708,781
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$103,000,000	\$1,450,000,000

- *The net present value of these alternatives are estimated to be \$81,000,000 and \$569,000,000, respectively.*

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

TD 5A (with Reuse) NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 5% allowance for costs related to preparing, performing, and summarizing pre-design investigation activities for the thermal treatment facility.
2. Thermal treatment facility fixed costs include labor, materials, and equipment costs to construct an onsite treatment facility.
3. A 5% allowance is included to provide for project and construction management costs during construction.
4. A 5% allowance is included to provide for engineering and administration costs during construction.
5. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
6. Thermal treatment facility operation and maintenance costs include labor, material, and utility costs for operating and maintaining the facility throughout the project.
7. Transportation and disposal costs assume that all treated material would be non-TSCA regulated wastes and would be transported to and disposed of at a licensed facility in High Acres, New York. Total disposal cost based on the assumption that there is an approximate 10% loss of mass as a result of the thermal treatment process. Costs also assume that a portion of the treated materials could be used as floodplain backfill and would not require disposal.

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Table 34 - Cost Summary for TD 5B (without Reuse)

**Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA**

Item #	Description	Minimum (SED 3 & FP 2)	Maximum (SED 8 & FP 7)
1.0	Pre-Design Investigation (5%)	\$595,200	\$6,959,600
2.0	Treatment System	\$14,284,800	\$167,030,400
	Subtotal	\$14,880,000	\$173,990,000
	Project/Construction Management (5%)	\$624,960	\$7,307,580
	Engineering and Administration (5%)	\$624,960	\$7,307,580
	Contingency (25%)	\$3,720,000	\$43,497,500
	SUBTOTAL	\$19,849,920	\$232,102,660
3.0	Annual Operations	\$5,313,418	\$16,061,214
	Total Operations	\$41,976,000	\$642,048,000
4.0	Annual O & M	\$25,000	\$25,000
	Total O & M	\$125,000	\$125,000
5.0	Additional Pre-Treatment Handling	\$5,033,261	\$56,093,177
6.0	Total Transportation and Disposal	\$38,870,026	\$594,886,391
	TOTAL COST OF ALTERNATIVE (ROUNDED)	\$106,000,000	\$1,530,000,000

- *The net present value of these alternatives are estimated to be \$83,000,000 and \$590,000,000, respectively.*

Appendix Q
Notes and Assumptions

Revised CMS Report, Housatonic River - Rest of River
General Electric Company - Pittsfield, MA

TD 5B (without Reuse) NOTES AND ASSUMPTIONS

1. Pre-design investigation includes a 5% allowance for costs related to preparing, performing, and summarizing pre-design investigation activities for the thermal treatment facility.
2. Thermal treatment facility fixed costs include labor, materials, and equipment costs to construct an onsite treatment facility.
3. A 5% allowance is included to provide for project and construction management costs during construction.
4. A 5% allowance is included to provide for engineering and administration costs during construction.
5. A 25% contingency allowance is included to provide for unforeseen circumstances or variability in estimated areas, volumes, and unit costs.
6. Thermal treatment facility operation and maintenance costs include labor, material, and utility costs for operating and maintaining the facility throughout the project.
7. Transportation and disposal costs assume that all treated material would be non-TSCA regulated wastes and would be transported to and disposed of at a licensed facility in High Acres, New York. Total disposal cost based on the assumption that there is an approximate 10% loss of mass as a result of the thermal treatment process.

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**Combinations of SED/FP
Alternatives with TD
Alternatives**

Cost Estimate

Appendix Q

Table 35 - Cost Modification Summary for Cominations of SED 2/FP 1 with TD Alternatives

