

**Town of Shutesbury
Community Preservation Committee**

FY 2025 Application for Community Preservation Funding

Submit 1 paper copy to:
Community Preservation Committee
Shutesbury Town Hall
P.O. Box 276
Shutesbury, Massachusetts 01072

Submit 1 electronic copy to:
cpc@shutesbury.org

Instructions to Applicant: *Please complete all sections as are relevant per the instructions in each question. If a particular section is not applicable, please note that. This application must be submitted to the CPC no later than February 6, 2025 for the project to be included in the warrant at the next Annual Town Meeting. Applicants must be prepared to appear before the CPC on Thursday, February 20 **and** Thursday, March 6 to answer questions about the application from the CPC. Applications are expected to be voted upon by the CPC on Thursday, March 20.*

Project Name: Lake Wyola Dam Preservation and Repairs

Applicant Organization: Lake Wyola Advisory Committee

Address: Shutesbury Town Hall, 1 Cooleyville Rd, P.O. Box 276, Shutesbury, MA 01072

Contact Person: Mark Rivers, Lake Wyola Advisory Committee, Chair

Phone: 508-259-0972

Email: riversmarkh@gmail.com

CPA Category: YOU MUST CHECK A MINIMUM OF ONE CATEGORY, but may identify more than one if applicable to your project.

- **Open Space** X
- **Historic Preservation** X
- **Community Housing**
- **Recreation** X

Total Project Cost	CPA Funds Requested	Matching Contribution	Match Percent of total
\$ 55,100	\$ 13,775	\$41,325	75 %

Attach a copy of the Assessor's Map(s) with the project parcel outlined (if appropriate for your project)

Assessor's Map Number		Assessor's Lot/Parcel Number	B-805
Deed Book Number	1198	Deed Page Number	0552

Attach separate sheet if more than one lot/parcel/deed book/deed page number.

PROJECT DESCRIPTION:

- ***All of the following sections MUST be completed.***
- Applications will be returned if all relevant requested information is not provided.
- Include supporting materials and exhibits as necessary.
- Please refer to Shutesbury's Community Preservation Plan in completing this application.

1. **Describe the project.**

Lake Wyola Dam is a stone wall and earthen embankment dam that is approximately 11.5 feet high at its maximum section and 150 feet long, with a 78-foot long concrete spillway. The dam is currently classified as a Large Size class dam (based on storage volume) and a High Hazard Potential (Class 1) dam and impounds the 124-acre Lake Wyola, which is an enhanced Great Pond. The lake was a mill pond in the eighteenth and nineteenth centuries that supplied a series of mills in Leverett via its outflow stream, the Sawmill River. The current dam was built in 1883, and its creation approximately doubled the surface area of the original pond. The dam was rehabilitated in 2008.

According to the 2023 Phase I Inspection Report by Root Engineering, the overall condition of Lake Wyola Dam was considered Fair: having no structural deficiencies but with significant operational and maintenance deficiencies, which include:

1. Grout surrounding PVC liner in low-level outlet has deteriorated.
2. Small patches of concrete surface on spillway training walls have deteriorated.
3. Horizontal joint in spillway leaks.
4. Seepage monitoring weir is not located to function properly.
5. Vegetation and debris have collected on stone filling that is downstream on the right side of the spillway's overflow section.
6. Emergency Action Plan needs update for current personnel contact information.

The CPA funding request is to cover 25% of the 2025 design, permitting, and construction planning costs for the repairs needed. The remaining 75% is expected to come from a grant from the Massachusetts Office of Dam Safety. The repairs are expected to take place in 2026, most likely in the Fall when the water flow rate is at its lowest.

The 2023 dam inspection report identifies "the problems" with the dam (listed above) but it does not identify the "solution or corrective actions" that are needed to fix the problems. The CPA funds will be used to extend the town's existing contract with GZA (www.gza.com), the town's dam engineering company, to develop a detailed Scope Of Work that would be sent to various construction companies who will bid on the project. For example, the 2023 inspection report listed problems with the concrete surface on the spillway, but it doesn't detail how to fix them. The SOW will detail how the repairs should be performed: what type of concrete to use? How thick should the concrete pour be? Is rebar needed?

