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Via Electronc Mail

February 17, 2022

Mr. Joshua Fontaine
Project Manager
U.S. Environmental Protection Agency, Region I
Five Post Office Square, Suite 100
Boston, MA 02109

Re: GE-Pittsfield/Housatonic River Site
Rest of River (GECD850)
Phase I Inspection/Evaluation Report for Rising Pond Dam

Dear Mr. Fontaine

Enclosed is GE's Phase I Inspection/Evaluation Report for Rising Pond Dam, prepared for GE by GZA GeoEnvironmental, Inc. This report presents the results of GZA's biennial Phase I Inspection/Evaluation of Rising Pond Dam, conducted on November 11 and 19, 2021. It also includes, as Appendix I, a report summarizing the penstock gate inspection and seal replacement, the left embankment/forebay raising, and several minor repair activities performed at the dam during August through November 2021.

Please let me know if you have any questions about the enclosed report.

Very truly yours,

Kevin G. Mooney
Senior Project Manager – Environmental Remediation

Enclosure

Cc: (via electronic mail)
Dean Tagliaferro, EPA
Tim Conway, EPA
John Kilborn, EPA
Christopher Ferry, ASRC Primus
Thomas Czelusniak, HDR Inc.
Scott Campbell, Taconic Ridge Environmental

Izabella Zapisek, Taconic Ridge Environmental
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GE Internal Repository

-- RISING POND DAM --

PHASE I

INSPECTION / EVALUATION REPORT

Dam Name: Rising Pond Dam

NID ID#: MA00250

Owner: General Electric Company

Town: Great Barrington

Consultant: GZA GeoEnvironmental, Inc.

Date of Inspection: November 11 & 19, 2021

Date of Report: February 17, 2022

EXECUTIVE SUMMARY

This report summarizes the results of the Phase 1 visual dam inspection conducted by GZA GeoEnvironmental, Inc. (GZA) on behalf of the General Electric Company (GE) on November 11, 2021 and November 19, 2021 at Rising Pond Dam in Great Barrington, Massachusetts, in accordance with GE's revised Operation, Monitoring, and Maintenance Plan (OM&M Plan) for Rising Pond Dam, dated August 14, 2019 and approved by the United States Environmental Protection Agency (EPA) on August 27, 2019. This inspection had originally been intended to be conducted during low-flow conditions in the summer of 2021, but high river flows prevented such a low-flow inspection at that time. As a result, as discussed with EPA, the low-flow inspection occurred in the fall, including a dewatered inspection of the spillway, and took the place of both the summer and the fall 2021 quarterly inspections of Woods Pond Dam under the OM&M Plan for that dam.

In general, the overall condition of Rising Pond Dam during the November 11, 2021 and November 19, 2021 Phase 1 visual inspection is **SATISFACTORY** condition. Based on the results of those visual inspections, the dam is in compliance with Massachusetts Department of Conservation and Recreation Dam Safety Regulations.

During the November 2021 visual inspections, the dam was found to have the following unusual conditions of note on the dam property:

1. Minor surface deterioration of concrete was observed on the walking surface of the gate operator platform and right forebay training wall, as had also been observed during prior inspections. (The walking surface was subsequently repaired in November 2021.)
2. Right forebay training wall/platform handrails were observed to have deteriorated, as had also been observed during prior inspection. (The handrails were subsequently replaced in November 2021.)
3. There was a minor grease leak from the gate operator.
4. Some rust was present on the forebay trash rack, as was also true during prior inspections, but it was not affecting the integrity of the trash rack.
5. A crack in the forebay concrete was visible on the upstream face below the abandoned operator, as it was in prior inspections, and appears to be a stable condition.
6. Two vibrating wire piezometers are inoperable, as was true during prior inspections, and should be abandoned.
7. Some debris was observed on the upstream side of the trash rack at the forebay, as was also observed during prior inspections. (This debris was cleared during the inspection.)
8. A low area of riprap stones was observed at the downstream toe of slope on right embankment, as it was in prior inspections, and appears to be a stable condition.
9. Monitoring well GZ-6 is slightly tilted, as was previously observed, but appears to be stable.
10. Monitoring well/piezometer GZ-5 is inoperable due to bent casing.
11. A low area in the penstock, indicating a possible settled area or "belly," was observed approximately 110 feet upstream of the tailrace, corresponding approximately to a previously filled-in surficial depression above the conduit.

12. A previously observed seep through the left spillway training wall was not active during the dewatered spillway inspection on November 11, 2021, but was observed during the November 19, 2021 site visit. Photographs indicate that this seep has been intermittently present over the past approximately 10 years and does not appear to be a condition affecting dam function.

GZA has recommended that specific activities be conducted to address the above-described conditions observed during the November 2019 inspection, in addition to complying with the regular maintenance and repair requirements specified in Sections 4.1 and 4.2 of the OM&M Plan. Those recommended activities and their current status are as follows:

Studies and Analyses

Recommendation	Current Status/Schedule
1. Investigate the low area in the penstock.	Non-destructive testing of the penstock will be conducted in 2022.

Monitoring

Recommendation	Current Status/Schedule
1. Monitor the gate operator grease leak.	This condition is monitored during quarterly and biennial inspections.
2. Continue to monitor the rust on the trash rack	This condition is monitored during the dive inspections, which are completed every five years. The next dive inspection is scheduled for 2025.
3. Continue to monitor the crack in the forebay concrete upstream face below the abandoned operator and repair it if needed.	This condition is monitored during quarterly and biennial inspections.
4. Continue to monitor debris in tailrace, forebay trash rack, area around forebay, spillway, and upstream booms and remove if needed.	Debris is monitored and will be removed if it impedes flow.
5. Continue to monitor the low area of riprap stones at the downstream toe of slope on right embankment.	This low area is monitored during biennial and quarterly inspections for changes in width, length, and depth.
6. Continue to monitor the slight tilt in well GZ-6.	This condition is monitored during quarterly and biennial inspections.
7. Monitor the seep on the left training wall, which was not active during the initial Phase I inspection on November 11, but was observed on November 19, 2021.	This condition will continue to be monitored during quarterly and biennial inspections.

Maintenance

The dam should continue to be maintained in accordance with the approved Operations and Maintenance Manual.

Minor Repairs

Recommendation	Schedule
1. Repair the minor surface deterioration of concrete on the walking surface of the gate operator platform and right forebay training wall.	This walking surface was repaired in November 2021 in connection with the left embankment raising.
2. Replace the deteriorated handrails on the right forebay training wall/platform.	These handrails were replaced in November 2021 in connection with the left embankment raising
3. Abandon the two inoperable vibrating wire piezometers.	These wire piezometers will be abandoned with grout in spring 2022.
4. Repair the bent protective casing of monitoring well/piezometer GZ-5 that renders it inoperable.	This well casing will be repaired in spring 2022 (after ground thaw)

Remedial Modifications

No remedial modifications are recommended at this time.

Dam Evaluation Summary Detail Sheet

1. NID ID:	**MA00250**	**4. Inspection Date:**	**11/11/2021 and 11/19/2021**
2. Dam Name:	**Rising Pond Dam**	**5. Last Insp. Date:**	**November 5, 2019**
3. Dam Location:	**Great Barrington, MA**	**6. Next Inspection:**	**November 19, 2021**
7. Inspector:	**Laurie A. Gibeau, P.E.**		
8. Consultant:	**GZA GeoEnvironmental, Inc.**		
9. Hazard Code:	**Significant**	**9a. Is Hazard Code Change Requested?:**	**No**
10. Insp. Frequency:	**2 Years**	**11. Overall Physical Condition of Dam:**	**SATISFACTORY**
12. Spillway Capacity (% SDF)	**>100% SDF w/ no actions by Caretaker**		

E1. Design Methodology:	**4**	**E7. Low-Level Discharge Capacity:**	**5**
E2. Level of Maintenance:	**5**	**E8. Low-Level Outlet Physical Condition:**	**4**
E3. Emergency Action Plan:	**5**	**E9. Spillway Design Flood Capacity:**	**5**
E4. Embankment Seepage:	**4**	**E10. Overall Physical Condition of the Dam:**	**4**
E5. Embankment Condition:	**4**	**E11. Estimated Repair Cost:**	**N/A**
E6. Concrete Condition:	**4**		

Evaluation Description

E1: DESIGN METHODOLOGY
1. Unknown Design – no design records available
2. No design or post-design analyses
3. No analyses, but dam features appear suitable
4. Design or post design analysis show dam meets most criteria
5. State of the art design – design records available & dam meets all criteria

E2: LEVEL OF MAINTENANCE
1. Dam in disrepair, no evidence of maintenance, no O&M manual
2. Dam in poor level of upkeep, very little maintenance, no O&M manual
3. Dam in fair level of upkeep, some maintenance and standard procedures
4. Adequate level of maintenance and standard procedures
5. Dam well maintained, detailed maintenance plan that is executed

E3: EMERGENCY ACTION PLAN
1. No plan or idea of what to do in the event of an emergency
2. Some idea but no written plan
3. No formal plan but well thought out
4. Available written plan that needs updating
5. Detailed, updated written plan available and filed with MADCR, annual training

E4: SEEPAGE (Embankments, Foundations, & Abutments)
1. Severe piping and/or seepage with no monitoring
2. Evidence of monitored piping and seepage
3. No piping but uncontrolled seepage
4. Minor seepage or high volumes of seepage with filtered collection
5. No seepage or minor seepage with filtered collection

E5: EMBANKMENT CONDITION (See Note 1)
1. Severe erosion and/or large trees
2. Significant erosion or significant woody vegetation
3. Brush and exposed embankment soils, or moderate erosion
4. Unmaintained grass, rodent activity and maintainable erosion
5. Well maintained healthy uniform grass cover

E6: CONCRETE CONDITION (See Note 2)
1. Major cracks, misalignment, discontinuities causing leaks, seepage or stability concerns
2. Cracks with misalignment inclusive of transverse cracks with no misalignment but with potential for significant structural degradation
3. Significant longitudinal cracking and minor transverse cracking
4. Spalling and minor surface cracking
5. No apparent deficiencies

E7: LOW-LEVEL OUTLET DISCHARGE CAPACITY
1. No low level outlet, no provisions (e.g. pumps, siphons) for emptying pond
2. No operable outlet, plans for emptying pond, but no equipment
3. Outlet with insufficient drawdown capacity, pumping equipment available
4. Operable gate with sufficient drawdown capacity
5. Operable gate with capacity greater than necessary

E8: LOW-LEVEL OUTLET PHYSICAL CONDITION
1. Outlet inoperative needs replacement, non-existent or inaccessible
2. Outlet inoperative needs repair
3. Outlet operable but needs repair
4. Outlet operable but needs maintenance
5. Outlet and operator operable and well maintained

E9: SPILLWAY DESIGN FLOOD CAPACITY
1. 0 - 50% of the SDF or unknown
2. 50-90% of the SDF
3. 90 - 100% of the SDF
4. >100% of the SDF with actions required by caretaker (e.g. open outlet)
5. >100% of the SDF with no actions required by caretaker

E10: OVERALL PHYSICAL CONDITION OF DAM
1. UNSAFE – Major structural, operational, and maintenance deficiencies exist under normal operating conditions
2. POOR - Significant structural, operation and maintenance deficiencies are clearly recognized under normal loading conditions
3. FAIR - Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur. Can be used when uncertainties exist as to critical parameters
4. SATISFACTORY - Minor operational and maintenance deficiencies. Infrequent hydrologic events would probably result In deficiencies.
5. GOOD - No existing or potential deficiencies recognized. Safe performance is expected under all loading including SDF

E11: ESTIMATED REPAIR COST

Estimation of the total cost to address all identified structural, operational, maintenance deficiencies. Cost shall be developed utilizing standard estimating guides and procedures

Changes/Deviations to Database Information since Last Inspection

Owner has opted to inspect the dam every two years.

PREFACE

The assessment of the general condition of the dam reported herein was based upon available data and visual inspections. Detailed investigations and analyses involving topographic mapping, subsurface investigations, testing and detailed computational evaluations were beyond the scope of this report unless reported otherwise.

In reviewing this report, it should be realized that the reported condition of the dam was based on observations of field conditions at the time of inspection, along with data available to the inspection team.

It is critical to note that the condition of the dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the reported condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Jonathan D. Andrews, P.E.
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License Type: Civil Engineer
Associate Principal
GZA GeoEnvironmental, Inc.

Laurie A. Gibeau, P.E.
Massachusetts License No.: 49373
License Type: Civil Engineer
Project Manager
GZA GeoEnvironmental, Inc.

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SECTION 1

1.0 DESCRIPTION OF PROJECT

1.1 GENERAL

1.1.1 Authority

The General Electric Company (GE) retained GZA GeoEnvironmental, Inc. (GZA) to perform a visual inspection and develop a report of conditions for the dam at Rising Pond along the Housatonic River in Great Barrington, Berkshire County, Massachusetts, as required by GE's Operation, Monitoring, and Maintenance Plan (OM&M Plan) for Rising Pond Dam, dated August 14, 2019 and approved by the United States Environmental Protection Agency (EPA) on August 27, 2019. This inspection was performed on November 11 and November 19, 2021, and this report was prepared in accordance with Section 3.2 of that OM&M Plan (which requires biennial Phase 1 engineering inspections of this dam) and with M.G.L. Chapter 253, Sections 44-50 of the Massachusetts General Laws as amended by Chapter 330 of the Acts of 2002. GE's OM&M Plan was developed and submitted pursuant to a Permit that was initially issued by EPA in 2016 under the federal Resource Conservation and Recovery Act (RCRA) for the Rest of River portion of the GE-Pittsfield/Housatonic River Site. That Permit was subsequently revised and re-issued by EPA on December 16, 2021. This report is subject to the limitations in **Appendix A**.

1.1.2 Purpose of Work

The purpose of the Phase 1 engineering investigation/evaluation was to inspect and evaluate the present condition of the dam and appurtenant structures in accordance with Section 3.2 of the OM&M Plan and 302 CMR 10.07 to provide information that will assist in both prioritizing dam repair needs and planning/conducting maintenance and operation.

The investigation was divided into three parts: (1) obtain and review available reports, investigations, and data previously submitted to the owner pertaining to the dam and appurtenant structures; (2) perform a visual inspection of the site; and (3) prepare and submit a final report presenting the evaluation of the structure, including recommendations for maintenance, repair, and remedial actions (if warranted).

1.1.3 Definitions

To provide the reader with a better understanding of the report, definitions of commonly used terms associated with dams are provided in **Appendix E**. Many of these terms may be included in this report. The terms are presented under common categories associated with dams which include: (1) orientation; (2) dam components; (3) size classification; (4) hazard classification; and (5) miscellaneous.

Elevations used in this report are referenced to the National Geodetic Vertical Datum (NGVD29).

1.2 DESCRIPTION OF PROJECT

1.2.1 Location

Town: Great Barrington

County: Berkshire

The left abutment of Rising Pond Dam is on Route 183 (at 285 Park Street, the Hazen Paper Mill). To access the right abutment from Route 183, one turns west onto Division Street, continues for 0.9 miles and proceeds north on Van Deusenville Road for about 1.1 miles to a railroad access gate on the right. On the east, a 0.3 mile path, capable of passing vehicular traffic, leads to the right side of the dam.

The Rising Pond Dam location is shown on **Figure 1** and on the United States Geological Survey (USGS) Great Barrington, MA-NY topographic map. The approximate coordinates are -73.3577 degrees longitude and 42.2424 degrees latitude.

1.2.2 Owner/Caretaker

See Section 1.2.6 for current owner and caretaker data (names and contact information).

1.2.3 Purpose of the Dam

The original construction date, details, and purpose of the Rising Pond Dam are not known, but it is likely that Rising Pond Dam was constructed in the 1800s. The impoundment formerly provided water to power machinery in the adjacent mill complex. Sometime after 1934, the dam was used for power generation, which likely ceased in 1953, but certainly prior to 1979. The right embankment of the dam was previously used as a railroad embankment/bridge abutment. It is GZA's understanding that a key present purpose of the dam is to impound existing sediments that are presumably impacted by polychlorinated biphenyls.

1.2.4 Description of the Dam and Appurtenances

Rising Pond Dam is a run-of-the-river structure located on the Housatonic River in the Housatonic or Risingdale section of Great Barrington, Massachusetts.

The Rising Pond Dam currently consists of left and right earth embankments, with a spillway and outlet works. The outlet works consists of a low-level outlet controlled by a gate, an underground penstock pipe, a surge chamber, and a diversion channel. See Figure 5.

The spillway consists of a concrete facing with steel crest plate. The spillway is approximately 127 feet wide and 30 feet high, with a crest elevation of approximately 716.7 feet (NGVD) on the left side to 716.1 feet on the right side, with an average elevation of about 716.4 feet. Spillway training walls are a combination of concrete, grouted stone masonry, and steel sheetpile.

The low-level outlet is located directly to the left of the spillway. The low-level outlet works consist of a grouted stone masonry forebay with a steel trash rack, a concrete-walled gate chamber with sluice gate and a 14-foot-diameter steel penstock that extends approximately 110 feet downstream to a surge chamber next to the mill. The surge chamber is drained by an open diversion channel reinforced concrete tailrace that discharges to the Housatonic River approximately 150 feet downstream. The invert of the penstock is reported to be elevation 699 feet (NGVD). In the past, gate chamber drainage was provided by a 12-inch-diameter well drain that outlets to the left downstream training wall. Well drain flow was controlled by a valve located in a covered pit between the gate chamber and left training wall. The well drain is no longer needed because the diversion channel now provides gravity drainage for the penstock and has not been operated in years. A fire-protection pumphouse that services the mill building is located on the left embankment crest to the left of the forebay.

A wide embankment/fill area is present on the left side of the spillway and outlet structures. The upstream slopes are steep and have some riprap protection near the low-level outlet. The downstream slope is poorly defined and consists of the mill.

The right earthen embankment is approximately 38 feet high, with upstream and downstream slopes of approximately 2H:1V. Slope protection at the waterline consists of a combination of steel sheetpiles and riprap. A shed for instrumentation leads has been installed at the crest near the right spillway training wall.

The shores of Rising Pond are generally wooded. Route 183 extends parallel to the east bank of the impoundment/river. An abandoned railroad bridge abutment and center pier are located immediately upstream of the dam. The western railroad bridge pier was formerly integral with the right embankment. The immediate downstream area includes the mill and wooded riverbanks. A USGS gaging station is located on the Division Street bridge approximately 1 mile downstream of the dam.

In accordance with the OM&M Plan, an updated topographic survey of the dam was conducted in February 2020 and an updated bathymetric survey was completed in August 2020. A plan showing the results of those surveys is included in **Appendix G.**

At EPA's direction, GE has installed and maintains warning signs at Rising Pond Dam. On August 10, 2020, GE submitted a proposal for the format, wording, and locations of those signs; and EPA issued a conditional approval letter for that proposal on September 4, 2020. The signs were installed in November and December of 2020, with one installed at a temporary location and later moved to its permanent location in October 2021.

1.2.5 Dam Construction History

The dam was originally constructed in the 1800s. The embankment was constructed of alluvial sand and gravel excavated from the west riverbank. Original upstream slopes ranged from 1.5 Horizontal to 1 Vertical (1.5H:1V) to 4H:1V, and downstream slopes ranged from 1H:1V to 1.5H:1V. The original embankment height was about 17 feet. The spillway and railroad bridge abutment were reportedly constructed on rock-filled timber cribbing over grouted cobbles in timber cribbing laid on the original river bottom. The original spillway was about 17 feet high and was faced with wooden planks laid at a 1H:1V slope.

In 1934, the embankments and spillway were reportedly raised by about 10.5 feet and spillway flashboards were added. Rockfilled timber cribbing was placed above the original structure and new wooden facing was placed on the spillway.

In 1953, the dam was reportedly raised to elevation 716.5 feet (NGVD29). The stone masonry outlet channel training walls were replaced with a headgate and 14-foot diameter steel penstock. The downstream timber plank spillway facing was demolished and replaced with a concrete slab. The spillway crest was rebuilt with a concrete slab faced with a steel plate. The upstream timber plank facing was covered with sand and gravel fill covered by a new concrete apron slab and an upstream concrete wall was added.

Between 1991 and 1993, the dam was significantly rehabilitated. The rehabilitation generally included: installation of an upstream steel sheetpile cutoff wall; removal of the upstream timber plank spillway facing; filling of voids in the timber cribbing with peastone and sandy gravel; flowable fill placement in voids below the crest and upstream slab; installation of tiedowns and passive H-pile shear keys in the downstream apron; replacement of deteriorated areas of spillway training wall concrete; repointing of the forebay walls and floor; replacement of forebay trash racks; construction of a concrete tailrace outlet channel and plugging of the former

penstock where it entered the mill; placement of riprap slope armor; and raising of the right embankment to elevation 727.0 feet (NGVD). In addition, piezometers and observation wells were installed in and below the embankment and spillway. In 2002, the forebay walls and right downstream training wall were repaired, and riprap was placed and reworked at the upstream slope and downstream toe of the right embankment.

By the early 2000s, the 14-foot sluice gate stem had become inoperable due to a broken gate stem. A replacement slide gate was installed in 2005. In 2010, new steel plate covers, fencing, bollards, and ladders were installed for the gate platform and well drain platform.

In 2011 through 2013, the dam underwent repairs and rehabilitations to address embankment depressions that had formed behind the right downstream training wall and to address undermining of the downstream spillway apron and downstream right training wall. During this rehabilitation, sheetpiles were installed along the upstream edge of the right embankment crest. The new sheetpiles overlapped the existing crest sheetpiles and extended the line of sheeting approximately 60 feet westward (right). The right embankment was regraded, including levelling the crest to a uniform elevation 728.0 feet. The right training wall at the top of the embankment was extended upward by two feet to accommodate the crest levelling.

