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188 Valley Street
Suite 300
Providence, RI 02909
T: 401.421.4140
F: 401.751.8613
www.gza.com

June 5, 2024
File No. 03.P000104.25

David Morgan
Environmental Planner and Conservation Agent
Arlington Town Hall
730 Massachusetts Avenue
Arlington, Massachusetts 02467

Re: Proposal for Geohydrologic Services
Peer Review of Stormwater Mound Evaluation
Thorndike Place Residential Development
Arlington, Massachusetts

Dear Mr. Morgan:

In accordance with a verbal request from Susan Chapnick, GZA GeoEnvironmental, Inc. (GZA) is pleased to submit this proposal for geohydrologic services associated with the proposed residential development at Thorndike Place, in Arlington, Massachusetts (the "Site") to the Town of Arlington Conservation Commission (Client). The purpose of our services will be to perform a peer review of groundwater monitoring and stormwater mounding analysis performed by The BSC Group (for the Applicant) and separately from public comment (Scott Horsley on behalf of an abutter to the Site).

BACKGROUND

Thorndike Place (the "Project") is a proposed multifamily development in east Arlington along Route 2. The Arlington Conservation Commission is reviewing a Wetlands Notice of Intent application (NOI) for the Project and is seeking a peer review of associated materials for compliance with Massachusetts Stormwater Standards No. 2 and No. 3, specifically regarding the stormwater groundwater mound analysis.

SCOPE OF SERVICES

We propose the following scope of services:

1. Review Available Files: We will review stormwater documents, groundwater level measurements, and groundwater mound calculations submitted to the Conservation Commission in support of the NOI, or from others as part of a separate review performed by a third-party on behalf of an abutting resident of the Town that are posted on the Conservation Commission's web page specific to the Project.
2. Data Evaluation and Letter Report of Findings: GZA will evaluate the above information and provide an opinion by a Professional Engineer licensed in Massachusetts, with geohydrologic experience in groundwater mounding evaluations, as to whether the groundwater mounding analysis appears to have utilized appropriate and reasonable assumptions, and how the results of the mounding analysis may effect peak stormwater rate attenuation calculations prepared in support of the NOI. In addition, we will provide an opinion, if the design of the stormwater recharge system appears to comply with the Massachusetts Stormwater Standards No. 2 and No. 3.



3. Attend Conservation Commission public meeting: GZA will attend one Conservation Commission public hearing (held via Zoom) to answer questions regarding GZA's findings.

ANTICIPATED PROJECT SCHEDULE

We anticipate that it will take about 2 weeks to perform Tasks 1 and 2 as described above.

BASIS OF BILLING AND ESTIMATED COSTS

Billings for GZA's professional services will be based on actual accrued time in accordance with the attached Schedule of Fees. Subcontractor and direct expenses will be billed at cost plus 15 percent. The estimated cost of the scope of services described herein is \$6,000. This estimate is based on the anticipated scope of services outlined above, which represents our present judgement as to the level of effort requested. You will be notified of any conditions requiring an increase in budget estimate as soon as such become evident.

Invoices for services will be mailed to the address presented above. Should your billing address be different, please provide that information on the last page of this agreement.

CONDITIONS OF ENGAGEMENT

Conditions of engagement are described in the attached standard Terms and Conditions for Professional Services (12/23-Edition/05-9010).

ACCEPTANCE

This proposal may be accepted by signing in the appropriate spaces 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 (12/23-Edition/05-9010). This Proposal for Services and Terms and Conditions shall constitute the entire agreement between the parties. This proposal is valid for a period of 60 days from the date of issue.



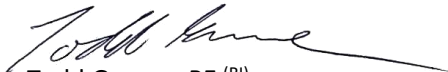
GZA appreciates the opportunity to present this proposal and looks forward to working with you on this project. If you have any questions or comments, please feel free to contact the undersigned at (401) 374-2317 or via email at anthony.urbano@gza.com.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.


