



TOWN COUNCIL – AGENDA REQUEST FORM

THIS FORM WILL BECOME PART OF THE BACKGROUND INFORMATION USED BY THE COUNCIL AND PUBLIC

Please submit Agenda Request Form, including back up information, 8 days prior to the requested meeting date. **Public Hearing requests must be submitted 20 days prior to the requested meeting date to meet publication deadlines** (exceptions may be authorized by the Town Manager, Chairman/Vice Chair).

MEETING INFORMATION

Date Submitted: October 24, 2022 Date of Meeting: November 17, 2022
 Submitted by: Kyle Fox Time Required: 30-45 minutes
 Department: Public Works Background Info. Supplied: Yes No
 Speakers: Kyle Fox, NHDES, AECOM

CATEGORY OF BUSINESS (PLEASE PLACE AN "X" IN THE APPROPRIATE BOX)

Appointment:	<input type="checkbox"/>	Recognition/Resignation/Retirement:	<input type="checkbox"/>
Public Hearing:	<input type="checkbox"/>	Old Business:	<input type="checkbox"/>
New Business:	<input checked="" type="checkbox"/>	Consent Agenda:	<input type="checkbox"/>
Nonpublic:	<input type="checkbox"/>	Other:	<input type="checkbox"/>

TITLE OF ITEM

Presentation of Pine Knoll Shores Stormwater Planning Study Final Report

DESCRIPTION OF ITEM

The Town Council to be presented with information from the Draft Final Report for the Stormwater Planning Study approved by voters at the April 13, 2021 Annual Meeting.

REFERENCE (IF KNOWN)

RSA:	Warrant Article:	Article 5
Charter Article:	Town Meeting:	April 13, 2021
Other:	N/A:	

EQUIPMENT REQUIRED (PLEASE PLACE AN "X" IN THE APPROPRIATE BOX)

Projector:	<input checked="" type="checkbox"/>	Grant Requirements:	<input type="checkbox"/>
Easel:	<input type="checkbox"/>	Joint Meeting:	<input type="checkbox"/>
Special Seating:	<input type="checkbox"/>	Other:	<input type="checkbox"/>
Laptop:	<input checked="" type="checkbox"/>	None:	<input type="checkbox"/>

CONTACT INFORMATION

Name: Kyle fox Address: 6 Baboosic Lake Road
 Phone Number: 603-424-5137 Email Address: kfox@merrimacknh.gov

APPROVAL

Town Manager: Yes No Chair/Vice Chair: Yes No

Hold for Meeting Date:



TOWN OF MERRIMACK INTER-DEPARTMENT COMMUNICATION

DATE: October 24, 2022

AT (OFFICE): Department of Public Works

FROM: Kyle Fox ²³
Public Works Director

SUBJECT: Pine Knoll Shores Planning Study Final Report

TO: Paul Micali
Town Manager

The voters of Merrimack voted on April 13, 2021¹ to raise and appropriate up to \$75,000 for a Stormwater Planning Study (Study) for the Pine Knoll Shores subdivision. The Study is funded through the Clean Water Sewer Revolving Fund (CWSRF) and is eligible for 100% principle forgiveness.

Following the approval of the project by voters, Public Works staff began coordinating with NHDES to finalize the grant through the CWSRF program and developing the process to select and negotiate with a consultant to perform the work. The project officially began on April 6, 2022 with a kick-off meeting held at Merrimack Town Hall. The Loan Agreement is attached in Appendix A of this memo. The consultant for the project, AECOM-Chelmsford, performed the work described in the approved proposal, which is attached in Appendix B of this memo.

During the spring and summer months of 2022, AECOM worked diligently on the Study, collaborating with Town staff and NHDES during the process. The Study is now nearly complete and the Final Report is being revised following a meeting with Town Staff on October 10. NHDES comments on the Final Report are forthcoming. AECOM will present the final report to the Town Council at a regular meeting in the form of a presentation and draft final report. The draft final report will include an analysis of the existing conditions for the Study

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Article 5

To see if the Town will vote to raise and appropriate the sum of Seventy Five Thousand Dollars (\$75,000) (gross budget) for the purpose of developing a storm water planning project for the Baboosic Lake (Pine Knoll Shores) Drainage Study; addressing roadway improvements, storm water conveyance, treatment needs and to consider solutions that promote energy efficiency, water quality and/or flood resiliency in accordance with the 2017 NH Small MS4 General Permit; and to authorize the issuance of not more than \$75,000 in bonds or notes through Clean Water State Revolving Fund (CWSRF) in accordance with the provisions of the Municipal Finance Act (RSA 33, as amended), and to authorize the Town Council to issue and negotiate such bonds or notes and to determine the rate of interest thereon; and to authorize the acceptance of any grants, funds or loan forgiveness to be provided by or through the CWSRF program. This Article is contingent upon approval of the loan application and the CWSRF program being obligated to provide 100% of the funding to satisfy and/or retire such bonds or notes.

(Recommended by the Town Council 7-0-0) (Majority 3/5 ballot vote required)

3067
YES
NO
1305

area, evaluation of the potential removal of pollutants from Baboosic Brook, recommendations for construction projects to realize the pollutant removal, preliminary design plans for the construction projects, and funding options for the next phase(s) of the project. Feedback from the Town Council will be used in preparation of the Final Report and completion of the Study.

I am looking forward to presenting the study to you and the Town Council as I am very impressed with the work AECOM accomplished. Please let me know if you have any questions.

CC: Dawn Tuomala, Deputy Director/Town Engineer

Appendix A

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STATE OF NEW HAMPSHIRE
WATER POLLUTION CONTROL REVOLVING LOAN FUND PROGRAM
TOWN OF MERRIMACK, NEW HAMPSHIRE
(Project No. CS-330215-12)

ORIGINAL LOAN AGREEMENT

I. This Agreement is between the State of New Hampshire Water Pollution Control Revolving Loan Fund Program (State) and the Town of Merrimack, New Hampshire (Loan Recipient) in accordance with RSA 486:14 and New Hampshire Code of Administrative Rules Env-Wq 500 (Rules) for the purpose of financing, to the extent of the aggregate amount of funds transferred (Disbursements) to the Loan Recipient made hereunder, the **Baboosic Lake Drainage Planning Study (Project)** now being undertaken by the Loan Recipient. The Project is described in Exhibit A. The Loan Recipient shall abide by all of the requirements of RSA 486:14 and the Rules.

II. The State agrees to loan to the Loan Recipient, and the Loan Recipient agrees to repay to the State, in accordance with the terms of this Agreement, the principal sum of **Seventy-Five Thousand and 00/100 Dollars (\$75,000) (Principal Sun)** or such lesser amount as shall equal the aggregate of Disbursements made hereunder by the State to the Loan Recipient. Pursuant to federal capitalization grant requirements and/or other allowances, additional financial assistance in the form of principal forgiveness will be applied to the loan upon the initial repayment as follows: A portion of the principal sum, not to exceed **Seventy-Five Thousand and 00/100 Dollars (\$75,000)** or up to 100% of the total of Disbursements, whichever is less, if the planning evaluation meets the State's guidelines for planning evaluation projects as determined by the State at the completion of the project. In addition to the principal sum, the Loan Recipient agrees to pay the applicable interest accrued as described in Paragraphs III, V, and VII. Federal financial assistance provided

1 through the Water Pollution Control Revolving Loan Fund Program (CFDA #66.458) may
2 comprise all or a portion of the Principal Sum. Any Disbursement or other payment from the State
3 to the Loan Recipient is contingent upon the availability of funds.