As part of the 2011 through 2013 repairs, a row of sheetpiles was installed at the downstream end of the spillway apron and a new 2-foot thick reinforced concrete downstream spillway apron was constructed. The timber cribbing and rubble fill underneath the apron slab was filled with un-reinforced, high-slump concrete. Concrete energy dissipaters were constructed on the downstream end of the apron. Riprap was refreshed in the discharge channel adjacent to the spillway apron. The downstream portion of the right training wall was refaced and raised by up to two feet. Voids under the downstream portion of the right training wall were filled with diver-placed grout bags and a two-phase program of cementitous grouting was performed within the embankment adjacent to the training wall. Riprap was placed behind (right of) the right training wall, including placement of geomembrane within the riprap to help convey training wall splash-over downstream. Right training wall splash-over occurs adjacent to the energy dissipators during high flow events. Lexan panels were placed in the fence (in lieu of chain-link fabric) to mitigate the splash-over and help reduce ice formation during winter months. Areas of the left side stone masonry training wall were repointed. Piezometers were rewired to the instrument shed and anchors for warning buoys were installed upstream of the spillway.

In August 2021, the penstock slide gate underwent inspection, repairs, and rehabilitation to address the seating of the gate. A summary or the gate inspection and rehabilitation is included in the separate report provided as **Appendix I**. This work included the installation of new gate seals, which was completed with the gate removed. During the rehabilitation, a gap was observed between the gate and sill where leakage had previously been observed. A stainless steel shim was fabricated and welded onto the bottom of the gate to help match the gate bottom to the sill. The gate was reset and the leakage rate was found to be reduced by an order of magnitude or two. After repair, personnel could approach the gate for close inspection, probing, and measurements. This was a marked improvement over the 2015 condition, which prevented the inspector from getting within four feet of the gate.

In addition, in the fall of 2021, pursuant to a design submitted by GE and approved by EPA on September 4, 2020, the left embankment was raised (by about 1.2 feet next to the fire protection pumphouse and tying into natural ground about 25 feet the east) to bring the top elevation of the embankment above the 500-year flood pool level. That dam raising is also discussed in Section 2.5 below, and a summary of that work, along with associated repairs, is included in the separate report provided as **Appendix I**.

In November 2021, deteriorated railings around the forebay were replaced, along with steel plates to provide forebay overtopping protection during a 500-year flood event. The concrete walking surface was also replaced in November 2021. In November 2021, the impoundment was lowered and low-flow conditions were present at the dam, allowing for the removal of debris stuck on the spillway and cleaning of the weepholes.

A list of previous reports and references is included in **Appendix D**.

1.2.6 Operations and Maintenance

GE is the owner of the Rising Pond Dam and is responsible for overseeing the operations and maintenance of the dam. The current Caretaker on GE's behalf is:

Kevin Mooney
General Electric Company
Global Operations – Environment, Health & Safety
1 Plastics Avenue
Pittsfield, MA 01201
Daytime Phone: 413-553-6610 (Direct Office Number)
Cell Phone: 413-441-4619

On GE's behalf, GZA personnel conduct visual inspections of the dam on a quarterly basis as required by the approved OM&M Plan. Inspection checklists for those quarterly inspections are included in Appendix C of the OM&M Plan. Operations and maintenance of the dam are also described in the OM&M Plan.

1.2.7 DCR Size Classification

Rising Pond Dam has a height of dam of approximately 40 feet and a maximum storage capacity of 710 acre-feet. Refer to **Appendix E** for definitions of height of dam and storage. Therefore, in accordance with the classification procedures of the Massachusetts Department of Conservation and Recreation (MassDCR) Office of Dam Safety (ODS), under the Massachusetts Dam Safety Regulations in 302 CMR 10.00 as amended by Chapter 330 of the Acts of 2002, Rising Pond Dam is an Intermediate size structure based on maximum storage between 50 and 1,000 acre-feet.

1.2.8 DCR Hazard Potential Classification

In accordance with MassDCR classification procedures, under the Massachusetts Dam Safety Regulations, Rising Pond Dam is classified as a dam with Significant Hazard potential.

1.3 PERTINENT ENGINEERING DATA

1.3.1 Drainage Area

The drainage area for Rising Pond Dam is approximately 279 square miles and encompasses a large portion of western Massachusetts along the New York border. The drainage area includes large areas of agricultural and residential development, wooded mountainous terrain, and several small urban areas.

1.3.2 Reservoir

See Section 1.3.4 for data about normal, maximum, and spillway design flood (SDF) pools. Reservoir surface area and storage volume data presented are based on previous analyses, as well as data presented in the 1979 U.S. Army Corps of Engineers Phase I Inspection Report.

1.3.3 Discharges at the Dam Site

Rising Pond Dam's run-of-the-river spillway constantly discharges water unless the low-level sluice gate is opened to reduce the level of the impoundment. The low-level outlet was open prior to and during the November 11, 2021 inspection to lower the impoundment level for better observation of the spillway.

1.3.4 General Elevations (feet, NGVD)

The following elevations, except as noted, are from the 2020 topographic and bathymetric survey.

A.	Top of Dam Embankment	728 (right side); 727 (left side)
B.	Spillway Design Flood Pool	724.4
C.	Normal Pool	716.4 (average spillway crest el.)
D.	Spillway Crest	716.1 to 716.8
E.	Low Level Outlet Invert	699 ± (Foresight, 1990)
F.	Upstream Water at Time of Inspection	716.1±
G.	Downstream Water at Time of Inspection	693±
H.	Streambed at Toe of the Dam	692±

1.3.5 Main Spillway Data

A.	Type:	Concrete and steel -faced rock filled timber crib, ogee-shaped
B.	Weir Length	127 feet
C.	Weir Crest Elevation	716.5 ±feet NGVD
D.	Upstream Channel	Housatonic River/Rising Pond
E.	Downstream Channel	Housatonic River
F.	Channel Bottom Elevation	692 feet NGVD

1.3.6 Intake/Outlet Works

A.	Intake Type	Slide gate controlled penstock
B.	Outlet Size	14 foot diameter
C.	Intake Invert El	699 ± (Foresight, 1990)

1.3.7 Key Elevations to be Monitored

The following table of elevations at key points are required to be monitored by survey in accordance with the requirements of the O&MM Plan. Locations are shown on the most recent topographic and bathymetric plan in **Appendix G**.

Point	Location	Elevation, feet NGVD 29
A	Right side top of spillway training wall at top of dam	728.5
B	Right side spillway training wall at angle	703.8
C	Right side top of spillway training wall at bottom of slope	703.2
D	GZ-2-OW top of casing	729.8
E	GZ-5-OW/PZ top of casing	726.4 (reevaluate after repair)
F	GZ-7-OW top of casing	712.6
G	Right end of right side sheetpile wall	725.4
H	Upstream, right corner of left side forebay sheetpile wall	723.3
I	Center gate mount	729.3
J	Centerline downstream end of concrete spillway	695.5
K	Left side corner of downstream end of concrete spillway	695.6
L	Right end downstream end of concrete spillway	695.6
M	Centerline spillway crest	716.4
N	Left end spillway crest (at wall)	716.8
O	Right end spillway crest (at wall)	716.1
P	Rebar monitoring point at low area	700.7

1.3.7 Design and Construction Records and History

Construction drawings for the early 1990s rehabilitation; the construction from 2011 through 2013; and the 2021 right embankment raising are available. Drawings and records from construction prior to the 1990s were not available to GZA at the time of the inspection.

1.3.8 Operating Records

Quarterly visual inspections of the dam include readings of the vibrating wire piezometers and open standpipe piezometers. These records are maintained by the Caretaker and submitted to EPA in the quarterly inspection reports. A summary of collected instrumentation data and water level records is included as **Appendix F**.

1.4 SUMMARY DATA TABLE

See Table 1.1 on next page.

Table 1.1 - Summary Data Table

Required Phase I Report Data	Data Provided by the Inspecting Engineer
National ID #	MA00250
Dam Name	Rising Pond Dam
Dam Name (Alternate)	Rising Paper Company Dam, Rising Dam
River Name	Housatonic River
Impoundment Name	Rising Pond
Hazard Class	Significant
Size Class	Intermediate
Dam Type	Earthfill Embankment w/Gravity Spillway
Dam Purpose	Originally to power adjacent mill
Structural Height of Dam (feet)	38
Hydraulic Height of Dam (feet)	30
Drainage Area (sq. mi.)	279
Reservoir Surface Area (acres)	441
Normal Impoundment Volume (acre-feet)	195
Max Impoundment Volume ((top of dam) acre-feet)	710
SDF Impoundment Volume (acre-feet)	710
Spillway Type	Ogee overflow weir
Spillway Length (feet)	130
Freeboard at Normal Pool (feet)	10.3
Principal Spillway Capacity (cfs)	17,093 cfs @ Elev. 726.4 ft (500 year flood)
Auxiliary Spillway Capacity (cfs)	N/A
Low-Level Outlet Capacity (cfs)	±3,300 cfs @ Elev. 726.4 ft
Spillway Design Flood (flow rate - cfs)	100-yr / 11,700 cfs
Winter Drawdown (feet below normal pool)	Not applicable
Drawdown Impoundment Vol. (acre-feet)	Not applicable
Latitude	42.2424° N
Longitude	73.3577° W
City/Town	Great Barrington
County Name	Berkshire
Public Road on Crest	No
Public Bridge over Spillway	No
EAP Date (if applicable)	August 2019, rev March 2021
Owner Name	General Electric Company
Owner Address	1 Plastics Ave.
Owner Town	Pittsfield, MA 01201
Owner Phone	413-553-6610
Owner Emergency Phone and E-mail	413-441-4619; kevin.mooney@ge.com
Owner Type	Private
Caretaker Name	General Electric Company
Caretaker Address	1 Plastics Ave.
Caretaker Town	Pittsfield, MA 01201
Caretaker Phone	413-553-6610
Caretaker Emergency Phone and E-mail	413-441-4619; kevin.mooney@ge.com
Date of Field Inspection	11/11/2021 and 11/19/2021
Consultant Firm Name	GZA GeoEnvironmental, Inc.
Inspecting Engineer	Laurie A. Gibeau
Engineer Phone Number	781-278-3700

SECTION 2

2.0 INSPECTION

2.1 VISUAL INSPECTION

Due to heavy equipment working on the right embankment, the Phase I inspection was split into two site visits, conducted on November 11 and 19, 2021. During the November 11, 2021 site visit, Rising Pond Dam was inspected by Laurie Gibeau, P.E. and Rachel Crum of GZA. Scott Campbell and Izabela Zapisek of Taconic Ridge Environmental and Ralph Nelson, Jr., of HDR, Inc. (all representing EPA) and Steve Garrity of LB Corporation (with three laborers) were also present during that inspection. At the time of that inspection, the weather was clear and the temperature approximately 40°F. A second field visit was conducted by Jonathan Andrews, P.E., of GZA on November 19, 2021 to observe the potential need for surface restoration of the downstream slope and crest on the right abutment due to the use and demobilization of heavy machinery for debris removal during the first field visit. Tom Czelusniak of HDR, Inc. (representing EPA) was present during the November 19, 2021 field visit.

It should be noted that, on September 14, 2020, in response to a directive from EPA, GE submitted an Amendment to the OM&M Plan stating that the biennial Phase 1 inspections of Rising Pond Dam would be conducted on a schedule that alternates between normal-flow and low-flow conditions, so that the spillway could be dewatered and observed under low-flow conditions every four years. It stated further that the 2021 Phase 1 inspection would be the first low-flow inspection. However, due to an unusually rainy year leading to high river flows in the summer 2021, the low-flow inspection could not be conducted as originally scheduled in the summer. Accordingly, the low-flow inspection was conducted in the fall. In these circumstances, as discussed with EPA, that inspection took the place of both the summer and the fall 2021 quarterly inspections.

Photographs to document the current conditions of the dam were taken during the inspection and are included in **Appendix B**. The level of the impoundment at the time of inspection was about elevation 716.1 feet NGVD. Underwater areas were not inspected during this inspection. A copy of the inspection checklist is included in **Appendix C**.

2.1.1 General Findings

In general, Rising Pond Dam was found to be in SATISFACTORY overall condition. The condition recommendation during the 2019 inspection was also Satisfactory. Specific conditions are identified in more detail in the sections below:

2.1.2 Dam

The top of the left and right embankment is grassed. Although the ground is slightly uneven, signs of sinkholes, puddles, or depressions in the embankment crests were not observed. The top of the right embankment can be used as vehicular access to the instrumentation shed and for vegetation and other maintenance. Erosion and rutting were not observed along the top of the dam. The nested monitoring well and piezometer GZ-5 was not accessible due to damage to the casing, possibly from being struck by a vehicle or grass mowing equipment. During the November 11, 2021 field visit, an excavator and other equipment were being used to remove large

timber debris from the reservoir area. A second field visit was conducted on November 19, 2021 to observe the restoration of the earthen embankment after the heavy machinery had left the site.

The right embankment downstream slope is mostly grassed. At the right training wall groin and along the toe, the slope is protected by riprap. A section of riprap appeared to have a slightly concave shaped depression. Individual riprap stones appear to have been displaced downslope of this slightly concave riprap section (possibly by trespassers). This low area has remained stable since it was marked in February 2020. Its approximate dimensions are ±9 feet (left to right) by ±7½ feet (upstream to downstream) by ±4 inches deep. A previously identified bare area near monitoring well GZ-6 appeared to have established vegetation; however, the protective casing for monitoring well GZ-6 remained tilted to the right, as had been previously observed. Standing water was present beyond the downstream toe of the slope, which is a typical condition during high-flow periods.

The upstream slope of the right embankment of Rising Pond Dam is protected with riprap and sheet piling. The sheeting appeared to be in good condition at the time of inspection. The vegetation around the chain link fence downstream of the sheet piling appeared to have been recently maintained. The left embankment has partial cover of woody vegetation at the left end of the upstream slope (i.e. portion near spillway) and log debris along the toe of slope left of the forebay intake sheetpile. The log debris was being removed during the inspection.

Instrumentation left of the spillway includes an open standpipe piezometer and two vibrating wire piezometers. The two vibrating wire piezometers are non-functional. Right of the spillway, the readout for 28 vibrating wire piezometers is sheltered within a new, locked instrument shed. There are also three flush-mounted roadboxes for open standpipe instruments; D-3 and D-4 contain one instrument each, and D-9 contains nested shallow and deep piezometers. Four observation wells with protective casings are located on the crest (GZ-1, GZ-2, GZ-5) and downstream slopes (GZ-7); and three piezometers within protective casing are located on the crest (GZ-2, GZ-5) and on the downstream slope (GZ-6). Vibrating wire piezometers can be read with a Geokon Industries GK 403 readout box. Results of the readings taken during the inspection are included as **Appendix F**. Readings were within historical ranges.

2.1.3 Appurtenant Structures

- Primary Spillway

The logs and debris previously observed to be lodged on the spillway or energy dissipaters were removed prior to the inspection. The right primary spillway training wall was observed from the primary spillway and appeared to be in good condition. The gap between the sheetpile left downstream training wall and the concrete cap behind it (first observed by GZA in 1991) remains approximately 6 inches.

GZA conducted a dewatered inspection of the spillway during the inspection. Prior to the site visit, GZA provided notification to EPA by e-mail on November 5, 2021 that the gate would be operated beginning on November 7, 2021, and the impoundment was temporarily lowered by GE via diversion of flow through the penstock. The intent of the dewatered inspection was to observe the rehabilitated areas of the spillway, including the apron, sheetpiling, concrete energy dissipaters, and riprap immediately downstream of the spillway. The concrete apron and energy dissipators were observed to be in generally good condition. Gaps between the concrete and the sheetpiles were not observed. Seepage was observed at the contact between the left training wall and the spillway apron. The seepage was about two to three gallons per minute, diffuse, and clear. Below the second

weephole from the right, about half a gallon per minute of clear seepage was observed with no observed loss of fines. The concrete around this weephole was sounded with no indications of loss of concrete. The weepholes were cleaned out during the inspection.

A seep through the left training wall had been observed during previous site visits. Photographs indicate that this seep has been intermittently present over the past approximately 10 years and does not appear to be a condition affecting dam function. That seep is adjacent to the forebay, but has not been approachable due to spillway flows. GZA estimated the elevation based on photographs to be around 709 feet NGVD29, corresponding to a location about ten feet above the floor of the forebay. This seep was not active during the dewatered spillway inspection on November 11, 2021, but was present during the November 19, 2021 site visit. Based on these observations, the seepage source is likely the forebay and not groundwater. The surrounding masonry will continue to be visually observed for changes in seepage or signs of movement.

- Low-Level Outlet

The sluice gate controlling the low-level outlet was operated prior to the inspection to lower the impoundment, and then during the inspection to return to normal operating status. The gate was removed, repaired, and reseated in September 2021. When closed, the gate seats, and a greatly reduced level of flow was observed in the penstock. The gate operator had grease dripped onto the casing. The forebay trash rack was mostly clear, with some minor debris along the upstream face. Some surficial rusting was observed on the rack, which will be monitored during future planned diving inspections. Hairline cracks are present on the downstream side of the gate platform, but are not considered to impact dam safety. There was a crack visible in the upstream concrete wall of the forebay below the abandoned operator. There was concrete deterioration on the walking surfaces of the gate operator platform and the right forebay training wall.

A visual inspection of the 14-foot diameter, low-level outlet penstock pipe and downstream side of the sluice gate was performed by GZA on October 22, 2021. The inspection was performed by accessing the pipe from the downstream diversion channel. Standing water depth in the penstock ranged from about 12 to 24 inches. The approximately 230-foot long steel penstock conduit was constructed with flush joints at approximate eight-foot spacing. Each joint appeared intact and watertight, although several of the joints were offset by up to approximately ¼ inch. These offsets may be an artifact from original construction. The interior of the pipe was corroded, with areas of sheet scaling. Several patches were observed, consisting of two apparent concrete patches and one steel patch. One section of pipe had deformations or inward bulges of up to about four inches, but appeared continuous and watertight. Probing of the pipe invert did not indicate any voids or gaps. The deformations appeared to be mainly between the crown and springline of the pipe. Water depth was a maximum in this area of the pipe, indicating a possible settled area or “belly.” This section of pipe was located approximately 110 feet upstream of the end of pipe, corresponding approximately to a previously filled-in surficial depression above the conduit (refer to GZA’s December 2005 Inspection/Evaluation report). Probing of the bottom of pipe using an ice chipper indicated solid pipe invert material, with areas of “hollow” feel. Gate leakage appeared relatively minor, with more leakage near the east bottom seal (where the shim was placed during the 2021 gate rehabilitation). GE had scheduled non-destructive testing to be done from the interior of the penstock as part of the gate repair and inspection. However, concerns about safely accessing the area during the repairs, followed by icy conditions due to winter weather, delayed the non-destructive testing to 2022. No indications of active movement or current instability were observed in the structure.

2.1.4 Downstream Area

The downstream area of the dam is the Housatonic River. Downstream of the right embankment, a wet area with trees, wetland plants, and standing water was observed. This wet area has been present during all recent inspections and does not appear to be related to the dam but rather overflow from the river during higher flow conditions.

2.1.5 Reservoir Area

The reservoir is an impoundment of the Housatonic River.

2.2 CARETAKER INTERVIEW

Kevin Mooney, GE's dam Caretaker, was available by phone prior to and during the visual inspection of the dam.

2.3 INSPECTION AND MAINTENANCE PROCEDURES

The operation, inspection, and maintenance procedures for the dam are specified in the August 2019 OM&M Plan and briefly summarized below.

2.3.1 Inspection Procedures

The dam is inspected by GZA personnel on GE's behalf on a quarterly basis using the forms in Appendix C to the OM&M Plan. In addition to visually inspecting the dam, the quarterly inspections include photographing specific locations and recording piezometer and monitoring well levels. Some of the instruments are not able to be read during the quarterly inspections. Collected instrumentation data are presented in **Appendix F**. Additional inspections are conducted in accordance with Section 3 of the OM&M Plan.

When severe storms with heavy rainfall are predicted, GE monitors the USGS Advanced Hydrologic Prediction Service, which forecasts river flows on the Housatonic River in Great Barrington. Generally, the sluice gate is left in a closed position; however, during extreme weather events, it may be operated to allow water to pass.

The following inspections have been conducted since the 2019 Phase I inspection/evaluation:

1. Quarterly Inspections: February 12, 2020; May 8, 2020; August 7, 2020; November 10, 2020; March 10, 2021; May 19, 2021
2. Ice Out Observations: May 8, 2020; May 19, 2021
3. 5-year Dive Inspection: January 8, 2020
4. Preliminary Mechanical & Electrical Gate Inspection: June 16, 2020
5. Final Mechanical & Electrical Gate Inspection: August 10 through August 19, 2021
6. Penstock inspection: October 22, 2021

As noted above, the summer 2021 quarterly inspection was intended to be replaced by the 2021 Phase I inspection under low-flow conditions. However, the inspection was delayed while awaiting a break in the unusually rainy conditions so that a dewatered spillway inspection could be completed. The inspection was thus postponed until November 2021. As a result, as discussed with EPA, this Phase I inspection took the place of both the summer and the fall 2021 quarterly inspections.

2.3.2 Maintenance of Dam and Operating Facilities

Maintenance of the dam is conducted in accordance with Sections 4.1 and 4.2 of the OM&M Plan. Maintenance includes, but is not limited to, vegetative maintenance; cleaning of the spillway and low-level outlet; gate system maintenance; minor erosion repair; rodent damage control; slope traffic damage control; seepage damage control; riprap damage control; sediment removal; weephole cleaning; concrete and masonry maintenance; metal component maintenance; spillway toe riprap maintenance; instrumentation repair; security item repair; access road maintenance; and signage maintenance. There is no quantitative action level for sediment removal; the criterion is whether the build-up interferes with the flow of water through flow control structures. GE performs additional maintenance activities as they are required after identification during inspections. All scheduled and completed maintenance activities shall be recorded and reported in quarterly inspection reports.

A summary of all monitoring, maintenance, or repair items identified since the 2019 Phase 1 inspection, including several that continued to be observed during the November 2021 Phase 1 inspection, and their current status (e.g., completed, subject to ongoing monitoring) is provided in the maintenance tracking table in **Appendix H**.