The major tasks to be completed include:

1. Investigation and repair at the low-level outlet to mitigate leakage around the 36-inch PVC liner.
2. Various concrete repairs at the primary spillway including:
 - a. Concrete surface repairs at the spillway training walls and other deficient areas.
 - b. Joint sealing at the "step" between the spillway crest and apron.
 - c. Joint sealing between the spillway apron and grouted riprap.
 - d. Construction joint sealing between the left training wall and the slab on the spillway crest.
 - e. Expansion joint sealing on the spillway apron.
3. Relocation of the seepage monitoring box to the natural outlet of the downstream wetland to avoid pooling and allow for more accurate seepage readings.
4. Trash rack replacement with reconfigured rack to reduce future maintenance burden. The existing trash rack gets clogged up, requiring a scuba diver to clean it.
5. Vegetation and debris clearing downstream of the spillway.

2. **Goals:**

- a. What are the goals of the proposed project?

The goal of the project is to develop a scope of work for dam repair and maintenance to be undertaken in 2026. The existing conceptual plan will be fleshed out into a full-scale plan for permitting and construction.

- b. Who will benefit and why?

By keeping the dam in working order, thus maintaining Lake Wyola as a recreational resource, the project will benefit the residents of Shutesbury and nearby towns.

- c. How will success be measured?

The town will have design documentation (SOW) that contains the specification for corrective measures to address the existing deficiencies including:

1. Investigation and repair at the low-level outlet to mitigate leakage around the 36-inch PVC liner.
2. Various concrete repairs at the primary spillway including:
 - a. Concrete surface repairs at the spillway training walls and other deficient areas.
 - b. Joint sealing at the “step” between the spillway crest and apron.
 - c. Joint sealing between the spillway apron and grouted riprap.
 - d. Construction joint sealing between the left training wall and the slab on the spillway crest.
 - e. Expansion joint sealing on the spillway apron.
3. Relocation of the seepage monitoring box to the natural outlet of the downstream wetland to avoid pooling and allow for more accurate seepage readings.
4. Trash rack replacement with reconfigured rack to reduce future maintenance burden.
5. Vegetation and debris clearing downstream of the spillway.

3. **Community Preservation Committee Criteria**

- a. How does the project fulfill the General and Specific Evaluation Criteria (see the Shutesbury Community Preservation Plan, pages 10–12)?

This project meets three of the listed CPA categories: Open Space, Recreation, and Historical Preservation.

1. General Criteria

1-d. Periodic maintenance and repairs to the Lake Wyola Dam are needed to maintain public safety and preserve this town-owned asset. According to the Shutesbury MVP workshop summary findings, the Lake Wyola Dam is classified as “high hazard” and failure of the dam would cause extensive damage to downstream infrastructure, residences, and roads. Without these needed repairs and maintenance, the dam will continue to deteriorate and will be at risk of significant damage in the event of extreme climate-induced weather events.

2. Open Space

2-a. Lake Wyola and its dam are one of Shutesbury’s finest open-space natural and aquatic resources, including wildlife habitat and active/passive recreation.

2-d. The Carroll Holmes Recreation Area, a major DCR facility, attracts hundreds of bathers daily at the peak of the swimming season. At the south end of the lake there is a public boat launch ramp.

2-f. The Massachusetts Natural Heritage and Endangered Species Program (NHESP) designated Lake Wyola as an area that contains rare wetlands wildlife and as a priority habitat area that includes unique habitat features.

2-h. It is treasured for its scenic views along Locks Pond and Lakeview Roads.

2-j. Keeping the dam in good condition preserves Lake Wyola. The lake cannot exist without the dam.

2-k. The dam and lake are noted as a valuable resource in Shutesbury’s Open Space and Recreation Plan.

3. Historical

3-d. Lake Wyola dam is noted for its historical significance. “The current dam, built in 1888, commands a 124-acre body of water and offers a scenic gateway to Lake Wyola for travelers from the west. A view, not soon to be forgotten, is that of the full moon rising over the lake as seen from that town-owned dam.” This historic resource needs to be maintained for continued public benefit.

5. Recreation

5-a. The dam provides an important recreational resource for a significant number of Shutesbury residents of all ages, genders, and ability.