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5 III. Disbursements shall be made on a periodic basis, as requested by the Loan Recipient, but not
6 more frequently than monthly, subject to the approval of the amount of each Disbursement by the
7 State. The State shall approve the amount requested if it determines that the costs covered by the
8 request are eligible under Env-Wq 504.02 through Env-Wq 504.04, as applicable. Interest on each
9 Disbursement shall accrue on the outstanding principal balance from the date of the Disbursement
10 at the rate of 1% per annum computed on the basis of 30-day months and 360-day years until the
11 date of Substantial Completion of the Project or the date of Scheduled Completion, whichever is
12 earlier. At the option of the Loan Recipient, such interest may be paid (1) prior to the
13 commencement of Loan repayment, (2) at the time of the first Loan repayment, or (3) by adding
14 the charges to the to the outstanding principal Loan balance so long as the Loan Recipient's
15 authority to borrow is not exceeded.

16
17 IV. The aggregate of the Disbursements shall be consolidated by a Promissory Note (Note) of the
18 Loan Recipient in a Supplemental Loan Agreement issued under and in accordance with the
19 applicable provisions of this Agreement and the Municipal Finance Act, RSA 33, as amended and
20 supplemented, including the provisions of RSA 486:14. The Note shall be substantially in the
21 form of Exhibit B.

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23 V. The interest rate applicable to the Note will be 2.0000%, as determined in accordance with
24 RSA 486:14 and Env-Wq 500 et seq.

1 VI. The Loan Recipient hereby authorizes the State to compute the payments of principal and
2 interest on the Note. The principal shall be paid in full within 5 years from the date of the Note.
3 Note payments shall commence within one year of the Substantial Completion date of the Project
4 or the Scheduled Completion date of the project, whichever is earlier. The Scheduled Completion
5 date is hereby determined to be January 2, 2023; however, should the project experience an
6 excusable delay, an extension may be granted by the Commissioner of the Department of
7 Environmental Services upon request in writing by the Loan Recipient. In no event shall Note
8 payments commence later than ten years from the effective date of this Agreement.

9

10 VII. The Loan Recipient reserves the right to prepay, at any time and without penalty, all or any
11 part of the outstanding principal or interest of the Note.

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13 VIII. In the event of a default in the full and timely remittance of any Note payment, any State
14 Aid Grant funds payable to the Loan Recipient under RSA 486:1 may be offset against and applied
15 to the payment of any obligations that are due hereunder. The Loan Recipient agrees to be liable
16 for all costs of collection, legal expenses, and attorney's fees incurred or paid by the State in
17 enforcing this Agreement or in collecting any delinquent payments due hereunder.

18

19 IX. No delay or omission on the part of the State in exercising any right hereunder shall operate
20 as a waiver of such right or of any other right under this Agreement. A waiver on any one occasion
21 shall not be construed as bar to any right and/or remedy on any future occasion.

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23 X. The Loan Recipient agrees to comply, and to require all of its contractors to comply, with all
24 applicable state and federal requirements contained in the Rules and applicable state and federal
25 laws, including those specific requirements outlined in Exhibit C.

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1 XI. The effective date of this Agreement shall be the date of its approval by the Governor and
2 Executive Council. This Agreement may be amended, waived, or discharged only by a written
3 instrument signed by the parties hereto and only after approval of such amendment, waiver, or
4 discharge by the Governor and Executive Council.

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6 XII. This Agreement shall be construed in accordance with the laws of the State of New
7 Hampshire and is binding upon and inures to the benefit of the parties and their respective
8 successors. The parties hereto do not intend to benefit any third parties and, consequently, the
9 Agreement shall not be construed to confer any such benefit.

10

11 XIII. The Loan Recipient acknowledges that by accepting the Loan it will be a sub-recipient of
12 federal financial assistance and, as such, subject to requirements of the federal Single Audit Act
13 and subsequent amendments (SAA). The Loan Recipient further acknowledges that, if the Loan
14 Recipient expends more than the required threshold in federal financial assistance from all
15 sources in any fiscal year, it must perform an SAA audit in accordance with the requirements of
16 Office of Management and Budget Circular A-133. In that event, the Loan Recipient shall
17 provide the State with a copy of the SAA audit report within nine months of the end of the audit
18 period.

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20 XIV. This Agreement, which may be executed in a number of counterparts, each of which shall
21 be deemed an original, constitutes the entire agreement and understanding between the parties
22 and supersedes all prior agreements and understandings relating thereto. Nothing herein shall be
23 construed as a waiver of sovereign immunity, such immunity being hereby specifically reserved.

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1 STATE OF NEW HAMPSHIRE

TOWN OF MERRIMACK, NEW HAMPSHIRE

2 By: Robert R. Scott 2/18/22
Robert R. Scott Date
Commissioner,
Department of Environmental Services

By: [Signature] 1/12/22
Town Manager Date

3

By: Thomas W. Boland 1/12/22
Finance Director Date

4 This Agreement was approved by Governor and Executive Council on

5 March 9, 2022 as Item No. 80.

[Handwritten mark]

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EXHIBIT A
STATE OF NEW HAMPSHIRE
WATER POLLUTION CONTROL REVOLVING LOAN FUND PROGRAM
PROJECT DESCRIPTION

The Town of Merrimack, New Hampshire has applied for a Loan for the Baboosic Lake Drainage Planning Study Project. The purpose of the project is to produce conceptual-level design alternatives for drainage and roadway improvements to the streets serving the Pine Knoll Shores Subdivision, including Longa Road, Mayhew Road, Carter Road, Miriam Road, Richards Road, Rennie Road, Shore Drive, Thomas Road, Donald Road, and Arnold Road. These design alternatives for drainage and roadway improvements will focus on reduction of pollutant-carrying sediments in the stormwater runoff through stormwater treatment and roadway surface enhancement, which will provide water quality improvements to Baboosic Lake.

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EXHIBIT B
STATE OF NEW HAMPSHIRE
WATER POLLUTION CONTROL REVOLVING LOAN FUND PROGRAM
PROMISSORY NOTE AND REPAYMENT SCHEDULE

The Town of Merrimack, New Hampshire (Loan Recipient) promises to pay to the Treasurer of the State of New Hampshire the principal sum of **Seventy-Five Thousand and 00/100 Dollars (\$75,000)** in installments on **January 1** in each year as set forth below, with interest on the entire unpaid balance payable on the first principal payment date and annually, thereafter, at the rate of **2.0000%** per annum, computed on the basis of 30-day months and 360-day years, in the respective years set forth below. A total of **Seventy-Five Thousand and 00/100 Dollars (\$75,000)** of principal will be forgiven provided the project is determined to be complete by the State and will be granted as reflected in the repayment schedule shown below.

REPAYMENT SCHEDULE

<u>Payment Date</u>	<u>Principal Payment</u>	<u>Principal Forgiveness</u>	<u>Interest Payment</u>	<u>Total Payment</u>
2024				
2025				
2026				
2027				
2028				

This Promissory Note (Note) is issued under and by virtue of the New Hampshire Municipal Finance Act, an agreement duly entered into by the Loan Recipient and the State of New Hampshire Water Pollution Control Revolving Loan Fund Program, and is issued for the

1 purpose of financing the cost of the Baboosic Lake Drainage Planning Study (Project) as
2 described in Exhibit A of the Supplemental Loan Agreement (Agreement).

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4 The Loan Recipient reserves the right to prepay, at any time and without penalty, all or
5 any part of the outstanding principal or interest on this Note.

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7 The terms and provisions of the Agreement are hereby incorporated in and made a part of
8 this Note to the same extent as if said terms and provisions were set forth in full herein.

9

10 It is hereby certified and recited that all acts, conditions, and things required to be done
11 precedent to and in the issuing of this Note have been done, have happened, and have been
12 performed in regular and due form and, for the payment hereof when due, the full faith and credit
13 of the Loan Recipient are hereby irrevocably pledged.

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15 IN WITNESS whereof the Loan Recipient has caused this Note to be signed by its
16 _____, on the date(s) below.