Anthony B. Urbano, PE^(Ma)
Senior Project Manager


Nathaniel Russell, PE^(Ma)
Consultant/Reviewer


Todd Greene, PE^(RI)
Principal

Attachments: Schedule of Fees (CY24)
Terms and Conditions for Professional Services (2/23-Edition/05-9010)

This Proposal for Services and the attached Terms and Conditions for Professional Services (08/08-Edition/05-9010) 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 Arlington Conservation Commission

By: _____

Title: _____

Typed Name: _____

Date: _____

Billing Address (if different from above):

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Schedule of Fees – Calendar Year 2024

Page | 1 of 1

Client (“You”): Town of Arlington

Proposal No: 03.P000104.25

Date: June 5, 2024

Senior Principals	\$ 280 per hour
Principals	\$ 270 per hour
Associate Principals	\$ 250 per hour
Senior Technical Consultant	\$ 240 per hour
Senior Project Manager	\$ 220 per hour
Project Manager	\$ 195 per hour
Assistant Project Manager	\$ 170 per hour
Engineer/Geologist I	\$ 140 per hour
Engineer/Geologist II	\$ 135 per hour
Engineering Technician	\$ 100 per hour
CAD Designer Grade I	\$ 155 per hour
CAD Designer Grade II	\$ 135 per hour
CAD Designer Grade III	\$ 125 per hour
Senior Administrative Assistant	\$ 115 per hour
Administrative Assistant	\$ 100 per hour
Project Support	\$ 95 per hour
Outside Services and Out-of-Pocket Expenses	Cost Plus 15%

The above rates for Technical and Support Personnel will be charged for actual time worked on the project. In addition there will be charges for:

- ... Time required for travel from Company office to job or meeting site and return, or from/to home if mileage is less.
- ... For work requiring out-of-town overnight stay, the minimum charge for work on the project will be eight (8) hours per day.
- ... Laboratory service charges based on standard unit prices.
- ... Communication fee charged at 3.0% of labor invoiced for total cost of local, long distance, and cellular phone equipment and connectivity; electronic data communication and transmission; facsimile and document scanning; and USPS postage.
- * *A fifty percent (50%) premium will be added to the above rates for expert witness and other special services of Senior Principals, Principals, and Associate Principals.*
- * *Labor rates may be adjusted on an annual basis commensurate to salary increases.*



TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

© 2023 by GZA GeoEnvironmental, Inc.

Client ("You"):

Proposal No:

Site:

These Terms and Conditions, together with GZA's Proposal, make up the Agreement between GZA and you, Client, named above.

BEFORE SIGNING THE PROPOSAL, BE SURE YOU READ AND UNDERSTAND THE PARAGRAPHS ENTITLED "INDEMNIFICATION" AND "LIMITATION OF REMEDIES" 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.

2. 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.
- b. EXCEPT AS SET FORTH IN SUBSECTIONS 2a ABOVE, 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 ORAL OR WRITTEN REPORTS.
- 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.

3. 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. 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).

4. Your Responsibilities.

- a. Except as otherwise agreed in writing, you will secure the access agreements, approvals, permits, licenses and consents necessary for performance of the Services. 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. Unless otherwise indicated in writing, GZA will be entitled to rely on documents and information you provide.
- 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 construction contractor provisions obligating the latter:
 - (i) to defend, indemnify and hold harmless, to the fullest extent permitted by law, you and GZA and its officers, directors, members, partners, agents, employees, and subconsultants (the "GZA Indemnitees"), 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, or any of its subcontractors or any engineer engaged by it;
 - (ii) to name you and GZA as additional insureds under general liability and builder's risk insurance coverages maintained by the contractor, or any of its 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 its 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 construction contractor, 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.

5. 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.

6. 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:

- (i) that are not correctly shown on any plans and information you or governmental authorities provide to GZA; or
- (ii) that are not correctly marked by the appropriate utility.

- 7. 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 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.**
- 8. 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.
- 9. 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.
- 10. 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, treater, storer or disposer of any Wastes.
- 11. 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.
- 12. Changed Conditions.**
- 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 initial 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.
 - 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.
 - 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.
- 13. 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.
- 14. 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.
- 15. 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.

16. 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.

17. 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.

18. 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 and subcontractors and their employees, officers, directors and agents (collectively referred to in this paragraph as "GZA") for all claims arising out of this Agreement or the 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 will be deemed waived unless written notice of such claim is received by GZA within one year of substantial completion of the Services.
- d. GZA will not be liable for lost profits, loss of use of property, delays, or other special, indirect, incidental, consequential, punitive, exemplary, or multiple damages.
- 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. The 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.

19. Disputes.

- a. 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 limitation period 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 respond 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) 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.

20. 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 cause.
- 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. The provisions of this Agreement are severable; if any provision is unenforceable it shall be appropriately limited and given effect to the extent it is enforceable.
- 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.

21. 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 guaranty specific results such as the identification or removal of all asbestos or other contamination.



