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Town of Ashburnham
Town Hall
32 Main Street
Ashburnham, MA 01430

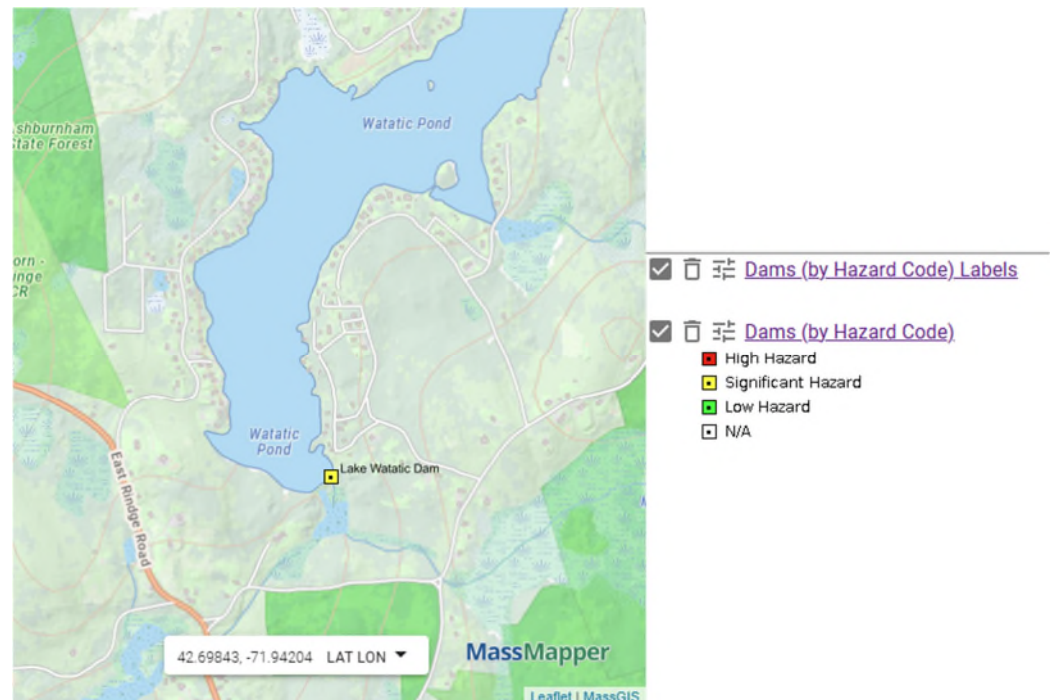
Re: Proposal for Dam Safety Engineering Services
Lake Watatic Dam – NID No. MA00004
Hudson, Massachusetts

Dear Town Administrator:

GZA GeoEnvironmental, Inc. (GZA) is pleased to provide the following proposal to the Town of Ashburnham (Client) to perform dam safety engineering services for Lake Watatic Dam (Dam). Our proposed scope of work is intended to provide engineering designs and permit applications that are appropriate for use in seeking grant funding for a rehabilitation project at the dam. GZA also proposes to work with the Town in preparing a request for state grant assistance for the construction phase of the work.

BACKGROUND

Lake Watatic Dam – NID No. MA00004 – is located at the upstream limit of the Millers River in Ashburnham, Massachusetts. The dam is currently listed as a Significant Hazard dam (see figure below); however, previous assessments have indicated that a High hazard classification is likely more appropriate.





GZA is familiar with the Lake Watatic Dam through our previous work with the Town to prepare an Emergency Action Plan for the dam in 2011.

The most recent Phase I inspection, from 2022, indicated the dam to be in **Fair** condition, but identified a number of specific deficiencies with the dam, including, but not limited to:

- 1) Oversteep downstream embankment slope,
- 2) Remaining stumps on the embankment,
- 3) Uncontrolled seepage,
- 4) Possible undermining of the spillway weir,
- 5) Deteriorated low-level outlet structure and valve; and
- 6) Insufficient spillway capacity (based on a HIGH) hazard classification.

GZA's proposal was developed to support the Town in addressing the known deficiencies listed above.

We also understand that the Town would like to resolve the issue of the Hazard classification of the dam. As noted above, the dam is currently classified as a Significant Hazard dam but work by GZA and others has suggested that the dam should be classified as a High Hazard Dam. The refined hydrology and hydraulics assessment proposed as part of the scope of services described herein will support the final hazard recommendation and will produce documentation suitable for submission to the Office of Dam Safety in support of a hazard reassessment request, if warranted.

We further understand that the Town is interested in seeking grant assistance (likely from a program such as the Massachusetts Dam, Levee and Seawall Repair and Removal grant program) to provide funding for the work required to address the identified deficiencies. GZA will seek to prepare project drawings and permit applications suitable to support such a grant application and will assist the Town in preparing the grant application as part of our scope of services.

SCOPE OF SERVICES

TASK 1 – DOCUMENTATION REVIEW, SITE VISIT, AND DAM SAFETY ASSESSMENT

GZA will visit the dam to perform an on-site dam safety assessment of conditions of the dam. Under the dam's current hazard classification, the next formal Phase I inspection is not due until 2027 (every 5 years). GZA will not, therefore, prepare a formal inspection report. However, we will assess the condition of the dam in a similar manner, utilizing the US Army Corps of Engineers document "Recommended Guidelines for Safety Inspection of Dams" (ER 1110-2-106) and the Massachusetts State Dam Safety Regulations (302 CMR 10.00, effective February 10, 2017) as guidance for the conduct of the assessment.

Prior to visiting the site, GZA will review pertinent information from the last inspection and information provided by the Town related to previous work on the dam by others, as well as information available through a file review with the Massachusetts Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS). Then a three-person team consisting of at least one senior GZA licensed Massachusetts Professional Engineer will visit the dam site in a single day. We have assumed that the Town will arrange for permission to be on site. The field visit will preferably take place in the company of representatives of the Town and Lake Association who are familiar with operations and



maintenance of the dam, and can provide access to interior site facilities, as applicable. GZA staff will make observations of existing conditions and will complete a standard DCR-format field inspection summary checklist, which will be used to record observed deficiencies. For documentation purposes, color digital photographs will be taken, and a sketch with pertinent approximate dimensions will be prepared. Our site visit will include a reconnaissance of the area immediately downstream of the dam.

As a deliverable, GZA will prepare a summary report that will contain our observations regarding observable deficiencies at the dam, the overall condition rating of the dam, and discussion of potential downstream areas at risk from a hypothetical dam failure. The inspection checklist and photos will be appended to the summary report.

During this site visit, we will be happy to meet with you to discuss our initial observations and the overall project goals.

TASK 2 – FIELD DATA COLLECTION (SUBSURFACE EXPLORATIONS AND LABORATORY TESTING, BATHYMETRY AND SEDIMENT SAMPLING)

Subsurface Explorations and Laboratory Testing

The available information on the dam reviewed by GZA suggests that structure is comprised of an earthfill embankment with a concrete core wall and that the core wall is founded on “ledge” (assumed to be referring to bedrock). To develop additional information on the subsurface conditions at the site, GZA proposes to conduct a subsurface exploration program as follows:

GZA proposes to collect supplementary subsurface data through the completion of soil borings. GZA will engage a drilling subcontractor to perform up to four (4) borings in or near the footprint of the dam. Our current concept is for a pair of borings at the maximum section and a pair of borings near the right side of the spillway. All borings would be drilled from the top of the embankment and each pair would include one boring upstream of the core wall and one downstream.

GZA intends to engage a geotechnical drilling subcontractor to perform the test borings using an all-terrain vehicle (ATV) mounted drill rig. Borings will be advanced through the soil embankment and overburden to bedrock/refusal using drive-and-wash drilling methods. Up to 10 feet of bedrock coring using a NQ- or HQ-size core barrel will be performed at selected locations to confirm refusal on bedrock. We anticipate the total depth of test borings (including cores) will be approximately 25-30 feet below ground surface. Split-spoon sampling and Standard Penetration Testing (SPT) will be performed in the test borings at intervals of 5 feet or less, depending on conditions encountered, and in general accordance with ASTM D-1586.

We anticipate installing up to four open tube observation wells and up to four open tube piezometers during the program (nested well/piezometer in each borehole). These instruments will be used to perform falling head tests to assist with the estimation of in situ permeabilities of the soil and rock. If test borings are completed without instruments, they will be grouted with a cement-bentonite grout or soil-bentonite upon completion. The duration of the program is subject to site access and weather conditions.

GZA will provide a field representative to log and monitor the explorations on a full-time basis. The locations of the explorations will be located by using hand-held GPS equipment, or line-of-sight and measurements from existing features, and then plotted on the topographic survey plan. Ground surface elevations at the test boring locations will be estimated from the topographic survey plan.



As part of our subsurface exploration program, GZA will:

- Prepare a site-specific health and safety plan for protection of GZA workers.
- Coordinate access and schedule with Client and drilling subcontractor.