17

18 TOWN OF MERRIMACK, NEW HAMPSHIRE by:

19 Name/Title _____

20 Authorized Representative _____ Date

21 (Town Seal)

EXHIBIT C
STATE OF NEW HAMPSHIRE
WATER POLLUTION CONTROL REVOLVING LOAN FUND
PROGRAM
FEDERAL REQUIREMENTS

DUNS NUMBER: The Loan Recipient must obtain a Data Universal Numbering System (DUNS) number. The federal government has adopted the use of DUNS numbers to track how federal grant money is allocated. DUNS numbers identify your organization. A DUNS number may be obtained by visiting <http://fedgov.dnb.com/webform/>.

SIGNAGE: The Loan Recipient must communicate to the public that EPA funds are contributing to the project.

WAGE RATE REQUIREMENTS (DAVIS-BACON): The recipient agrees to include in all agreements to provide assistance for the construction of treatment works carried out in whole or in part with such assistance made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.), or with such assistance made available under section 205(m) of that Act (33 U.S.C. 1285(m)), or both, a term and condition requiring compliance with the requirements of section 513 of that Act (33 U.S.C. 1372) in all procurement contracts and sub-grants, and require that Loan Recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for the construction of treatment works carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as attached hereto entitled "Wage Rate Requirements Under The Clean Water Act, Section 513 and the Safe Drinking Water Act, Section 1450(e)." This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or

any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

AMERICAN IRON AND STEEL (AIS): P.L. 113-76, Consolidated Appropriations Act, 2014 (Act), includes an "American Iron and Steel (AIS) requirement in section 436 that Clean Water State Revolving Loan Fund (CWSRF) Loan Recipients to use iron and steel products that are produced in the United States for projects for construction, alteration, maintenance or repair of a public water system or treatment works if the project is funded through an assistance agreement executed beginning January 17, 2014 (enactment of the Act).

On June 10, 2014, the Water Resources Reform and Development Act amended the Clean Water Act to include permanent requirements for the use of AIS products in CWSRF assistance agreements. Section 608 of the CWA now contains requirements for AIS that repeat those of the Consolidated Appropriations Act, 2014. All CWSRF assistance agreements must comply with Section 608 of the CWA for implementation of the permanent AIS requirement.

GENERALLY ACCEPTED ACCOUNTING PROCEDURES: The Loan Recipient shall maintain project accounts in accordance with the Generally Accepted Accounting Principles (GAAP), including standards relating to the reporting of infrastructure assets as issued by the Governmental Accounting Standards Board (GASB). The full text of Governmental Accounting Reporting Standards is available through the GASB website at: <http://www.gasb.org>

FISCAL SUSTAINABILITY PLAN: On June 10, 2014, the Water Resources Reform and Development Act of 2014 amended the Clean Water Act to include permanent requirements for Loan Recipients to develop and implement a fiscal sustainability plan for the repair, replacement, or expansion of treatment works, or certify that such a plan has been developed and implemented. The fiscal sustainability plan shall include:

- An inventory of the critical assets that are part of the treatment works,
- An evaluation of the conditions and performance of inventoried assets or asset groupings,
- A certification that the Loan Recipient has evaluated and will be implementing water and energy conservation efforts as part of the plan, and
- A plan for maintaining, repairing, and, as necessary, replacing the treatment works and a plan for funding such activities.

As part of the CWSRF Application Process, the Loan Recipient has certified that they have or will have a Fiscal Sustainability Plan prior to the date of Scheduled Completion or Final Disbursement, whichever date is later.

COST AND EFFECTIVENESS: On June 10, 2014, the Water Resources Reform and Development Act of 2014 amended the Clean Water Act to include permanent requirements for Loan Recipients to conduct a cost and effectiveness analysis for the funded asset that includes at a minimum:

- The study and evaluation of the cost and effectiveness of the processes, materials techniques and technologies for carrying out the proposed project or activity.
- The selection, to the maximum extent practicable, of a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation and energy conservation taking into account:
 - The cost of constructing the project or activity,
 - The cost of operation and maintaining the project or activity over the life of the project or activity, and
 - The cost of replacing the project or activity.

NH Code of Administrative Rules Env-Wq 700, Standards of Design and Construction for Sewerage and Wastewater Treatment Facilities, include minimum technical standards and requirements for the planning, design, and construction of sewerage and wastewater treatment facilities that meet the requirements listed above.

The Loan Recipient must certify that it has completed the required cost and effectiveness analysis and that it has selected, to the maximum extent practicable, a project or activity that maximizes the potential for water and energy conservation, as appropriate. This certification should be included with, and will be processed as part of, the design submittal.

DISADVANTAGED BUSINESS ENTERPRISE (DBE): Pursuant to 40 CFR, Section 33.301, the Loan Recipient shall make good faith efforts to utilize small, minority and women's business enterprises whenever procuring construction, equipment, services and supplies under an EPA financial assistance agreement, and shall require that prime contractors also comply. Records documenting compliance with the six good faith efforts shall be retained.

SUSPENSION AND DEBARMENT

Recipient shall fully comply with Subpart C of 2 C.F.R. Part 180 entitled, "Responsibilities of Participants Regarding Transactions Doing Business With Other Persons," as implemented and supplemented by 2 C.F.R. Part 1532. Recipient is responsible for ensuring that any lower tier covered transaction, as described in Subpart B of 2 C.F.R. Part 180, entitled "Covered Transactions," and 2 C.F.R. § 1532.220, includes a term or condition requiring compliance with 2 C.F.R. Part 180, Subpart C. Recipient is responsible for further requiring the inclusion of a similar term and condition in any subsequent lower tier covered transactions. Recipient acknowledges that failing to disclose the information required under 2 C.F.R. § 180.335 to the EPA office that is entering into the transaction with

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the recipient may result in the delay or negation of this assistance agreement, or pursuance of administrative remedies, including suspension and debarment. Recipients may access the System for Award Management (SAM) exclusion list at <https://sam.gov/SAM/> to determine whether an entity or individual is presently excluded or disqualified.

By entering into this agreement, the Loan Recipient certifies that the Loan Recipient is not debarred or suspended. Furthermore, the Loan Recipient certifies that no part of this contract will be subcontracted to a debarred or suspended person or firm.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT:

This term and condition implements 2 CFR 200.216 and is effective for obligations and expenditures of EPA financial assistance funding on or after 8/13/2020. As required by 2 CFR 200.216, EPA recipients and subrecipients, including borrowers under EPA funded revolving loan fund programs, are prohibited from obligating or expending loan or grant funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities). Recipients, subrecipients, and borrowers also may not use EPA funds to purchase:

- a. For the purpose of public safety, security of government facilities, physical security surveillance of critical Page 4 of 29 infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications



Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

b. Telecommunications or video surveillance services provided by such entities or using such equipment.

c. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Consistent with 2 CFR 200.471, costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, and cloud servers are allowable except for the following circumstances:

a. Obligating or expending EPA funds for covered telecommunications and video surveillance services or equipment or services as described in 2 CFR 200.216 to:

- (1) Procure or obtain, extend or renew a contract to procure or obtain;
- (2) Enter into a contract (or extend or renew a contract) to procure; or
- (3) Obtain the equipment, services, or systems. Certain prohibited equipment, systems, or services, including equipment, systems, or services produced or provided by entities identified in section 889, are recorded in the System for Award Management exclusion list which can be found at <https://www.sam.gov/SAM/pages/public/index.jsf>

SUPER CROSS-CUTTERS:

-Title VI of the Civil Rights Act

-Section 13 of the Federal Water Pollution Control Act Amendments of 1972

-Section 504 of the Rehabilitation Act of 1973

-The Age Discrimination Act of 1975

-Equal Employment Opportunity requirements (Executive Order 11246)



Appendix B

**ENGINEERING REPORT PHASE
CONTRACT FOR PROFESSIONAL SERVICES
FOR
TREATMENT WORKS**

~~CITY~~/TOWN OF Merrimack, New HAMPSHIRE

This AGREEMENT made and entered into at Hillsborough County, New Hampshire, this 11th day of January 2022 , by and between City/Town of Merrimack hereinafter called the OWNER, and AECOM Technical Services, Inc. hereinafter called the ENGINEER.

