

**City of Biddeford
Finance Committee
May 07, 2024 5:00 PM Council Chambers & Zoom**

Please click this URL to join:

<https://biddeford.zoom.us/j/97576865876?pwd=OWNNODIVSjFBcE0vK1Q1Z3IrWmZuZz09>

**Passcode: 051094
Webinar ID: 975 7686 5876**

**Or One tap mobile:
+16465588656,,97576865876# US (New York)
+16469313860,,97576865876# US**

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Dial (for higher quality, dial a number based on your current location):
US: +1 646 558 8656 or +1 646 931 3860 or +1 301 715 8592 or +1 305 224 1968**

International numbers available: <https://biddeford.zoom.us/j/abfhy2m4Ql>

Status:

- 1. Call to order**
- 2. Approval of the Minutes**
 - 2.1. Approval of Minutes - 4/16/24
[Finance Committee Minutes - 4.16.24](#)
- 3. Signing of the expenditure warrant**
- 4. Discussion/Approval**
 - 4.1. Fire Department apparatus bay floor repairs
[Request Apparatus Floor Repair 04-30-2024 - BRIEF](#)
[20230815 Carry Forward Reserves - FY23 to FY24-ORDER](#)
[Floor repair Unified Builders 2024-04-16-16-46-11](#)
 - 4.2. Approval/Authorize City Manager to engage Berry Dunn for Finance Department work.
[20240507 Berry Dunn - BRIEF](#)
[City of Biddeford - Engagement Letter FINAL](#)
[City of Biddeford Project Proposal and Price Plan_FINAL](#)
 - 4.3. HUD Lead Hazard Reduction Bid Award - 61 Jefferson St
[Lead Hazard Reduction Work at 61 Jefferson St - BRIEF](#)
[BID TAB --61 Jefferson St](#)
 - 4.4. Approval/RFQ for Engineering Services to design/permit temporary stabilization and analysis for permanent work from January 2024 Coastal Storm Damage
[Storm Damage - BRIEF](#)

WestonSampson RFQ Response_Engineering Consulting Services for Storm Damage
Repair
2024-01-30 Biddeford Winter Storm Coastline Damage Exhibit
President Joseph R Biden Jr Approves Major Disaster Declaration for Maine
PROPOSAL - Biddeford Coastal Storm Damage_FINAL_REVII

5. Other Business

6. Adjournment

City of Biddeford
Finance Committee
April 16, 2024 5:30 PM Council Chambers & Zoom

Councilor Beaupre: present
Councilor Lessard: present
Councilor Liam LaFountain: present
Mayor Grohman: present

1. Call to order

2. Approval of the Minutes

For minutes from 1/16/24:

Motion: Councilor Beaupre
Second: Councilor Lessard
Vote: Unanimous in favor.
Motion passed.

For minutes from 4/2/24:

Motion: Councilor Beaupre
Second: Councilor Lessard
Vote: Unanimous in favor.
Motion passed.

3. Signing of the expenditure warrant

4. Discussion/Approval

4.1. Approval/CSO Projects Engineering Services RFP

Director of Engineering Craig Chekan discussed the 10-year consent agreement and specified that RFP was for three complex projects from the plan that require private consulting designs. Councilor Lessard asked about the option of not doing storm separation which Chekan confirmed was not possible. Mayor Grohman asked whether there was a projection of what the design work would cost when outlining the plan in the first place and Chekan confirmed that it was actually lower than originally anticipated. Councilor LaFountain asked about which projects can be designed in house verses which are chosen to be completed externally and Chekan mentioned that the work would require far more resources and time than the City has available.

Motion by Councilor Beaupre to award the bid to BH2M.
Second: Councilor Lessard
Vote: Unanimous in favor.
Motion passed.

4.2. Approval/Purchase of three 2024 law enforcement Dodge Durango Pursuit vehicles

Police Chief JoAnne Fisk explained the known issues with the current vehicles and reasoning behind the requested replacement costing more than usual. The attached bids differed in price by approximately \$11K total for the three vehicles requested which does not take any trade considerations into account. Councilor Lessard asked about the option of retaining the existing vehicles and using one for parts instead of trading them in. Mayor Grohman asked about expected fuel savings from the Durango vehicles. City Manager Bennett clarified the typical replacement schedule and elaborated on the reasoning behind the planned trade in.

Councilor Lessard requested the trade in value for the vehicles and asked about the possibility of painting the vehicles black and white. Councilor LaFountain clarified the source of the funding and noted that it was contingent upon the approval of the FY 2025 budget. Councilor Lessard mentioned that he would prefer the funding to come from the contingency from the FY 2024 budget versus the FY 2025 budget. City Manager Jim Bennett explained that this approval is just to authorize the purchase and noted that the actual purchase would not take place or be accounted for until FY 2025 either way. Councilor Lessard stated his objection to the concept of committing to the purchase from unapproved funds. Councilor LaFountain agreed with the Manager's additional clarification about designating funds from the approved FY 2024 budget and carrying them over to FY 2025 for the actual purchase.

Motion by Councilor Beaupre to award the bid to Marc Motors.

Second: Councilor Lessard

Vote: Unanimous in favor.

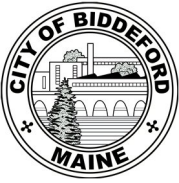
Motion passed.

Councilor Beaupre Motion to adjourn at 6:04 pm.

Second: Councilor Lessard

Vote: Unanimous in favor.

Meeting adjourned.



Finance Committee

Meeting Date: May 7, 2024

Meeting Time: 5:00pm

Agenda Item No: 4.1

Item Description: Fire Department Apparatus Bay Floor Repairs

Submitted by: Lawrence D. Best, Fire Chief

Supporting Information/Documentation:

Key Terms:

Fire Department Apparatus Bay Floor Repairs.

Executive Summary:

This request is to discuss moving forward with awarding the contract for the apparatus bay floor repairs at the Fire Department.

In FY23, the Fire Department Budgeted \$18,000 to resurface the apparatus bay floor. This projected was not completed in FY23 and the funds were carried forward to FY24 with the approval of the City Council (order #2023.95) at the September 5, 2023 Council meeting.

There was only one company that submitted a bid in the amount \$10,782.79.

The repairs to the apparatus bay floor are still needed in order to maintain the floor in an effort to reduce additional floor damage and reduce areas of potential walking surface issues (see attached example pictures).

Detailed Review:

The Fire Department posted an RFP #2023-24 for the Apparatus Bay Floor Repair Project, which closed on April 15, 2024 at 4:00pm.

There was only one company that submitted a bid in the amount \$10,782.79.

The RFP was for the following the repair of all chips, voids, cracks or areas of Spalling with epoxy slurry Dur-A-Flex Floor System. The areas needing prep will be ground out and prepared properly to manufactures recommendations for the epoxy flooring.

The repairs to the floor will fill-in the existing chips, voids, cracks and areas where the floor has spalled. This will help stop additional floor damage in these areas and will assist with furthering the life of the apparatus floor covering.

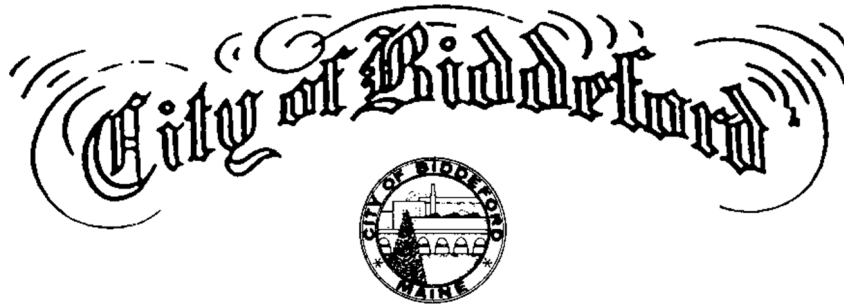


Funding Source:

CIP Carry Forward Funds from FY23 to FY24 (see attached order #2023.95).

Staff Recommendation:

Consider authorization to move forward with signing a contract for the Apparatus Bay Floor repair with the company who submitted a bid for this project.



2023.95

IN BOARD OF CITY COUNCIL...AUGUST 15, 2023

BE IT ORDERED, that the Finance Director is authorized to create dedicated reserves and reallocation reserve accounts for unspent FY23 Capital Improvement Funds, and transfer funds from the FY2023 Budget in the amounts listed below deducting any encumbrances, or if listed as both Dedicated Reserve and Reallocation reserve the dedicated reserve shall be a fixed amount and the reallocation reserve being the balance deducting any encumbrances.

Source	Project	Dedicated Reserves	Reallocation Reserve
FY23 CIP	DPW - Sidewalks	\$34,875.78	
FY23 CIP	DPW – RT1 Improvements	\$50,000.00	
FY23 CIP	DPW - Tree Management Plan	\$35,000.00	
FY23 CIP	ENG – River Wall Repair (Mech Park)	\$300,000.00	\$100,000.00
FY23 CIP	ENG – Thatcher Brook Phase III	\$75,000.00	\$112,850.00
FY23 CIP	REC – Rotary Park Complex		\$139,000.00
FY23 CIP	AIR – ADA Building Update		\$15,000.00
FY23 CIP	BFD – Battery Extrication Tool		\$15,729.00
FY23 CIP	CNC – Pedestrian Crossing Signal	\$50,000.00	
FY23 CIP	CNC – Signalized Crosswalk West St.	\$25,000.00	
FY23 CIP	BFD – Rubber Roof Replacement		\$27,097.00
FY23 CIP	CNC – May Field (tree planting)	\$10,000.00	
FY23 CIP	CNC – New Playground Equip	\$100,000.00	
FY23 CIP	EDP – Pearl Point Park	\$50,000.00	
FY23 CIP	ENG – Hill/Main/Water	\$637,012.00	
FY23 CIP	FAC – Community ADA Compliance	\$75,000.00	
FY23 CIP	FAC – DPW Front Door Replacement	\$15,000.00	
FY23 CIP	FAC – 3 Lincoln Communication Stack	\$150,000.00	
FY23 CIP	FAC – DPW Recycle Cardboard Storage	\$15,000.00	
FY23 CIP	FAC – FD Apparatus Floor Resurface	\$18,000.00	
FY23 CIP	REC – Doran Field	\$10,000.00	
FY23 CIP	REC – Pool Beach Septic		\$12,000.00
22001-92111-11552	Comprehensive Plan		\$2,450.00
22001-92111-11801	Downtown Development Commission		\$792.71
22001-92111-12106	Mobile App		\$3,617.29
22002-92112-20801	May Field Upper Drainage		\$12,000.00
22002-92112-21101	Teen Center Improvements		\$942.18
22002-92112-21601	St. Louis Field Improvements		\$2,141.32
22002-92112-21602	Martel Field Improvements		\$3,901.01
22002-92112-21701	Park Improvements/Amenities		\$5,618.65
22002-92112-21803	Rotary Park Improvements		\$15,000.00
22002-92112-21901	Tennis Court Repair		\$2,755.00
22002-92112-21902	Park Benches		\$1,484.00
22002-92112-21904	Park Security Improvements		\$10,000.00
	Totals	\$1,649,887.78	\$482,378.16

BE IT FURTHER ORDERED, that the City Manager be authorized to expend from the above Dedicated Reserves for expenses related to on-going projects in accordance with the Purchasing Code; and

BE IT FURTHER ORDERED, that \$426,920.59 of the Reallocation Reserve be assigned to the City Hall Renovation Project to cover project gap funding; and

BE IT FURTHER ORDERED, that \$30,000 of the Reallocation Reserve be assigned to the St. Louis Field #1 Improvement Project.

NOTE: This item was tabled at the August 15, 2023 Finance Committee meeting and removed from the August 15, 2023 agenda of the City Council.

BID – CONTRACT

PROJECT IDENTIFICATION: Biddeford Fire Department

Apparatus Floor Projects 2023-24

THIS BID SUBMITTED TO: City of Biddeford, Maine

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents, to complete all work as specified or indicated in the Contract Documents for the Contract Price, and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Instructions to Bidders, including without limitations those dealing with the disposition of Bid Security. This Bid will remain open for a minimum of four months after the Bid opening. BIDDER will sign the Agreement and submit the contract security and other documents required by the contract Documents within fifteen (15) days after the date of OWNER'S Notice of Award.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that

(a) BIDDER has examined copies of all the Contract Documents and the Following addenda:

Date

Number

(Receipt of all which is hereby acknowledged) and also copies of the Invitation to Bid and the Instructions for Bidders;

(b) BIDDER has examined the site and locality where the work is to be performed, the legal requirements (federal, state, and local laws, ordinances, rules, and regulations) and the conditions affecting cost, progress, or performance of the work and has made such independent investigation as BIDDER deems necessary;

(c) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; BIDDER has not directly or indirectly induced or solicited any other BIDDER to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm, or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other BIDDER or over OWNER.

4. BIDDER agrees that the work will be completed by TBD.

Respectfully submitted,

By: *Mary Marsello, Secretary of Corp*

Name and Title ~~AAA~~

For: *MARY MARSILLO, United Builders Inc*

(Seal if by a Corporation)

Address: *688 Caled Highway, Barrington NH 03825*



COMMERCIAL GRADE SPECIFICATIONS

OUTLINE OF WORK

1. Repair of all chips, voids, cracks or areas of Spalling with epoxy slurry Dur-A-Flex Floor System
2. "Prepare Floor" Areas needing prep will be ground out and prepared properly to manufactures recommendations for epoxy
3. Job site identification- Floor Areas that are repaired will be complete and appropriate guarding will be placed to prevent accidental contamination from debris or equipment placement
4. Coordination with the Fire Department is paramount to prevent damage to equipment if needed to be stored outside of the building.
5. Job site clean up

COMMERCIAL GRADE SPECIFICATIONS

OUTLINE OF WORK

1. Removal & disposal left over epoxy and debris.

BIDDER will complete the work for the following prices:

PRICE QUOTE: oz.

Item No.	Units	Per Unit	In Words	Figures
1.	1.0	lump sum	Ten thousand Seven hundred Eighty Two Dollars & seventy Nine Cents	\$ 10,782.79
TOTAL AMOUNT				10,782.79
Signed <u>M. Mahello</u>				3/29/24
Signed				Date

END OF SECTION BID

**CITY OF BIDDEFORD
AFFIDAVIT OF NON-COLLUSION**

I swear (or affirm) under the penalty of perjury

1. That I am the Responder (if the Responder is an individual), a partner in the company (if the Responder is a partnership), or an officer or employee of the responding corporation having authority to sign on its behalf (if the Responder is a corporation)
2. That the attached proposal submitted in response to the _____ Request for Proposed Solution has been arrived at by the Responder independently and has been submitted without collusion with and without any agreement, understanding or planned common course of action with, any other Responder of materials, supplies, equipment or services described in the Request for Proposed Solution, designed to limit fair and open competition;
3. That the contents of the proposal have not been communicated by the Responder or its employees or agents to any person not an employee or agent of the Responder and will not be communicated to any such persons prior to the official opening of the proposals; and
4. That I am fully informed regarding the accuracy of the statements made in this affidavit.

Responder's Firm Name: Unified Builders Inc

Authorized Signature: M. Marstillo - Secy

Date: 3/29/22

Subscribed and sworn to me this 29th day of MARCH 2022

Notary Public: Mary MARSTILLO

My commission expires: _____

Mary E Marstillo
Notary Public, State of New Hampshire
My Commission Expires Jan 26 2027

Request for Taxpayer Identification Number and Certification

Give Form to the
requester. Do not
send to the IRS.

► Go to www.irs.gov/FormW9 for instructions and the latest information.

Print or type.
See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

Unified Builders Inc

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC

☐ C Corporation

☒ S Corporation

☐ Partnership

☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ►

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ►

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

688 Calef Highway

6 City, state, and ZIP code

Barrington, NH 03825

7 List account number(s) here (optional)

Requester's name and address (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

____ - ____ - ____

or

Employer identification number

8 4 - 5 0 5 0 7 1 1

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here

Signature of
U.S. person ►

Dewayne Watson

Date ►

3/29/24

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
 - Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
 - Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
 - Form 1099-S (proceeds from real estate transactions)
 - Form 1099-K (merchant card and third party network transactions)
 - Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
 - Form 1099-C (canceled debt)
 - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

3/29/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Foy Insurance - Exeter 64 Portsmouth Ave PO Box 1030 Exeter NH 03833		CONTACT NAME: Nancy Bird CISR ACSR CIC PHONE (A/C No. Ext): (603) 772-4781 FAX (A/C No.): (603) 772-3246 E-MAIL ADDRESS: nancy.bird@foyinsurance.com	
INSURED UNIFIED BUILDERS INC. 688 CALEF HIGHWAY BARRINGTON NH 03825		INSURER(S) AFFORDING COVERAGE INSURER A: Continental Western Insurance Company INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:	
		NAIC # 31325	

COVERAGES**CERTIFICATE NUMBER:** Master 2023-2024**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY			CPA5513440-11 per form CG 04 92	4/11/2023	4/11/2024	EACH OCCURRENCE \$ 1,000,000
	☐ CLAIMS-MADE ☒ OCCUR		DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000				
	☒ additional insured		MED EXP (Any one person) \$ 10,000				
	GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☐ PRO-JECT ☐ LOC OTHER:		PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000				
A	☒ AUTOMOBILE LIABILITY			CAA5513441-11	4/11/2023	4/11/2024	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	☐ ANY AUTO		BODILY INJURY (Per person) \$				
	☐ ALL OWNED AUTOS	☐ SCHEDULED AUTOS	BODILY INJURY (Per accident) \$				
	☐ HIRED AUTOS	☐ NON-OWNED AUTOS	PROPERTY DAMAGE (Per accident) \$				
	☐ UMBRELLA LIAB	☐ OCCUR					EACH OCCURRENCE \$
	☐ EXCESS LIAB	☐ CLAIMS-MADE					AGGREGATE \$
	☐ DED ☐ RETENTION \$						\$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			3.A State NH DeWayne Watson EXCLUDED WCA5513442-11	4/11/2023	4/11/2024	☒ PER STATUTE ☐ OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y/N ☒ Y ☐ N/A	E.L. EACH ACCIDENT \$ 500,000				
	If yes, describe under DESCRIPTION OF OPERATIONS below		E.L. DISEASE - EA EMPLOYEE \$ 500,000				
			E.L. DISEASE - POLICY LIMIT \$ 500,000				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Carpentry-construction of residential property not exceeding three stories in height; painting-interior-buildings or structures; (2023): Any Person or Organization including Certificate Holder is additional insured if written signed contract or agreement to such exists prior to loss subject to form indicated above in General Liability section.

CERTIFICATE HOLDER**CANCELLATION**

CITY OF BIDDEFORD 205 MAIN ST BIDDEFORD, ME 04005	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE Michael Foy/EAMAND

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Unified Builders, Inc

688 Calef Highway
Barrington, NH 03825
603-905-9004
<http://www.UnifiedBuilding.com>



Estimate Proposal

Biddeford Fire Department - Floor Repair Estimate

BETWEEN THE OWNER:

Thorpe, Chief Kenneth
152 Alfred Street
Biddeford, ME 04005

AND THE CONTRACTOR:

Unified Builders, Inc
688 Calef Hwy
Barrington, NH 03825

FOR THE PROJECT:

**Biddeford Fire Department - Floor
Repair**
152 Alfred Street
Biddeford, ME 04005

SCOPE OF WORK:

Floor Spot Repair

- Prepare floor
- Repair all chips and voids with red pigmented urethane cement and epoxy slurry using Dur-A-Flex Shop Floor System
- Job site clean up

Exclusions

- Unified Builders and all subcontractors will not be responsible for removing equipment from the workspace

Proposed Schedule

- Prep and application (3 days)
- Floor can be walked on the following day after work completion
- Floor can be driven on two (2) full days after work completion
- Floor not to be cleaned with any chemicals for seven (7) days to include water
 - Keep dry and clean as possible

Terms and Conditions

- Estimate is valid for a minimum of four (4) months

Labor includes travel time from our corporate office at 688 Calef Highway, Barrington, NH and materials deliveries.

Unforeseen conditions such as rot repair on main structure is not included in this estimate as they are unknown at this time

Owner will supply electricity for the duration of the project

Unified Builders Inc, aka UBI, is an independent contractor dedicated to providing excellent service and quality workmanship every project and will not take direction from the client on how they should conduct such service if the quality of our work would be compromised, or if such direction for services is in violation of code restrictions or other standards of the industry.