We assume that the Town will assist with arrangements for access onto the site, which we assume will be via the existing access road from the right abutment. Limited vegetation removal and/or tree cutting may be required to allow the drill rig to access the proposed borehole locations. GZA will discuss the planned access for the subsurface explorations with the Town prior to mobilization for drilling. We assume the Town or others will be responsible for the vegetation removal and it will be performed prior to mobilization of the driller.

We have budgeted for up to three (3) standard rig days, up to 8 hours on site per day, and assume that the explorations can be performed during normal, weekday hours (7 am to 5 pm). Our drilling subcontractor will perform utility clearance notifications, including contacting 811 – “Dig Safe” and other non-member utilities before drilling in accordance with state excavation safety regulations. No additional site restoration efforts are proposed. Excess spoils, if any, will be left on site. Up to five (5) soil samples collected from the drilling program will be sent to a contract geotechnical laboratory for testing to confirm field classification and assist in estimating engineering properties of the soils.

Bathymetry and Sediment Sampling

GZA will perform up to one day of onsite bathymetric mapping within Lake Watatic in the vicinity of portions of the dam which are anticipated to be involved in the future improvements. Using our work boat, a two-person team will measure “top of sediment” and, if accessible based on depths, “hard bottom” data within the area of interest, utilizing methodologies in accordance with U.S. Army Corps of Engineers (USACE) Engineering Manual, EM 110-2-1003, Hydrographic Surveying. We will utilize a hand-held GPS unit, capable of sub-meter accuracy to estimate the location of bathymetric measurements. Water depth measurements to the “top of sediment” (existing pond bottom) will be made with an 8-lb. mushroom anchor lowered on a graduated lead line in accordance with UUSACE Engineering Manual EM 110-2-1003, Hydrographic Surveying. Soft sediment thicknesses will be estimated by lowering a galvanized steel probing rod from the boat at each proposed measurement location and pushing the rod through the soft sediments to “hard bottom” refusal. The depth to hard bottom from the water surface will be recorded at each station. Note that bottom of sediment measurements may be limited, depending on water and sediment depths near the dam. The elevations of the top of sediment and hard bottom will be based on the depth measurements and water surface elevation, estimated from information on the topographic plan. Information collected will be used for the design and permitting process. While onsite, GZA also proposes to collect up to two (2) sediment cores, as field conditions allow. Up to two (2) lab samples will be submitted to the laboratory to be analyzed for the following physical and chemical parameters:

- Grain Size Distribution
- Total solids/percent water
- Volatile solids
- Metals: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc
- Polychlorinated biphenyls (PCBs) (by NOAA Summation of Congeners)
- Extractable Petroleum Hydrocarbons (EPH) (current method MassDEP January 1998)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)
- Total Organic Carbon (TOC)



Toxicity Characteristic Leaching Procedure (TCLP) may also be required for specific metals parameters if metals thresholds are exceeded. We will request that the lab reserve the samples in case these TCLP analyses are required.

GZA will collect, bottle, and deliver properly-preserved samples to a state-certified laboratory for analysis within acceptable hold times and following standard chain of custody procedures. Test data will be tabulated for comparison with MassDEP Background Levels of PAHs and Metals in soil, MassDEP's Reuse and Disposal of Contaminated Soil in MA Landfills, remediation criteria and RCS-1 criteria.

TASK 3 – TOPOGRAPHIC AND PROPERTY LINE SURVEY

GZA will contract with a Massachusetts Registered Land Surveyor to collect topographic and property line data for the site in order to prepare a base map for design and permitting use. Standard vertical (NAVD88) and horizontal (NAD83 Mass. State Plane – Mass. Mainland) datums will be referenced. Elevation data will be collected to develop 1-foot elevation contours in the areas where construction is anticipated. Limited bathymetric (underwater topographic) information, including water depths and sediment thickness, will also be collected to assist with expected cofferdam design. The surveyor will also set up to two (2) temporary benchmarks, one each on both ends of the expected limits of the three structures, beyond the anticipated limits of construction. We assume that property bounds will be researched and documented only in the vicinity of the dam and any access route to the dam. We have assumed that no more than four property corners would need to be established as part of this work.

We understand that the left side of the dam (including roughly half of the spillway) is owned by an abutter and thus defining that property line is an important task. We have assumed the Town will assist with securing access privileges for surveyors and other staff necessary to complete the field work proposed herein. GZA understands that a survey was performed in 2016. While this information will all need to be reconfirmed, we will attempt to contract with the same surveyor to improve efficiency if practical.

TASK 4 – WETLAND DELINEATION AND ECOLOGICAL ASSESSMENT

GZA wetland scientists will conduct a wetland delineation within approximately 200 feet of the dam structure (upstream and downstream) for regulated wetland resources included under the Massachusetts Wetlands Protection Act (WPA) regulations, 310 CMR 10.00, the federal Clean Water Act under the authority of the Army Corps of Engineers, and the Town of Ashburnham Chapter XXVI: Wetlands Protection Bylaw. Given the location and tree cover, GZA will coordinate the field work such that the surveyor will locate the flags. GZA will photo document and collect data to complete up to two pairs of Federal Wetland Determination Data Forms in support of the delineation for use in permitting. GZA will prepare a wetland delineation memorandum that characterizes the wetland delineation, desktop review of regulated and mapped resources, and assesses likely jurisdictional findings. GZA will use MassGIS wetland data layers and recent aerial ortho imagery to estimate the extent(s) and character of potential resource areas outside of the immediate vicinity of the dam that may be temporarily altered by the proposed repairs, such as through an impoundment drawdown.

While onsite for the wetland delineation, GZA will complete a WPA Wildlife Habitat Evaluation (WHE) for Bank, Land under Water Bodies or Waterways, and Riverfront Area based on the assumption that project will temporarily and/or permanently alter at least 50 linear feet of Bank along the dam embankment and downstream reach, 5,000 square feet of Land under Water Bodies or Waterways within and downstream of the spillway, and/or 5,000 square feet of the Riverfront Area. By conducting the WHE at the time of the delineation, the need for additional mobilizations after the conceptual alternative is selected can be minimized.



TASK 5 – GEOTECHNICAL ASSESSMENT

Using the information developed in the subsurface exploration program and based on the geometry of the dam from the topographic survey, GZA will assess the geotechnical characteristics of the site. A geotechnical conditions memorandum will be developed to present data from the borings (logs and lab testing data) and describe the subsurface conditions encountered. Standard parameters for soil and rock materials will be recommended for use in analyses of current and proposed conditions. GZA will also prepare slope stability and seepage models of the embankment using the Slope/W and Seep/W modulus of the GeoStudio computer program. These evaluations will assist in assessing the dam's ability to meet regulatory requirements for slope stability and general compliance with factors of safety against seepage flows through or under the embankment. The findings of these analyses will be presented in the memo along with recommendations (slope flattening, toe drains, etc.) for remediating any inadequacies.

TASK 6 – HYDROLOGY AND HYDRAULICS

GZA will update and augment the hydrology and hydraulics analysis previously developed during the preparation of the Emergency Action Plan (EAP) in 2011. GZA will first collect and review publicly available topographic, hydrographic, land use, soils, wetland, precipitation, and other data that will inform the development of hydrologic and hydraulic (H&H) computer models. GZA will review the most recent Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) data, as available.

GZA will then develop the Probable Maximum Precipitation (PMP) storm based on guidance from the US Government's Hydrometeorological Report (HMR) Nos. 51/52. We will then use this storm data as input to a hydrologic model using the USACE HEC-HMS software (or similar) which will route the resulting Probable Maximum Flood (PMF) runoff inflow into Lake Watatic and through the existing spillway. GZA will assess both an "all-weather" PMF and a "cold weather" or "rain-on-snow" PMF to determine the apparent critical conditions. The $\frac{1}{2}$ PMF hydrograph will be developed in the standard manner by applying a 0.5 factor to inflow flow rates. GZA will also route additional, lower-intensity, higher frequency storms (e.g. 50-year, 100-year, 500-year storm) through the hydrologic model. The smaller storm characteristics will be developed based on NOAA Atlas 14 data. The modeling will provide information on the estimated peak inflow and outflow rates, and the estimated peak water surface elevations for each design storm considered.

Massachusetts Dam Safety regulations (302 CMR 10.14 (6.a)) require an existing dam that is Significant Hazard to pass a flood associated with a 500-year design storm and an existing High Hazard dam to pass a flood equal to one half of the Probable Maximum Flood ($\frac{1}{2}$ PMF). The Massachusetts Dam Safety regulations also allow for an assessment of incremental downstream damages to assist in making a "rational selection of a safe spillway design flood for specific site conditions." This is typically referred to as an Inflow Design Flood / Incremental Damage Assessment (IDF/IDA) study.

Performing a hazard potential evaluation and IDF/IDA evaluation will inform the design of the proposed spillway structure and potential overtopping protection and may allow for a reduction in the required Spillway Design Flood (SDF). This process will also assist in the development of the information needed to support a hazard reclassification.