WITNESSETH:

WHEREAS, the OWNER intends to ~~construct Treatment Works~~ provide engineering services including: Baboosic Lake (Pine Knoll Shores) Drainage Study Project, Engineering Study and Recommendations. See Attachment A for detailed Scope of Work.

hereinafter called the PROJECT, and

WHEREAS, professional ~~sanitary~~ engineering services will be required for construction administration, resident engineering, and related services, and

WHEREAS, such services are of a distinct professional nature and hence not subject to the bidding process,

NOW THEREFORE, in consideration of these premises and of the mutual covenants herein set forth, the OWNER hereby employs the ENGINEER to furnish the following engineering services in connection with the proposed PROJECT; and it is agreed by and between the OWNER and the ENGINEER as follows:

ENGINEERING REPORT PHASE CONTRACT

Page 2 of 6

For Professional Services for Treatment Works

I. SERVICES TO BE PERFORMED BY THE ENGINEER

- A. The ENGINEER agrees to produce a complete and definitive Engineering Report to meet current division requirements and to perform any and all engineering incidental thereto. The detailed scope of the work is as outlined in the attached ~~Plan of Study Attachment A Scope of Work.~~
- ~~B. Furnish to the OWNER two (2) copies of information needed for the acquisition of easements, site options for treatment plant and pump stations and route options for interceptor sewers within calendar days after the Engineering Report has been approved by the New Hampshire Department of Environmental Services, Water Division, hereinafter called the DIVISION.~~
- C. Furnish one electronic copy of the Engineering Report to the OWNER and to the DIVISION.
- ~~D. Prepare applications with supporting and associated documents for Federal, State and other grant or loan programs.
1. Assist the OWNER in securing grants or loans by State, Federal and other grant or loan agencies.~~
- E. Provide the DIVISION with one electronic copy of design calculations, work sheets, field notes, estimates and other data generated in preparing the Engineering Report in a form satisfactory to the DIVISION.

II. THE OWNER'S RESPONSIBILITIES

- A. Assist the ENGINEER by placing at his disposal all available information pertinent to the PROJECT, including previous reports and other data relative to the reports.
- B. Make provisions for the ENGINEER to enter upon public and private lands, municipal facilities and industrial establishments as required to perform work under this AGREEMENT.
- C. Be responsible for providing or bearing the cost of police details during the performance of field work in this project, if deemed necessary.
- D. Notify affected abutters to ensure field work safety performed by the Engineer.
- E. Any additional responsibilities listed in Attachment A Scope of Work.

III. TIME OF COMPLETION

- A. The ENGINEER agrees that he will submit to the DIVISION and the OWNER for approval after modification or revision as recommended by the DIVISION and agreed to by the ENGINEER the completed report within consecutive calendar days following the acceptance of the contract by the OWNER, and deliver same to the OWNER within calendar days following the date of final approval by the DIVISION.
- B. It is agreed by the parties to this contract that failure by the ENGINEER to complete the work within the time stipulated under III, A, above may be considered sufficient basis for the debarment of the ENGINEER from the DIVISION'S Roster of Prequalified Engineers as provided for under New Hampshire Code of Administrative Rules Env-Wq 603.08, or the Assessment of liquidated damages as provided for under RSA 485A: 4, XII.
- C. ENGINEER shall perform its services in accordance with the degree of professional skill, quality, and care ordinarily exercised by members of the same profession practicing in the same location at the same time under comparable circumstances and providing services of a similar nature and as expeditiously as is consistent with professional skill and the orderly progress of the services.

IV. COMPENSATION TO BE PAID THE ENGINEER

A. Method of Payment Amount of Fee

- 1. Payment to the ENGINEER, for services rendered, shall be according to the following schedule:

For Professional Services for Treatment Works

2. Monthly billing based on hours and rates by labor category with markup and incidental expenses in accordance with the attached fee schedule.
3. The OWNER agrees to pay and the ENGINEER agrees to accept for all services under this AGREEMENT, a fee not to exceed 75,000 Dollars(\$75,000), and the ENGINEER agrees that the work proposed is sufficient to satisfactorily complete the study and that the monies to be paid are adequate. The attached fee schedule with labor category, hours, hourly rate, markup, incidental expenses, and fees for special services, shall be the basis for billing for engineering services.
 - a. The ENGINEER agrees that prior to submitting the report to the DIVISION for formal approval he shall make revisions in the report as recommended by the DIVISION and agreed to by the ENGINEER without additional compensation. After formal approval if it becomes necessary to update the report for reasons beyond the control of the ENGINEER, payment for such revision or revisions shall be made to the ENGINEER on a basis to be negotiated with the DIVISION.
4. The OWNER shall pay all undisputed invoices within thirty (30) days of the invoice date.

V. ADDITIONAL COVENANTS

- A. The ENGINEER agrees to assign in active charge of this PROJECT for the life of the contract a Project Engineer who is a permanent employee of the ENGINEER and who is a "qualified sanitary engineer" as defined under the DIVISION'S "Rules and Regulations for the Prequalification of Consulting Engineers." The Project Engineer shall be¹

Yan Zhang, Ph.D., P.E.

Any proposed change in identity of the Project Engineer on the PROJECT shall first be approved by the DIVISION before transfer of responsibility is made. Failure of the ENGINEER to abide by the above covenant is agreed to be sufficient basis for debarment of the ENGINEER from the DIVISION'S Roster of Prequalified Consulting Engineers as provided for under New Hampshire Code of Administrative Rules Env-Wq 603.08.

- B. The ENGINEER agrees to be solely responsible for all bills or claims for payment for services rendered by others and for all services and materials employed in his work, and to indemnify and save harmless the OWNER, and all of the OWNER'S officers, agents and employees against all suits, claims or liability of every name and nature arising out of or in consequence of the negligent acts or failures to act of the ENGINEER or others employed by him in the performance of the work covered by this AGREEMENT.
- C. The ENGINEER further agrees to procure and maintain at his expense such workmen's compensation insurance as is required by the statutes and public liability insurance in amounts adequate to provide reasonable protection from claims for bodily injury, death or property damage which may result from his performance and the performance of his employees under this AGREEMENT.
- D. All documents, including original drawings, design calculations, work sheets, field notes, estimates, and other data shall remain the property of the OWNER and shall be transmitted to the OWNER in clean and orderly condition on demand; however, these may be left in the possession of the ENGINEER at the OWNER'S discretion.
- E. The ENGINEER shall not sublet, assign or transfer any part of the ENGINEER'S services or obligations under this AGREEMENT without the prior approval and written consent of the OWNER and the DIVISION, and the contract shall be binding upon and inure to the benefit of the parties, their successors and assigns.

¹ See appended resume describing the candidate's qualifications for the assignment.

ENGINEERING REPORT PHASE CONTRACT
For Professional Services for Treatment Works

IN WITNESS WHEREOF, the parties hereto have affixed their hand and seals at Hillborough County, New Hampshire, the day, month, and year first above written.

ENGINEER:

AECOM Technical Services, Inc.

By: Steven S Atter, Vice President
(Authorized Representative²)



Date: 01/11/2022

OWNER:

Town of Merrimack, NH

By: 
(Authorized Representative²)

Date: 1/24/22

APPROVED:³

DEPARTMENT OF ENVIRONMENTAL SERVICES: Water Division

By: 
(Authorized Representative²)

Date: 02/07/2022

Approved as to form:

Town Counsel

At a meeting of the Partners/Directors of _____, held on _____, at which all the Partners/Directors were present, except _____, it was

VOTES: That all contracts may be signed by any one of the following:

A true copy

Attest: _____

Place of Business: _____

Date of this Contract: _____

I hereby certify that I am the Clerk of _____, that _____ is the duly elected _____, and that the above vote has not been amended or rescinded and remains in full force and effect as of this date.