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

SED 2/FP 1											
Item #	Description	Individual Costs	TD 1 Modifications	TD 2 Modifications	TD 3 - Woods Pond Modifications	TD 3 - Forest Street Modifications	TD 3 - Rising Pond Modifications	TD 4 Modifications	TD 5A (with Reuse) Modifications	TD 5A (without Reuse) Modifications	
1.0	Pre-Design Investigation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3.0	Removal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4.0	Backfill/Capping/Restoration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5.0	Transportation and Disposal (Staging and Access)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6.0	Environmental Monitoring	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Project/Construction Management (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Engineering and Administration (5%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Contingency (25%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	SUBTOTAL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$378,950	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M	\$4,962,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TD											
Item #	Description	Individual Costs	TD 1 Costs	TD 2 Costs	TD 3 - Woods Pond Costs	TD 3 - Forest Street Costs	TD 3 - Rising Pond Costs	TD 4 Costs	TD 5A (with Reuse) Costs	TD 5A (without Reuse) Costs	
1.0	Off-Site Transportation and Disposal		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2.0	TD Capital Costs		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Project/Construction Management (5%)		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Engineering and Administration (5%)		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Contingency (25%)		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	SUBTOTAL		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3.0	TD Daily Operations		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4.0	TD Post-Closure O&M		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL COST OF COMBINED ALTERNATIVE (ROUNDED)			\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000

Appendix Q

Table 36 - Cost Modification Summary for Cominations of SED 3/FP 3 with TD Alternatives

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

SED 3/FP 3										
Item #	Description	Individual Costs	TD 1 Modifications	TD 2 Modifications	TD 3 - Woods Pond Modifications	TD 3 - Forest Street Modifications	TD 3 - Rising Pond Modifications	TD 4 Modifications	TD 5A (with Reuse) Modifications	TD 5A (without Reuse) Modifications