- 22. 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.
- 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, grows 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 guaranty 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 all applicable laws and regulations pertaining to the Work.
 - d. 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.
 - e. You further agree that where GZA shall 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 and 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 re-occurring.



Anthony B. Urbano, P.E.

Senior Project Manager

Summary of Experience

Mr. Urbano serves as a project manager and senior technical specialist on a wide variety of geohydrological engineering projects. His experience includes work on geohydrologic investigations, groundwater modeling projects, soil and groundwater contamination investigations, remedial design projects, groundwater supply investigations, storm water infiltration evaluations, and wastewater disposal evaluations. He has also been responsible for the design, implementation and analysis of dozens of aquifer pump tests and groundwater mounding analysis evaluations.

Relevant geohydrologic project experience includes:

Relevant Project Experience

Geohydrologic Engineer, Proposed Richmond Commons, Richmond, Rhode Island.

Performed geohydrologic investigations to identify an area capable of supporting a drinking water supply well with a yield of 245 gallons per minute. Groundwater modeling studies were performed to evaluate the groundwater withdrawal impacts on nearby streams and wetlands. Obtained regulatory approval for groundwater withdrawal permit. Performed geohydrologic investigations to identify areas of the site capable of accepting sanitary wastewater design flow rates of 136,000 gallon per day via subsurface infiltration fields. GZA's groundwater mounding evaluation was approved by the Rhode Island Department of Environmental Management. In addition, performed geohydrologic study to evaluate impacts of the proposed development on the water resources of the Town of Richmond.

Geohydrologic Engineer, Wrentham Village Premium Outlets, Wrentham, Massachusetts.

Utilized a finite difference groundwater flow model (MODFLOW) to evaluate the amount of groundwater mound beneath a wastewater infiltration system with a design flow of 70,000 gallons per day. Prepared a geohydrologic investigation to be included with the groundwater discharge permit.

Geohydrologic Engineer, Hunter's Hill Residential Development, Dighton, Massachusetts.

Perform a hydraulic load test to evaluate the groundwater mound beneath a proposed wastewater infiltration system with a design flow rate of 30,000 gallons per day. Prepared a geohydrologic investigation to be included with the groundwater discharge permit.

Geohydrologic Engineer, Proposed Retail Development, Swansea, Massachusetts.

Perform a hydraulic load test to evaluate the groundwater mound beneath a proposed wastewater infiltration system with a design flow rate of 15,000 gallons per day. Prepared a geohydrologic investigation to be included with the groundwater discharge permit.

Geohydrologic Engineer, Proposed Riverside Development, Lakeville, Massachusetts.

Performed and evaluated a groundwater recharge test for wastewater flows of 40,000 gallons per day and evaluated impact of this discharge on sensitive nearby receptors. Also reviewed available geohydrologic maps to identify areas possibly suitable for the installation of a water supply well.

Education

B.S., 1984, Civil Engineering,
University of Vermont

M.S., 1991, Geotechnical Engineering,
Northeastern University

Professional Activities

Registered Professional Engineer in Rhode
Island and Massachusetts

Member, Association of Groundwater
Scientists and Engineers

Areas of Specialization

- Geohydrology
- Remedial Investigation and Design
- Contamination Investigation
- Groundwater Modeling
- Wastewater Disposal



Anthony B. Urbano, P.E.

Senior Project Manager

Geohydrologic Engineer, Proposed Plymouth Village Development, Plymouth, Massachusetts. Performed a geohydrologic study to evaluate the effects of storm water and wastewater flows from a proposed commercial development on nearby sensitive receptors. The study included the delineation of the capture zone of a nearby municipal well field.

Geohydrologic Engineer, Industrial Facility, Stowe, Massachusetts. Utilized a three-dimensional finite difference groundwater flow model (MODFLOW) to evaluate the hydraulic connection between the on-site drinking water supply well and the on-site wastewater disposal fields. The water supply well was located within a leaky confined aquifer. The model was also used to evaluate the proposed expansion of the facility with a significant increase in impervious paved areas and the expansion of storm water infiltration galleries.

Geohydrologic Engineer, The MacDuffie School, Granby, Massachusetts. Performed subsurface (overburden) investigations to identify areas of the site suitable to support a new potable water supply well. Designed new water supply wells and oversaw installation and well development. Performed pump test and prepared Source Final Report for permitting of new water supply well system with design flow of 28,000 gallons per day.