5-b. Lake Wyola offers a resource for wildlife habitat and water-based recreation. Without the dam, the lake would not exist as the recreational resource that it is today.

5-d. Via the Lake Wyola State Park, access to the lake is provided for residents with mobility limitation.

6. Community Need

- a. If applicable, explain how this project addresses needs identified in existing Town plans? (Such as the Open Space and Recreation Plan, Community Plan, etc.)

Keeping the dam in good working order, per the Office of Dam Safety, is need to maintain Lake Wyola as viable recreation and open space resource.

7. Community Support

- a. What is the nature and level of support? Attach letters of support from any Town boards or community groups that have endorsed the project.

8. Budget

2025 Budget Summary

Total Project Cost	CPA Funds Requested	Other Funds Total	Other Funds: % of Total
\$ 55,100	\$ 13,775	\$41,325	75 %

Budget Details (Please provide as much detail as possible and leave any category blank if not applicable to your project)

Design, Permitting, and Construction Planning Budget Details

Project Management and Coordination	\$2,600
Wetland Delineation	\$3,500
Field Investigation of Dam Seepage	\$4,000
Development of 60% Plans	\$15,000
Dam Repairs Permitting	\$16,800
Construction Documents	\$13,200

Design and Permitting Costs Total \$55,100

	CPA FUNDS	OTHER FUNDS	TOTAL
Personnel			
Equipment			

Supplies			
Contractual	\$ 13,775	\$41,325	\$55,100
Construction			
Other			
TOTAL	\$ 13,775	\$41,325	\$55,100

Equipment is generally defined as an item with a useful life expectancy of more than one year.

Supplies are defined as an item with a useful life of less than one year.

Construction means all types of work done on a particular property or building including erecting, altering, or remodeling.

7. Other Funding

- a. Identify the amount of other (non-CPA) funds for this project. Sources include private, federal, state, or local government, or any other sources. Attach commitment letters from any organization providing a financial contribution.

Organization	Item	Amount	Type (cash, in-kind, etc.)
Massachusetts Office of Dam Safety		\$41,325	Cash grant

- b. Are any Other Funds in-kind contributions? If yes, describe how the value of the in-kind contribution was derived. (“In-kind contributions” are a contribution of services or property, donated equipment, buildings or land, or donated supplies.)

N/A

8. Timeline

- a. Provide a timeline for project implementation, including start and end dates for major tasks and project completion.

The Design and Specification phase of the project will take place in 2025, most likely beginning in the summer and being completed in the fall when the 2025 Phase I inspection is performed by GZA Engineering. The Phase I inspection is required to be performed biennially and funds for it have already been allocated. It is hoped to have all the permits in place by the end of 2025.

The repairs will be scheduled for 2026, most likely beginning during the early fall season when the water flow rate is at its lowest and be complete before December when the lake freezes. The actual repair timeline is somewhat dependent on the construction contractor’s schedule.

9. Project Management

- a. Project Manager Contact Information (if other than the applicant)

Project manager name	Adrienne Dunk, WPIT, GZA Geoenvironmental, Inc,
Daytime Phone	413-726-2144
Evening Phone	
Email	adrienne.dunk@gza.com

10. **Maintenance** (Please note IF NOT APPLICABLE TO YOUR PROJECT)

a. If ongoing maintenance is required, who will be responsible for it?

Ongoing maintenance is provided by the Dam Keeper, Howard Kinder.

b. How will it be funded?

Funding for the dam keeper is already in the town budget.

Maintenance Budget

<i>Year one</i>	<i>Year two</i>	<i>Year three</i>	<i>Year four</i>	<i>Year five</i>
\$	\$	\$	\$	\$

11. **Site Documentation**

Attach documentation that you have control over the site, such as a Purchase and Sale Agreement, option, or deed. If documentation is not available, please explain.

12. **Project Documentation**

Attach any applicable engineering plans, architectural drawings, site plans, and any other relevant renderings.

13. **Other Information**

Attach any additional information that might benefit the CPC in consideration of this project.

TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE INDIVIDUAL OR GOVERNING BODY OF THE APPLICANT.

