Andrew T. Silfer
Leader, Pittsfield/Housatonic River

General Electric Company
Global Operations – Environment, Health & Safety
1 Plastics Avenue
Pittsfield, MA 01201
T 518-937-7257 and 413-553-6602
andrew.silfer@ge.com

*Via Electronic Mail*

June 9, 2020

Mr. Dean Tagliaferro
EPA Project Coordinator
U.S. Environmental Protection Agency
c/o Bluestone Environmental Group, Inc.
10 Lyman Street, Suite 2
Pittsfield, MA 01201

Re: GE-Pittsfield/Housatonic River Site
Rest of River (GECD850)
Rest of River Statement of Work

Dear Mr. Tagliaferro:

In accordance with General Electric Company's (GE's) commitment in the Rest of River Settlement Agreement, which became effective on February 10, 2020, enclosed for EPA's review and approval is GE's Rest of River Statement of Work (SOW).

As background, Paragraph 22.x of the Consent Decree (CD) for this Site and Section II.H of the Modified RCRA Permit issued by EPA to GE on October 24, 2016 require GE to submit a SOW for the implementation of the Corrective Measures that comprise the Rest of River Remedial Action specified in the Modified Permit. However, most of the provisions of that Modified Permit were stayed during the appeals of that permit to the EPA Environmental Appeals Board (EAB) and, following the EAB's January 2018 decision, the remand proceedings directed by the EAB. In February 2020, EPA, GE, and other parties involved in the appeals negotiated and reached a Settlement Agreement. That Settlement Agreement includes several modifications to the remedy specified in the October 2016 Modified Permit. It also explains that EPA will issue a revision to the Modified Permit incorporating the terms of the Settlement Agreement. Until that Revised Modified Permit is issued, neither the contested terms of the original Modified Permit nor the terms of the Settlement Agreement are binding under the CD and the Permit. However, in the Settlement Agreement, GE agreed to commence and perform investigation and design work as contractual obligations thereunder.

In accordance with its commitment in the Settlement Agreement, GE has prepared and is submitting the enclosed SOW as a contractual matter. This SOW covers all components of the anticipated Revised Modified Permit – i.e., those described in the 2016 Modified Permit as revised by the Settlement Agreement. It provides for GE to submit the investigation and design deliverables specified herein and to perform the investigation and design activities specified in those deliverables (as approved by EPA) as contractual obligations under the Settlement Agreement until such time as

EPA issues a final Revised Modified Permit, which will set forth the required deliverables and activities for the Rest of River Remedial Action.

Please let me know if you have any questions about this SOW.

Very truly yours,

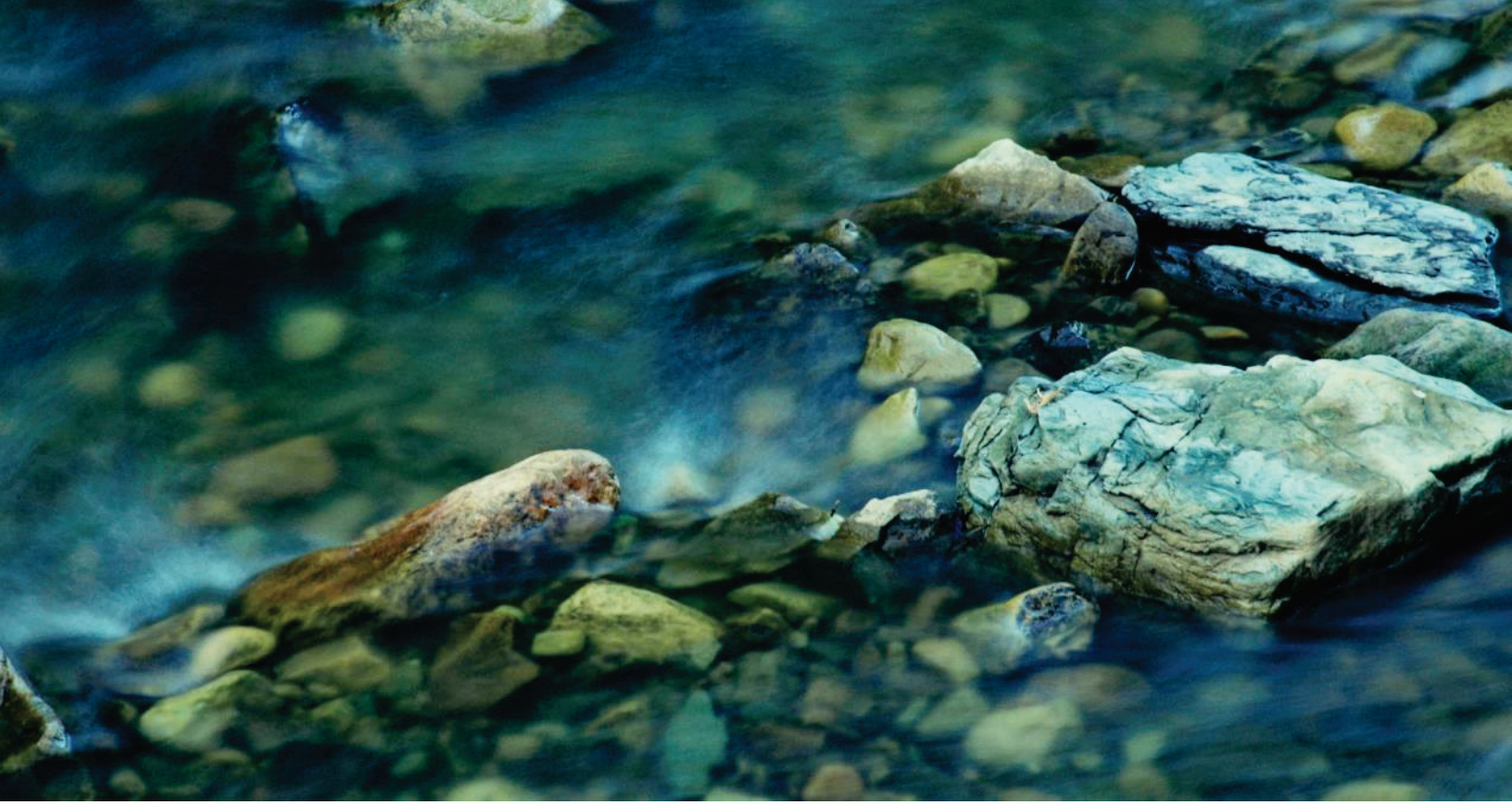
Andrew T. Silfer, P.E.
GE Project Coordinator

Enclosure

cc:

Tim Conway, EPA*
Christopher Smith, EPA*
Joshua Fontaine, EPA*
Christopher Ferry, ASRC Primus*
Thomas Czelusniak, Weston Solutions*
Michael Gorski, MassDEP*
Elizabeth Stinehart, MassDEP*
John Ziegler, MassDEP*
Ben Guidi, MassDEP*
Cathy Kiley, MassDEP*
Mark Tisa, MassDFG*
Betsy Harper, MA AG*
Traci Iott, CT DEEP*
Susan Peterson, CT DEEP*
Lori DiBella, CT AG*
Nate Joyner, Pittsfield Dept. of Community Development*
Eric Merrifield, GE*
Kevin Mooney, GE*
Matthew Calacone, GE*
Michael Werth, Anchor QEA*
Mark Gravelding, Arcadis*
Dennis Lowry, AECOM*
James Bieke, Sidley Austin*
David M. Hunt Library, Falls Village, CT*
GE Internal Repository*

* Via electronic mail



June 2020
GE-Pittsfield/Housatonic River Site

ANCHOR QEA AECOM ARCADIS

# Rest of River Statement of Work

June 2020
GE-Pittsfield/Housatonic River Site

# Rest of River Statement of Work

**Prepared for**
General Electric Company
1 Plastics Avenue
Pittsfield, Massachusetts 01201

**Prepared by**
Anchor QEA, LLC
290 Elwood Davis Road
Liverpool, New York 13088

Project Number: **200469-01.01**

# TABLE OF CONTENTS

## TABLES



## FIGURES



## ATTACHMENT

# ABBREVIATIONS

| | |
|---|---|
| AAMP | Ambient Air Monitoring Plan |
| AC | activated carbon |
| APE | Area of Potential Effects |
| ARARs | Applicable or Relevant and Appropriate Requirements |
| BANCS | Bank Assessment for Non-point source Consequences of Sediment |
| BEHI | Bank Erosion Hazard Index |
| BMP | Baseline Monitoring Plan |
| BRA | Baseline Restoration Assessment |
| CD | Consent Decree |
| CEPP | Contingency and Emergency Procedures Plan |
| CFR | Code of Federal Regulations |
| cfs | cubic feet per second |
| CMR | Code of Massachusetts Regulations |
| CQAP | Construction Quality Assurance Plan |
| CMS Proposal | *Housatonic River – Rest of River, Corrective Measures Study Proposal* |
| CRA | Cultural Resources Assessment |
| EA | Exposure Area |
| EAB | Environmental Appeals Board |
| EMNR | enhanced monitored natural recovery |
| EPA | U.S. Environmental Protection Agency |
| ERE | Grant of Environmental Restriction and Easement |
| FSP/QAPP | Field Sampling Plan/Quality Assurance Project Plan |
| GE | General Electric Company |
| GPR | Ground-Penetrating Radar |
| HASP | Health and Safety Plan |
| HI | Hazard Index |
| IMM Plan | Inspection, Monitoring, and Maintenance Plan |
| IPaC | Information, Planning, and Consultation System |
| kg/yr | kilograms per year |
| M&M | Monitoring and Maintenance |
| mg/kg | milligrams per kilogram |
| MNHESP | Massachusetts Natural Heritage and Endangered Species Program |
| MNR | monitored natural recovery |
| NBS | Near Bank Stress |
| NHPA | National Historic Preservation Act |
| NRHP | National Register of Historic Places |

| | |
|---|---|
| OMM Plan | Operation, Monitoring, and Maintenance Plan |
| PCB | polychlorinated biphenyl |
| PDI | pre-design investigation |
| POP | Project Operations Plan |
| PSA | Primary Study Area |
| QA/QC | quality assurance/quality control |
| QOL | Quality of Life |
| RCMS Report | *Housatonic River – Rest of River, Revised Corrective Measures Study Report* |
| RCRA | Resource Conservation and Recovery Act |
| RD/RA | Remedial Design/Remedial Action |
| ROR | Rest of River |
| SIP | Supplemental Information Package |
| SOW | Statement of Work |
| TCP | Traditional Cultural Properties |
| TSCA | Toxic Substances Control Act |
| UDF | Upland Disposal Facility |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |

# 1 Introduction and Purpose

## 1.1 General

The Consent Decree (CD) for the GE-Pittsfield/Housatonic River Site was executed in 1999 by the General Electric Company (GE), the United States, the Commonwealth of Massachusetts, the State of Connecticut, and other entities and was approved by the federal district court in 2000 (EPA/GE 2000). It established performance standards and other requirements relating to the cleanup of GE's facility in Pittsfield, Massachusetts, the portion of the Housatonic River between GE's facility and the confluence of the East and West Branches of the Housatonic River (the Confluence) in Pittsfield, and other adjacent and nearby areas. It also addressed the Rest of River (ROR), defined as that portion of the Housatonic River and its backwaters and floodplain (excluding Actual/Potential Lawns as defined in the CD) located downstream of the Confluence. For the ROR, the CD established a process for the investigation and evaluation of that area and, ultimately, for the U.S. Environmental Protection Agency (EPA) to select a Remedial Action as a modification to a pre-existing Corrective Action Permit under the Resource Conservation and Recovery Act (RCRA), subject to appeal to the EPA Environmental Appeals Board (EAB) and the U.S. Court of Appeals for the First Circuit.

EPA issued that permit modification (referred to herein as the Modified Permit), setting forth a selected Remedial Action for the ROR, on October 20, 2016 (EPA 2016). GE and several other parties filed petitions for review of the Modified Permit in the EAB.

Paragraph 22.x of the CD requires GE to submit a Statement of Work (SOW) for the implementation of the Corrective Measures that comprise the ROR Remedial Action specified in the Modified Permit. The requirements for the SOW were provided in Section II.H of the Modified Permit. However, most of the provisions of the Modified Permit were stayed due to the appeals to the EAB, either as contested by those appeals or as non-severable from contested provisions. On January 9, 2017, EPA sent a letter to GE identifying the contested and non-severable conditions that were stayed and the uncontested and severable conditions that were not stayed, which became enforceable conditions of the Modified Permit on January 12, 2017 (EPA 2017a). These included only a limited number of the subsections of Section II.H of the Modified Permit relating to the SOW requirements.

On May 11, 2017, GE submitted an initial version of the SOW (referred to herein as the Initial SOW) that addressed only the components of the ROR Remedial Action that were described in those subsections of Section II.H of the Modified Permit listed in EPA's January 9, 2017, letter as uncontested and severable (Anchor QEA 2017). The Initial SOW was conditionally approved by EPA on July 10, 2017 (EPA 2017b).

On January 26, 2018, the EAB issued its decision in the appeals, upholding EPA's remedy in some respects and remanding certain issues to EPA for reconsideration (EAB 2018). Subsequently, EPA, GE,

and other parties involved in the appeals negotiated and reached a Settlement Agreement, which became effective on February 10, 2020. That Settlement Agreement includes several modifications to the remedy specified in the October 2016 Modified Permit. It also explains that EPA will issue a revision to the Modified Permit incorporating the terms of the Settlement Agreement for public comment and will thereafter issue a Revised Modified Permit. Until that Revised Modified Permit is issued, neither the contested terms of the original Modified Permit nor the terms of the Settlement Agreement are legally binding under the CD and the Permit. However, in the Settlement Agreement, GE agreed to commence and perform investigation and design work as contractual obligations thereunder effective upon the date on which all parties signed that agreement (February 10, 2020).

In accordance with its commitment in the Settlement Agreement, GE has prepared and is submitting this SOW as a contractual matter. This SOW covers all components of the anticipated Revised Modified Permit—i.e., those described in the 2016 Modified Permit as revised by the Settlement Agreement. It provides for GE to submit the investigation and design deliverables specified herein and to perform the investigation and design activities specified in those deliverables (as approved by EPA) as contractual obligations under the Settlement Agreement until such time as EPA issues a final Revised Modified Permit, which will set forth the required deliverables and activities for the ROR Remedial Action.

Some of the revised and new requirements outlined in the Settlement Agreement have not been fully developed or detailed. In such cases, given that a Revised Modified Permit has not yet been issued, this SOW provides details for implementation of those requirements in an effort to meet the intent of the Settlement Agreement.

## 1.2 Site Description and Identification of Evaluation Areas

The ROR area consists of the portion of the Housatonic River and its backwaters and floodplain (excluding portions of certain residential properties) downstream of the Confluence (located approximately two miles downstream from the GE facility in Pittsfield). The ROR area is shown on Figure 1 and identified according to river reach designations established by EPA. Subreaches within Reaches 5 through 8 are shown on Figure 2. The ROR reaches and subreaches are as follows (from upstream to downstream):

- Reach 5, from the Confluence downstream to Woods Pond (the first significant impoundment). This reach is further divided into the following subreaches:
  - Reach 5A (Confluence to the Pittsfield Wastewater Treatment Plant)
  - Reach 5B (Pittsfield Wastewater Treatment Plant to Roaring Brook)
  - Reach 5C (Roaring Brook to the start of Woods Pond)

Reach 5 also contains several backwater areas adjacent to the Housatonic River, particularly in the more downstream portion of the reach (these backwaters are sometimes referred to as Reach 5D in past project documents but not in the Modified Permit)

- Reach 6, Woods Pond
- Reach 7, Woods Pond Dam to Rising Pond (the next significant impoundment). This reach is further divided into the following subreaches:
  - Reach 7A (Woods Pond Dam to the Columbia Mill Dam Impoundment)
  - Reach 7B (Columbia Mill Dam Impoundment)
  - Reach 7C (Former Eagle Mill Dam Impoundment)
  - Reach 7D (Former Eagle Mill Dam to the Willow Mill Dam Impoundment)
  - Reach 7E (Willow Mill Dam Impoundment)
  - Reach 7F (Willow Mill Dam to the Glendale Dam Impoundment)
  - Reach 7G (Glendale Dam Impoundment)
  - Reach 7H (Glendale Dam to Rising Pond)
- Reach 8, Rising Pond
- Reach 9, Rising Pond Dam to the Massachusetts/Connecticut border
- Reach 10, Massachusetts/Connecticut border to Falls Village Dam
- Reach 11, Falls Village Dam to Cornwall Bridge
- Reach 12, Cornwall Bridge to Bulls Bridge Dam
- Reach 13, Bulls Bridge Dam to Bleachery Dam
- Reach 14, Bleachery Dam to Shepaug Dam (Lake Lillinonah)
- Reach 15, Shepaug Dam to Stevenson Dam (Lake Zoar)
- Reach 16, Stevenson Dam to Lake Housatonic Dam (Lake Housatonic)
- Reach 17, Lake Housatonic Dam to Long Island Sound

Section 2 of the *Housatonic River – Rest of River, Corrective Measures Study Proposal* (CMS Proposal; ARCADIS BBL and QEA 2007) provided a more detailed description of the ROR area, including: (1) characteristics and landmarks associated with the river reaches; and (2) watershed, river, and floodplain characteristics. It also provided a summary of the nature and extent of polychlorinated biphenyls (PCBs) in sediment, surface water, floodplain and riverbank soil, and biota, as well as a conceptual site model indicating that the highest concentrations and greatest mass of PCBs are

found in Reaches 5 and 6—also known as the Primary Study Area (PSA)—with considerably lower concentrations downstream of Woods Pond Dam.

## 1.3 Summary of Initial Statement of Work

As described in Section 1.1, GE submitted an Initial SOW to EPA on May 11, 2017, that was conditionally approved by EPA on July 10, 2017. The Initial SOW described the content and schedule for the uncontested and severable (non-stayed) deliverables identified in Section II.H of the Modified Permit in accordance with EPA's January 9, 2017, letter. For completeness, the non-stayed deliverables included in the Initial SOW have been incorporated into this full SOW for the ROR; a summary of those deliverables, including their status as of the date of submittal of this SOW, is included in Section 4.

## 1.4 Format of Statement of Work

The remainder of this SOW is organized into the following five sections:

- Section 2 presents a summary of the Performance Standards and Corrective Measures for the ROR Remedial Action, as described in Section II.B of the Modified Permit with the anticipated modifications to those Performance Standards and Corrective Measures resulting from the Settlement Agreement.
- Section 3 presents a conceptual approach to dividing the ROR into separate "Remediation Areas" for the purposes of remedial design and construction and a conceptual sequencing approach to be used for the ROR Remedial Action. The establishment of these areas or segments will support a logical and efficient sequencing of investigation, evaluation, design, and remediation activities. Additional details regarding segmentation and sequencing will be provided in a separate future deliverable—the Overall Strategy and Schedule for Implementation of the Corrective Measures—as required by the Modified Permit.
- Section 4 provides a summary of the anticipated pre-construction deliverables that will be developed and submitted to EPA to describe and support the activities that GE will conduct before construction begins. They are divided into three primary categories of: (1) pre-design/design support deliverables; (2) remedial design deliverables; and (3) remedial action deliverables. For the pre-design and design categories, the deliverables have been further grouped into the following three sub-categories: (a) deliverables that are anticipated to be applicable on an overall site-wide basis; (b) deliverables that are specific to design, construction, and operation of the Upland Disposal Facility (UDF); and (c) deliverables that will be developed separately for each of the ROR Remediation Areas (to be proposed in the Overall Strategy and Schedule for Implementation of the Corrective Measures document). This section also includes a description of other required deliverables that are not specifically related to pre-design, remedial design, or remediation activities.

- Section 5 describes the content of required post-construction deliverables.
- Section 6 provides an initial schedule for submittal of the required deliverables described in this SOW. A more detailed schedule will be provided in the Overall Strategy and Schedule submittal.

# 2 Summary of Performance Standards and Corrective Measures

Section II.H of the Modified Permit requires that the SOW incorporate the Performance Standards and Corrective Measures from the final Permit. Therefore, the following sections provide a summary of those Performance Standards and Corrective Measures described in Modified Permit Section II.B and revised by the Settlement Agreement. This section constitutes only a summary; more specific details are provided in the Modified Permit and the Settlement Agreement, as applicable, which are the controlling documents. This section does not include a summary of the Performance Standards related to potential future response actions that are not known at this time or those for non-construction institutional controls; however, this SOW does provide for the submittal of deliverables addressing those requirements.