2.4 EMERGENCY WARNING SYSTEM

There is no physical early warning system at Rising Pond Dam. Quarterly inspections of the dam are conducted by dam safety engineers. An Emergency Action Plan was developed in 2000, and is updated annually, with the most recent major revision in August 2019, which was attached as Appendix B to the OM&M Plan.

2.5 HYDROLOGIC/HYDRAULIC DATA

Hydrologic and hydraulic (H&H) analyses had previously been performed by GZA as part of the Phase II evaluation in 2012. The conclusion of the Phase II evaluations was that the spillway has sufficient capacity to safely pass the 100-year SDF. An evaluation of the 500-year return period flood was also performed. The results of those analyses indicated that the spillway has sufficient capacity to safely pass the 500-year flood without overtopping the embankment. The penstock was assumed closed in the evaluations.

Results of the evaluation indicated that the maximum 500-year flood pool elevation is 726.2 feet (NGVD); thus, the concrete forebay section would be overtopped by about 0.2 feet during a 500-year flood event. As noted in Section 1.2.5, GE submitted a design to remediate 500-year flood forebay overtopping, and that design was approved by EPA on September 4, 2020. GE's contractor raised the earthen berm in October 2021. The forebay was raised by installing steel railing kick plates and resurfacing the concrete walking surface in November 2021. As also noted in Section 1.2.5, a summary of this embankment raising and associated repairs is included in the report provided as **Appendix I**.

A.	Spillway Design Flood (SDF) Return Period	100 year
B.	SDF Elevation	724.4 feet NGVD

C.	SDF Inflow (cfs)	11,220cfs
D.	SDF Outflow (cfs)	11,220 cfs
E.	Principal Spillway Capacity (cfs)	17,093 cfs
F.	Auxiliary Spillway Capacity (cfs)	Not applicable
G.	Low-level Outlet Capacity (cfs)	3,300 cfs
H.	Percentage of the SDF passed	>100%
I.	Maximum Depth of Overtopping for SDF (ft)	Not applicable
J.	Maximum Duration of Overtopping for SDF (hours)	Not applicable

2.6 STRUCTURAL AND SEEPAGE STABILITY

2.6.1 Spillway Structural Stability

Stability and seepage analyses for the spillway had been performed by GZA as part of the Phase II evaluation in 2012. GZA evaluated the sliding stability of the concrete/timber crib spillway of the dam using the gravity method of analysis per Federal Energy Regulatory Commission (FERC) guidelines. The gravity analysis conservatively neglected the contribution of the upstream and downstream spillway aprons to overall stability of the force equilibrium model. A reduction in uplift forces observed in the piezometers at the dam due to the presence of steel sheeting upstream of the spillway was accounted for in the analysis. The results of the analysis indicated that the calculated factors of safety against sliding meet the criteria contained in the Massachusetts Dam Safety Regulations.

2.6.2 Embankment Structural Stability

Stability and seepage analyses for three sections along the right embankment had also been performed by GZA as part of the Phase II evaluation in 2012. Calculated factors of safety for sudden drawdown from normal and maximum (SDF) pool, steady state seepage at maximum (SDF) pool and seismic loading at normal pool were adequate based on minimum required factors of safety by current Massachusetts Dam Safety Regulations. These evaluations were based on the 100-year SDF pool elevation of 724.4 feet (NGVD).

As part of the Phase II evaluations, liquefaction susceptibility of embankment soils and spillway foundation soils was evaluated using the criteria outlined in the Massachusetts State Building Code (8th Edition). The results of the liquefaction assessment indicated that the foundation and embankment soils are not susceptible to liquefaction during a seismic event less than or equal to a Magnitude 6.0 Richter scale event (approximate return period of 2,475 years).

Although not required by the Dam Safety Regulations, the Phase II evaluation also included estimated slope stability factors of safety for rapid drawdown and steady state seepage at the 500-year flood elevation of 726.2 feet (NGVD). The factors of safety against slope instability for the 500-year flood elevation were greater than 1.0.

GZA did not observe indications of embankment stability problems during the November 2021 visual dam inspection.

2.6.3 Embankment Seepage Stability

Seepage evaluations had been performed by GZA as part of the 2012 Phase II evaluation. The Phase II evaluations indicated that the upstream sheeting provides an effective groundwater cutoff through the embankment fill and underlying sand/gravel glaciofluvial soils and the embankment provides adequate resistance to seepage with calculated factors of safety against seepage-induced piping of about 4.5.

GZA did not observe any areas of seepage through the embankment during the November 2021 visual inspection. Historical seepage has been intermittently observed at the toe close to the river during previous inspections.

SECTION 3

3.0 ASSESSMENT AND RECOMMENDATIONS

3.1 ASSESSMENT

In general, the overall condition of Rising Pond Dam is **SATISFACTORY**; the dam was also found to be in Satisfactory condition during the previous Phase 1 inspection in November 2019.

During the November 11 and November 19, 2021 visual inspections, the dam was found to have the following unusual conditions of note on the dam property:

1. Minor surface deterioration of concrete was observed on the walking surface of the gate operator platform and right forebay training wall, as had also been observed during prior inspections. (The walking surface was subsequently repaired in November 2021.)
2. Right forebay training wall/platform handrails were observed to have deteriorated, as had also been observed during prior inspection. (The handrails were subsequently replaced in November 2021.)
3. There was a minor grease leak from the gate operator.
4. Some rust was present on the forebay trash rack, as was also true during prior inspections, but it was not affecting the integrity of the trash rack
5. A crack in the forebay concrete was visible on the upstream face below the abandoned operator, as it was in prior inspections, and appears to be a stable condition.
6. Two vibrating wire piezometers are inoperable, as was true during prior inspections, and should be abandoned.
7. Some debris was observed on the upstream side of the trash rack at the forebay, as was also observed during prior inspections. (This debris was cleared during the inspection.)
8. A low area of riprap stones was observed at the downstream toe of slope on right embankment, as it was in prior inspections, and appears to be a stable condition.
9. Monitoring well GZ-6 is slightly tilted, as was previously observed, but appears to be stable.
10. Monitoring well/piezometer GZ-5 is inoperable due to bent casing.
11. A low area in the penstock, indicating a possible settled area or “belly,” was observed approximately 110 feet upstream of the tailrace, corresponding approximately to a previously filled-in surficial depression above the conduit.
12. A previously observed seep through the left spillway training wall was not active during the dewatered spillway inspection on November 11, 2021, but was observed during the November 19, 2021 site visit. Photographs indicate that this seep has been intermittently present over the past approximately 10 years and does not appear to be a condition affecting dam function.

The locations of these conditions are shown on **Figure 6**.

The following tables presents a comparison of the unusual conditions of note identified during the prior Phase 1 inspection in 2019 to current conditions and the actions taken to address them.

Unusual Condition Identified in Prior Phase 1 Inspection	*Resolution or Current Status*
Four approximately 6-inch diameter and 2-foot deep animal burrows were observed on the right embankment.	Burrows were filled in March 2020.
Minor surface deterioration of concrete was observed on the walking surface of the gate operator platform and right forebay training wall.	The walking surface was repaired in November 2021 as part of the raising of the left embankment.
Right forebay training wall/platform handrails have deteriorated.	New handrails were installed in November 2021 as part of the raising of the left embankment.
The sluice gate was not completely seated.	The gate seals were replaced and a shim was added to better seat the gate in August 2021.
Some rust was present on the forebay trash rack.	Condition is monitored during dive inspections. No significant change observed.
Erosion was observed at the downstream end of the left training wall.	The wall was repaired and the soil erosion was improved to the extent practicable on the steep slope in October 2021.
A crack in the forebay concrete was visible on the upstream face below the abandoned operator.	Condition is monitored during quarterly and biennial inspections. No significant change observed.
Concrete spalling was observed on the downstream right primary spillway concrete training wall.	Concrete was repaired in October 2021.
Several vibrating wire piezometers were inoperable.	No change. These wire piezometers will be abandoned with grout in spring 2022.
Woody vegetation was observed at the left abutment of the left embankment upstream slope.	Vegetation was removed in October 2021.
Some debris was observed on upstream side of trash rack at forebay.	Debris is monitored and will be removed if it impedes flow.
Vine and woody vegetation growth was observed at left primary spillway training wall along masonry wall, along groin of sheetpile concrete cap and masonry wall, and along the safety chain link fence at top of slope.	Vegetation was removed to the extent practicable in October 2021.
Displaced riprap stones (possibly caused by trespassers) were present at the downstream toe of slope on right embankment.	A monitoring point has been added. Condition is monitored during quarterly and Phase 1 inspections. No significant change observed.

3.2 RECOMMENDED ACTIVITIES

GZA has recommended the activities described below to address the unusual conditions listed at the beginning of Section 3.1, in addition to complying with the regular maintenance and repair requirements specified in Sections 4.1 and 4.2 of the OM&M Plan.

3.2.1 Studies and Analyses

GZA recommends the following studies and analyses.

Recommendation	Current Status/Schedule
1. Investigate the low area in the penstock.	Non-destructive testing of the penstock will be conducted in 2022.

3.2.2 Monitoring and Maintenance

The dam should be maintained and monitored in accordance with the OM&M Plan. In addition, the following items should be monitored:

Recommendation	Current Status/Schedule
1. Monitor the gate operator grease leak.	This condition is monitored during quarterly and biennial inspections.
2. Continue to monitor the rust on the trash rack.	This condition is monitored during the dive inspections, which are completed every five years. The next dive inspection is scheduled for 2025.
3. Continue to monitor the crack in the forebay concrete upstream face below the abandoned operator and repair it if needed.	This condition is monitored during quarterly and biennial inspections.
4. Continue to monitor debris in tailrace, forebay trash rack, area around forebay, spillway, and upstream booms and remove if needed.	Debris is monitored and will be removed if it impedes flow.
5. Continue to monitor low area of riprap stones at the downstream toe of slope on right embankment.	This low area is monitored during biennial and quarterly inspections for changes in width, length, and depth.
6. Continue to monitor the slight tilt in well GZ-6.	This condition is monitored during quarterly and biennial inspections.
7. Monitor the seep on the left training wall, which was not active during the initial Phase I inspection on November 11, 2021, but was observed on November 19, 2021.	This condition will continue to be monitored during quarterly and biennial inspections.

3.2.3 Minor Repairs

GZA recommended the following minor repairs:

Recommendation	Schedule
1. Repair the minor surface deterioration of concrete on the walking surface of the gate operator platform and right forebay training wall.	This walking surface was repaired in November 2021 in connection with the left embankment raising.

Recommendation	Schedule
2. Replace the deteriorated handrails on the right forebay training wall/platform.	These handrails were replaced in November 2021 in connection with the left embankment raising.
3. Abandon the two inoperable vibrating wire piezometers.	These wire piezometers will be abandoned with grout in spring 2022.
4. Repair the bent protective casing of monitoring well/piezometer GZ-5 that renders it inoperable.	This well casing will be repaired in spring 2022 (after ground thaw)

3.3 REMEDIAL MODIFICATIONS

No remedial modifications are recommended at this time.

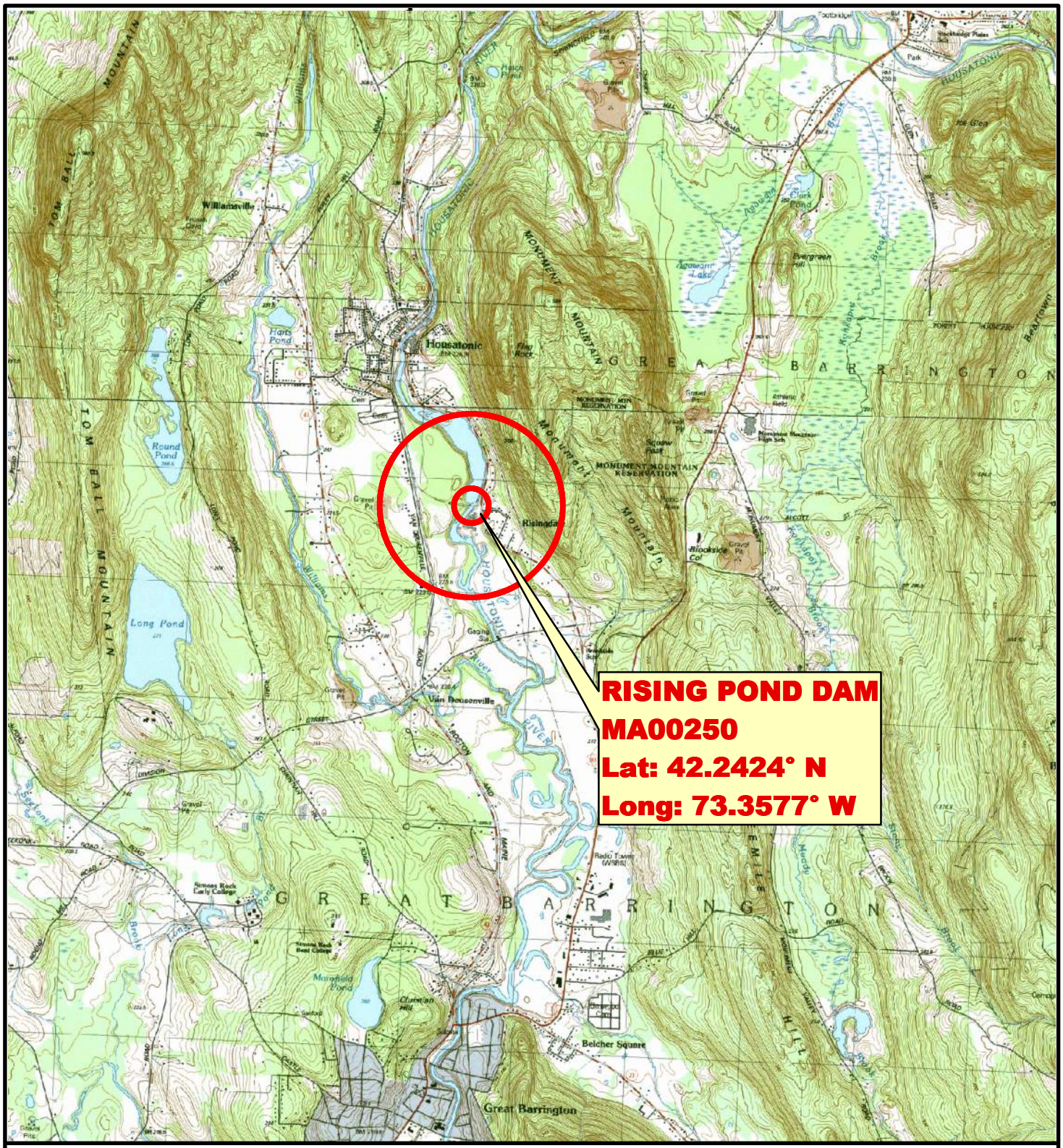
3.4 ALTERNATIVES

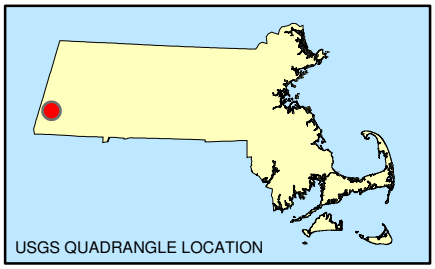
There are no alternatives at this time.

3.5 OPINION OF PROBABLE CONSTRUCTION COSTS

No remedial modifications are recommended at this time; thus, a cost estimate has not been prepared.

FIGURES





SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.

GREAT BARRINGTON TOPOGRAPHIC QUAD SHOWN.

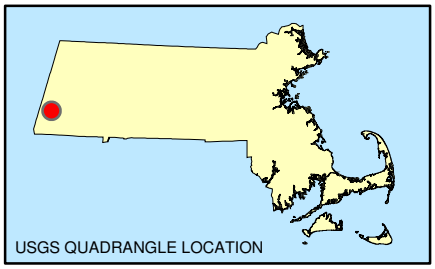
0 2,000 4,000 8,000 12,000 Feet

Data Supplied by : MASSGIS

N W E S

GZA	PROJ. MGR.: JDA DESIGNED BY: LGM REVIEWED BY: ABB OPERATOR: LGM DATE: 12-04-2009	LOCUS PLAN	JOB NO. 01.0019896.10
		RISING POND DAM, MA00250 GREAT BARRINGTON, MASSACHUSETTS	FIGURE NO. 1

T:\GISDATA\Massgis\Templates\SiteLocus_Template_Final-XP_v9.mxd



SOURCE : ORTHO IMAGERY PROVIDED BY MASSGIS, THE EXECTUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS (EOEA), THE DEPARTMENT OF EVIRONMENTAL PROTECTION, THE MASSACHUSETTS HIGHWAY DEPARTMENT, AND THE DEPARTMENT OF PUBLIC HEALTH.

Data Supplied by : MASSGIS

0 2,000 4,000 8,000 12,000 Feet

N W E S

T:\GISDATA\Massgis\Templates\SiteLocus_Template_Final-XP_v9.mxd

GZA

PROJ. MGR.: JDA
DESIGNED BY: LGM
REVIEWED BY: ABB
OPERATOR: LGM

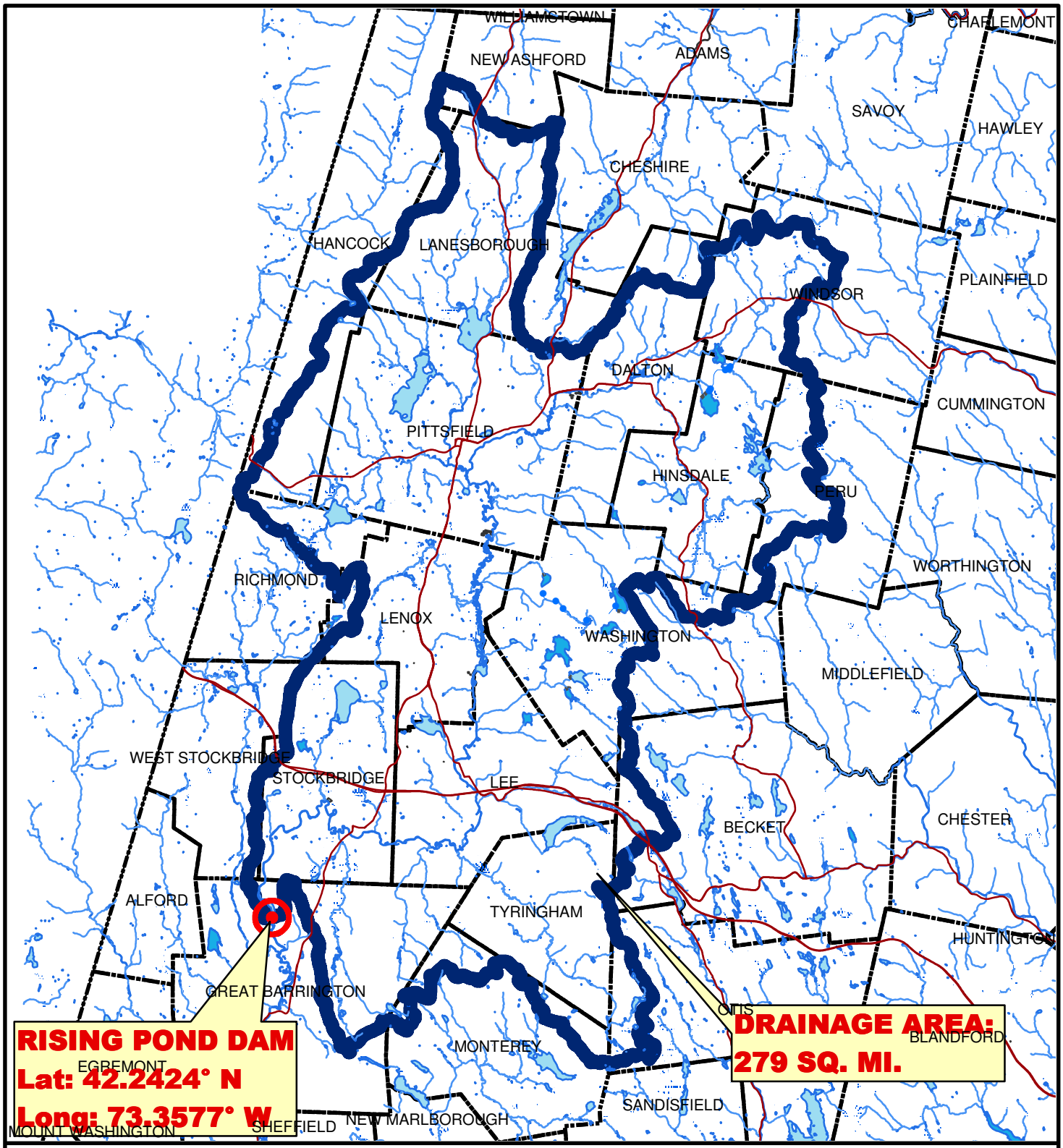
DATE: 12-04-2009

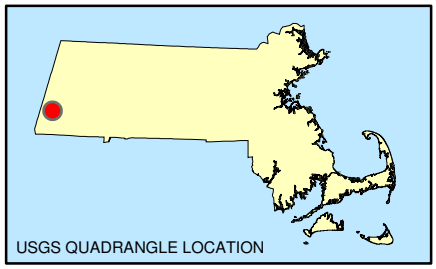
AERIAL PHOTOGRAPH

RISING POND DAM, MA00250
GREAT BARRINGTON, MASSACHUSETTS

JOB NO.
01.0019896.10

FIGURE NO.
2





SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.

WATERSHED DELINEATED BY STREAMSTATS
PROVIDED BY THE UNITED STATES GEOLOGICAL SURVEY.