1.0	Pre-Design Investigation	\$5,051,164	\$0	\$0	\$0	\$0	\$0	-\$98,865	-\$28,860	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$14,122,226	\$0	\$0	\$0	\$0	\$0	-\$98,865	-\$14,430	\$0
3.0	Removal	\$51,228,058	\$0	\$0	\$0	\$0	\$0	-\$1,977,300	\$0	\$0
4.0	Backfill/Capping/Restoration	\$36,215,563	\$0	\$0	\$0	\$0	\$0	\$0	-\$577,200	\$0
5.0	Transportation and Disposal (Staging and Access)	\$12,130,955	\$0	\$0	-\$8,715,578	-\$8,715,578	-\$8,715,578	\$0	\$0	\$0
6.0	Environmental Monitoring	\$4,508,604	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$123,256,569	\$0	\$0	-\$8,715,578	-\$8,715,578	-\$8,715,578	-\$2,175,030	-\$620,490	\$0
	Project/Construction Management (5%)	\$6,162,828	\$0	\$0	-\$435,779	-\$435,779	-\$435,779	-\$108,752	-\$31,025	\$0
	Engineering and Administration (5%)	\$6,162,828	\$0	\$0	-\$435,779	-\$435,779	-\$435,779	-\$108,752	-\$31,025	\$0
	Contingency (25%)	\$30,814,142	\$0	\$0	-\$2,178,894	-\$2,178,894	-\$2,178,894	-\$543,758	-\$155,123	\$0
	SUBTOTAL	\$166,396,368	\$0	\$0	-\$11,766,030	-\$11,766,030	-\$11,766,030	-\$2,936,291	-\$837,662	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$1,278,950	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M	\$10,242,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TD										
Item #	Description	Individual Costs	TD 1 Costs	TD 2 Costs	TD 3 - Woods Pond Costs	TD 3 - Forest Street Costs	TD 3 - Rising Pond Costs	TD 4 Costs	TD 5A (with Reuse) Costs	TD 5A (without Reuse) Costs
1.0	Off-Site Transportation and Disposal		\$54,814,815	\$0	\$0	\$0	\$0	\$37,769,045	\$29,627,065	\$36,331,565
2.0	TD Capital Costs		\$0	\$0	\$14,275,559	\$27,130,685	\$8,912,943	\$14,644,103	\$17,784,905	\$17,784,905
	Subtotal		\$54,814,815	\$0	\$14,275,559	\$27,130,685	\$8,912,943	\$52,413,149	\$47,411,970	\$54,116,470
	Project/Construction Management (5%)		\$2,740,741	\$0	\$713,778	\$1,356,534	\$445,647	\$2,620,657	\$2,228,319	\$2,563,544
	Engineering and Administration (5%)		\$2,740,741	\$0	\$713,778	\$1,356,534	\$445,647	\$2,620,657	\$2,228,319	\$2,563,544
	Contingency (25%)		\$13,703,704	\$0	\$3,568,890	\$6,782,671	\$2,228,236	\$13,103,287	\$11,141,596	\$12,817,721
	SUBTOTAL		\$74,000,000	\$0	\$19,272,004	\$36,626,425	\$12,032,473	\$70,757,750	\$63,010,205	\$72,061,280
3.0	TD Daily Operations		\$0	\$0	\$9,791,175	\$9,760,227	\$11,650,915	\$29,683,085	\$97,960,307	\$107,011,247
4.0	TD Post-Closure O&M		\$0	\$0	\$15,989,387	\$16,754,737	\$15,546,061	\$75,000	\$0	\$0
	TOTAL O & M		\$0	\$0	\$25,780,562	\$26,514,964	\$27,196,976	\$29,758,085	\$97,960,307	\$107,011,247
	TOTAL COST OF COMBINED ALTERNATIVE (ROUNDED)		\$251,000,000	NA	\$210,000,000	\$228,000,000	\$204,000,000	\$274,000,000	\$337,000,000	\$356,000,000