## 2.1 General Performance Standards

### *2.1.1 Downstream Transport Performance Standard*

Section II.B.1.a of the Modified Permit lists the first of three general performance standards—Downstream Transport of PCBs. That standard specifies the future allowable PCB load passing Woods Pond Dam and Rising Pond Dam, as summarized in Table 2-1.

**Table 2-1**
**Downstream Transport Performance Standard**

| Woods Pond | | Rising Pond | |
|---|---|---|---|
| Average Daily Flow at Woods Pond Dam Gage (cfs)[1] | Average Annual PCB Load (kg/yr) | Average Daily Flow at Great Barrington USGS Gage (cfs)[1] | Average Annual PCB Load (kg/yr) |
| ≤ 325 | 2.2 | ≤ 485 | 1.9 |
| > 325 ≤ 395 | 2.8 | > 485 ≤ 600 | 2.4 |
| > 395 ≤ 1,450 | 3.3 | > 600 ≤ 2,670 | 4.0 |
| > 1,450 | NA | > 2,670 | NA |

Notes:
cfs: cubic feet per second
kg/yr: kilograms per year
[1] The calculated arithmetic average of the average daily flows on days when samples are collected will determine the flow bin for a given year.

An exceedance of this standard would occur if the annual average PCB load exceeds the standard for the corresponding river flow bin at either location in three or more years within any five-year period following completion of remediation activities. It is anticipated that the standards will be achieved through completion of the various Corrective Measures described in Section II.B of the Modified Permit as revised by the Settlement Agreement. However, in the event that one or more of these standards are exceeded, GE will evaluate and identify the potential cause(s) of the exceedance and

propose (to EPA for review and approval) additional actions necessary to achieve and maintain the subject standard(s), and EPA will determine any such additional actions in accordance with the CD.

Details regarding measurement of compliance with the Downstream Transport Performance Standards are provided in Sections II.B.1.a.(2)(a) through (g) of the Modified Permit. These details, along with any other provisions related to compliance with these standards, will be included in the Performance Standards Compliance Plan described in Section 5.3.

### *2.1.2 Biota Performance Standards*

Section II.B.1.b of the Modified Permit specifies both short-term and long-term biota standards as follows:

- The short-term biota Performance Standard is an average total PCB concentration of 1.5 milligrams per kilogram (mg/kg) wet weight, skin off, in fish fillet (adults) in each reach of the river and backwaters. This standard is to be achieved within 15 years of completion of construction-related activities for that reach (or if the reach is subject to monitored natural recovery [MNR], upon completion of the closest upstream reach subject to active remediation). An exceedance of this standard would occur in the event that the standard is exceeded in any two consecutive monitoring periods after the 15-year period. It is anticipated that this standard will be achieved through completion of the various Corrective Measures described in Section II.B of the Modified Permit as revised by the Settlement Agreement. However, in the event that this standard is exceeded, GE will evaluate and identify the potential cause(s) of the exceedance and propose (to EPA for review and approval) additional actions necessary to achieve and maintain the standard, and EPA will determine any such additional actions in accordance with the CD.
- The long-term biota monitoring Performance Standard is to continue to monitor (even after the Short-Term Biota Performance Standard has been attained) the expected reduction in biota PCB concentrations and the progress toward achieving average total PCB concentrations of: 0.064 mg/kg, wet weight, skin off, in fish fillet (adults) in each reach of the river and associated backwaters in Massachusetts; 0.00018 mg/kg, wet weight, skin off, in fish fillet in each reach of the river in Connecticut; and 0.075 mg/kg in duck breast tissue in all areas along the river.

GE will propose a methodology to evaluate compliance with the Short-Term Biota Performance Standard, as well as a plan for longer-term monitoring of biota after the Short-Term Biota Performance Standard has been achieved, in the Performance Standards Compliance Plan (see Section 5.3).

### *2.1.3 Restoration of Areas Disturbed by Remediation Activities*

As provided in Section II.B.1.c.(1) of the Modified Permit, the Performance Standards for restoration of disturbed areas are to: (1) implement a comprehensive program of restoration measures to address the impacts of the Corrective Measures on affected ecological resources, species, and habitats, including, but not limited to, riverbanks, riverbed, floodplain, wetland habitat, and the occurrence of threatened, endangered, or other state-listed species and their habitats; and (2) return areas disturbed by remediation activities to pre-remediation conditions (e.g., the functions, values, characteristics, vegetation, habitat, species use, and other attributes) to the extent feasible and consistent with the remediation requirements. Under Section II.B.1.c.(2), these Performance Standards will be achieved through a program designed to address the potential impacts of remediation, which will be specified in the following series of documents: (1) a Baseline Restoration Assessment (BRA) Work Plan (see Section 4.2.1.4); (2) a Restoration Performance Objectives and Evaluation Criteria report (see Section 4.2.1.6); (3) a Restoration Corrective Measures Coordination Plan (see Section 4.3.1.4); and (4) Restoration Plans (see Section 4.3.3.5).

## 2.2 River Sediment and Banks

Section II.B.2 of the Modified Permit describes Performance Standards and Corrective Measures for river sediments and banks throughout the ROR. Those Performance Standards/Corrective Measures are summarized in Sections 2.2.1 through 2.2.8 for each reach of the river based on the provisions of Permit Sections II.B.2.a through II.B.2.h with appropriate revisions based on Section II of the Settlement Agreement. Section II.B.2.i of the Modified Permit also describes the Performance Standards for engineered caps that will be included in several reaches; those standards are summarized in Section 2.2.9.

The Modified Permit requires that the riverbank and sediment remediation to be performed in all reaches, including the installation of engineered caps where required, result in no net loss of flood storage capacity and no increase of water surface elevation; for the sake of brevity, this requirement has been provided here and is not stated in each of the following subsections.

### *2.2.1 Reach 5A*

Section II.B.2.a of the Modified Permit provides that riverbed sediment throughout Reach 5A will be removed and that an engineered cap (see Section 2.2.9) will be placed over the entire riverbed. Removal and capping activities must generally use engineering methods employed from within the river channel or other methods approved by EPA. Section II.B.2.a requires further that contaminated soil from eroding riverbanks in Reach 5A be removed based on the following conditions:

- A bank is considered contaminated if it contains discrete total PCB concentrations greater than or equal to 5 mg/kg in the surficial one foot of soil. Delineation of bank areas exceeding

this criterion will be determined based on data to be collected during pre-design activities pursuant to the sampling requirements in Section II.B.2.a.(2) of the Modified Permit.

- A bank is considered erodible if the Bank Erosion Hazard Index (BEHI) and Near Bank Stress (NBS) rating is classified as "Moderate-High" or greater using the Bank Assessment for Non-point source Consequences of Sediment (BANCS) model.

Under the Modified Permit, riverbank areas in Reach 5A meeting both of the above conditions are subject to removal. Excavated riverbanks will be reconstructed to minimize erosion considering the principles of Natural Channel Design and to result in a channel that is in dynamic equilibrium, balances flow and sediment loads, and reduces erosive forces.

In addition, Section II.C of the Settlement Agreement states that for Reach 5A banks that do not require remediation based on the criteria described above, GE will consider supplemental soil removal based on an evaluation of PCB data, erosion potential, adjacent floodplain removal (if any), constructability issues, and the potential impact on downstream PCB transport if such banks should erode.

### *2.2.2 Reach 5B*

Section II.B.2.b of the Modified Permit states that riverbed sediment in Reach 5B associated with each discrete sample with a total PCB concentration greater or equal to 50 mg/kg in the surficial one foot of sediment will be removed and the excavation backfilled. Subsequent to excavation and backfilling in such areas (if any), enhanced monitored natural recovery (EMNR) will be implemented throughout the remainder of Reach 5B. EMNR methods will include placement of an amendment such as activated carbon (AC) or other comparable materials to be proposed by GE (and approved by EPA) throughout Reach 5B to reduce the bioavailability of the remaining PCBs in the sediment bed.

In addition, riverbank soils in Reach 5B with a total PCB concentration greater than or equal to 50 mg/kg in the surficial one foot of soil will be removed, and disturbed banks will be reconstructed using bioengineering methods to minimize erosion and reduce downstream transport of the residual PCBs in bank soil. Similar to the Performance Standards for Reach 5A, for riverbanks in Reach 5B that do not require remediation based on the criteria described above, GE will consider supplemental soil removal based on an evaluation of PCB data, erosion potential, adjacent floodplain removal (if any), constructability issues, and the potential impact on downstream PCB transport if such banks should erode (see Section II.C of the Settlement Agreement).

Delineation of excavation areas exceeding the 50 mg/kg PCB criterion in sediments and riverbank soils for Reach 5B will be determined based on data to be collected during pre-design activities pursuant to the sampling requirements in Section II.B.2.b.(2) of the Modified Permit.

### 2.2.3 Reach 5C

Pursuant to Section II.D of the Settlement Agreement, sediment will be removed as necessary to achieve a spatial average total PCB concentration of 1 mg/kg (or less), followed by the placement of six inches of suitable backfill in areas of the reach that required removal. Delineation of remediation areas needed to achieve this concentration criterion for Reach 5C will be determined based on data to be collected during pre-design activities.

Section II.K of the Settlement Agreement further states that, for remediation in Reach 5C, GE will implement (if feasible) a hydraulic dredging and/or hydraulic pumping approach, with material from these areas pumped directly to the UDF support area. Only those materials that meet the criteria for disposal in the UDF (see Section 2.5 below) will be disposed of in the UDF. Any materials that do not meet those criteria will be dewatered at the UDF support area and prepared for off-site disposal. To the extent that a hydraulic dredging and/or hydraulic pumping approach is not feasible, GE will transport material from Reach 5C to the UDF via trucks while avoiding driving on public roads to the maximum extent practicable. Any sediments that do not meet the criteria for disposal at the UDF will be transported off site.

### 2.2.4 Backwaters Adjacent to Reaches 5, 6, and 7

The Performance Standards for backwaters are specified in Section II.B.2.d of the Modified Permit. These Performance Standards have separate requirements for portions of backwaters located within and outside of Core Area 1 Priority Habitat[1] and for surface (top one foot) and subsurface sediments.

- *Portions of Backwaters Located Outside Core Area 1 Priority Habitat*: For surface sediments in areas located outside Core Area 1 priority habitat, sufficient sediment will be removed, including any sediment in areas with total PCB concentrations greater than or equal to 50 mg/kg, and replaced with a contiguous engineered cap to achieve a spatially weighted average concentration of 1 mg/kg total PCBs in each averaging area.[2] When calculating post-remediation spatially weighted average concentrations, a PCB concentration equal to 1% of the existing average surficial PCB concentration will be used as the PCB concentration in capped areas.

[1] Core Habitat Areas are described in a letter (and accompanying maps) transmitted from the Massachusetts Division of Fisheries and Wildlife to EPA on July 31, 2012, which is provided in Attachment B to the Modified Permit. In summary, Core Area 1 habitat includes the highest quality habitat for species that are most likely to be adversely impacted by PCB remediation activities (mostly plants), Core Area 2 habitat includes the highest quality habitat for more mobile species that may be less vulnerable to remediation impacts, and Core Area 3 habitat includes those areas with dense concentrations of state-listed species.

[2] As required by Section II.B.2.d.(2) of the Modified Permit, GE will propose a method for averaging surface and subsurface PCB concentrations, including proposed averaging areas and depth intervals, in a future PDI Work Plan(s) (see Section 4.2.3.1).

For subsurface sediments, additional sediment will be removed as needed to achieve a spatially weighted average concentration of 1 mg/kg total PCBs in each averaging area and depth interval in areas outside the footprint of the engineered cap necessary to meet the requirements for surface sediments described above. As with surface sediments, when calculating post-remediation spatially weighted average concentrations, a PCB concentration equal to 1% of the existing average surficial PCB concentration will be used as the PCB concentration in capped areas.

In lieu of engineered capping for the surface and subsurface sediment remediation described above, the Modified Permit allows for the placement of backfill in areas where sediment was removed; however, the backfill cannot be factored into the spatial weighting calculations.

- *Portions of Backwaters Located Within Core Area 1 Priority Habitat*: For areas within Core 1 Habitat where discrete total PCB concentrations in surface sediment are greater than or equal to 50 mg/kg, GE will remove those sediments and then place an engineered cap to original grade. In areas where surface sediment total PCB concentrations are between 1 and 50 mg/kg, an amendment (e.g., AC or other comparable amendments) will be placed to reduce bioavailability.

Delineation of remediation areas needed to achieve the concentration criteria for backwaters will be determined based on Thiessen polygons developed using data to be collected during pre-design activities pursuant to the sampling requirements in Section II.B.2.d.(2) of the Modified Permit.

### *2.2.5 Woods Pond (Reach 6)*

Section II.B.2.e of the Modified Permit states that sediment will be removed throughout the pond and an engineered cap will be placed over remaining PCB-containing sediment, resulting in a post-capping minimum water depth of six feet (measured from the crest of Woods Pond dam), except in near-shore areas, where the slope from the shore to the six-foot water depth must be as steep as possible, while also being stable and not subject to erosion or sloughing. In areas deeper than six feet prior to remediation, sufficient sediment will be removed to allow for the placement of an engineered cap so that the final grade is equal to or deeper than the original grade.

To achieve the water depth-based Performance Standard for this reach, GE will conduct bathymetric surveys before sediment removal and before and after capping. The post-capping bathymetry survey will also serve as the baseline for determining the amount of future sediment deposition on the engineered cap. If EPA determines during post-construction monitoring that significant concentrations and depths of PCB-impacted sediment have accumulated above the engineered cap in Woods Pond, GE will remove such accumulated sediment while ensuring the integrity of the engineered cap.

Section II.K of the Settlement Agreement further states GE will implement (if feasible) a hydraulic dredging and/or hydraulic pumping approach to remove sediments from Woods Pond, with material from these areas pumped directly to the UDF support area (see Section 2.5). Only those materials that meet the criteria for disposal in the UDF (see Section 2.5) will be disposed of in the UDF. Any sediments that do not meet those criteria will be dewatered at the UDF support area and prepared for off-site disposal. To the extent that a hydraulic dredging and/or hydraulic pumping approach is not feasible, GE will transport material from Woods Pond to the UDF via trucks while avoiding driving on public roads to the maximum extent practicable. Any sediments that do not meet the criteria for disposal at the UDF will be transported off site.

### *2.2.6 Columbia Mill Impoundment (Reach 7B), Eagle Mill Impoundment (Reach 7C), Willow Mill Impoundment (Reach 7E), and Glendale Impoundment (Reach 7G)*

Performance Standards related to these four impoundments located within Reach 7 are described in Section II.B.2.f of the Modified Permit and are summarized below. Those requirements for two of the impoundments (Columbia Mill and Eagle Mill) have been modified under Sections II.E and II.F of the Settlement Agreement.

- *Columbia Mill Dam and Eagle Mill Dam Impoundments*: In accordance with the Settlement Agreement, the modified requirements for these impoundments are to remove sediments as needed to achieve a spatially weighted average total PCB concentration of 1 mg/kg, including the removal of surface sediments in any area with a discrete PCB concentration greater than or equal to 50 mg/kg, followed by the placement of a minimum of six inches of suitable backfill and additional material as necessary to maintain channel stability (no engineered capping is required). GE is further required to remove both the Columbia Mill and the former Eagle Mill Dams (subject to obtaining access to those properties). For any floodplain area created as a result of dam removal (i.e., former impounded areas that become exposed due to removal of a dam), GE will follow the evaluation process outlined in Section II.B.6.b.(2) of the Modified Permit describing Corrective Measures for floodplain soils.

- *Willow Mill Dam and Glendale Dam Impoundments:* The Performance Standards for surface and subsurface sediments in these two impoundments require the following:

    - For surface sediments, sufficient sediment will be removed, including any sediment in areas with discrete total PCB concentrations greater than or equal to 50 mg/kg, and replaced with a contiguous engineered cap to achieve a spatially weighted average PCB concentration of 1 mg/kg in each averaging area, considering the capped areas to have a PCB concentration equal to 1% of the existing average surficial PCB concentration.

- For subsurface sediments, additional sediment will be removed as needed to achieve a spatially weighted average PCB concentration of 1 mg/kg in each averaging area and depth interval in areas outside the footprint of the engineered cap, considering the capped areas to have a PCB concentration equal to 1% of the existing average surficial PCB concentration.
- In lieu of engineered capping for the surface and subsurface sediment remediation, GE may place backfill in areas where sediment was removed, but the backfill cannot be factored into the spatial weighting calculations.
- Under Section II.G of the Settlement Agreement, GE must remove sufficient sediment to allow for a maximum of three acres of capping in the Willow Mill impoundment and 6.5 acres of capping in the Glendale impoundment.

Delineation of remediation areas needed to achieve the concentration criteria described above for all four impoundments will be determined based on data to be collected during pre-design activities pursuant to the sampling requirements in Section II.B.2.f.(2) of the Modified Permit.

### *2.2.7 Rising Pond (Reach 8)*

The Performance Standards for Rising Pond are described in Section II.B.2.g of the Modified Permit. They require the following:

- For surface sediments, sufficient sediment will be removed, including any sediment in areas with discrete total PCB concentrations greater than or equal to 50 mg/kg, and replaced with a contiguous engineered cap to achieve a spatially weighted average PCB concentration of 1 mg/kg in each averaging area, considering the capped areas to have a PCB concentration equal to 1% of the existing average surficial PCB concentration.
- For subsurface sediments, additional sediment will be removed as needed to achieve a spatially weighted average PCB concentration of 1 mg/kg in each averaging area and depth interval in areas outside the footprint of the engineered cap, considering the capped areas to have a PCB concentration equal to 1% of the existing average surficial PCB concentration.
- In lieu of engineered capping for the surface and subsurface sediment remediation, GE may place backfill in areas where sediment was removed, but the backfill cannot be factored into the spatial weighting calculations.
- Under Section II.H of the Settlement Agreement, GE must remove sufficient sediment to allow for a maximum of 31 acres of capping in Rising Pond.

Delineation of remediation areas needed to achieve the concentration criteria for Rising Pond will be determined based on data to be collected during pre-design activities pursuant to the sampling requirements in Section II.B.2.g.(2) of the Modified Permit.

In addition to the provisions described above, GE is required to conduct bathymetric surveys in Rising Pond before sediment removal and before and after capping. The post-capping bathymetry survey will also serve as the baseline for determining the amount of future sediment deposition. If EPA determines during post-construction monitoring that significant concentrations and depths of PCB-impacted sediment have accumulated, GE will remove such accumulated sediment while ensuring the integrity of the engineered cap, where present.

### *2.2.8 Flowing Subreaches in Reach 7 and Throughout Reaches 9 Through 16, Including Impoundments*

As described in Section II.B.2.h of the Modified Permit, MNR will be implemented in the flowing subreaches in Reach 7 (i.e., Reaches 7A, 7D, 7F, and 7H) and throughout Reaches 9 through 16. The Corrective Measures in these reaches include monitoring of PCB concentrations in affected media (including surface water, sediment, and biota) to evaluate if recovery is occurring at the expected rate, and maintaining institutional controls.

### *2.2.9 Engineered Caps*

The Performance Standards for engineered caps are described in Section II.B.2.i of the Modified Permit. That section states that all engineered caps constructed for the ROR (as described in Sections 2.2.1 through 2.2.7) will include the following layers or functions:

- A Mixing Layer to prevent contamination of the overlying chemical isolation layer due to mixing with underlying contaminated sediment during cap placement, taking into account geotechnical considerations, placement techniques, and other factors as appropriate;
- A Chemical Isolation Layer sufficient to minimize (reduce by 99%) the flux of PCB concentrations through the isolation layer;
- A Geotechnical Filter Layer, as needed based on the design evaluation, to prevent mixing between the chemical isolation and erosion protection layers;
- An Erosion Protection Layer to prevent erosion in accordance with federal and state requirements and consistent with pertinent EPA or U.S. Army Corps of Engineers (USACE) guidance;
- A Bioturbation Layer to prevent bioturbation from impacting underlying layers; and
- A Habitat Layer to provide functions and values equivalent to the pre-existing surficial sediment substrate.

Section II.B.2.i.(2) of the Modified Permit provides details related to design and construction requirements for each of the cap layers described above, including that, under some circumstances, a single layer of material may serve more than one of the functions listed above. Engineered caps will

be inspected, monitored, and maintained to ensure long-term protectiveness and to ensure that they continue to function as designed.