As part of the IDF/IDA assessment, GZA will perform dam breach analyses coincident with a sunny day, 100-year, 1,000-year, $\frac{1}{2}$ PMF, and PMF with and without dam failure. The analyses will use a two-dimensional (2D) HEC-RAS model to enable refined outputs in overbank areas such as depth and velocity that are not reliably simulated using a 1D approach (in GZA's opinion). We will extend the downstream limits of the modeling to a point where the estimated dam failure floodwave no longer represents a hazard (i.e., floodwave remains within the channel banks or has an incremental rise



less than 2 feet). The HEC-RAS 2D model will be used to obtain incremental rises (depth) and velocity for the downstream area including the overbank areas.

Dam and stream crossing data is assumed to be available from existing information or will be estimated using existing information including GIS data, aerial photographs, and previous reports. We will also review readily available studies, reports, survey data, and other non-public data from the Client and MA state sources that may inform GZA's evaluations. GZA will consider the potential for a "domino" failure of downstream dams, if needed.

Findings from the hydrology and hydraulics analyses described above will be presented as tabular summaries of incremental depth, peak water surface elevation, and peak velocity for critical areas using HEC-RAS 2D Mapper (i.e., RAS Mapper). We will then perform consequence estimation using semi-quantitative approaches (e.g., ACER, USBuRec DV approach, or HEC-LifeSim). The consequence estimation will be used to support an assessment of the likelihood of loss of life and qualitative degree of economic losses due to the failure of the dam under each scenario evaluated. GZA will then recommend a dam hazard potential classification based on the consequence estimation.

The HEC-RAS 2D model described above will also be used to develop a site-specific Inflow Design Flood (IDF). The IDF is based on an Incremental Damage Assessment (IDA) that will be performed using the consequences information developed as part of the Hazard Potential Evaluation. An IDA is a technique used to establish an appropriate SDF for a dam on the basis of the potential additional downstream flood impacts (i.e., incremental impacts) which might result from a hypothetical dam failure occurring during an already large natural flood. The analysis is to estimate inundation areas and the flooding characteristics (depth and velocity) with and without dam failure in those downstream areas. Consequences of both natural flooding and flooding with coincident dam failure are then estimated.

The IDF selected using this process is the flood above which there is a negligible increase in downstream water surface elevation, velocity, and/or consequences due to failure of the dam when compared to the same flood without dam failure. The underlying rationale is that there is no significant benefit to public safety gained by improving the dam to pass a flood so large wherein its failure during the flood would not be noticeable.

Note that the IDA must be approved by the MA Office of Dam Safety prior to authorizing use of a reduced SDF. GZA will engage with ODS to request a hazard classification review and a Spillway Inflow Design Flood response under Task 7. GZA also notes that the Town can elect to design for the baseline regulatory flood without seeking a reduction through the IDF/IDA process.

Although a formal FEMA No-Rise does not appear to be required, as the site is Zone A without an apparent Floodway based on a preliminary review of information, due to the potential impacts of changes to the spillway design, a No-Rise analysis is proposed to assess potential risks to downstream areas. GZA will use the existing and proposed conditions hydraulic models to assess potential changes to downstream water levels as part of our evaluations.

TASK 7 – HAZARD RE-CLASSIFICATION REQUEST

The Massachusetts Office of Dam Safety website states:

"An owner may at any time request the Commissioner to reconsider the hazard determination. The owner's request must be filed by a registered professional civil engineer, specifying the findings and analyses with which the owner disagrees. The Commissioner will issue a written decision to the owner and the registered professional civil engineer within 30 days of receipt of a request for hazard reconsideration, and such decision shall be final and binding upon the parties."



In 2011, GZA prepared an Emergency Action Plan for the dam that included assessment of downstream flooding in the hypothetical event of a dam failure, under both “sunny day” and flooding conditions. On the basis of this assessment, it was GZA’s opinion that the potential flooding of roads, homes, and businesses would result in likely loss of life in the event of a dam failure; therefore the appropriate Hazard classification for the dam is HIGH.

Under this task, GZA will use the analyses developed under Task 6 as supporting materials in the submission of MA DCR Office of Dam Safety’s “Application to Change Hazard Classification of Dam” application. The application package will be submitted to the MA DCR Office of Dam Safety on the Town’s behalf. At the same time, GZA will (if supported by engineering analysis and authorized by the Town), submit documentation regarding a change in the required spillway design flood.

It is important to understand that an official change from Significant to High Hazard will result in additional regulatory requirements for the dam, including formal inspections every two years and more rigorous performance requirements (such as a larger Spillway Design Flood.) However, the increased hazard classification may be beneficial to the Town in seeking grant funding due to the higher priority typically assigned to High hazard dams.

TASK 8 – OPERATIONS AND MAINTENANCE MANUAL

Our understanding is that there is currently not a formal Operations and Maintenance (O&M) Manual for the dam. An O&M Manual is required for the dam and will be needed for permitting of the proposed improvements program. GZA will prepare an O&M Manual for the dam in its current state. The O&M Manual will include recommendations and procedures for monitoring the dam, operations, drawdown procedures, and vegetation management procedures and frequency. The O&M Manual will also include recommendations for emergency procedures prior to and during flooding events and routine dam safety monitoring procedures and frequency for the dam caretaker including forms for recording observations. The O&M Manual will be provided to the Town and to the Office of Dam Safety for their records.

Note that the O&M Manual will also need to be updated once the improvements program is completed to reflect changes to the dam and its operation. That work is not included in this scope of services and would need to be included in the construction phase of the Project.

TASK 9 – CONCEPTUAL REPAIR APPROACH / ALTERNATIVES ANALYSIS

On the basis of the information collected by GZA in the previous tasks, GZA will develop a conceptual repair approach for the dam which will describe the actions judged to be needed to improve the condition of the dam and better meet state dam safety standards. The hydrologic and hydraulic models developed by GZA will be used to size the proposed improved spillway and assess the need for overtopping protection for the embankment. We will provide this plan in the form of a technical memo that will contain a summary description of preliminary recommended improvements, a concept sketch of the dam depicting the general configuration of the rehabilitation items, a list of likely required permits, a possible schedule for a rehabilitation project, and a concept-level opinion of probable costs (AACE Class 3/4) for use in planning. The purpose of this document will be to generate agreement on the final scope of the proposed repairs and the means by which to address the known deficiencies. The alternatives analysis is also required to be included in many of the necessary permit applications. GZA will engage with the Town to select a Preferred Alternative which will be documented in a Final Alternatives Memorandum.

Based on our understanding of the setting of the dam and the lake, we anticipate that the Town, abutters, and stakeholders will prefer that the work on the dam be implemented without a substantial drawdown of the lake if practically achievable. GZA will seek to develop a design of permanent features and recommended construction-phase



design features that will allow for project implementation without substantial lake drawdown. However, the final decision on the feasibility of such a water control plan depends on the findings of the evaluations described above, regulatory approval, and construction costs and schedule. The Office of Dam Safety tends to prefer that a drawdown be implemented to reduce risk during construction; however, other agencies prefer that drawdowns be minimized to protect aquatic habitat. If a drawdown is to be minimized, then it may be necessary to propose a robust cofferdam design as part of the permitting documents.

Another important issue to be resolved in conceptual design is the means by which the Spillway Design Flood will be safely passed. Current information indicates that the existing spillway is incapable of passing the $\frac{1}{2}$ PMF and that up to 3.2 feet of overtopping could occur during this flood. Additionally, the existing spillway includes flashboards that require maintenance and can result in a surge of water downstream when they “trip.” Reconstructing the existing spillway with additional width appears to be a desirable approach, but will need to be balanced against the requirement to not increase downstream flooding such that downstream floodplains would be expanded. Therefore, it is likely that some form of overtopping protection may need to be incorporated into the rehabilitation design.

We have assumed that the Town will be responsible for securing and recording all needed temporary and permanent access agreements, easements, or other property-related legal documentation which are needed to conduct the work.

TASK 10 – DESIGN OF DAM IMPROVEMENTS AND APPURTENENT STRUCTURES

GZA will advance the Preferred Alternative from Task 9 to develop permitting level design drawings and supporting documentation. Engineering plans will include sections to describe 1) Existing Conditions; 2) Temporary Works and Controls; 3) Civil Works including final grading, access road alignments, and embankment construction; 4) Structural details; and 5) Additional Utility Works (if any) necessary to support the project. The intent of the design will be to address the known deficiencies at the dam in a manner that is generally consistent with the recommendations made in the Massachusetts Dam Safety Regulations and standard engineering practice. We have assumed that GZA will prepare design submissions at the following milestones:

- **30% Design** – GZA will prepare a draft drawing set at the 30% design (conceptual design) phase. The purpose of this submission will be to provide information to the Town such that the Town can provide feedback on constructability, access, or other considerations that may impact future design and construction of the work. The 30% design drawings will also be reviewed by GZA’s ecological permitting staff for comments on aspects of the design that may impact or be impacted by permitting considerations. GZA will provide an electronic submission (PDF) for review. We have assumed one round of consolidated comments (which will be incorporated into the 75% set) and have budgeted for one virtual meeting with the project team.
- **75% Design** – GZA will prepare an updated 75% submission of the draft drawings and key specifications. GZA will provide an electronic submission (PDF) for review by the Town. We have assumed one round of consolidated comments and have budgeted for one virtual meeting with the project team. We will produce a “final” 75% submission with the relevant comments incorporated. The finalized set of 75% design drawings will be used in preparing the environmental permit applications. We will also submit these drawings to the Office of Dam Safety for pre-application comments and discussion.
- **Final 100% Design** – Once Town and permit agency comments are received, GZA will update the 75% submission accordingly and provide a stamped, “Final” set of drawings, specifications, and design report to the Town and to ODS for their records. All submissions will be made electronically.



