GE
159 Plastics Avenue
Pittsfield, MA 01201
USA

Transmitted via Overnight Courier

October 16, 2008

Mr. Dean Tagliaferro
EPA Project Coordinator
US Environmental Protection Agency
c/o Weston Solutions, Inc.
One Lyman Street
Pittsfield, MA 01201

Re: GE-Pittsfield/Housatonic River Site
Upper ½-Mile Reach of the Housatonic River (GECD800)
2008 Inspection of Restored Bank Vegetation and Aquatic Habitat Enhancement Structures

Dear Mr. Tagliaferro:

Enclosed is a memorandum presenting the results of the 2008 inspection of the restored banks vegetation and aquatic habitat enhancement structures associated with the Upper ½-Mile Reach of the Housatonic River in Pittsfield, Massachusetts.

Please call me with any questions.

Very truly yours,

Andrew T. Silfer, P.E.
GE Project Coordinator

Attachment

cc: Holly Inglis, USEPA
Tim Conway, USEPA
Rose Howell, USEPA
K.C. Mitkevicius, USACE
Linda Palmieri, Weston
Dale Young, MA EOEEA
Michael Gorski, MDEP (2 copies)
Susan Steenstrup, MDEP
Jane Rothchild, MDEP*
Anna Symington, MDEP*
Nancy Harper, MA AG*
Mayor James Ruberto, City of Pittsfield
Michael Carroll, GE*
Rod McLaren, GE*
James Bieke, Goodwin Procter
Mark Gravelding, ARCADIS
Todd Cridge, ARCADIS
Charles Harman, AMEC
Todd Chadwell, Stantec
Public Information Repositories
GE Internal Repositories

* *without attachments*

MEMORANDUM

TO: Andrew T. Silfer, P.E.
General Electric

FROM: Charles R. Harman, P.W.S.
AMEC Earth & Environmental

CC: Mark Gravelding, P.E.
Todd Cridge
ARCADIS

SUBJ: 2008 Monitoring Visit Trip Report
Restored Bank Vegetation and Aquatic Habitat Enhancement Structures
Upper ½-Mile Reach of the Housatonic River

DATE: October 16, 2008

This document reports the results of the 2008 inspection of the restored bank vegetation in select areas of the Upper ½-Mile Reach of the Housatonic River (½-Mile) as well as the results of the 2008 inspection of the aquatic habitat enhancement structures and armor stone within the ½-Mile. These inspections were performed on August 21 and August 20, 2008, respectively.

As outlined in *Removal Action Work Plan – Upper ½ Mile Reach of Housatonic River* (Work Plan; BBL, 1999), vegetative restoration/enhancement activities were implemented in those riverbank areas where bank soils were excavated as part of the Upper ½-Mile Reach Removal Action and in areas that were cleared to allow access for the removal activities. The Work Plan provided that GE would monitor the restored areas to ensure the success and biological integrity of the intended vegetative community. For each specific planting area, the monitoring program was required to consist of two visits during each of the first three years after planting (one in the late spring and one in the summer), and an annual visit during the fifth year and seventh year after planting (to be conducted in summer). Complete details of the monitoring program can be found in the Work Plan. As discussed further below, the inspection of the restored bank vegetation conducted on August 21, 2008 constituted the 7th-year required planting inspection for some planting areas and a re-inspection of other areas.

In addition to the vegetation monitoring, the Work Plan provided that visual inspections would be performed annually to assess the condition of the aquatic habitat enhancement structures that were placed within the ½-Mile and to evaluate the armor stone layer for evidence of erosion. The inspection of the aquatic habitat enhancement structures consists of the physical observation of the condition of each of the structures from a canoe. The monitoring also includes visual observations of the armor stone layer for evidence of erosion. As discussed in the *2007 Annual Monitoring Report – Upper ½-Mile Reach of the Housatonic River* (2007 Annual Report), 2007 was the final year of the initial 5-year monitoring program required by the Work Plan. In that report, GE proposed an extension of that monitoring program, which was modified by the U.S. Environmental Protection Agency (EPA) in its April 28, 2008 conditional approval letter. That modified program involves continued annual performance of the same monitoring activities for an additional five years. The inspection of the aquatic habitat enhancement structures conducted on August 20, 2008 constituted the first year of the additional 5-year monitoring program.