## 2.3 Floodplain and Vernal Pools

### *2.3.1 Floodplain Soil Within Reaches 5 Through 8*

Section II.B.3.a of the Modified Permit describes the Performance Standards associated with floodplain soils within Reaches 5 through 8. For each of the floodplain Exposure Areas (EAs) shown on Figures 3 and 4 in the Modified Permit,[3] the top one foot of soil will be excavated (and backfilled to grade) to achieve either the Primary or Secondary Floodplain Performance Standards applicable to each EA, as listed in Table 1 of the Modified Permit.[4] In general, this remediation will be designed to meet the Primary Floodplain Performance Standards, except that in certain Core Area habitats, the remediation will achieve, at a minimum, the Secondary Floodplain Performance Standards, as discussed further below. Determination of the extents of excavation needed to meet these Performance Standards will be performed as described in Section II.B.3.a.(2) of the Modified Permit. Further, for purposes of achieving the applicable Floodplain Performance Standards, Section II.O of the Settlement Agreement provides for an expansion of EA 10 as shown on Figure 6 of that Agreement.

In addition, for each of the Frequently Used Subareas within the EAs, as shown on Figure 5 of the Modified Permit,[5] the top three feet of soil will be excavated (and backfilled to grade) to achieve the relevant Performance Standards for those areas, as listed in Table 2 of the Modified Permit.

Excavation in Core Area 1 habitat (other than in Frequently Used Subareas) will be avoided, except in limited areas where necessary to meet the Secondary Floodplain Performance Standards. Further, GE will minimize impacts from remediation to the extent practicable in Core Areas 2 and 3 habitat (shown in Attachment B to the Modified Permit); however, at a minimum, Secondary Floodplain Performance Standards will be attained in those areas.

[3] These EAs consist of the 90 direct-contact EAs that EPA identified in its Human Health Risk Assessment (EPA 2005).

[4] Table 1 lists the Primary and Secondary Performance Standards for each EA, based on exposure scenarios determined by EPA. The Primary Performance Standards are floodplain soil PCB concentrations associated with a residual $1x10^{-5}$ cancer risk or a non-cancer Hazard Index (HI) of 1 (as calculated by EPA based on assumed direct contact with soil), whichever is lower. The Secondary Performance Standards are floodplain soil PCB concentrations associated with a residual $1x10^{-4}$ cancer risk or a non-cancer HI of 1 (as calculated by EPA based on assumed direct contact), whichever is lower.

[5] Frequently Used Subareas are portions of the EAs that are more heavily used than other areas. Those subareas were originally defined in GE's RCMS Report and are generally shown on Figure 5 of the Modified Permit, but are subject to modification, with EPA approval, based on current conditions pertaining to potential use.

In addition to the above-described provisions, Section II.B of the Settlement Agreement states that soil from 22 floodplain properties in Reach 5A (specified in Attachment A to that agreement) will be removed to the extent necessary to meet the Residential Performance Standards provided in Table 3 of the Modified Permit. GE is also required to remove soil from six additional properties in the Town of Lenox (identified in Attachment B to the Settlement Agreement) as necessary to achieve the Residential Performance Standards if the owners of those properties consent to such removal. If this work is performed, costs will be shared with the Town of Lenox.

### *2.3.2 Vernal Pools Within Reaches 5 Though 8*

Section II.J of the Settlement Agreement requires GE to submit a plan for, and upon EPA approval, conduct a pilot study on no more than 10 vernal pools (none in Core Area 1 habitat) using either traditional excavation and restoration techniques or amendments such as AC. Based on the results of the pilot study, after an appropriate monitoring period determined by EPA, EPA will determine, and GE will implement, the appropriate remediation in the remainder of the vernal pools as necessary to meet the Performance Standards for vernal pools specified in Section II.B.3.b.(1) of the Modified Permit. Those Performance Standards require either achievement of a spatially weighted average total PCB concentration in soil of 3.3 mg/kg in the pool through removal and replacement of soil or reduction in the bioavailability of PCBs in the pool to a comparable level through amendments.

## 2.4 Inspection, Monitoring, and Maintenance

Section II.B.4 of the Modified Permit specifies that GE will implement a baseline monitoring program, construction monitoring program, and a post-construction inspection, monitoring, and maintenance program.

The baseline monitoring program will include collection of PCB data in surface water, sediment, and biota (and other data) prior to the commencement of construction activities, to serve as a baseline for the evaluation of the potential impacts of the Corrective Measures and project operations (see Section 4.2.1.1).

The construction monitoring program will include similar types of data collection and will focus on monitoring for potential adverse impacts due to construction activities (e.g., resuspension). It will include: (1) measures to assess these impacts (e.g., establishing notification and action levels for PCBs measured in surface water); (2) a monitoring plan to collect these data; and (3) establishment of response actions (e.g., slowdown and evaluation of operations, stop work and modification of operations).

The post-construction inspection, monitoring, and maintenance program will be conducted in phases and will be initiated upon completion of each phase of the ROR Remedial Action, except for areas subject to MNR. For MNR areas, monitoring will begin with baseline monitoring and will

continue throughout the Remedial Action and during the post-construction operation and maintenance. This program will be implemented throughout the Remedial Action to evaluate the effectiveness of the Corrective Measures in achieving Performance Standards; to evaluate MNR; to monitor the sediment accumulation above the engineered caps at Woods Pond and Rising Pond; and to conduct maintenance, repair, or other response actions necessary to achieve and maintain compliance with Performance Standards.

## 2.5 Disposal of Contaminated Sediment and Soil

As described in Section III of the Settlement Agreement, the ROR Remedial Action will use a hybrid disposal approach that includes a combination of: (1) disposal at a UDF at a location identified in the Agreement and to be designed and constructed as part of the Remedial Action; and (2) off-site disposal. The criteria and methods applicable to disposal of material excavated during the ROR Remedial Action are provided in Attachment C to the Settlement Agreement (included as Attachment 1 to this SOW). Requirements related to disposal of materials in the UDF and off-site disposal are summarized in Sections 2.5.1 and 2.5.2, respectively.

### *2.5.1 Upland Disposal*

GE will construct the UDF at the location identified on Figure 1 of the Settlement Agreement. The UDF will be designed, constructed, and operated to meet the requirements set forth in Section III of the Settlement Agreement relating to that facility. In summary, the UDF will: (1) be constructed with a double liner that has low permeability (less than $1 \times 10^{-7}$ centimeters per second) and a minimum thickness of 30 mils and is chemically compatible with PCBs; (2) include primary and secondary leachate collection systems; and (3) be capped with a low-permeability cap and covered with vegetation. The maximum design capacity of the UDF will be 1.3 million cubic yards, and the landfill consolidation area will have a maximum footprint of 20 acres and a maximum elevation of 1,099 feet above mean sea level. The bottom liner of the landfill will be installed a minimum of 15 feet above a conservative estimate of the seasonally high groundwater elevation. The maximum elevation of the landfill consolidation area can be adjusted upward depending on the evaluation of groundwater elevation fluctuations.

Inspection, monitoring, and maintenance activities will be conducted during operation of the UDF, and those activities will continue following closure of the UDF to ensure that it functions properly in perpetuity. To that end, a network of groundwater monitoring wells will be installed around the UDF to allow for detection of any groundwater impacts. The UDF design will also include a stormwater management system to control surface runoff, minimizing the potential for surface erosion or stormwater contribution to leachate generation. Also, if any current non-community and private water supply wells are identified within 500 feet of the UDF consolidation area, those users (and any future new water users) will be connected to public water supply.

GE will utilize the UDF for disposal only of sediments and soils that were generated as part of the ROR Remedial Action, and only of those sediments and soils that meet certain requirements specified in Attachment C to the Settlement Agreement (Attachment 1 to this SOW). Those requirements include a prohibition on the disposal of certain types of waste in the UDF—e.g., free liquids, free product, or wastes that meet the federal criteria for hazardous waste. They also include PCB concentration-based requirements for disposal in that facility, including criteria for the average PCB concentrations of soils and sediments to be placed in the UDF.

### *2.5.2 Off-Site Disposal*

Excavated sediments and soils that do not meet the conditions for disposal in the UDF under Attachment C to the Settlement Agreement will be transported to an off-site disposal facility (or facilities) outside of Massachusetts. As required by Section III.A of the Settlement Agreement, a minimum of 100,000 cubic yards of PCB-impacted sediment, riverbank soils, and/or floodplain soils will be sent off site to such an out-of-state facility. Any such facility must be one that is licensed and permitted to accept such waste and that will accept it, including an RCRA Subtitle C Landfill, so long as that facility is in compliance with EPA's Off-Site Rule (40 Code of Federal Regulations [CFR] 300.440). GE will propose the methods and locations for off-site disposal to EPA.

## 2.6 Water Withdrawals and Uses

In accordance with Section II.B.7 of the Modified Permit, GE will minimize and/or mitigate impacts during implementation of the Remedial Action to withdrawals and/or uses of water from the ROR by any entity. GE will achieve this Performance Standard by: (1) identifying all industrial, commercial, private, or other withdrawals and/or uses of water from the ROR; (2) identifying requirements associated with these uses (including water quality and quantity) that may be affected by implementation of the Remedial Action; and (3) proposing methods to minimize/mitigate impacts during implementation of the Remedial Action. Additional details regarding achievement of this Performance Standard will be provided in a Water Withdrawal and Uses Plan (see Section 4.2.1.8).

# 3 Conceptual Approach to Implementation of Corrective Measures

In accordance with Section II.G of the Modified Permit, this section of the SOW provides a summary of GE's proposed conceptual approach to implementation of the Corrective Measures for the ROR, including project scheduling, coordination, and anticipated sequencing. Additional and more specific details related to the Corrective Measures implementation strategy and approach will be presented in the Overall Strategy and Schedule for Implementation of the Corrective Measures deliverable (hereafter referred to as the Overall Strategy and Schedule document). That deliverable, which is described in Section 4.1, will be prepared and submitted to EPA for approval in accordance with Section II.H.2 of the Modified Permit.

The Corrective Measures required by the Modified Permit and Settlement Agreement include remediation, as necessary, of sediments (including backwaters), riverbank soils, and floodplain soils (including vernal pools) over an area covering approximately 30 river miles. They will include remediation of: (1) sediments (including backwaters) within Reaches 5 through 8, with the exception of the flowing subreaches in Reach 7 (i.e., Reaches 7A, 7D, 7F, and 7H); (2) riverbank soils within Reaches 5A and 5B; and (3) floodplain soils (including vernal pools) in portions of Reaches 5 through 8. Based on the scale of the required Corrective Measures, the remedial design and remedial action process is anticipated to take a number of years to complete. Given these circumstances, GE is proposing to conduct the remedial design and remedial action process using a phased approach.

To facilitate a phased implementation approach, GE is proposing to segment the ROR into separate "Remediation Areas" to manage the workflow and schedule. Given that Reach 5A is the most upstream reach in the ROR, and given the work completed to date for the Reach 5A floodplain pre-design investigation (PDI) (i.e., one of the severable items covered under the Initial SOW), GE proposes that the first Remediation Area will be the sediments and associated backwaters, riverbank soils, and floodplain soils (including vernal pools) within Reach 5A. Definition of subsequent Remediation Areas and the sequencing of the remedial design and remedy implementation for these areas will be provided in the Overall Strategy and Schedule document.

For each of the Remediation Areas, implementation of the Corrective Measures will follow a stepwise process that generally includes the following:

1. Pre-design activities, which include pre-design sampling and other investigations, engineering data collection, and treatability studies, where applicable;
2. Remedial design, which includes the preparation of both Conceptual and Final Remedial Design/Remedial Action (RD/RA) Work Plans and various other supporting documents and plans (described in Section 4); and

3. Remedial actions, which comprise the construction activities needed to implement the remedial action.

For scheduling purposes (as shown in Section 6), GE has assumed that the various steps in this process will be staggered by Remediation Area. As stated previously, details regarding the sequencing and schedule for the various activities to be completed for Remediation Areas downstream of Reach 5A will be provided in the Overall Strategy and Schedule document.

# 4 Pre-Construction Deliverables

This section specifies and summarizes the anticipated pre-construction deliverables that will be developed for the ROR to describe and support the activities that GE will conduct before construction begins.[6] They are divided into three categories: (1) pre-design and design support deliverables (Section 4.2); (2) remedial design deliverables (Section 4.3); and (3) the remediation supplemental implementation package (Section 4.4). The specific deliverables developed under each of the pre-design/design support and design categories have been further grouped into the following three sub-categories:

1. Deliverables that are anticipated to be applicable on an overall site-wide basis;
2. Deliverables that are specific to design, construction, and operation of the UDF; and
3. Deliverables that will be developed separately for each of the ROR Remediation Areas.

The following sections and subsections discuss the deliverables for these categories and subcategories. This section then concludes with a description of other required deliverables that are not directly related to pre-design, remedial design, or remediation activities (Section 4.5).

## 4.1 Overall Strategy and Schedule for Implementation of the Corrective Measures Document

In accordance with Section II.H.2 of the Modified Permit, GE will prepare an Overall Strategy and Schedule document that will provide a detailed strategy for implementing the Corrective Measures described in the Modified Permit. The Overall Strategy and Schedule document will include the following:

- Definitions of the proposed Remediation Areas into which the ROR will be divided, including rationale for selection of those areas;
- A description of how the sediment, riverbank, and floodplain remediation components will be coordinated within a Remediation Area containing more than one such component;

[6] Note that, in the event that EPA issues a final Revised Modified Permit that contains terms that are not substantially similar to those in the 2016 Modified Permit as revised in the Settlement Agreement, GE's contractual commitment in this SOW to submit deliverables and/or conduct activities to meet such substantially different terms will terminate, and GE reserves its right to contest any such requirements and/or to submit a revised SOW that excludes deliverables/activities addressing those requirements. In addition, in the event that EPA issues a final Revised Modified Permit that contains terms that are substantially similar to those in the 2016 Modified Permit as revised in the Settlement Agreement, and anyone not a party to the Settlement Agreement appeals any of those terms to the EAB, the challenged terms and any other terms that are not severable from them will be stayed, and GE's contractual commitment in this SOW to submit deliverables and/or conduct activities to meet such terms will be suspended until such appeal is resolved. In such a case, GE may submit a revised SOW that excludes the stayed requirements.

- A description of how the pre-design and design support investigations, remedial design, and remedial action activities for the Remediation Areas will be sequenced and implemented;
- A description of the project management structure, including a description of GE's project organizational structure, roles, and responsibilities; lines of communication among GE, EPA, and state and local entities; and references to the outreach and public participation requirements specified in the Settlement Agreement; and
- A project implementation schedule that provides more detail than the schedule presented in Section 6 of this SOW.

The Overall Strategy and Schedule document will be submitted to EPA within three months after EPA approval of this SOW.

## 4.2 Pre-Design and Design Support Deliverables

### *4.2.1 Site-Wide Plans and Reports*

#### 4.2.1.1 Baseline Monitoring Plan

In accordance with Section II.B.4.b.(1)(a) of the Modified Permit, PCB data for surface water, sediment, and biota will be collected prior to the commencement of construction activities to serve as a baseline for the evaluation of the effectiveness of the Corrective Measures and project operations. The baseline data will also be used for comparison with data collected under future monitoring programs during and after construction.

The collection of these baseline data will be described in a Baseline Monitoring Plan (BMP), which describes the objectives of the baseline monitoring program, provides a summary of data collected historically that were used to inform the design of the program, and describes the monitoring activities that will be performed under the program. The BMP will include the following, at a minimum:

- Baseline monitoring program objectives;
- Description of the environmental media to be monitored, including a discussion of previous monitoring of those media and brief summaries of existing PCB data;
- Description of the proposed baseline monitoring activities, locations, procedures, and sampling frequency;
- Description of analytical methods;
- Description of equipment testing, maintenance, and calibration requirements;
- Description of field documentation and data management procedures;

- Description of how the baseline monitoring program data collection activities will be reported;
- Preliminary description of how GE plans to measure the effectiveness of MNR in the river reaches where the Modified Permit prescribes MNR; and
- Schedule for performing the baseline monitoring activities and reporting.

The BMP was one of the non-stayed deliverables included in the Initial SOW, and an initial version of the BMP was developed by GE and submitted to EPA on June 12, 2017. Since that time, EPA and GE have been discussing the scope of the baseline monitoring program and the contents of the BMP. Following the completion of those discussions, GE will revise the BMP. It will submit that revised BMP to EPA within three months after a conceptual agreement is reached between GE and EPA on the scope of the program.

#### 4.2.1.2 Rest of River Field Sampling Plan/Quality Assurance Project Plan

The Modified Permit requires GE to submit an updated Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP) to describe the procedures that GE will use in conducting sampling and analysis activities in preparation for and during implementation of the ROR Remedial Action. GE previously prepared and submitted an FSP/QAPP to address sampling and analysis activities under the CD, including, where applicable, the Rest of River.[7] The FSP/QAPP was originally approved by EPA in October 2000 and has been subsequently revised several times, with the latest full revision (Revision 5) in July 2013 (Arcadis 2013a).[8]

As discussed throughout this section of the SOW, the Modified Permit requires preparation of individual work plans for various components of the project. These work plans will describe the sampling design, locations, methods, and analytical approach for each program. To support these work plans, a new Rest of River FSP/QAPP will be developed. The Rest of River FSP/QAPP will present detailed procedures for sample collection, field data collection, laboratory analytical methods, sample handling and documentation, chain of custody, data management, data verification/validation, and field and laboratory quality assurance/quality control (QA/QC).

[7] The *Statement of Work for Removal Actions Outside the River* (part of the CD) includes the FSP/QAPP, as well as the Health and Safety Plan (HASP) (discussed in Section 4.2.1.3 below), as part of the Project Operations Plan (POP). However, the FSP/QAPP and HASP have always been considered separate deliverables from the rest of the POP and have been submitted on separate tracks. That will remain the case for the ROR process. The other components of the POP are described in Section 4.3.1.2.

[8] Since that time, a number of specific addenda have been submitted to the FSP/QAPP. These include an addendum relating to air monitoring procedures on June 17, 2017 (approved by EPA on July 2, 2017), an addendum relating to certain biota sampling and analysis procedures on July 21, 2017 (approved by EPA on July 25, 2017), and an addendum relating to surface water reporting and detection limits on August 22, 2017 (approved by EPA on August 28, 2017).

The Rest of River FSP/QAPP will be based on the existing FSP/QAPP (Revision 5) and will specify the procedures to be followed by GE in performing investigations in preparation for and as part of the ROR Remedial Action. The Rest of River FSP/QAPP will focus solely on the sampling and analysis procedures to be implemented for the ROR activities. As such, it will describe such procedures for soil, sediment, surface water, biota, and air samples that will be collected as part of the ROR project, as well as other relevant procedures that may be needed for that project. This will be a stand-alone document for the ROR that will have a format and structure similar to the existing FSP/QAPP.

Although the Rest of River FSP/QAPP was covered in the Initial SOW, its submittal was deferred until after approval of the BMP. Consistent with that approach, the Rest of River FSP/QAPP will be submitted to EPA within three months after EPA approval of the BMP. Field sampling activities that rely on the Rest of River FSP/QAPP will not commence until after EPA approval of that document.

#### 4.2.1.3 Updated Site Health and Safety Plan

An updated Site Health and Safety Plan (HASP) was included as a deliverable in the Initial SOW. In accordance with that Initial SOW, a Rest of River HASP was submitted on September 8, 2017. That HASP addressed the non-stayed activities in the ROR, including baseline monitoring and floodplain pre-design activities. It will be updated to include the remaining activities that are part of the ROR Remedial Action. The updated HASP will be submitted concurrently with the Rest of River FSP/QAPP three months after EPA approval of the BMP. It will be submitted to EPA solely for review, because the HASP is not subject to EPA approval.

#### 4.2.1.4 Baseline Restoration Assessment Work Plan

A Baseline Restoration Assessment (BRA) Work Plan will be prepared to present the various site-wide evaluations and data collection activities that will be conducted to prepare the BRA. The BRA is intended to provide a detailed baseline ecological inventory and assessment of pre-remediation conditions and serve as the foundation for meeting the restoration Performance Standards set forth in Section II.B.1.c.(1) of the Modified Permit and described in Section 2.1.3 of this SOW.