GZA will also provide periodic estimated cost updates to the Town with the completion of each design submission during the design phase to account for changes to the anticipated design as the project progresses.

TASK 11 – PERMIT APPLICATIONS

Based on the agreed upon Preferred Alternative and the design depicted on the 75% design plans, GZA will prepare permit application packages to seek approval for construction of the project. GZA will provide a draft version of permit applications to the Town and respond to one round of comments before finalization and submittal. Pre-construction permits which are anticipated to be required for this project are as follows:

Massachusetts Environmental Policy Act (MEPA):

GZA will endeavor to develop a design that does not exceed a MEPA review threshold and will contact the Office of Dam Safety as soon as reasonable in the design development to seek concurrence with the proposed water control/cofferdam plan which will be intended to minimize overall resource area alteration. Despite this, it is likely, and for planning purposes GZA has assumed, that the Project will require the filing of an Environmental Notification Form (ENF) as the design may exceed one or more of the following review thresholds:

- Alteration of more than 500 linear feet of bank (protection of upstream dam embankment, alteration of spillway, and any downstream work along the low-level outlet channel would be cumulative);
- Alteration of 5,000 or more square feet of bordering vegetated wetlands (if the downstream embankment is flattened, this may be exceeded based on an initial review of aerial images of the dam toe);
- Alteration of ½ or more acres of any other wetlands (cumulative between temporary and permanent alteration of Riverfront Area and Land under Water Bodies and Waterways).

GZA will prepare an ENF and supporting documentation and has included effort and fees to run the necessary legal advertisement. GZA will prepare for and attend one (1) virtual public meeting and one (1) in person site visit. We have assumed that the site visit will occur during normal business hours but that the virtual meeting may occur in the evening or during normal business hours.

Should the Office of Dam Safety require a significant drawdown, which is their preferred water handling strategy for dam repairs, or should the Project otherwise exceed a review threshold associated with a Mandatory Environmental Impact Report (EIR), GZA will discuss the budgetary and timeline implications with the Town. Resource area alterations requiring a mandatory EIR including altering more than one acre of vegetated wetlands, more than 10 acres of any other wetlands, or decreasing the impoundment capacity of a reservoir.

ENFs are not a permit, but they provide regulators and the public an opportunity to review a Project holistically. State permit applications may not be submitted until the MEPA process is complete. MEPA fillings are accepted twice per month (on the 15th and last day of the month), and the Secretary's Certificate on an ENF is issued approximately six weeks later following a public meeting and comment period.

USACE Section 404

The United States Army Corps of Engineers (USACE) administers Section 404 of the Clean Water Act (CWA) and in Massachusetts has issued 25 General Permits (GPs) for work in Waters of the United States (WOTUS) which includes surface waters and adjacent wetlands.



GZA anticipates that the dam repair design will qualify for authorization under General Permit (GP) 2: Maintenance through a Pre-Construction Notification (PCN) review. Required components of this review include consultation with the Massachusetts Historical Commission (MHC) by filing a Project Notification Form and notification to Tribal Historic Preservation Officers (THPOs) and the Board of Underwater Archaeological Resources (BUAR). These consultations provide the MHC and THPOs with a 30-day response period. Consultation must also be completed with the U.S. Fish and Wildlife Service (FWS). We assume that this consultation can be completed electronically through the Information for Planning and Consultation tool and that, if necessary, any adverse impacts on species can be accommodated through observance of a time-of-year restriction. No effort for direct consultation with the FWS, species-specific surveys, or file reviews has been included in this proposal.

GZA will conduct these consultations and prepare the necessary attachments, plans, and narratives as required by the GP-2. GZA has included up to two (2) rounds of response to comments from the USACE reviewer in this effort.

In GZA's recent experience, the USACE has been authorizing projects through a PCN review in about 4 to 8 months. GZA notes that the USACE seeks to convert the New England District from its current General Permit framework to the Nationwide Permit system and has stated that this transition will become effective for filings as of March 2026. This date may change and may expedite or delay file reviews. Authorization issued prior to the change to the Nationwide Permit system would remain valid through June 2028, those issued under the Nationwide Permit system are anticipated to be valid until 2031.

MassDEP Section 401

A MassDEP Section 401 Water Quality Certification is required for projects that cumulatively fill Land Under Water and/or Vegetated Wetlands in excess of 5,000 square feet, excavate Vegetated Wetlands in excess of 5,000 square feet, or dredge more than 100 cubic yards of material from Land Under Water on a temporary or permanent basis. If more than 100 cubic yards of material are dredged, sediment quality sampling is required, and the 401 Water Quality Certification (WQC) becomes a combined permit issued by two entities at MassDEP. GZA has assumed, based on the anticipated repairs, that no or minimal dredging will be necessary and as such, no sediment sampling or coordination with the MassDEP Dredge Office will be required.

GZA has assumed that the Project will cumulatively fill, temporarily dewater, or otherwise alter 5,000 square feet of Vegetated Wetland and Land Under Water and will require a Section 401 Water Quality Certification from the Central Regional Office of MassDEP.

GZA will prepare the Section 401 application via the EEA ePortal, will prepare and run the necessary legal advertisement, and will prepare the required documentation and plans for the Section 401 application. GZA has included up to two (2) rounds of response to comments from the MassDEP reviewer in this effort and one (1) in person site visit.

During design development, GZA will assess opportunities to minimize or avoid resource area alteration so as to avoid this filing. Typical review timelines for a Section 401 Water Quality Certification can be 6 to 12 months.

Conservation Commission Wetlands Protection Act

We assume the Project will alter resources which are jurisdictional under the Wetlands Protection Act (WPA) which is implemented by the Ashburnham Conservation Commission (Commission) with technical support by the MassDEP Central Regional Office. The Commission also implements Chapter XXVI: Wetlands Protection Bylaw and its Rules and Regulations (revised July 2025). GZA will prepare a WPA Form 3 Notice of Intent and supporting



documentation to the Commission and MassDEP via the eDEP portal. GZA notes that the filing will require an Operations and Maintenance Plan, assumed to be prepared under a separate task (Task 8).

GZA has included the effort to notify the abutters via certified mail assuming that no drawdown is implemented, prepare and run the necessary legal advertisement, and attend up to two (2) in-person public hearings and one (1) site visit in support of the application. GZA has included efforts to respond to one (1) round of written comments from MassDEP but has included no effort to facilitate or respond to a Third-Party Review and should the Conservation Commission require one, we can coordinate that effort separately. If a drawdown is necessary, all abutters to the pond will be considered abutters to the project and additional fees will apply to perform the additional mailings.

Unless appealed to the MassDEP, the Notice of Intent and issued Order of Conditions is considered a local permit and can be sought prior to initiating the MEPA review should the timeline require and the design progression allow.

Chapter 91

The Chapter 91 Program regulates waterways and tidelands as a Public Trust. Activities that alter these resources may require either a Chapter 91 Permit for certain activities or a License for structures. Historically, this Program has been rigorously implemented in tidal waterways, but has undergone periods of less than rigorous implementation in inland waterways. Currently, the Chapter 91 regulations, 310 CMR 9.00, are in full effect in inland waterways and are being fully implemented by MassDEP. Because of this history of intermittent implementation, many dams and other structures over waterways may not be fully Licensed under this Program.

During the file review of DCR and other client-provided documents, GZA will assess if the dam 1) has previously been Licensed under Chapter 91, 2) was otherwise authorized through an Act of the Legislature, or 3) qualifies for an exemption due to its age and lack of prior modifications. GZA will then endeavor to develop a dam repair plan that qualifies for the “maintenance, repair, and minor modifications” review criteria or other available exemption by the MassDEP.

GZA has included in this effort the time to review documentation and prepare and submit an Administrative Request and/or a Minor Modification Request to the Department through the EEA ePortal. GZA has included effort to respond to one round of comments or request for information from MassDEP. These reviews are typically completed within approximately 30 days.

Please note that the dam history may preclude the ability to use the exemptions if the dam was previously modified and the design may not qualify for the “maintenance, repair, and minor modifications” review. In either of these cases, obtaining a Permit or License may be necessary which requires more effort than the Administrative Request. Should this become necessary, GZA will discuss the budgetary and timeline implications with you.

Chapter 253

GZA will prepare a Chapter 253 Dam Safety Permit application in accordance with 302 CMR 10.00. The permit application will include technical backup for the dam repair design, including calculations and the results of the hydrologic and hydraulic modeling. The intent will be to demonstrate that the structure will meet the Massachusetts Dam Safety Regulations at the completion of the project.