Appendix Q

Table 37 - Cost Modification Summary for Cominations of SED 5/FP 4 with TD Alternatives

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

SED 5/FP 4										
Item #	Description	Individual Costs	TD 1 Modifications	TD 2 Modifications	TD 3 - Woods Pond Modifications	TD 3 - Forest Street Modifications	TD 3 - Rising Pond Modifications	TD 4 Modifications	TD 5A (with Reuse) Modifications	TD 5A (without Reuse) Modifications
1.0	Pre-Design Investigation	\$9,451,312	\$0	\$0	\$0	\$0	\$0	-\$331,534	-\$94,380	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$21,080,611	\$0	\$0	\$0	\$0	\$0	-\$331,534	-\$47,190	\$0
3.0	Removal	\$93,807,709	\$0	\$0	\$0	\$0	\$0	-\$6,630,680	\$0	\$0
4.0	Backfill/Capping/Restoration	\$74,802,606	\$0	\$0	\$0	\$0	\$0	\$0	-\$943,800	\$0
5.0	Transportation and Disposal (Staging and Access)	\$18,930,390	\$0	\$0	-\$12,851,756	-\$12,851,756	-\$12,851,756	\$0	\$0	\$0
6.0	Environmental Monitoring	\$8,786,625	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$227,817,956	\$0	\$0	-\$12,851,756	-\$12,851,756	-\$12,851,756	-\$7,293,748	-\$1,085,370	\$0
	Project/Construction Management (5%)	\$11,390,898	\$0	\$0	-\$642,588	-\$642,588	-\$642,588	-\$364,687	-\$54,268	\$0
	Engineering and Administration (5%)	\$11,390,898	\$0	\$0	-\$642,588	-\$642,588	-\$642,588	-\$364,687	-\$54,268	\$0
	Contingency (25%)	\$56,954,489	\$0	\$0	-\$3,212,939	-\$3,212,939	-\$3,212,939	-\$1,823,437	-\$271,342	\$0
	SUBTOTAL	\$307,554,240	\$0	\$0	-\$17,349,870	-\$17,349,870	-\$17,349,870	-\$9,846,560	-\$1,465,249	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$1,500,050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M	\$11,860,450	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TD										
Item #	Description	Individual Costs	TD 1 Costs	TD 2 Costs	TD 3 - Woods Pond Costs	TD 3 - Forest Street Costs	TD 3 - Rising Pond Costs	TD 4 Costs	TD 5A (with Reuse) Costs	TD 5A (without Reuse) Costs
1.0	Off-Site Transportation and Disposal		\$121,481,481	\$0	\$0	\$0	\$0	\$83,069,610	\$69,266,055	\$80,229,055
2.0	TD Capital Costs		\$0	\$0	\$18,556,008	\$44,580,278	\$14,312,795	\$14,644,103	\$34,743,010	\$34,743,010
	Subtotal		\$121,481,481	\$0	\$18,556,008	\$44,580,278	\$14,312,795	\$97,713,713	\$104,009,065	\$114,972,065
	Project/Construction Management (5%)		\$6,074,074	\$0	\$927,800	\$2,229,014	\$715,640	\$4,885,686	\$4,922,509	\$5,470,659
	Engineering and Administration (5%)		\$6,074,074	\$0	\$927,800	\$2,229,014	\$715,640	\$4,885,686	\$4,922,509	\$5,470,659
	Contingency (25%)		\$30,370,370	\$0	\$4,639,002	\$11,145,069	\$3,578,199	\$24,428,428	\$26,002,266	\$28,743,016
	SUBTOTAL		\$164,000,000	\$0	\$25,050,610	\$60,183,375	\$19,322,273	\$131,913,513	\$139,856,350	\$154,656,400
3.0	TD Daily Operations		\$0	\$0	\$21,210,868	\$20,093,700	\$24,215,370	\$67,343,643	\$220,472,231	\$235,271,741
4.0	TD Post-Closure O&M		\$0	\$0	\$17,268,480	\$19,867,188	\$16,666,682	\$75,000	\$0	\$0
	TOTAL O & M		\$0	\$0	\$38,479,348	\$39,960,888	\$40,882,053	\$67,418,643	\$220,472,231	\$235,271,741
	TOTAL COST OF COMBINED ALTERNATIVE (ROUNDED)		\$483,000,000	NA	\$365,000,000	\$402,000,000	\$362,000,000	\$509,000,000	\$678,000,000	\$709,000,000