The BRA Work Plan will describe the procedures to be implemented to perform a baseline assessment of pre-remediation conditions, functions, and values of river bottom, riverbank, backwater, floodplain, impoundment, and vernal pool habitats, as well as the occurrence of federal or state-listed threatened or endangered species or other state-listed rare species present in the areas affected by the Corrective Measures. As required by Section II.B.1.c.(2)(a) of the Modified Permit, the BRA will include the following:

- Identification of the presence and location of specific habitat types, including delineation of existing wetlands;

- Identification of the presence, location, abundance, and condition of federal or state-listed threatened or endangered species or other state-listed species and their habitats, as well as other representative species;
- Identification of the presence, location, abundance, and condition of invasive species;
- Evaluation of vernal pool locations, hydrology, and species use; and
- Characterization of physical/biological attributes of affected habitats (e.g., substrate characteristics, water depth, velocity, temperature, elevation/bathymetry, species composition, density, percent cover, and structural components).

The BRA will generally follow the approach discussed in Section 5 of the *Housatonic River – Rest of River, Revised Corrective Measures Study Report* (RCMS Report; Arcadis et al. 2010). While the specific assessment procedures and protocols listed above will be detailed in the BRA Work Plan, it is anticipated that the following will be included in these assessments:

- *Identification and Delineation of Habitat Types (including Wetlands)*: This effort is anticipated to retain use of the habitat classifications that have been applied to the ROR over the past 20 years, such as those provided in EPA's Ecological Characterization (Woodlot 2002) and carried forward into subsequent work, such as EPA's ecological risk assessment (EPA 2004). Wetlands identification and delineation will employ criteria established by the USACE in its "waters of the United States" regulatory program under the Clean Water Act. They will also consider the criteria for wetlands under the Massachusetts Wetlands Protection Act regulations (310 Code of Massachusetts Regulations [CMR] 10.00). All delineations of both upland and wetland habitats will be conducted using site base mapping and aerial photographs with field checking.
- *Identification of Federal and State-Listed Threatened and Endangered Species and Other State-Listed Species and Their Habitats:* It is anticipated that the occurrence of any federally listed threatened or endangered species or their habitat in the ROR project area will be identified based on the U.S. Fish and Wildlife Service (USFWS) on-line Information, Planning, and Consultation System (IPaC). The occurrence of state-listed species and their priority habitats is anticipated to be based on established records and documentation available from the Massachusetts Natural Heritage and Endangered Species Program (MNHESP). MNHESP has been conducting surveys of state-listed species and their habitats in the ROR for more than 10 years, including consolidating information obtained during the ecological characterization work between 1998 and 2002. MNHESP has defined the limits of Core Habitats based upon these surveys and studies. The BRA Work Plan will describe GE's coordination with MNHESP and will set forth the procedures to be followed for identifying state-listed species and their habitats in the ROR area.

- *Identification of the Presence, Location, Abundance, and Condition of Invasive Species*: This task will start with establishing a definition of "invasive species," including the biological species that will be included (plant and animal). It is anticipated that the focus will be on the plant community and will refer to established listings by recognized organizations (e.g., the USACE New England District and the Massachusetts Invasive Plant Advisory Group). As with the habitat inventories described above, it is anticipated that identification and location of invasive species will be conducted using site base mapping and aerial photographs in combination with field verification.
- *Evaluation of Vernal Pool Locations, Hydrology, and Species Use*: This task will take into account the vernal pool identifications and evaluations already conducted in the Reach 5A floodplain in 2018 and 2019 in accordance with a protocol approved by EPA (EPA 2018). Those identifications and evaluations were provided in GE's *Final Report on Potential Vernal Pool Investigations* (AECOM 2019), which was submitted to EPA on November 18, 2019, and is currently under review by EPA. The BRA Work Plan will provide for a similar approach to be implemented to identify and evaluate vernal pools in the remaining portions of the ROR floodplain, as appropriate.
- *Characterization of Physical/Biological Attributes of Ecological Resources:* This task will involve the identification of the physical/biological attributes of ecological resources that may be affected by remedial activities, and a description of the means and methods for inventorying each resource as part of the BRA process. This characterization will also include the process to identify and qualify the ecological functions and services of the identified resources. As described in Section 5 of the RCMS Report, the specific methods used to assess the existing functions will be based primarily upon the collection of data on measurable and observable structural parameters that are known to give rise to the functions of the relevant habitats.

The BRA Work Plan will be submitted to EPA within three months after EPA approval of this SOW. Following EPA approval of the BRA Work Plan, GE will implement the work as part of the pre-design activities in accordance with the schedule to be outlined in that work plan.

#### 4.2.1.5 Baseline Restoration Assessment Report

Following implementation of the studies outlined in the BRA Work Plan, GE will prepare a Baseline Restoration Assessment Report to present the results. That report will provide a site-wide description and assessment of the pre-remediation conditions, functions, and values of river bottom, riverbank, backwater, floodplain, impoundment, and vernal pool habitats, as well as the identified occurrence of federal or state-listed threatened or endangered species or other state-listed species and any invasive species in the areas affected by the Corrective Measures. The BRA Report will be prepared as a site-wide document; however, within this framework, it is expected that each Remediation Area will be afforded specific attention relative to the conditions, functions, and values of the resources within

the area. The site-wide BRA Report will be submitted in accordance with the schedule established in the BRA Work Plan as approved by EPA.

#### 4.2.1.6 Restoration Performance Objectives and Evaluation Criteria Report

As required by Section II.B.1.c.(2)(b) of the Modified Permit, GE will develop a site-wide Restoration Performance Objectives and Evaluation Criteria (Restoration Criteria) report during the pre-design phase of the project to guide the design, remediation, restoration, construction, and implementation of Corrective Measures and the evaluation of restoration success. The Restoration Criteria report will include the following:

- Definition of restoration objectives, including minimization of the impacts on ecological resources and habitats from the implementation of the Corrective Measures and restoration of impacted resources and habitats. Restoration objectives are anticipated to include general goals, such as no net loss of wetland functions, no significant erosion on riverbanks, and maintenance of overall flood storage capacity.
- Identification of measurable evaluation criteria and applicable methods or specifications, including criteria and methods or specifications for evaluating success in achieving restoration objectives. These are anticipated to include measurable, quantifiable, or observable parameters that are amenable to being designed, controlled, and managed as part of a restoration program and are generally structurally based parameters.
- Identification of stakeholder concerns.
- Development of a Preliminary Monitoring Program. This would be intended to develop monitoring protocols geared specifically to the established Performance Standards.
- Development of a Preliminary Maintenance Program.
- Specification of corrective actions and circumstances. It is anticipated that this process will be integrated with the Adaptive Management Plan to be developed for the Remedial Action, as described in Section 4.3.1.5.

The Restoration Criteria report will be submitted to EPA within two months after EPA approval of the BRA Report.

#### 4.2.1.7 Supplemental Phase IA Cultural Resources Survey Work Plan and Report

In 2008, GE submitted to EPA a report on an *Initial Phase IA Cultural Resources Assessment (CRA) for the Housatonic Rest of River Project* (URS 2008). The Initial Phase IA CRA was conducted to assess the potential for archaeological and historical resources (jointly referred to as cultural resources) to exist in the portions of the Housatonic River and its floodplain that could potentially be affected by implementation of Corrective Measures selected by EPA—namely, Reaches 5 through 8. This

assessment was conducted consistent with Section 106 of the National Historic Preservation Act (NHPA) and federal and state regulations (36 CFR Part 800; 950 CMR 70.14). It preliminarily identified an Archaeological Area of Potential Effects (APE) as the potentially affected river, shoreline, and floodplain areas; and it also noted that a Historic Architectural APE would encompass historic properties that are located within the Archaeological APE or may be impacted by remedial activities. The report included: (1) background information on the environmental setting, pre-history, and history of the project area and region; (2) description of previous cultural resource studies and types of known cultural resources within the Archaeological APE; (3) a preliminary assessment of the potential for each section of the Archaeological APE to contain as-yet unidentified cultural resources; and (4) an outline of future steps under the NHPA to evaluate potential impacts on cultural resources once the scope and extent of remedial action have been determined. On September 9, 2008, EPA provided comments on the Initial Phase IA CRA, and on March 5, 2009, GE provided a response to those comments.

The Modified Permit provides for the submission of a Phase IB Cultural Resources Survey Work Plan as the next deliverable in the CRA process (Section II.H.1.e). Instead, however, as indicated in the Initial Phase IA CRA (page 71), the next step in the process is the submission of a supplemental work plan for additional Phase IA investigations after the extent of areas subject to remediation is known. Phase IA of the CRA process consists of literature searches and a desktop assessment of the archaeological sensitivity of the project area and the potential for historic structures to be present and affected. Because the extent of remediation was not known at the time of the 2008 Initial Phase IA CRA, it will be necessary to update that assessment now that the general extent of remedial activities is known. As noted in the Initial Phase IA CRA, the updated assessment may include studies to identify floodplain or riverbank areas with known cultural resources or high potential to contain such resources, river channel areas with high potential to contain such resources, and/or upland areas with known or suspected historic structures within a Historic Architectural APE.

Thus, as part of the pre-design deliverables, GE will submit a site-wide Work Plan for a Supplemental Phase IA CRA. That work plan will identify a revised Archaeological APE and Historic Architectural APE, based on the scope and extent of remediation and also including the UDF site. It will describe in detail the additional desktop evaluations, literature searches, and consultations to be conducted to update the 2008 Initial Phase IA CRA, including potential contacts with Native American tribes regarding the locations of Traditional Cultural Properties (TCPs). It will also describe the updated evaluations to be conducted of the areas subject to remediation to assess their potential to contain unidentified cultural resources (i.e., whether they have “no,” “low,” or “high” potential to contain such resources). In addition, it will describe the activities to be conducted to identify any known or suspected historic structures within the Historic Architectural APE. This work plan will be submitted within four months after EPA approval of this SOW. It will include a proposed schedule for the performance of this supplemental Phase IA assessment and submission of a report.

Following EPA's approval of the Supplemental Phase IA CRA Work Plan, GE will implement the supplemental Phase IA assessment activities called for in the work plan as approved by EPA. At the conclusion of those activities, GE will prepare and submit a site-wide Supplemental Phase IA CRA Report to present the results.

As also discussed in the Initial Phase IA CRA (page 71), any necessary Phase IB cultural resource survey activities (which would include field activities such as terrestrial or underwater investigations and potentially an architectural survey) to determine the extent to which potentially significant cultural resources could be impacted by the remediation activities would best be conducted during the remedial design phase so that the survey data can be integrated with information from the remedial design. As such, the work plan for a Phase IB cultural resource survey is discussed under the remedial design deliverables in Section 4.3.3.2.

#### 4.2.1.8 Water Withdrawal and Uses Plan

In accordance with Sections II.B.7 and II.H.21 of the Modified Permit, a Water Withdrawal and Uses Plan will be prepared to evaluate and mitigate potential impacts on any industrial, commercial, and private/residential users of river water during implementation of the Corrective Measures. The Water Withdrawal and Uses Plan will describe proposed pre-design activities to identify industrial, commercial, private, or other withdrawals and uses of water along the portions of the Housatonic River that will be subject to remediation activities (i.e., Reaches 5 through 8), as well as to determine requirements associated with these uses (e.g., water quality and quantity) that may be affected by implementation of Corrective Measures.

The results of the pre-design activities to identify the river water uses, if any, will be summarized, for each Remediation Area, in a water withdrawal and uses evaluation that will be included in the Conceptual RD/RA Work Plan for the subject area and will be used to select appropriate methods to minimize and mitigate impacts during implementation of the remediation. The specific mitigative measures that will be considered will depend on the type, size, use, and location of any river water intakes.

The Water Withdrawal and Uses Plan will provide a detailed description of these pre-design and design activities, including the following:

- Objectives of the water withdrawal and uses evaluation;
- Description of the pre-design activities that will be conducted to identify industrial, commercial, and private river water users (e.g., public outreach, coordination with local municipalities, and review of available records);

- Description of information to be gathered for each identified river water user (e.g., location, water usage, withdrawal frequency, estimated withdrawal quantities, water quality requirements, details related to water intakes and any treatment, and related infrastructure details);
- Description of the evaluation to be performed to assess potential impacts that may occur during remedial activities;
- Description of the design process to minimize and mitigate impacts, if any, to identified river water users during implementation of the remedial activities;
- Description of documents to be prepared to summarize the river water usage details and the evaluation and design of any mitigative measures; and
- Schedule for performing the water withdrawal and uses evaluation.

The Water Withdrawal and Uses Plan will be submitted to EPA within 12 months after EPA approval of this SOW. As noted above, the results will be summarized in a water withdrawals and uses evaluation, along with a description of measures to minimize and mitigate impacts related to river water withdrawals during remedial activities, in the Conceptual RD/RA Work Plans discussed in Section 4.3.3.1 of this SOW.

## *4.2.2 PDI Plan and Report for Upland Disposal Facility*

### 4.2.2.1 Pre-Design Investigation Work Plan

A PDI Work Plan for the UDF will be prepared to describe the proposed investigations necessary to support engineering evaluations and detailed planning and design of the UDF. It is anticipated that this work plan will include, but not be limited to, the following:

- Description of UDF site and pertinent site background;
- UDF Performance Standards (summarized in Section 2.5.1);
- Summary of information currently available to support design activities;
- PDI program objectives;
- Description of proposed field activities and investigations to address current data needs (incorporating existing data determined to be of sufficient quality to be usable), anticipated to include:
  - Surveying of existing site features and topography;
  - Subsurface drilling for geotechnical data and sample acquisition; and
  - Installation of temporary piezometers and/or permanent monitoring wells for groundwater elevation monitoring;

- Description of data and information that will be obtained during field-based activities;
- Summary of the evaluations to be performed based on the acquired PDI data and information; and
- Description of PDI reporting requirements and anticipated schedule for performing the PDI activities.

The PDI Work Plan for the UDF will be submitted to EPA within three months after EPA approval of the Overall Strategy and Schedule document. Following EPA approval of both the UDF PDI Work Plan and the Rest of River FSP/QAPP (discussed in Section 4.2.1.2), GE will implement the UDF PDI activities in accordance with the schedule outlined in the UDF PDI Work Plan as approved by EPA, subject to obtaining access permission.

If the findings or results of the UDF PDI activities indicate that additional investigations are necessary, a Supplemental UDF PDI Work Plan or an addendum to the UDF PDI Work Plan will be submitted to EPA for review and approval prior to implementing such supplemental investigations.

#### 4.2.2.2 Pre-Design Investigation Summary Report

Following completion of PDI activities for the UDF, GE will prepare a report summarizing the PDI results. The UDF PDI Summary Report will include the following:

- Summary of the activities and investigations conducted previously, as well as those performed as part of the PDI;
- Summary of the data and information obtained, including field and laboratory test results;
- Documentation prepared during the PDI activities (e.g., boring logs, photographs, and water-level measurements); and
- Schedule for submitting a Conceptual Design Plan for the UDF (see Section 4.3.2.1).

The UDF PDI Summary Report will be submitted in accordance with the schedule to be provided in the UDF PDI Work Plan as approved by EPA.

### *4.2.3 PDI Plans and Reports Specific to Each Remediation Area*

#### 4.2.3.1 Pre-Design Investigation Work Plans

Pursuant to Section II.H.3 of the Modified Permit, GE is required to prepare PDI work plan(s) for the collection of any pre-design data to be used to support the remedial activities in the ROR. At this time, it is anticipated that a separate PDI work plan will be developed for each Remediation Area (Remediation Areas are described conceptually in Section 3, where it is noted that specific Remediation Areas will be defined in the future Overall Strategy and Schedule document [see

Section 4.1]). However, it should be noted that GE may propose to use PDI areas that are larger than individual Remediation Areas or to implement PDI activities for multiple Remediation Areas concurrently for the purposes of pre-design data collection.

PDI work plans will be prepared to present details regarding the scope of any proposed sediment, riverbank, and floodplain investigations. Each such plan will include the following for the subject area(s):

- Description of the subject area(s) and pertinent site background;
- Objectives of the PDI program;
- An evaluation and summary of existing PCB data and identification of data needs;
- Description of the PDI sampling scope for PCBs, including sampling types, locations, rationale, quantities, and depths;
- Proposal for methods of averaging data (e.g., averaging areas and depth intervals) for the purposes of delineating removal areas (as appropriate), as required by the Modified Permit;
- Identification of the analytical method to be used for PCBs (or reference to the appropriate portion of the approved Rest of River FSP/QAPP);
- Description of any proposed non-chemical information to be collected as part of the PDI (e.g., utility surveys, infrastructure surveys, geotechnical sampling, and topography/bathymetry);
- Cross-references to relevant QA/QC requirements set forth in the Rest of River FSP/QAPP;
- Description of PDI reporting requirements; and
- Schedule for performing the PDI activities and reporting.

Two PDI work plans for floodplain soils in Reach 5A have already been submitted pursuant to the Initial SOW. One is a PDI work plan for residential properties within the Reach 5A floodplain, which was submitted to EPA on August 15, 2018, with an addendum submitted on September 14, 2018, and was conditionally approval by EPA on June 9, 2020. In accordance with that conditional approval letter, this plan will be revised and resubmitted to EPA by July 9, 2020. The other floodplain PDI work plan is a PDI work plan for non-residential properties in Reach 5A, which was submitted on October 6, 2017, and conditionally approved in part by EPA on January 25, 2018, and March 28, 2018, and the remainder of which is still under EPA review. Following completion of EPA's review and discussions with EPA, that work plan will be revised and resubmitted to EPA in accordance with EPA's conditional approval letter for it. It is anticipated that the revised PDI work plan for non-residential properties in Reach 5A will include, in addition to other proposed floodplain soil sampling at those properties, proposed soil sampling for PCBs in the vernal pools that have been identified in Reach 5A based on GE's final report on the 2018 and 2019 vernal pools identifications and evaluation, as

revised and approved by EPA.[9] Thus, this work plan will need to follow EPA's approval of the final version of that report.

In addition, a PDI work plan or work plans covering PDI activities for sediments and riverbanks in Reach 5A will be submitted to EPA within three months after EPA approval of the Overall Strategy and Schedule document.

The submittal schedule for PDI work plans for subsequent Remediation Areas will be provided in the Overall Strategy and Schedule document.

If the findings or results of the PDI activities indicate that additional sampling is necessary to further supplement the available data, or if additional data needs are identified during development of the Conceptual RD/RA Work Plan, a supplemental PDI work plan or addendum to an existing work plan will be submitted to EPA for review and approval prior to implementing such supplemental investigations.

#### 4.2.3.2 Pre-Design Investigation Summary Reports

Following completion of PDI activities and after receipt and validation of analytical data, GE will prepare a report(s) summarizing the PDI results corresponding to the approved PDI work plan under which the work was performed. Each such PDI summary report will include the following for the subject area(s):

- Summary of the investigations performed;
- Summary of investigation results;
- Summary of validated data, including a discussion of any QA/QC issues with the data and associated data validation and laboratory data reports; and
- Supporting documentation of the PDI activities (e.g., sampling logs and photographs).

Each PDI summary report will be submitted in accordance with the schedule set forth in the approved PDI work plan for the subject area(s). Each such report will consider the sufficiency of the available PCB data, in terms of spatial coverage, to delineate the potential area(s) to be remediated and the ability of the data to support subsequent RD/RA activities, as well as assess whether there are any additional or remaining data needs. If necessary, the PDI summary report will also contain a proposal for any further investigation(s) and a schedule for submittal of supplemental investigations summary report(s).

[9] As discussed in Section 4.2.1.4, GE's current report on those activities, entitled *Final Report on Potential Vernal Pool Investigations* (AECOM 2019), was submitted to EPA on November 18, 2019, and is under review by EPA.

### *4.2.4 Vernal Pool Pilot Study Deliverables*

In accordance with Section II.B.3.b.(2)(d) of the Modified Permit and the requirements of Section II.J of the Settlement Agreement, GE will conduct a pilot study to evaluate the use of both traditional excavation/restoration techniques and amendments such as AC for the remediation of vernal pools. For this study, GE will first submit to EPA a letter report proposing, for EPA review and approval, the specific vernal pools to be included in the study. This report will include a description of the selected pools (no more than 10 pools and none located in Core Area 1 habitat per the Settlement Agreement) and the process used to select those pools. Because GE has already completed the identification and delineation of certifiable vernal pools in Reach 5A (using MNHESP's vernal pool certification criteria), as discussed in Section 4.2.1.4, it is anticipated that these 10 pools will be located in Reach 5A. The proposal will also discuss which of these 10 pools will be subject to traditional excavation/restoration methods and which pools will be subject to placement of an amendment. This proposal will be submitted to EPA within 30 days following EPA approval of the relevant PDI summary report that includes the Reach 5A vernal pool soil PCB data.