The regulatory review of the Chapter 253 application is typically 4 to 6 weeks, and due to the necessary inclusion of technical specifications, this is typically one of the last applications filed.



Other Permits

Based on the information available at this time, no other permits are anticipated; however, as the design progresses and field data is collected, permit implications will be periodically re-assessed. Should the field conditions or design change the level of effort or type of permits understood to be necessary, GZA will discuss this with you as it becomes apparent.

TASK 12 – PROJECT MANUAL

GZA will develop a Project Manual for the Town's use in bidding the project and in seeking grant funding assistance. The project manual will include an Invitation and Instruction for Bidders (with dates left blank), a Form for Bid, an Owner/Contractor Agreement, General and Special Conditions, Permits, Technical Specifications, and the Project Plans. If the Town does not have standard "boilerplate" contract documents, GZA can utilize templates developed by the Engineers Joint Contracts Documents Committee for the administrative specifications and will develop project-specific technical specifications. GZA will provide a draft Project Manual for Town review and respond to one round of comments to prepare a final Project Manual.

TASK 13 – GRANT APPLICATION ASSISTANCE

The Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs (EEA) administers the Dam, Levee, and Seawall Repair and Removal Grant Program. This program provides financial assistance to plan and implement repairs to key infrastructure that provides storm damage protection and flood and erosion control. EEA seeks to enter into contracts with qualified organizations (which specifically includes Massachusetts municipalities) to complete planning, designs, and permitting for the repair or removal of dams, levees, seawalls, and other forms of inland and coastal flood control. A Request for Responses (grant applications) is typically issued annually with the due date typically in late winter/early Spring. Responses to apply for grant funding are due through an online application. GZA has been successful in helping many clients apply for and be awarded grants through this program.

The maximum grant award for Category 1 projects (Dams and similar regulated and unregulated impoundments) has typically been \$250,000 for design and permitting phase project and up to \$1,000,000 for construction assistance. The program generally requires a minimum 10% local match of cash(as of the 2026 grant program).

Our understanding is that the Town is interested in seeking a grant for construction, but intends to self-fund the design and permitting efforts (or possibly self-fund initial design work with supplemental funding from a design and permitting grant.) Therefore, our scope of work has been development assuming that the Town is seeking assistance for a construction grant application. Under this task, GZA will assist the Town in reviewing and responding to the RFR when it is opened. When the grant RFR is released, we can review and discuss timelines with you. All funds must be committed within 24 months of the grant award typically. The grant application process also requires that access rights for construction and ongoing maintenance must be in place prior to submission of the application, which makes the property rights issue important to have determined early in the Project.

For the grant application, the Town will need to take initial steps to register for the on-line application portal, after which GZA will develop information and assist the Town in uploading the required materials, including:

- Summary Application Information Cover Form
- Dam Information
- Review of Current Conditions – Structure and Setting
- Project Description and Readiness
- Purpose and Access



- Deficiencies
- Public Health and Safety Benefits
- Permits and Required Actions
- Environmental Concerns/Ecological Health and Potential Benefits
- Climate Change and Resilience
- Project Plan/Scope of Work
- Applicant Qualifications
- Project Schedule and Cost Estimates
- Figures – Locus Map
- RMAT tool run and output
- Applicable appendices (mapping, past reports, Dam Safety Orders, misc. documentation, support letters (obtained by Town))

As part of this task, GZA will prepare a scope of services for the work necessary to execute the work proposed in the grant application. GZA will provide draft application materials for Town review and finalize and submit based on Town comments.

TASK 14 – PROJECT MANAGEMENT

GZA will provide project management and communication efforts throughout the project. This will include reporting on project progress, client communications, and attendance at a monthly virtual meeting (up to 12 meetings assumed) to discuss project issues and schedule.

SCHEDULE

GZA is prepared to initiate services upon receipt of an executed agreement. We anticipate performing the site visit can be completed within 3 to 4 weeks upon receipt of an executed agreement. The summary report will be issued to the Town within about 8 weeks of the site visit along with a draft of the hazard classification re-assessment package. A response from ODS will be needed to firmly establish the required Spillway Design Flood size. We will endeavor to complete the development of the conceptual design approach (30% plans) within 6 months of notice to proceed, which is intended to be able to meet the next (2026) Dams and Seawalls Grant deadline (assuming an NTP within 60 days of the date of this proposal), if the Town wishes to seek additional design and permitting funding assistance. GZA will then advance the project to produce 75% project plans and permit applications. Barring unexpected design or permitting delays, we would anticipate the final design package to be complete and permits issued prior to the Dams and Seawalls Grant deadline in early 2027.

FUTURE TASKS

Once construction funding is secured, GZA will be pleased to provide the Town with an additional proposal to provide services related to bidding assistance, construction observation, engineering services during construction, post-construction environmental monitoring, and project permit closeout. GZA assumes the Town will engage us for these services to provide continuity during the construction phase and the ability to respond to potentially unknown conditions that can occur during the work on older existing dams.



ASSUMPTIONS

In the preparation of this proposal, GZA has made the following assumptions:

- Access to the dam area will be provided by the Town and applicable owners. We further assume that the route to access the dam can support an ATV drill rig and our boat/trailer and van. If vegetation clearing, tree cutting or other access improvements are needed to provide for drill rig access, we will coordinate with you regarding completion of that work by the Town or private property owners in a timely manner.
- GZA understands that there are multiple properties associated with the dam and potential access and staging areas for the proposed project. We assume that the Town will be responsible for coordinating any necessary deed research, and for property access coordination for this work. We further assume that the Town will be responsible for securing and recording all needed temporary and permanent access agreements, easements, etc. required for the Project in a timely manner throughout the duration of the Project. Property rights are key to allowing GZA's services to proceed in a timely manner. We assume that the Town will pursue all needed information and agreements prior to the permitting level design work. Access agreements or rights of access will be necessary for all field work.
- GZA has not included permit application filing fees in our cost estimate and assumes that these would be paid by the Town. Many filing fees are waived for municipalities.
- GZA has provided typical or recently observed regulatory review timelines for reference; however, regulatory review is not under GZA control and review timelines can be uncertain. Permit issuance and timeline are not guaranteed.
- GZA understands the Town's interest in expediting the overall Project timeline and has proposed a strategy that will allow for concurrent reviews, seeks exemptions, and will seek a design that minimizes resource area alteration and may therefore reduce regulatory burden while still meeting dam safety requirements to the extent practicable. Final design requirements may or may not align to facilitate this strategy and higher-level reviews may be necessary, exemptions may not be granted, or resource area alteration may be unavoidable.
- GZA has not included effort related to securing and recording access agreements with abutters for temporary assessment and data collection or for permanent work such as construction. Property owner signature or other proof of easement is necessary for some permit application filings. We assume that the Town will coordinate obtaining necessary signatures for permit applications.
- GZA assumes that the Town will record permits as necessary and required with the Registry of Deeds.
- We assume that truck/trailer access will be provided to provide water access for our workboat from an area adjacent to the dam. We observed a beach area in proximity and assumed that this can be utilized to launch our boat for water access.



BASIS OF BILLINGS

Billings for GZA's professional services shall be on a Lump Sum (fixed price) basis of **Three Hundred Ninety-Two Thousand One Hundred Dollars (\$392,100.00)**.

The approximate distribution of this fee, by task, is as follows:

Task	Fee
Task 1 – Data Collection and Review, Site Visit and Dam Safety Assessment	\$5,800
Task 2 – Subsurface Investigations and Laboratory Testing	\$49,000
Task 3 – Topographic and Property Line Survey	\$35,400
Task 4 – Wetland Delineation and Ecological Assessment	\$8,100
Task 5 – Geotechnical Assessment	\$19,800
Task 6 – Hydrology and Hydraulics	\$36,500
Task 7 – Hazard Re-Classification	\$4,000
Task 8 – Operations and Maintenance Manual	\$10,000
Task 9 – Conceptual Repair Approach/Alternatives Analysis	\$19,500
Task 10 – Design of Dam Improvements and Appurtenant Structures	\$85,900
Task 11 – Permit Applications	\$76,800
Task 12 – Project Manual	\$14,000
Task 13 – Grant Application Assistance	\$7,100
Task 14 – Project Management	\$20,200
TOTAL	\$392,100

Invoices for our services will be mailed to the address indicated for the Town at the beginning of this proposal. Should the billing address be different please provide the correct information with your written acknowledgement to this proposal. Monthly invoices will be based on a percentage of the project completed.

No meetings beyond those specifically mentioned above have been budgeted for this project. Such meetings, if needed, will be billed on a time and expense basis at our standard rates. Payment of GZA's invoices are not contingent upon regulatory approval.

Except as otherwise noted, deliverables will be provided in electronic format.

CONDITIONS OF ENGAGEMENT

Conditions of engagement are described in the attached standard Terms and Conditions (08/25 Edition/05-9010). This proposal is valid for 60 days of the date of issuance. Delay in issuing a notice to proceed may impact our ability to provide deliverables to meet the next grant application deadline.