Appendix Q

Table 38 - Cost Modification Summary for Cominations of SED 6/FP 4 with TD Alternatives

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

SED 6/FP 4										
Item #	Description	Individual Costs	TD 1 Modifications	TD 2 Modifications	TD 3 - Woods Pond Modifications	TD 3 - Forest Street Modifications	TD 3 - Rising Pond Modifications	TD 4 Modifications	TD 5A (with Reuse) Modifications	TD 5A (without Reuse) Modifications
1.0	Pre-Design Investigation	\$12,894,954	\$0	-\$1,528,262	\$0	\$0	\$0	-\$500,068	-\$94,380	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$25,427,917	\$0	-\$1,528,262	\$0	\$0	\$0	-\$500,068	-\$47,190	\$0
3.0	Removal	\$131,008,919	\$0	-\$26,085,078	\$0	\$0	\$0	-\$10,001,355	\$0	\$0
4.0	Backfill/Capping/Restoration	\$84,559,195	\$0	-\$4,603,249	\$0	\$0	\$0	\$0	-\$943,800	\$0
5.0	Transportation and Disposal (Staging and Access)	\$21,093,916	\$0	\$0	-\$14,161,084	-\$14,161,084	-\$14,161,084	\$0	\$0	\$0
6.0	Environmental Monitoring	\$9,927,310	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$284,912,212	\$0	-\$33,744,850	-\$14,161,084	-\$14,161,084	-\$14,161,084	-\$11,001,491	-\$1,085,370	\$0
	Project/Construction Management (5%)	\$14,245,611	\$0	-\$1,687,243	-\$708,054	-\$708,054	-\$708,054	-\$550,075	-\$54,269	\$0
	Engineering and Administration (5%)	\$14,245,611	\$0	-\$1,687,243	-\$708,054	-\$708,054	-\$708,054	-\$550,075	-\$54,269	\$0
	Contingency (25%)	\$71,228,053	\$0	-\$8,436,213	-\$3,540,271	-\$3,540,271	-\$3,540,271	-\$2,750,373	-\$271,343	\$0
	SUBTOTAL	\$384,631,486	\$0	-\$45,555,548	-\$19,117,463	-\$19,117,463	-\$19,117,463	-\$14,852,012	-\$1,465,250	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$1,606,450	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M	\$12,829,250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TD										
Item #	Description	Individual Costs	TD 1 Costs	TD 2 Costs	TD 3 - Woods Pond Costs	TD 3 - Forest Street Costs	TD 3 - Rising Pond Costs	TD 4 Costs	TD 5A (with Reuse) Costs	TD 5A (without Reuse) Costs
1.0	Off-Site Transportation and Disposal		\$159,259,259	\$82,535,774	\$0	\$0	\$0	\$104,568,365	\$90,694,092	\$101,657,092
2.0	TD Capital Costs		\$0	\$4,673,787	\$20,677,450	\$53,228,508	\$16,989,027	\$14,644,103	\$43,020,950	\$43,020,950
	Subtotal		\$159,259,259	\$87,209,561	\$20,677,450	\$53,228,508	\$16,989,027	\$119,212,468	\$133,715,042	\$144,678,042
	Project/Construction Management (5%)		\$7,962,963	\$4,360,478	\$1,033,872	\$2,661,425	\$849,451	\$5,960,623	\$6,384,705	\$6,932,855
	Engineering and Administration (5%)		\$7,962,963	\$4,360,478	\$1,033,872	\$2,661,425	\$849,451	\$5,960,623	\$6,384,705	\$6,932,855
	Contingency (25%)		\$39,814,815	\$21,802,390	\$5,169,362	\$13,307,127	\$4,247,257	\$29,803,117	\$33,428,760	\$36,169,510
	SUBTOTAL		\$215,000,000	\$117,732,907	\$27,914,557	\$71,858,485	\$22,935,186	\$160,936,832	\$179,913,211	\$194,713,261
3.0	TD Daily Operations		\$0	\$6,366,729	\$22,066,650	\$21,693,351	\$26,137,392	\$75,698,087	\$284,917,452	\$299,152,589
4.0	TD Post-Closure O&M		\$0	\$11,660,000	\$17,902,414	\$21,409,756	\$17,222,076	\$75,000	\$0	\$0
	TOTAL O & M		\$0	\$18,026,729	\$39,969,064	\$43,103,108	\$43,359,468	\$75,773,087	\$284,917,452	\$299,152,589
	TOTAL COST OF COMBINED ALTERNATIVE (ROUNDED)		\$612,000,000	\$487,000,000	\$446,000,000	\$493,000,000	\$444,000,000	\$619,000,000	\$860,000,000	\$891,000,000