UBI relies on information and counsel provided by engineers, inspectors and other professionals when making recommendations to their clients. UBI, its affiliates and heirs shall not be liable and shall be held harmless if the client does not follow the recommendations provided by UBI in the scope of this Contract for services.

Estimate Proposal

Repair

Floor Repair

NAME

Spot Repair

Administrative Overhead

Floor Repair: \$ 10,782.79

Project Total

Grand Total: \$ 10,782.79

Terms and Conditions

Signatures: Signature(s) by Owner/Client and Contractor signifies an agreement by both parties that the proposal henceforth represents a legally binding contract between both parties. Estimate to expire within 14 days of submission to client.

Deposit: Subject to additional charges pursuant to any Change Orders, Owner/Client agrees to pay the Contractor 25% of the total "Contract Price" before the project will be scheduled to begin. All funds shall be paid in US dollars. The 25% deposit will be applied incrementally to each invoice submitted to the client for payment. Should there be a credit balance due to a reduction in labor or materials from the initial estimate, a refund will be issued within 14 business days of payment of the final invoice.

Progress Invoices: Contractor shall submit to Owner/Client a progress invoice for payment upon completion of the scope of work in each segment of the Contract. Contractor's invoice shall be itemized and supported by Contractor's schedule of values and any other substantiating data as required by this Agreement. Owner/Client shall pay each invoice within 7 business days from the date of the invoice. A 1.5% charge, per month, for all invoices not paid by the due date. Additionally, a fee @ \$65 will be charged for all returned or "NSF" payments.

Allowances: Any lines marked with an (*) indicate an allowance cost. The cost to cover the material(s), including the labor to install the specified material(s), overhead and profit are included. Owner(s) understand and agree that ANY LABOR AND/OR MATERIAL ALLOWANCE AMOUNT may be more, or less than the figure specified in this Contract, and that any adjustments will be made on the final billing for this job. Please note that a Change Order will need to be applied should the cost of the material(s) exceed the agreed upon allowance price listed here.

Transaction Fees: Payments made by a credit or debit card will incur a 3% transaction fee. This fee may change at any time as dictated by the credit card merchant. There is no fee for payments made by check, direct deposit or electronic wire transfer.

Client Selections: All Client choices/selections must be made in a timely manner. Charges resulting in the return of materials due to Client decisions will be billed to Client. Client is responsible for any restocking and trip/delivery charges.

Change Orders: Any changes to the original scope of work or specification to include upgrades will require a written "Change Order". All change orders must be agreed upon in writing prior to the commencement of the additional/amended work to be performed. Client is responsible for any additional costs due to any Change Order. Unless otherwise agreed upon by both parties, all change orders must be paid in full prior to the commencement of the work to be performed. Under no circumstances shall the client instruct or otherwise direct an employee, contractor and/or subcontractor to make changes in the original scope of work or specification. All requests must be directed to, and approved by the management of Unified Builders, Inc and processed as outlined above.

Worksite Conditions: Safety is of paramount concern. Job space/site must be unobstructed and accessible to UBI employees and sub-contractors before the start of work each day. The work site shall be considered inaccessible to anyone who is not a UBI employee, sub-contractor or affiliate. Clients may not enter job site without a UBI representative present. All UBI equipment/tools or subcontractor equipment/tools are considered private property and are not to be touched or used by Client in any way.

Outside locations shall be maintained by the Client free of snow and properly sand and salted. Client responsible for snow clearing and providing a safe path to work site. If UBI is required to provide snow clearing and sand/salt, Client will be charged for services. Any expenses resulting in work stoppage due to unanticipated snow clearing is the responsibility of the Client.

Dust and noise are unavoidable in all demolition situations. The work location can often be dangerous, so be sure to have young children and pets out of the work area and an unobstructed path cleared through your home to the outdoors.

Client is solely responsible for all delays, damages, and losses caused by its failure to comply with the Worksite Conditions described herein.

UBI shall leave the jobsite cleared of all construction debris and in "broom clean" condition.

Indemnification: To the maximum extent permitted by law, the Client agrees to protect, defend and indemnify UBI against and hold UBI harmless for any and all claims, demands, liabilities, losses, expenses, suits and actions, including attorney's fees, for or on account of any injury to any person, or any death at any time resulting from such injury, or any damage to any property, which may arise (or which may be alleged to have arisen) in any way out of or in connection with the work covered by this Agreement for which the Client is solely responsible.

Limitation of Liability: Except as otherwise provided in this Agreement, in no event shall either party, or any of their affiliates, officers, directors, employees, shareholders, representatives, members, agents or assigns, be liable to the other party or any third party for special, indirect, punitive, incidental or consequential damages or losses of any nature, arising out of or in connection with the execution, performance, or nonperformance of this Agreement or obligations to be provided by either Party hereunder, including, but not limited to, damages resulting from delay, loss of income, profits, revenue, goodwill or opportunity or such damage or loss on account of expenses, investments, loss of sue, cost of replacement or any other loss of commitments in connection with the business or goodwill thereof, and whether such liability is based in contract, tort, negligence, strict liability or otherwise. The Parties agree that this limitation of liability shall survive in full following the completion, expiration or termination of this Agreement.

Warranty: At the completion of the project, Contractor shall warranty the project for one year against defects in workmanship or materials utilized. The manufacturer's warranty will prevail. UBI does not warranty materials/equipment/fixtures that are not directly purchased by UBI.

Dispute Resolution: Any disputes arising from this contract, or the project shall be subject to mediation as a mandatory condition precedent to filing suit. Mediation shall take place within sixty (60) days after written notice of the dispute is sent by one party to the other. The parties shall cooperate in good faith to select a mediator and the costs of mediation shall be split evenly between the parties. Nothing in this provision shall prevent UBI from seeking a mechanics' lien pursuant to applicable law. If mediation does not occur within sixty (60) days after written notice of a dispute, the parties may file suit.

Limitation Period: No legal action of any kind relating to the project, project performance or this contract shall be initiated by either party against the other party after one year beyond the completion of the project or cessation.

Entire Agreement: This Agreement contains the entire agreement between the parties. All negotiations and understandings have been included in this Agreement. Statements or representations which may have been made by any party to this Agreement in the negotiation stages of this Agreement may in some way be inconsistent with this final written Agreement. All such statements are declared to be of no value in this Agreement. Only the written terms of this Agreement will bind the parties.

Attorney's Fees: If UBI obtains a legal judgment against Client to enforce UBI's rights under this Agreement, including without limitation to collect any amounts due and owing under this Agreement, UBI shall be entitled to recover its reasonable attorneys' fees and costs in addition to any other relief to which UBI may be entitled.

Force Majeure: No Party to this Agreement shall be liability for as failure or delay in performing any of its obligations under this Agreement if, but only to the extent that, such failure or delay is due to force majeure or other causes beyond the reasonable control of the affected Party, including (a) acts of God, (b) fire, explosion or unusually severe weather, (c) war, invasion, riot or civil unrest, (d) governmental laws, orders, restrictions, actions, embargoes or blockages, (e) national or regional emergency, (f) epidemics, and (g) injunctions, strikes, lockouts, labor trouble or other industrial disturbances; provided, however, that the affected Party shall promptly notify the other of the fore majeure or other condition and shall exert reasonable efforts to eliminate, cure, or overcome any such causes and to resume performance of its obligations as soon as reasonably possible.

Escalation Clause for Building Materials:
The contract price for this residential construction project has been calculated based on the current prices for the component building materials. However, the market for the building materials that are hereafter specified is considered to be volatile, and sudden price increases could occur. The Contractor agrees to use its best efforts to obtain the lowest possible prices from available building material suppliers, but should there be an increase in the prices of these specified materials that are purchased after execution of contract for use in this residential construction project, the Owner agrees to pay that cost increase to the Contractor. Any claim by the Contractor for payment of a cost increase, as provided above, shall require written notice delivered by the Contractor to the Owner stating the increased cost, the building material or materials in question, and the source of supply, supported by invoices or bills of sale.

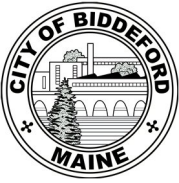
NEW HAMPSHIRE LAW, RSA 359-G, CONTAINS IMPORTANT REQUIREMENTS YOU MUST FOLLOW BEFORE YOU MAY FILE ALAWSIDT OR OTHER ACTION FOR DEFECTIVE CONSTRUCTION AGAINST THE CONTRACTOR WHO CONSTRUCTED, REMODELED, OR REPAIRED YOUR HOME. SIXTY DAYS BEFORE YOU FILE YOUR LAWSUIT OR OTHER ACTION, YOU MUST SERVE ON THE CONTRACTOR A WRITTEN NOTICE OF ANY CONSTRUCTION CONDITIONS YOU ALLEGE ARE DEFECTIVE. UNDER THE LAW, A CONTRACTOR HAS THE OPPORTUNITY TO MAKE AN OFFER TO REPAIR AND/OR PAY FOR THE DEFECTS.THERE ARE STRICT DEADLINES AND PROCEDURES UNDER STATE LAW, AND FAILURE TO FOLLOW THEM MAY AFFECT YOUR ABILITY TO FILE A LAWSUIT OR OTHER ACTION.

Acceptance of Agreement

Witness our hand and seal on this ____ day of _____ 20__.

Signed in the presence of:

_____ Witness	_____ Witness
_____ Contractor Signature	_____ Owner Signature



Finance Committee

Meeting Date: May 7, 2024

Meeting Time: 5:00 PM

Agenda Item No: 4.2

Item Description: Authorize the engagement of Berry Dunn to assist the Finance Department

Submitted by: James Bennett, City Manager

Supporting Information/Documentation:

Berry Dunn Engagement Letter

Berry Dunn Project Proposal

Executive Summary:

In order to complete the FY23 Audit, I am requesting the assistance of an outside auditing firm. The conditions that were left with the nearly complete turn over within the Finance Department prevents the necessary work for the audit to be completed without outside expertise. Our current auditors cannot perform the work and also audit the results. This authorization will not only assist with specific tasks but will also take a look at any weaknesses within the internal controls, processes as well as perform a fraud risk assessment.

Detailed Review:

As has been reported publicly for a few months, a significant backlog of work (over 1 year) was left when the top two leaders of the Finance Department left within a few weeks of each other in August/September last year. Since their departure, two other staff members have also left.

The backlog of work has made it impossible to complete that audit for FY23. While, there have been gains in the work, it has panned out to be far more complicated and intensive than originally anticipated. The recommended firm not only has the knowledge, experience and expertise to complete the work, it also has the ability to immediately go to work. The selected firm is also endorsed by our current auditors.

Funding Source:

The funds will be charged to the General Administrative budget. There is \$10,000 allocated for other consultants (budget line 21111-60306). The cost exceeds the \$10,000. The recommendation is to overspend the line understanding the overall budget for General Administration is expected to come in below budget.

Staff Recommendation:

These services are needed to finally clean up the issues that exist within the Finance Department.



April 29, 2024

City of Biddeford, Maine
Attn: James A. Bennett, City Manager
205 Main Street
Biddeford, Maine 04005

Dear Mr. Bennett:

We are pleased to confirm our understanding of the terms of our engagement and the nature and limitations of the services we will provide to the City of Biddeford, Maine (the City). We are independent certified public accountants with respect to the City within the meaning of the American Institute of CPA's (AICPA) Consulting Standards.

Berry Dunn McNeil & Parker, LLC (BerryDunn) will provide consulting services assisting management with technical accounting issues, including audit readiness. BerryDunn will also provide general accounting assistance and advice as requested. These services are further outlined in our Project Plan and Price Proposal dated April 30, 2024.

Since the procedures to be performed will not constitute an audit made in accordance with auditing standards generally accepted in the United States of America, we will not express an opinion on any of the items specified in the reports issued or on the financial statements of the City taken as a whole. The work will be performed in accordance with AICPA's Statement on Standards for Consulting Services.

In rendering these services, we will be relying on the accuracy and reliability of historical financial information or other financial data of the City provided by management. We will not, as a part of this engagement, audit, compile, or review such information, and we will not express an opinion or any form of assurance on it. You and your representatives will provide to us promptly, upon request, all information and documentation reasonably deemed necessary or desirable by us in connection with the services described herein. You and your representatives represent and warrant that all information and documentation provided or to be provided is true, correct and complete, to the best of your knowledge and belief, except as you may otherwise advise us at the time you provide us the information. We are authorized to rely upon such information and documentation without independent investigation or verification.

Our working papers, including any copies of your records that we choose to make, are our property and will be retained by us in accordance with our established records retention policy.

Either party may cancel this agreement at any time by providing written notice of cancellation to the other party. Upon termination, BerryDunn will be entitled to payment, determined on a pro rata basis, for services satisfactorily performed. Disputes will be handled by a process of arbitration, mediation, or other means provided by law for resolving problems and for determining who bears the cost of consequential damages arising from errors, omissions, or negligence.

We will not perform management functions, make management decisions, or act or appear to act in a capacity equivalent to that of a member of management or an employee and, if applicable, will comply with AICPA or regulatory independence guidance.

The City agrees to the following:

1. Management of the City shall make all management decisions arising out of, or in connection with, these services, including the following general activities:
 - a. Authorizing, executing, or consummating all transactions.
 - b. Preparing all source documents in electronic or other form evidencing the occurrence of a transaction.
2. The City will designate an appropriate individual to oversee the nonaudit services.
3. The City will evaluate the adequacy and results of the services.
4. The City accepts responsibility for the results of the services.
5. The City shall establish and maintain appropriate internal controls related to the subject matter of these services, including monitoring ongoing activities.

The scope of this engagement does not constitute the provision by BerryDunn, its principals, or staff of any legal advice. Moreover, because our engagement is limited in nature, it cannot be relied upon to discover all documents and other information or provide all analyses which may have importance to this matter.

We are committed to providing you with a fee that is reasonable and fair for the high quality of service you will receive. Our billings will be rendered during the engagement and are payable upon receipt. We anticipate our work will be completed remotely. However, should on-site time be required, our billings will include travel time, travel costs and other out of pocket costs. A late charge is added on all unpaid bills in excess of 30 days at an annual rate of 18% (1½% per month). This engagement includes only those services specifically described in this letter. Appearances before judicial proceedings or government agencies such as the Internal Revenue Service or other regulatory bodies, arising out of this engagement, will be billed to you separately.

We may stop work at any time in the event of any unpaid balance. We may resign from this engagement at our sole discretion at any time.

Each party hereto agrees that any electronic signature is intended to authenticate a written signature, shall be valid, and shall have the same force and effect as a manual signature. For purposes hereof, "electronic signature" includes, but is not limited to, a scanned copy of a manual signature, an electronic copy of a manual signature affixed to a document, a signature incorporated into a document utilizing touchscreen capabilities, an electronic sound symbol or process attached to or logically associated with a contract or other record and executed or adopted by a person with an intent to sign the record, or a digital signature.

If you are in agreement with the terms of this letter, please sign one copy and return it for our files. We appreciate the opportunity to work with you.

We look forward to our continued relationship to contribute to the City's future success.

James A. Bennett, City Manager
City of Biddeford, Maine
April 29, 2024
Page 3

Very truly yours,

BERRY DUNN McNEIL & PARKER, LLC

By: Robert S. Smalley III
Robert Smalley, CPA, CGMA, CFE
Principal

Acknowledgement:

The above accurately reflects our understanding of the engagement and is accepted by us.

CITY OF BIDDEFORD, MAINE

By: _____
James A. Bennett, City Manager

Date



PROJECT PLAN AND PRICE PROPOSAL

City of Biddeford, Maine

TO PROVIDE

**Accounting Assistance and Forensic
Accounting Services**

BerryDunn Headquarters

2211 Congress Street
Portland, Maine 04102
207.541.2200

Robert Smalley, CPA, Principal

rsmalley@berrydunn.com

Katharine Balukas, CPA, Senior Manager

kbalukas@berrydunn.com

Proposal Submitted On:

April 29, 2024

April 29, 2024

Mr. James Bennett
City Manager
City of Biddeford, Maine
205 Maine Street
Biddeford, Maine 04005

Sent by email to: james.bennett@biddefordmaine.org

Dear James:

Thank you for reaching out regarding your interest in obtaining services to assist the City of Biddeford (the City) to prepare for the fiscal year 2023 financial statement audit including technical accounting assistance and outsourced accounting services. It is our understanding that in addition to audit readiness services, the City seeks to obtain BerryDunn's financial process-improvement expertise to review and evaluate forensic risks and areas for improvement. Robert Smalley, the principal who leads our Government Accounting Standards Board (GASB) team, and I are pleased to submit the following overview of services we can provide in support of the City's overall goals.

Our approach is simple: **consistently produce high-quality services, strive for unparalleled client satisfaction, and deliver both at a reasonable cost.** You can feel confident working with BerryDunn—we have the expertise, proven methodology, and resources to lead this project and fulfill your objectives.

As you evaluate our proposal, please consider the following points that position BerryDunn as the firm that is best qualified to perform the engagement:



Maine is our home, and we are committed to the success of our region. BerryDunn was founded 50 years ago in Maine, and we remain headquartered in Portland. Although we have grown steadily over the years, we have stayed true to our roots. We pride ourselves on being large enough to offer a broad range of technical and specialized services, but small enough for principals and staff to engage personally with each of our clients.



The City will benefit from our extensive experience working with governmental agencies. Our team specializes in governmental work, which means you will be served by a team of specialists who understand your ever-changing challenges and who give our undivided attention to the issues that matter. We understand that government agencies encounter a variety of accounting and regulatory issues that require significant experience in this specialized environment. Our long history of working with governmental agencies allows us to add value through expertise and knowledge sharing.



Timeliness throughout the engagement. We take the quality of our work seriously and will endeavor to exceed the City's expectations of the value and timeliness of our communications, service delivery, and final work products. We strive to do this by understanding your expectations, developing a reasonable and achievable engagement approach, gaining concurrence on tasks and timing, and selecting knowledgeable team members who are experienced and sensitive to your needs and concerns.



We deliver a high level of principal and manager participation. Our principals and managers are heavily involved during the entire engagement process. You will see our managers and principals during each phase of the engagement to address questions as they arise and review the engagement progress. This approach gives you continuous, hands-on involvement from professionals who have expertise in your industry and allows us to not only execute efficient engagements, but also serve as valuable advisors.



We value relationships with current clients like the City. We are not just interested in getting the job done; we care about how we get the job done. The people we work with matter to us, as expressed in several of our firm's core values, such as "respect for others," and "ethical behavior and fair dealing in all we do." We believe this is reflected in the fact that we are regularly invited back to conduct more work with our clients.

We would be glad to work with the City and contribute to your success. If I may clarify any information in this proposal, please do not hesitate to contact me directly.

We look forward to continuing the conversation with your team soon.

Sincerely,

Robert S. Smalley, CPA, CFE | Principal
rsmalley@berrydunn.com | 603.518.2627

Katharine Balukas, CPA | Senior Manager
kbalukas@berrydunn.com | 603.518.2648

Firm Overview

Qualifications Earned Through 50 Years of Service

BerryDunn was founded 50 years ago in Maine by three principals who sought to embrace a client focus, an entrepreneurial spirit, and a commitment to the communities where we live and work. Now, we are the largest independently owned accounting firm headquartered in New England. We offer the breadth and depth needed to provide the quality audit, accounting, and tax support provided by a national firm, but with the price structure, responsiveness, and efficiencies of a regional firm.



Founded in **1974**



Sarah Belliveau,
CEO



Employees in
40+ states



850+ Employees

Office locations



Portland
ME



Bangor
ME



Manchester
NH



Boston
MA



Hartford
CT



Charleston
WV



Phoenix
AZ



San Juan
PR

We are proud to be a recognized leader in our industry. BerryDunn is the **top ranked** CPA and management consulting firm headquartered in New England and was ranked **#46** on *Accounting Today's* Top 100 Firms for 2023. The firm is also ranked in the Top 50 Firms by *INSIDE Public Accounting*. Additionally, we are regularly recognized as one of the “Ten Best Accounting Firms for Women” by the American Society of Women Accountants and the American Women’s Society of Certified Public Accountants.

Services Comply with Limitations
and Regulations of the AICPA and
Public Company Accounting
Oversight Board (PCAOB)

BDO Independent Member
firm of the BDO Alliance

Top
50

“Top 100” ranking from
Accounting Today in 2023,
and “Top 100” ranking since
2011

#1

**#1 CPA Firm in New
England** ranking from
Accounting Today in 2023

BerryDunn is an independent member of the BDO Alliance USA, a nationwide association of independently owned accounting, consulting, and service firms with similar client service goals. Through this membership, clients like the City gain access to a wider range of services without impairing our professional independence.