ACCEPTANCE

This proposal may be accepted by signing in the appropriate space and returning one copy to us. The executed agreement must be received prior to the initiation of the services described above. Issuance of a purchase order implicitly acknowledges acceptance of the standard Terms and Conditions. This Proposal for Services and Terms and Conditions shall constitute the entire agreement between the parties.



August 22, 2025

01.P000280.26

Lake Watatic Dam Engineering Services, Ashburnham, MA

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Please contact the undersigned if you have any questions or comments concerning the contents of this contract.

Very truly yours,
GZA GEOENVIRONMENTAL, INC.

A handwritten signature in black ink that reads "Jennifer R.M. Burke".

Jennifer R.M. Burke, P.E.
Senior Project Manager

A handwritten signature in blue ink that reads "Chad W. Cox".

Chad W. Cox, P.E.
Principal-in-Charge

A handwritten signature in blue ink that reads "Nathaniel L. Russell".

Nathaniel L. Russell, P.E.
Consultant/Reviewer

Attachment: Terms and Conditions (08/25 Edition/05-9010)

ACCEPTANCE

This Contract for Services and the Terms and Conditions are hereby accepted and executed by a duly authorized signatory, who by execution hereof, warrants that he/she has full authority to act for, in the name, and on behalf of Client.

TOWN OF ASHBURNHAM, MA

By: _____ Title: _____

Typed Name: _____ Date: _____



TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

© 2025 by GZA GeoEnvironmental, Inc.

These Terms and Conditions, together with GZA's Proposal, make up the Agreement between GZA and You, the Client, named in the Proposal. If the attached GZA Proposal is styled as a Master Services Agreement, then these Terms and Conditions will apply to any and all Services ordered by you and performed by GZA.

BEFORE SIGNING THE PROPOSAL, BE SURE YOU READ AND UNDERSTAND THE PARAGRAPHS ENTITLED "INDEMNIFICATION", "LIMITATION OF REMEDIES" AND "DISPUTES" WHICH DEAL WITH THE ALLOCATION OF RISK BETWEEN YOU AND GZA.

- 1) **Services.** GZA will perform the services set forth in its Proposal and any amendments or change orders authorized by you (the "Services"). Any request or direction from you that would require extra work or additional time for performance or would result in an increase in GZA's costs will be the subject of a negotiated amendment or change order. All Services performed by GZA will be governed by this Agreement, even if performed prior to your execution of the Proposal.
- 2) **Term.** If the attached GZA proposal is styled as a Master Services Agreement, then the term of this Agreement will begin on the date of execution of the proposal (the "Effective Date"), and either party may terminate this Agreement for convenience upon thirty (30) days' written notice, provided that GZA will be paid for all services performed through the date of termination.
- 3) **Standard of Care; Warranties.**
 - a) GZA will perform professional Services with the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time under similar conditions in the same or similar locality. GZA's sole responsibility with regard to Services which do not meet the foregoing standard of care is to reperform such Services, at GZA's expense, but only if you provide GZA written notice of such non-conformity within ninety (90) days after completion of the Services.
 - b) **NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTY OF MARKETABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS MADE OR INTENDED BY GZA'S PROPOSAL OR BY ANY OF GZA'S REPORTS OR OTHER CONDUCT.**
 - c) GZA assigns to you any manufacturers' warranties of equipment or materials purchased from others, to the extent they are assignable, and your sole recourse will be against the manufacturer. Full risk of loss of materials and equipment will pass to you upon delivery to the Site, and you will be responsible for insuring and otherwise protecting them against theft and damage.
- 4) **Payment.**
 - a) Except as otherwise stated in the Proposal, you will compensate GZA for the Services at the rates set forth in the applicable Proposal, amendment or change order; reimburse its expenses, which will include a communication fee calculated as a percentage of labor invoiced; and pay any sales or similar taxes thereon.
 - b) Any retainer specified in GZA's Proposal shall be due prior to the start of Services and will be applied to the final invoice for Services.
 - c) GZA will submit invoices periodically, and payment will be due within 20 days from invoice date. You will notify GZA in writing of any invoice disputes within 10 days of the invoice date, and if no written notice of dispute is received, the invoice will be deemed approved in full. Overdue payments will bear interest at 1½ percent per month or, if lower, the maximum lawful rate. GZA may terminate the Services upon 10 days' written notice anytime your payment is overdue on this or any other project and you will pay for all Services through termination, plus termination costs. You will reimburse GZA's costs of collecting overdue invoices, including reasonable attorneys' fees (including costs for time expended by in-house counsel, which will be charged to you at the prevailing market rate for attorneys of similar experience practicing in the jurisdiction). Any amounts paid by you to GZA will be applied first to interest and costs incurred by GZA, and then to the principal balance.
- 5) **Your Responsibilities.**
 - a) If the Services involve entry onto a third-party property or otherwise require access to property you do not own or control, you will secure the access agreements, approvals, permits, licenses and consents necessary for performance of the Services, without GZA becoming a party to or otherwise being required to sign any such agreements, approvals, permits, licenses and consents. If you are the owner or operator of the Site, you will provide GZA with all documents, plans, information concerning underground structures (including but not limited to utilities, conduits, pipes, and tanks), information related to hazardous materials or other environmental or geotechnical conditions at the Site (including, if applicable, asbestos containing materials ["ACM"]) and other information that may be pertinent to the Services or, if you are not the owner or operator of the Site, you agree to make reasonable efforts to obtain these same documents and provide them to GZA. GZA is entitled to rely on the accuracy and completeness of documents and information you provide. You acknowledge that the quality of the Services provided by GZA is directly related to the accuracy and completeness of the information and data that you furnish to GZA.
 - b) If you use the services of a contractor or construction manager at the Site, you agree to use best and reasonable efforts to include in your agreement(s) with the contractor or construction manager provisions obligating the latter:
 - i) to defend, indemnify and hold harmless, to the fullest extent permitted by law, GZA, its affiliates and subsidiaries, and each of their officers, directors, members, partners, agents, insurers, employees, and subconsultants (the "GZA Indemnitees") and you, for or on account of any claims, liabilities, costs and expenses, including attorneys' fees, arising out of or relating to the design or implementation of construction means, methods, procedures, techniques, and sequences of construction, including safety precautions or programs, of the contractor, the construction manager, or any of their subcontractors or any engineer engaged by them;
 - ii) to name you and GZA as additional insureds under general liability and builder's risk insurance coverages maintained by the contractor or construction manager, or any of their subcontractors, and to ensure that such policies are primary and noncontributory with regard to the above indemnity obligations; and
 - iii) to require that all of their subcontractors agree and be bound to the obligations set forth in (i) and (ii) above.
 - c) In the event that you are unable to secure such provisions in the agreement(s) with the contractor or construction manager, you shall promptly (but in any event prior to the commencement of the Services) notify GZA and GZA shall have the opportunity to negotiate with you reasonable substitute risk allocation and insurance indemnities and protections. Failure to provide such notice will be a material breach of this Agreement.
 - d) To the extent you are entitled to indemnification (either contractual or at common law) or are otherwise indemnified by the contractor or construction manager and/or their subcontractors, you agree to waive any claim (including without limitation indemnification or insurance claims) against GZA.
- 6) **Right of Entry; Site Restoration.** You grant GZA and its subcontractor(s) permission to enter the Site to perform the Services. If you do not own the Site, you represent and warrant that the owner has granted permission for GZA to enter the Site and perform the Services; you will provide reasonable verification on request; and you will indemnify the GZA Indemnitees for any claims by the Site owner related to alleged trespass by GZA or its subcontractors. Although GZA will exercise reasonable care to limit damage to landscaping, paving, systems and structures at the Site, you acknowledge that some damage may occur even with the exercise of due care and you agree to compensate GZA for any restoration it is asked to perform, unless otherwise indicated in the Proposal.