Following EPA approval of this letter report, GE will prepare and submit a Vernal Pool Pilot Study Work Plan that will contain design information related to pilot study activities to be conducted in each of the 10 selected pools. This work plan will include, but will not be limited to, the following:

- For traditional excavation and restoration methods (where selected):
  - An evaluation of the limits of excavation in each pool needed to meet the PCB Performance Standard for vernal pools;
  - Plans and specifications to support the excavation and restoration activities; and
  - A description of other implementation details concerning performance of the pilot study activities;
- For AC or other comparable sediment amendment(s) (where selected):
  - Proposed baseline data collection activities to be conducted in the vernal pools selected for placement of amendments;
  - A description of the type and quantities of AC or other comparable sediment amendment(s) to be used for the selected pools and its application method;
  - A description of the proposed method(s) for measuring the effectiveness of reduction in PCB bioavailability; and
  - A description of how the potential ecological effects of the placement of AC or sediment amendment(s) in comparison to baseline (pre-remediation) conditions will be evaluated;
- A detailed description of the activities and schedule for implementing the pilot study; and

- Proposed procedures and criteria for measuring and evaluating the relative success of the two remediation methods.

GE will submit the Vernal Pool Pilot Study Work Plan within four months after EPA approval of the vernal pool selection proposal.

To the extent possible, implementation of the pilot study within the selected vernal pools will be conducted during the initial year or years of the overall remediation work in Reach 5A (which is anticipated to take several years). This will allow for sufficient time to complete the pilot study and develop recommendations regarding remediation of the remaining vernal pools within the ROR floodplain, including the remainder of the pools within Reach 5A. Following completion of the pilot study, a Vernal Pool Pilot Study Summary Report will be prepared to summarize the results of that study and provide those recommendations. This summary report will be submitted in accordance with a schedule to be provided in the approved Vernal Pool Pilot Study Work Plan. Following EPA approval of that report, a separate addendum to the RD/RA Work Plans for Reach 5A will be developed to address remediation of the remaining vernal pools in Reach 5A. The remediation of the other vernal pools in the ROR floodplain will be addressed in the Conceptual and Final RD/RA Work Plans for the pertinent Remediation Areas.

## 4.3 Remedial Design Deliverables

### *4.3.1 Site-Wide Plans and Reports*

#### 4.3.1.1 Transportation and Disposal Plans

Section II.H.10 of the Modified Permit requires GE to submit an Off-Site Transportation Plan. Given the hybrid disposal approach set forth in the Settlement Agreement (as described in Section 2.5), GE will submit two separate Transportation and Disposal Plans to describe the procedures that will be used to transport and dispose of material removed during implementation of the ROR Remedial Action (i.e., sediment, soil, and debris). The Off-Site Transportation and Disposal Plan required by the Modified Permit will describe such procedures for an off-site disposal facility or facilities, and an On-Site Transportation and Disposal Plan will be developed to describe such procedures for on-site disposal at the UDF to be constructed for this project. Determination of whether material will be transported and disposed of off-site or on-site will be based primarily on characterization of the waste (taking into account the conditions included in the Settlement Agreement for disposal at the

UDF), with a minimum of 100,000 cubic yards of PCB-containing material to be sent off-site. The remainder of this section describes the proposed contents of each plan.

**Off-Site Transportation and Disposal Plan**

This plan will identify and evaluate transportation methods and disposal options for the material to be disposed of off-site, including identification of potential candidate off-site disposal facilities and description of any supplemental waste characterization for the anticipated waste streams to be generated. The Off-Site Transportation and Disposal Plan will include the following elements:

- The plan will identify off-site disposal facilities that could potentially be used in this project (e.g., Toxic Substances Control Act (TSCA) landfills and RCRA Subtitle D and C facilities); and for those facilities, it will provide information on their permits/approvals, general material properties requirements, waste characterization criteria, and facility capacity limitations. The plan will also discuss the criteria that will be applied to select the appropriate off-site disposal facility(ies) that will be used. The actual selection of the off-site disposal facility(ies) to be used for the waste generated in a specific Remediation Area will be identified at a later time, anticipated to be in the Final RD/RA Work Plan or Supplemental Information Package (SIP) for the subject Remediation Area (see Sections 4.3.3.4 and 4.4 below). As the Off-Site Transportation and Disposal Plan will discuss, the criteria for selection of such facilities are anticipated to include consideration of such factors as the type and characterization of the material to be disposed of, the locations of temporary processing/transfer areas, implementation/operation schedule, potential community impacts, and distance.
- The plan will identify and evaluate the anticipated transportation methods to be used for transport to the selected off-site disposal facilities (e.g., truck, rail, intermodal transportation). It will note that the method(s) for transport to a specific disposal facility will take into account the location of that facility, the type and characterization of the material to be transported, the locations of temporary processing/transfer areas, implementation/operation schedule, available loading options at the material processing/transfer area(s), transportation equipment availability, and potential community impacts. The final methods of transport and the transportation routes to the selected off-site disposal facility(ies) will be identified on a Remediation Area-specific basis at a later time, likely in the Final RD/RA Work Plan or SIP for the Remediation Area.
- The plan will present a preliminary evaluation of the results of pre-design waste characterization samples to determine compliance with the waste acceptance criteria of the candidate off-site disposal facilities. A final evaluation of compliance with the waste acceptance criteria of the off-site-disposal facilities will be provided once the off-site disposal facility(ies) have been selected for disposal of waste from a given Remediation Area, likely in the Final RD/RA Work Plan or SIP for the subject Remediation Area.

- The plan will include a description of the waste monitoring, tracking, and recordkeeping procedures in accordance with federal, state, and local waste management regulations (where applicable), including documentation of waste generation, waste characterization and approvals (where necessary), and record of off-site disposal.

**On-Site Transportation and Disposal Plan**

This plan will identify and evaluate transportation methods for the on-site UDF. The On-Site Transportation and Disposal Plan will include the following elements**:**

- The plan will identify and evaluate the anticipated transportation methods to be used for transport to the UDF (e.g., truck, barge, hydraulic conveyance). It will note that the methods for transport to the UDF will take into account the type and characterization of the material to be transported, the means and methods of material removal (e.g., mechanical versus hydraulic), the locations of temporary processing/transfer areas, implementation/operation schedule, available loading options at the material processing/transfer area(s), and potential community impacts. The final methods of transport and the transportation routes to the UDF will be identified on a Remediation Area-specific basis at a later time, likely in the Final RD/RA Work Plan or SIP for the subject Remediation Area.
- The plan will include a description of the waste monitoring, tracking, and recordkeeping procedures in accordance with federal, state, and local waste management regulations (where applicable), including documentation of waste generation, waste characterization and approvals (where necessary), and record of on-site disposal.

**Schedule**

Both Transportation and Disposal Plans will be submitted to EPA concurrently with the Conceptual RD/RA Work Plan to be submitted for the first Remediation Area to undergo remedial design (anticipated to be Reach 5A) (see Section 4.3.3.1).

#### 4.3.1.2 Project Operations Plan Updates

Following execution of the CD, GE prepared a Project Operations Plan (POP) to address common or similar activities associated with the different response actions being implemented under the CD. The POP comprises a series of topic-specific plans (identified below) that address several common aspects of the response actions and apply to various activities to be conducted as part of those response actions. Collectively, these plans describe the minimum requirements, general activities, protocols, and methodologies that are applicable to response actions under the CD. The POP has been revised periodically since 2002, with the most recent version submitted in July 2013 (Arcadis 2013b). It comprises the following plans:

- Waste Characterization Plan;

- Soil Cover/Backfill Characterization Plan;
- Site Management Plan;
- Ambient Air Monitoring Plan (AAMP);
- Construction Quality Assurance Plan (CQAP); and
- Contingency and Emergency Procedures Plan (CEPP).

These plans will be reviewed and updated to incorporate requirements associated with the ROR Remedial Action, as well as any other necessary updates. In addition, a separate Construction Monitoring Plan (as required by Section II.H.18.(a) of the Modified Permit) will be prepared and added to the POP to describe other aspects of construction monitoring not already covered by the existing FSP/QAPP. The updated POP will be submitted to EPA within 15 months after EPA approval of the Overall Strategy and Schedule document.

#### 4.3.1.3 Quality of Life Compliance Plan

In accordance with Section II.H.11 of the Modified Permit and Section II.L of the Settlement Agreement, GE will prepare a Quality of Life (QOL) Compliance Plan that will discuss how the following five topics will be addressed during remediation:

1. Potential noise, air, odor, and light impacts;
2. Potential impacts on recreational activities;
3. Road use, including restrictions on transportation of waste material through residential areas and methods to minimize and mitigate transportation-related impacts to neighborhoods, infrastructure, and the general public;
4. Coordination with affected residents or landowners at or near areas impacted by remediation; and
5. Community health and safety.

Each of these topics is discussed further below.

First, the QOL Compliance Plan will describe GE's proposed noise, air, odor, and light standards to be applied during remediation. The final QOL standards will be incorporated into the remedial design and used to monitor the performance of the remedial activities. The QOL Compliance Plan will also describe general measures planned for assessing achievement of these QOL standards. However, it is anticipated that specific measures for complying with the noise, air, odor, and light standards at the individual Remediation Areas will be developed during remedial design and provided in the Conceptual RD/RA Work Plans and/or Final RD/RA Work Plans as described in Section 4.3.3. It is anticipated that an adaptive management approach will be implemented with respect to compliance

with these QOL standards, such that modifications to control measures and remedial construction activities may be identified as the project proceeds.

Second, the QOL Compliance Plan will describe generally the impacts of remediation on recreational activities in the river and floodplain in the ROR area and methods to minimize or mitigate such impacts where practicable. In accordance with Section II.M of the Settlement Agreement, the plan will include a provision that GE will work cooperatively with the City of Pittsfield; the Towns of Great Barrington, Lee, Lenox, and Stockbridge; and the Commonwealth of Massachusetts to facilitate their enhancement of recreational activities, such as canoeing and other water activities, hiking, and bike trails in the ROR corridor, on properties where remediation will occur, and/or where temporary access roads are constructed. Again, the discussion in this plan will be general; more specifics regarding the impacts of remediation on recreational activities and methods to minimize or mitigate such impacts will be provided on a Remediation Area-specific basis in the Conceptual and/or Final RD/RA Work Plans.

Third, in addressing road use, as required by the Settlement Agreement, the QOL Compliance Plan will include consideration of methods to reduce residential impacts where practicable, including remediation techniques that further restrict transport of waste material through residential areas. In this connection, as required by Section VI.A.3 of the Settlement Agreement, the QOL Compliance Plan will include a description of photographic survey activities that will be undertaken to document the existing condition of municipal roads and associated infrastructure (e.g., bridges and culverts) to be used for the transportation of materials required for remediation in the City of Pittsfield or in the Towns of Great Barrington, Lee, Lenox, or Stockbridge. The QOL Compliance Plan will also describe how roads damaged due to project activities (beyond normal wear and tear) will be repaired in order to allow safe public access. Further, the plan will describe the activities to be undertaken to document the condition of the roads and associated infrastructure following their use for remediation, using the same technology used prior to remediation. The plan will also describe discussions with the affected communities regarding the potential use of Ground-Penetrating Radar (GPR) technology to assess subsurface conditions in certain areas before and after use.

Fourth, the QOL Compliance Plan will describe how GE plans to coordinate with affected residents or landowners at or near areas impacted by remediation.

Fifth, the plan will present a proposed community health and safety program. That program will include establishment and maintenance of a GE website to provide community access to information such as data, technical reports, work plans, and project fact sheets, as well as updates on current and future project activities. It will also include a system to identify and address community complaints and concerns during remediation activities.

The QOL Compliance Plan will be submitted to EPA within 24 months after EPA approval of the Overall Strategy and Schedule document. It is understood that, as provided in the Settlement Agreement, EPA will solicit input on the QOL Compliance Plan from local governments, affected residents/landowners, neighborhoods in the vicinity of the cleanup, and other interested stakeholders as part of its review process.

#### 4.3.1.4 Restoration Corrective Measures Coordination Plan

Section II.B.1.c.(2)(c) requires GE to submit a Restoration Corrective Measures Coordination Plan (Restoration Coordination Plan) to be implemented during remediation activities. The Restoration Coordination Plan is required to address the following:

- Integration of restoration activities with remediation activities (e.g., locations of access roads/staging areas, harvesting of material for subsequent use in restoration construction, habitat layer characteristics, bank stabilization methods, and construction of bed/bank interface);
- Timing and phasing of remediation activities;
- Identification of restoration specialists and their roles and responsibilities;
- Specification of pre-construction preparation requirements (e.g., installation of silt fence or other protective/exclusion measures, propagation of materials, monitoring/relocation/propagation of species, and field delineation of species occurrences/vernal pool boundaries); and
- Specification of protocols to be implemented prior to and during construction to minimize impacts to threatened, endangered, or other state-listed species and their habitats, including elements discussed above as well as other measures such as seed-banking, transplanting, wildlife exclusion barriers, and turtle tracking.

Review of these requirements indicates that some of the requirements can be addressed generally on a site-wide basis, but that many of the specific listed requirements can only be addressed during design activities for a specific Remediation Area. Accordingly, GE will submit an initial site-wide Restoration Coordination Plan, but will also include area-specific Restoration Coordination Plans in the Restoration Plans for the various Remediation Areas, as discussed in Section 4.3.3.5.

It is anticipated that the site-wide Restoration Coordination Plan will function as a planning or guidance document and will include the following general elements:

- Determination of remediation activities which should be integrated with restoration activities;
- Development of protocols and guidelines for coordination between remedial design and restoration planning efforts;

- General restoration objectives and procedures for ROR ecological habitats, including riverine, riverbank, backwater, impoundment, and all floodplain habitats (including vernal pools);
- Identification of restoration specialists available to work on the ROR projects;
- Criteria and guidelines for assessing timing and phasing of remediation activities to minimize habitat impacts and implement restoration activities; and
- Listing and description of best management practices and procedures to consider during remediation activities to minimize impacts to threatened, endangered, or other state-listed species and their habitats.

Note also that many of the elements of the Restoration Coordination Plan were included in Section 5 of the RCMS Report and in the Evaluation of Example Areas in GE's February 2010 *Supplement to Response to EPA's Interim Comments on CMS Report: Evaluation of Example Areas* (AECOM 2010), and these will be used in the development of the Restoration Coordination Plan.

The site-wide Restoration Coordination Plan will be submitted to EPA within three months after EPA approval of the Conceptual RD/RA Work Plan for Reach 5A (i.e., the first Remediation Area to be evaluated).

#### 4.3.1.5 Adaptive Management Plan

In accordance with Section II.F of the Modified Permit, an adaptive management approach will be incorporated into the design and implementation of the Corrective Measures to adapt requirements or activities based on new information and make changes as needed to achieve the expected benefits of the project. The overall objective of the adaptive management approach will be to maintain or improve the efficiency of the project, mitigate short-term impacts as needed, and help ensure that the Corrective Measures are successfully completed, that the work remains consistent with the Modified Permit as revised by the Settlement Agreement, and that the targets and objectives set forth in the Modified Permit and Settlement Agreement are met. The adaptive management process will be implemented to adapt and optimize project activities (i.e., design and construction) to account for lessons learned from work conducted at early stages of the project, new information, changing conditions, new or innovative technologies (if any), and any pilot study results as the project progresses.

The adaptive management approach will include ongoing reassessment of the design of the remediation and restoration activities, construction methods, and best management practices. The proposed segmentation of the ROR into separate Remediation Areas (as described in Section 3) allows for adaptive management, so that lessons learned during work performed in earlier Remediation Areas can be carried forward into future work performed in subsequent Remediation Areas. The adaptive management process will be iterative in that successful design elements or

remediation and restoration activities and processes can be identified early in the construction process and built upon, while those that are less successful can be identified and then refined, modified, or eliminated, as appropriate, to achieve the remedial objectives more efficiently and effectively.

An Adaptive Management Plan will be prepared in accordance with Section II.H.13 of the Modified Permit to provide additional detail on the adaptive management process to be implemented for the ROR project. The Adaptive Management Plan will include the following:

- Objectives for the adaptive management process;
- Identification of the project components that will be subject to adaptive management;
- A description of information and data that will be considered during adaptive management; and
- A description of the adaptive management assessment and decision-making process.

The Adaptive Management Plan will be submitted to EPA within 18 months after EPA approval of the Overall Strategy and Schedule document.

### *4.3.2 Design Plans for Upland Disposal Facility*

GE will develop engineering designs, drawings, and technical specifications for the construction of the UDF. To facilitate EPA's review of the UDF layout and components, a Conceptual Design Plan will be developed; and following EPA approval, a Final Design Plan for the UDF will be prepared. In addition, GE will develop plans for the operation, monitoring, and maintenance of the UDF and for the final cover/closure of the UDF. Descriptions of all these plans are provided in the following sections.

#### 4.3.2.1 Conceptual Design Plan for the Upland Disposal Facility

Following EPA approval of the UDF PDI Summary Report (and any supplemental report[s]), GE will submit conceptual design information for the UDF. This information will be submitted in a Conceptual Design Plan following completion of pre-design activities and related reporting and when design activities are approximately 30% complete.

The Conceptual Design Plan for the UDF will present the site layout and primary components of the UDF. In general, the Conceptual Design Plan for the UDF will include the following elements:

- Summary of the Basis of Design used in preparation of the UDF design;
- An evaluation of how the UDF will meet the Performance Standards summarized in Section 2.5.1;
- Description of the potential construction phases for development of the UDF;
- Description of the preliminary design, including estimated disposal capacity, peak final cover elevation and slopes, and groundwater-baseliner separation distance;

- Estimates of the primary site earthwork quantities (i.e., cut and fill amounts) associated with construction of the UDF;
- Preliminary design drawings depicting primary elements of the UDF, including waste consolidation area baseliner and final cover grading, access roads, stormwater management and leachate storage facilities, and operational areas; and
- An identification of Applicable or Relevant and Appropriate Requirements (ARARs) relevant to the UDF.

The Conceptual Design Plan for the UDF will be submitted to EPA in accordance with a schedule to be provided in the UDF PDI Summary Report.

#### 4.3.2.2 Final Design Plan for the Upland Disposal Facility

The Final Design Plan for the UDF will be prepared based on the conditions developed in the Conceptual Design Plan and in consideration of comments received from EPA on that plan. The Final Design Plan will be prepared for construction purposes and will therefore include the necessary detailed evaluations and technical information to support EPA approval and development of the UDF. In general, the Final Design Plan for the UDF will include the same information listed in Section 4.3.2.1 concerning the conceptual design information (with updates and additional details as appropriate based on further design activities and/or EPA comments), plus the following additional information:

- Detailed design of the UDF, including construction-level design drawings and materials and performance specifications;
- Final engineering calculations (e.g., geotechnical, stormwater, and disposal capacity);
- Identification of UDF construction team, including key personnel, their roles and responsibilities, and lines of authority;
- Process for selection of a UDF construction contractor, if not already selected;
- Schedule for construction;
- CQAP;
- Stormwater Pollution Prevention Plan;
- Project closeout requirements; and
- Summary of anticipated Post-Construction Site Control activities following completion of the final cover and closure.

The Final Design Plan will be submitted to EPA in accordance with a schedule to be provided in the Conceptual Design Plan.

#### 4.3.2.3 Operation, Monitoring, and Maintenance Plan for the Upland Disposal Facility

GE will also prepare an Operation, Monitoring, and Maintenance Plan (OMM Plan) for the UDF. That plan will detail OMM activities that will be implemented during the facility construction and operation phases. The OMM Plan is anticipated to include the following:

- Construction-phase monitoring for the facility components, including construction oversight, daily work inspections, air and groundwater monitoring, QA/QC measures and activities, and reporting;
- Waste filling and management operations, including waste placement tracking and monitoring, fill progression and capacity monitoring, daily and temporary waste covering and inspections, stormwater management inspections, and reporting;
- Monitoring during UDF operations, including air, groundwater, and stormwater monitoring; and
- Facility operations, including leachate generation tracking, routine site and facility component inspections, routine and event-based stormwater management system inspections, and reporting.

The UDF OMM Plan will be prepared and submitted to EPA concurrently with GE's submittal of the Final Design Plan for the UDF.

#### 4.3.2.4 Final Cover/Closure Plan for the Upland Disposal Facility

GE will prepare a Final Cover/Closure Plan for the UDF. That plan will describe the closure of the UDF, including installation of the final impermeable cap and vegetative cover. It will also include monitoring during closure construction activities (e.g., construction oversight; daily work inspections; air, groundwater, and stormwater monitoring; QA/QC measures and activities; and reporting).