We believe that these commendations, combined with our continued growth during challenging economic times, speak to the valued services and expertise we bring to our clients as well as the quality and integrity of our firm culture.



BerryDunn is organized along industry group lines; for the services the City has requested, we have assembled an engagement team that specializes in working with government entities and organizations that report their financial statements in accordance with GASB. Our experienced governmental accountants partner with municipalities, agencies, and state departments to strengthen internal controls, create operational efficiencies, help them meet reporting deadlines, implement and understand new accounting pronouncements, and offer ongoing accounting support as needed. Working collaboratively with governments, we can provide an array of customized services to support your individual needs.

Great Work for Great Clients

Each year, BerryDunn solicits feedback through a client satisfaction survey independently conducted by Portland Research Group. The results of our most recent client satisfaction survey show we continue to meet or exceed expectations:



As evidenced by the client feedback below, we consistently surpass industry standards in areas like planning and collaboration with our clients, the quality of our deliverables, timeliness, communication, identifying and addressing critical issues, and overall client satisfaction.



Governmental Audit and Accounting Experience

Professional auditing services have been a core service for BerryDunn and our commitment to consulting with governmental entities began in the mid-1990s with a regional focus that has since expanded. Our auditors and consultants now serve more than 600 public-sector clients from all over the country with wide-ranging audit, assurance, and consulting projects. The breadth and depth of our experience specializing in serving government clients gives us a unique understanding of government operations and the regulations with which municipalities must comply.

Because of our commitment to specialization, we are well-versed in how to run an efficient and effective engagement. You will benefit from having a team of specialists who understands the complex accounting and regulatory issues of GASB clients, and who enjoys working in this multifaceted, ever-changing environment. Governmental organizations encounter a variety of challenging accounting and regulatory issues that require significant experience in the area, particularly with the current economic challenges. We help our clients address these issues efficiently and feel they appreciate a relationship with professionals who are up to date on current and emerging developments in their environment, such as:

- Financial statement audits
- Uniform Guidance audits
- Programmatic audits
- Consultation on the design and implementation of accounting systems and related internal control
- Review and analysis of systems of internal control and accounting procedures
- Grants management
- Technical accounting assistance
- Audit readiness
- Annual Comprehensive Financial Report (ACFR) preparation
- Implementation with new GASB pronouncements
- Forensic reviews
- Operational reviews
- Business process improvement, and long-range business and financial planning
- Change management
- Organization development
- Leadership training and mentoring

With our deep bench of more than 300 auditors and consultants, we are confident that we can provide the expert guidance and services requested by the City.

Audit Readiness

With our extensive audit and accounting experience, we are able to provide clients with assistance in preparing for their financial statement and Uniform Guidance audits. Our work includes 1) providing assistance in the development of analyses, schedules, worksheets, summaries, and other work papers that are responsive to audit requests; 2) consultation with finance and accounting staff relative to audit expectations and documentation of audit trail; 3) reviewing work performed by the finance team for accuracy and appropriateness. Our audit readiness engagements include a varying level of the three services to be provided based on their specific needs. Your engagement will be led by individuals that work on financial statement and Uniform Guidance audits throughout the year. This allows us to truly partner with our clients as we understand the audit requirements and can better prepare our clients for the upcoming requests and questions that may arise. We are well-versed in the documentation and requirements to complete audits.

Internal Controls

At BerryDunn, we understand the importance of having a sound internal control structure to protect the assets of your organization. BerryDunn helps clients navigate the complexities and challenges of a constantly changing internal control environment. We start with an assessment of each client's existing internal control program, and then work closely with stakeholders to identify strengths and vulnerabilities.

Internal controls are intertwined with many of our engagements whether they are financial statement audits or consulting engagements. We initiate each engagement by asking thoughtful questions about the client's business, control environment and activities, risk assessment, monitoring, and communication. This process allows us to evaluate the current state of effectiveness while we find and close gaps and build a stronger overall control system. After we deliver our recommendations, we can also provide monitoring support to help make sure any new control environment is ready to meet any current and future concerns. We can provide a list of our internal control clients upon request.

GASB Pronouncement Implementation

At BerryDunn, we take a collaborative approach with our clients when it comes to implementing new accounting standards. We begin by providing insight to new accounting pronouncements in advance of their effective dates. We do this through periodic articles on our website, annual trainings, pre-planning meetings with management and those charged with governance, and communicating within an “Emerging Issues Letter,” provided as a by-product to the annual audit.

In recent years, we have issued formal “white papers” that can be used as implementation guides for the Leases under GASB standards. These guides include systematic guidance for implementation in addition to various example statements and disclosures. We have also developed a tool to track and calculate software contracts that meet the requirements of GASB Statement No. 96.

BerryDunn has significant experience with states and local governments to implement new accounting standards including performing calculations, proposing journal entries, and drafting the required footnote disclosures.

Annual Comprehensive Financial Reports

We have significant experience in preparing Annual Comprehensive Financial Reports (ACFR) for municipalities including cities, towns, counties, and component units of states in addition to assisting with the implementation of new GASB pronouncements.

We understand the commitment and dedication that it takes to receive the Government Finance Officers Association’s (GFOA’s) Award for Excellence in Financial Reporting. We are fully aware of the categories that the GFOA grades the ACFR on including the introductory section, basic financial statements, and the statistical section. Our professionals serve as members of the GFOA Certificate of Achievement for Excellence in Financial Reporting Program Special Review Committee and reviews ACFRs from government agencies across the country.

We are confident our depth of expertise can support any of your strategic changes in the future. We can proactively identify and address complicated and sometimes rapidly evolving issues, so you have time to develop strategies to respond to the changing landscape.

Forensic Audits

Our Government Assurance Practice Group specializes in forensic accounting and forensic fraud examinations. For more than seven years, this practice group has been providing information security fraud risk assessments and financial fraud detection to government agencies, higher education institutions, and private organizations.

Forensic auditing requires specific training in fraud detection. Our team includes professionals who are Certified Public Accountants (CPAs), Certified Fraud Examiners (CFEs), and Master Analysts in Financial Forensics® (MAFFs®). Members of our team have distinguished backgrounds in cost accounting, business controls assessment, and project management. Those services include forensic accounting and auditing, and fraud investigations, evaluation of security compliance and risk management practices against state and federal standards; and identifying, planning, and developing policies and procedures. We are able to provide a tailored approach to forensic projects in accordance with applicable standards such as Codes of Professional Conduct and CFE Code of Professional Standards.

Financial Statement Audits

Industry specialization and a commitment to client education differentiate our financial statement audit services from those of other firms. We set ourselves apart by taking a team approach to the way we manage our engagements. Through consistent principal and manager engagement, and open lines of communication, financial leaders in your organization receive timely and accurate deliverables while gaining insight into the latest guidance that will affect compliance and reporting. Our service approach includes a deep understanding of industry-specific applications of audit and accounting standards.

Uniform Guidance Audits

Our approach for the financial statements and the Uniform Guidance compliance audits is integrated, utilizing the same audit team to maximize audit efficiencies. This testing is coordinated with our fieldwork to help ensure there is minimal disruption for finance and program personnel. If an issue should arise, coordination with the financial statement process gives you time to address the issue in a timely manner before it potentially impacts the next fiscal year's compliance audits.

Our testing is done in compliance with the most recent modifications to federal compliance audit requirements and provides for an approach that is both value-added and risk-sensitive.

Our Uniform Guidance client base includes government and quasi-government entities, as well as a wide variety of not-for-profit organizations, including housing agencies, public housing authorities, community action agencies, economic development organizations, healthcare organizations, behavioral health agencies, institutions of higher education, and others that receive federal and state grants and are subject to the compliance requirements of Uniform Guidance. We perform more than 150 Uniform Guidance audits a year, and therefore, have developed a deep expertise in performing audits under these requirements.

Additional Advisory Capabilities

We are confident BerryDunn has the resources to serve almost any consulting needs that may arise for the City, and we will be available to provide your organization with financial, accounting, regulatory, and other consulting services throughout the year. Due to our wide range of experience in auditing and consulting, we have developed expertise in governmental accounting and financial management systems, including assisting our clients with budgeting, design, selection, and implementation of computerized accounting systems, and reviews of internal controls for the purpose of submitting detailed recommendations. In accordance with independence requirements and BerryDunn's quality control policies, any such non-audit service may not involve performing management functions or making management decisions.

The main reasons our clients have selected us are our consistent responsiveness to their needs and the capability and varied expertise of our people. We offer a variety of advisory services to government clients including, but not limited to, the following:

- Operational reviews
- Financing strategies
- Information security
- Indirect cost rate development
- Employee benefit plan guidance
- Enterprise risk management projects
- Reorganization strategies / strategic planning
- Computer systems and software consultation
- Business process improvement, and long-range business and financial planning
- Consultation on the design and implementation of accounting systems and related internal control

Our Work with Similar Agencies

We have significant experience providing GASB-compliant audit and/or consulting services to municipalities, authorities, and state entities, including:

Client	
Audit Readiness and Technical Accounting Assistance including GASB Implementation Assistance	
• Biddeford Saco Old Orchard Beach Transit • City of Burlington, Vermont • City of Portland, Maine School Department • City of Portsmouth, New Hampshire • Massachusetts Bay Transportation Authority (MBTA)	• Nehalem Bay Health District, Oregon • New Hampshire Liquor Commission • Town of Danvers, Massachusetts • Town of Lincoln, Maine • Town of Veazie, Maine • Ventura County Transportation Commission
Financial Statement Audits in Accordance with GASB	
• Anson-Madison Sanitary District • Auburn Housing Authority • Brewer Housing Authority • Brunswick Housing Authority • Caribou Hospital District • Cary Medical Center • Casco Bay Island Transit District (CBITD) • Child Development Services (State of Maine) • Community College System of New Hampshire • City of Manchester Employees Contributory Retirement System • HealthSource RI • Houlton Water Company • Housing Authority of the City of Old Town • Maine Community College System • Maine Public Employee Retirement System	• Maine Technology Institute • Maine Veteran's Home • Mayo Regional Hospital • Minnesota Health Benefits Exchange (MNSure) • Mount Desert Island & Ellsworth Housing Authority • Portland Water District • Pease Development Authority • Silver State Health Insurance Exchange • Rhode Island Student Loan Authority • Vermont Economic Development Authority • Vermont Health Connect • Vermont Student Assistance Corporation • Washington Health Benefit Exchange • Waterville Housing Authority • York Housing Authority

Client	
Internal Controls, Operational Assessments, and/or Internal Audits	
• Connecticut Health and Educational Facilities Authority • Martha's Vineyard Airport • New Hampshire Judicial Council • Town of Blackstone • Metropolitan Government of Nashville and Davidson County	• New Hampshire Liquor Commission • New Hampshire Public Defender Office • Vermont Agency of Education • Vermont State Colleges • Minnesota Management Analysis and Development • Maricopa County
Grants Management Services	
• Androscoggin County, Maine • City of Ann Arbor, Michigan • City of Boise, Idaho • City of Meridian Idaho • City of Stonecrest, Georgia • Kennebec County, Maine	• Lewis County, Washington • New Hampshire Secretary of State • Outagamie County, Wisconsin • State of Delaware, Governor's Office • State of North Carolina, Office of Budget

Approach to Consulting Services

Scope of Work

We will provide hands-on assistance to the City's staff to prepare for the fiscal year 2023 financial statement audit and provide forensic accounting services.

We expect activities to fall into the following categories:

1. Assistance with monthly reconciliations including cash, fixed assets, payables, receivables and other accounts, as needed.
2. Assistance with development of analyses, schedules, worksheets, summaries, and other work papers that are responsive to audit requests, minimize ongoing preparation time, and provide analytical value to the City.
3. Consultation with finance and accounting staff relative to audit expectations; documentation of audit trail; management of data requests; efficient use of internal and external resources in maintaining auditable records; assessment of reasonableness and materiality in decision-making; and prioritization of audit preparation tasks.
3. Performing a fraud risk assessment to identify areas of heightened risk. We will analyze the results of our assessment and perform testing over the identified high-risk areas. These services will specifically include reviewing wire transactions that occurred from July 1, 2022 to March 30, 2024 among other areas. As a by-product of the risk assessment, we will develop recommendations for improvement in relation to the City's internal controls.

The work will be performed in accordance with the American Institute of Certified Public Accountants (AICPA)'s Statement on Standards for Consulting Services.

Since the procedures to be performed will not constitute an audit made in accordance with auditing standards generally accepted in the United States of America, we will not express an opinion on any of the items specified in the reports issued or on the financial statements of the City as a whole.

Service Approach, Timeline, and Fees

Approach and Timeline

We proposed a three-phase approach:

- **Phase 1 - Project Planning**

This first phase of the engagement includes performing an overall assessment of the City and the status of the reconciliations performed to date. We will perform various fact-finding meetings with key members of the City, discuss current internal control structures, review organizational charts, and policies and procedures, and perform walkthroughs over key accounting functions. These inquiries and documentation reviews will be dual purpose as they will assist to develop the overall status of the City and be the basis for our fraud risk assessment. We will also meet with the auditors to understand the current status of the engagement, pain points, and any templates they would like the City to utilize.

We will use the information gained from inquiries and reviewing accounting records to develop an overall project work plan and schedule. Our overall project plan will include an inventory the tasks and projects requiring our assistance and categorize the tasks between areas that need direct account reconciliation assistance, those needing review and oversight services, and areas in which pre-audit work will be necessary. With the project plan and timeline, we will be able to provide an overall budget for the work to be completed. We will present the project plan and timeline to key members of the City to determine the specific needs of the City, priority areas or items, and resources available within the City to assist with the reconciliation process.

We will also utilize the results of our fact-finding activities and documentation review to document a formal fraud risk assessment. We will use this risk assessment to develop a formal project plan to perform testing over high risk areas identified. We anticipate our work will include reviewing wire transactions that occurred from July 1, 2022 to March 30, 2024, among other areas.

- **Phase 2 – Testing, Analysis and Reporting**

During this phase, we will be performing testing identified as part of our fraud risk assessment. We will document the results of our detailed testing and opportunities for improvement in a report format. We will also be performing the various reconciliations through June 30, 2023 to assist with catching the City up in their overall reconciliation process.

- **Phase 3 – Audit Preparation**

During this phase, we will work with the key City personnel to develop schedules, analyses and workpapers in response to audit requests. We will also be available to address questions from the auditors as they arise.

Use of Technology in the Engagement

Our work is highly automated and incorporates new technology, which saves you time and money while making our work more efficient.

- ➔ **Secure Data Transfer:** We have the option to utilize an **encrypted** client portal called *BerryDunn KnowledgeLink* to provide an interactive communication tool that serves as a **secure** mechanism for you to transfer files to the engagement team. *BerryDunn KnowledgeLink* features a document repository to store deliverables and maintain live open request items, along with a calendar view to capture on-site visits and major project milestones. Our clients have told us that this tool dramatically reduces email traffic discussing status of outstanding items.
- ➔ **Videoconferencing:** Our team uses videoconferencing to allow us to meet with clients more often, saving you both time and travel expenses while keeping an open line of communication. We regularly use both *Zoom* and *Microsoft Teams* based on our clients' preferences.
- ➔ **Protecting Client Data:** BerryDunn places significant emphasis on information security, confidentiality, and integrity of customers' data. As a CPA and consulting firm, we handle large amounts of confidential client information. For over 10 years, our consultants have conducted security risk assessments for state and local governments and assisted clients with updating their policies, processes, procedures and implementing new security controls. We utilize these same practices internally, including contracting a third-party vendor to provide an independent security assessment on an annual basis.

Fees

One of the factors that differentiates BerryDunn from our competitors is our deep commitment to customer service. We build strong relationships with our clients, resulting in long-term engagements and a culture of open communication. The individuals chosen to work with you as your dedicated team are selected based on their depth of expertise.

Our services are provided with a 30-day termination clause. We want our clients to continue their professional relationship with BerryDunn because we continue to be consultants of choice, not because they are contractually obligated.

Our estimated fees represent the cost of completing the engagement in a hybrid manner and any direct travel costs will be billed in addition to the overall not-to-exceed fees stated below. We are well-equipped to perform the requested services on a remote basis, but do value and recognize the need to be in person for certain tasks.

BerryDunn is focused on providing long-term strategic value. We partner with you to design processes and infrastructure that will add value and continue with the organization even after our engagement is completed.

Due to the unique nature of the engagement, our fees are as follows:

- ✓ Assessment of the current state of the City and the fraud risk assessment: **an initial not-to-exceed fee of \$35,000**. This fee includes:
 - Performing an assessment over the current state of the City's accounting processes and reconciliations.
 - Developing a formal inventory of task to be completed.

- Developing a formal project plan and timeline for the accounting assistance and audit readiness for approval of the City.
- Developing a formal project plan and timeline for the forensic accounting services.
- Developing an initial report including opportunities for improvement to either strengthen existing internal controls and/or create operational efficiencies.

With the varying levels of effort needed for the reconciliation work, we will be able to provide a formal quote on the work requested after the assessment period. We will use the project plans and timelines created through the assessment period to work with the City to create formal budgets for the work to be completed. We have worked with governments in the past through not-to-exceed contracts, weekly rate maximum fees and/or fixed fees. We encourage open dialogue to work through the levels of services requested by the City and working to stay within prescribed budgets.

Throughout the engagement we will provide status updates at the frequency requested by the City (weekly, biweekly or monthly) on the work completed, work to be completed, and the remaining fees to date.

We strive to keep our fees to a minimum, even in light of the many changes imposed by regulatory authorities and others. We are excited about this opportunity to partner with the City for accounting related services. To demonstrate our commitment to the City, we have discounted our standards rates by 25% for the fee structure.

Position	Base Rate	Discounted Rate
Principal	\$525	\$390
Senior Manager	\$390	\$290
Manager	\$320	\$240
Senior	\$290	\$220
Staff	\$200	\$150
Admin. Assistants	\$70	\$50

In performing our services, management is responsible for the substantive outcomes of the subject matter of the services and, therefore, has a responsibility to be in a position in fact and appearance to make an informed judgment on the results of the services. Management will also be responsible for the following:

- Designating an individual who possesses suitable skill, knowledge, or experience to oversee any accounting services.
- Establishing and monitoring the performance of the service to help ensure that it meets management's objectives.
- Making all management decisions arising out of, or in connection with, these services.
- Evaluating the adequacy of the services performed and any findings that result.

Approach to Cost Savings

The most effective tool in the process is communication. There is no substitute for open communication at all levels to help assure the success of a timely and efficient engagement. We will meet regularly with management to make sure issues are identified and solutions are discussed. We will communicate with management to effectively plan and conclude the consulting engagement.

Our Proposed Engagement Team

Our proposed team brings decades of experience auditing government entities under the applicable auditing standards, including, but not limited to, the Yellow Book guidelines. We also help ensure that our CPAs meet or exceed the continuing professional education (CPE) requirements set forth by AICPA, the Yellow Book, and the states in which they are licensed.

We do not expect our clients to train our staff. In addition to a rigorous training program upon starting at BerryDunn, the firm's annual training calendar includes robust training to help ensure that the engagement professionals are well-versed in the specific issues that are important to our clients. Our fully trained and engaged staff—as well as our experience with similar organizations—will lead to less time required of the City's staff.

Our project team's experience with organizations like the City means members can quickly orient themselves to your processes and environment while bringing knowledge of industry best practices from our other engagements.

Biographies for our proposed team are presented on the following pages.

Engagement Team Biographies



Robert S. Smalley

Engagement Principal | CPA, CFE, CGMA

Rob has spent his entire career providing audit, accounting, and consulting services to governmental clients. As the Governmental Audit practice lead, Rob leverages his deep experience working with large and diverse government organizations when advising BerryDunn's government clients. His experience includes advising clients with all aspects of governmental accounting, financial reporting, proper internal control structure and single audit compliance. In addition, Rob also leads a substantial portfolio of financial institution audits all over New England for both public and private banks.