Geohydrologic Engineer, Hopkinton Golf Park, Hopkinton, Rhode Island. Reviewed available geohydrologic data from the USGS to identify areas of the site which may be suitable for the installation of a water supply/irrigation well. The data revealed that the bedrock would yield higher quantities of groundwater than the overburden. A fracture trace lineament study was performed in order to identify specific locations that were more likely to yield large volumes of groundwater from the bedrock. Prepared technical specifications for the installation of the bedrock well and evaluated safe yield of well from pump test data. The well yield was 200 gallons per minute. Obtained authorization from the Rhode Island Health Department to utilize the well as a public water supply.

Geohydrologic Engineer, Proposed Power Plant, Barre, Massachusetts. Performed subsurface (overburden) investigation to identify areas of the site suitable to support the installation of a 550 gpm water supply well. Installed sixteen small diameter test holes and one 12-inch diameter gravel packed water supply well. The well yielded over 600 gpm. Performed 5-day duration aquifer pump test, then used

groundwater flow model (MODFLOW) to evaluate impact on nearby wetlands and streams.

Geohydrologic Engineer, Eastman Gelatine Corporation, Peabody, Massachusetts. Evaluated conversion of existing process water supply wells into a municipal public water supply system. Performed a 1,000 gpm pump test to evaluate the well's safe yield and groundwater capture zone. The well's capture zone was evaluated using the MODFLOW groundwater flow model.

Geohydrologic Engineer, Proposed Indeck Power Plant, North Smithfield, Rhode Island. Reviewed available geohydrologic data from the USGS to identify areas of the site which may be suitable for the installation of a water supply well. Developed and implemented test boring program to evaluate safe yield of a well installed in the overburden aquifer. Testing revealed an overburden well could yield 900 gallons per minute. Utilized a finite difference groundwater model (MODFLOW) to evaluate the impact of the proposed water supply well on: two nearby superfund sites, a nearby river, and a nearby future municipal water supply well location. The groundwater model was calibrated with available geohydrologic data.

Geohydrologic Engineer, Hunt River Aquifer, North Kingstown, East Greenwich, and Warwick, Rhode Island. Utilized a finite different groundwater flow model (MODFLOW) to determine wellhead protection areas for eight existing and one proposed municipal water supply wells located in the Hunt River Aquifer. The modeled area was 23-square mile drainage basin that had numerous tributary streams and highly variable subsurface conditions. The modeling effort included gathering available geohydrologic data, installing shallow well points, calibrating the model to the data, and performing computer simulations to evaluate the groundwater capture zones and travel times for the well under various pumping scenarios. The modeling effort also included an evaluation of the quantity of water that discharged from nearby streams to the wells and an evaluation of the safe yield of the aquifer.

Geohydrologic Engineer, Confidential Client, West Greenwich, Rhode Island. Designed and performed an aquifer pump test to evaluate the impact of withdrawing 72,000 gallons per day of groundwater from a bedrock water supply well on nearby streams, wetlands and private wells.



Anthony B. Urbano, P.E.

Senior Project Manager

Obtained regulatory approval for the groundwater withdrawal permit.

Geohydrologic Engineer, Grower Direct Farms, Somers, Connecticut. Designed and performed an aquifer pump test to evaluate the impact of withdrawing 290,000 gallons per day of groundwater from the bedrock water supply well on nearby streams, wetlands and private wells. The pump test was performed for a duration of 18 days. The results of the study demonstrated that the withdrawal of groundwater would have no adverse effects on surroundings receptors.

Geohydrologic Engineer, Olneyville Water Supply Well Project, Providence, Rhode Island. Coordinated a groundwater monitoring program to evaluate the safe yield of Narragansett Electric’s water supply well located in the city of Providence. Approximately one million gallons of process water was used from this well at their Manchester Street Power Station. Also utilized a finite difference groundwater flow model (MODFLOW) to quantify the volume of water that discharged from the nearby Woonasquatucket River due to the operation of the water supply well.

Geohydrologic Engineer, Central Artery Section CI 1A1, Boston, Massachusetts. Utilized a three-dimensional finite difference groundwater flow model (MODFLOW) to design a construction dewatering scheme to control groundwater in a 100-foot-deep and 1800-foot-long excavation in downtown Boston. The modeled area included the entire downtown Boston peninsula and surrounding Boston Harbor. The model evaluated the horizontal and vertical variability of the fill, clay, glacial till and bedrock strata and was used to evaluate the groundwater pumping rates, well spacing, and drawdown effects of the dewatering system.