I. RESTORED BANK VEGETATION

2008 INSPECTION RESULTS

Charles Harman of AMEC conducted the vegetative inspection on behalf of GE on August 21, 2008. Todd Chadwell of Stantec was present on behalf of the Natural Resource Trustees, and Chris Frank of C. L. Frank & Associates accompanied the streambank monitoring party as the certified arborist. The planting areas evaluated during this event were planting area 4B; planting area 10; composite planting area 6, 6A, 7, & 8A; and composite planting area 8, 9, 9A, 11, & 11A. Additionally, planting area 13 was revisited to assess its performance with respect to recalculated area-specific performance standards presented in the 2007 Annual Report, and planting areas 5 and 16 were revisited to assess the success of corrective actions that had been planned for implementation in spring 2008.

The weather during the monitoring visit was partly cloudy and warm with the temperature at approximately 80^{o} F at the beginning of the inspection. Water in the river was at a seasonably low level, and was generally below the top of the rip-rap at the toe of the bank.

Note that planting area 13, as well as composite planting area 6, 6A, 7, & 8A and composite planting area 8, 9, 9A, 11, & 11A, were slightly reduced in size relative to the originally established planting areas as a result of remedial activities associated with the Newell Street Area II engineered barrier and/or restoration activities associated with areas of erosion identified within the ½-Mile in either 2006 or 2007. Following discussions with EPA, it was determined that, due to the modifications in planting area size, the original performance standards are no longer applicable in these areas, as there would not be sufficient space to support the planting frequencies described in the Work Plan. As such, it was agreed that following the completion of those remedial/restoration activities, the performance standards for the affected planting areas would be recalculated, considering only the remaining available space (i.e., the available planting area between the lower extent of the Newell Street Area II engineered barrier and the upper extent of the newly restored areas on the south bank of the ½-Mile). As presented in the EPA-approved 2007 Annual Report, the following area-specific modifications to the performance standards were agreed to:

	Canopy		Understory	
	Original	**Revised**	**Original**	**Revised**
Planting Area 13	56	51	58	52
Composite Planting Area 8, 9, 9A, 11, & 11A	76	60	58	46
Composite Planting Area 6, 6A, 7, & 8A	90	72	0	Not Applicable

The results of the inspection for the planting areas inspected during this monitoring event are described below and summarized in Tables 1 through 6 in terms of achievement of the applicable performance standards for the vegetative restoration.

1. Planting area 4B showed excellent vegetative growth for all components of the restoration. Vegetative growth was robust and all strata of the community were well developed. In particular, the eastern cottonwood and the box elder specimens showed excellent growth with some diameter at breast height (DBH) measurements exceeding seven inches. All components of the vegetative community in this planting area, including canopy, understory, red-osier dogwood, grape vines, herbaceous cover, and invasive species, met their performance standards. This inspection constituted the 7th-year visit and is the last scheduled vegetation inspection for this planting area.

2. Planting Area 10 showed good growth in each of the vegetative strata. All components of the vegetative community in this planting area, including canopy, understory, herbaceous coverage, and invasive species, met their respective performance standards (no red-osier dogwood specimens were planted in this area). This inspection constituted the 7th-year visit and is the last scheduled vegetative vegetation inspection for this planting area.