Location

Manchester, NH

Education

BBA, Accounting, University of Maine

MS, Accounting, University of Maine

Years of Experience

19

Memberships

American Institute of Certified Public Accountants

Association of Certified Fraud Examiners

Financial Managers Society

New Hampshire Society of Certified Public Accountants

Community Service

Greater Manchester Family YMCA, Audit Committee

Experience Highlights

Rob helps clients with a variety of challenges, including:

- Governmental and higher education accounting
- Consulting on fraud risk and mitigation
- Internal control audit and consulting
- GASB Accounting Standards

Publications and Presentations

- *GASB Releases Guidance for Organizations Receiving Relief from the CARES Act*
- *Hidden Danger in Choosing a College*
- *New Accounting Pronouncements and Proposals*
- *Fair Value and Financial Instruments: Past, Present, and Future*
- *Accounting for Other Real Estate Owned*
- *Recent Accounting Developments*
- *The Materiality Box – GASB*
- *Fraud: What's New and What To Do About*



Leah Shanahan

Outsourced Accounting Group Principal | CPA

Leah is a principal in the Outsourced Accounting Group acting in outsourced chief financial officer (CFO) and controller roles, where she offers emerging businesses strategies to improve clients' day-to-day financial operations and provide business value. She brings entrepreneurial innovative business ideas with extensive experience in a diverse array of industries. She provides strategic consulting for improving business operations based on key performance indicators, and clients rely on her proactive collaboration on tax planning and tax compliance needs.

In addition, Leah offers accounting software consulting, training, and implementation services. She is passionate about accounting technology and brings extensive expertise to assist clients to streamline and automate accounting processes and procedures.

Location

Boston, MA

Education

BS, Accounting,
Management, *summa cum
laude*, Fitchburg
State University

Years of Experience

17

Memberships

American Institute of
Certified Public Accountants

Massachusetts Society of
Certified Public Accountants

Family Office Exchange

Certifications

Certified Public Accountant
(CPA)

QuickBooks Certified
ProAdvisor

Sage Intacct Implementation
Specialist

Experience Highlights

Leah provides clients with a range of services, including:

- Outsourced accounting services
- CFO services
- Controller services
- Back-office support
- Accounting software consulting and conversion
- Accounting processes and procedures
- Financial statement and compilation preparation
- Interim financial reporting requirements
- Strategic business consulting
- Budgeting, forecasting, and cash flow management
- Tax planning and tax compliance
- Bookkeeping services

Publications and Presentations

- *An Introduction to Outsourced Accounting: More Than Just Bookkeeping*, a BerryDunn podcast, September 14, 2023



Yoko McCarthy

Forensic Accounting Services Principal | MBA, CFE, CGFM, CISA

Yoko is a principal in BerryDunn's Government Assurance Practice Group. She leads the Compliance and Risk Management practice, which focuses on compliance assurance services. Yoko has assisted various states and municipalities strengthen their internal controls to protect their resources from waste, abuse, and fraud and to improve operational efficiency while maintaining compliance.

Location

Waltham, MA

Education

BA, Economics, Kobe College,
Hyogo Japan

MBA, University of
Massachusetts

Years of Experience

20

Memberships

Executive committee member of
the AGA Boston Chapter

DEI Committee member of the
Association of Local Government
Auditors (ALGA)

Member of the Association of
Certified Fraud Examiners and
ISACA

Certifications

Certified Fraud Examiner

Certified Government Financial
Manager

Certified Information Systems
Auditor

Experience Highlights

Yoko helps clients with a variety of challenges, including:

Yoko helps clients with a variety of challenges, including:

- Audit readiness
- Compliance examinations/reviews
- Data analytics
- Financial process improvement
- Forensic accounting
- Fraud risk assessment
- Generally Accepted Government Auditing Standards (GAGAS) audits
- Internal audit services
- Internal controls review
- Operational assessments and process improvement
- Program integrity/assessment
- Programmatic audits

Publications and Presentations

- *Better Together: Compliance, Internal Audit and the Case for Independently Collaborative Work Plan Development*, Presented at Annual Compliance and Audit Conference of New England Healthcare Internal Auditors Healthcare Financial Management Association on November 30, 2023
- *Diversity, Equity, and Inclusion: reflection from an auditor*, published in Fall 2022 Quarterly magazine, Association of Local Auditors



Katharine Balukas

Engagement Senior Manager | CPA

Katharine is a senior manager for BerryDunn and has spent her entire career working with governmental and not-for-profit. As part of Katharine's expertise in assurance, she has provided clients advice on improving their internal controls and processes, and she assists her governmental clients with the unique challenges surrounding compliance with federal and state grant requirements. She has extensive experience assisting her clients with implementation of new accounting assistance. In 2015, Katharine received national recognition by being selected to participate in the AICPA's prestigious Leadership Academy.

Experience Highlights

Katharine helps clients with a variety of challenges, including:

- Financial statement audits and reviews
- Compliance audits for Uniform Guidance
- Federal and State grant compliance
- Programmatic audits and compliance examinations
- Yellow Book audits
- Grants Management
- Reviews and compilations
- Audit readiness
- Operational assessments and process improvement
- Internal control reviews
- Internal audit services

Publications and Presentations

- *Update for GASB-Governed Organizations: Lease Accounting, LIBOR Transition, SBITA, and Section 457 Plans*
- *Beyond Right Now*, presented at the New Hampshire Society of CPAs Leadership Program
- *Uniform Guidance Overview* – Human Services Finance Officer (HSFO) 2018 Annual Conference

Location

Manchester, NH

Education

BA, Accounting, Saint
Anselm College

Years of Experience

14

Memberships

American Institute of
Certified Public Accountants
New Hampshire Society of
Certified Public Accountants

Community Service

New Hampshire Society of
Certified Public Accountants
Young Professionals
Committee, Chair 2013-2015
AICPA Leadership
Academy, Graduate



Alan Goodwin

Manager | MS

Location

Manchester, NH

Education

BS, Accounting, Roger Williams University

MSA, Accounting, Southern New Hampshire University

Years of Experience

14

Memberships

New Hampshire Finance Officers Association (NHGFOA)

New England States Government Finance Officers Association (NESGFOA)

GFOA Certificate of Achievement for Excellence in Financial Reporting Program Special Review Committee (SRC)

Massachusetts Society of Certified Public Accountants

Alan is a manager in BerryDunn's Not-for-Profit practice area working exclusively with governmental clients performing accounting and consulting services. With a master's degree in accounting, he has spent his entire career performing financial statement and Uniform Guidance audits for governmental organizations including cities in New England. He leverages his extensive experience to help clients navigate GASB standards, Uniform Guidance, and internal control improvements. In 2014, Alan was appointed to the Treasurer role for the City of Brookline, New Hampshire.

Alan is passionate about collaborating with clients and helping them find and implement solutions that meet their unique needs. Prior to joining BerryDunn, Alan spent over 10 years at a public accounting firm serving governmental clients throughout the Northeast. The majority of his 10 years of public accounting experience includes working with Massachusetts municipalities that comply with UMAS standards.

Experience Highlights

Alan helps clients with a variety of challenges, including:

- Financial statement audits and reviews
- Compliance audits for Uniform Guidance
- Federal and State grant compliance
- Programmatic audits and compliance examinations
- Yellow Book audits
- Grants Management
- Reviews and compilations
- Audit readiness
- Operational assessments and process improvement
- Internal control reviews
- Internal audit services



Justin Horr

Manager | CPA, MSA

Justin is a Manager in BerryDunn's Outsourced Accounting Services Practice Group and works directly with small and mid-sized businesses. He specializes in preparation and analysis of financial statements, compilations, and accounting and controller services for improving business operations, day-to-day accounting services.

His personal approach to client service helps him gain deeper understanding of client needs, and enables him to become an integral part of their teams. He also focuses his energy internally by developing the team, supervising accounting and advisory work, as well as implementing policies and procedures for the department.

Experience Highlights

Justin helps clients with a variety of challenges, including:

- Accounting processes and procedures best practices
- GAAP readiness
- CFO and controller services
- Interim financial reporting requirements
- Preparing financial statements and compilation services
- Accounting software system conversion and consultation
- Internal controls

Location

Waltham, MA

Education

BS, Accounting, University of Massachusetts Dartmouth

MSA, Bridgewater State University

Years of Experience

8

Memberships

American Institute of Certified Public Accountants

Massachusetts Society of CPAs

Certifications

QuickBooks Online Certified ProAdvisor

Sage Intacct Implementation Specialist



Sarah Mongeau

Manager | MSA, CPA, CGFM, CFE

Recently joining BerryDunn, Sarah is an experienced Government Accounting and Auditing professional with more than 20 years of experience working for the Commonwealth of Massachusetts. She has conducted performance audits for independent authorities, educational institutions, and judiciary agencies, ensuring that all audit activities adhere to Generally Accepted Auditing Standards (GAAS) and Generally Accepted Government Auditing Standards (GAGAS). Sarah previously served as an Audit Director for the Massachusetts Office of the State Auditor and the University Controller of the University of Massachusetts System.

Experience Highlights

Sarah helps clients with a variety of challenges, including:

- Compliance examinations/reviews
- Financial process improvement
- Forensic accounting
- Fraud risk assessment
- Generally Accepted Government Auditing Standards (GAGAS) audits
- Internal audit services
- Internal controls review
- Operational assessments and process improvement
- Program integrity/assessment
- Programmatic audits

Location

Waltham, MA

Education

BA, Business Management
Emmanuel College

MS, Accountancy, Bentley
University

Years of Experience

20

Memberships

American Institute of Certified
Public Accountants

Massachusetts Society of CPAs

Certifications

Certified Public Accountant
(CPA)

Certified Government Financial
Manager (CGFM)

Certified Fraud Examiner



Gurpreet Kaur

Government Accounting and Auditing Consultant | CPA, MBA

As a governmental accounting and auditing consultant in BerryDunn's Not-for-Profit Practice Group, Gurpreet provides audit, accounting, and assurance expertise to governmental clients. She leverages her experience to help clients navigate GASB standards, Uniform Guidance, and internal control improvements.

Gurpreet is passionate about collaborating with clients and helping them find and implement solutions that meet their unique needs. Prior to joining BerryDunn, Gurpreet spent five years at a local government working on multiple accounting and auditing roles and four years in the travel industry as an accountant.

Location

Bethlehem, PA

Education

Bachelor's Accounting,

Kurukshetra University, India

MBA Finance,

Jaipur National University,
India

CPA, Pennsylvania Institute of
Certified Public Accountants
(PICPA)

Years of Experience

9

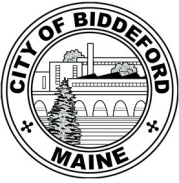
Memberships

Pennsylvania Institute of
Certified Public Accountants
(PICPA)

Experience Highlights

Gurpreet helps clients with a variety of challenges, including:

- Federal and state grant compliance
- Audit readiness service
- Internal audit services
- Governmental accounting assistance
- American Rescue Plan Act (ARPA) funding
- Reviews and compilations
- Operational assessments and process improvement
- Performance, Financial and Compliance Audits
- Agreed Upon Procedures



Finance Committee

Meeting Date: May 7, 2024

Meeting Time: 5:00 PM

Agenda Item No: 4.3

Item Description: HUD Lead Hazard Reduction Bid Award—61 Jefferson St

Submitted by: Gail Wilkerson, HUD Housing Programs Director

Supporting Information/Documentation: *Bid Tabulation—61 Jefferson St*

Key Terms:

HUD: US Department of Housing & Urban Development

Executive Summary:

Staff recommends awarding the HUD bid for lead hazard reduction and health/safety improvements at 61 Jefferson St to contractor Ray Corp for \$34,630. The independent cost estimate is \$41,250. Two contractors attended the bid walk, but only Ray Corp submitted a bid. The bid and City estimate are available for review upon request. Since the property is under an emergency order to abate and the bid has come in under the cost estimate, staff recommends not re-bidding the project and instead beginning work as soon as possible. The contractor has other City work under contract, including the properties at 22 Jefferson & 197 Alfred St. Awarding this work to Ray Corp will create efficiency in completing all these properties, as the crew can easily float among jobs.

Detailed Review:

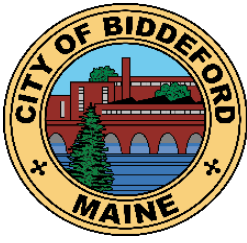
The property has 2 residential units, and a child under age 6 was found to have an elevated blood lead level while living here, which makes the project a top priority. Inspections for lead & other hazards occurred in Oct 2023 and Feb 2024 and revealed the need for interior abatement, including: removal/replacement, enclosure, or encapsulation of doors, jambs, and casings, flooring, baseboards, window casings, and interior stairs. The health/safety work involves installing 2 fire doors and repairing walls. The owner is eligible for HUD funding to remove all these hazards. At project completion and for 3 years after, the owner must make the units available to households earning no more than 80% of area median income (AMI).

Funding Source:

100% funded by the HUD Lead Hazard Reduction & Healthy Homes Grant Program.

Staff Recommendation:

Award bid to Ray Corp of Lewiston in the amount of \$34,630, with the project to begin as soon as possible.



City of Biddeford Bid Summary

Lead Hazard Reduction & Other Related Rehab: 61 Jefferson Street			
RFB# 2024-04-22-01 LEAD Contractors' Bid Submittals		Bid Open: 5/2/24 1:00 PM	
	Ray Corp	G Painting	City Cost Est.
Unit 2 Lead Total	\$ 1,650.00	\$ 0	\$ 2,200.00
Unit 3 Lead Total	\$ 29,480.00	\$ 0	\$ 35,550.00
Healthy Homes Total	\$ 3,500.00	\$ 0	\$ 3,500.00
Total Bid	\$ 34,630.00	\$ 0	\$ 41,250.00

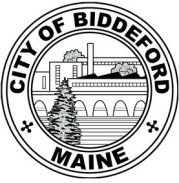
Staff Present:

Lisa Shultz x

Gail Wilkerson x

Proposed Start: July 2024

Proposed Start: 4 weeks



Finance Committee

Meeting Date: May 7, 2024

Meeting Time: 5:00 pm

Agenda Item No: 4.4

Item Description: Storm Damage Engineering Services

Submitted by: Roby Fecteau, Director of Code Enforcement & Emergency Management

Supporting Information/Documentation:

Executive Summary:

The City of Biddeford sustained extensive infrastructure damage from the January coastal storms on January 10th and 13th. All of the damaged areas have all sustained a level of damage from past storms. City staff published a request of qualification for engineering services to review these areas and assist us in designing/ building more sustainable infrastructure. Three firms submitted proposals and city staff interviewed all three firms.

Detailed Review:

N/A

Funding Source:

Expenses incurred will be charged to 31337-60466. The costs associated with this contract will ultimately be reimbursed at 75% Federal share and 15% State share. The remaining 10% is the City's local share which will come from FY 2024 budget funds.

Staff Recommendation:

Based on the interviews, City Staff is recommending that the contract be awarded to Weston and Sampson.



City of Biddeford
MAINE

QUALIFICATIONS

February 2024

Engineering Consulting Services for Storm Damage Repair

PROJECT No. 00001



westonandsampson.com

100 International Drive, Suite 152, Portsmouth, NH 03801

Weston & Sampson 49

CONTENTS

Section A	COVER LETTER
Section B	FIRM OVERVIEW BACKGROUND QUALIFICATIONS & EXPERIENCE
Section C	PROJECT TEAM & RESUMES
Section D	PROJECT APPROACH

February 13, 2024

100 International Drive, Suite 152, Portsmouth, NH 03801
Tel: 603.431.3937

Roby Fecteau, Director of Code
Enforcement and Emergency Management
City of Biddeford
robby.fecteau@biddefordmaine.org

Re: **Request For Qualifications | Engineering Consulting Services For Storm Damage Repair**

Dear Roby:

Committed to continue working collaboratively with the City of Biddeford, Weston & Sampson is pleased to provide our qualifications to provide engineering consulting services in support of repairs to critical roadway and seawall infrastructure that sustained damage during storm events in January 2024. Our highly qualified team is already familiar with the city's infrastructure and impacted areas through our preliminary work on behalf of the city and is currently working on similar projects elsewhere in Maine.

Familiarity with Biddeford & Understanding of the City's Needs: In addition to our preliminary assessment of the recent storm damage, Weston & Sampson is familiar with the city through our continued work on the Riverwalk Retaining Wall Replacement project, recent wastewater pump station upgrade designs, and the plant water system design at the wastewater treatment facility. Through these experiences, and our recent discussions with you regarding the city's specific needs, we offer an experienced team that knows your infrastructure, has established valuable relationships with city personnel, has demonstrated our ability to respond to emergency issues, is intimately familiar with the FEMA negotiation process, and understands the importance of implementing stabilization measures and completing temporary repairs prior to the summer season.

We offer the following information in response to the Minimum Qualifications and Selection Criteria in your RFQ:

Minimum Qualifications

- A. The Firm's Key Personnel should demonstrate experience with similar disaster, roadway and seawall repair, resiliency, and public works related projects.** Weston & Sampson's proposed team has supported clients in Maine and throughout the Northeast with many similar disaster, roadway and seawall repair, resiliency, and public works related projects. We highlight a selection of our recent relevant work in Section B, *Firm Overview | Background, Qualifications & Experience*.
- B. Staff experience: Firm must commit a project manager or project management team with at least ten (10) years of relevant project experience, five (5) of them managing similar design projects comparable in size and complexity.** Our seasoned team of engineers and environmental permitting specialists has the skills and expertise necessary to accomplish the city's goals and objectives for this project. Principal-in-charge **Chris Perkins, PE**, has 30 years of experience in the permitting, study, design, and construction management of municipal infrastructure engineering projects. A southern Maine resident for decades, Chris has managed dozens of projects throughout the state. Project Manager **Tom Strike, PE**, has more than 25 years of relevant experience and has managed **numerous FEMA-supported projects**. Both Chris and Tom are currently serving in these same roles for the **Retaining Walls Replacement Project along the Riverwalk in Biddeford**.
- C. Team Experience: Firm must commit a team of engineers and permitting specialists who have worked together on similar projects, specifically projects with FEMA negotiation support and resiliency design.** Weston & Sampson commits to the City of Biddeford a dedicated and diverse team with the comprehensive expertise needed to efficiently and effectively support this project. Our proposed personnel have successfully worked together on similar resiliency and infrastructure efforts for FEMA-supported projects, offer staff continuity, and require no learning curve. Please refer to Section C, *Project Team & Resumes*, for details regarding the qualifications and experience of our key staff

Selection Criteria

- A. Prior experience of identified key staff to be assigned to the project in terms of supporting, evaluating, and designing similar projects.** In addition to **Principal Chris Perkins** and **Project Manager Tom Strike**, our competent team offers wide-ranging experience and includes qualified experts in roadway, structural, and geotechnical engineering; environmental permitting and wetlands delineation; resiliency design and modeling; wave studies,

and grant funding assistance. Further, our in-house team will be supported by expert staff from **Woods Hole Group**, who offer specialized coastal modeling and design expertise. **A long-time collaborator with Weston & Sampson, Woods Hole Group offers unparalleled experience, which includes assessment and modeling services in support of the State of Maine's Coastal Flood Risk Model.** Our team of regional leaders in infrastructure engineering, climate resilience, and coastal engineering is well equipped to complete every aspect of this project.

- B. Qualifications and past performance of key staff in the development of similar FEMA storm damage, negotiation support, and resilience design.** The Weston & Sampson team has received national recognition for our flood adaptation and climate resilience work, and we invite you to contact the client references included in Section B of this submittal to discuss our team's capabilities and past performance. Additionally, our team has experience preparing FEMA cost estimates and supporting plans and reports and preparing applications and submissions in support of grants/loans, and permits. Communicating with regulators frequently our staff maintains excellent working relationships with MEDEP, ACOE, EPA, FEMA, and other regulatory agencies, having consulted with government agencies and municipalities on various environmental and infrastructure improvement projects. **We have helped our clients receive more than \$19 million in resilience grant funding since 2018.**
- C. Applicant's understanding of the project requirements and the technical approach to achieving completion of the project.** As part of our commitment to the City of Biddeford, Weston & Sampson has completed preliminary work for the project that has included observing and documenting damaged areas and assessing potential repair costs. We are therefore intimately familiar with the breadth of work required to meet the city's goals. Our technical approach will be established with the intent to complete a repair design that produces a resilient project within the disaster relief funding budget established during the FEMA negotiation process.
- D. Project manager's availability.** Upon notice to proceed, **Project Manager Tom Strike** and other key personnel identified herein will be available to assist Tom by providing additional leadership on individual project tasks. **We have demonstrated our dedication to the City of Biddeford through our ongoing work, and are committed to meeting the City of Biddeford's needs on this assignment as well.**
- E. Applicants demonstrated ability to prepare, support, and implement an effective project as well as to estimate costs, meet schedules, and monitor the quality of the work performed.** With the majority of our work in the public sector, Weston & Sampson consistently meets regulatory-driven and expedited deadlines and is responsive to client needs or changes in scope that result in new deadlines. Our team has a proven reputation for completing high quality projects on time and on budget. As your project progresses, we will continuously monitor our performance to verify our compliance with the project schedule and cost constraints.
- F. Capacity and capability of the firm to perform the work on schedule.** Given the interdisciplinary nature of our firm, Weston & Sampson is prepared and appropriately staffed to undertake this project in a timely manner with respect to our other ongoing projects. With more than 850 professional and technical staff, Weston & Sampson has the capacity and depth of resources to assure the assignment of highly qualified personnel for all anticipated project tasks. We have structured our team for depth of technical competence and the capacity to successfully meet your project requirements and schedule. In organizing and scheduling our staff for this project, we have taken into account their commitments for other projects to ensure their availability.