Signature of Authorized Representative _____

Date _____

Print name: _____

Property Card: LOCKS POND RD
Town of Shutesbury, MA



Parcel Information	
Parcel ID: F_404699_3008479 Vision ID: 153 Owner: TOWN OF SHUTESBURY Co-Owner: DAM Mailing Address: 1 COOLEYVILLE ROAD SHUTESBURY, MA 01072	Map: B Lot: 805 Use Description: VACANT - SELECTMEN Zone: LW Land Area in Acres: 14.79
Sale History	Assessed Value
Book/Page: 1198/0552 Sale Date: 7/13/1966 Sale Price: \$0	Land: \$90,800 Buildings: \$0 Extra Bldg Features: \$0 Outbuildings: \$1,500,000 Total: \$1,590,800

Building Details: Building # 1



Model: Vacant	Int Wall Desc 1:
Living Area: 0	Int Wall Desc 2:
Appr. Year Built: 0	Ext Wall Desc 1:
Style:	Ext Wall Desc 2:
Stories:	Roof Cover:
Occupancy:	Roof Structure:
No. Total Rooms:	Heat Type:
No. Bedrooms:	Heat Fuel:
No. Baths:	A/C Type:
No. Half Baths:	



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1350 Main Street
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Springfield, MA 01103
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F: 413.732.1249
www.gza.com



MEMORANDUM

To: Mr. Gabe Voelker, Interim Town Administrator
Town of Shutesbury, MA

From: John Buckley, E.I.T., Assistant Project Manager, GZA GeoEnvironmental, Inc.
Addrienne Dunk, WPIT, Project Manager, GZA GeoEnvironmental, Inc.
Nathanial Arai, P.E., Senior Engineer, GZA GeoEnvironmental, Inc.
Chad Cox, P.E., Principal-in-Charge, GZA GeoEnvironmental, Inc.
Nathaniel Russell, P.E., Consultant Reviewer, GZA GeoEnvironmental, Inc.

Date: November 12, 2024

File No.: 15.0167283.00

Re: Conceptual Dam Repair Program
Lake Wyola Dam, Shutesbury, Massachusetts

Dear Mr. Voelker,

In accordance with Task 2 of GZA GeoEnvironmental, Inc.'s (GZA's) Proposal No. 15.P000130.24, as authorized by the Town of Shutesbury, Massachusetts (the Town) on February 27, 2024, GZA prepared this memorandum to present the conceptual-level repair program. A conceptual plan and cost estimate for the dam repairs are provided as attachments to this report.

This report is subject to the Limitations included in **Attachment 1**.

BACKGROUND

Overview of Lake Wyola Dam

The Lake Wyola Dam is a stone wall and earthen embankment dam that is approximately 11.5 feet high at its maximum section and 150 feet long, with a 78-foot long concrete spillway. The dam is currently classified as a Large Size class dam (on the basis of storage volume) and a High Hazard Potential (Class 1) dam and impounds the 124-acre Lake Wyola, which is an enhanced Great Pond.

Fiske Brook (in Wendell) contributes the majority of the water entering the lake. The lake was a mill pond in the eighteenth and nineteenth centuries that supplied a series of mills in Leverett via its outflow stream, the Sawmill River. The current dam was built in 1883, per the U.S. Army Corps of Engineers (USACE) 1979 Phase I Inspection Report, and its creation approximately doubled the surface area of the original pond. The dam, which was rehabilitated in 2008, has both an uncontrolled primary spillway and a manually-operated sluice gate that serves as a low-level outlet and allows the release of inflows during annual draw-downs.

2008 Lake Wyola Dam Repairs

In 1979, the USACE inspected Lake Wyola Dam and identified several maintenance and structural deficiencies along with a concern for inadequate spillway capacity. In 2008, the Town developed a project to repair the dam and provide for a structure that could safely pass the estimated Spillway Design Flood (SDF). The repairs included tree removal, sliplining the existing stone box



culvert sluiceway, concrete and masonry repointing/repair, “waterproofing” of exposed concrete surfaces, resetting displaced stones on the downstream face, construction of a concrete cutoff wall behind the spillway left training wall, installation of a permanent seepage monitoring weir, and adding overtopping protection.