Clerk _____

² Signatures should be supported by appropriate document.

³ It is agreed that as an act in furtherance of its statutory authority to approve engineering agreements for treatment works, the DIVISION's approval does not impose any contractual obligation or liability on the State of New Hampshire, the Department of Environmental Services or the Division.

Cost or Price Summary Format for Sub-agreements Under NH SAG and SRF

Part I: General				
Grantee/Loanee Name:			Grant/Loan #:	
Contractor/Subcontractor Name: AECOM Technical Services, Inc.			Proposal Date:	
Contractor/Subcontractor Address:			Services Furnished: Baboosic Lake (Pine Knoll Shores) Drainage Study Project, Engineering Study	
250 Apollo Drive	Chelmsford	MA	01824	
Street name and number	City/Town	State	ZIP	
Part II: Cost Summary				
Direct Labor (Specify labor categories)	Hours	Hourly Rate	Estimated (Est.) Cost	Totals
Project Manager	62	\$95	\$5,875.74	
Project Director/Senior Landscape Architect (Average rate over 2 staff)	4	\$68	\$273.22	
Senior Project Engineer	18	\$60	\$1080.00	
Project Engineer/Landscape Architect (Average rate over 3 staff)	184	\$36	\$6,569.44	
Staff Engineer	144	\$33	\$4,727.52	
Clerical	12	\$38	\$459.72	
Direct Labor Total	424			\$18,986
Indirect Costs (Specify indirect cost pools.)	Rate	X Base =	Est. Cost	
Office overhead + Fringe & benefits	1.17	\$18,986	\$22,213.2	
Indirect Costs Total				\$22,213
Other Direct Costs			Est. Cost	
Travel (Including 5% markup)			\$540	
Transportation				
Per Diem				
Travel Costs Total				\$540
Equipment Materials, Supplies (Specify categories.)	Qty.	Cost	Est. Cost	
Office Supply (printing)			\$200	
Equipment Subtotal				\$200
Subcontracts			Est. Cost	
Topographic Survey by Hancock Associates (Includes 5% subcontractor markup)			\$21,000	
Subcontractors Subtotal				\$21,000
Other (Specify categories.)			Est. Cost	
Other Subtotal				
Other Direct Costs Total				\$21,740
Total Estimated Cost				\$62,939
Profit (Labor)				\$12,061
Total Price				\$75,000

Attachment A

Baboosic Lake (Pine Knoll Shores) Drainage Study Project

For Town of Merrimack, New Hampshire

SCOPE OF WORK

Vision Statement: The goal of the Baboosic Lake (Pine Knoll Shores) Drainage Study Project is to demonstrate the proposed Stormwater Best Management Design will result in tangible water quality benefits measurable using procedures and methodologies approved by the state of New Hampshire.

This scope of work (SOW) was developed based on AECOM Technical Services, Inc. (AECOM's) proposal titled "Response to the No Fee RFP for the Baboosic Lake (Pine Knoll Shores) Drainage Study Project – Engineering Study and Recommendations" dated August 2, 2021. This SOW has been amended based on a site visit on August 23rd, and communications with the Town of Merrimack (Town).

This project will produce conceptual-level design alternatives (equivalent to 30% level design) for drainage and roadway improvements to the streets serving the *Pine Knoll Shores* Subdivision, including Longa Road, Mayhew Road, Carter Road, Miriam Road, Richards Road, Rennie Road, Shore Drive, Thomas Road, Donald Road, and Arnold Road. These design alternatives for drainage and roadway improvements will focus on reduction of pollutant-carrying sediments in the stormwater runoff through stormwater treatment and roadway surface enhancement.

AECOM will work with the Town to develop sustainable design concepts within the current Total Maximum Daily Load (TMDL) framework and in conformance with the New Hampshire Department of Environmental Service (NHDES) Clean Water State Revolving Fund (CWSRF) guidelines. Based on the 2014 Baboosic Lake Watershed Plan, the Baboosic Lake Road stormwater system does not drain towards the Baboosic Lake and has been excluded from this project.

Additional detail regarding the SOW is provided below.

Task 1. Determining Existing Conditions

A. Work Sheets and Base Plan Survey

AECOM will collect and review desktop data related to the project from the Town and state agencies. AECOM will conduct a detailed review of the 2011 TMDL study report and the 2014 Baboosic Lake Watershed Plan.

The AECOM project team, in association with Hancock Associates (Hancock), will conduct a topographic and physical feature survey of the project area to create existing condition base plans in support of the drainage study and conceptual design. Hancock will research existing survey data as part of this effort, including the topographic survey conducted by Meridian Land

Services (Meridian) in 2001 for the Merrimack Village District. The base plan survey will include the following:

- Topographic survey using New Hampshire State Lidar, ground truthed with conventional survey methods to produce topographic contours within Town's rights-of-way and on Town-owned properties in the subdivision;
- Locate edge of pavement and gravel roadway surfaces, and survey visible utilities via conventional survey methods (this will also be used to validate Lidar generated data);
- Verify the drainage information collected by Meridian in 2001 and convert critical elevations to the North American Vertical Datum of 1988 (NAVD88) datum. Structures included in Meridian's survey will be surveyed at rim only; all structures not included in Meridian's survey will be opened/measured by Hancock.
- Property line information will be taken from Town Assessor/GIS information.
- Underground utilities will be shown based on best available records.
- Locate surface-visible utilities within Town's rights-of-way and Town-owned properties.
- Survey deliverables will be delivered in AutoCAD format using the NH State Plane horizontal coordinate system and the NAVD88.
- Survey is assuming up to 2.5 miles of roadway and up to 60,000 square feet of Town owned land within the subdivision. To reduce survey cost, town-owned parcels which are not selected for stormwater improvement will not be surveyed. AECOM will verify town-owned parcels using the 2001 Meridian survey, Town's parcel GIS data, and deed information where needed.

B. Field Observations

Two (2) AECOM engineers will perform a one-day site visit to develop a better understanding of existing conditions and potential rehabilitation options. It is assumed that the site visit will take up to 6 hours including travel. AECOM will verify roadway pavement types, grade, condition, and drainage. AECOM will also identify the areas of significant erosion as related to grade, drainage pattern, and surface cover/land use.

After the site visit, AECOM will develop a technical memorandum in PDF format outlining initial rehabilitation recommendations based on the field assessment of existing road conditions, drainage patterns, and the potential to improve water quality in Baboosic Lake. These recommendations will be tailored to the unique context of the Pine Knoll Shores Subdivision based on additional desktop information. The draft memorandum will be provided in electronic format to NHDES and the Town for review and comment as appropriate.

C. Soil Research and Geotechnical Investigations

The characteristics of soils and bedrock across the subdivision will have a significant impact on the favorability and feasibility of road rehabilitation and stormwater treatment alternatives. To screen and size stormwater treatment best management practices (BMPs), AECOM will analyze three levels of geophysical and soils data that may be available to the Town. These sources are (listed by order of importance):

- **Geotechnical and excavation records collected by the local water utility (the Merrimack Village District) during the installation of an upgraded water main through the subdivision in the early 2000s. AECOM expects this data will include depth-to-groundwater and depth-to-bedrock information that may aid in the screening and design of future stormwater measure implementation in the subdivision.**
- **Historical septic system geotechnical tests (provided by the Town from their records), including percolation and depth-to-groundwater data. This data will have information on soil properties and infiltration rates that can be referenced in BMP screening. State records will be searched as needed.**
- **Online soils data published by the USDA's Web Soil Survey. This data set will be verified against the two site-specific sources listed above and will be used to cover additional data gaps (as necessary).**

The desk assessments described above will provide sufficient geotechnical information to support the screening and generalized sizing analyses required for this planning-level study and 30% design, without involving field-based investigations (test pits, borings, etc.). AECOM will summarize the findings of the above analyses in a dedicated section of the final Engineering Report to be delivered at the completion of the project.