Section III.G.3 of the Settlement Agreement requires final closure of the UDF when either: (1) the UDF is full; or (2) excavation and dredging activities conducted as part of the ROR Remedial Action are complete. Given these requirements, GE will submit the Final Cover/Closure Plan for the UDF at least one year in advance of the anticipated occurrence of the earlier of those conditions (or of the anticipated closure of a discrete cell within the UDF), on a schedule to be agreed upon with EPA. The Post-Closure Monitoring and Maintenance Plan for the UDF is described in Section 5.2.

### *4.3.3 Plans and Reports Specific to Each Remediation Area*

#### 4.3.3.1 Conceptual RD/RA Work Plans

Following EPA approval of the PDI summary report(s) for each Remediation Area, GE will submit conceptual design information related to remediation of in-river sediment, riverbanks, and/or floodplain soil/vernal pools (as applicable) for that Remediation Area. This information will be

submitted in a Conceptual RD/RA Work Plan following completion of PDI activities and related reporting and when design activities are approximately 30% complete.

The Conceptual RD/RA Work Plan for each Remediation Area will include, but may not be limited to, the following:

- Results of pre-design studies/investigations;
- An evaluation of the areas and depths subject to remediation to meet the applicable PCB-related Performance Standards (summarized in Section 2 of this SOW);
- An evaluation of issues that may affect the type and extent of remediation activities;
- Preliminary plans and specifications to support the remediation activities;
- A summary of preliminary remediation quantities, including estimated sediment/soil removal volumes and capping areas/backfill volumes;
- Design assumptions and parameters, including preliminary cap design evaluations (where applicable);
- A description of supplemental engineering data collection activities to be conducted prior to final design;
- If necessary, a Treatability Study Work Plan to describe any necessary treatability testing to support the final design;
- Preliminary area-specific measures to address the QOL standards and potential impacts on the public;
- A summary of the water withdrawals and uses evaluation, including preliminary measures to be implemented to minimize and mitigate impacts related to river water withdrawals during implementation of response actions (see also Section 4.2.1.8);
- Results of an in-river hydraulic analysis conducted in support of design, where necessary;
- A preliminary evaluation of where the dredged/excavated materials from the subject Remediation Area will be disposed of (i.e., in the UDF vs. in off-site disposal facilities); and
- An identification of ARARs for the remediation and restoration work in the subject Remediation Area.

The Conceptual RD/RA Work Plan for the first Remediation Area (Reach 5A) will be submitted to EPA within six months after approval of the last PDI summary report for that area.

The submittal schedule for Conceptual RD/RA Work Plans for subsequent Remediation Areas will be outlined in the Overall Strategy and Schedule document and will likely be linked to EPA approval of the PDI summary report(s) for each Remediation Area.

#### 4.3.3.2 Cultural Resource Survey Deliverables

During the remedial design phase, GE will submit, for each Remediation Area, a Work Plan for a Phase IB Cultural Resource Survey. Using information in the Supplemental Phase IA CRA Report (see Section 4.2.1.7) and design information in the Conceptual RD/RA Work Plan for the subject area, this work plan will propose field investigations to determine whether the remediation and support activities for that area, as designed, will impact any potentially significant cultural (i.e., archaeological or historical) resources. The proposed investigations will include visual reconnaissance, terrestrial surveys, underwater investigations, and architectural surveys, as appropriate.

The Work Plan will first describe and map the archaeological sensitivity of each pertinent segment of the subject area (i.e., whether it contains known cultural resources and its potential to contain unidentified cultural resources). These sensitivity maps will be compared with the areas targeted for remediation and support areas, as described in the Conceptual RD/RA Work Plan. The objective of this comparison will be to determine whether any areas identified as containing known cultural resources or having a "high potential" to contain such resources are situated within or immediately adjacent to the areas subject to remediation or with remediation support facilities. This comparison will also include identification of areas within the Historic Architectural APE where known or suspected historic structures could be affected. The Work Plan will identify additional information needed to determine whether the remediation and supporting activities will impact any potentially significant cultural resources (i.e., resources that could potentially meet the criteria for inclusion in the National Register of Historic Places [NRHP]), including areas that need field investigations to make that determination. The Work Plan will describe the proposed field investigations to satisfy those information needs. These may include field reconnaissance to ground-truth the sensitivity maps, refine the sensitivity classifications, and determine where systematic field surveys will be needed. They may also include specific detailed terrestrial, underwater, and potentially architectural survey activities in particular areas. The Work Plan will identify those specific areas, if any, and describe the proposed methods for conducting such surveys and documenting the results. It will also include a proposed schedule for performing the Phase IB investigations and submitting a report.

The Phase IB Cultural Resource Survey Work Plan for the first Remediation Area (Reach 5A) will be submitted concurrently with the Conceptual RD/RA Work Plan for that Remediation Area. It is anticipated that the Phase IB Cultural Resource Survey Work Plans for each subsequent Remediation Area (as described in the Overall Strategy and Schedule document) will likewise be submitted concurrently with the Conceptual RD/RA Work Plan for the subject Remediation Area.

Following EPA approval of the Phase IB Cultural Resource Survey Work Plan for a given Remediation Area, GE will conduct the Phase IB field investigations called for in that work plan as approved by EPA. Those activities will be documented in a Phase IB Cultural Resources Survey Report, which will follow federal and state guidelines for such a report and will be submitted in accordance with a schedule in the approved Phase IB work plan. That report will evaluate, based on the data collected, whether the remediation and/or supporting activities would result in an adverse effect on any potentially significant cultural resources in the subject Remediation Area. It will also evaluate whether locations containing potentially significant cultural resources can be avoided in the remediation program, consistent with the goal of that program. If the resources cannot be avoided, the report will evaluate, to the extent possible with the available data, whether the resources in question meet the criteria for eligibility for inclusion in the NRHP. In addition, the report will evaluate the need for any additional Phase IB field investigations to further assess impacts on potentially significant cultural resources, and if appropriate, will propose such investigations.

In the event that the Phase IB investigations indicate that the remediation and/or supporting activities would result in adverse effects on potentially significant cultural resources, that such effects cannot be avoided, and that additional information is necessary to determine whether the resources to be affected meet the criteria for eligibility for inclusion in the NRHP, GE will prepare and submit a Phase II CRA Work Plan to evaluate whether those resources in fact meet the criteria for eligibility for the NRHP. Phase II of the CRA process can consist of both additional background research and additional field investigations. The Phase II CRA Work Plan will be submitted on a schedule specified in the Phase IB Cultural Resources Survey Report and will describe the additional activities proposed to determine whether the resources identified meet the eligibility criteria for the NRHP. Following EPA approval, the proposed activities will be conducted and the results will be presented in a Phase II CRA Report.

In the event that the remediation and/or supporting activities would result in unavoidable adverse effects on cultural resources that meet the criteria for eligibility for inclusion in the NRHP, mitigation activities may be necessary. If necessary, proposed mitigation activities will be included in the Final RD/RA Work Plan for the subject Remediation Area.

#### 4.3.3.3 Plan(s) for Removal of Columbia Mill and Former Eagle Mill Dams

As stated in Sections II.E and II.F of the Settlement Agreement, as part of the ROR Remedial Action, GE will remove the Columbia Mill Dam (in Reach 7B) and the former Eagle Mill Dam (in Reach 7C). Section II.H.17 of the Modified Permit states that GE will submit a Dam Removal-Related Activities Plan to support the removal of these dams. However, GE proposes that data collection activities, regulatory requirements, and design considerations related to removal of these dams be incorporated into the PDI Work Plans and Conceptual and Final RD/RA Work Plans associated with the Reach 7 impoundments in lieu of preparing separate plan(s) to guide these dam removal

activities. Information to be gathered and activities to be performed in support of dam removal will include many of the same activities already being performed in support of sediment remediation in these reaches (e.g., hydraulic modeling, geomorphology evaluations, cultural resources evaluations). In addition, the specific activities relating to the dam removals will include evaluations of land use impacts (e.g., creation of any new floodplain areas resulting from dam removal) and evaluation of compliance with ARARs and any other regulatory requirements pertaining to the dam removals.

#### 4.3.3.4 Final RD/RA Work Plans

Following EPA approval of the Conceptual RD/RA Work Plan for each Remediation Area, GE will submit a Final RD/RA Work Plan for each such area in accordance with a schedule to be proposed by GE in the Conceptual RD/RA Work Plan and approved by EPA. The Final RD/RA Work Plans will include a detailed description of the design and implementation of the proposed remedial activities. The Final RD/RA Work Plan for each Remediation Area will include final versions of information listed in Section 4.3.3.1 for the conceptual design (with updates and additional details as appropriate based on further design activities and/or EPA comments), plus the following information:

- Detailed design of the remediation activities;
- Results of any supplemental data collection activities;
- Results of any treatability studies;
- Description of other implementation details concerning performance of the remedial activities;
- Description of the disposal activities for the dredged/excavated materials from the subject Remediation Area (i.e., the extent to which those materials will be disposed of in the UDF or will be transported to off-site disposal facilities) and, if known, identification of the selected off-site disposal facility(ies) to be used (if any) and the transportation routes to such facility(ies);
- Identification of remediation team, including key personnel, their roles and responsibilities, and lines of authority;
- Process for selection of a remediation contractor, if not already selected;
- Detailed requirements for supplemental plans to be prepared by the remediation contractor as described in Section 4.4; and
- Project closeout requirements.

The Final RD/RA Work Plans will also include a schedule for implementing the remedial activities in the Remediation Area and for submission of supplemental contractor work plans as described in Section 4.4.

#### 4.3.3.5 Restoration Plans

For each Remediation Area, GE will develop a Restoration Plan to return all areas disturbed by the remediation activities to pre-remediation conditions (e.g., functions, values, characteristics, vegetation, habitat, species use, and other attributes) to the extent practicable and consistent with the remediation requirements. In accordance with Section II.B.1.c.(2)(d) of the Modified Permit, the Restoration Plan for each Remediation Area will include the following:

- Identification of materials, sources, and specifications;
- Development of restoration construction plans;
- Identification of the restoration specialists who will assist with restoration activities at the Remediation Area, along with their roles and responsibilities; and
- Revised restoration monitoring and maintenance programs.

In addition, the Restoration Plan for each Remediation Area will include a Restoration Coordination Plan specific to that Remediation Area, which will build on the general site-wide Restoration Coordination Plan described in Section 4.3.1.4. The Remediation Area-specific Restoration Coordination Plan will allow for attention to be directed to the ecological features at the subject Remediation Area, such as unique habitat features that support specific rare species use; and it will include measures to integrate the restoration activities with the remediation activities within the Remediation Area. It will include the items listed in Section 4.3.1.4 that are best addressed on a Remediation Area-specific basis—e.g., locations of access roads and staging areas; timing of remediation and restoration activities; specific pre-construction preparation requirements; specific methods to minimize impacts on threatened, endangered, or other state-listed species; and specific restoration features to incorporate into the remedial design to restore impacted ecological functions.

The Restoration Plan for each Remediation Area will be submitted concurrently with the Final RD/RA Work Plan for that area.

## 4.4 Remediation Supplemental Implementation Package

Following EPA approval of the Final RD/RA Work Plan and Remediation Plan for a given Remediation Area, GE will implement the remediation and restoration activities described in those plans. Certain information related to the implementation of these activities will require input from the selected remediation contractor(s), specifically related to the means and methods for remedial construction. Accordingly, as with other remedial programs at the Pittsfield/Housatonic River Site, GE will require the selected remediation contractor(s) to prepare plans to describe the means and methods for completing the work in accordance with the approved design.

Relevant plans to be prepared by the remediation contractor(s), along with other remaining implementation details, will be incorporated into a SIP for the Remediation Area, which will be submitted to EPA. While detailed requirements for the SIP will be described in the Final RD/RA Work Plan, it is anticipated that the SIP will include, but may not be limited to, the following:

- Remediation contractor's Operations Plan, which will provide a detailed description of the contractor's means and methods, control measures, and best management practices to be implemented as part of the remedial construction activities;
- Remediation contractor's Contingency Plan, which will define responses to potential emergencies, standard exceedances, or other contingencies that may arise during the construction work, so as to aid site personnel in responding quickly and effectively and to protect workers and the local community in the instance of such an event;
- Remediation contractor's Health and Safety Plan, which will describe the project-specific safety and health requirements and procedures to be followed during the remediation activities;
- Remediation contractor's Work Schedule, which will incorporate production rates and sequencing of specific equipment and the approach selected by the remediation contractor(s);
- Information on imported backfill and cap material sources, including details related to the material sources, their locations, results of laboratory testing, and transportation routes to the work site; and
- Information on the facilities that will be used for disposal of waste materials, including, for off-site facilities, the facility names, locations, permit/approval status, waste streams, and transportation routes (if not specified in the Final RD/RA Work Plan).

The SIP for each Remediation Area will be submitted in accordance with a schedule in the Final RD/RA Work Plan for that area.

## 4.5 Other Deliverables

This section presents GE's plans for submitting other required deliverables that are not specifically tied to the performance of the on-site remediation activities described in the preceding sections.

### *4.5.1 Plan for Implementing Future Projects or Work*

Section II.H.19 of the Modified Permit requires GE to prepare an Institutional Controls and Related Requirements Plan. Several plans subject to this requirement were covered by the Initial SOW and have already been submitted. Specifically, GE has submitted the following:

- *Plan for Obtaining Environmental Restrictions and Easements and Inspecting Subject Properties* (revised December 14, 2018), approved by EPA on December 20, 2018;
- *Biota Consumption Advisory Outreach Plan for the Housatonic Rest of River in Massachusetts* (revised July 2019), approved by EPA on July 16, 2019; and
- *Biota Consumption Advisory Outreach Plan for the Housatonic Rest of River in Connecticut* (November 2017), currently under EPA review.

What remains is a plan for implementing the various provisions of the Modified Permit relating to Legally Permissible Future Projects or Work. Those provisions consist of the following:

- Sections II.B.2.j.(1)(c) and (2)(e), governing such projects or work involving non-GE-owned dams in Massachusetts;[10]
- Sections II.B.2.k, governing such projects or work involving the river sediments, riverbanks, and backwaters in the Massachusetts portion of the ROR;
- Section II.B.2.l, governing such projects or work involving the river sediments, riverbanks, and backwaters in the Connecticut portion of the ROR;
- Sections II.B.6.b(1) and (2)(b) and (c), governing such projects or work in the floodplain EAs (as defined in the Modified Permit) in Massachusetts; and
- Section II.B.6.c, governing such projects or work in other floodplain areas in Massachusetts and Connecticut.

Although there are some differences among them, these provisions generally require that if a third party plans to implement a Legally Permissible Future Project or Work (as defined in the Modified Permit) in a portion of the river, riverbanks, or floodplain within the ROR, GE must conduct response actions "to be protective" of such project or work and to allow such project or work "to be conducted in a manner that maintains Performance Standards and/or maintains the effectiveness of the ROR Remedial Action." There are certain limitations on the future projects or work that would trigger this requirement. For example, to be covered by these provisions, floodplain projects or work must involve the handling, excavation, or removal of sediment or soil in an area not subject to a Grant of Environmental Restriction and Easement (ERE); and projects or work in Connecticut must involve the

[10] The plans to implement the requirements for GE to ensure inspection, monitoring, and maintenance of these dams are described in Section 4.5.3.

handling or disturbance of sediment or soil with PCB concentrations greater than 1 mg/kg. Where these Future Project or Work requirements are applicable, the required response actions could include materials handling and off-site disposal, engineering controls, and, for floodplain projects, actions to achieve the applicable floodplain Performance Standards for the type of property involved.

The Settlement Agreement established some further conditions related to the Future Project or Work provisions of the Modified Permit. Section II.I of that Agreement states that those provisions will be modified to provide that the specified "further response actions" will be in accordance with and pursuant to the CD and will be consistent with the response actions selected in the Revised Modified Permit, and that GE's responsibility for the costs of those further response actions will be limited to costs that are solely related to the presence of PCBs.

To implement these requirements, GE will prepare and submit a Plan for Implementing Future Projects or Work. That plan will describe how GE proposes to implement the requirements of each of the above-cited provisions of the Modified Permit relating to Future Projects or Work, as revised by the Settlement Agreement, recognizing the differences among the provisions.

The Plan for Implementing Future Projects or Work will be submitted to EPA within 15 months after EPA approval of this SOW.

### *4.5.2 Model Reevaluation Plan*

Under the terms of the CD, EPA conducted a modeling study of the fate, transport, and bioaccumulation of PCBs within the ROR. The overall objective of this study was to develop a model that could be used to evaluate the relative effectiveness of various remedial alternatives in terms of PCB fate, transport, and bioaccumulation. EPA issued its *Final Model Documentation Report* in November 2006 (EPA 2006), which documents the model's development, calibration, and validation. Under the CD, the EPA model was used by GE as part of the Corrective Measures Study to evaluate the sediment/riverbank remedial alternatives and predict future sediment, surface water, and fish PCB concentrations resulting from those alternatives. This modeling evaluation is documented in the 2010 RCMS Report.

Section II.H.16 of the Modified Permit requires GE to prepare a Model Reevaluation Plan, and that plan was included as one of the non-stayed deliverables described in the Initial SOW. The Modified Permit does not define the purpose, scope, or specific objectives of the model reevaluation. In this situation, GE proposes to defer submission of a Model Reevaluation Plan until such time as an

update to the model is deemed necessary by EPA and GE to support or evaluate the ROR Remedial Action.

### *4.5.3 Monitoring and Maintenance Plans for Non-GE-Owned Dams*

GE has previously submitted and EPA has approved OMM Plans for Woods Pond Dam and Rising Pond Dam under the provisions of the Initial SOW, and GE is currently implementing those plans. Under Section II.H.20 of the Modified Permit, GE is also required to submit monitoring and maintenance plans for other dams on the ROR in Massachusetts for which GE is required to ensure inspection, monitoring, and maintenance under Sections II.B.2.j.(1)(a) and (2)(b) of the Modified Permit. The former Eagle Mill Dam no longer functions as a dam[11] and will be removed (as discussed in Section 4.3.3.3). Thus, this requirement relates to the remaining ROR dams in Massachusetts—namely, the Columbia Mill Dam (until it is removed, as also discussed in Section 4.3.3.3), Willow Mill Dam, and Glendale Dam.

Section II.B.2.j.(2)(b) of the Modified Permit requires GE to "ensure inspection, monitoring and maintenance" of these non-GE-owned dams. It states that such activities must include:

> "(i) maintaining the integrity of the dam to contain contaminated sediments and (ii) conducting materials handling and off-site disposal and engineering controls related to dam maintenance, repair, upgrades, and enhancement activities (including, but not limited to, addressing sedimentation in sluiceways, conveyances, and other channels that transport water over, through or around the dam); and (iii) and all other related activities."

That section also requires GE to make best efforts to obtain an access agreement with the dam owner to allow GE to perform these inspection, monitoring, and maintenance activities. It further provides that GE may seek EPA approval for another party to implement some or all of these activities. Finally, it establishes certain requirements in the event that GE, despite its best efforts, cannot fulfill these obligations.

If GE decides to seek EPA approval for another party to implement the necessary inspection, monitoring, and maintenance activities at the Columbia Mill Dam, Willow Mill Dam, or Glendale Dam, GE will submit such a request within six months after approval of this SOW. Otherwise, GE will attempt to obtain an access agreement with the owner of each dam to allow GE to perform those inspection, monitoring, and maintenance activities. In the event that, despite GE's best efforts, such an access agreement cannot be reached with the dam owner, GE will so advise EPA and describe how it proposes to meet the requirements of Section II.B.2.j.(2)(b) relating to that eventuality.

[11] Its crest was formerly lowered such that it is submerged below the river level under most or all flow conditions.

If an access agreement can be reached, GE will prepare and submit a separate Monitoring and Maintenance (M&M) Plan for each dam describing how GE proposes to meet the above-quoted requirements of Section II.B.2.j.(2)(b) of the Modified Permit. For the Columbia Mill Dam, which will be removed, the M&M Plan will be more limited than the plans for the other dams. It will describe the inspection, monitoring, and maintenance activities that GE proposes to undertake at that dam during the interim period prior to the dam's removal. For each of the Willow Mill and Glendale Dams, it is anticipated that the M&M Plan will include the following:

- A description of the dam, its hazard classification, and other relevant information;
- Objectives of the inspection, monitoring, and maintenance activities;
- Description of the routine maintenance activities that GE will perform at the dam;
- Description of the inspection and monitoring activities that GE will perform for the dam;
- Description of the process for GE's implementation of maintenance and repairs identified during inspections or other monitoring, if required;
- Description of GE's handling, management, and disposition of any sediments or soils handled or removed from or adjacent to the impoundment during dam maintenance, repair, or response activities;
- Description of GE's record-keeping and reporting requirements; and
- Schedule for performing the dam inspection, monitoring, and maintenance activities.