- 7) **Underground Facilities.** GZA's only responsibility under this Agreement will be to provide proper notification to the applicable state utility "Call-Before-You-Dig" program. You further agree to assume responsibility for and to defend, indemnify and hold harmless GZA with respect to personal injury and property damages due to GZA's interference with subterranean structures including but not limited to utilities, conduits, pipes, and tanks:
 - a) that are not correctly shown on any plans and information you or governmental authorities provide to GZA; or
 - b) that are not correctly marked by the appropriate utility.
- 8) **Reliance.** The services, information, and other data furnished by you shall be at your expense, and GZA may rely upon all information and data that you furnish, including the accuracy and completeness thereof. You acknowledge that the quality of the Services provided by GZA is directly related to the accuracy and completeness of the information and data that you furnish to GZA. **GZA's REPORTS ARE PREPARED FOR AND MADE AVAILABLE FOR YOUR SOLE USE. YOU ACKNOWLEDGE AND AGREE THAT USE OF OR RELIANCE UPON THE REPORT OR THE FINDINGS IN THE REPORT BY ANY OTHER PARTY, OR FOR ANY OTHER PROJECT OR PURPOSE, SHALL BE AT YOUR OR SUCH OTHER PARTY'S SOLE RISK AND WITHOUT ANY LIABILITY TO GZA. YOU SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE GZA INDEMNITEES FROM ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING ATTORNEYS' FEES, ARISING OUT OF OR RESULTING FROM ANY USE, REUSE, OR MODIFICATION OF THE DOCUMENTS WITHOUT WRITTEN VERIFICATION, COMPLETION, OR ADAPTATION BY GZA AND SUCH LIMITED LICENSE TO YOU SHALL NOT CREATE ANY RIGHTS IN THIRD PARTIES.** However, in GZA's sole discretion, which may be withheld for any reason whatsoever, if you request that GZA extend reliance to a third party, then such reliance will be conditioned upon the third party's acceptance of such reliance on GZA's standard reliance terms and you will be obligated to pay GZA a reliance fee calculated as 10% of GZA's original fee for the report upon which reliance is being extended.
- 9) **Lab Tests and Samples.** GZA is entitled to rely on the results of laboratory tests using generally accepted methodologies. GZA may dispose of samples in accordance with applicable laws 30 days after submitting test results to you unless you request in writing for them to be returned to you or to be held longer, in which case you will compensate GZA for storage and/or shipping beyond 30 days.
- 10) **GZA Professionals.** GZA employees or consultants may act as licensed, certified or registered professionals (including but not limited to Professional Engineers, Licensed Site or Environmental Professionals, Certified Hazardous Materials Managers, or Certified Industrial Hygienists, collectively referred to in this section as "GZA Professionals"), whose duties may include the rendering of independent professional opinions. You acknowledge that a federal, state or local agency or other third party may audit the Services of GZA or other contractor/consultant(s), which audit may require additional Services, even though GZA and such GZA Professionals have each performed such Services in accordance with the standard of care set forth herein. You agree to compensate GZA for all Services performed in response to such an audit, or to meet additional requirements resulting from such an audit, at the rates set forth in the applicable Proposal, amendment or change order.
- 11) **Hazardous Materials; GZA "Not a Generator".** Before any hazardous or contaminated materials, including, if applicable, ACMs (the "Wastes") are removed from the Site, you will sign manifests naming you as the generator of the Wastes (or, if you are not the generator, you will arrange for the generator to sign). You will select the treatment or disposal facility to which any Wastes are taken. GZA will not be the generator or owner of, nor will it possess, take title to, or assume legal liability for any Wastes at or removed from the Site. GZA will not have responsibility for or control of the Site or of operations or activities at the Site other than its own. GZA will not undertake, arrange for or control the handling, treatment, storage, removal, shipment, transportation or disposal of any Wastes at or removed from the Site, other than any laboratory samples it collects or tests. You agree to defend, indemnify and hold the GZA Indemnitees harmless for any costs or liability incurred by GZA in defense of or in payment for any legal actions in which it is alleged that GZA is the owner, generator, treator, storer or disposer of any Wastes.
- 12) **Limits on GZA's Responsibility.** GZA will not be responsible for the acts or omissions of contractors or others at the Site, except for its own subcontractors and employees. GZA will not supervise, direct or assume control over or the authority to stop any contractor's work, nor shall GZA's professional activities nor the presence of GZA or its employees and subcontractors be construed to imply that GZA has authority over or responsibility for the means, methods, techniques, sequences or procedures of construction, for work site health or safety precautions or programs, or for any failure of contractors to comply with contracts, plans, specifications or laws. Any opinions by GZA of probable costs of labor, materials, equipment or services to be furnished by others are strictly estimates and are not a guarantee that actual costs will be consistent with the estimates.
- 13) **Changed Conditions.**
 - a) You recognize the uncertainties related to the Services (including, without limitation, environmental and geotechnical Services), which often require a phased or exploratory approach, with the need for additional Services becoming apparent during the Services. You also recognize that actual conditions encountered may vary significantly from those anticipated, that laws and regulations are subject to change, and that the requirements of regulatory authorities are often unpredictable.
 - b) If changed or unanticipated conditions or delays make additional Services necessary or result in additional costs or time for performance, GZA will notify you and the parties will negotiate appropriate changes to the scope of Services, compensation and schedule.
 - c) If no agreement can be reached, GZA will be entitled to terminate the Services and to be equitably compensated for the Services already performed. GZA will not be responsible for delays or failures to perform due to weather, labor disputes, intervention by or inability to get approvals from public authorities, acts or omissions on your part, or any other causes beyond GZA's reasonable control, and you will compensate GZA for any resulting increase in its costs.
- 14) **Documents and Information.** All documents, data, calculations and work papers prepared or furnished by GZA are instruments of service and will remain GZA's property. Designs, reports, data and other work product delivered to you are for your use only, for the limited purposes disclosed to GZA. Any delayed use, use at another site, use on another project, or use by a third party will be at the user's sole risk, and without any liability to GZA. Any technology, methodology or technical information learned or developed by GZA will remain its property. Provided GZA is not in default under this Agreement, GZA's designs will not be used to complete this project by others, except by written agreement relating to use, liability and compensation.
- 15) **Electronic Media.** In accepting and utilizing any drawings, reports and data on any form of electronic media generated by GZA, you covenant and agree that all such electronic files are instruments of service of GZA, who shall be deemed the author and shall retain all common law, statutory law and other rights, including copyrights. In the event of a conflict between the signed documents prepared by GZA and electronic files, the signed documents shall govern. You agree not to reuse these electronic files, in whole or in part, for any purpose or project other than the project that is the subject of this Agreement. Any transfer of these electronic files to others or reuse or modifications to such files by you without the prior written consent of GZA will be at the user's sole risk and without any liability to GZA.
- 16) **Confidentiality; Subpoenas.** Information about this Agreement and GZA's Services and information you provide to GZA regarding your business and the Site, other than information available to the public and information acquired from third parties, will be maintained in confidence and will not be disclosed to others without your consent, except as GZA reasonably believes is necessary: (a) to perform the Services; (b) to comply with professional standards to protect public health, safety and the environment; and (c) to comply with laws, regulations, court orders and professional obligations. GZA will make reasonable efforts to give



you prior notice of any disclosure under (b) or (c) above. Information available to the public and information acquired from third parties will not be considered confidential. You will reimburse GZA for responding to any subpoena or governmental inquiry or audit related to the Services, at the rates set forth in the applicable Proposal, amendment or change order (including, without limitation, for outside counsel expenses incurred by GZA and/or time expended by in-house counsel, which will be charged to you at the prevailing market rate for attorneys of similar experience practicing in the jurisdiction). Notwithstanding the foregoing, GZA shall be entitled to use your name and a general description of the Services in promotional materials.