Note detailed field testing will be required during advanced design stages and permitting. These activities are not included in this SOW.

D. Project Kick Off Meeting/Scope Meeting

After the site visit and desktop geotechnical assessment, two (2) AECOM engineers will participate in one scoping meeting with the Town to discuss improvement concepts. This meeting will further refine the field survey scope if needed and other project merits and constraints observed in the field. This meeting is also intended to be the project-kick off meeting which is required by the NHDES CWSRF Wastewater and Stormwater Planning Guidance Document (April 2019). NHDES will be invited for attendance.

Additional project meetings with the Town and NHDES representatives at key milestones during project execution are discussed in Task 3. These milestone meetings will be coordinated with the Town and NHDES when the detailed scope of work and budget is further defined if needed.

Task 2. Evaluations

A. Hydrologic and Hydraulic Studies, Water Quality

A primary goal of the Pine Knoll Shores drainage study project is to reduce the subdivision's non-point sources nutrient and sediment loading in the stormwater runoff to Baboosic Lake. AECOM will use a hydrologic pollutant wash-off model to identify pollutant "hotspots" to support the BMP siting and design within the framework of the watershed's TMDL, to maximize the benefit of CWSRF loan funds and CIP funding.

In 2011, AECOM conducted water quality-based modeling and analysis of the Baboosic Lake watershed as part of the development of the lake's TMDL report. This report has since been approved by the US Environmental Protection Agency and provides the basis of pollutant loading allocations from point and non-point sources within the watershed. The analysis and modeling conducted as part of this study employed the ENSR-LRM model, a spreadsheet-

based model pairing watershed-based pollutant wash off with limnological behavior and loading over time.

For the Pine Knoll Shores Drainage Study Project, AECOM proposes to incorporate the 2011 TMDL watershed-scale analysis for Baboosic Lake into the NHDES-developed "Simple Method" pollutant model. This model is outlined in Volume 1 of the New Hampshire Stormwater Manual and is commonly used in New Hampshire to evaluate the effects of BMP removal on stormwater runoff. The resulting pollutant loading and wash off model would reflect the calculation procedures used in NHDES stormwater permitting and the TMDL watershed model that has been applied to develop the federal NPDES-program TMDL and (Municipal Separate Storm Sewer System) MS4 restrictions for the watershed. The water quality modeling conducted by AECOM will be used to optimize the BMPs siting, design, implementation, and prioritization, so overall reduction of pollutant loading from the subdivision is managed holistically.

AECOM will develop a hydrologic and hydraulic (H&H) modeling using the PCSWMM modeling software to evaluate existing and proposed drainage system's conveyance capacity. The H&H modeling will identify areas of conveyance deficiencies and be used to size drainage system extensions and upgrades where needed. AECOM will evaluate design precipitation events with recurrence intervals corresponding to the roadway drainage design criteria for the roads within the study areas. The analysis will also consider anticipated future change in peak precipitation conditions as a result of climate change according to guidelines in NH Env-WQ 1503.08 (I). Results of the H&H studies will be summarized in a dedicated section of the final Engineering Report, as well as incorporated into the ranking matrix for project prioritization (further discussed under "Engineering Study Report & Conceptual Plans").

B. Stormwater Collection and Treatment Alternatives / Roadway Rehabilitation and Improvements

In the proposal, AECOM identified several treatment practices for possible application to the Pine Knoll Shores subdivision. These practices primarily focus on removing total suspended solids (TSS), which carry nutrients and metals typically found in stormwater runoff. These BMPs include catch basin and manhole retrofits, bioretention cells, infiltration trenches, vegetated swales, infiltration basins, proprietary treatment units (such as hydrodynamic separators), and roadway improvements using geoweb-reinforced gravels. The Town has indicated to AECOM that asphalt road surfaces are preferred to reduce further erosion and to simplify future maintenance. In addition, the possibility of reducing roadway width and reclassifying certain roads as one-way traffic was also discussed.

AECOM will also evaluate the viability of regional water quality / infiltration basins or other BMPs on the Town-owned vacant lots. AECOM will update the runoff and pollutant calculations to reflect the change of land use and incorporate pollutant reduction from the BMPs.

It is assumed the Town Traffic Department will provide roadway traffic design and roadway width information. As stated previously, Baboosic Lake Road does not drain towards Baboosic Lake and therefore no BMPs will be proposed to treat its runoff.

C. Abutter Impacts

There are potential abutter impacts associated with a project of this nature and magnitude, and this remains true on the narrow and winding roads of the Pine Knoll Shores subdivision. Road

resurfacing or reclamation requires large heavy equipment that can damage trees, other roadside plantings, irrigation systems and retaining walls. Road rehabilitation often results in raising (and on rare occasions lowering) the roadway grade. Minor grade changes can adversely impact drainage flow with respect to abutting properties, while major grade changes can interfere with vehicular access. Most of the drainage and roadway easements within the subdivision tightly abut private properties. In our evaluation of roadway rehabilitation alternatives and treatment BMPs, AECOM will identify the potential for adverse abutter impacts associated with construction and maintenance and will recommend measures to alleviate/minimize these impacts.

Task 3. Engineering Study Report and Conceptual Design Plans

Upon project commencement, AECOM will work with the Town to identify key milestones for design alternative review meetings. In addition to the initial project scope meeting (kick-off meeting) identified in Task 1, we will hold two (2) alternative review meetings with the Town's Public Works Department to review project progress and conceptual designs. One of the alternative review will serve as the mid-level meeting required by NHDES CWSRF and NHDES will be invited for attendance. For each alternative review meeting, AECOM will discuss design concepts, estimated cost and benefits, stakeholder acceptance and abutter impacts, merit for external funding, permitting, and construction constraints. AECOM will prepare meeting materials for each meeting, including design calculations and evaluation findings.

AECOM will also jointly conduct one (1) stakeholder meeting with the Town and NHDES. AECOM will assist in the preparation of presentation materials. The stakeholder meeting as serves as the "wrap-up" meeting required by the NHDES CWSRF and NHDES will be invited for attendance. AECOM assumes the Town will have the responsibility of identifying and notifying the stakeholders.

It is assumed that each of the three meetings will be up to two-hours in length and attended by two AECOM engineers. For each meeting conducted, an agenda and a brief meeting minutes will be prepared and transmitted via email.

Project Deliverables

The **Conceptual Design Plans** will be advanced up to a 30% engineering design level, which will allow for construction costs of each alternative to be reasonably estimated. A preliminary list of conceptual plans includes the following sheets:

- Cover sheet
- Existing Conditions –existing topography, easement/right-of-way, utility, and property boundaries
- Proposed design plan
- Typical sections and profiles, and
- Key Structure details,

AECOM will prepare an **Engineering Study Report**. The report will summarize:

- Hydrologic, Hydraulic, and water quality studies
- BMP sizing calculations
- Design alternative concept development
- Cost estimate including operation and maintenance costs
- BMP Screening and Evaluation matrix, including benefits towards Lake's TMDL's
- Permitting and regulation compliance Implications
- Construction phasing, and
- Schedule.
- List of non-select parcels
- MS4 requirements

AECOM will submit a draft of these deliverables in electronic format to, and discussed with, Town and NHDES, and address one round of consolidated comments, prior to finalizing the report. The final electronic deliverable will be submitted to the Town and NHDES.

Project Schedule

AECOM submitted a 4-month project schedule in the proposal dated August 2, 2021. AECOM will update the schedule upon the initial project scope meeting incorporating the latest project information.

Client Responsibilities and Assumptions

AECOM has identified the following client (Town of Merrimack, NH) responsibilities, to be finalized at the time of contract negotiation.