In addition, the M&M Plans for the Willow Mill and Glendale Dams will describe how GE plans to comply with Section II.B.2.j.(2)(c) of the Modified Permit, which requires that, if there is a catastrophic failure and/or a material breach of the dam that results in a materially greater than normal release of sediment containing PCBs, GE must submit a report to EPA that: (1) proposes repairs to or removal of the dam; (2) proposes a plan to characterize and respond to the released PCBs (if necessary to maintain the Performance Standards or the ROR Remedial Action); and (3) includes a schedule to implement the required response actions.

Finally, the M&M Plans for the Willow Mill and Glendale Dams will note that GE will comply with Section II.B.2.j.(2)(d) of the Modified Permit, which requires GE to determine every five years whether there has been a change in ownership of the dam and, if there has been a change in ownership or after conducting response actions behind a dam, to send a notice to the dam owner with certain specified information, including GE's commitment to meet the requirements of Sections II.B.2.j.(2)(b) and II.B.2.j.(2)(c) of the Modified Permit.

All of these M&M Plans will be submitted to EPA within 12 months after EPA approval of this SOW, contingent on reaching access agreements with the dam owners to perform the necessary activities.

### *4.5.4 Sustainability and Climate Adaptation Plan*

Section II.H.14 of the Modified Permit requires GE to prepare a Sustainability and Climate Adaptation Plan, which must include "measures to ensure that Corrective Measures are designed and constructed to be resilient to potential changes due to climate change," and "where practical and appropriate, methods to minimize greenhouse gas emissions." Various environmental conditions potentially related to climate change may impact remedy effectiveness, such as more frequent and higher-intensity rain events, resulting in more variable and higher average and peak flows in the Housatonic River. Accepted regional climate change projections will be considered, and EPA's technical guidance document entitled *Climate Resilience Technical Fact Sheet: Contaminated Sediment Sites* (EPA 2019) will be used to develop resiliency planning for the ROR. This plan will consider ways to inform the overall remedy and address these effects. This plan will also consider sustainability practices as they pertain to items such as construction practices, minimizing emissions, use of materials that minimize waste, and adaptive habitat design solutions that can also provide dynamic ecosystem benefits.

Because the purpose, scope, and specific objectives of this sustainability and climate adaptation evaluation are not well defined in the Modified Permit, the details of the evaluation will be further developed in the plan following discussions with EPA. The Sustainability and Climate Adaptation Plan will be submitted to EPA within 24 months after approval of this SOW.

# 5 Post-Construction Deliverables

This section provides a summary of the anticipated post-construction deliverables to be submitted by GE. These consist of a combination of site-wide and Remediation Area-specific deliverables. including: (1) post-construction inspection, monitoring, and maintenance plans for the river and floodplain remediation work; (2) a post-closure monitoring and maintenance plan for the UDF; (3) a plan for compliance with the general numerical Performance Standards; (4) a plan for further response actions; (5) and a final Remedial Action Completion Report.

## 5.1 Post-Construction Inspection, Monitoring, and Maintenance Plans

Post-Construction Inspection, Monitoring, and Maintenance Plans (IMM Plans) will be developed for the Remediation Areas pursuant to Sections II.C (Operation and Maintenance) and II.H.18.b. (Inspection, Monitoring, and Maintenance Plan(s)) of the Modified Permit. Upon completion of remediation and restoration activities in a given Remediation Area, the IMM program will be implemented, consisting of appropriate inspection, monitoring, and maintenance activities to maintain the effectiveness of the remediation and restoration measures, as well as to evaluate MNR in the area. An IMM Plan will be developed separately for each Remediation Area so that monitoring can begin upon completion of remediation in that area while work in other areas is ongoing. The IMM Plans will likely include provisions for the following post-construction activities, as applicable:

- Monitoring of PCBs in surface water, sediments, and biota;
- Inspection and maintenance of engineered caps (where installed);
- For Reaches 5A and 5B, inspection and maintenance of the riverbank reconstruction measures;
- Inspection and maintenance of other backfilled and restored areas in the river, on the riverbanks, and in the floodplain;
- Inspection and maintenance of replanted bank and floodplain vegetation, including control of invasive species;
- Inspection and maintenance of other restoration measures installed, if any;
- Inspection of properties not owned by GE, the United States, or the Commonwealth of Massachusetts that are subject to EREs, so as to evaluate compliance with the EREs;
- Inspection of properties subject to Conditional Solutions;
- Implementation, inspection, and maintenance of other institutional controls (e.g., biota consumption advisories);
- For Woods Pond and Rising Pond, addressing accumulation of PCB-containing sediments (if any) on the surface of the caps; and

- Measuring the effectiveness of MNR in the subject area.

The IMM Plan for each Remediation Area will be included as part of, or be submitted concurrently with, the Final RD/RA Work Plan for that area. Each such plan will then be updated and resubmitted following the completion of remediation in the subject Remediation Area. In addition, in accordance with Section II.C of the Modified Permit, all IMM Plans will later be incorporated into the final site-wide Remedial Action Completion Report (see Section 5.5).

## 5.2 Upland Disposal Facility Post-Closure Monitoring and Maintenance Plan

GE will develop a Post-Closure Monitoring and Maintenance Plan (Post-Closure Plan) for the UDF to describe activities to be performed following closure of the UDF, or closure of a discrete cell within that facility (if appropriate), to confirm that the UDF is performing as designed. The activities described in the UDF Post-Closure Plan will continue until GE proposes, and EPA approves, a modification or termination of the activities described therein. The UDF Post-Closure Plan is anticipated to include, but not be limited to, descriptions of the following elements:

- Groundwater monitoring;
- Routine periodic inspections and maintenance of the final cover system, as well as other components of the UDF (e.g., access roads, leachate and stormwater management systems);
- Inspections and maintenance of ancillary components (e.g., fences, access gates, warning signs);
- Repair or replacement of items exhibiting deficiencies or performance determined to be below designed levels; and
- Documentation and reporting.

The UDF Post-Closure Plan will be submitted approximately one year before anticipated closure of the UDF (or closure of a discrete cell within that facility).

## 5.3 Performance Standards Compliance Plan

Section II.H.5 of the Modified Permit requires submittal of a Plan for Measuring Compliance with Performance Standards. This plan will provide details regarding measuring and tracking compliance with the general Performance Standards specified in Section II.B.1 of the Modified Permit that have specific numerical post-construction performance criteria—namely, the PCB Downstream Transport Performance Standard (described in Section 2.1.1) and Biota Performance Standards (described in Section 2.1.2). This plan will include a description of the requirements and procedures for measuring compliance with these performance standards, including the specific data collection and analysis

requirements set forth in Sections II.B.1.a.(2)(a) through (g) for measuring compliance with the Downstream Transport Performance Standard, as well as monitoring requirements for biota and procedures for comparing PCB concentrations in the biota to the Short-Term Biota Performance Standard and the long-term biota goals. The plan will also include a proposal for any additional details related to measurement of achievement of these performance standards. This plan will be a site-wide deliverable and will be submitted to EPA for review and approval no later than one year prior to the anticipated date for completion of all remediation activities in Reaches 5 and 6.

## 5.4 Plan for Further Response Actions

Section II.H.22 of the Modified Permit requires GE to submit a "Plan for Further Response Actions, and any implementation of further response actions, in accordance with Section X of the Consent Decree (Review of Response Actions)." Section X of the CD contains several potentially applicable provisions. Paragraph 43 requires GE to "conduct such studies and investigations as requested by EPA to permit EPA to conduct periodic reviews" under Section 121(c) of CERCLA, which requires review of a remedial action at least every five years after initiation to assess its protectiveness. This requirement is also embodied in Section II.D of the Modified Permit. Paragraph 44 of the CD states that if EPA determines that a response action, including the ROR Remedial Action, is not protective of human health and the environment, EPA may select further response actions for the Site in accordance with CERCLA. However, Paragraph 46 provides that, if EPA does select such further response actions for the Site, GE is required to undertake or fund such actions only if the covenant reopener conditions in Paragraph 162 or 163 are satisfied. Those paragraphs reserve EPA's right to institute proceedings against GE, or issue an order to GE, to compel GE to perform or fund further response actions at the Site (beyond the originally required Remedial Action) if new conditions are discovered or new information is received and EPA determines that these previously unknown conditions or information, together with other relevant information, indicate that the originally required and/or implemented Remedial Action is not protective of human health or the environment. Finally, Paragraph 47 provides that if GE is required to perform further response actions pursuant to Paragraph 46, it will submit and implement a plan for such work in accordance with the applicable CD provisions.

To implement these requirements in the context of the ROR Remedial Action, GE will submit a Plan for Further Response Actions. This plan will be a site-wide deliverable. It will present and describe GE's agreement to conduct studies and investigations requested by EPA in connection with EPA's five-year reviews of the ROR Remedial Action, provided that such studies or investigations are related to those periodic reviews to assess the protectiveness of the Remedial Action. However, a plan for conducting particular studies or investigations cannot be developed until EPA has requested specific studies or investigations.

The Plan for Further Response Actions will also describe generally GE's obligation under the CD to conduct further response actions relating to the ROR, beyond the Remedial Action specified in the Modified Permit as revised by the Settlement Agreement, in the event that the covenant reopener conditions in Paragraph 162 or 163 of the CD, as applicable, have been satisfied, and subject to GE's right to invoke dispute resolution under the CD (as provided in Paragraph 46 of the CD) on any of the EPA determinations listed in Paragraph 46. The plan will also describe the process that GE will follow in the event that it is required to implement such further response actions under Paragraph 46 of the CD. However, a plan for implementing specific future response actions cannot be developed unless and until EPA makes a specific request or directive to conduct such actions and, as necessary, invokes the covenant reopeners, and any dispute thereon is resolved.

The Plan for Further Response Actions will be submitted four years after the initiation of remediation in the first Remediation Area (Reach 5A) so that it can be reviewed and approved in advance of the first five-year remedy review.

## 5.5 Remedial Action Completion Report

Following completion of all remediation activities required by the Modified Permit as revised by the Settlement Agreement, GE will schedule and conduct a pre-certification of inspection of the overall ROR area in accordance with Paragraph 88 of the CD. Thereafter, in accordance with that provision as well as Section II.H.23 of the Modified Permit, GE will prepare a Remedial Action Completion Report to describe the activities completed in accordance with the approved RD/RA Work Plans and to summarize the data generated to support completion of those activities. Ultimately, the Remedial Action Completion Report will be a site-wide deliverable that will cover all active remediation activities conducted. However, GE will also consider conducting interim pre-certification inspections and preparing and submitting interim completion reports following the completion of discrete components of the Remedial Action.

The Remedial Action Completion Report (and any interim completion reports) will include, but not be limited to, the following:

- Background information and a description of pre-remediation activities;
- A description of the remediation and restoration activities performed;
- A description of any deviations from the design submittals approved by EPA and any other difficulties and problems encountered;
- A summary of response action quantities (e.g., soil and sediment removal volumes, extent of capped areas, extent of riverbanks reconstructed, and volume of water treated);
- Results of QA/QC testing performed during remediation;
- Record construction drawings (including post-remediation topographic surveys);

- A listing of the waste streams and their characterization, quantity of materials disposed of, and where such materials were disposed of, including the quantity and type of waste material disposed of at the UDF and the quantity and type of waste material transported off-site for disposal;
- Results of monitoring performed during remediation activities;
- Representative project photographs;
- Demonstration of achievement of the applicable remediation Performance Standards and any impact on flood storage capacity;
- Description of EREs executed and Conditional Solutions implemented;
- Results of the pre-certification inspection(s); and
- The required certification(s) of completion.

In addition, in accordance with Section II.C of the Modified Permit, the Remedial Action Completion Report will include an overall long-term OMM Plan, which will be based on or include the separate IMM Plans for each Remediation Area (as described in Section 5.1 of this SOW) and the UDF Post-Closure Plan described in Section 5.2.

A draft of the final Remedial Action Completion Report will be provided to EPA on a schedule to be discussed with EPA. Following receipt and incorporation of EPA's comments on the draft, a final version of that report will be submitted to EPA.

# 6 Schedule

A summary of the schedule for deliverables described in this SOW is provided in Table 6-1. The time frames presented in this summary are generally in calendar months or years and have been estimated based upon anticipated level of effort at the time of preparation of this SOW. Because there is uncertainty associated with the schedule for several tasks that are out of GE's control, such as seasonal constraints and EPA review periods, many of the key deliverables and design activities have a proposed schedule for submittal that is relative to key prior milestones and other conditions. Also, because of that uncertainty, alternate time frames may be proposed by GE (for review and approval by EPA) if dictated by future conditions. It should be noted that any tasks that are being managed by EPA have not been included in this schedule. A more detailed schedule will be included in the Overall Strategy and Schedule submittal.

Periodic meetings will be scheduled between EPA and GE to discuss the status of ongoing efforts and deliverables, resolve any project issues that may arise, and discuss any proposed modifications to the deliverables and schedule described in this SOW.

**Table 6-1**
**Summary of Schedule for Submittal of Deliverables**

| Deliverable | | | Schedule[a] |
|---|---|---|---|
| Overall Strategy and Schedule document | | | 3 months after EPA approval of SOW |
| Pre-Design | UDF | UDF PDI Work Plan | 3 months after EPA approval of Overall Strategy and Schedule |
| | | UDF PDI Summary Report | Per schedule in the UDF PDI Work Plan |
| | Site-Wide Plans/Reports | Baseline Monitoring Plan (BMP) | Submitted to EPA on June 12, 2017; to be revised and resubmitted within 3 months after conceptual agreement between EPA and GE on scope of the baseline monitoring program |
| | | Rest of River FSP/QAPP | 3 months after EPA approval of BMP |
| | | Updated Rest of River HASP | 3 months after EPA approval of BMP |
| | | Baseline Restoration Assessment Work Plan | 3 months after EPA approval of SOW |
| | | Baseline Restoration Assessment Report | Per schedule in the Baseline Restoration Assessment Work Plan |
| | | Restoration Criteria Report | 2 months after EPA approval of Baseline Restoration Assessment Report |
| | | Supplemental Phase IA Cultural Resources Survey Work Plan | 4 months after EPA approval of SOW |
| | | Supplemental Phase IA Cultural Resources Survey Report | Per schedule in the Supplemental Phase IA Cultural Resources Work Plan |
| | | Water Withdrawal and Uses Plan | 12 months after EPA approval of SOW |

| Deliverable | | | | Schedule[a] |
|---|---|---|---|---|
| Pre-Design (cont.) | PDI Plans and Reports Specific to Each Remediation Area | Reach 5A | PDI Work Plan (Reach 5A Floodplain – Residential) | Submitted to EPA on August 15, 2018; to be revised and resubmitted by July 9, 2020 |
| | | | PDI Work Plan (Reach 5A Floodplain – Non-Residential) | Submitted to EPA on October 6, 2017; to be revised and resubmitted within time specified in EPA's CAL and after EPA approval of Reach 5A vernal pool report |
| | | | PDI Work Plan(s) (Reach 5A Sediment/Banks) | 3 months after EPA approval of Overall Strategy and Schedule |
| | | | PDI Summary Report (Reach 5A) | Per schedule in the Reach 5A PDI Work Plan(s) |
| | | Subsequent Remediation Areas[b] | PDI Work Plan(s) | Per schedule to be provided in the Overall Strategy and Schedule; to be tied to EPA approval of PDI Report(s) for prior Remediation Area |
| | | | PDI Summary Report(s) | Per schedule in respective PDI Work Plan for each Area |
| | Vernal Pool Pilot Study Deliverables | Vernal Pool Selection Proposal | | 30 days following EPA approval of relevant PDI Summary Report containing vernal pool soil PCB data |
| | | Vernal Pool Pilot Study Work Plan | | 4 months after EPA approval of vernal pool selection proposal |
| | | Vernal Pool Pilot Study Summary Report | | Per schedule in the Vernal Pool Pilot Study Work Plan |
| Design | UDF | Conceptual Design Plan | | Per schedule in UDF PDI Summary Report |
| | | Final Design Plan | | Per schedule in the Conceptual Design Plan for UDF |
| | | Operation, Monitoring, and Maintenance Plan | | Concurrent with submittal of Final Design Plan for UDF |
| | | Final Cover/Closure Plan | | At least 1 year before anticipated closure of UDF (or a discrete cell thereof) |
| | Site-Wide Plans | Off-Site and On-Site Transportation and Disposal Plans | | Concurrently with Conceptual RD/RA Work Plan for Reach 5A |
| | | POP Updates (including Construction Monitoring Plan) | | 15 months after EPA approval of Overall Strategy and Schedule |
| | | QOL Compliance Plan | | 24 months after EPA approval of Overall Strategy and Schedule |
| | | Restoration Coordination Plan | | 3 months after EPA approval of Conceptual RD/RA Work Plan for Reach 5A |
| | | Adaptive Management Plan | | 18 months after EPA approval of Overall Strategy and Schedule |

| Deliverable | | | | Schedule[a] |
|---|---|---|---|---|
| Design (cont.) | Plans/Reports Specific to Each Remediation Area | Reach 5A | Conceptual RD/RA Work Plan | 6 months after EPA approval of PDI Summary Report for Reach 5A |
| | | | Phase IB Cultural Resource Survey Work Plan | Concurrently with Conceptual RD/RA Work Plan for Reach 5A |
| | | | Phase IB Cultural Resources Survey Report | Per schedule in the Phase IB Cultural Resources Work Plan for Reach 5A |
| | | | Phase II Cultural Resource Assessment Work Plan and Report (if necessary) | Per schedule in Phase IB Cultural Resource Survey Report |
| | | | Final RD/RA Work Plan | Per schedule in Conceptual RD/RA Work Plan for Reach 5A |
| | | | Vernal Pool Addendum to RD/RA Work Plans | Following EPA approval of Vernal Pool Pilot Study Summary Report |
| | | | Restoration Plan | Concurrently with Final RD/RA Work Plan for Reach 5A |
| | | | Remediation Supplemental Information Package | Per schedule in Final RD/RA Work Plan |
| | | Subsequent Remediation Areas[b] | Same deliverables as Reach 5A[c] | Per schedule in the Overall Strategy and Schedule; will generally be tied to EPA approval of prior deliverable for that Remediation Area |
| | | | Updates to site-wide design plans (listed above) as necessary for the subject Remediation Area | Concurrently with Conceptual RD/RA Work Plan for the Remediation Area (or as proposed therein) |
| | Other Deliverables | Plan for Implementing Future Projects or Work | | 15 months after EPA approval of SOW |
| | | Model Reevaluation Plan | | When update to model is deemed necessary by EPA and GE |
| | | Monitoring and Maintenance Plans for Non-GE-Owned Dams | | 12 months after EPA approval of SOW (subject to obtaining access agreements) |
| | | Sustainability and Climate Adaptation Plan | | 24 months after EPA approval of SOW |
| Post-Construction | | Post-Construction IMM Plans (for each Remediation Area) | | Include in Final RD/RA Work Plan for each Remediation Area; to be updated following completion of remediation in that area |
| | | UDF Post-Closure Plan | | 1 year before anticipated closure of UDF (or a discrete cell thereof) |
| | | Performance Standards Compliance Plan (Site-Wide) | | 1 year prior to anticipated completion of remediation in Reaches 5 and 6 |
| | | Plan for Further Response Actions (Site-Wide) | | 4 years after initiation of remediation in Reach 5A (to be prepared for first 5-Year Review) |
| | | Remedial Action Completion Report (Site-Wide) | | After completion of all remediation activities |

Notes:

a. All subject to revision or extension upon request and EPA approval
b. Remediation Areas subsequent to Reach 5A and the schedule for them will be defined in the Overall Strategy and Schedule document. For PDI purposes, Remediation Areas may be combined. The listed steps may be repeated more than once in the event that it is determined that additional data are necessary to complete the steps.

c. Excluding Vernal Pool Addendum to RD/RA Work Plans (not needed for subsequent remediation areas).