Appendix Q
Table 39 - Cost Modification Summary for Cominations of SED 8/FP 7 with TD Alternatives

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

SED 8/FP 7										
Item #	Description	Individual Costs	TD 1 Modifications	TD 2 Modifications	TD 3 - Woods Pond Modifications	TD 3 - Forest Street Modifications	TD 3 - Rising Pond Modifications	TD 4 Modifications	TD 5A (with Reuse) Modifications	TD 5A (without Reuse) Modifications
1.0	Pre-Design Investigation	\$32,997,539	\$0	-\$2,554,570	\$0	\$0	\$0	-\$2,411,183	-\$479,700	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$51,500,253	\$0	-\$2,554,570	\$0	\$0	\$0	-\$2,411,183	-\$239,850	\$0
3.0	Removal	\$267,355,676	\$0	-\$43,427,692	\$0	\$0	\$0	-\$48,223,656	\$0	\$0
4.0	Backfill/Capping/Restoration	\$247,214,675	\$0	-\$7,663,710	\$0	\$0	\$0	\$0	-\$4,797,000	\$0
5.0	Transportation and Disposal (Staging and Access)	\$40,378,031	\$0	\$0	\$0	\$0	-\$28,264,621	\$0	\$0	\$0
6.0	Environmental Monitoring	\$27,021,208	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$666,467,383	\$0	-\$56,200,542	\$0	\$0	-\$28,264,621	-\$53,046,022	-\$5,516,550	\$0
	Project/Construction Management (5%)	\$33,323,369	\$0	-\$2,810,027	\$0	\$0	-\$1,413,231	-\$2,652,301	-\$275,828	\$0
	Engineering and Administration (5%)	\$33,323,369	\$0	-\$2,810,027	\$0	\$0	-\$1,413,231	-\$2,652,301	-\$275,828	\$0
	Contingency (25%)	\$166,616,846	\$0	-\$14,050,136	\$0	\$0	-\$7,066,155	-\$13,261,505	-\$1,379,138	\$0
	SUBTOTAL	\$899,730,967	\$0	-\$75,870,732	\$0	\$0	-\$38,157,239	-\$71,612,129	-\$7,447,343	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$2,492,850	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M	\$17,048,050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TD										
Item #	Description	Individual Costs	TD 1 Costs	TD 2 Costs	TD 3 - Woods Pond Costs	TD 3 - Forest Street Costs	TD 3 - Rising Pond Costs	TD 4 Costs	TD 5A (with Reuse) Costs	TD 5A (without Reuse) Costs
1.0	Off-Site Transportation and Disposal		\$609,629,630	\$326,375,091	\$0	\$0	\$0	\$452,641,663	\$382,764,282	\$438,483,782
2.0	TD Capital Costs		\$0	\$14,093,563	\$0	\$0	\$72,995,419	\$14,644,103	\$173,057,573	\$173,057,573
	Subtotal		\$609,629,630	\$340,468,654	\$0	\$0	\$72,995,419	\$467,285,766	\$555,821,855	\$611,541,355
	Project/Construction Management (5%)		\$30,481,481	\$17,023,433	\$0	\$0	\$3,649,771	\$23,364,288	\$26,406,632	\$29,192,607
	Engineering and Administration (5%)		\$30,481,481	\$17,023,433	\$0	\$0	\$3,649,771	\$23,364,288	\$26,406,632	\$29,192,607
	Contingency (25%)		\$152,407,407	\$85,117,163	\$0	\$0	\$18,248,855	\$116,821,442	\$138,955,464	\$152,885,339
	SUBTOTAL		\$823,000,000	\$459,632,682	\$0	\$0	\$98,543,815	\$630,835,784	\$747,590,583	\$822,811,908
3.0	TD Daily Operations		\$0	\$16,710,285	\$0	\$0	\$158,148,778	\$349,442,193	\$1,208,745,616	\$1,286,282,002
4.0	TD Post-Closure O&M		\$0	\$19,780,000	\$0	\$0	\$24,036,147	\$75,000	\$0	\$0
	TOTAL O & M		\$0	\$36,490,285	\$0	\$0	\$182,184,925	\$349,517,193	\$1,208,745,616	\$1,286,282,002
	TOTAL COST OF COMBINED ALTERNATIVE (ROUNDED)		\$1,740,000,000	\$1,337,000,000	NA	NA	\$1,160,000,000	\$1,826,000,000	\$2,866,000,000	\$3,026,000,000

Appendix Q
Table 40 - Cost Modification Summary for Cominations of SED 9/FP 8 with TD Alternatives