The Weston & Sampson team fully understands the required scope of work and the need to complete this project on schedule. With the knowledge, skills, and commitment to deliver seamless, cost-effective services, we look forward to continuing our work with you and welcome the opportunity to meet with you to further discuss our specific project approach. Please contact me directly at 207-450-2899 or by email at perkinsc@wseinc.com.

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.



Christopher M. Perkins, PE, Vice President

FIRM OVERVIEW | BACKGROUND, QUALIFICATIONS & EXPERIENCE

Firm Overview

Founded in 1899, Weston & Sampson has been providing municipalities, public agencies, and private sector clients with cost-effective and innovative solutions to infrastructure and environmental challenges for 125 years. Our professionally trained staff of more than 850 engineers, designers, environmental professionals, and construction specialists provides quality environmental consulting services to communities throughout New England. Municipal clients comprise the majority of our business. As such, we fully understand the needs and challenges of New England cities and towns, including available technologies, regulatory requirements, cost analysis and funding, and operational issues.

We specialize in providing multi-disciplined support to clients throughout the Northeast and along the Eastern Seaboard. Some of our principal areas of expertise include bridge and roadway design, structural, geotechnical, and traffic engineering, environmental science/permitting, urban and environmental planning, resiliency, civil engineering; water and wastewater utility design/treatment; hydraulic modeling; stormwater design and drainage; landscape architecture/design; architecture; electrical; mechanical; aquatic facility design; solid waste services; and construction administration.

Nationally ranked among the top design firms in the United States, according to *the Engineering News Record*, Weston & Sampson is proud of our steady record of growth and the ability of our project management staff to understand our clients' needs, develop appropriate solutions, and provide comprehensive engineering and landscape architecture services on time and on budget. Weston & Sampson has also been widely recognized for our excellence in engineering by the American Public Works Association (APWA) and the American Council of Engineering Companies (ACEC), in further testimony of our creativity and performance. All of this has contributed to a consistently high company-wide client return rate.

Qualifications

Below, we summarize our firm's relevant capabilities and qualifications.

TRANSPORTATION | ROADWAY

Weston & Sampson has provided transportation and traffic engineering services for a multitude of projects of varying complexity for municipal clients throughout New England. These services have included funding applications, new roadway design, roadway reconstruction, intersection and roadway capacity analyses, traffic signal design, traffic impact studies, circulation and parking studies, origin and destination studies, corridor improvement plans, preparation of contract bid documents, and construction support (administration and resident engineering) for roadway projects.

restore



enhance



sustain



maintain



Weston & Sampson assists communities in developing and implementing plans for roadway and intersection projects, including traffic signals, roundabouts, ADA-compliant sidewalks, drainage, stormwater management, and related infrastructure. This work has involved roadway improvements, utility system designs, geometric and traffic controls modifications at intersections, roadway reconstruction and widening, parking lot design, enhanced streetscape and crosswalk treatments, traffic calming measures, stormwater management system design, integrated infrastructure planning and engineering, pavement design, ADA compliance, interpretive signage and wayfinding, and street lighting. We have provided roadway design services on every type of roadway throughout New England and along the East Coast, from improvements and upgrades to existing rural dirt roads, to historic downtown urban areas, to interstate highway and interchange improvements.

Over the past decade, Weston & Sampson has completed projects for hundreds of municipal clients, designing roadway rehabilitation/repair and related projects, and providing bidding and construction administration services for many of these construction/reconstruction projects. Our engineers are fully conversant with local, state (MaineDOT) and federal (AASHTO, FHWA) design policies and procedures and understand the importance of incorporating those standards to meet the needs of the community. Our designs are sensitive to the environment and respectful of impacts on adjacent properties while providing a safe and cost-effective facility for all users including motorists, pedestrians, bicyclists, and transit.



Our staff is fully trained to field review existing roadways, sidewalks and accessible ramps for compliance Americans with Disabilities Act (ADA) requirements. In fact, we are currently working with the City of Boston to design and provide construction observation for ADA accessible sidewalk ramps at over 50 intersections in downtown Boston.

Our roadway projects provide a complete design approach that looks at all roadway features, including roadway vertical and horizontal alignments, stormwater considerations, pavement design, needs assessment for guardrails using AASHTO Roadside Design Guide criteria and Manual for Assessing Safety Hardware (MASH) criteria and the review and design of roadway signage and pavement markings for consistency, accuracy, and conformance with MaineDOT and Manual of Uniform Traffic Control Devices (MUTCD) requirements.

Every highway, road, and bridge construction project, whether it be new construction or rehabilitation of existing infrastructure, requires some level of transportation management to address and mitigate the effects of the construction operations on the motoring public and pedestrians. We understand that transportation management goes beyond traditional traffic control plans and looks at strategies for work zones that include temporary traffic control measures and devices (i.e., the traffic control plans), public information and outreach, and operational strategies such as travel demand management, signal retiming, detours and diversions, and traffic incident management.

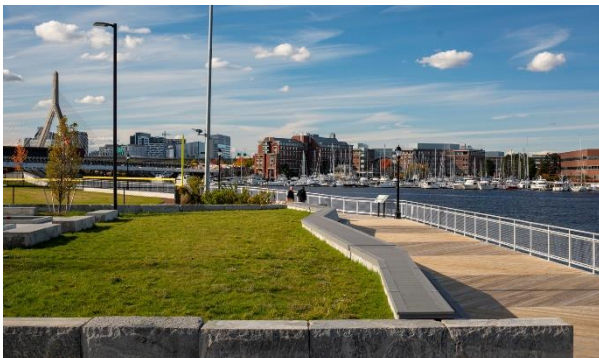
Based on the size and complexity of a given project, the emphasis placed on each of these strategies will vary. Our team has worked on numerous projects of various sizes and complexities and will bring this expertise to each assignment to develop an overall plan that minimizes impacts to the traveling public, accounts for all users, and improves safety for workers. As part of the design process, we will prepare project construction plans and specifications that include comprehensive detailing of the required phasing and staging of construction activities and operations and their impact on all users. Our team has worked on a variety of roadway, bridge, and structures projects that included full or partial vehicular, bicycle, and pedestrian detours, diversions, staged construction under live traffic, alternating one-way traffic, and temporary signalization.

GEOTECHNICAL ENGINEERING

Weston & Sampson is a leader in geotechnical engineering services, providing our clients with practical, cost-effective solutions. Our geotechnical engineering services typically span from initial site feasibility studies through final design and construction. We are well-versed in developing, planning, and performing subsurface investigation programs to determine critical project parameters and develop accurate estimates.

Our geotechnical engineers routinely work in close collaboration with our in-house structural and hydrologic/hydraulic engineers to develop cost effective repairs and improvements to dams, waterfront and revetment structures, retaining walls, facilities, bridges, and other infrastructure.

Our geotechnical engineers have significant experience working in Maine and who understand the chief importance of collecting high-quality data and adhering to a “Best Practices” approach. Our team can support the wide range of geotechnical engineering needs expected for this project.



The foundation of any geotechnical engineering project is built upon the quality of the data obtained from subsurface exploration and geotechnical laboratory testing programs. Our geotechnical staff routinely plan, coordinate, and implement subsurface exploration programs for complex, infrastructure, resilient, waterfront structure, and transportation related projects. As such, the subsurface exploration program as part of this project will be carefully planned to collect the appropriate data to efficiently meet the project needs. We will utilize the diverse technical expertise of our team to properly scope the exploration program to gather necessary information to design and construct this damage repair project. Weston & Sampson is committed to the high quality of service and value we provide to our clients. Our geotechnical engineers and team members will deploy a “Best Practices” approach on all assignments and will scope and perform the work to meet our quality standards. Our team includes professional engineers registered in the State of Maine with extensive experience on waterfront, roadway, bridge, and slope stability projects.

Weston & Sampson has completed more than 50 waterfront and transportation infrastructure projects involving geotechnical engineering over the last four years, including deep and shallow foundation, retaining wall, and slope and embankment repair/stabilization projects. After subsurface explorations and laboratory testing are complete, geotechnical design and construction recommendation reports are produced for submission. These reports typically include, details of the subsurface explorations, subsurface profile

interpretation, groundwater conditions, laboratory/in-situ test results, interpretation and analysis of data, alternatives analysis, development of geotechnical design parameters, analysis methods and assumptions, geotechnical design and construction recommendations for shallow and deep foundations and slope repair/improvements, anticipated challenges and proposed solutions, and other construction considerations as applicable to the project. Depending on the project, geotechnical engineering staff will complete cost estimating and prepare construction documents.

Weston & Sampson routinely provides construction administration services for our projects by reviewing Shop Drawings, issuing necessary interpretations and clarifications of the Contract Documents, reviewing submittals and RFIs, and supporting the preparation of necessary materials for change orders. We provide full-time resident engineering or part-time observations during construction as needed to document work completed, provide on-site support, review and document quantities, and confirm work is being performed consistent with the intent of the Contract Documents.

ENVIRONMENTAL PERMITTING

Weston & Sampson's permitting team is experienced in assisting clients with a wide range of permitting services to comply with federal, state, and local regulations. **Last year, our team permitted 95 projects with varying levels of complexity.** Our environmental scientists have demonstrated experience working with the Army Corps of Engineers (ACOE), Coastal Zone Management (CZM), the Maine Department of Environmental Protection (MEDEP), National Oceanic and Atmospheric Association (NOAA), Shoreland Zoning, Maine River Corridor Commissions, the United States Fish and Wildlife Service (USFW), and on infrastructure improvement projects that include inland and coastal water resources.

Weston & Sampson's environmental services also include wetland delineations and assessments, arboriculture assessments, and native / invasive species assessments. Our staff can perform all aspects of environmental services for construction projects, including wetland flagging, soil analysis, groundwater monitoring, and permitting.

Our multi-disciplinary experience includes providing riverbank and stream bank restoration and protection. Our team has been assessing, designing, and restoring riparian and shoreline systems with degraded streams to address various water quality impairments, invasive species along the banks, and excessive flooding. Erosion and stabilization problems along rivers, streams, lakes, and ponds are as varied and dynamic as their structural and ecological systems. Their repair requires a unique combination of ecological and engineering skills.



Working together, our environmental scientists, permitting experts, and geotechnical engineers routinely deliver successful, context-specific solutions for the restoration and/or stabilization of land along the water's edge. Our river/stream bank design services include evaluation of surface and subsurface conditions in the eroded bank, hydraulic analysis of the brook to determine design flood elevations, and alternatives evaluation for bank stabilization methods, including the use of live-twig stabilization.

CLIMATE CHANGE ASSESSMENT & RESILIENCY SERVICES

Weston & Sampson has made a professional commitment to planning and designing resilient, sustainable communities. Our resiliency workgroup has been actively designing resilient and low-impact components for our infrastructure and building projects. Our capabilities support clients in creating resilient infrastructure that can adapt, thrive, and survive changes in the natural environment, including chronic and catastrophic natural events.



We have provided climate resilience and interdisciplinary services for notable projects, including:

- NHDES Climate Change Vulnerability Assessment for nine New Hampshire cities and towns
- City of Boston's Climate Resilient Infrastructure Design Standards/Guidelines
- Technical Support for MA EOEEA's Resilient Massachusetts Action Team (RMAT)
- DCAMM's Statewide Resilience Master Plan (SRMP)
- Design, Permitting, and Construction of a Resilient Langone Park and Puopolo Playground in Boston
- DOER's Risk and Vulnerability Assessment for Health Care Facilities
- Draw Seven Park in Somerville implementing DCR's Climate Design Standards/Guidelines
- MBTA's Aquarium Station Flood Vulnerability Assessment
- 52 Municipal Vulnerability Program (MVP) Planning and Action Projects

To support this project for Biddeford, **Weston & Sampson is teaming with our long-time collaborator Woods Hole Group (WHG) to lead coastal modeling tasks.** WHG solves environmental engineering problems worldwide with a focus on serving clients along the coast. With nearly 100 engineers, scientists, and technicians, WHG offers a broad range of services and expertise to benefit its clients and teaming partners. WHG designs coastal resiliency projects through an understanding of the storm surge that influences the site under both

existing, and future, conditions. This includes detailing elements for key considerations in developing cost-effective design approaches expected to function for current conditions, and perhaps more importantly, conditions occurring in a changing climate. This information has allowed WHG to design resilient green, gray, or hybrid solutions.

With more than 30 years of experience, WHG has supported vulnerability assessments by measuring, modeling, and forecasting flooding due to storms, sea level rise, climate change influences, and combined effects. A complete vulnerability assessment recognizes the dynamic physical processes and timing associated with storms, along with increasing risks of sea level rise and climate change. In this project, WHG will play a critical role in coordinating data sharing between the Maine Coastal Flood Risk Modeling effort.

TECHNICAL CLIMATE RESILIENCE SPECIALTIES & TOOLS

Our team of experts uses many tools when we conduct climate risk vulnerability assessments.

- For the Seabrook WWTP and for Prescott Park in Portsmouth, New Hampshire, we employed the NH Coastal Flood Risk Summary, Part II.
- For the State of Massachusetts, we developed the Climate Resilience Design Standards Tool: https://resilientma.org/rmat_home/designstandards/
- For the MBTA, we developed a real-time flooding viewer for the MBTA rail lines that officials use to manage extreme flooding impacts to operations in real-time.

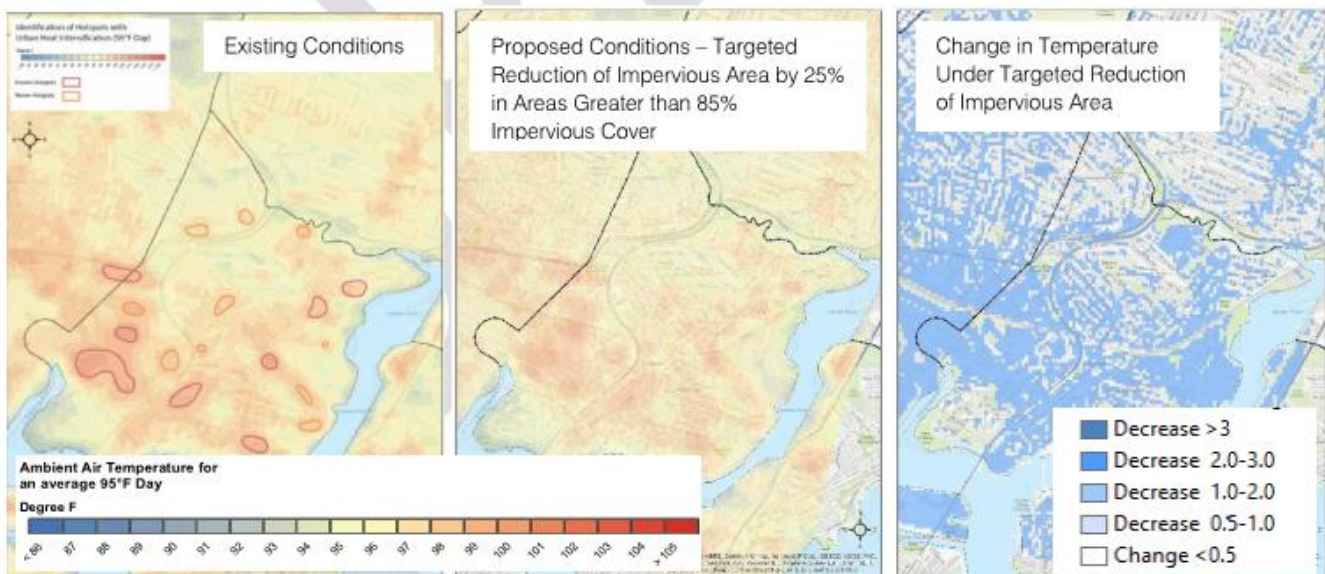


Figure 4.2 Cooling Benefits from Targeted Reduction of Impervious Area

- For the Charles River Watershed Association, we developed the first comprehensive flood model of the watershed and created an interactive on-line viewer for the 19 communities to evaluate current and future flooding threats: <https://crwa.maps.arcgis.com/apps/webappviewer/index.html?id=4649d032ebb74cafb20767e4f3e369df>



Screen shot from MBTA Tropical Storm Henri Response Application (2021)

EMERGENCY RESPONSE SERVICES

As part of our standard operating procedures, Weston & Sampson routinely provides 24/7 Emergency Response Services, with supporting emergency repairs, to municipal clients throughout New England. Examples of these services include responding dam breaches and during storms and power outages to alarm conditions at municipally owned water and wastewater treatment facilities and pumping stations. Weston & Sampson maintains a fleet of service vehicles, which are individually assigned to our staff and go home with them on nights and weekends. Our staff is equipped with high technology communication devices to ensure they can be reached during storms and power outages. Our typical emergency call response time, from time of call to arrival at site, is under 90 minutes.

Weston & Sampson has the capacity to respond to multiple locations under the most severe conditions. For example, the Massachusetts Department of Corrections contacted Weston & Sampson for emergency response when one of its dams (Industries Drive Dam) failed on Christmas Eve 2020 during a period of significant precipitation. A sinkhole that developed above the dam outlet pipe caused failure of the downstream slope, requiring emergency response. Our staff arrived on-site shortly after the call and remained on-site over Christmas Eve night until the situation was stabilized.



Emergency Response of Dam Breach with Bypass System in-place



Finishing Emergency Repairs to Industries Drive Dam, Norfolk, MA

Weston & Sampson staff managed the dam's emergency response with the Massachusetts Department of Corrections, Massachusetts Department of Transportation, Massachusetts Office of Dam Safety, the Town of Norfolk, and the response contractor. Emergency efforts included creating a temporary water cutoff system to isolate the impoundment from the outlet system, preparing the dam and upstream assets for two inches of rain on Christmas Day, and designing an emergency outlet replacement plan and rehabilitation of the dam.

Weston & Sampson was able to pull from its in-house interdisciplinary team of engineers and scientists, including structural engineers, hydrogeologists, and permitting specialists to respond to this emergency project. Throughout the project, Weston & Sampson provided construction administration services, held construction meetings, and kept the Department of Corrections and the Office of Dam Safety abreast of the project plans and progress.

CONSTRUCTION INSPECTION / ADMINISTRATION

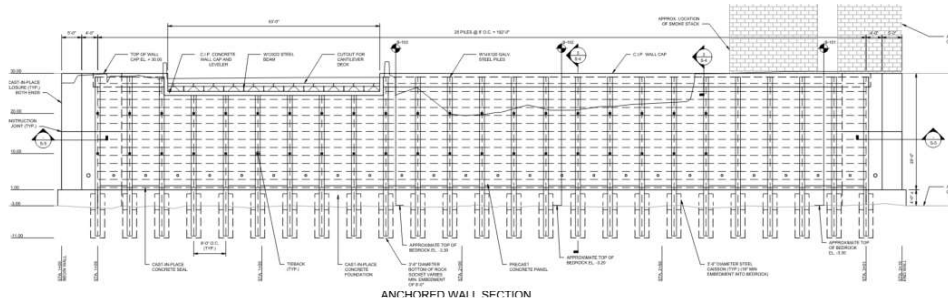
In response to the increased volume and complexity of construction projects, Weston & Sampson maintains a Construction Services group composed of experienced construction managers and inspection personnel that evaluate and respond to the challenges of project construction in a timely and cost-effective manner. Experienced in working with either consultants or contractors, our construction services staff provides invaluable insight to the construction process. Weston & Sampson offers both full- and part-time resident engineering services across New England, for any type or size project.