2023 Phase I Inspection Existing Deficiencies

According to the 2023 Phase I Inspection Report by Root Engineering, the overall condition of Lake Wyola Dam was considered Fair¹ at the time of the inspection. The dam was found to have the following deficiencies, as documented in the Phase I Inspection Report:

1. Grout surrounding PVC liner in low-level outlet has deteriorated further;
2. Small patches of concrete surface on spillway training walls have deteriorated;
3. Horizontal joint in spillway leaks;
4. Seepage monitoring weir is not located to function properly;
5. Vegetation and debris on stone fill downstream of the spillway right overflow section; and
6. Emergency Action Plan needs update for current personnel contact information.

PURPOSE OF REPORT

The recommendations for proposed improvements described in this report and the attached conceptual dam maintenance repair plan are intended to assist the Town in addressing deficiencies noted in the May 12, 2023 Phase I Inspection Report prepared by Morris J. Root, P.E. of Root Engineering. This report may be used to help identify and seek funding for the design and construction of the proposed repairs.

PROPOSED IMPROVEMENTS

The improvements outlined below are proposed to address the existing deficiencies identified in the 2023 Phase I Inspection Report by Root Engineering:

1. Investigation and repair at the low-level outlet to mitigate leakage around the 36-inch PVC liner;
2. Various concrete repairs at the primary spillway including:
 - a. Concrete surface repairs at the spillway training walls and other deficient areas. Existing deteriorated/poor condition mortar from previous repairs should be replaced with an appropriate repair mortar.;
 - b. Joint sealing at the “step” between the spillway crest and apron;
 - c. Joint sealing between the spillway apron and grouted riprap;

¹ Per Commonwealth of Massachusetts 302 CMR 10.00 Dam Safety, the term “Fair” is defined as “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.”



- d. Construction joint sealing between the left training wall and the slab on the spillway crest; and,
 - e. Expansion joint sealing on the spillway apron.
3. Relocation of the seepage monitoring box to the natural outlet of the downstream wetland to avoid pooling and allow for more accurate seepage readings;
 4. Trash rack replacement with reconfigured rack to reduce future maintenance burden; and
 5. Vegetation and debris clearing downstream of the spillway.

Refer to the Lake Wyola Dam Maintenance Repairs – Conceptual Plan contained in **Attachment 2** for further details on the proposed dam maintenance improvements.

COST ESTIMATE AND SCHEDULE

GZA reviewed and updated the cost estimate for repairs reported in the 2023 Phase I Inspection Report. Our revised cost estimate, presented below, is intended to provide a conceptual level estimate of design, permitting, and construction costs to address the existing deficiencies at the dam as described herein. The estimated costs for recommended repairs to the dam are as follows:

Design, Permitting, and Construction Planning	Estimated Budget ¹
Project Management and Coordination	\$2,600
Wetland Delineation	\$3,500
Field Investigation of Dam Seepage	\$4,000
Development of 60% Plans	\$15,000
Dam Repairs Permitting	\$16,800
Construction Documents	\$13,200
<i>Design and Permitting Costs Total</i>	<i>\$55,100</i>
Dam Repairs and Improvements	Estimated Cost
Low-level outlet leakage repairs	\$40,000
Primary spillway concrete repairs	\$50,000
Seepage monitoring box relocation	\$5,000
Trash rack replacement	\$25,000
Vegetation/debris clearing	\$5,000
Conceptual Level Construction Costs Subtotal	\$125,000
20% Construction Costs Contingency	\$25,000
<i>Conceptual Level Construction Cost Estimate Total</i>	<i>\$150,000</i>

¹Costs proposed by Change Order No. 1 to Town dated November 4, 2024.

These opinions of conceptual level construction costs do not include project public bidding or designer services during construction. GZA’s cost estimate has assumed that dam maintenance repair construction will be completed in 2025.

The High Hazard Dam Emergency Action Plan (EAP) must also be reviewed, and the Notification Flowchart updated to reflect current information to be used in response to a potential emergency condition at the dam. GZA understands that the Town will self-perform this task.



NEXT STEPS

This memorandum is provided to support the Town in outreach to potential contractors to obtain budgetary quotes for dam maintenance repair and for use in allocating Town budget for the repair program. The above-described maintenance-level repair program is intended only to address identified defects to the existing structures and features at the dam. It is noted that potential inherent design issues related to embankment stability and hydraulic capacity may not be addressed by these tasks and additional investigations and engineering evaluations would be required to quantify such additional potential design issues.