Years of Experience: 30
Years with GZA: 27

Education

B.S., Civil Engineering, Norwich University

Licenses & Registrations

Professional Engineer: Rhode Island, #8567
WEDG Associate

Areas of Specialization

- Civil Site Engineering
- Landfill Engineering
- Environmental Engineering/Permitting
- Capital Improvement Planning
- Site Redevelopment
- Utility Conditions Survey
- Construction Management
- Construction-Related Services

Todd R. Greene, P.E.

Principal

Summary of Experience

Mr. Greene's experience primarily is in the disciplines of civil, geotechnical and environmental engineering. He leads projects involving watershed evaluations, stormwater management and treatment, utility survey, stormwater IDDE investigations, site grading and cut/fill analysis, hydrologic and hydraulic analysis, geosynthetic and geomembrane systems, remediation and capping, slope stabilization design, industrial wastewater pretreatment, septic systems, drainage and sewer conveyance rehabilitation, culvert crossings, preparation of construction specifications and drawings, construction layout, construction estimates and construction management services.

Relevant Project Experience

STORMWATER / DRAINAGE

RI Department of Transportation, Stormwater On-Call Term Contract - Statewide, Rhode Island. Mr. Greene serves as Principal-in-Charge under an on-call contract, providing stormwater-related services at various locations throughout the State. Projects have included illicit discharge detection for over 75 stormwater outfalls, GIS database updates, drainage system delineation, field sampling, CCTV inspection and project reporting to RIDOT and EPA.

RI Department of Transportation, Sediment Management Plan – Providence, Rhode Island. On behalf of the RIDOT, Mr. Greene developed a statewide plan for the management of catch basin cleanings, street sweepings, and stormwater BMP dredge materials. The Plan included design of a central management facility, engineering specifications, and standard operating procedures for temporary management areas.

Shoreline Adaptation Inventory and Design, Rhode Island. Mr. Greene is the engineer of record and principal-in-charge of the planning, design and development of Coastal permit application packages for nine municipalities as part of the Shoreline Adaptation Inventory and Design (SAID) program which creates an inventory of completed and potential shoreline adaptation projects. These projects addressed the impacts of coastal storms, sea level rise, and stormwater such as erosion, flooding, and loss of habitats and shoreline public access. They helped to improve the resilience and safety of the shoreline while increasing the benefits of natural systems such as water quality improvement and enhancement of habitat for fish and wildlife.

Salter's Grove Causeway Repairs, Warwick, Rhode Island. Mr. Greene was the engineer of record and principal-in-charge of the design and permitting of repairs and upgrades to an existing breakwater located at the mouth of the Pawtuxet River. The upgrades and repairs included the design of two culvert crossings and a public access gravel walking path supports by a rip-rap revetment. A category A assent was prepared and obtained from the Rhode Island Coastal Resources Management Council as part of the project. The project was also coordinated with City of Warwick and the RIDEM. Responsibilities included culvert hydraulic design, walkway design, development of a Sediment and Soil Erosion Control Plan, and permit application preparation and submittal.



Todd R. Greene, P.E.

Principal

Whipple Cullen Development Review, Lincoln, Rhode Island. Mr. Greene is the Principal-In-Charge for expert services to review hydrologic and hydraulic modeling using HydroCAD of the pre-development, during construction, and post-development conditions of a 150-unit residential project site. The analysis was to determine compliance with Rhode Island Department of Environmental Management (RIDEM) Stormwater Regulations, and the effects of unstabilized site areas during construction may have contributed to flooding on abutting properties.

HiLo Landfill Closure, Johnston, Rhode Island. Mr. Greene is the engineer of record for civil, environmental, geotechnical engineering services and the principal-in-charge for the closure and development of the HILO landfill. In addition, Mr. Greene is in charge of field quality assurance and quality control during construction for construction certification of the landfill closure, flood plain mitigation for the Pocasset River and wetland restoration and geotechnical special inspections. In addition, Mr. Greene also reviewed the Pocasset River flood plain maps and information, as delineated by FEMA, and identified potential redevelopment issues for the property. He consulted with the Town of Johnston, USGS and NCRS for flood plain map revisions resulting from the "2010 Great Flood".

Pocasset River Flood Mitigation Review, Johnston and Cranston, Rhode Island. Mr. Greene, serving as Project Consultant Reviewer, reviewed evaluations and design of flood mitigation measures along the Pocasset River. He provided technical assistance with performing and evaluating results of hydrologic and hydraulic model runs.