Data Supplied by : MASSGIS

0 7,500 15,000 30,000 45,000
Feet

N
W E
S

PROJ. MGR.: JDA
DESIGNED BY: LGM
REVIEWED BY: ABB
OPERATOR: LGM

DATE: 1-20-2010

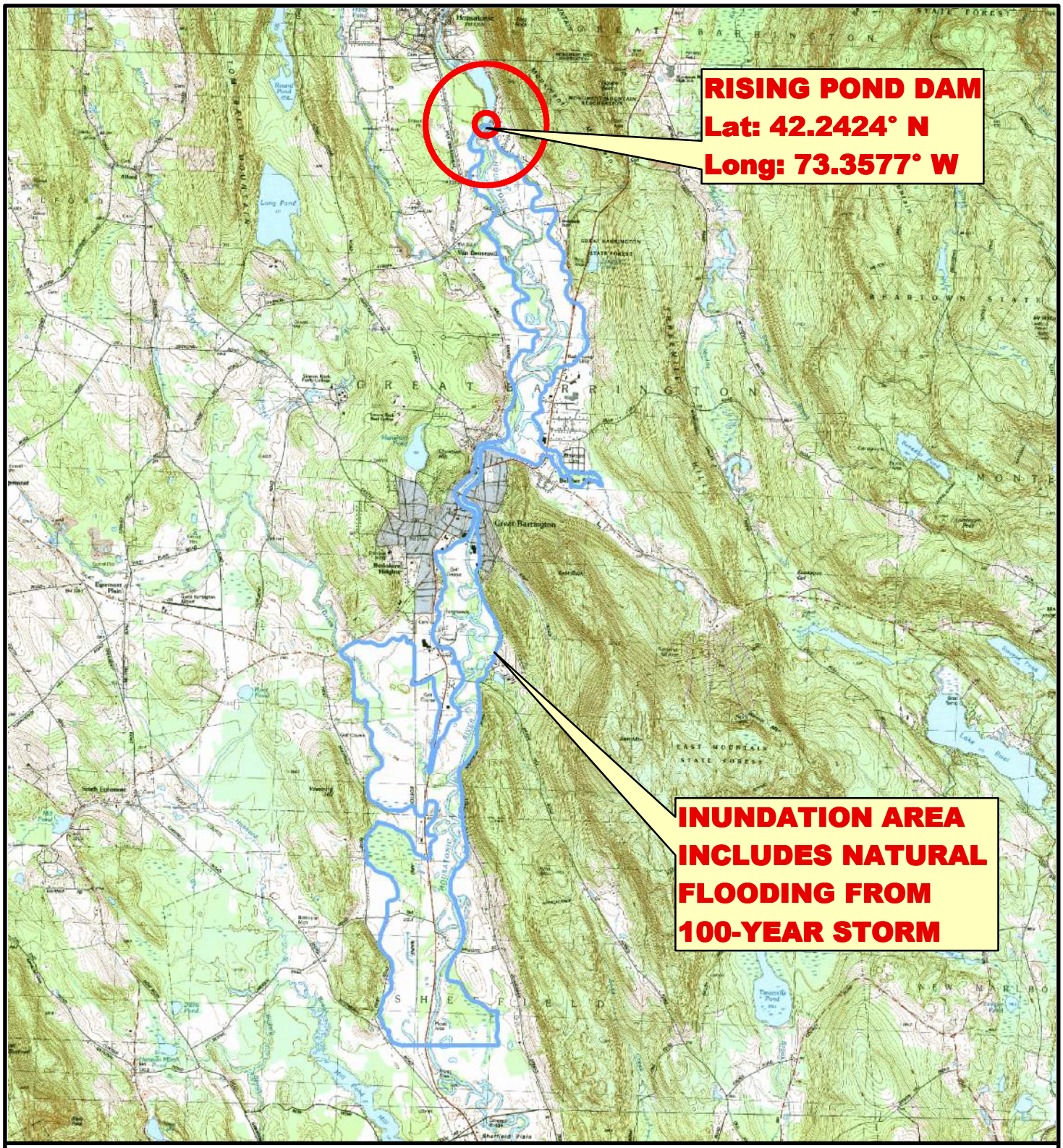
DRAINAGE AREA

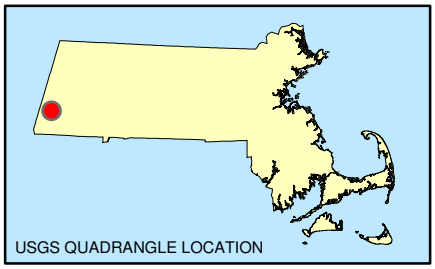
RISING POND DAM
GREAT BARRINGTON, MASSACHUSETTS

JOB NO.
01.0019896.10

FIGURE NO.
3

J:\19,000-20,999\19896\19896-00.JDA\Figures\Figure 3_Rising Pond Dam Watershed.pdf





SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.

INUNDATION AREA FROM THE RISING POND DAM EMERGENCY ACTION PLAN, UPDATED 2013

Data Supplied by : MASSGIS

0 2,000 4,000 8,000 12,000 Feet

N W E S

T:\GISDATA\Massgis\Templates\SiteLocus_Template_Final-XP_v9.mxd

PROJ. MGR.: JDA
DESIGNED BY: LGM
REVIEWED BY: ABB
OPERATOR: LGM

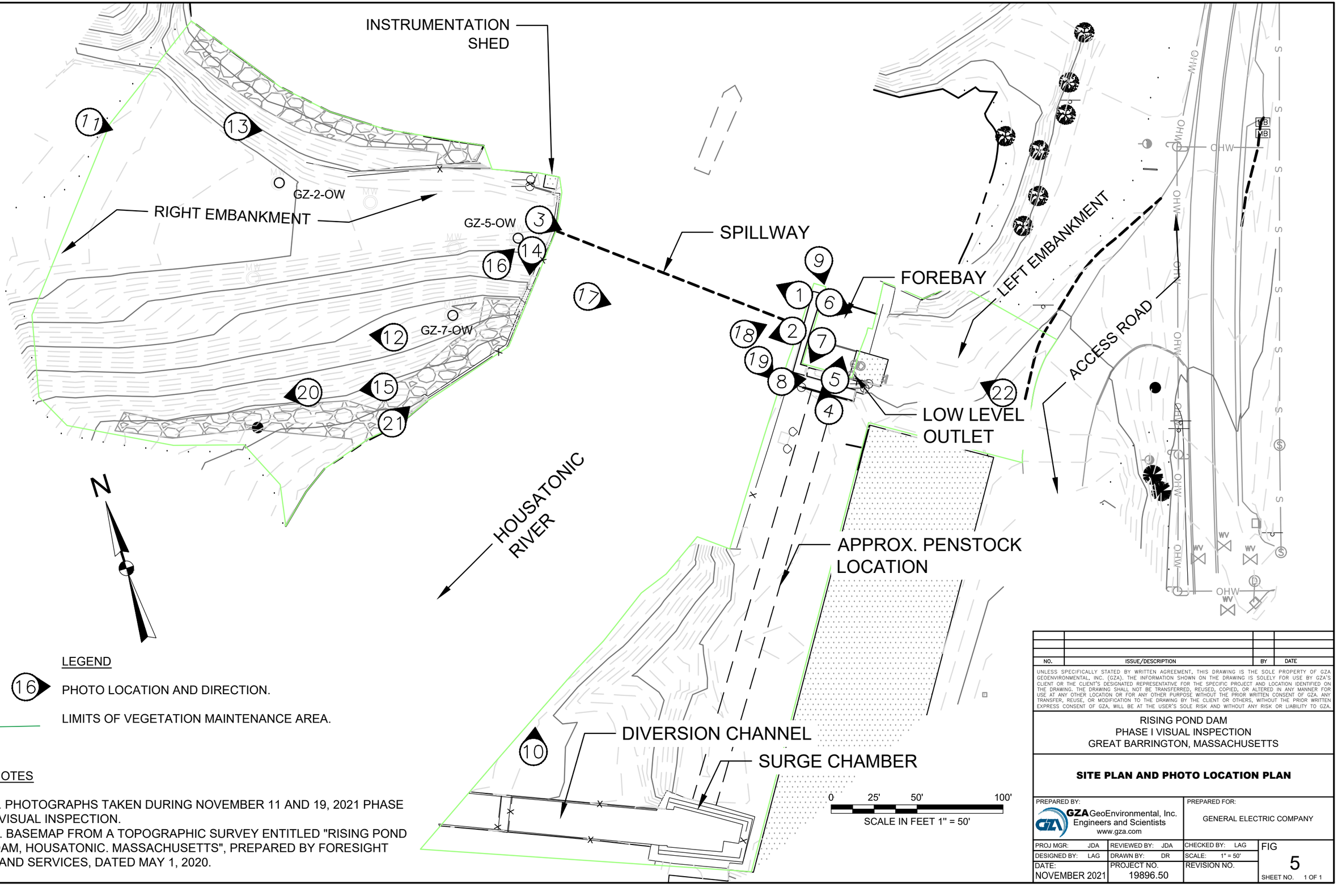
DATE: 1-20-2010

DOWNSTREAM AREA PLAN

RISING POND DAM
GREAT BARRINGTON, MASSACHUSETTS

JOB NO. 01.0019896.10

FIGURE NO. 4



LEGEND

16 PHOTO LOCATION AND DIRECTION.

LIMITS OF VEGETATION MAINTENANCE AREA.

NOTES

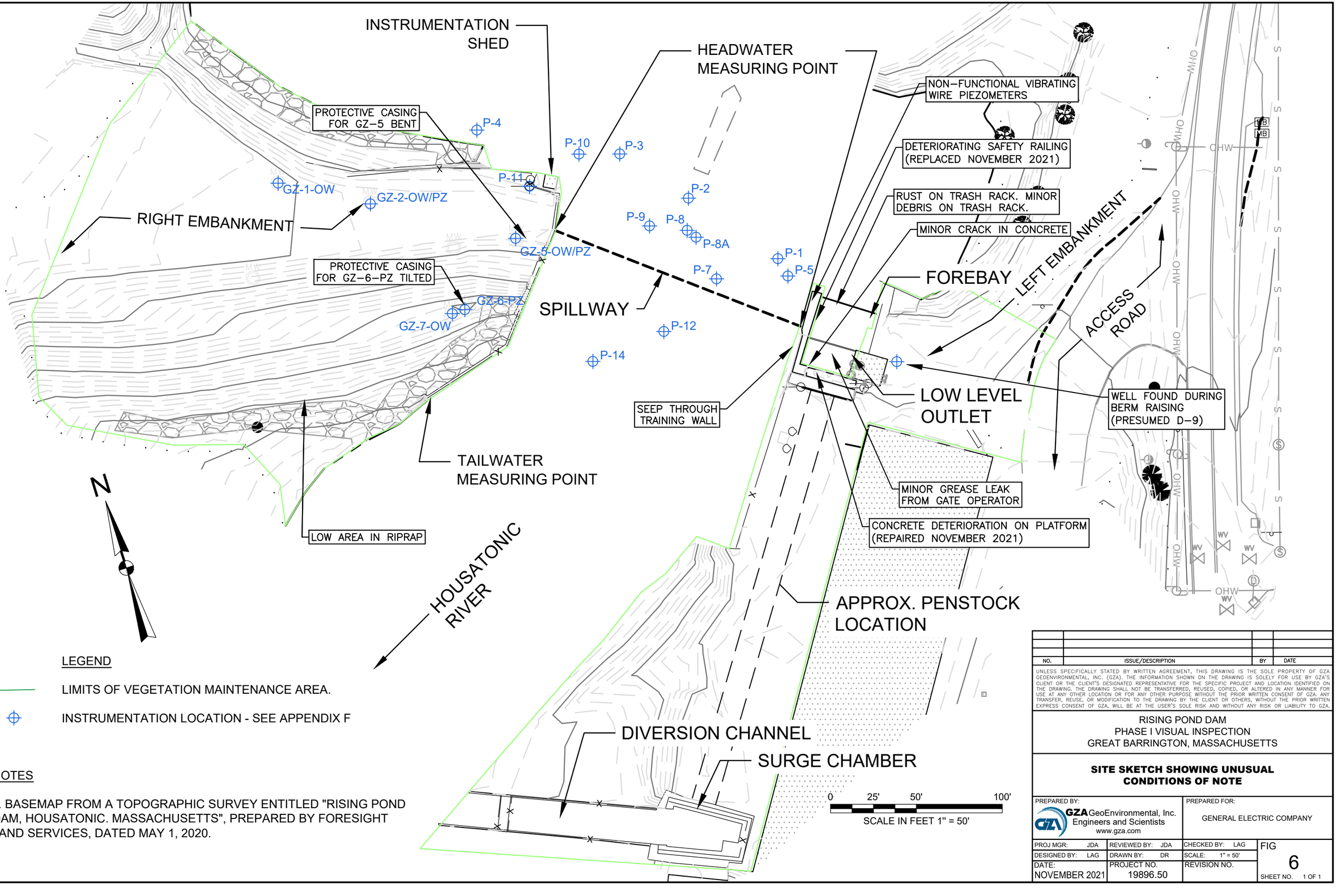
1. PHOTOGRAPHS TAKEN DURING NOVEMBER 11 AND 19, 2021 PHASE I VISUAL INSPECTION.
2. BASEMAP FROM A TOPOGRAPHIC SURVEY ENTITLED "RISING POND DAM, HOUSATONIC. MASSACHUSETTS", PREPARED BY FORESIGHT LAND SERVICES, DATED MAY 1, 2020.

NO.	ISSUE/DESCRIPTION	BY	DATE

RISING POND DAM
PHASE I VISUAL INSPECTION
GREAT BARRINGTON, MASSACHUSETTS

SITE PLAN AND PHOTO LOCATION PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GENERAL ELECTRIC COMPANY	
PROJ MGR: JDA	REVIEWED BY: JDA	CHECKED BY: LAG	FIG 5
DESIGNED BY: LAG	DRAWN BY: DR	SCALE: 1" = 50'	
DATE: NOVEMBER 2021	PROJECT NO. 19896.50	REVISION NO.	SHEET NO. 1 OF 1



LEGEND

LIMITS OF VEGETATION MAINTENANCE AREA.

INSTRUMENTATION LOCATION - SEE APPENDIX F

NOTES

1. BASEMAP FROM A TOPOGRAPHIC SURVEY ENTITLED "RISING POND DAM, HOUSATONIC. MASSACHUSETTS", PREPARED BY FORESIGHT LAND SERVICES, DATED MAY 1, 2020.

NO.	ISSUE/DESCRIPTION	BY	DATE

RISING POND DAM
PHASE I VISUAL INSPECTION
GREAT BARRINGTON, MASSACHUSETTS

SITE SKETCH SHOWING UNUSUAL CONDITIONS OF NOTE

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GENERAL ELECTRIC COMPANY	
PROJ MGR: JDA	REVIEWED BY: JDA	CHECKED BY: LAG	FIG 6
DESIGNED BY: LAG	DRAWN BY: DR	SCALE: 1" = 50'	
DATE: NOVEMBER 2021	PROJECT NO. 19896.50	REVISION NO.	SHEET NO. 1 OF 1

APPENDIX A – LIMITATIONS

DAM ENGINEERING REPORT LIMITATIONS

Use of Report

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of General Electric Company (Client) for the stated purpose(s) and location(s) identified in the Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

Standard of Care

2. Our findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Report and/or proposal, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. Our services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

General

4. The observations described in this report were made under the conditions stated therein. The conclusions presented were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by the Client.
5. in preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein available to GZA at the time of the evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.
6. Any GZA hydrologic analysis presented herein is for the rainfall volumes and distributions stated herein. For storm conditions other than those analyzed, the response of the site's spillway, impoundment, and drainage network has not been evaluated.
7. Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the structure or site, or to structures on the site was unavailable or limited, GZA renders no opinion as to the condition of that portion of the site or structure. In particular, it is noted that water levels in the impoundment and elsewhere and/or flow over the spillway may have limited GZA's ability to make observations of underwater portions of the structure. Excessive vegetation, when present, also inhibits observations.
8. In reviewing this Report, it should be realized that the reported condition of the dam is based on observations of field conditions during the course of this study along with data made available to GZA. It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the

dam will continue to represent the condition of the dam at some point in the future. Only through continued inspection and care can there be any chance that unsafe conditions be detected.

Compliance with Codes and Regulations

9. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.
10. This scope of work does not include an assessment of the need for fences, gates, swimmer/boater barriers, no trespassing signs, repairs to existing fences and railings and other items which may be needed to minimize trespass and provide greater security for the facility and safety to the public. An evaluation of the project for compliance with OSHA rules and regulations is also excluded.

Additional Services

11. It is recommended that GZA be retained to provide services during any future: site observations, explorations, evaluations, design, implementation activities, construction and/or implementation of remedial measures recommended in this Report. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

APPENDIX B – PHOTOGRAPHS

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.50

Photo No.	Date:
1	11/11/21

Direction Photo Taken:
Right

Description:
Dewatered spillway and right embankment from the left embankment. Note heavy equipment being used for debris removal.

Photo No.	Date:
2	11/11/21

Direction Photo Taken:
Right

Description:
Spillway, energy dissipators, downstream apron and discharge area from the left embankment. Note high tailwater due to impoundment lowering.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.50

Photo No.	Date:
3	11/11/21

Direction Photo Taken:
Left

Description:
Dewatered spillway, left training wall, and gate operator platform from the right embankment

Photo No.	Date:
4	11/19/21

Direction Photo Taken:
Upstream

Description:
Overview of approach area. Note new railing being set into place.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.50

Photo No.	Date:
5	11/19/21

Direction Photo Taken:
Upstream

Description:
Forebay and trash rack.

Note new railings being installed.

Photo No.	Date:
6	11/11/21

Direction Photo Taken:
Left

Description:
Trash rack at forebay. Note minor amount of debris on upstream side of trashrack.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.50

Photo No.	Date:
7	11/11/21

Direction Photo Taken:
Downstream

Description:
Diagonal crack in concrete forebay wall (downstream wall) below abandoned operator.

Photo No.	Date:
8	11/11/21

Direction Photo Taken:
Left/Upstream

Description:
Gate operator.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	19896.50

Photo No.	Date:
9	11/11/21

Direction Photo Taken:
Downstream

Description:
Gate being operated during inspection.

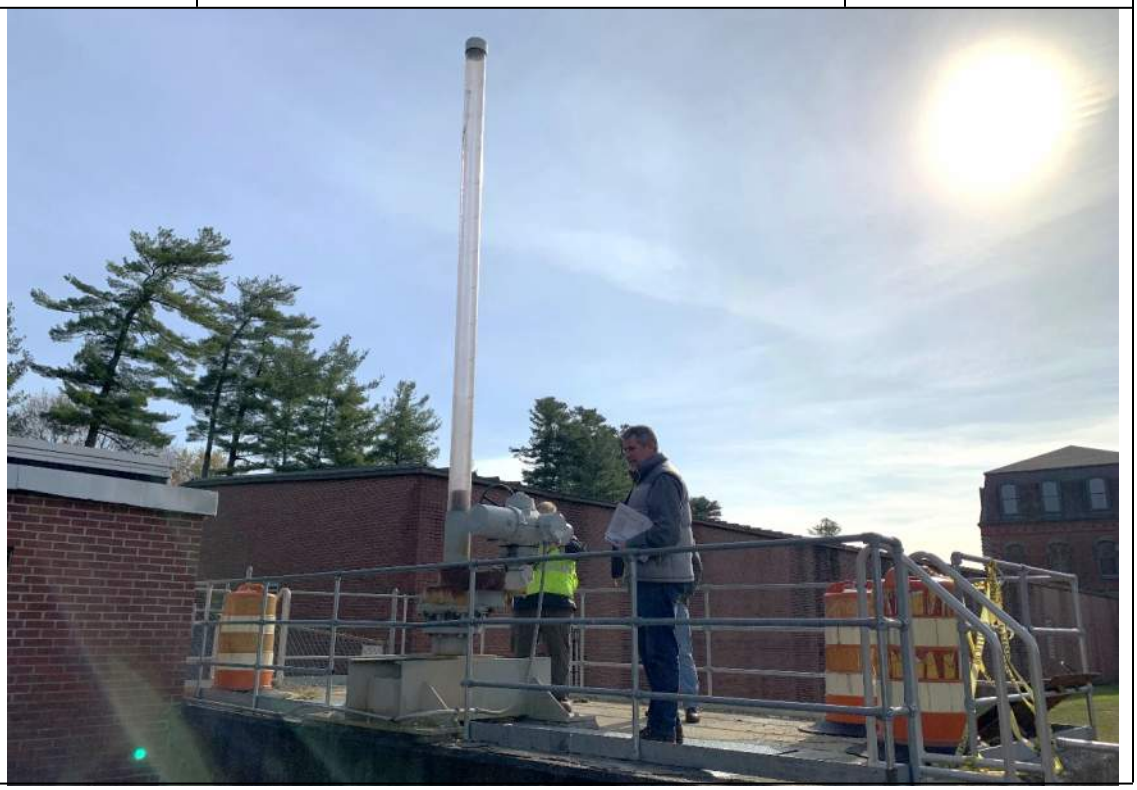
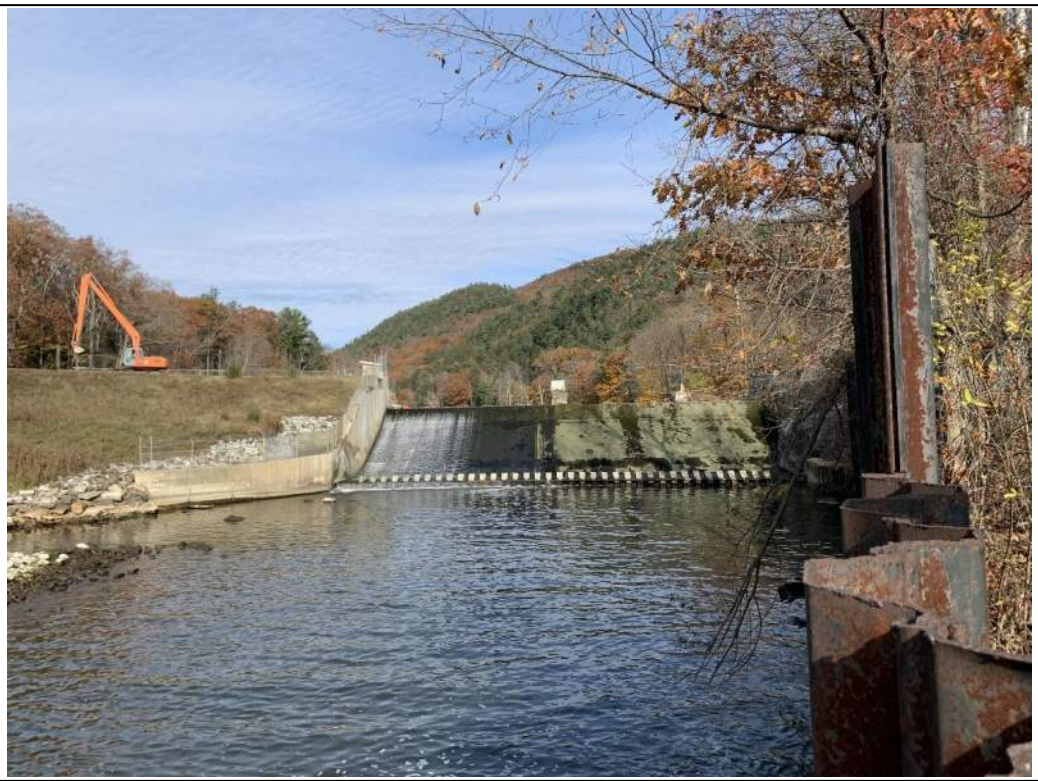


Photo No.	Date:
10	11/11/21

Direction Photo Taken:
Upstream

Description:
Downstream face of dewatered spillway.



Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	19896.50

Photo No.	Date:
11	11/19/21

Direction Photo Taken:
Left

Description:
Top of right embankment.

Photo No.	Date:
12	11/19/21

Direction Photo Taken:
Right

Description:
Downstream slope of right embankment.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	19896.50

Photo No.	Date:
13	11/11/21

Direction Photo Taken:
Left

Description:
Upstream slope of right embankment (photo foreground) and debris removal operations in reservoir (photo background)

Photo No.	Date:
14	11/19/21

Direction Photo Taken:
Left

Description:
MW-6 protective casing slightly out of plumb

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	19896.50

Photo No.	Date:
15	11/19/21

Direction Photo Taken:
Right

Description:
Downstream toe of right embankment slope.

Photo No.	Date:
16	11/11/21

Direction Photo Taken:
Down

Description:
Monitoring well GZ-5 protective casing dented. Well riser not accessible.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	19896.50

Photo No.	Date:
17	11/11/21

Direction Photo Taken:
Left

Description:
Downstream portion of dewatered spillway. Weepholes were cleaned out during the inspection.

Photo No.	Date:
18	11/11/21

Direction Photo Taken:
Upstream/right

Description:
Left training wall. Previously observed seepage from masonry wall was not observed during inspection.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	19896.50

Photo No.	Date:
19	11/11/21

Direction Photo Taken:
Downstream

Description:
Diffuse seep at left downstream end of spillway apron.

Photo No.	Date:
20	11/11/21

Direction Photo Taken:
Left and Down

Description:
Low area in riprap near downstream toe of right embankment slope. Depression is evidenced by concave riprap ground surface below folding ruler.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	19896.50

Photo No.	Date:
21	11/19/21

Direction Photo Taken:
Upstream and Downward

Description:
Recent concrete repair at downstream end of right downstream training wall.

Photo No.	Date:
22	11/11/21

Direction Photo Taken:
Left

Description:
Newly raised left abutment.

APPENDIX C – INSPECTION CHECKLIST

DAM SAFETY INSPECTION CHECKLIST

NAME OF DAM: Rising Pond Dam

STATE ID #: 1-2-113-14

REGISTERED: ☑ YES ☐ NO

NID ID #: MA00250

STATE SIZE CLASSIFICATION: Intermediate

STATE HAZARD CLASSIFICATION: Significant

CHANGE IN HAZARD CLASSIFICATION REQUESTED?: No

WEATHER/TEMPERATURE: Mostly Cloudy, 40°s

DAM LOCATION INFORMATION

CITY/TOWN: Great Barrington

COUNTY: Berkshire

DAM LOCATION: Off Route 183 by Mountain Street
(street address if known)

ALTERNATE DAM NAME: Rising Paper Company Dam, Rising Dam

USGS QUAD.: Housatonic

LAT.: 42.2424° N

LONG.: 73.3577° W

DRAINAGE BASIN: Housatonic

RIVER: Housatonic River

IMPOUNDMENT NAME(S): Rising Pond

GENERAL DAM INFORMATION

TYPE OF DAM: Earthfill Embankment w/Gravity Spillway

OVERALL LENGTH (FT): 670

PURPOSE OF DAM: Originally to power adjacent mill

NORMAL POOL STORAGE (ACRE-FT): 195

YEAR BUILT: Late 1800s

MAXIMUM POOL STORAGE (ACRE-FT): 710

STRUCTURAL HEIGHT (FT): 38

EL. NORMAL POOL (FT): 716.4

HYDRAULIC HEIGHT (FT): 30

EL. MAXIMUM POOL (FT): 726.2

FOR INTERNAL MADCR USE ONLY

FOLLOW-UP INSPECTION REQUIRED: ☐ YES ☐ NO

CONDITIONAL LETTER: ☐ YES ☐ NO

NAME OF DAM: Rising Pond Dam | STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 | NID ID #: MA00250

INSPECTION SUMMARY

DATE OF INSPECTION: 11/11/2021 and 11/19/2021 | DATE OF PREVIOUS INSPECTION: November 5, 2019

TEMPERATURE/WEATHER: Mostly Cloudy, 40°s | ARMY CORPS PHASE I: ☑ YES ☐ NO | If YES, date September 1979

CONSULTANT: GZA GeoEnvironmental, Inc. | PREVIOUS DCR PHASE I: ☑ YES ☐ NO | If YES, date 11/5/2019

BENCHMARK/DATUM: NGVD 29

OVERALL PHYSICAL CONDITION OF DAM: SATISFACTORY | DATE OF LAST REHABILITATION: Early 1990s major modifications

SPILLWAY CAPACITY: >100% SDF w/ no actions by Caretaker

EL. POOL DURING INSP.: ±716.1 | EL. TAILWATER DURING INSP.: 693±

PERSONS PRESENT AT INSPECTION

NAME	TITLE/POSITION	REPRESENTING
Laurie A. Gibeau, P.E.	Project Manager	GZA GeoEnvironmental, Inc.
Rachel A Crum, EIT	Engineer I	GZA GeoEnvironmental, Inc.
Scott Campbell		Taconic
Izabela Zapisek		Taconic
Ralph D. Nelson, Jr		HDR
Steve Garrity w/ crew	Owner	LB Corporation

EVALUATION INFORMATION

	Click on box to select E-code		Click on box to select E-code
E1) TYPE OF DESIGN	4	E8) LOW-LEVEL OUTLET CONDITION	4
E2) LEVEL OF MAINTENANCE	5	E9) SPILLWAY DESIGN FLOOD CAPACITY	5
E3) EMERGENCY ACTION PLAN	5	E10) OVERALL PHYSICAL CONDITION	4
E4) EMBANKMENT SEEPAGE	4	E11) ESTIMATED REPAIR COST	N/A
E5) EMBANKMENT CONDITION	4	ROADWAY OVER CREST	NO
E6) CONCRETE CONDITION	4	BRIDGE NEAR DAM	NO
E7) LOW-LEVEL OUTLET CAPACITY	5		

NAME OF INSPECTING ENGINEER: Laurie A. Gibeau, P.E. | SIGNATURE: Laurie Gibeau

NAME OF DAM:	Rising Pond Dam	STATE ID #:	1-2-113-14
INSPECTION DATE:	11/11/2021 and 11/19/2021	NID ID #:	MA00250

OWNER:		CARETAKER:	
ORGANIZATION	General Electric Company	ORGANIZATION	General Electric Company
NAME/TITLE	Kevin Mooney, Facility Manager	NAME/TITLE	Kevin Mooney, Facility Manager
STREET	159 Plastics Avenue	STREET	159 Plastics Avenue
TOWN, STATE, ZIP	Pittsfield, MA 01201	TOWN, STATE, ZIP	Pittsfield, MA 01201
PHONE	413-448-6610	PHONE	413-448-6610
EMERGENCY PH. #	413-441-4619	EMERGENCY PH. #	413-441-4619
FAX		FAX	
EMAIL	kevin.mooney@ge.com	EMAIL	kevin.mooney@ge.com
OWNER TYPE	Private		

PRIMARY SPILLWAY TYPE	Ogee overflow weir		
SPILLWAY LENGTH (FT)	130	SPILLWAY CAPACITY (CFS)	17,093 cfs @ Elev. 726.4 ft (500 year flood)
AUXILIARY SPILLWAY TYPE	Not Applicable	AUX. SPILLWAY CAPACITY (CFS)	Not applicable
NUMBER OF OUTLETS	1	OUTLET(S) CAPACITY (CFS)	±3,300 cfs @ Elev. 726.4 ft
TYPE OF OUTLETS	14-ft penstock	TOTAL DISCHARGE CAPACITY (CFS)	20,000+ cfs
DRAINAGE AREA (SQ MI)	279	SPILLWAY DESIGN FLOOD (PERIOD/CFS)	100-yr / 11,700 cfs

HAS DAM BEEN BREACHED OR OVERTOPPED ☐ YES ☑ NO IF YES, PROVIDE DATE(S)

FISH LADDER (LIST TYPE IF PRESENT) None

DOES CREST SUPPORT PUBLIC ROAD? ☐ YES ☑ NO IF YES, ROAD NAME:

PUBLIC BRIDGE WITHIN 50' OF DAM? ☐ YES ☑ NO IF YES, ROAD/BRIDGE NAME:

MHD BRIDGE NO. (IF APPLICABLE)

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

EMBANKMENT CREST

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
CREST	1. SURFACE TYPE	Grassed	X		
	2. SURFACE CRACKING	None observed	X		
	3. SINKHOLES, ANIMAL BURROWS	None observed	X		
	4. VERTICAL ALIGNMENT (DEPRESSIONS	No unusual movement or misalignment observed.	X		
	5. HORIZONTAL ALIGNMENT	Irregular, wide at right abutment	X		
	6. RUTS AND/OR PUDDLES	None observed (1)	X		
	7. VEGETATION (PRESENCE/CONDITION)	Mown grass/weeds. Maintenance/mowing regularly scheduled. (2)	X		
	8. ABUTMENT CONTACT	Good condition	X		
		Left embankment crest was raised in Fall of 2021. Grass cover was established.		X	

ADDITIONAL COMMENTS: Left embankment crest is undefined. Should be re-inspected during Spring & Summer quarterly inspections.

1. Second site visit was performed on November 19, 2021 to observe left and right embankment condition (after completion of debris removal and heavy equipment demobilization)

NAME OF DAM Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

EMBANKMENT DOWNSTREAM SLOPE

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
D/S SLOPE	1. WET AREAS (NO FLOW)	None observed	X		
	2. SEEPAGE	None observed	X		
	3. SLIDE, SLOUGH, SCARP	None observed	X		
	4. EMB.-ABUTMENT CONTACT	Appeared adequate	X		
	5. SINKHOLE/ANIMAL BURROWS	Monitored low area in riprap at toe		X	
	6. EROSION	None observed	X		
	7. UNUSUAL MOVEMENT	No observed unusual movement or misalignment	X		
	8. VEGETATION (PRESENCE/CONDITION)	Mown grass at left; grass with some brush/vine stumps at right	X		
	9. EVIDENCE OF SEEPAGE ALONG PENSTOCK	None observed	X		
	10. TOE AND 30' BEYOND (SEEP, BOIL, ETC)	Standing water at right toe, appears to be from high river flow	X		
	11. CONTACT WITH CONCRETE FOREBAY WALLS	Appears to be in fair condition	X		

ADDITIONAL COMMENTS

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

EMBANKMENT UPSTREAM SLOPE

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
U/S SLOPE	1. SLIDE, SLOUGH, SCARP	None observed	X		
	2. SLOPE PROTECTION TYPE AND COND.	Riprap/sheeting/soil slope on right side; sheetpile and soil slope on left	X		
	3. SINKHOLE/ANIMAL BURROWS	None observed	X		
	4. EMB.-ABUTMENT CONTACT	Gully at upstream right contact, possible man-made artifact from original construction (1)	X		
	5. EROSION	None observed	X		
	6. UNUSUAL MOVEMENT	No observed unusual movement or misalignment	X		
	7. VEGETATION (PRESENCE/CONDITION)	Mown grass and woody vegetation			X
	8. CONTACT WITH FOREBAY WALLS	Appears to be in fair condition	X		

ADDITIONAL COMMENTS: 1. Does not appear to have the potential to hydraulically connect across dam during the SDF.

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

INSTRUMENTATION

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
INSTR.	1. PIEZOMETERS	Set of VWPZs are read at an instrumentation shed on the right embankment. (1)	X		
	2. OBSERVATION WELLS	Seven OW on the right side and one on the forebay walkway (2)		X	
	3. STAFF GAGE AND RECORDER	On the upstream training walls and downstream right training wall		X	
	4. WEIRS	Not Applicable	X		
	5. INCLINOMETERS	Not Applicable	X		
	6. SURVEY MONUMENTS	Metal plate with X on upstream end of right training wall	X		
	7. DRAINS	Weepholes through training walls and spillway	X		
	8. FREQUENCY OF READINGS	Quarterly	X		
	9. LOCATION OF READINGS	With Caretaker, current readings attached in appendices	X		

ADDITIONAL COMMENTS: 1. Two VWPZs are located at the forebay are non-functional. LB to abandon by grouting casing in spring. Additional VWPZs on right side embankment

2. GZ 5 protective casing dented/not usable. Possible equipment strike.

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

DOWNSTREAM MASONRY WALLS

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
D/S WALLS	1. WALL TYPE	N/A			
	2. WALL ALIGNMENT				
	3. WALL CONDITION				
	4. HEIGHT: TOP OF WALL TO MUDLINE	min: avg:			
	5. SEEPAGE OR LEAKAGE				
	6. ABUTMENT CONTACT				
	7. EROSION/SINKHOLES BEHIND WALL				
	8. ANIMAL BURROWS				
	9. UNUSUAL MOVEMENT				
	10. WET AREAS AT TOE OF WALL				

ADDITIONAL COMMENTS:

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

UPSTREAM MASONRY WALLS

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
U/S WALLS	1. WALL TYPE	N/A			
	2. WALL ALIGNMENT				
	3. WALL CONDITION				
	4. HEIGHT: TOP OF WALL TO MUDLINE	min:			
	5. ABUTMENT CONTACT				
	6. EROSION/SINKHOLES BEHIND WALL				
	7. ANIMAL BURROWS				
	8. UNUSUAL MOVEMENT				

ADDITIONAL COMMENTS:

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

DOWNSTREAM AREA

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
D/S AREA	1. ABUTMENT LEAKAGE	None observed	X		
	2. FOUNDATION SEEPAGE	None observed	X		
	3. SLIDE, SLOUGH, SCARP	None observed	X		
	4. WEIRS	Not applicable	X		
	5. DRAINAGE SYSTEM	Not applicable	X		
	6. INSTRUMENTATION	USGS gage #01197500 on Division St. Bridge ±1 mile downstream	X		
	7. VEGETATION	Wooded w/ mill on left			
	8. ACCESSIBILITY	Access to left side off Route 183 (Park Street)	X		
		Access to right side off Van Deusenville Road			
	9. DOWNSTREAM HAZARD DESCRIPTION	Homes, businesses, and secondary roads	X		
	10. DATE OF LAST EAP UPDATE	Aug-19	X		

ADDITIONAL COMMENTS: Area of seepage has been previously intermittently noted near toe of right downstream embankment - not observed during the 2014, 2016, 2019, or 2021 inspections - monitor.

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

MISCELLANEOUS

AREA INSPECTED	CONDITION	OBSERVATIONS
MISC.	1. RESERVOIR DEPTH (AVG)	4 to 5 feet
	2. RESERVOIR SHORELINE	Wooded, grass, moderate slopes
	3. RESERVOIR SLOPES	About six feet high; wooded above, natural soil below
	4. ACCESS ROADS	Left side - Rte. 183 at Hazen Paper Mill (295 Park Street); Right side - locked railroad gate off Van Deusenville Road across from AmeriGas facility (69 Van Deusenville Road) (1)
	5. SECURITY DEVICES	Left side access through locked chain link fence (1)
	6. VANDALISM OR TRESPASS	☑ YES ☐ NO WHAT: pedestrian access to water
	7. AVAILABILITY OF PLANS	☑ YES ☐ NO DATE: 1991-2012 Rehab @GZA (3)
	8. AVAILABILITY OF DESIGN CALCS	☑ YES ☐ NO DATE: 1991-2012 Rehab @GZA
	9. AVAILABILITY OF EAP/LAST UPDATE	☑ YES ☐ NO DATE: March 2019
	10. AVAILABILITY OF O&M MANUAL	☑ YES ☐ NO DATE: Finalized 8-2019
	11. CARETAKER/OWNER AVAILABLE	☑ YES ☐ NO DATE: November 11, 2019
	12. CONFINED SPACE ENTRY REQUIRED	☐ YES ☑ NO PURPOSE:

ADDITIONAL COMMENTS:
1. Right side - railroad gate off Van Deusenville Road across the street from AmeriGas facility (69 Van Deusenville Road).
2. Vehicular access to right side is limited by locked railway gate and locked chainlink fence. Pedestrian access possible.

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

PRIMARY SPILLWAY

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
SPILLWAY	SPILLWAY TYPE	Rock filled timber crib with concrete facing, sheetpile walls below u/s & d/s concrete apron	X		
	WEIR TYPE	Ogee-shaped	X		
	SPILLWAY CONDITION	Appeared adequate. Seep below second from right weephole; 1/2 gpm clear flow (1-3)	X		
	TRAINING WALLS	Concrete on right side, mortared stone masonry on left	X		
	SPILLWAY CONTROLS AND CONDITION	Not applicable	X		
	UNUSUAL MOVEMENT	None observed	X		
	APPROACH AREA	Housatonic River, Former railroad pier upstream, protected by buoys. Debris cleared during inspection.	X		
	DISCHARGE AREA	Housatonic River, generally clear.	X		
	DEBRIS	Cleared during inspection.	X		
	WATER LEVEL AT TIME OF INSPECTION	716.1'	X		

ADDITIONAL COMMENTS: (1) Seep area solid when sounded

(2) Diffuse seepage at d/s left abutment contact. Clear, approx. 2 to 3 gpm

(3) Weepholes cleaned during inspection

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

AUXILIARY SPILLWAY

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
SPILLWAY	SPILLWAY TYPE	N/A			
	WEIR TYPE				
	SPILLWAY CONDITION				
	TRAINING WALLS				
	SPILLWAY CONTROLS AND CONDITION				
	UNUSUAL MOVEMENT				
	APPROACH AREA				
	DISCHARGE AREA				
	DEBRIS				
	WATER LEVEL AT TIME OF INSPECTION				

ADDITIONAL COMMENTS:

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

OUTLET WORKS

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
OUTLET WORKS	TYPE	Penstock and tailrace outlet with flip bucket	X		
	INTAKE STRUCTURE	Minor cracks w/ efflorescence in forebay below u/s end of operator .		X	
	TRASHRACK	Steel trashrack, surficial rusting.		X	
	PRIMARY CLOSURE	Sluice gate, replaced in 2008. Leaking some grease, leaf rehabbed 2021 (1)		X	
	SECONDARY CLOSURE	Not applicable	X		
	CONDUIT	14-foot dia. penstock parallel to mill/river, 90 deg right turn into open concrete (2)	X		
	OUTLET STRUCTURE/HEADWALL	Sheetpile wall downstream	X		
	EROSION ALONG TOE OF DAM	None observed	X		
	SEEPAGE/LEAKAGE	Rehabilitated in 2021. Still minor leaking within acceptable limits.	X		
	DEBRIS/BLOCKAGE	Wood debris in trash rack		X	
	UNUSUAL MOVEMENT	No observed unusual movement or misalignment	X		
	DOWNSTREAM AREA	Housatonic River	X		
	PENSTOCK BOUNDARY AREA	Fence appears to be in good condition	X		
	MISCELLANEOUS	Concrete and handrail deterioration on platform. Rehab planned for 2021	X		
	BLOW-OFF/DRAIN VALVE AREA	Appears to be in good condition	X		

ADDITIONAL COMMENTS: (1) Penstock gate operated by LB over preceding week to lower impoundment
(2) tailrace with flip bucket at discharge to river

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

CONCRETE/MASONRY DAMS

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
GENERAL	TYPE	N/A			
	AVAILABILITY OF PLANS				
	AVAILABILITY OF DESIGN CALCS				
	PIEZOMETERS				
	OBSERVATION WELLS				
	INCLINOMETERS				
	SEEPAGE GALLERY				
	UNUSUAL MOVEMENT				

ADDITIONAL COMMENTS:

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

CONCRETE/MASONRY DAMS (CREST)

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
CREST	TYPE	N/A			
	SURFACE CONDITIONS				
	CONDITIONS OF JOINTS				
	UNUSUAL MOVEMENT				
	HORIZONTAL ALIGNMENT				
	VERTICAL ALIGNMENT				

ADDITIONAL COMMENTS:

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

CONCRETE/MASONRY DAMS (DOWNSTREAM FACE)

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
D/S FACE	TYPE	N/A			
	SURFACE CONDITIONS				
	CONDITIONS OF JOINTS				
	UNUSUAL MOVEMENT				
	ABUTMENT CONTACT				
	LEAKAGE				

ADDITIONAL COMMENTS:

NAME OF DAM: Rising Pond Dam STATE ID #: 1-2-113-14

INSPECTION DATE: 11/11/2021 and 11/19/2021 NID ID #: MA00250

CONCRETE/MASONRY DAMS (UPSTREAM FACE)

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
U/S FACE	TYPE	N/A			
	SURFACE CONDITIONS				
	CONDITIONS OF JOINTS				
	UNUSUAL MOVEMENT				
	ABUTMENT CONTACTS				

ADDITIONAL COMMENTS:

APPENDIX D – PREVIOUS REPORTS & REFERENCES

PREVIOUS REPORTS AND REFERENCES

The following is a list of reports that were located during the file review, or were referenced in previous reports.