3. Composite Planting Area 6, 6A, 7, & 8A met the modified performance standards for the following components of the vegetative community: canopy, herbaceous coverage, and invasive species. With respect to the red-osier dogwood community, in response to the apparent erosion of bank materials identified in this area, additional armor stone has been installed in the upper bank area, resulting in the removal of much of the red-osier dogwood band that had previously been installed. However, following the completion of the remedial activities associated with this area in October/November 2007, and based on discussions with EPA, a replacement band of red-osier dogwoods was installed along the top of the new armor stone in the remaining space between the top of the newly restored area and the bottom of the adjacent Newell Street Area II engineered barrier. The 2008 inspection indicated that the new red-osier dogwoods appear to have survived the first winter following installation and to meet their performance standard. This inspection constituted the 7th-year visit and is the last scheduled vegetative vegetation inspection for this planting area.

4. Composite Planting Area 8, 9, 9A, 11, & 11A met the modified performance standards for the following components of the vegetative community: canopy, grape vines, herbaceous coverage, and invasive species. With respect to the understory community, this planting area had a variance of 19 specimens, a likely result of disturbance associated with the Newell Street Area II remedial activities discussed above. These specimens will be replanted, as described below. With respect to the red-osier dogwood community, additional armor stone has been installed in the upper bank area in response to the apparent erosion of bank materials identified in this area, resulting in the removal of much of the red-osier dogwood band that had previously been installed. However, following the completion of the remedial activities associated with this area in October/November 2007, and based on discussions with EPA, a replacement band of red-osier dogwoods was installed along the top of the new armor stone in the remaining space between the top of the newly restored area and the bottom of the adjacent Newell Street Area II engineered barrier. The 2008 inspection indicated that the new red-osier dogwoods appear to have survived the first winter following installation and to meet their performance standard. Although this inspection constituted the 7th-year visit and was the last regularly scheduled vegetation inspection for this planting area, GE proposes to visit this area again in 2009 to assess the survivorship of the understory species to be planted in the fall of 2008.

5. Planting area 13 was revisited in 2008 to evaluate replanting activities that occurred following the completion of the remedial activities associated with Newell Street Area II. All components of the vegetative community in this planting area, including canopy, understory, red-osier dogwoods, herbaceous coverage, and invasive species, met their respective performance standards. This area will be inspected one final time in August 2009 to satisfy the normally scheduled 7th-year visit.

6. Protective screens had been placed around the canopy specimens in the fall of 2001. These screens continue to provide good protection from herbivorous animals.

Area-specific results of the monitoring visit are summarized in the attached tables. Photographs of the vegetative communities observed during the monitoring visit are included in Attachment A.

CORRECTIVE ACTIONS

As noted above, composite planting area 8, 9, 9A, 11, & 11A did not meet the performance standard for understory specimens, with a variance of 19 specimens. In addition, the 2007 Annual Report stated that replanting activities would be performed in spring 2008 at planting areas 5 and 16, which were found in the 2007 inspection not to meet their performance standards for canopy and/or understory species. However, seasonal constraints related to the timing of the completion of the remedial activities and riprap placement and the ensuing need for coordination with various contractors involved with the plantings delayed the planting schedule beyond the optimal planting season, resulting in the proposed replanting being postponed. As a result, planting area 5 is still missing 4 canopy specimens and 36 shrub specimens, and planting area 16 is still missing 2 canopy specimens. Supplemental planting associated with these previously identified variances – anticipated to include planting of 8 additional canopy specimens and 36 shrub specimens at planting area 5 and 4 additional canopy specimens at planting area 16 – will be included for performance with the proposed 2008 corrective measures.

To ensure that the performance standards are met, the total number of plants planned for installation is as follows:

Composite Planting Area 8, 9, 9A, 11, & 11A	19 shrub specimens
Planting Area 5	36 shrub specimens 8 canopy specimens
Planting Area 16	4 canopy specimens

The canopy plantings will be divided equally among the four species used at this site: box elder (*Acer negundo*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), and black willow (*Salix nigra*), depending upon species availability. The shrub/understory plantings will be divided equally among the four shrub species used at this site: northern arrowwood (*Viburnum recognitum*), silky dogwood (*Cornus amomum*), winterberry (*Ilex verticillata*), and choke-cherry (*Prunus virginiana*) depending upon species availability. Canopy species will be installed in open spaces in each respective planting area, while understory species will be planted in open areas within the respective shrub plots in

the affected planting areas. Plantings will be conducted in accordance with the Work Plan, and are tentatively planned for November 2008.