RELEVANT PROJECTS & REFERENCES

The attached project examples demonstrate our team's wide-ranging capabilities, including [specific experience with infrastructure repairs and resiliency improvements](#) following major storm events. We invite you to contact the clients listed with these project descriptions to discuss our ability to meet schedule and budget constraints, commitment to client service, and overall past performance on similar initiatives.

RIVERWALK RETAINING WALL REPLACEMENT

city of biddeford, maine



Weston & Sampson was retained by the City of Biddeford to complete design, permitting, and FEMA support services for the Riverwalk Retaining Wall Replacement project, as well as construction support and resident engineering services during construction. Federal disaster relief funding will be used to fund the project.

Retaining walls up to approximately 33 feet tall are located along the Biddeford side of the Saco River in the area of the Saco River Riverwalk. An approximately 80-foot-long section of retaining wall failed on October 31, 2021, during a period of significant rainfall and Saco River flow. The failure occurred between an approximately 250-foot-tall historic smokestack/boiler house building and the riverwalk overlook structure/MSE wall. The failed section of wall and backfill material, along with features immediately behind the wall, collapsed into the Saco River. The failure left a steep, sloughed soil slope along the failed wall section. Failure of the retaining wall caused significant damage to the adjacent MSE wall and overlook structures and sections of rubble retaining wall along the smokestack and boiler house building.

Temporary stabilization and flow diversion measures were implemented soon after failure. These measures included placement of large riprap over the sloughed slope to stabilize the slope and installation of a stone access in the Saco River to divert flow away from the sloughed slope and damaged wall sections.

Our services have included evaluation of the existing site, retaining wall, and structure conditions, subsurface explorations, topographic survey, environmental assessment, permitting, and engineering evaluation and design of retaining wall replacement. Engineering evaluations indicated that replacement of the failed and damaged sections of retaining walls with a soldier pile and lagging retaining wall is the most cost-effective approach. The wall will measure approximately 210 feet long and 33 feet tall. Lagging will be comprised of precast concrete panels with a veneer finish that will aesthetically blend with surrounding historic structures.

We have worked diligently with the city, permitting agencies, and FEMA to develop a cost-effective project that will satisfy engineering and agency requirements. Saco River Corridor Commission, Maine Historic Preservation Commission, and Shoreline Zoning approvals have been received. Maine Department of Environmental Protection approval is expected in early 2024, with construction anticipated in summer/fall of 2024.

client contact

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HARRISON AVENUE SLOPE FAILURE REPAIR

city of gardiner, maine



Weston & Sampson was retained by the City of Gardiner to provide design, permitting, and FEMA support services for the Harrison Avenue Slope Failure Repair project. Weston & Sampson will also provide construction support services during project construction. Federal disaster relief funding will be used to fund the project.

The south end of Harrison Avenue is located along and above the west bank of Cobbosseecontee Stream. Soil slopes up to approximately 44 feet tall are present between the roadway and the stream. Approximately 80 linear feet (LF) of soil slope failed in May 2023 after a period of heavy precipitation. The failure caused most vegetation and surficial organic soils to slide into the stream, exposing sloughed embankment soils. The failure also undermined sections of roadway closest to the slope crest and caused rotation of utility poles and guardrails towards the failed slope.

Services that have been or will be completed for the project include evaluation of the existing site conditions, subsurface explorations, topographic survey, permitting, cost estimating, FEMA support, and geotechnical engineering evaluation and design of slope failure repair. Preliminary engineering evaluations indicate that slope repair with riprap will be the most-cost effective approach for this project. Mitigation efforts could extend slope repair beyond the failed slope section. Additional project elements could include installation of stormwater collection/diversion improvements along the south end of Harrison Avenue. Permitting coordination and approvals are expected with Maine Historic Preservation Commission, Army Corps of Engineers, and Maine Department of Environmental Protection.

Weston & Sampson is working diligently with the city and FEMA, including attending in-person meetings, to help develop a cost-effective project that will satisfy engineering and agency requirements. We anticipate construction to begin in summer 2024.

client contact

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RING'S ISLAND FLOOD PREPAREDNESS

town of salisbury, massachusetts



The Ring's Island neighborhood of Salisbury, Massachusetts, lies on the north bank of the Merrimack River near its mouth. Coastal flooding during storms and extreme high tides floods roads and causes damage to homes and businesses due to the low elevation and undersized culverts. Eight to ten times each year, flooding in the area leaves only one evacuation route, stranding residents and making it difficult for emergency vehicles to reach the neighborhood. Seeking to increase the resilience of the neighborhood, the Town of Salisbury retained the team of Weston & Sampson and Woods Hole Group to help them apply for funding under the Massachusetts Municipal Vulnerability Preparedness (MVP) Action Grant program. Their ultimate goal is to provide final design services to raise the elevation of the access/egress roads and improve tidal flushing through culvert replacements.

Once funding was obtained, our team held a kick-off meeting with local stakeholders to discuss the proposed approach, conducted a site visit to review recommendations and project goals, and provided preliminary survey services to tie in the proposed roadway elevations with existing conditions. Final design services included simulation modeling to update the previous model and a wind-wave analysis to determine the wave conditions during storm events. We also included mitigation design on either side of the culvert. Using this information, our team's final design included a concrete block retaining wall to raise the grades of the two main access and egress roads by roughly three feet. This will provide added assurance that, during storms and extreme high tides, residents and emergency personnel will have more than one way in and out of the Ring's Island neighborhood. Our team also designed and prepared permits for the enlargement of several culverts under the roads in question to allow additional tidal flushing and preventing the high storm tides from backing up onto the roads and into the surrounding neighborhood.

The use of appropriately sized culverts will also promote re-establishment of a healthy wetland and provide improved aquatic habitat, water quality, and carbon sequestration. The reduction in flooding and associated damage will also reduce clean-up efforts and costs on access roads. The Town of Salisbury to date has received a grant for preliminary and final design of about \$400,000 to move forward with the project.

- preliminary and final design
- flooding reduction
- culvert enlargement
- improved tidal flushing
- reduced emergency response and flood cleanup costs

client contacts

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BLACK BROOK ROAD RECONSTRUCTION AND SLOPE STABILIZATION

town of savoy, massachusetts



Black Brook Road and the banks of Black Brook in Savoy experienced extensive damage during Tropical Storm Irene in the fall of 2011. The resulting storm flows within the brook overtopped culverts and destroyed large sections of the roadway. Following the storm, Weston & Sampson assisted with an evaluation of the roadway and river banks.

The project includes over one mile of roadway in various states of disrepair, seven slope failures, one major culvert replacement, and miscellaneous storm drainage improvements. Due to the magnitude of the required work, several funding sources were obtained in order to ensure the project moved forward. Weston & Sampson worked closely with the town and was instrumental in obtaining funding for this vital project. In the end, the town was able to obtain funding from five different funding sources, including FEMA, MassWorks, Community Development Block Grant Disaster Relief, and Massachusetts Department of Transportation (MassDOT).

The repair of the slopes and roadway along Black Brook Road is important to the Town of Savoy, surrounding communities and most importantly, emergency response services within Savoy and surrounding communities.

Weston & Sampson's work for the project included an evaluation of alternatives and the final design of the new roadway and culvert. The recommended plan included the installation of soldier pile and lagging walls, which limited impact to natural resources, while providing a mechanism to restore the roadway. The final design included the stabilization of the failed portions of the slope between Black Brook and Black Brook Road, replacement of a 36-inch diameter CMP culvert that was unable to pass flood flows during Tropical Storm Irene, and the reconstruction of the existing roadway and stormwater drainage collection systems.

Final design was completed in Spring of 2015 and construction began in Fall of 2015. The project was completed in Spring 2017.

- **ACEC of MA 2018 Bronze Award for Engineering Excellence**
- **APWA Project of the Year for Disaster or Emergency Construction Repair**
- **roadway and river banks evaluation and roadway repair**
- **storm drainage improvements & hydraulic analysis**
- **slope stabilization**
- **geotechnical and subsurface investigations culvert replacement**
- **pavement design**
- **cost estimating**
- **environmental permitting**
- **contract documents and specifications**
- **funding assistance**

client contact

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EMERGENCY ENGINEERING SERVICES (HURRICANE IRENE)

town of cavendish, vermont



Weston & Sampson provided the Town of Cavendish with emergency engineering services following the catastrophic damage caused by river and stream flooding from Tropical Storm Irene. Many of the town's 44 bridges and culverts were unsafe and could not be used, and major roads were all or partially destroyed by the flood waters, leaving the town a virtual island. In addition, the town's water and sewer systems at the largest of these washouts were severed, causing the water system to fail, water storage tanks to drain, and raw sewage to flow into rivers and streams.

The morning after the storm, Cavendish town officials contacted Weston & Sampson, and by mid-afternoon, civil, structural, and geotechnical staff from our Vermont and Connecticut offices responded. They began assessing damage immediately, as water and food were being flown into the town by the Vermont Air Guard. Subsequently, Weston & Sampson provided the following services:

- Structural inspections of over 40 bridges including abutments, wing walls, headwalls, H-piles, girders, trusses, concrete and timber decking, channel lining and culverts.
- Emergency design and construction oversight for repairs to the Winery Road Bridge approach
- Follow-up design services on two bridges and one culvert including geotechnical exploration and development of base mapping used by the town to develop bid packages for design-build
- Design and construction services on Davis Road Bridge including geotechnical investigations, site survey, and hydrologic and hydraulic analyses
- Rainfall runoff modeling, HEC-RAS modeling, and use of ArcGIS software to develop cross sections and interpret modeling results for use in designing Davis Road Bridge
- Hydraulic analyses and flood mitigation for the Carlton Road bridge, culvert, and surrounding properties

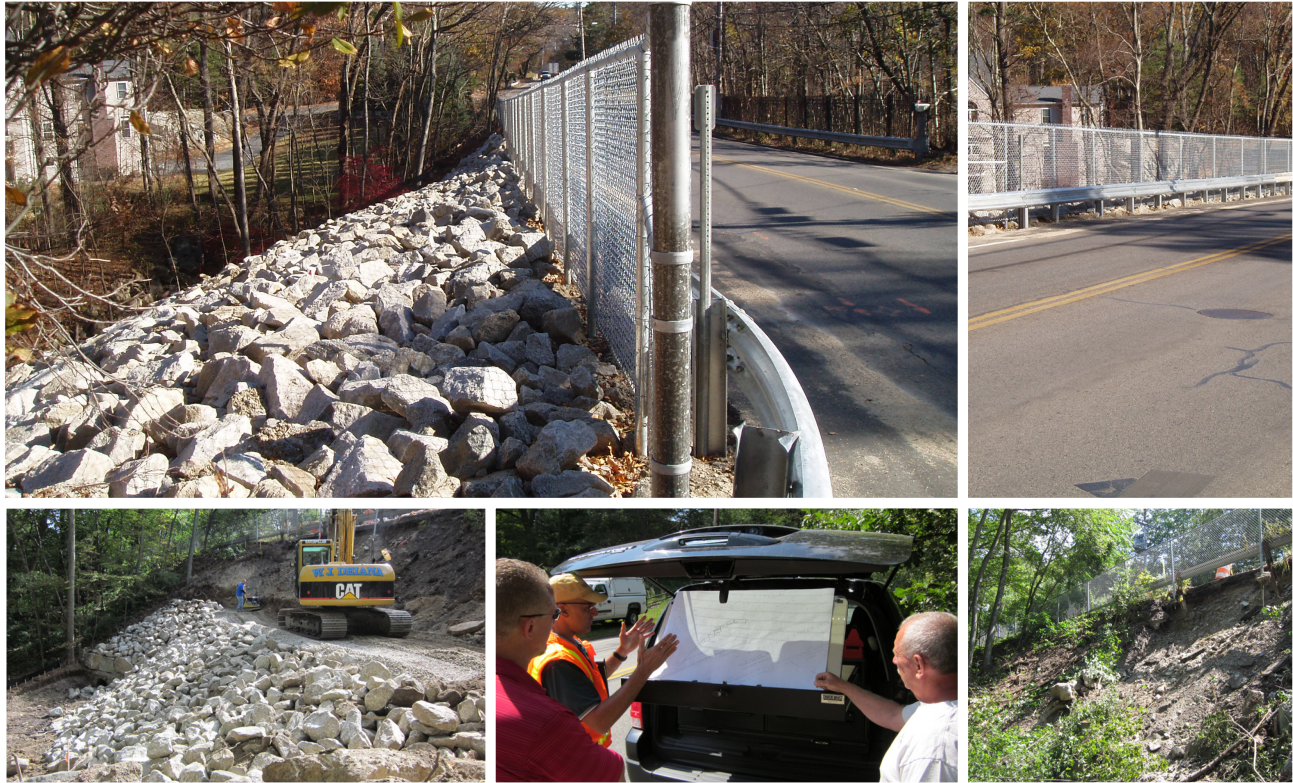
- emergency response
- multi-disciplined services
- FEMA program administration
- Vermont ANR coordination
- VTrans coordination

client contact

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EAST MAIN STREET EMERGENCY SLOPE STABILIZATION

town of hopkinton, massachusetts



Weston & Sampson provided geotechnical services for emergency design and repair of a slope failure on East Main Street (Route 135) in Hopkinton, Massachusetts. Failure of the approximately 25-foot tall embankment slope occurred as a result of Tropical Storm Irene on August 28, 2011. The failure damaged a fence and guardrail along the top of the slope and eroded and undermined the edge of the roadway by as much as 2 feet. Expeditious stabilization of the slope was critical to maintaining two lanes of traffic on East Main Street, a major thoroughfare through the center of Hopkinton.

Weston & Sampson was contacted by the town and visited the site the day after Tropical Storm Irene. Site clearing and access preparation to the bottom of the slope began on September 2, 2011 by a contractor hired by the town. Concurrent with site clearing and access preparation, Weston & Sampson completed slope stability analyses and prepared drawings and details of the proposed repair, a suggested sequence of work, material specifications, and a material quantity estimate. Construction of the slope stabilization began on September 9, 2011.

Weston & Sampson geotechnical engineers were on-site to assist the contractor with layout of the top and bottom of slope, slope inclinations, construction of a key trench along the bottom of the slope, and modifications of the stabilization design to accommodate existing conditions. Weston & Sampson continued to observe and document construction of the slope repair through completion on October 7, 2011.

client contact

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EMERGENCY RIVERBANK STABILIZATION AND ROAD RESTORATION, EAST RIVER ROAD

town of chester, massachusetts



Weston & Sampson was retained by the Town of Chester to provide field survey, engineering, permitting assistance, and construction administration for a portion of an eroded bank section of the West Branch of the Westfield River that has resulted in the undermining of a portion of East River Road in Chester, Massachusetts.

The West Branch of the Westfield River bank was eroded during a rain event that occurred on October 8th and 9th of 2005. Following this rain event, the Town of Chester installed temporary barriers along the roadway, since a portion of the roadway was undermined and no longer passable.

During October of 2007, the Town of Chester closed the roadway and declared an emergency. Weston & Sampson completed a field survey, prepared design drawings, and prepared the emergency authorization requests to Massachusetts Department of Environmental Protection (MADEP), USACOE, Natural Heritage, and the National Park Service. New England Environmental of Amherst, Massachusetts assisted Weston & Sampson with the permitting and inspection of the project.

All bank restoration design work was approved by the National Park Service for work along a designated wild and scenic river. Native stone was used to blend the restoration work with the surrounding river, root wads were installed along the toe of the slope to provide fish habitat, and the riverbank was planted with native vegetation.

client contact

John Bladasaro
Board of Selectmen
Chester, Massachusetts
413-354-7760

FLOOD PROTECTION AND CLIMATE RESILIENCY STUDY OF COLUMBIA, SC WWTP

city of columbia, south carolina



The City of Columbia's Metro Wastewater Treatment Plant (WWTP) is located immediately at the land side toe of the Congaree River levee. Built in the 1960s and 70s, the levee is classified as non-accredited for the National Flood Insurance Program (NFIP). In October 2015, historic rainfall led to widespread flooding in the region and a section of the levee just downstream of the WWTP breached. Since the WWTP is higher in elevation than surrounding areas, it did not flood, but it was inaccessible to vehicular traffic for more than three days, employees had to be transported to and from the facility by boat, and the plant could not receive supplies.

The City of Columbia was awarded a grant by the Federal Emergency Management Agency (FEMA), which they used to retain Weston & Sampson as their prime consultant to conduct a geotechnical, climate resiliency, and flood protection study to evaluate alternative methods to protect the plant, its planned expansion, and its supply route from future flood conditions. Our study involves inspection of the existing levee, regional hydraulic and hydrologic analyses, breach analyses, subsurface explorations, and stability and seepage analyses for the existing levee in future flood conditions. Due to the high flood levels expected for the area, our recommendations include a new ring levee around the WWTP, raising the existing supply route to the facility, and building a new bridge off the highway as a secondary supply route.

When our study is complete, the city will have a series of solid, science-based recommendations for next steps to be undertaken to help protect this currently vulnerable infrastructure from flooding. Our recommendations will be critical in building resiliency into the plant and levee to better withstand threats from flooding from today's as well as future storm events that are predicted to be more frequent and more severe due to climate change. Our study will include proposed additional studies and projects, as well as a path to getting the existing levee section to be accredited by the NFIP.

- flood protection for vulnerable civil infrastructure
- climate resiliency
- sea level rise response
- geotechnical engineering

client contact

John Riggs, PE
Wastewater Project Manager
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ORLANDO DRIVE EMERGENCY CULVERT REPLACEMENT

town of enfield, connecticut



Weston & Sampson was contracted by the Town of Enfield to provide emergency design services for a slope failure associated with a culvert that washed out over an unused dirt road in January 2019. An old corrugated metal pipe culvert failed with an exposed sewer pipe hanging between the washed out slopes of embankments.

Weston & Sampson performed an emergency site inspection, provided temporary solutions, and diligently worked on design and permitting within 2-3 weeks. Design involved hydraulic analysis of the stream using HEC-RAS program, slope stability analysis, and providing scour countermeasure design. Scour countermeasures involved providing riprap at appropriate slopes and grading to prevent any future erosion. Sewer crossing was protected by a metal sleeve with additional structures on the embankments. This project also involved permitting through local inland wetlands and army corps engineers on a an emergency basis. CTDEEP Flood Management Certification (FMC) requirements were discussed with CTDEEP and we demonstrated an FMC was not required by showing no adverse impacts within a FEMA floodplain.

This project was completed in February 2019.

client contact

John Cabibbo
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CLIMATE ADAPTATION ROADMAP ALTERNATIVES ANALYSIS FOR THE HAMPTON CIRCLE AREA

town of hull, massachusetts



WHY A CLIMATE ADAPTATION ROADMAP?

- Past flood events have impacted the neighborhood
- Future flood projections indicate high vulnerability for this area
- “Everyday flooding” due to tides is likely

January 28, 2022 Event

What

A roadmap that is not a single option but a set of adaptation alternatives for the community to explore together

Join us for a workshop!
On Climate Adaptation Solutions for the Hampton Circle Area

December 7, 2022
7-8:30pm
Doors open at 6:30
Hull High School Exhibition Room

Register here!

<https://tinyurl.com/HullClimate>

*Have you experienced flooding?
We want to hear your concerns and ideas for the future of the neighborhood.*

Join us!
Resiliency Workshop
Hampton Circle Area

December 7, 2022
7-8:30pm
Doors open at 6:30
Hull High School Exhibition Room

Register here!

<https://tinyurl.com/HullClimate>

We need your...
Feedback • Concerns • Ideas • Questions • Creativity!

Join us!
Climate Adaptation Workshop

The Town of Hull Climate Adaptation and Conservation Department and Sewer Department are exploring potential options to adapt the Hampton Circle Area to frequent and future flooding. This workshop will provide an overview of flood vulnerability based on climate change projections, introduce adaptation options, and provide an opportunity for conversation and feedback from residents.

December 7, 2022
7-8:30pm
Doors open at 6:30
Hull High School Exhibition Room

Do you live on Marginal Road, Moreland Avenue, Hampton Circle, or Bay Street?
We need your feedback!

The project is funded by the Municipal Vulnerability Preparedness (MVP) program from the Massachusetts Governor's Office of Energy and Environmental Affairs.

RSVP Here!