- The Town would be responsible for providing access to all project area and with utility and boundary information pertinent to the preparation of said worksheets/base plans.
- The Town would be responsible for providing or bearing the cost of a police detail or flaggers during the performance of field work in this project, if deemed necessary.
- The town would be responsible for providing all data, which it possesses, as relevant to the scope of service.
- The Town would be responsible for notifying affected abutters to ensure field work safety performed by the consultant.
- The Town would be responsible for arranging venues for the stakeholder meeting and notifying stakeholders.
- The Town will be responsible for arranging for access on private property should that be required for any work.

This SOW is contingent upon the following assumptions, to be finalized at the time of contract negotiation.

- It is assumed that survey field work will be performed under the condition with no snow on ground. Unfavorable snowy condition may affect the survey cost and project schedule.
- Meetings other than those identified in the Scope of Work can be added, upon request, through a change order.

- **It is assumed that all meetings will be held in person. The format of the meeting may change subject to the contract negotiation and the government's health guidelines under COVID conditions.**
- **It is assumed that all deliverables are in digital format.**
- **It is assumed that survey of property lines, easement, rights-of-way, underground utilities, will be based on record search.**
- **The project does not include wetlands delineation or permitting.**
- **The project does not include coordination or meetings with agency/offices other than the Town of Merrimack, NH and NHDES**



AECOM Technical Services, Inc. 213.693.6100 tel
300 South Grand Avenue 213.693.6730 fax
9th Floor
Los Angeles, CA 90071
www.aecom.com

SECRETARY'S CERTIFICATE

AECOM TECHNICAL SERVICES, INC. a California corporation

I, Manav Kumar, DO HEREBY CERTIFY that I am the duly elected and acting Secretary of AECOM Technical Services, Inc., a corporation organized under the laws of the State of California ("ATS" or "Corporation"), and the keeper of its records and corporate seal.

I FURTHER CERTIFY that ATS's full legal address is c/o CT Corporation System, 818 West 7th Street, Los Angeles, CA 90017-0000 and that the Corporation's principal place of business is 300 South Grand Avenue, 9th Floor, Los Angeles, California 90071.

I FURTHER CERTIFY that pursuant to the Written Consent of the Board of Directors of ATS, adopted on October 28, 2021, and attached hereto as Exhibit A, Steve Atter has signatory authority for ATS and is authorized to execute contracts and other documents on behalf of the Corporation.

IN WITNESS WHEREOF, I have subscribed my name and affixed the seal of the Corporation, this 10th day of November, 2021.



Manav Kumar
Secretary



EXHIBIT A

**UNANIMOUS ACTION OF THE BOARD OF DIRECTORS
OF
AECOM TECHNICAL SERVICES, INC.**

Excerpt

The undersigned, being all the members of the Board of Directors of AECOM TECHNICAL SERVICES, INC. (the "Corporation"), a California corporation, hereby take the following action:

RESOLVED: That, "the following U.S. based persons are designated with authority by the Board of Directors to execute contracts and other legal documents on behalf of the Corporation within the boundaries of specific Regions and Business Lines as noted and effective as of the dates set forth below."

Effective October 28, 2021:

Last Name	First Name	Region	Area/Market Sector	Business Line
Atter	Steve	Environment	Remediation	Environment

IN TESTIMONY WHEREOF, all the Directors have hereunto set their hands this 28th day of October, 2021.



Keenan Driscoll



Jeffrey Rosenstein



Karl Jensen



Travis Boone

Yan Zhang, Ph.D., P.E.
Senior Technical Leader

Education

PhD, Agricultural and Biological Engineering, University of Florida, 1997

MS, Civil Engineering, University of Florida, 1993

BS, Fluid Mechanics, University of Science and Technology of China, 1990

Licenses/Registrations

Professional Engineer (Civil), Massachusetts, #50101, Issued 09/12/2012, Exp. 6/30/2020

Professional Engineer, New York, #092179, Issued 04/22/2013, Exp. 4/30/2024

Professional Engineer, Connecticut, #PEN.0030569, Issued 10/07/2014, Exp. 01/31/2022

Professional Engineer (Civil), New Hampshire, #18116, issued 05/31/2019, Exp. 05/31/2021

Professional Engineer (Civil), Florida, #56910, Issued 02/15/2001, Exp. 02/28/2023

Professional Engineer (Civil), Georgia, #PE031197, Issued 06/23/2006, Exp. 12/31/2022

ASFPM Certified Floodplain Manager (CFM) (through 2019)

NCEES Record #50201

United States Patent and Trademark Office (USPTO) Patent Agent

CTDOT Approved Hydraulic Engineer

Years of Experience

With AECOM: 12

With Other Firms: 15

Professional Association

American Society of Civil Engineers

Dr. Yan Zhang is an Associate Vice President and Senior Technical Leader in with more than 25 years of experience in water resources and environmental engineering. He is experienced in hydrodynamic modeling in riverine and coastal waters with applications such as bridge hydraulics and scour, sediment transport, oil spills, and dredging remediation. His technical expertise includes watershed and ecosystem assessment and master planning; climate impact evaluation, shoreline protection assessment and design, remediation restoration design, NPDES compliance, hydrology and hydraulics, water quality; flood study and mapping; green infrastructure BMP design, natural channel design using Roegen's stream morphology methods; and stormwater financing. He also conducted research and projects in groundwater flow and contaminant fate and transport with applications in subsurface remediation evaluation, saltwater intrusion, reservoir, and stochastic parameter estimation. Dr. Zhang has extensive experience in model development using finite-element and finite-difference methods; his computer skills include GIS, SWMM, ICPR, SWAT, BASINS, HSPF, HEC models, MODFLOW, MODFLOWT, and MT3D/RT3D, CORMIX, GNOME, RMA-2, ADCIRC, PTM, and SRH2D.

Project Experience (Surface and Subsurface)

Surface Water

Lindt USA Project LEGO, Stormwater Management Study, Design, and Permitting, Stratham, NH. Performed stormwater infrastructure design in support of a manufacturing plant expansion. Prepared Alternation of Terrain Permit application with NHDES. The project incorporates the NH's latest engineering design criteria of climate change impact on extreme design storms. (2019-2020)

Northern Avenue Bridge Replacement in Boston Harbor, MA. Performed a two-dimensional hydrodynamic analysis using SRH-2D and a scour analysis in support of the substructure design of a landmark structure in Boston Harbor. Applied the Boston Planning & Development Agency (BPDA)'s climate resiliency guidelines on extreme weather and sea water level rise in setting the tide and current levels. (2017-2020).

Interstate I495 over Merrimack River Replacement Concept Design Hydraulics and Scour, Haverhill, MA. Performed 1-dimensional steady and unsteady hydraulic analysis (HEC-RAS) and 2-D hydrodynamics (SRH2D) to analyze bridge hydrodynamics and scour under tidal influence.

Lake Ontario Shoreline Protection Structures, US Army Corps of Engineers Buffalo District. Project Manager responsible for database, investigation, and survey of 146 shoreline erosion protection structures in seven towns along New York shoreline of Lake Ontario. (2014-2015)

Hydraulic Evaluation of remediation restoration of the Allied Ready Mix Bank Management Areas, El DuPont de Nemours and Company, Waynesboro Virginia. Performed hydraulic analysis in support of remediation stream restoration design. Prepared LOMR application for re-delineated floodplain.

MassDOT Impaired Water Assessment and BMP Design Project. Performed assessment on impaired water bodies from MassDOT owned roadway sections using IC methods. Served as assignment managers for Miles River, Mill River, and Neponset River BMP design.

MassDOT Bridge and Scour Assignment #4 – Evaluation of 13 bridges in District 3 for scour critical structure POAs. Performed hydrologic and hydraulic analysis, scour analysis using HEC-18 and NBIS coding.