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

SED 9/FP 8										
Item #	Description	Individual Costs	TD 1 Modifications	TD 2 Modifications	TD 3 - Woods Pond Modifications	TD 3 - Forest Street Modifications	TD 3 - Rising Pond Modifications	TD 4 Modifications	TD 5A (with Reuse) Modifications	TD 5A (without Reuse) Modifications
1.0	Pre-Design Investigation	\$12,866,017	\$0	-\$1,425,937	\$0	\$0	\$0	-\$972,510	-\$138,060	\$0
2.0	Mobilization/Site Preparation/Demobilization	\$27,873,404	\$0	-\$1,425,937	\$0	\$0	\$0	-\$972,510	-\$69,030	\$0
3.0	Removal	\$113,124,375	\$0	-\$24,240,926	\$0	\$0	\$0	-\$19,450,197	\$0	\$0
4.0	Backfill/Capping/Restoration	\$89,124,327	\$0	-\$4,277,810	\$0	\$0	\$0	\$0	-\$1,380,600	\$0
5.0	Transportation and Disposal (Staging and Access)	\$29,426,067	\$0	\$0	-\$24,267,944	-\$24,267,944	-\$24,267,944	\$0	\$0	\$0
6.0	Environmental Monitoring	\$9,687,609	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$282,101,798	\$0	-\$31,370,610	-\$24,267,944	-\$24,267,944	-\$24,267,944	-\$21,395,217	-\$1,587,690	\$0
	Project/Construction Management (5%)	\$14,105,090	\$0	-\$1,568,531	-\$1,213,397	-\$1,213,397	-\$1,213,397	-\$1,069,761	-\$79,384	\$0
	Engineering and Administration (5%)	\$14,105,090	\$0	-\$1,568,531	-\$1,213,397	-\$1,213,397	-\$1,213,397	-\$1,069,761	-\$79,384	\$0
	Contingency (25%)	\$70,525,449	\$0	-\$7,842,653	-\$6,066,986	-\$6,066,986	-\$6,066,986	-\$5,348,804	-\$396,922	\$0
	SUBTOTAL	\$380,837,427	\$0	-\$42,350,324	-\$32,761,724	-\$32,761,724	-\$32,761,724	-\$28,883,543	-\$2,143,381	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$1,610,950	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M	\$12,942,750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TD										
Item #	Description	Individual Costs	TD 1 Costs	TD 2 Costs	TD 3 - Woods Pond Costs	TD 3 - Forest Street Costs	TD 3 - Rising Pond Costs	TD 4 Costs	TD 5A (with Reuse) Costs	TD 5A (without Reuse) Costs
1.0	Off-Site Transportation and Disposal		\$248,148,148	\$127,772,343	\$0	\$0	\$0	\$165,451,848	\$147,173,933	\$161,421,773
2.0	TD Capital Costs		\$0	\$7,918,919	\$27,259,709	\$80,061,614	\$25,292,647	\$14,644,103	\$67,284,555	\$67,284,555
	Subtotal		\$248,148,148	\$135,691,262	\$27,259,709	\$80,061,614	\$25,292,647	\$180,095,951	\$214,458,488	\$228,706,328
	Project/Construction Management (5%)		\$12,407,407	\$6,784,563	\$1,362,985	\$4,003,081	\$1,264,632	\$9,004,798	\$10,208,697	\$10,921,089
	Engineering and Administration (5%)		\$12,407,407	\$6,784,563	\$1,362,985	\$4,003,081	\$1,264,632	\$9,004,798	\$10,208,697	\$10,921,089
	Contingency (25%)		\$62,037,037	\$33,922,816	\$6,814,927	\$20,015,404	\$6,323,162	\$45,023,988	\$53,614,622	\$57,176,582
	SUBTOTAL		\$335,000,000	\$183,183,204	\$36,800,607	\$108,083,179	\$34,145,074	\$243,129,534	\$288,490,503	\$307,725,087
3.0	TD Daily Operations		\$0	\$3,467,628	\$17,257,263	\$16,860,560	\$24,418,526	\$54,107,026	\$452,045,694	\$473,694,564
4.0	TD Post-Closure O&M		\$0	\$19,780,000	\$19,869,340	\$26,195,927	\$18,945,311	\$75,000	\$0	\$0
	TOTAL O & M		\$0	\$23,247,628	\$37,126,603	\$43,056,487	\$43,363,837	\$54,182,026	\$452,045,694	\$473,694,564
	TOTAL COST OF COMBINED ALTERNATIVE (ROUNDED)		\$729,000,000	\$558,000,000	\$435,000,000	\$512,000,000	\$439,000,000	\$662,000,000	\$1,132,000,000	\$1,175,000,000

Appendix Q

Table 41 - Cost Modification Summary for Cominations of SED 10/FP 9 with TD Alternatives

Revised CMS Report, Housatonic River - Rest of River
 General Electric Company - Pittsfield, MA