GZA recommends that the Town proceed with design, permitting, and construction of the dam maintenance repair items described above. GZA also recommends that the Town plan to conduct the required Phase I dam safety inspection next year. A Phase I dam safety inspection every two years for High Hazards dams is a state requirement as per the Massachusetts Department of Conservation and Recreation (DCR) Office of Dam Safety Regulations, 302 CMR 10.07. The next Phase I inspection for the Lake Wyola Dam is due in 2025.

Attachments:

Attachment 1 – Limitations

Attachment 2 - Lake Wyola Dam Maintenance Repairs – Conceptual Plan



USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of the Town of Shutesbury, MA (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.

SUBSURFACE CONDITIONS

4. If presented, the generalized soil profile(s) and description, along with the conclusions and recommendations provided in our Report, are based in part on widely-spaced subsurface explorations by GZA and/or others, with a limited number of soil and/or rock samples and groundwater /piezometers data and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
5. Water level readings have been made in test holes (as described in the Report), monitoring wells and piezometers, at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this Report. Fluctuations in the groundwater and piezometer levels, however, occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, reservoir and tailwater levels, the presence of subsurface utilities, and/or natural or artificially induced perturbations.

GENERAL

6. 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.
7. 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.
8. 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.



9. 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.
10. 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

11. 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.
12. This scope of work does not include an assessment of the need for fences, gates, 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.

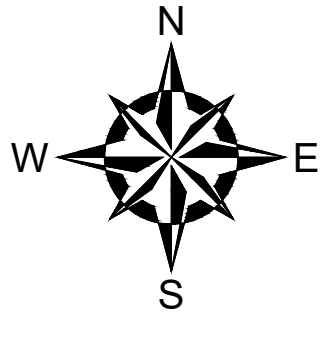
COST ESTIMATES

13. Unless otherwise stated, our cost estimates are for comparative, or general planning purposes. These estimates may involve approximate quantity evaluations and may not be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over the labor and material costs required to plan and execute the anticipated work, our estimates were made using our experience and readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.