2009 INSPECTION ACTIVITIES

The next monitoring visit is scheduled for August 2009. Planting areas to be monitored at that time will include 12, 13, 14, 15, 16, and 17. Additionally, GE will revisit planting area 5 and composite planting area 8, 9, 9A, 11, & 11A to assess the performance of the canopy and understory specimens that are scheduled to be planted in November 2008. The August 2009 monitoring visit will constitute the 7th and final year of monitoring for planting areas 12, 13, 14, 15, 16, and 17 and the completion of the vegetation monitoring program described in the Work Plan.

II. AQUATIC HABITAT ENHANCEMENT STRUCTURES AND ARMOR STONE

2008 INSPECTION RESULTS

The aquatic habitat enhancement structures inspection was conducted on August 20, 2008 by Charles Harman of AMEC on behalf of GE and Michael Chelminski of Stantec, who was present on behalf of the Natural Resource Trustees. The following observations were made during this visit:

1. Water in the river was at a level that allowed for observations of the aquatic habitat structures.

2. In general, those aquatic structures that were visible appeared to be providing good cover and habitat. The aquatic structures appeared to be structurally stable and were creating variations in water velocity and flow, as evidenced by the presence of scour zones and depositional areas in the sediment surrounding the structures. The development of these variations in sediment elevation and the creation of flow changes in the water column appear to be providing good habitat for fish and aquatic invertebrates.

3. As in previous years, the armor stone layer appears to be stable with no areas of erosion or loss of armor materials noted.

Photographs of and observations related to the condition of the aquatic habitat enhancement structures and armor stone are presented in Attachment B.

2009 INSPECTION ACTIVITIES

The next monitoring visit is scheduled for August 2009.

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Tables

TABLE 1
CANOPY MONITORING RESULTS

2008 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSTONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Planting Area	Date Initially Planted	Quantity Planted	Target Performance Standard	Monitoring Count - Live Specimens			Dead	Variance
					Non-stressed	Stressed	Total		
8/21/2008	4B[1]	June 01	256	205	272	0	272	0	+67
	10[2]	Oct 01	126	101	111	0	111	0	+10
	6, 6A, 7, 8A	June/Oct 01	113	72	78	0	78	0	+6
	8, 9, 9A, 11, 11A	Oct 01	95	60	65	2	65	0	+5
	13	May/Oct 02	70	51	52	0	52	0	+1

[1] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 22% of Area 4B.

[2] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 27% of Area 10.

TABLE 2
UNDERSTORY MONITORING RESULTS

2008 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSTONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Planting Area	Date Initially Planted	Quantity Planted	Target Performance Standard	Monitoring Count - Live Specimens			Dead	Variance
					Non-stressed	Stressed	Total		
8/21/2008	4B[1]	June 01	219	175	182	0	182	0	+7
	10[2]	Oct 01	73	58	63	0	63	0	+5
	6, 6A, 7, 8A	June/Oct 01	0	NA	--	--	--	--	--
	8, 9, 9A, 11, 11A	Oct 01	73	46	27	0	27	0	**-19**
	13	May/Oct 02	73	52	61	0	61	0	+9

[1] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 22% of Area 4B.

[2] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 27% of Area 10 and 50% of the shrub planting area.