SED 10/FP 9										
Item #	Description	Individual Costs	TD 1 Modifications	TD 2 Modifications	TD 3 - Woods Pond Modifications	TD 3 - Forest Street Modifications	TD 3 - Rising Pond Modifications	TD 4 Modifications	TD 5A (with Reuse) Modifications	TD 5A (without Reuse) Modifications
1.0	Pre-Design Investigation	\$2,747,159	\$0	\$0	\$0	\$0	\$0	\$0	-\$240,260	-\$20,280
2.0	Mobilization/Site Preparation/Demobilization	\$7,088,124	\$0	\$0	\$0	\$0	\$0	\$0	-\$240,260	-\$10,140
3.0	Removal	\$32,026,383	\$0	\$0	\$0	\$0	\$0	\$0	-\$4,805,190	\$0
4.0	Backfill/Capping/Restoration	\$9,847,961	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$202,800
5.0	Transportation and Disposal (Staging and Access)	\$7,844,748	\$0	\$0	-\$5,425,120	-\$5,425,120	-\$5,425,120	\$0	\$0	\$0
6.0	Environmental Monitoring	\$2,311,156	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$61,865,532	\$0	\$0	-\$5,425,120	-\$5,425,120	-\$5,425,120	-\$5,285,709	-\$233,220	\$0
	Project/Construction Management (5%)	\$3,093,277	\$0	\$0	-\$271,256	-\$271,256	-\$271,256	-\$264,285	-\$11,661	\$0
	Engineering and Administration (5%)	\$3,093,277	\$0	\$0	-\$271,256	-\$271,256	-\$271,256	-\$264,285	-\$11,661	\$0
	Contingency (25%)	\$15,466,383	\$0	\$0	-\$1,356,280	-\$1,356,280	-\$1,356,280	-\$1,321,427	-\$58,305	\$0
	SUBTOTAL	\$83,518,468	\$0	\$0	-\$7,323,912	-\$7,323,912	-\$7,323,912	-\$7,135,707	-\$314,847	\$0
7.0	Annual O & M/Long Term Monitoring Program	\$1,275,550	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL O & M	\$9,970,950	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TD										
Item #	Description	Individual Costs	TD 1 Costs	TD 2 Costs	TD 3 - Woods Pond Costs	TD 3 - Forest Street Costs	TD 3 - Rising Pond Costs	TD 4 Costs	TD 5A (with Reuse) Costs	TD 5A (without Reuse) Costs
1.0	Off-Site Transportation and Disposal		\$66,296,296	\$0	\$0	\$0	\$0	\$41,347,135	\$38,163,093	\$40,519,112
2.0	TD Capital Costs		\$0	\$0	\$14,402,864	\$27,649,653	\$9,073,540	\$14,644,103	\$18,772,741	\$18,772,741
	Subtotal		\$66,296,296	\$0	\$14,402,864	\$27,649,653	\$9,073,540	\$55,991,239	\$56,935,833	\$59,291,853
	Project/Construction Management (5%)		\$3,314,815	\$0	\$720,143	\$1,382,483	\$453,677	\$2,799,562	\$2,719,532	\$2,837,333
	Engineering and Administration (5%)		\$3,314,815	\$0	\$720,143	\$1,382,483	\$453,677	\$2,799,562	\$2,719,532	\$2,837,333
	Contingency (25%)		\$16,574,074	\$0	\$3,600,716	\$6,912,413	\$2,268,385	\$13,997,810	\$14,233,958	\$14,822,963
	SUBTOTAL		\$89,500,000	\$0	\$19,443,866	\$37,327,032	\$12,249,279	\$75,588,172	\$76,608,856	\$79,789,483
3.0	TD Daily Operations		\$0	\$0	\$6,311,000	\$6,214,349	\$7,582,705	\$19,188,805	\$113,158,225	\$116,338,285
4.0	TD Post-Closure O&M		\$0	\$0	\$16,027,428	\$16,791,637	\$15,579,389	\$75,000	\$0	\$0
	TOTAL O & M		\$0	\$0	\$22,338,428	\$23,005,986	\$23,162,094	\$19,263,805	\$113,158,225	\$116,338,285
	TOTAL COST OF COMBINED ALTERNATIVE (ROUNDED)		\$183,000,000	NA	\$128,000,000	\$146,000,000	\$121,000,000	\$181,000,000	\$283,000,000	\$290,000,000

Appendix Q
Notes and Assumptions

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NOTES AND ASSUMPTIONS FOR THE COMBINATIONS OF SED/FP ALTERNATIVES WITH TD ALTERNATIVES

1. The assumptions related to how the seven combinations of sediment and floodplain (SED/FP) alternatives were developed, as well as how the treatment/disposition (TD) alternatives were developed, are provided in the respective portions of this Appendix Q. The assumptions made in developing the estimated costs for the combinations of the SED/FP alternatives with the TD alternatives, including the associated cost modifications in the costs of the SED/FP alternatives, where appropriate, are described in Section 10.3 of the Revised CMS Report. Tables 35 through 41 are provided to illustrate how these assumptions affected the cost estimates for the combinations of the seven SED/FP combined alternatives with the five TD alternatives.