1. Rising Pond Dam Quarterly Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., May 19, 2021.
2. Rising Pond Dam Quarterly Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., March 10, 2021.
3. Rising Pond Dam Quarterly Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., November 10, 2020.
4. Rising Pond Dam Quarterly Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., August 7, 2020.
5. Rising Pond Dam Quarterly Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., May 8, 2020.
6. Rising Pond Dam Quarterly Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., February 12, 2020.
7. Rising Pond Dam Phase 1 Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., November 5, 2019.
8. Operation, Monitoring, and Maintenance Plan – Rising Pond Dam MA 00250, GZA GeoEnvironmental, Inc., August 2019
9. Rising Pond Dam Phase 1 Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., December 19, 2016.
10. Rising Pond Dam Phase 1 Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., November 12, 2014.
11. "Right Embankment Sinkhole Observations and Test Pit Exploration Letter," GZA GeoEnvironmental, Inc., September 16, 2009.
12. Rising Pond Dam Emergency Action Plan, GZA GeoEnvironmental, Inc. 2008.
13. Rising Pond Dam 2007 Structural Integrity Assessment and Inspection/Evaluation Report, Montgomery Watson Harza (MWH), November 15, 2007.
14. "Spillway Sliding Stability Analysis and Review Letter," GZA GeoEnvironmental, Inc., April 13, 2006.
15. Rising Pond Dam Inspection Report, Montgomery Watson Harza (MWH), October 29, 2002.
16. Rising Pond Dam Inspection / Evaluation Report, GZA GeoEnvironmental, Inc., December 1, 2005.
17. Rising Pond Dam Operations and Maintenance Manual, GZA GeoEnvironmental, Inc. 2008.
18. Rising Paper Co. Dam, Phase I Inspection Report, Department of the Army - New England Division Corps of Engineers, September 1979.
19. Massachusetts Geographic Information System (MASSGIS), *Geographic Information System database* - http://www.mass.gov/mgis/.
20. Rising Pond Dam Phase 1 Inspection/Evaluation Report, GZA GeoEnvironmental, Inc., November 23, 2009.
21. Phase II Engineering Evaluation and Preliminary Design Report, Rising Pond Dam GZA GeoEnvironmental, Inc., July 13, 2012.

The following references were utilized during the preparation of this report and the development of the recommendations presented herein.

1. Commonwealth of Massachusetts Regulations, 302 CMR 10.00 – Dam Safety, Effective 2/10/17.

2. Federal Emergency Management Agency (FEMA), *Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners (FEMA64)*, revised April 2004.

3. Federal Energy Regulatory Commission's (FERC), *Engineering Guidelines for The Evaluation of Hydropower Projects*, November 1998.

4. U.S. Department of the Interior, Bureau of Reclamation, *Design of Small Dams, Water Resources Technical Publication*, Washington, D.C., 2nd Edition 1973, revised reprint 1977.

APPENDIX E – DEFINITIONS

COMMON DAM SAFETY DEFINITIONS

For a comprehensive list of dam engineering terminology and definitions refer to 302 CMR10.00 Dam Safety, or other reference published by FERC, Dept. of the Interior Bureau of Reclamation, or FEMA. Please note should discrepancies between definitions exist, those definitions included within 302 CMR 10.00 govern for dams located within the Commonwealth of Massachusetts.

Orientation

Upstream – The side of the dam that borders the impoundment.

Downstream – The high side of the dam, the side opposite the upstream side.

Right – The area to the right when looking in the downstream direction.

Left – The left when looking in the downstream direction.

Dam Components

Dam – Any artificial barrier, including appurtenant works, which impounds or diverts water.

Embankment – The fill material, usually earth or rock, placed with sloping sides, such that it forms a permanent barrier that impounds water.

Crest – The top of the dam, usually provides a road or path across the dam.

Abutment – That part of a valley side against which a dam is constructed. An artificial abutment is sometimes constructed as a concrete gravity section, to take the thrust of an arch dam where there is no suitable natural abutment.

Appurtenant Works – Structures, either in dams or separate therefrom, including but not be limited to, spillways; reservoirs and their rims; low-level outlet works; and water conduits including tunnels, pipelines, or penstocks, either through the dams or their abutments.

Spillway – A structure over or through which water flows are discharged. If the flow is controlled by gates or boards, it is a controlled spillway; if the fixed elevation of the spillway crest controls the level of the impoundment, it is an uncontrolled spillway.

Size Classification
(as listed in Commonwealth of Massachusetts, 302 CMR 10.00 Dam Safety)

Large – Structure with a height greater than 40 feet or a storage capacity greater than 1,000 acre-feet.

Intermediate – Structure with a height between 15 and 40 feet or a storage capacity of 50 to 1,000 acre-feet.

Small – Structure with a height between 6 and 15 feet and a storage capacity of 15 to 50 acre-feet.

Non-Jurisdictional – Structure less than 6 feet in height or having a storage capacity of less than 15 acre-feet.

Hazard Classification
(as listed in Commonwealth of Massachusetts, 302 CMR 10.00 *Dam Safety*)

High Hazard (Class I) – Dams located where failure will likely cause loss of life and serious damage to home(s), industrial or commercial facilities, important public utilities, main highway(s) or railroad(s).

Significant Hazard (Class II) – Dams located where failure may cause loss of life and damage to home(s), industrial or commercial facilities, secondary highway(s) or railroad(s), or cause the interruption of the use or service of relatively important facilities.

Low Hazard (Class III) – Dams located where failure may cause minimal property damage to others. Loss of life is not expected.

General

Acre-foot – A unit of volumetric measure that would cover one acre to a depth of one foot. It is equal to 43,560 cubic feet. One million U.S. gallons = 3.068 acre feet.

AHPS – Advanced Hydrologic Prediction Service – a website showing Housatonic River flows and river stage at United States Geological Survey Gage No. 01197500 at Division Street in Great Barrington.

Dam safety engineer – A Professional Engineer experienced in dam safety and registered in Massachusetts.

EAP – Emergency Action Plan – A predetermined (and properly documented) plan of action to be taken to reduce the potential for property damage and/or loss of life in an area affected by an impending dam failure.

Height of dam (structural height) – The vertical distance from the lowest portion of the natural ground, including any stream channel, along the downstream toe of the dam to the lowest point on the crest of the dam.

Hydraulic height – The height to which water rises behind a dam and the difference between the lowest point in the original streambed at the axis of the dam and the maximum controllable water surface.

Maximum storage capacity – The volume of water contained in the impoundment at maximum water storage elevation.

Maximum water storage elevation – The maximum elevation of water surface which can be contained by the dam without overtopping the embankment section.

Normal pool – The elevation of the impoundment during normal operating conditions.

Normal storage capacity – The volume of water contained in the impoundment at normal water storage elevation.

OM&M Plan – Operation, Monitoring, and Maintenance Plan.

Spillway Design Flood (SDF) – The flood used in the design of a dam and its appurtenant works particularly for sizing the spillway and outlet works, and for determining maximum temporary storage and height of dam requirements.

Condition Rating

Unsafe – Major structural*, operational, and maintenance deficiencies exist under normal operating conditions.

Poor – Significant structural*, operation and maintenance deficiencies are clearly recognized for normal loading conditions.

Fair – Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur. Can be used when uncertainties exist as to critical parameters.

Satisfactory – Minor operational and maintenance issues. Infrequent hydrologic events could result in deficiencies.

Good – No existing or potential deficiencies recognized. Safe performance is expected under all loading including SDF.

* Structural deficiencies include but are not limited to the following:

- Excessive uncontrolled seepage (e.g., upwelling of water, evidence of fines movement, flowing water, erosion, etc.).
- Missing riprap with resulting erosion of slope.
- Sinkholes, particularly behind retaining walls and above outlet pipes, possibly indicating loss of soil due to piping, rather than animal burrows.
- Excessive vegetation and tree growth, particularly if it obscures features of the dam and the dam cannot be fully inspected.
- Deterioration of concrete structures (e.g., exposed rebar, tilted walls, large cracks with or without seepage, excessive spalling, etc.).
- Inoperable outlets (gates and valves that have not been operated for many years or are broken).

APPENDIX F – INSTRUMENTATION DATA AND WATER LEVEL RECORDS

Rising Pond Dam Instrument Data

Piezometric Reading (ft, NGVD)

785
760
735
715
710
685
660

1/1/1993 1/1/1995 1/1/1997 1/1/1999 1/1/2001 1/1/2003 1/1/2005 1/1/2007 1/1/2009 1/1/2011 1/1/2013 1/1/2015 1/1/2017 1/1/2019 1/1/2021

Note: Action level for D-2 (OW), P-7, P-8, P-9, P-12, P-13, and P-14 series is 715 feet NGVD.

New baseline established for P 12C during the 2012 2013 rehabilitation

P-1B
P-1C
P-2B
P-2C
P-3C
P-4B
P-4C
P-5A
P-5B
P-5C
P-7A
P-7B
P-8A
P-8B
P-8C
P-9A
P-9B
P-10B
P-10C
P-11C
P-12B
P-12C
P-13B
P-13C
P-14C2
P-14B
P-14C1
GZ-2
GZ-5
GZ-6
P-11 ow
GZ-1 ow
GZ-2 ow
GZ-5 ow
GZ-7 ow

Pieziometric Reading, ft NGVD
Rising Pond Dam

		4/5/1993	6/2/1993	6/3/1993	6/4/1993	6/5/1993	6/6/1993	6/7/1993	6/8/1993	6/9/1993	6/10/1993	6/11/1993	6/12/1993	6/13/1993	6/14/1993	6/15/1993	2/22/1994
	Reservoir Elevation:																
	Tailwater Elevation:																
VWPZ Results	P-1B	711.2	709.9	709.9	709.9	709.9	709.9	710.0	710.0	710.0	710.0	710.0	710.0	710.0	710.0	709.9	709.0
	P-1C	709.0	707.2	707.2	707.2	707.2	707.2	707.2	707.2	707.2	707.3	707.3	707.3	707.3	707.3	707.2	706.6
	P-2B	709.2	708.0	708.0	708.0	708.0	708.1	708.1	708.1	708.1	708.1	708.1	708.2	708.2	708.2	708.1	705.8
	P-2C	706.8	704.6	704.6	704.6	704.5	704.5	704.5	704.5	704.5	704.5	704.5	704.5	704.5	704.5	704.4	703.9
	P-3C	704.8	702.6	702.6	702.6	702.5	702.5	702.5	702.5	702.5	702.4	702.4	702.4	702.4	702.4	702.3	701.7
	P-4B	703.7	701.3	701.2	701.2	701.2	701.2	701.2	701.2	701.2	701.1	701.1	701.1	701.0	701.0	700.9	699.8
	P-4C	704.5	702.4	702.3	702.3	702.3	702.2	702.2	702.2	702.2	702.2	702.2	702.1	702.1	702.1	702.0	701.1
	P-5A	702.0	703.0	703.1	703.1	703.0	703.0	703.0	702.9	703.1	703.2	703.3	703.4	703.6	703.7	703.7	699.5
	P-5B	698.1	696.8	696.9	696.9	696.9	696.9	696.9	696.9	696.9	696.9	696.9	697.0	697.0	697.0	696.9	696.6
	P-5C	702.5	700.7	700.7	700.7	700.7	700.7	700.7	700.7	700.7	700.7	700.7	700.7	700.7	700.7	700.6	700.7
	P-7A	701.4	702.1	702.3	702.3	702.3	702.2	702.2	702.2	702.3	702.4	702.6	702.7	702.8	703.0	702.9	700.4
	P-7B	696.7	695.5	695.5	695.5	695.5	695.5	695.6	695.6	695.6	695.6	695.7	695.7	695.7	695.8	695.7	695.3
	P-8A	700.0	700.4	700.5	700.5	700.5	700.5	700.5	700.4	700.6	700.7	700.8	700.9	701.1	701.2	701.1	698.3
	P-8B	698.3	696.9	696.9	696.9	697.0	697.0	697.0	697.0	697.0	697.0	697.1	697.1	697.1	697.1	697.1	696.8
	P-8C	767.3	764.9	764.6	763.8	763.1	762.4	761.7	761.0	761.5	762.0	762.5	763.0	763.5	764.0	762.7	761.7
	P-9A	700.5	701.1	701.1	701.1	701.1	701.1	701.1	701.1	701.2	701.3	701.4	701.6	701.7	701.8	701.8	699.3
	P-9B	699.8	698.3	698.2	698.2	698.2	698.2	698.3	698.3	698.3	698.3	698.3	698.3	698.3	698.3	698.2	697.9
	P-10B	701.2	699.2	699.2	699.2	699.2	699.2	699.2	699.2	699.2	699.2	699.2	699.2	699.1	699.1	699.0	698.8
	P-10C	702.8	700.8	700.7	700.7	700.7	700.6	700.6	700.6	700.6	700.6	700.6	700.6	700.6	700.6	700.5	699.9
	P-11C	703.2	701.2	701.1	701.0	701.0	701.0	701.0	700.9	700.9	700.9	700.9	700.9	700.9	700.9	700.8	
	P-12B	699.9	698.5	698.5	698.5	698.5	698.5	698.5	698.5	698.5	698.6	698.6	698.6	698.6	698.6	698.6	698.3
	P-12C	701.6	699.8	699.8	699.8	699.8	699.8	699.7	699.7	699.7	699.7	699.7	699.7	699.8	699.8	699.6	699.6
	P-13B	692.3	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.3
	P-13C	699.5	697.7	697.7	697.7	697.6	697.6	697.6	697.6	697.6	697.6	697.6	697.6	697.6	697.6	697.5	697.6
	P-14C2	700.6	698.8	698.8	698.8	698.7	698.7	698.7	698.6	698.6	698.7	698.7	698.7	698.7	698.7	698.6	698.0
	P-14B	693.4	692.1	692.0	692.0	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.1	692.0	692.2
	P-14C1	695.4	693.6	693.6	693.6	693.6	693.6	693.5	693.5	693.5	693.5	693.5	693.5	693.5	693.5	693.5	693.2
	GZ-2																
	GZ-5																
Monitoring Wells	GZ-2																
	GZ-5																
	GZ-7																

Notes:

1.P-1B, P-2B, P-2C, P-4C, P-14C2, P-14B, and P-14C1 repaired during the 2012-2013 rehabilitation. New baseline established for P-12C during the 2012-2013 rehabilitation
2.GZ-2 and GZ-5 were installed in 2011.
3.Blank cells indicate that the instrument was not functioning on the day shown. Gray cells indicate that the insturment was not present at the time or that it is considered non-functional overall.
4.Water levels measured in accordance with Section 3.1.2 of the OM&M plan.
5.Action level for D-2 (OW), P-6, P-7, P-8, P-9, P-12, P-13, and P-14 series is 715 feet NGVD. No action levels have been exceeded for Rising Pond Dam. The water levels measured are typically within the historical ranges presented in Sections 8 and 9 of Appendix C of the OM&M plan. P-14C2 on7/27/2015 P-10C on 8/30/2019 had unusual readings that resumed typical readings upon subsequent measurements.

Pieziometric Reading, ft NGVD
Rising Pond Dam

		10/14/1994	7/28/1995	12/1/2005	10/30/2008	10/14/2011	11/14/2011	11/18/2011	11/28/2011	12/29/2011	1/3/2012	1/5/2012	1/9/2012	1/16/2012	1/24/2012	10/26/2012	11/2/2012
	Reservoir Elevation:																
	Tailwater Elevation:																
VWPZ Results	P-1B	710.1	708.1	709.6	708.9	707.9	707.4	707.5	707.2	707.9							
	P-1C	707.2	705.6	707.8	707.2	706.1	705.9	706.0	705.9	706.7							
	P-2B	707.3	705.9	707.1	706.4	706.0	705.4	705.5	705.1	705.6							
	P-2C	704.1	702.8	704.3	703.9	703.3	703.0	703.2	702.9	703.7							
	P-3C	702.0	700.9	702.6	702.2	701.8	701.5	701.7	701.4	702.1							
	P-4B	700.2	699.3	701.4	700.5	700.4	700.0	700.2	699.8	700.5							
	P-4C	701.4	700.4	701.4	701.0	700.6	700.3	700.5	700.2	700.9							
	P-5A	701.7	700.0	698.4	699.0	701.3	697.7	697.8	697.4	698.0	697.9	697.7	698.0	698.4	697.8	698.9	698.4
	P-5B	697.2	695.8	696.8	696.8	695.6	695.7	695.9	695.7	696.4	696.2	696.1	696.3	695.8	695.6	695.1	694.6
	P-5C	700.8	699.7	700.8	700.6	699.5	699.6	699.7	699.5	700.3	700.0	699.8	700.0	699.7	699.2	698.5	698.1
	P-7A	702.1	700.4	699.6	699.7	700.1	699.0	699.2	698.9	698.9	699.0	698.9	699.5	699.2	698.7	699.0	698.8
	P-7B	696.0	694.4	694.6	694.3	692.9	693.1	693.3	693.1	693.9	693.8	693.7	694.0	693.2	693.3	692.7	692.2
	P-8A	700.6	699.2	698.3	698.3	698.7	697.5	697.7	697.4	697.4	697.6	697.4	698.0	697.6	697.1	698.7	697.5
	P-8B	697.3	695.9	696.3	696.1	694.8	694.9	695.1	694.9	695.8	695.8	695.6	695.9	695.2	695.2	694.5	694.0
	P-8C	761.9	757.7	758.8	772.4	770.5	771.3	771.7	771.5	772.2	772.1	771.9	772.0	772.0	771.3	768.6	768.3
	P-9A	700.5	699.3	698.8	699.0	699.1	698.3	698.4	698.1	698.4	698.5	698.4	698.9	698.3	698.2	698.7	698.1
	P-9B	698.2	697.1	697.7	697.6	696.3	696.4	696.6	696.4	697.3	697.3	697.2	697.5	696.7	696.7	695.9	695.4
	P-10B	698.8	697.8	698.7	698.3	697.2	697.1	697.3	697.1	698.1	698.4	698.4	698.7	697.7	697.7	696.4	695.9
	P-10C	700.1	699.2	700.9	700.9	700.4	700.2	700.4	700.1	700.8	700.6	700.4	700.7	700.4	699.8	699.0	698.6
	P-11C	700.3		701.0			700.1	700.3	700.0	700.7	700.5	700.3	700.7	700.3	699.8	699.0	
	P-12B	698.9	697.8	697.7		696.0	696.2	696.4	696.3	697.1	696.9	696.7	696.9	695.9	696.4	695.7	695.2
	P-12C	700.0	699.2	701.3		700.7	700.7	700.9	700.6	701.3	701.1	700.9	701.1	700.8	700.3	699.6	699.2
	P-13B		691.8														
	P-13C		696.5														
	P-14C2		697.3														
	P-14B		691.2														
	P-14C1		692.7														
	GZ-2						696.9	697.2	696.8	697.5	697.4	697.3	697.8	697.1	696.7	696.7	695.2
	GZ-5						699.8	700.1	699.8	700.6	700.4	700.3	700.6	700.1	699.8	699.8	698.4
Monitoring Wells	GZ-2																
	GZ-5																
	GZ-7																

Notes:

1.P-1B, P-2B, P-2C, P-4C, P-14C2, P-14B, and P-14C1 repaired during the 2012-2013 rehabilitation. New baseline established for P-12C during the 2012-2013 rehabilitation
2.GZ-2 and GZ-5 were installed in 2011.
3.Blank cells indicate that the instrument was not functioning on the day shown. Gray cells indicate that the insturment was not present at the time or that it is considered non-functional overall.
4.Water levels measured in accordance with Section 3.1.2 of the OM&M plan.
5.Action level for D-2 (OW), P-6, P-7, P-8, P-9, P-12, P-13, and P-14 series is 715 feet NGVD. No action levels have been exceeded for Rising Pond Dam. The water levels measured are typically within the historical ranges presented in Sections 8 and 9 of Appendix C of the OM&M plan. P-14C2 on7/27/2015 P-10C on 8/30/2019 had unusual readings that resumed typical readings upon subsequent measurements.