<https://tinyurl.com/HullClimate>

OPTIONS FOR FLOOD ADAPTATION

Home Elevations

OPTIONS FOR FLOOD ADAPTATION

Home Elevations

Train Note
The 2022 Home Elevation Grant Program is administered by the Town of Hull through a multi-department committee of Town staff. Its purpose is to assist eligible residents raise their homes in the 100-year floodplain so the risk for flooding is reduced. Funding is from FEMA Pre-Disaster Mitigation Program.

Resident Role
• Residents must apply for Town support.

Potential Benefits
• Home elevation will potentially reduce damages to structures due to tidal or storm surge flooding.

Potential Trade-offs
• Stairs or ramps may be required for vertical accessibility.
• Temporary flooding may be needed during construction.
• Older structures may need some retrofit to handle elevation.
• Some cost required from property owner upfront.
• Takes 1-2 years for application process.

The Town of Hull's Climate Adaptation and Conservation Department and Sewer Department are exploring potential options for the Hampton Circle Area to adapt to frequent and future flooding. The neighborhood will likely experience everyday tidal impacts in the future due to sea level rise, and more than 70 residential properties may be impacted by flooding.

This project includes robust community engagement through an educational video, focus groups, two visioning workshops, a site walk, and a survey. As part of this effort, we are also exploring design alternatives for the area to reduce the impacts of sea level rise, storm surge, and precipitation-based flooding. Design alternatives may include physical interventions such as raising roadways, extending sea walls, or residential property changes through home elevations or managed retreat.

All alternatives considered are informed by an analysis of climate data and feasibility of implementation. Weston & Sampson is providing climate data assessment, managed retreat program consideration, community engagement support, design development, and feasibility analysis. This project is one of the first to consider managed retreat in Massachusetts through the Municipal Vulnerability Preparedness (MVP) Program. The coordinated roadmap that results from the project will inform next steps for the Hampton Circle neighborhood and the Town of Hull.

- climate adaptation roadmap: alternatives analysis
- MVP program coordination
- resilient design alternatives
- robust community engagement

client contact

Chris Krahforst
Director of Climate Adaptation and Conservation
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CLIMATE CHANGE VULNERABILITY ASSESSMENTS OF PUBLIC WASTEWATER & DRINKING WATER INFRASTRUCTURE

new hampshire department of environmental services



The New Hampshire Department of Environmental Services recently contracted Weston & Sampson to provide climate change vulnerability assessments (CCVAs) for NHDES-selected publicly owned wastewater and drinking water infrastructure within New Hampshire.

Communities across the State of New Hampshire are experiencing increased flooding, drought, excessive heat, severe winters, and other extreme weather events that threaten the functionality of their critical infrastructure. Unpredictable weather and weather events endanger the proper function and operation of wastewater and drinking water infrastructure.

As part of this contract, Weston & Sampson is responsible for conducting CCVAs in select communities across the state to help the NHDES better understand the current and future impacts of climate change on their infrastructure, including wastewater treatment facilities (WWTFs), pump stations, and collection systems, as well as drinking water treatment plants (WTPs), water supply mains, booster stations, and water supplies. Our team is working to identify current and projected freshwater flooding; coastal flooding, sea level rise, storm surge, and groundwater rise as applicable to coastal systems; impacts from extended periods of extreme heat; and impacts from drought.

Our team will evaluate each community and determine a vulnerability score based on a uniform approach and infrastructure sensitivity. Vulnerabilities will be incorporated into the community's Hazard Mitigation Plan and, more critically, into each community's existing Asset Management platform. This last step best ensures that vulnerabilities can be aligned with capital improvement projects and applicable funding in the future.

- climate change vulnerability assessments
- identification of mitigation measures
- protection plans for critical infrastructure
- community-specific hazard mitigation plan reviews/updates
- background data collection
- report development
- community outreach and presentations
- preparation of an ArcGIS story map

client contact

Sharon Nall
Wastewater Bureau Supervisor
New Hampshire Department of
Environmental Services
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WASTEWATER TREATMENT FACILITY CLIMATE RESILIENCE ASSESSMENT

town of seabrook, new hampshire



The **Town of Seabrook** identified several critical wastewater treatment components vulnerable to the anticipated changes in sea level rise under projected future climate scenarios in the Town Master Plan Chapter on Coastal Hazards and Adaptation. The focus of this project was the town's critically important wastewater treatment infrastructure, which collects and treats domestic, commercial, and industrial wastewater from most of the town.

The wastewater treatment facility (WWTF) and other system treatment components are all located on Wright's Island, a small upland area within the salt marsh that straddles the New Hampshire/ Massachusetts border south of Route 286. Vehicular access to Wright's Island is via a single-lane causeway from Route 286. The isolated nature of the WWTF makes it particularly susceptible to sea level rise (SLR) and coastal surge, and any disruptions to WWTF operation quickly becomes a public health risk. The project involves assessing the specific vulnerabilities at the site and identifying/assessing up to four options for improving resiliency.

The project also involves identifying effective communication and outreach methods, building upon successful efforts of regional organizations to continue the conversation about climate change in Seabrook and engage the public in the results of the WWTF assessment. It is expected that our outreach process will be easily replicated by other New Hampshire coastal communities.

Key objectives of this project included:

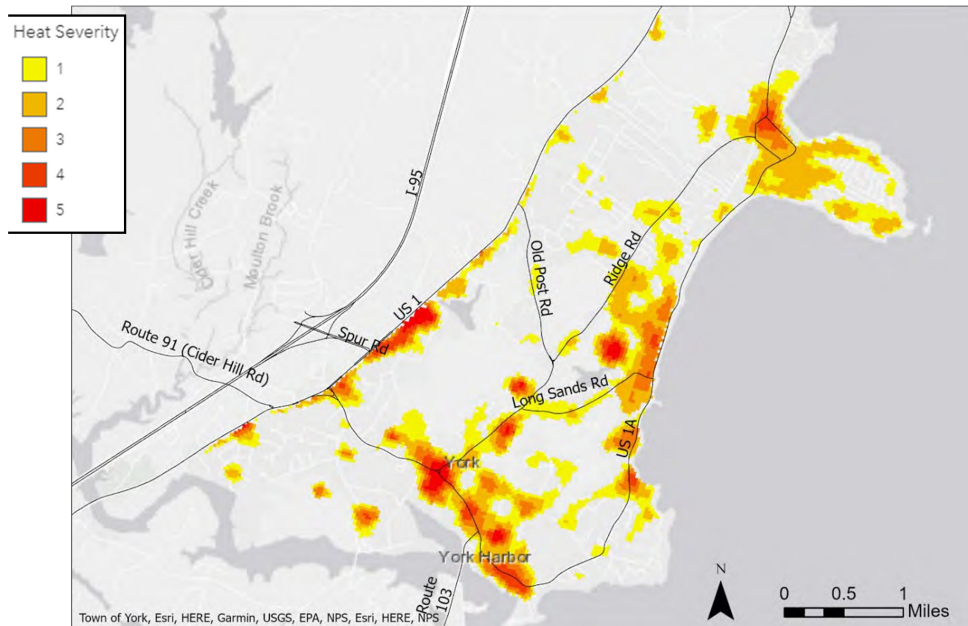
- Identify current/projected flooding from SLR/storm surge and impacts
- Include new site-specific SLR and storm surge evaluations
- Incorporate new science on groundwater rise projections
- Identify and create design concepts, permit strategy, and costing for four options for improving the climate resiliency of the WWTF
- Engage over 50 residents through the development of public engagement strategy on climate threats and emergency procedures

client contact

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Superintendent
Sewer Department
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COMPREHENSIVE MASTER PLAN UPDATE & CLIMATE ACTION PLAN

town of york, maine



As a subconsultant to Civic Moxie, Weston & Sampson assisted in the execution of an integrated project that included development of an update to the Town of York's existing Comprehensive Plan as well as development of the town's first-ever Climate Action Plan.

Our efforts included:

- Preparing the Public Facilities, Transportation, and Water Supply sections of the Comprehensive Plan
- Assessing existing conditions, consensus-building with focus groups, and preparing recommendations for an implementation plan
- Assisting in the preparation of a Comprehensive Plan that meets criteria the State of Maine Planning Office uses to review community comprehensive plans for consistency with the goals and guidelines of the Growth Management Act (30-A M.R.S.A. §§ 4312 - 4350) and for certification under §4347-A(2)
- Establishing an overall vision for the future of the town and concrete goals for achieving this vision
- Incorporating plan elements that are reflective of town goals of social equity, economic development, and public health and safety
- Developing concrete, data-driven strategies to realize the town's goals and clear metrics to measure success in the coming years
- Assisting in the preparation of the Climate Action Plan

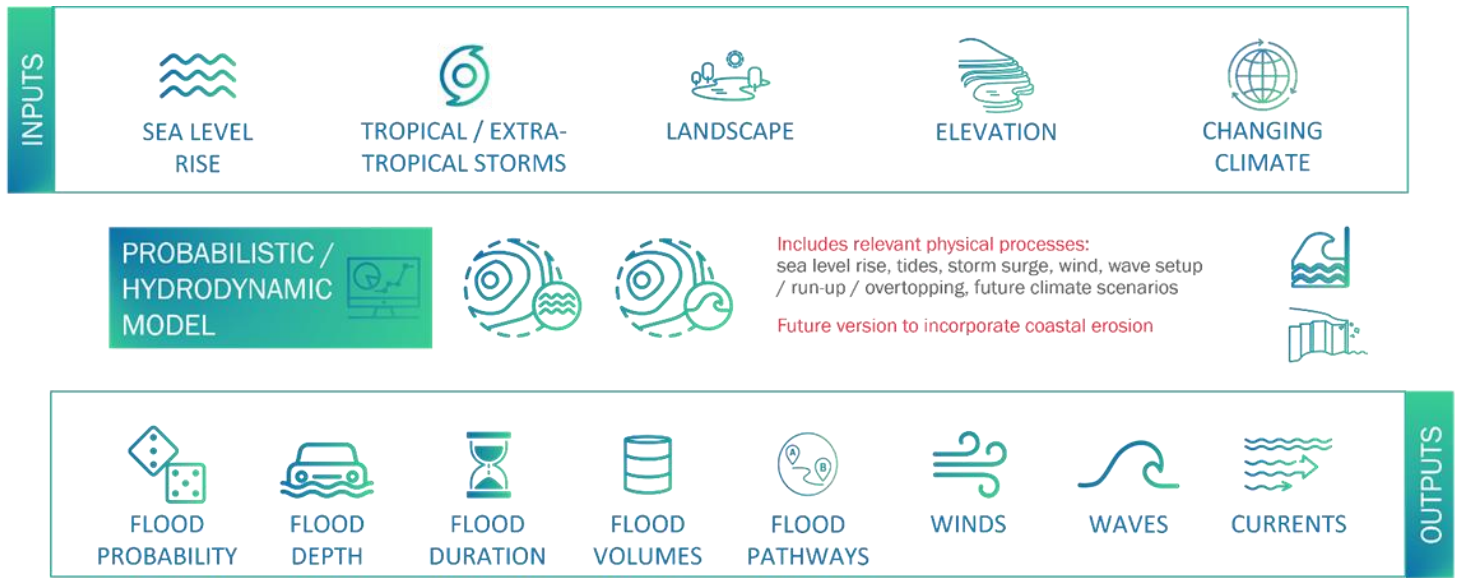
- user-friendly, concise, and graphic comprehensive master plan update
- climate action plan development
- social equity, economic development, and public health and safety considerations

client contacts

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Town of York
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Susan Silberberg
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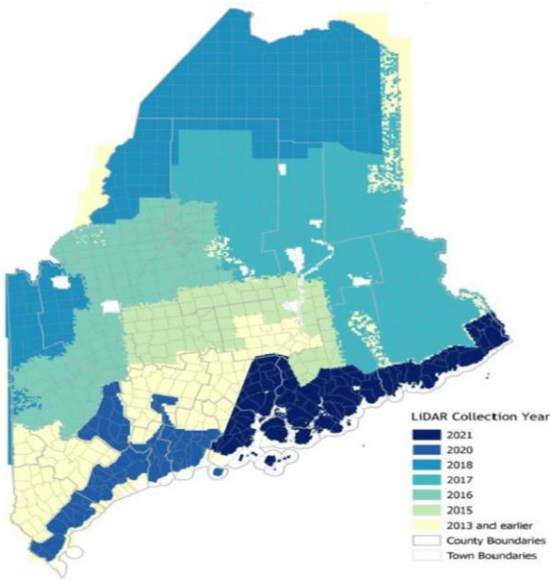
The Maine Coast Flood Risk Model



PROJECT CHARACTERISTICS

- Probabilistic Flood Modeling
- Combined Sea Level Rise and Storm Surge Risk to critical infrastructure and Assets
- Assessment of spatial variability in tidal datums under changing climate conditions
- Integration of important tidal crossings
- Integration of wave-driven run-up and overtopping processes

Woods Hole Group (WHG) is working with the Maine Department of Transportation (Maine DOT) to evaluate coastal flood risks under a changing climate. The project will utilize a dynamic, physics driven approach, within a probabilistic framework, to create geospatial risk data for coastal and estuarine areas throughout the State. The geospatial probabilistic data created as part of this project are intended to form a foundation for understanding and assessing climate-induced coastal risk and resilient project design for Maine's coastal communities.



The centerpiece of the project will be the results of a highly resolved numerical hydrodynamic model. The model will incorporate the combined impacts of sea level rise, storm events (both tropical and extra-tropical), winds, tides, riverine discharge, as well as waves. Tropical and extra-tropical events will be simulated using an ensemble Monte Carlo approach to develop probabilistic distributions of flooding. The Maine Coastal Flood Risk Model (MEC-FRM) will draw on lessons learned and build upon the methodology previously utilized to create the Massachusetts Coastal Flood Risk Model (MC-FRM).

Woods Hole Group's approach to dynamic flood modeling includes a more accurate representation of current and future flood risk for a number of reasons, including, but not limited to:

- The Woods Hole Group FRM approach is a dynamic model that includes the critical processes associated with storm induced flooding (winds, waves, wave-setup, storm surge, wave run-up and overtopping, etc.).



- The Woods Hole Group FRM approach includes wave run-up and overtopping flow, and the physical based spreading inland of that water, in areas where waves intermittently overtop major coastal structures (e.g., seawalls, revetments).
- The Woods Hole Group FRM approach is calibrated to historical storm events that impacted Maine, using observed high-water data and measurements to ensure that storm propagation and conditions are reasonably represented.
- The Woods Hole Group FRM approach is high enough resolution to capture flood pathways in complex urban topographies such that site-specific flood risk can be analyzed and used to develop design parameters and conditions.
- The Woods Hole Group FRM approach includes both hurricanes (tropical cyclones) and nor'easters (extra tropical cyclones) under changing climate conditions, capturing the net effects of varying storm types, magnitudes, and frequencies. The Monte Carlo approach simulates 1000s of storm events to arrive at a full probabilistic flood risk result.

LOCATION

State of Maine

CLIENT

Maine Department of Transportation

00-0000

Prouts Neck Resiliency Planning

Prouts Neck, ME

PROJECT CHARACTERISTICS

- Climate change planning
- Sea level rise and storm surge vulnerability assessment
-
- Adaptation and resilience recommendations
- Infrastructure assessment
- Natural resources assessment
- Adaptation responses

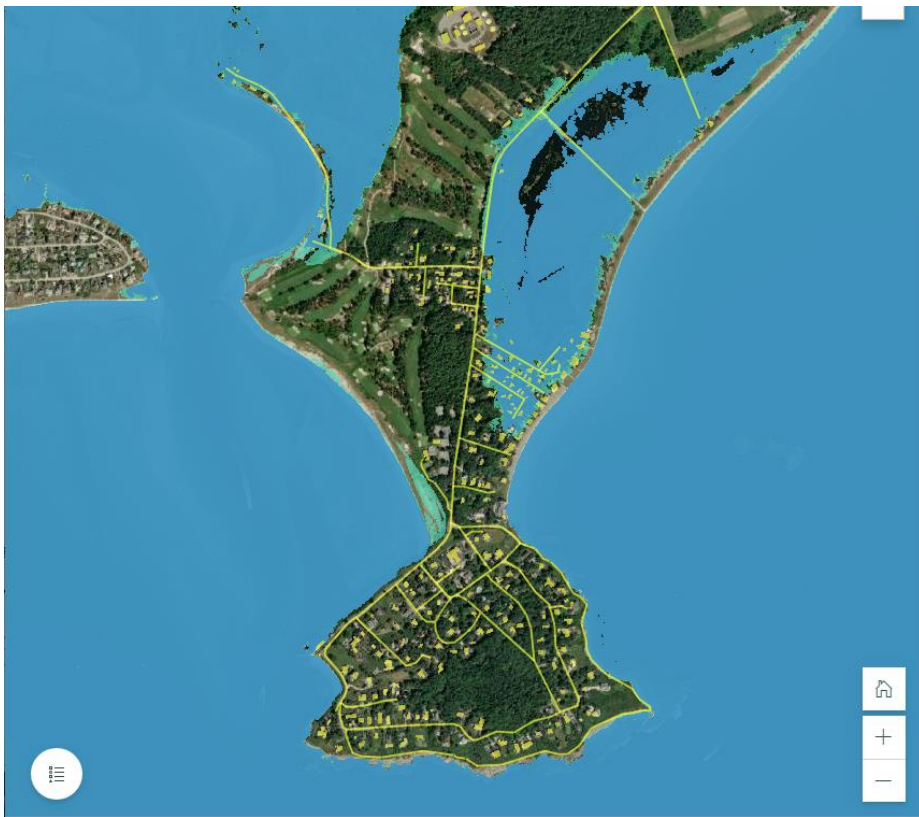


Prouts Neck is a community rich in history and family traditions. Generations of families have spent summers at Prouts Neck enjoying the sandy beaches at the Bathing Association, the tennis courts and golf course at the Country Club, boating from the Yacht Club, rowing and paddling from the Nonesuch Oar and Paddle Club, and enjoying the sights from the Cliff Walk. Over time, Prouts Necks has experienced increased population and housing density, while also witnessing land-use changes to nearby coastlines and the Scarborough Marsh.

The Prouts Neck Environmental Planning Committee (PNEPC), a special committee of the Prouts Neck Association, PNEPC was interested in better understanding the overall vulnerability of the Prouts Neck community to storm flooding and damage, especially as those vulnerabilities may intensify with a changing climate. In mid-2022, the PNEPC engaged the Woods Hole Group, an international environmental, scientific, and engineering consulting organization headquartered in Bourne, Massachusetts, to conduct a screening-level vulnerability assessment of the present and future climate conditions for Prouts Neck.

Prouts Neck is susceptible to coastal shoreline change, especially the impacts associated with waves, storm surge, erosion, and other coastal hazards. Storm surge flooding and wave action have led to extensive erosion and damage along Scarborough Beach and the Prouts Neck Bathing Association. Impacts from past storms have included damage to the PNBA and private homes, erosion along the beaches and Cliff Walk, and flooding of the lanes and the golf course.

As recently as December 2022, the Prouts Neck area experienced the damaging impacts of the large storm which hit the area just before Christmas. This storm had 60-70 mph winds from the south easterly direction, sustained precipitation, and rolled through the area during an astronomical high tide resulting in large waves and higher water levels. Additionally, this storm reached a surge elevation of 8.46 ft NAVD88 which is approximately equivalent to a FEMA 50-year (2% annual chance) storm event in present day or a 10-year (10% annual chance) storm event in 2030.



Clear Data

10% and 1% SS Present Day

10% and 1% SS + Sea level
Rise 2030

10% and 1% SS + Sea level
Rise 2050

10% and 1% SS + Sea level
Rise 2070

10% and 1% SS + Sea level
Rise 2100

You can use the buttons on the lower right corner of the map to interact with the viewer. **Click the + or - buttons to zoom in.** **Click and hold the map and drag your mouse pan in any direction**



Possible adaptation responses to existing vulnerabilities were developed for the following key assets:

- Prouts Neck Yacht Club Building
- Buildings along Ferry Beach
- Prouts Neck Bathing Association
- Prouts Neck Country Club
- The Lanes Neighborhood
-

For a full report on the assessment please visit:

<https://storymaps.arcgis.com/stories/16d11d09fd22443c8c693866a4a8f1f6>

In the summer of 2022, the PNEPC worked with Woods Hole Group to conduct a screening-level vulnerability assessment to investigate the potential exposure of roads and buildings within the Prouts Neck community to flooding caused by nuisance and storm surge flooding for current and future climate conditions.