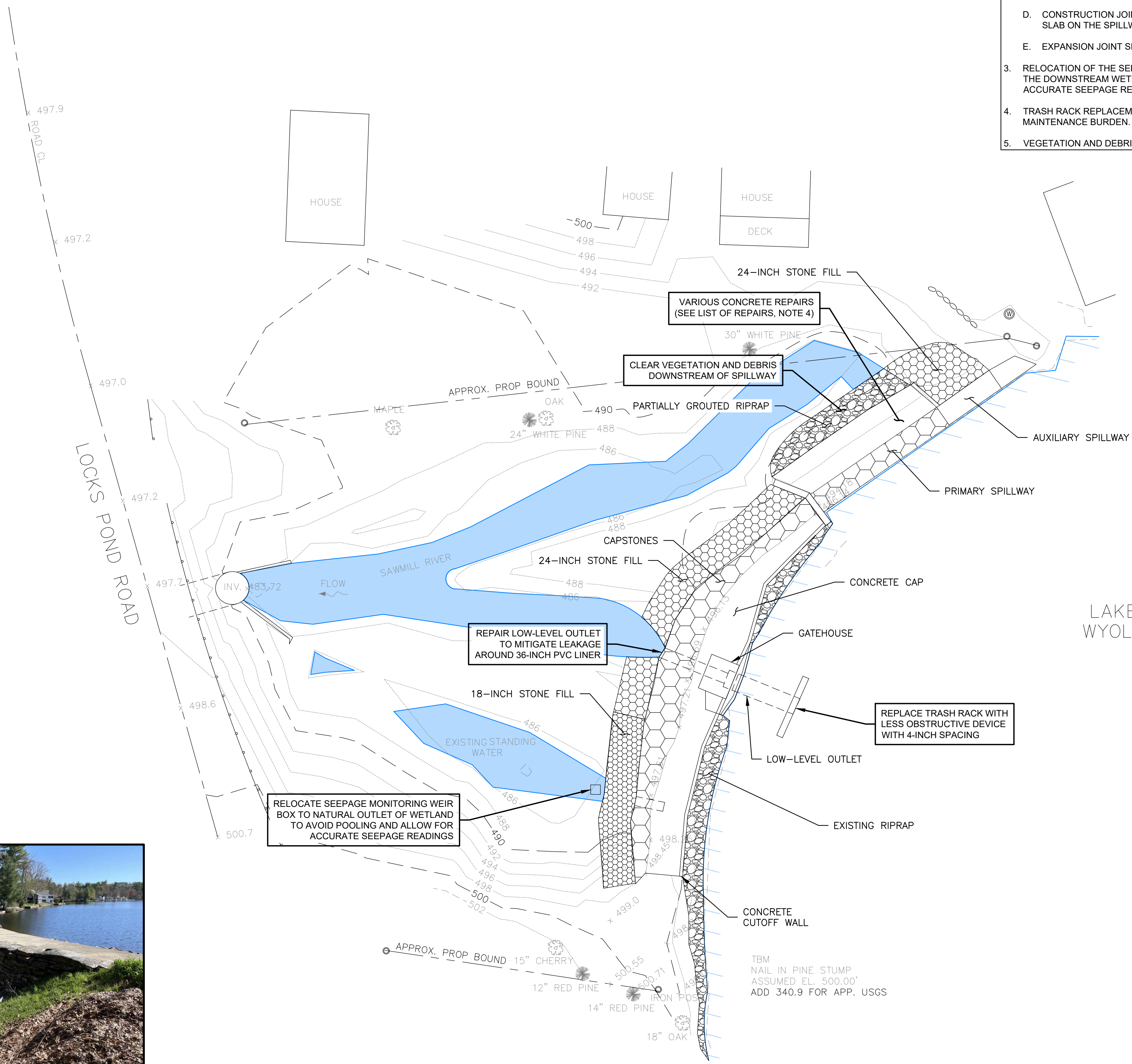
ADDITIONAL SERVICES

14. 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.

© 2011 - GZA GeoEnvironmental, Inc. GZA- \\GZA\Springsfield\Jobs\0 167200 - 0 167299\15.0167283.00 Lake Wyola Dam Maintenance Repairs.dwg [C-1] November 06, 2024 - 12:14pm John Buckley