Pieziometric Reading, ft NGVD
Rising Pond Dam

		11/9/2012	11/16/2012	11/23/2012	11/30/2012	1/30/2013	4/26/2013	7/30/2013	10/24/2013	11/26/2013	1/31/2014	3/27/2014	4/28/2014	8/1/2014	10/28/2014	1/29/2015	4/27/2015	7/27/2015
	Reservoir Elevation:																	
	Tailwater Elevation:																	
VWPZ Results	P-1B					706.2	707.7	707.8	706.9		706.8	706.6	707.9	709.7	707.9	707.0	707.7	707.8
	P-1C																	
	P-2B																	
	P-2C					701.9	703.6	703.4	702.1		702.6	702.5	704.0	705.3	703.3	702.9	703.9	703.4
	P-3C					700.3	702.2	701.9	700.5		701.1	700.9	702.5	703.8	701.7	701.3	702.4	701.9
	P-4B																	
	P-4C					699.1	701.0	700.8	699.4		699.9	699.8	701.4	702.8	700.6	700.2	701.3	700.7
	P-5A	698.6	698.7	698.2	698.4	697.6	698.3	700.1	698.1		698.0	698.1	697.2	701.5	698.4	697.6	697.4	699.5
	P-5B	694.7	698.6	698.4	698.6	695.5	696.7	697.2	696.3		696.3	696.1	696.7	698.6	696.9	696.2	696.6	696.9
	P-5C	698.3	698.5	698.3	698.6	698.7	700.3	700.2	699.2		699.6	699.6	700.6	702.0	700.3	699.8	700.5	700.3
	P-7A	698.7	698.7	698.7	698.5	698.5	699.1	700.8	699.5		698.9	699.0	698.8	701.9	699.5	698.6	698.7	700.4
	P-7B	692.3	692.3	692.1	692.0	693.3	694.4	694.9	694.0		694.0	693.9	694.4	696.3	694.5	693.9	694.3	694.6
	P-8A	697.5	697.2	697.3	697.0	696.7	697.3	699.3	698.3		697.0	697.0	697.0	700.5	698.1	696.7	696.8	699.1
	P-8B	693.9	693.9	693.6	693.9	695.1	696.2	696.7	695.7		695.8	695.7	696.3	698.2	696.3	695.7	696.1	696.6
	P-8C	768.3	768.4	768.1	767.9	768.7	770.2	769.9	766.9		767.9	766.1	771.3		770.4	770.9	771.7	771.9
	P-9A	698.2	698.3	698.3	698.1	697.6	698.4	700.3	698.8		698.0	698.1	698.3	701.4	698.9	697.8	698.1	700.0
	P-9B	695.5	695.4	695.5	695.6	696.5	697.6	698.0	697.0		697.1	697.0	697.7	699.6	697.6	697.0	697.6	697.8
	P-10B	696.1	695.9	696.1	695.9	696.9	698.3	698.5	697.4		697.6	697.5	698.3	700.2	698.0	697.5	698.2	698.2
	P-10C	698.7	698.6	699.0	698.8	699.1	700.9	700.7	699.4		699.9	699.7	701.2	702.6	700.5	700.1	701.2	700.7
	P-11C						700.9											
	P-12B	695.3	695.2	695.4	695.5	696.3	697.6	697.8	697.8		697.1	697.1	697.6	700.4	697.9	697.0	697.5	698.4
	P-12C	699.2	699.2	699.1	699.3	674.1	675.6	675.4	674.5		674.8	674.8	675.9	677.3	675.5	675.0	675.7	675.5
	P-13B																	
	P-13C																	
	P-14C2					697.3		698.8	697.6		698.1	698.0	699.4	700.7	698.8	698.5	699.3	
	P-14B					691.5		693.7	692.7		692.4	692.4	692.9	695.2	693.1	692.3	692.9	693.2
	P-14C1					693.1		694.6	693.6			693.9	695.1	696.6	694.6	694.2	695.1	694.9
	GZ-2	695.3	695.2	694.9	694.7	695.5				696.1	695.5	695.4	696.8	698.2	695.9	695.3	696.5	695.9
	GZ-5	698.5	698.4	698.2	698.1	699.0				699.6				701.6	699.5	699.0	700.0	699.6
Monitoring Wells	GZ-2																	
	GZ-5																	
	GZ-7																	

Notes:

1.P-1B, P-2B, P-2C, P-4C, P-14C2, P-14B, and P-14C1 repaired during the 2012-2013 rehabilitation. New baseline established for P-12C during the 2012-2013 rehabilitation

2.GZ-2 and GZ-5 were installed in 2011.

3.Blank cells indicate that the instrument was not functioning on the day shown. Gray cells indicate that the insturment was not present at the time or that it is considered non-functional overall.

4.Water levels measured in accordance with Section 3.1.2 of the OM&M plan.

5.Action level for D-2 (OW), P-6, P-7, P-8, P-9, P-12, P-13, and P-14 series is 715 feet NGVD. No action levels have been exceeded for Rising Pond Dam. The water levels measured are typically within the historical ranges presented in Sections 8 and 9 of Appendix C of the OM&M plan. P-14C2 on7/27/2015 P-10C on 8/30/2019 had unusual readings that resumed typical readings upon subsequent measurements.

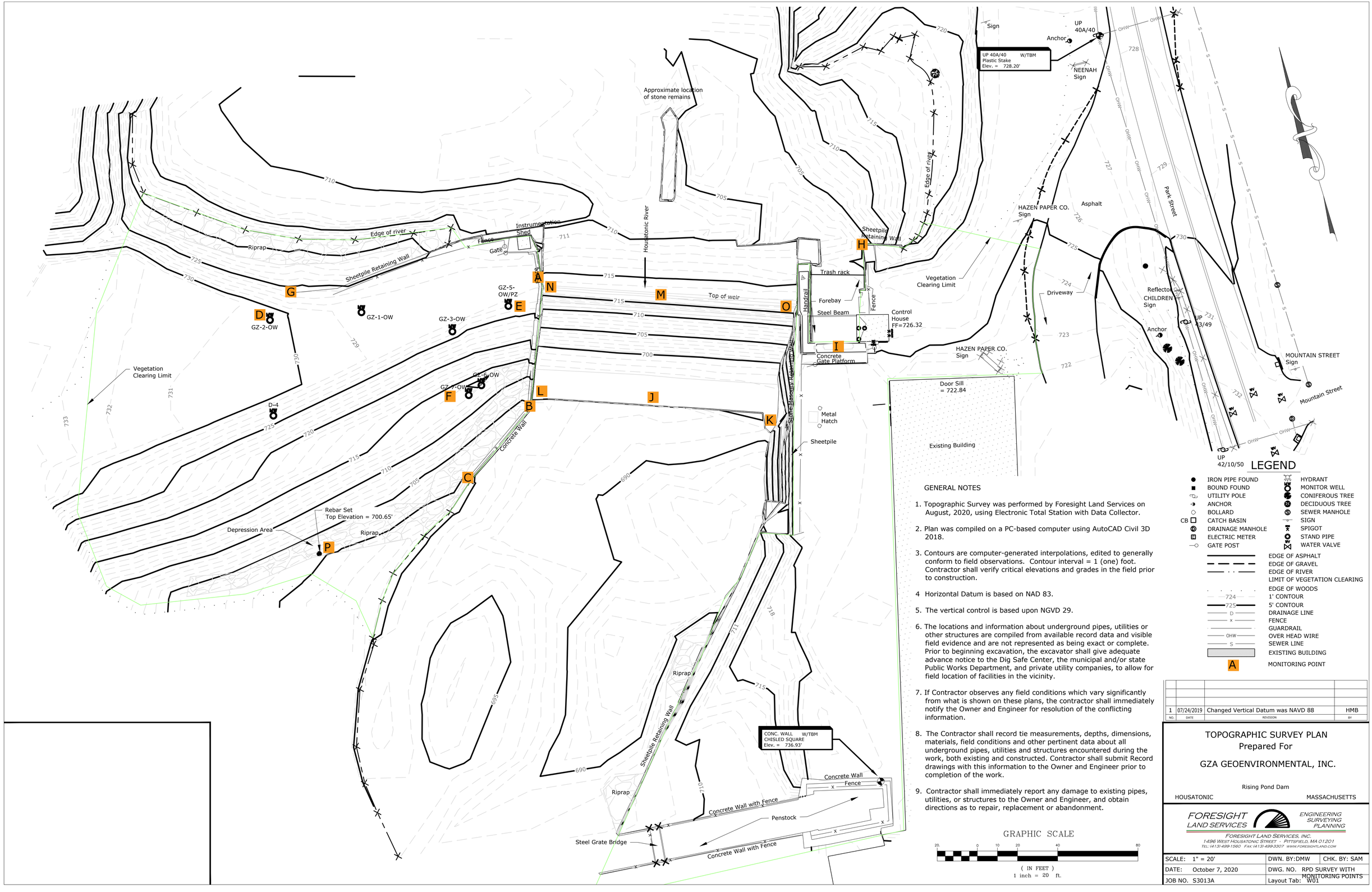
Pieziometric Reading, ft NGVD
Rising Pond Dam

		1/27/2016	4/27/2016	7/27/2016	10/27/2016	8/30/2019	11/5/2019	2/12/2020	5/8/2020	8/7/2020	11/10/2020	3/10/2021	5/19/2021	11/11/2021
	Reservoir Elevation:							717.8	717.7	717.3	717.5	717.8	717	715.7
	Tailwater Elevation:							694.5	694.3	694.3	694.4	694.7	694.2	693
VWPZ Results	P-1B	706.5	707.1	706.6	707.1	706.8	707.8	707.3	707.2	707.1	707.0	706.5	708.1	707.9
	P-1C													
	P-2B													
	P-2C	702.2	703.0	701.8	702.3	702.1	702.1	703.2	703.2	702.5	702.3	702.4	704.2	704.0
	P-3C	700.6	701.5	700.3	700.7	700.5	701.5	701.7	701.7	701.0	700.7	700.8	702.8	702.6
	P-4B													
	P-4C	699.5	700.3	699.2	699.6	699.5	700.4	700.5	700.7	699.9	699.7	699.7	701.7	701.9
	P-5A	697.7	697.6	702.2	699.2	702.2	699.3	697.0	697.2	700.3	698.3	698.0	697.8	698.7
	P-5B	695.9	696.1	691.8	696.5	695.9	696.9	696.3	695.9	696.1	696.1	695.8	696.7	696.7
	P-5C	699.2	699.8	698.9	699.5	699.0	700.1	700.0	699.9	699.4	699.2	699.2	700.7	700.4
	P-7A	698.9	698.6	700.1	700.3	701.5	700.9	698.7	698.2	700.8	699.9	698.5	699.0	700.2
	P-7B	693.6	693.9	693.3	694.1	693.4	694.5	694.0	693.4	693.6	693.7	693.5	694.3	694.2
	P-8A	697.0	696.9	698.5	698.7	699.8	699.3	696.8	696.4	699.2	698.3	697.5	697.2	698.6
	P-8B	695.4	695.5	695.2	695.9	695.3	696.3	695.9	695.3	695.5	695.6	695.4	696.1	696.1
	P-8C	768.6	769.5	763.7	768.7	768.5	769.2	769.6	769.6	769.1	768.6	766.3	770.8	769.8
	P-9A	698.1	698.2	699.5	699.5	700.4	700.0	698.1	697.7	700.1	699.0	697.9	698.5	699.4
	P-9B	696.7	697.0	696.5	697.2	696.7	697.6	697.3	696.9	696.9	696.9	696.8	697.6	697.5
	P-10B	697.1	697.5	696.9	697.4	696.9	697.9	697.7	697.3	697.2	697.2	697.1	698.2	698.0
	P-10C	699.4	700.2	699.1	699.5		700.3	700.4	700.5	699.8	699.5	699.5	701.5	701.3
	P-11C													
	P-12B	696.8	697.0	696.9	697.4	697.0	697.7	697.2	696.7	697.2	697.1	696.7	697.5	697.4
	P-12C	674.5	675.1	674.2	674.8	674.3	675.4	675.4	675.3	674.8	674.7	674.7	676.2	675.9
	P-13B													
	P-13C													
	P-14C2	697.8	698.5	697.3	697.9	697.7	698.6	698.7	698.8	698.2	697.9	697.9	699.7	699.5
	P-14B	690.3	692.2	691.7	692.5	691.7	692.7	692.5	691.9	691.9	692.1	692.0	692.6	692.4
	P-14C1	693.7	694.3	693.3	693.8	693.6	694.6	694.7	694.6	694.1	693.8	693.9	695.5	
	GZ-2	694.7	695.4	694.3	694.6	694.1		695.3	695.4	694.6	694.4	694.4	696.4	696.2
	GZ-5	698.4	699.1	698.1	698.5			699.1	694.3	698.5	698.3	698.4	699.9	699.9
Monitoring Wells	GZ-2							701.1	704.2	703.0	702.7	702.6	704.2	703.5
	GZ-5							699.5	699.7	699.2	699.0	698.8	699.3	
	GZ-7							697.1	698.7	698.7	697.8	697.7	698.1	699.2

Notes:

1.P-1B, P-2B, P-2C, P-4C, P-14C2, P-14B, and P-14C1 repaired during the 2012-2013 rehabilitation. New baseline established for P-12C during the 2012-2013 rehabilitation
2.GZ-2 and GZ-5 were installed in 2011.
3.Blank cells indicate that the instrument was not functioning on the day shown. Gray cells indicate that the insturment was not present at the time or that it is considered non-functional overall.
4.Water levels measured in accordance with Section 3.1.2 of the OM&M plan.
5.Action level for D-2 (OW), P-6, P-7, P-8, P-9, P-12, P-13, and P-14 series is 715 feet NGVD. No action levels have been exceeded for Rising Pond Dam. The water levels measured are typically within the historical ranges presented in Sections 8 and 9 of Appendix C of the OM&M plan. P-14C2 on7/27/2015 P-10C on 8/30/2019 had unusual readings that resumed typical readings upon subsequent measurements.

APPENDIX G – TOPOGRAPHIC/BATHYMETRIC SURVEY PLAN



GENERAL NOTES

1. Topographic Survey was performed by Foresight Land Services on August, 2020, using Electronic Total Station with Data Collector.
2. Plan was compiled on a PC-based computer using AutoCAD Civil 3D 2018.
3. Contours are computer-generated interpolations, edited to generally conform to field observations. Contour interval = 1 (one) foot. Contractor shall verify critical elevations and grades in the field prior to construction.
4. Horizontal Datum is based on NAD 83.
5. The vertical control is based upon NGVD 29.
6. The locations and information about underground pipes, utilities or other structures are compiled from available record data and visible field evidence and are not represented as being exact or complete. Prior to beginning excavation, the excavator shall give adequate advance notice to the Dig Safe Center, the municipal and/or state Public Works Department, and private utility companies, to allow for field location of facilities in the vicinity.
7. If Contractor observes any field conditions which vary significantly from what is shown on these plans, the contractor shall immediately notify the Owner and Engineer for resolution of the conflicting information.
8. The Contractor shall record tie measurements, depths, dimensions, materials, field conditions and other pertinent data about all underground pipes, utilities and structures encountered during the work, both existing and constructed. Contractor shall submit Record drawings with this information to the Owner and Engineer prior to completion of the work.
9. Contractor shall immediately report any damage to existing pipes, utilities, or structures to the Owner and Engineer, and obtain directions as to repair, replacement or abandonment.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND

IRON PIPE FOUND	HYDRANT
BOUND FOUND	MONITOR WELL
UTILITY POLE	CONIFEROUS TREE
ANCHOR	DECIDUOUS TREE
BOLLARD	SEWER MANHOLE
CB CATCH BASIN	SIGN
DRAINAGE MANHOLE	SPIGOT
ELECTRIC METER	STAND PIPE
GATE POST	WATER VALVE
EDGE OF ASPHALT	
EDGE OF GRAVEL	
EDGE OF RIVER	
LIMIT OF VEGETATION CLEARING	
EDGE OF WOODS	
724 1' CONTOUR	
725 5' CONTOUR	
D DRAINAGE LINE	
x FENCE	
GUARDRAIL	
OHW OVER HEAD WIRE	
S SEWER LINE	
EXISTING BUILDING	
A MONITORING POINT	

NO.	DATE	REVISION	BY
1	07/24/2019	Changed Vertical Datum was NAVD 88	HMB

TOPOGRAPHIC SURVEY PLAN
Prepared For

GZA GEOENVIRONMENTAL, INC.

Rising Pond Dam

HOUSATONIC MASSACHUSETTS

FORESIGHT LAND SERVICES
ENGINEERING SURVEYING PLANNING
FORESIGHT LAND SERVICES, INC.
1496 WEST HOUSATONIC STREET - PITTSFIELD, MA 01201
TEL: (413) 499-1560 FAX: (413) 499-3307 WWW.FORESIGHTLAND.COM

SCALE: 1" = 20'	DWN. BY: DMW	CHK. BY: SAM
DATE: October 7, 2020	DWG. NO. RPD SURVEY WITH MONITORING POINTS	
JOB NO. S3013A	Layout Tab: W01	

APPENDIX H – MAINTENANCE TRACKING TABLE

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
1. Four approximately 6-inch-diameter and 2-foot-deep burrow holes on right embankment	2019 Phase I inspection (11/5/19) First quarterly inspections for 2020 (2/12/20)	Fill burrow holes.	Burrows were filled in March 2020.
2. Minor surface deterioration of concrete was observed on walking surface of gate operator platform and on the right forebay training wall	2021 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)	Repair surface deterioration.	Walking surface was repaired in November 2021 as part of the left embankment raising project.
3. Right forebay training wall/platform handrails have deteriorated.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)	Replace the handrails.	Handrails were replaced in November 2021 as part of the left embankment raising project.

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
4. Sluice gate leakage	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspection for 2021 (3/10/21 and 5/19/21)	Conduct inspection of the sluice gate and replacement of the gate seal to mitigate the leakage. Also, make efforts to clear any entrapped debris during operation of the gate.	Under a gate dewatering and inspection plan submitted by GE on January 29, 2021 and conditionally approved by EPA on April 26, 2021, the gate was inspected and the gate seals were replaced under dewatered conditions in August 2021. In addition, during future operation of the sluice gate, best efforts will be made to physically clear any entrapped debris, including having methods and equipment in place, so that the debris does not prevent closure of the gate.
5. Some rust was present on forebay trash rack	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)	Monitor and, if necessary, re-paint the forebay trash rack.	Trash rack will be inspected during the 2025 dive inspection to evaluate the underwater condition of the trash rack.

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
6. Erosion was observed at the downstream end of the left training wall. In addition, minor deterioration of mortar was observed at that location.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21)	Based on site conditions and discussion with EPA's representative, the method for repair of the eroded area was changed from filling the area with stone to reinforcing the area with mortared field stone or similar material. Repair minor mortar deterioration.	The wall was repaired and the soil erosion was improved to the extent practicable on the steep slope in October 2021.
7. A crack in the forebay concrete was visible on the upstream face of the downstream interior forebay wall below the abandoned operator.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)	This crack appears stable and will be monitored.	Crack is regularly monitored during quarterly and biennial inspections.

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
8. Small area of concrete spalling was observed on the downstream right spillway training wall.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21)	Monitor and repair.	This area was repaired in October 2021.
9. Several vibrating wire piezometers were inoperable.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)	Abandon the vibrating wire piezometers that are contained within two open standpipes on the left side with grout. Remaining piezometer coverage is adequate to provide the needed information about piezometric levels.	The two vibrating wire piezometers will be abandoned with grout in spring 2022.
10. Some minor woody debris was observed on upstream side of trash rack at forebay	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)	Remove the previously observed debris. Monitor and clear future debris if impeding flow.	This debris was cleared during the October 2021 work. However, it is a recurrent condition. It will be monitored and cleared if it impedes flow into the forebay.

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
11. Vine and woody vegetation growth was observed at various locations, including on the upstream slope of the left embankment, on the gate platform and fencing, on the left spillway training wall, along groin of sheetpile concrete cap and masonry wall, and along the safety chain link fence at top of slope.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21)	Remove the unwanted vegetation.	Vegetation was removed to the extent practicable in October 2021.
12. A low area in the riprap is present at the downstream toe of slope on right embankment	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20;8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)	Continue to monitor this area.	The location of this low area was marked and surveyed in February 2020. It is monitored during biennial and quarterly inspections for changes in width, length, and depth.
13. Safety signage needed to be installed.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20)	Install safety signage.	Safety signage was installed in November and December 2020. One of those signs was moved from a temporary location to its permanent location in October 2021.

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
14. Debris was lodged in the energy dissipaters.	First and fourth quarterly inspection for 2020 (2/12/20; 11/10/20) Second quarterly inspection for 2021 (5/19/21)	Monitor and clear if impeding flow.	A log was removed during low-flow conditions prior to the 11/11/2021 Phase I inspection. Area will continue to be monitored for debris and debris will be cleared if impeding flow.
15. Embankment was lower on eastern (left) side of fire protection control structure; low area was above Spillway Design Flood/100-year storm level.	All quarterly inspections for 2020 (2/12/20; 5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21)	Raise berm under the embankment raising plan.	Left embankment was raised in October 2021, with installation of steel railing kick plates and resurfacing of concrete walking surface in November 2021.
16. Instrumentation house locks were missing.	First quarterly inspection for 2020 (2/12/20)	Replace locks.	Locks were replaced during second quarterly inspection for 2020.
17. Silt thickness could not be determined at wells.	First quarterly inspection for 2020 (2/12/20)	Conduct survey to find ground surface and compare to as-built logs.	New survey was conducted in 2020 and used to evaluate silt thickness.
18. Wood planks were present on buoys at right side.	Second, third, and fourth quarterly inspections for 2020 (5/8/20;8/7/20; 11/10/20)	Remove planks.	During the first quarterly inspection for 2021, the wooden planks were not visible and have not been visible since then.

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
19. Protective conduit for instrumentation cables at right downstream training wall had been displaced	Second quarterly inspection for 2020 (5/8/20)	Repair displaced conduit.	Repair was conducted prior to third quarterly inspection for 2020 on August 7, 2020.
20. Floating timber debris and, on some occasions, a log were present at the left portion of the safety buoys. These materials were not impeding flow.	Second, third, and fourth quarterly inspections for 2020(5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/2021) 2021 Phase I inspection (11/11/21)	Monitor and clear if impeding flow.	Debris was cleared in November 2021. However, debris at this location is a recurrent condition. It will continue to be monitored and will be cleared if impeding flow.
21. Minor growth of vines was present on the right side training wall	Second, third, and fourth quarterly inspections for 2020(5/8/20; 8/7/20; 11/10/20) First and second quarterly inspections for 2021 (3/10/21; 5/19/21)	Remove growth.	These vines were cleared in October 2021.