Selected Trainings

FHWA Course #135046, Stream Stability and Scour at Highway Bridges, 2018

FHWA Course #135095 Two-Dimensional Hydraulic Modeling of Rives at Highway Encroachment, 2017

Managing Floodplain Development through NFIP, FEMA, 2010.

Applied Fluvial Geomorphology for Engineers, a Roegen series course, 2007.

Private LEED for New Constructions, USGBC, 2007.

EPA Basins 3.0 Training Program, University of Texas at Austin, 2002.

Operation and Application of the HSPF Watershed Model, Florida DEP, 1998.

XP-SWMM32, XP-Software Inc, 1998.

Hopping Brook Flood Remedial Action Study, MassDOT. (Project end date: December 2012) Assignment manager to perform a flood mitigation study for alternatives to address flooding on Route 16 in Town of Holliston, MA. Coordinate with MassDOT and USACE New England District to address issues related to Charles River Natural Valley Storage Project (CRNVSP) to minimize change in drainage characteristics.

South Florida Water Management District, Kissimmee Basin Hydrologic Assessment, Modeling, and Operations Planning, Florida. Chief project engineer responsible for providing technical direction for a two-year, multi-million dollar project in the Kissimmee Restoration Program. The scope of work included hydrological assessment subject to river-basin conditions, Kissimmee waterway, and reservoir operations, an integrated surface-groundwater model (Mike-SHE, Mike11), and an updated KB operational plan.

Emory University, Integrated Water, Sanitary Sewer, and Stormwater Master Plans, Atlanta, Georgia. (Project end date: October 2009) Project manager responsible for leading a multidisciplinary team to develop stormwater and civil utility master plans to support sustainable campus growth objectives. Developed green infrastructure best management practice design concepts that utilize runoff volume reduction, water quality, stream stabilization, and rainwater harvesting techniques. Modeling of urban stormwater runoff and wastewater using InfoSWMM

City of Riviera Beach, Stormwater Master Plan, Riviera Beach, Florida. (Project end date: March, 2010) Project manager responsible for leading a multi-firm team to develop a stormwater master plan. Performed drainage system inventory, canal walks, hydrologic and hydrodynamic modeling of urban stormwater runoff (Info-SWMM), level-of-service analysis, CIP development, public education and outreach, stormwater financial analysis, design of high-priority flood control/water quality enhancement projects, and grant applications. Worked on design implementation of two high-priority CIP project involving canal widening.

Stormwater Utility Development and Implementation, Athens-Clarke County, Georgia. Assistant project manager responsible for developing a comprehensive financial rate structure and an implementation plan that generated \$3.5 million annually to help fund the county's stormwater program and meet the NPDES Phase II requirements.

Comprehensive Stormwater Master Plan for the Nancy Creek Water Resources Management Unit, Fulton County, Georgia. Task leader for hydraulic and hydrologic model (SWMM) and water quality model (SWAT) development. Design of sampling network for flow, rain gages, and water quality network.

Oxford Greens Phase 4 Redesign Runoff Analysis and Storm Sewer Analysis, Oxford, CT. Performed a hydraulic analysis using ICPR model for the proposed Phase 4 redesign of the development. Performed a gutter flow analysis using Hydroflow software for sewer analysis.

Mystic River Basin hydrologic and hydraulic modeling of Historic Floods, Massachusetts Water Resources Authority. (Project end date: December 2012) Performed hydrologic and unsteady hydraulic modeling using HEC-RAS to simulate extreme flood events in 2006, 2007, and 2010.

Putnam Hill Road Flood Mitigation Study, MassDOT. Assignment manager for MassDOT to address Putnam Hill Road flooding. Performed a hydrologic and hydraulic study to investigate Dark Brook and Mumford River drainage basin and to develop a flood alleviation action plan.

Enel, Sovereign, Battery Energy Storage System, Multiple sites in MA and NH. Site civil design and layout development in support of federal and state permitting.

No-Rise Hydrologic and Hydraulic Study Broad Brook, East Windsor, CT. Performed a hydrologic and hydraulic analysis to analyze the impact of a remediation and restoration project and on Broad Brook in the UTC facility in East Windsor, CT.

Augusta-Richmond County, Watershed Assessment, Georgia. Project engineer responsible for modeling basin-scale water quality applying the EPA BASINS (Version 3.0) to evaluate stream conditions in response to long-term climatic time series and variable land use scenarios. Modeling of non-point sources pollution

Groundwater Leakage for Bellwood Reservoir and West CSO Tunnel, Atlanta, Georgia. Performed three-dimensional groundwater modeling to evaluate the groundwater flow interaction and leakage between Bellwood Quarry and the West CSO Tunnel in fracture geological formations. The study analyzed the impact of reservoir levels on the leakage rate in the CSO tunnel subject to natural recharge and interaction with surface water bodies.

Publications and Presentations

"Improvements to Pier Scour Estimation at Coastal Bridges using 2-D Hydrodynamic Modeling," World Environmental & Water Resources Congress, June, 2021 (with C. Drennan).

"Validating Hydraulic Models in a Stream Controlled by Tide Gates," World Environmental & Water Resources Congress, Pittsburg, PA, May 2019 (with J. Skerker).

"Integrated Master Planning for Stormwater Management – Building a Sustainable and Green University Campus," 2009 Wuhan International Conference on the Environment *Proceeding*, Wuhan, China, October 15-18, 2009.

"Managing Stormwater CIP in the City of Riviera Beach, Florida," 2009 Florida Stormwater Association Annual Conference, Sanibel, Florida, June 2009, (with V. Akhimi).

"Growing and Greening an Urban University Through Integrated Master Planning for Stormwater, Water and Wastewater Management," North Carolina AWWA-WEA 2009 Annual Conference, Winston-Salem, NC, November 2008, (with Nease, E. and R. Manchester).

"Developing an Implementation-Focused and Sustainable Stormwater Master Plan in the City of Riviera Beach, Florida," 2008 Florida Stormwater Association Annual Conference, Sanibel, Florida, June 2008, (with Akhimi, V.).

"GIS-Aided Flood Studies in Douglas County, GA, USA," the 2nd International Conference of GIS/RS in Hydrology, Water Resources and Environment (ICGRHWE'07), the 2nd International Symposium on Flood Forecasting and Management with GIS/RS (FM2S'07), Guangzhou & Three Gorges, China, September 2007.

"1,4-Dioxane Solute Transport Modeling in Support of Natural Attenuation Determination," Accepted by the *Fifth International Conference of Remediation of Chlorinated and Recalcitrant Compounds*, Monterey, California, Battelle, May 2006, (with Chiang, D., Glover, E., Harrigan, J., and D. Woodward).

"Optimal Estimation of Residual NAPL Contents Using Inter-Well Tracer Tests," the *Fourth International Conference of Remediation of Chlorinated and Recalcitrant Compounds*, Monterey, California, Battelle, May 2004, (with W.D.

Graham, M.D. Annable, K. Hatfield, and P.S.C. Rao).

"Partitioning Tracer Transport in a Hydrogeochemically Heterogeneous Aquifer," *Water Resources Research*, Vol. 37, No. 8, pp.2037-2048, 2001, (with W.D. Graham).

"Spatial Characterization of a Hydrogeochemically Heterogeneous Aquifer Partitioning Tracers: Optimal Estimation of Aquifer Parameters," *Water Resources Research*, Vol. 37, No. 8, pp. 2049-2083, 2001, (with W.D. Graham).

"Megginnis Arm Basin Diagnosis – A Distributed Watershed Model Using XP-SWMM32TM," *Proceeding of 56th Biennial Stormwater Modeling and Management Conference*, Tampa, Florida, September 1999, (with G.L. Marchman).

"Spatial Characterization of a Heterogeneous Aquifer Contaminated by NAPL Using a Three-Dimensional Distributed Parameter Extended Kalman Filter," (conference presentation), *Joint USAF/ARMY Environmental Quality Meeting*, Panama City, Florida, January 14-17, 1997, (with W.D. Graham).