OVERVIEW OF DAM AND GATEHOUSE

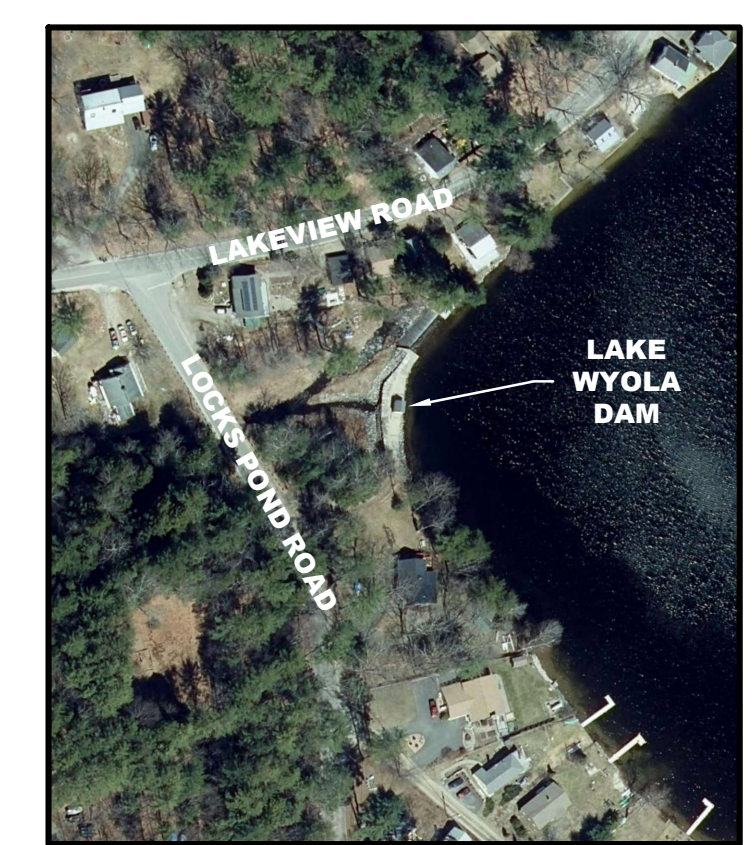


- PRELIMINARY LIST OF MAINTENANCE REPAIRS**
- INVESTIGATION AND REPAIR AT THE LOW-LEVEL OUTLET TO MITIGATE LEAKAGE AROUND THE 36-INCH PVC LINER.
 - VARIOUS CONCRETE REPAIRS AT THE PRIMARY SPILLWAY INCLUDING:
 - CONCRETE SURFACE REPAIRS AT THE SPILLWAY TRAINING WALLS AND OTHER DEFICIENT AREAS. EXISTING DETERIORATED/POOR CONDITION MORTAR FROM PREVIOUS REPAIRS SHOULD BE REPLACED WITH AN APPROPRIATE REPAIR MORTAR.
 - JOINT SEALING AT THE "STEP" BETWEEN THE SPILLWAY CREST AND APRON.
 - JOINT SEALING BETWEEN THE SPILLWAY APRON AND GROUTED RIPRAP.
 - CONSTRUCTION JOINT SEALING BETWEEN THE LEFT TRAINING WALL AND THE SLAB ON THE SPILLWAY CREST.
 - EXPANSION JOINT SEALING ON THE SPILLWAY APRON.
 - RELOCATION OF THE SEEPAGE MONITORING BOX TO THE NATURAL OUTLET OF THE DOWNSTREAM WETLAND TO AVOID POOLING AND ALLOW FOR MORE ACCURATE SEEPAGE READINGS.
 - TRASH RACK REPLACEMENT WITH RECONFIGURED RACK TO REDUCE FUTURE MAINTENANCE BURDEN.
 - VEGETATION AND DEBRIS CLEARING DOWNSTREAM OF THE SPILLWAY.

- NOTES**
- BASE MAP DEVELOPED FROM DRAWING ENTITLED "LAKE WYOLA DAM REPAIR, SITE PLAN", PREPARED BY ROOT ENGINEERING, REVISED AS-BUILT CONDITIONS DATED AUGUST 14, 2009.
 - HORIZONTAL DATUM: UNKNOWN.
 - VERTICAL DATUM: ASSUMED DATUM OF EL. 500.00 FEET AT TEMPORARY BENCHMARK (TBM) LOCATED AT LEFT ABUTMENT.
 - WETLAND RESOURCE BOUNDARIES NOT DELINEATED. LIMITS OF LAND UNDER WATER ESTIMATED BASED ON WATER LEVELS OBSERVED DURING PREPARATION OF ORIGINAL BASE PLAN.
 - PROPERTY LINES APPROXIMATE ONLY.

- LEGEND:**
- x 499.0 SPOT ELEVATION
 - - 500 - - 10-FOOT CONTOUR
 - - 498 - - 2-FOOT CONTOUR
 - (Tree symbol) EXISTING TREE
 - (Stone fill symbol) EXISTING STONE FILL
 - (Capstone symbol) EXISTING CAPSTONE
 - (Riprap symbol) EXISTING RIPRAP
 - (Guardrail symbol) GUARDRAIL
 - - - - - APPROXIMATE PROPERTY LINE
 - (Blue shaded area) APPROXIMATE LIMIT OF LAND UNDERWATER

DRAFT SET
NOT FOR CONSTRUCTION



LOCUS MAP
SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE
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<p>LAKE WYOLA DAM MAINTENANCE REPAIRS SHUTESBURY, MASSACHUSETTS</p>			
<p>CONCEPTUAL PLAN</p>			
<p>PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>		<p>PREPARED FOR: TOWN OF SHUTESBURY 1 COOLEYVILLE ROAD SHUTESBURY, MA 10172</p>	
<p>PROJ MGR: ARD DESIGNED BY: NYA DATE: NOVEMBER 2024</p>	<p>REVIEWED BY: NLR DRAWN BY: JTB PROJECT NO. 15.0167283.00</p>	<p>CHECKED BY: CWC SCALE: AS SHOWN REVISION NO. -</p>	<p>DRAWING C-1 SHEET NO. 1 OF 1</p>