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
22. Two areas of standing water and damp ground were observed at the toe of the slope with brown/orange staining that appeared to be iron floc.	Second quarterly inspection for 2020 (5/8/20)	Monitor.	Monitoring stakes were installed during June 16, 2020 site visit. Standing water was not observed in the staked areas during any subsequent inspection, although these areas were damp and there was downstream standing water during the second quarterly inspection in 2021 and the 2021 Phase 1 inspection. These areas will continue to be monitored during future quarterly and biennial inspections.
23. Lexan panels were missing from the right spillway training wall (likely removed by trespassers) and laid on the ground.	First quarterly inspection for 2020 (2/12/20) Second quarterly inspection for 2021 (5/19/21)	Replace panels.	Panels have been replaced.
24. A minor grease leak from the gate operator was observed.	2021 Phase I inspection (11/11/21)	Monitor.	This condition will be monitored during quarterly and biennial inspection
25. Monitoring well GZ-6 was observed to be slightly tilted.	2019 Phase I inspection (11/5/19) All quarterly inspections for 2020 (2/12/20; 5/8/20;8/7/20; 11/10/20)	Monitor	This well will be monitored during quarterly and biennial inspection

Rising Pond Dam – Maintenance Tracking Table – Dated February 17, 2022			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
	First and second quarterly inspections for 2021 (3/10/21; 5/19/21) 2021 Phase I inspection (11/11/21)		
26. Monitoring well/piezometer GZ-5 was inoperable due to bent casing	2021 Phase I inspection (11/11/21)	Repair well casing	This well casing will be repaired in spring 2022 after ground thaw.
27. Low area or "belly" was observed in the penstock about 110 feet upstream of the end of the pipe.	Penstock inspection (10/22/2021)	Investigate further	Non-destructive testing will be conducted along the pipe in 2022.
28. Seep through the left spillway training wall	2021 Phase I inspection (second visit: 11/19/21) (Note: Photographs indicate that this seep has been intermittently present over the past approximately 10 years.)	Monitor	This condition will be monitored during quarterly and biennial inspections.
Note: Gray-shaded cells indicate that a listed condition has been resolved or is no longer present.			

APPENDIX I – SUMMARY OF PENSTOCK GATE INSPECTION/REHABILITATION AND LEFT EMBANKMENT/FOREBAY DAM RAISING ACTIVITIES

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February 16, 2022
File No. 01.00019896.40

Mr. Kevin Mooney
Senior Project Manager
Global Operations – Environment, Health & Safety
General Electric Company
1 Plastics Avenue
Pittsfield, Massachusetts 01201

Re: Summary of Penstock Gate Inspection/Rehabilitation and
Left Embankment/Forebay Dam Raising Activities
Rising Pond Dam
Great Barrington, Massachusetts

Dear Mr. Mooney:

On behalf of the General Electric Company (GE), GZA developed plans for raising a portion of the left embankment and forebay above the 500-year flood elevation, and for removing, inspecting, and replacing seals for the penstock slide gate at Rising Pond Dam. A revised design plan for raising a portion of the left embankment was submitted to the United States Environmental Protection Agency (EPA) on August 10, 2020 and approved by EPA on September 4, 2020. A plan for gate dewatering and inspection was submitted to EPA on January 29, 2021 and approved by EPA on April 26, 2021. EPA and GE verbally agreed that the gate inspection, which involved crane work, should be done prior to the raising of the earthen berm. In addition, in accordance with an April 13, 2020 e-mail from GZA to EPA via Tom Czelusniak (then of Weston Solutions) and discussion with Mr. Czelusniak on December 3, 2020, several repairs as listed below were scheduled to be conducted during berm construction for raising the embankment.

This letter summarizes the gate inspection and seal replacement, the left embankment/forebay raising, and minor repair activities at the dam during August through November 2021.

GATE INSPECTION AND REHABILITATION

Between August 9 and August 19, 2021, GE's contractor LB Corporation (LB) dewatered the gate area and rehabilitated the gate in accordance with the approved plan. GZA was on site to observe this work. SteelFab, a specialty gate manufacturer, was periodically on site to inspect the gate, existing and newly installed seals, and sealing surfaces within the penstock. GZA's field observations during this project are provided in the field report in **Attachment A**.

As described in the January 29, 2021 Gate Dewatering and Inspection Plan, LB first installed a temporary bulkhead on the upstream side of the gate platform to control flow through the penstock and allow gate removal. Gaps between the bulkhead and forebay were sealed with plastic sheeting and sandbags to reduce flow enough to allow

personnel to approach the gate from the penstock. After the flow was reduced, LB entered the penstock to view the gate sealing conditions. LB then used a crane to remove the gate and place it on the ground for repairs.

After gate removal, it was observed that the existing seals were damaged and/or displaced. This condition had been expected based on GZA's prior gate inspections in 2015 and 2020. Accordingly, new seals had been ordered prior to the gate removal and were on hand to replace the old seals. LB and SteelFab entered the penstock to observe the bottom sill, side guides, and top header sealing surface. The sill was measured to have an elevation difference of about ¾ inch from east to west (east end was lower). No cracks, discontinuities, or other indications of post-construction settlement in the structure were reported.

While the gate was removed, LB replaced the top, bottom, and both side seals. The bottom seal was adjusted using a fabricated stainless steel shim to accommodate the elevation difference in the sill. LB also repaired or replaced sheared and bent bolts.

The initial reinstallation of the gate resulted in leakage flow at the top seal, the bottom portion of the east seal, and mid-way up the east side seal. LB then adjusted the seals and also installed a ¾ inch rope spacer between the gate and the bulb of the upper seal to help initial sealing. LB also adjusted several bolts that appeared to interfere with the header.

After the gate rehabilitation, gate leakage had been significantly reduced on the order of one to two orders of magnitude.

DAM RAISING TO 500-YEAR FLOOD ELEVATION AND MAINTENANCE-LEVEL REPAIRS

After the gate inspection and repair was complete and the heavy equipment removed from the site, LB began work on the dam embankment raising in accordance with the approved revised design.

The August 10, 2020 revised design included two major components: raising of the earthen berm to the left (east) of the fire protection pumphouse by up to 14 inches and installing new forebay safety railing with an integrated galvanized steel bottom plate to seal to the existing forebay structure. These two components were designed to have a top elevation of 727.0 feet NGVD29, which is 0.8 feet above the 500-year flood elevation of 726.2 feet NGVD29. The design of the berm raising included the following elements: (1) stripping existing topsoil and placing compacted fill to elevation 726.5 feet, 0.2 foot above the 500-year flood elevation, with such fill to have a top width of a minimum of 12 feet and the upstream and downstream slopes to be 4 horizontal to 1 vertical (4H:1V); (2) placement of six inches of loam/topsoil on the berm to achieve an elevation of 727.0 feet; (3) grading the fill locally around the doorway to the pumphouse so that access is not impeded.; and (4) in the area where the upstream slope would block access to the door, terminating the slope with a modular block retaining wall above a six-inch thick drainage layer.

During berm construction, a protective roadbox for an existing nested piezometer was uncovered approximately four feet east of the northeastern corner of the pumphouse. This piezometer is believed to be D-9 based on the CAD files provided by Foresight Land Services, Inc. of Pittsfield, Massachusetts entitled "Record Plan – Repairs to Rising Pond Dam," dated September 14, 1993. Records from GZA's archives indicate that D-9 is a nested shallow and deep piezometer, and that the tip elevations of the shallow and deep piezometers are 706 and 687 feet NGVD29, respectively.

The galvanized steel bottom plate was originally planned to be field fit to the concrete walking surface. However, to accommodate the fabrication schedule which had been delayed due to the COVID-19 pandemic, the plate bottom was fabricated to a consistent level. Gaps between the bottom of the plate and the concrete walking surface were filled with concrete as part of the repair, as reported by GE's representative, Richard Gates.

Construction of the earthen berm took place on October 20 and 21, 2021 under the observation of Mr. Gates. GZA understands that that construction was implemented in accordance with the approved design (summarized above).

In addition, GE had identified a number of repairs and maintenance activities to be conducted during the dam raising activities, as specified the Rising Pond Dam maintenance tracking log. These consisted of the following:

1. Repair of the minor surface deterioration of concrete observed on the walking surface of the gate operator platform and on the right forebay training wall;
2. Replacement of the deteriorated handrails on the right forebay training wall/platform;
3. Repair of the observed soil erosion at the downstream end of the left training wall by reinforcing the area with mortared field stone or similar material;
4. Repair of the minor mortar deterioration on the wall at the above location;
5. Repair of the small area of concrete spalling observed on the downstream right training wall;
6. Abandonment of the inoperable vibrating wire piezometers contained within two open standpipes on the left side of the spillway by filling them with grout;
7. Removal of the unwanted vine and woody growth observed at various locations, including on the upstream slope of the left embankment, on the gate platform and fencing, on the left spillway training wall, on the right side training wall, along the ground of the sheetpile concrete cap and masonry wall, and along the safety chain link fence at the top of slope;
8. Moving the safety sign that was installed at a temporary location on a shoreline tree to its permanent location on the former railway piers;
9. Clearing the minor woody debris that was previously observed on the upstream side of the trash rack at the forebay, if present; and
10. Clearing the tree trunk as other debris caught on the safety and energy dissipaters, if present.

Beginning on October 20, 2021, LB conducted Nos. 3-5 and 7-8 of the above-listed repair and maintenance activities during the embankment raising under the general observation of Mr. Gates on GE's behalf. Selected photographs provided by Mr. Gates are collected in **Attachment B**. Woody debris was subsequently cleared from the trash rack and buoys (Nos. 9 and 10 above) while the impoundment was lowered for the biennial Phase I inspection on November 11, 2021. GZA understands that, following that inspection, the installation of new handrails (No. 2) took place on November 19 and 22, 2021, and that the concrete repairs to the forebay walking surface (No. 1) were completed in late November 2021. The

abandonment of the two inoperable vibrating wire piezometers at the forebay by filling them with grout (No. 6) was deferred to spring 2022 due to weather conditions.

GZA observed the raised embankment and repaired conditions during the 2021 Phase 1 inspection except for the following repairs, which (as noted above) were completed by LB after the Phase 1 inspection was completed and have not been directly observed by GZA: (1) installation of the new handrails on November 19 and 22, 2021; and (2) repair of the concrete walking surface in late November 2021. As also noted above, the permanent abandonment of the two vibrating wire piezometers at the forebay has been delayed until spring due to weather conditions.

Please let us know if you have any comments or questions on this inspection and repair summary.

Sincerely,

GZA GeoEnvironmental, Inc.

Laurie A. Gibeau, P.E.
Project Manager

Jonathan D. Andrews, P.E.
Principal-In-Charge

Attachments:

Attachment A – Gate Inspection and Rehabilitation Field Report
Attachment B – Left Embankment/Forebay Dam Raising Activities and General Repairs Photo Log

ATTACHMENT A

Gate Inspection and Rehabilitation Field Report

RISING POND DAM GATE INSPECTION/REHABILITATION FIELD REPORT NO. 1

Project:	Rising Pond Dam Gate Inspection/Rehabilitation	**Date(s):**	8/9/2021 – 8/19/2021
Location:	Great Barrington, Massachusetts	**File No:**	01.0019896.40
Client:	General Electric Company	**Page:**	1 of 12
Contractor(s):	LB Corporation – General Contractor SteelFab – Gate Inspection (also original Gate Fabricator)		

DAILY OBSERVATIONS AND RECOMMENDATIONS

This report summarizes observations made by GZA GeoEnvironmental, Inc. (GZA) during gate inspection and repair activities at the above-referenced project location (Site) during the above-referenced dates. While on site, GZA worked under GZA's site-specific health and safety plan dated August 5, 2021. GZA did not enter the penstock while on site. Observations and measurements of the in-place gate were reported by LB. A photo log is attached.

MONDAY (8/9/21)

GZA

- Laurie Gibeau (GZA) arrived on site at 8:00 AM and left site at 4:00 PM.
- Isabella Bernardi (GZA) arrived on site at 8:00 AM and left site at 1:00 PM.

Contractor Equipment:

- LB Corporation (LB) Service Truck
- Frach Crane HSP-3035S

On-site:

- Steve Garrity and four others – LB
- Tim Czelusniuk – HDR (for EPA)
- Katherine Caley – HDR (for EPA, part-time)

Daily Observations

- LB was on site at GZA's arrival at 8:00. At that time, LB had removed the protective cover for the gate operator stem and set it outside of the work area. The crane was set up on the grass to the east (left) of the pump house. The temporary bulkhead sections were staged on the right embankment of the dam, and LB was in the process of bolting the bulkhead sections together.
- LB adjusted bulkhead guide brackets mounted on the upstream side of the gate operator platform.
- LB inserted the temporary bulkhead into the brackets on the upstream forebay wall using the crane.
- LB raised the gate to the maximum opening to help evaluate temporary bulkhead leakage flow into the penstock.
- LB indicated that it would attempt to reduce the leakage flow the following day (8/10/21).

TUESDAY (8/10/21)

GZA

- Rachel Crum (GZA) arrived on site at 8:00 AM and left site at 3:00 PM.

Contractor Equipment:

- LB Corporation (LB) Service Truck
- Frach Crane HSP-3035S

On-site:

- Steve Garrity and six others – LB
- Mark Freeman - SteelFab
- Tim Czelusniuk – HDR (for EPA)

Daily Observations

- LB worked to reduce flow around the bulkhead and through the penstock. LB placed plastic sheeting over the bulkhead, then used Supersacks filled with sand to keep it in place.
- The crane had a mechanical issue in the afternoon and work was suspended pending a mechanic's arrival.

WEDNESDAY (8/11/21)

GZA

- Rachel Crum (GZA) arrived on site at 7:30 AM and left site at 4:30 PM.

Contractor Equipment:

- LB Corporation (LB) Service Truck
- Frach Crane HSP-3035S

On-site:

- Steve Garrity and four others – LB
- Josh Fontaine – EPA
- Tim Czelusniuk – HDR (for EPA)

Daily Observations

- LB reported that the crane was functional.
- Temporary bulkhead leakage flow depth at the tailrace was about 2 to 3 inches in the morning. LB placed another sheet of plastic to further reduce leakage flow.
- LB entered the penstock to view conditions and ascertain the position of the bulkhead. A pipe was present between the forebay floor and bottom of bulkhead. The pipe prevented the temporary bulkhead from completely sealing against the bottom. The pipe did not appear to interfere with gate closure and the leakage was considered acceptable to allow gate removal.
- LB removed a section of chain link fence to facilitate gate removal by the crane.
- LB closed the gate and re-entered the penstock to view gate sealing conditions (gate was open during initial penstock entry).
- LB removed the gate and placed it on the right embankment. Metal components of seals that required replacement were measured.

THURSDAY (8/12/21)

GZA

- Rachel Crum (GZA) arrived on site at 7:30 AM and left site at 3:30 PM.

Contractor Equipment:

- LB Corporation (LB) Service Truck
- Frach Crane HSP-3035S

On-site:

- Steve Garrity and three others – LB
- Todd Dupis- SteelFab
- Tim Czelusniuk – HDR (for EPA)

Daily Observations

- SteelFab inspected the gate and existing seals on the ground surface.
- SteelFab entered the penstock with the gate removed to observe the bottom sill, both side guides, and top header sealing surface.
- Sill level (relative elevation) was measured by LB to have an elevation difference from west to east of about ¾ inch (east end lower). No cracks, discontinuities or other indications of post-construction settlement in the structure were reported.
- SteelFab and LB agreed upon fabrication of a stainless steel shim that the bottom seal would mount to in order to help the seal conform to the out-of-level sill.
- LB installed the new seals and repaired sheared and bent bolts.
- On-site work was placed on hold until 8/18/21 while LB fabricated the shim. GZA was not on-site 8/13/21 to 8/17/21

WEDNESDAY (8/18/21)

GZA

- Rachel Crum (GZA) arrived on site at 7:30 AM and left site at 3:30 PM.

Contractor Equipment:

- LB Corporation (LB) Service Truck
- Frach Crane HSP-3035S

On-site:

- Steve Garrity and three others – LB
- Tim Czelusniuk – HDR (for EPA)

Daily Observations

- LB welded the metal shim onto the bottom side of the gate.
- LB installed the gate and actuator. LB re-entered the penstock to observe conditions. Leakage flow was observed at the top seal, the bottom east seal area (where sill was found to be lower & shim was installed), and roughly mid-way up the east side.
- LB adjusted the seals and installed a ¾ inch rope between the gate and the bulb of the new seal to reduce flow.
- LB adjusted several bolts that appeared to be getting caught on the header.
- The gate was re-installed and the penstock re-entered.
- Flow under the east side was observed; however, overall and east side leakage was significantly reduced.

THURSDAY (8/19/21)

GZA

- Rachel Crum (GZA) arrived on site at 7:30 AM and left site at 3:30 PM.

Contractor Equipment:

- LB Corporation (LB) Service Truck
- Frach Crane HSP-3035S

On-site:

- Steve Garrity and three others – LB
- Tim Czelusniuk – HDR (for EPA)

Daily Observations

- LB removed sandbags and plastic sheeting and stored them under clean plastic sheeting while awaiting proper disposal.
- LB removed the temporary bulkhead. Gate leakage observed at the tailrace appeared further reduced comparted to prior day.

Photo 1: Temporary bulkhead section prior to insertion.

Photo 2: Manually operating the gate.

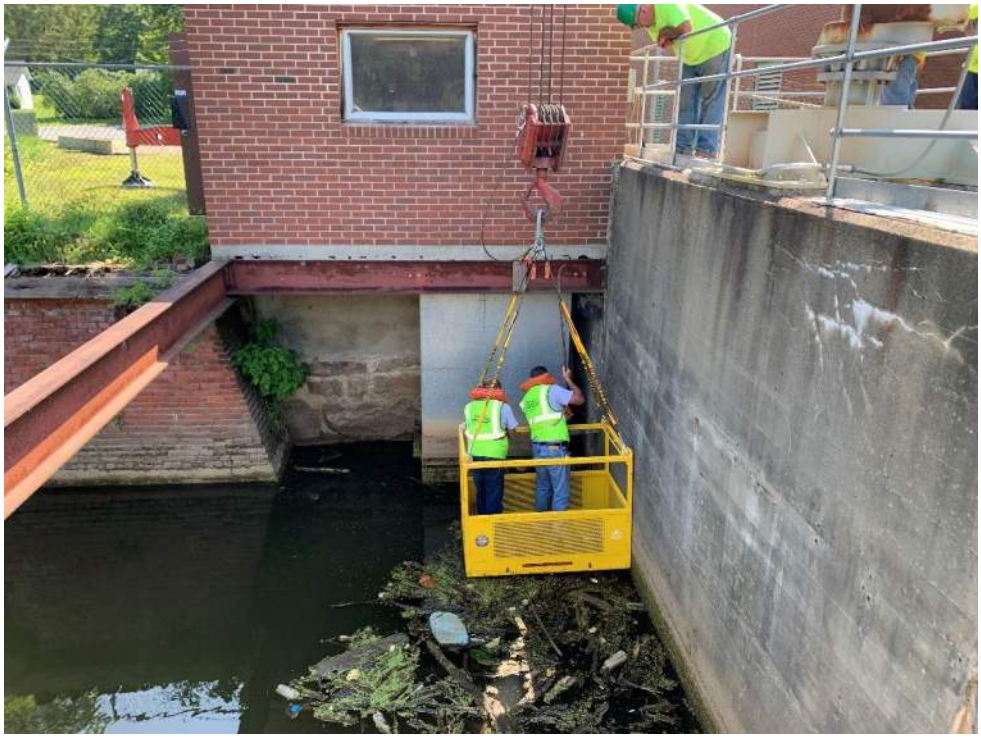

Photo 3: LB adjusting the bulkhead guide brackets on upstream face of forebay.

Photo 4: Lifting temporary bulkhead (after panels connected).

Photo 5: Setting temporary bulkhead in place.

Photo 6: Temporary bulkhead leakage flow at tailrace prior to placing sandbags and plastic sheeting.

Photo 7: Removing gate actuator.

Photo 8: Removing slide gate.

Photo 9: Top seal of gate prior to replacement. Note displaced seal.

Photo 10: Side seal of gate prior to replacement.

Photo 11: Seal replacement in progress.

Photo 12: Seal replacement in progress.

Photo 13: Side seal of gate after replacement.

Photo 14: Plastic wrapped sheeting and sandbags pending proper disposal.

Laurie Gibeau, P.E., Project Manager
PREPARED BY

Jon Andrews, P.E. Principal-in-Charge
REVIEWED BY

Distribution: Kevin Mooney – General Electric Company

ATTACHMENT B

Left Embankment/Forebay Dam Raising Activities and General Repairs Photo Log

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.40

Photo No.	Date:
1	10/20/21

Direction Photo Taken:
Upstream

Description:
Placing fill for berm raising (photograph by Richard Gates/GE).

Photo No.	Date:
2	10/20/21

Direction Photo Taken:
Right

Description:
Compacting fill for berm raising (photograph by Richard Gates/GE).

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.40

Photo No.	Date:
3	10/20/21

Direction Photo Taken:
Down

Description:
Instrument located during berm construction (photograph by Richard Gates/GE).

Photo No.	Date:
4	10/20/21

Direction Photo Taken:
Upstream

Description:
Setting last safety sign in its permanent location (photograph by Richard Gates/GE).

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.40

Photo No.	Date:
5	10/20/21

Direction Photo Taken:
Downstream

Description:
Installing modular block retaining wall to allow access to pumphouse door (photograph by Richard Gates/GE).

Photo No.	Date:
6	10/20/21

Direction Photo Taken:
Upstream

Description:
Mortar repair at downstream end of left training wall (photograph by Richard Gates/GE).

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.40

Photo No.	Date:
7	10/21/21

Direction Photo Taken:
Downstream

Description:
Modular block retaining wall at pumphouse door (photograph by Richard Gates/GE).

Photo No.	Date:
8	10/21/21

Direction Photo Taken:
Right

Description:
Loam spread on raised berm (photograph by Richard Gates/GE).

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.40

Photo No.	Date:
9	11/23/21

Direction Photo Taken:
Right

Description:
Grass on new berm (photograph by Richard Gates/GE).

Photo No.	Date:
10	11/23/21

Direction Photo Taken:
Downstream

Description:
Vegetation cleared from fencing above left training wall (photograph by Richard Gates/GE).

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Rising Pond Dam Great Barrington, MA	01.0019896.40

Photo No.	Date:
11	11/23/21

Direction Photo Taken:
Downstream

Description:
New safety railing and forebay raising plate installed (photograph taken prior to concrete work) (photograph by Richard Gates/GE).

Photo No.	Date:
12	11/23/21

Direction Photo Taken:
Left

Description:
Trash rack after debris clearing (photograph by Richard Gates/GE).