Confidential Industrial Site, Slope Repair and Stabilization - Portsmouth, Rhode Island. Serving as Project Manager, Mr. Greene performed a topographic survey of the existing slope to develop an as-built topography plan of the slope. The topography was utilized to develop a slope stabilization design and proposed grading plan to stabilize the existing slope area. The proposed grading plan included a cut-and-fill plan and associated material volumes and corresponding slope sections. A permanent erosion control system for the proposed slope configuration was designed based on stormwater runoff patterns across the area. Construction plans, details and specifications were developed to implement the proposed grading, stormwater conveyance systems and permanent erosion controls associated with the slope remediation.

Vulcan-Dreyfus Quarry, Columbia, South Carolina. Mr. Greene consultant reviewer for HEC-RAS hydrologic and hydraulic modeling analysis, calibrate the model to replicate observed damage due to a flood event in a riverine system. Model calibration was needed to evaluate the chain of flood events leading to the eventual failure of a mine wall and a nearby railroad bridge.

Confidential Industrial Site, Hydrologic & Hydraulic Study - North Kingstown, Rhode Island. Mr. Greene served as Project Engineer where he performed a hydraulic study utilizing TR-55 methods to determine the increase of stormwater runoff caused by the development of several site improvements. Discharge structures were also designed to mitigate the additional runoff.

Pick-n-Pull Automotive Recycling Facility Site Services, Stormwater Management & Treatment Design - Johnston, Rhode Island. Mr. Greene was the Certifying Engineer/Technical Specialist responsible for providing civil engineering services related to the permitting, design and construction of a new salvaged auto parts retail facility and automobile recycling facility. Services included civil-site engineering services to develop facility layout, site grading, stormwater management and treatment design, design of temporary and permanent sediment and erosion controls, as well as design of retaining wall structures and sewer design. *Russell Parkman served as the certifying and lead engineer, and performed the site, wetland and stormwater permitting and designed the facility's stormwater management and treatment system.*

Metals Recycling, Stormwater Management System Design - Johnston, Rhode Island. Mr. Greene served as both Project Reviewer and Technical Specialist for the design and construction oversight services of a water quality stormwater treatment system consisting of a 6,000-GPM stormwater pump station, 18-inch-diameter HDPE stormwater conveyance force main, a 350,000 aboveground storage tank with aeration and a lined bioretention swale system. He also prepared a Stormwater Pollution Prevention Plan (SWPPP) updated, assisted with State and municipal permitting documents, and prepared construction documents.

Extra Space Mini Storage Stormwater Improvements - Johnston, Rhode Island. Mr. Greene, serving as Project Manager and Project Engineer, provided engineering and regulatory permitting services for the redesign a failed stormwater collection and management system. The project involved hydrologic and hydraulic analyses. A detention system was designed to collect and discharge stormwater



Todd R. Greene, P.E.

Principal

at a specified rate needed maintain the sites stormwater runoff rates at post development levels as well as permitting through the RIDEM's Underground Injection Control Program and the RIDOT's Physical Alteration Permit Application program.

Westerly Public Library, Story Garden Stormwater Management - Westerly, Rhode Island. Mr. Greene, in his role as Project Manager, completed the design and permitting necessary for construction of a stormwater collection and conveyance system to mitigate runoff associated with a proposed addition to the Westerly Public Library. His responsibilities consisted of completion of an Underground Injection Control (UIC) Program Application, stormwater modeling, and design of system components including a drywell, manhole, holding tank, conveyance pipes, and pumps.

RI Resource Recovery Corp. (RIRRC), Central Landfill On-Call Services - Johnston, Rhode Island. Mr. Greene served as the RIRRC's On-Call Engineer, providing a variety of landfill-related engineering, environmental, site/civil, geotechnical and solid waste-related services at the Central Landfill on behalf of the RIRRC. Provided below is a partial listing of non-project specific services provided over the years.

- Review and oversight of the implementation of the erosion control monitoring
- Hydrologic and hydraulic analysis – Stream routing & stormwater management
- Trash and construction material volume estimates
- Develop grading plans
- Property acquisition evaluations
- Landfill planning
- Landfill settlement and filling monitoring
- Review, evaluate and prepare RFP / RFQ packages
- Waste Compaction evaluation
- Construction layout

- Construction oversight of horizontal methane extraction lines
- Construction as-built surveys
- Utility installation construction oversight
- Haul road design and layout
- Perform Topographic surveys
- Drafting / design utilizing Autodesk Civil design series
- GPS trouble shooting
- Facility design modifications and trouble shooting