BMP: Baseline Monitoring Plan
CAL: Conditional Approval Letter
EPA: U.S. Environmental Protection Agency
FSP/QAPP: Field Sampling Plan/Quality Assurance Project Plan
HASP: Health and Safety Plan
IMM Plan: Inspection, Monitoring, and Maintenance Plan
OMM Plan: Operation, Monitoring, and Maintenance Plan
PDI: Pre-Design Investigation
POP: Project Operations Plan
QOL: Quality of Life
RD/RA: Remedial Design/Remedial Action
SOW: Statement of Work
UDF: Upland Disposal Facility

# 7 References


AECOM, 2010. *Supplement to Response to EPA's Interim Comments on CMS Report: Evaluation of Example Areas*. Housatonic River – Rest of River. Prepared for General Electric Company, Pittsfield, Massachusetts. February 2010.

AECOM, 2019. *Housatonic River – Rest of River, Reach 5A Floodplain Pre-Design Investigations: Summer/Fall 2019 and Final Report on Potential Vernal Pool Investigations*. Prepared for General Electric Company. November 18, 2019.

Anchor QEA (Anchor QEA, LLC), 2017. *Rest of River Initial Statement of Work*. Prepared for General Electric Company. May 2017.

Arcadis, 2013a. *Field Sampling Plan/Quality Assurance Project Plan*. Prepared for General Electric Company. Revised July 2013

Arcadis, 2013b. *Project Operations Plan*. Prepared for General Electric Company. Revised July 2013.

Arcadis, Anchor QEA, and AECOM, 2010. *Housatonic River – Rest of River, Revised Corrective Measures Study Report*. Prepared for the General Electric Company. October 2010.

ARCADIS BBL and QEA (Quantitative Environmental Analysis, LLC), 2007. *Housatonic River - Rest of River, Corrective Measures Study Proposal*. February 2007.

EAB (EPA Environmental Appeals Board), 2018. Order in *In re General Electric Company*, RCRA Appeal Nos. 16-01 to 16-05, 48 ELR 41399, January 26, 2018.

EPA (U.S. Environmental Protection Agency), 2004. *Ecological Risk Assessment for GE/Housatonic River Site, Rest of River*. Prepared by Weston Solutions, West Chester, Pennsylvania. November 12, 2004.

EPA, 2005. *Human Health Risk Assessment, GE/Housatonic River Site, Rest of River*. Prepared by Weston Solutions, West Chester, Pennsylvania. February 2005.

EPA, 2006. *Final Model Documentation Report (FMDR): Modeling Study of PCB Contamination in the Housatonic River*. Prepared by Weston Solutions, Inc., West Chester, PA, for the U.S. Army Corps of Engineers, New England District, and the U.S. Environmental Protection Agency, New England Region, November 2006.

EPA, 2016. Resource Conservation and Recovery Act (RCRA) Corrective Action Permit MAD002084093, Final Permit Modification to the Reissued RCRA Permit and Selection of CERCLA Remedial Action and Operation & Maintenance for Rest of River (Modified Permit). Reissued October 20, 2016.

EPA, 2017a. Letter to: Andrew Silfer, General Electric Company. Regarding: Notice of Uncontested and Severable Permit Conditions-Revised Notice. January 9, 2017.

EPA, 2017b. Letter to: Andrew Silfer, General Electric Company. Regarding: Rest of River Initial Statement of Work, GE-Pittsfield/Housatonic River Site. July 10, 2017.

EPA, 2018. Letter to: Andrew Silfer, General Electric Company. Regarding: GE-Pittsfield/Housatonic River Site, Rest of River, Floodplain Pre-Design Investigation Work Plan—Reach 5A, Potential Vernal Pool Assessment. March 12, 2018.

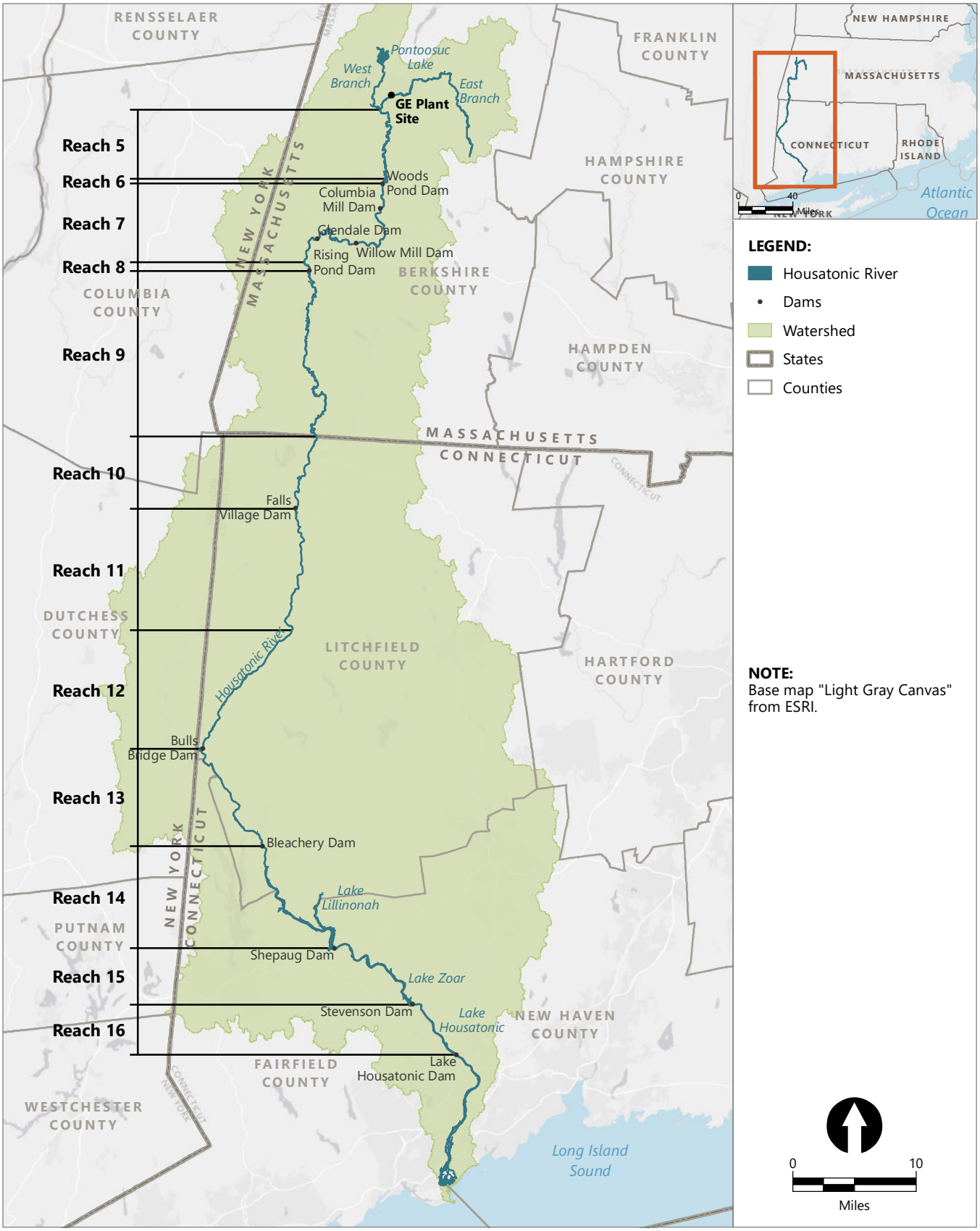
EPA, 2019. *Climate Resilience Technical Fact Sheet: Contaminated Sediment Sites*. Office of Superfund Remediation and Technology Innovation. EPA 542-F-19-003. October 2019 Update.

EPA/GE (General Electric Company), 2000. Consent Decree (CD). United States of America, State of Connecticut, and Commonwealth of Massachusetts v. General Electric Company, Civil Action Nos. 99-30225, 99-30226, 99-30227-MAP, entered by the United States District Court for the District of Massachusetts, Western Division. October 27, 2000.

URS, 2008. *Initial Phase IA Cultural Resources Assessment for the Housatonic River – Rest of River Project*. Prepared for General Electric Company, Pittsfield, Massachusetts. March 20, 2008; Public Release Version submitted on April 3, 2008.

Woodlot (Woodlot Alternatives, Inc.), 2002. *Ecological Characterization of the Housatonic River*. Prepared for EPA Region 1, Boston. September 2002.

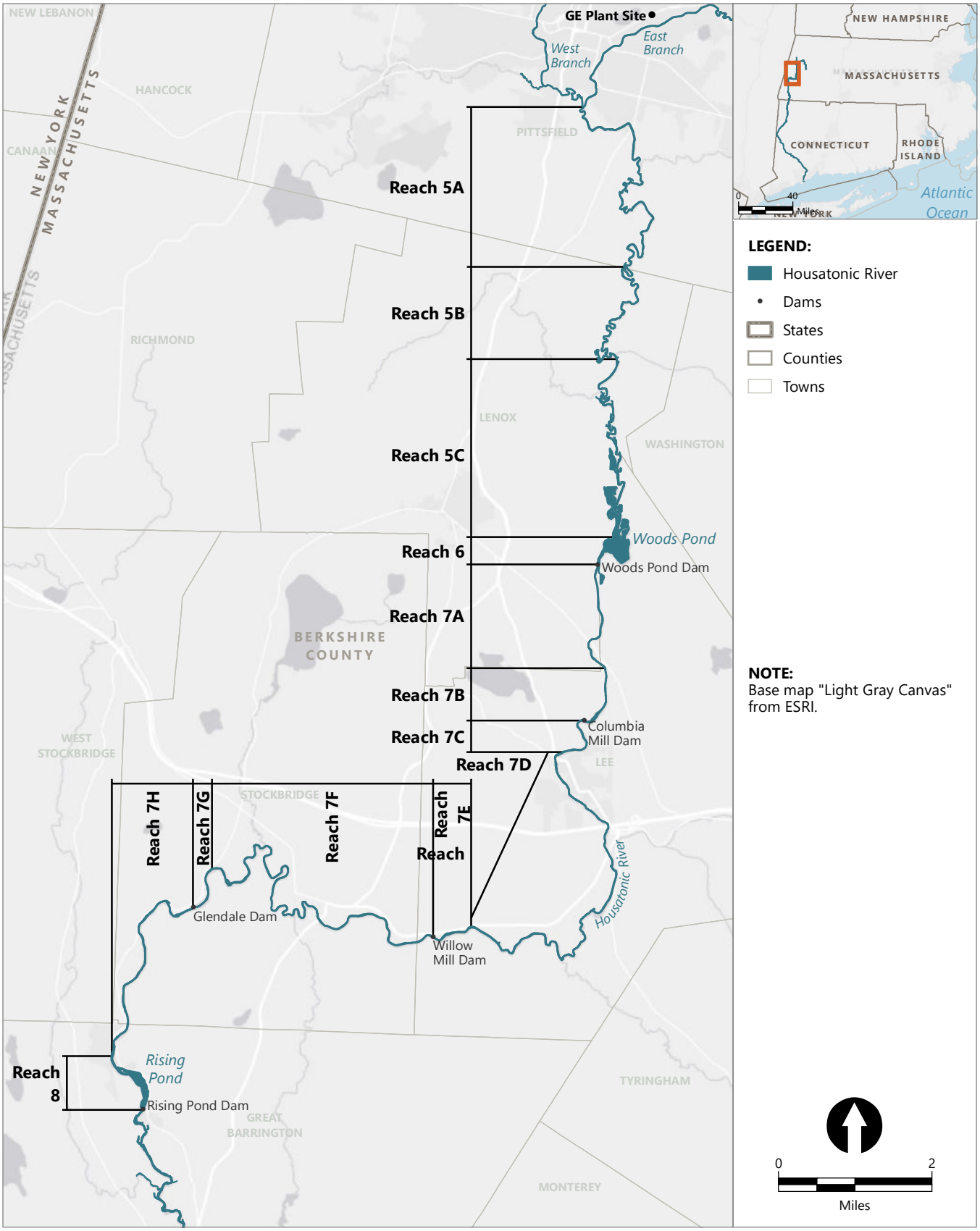
# Figures




Publish Date: 2020/06/09, 9:57 AM | User: eiverson
Filepath: \\orcas\GIS\Jobs\GE_0469\HousatonicRiver\Maps\AQ_Fig1_SiteMapOverview.mxd

ANCHOR QEA

**Figure 1**
**Housatonic River Map**
Rest of River Statement of Work
GE-Pittsfield/Housatonic River Site




Publish Date: 2020/06/09, 9:57 AM | User: eiverson
Filepath: \\orcas\GIS\Jobs\GE_0469\HousatonicRiver\Maps\AQ_Fig2_SiteMapOverviewReach5to8.mxd

ANCHOR QEA

**Figure 2**
**Housatonic River Map (Subreaches in Reaches 5 and 7)**
Rest of River Statement of Work
GE-Pittsfield/Housatonic River Site

# Attachment 1
# Attachment C to Settlement Agreement -- Criteria/Methods Applicable to Disposal of Material Excavated in Rest of River Remedial Action

**Attachment C to Settlement Agreement**

**Criteria/Methods Applicable to**
**Disposal of Material Excavated in Rest of River Remedial Action**

1. For floodplains in each of the 90 Exposure Areas shown in Figure 5, to the extent that remediation is required in any given Exposure Area, GE will segregate and dispose of off-site (out-of-state) soils containing high concentrations so that the remaining floodplain soil to be disposed of in the Upland Disposal Facility averages less than 50 mg/kg PCBs. The process is further described as follows:
   - After additional data collection required by the 2016 Permit, the horizontal footprint and vertical removal depth (the volume) of soil that needs to be removed in each Exposure Area will be determined.
   - The volume-weighted average PCB concentration of all soil to be removed from each Exposure Area will be calculated (using the same PCB data set used to delineate the soil to be removed).
   - If the volume-weighted average PCB concentration in the soil to be removed exceeds 50 mg/kg in an Exposure Area, the soil with the highest PCB concentrations (e.g., "hot spots") in the Exposure Area will be segregated, or separated out, for out-of-state disposal until the average concentration of the remainder of the soil to be removed in the Exposure Area decreases to less than 50 mg/kg for disposal at the Upland Disposal Facility.
2. For Reach 5A banks, GE will segregate and dispose of off-site (out-of-state) soils containing high concentrations so that the remaining Reach 5A bank soil to be disposed of in the Upland Disposal Facility has a volume-weighted average of less than 50 mg/kg PCBs. In calculating the volume-weighted average concentration of PCBs in Reach 5A riverbank soils for disposal purposes, the only soils that will be considered are soils to be removed from Reach 5A riverbanks.
3. GE will dispose of all riverbank and sediment from Reach 5B off-site (out-of- state), except in the following circumstances: If, pursuant to Section II.C of the agreement, GE removes additional riverbank soil with PCB concentrations less than 50 mg/kg, this material may be disposed of in the Upland Disposal Facility.

4. For all sediment except for Reach 5B, GE will segregate and dispose of off-site (out- of-state) sediments containing high concentrations so that the remaining sediment to be disposed of in the Upland Disposal Facility averages 25 mg/kg PCBs or less on a Reach or Subreach basis as described below.
   - The 25 mg/kg average applies individually to: Reach 5A, Reach 5C, Woods Pond, Backwaters, Reach 7 Subreaches (Subreach 7B [Columbia Mill Impoundment], Subreach 7C [Eagle Mill Impoundment], Subreach 7E [Willow Mill Impoundment], Subreach 7G [Glendale Impoundment], and Rising Pond. These Reaches/Sub- Reaches are depicted in Figures 3 and 4. The segregation of sediment for Reach 5B is described in item 3 above, which provides that all sediment removed from Reach 5B shall disposed of off-site (out-of-state).

- As described in the 2016 Permit, each Subreach, and in some cases each Reach, has its own Performance Standards to be achieved through sediment removal and capping or backfill. Following additional data collection, the area and amount of sediment to be removed to meet the Performance Standard will be determined. After the horizontal footprint and vertical removal depth are determined, the volume-weighted average PCB concentration of the sediment within that footprint will be calculated.
- If the volume-weighted average PCB concentration within a Reach or Subreach removal footprint exceeds 25 mg/kg, sediment with the highest PCB concentrations (e.g., "hot spots") will be segregated for out-of-state disposal until the average concentration of the remaining sediment to be removed from the Reach or Subreach decreases to 25 mg/kg or less for disposal at the Upland Disposal Facility.
- Relevant data from the RCRA Facility Investigation (RFI) and data collected pursuant to the 2016 Permit or Revised Permit will be used in determining average concentrations for comparison to the 25-mg/kg criterion for placement in the Upland Disposal Facility.
- EPA agrees to work with GE to design an appropriate transition and hybrid disposal averaging area in the Woods Pond Headwaters area between Reach 5C and Woods Pond.

5. In addition, for all sediment in Reaches and Subreaches, including backwaters, except for Reach 5B, GE will segregate and dispose of off-site (out-of-state) sediment that is represented by a 3-dimensional polygon associated with a single vertical core that has an average concentration greater than or equal to 100 mg/kg PCBs, as further described below:
   - GE will compare the 100 mg/kg criterion to the average concentration in each individual vertical core.
   - Vertical core polygons will be generated by a Thiessen polygon method. Thiessen polygon mapping involves the use of computer software to draw perpendicular bisector lines between adjacent sample locations to create two-dimensional polygon areas. The two-dimensional Thiessen polygon will be extended vertically to the depth of sediment removal to create a three-dimensional polygon.
   - The data used in this evaluation will be limited to, and representative of, the depth intervals that correspond to depth of removal associated with the location where the core was collected.
   - If sampling data, at a given vertical core location, consists of data from different depth intervals, the vertical PCB average concentration will be calculated as a depth-weighted average at that location.
   - Vertical sediment cores will be of sufficient depth to characterize sediment PCB concentrations throughout the full vertical interval required to comply with the Performance Standards for each Reach, Subreach and backwater under the 2016 Permit or Revised Permit.
   - If the vertical depth-weighted PCB average in a polygon is equal to or greater than 100 mg/kg, then all sediment associated with the vertical core polygon will be segregated and disposed of off-site (out-of-state).

- For all reaches except Subreach 5A and 5C, relevant data from the RFI and additional data collected by GE pursuant to the 2016 Permit or Revised Permit, as applicable, will be used in determining these vertical depth-weighted core averages.
- Additional vertical core samples will be collected by GE pursuant to the 2016 Permit or Revised Permit, as applicable, in Reach 6 (Woods Pond) to supplement existing data and to fill in data gaps.
- For Reaches 5A and 5C, only data collected pursuant to the 2016 Permit or Revised Permit shall be used in this evaluation. Vertical core samples will be collected in six-inch increments. The sampling will consist of 3 vertical cores per transect (left, center and right of the channel) with transects performed at a linear spacing of 250 linear feet of the river channel.
- Additional vertical sediment cores may be collected to further refine the areas where average sediment concentrations exceed 100 mg/kg and/or to assist in achieving the relevant Performance Standards in all Reaches or sub Reaches.
- GE will submit sediment sampling plans to EPA for review and approval. These plans shall detail, at a minimum, the approach for collection of vertical sediment cores and the data analysis approach to determine compliance with the 100 mg/kg criterion.

6. GE will not dispose of material classified as federal RCRA hazardous waste, or free liquids, free product, or any intact drums, capacitors or containers, into the Upland Disposal Facility. GE can use relevant data from the RFI and apply the 20 times rule (i.e., dividing the concentration in the sample by 20 and comparing the result to certain threshold values described in 40 C.F.R. 261) to determine if there are compounds that could potentially exceed the Toxicity Characteristic Leaching Procedure (TCLP) testing requirements. GE can also use relevant data from EPA's 1.5- Mile Reach Removal Action (e.g., TCLP data and other RCRA Characteristic requirements including ignitability, corrosivity and reactivity). If existing data is not sufficient to demonstrate that material will not contain RCRA hazardous waste, then GE will propose additional sampling in the appropriate Work Plans. In any Subreach where RCRA hazardous waste may be present, GE will collect a reasonable number of composite samples for analysis (for example, TCLP sampling for metals). If any composite sample demonstrates the material is RCRA hazardous waste, then: a) the material can be treated until testing demonstrates that the material is non- hazardous, or b) the material can be disposed of at an off-site facility in compliance with EPA's off-site rule (40 C.F.R. § 300.440).
7. Any other materials to be disposed of not otherwise addressed above will be sampled prior to disposal and disposed of in the Upland Disposal Facility if they have less than 50 mg/kg PCBs. (This could apply to haul road materials, etc. that GE may need to dispose of as part of the overall remedy construction.)
8. GE will dispose of the segregated high concentration sediment, soil and waste materials, and any free liquids, free product, or intact drums, capacitors or containers, in any facility that is licensed/permitted to accept such waste and will accept it, including RCRA Subtitle C Landfills, so long as said facility is in compliance with EPA's off-site rule (40 C.F.R. § 300.440).