TABLE 3
RED-OSIER DOGWOOD MONITORING RESULTS

2008 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSTONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Initially Planted	Monitoring Count		Comments
			Gaps in Dogwood Line, Missing Plants	Meets Performance Standard (Yes/No)	
8/21/2008	4B	June 01	---	Yes	---
	10	Oct 01	---	Yes	---
	6, 6A, 7, 8A	June/Oct 01	---	Yes	New plantings installed November 2007; appear to have survived first winter
	8, 9, 9A, 11, 11A	Oct 01	---	Yes	New plantings installed November 2007; appear to have survived first winter
	13	May/Oct 02	---	Yes	---

TABLE 4
GRAPE VINE MONITORING RESULTS

2008 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSTONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Initially Planted	Quantity Required	Target Performance Standard	Monitoring Count - Planted Live Specimens			Dead	Wild Grapes or Grape Patches	Comments
					Non-stressed	Stressed	Total Vines			
8/21/2008	4B	June 01	22	18	15	0	15	0	40+	The number of planted grapes plus the number of individual native grape plants noted in this planting area meets the performance criteria.
	8, 9, 9A, 11, 11A	--	22	18	0	0	0	0	40+	The number of individual native grape plants noted in this planting area meets the performance criteria, without the aid of supplemental planting.

TABLE 5
HERBACEOUS GROUNDCOVER MONITORING RESULTS

2008 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSTONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Initially Planted	Target Performance Standard (Cover)	General Monitoring Results (Total Percent Herbaceous Coverage)	Meets Performance Standard (Yes/No)	Comments
8/21/2008	4B[1]	June 01	100%	Plot 1 ~100% coverage Plot 2 ~100% coverage Plot 3 ~100% coverage	Yes	Herbaceous cover has closed in, except to a minor extent under canopy specimens (which is allowed under Monitoring Plan). Meets performance standard. No areas outside of the monitoring plots were missing herbaceous cover.
	10[2]	Oct 01	100%	Plot 1 ~100% coverage Plot 2 ~100% coverage	Yes	Herbaceous cover has closed in, except to a minor extent under canopy specimens (which is allowed under Monitoring Plan). Meets performance standard. No areas outside of the monitoring plots were missing herbaceous cover.
	6, 6A, 7, 8A	June/ Oct 01	100%	First 100' ~90% coverage Second 100' ~95% coverage Third 100' ~95% coverage	Yes	Herbaceous cover has closed in, except to a minor extent under canopy specimens (which is allowed under Monitoring Plan). Meets performance standard.
	8, 9, 9A, 11, 11A	Oct 01	100%	First 100' ~95% coverage Second 100' ~90% coverage Third 100' ~95% coverage Fourth 100' ~95% coverage	Yes	Herbaceous cover has closed in, except to a minor extent under canopy specimens (which is allowed under Monitoring Plan). Meets performance standard.
	13	May/Oct 02	100%	~100% coverage	Yes	Herbaceous cover outside of canopy meets performance standard.

[1] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 22% of Area 4B.

[2] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 27% of Area 10.

TABLE 6
INVASIVE SPECIES MONITORING RESULTS

2008 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSTONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Initially Planted	Target Performance Standard (Invasive Species)	Monitoring Results (Percent Invasive Species)	Meets Performance Objectives (Yes/No)	Primary Observed Invasive Species
8/21/2008	4B[1]	June 01	< 5%	Plot 1 <5% Plot 2 <5% Plot 3 <5%	Yes	Purple loosestrife; no significant invasive species presence outside of the monitoring plots
	10[2]	Oct 01	< 5%	Plot 1 <5% Plot 2 <5%	Yes	Purple loosestrife; no significant invasive species presence outside of the monitoring plots
	6, 6A, 7, 8A	June/ Oct 01	< 5%	First 100' <5% Second 100' <5% Third 100' <5%	Yes	Purple loosestrife, bittersweet
	8, 9, 9A, 11, 11A	Oct 01	< 5%	First 100' <5% Second 100' <5% Third 100' <5%	Yes	Purple loosestrife, bittersweet
	13	May/Oct 02	< 5%	<5%	Yes	Isolated specimens of purple loosestrife

[1] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 22% of Area 4B.

[2] Monitoring was conducted using the modified protocol and was based on sampling of three representative monitoring plots; monitoring plots accounted for 27% of Area 10.