- 17) **Insurance.** During performance of the Services, GZA will maintain workers' compensation, commercial general liability, automobile liability, and professional liability/contractor's pollution liability insurance. GZA will furnish you certificates of such insurance on request.
- 18) **Indemnification.** You agree to hold harmless, indemnify, and defend the GZA Indemnitees against all claims, suits, fines and penalties, including mandated cleanup costs and attorneys' fees and other costs of settlement and defense, which claims, suits, fines, penalties or costs arise out of or are related to this Agreement or the Services, except to the extent they are caused by GZA's negligence or willful misconduct. The duty to defend will be triggered upon a claim, suit, fine and/or penalty being alleged or threatened, and will only terminate when and to the extent GZA's proportion of negligence is finally adjudicated by a court of competent jurisdiction. If the foregoing indemnification is determined to be void or unenforceable as a matter of law, then it shall be automatically reformed to apply the original intent of the clause to the maximum extent permissible by law.
- 19) **Limitation of Remedies.**
- a) To the fullest extent permitted by law and notwithstanding anything else in this Agreement to the contrary, the aggregate liability of GZA and its affiliates, parents and subsidiaries and subcontractors and each of their employees, insurers, principals, officers, directors, partners and agents (collectively referred to in this paragraph as "GZA") for all claims (arising in tort, by contract or otherwise, and specifically including any indemnification or contribution obligation owed by GZA, arising under contract or at common law, if any) arising out of this Agreement or in any way related to GZA's Services is limited to \$50,000 or, if greater, 10% of the compensation received by GZA under this Agreement.
 - b) You may elect to increase the limit of liability by paying an additional fee, such fee to be negotiated prior to the execution of this Agreement.
 - c) Any claim (as described in 19(a)) against GZA related in any way to the Services provided pursuant to this Proposal, or the terms herein, is waived unless suit is commenced in a proper jurisdiction within one year of substantial completion of GZA's Services. This waiver may not be construed to extend any applicable statute of limitations.
 - d) GZA will not be liable for lost profits, loss of use of property, delays, contractual penalties or other special, indirect, incidental, consequential, punitive, exemplary, liquidated, or multiple damages. This includes but is not limited to fines and/or penalties and/or sanctions imposed by any local, state, or federal government, agency, or regulatory body.
 - e) GZA will not be liable to you or the Site owner for injuries or deaths suffered by GZA's or its subcontractors' employees.
 - f) You will look solely to GZA for your remedy for any claim arising out of or relating to this Agreement, including any claim arising out of or relating to alleged negligence or errors or omissions of any GZA principal, officer, employee or agent. To the extent damages are covered by property insurance or any other insurance, both you and GZA waive all rights against each other and against the contractors, consultants, agents, and employees of the other, for damages, except such rights as they may have to the proceeds of such insurance as set forth in this Agreement. You or GZA, as appropriate, shall require of the contractors, consultants, agents, and employees of any of them, similar waivers in favor of the other parties enumerated herein.
- 20) **Disputes.**
- a) Subject to the provisions of 20(d) below, all disputes between you and GZA shall be subject to non-binding mediation.
 - b) Either party may demand mediation by serving a written notice stating the essential nature of the dispute, the amount of time or money claimed, and requiring that the matter be mediated within forty-five (45) days of service of notice.
 - c) The mediation shall be administered by the American Arbitration Association in accordance with its most recent Construction Mediation Rules, or by such other person or organization as the parties may agree upon.
 - d) No action or suit may be commenced unless mediation has occurred but did not resolve the dispute, or unless a statute of limitations period or the one-year waiver period described in 19(c) above would expire if suit were not filed prior to such forty-five (45) days after service of notice. However, where non-payment of an invoice has occurred and GZA sends you a final demand letter for payment, your failure to remit payment in full (including interest, costs, attorneys fees and all other charges permitted by Section 4(c)) within ten (10) days of receipt (or, for certified mail, the date of the first attempt to deliver the letter to your address of record if you ultimately do not accept receipt of the letter or the letter is otherwise undeliverable to your address of record with GZA or with the Secretary of State in the jurisdiction where you are organized) of such letter will be deemed to be a waiver of your right to enforce this mediation clause and GZA may immediately file suit to enforce the terms of this Agreement.
 - e) In the event GZA commences litigation to recover payment of an unpaid invoice, you shall not be permitted to interpose any counterclaim. Any claim against GZA which remains viable under the terms of this Agreement must instead be brought in a separate action against GZA, subject to the terms of this Agreement, including, without limitation, the pre-suit certification requirement contained in Section 20(g).
 - f) You agree to pay reasonable attorneys' fees and all other costs and expenses (including, but not limited to reasonable investigative expenses and expert and consultant expenses) which may be incurred by GZA in the enforcement of this Agreement in the event that (a) it is finally adjudicated by a court of competent jurisdiction that you have breached this Agreement; or (b) where you allege that GZA has breached this Agreement or otherwise acted negligently and it is finally adjudicated by a court of competent jurisdiction that GZA did not in fact breach this Agreement or act negligently. If for any reason it is adjudicated that the foregoing provision is in violation of applicable law, is subject to a state statute automatically converting this clause to be reciprocal between the parties, is contrary to public policy or is unconscionable or a contract of adhesion, then the foregoing clause will be null and void and of no effect. Under no circumstances shall the foregoing clause be replaced with a reciprocal clause.
 - g) You shall make no claim against GZA for professional negligent acts, errors, omissions and/or alleged breach of contract either directly, indirectly, as a counterclaim or crossclaim, or in a third party claim, unless you have first provided GZA with a written certification executed by an independent professional practicing in the same discipline as GZA and licensed in the jurisdiction in which GZA provided you its Services. This certification must (i) identify the name and license of the certifier, (ii) specify each and every act or omission that the certifier contends is a violation of the standard of care expected of professional performing professional services under similar circumstances; and (iii) state in complete detail the basis for certifier's opinion that each such act or omission constitutes a violation of the standard of care. This certificate must be provided to GZA no less than thirty (30) days prior to the submission of a formal claim.



- h) With regard to Sections 5, 6, 8, 19 and 20 of this Agreement, the terms “claim”, “any claim” and “all claims” shall be defined as broadly as legally possible, including without limitation any and all claims arising in contract (including indemnification obligations owed by GZA, if any), tort or by any other legal theory or argument.

21) Miscellaneous.

- a) This Agreement and all claims relating thereto shall be governed by the substantive and procedural laws of the Commonwealth of Massachusetts, as they presently exist or may hereafter be amended, without regard to principles of conflict of laws.
- b) The above terms and conditions regarding Limitation of Remedies and Indemnification shall survive the completion of the Services under this Agreement and the termination of the contract for any reason.
- c) Any amendment to these Terms and Conditions must be in writing and signed by both parties. No modification of these Terms and Conditions will be binding against GZA unless specifically approved in writing by a principal of GZA.
- d) Having received these Terms and Conditions, your oral authorization to commence Services, your acceptance of performance of the Services, your actions, or your use of the Report or Work Product constitutes your acceptance of them.
- e) This Agreement supersedes any contract terms, purchase orders or other documents issued by you, even if signed by an authorized representative of GZA.
- f) Neither party may assign or transfer this Agreement or any rights or duties hereunder without the written consent of the other party.
- g) Your failure or the failure of your successors or assigns to receive payment, reimbursement, insurance proceeds or grant funds from any other party for any reason whatsoever shall not absolve you, your successors or assigns of any obligation to pay any sum to GZA under this agreement.
- h) These Terms and Conditions shall govern over any inconsistent terms in GZA's Proposal.
- i) Any provision of this Agreement later held to be unenforceable for any reason shall be deemed void, and all remaining provisions shall continue in full force and effect on the parties, who agree that the Agreement shall be reformed to replace such voided provision with a valid and enforceable provision that comes as close as possible to expressing the intention of the voided provision.
- j) The covenants and agreements contained in this Agreement shall apply to, inure to the benefit of and be binding upon the parties hereto and upon their respective successors and assigns.
- k) Any reports generated by GZA will be subject to GZA's standard report limitations for that particular type of report.
- l) To the extent applicable to GZA's Services, you acknowledge and agree that GZA cannot anticipate the effects of climate change/extreme weather on any report, design or other document produced by GZA, unless such analysis is specifically within the scope of GZA's Services.
- m) You agree that during the performance of GZA's Services and for a period of twelve (12) months completion of those Services, you will not encourage, induce, or otherwise solicit, or actively assist any other person or organization to encourage, induce or otherwise solicit, directly or indirectly, any employee of the GZA or any of its affiliates to terminate their employment with GZA or any of its affiliates, or otherwise interfere with the advantageous business relationship of GZA or any of its affiliates with their employees. You agree that if you violate this non-solicitation provision, you will pay GZA liquidated damages in an amount equal to the total earnings of the solicited employee during the last twelve (12) months of their employment with GZA.
- n) This Agreement does not create any third-party beneficiaries and is intended for the benefit of the parties hereto and their respective successors and permitted assigns, and is not for the benefit of, nor may any provision hereof be enforced by, anyone else.

22) Asbestos Abatement Services (If Applicable). If the Services include asbestos abatement services, then the following terms and conditions will apply and will supersede any conflicting terms contained elsewhere in this Agreement.

- a) You acknowledge that conditions can vary from those encountered at the times and locations of explorations and data collection, and that the limitation on available data may result in some level of uncertainty with respect to the interpretation of those conditions, despite due professional care. GZA therefore cannot guarantee specific results such as the identification or removal of all asbestos or other contamination.

23) Microbial Services (If Applicable). If the Services include Microbial services, then the following terms and conditions will apply and will supersede any conflicting terms contained elsewhere in this Agreement. For purposes of this Agreement, Microbial is defined as any and all fungal and/or bacterial growth including but not limited to mold, mildew, yeast, fungus, fungi, bacteria, spores, odors, particulates, vapors, gas, or other emissions produced by or arising out of or toxins emanating therefrom.

- a) You recognize that meeting the standard of care does not establish an assurance that corrective procedures will be permanent. Because Microbial infestations are created by near-omnipresent living microscopic spores which grow very quickly and are influenced by nanoclimatological conditions that are very difficult to detect and sources of water intrusion, elevated moisture or relative humidity over which GZA has neither control or responsibility, GZA cannot and does not claim that its Services will eliminate the risk of a Microbial infestation recurring.
- b) You acknowledge that the Services entail risk of personal injury and property damage (including cross-contamination) that cannot be avoided, even with the exercise of due care. You also acknowledge that environmental conditions can vary from those encountered at the times and locations of explorations and data collection, and that the limitation on available data may result in some level of uncertainty with respect to the interpretation of these conditions, despite due care. GZA therefore cannot guarantee specific results such as the identification of all contamination or other environmental conditions or problems nor their resolution.
- c) You acknowledge that Microbial infestations may be hidden from view and concealed in locations that are difficult to discover. Accordingly, you agree that despite GZA's efforts, some Microbial locations may remain undetected. In such situations, you agree that you will have no claim against GZA provided GZA followed the applicable standard of care and all applicable laws and regulations pertaining to the Work.
- d) You further agree that when GZA performs Services intended to minimize the risk of Microbial infestations, GZA shall not be liable for damages resulting from Microbial contamination including but not limited to fungal or bacterial infestations and water damage or dry or wet rot. You agree to waive any Microbial infestation claim(s) against GZA and you agree to indemnify, defend and hold the GZA Indemnitees harmless from any claim alleging that GZA's Services caused or aggravated a Microbial infestation or did not prevent a Microbial infestation from recurring.