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Attachment A

Photographic Log

ATTACHMENT A
PHOTOGRAPHIC LOG

2008 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Photograph 1: Planting Area 4B

Photograph 2: Planting Area 4B

Photograph 3: Planting Area 10

Photograph 4: Planting Area 5

Photograph 5: Planting Area 6, 6A, 7, 8A

Photograph 6: Planting Area 6, 6A, 7, 8A

Photograph 7: Planting Area 8, 9, 9A, 11, and 11A

Photograph 8: Planting Area 8, 9, 9A, 11, and 11A

Photograph 9: Planting Area 13

Photograph 10: Planting Area 16

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Attachment B

Aquatic Structures/Armor Stone
Monitoring Data Sheets

ATTACHMENT B
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Monitoring Date: 8/20/2008

Persons Conducting the Monitoring: Chuck Harman (AMEC) and Mike Chelminski (Woodlot Alternatives)

Daily Stream Flow at Time of Monitoring (Based on USGS Station Coltsville, MA): 37 cfs

General River Stage/Depth Observations: River was very low, the majority of the structures were exposed for observation

General Weather Observations: Skies were clear/partly-cloudy with temps in the 80's

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
B	1. Single wing deflector	 1. Structures appear stable 2. Structure induced variations observed in areas immediately downstream of the deflector

ATTACHMENT B
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
C	1. Boulders 2. Island	  1. Structures appear stable 2. Structure induced variations observed in areas immediately downstream of the island 3. The island appears to be well vegetated with wetland herbaceous species 4. Boulders near island appear to be causing scour in the immediate area; good cover

ATTACHMENT B
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
D	1. Boulders	 1. Structures appear to be functional and providing variation in habitat
G1	1. Boulder Cluster	 1. Structures appear to be functional and providing variation in habitat

ATTACHMENT B
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
G2/F2	1. W-weir	 1. Much of the weir is buried in soft silt/sand; portion that is present appears to offer good cover for aquatic organisms
G3	1. Three-boulder cluster	 1. Structure appears stable, no issue or concern 2. Structure appears to be functional and providing variation in habitat

ATTACHMENT B
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
F3	1. Three-boulder cluster 2. Two-boulder cluster 3. Three-boulder cluster	 1. All structures in this cell appear stable. 2. Structures appear to be providing diversity in habitat
H1	1. Boulder cluster	1. Structure appears to be stable and providing diversity in habitat 2. Good habitat, variations in velocity around structure and related variations in stream bottom topography

ATTACHMENT B
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
I1/J1	1. Vortex weir	 1. Much of the weir is buried in soft silt/sand 2. Structure appears to be stable and providing diversity in habitat 3. Good habitat, variations in velocity around structure and related variations in stream bottom
H2	1. Single boulder	1. Structure appears to be stable and providing diversity in habitat 2. Good habitat, variations in velocity around structure and related variations in stream bottom topography

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AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
J1	1. Two-boulder cluster 2. Three-boulder cluster 3. Single-boulder	 1. Structures appear to be stable and providing diversity in habitat 2. Good habitat, variations in velocity around structures and related variations in stream bottom topography 3. Boulders observed to be being used as perches for feeding birds
J2	1. "J"- boulder formation	 1. Structure appears to be stable and providing diversity in habitat 2. Good habitat, variations in velocity around structure and related variations in stream bottom topography

ATTACHMENT B
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
I3	1. Single-wing deflector	 1. Structure appears to be stable and providing diversity in habitat 2. Good habitat, variations in velocity around structure and related variations in stream bottom topography
I3/J3	1. Vortex rock weir	 1. Structure appears to be stable and providing diversity in habitat 2. Good habitat, variations in velocity around structure and related variations in stream bottom topography

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AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2008 INSPECTION OF AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations	
J3	1. Boulder cluster 2. Three-boulder cluster 3. Three-boulder cluster		1. Structures appear to be stable and providing diversity in habitat 2. Good habitat, variations in velocity around structures and related variations in stream bottom topography