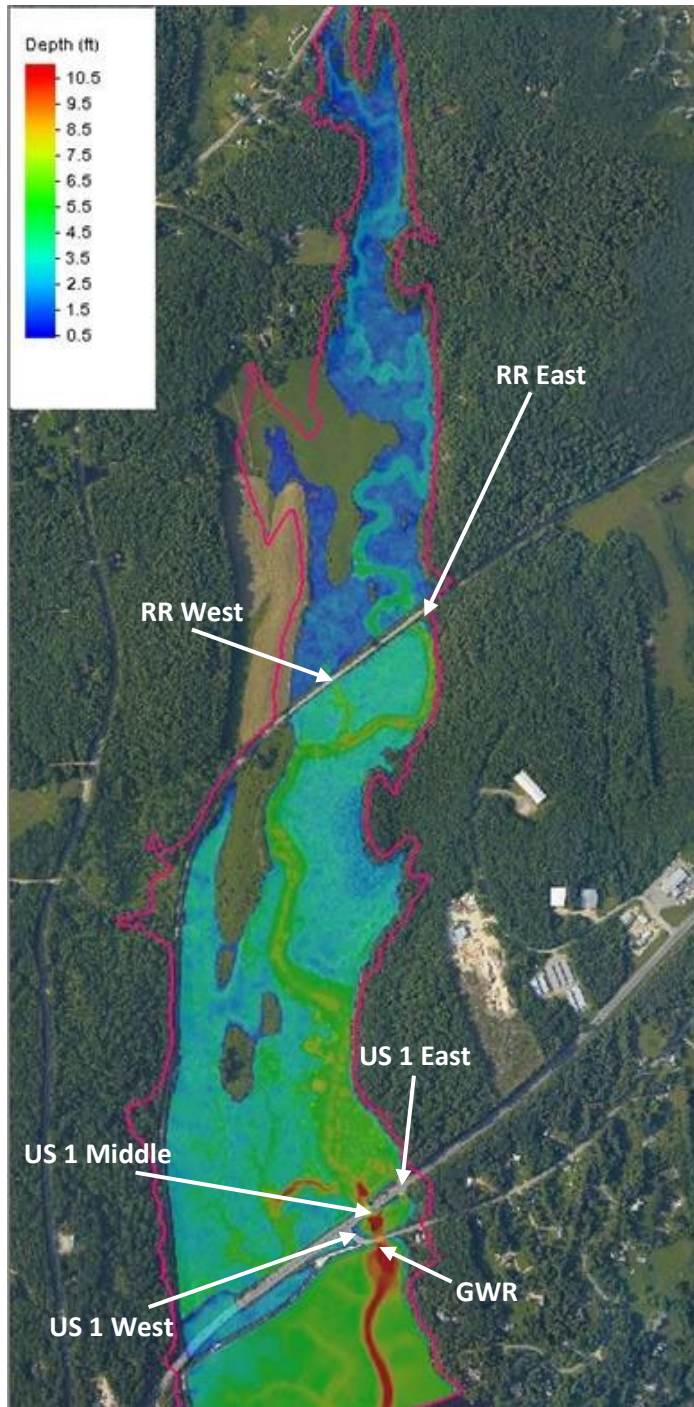
LOCATION

Prouts Neck, Maine

CLIENT

Prouts Neck Association

Back River Marsh Restoration: Hydraulic & Hydrology Study, Woolwich, ME



PROJECT CHARACTERISTICS

- Field data collection
- Topographic and bathymetric surveying
- Marsh Restoration
- Sediment transport
- Culvert/Bridge opening optimization
- Infrastructure assessment
- Hydrology and Hydraulics study

Back River Marsh, a 140+ acre wetland upstream of Pleasant Cove and the Sassanoa River in Woolwich, has experienced impaired tidal exchange due to road crossings at the downstream end of the estuarine system. Additionally, the Route 1 and George Wright Road crossings have been subject to flooding in recent storm events. To investigate the potential for restoration of the Back River salt marsh and increased resiliency of roadways, Woods Hole Group conducted Hydrology & Hydraulics (H&H) study. The study included a field data collection program to develop an understanding of the Back River Marsh estuarine dynamics under existing conditions. Data collected in support of the study were then applied to a develop a two-dimensional Sedimentation and River Hydraulics (SRH-2D) model.

The model allowed for simulations of alternative road crossings and the selection of a preferred hydraulic opening and roadway profile for the Route 1 crossing.



Recurring flooding at Rte. 1/George Wright Rd.



Existing undersized culvert

The Back River Marsh Restoration H&H study combined efforts from our Coastal Measurements & Sediments and Coastal Engineering & Modeling teams to develop a data acquisition and implementation plan to provide understanding of the degraded estuarine dynamics. Conductivity, Temperature, and Depth (CTD) instruments were deployed at key locations within the system to measure the existing tidal exchange under Route 1 and George Wright Road into the estuary. In addition to collecting tidal measurements, Woods Hole group conducted a survey to provide recent topographic and bathymetric data for developing the H&H model.

After implementing the data collection phase of the project, Woods Hole Group analyzed the data and used it to develop a calibrated SRH-2D model of the system under existing conditions.

The calibrated SRH-2D model was then applied to simulate a variety of restoration alternatives and develop recommendations for optimizing potential tidal exchange to the upstream marsh.

The alternatives were evaluated under multiple tidal and storm conditions to assess the restoration potential and any adverse impacts associated with the proposed hydraulic openings including both the Route 1 Station 46 bridge and the Pleasant Cove stream crossing. Simulations included typical tidal forcing, riverine, and coastal storm event together with sea level rise projected to occur over the lifespan of the project. The model simulations allowed for the selection of a preferred alternative for the Pleasant Cove crossing: an open span bridge with an increased roadway elevation that would tie-in with the Station 46 Route 1 crossing.

The project involved coordination and engagement with Back River Restoration Partnership Team, MaineDOT, and its design consultant to ensure that restoration goals were addressed together with reducing roadway flooding and providing increased resilience of both the marsh and surrounding infrastructure in the years ahead.

LOCATION

Woolwich, ME

CLIENT

Kennebec Estuary Land Trust

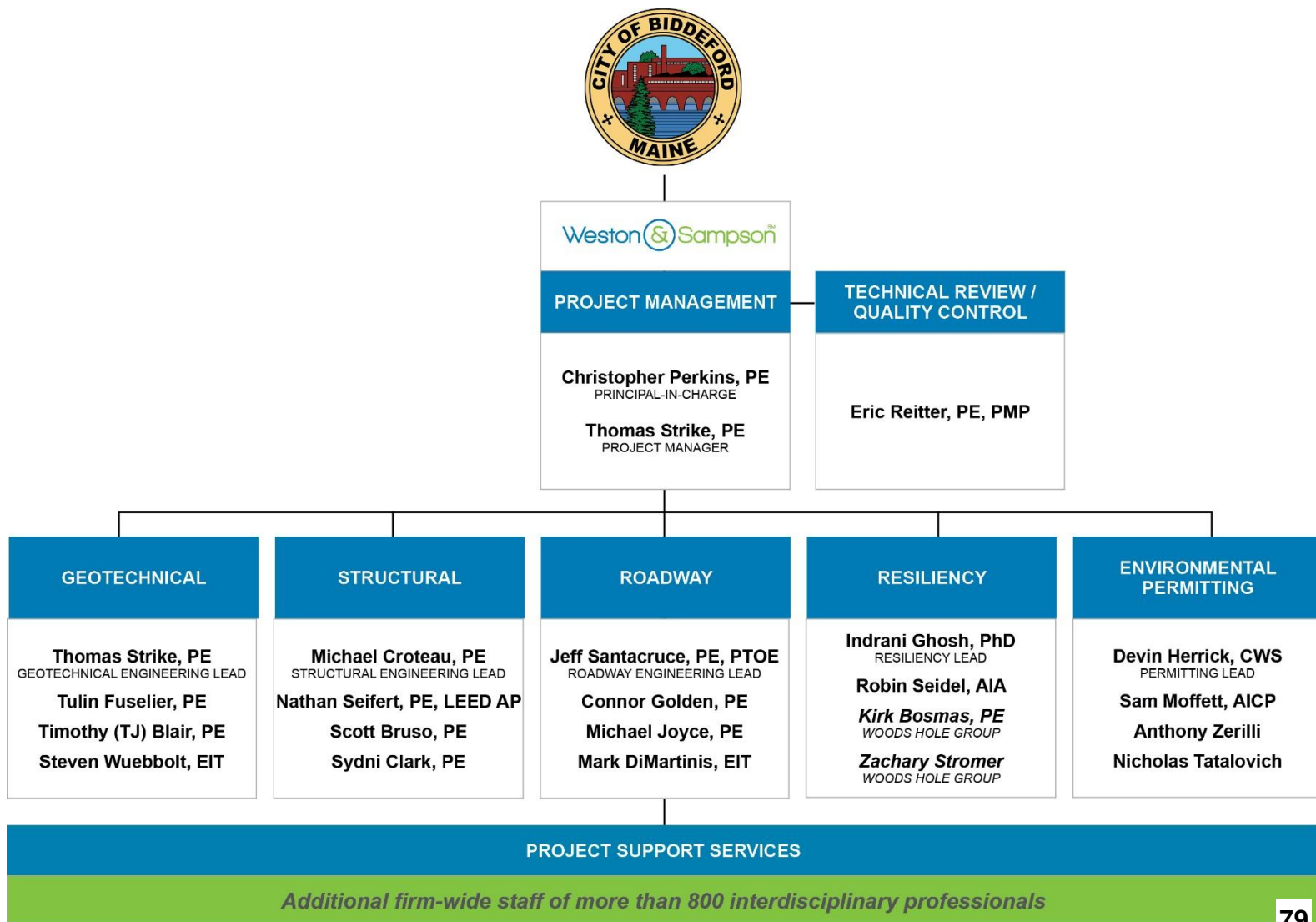
PROJECT TEAM & RESUMES

Weston & Sampson's expert team for this project includes highly qualified professionals and technical/support specialists who have successfully completed projects for the City of Biddeford and similar communities over the past several years. With the interdisciplinary nature of our team, we can address important project issues efficiently and seamlessly using in-house staff familiar with the unique challenges facing your community.

Our team of engineers, planners, environmental scientists, and resiliency specialists offers the appropriate skills required to successfully complete this project for the City of Biddeford. **Principal-in-Charge Chris Perkins, PE**, and **Project Manager Tom Strike, PE** have successfully worked together on numerous complex infrastructure improvement projects.

The below team chart outlines the lines of communication among all our team members, as well as their respective roles and responsibilities.

On the following pages, we highlight the qualifications of our project management team and lead staff who will have overall responsibility for the delivery of services. Resumes for these key staff conclude this section.



Key Personnel

Christopher Perkins, PE Principal-In-Charge

As principal-in-charge, Chris will commit the corporate resources necessary to cost-effectively complete projects under this contract. Chris leads the firm's business operations in Maine and New Hampshire and is a member of our corporate Board of Directors. A Maine registered Professional Engineer and longtime Maine resident, Chris has extensive experience with all facets of civil engineering, including the planning, design, and construction of dams and stormwater, water distribution, and wastewater collection, treatment, and disposal facilities. He currently serves as the principal-in-charge of multiple infrastructure and planning projects, including multi-street roadway and utility reconstruction projects through New England. In addition, **Chris currently serves as the principal-in-charge for the Retaining Walls Replacement Project along the Riverwalk in Biddeford.**



Thomas Strike, PE Project Manager & Geotechnical Lead

As project manager, Tom will be responsible for the day-to-day progress of your project and will serve as **the primary contact** with the city. Tom will monitor the performance of the project team, review budgets, ensure technical quality, monitor personnel assignments and allocations, and lead all design tasks. Tom brings to this project more than 25 years of experience in geotechnical engineering design for municipal projects. His specific areas of expertise include dam safety engineering, foundation design, and retaining wall and slope stability analyses. **Tom has worked on numerous FEMA projects, including the on-going Retaining Walls Replacement Project in Biddeford.**



Michael Croteau, PE Structural Engineering Lead

Mike has more than 20 years of civil and structural engineering experience, including more than two dozen municipal projects constructed across the Northeast. This experience includes design and construction phase services for numerous bridge projects in Maine, New Hampshire, and Massachusetts. In addition, Mike has experience with foundation and retaining wall design, including his work on the recent Boston City Hall Project. **Mike is assisting Tom with structural design support for the Retaining Walls Replacement Project in Biddeford.**



Jeffrey Santacruce, PE, PTOE Roadway Engineering Lead

A Maine registered Professional Engineer, Jeff has nearly 30 years of civil and roadway engineering experience, including several roadway reconstruction projects in Vermont and New Hampshire after Tropical Storm Irene. His experience includes roadway design and reconstruction projects throughout the Northeast. Jeff has worked on roadway, bridge, and dam projects with both Mike and Tom. **Currently Jeff is managing two projects for NAVFAC, including roadway reconstruction along the coastline for a facility in Cutler, Maine that considers sea level rise and wave modeling and a project at a facility in Rangeley, Maine that involves culvert replacement and roadway restoration due to recent storm damage along a stream that looks at resilient solutions to reduce future damage.**



Indrani Ghosh, PhD Resiliency Lead

Indrani has nearly 20 years of experience as a water resource engineer and is the climate resilience technical leader at Weston & Sampson. She guides interdisciplinary teams and stakeholders through the risk-based prioritization of adaptation solutions. Indrani has industry-leading experience in translating climate change projections to engineering design criteria for infrastructure and modeling climate impacts for vulnerability assessment/adaptation planning for projects throughout the Northeast. Her experience also includes serving as technical lead working with the multi-agency RMA to provide Climate Resilience Design Standards and Guidelines and providing technical support and advice related to the incorporation of resilient design strategies as part of the implementation of the master plan for historic waterfront Prescott Park and Four Tree Island in Portsmouth, New Hampshire.



Devin Herrick, CWS Environmental Permitting Lead

Devin has more than six years of experience working on environmental conservation and permitting projects for a wide variety of projects throughout New England, including resilient coastal projects for Ring's Island in Salisbury, Massachusetts; and Prescott Park in Portsmouth, New Hampshire. Devin is experienced in wetland conservation, restoration, and mitigation projects that include data collection, site assessments, vegetation, water, soil and hydrologic evaluations, functional assessments, habitat identification, natural resource surveys, living shoreline installation, and critical habitat restoration. Devin has also been involved in grant writing, data configuration, and report preparation. She has experience effectively communicating with numerous state and federal agencies regarding permitting and environmental issues. **Devin is assisting Tom with environmental permitting support for the Retaining Walls Replacement Project in Biddeford.**



Samuel Moffett, AICP Permitting Specialist

Sam is a senior principal planner and experienced regulatory permitting expert with a track record spanning 25 years of successfully managing the development and timely implementation of NEPA, MEPA, and permitting strategies for his clients. **He has recently supported the Town of Chebeague Island; the City of Boston; and the United States Navy with coastal projects for which resiliency and sea level rise have presented significant constraints.** Sam has developed strong working relationships with regulatory agencies that will likely have jurisdiction over elements of this project, including the National Oceanic Atmospheric Administration and the United States Army Corps of Engineers.



Kirk Bosma, PE Climate Modeling Specialist

Kirk is a senior coastal engineer and innovation director at WHG, responsible for advancing the firm's climate change planning cross-disciplinary practice. He manages projects and develops engineering solutions related to climate change planning, coastal structure design, beach nourishment, beach management, inlet stabilization, water quality, environmental permitting, impacts of offshore dredging, marsh restoration, and coastal processes data collection. Kirk offers expertise in habitat restoration, shoreline protection, and climate change planning projects and specializes in applying numerical models to optimize engineering designs and reduce overall project life cycle costs. He has developed and applied the latest data and numerical methods toward capturing current and future flooding risk for climate change vulnerability assessments; and developed comprehensive coastal flood risk assessments that incorporate storm surge risk coupled with increased precipitation and sea level rise; developed gray, green, and hybrid coastal engineering adaptations for fostering urban and rural resiliency in a cost-effective approach.



BACKGROUND

2015-Present
Vice President
Weston & Sampson

2011-2015
Program Manager
Weston & Sampson

2003-2011
Project Manager
Weston & Sampson

1999-2003
Senior Engineer
Weston & Sampson

1996-1999
Engineer
Weston & Sampson

1994-1996
Environmental Engineer
DeFeo, Wait & Pare, Inc.

EDUCATION

1993
Bachelor of Science
Civil Engineering
University of Massachusetts-
Lowell

PROFESSIONAL REGISTRATION

Professional Engineer:
Maine No. 11150
Massachusetts No. 41460
New Hampshire No. 12004

PROFESSIONAL AWARDS

Alfred E. Peloquin Award
2022 New Hampshire recipient

PROFESSIONAL SOCIETIES

New Hampshire Water Pollution
Control Association
Permit Committee
Chair, 2017-Present

Maine Water Environment
Association

Water Environment Federation

New England Water
Environment Association

Chris leads the firm's business operations in New Hampshire and Maine. He has extensive experience with all facets of environmental engineering, including the planning, design, and construction of water distribution, and wastewater and stormwater collection, treatment, and disposal facilities.

Chris currently serves as the principal-in-charge of multiple infrastructure and planning projects in New Hampshire and Maine. He has recently provided water and wastewater infrastructure support for projects in Exeter, Derry, Durham, Groveton, Hudson, Keene, Lebanon, Newmarket, and Rochester, New Hampshire; Auburn, Bethel, Biddeford, and York, Maine; and Falmouth, Newburyport, and Salisbury, Massachusetts, among others.



SPECIFIC PROJECT EXPERIENCE

Riverwalk Retaining Wall Replacement, Biddeford, Maine. Principal-in-charge for replacement of approximately 200 linear feet of retaining wall along the Saco River in Biddeford. Sections of retaining wall failed and were significantly damaged after a period of heavy precipitation in October 2021. Work has included inspection of failed and damaged sections of wall, temporary stabilization evaluation, subsurface explorations, survey of the damaged areas, FEMA support services, evaluation of replacement alternatives and report preparation, cost estimating, permitting, and design of an approximately 33-foot tall, 200-foot long soldier pile and lagging wall replacement. Summer 2024 construction is anticipated.

Secondary Clarifier Replacement, Biddeford, Maine. Principal for investigation and design of the rehabilitation and replacement of an 85-foot diameter, organ-pipe, secondary clarifier. Project included structural repairs to the concrete basin and replacement of all mechanical clarifier internals. Responsibilities included coordination and vetting of clarifier manufacturers, preparation of design drawings and specifications, and bidding of project.

Recreation & Parks Master Plan, Biddeford, Maine. Provided corporate oversight/support of the development of a city-wide master plan for 20 public, city-controlled and operated outdoor playing field venues located at nine properties to serve as a guide for the future development of park and recreation amenities, as well as a tool to secure funding from various sources.

Wastewater Treatment Facility (WWTF) Climate Resilience Assessment, New Hampshire Department of Environmental Services (NHDES), Seabrook, New Hampshire. Principal for this project that focused on the town's critically important wastewater treatment infrastructure, which collects and treats domestic, commercial, and industrial wastewater from most of the town. The WWTF and other system treatment components are all located on Wright's Island, making it particularly susceptible to sea level rise and coastal surge. Project work involves assessing the specific vulnerabilities at the site and identifying/evaluating up to four options for improving resiliency, as well as identifying effective communication and outreach methods.

PRESENTATIONS

April 2023
 “Current and Anticipated PFAS
 Regulatory Impacts on WWTF
 Management”
 Trade Fair Tech Session Presenter
 | New Hampshire Water Pollution
 Control Association

December 2020
 “10,000,000 Linear Feet of
 Condition Assessment & Counting:
 Infiltration/Inflow Insights & Lessons
 Learned”
 presented as a NHDES training
 webinar

February 2017
 “Emerging Contaminants PFAS,”
 presented at MWUA

April 2016
 “Topics in Stormwater: Nutrients –
 Current Status, Perspectives and
 Trends”
 Maine Water Environment
 Association (MEWEA)
 Spring Conference

September 2015
 “Nutrients, Nitrogen and
 Phosphorus”
 MEWEA
 Fall Conference

April 2014
 “GIS: Why? How? What?” &
 “Data Collection to Establish GIS”
 presented at MWWCA

September 2013
 “Tools and Techniques for Asset
 Management”
 MEWEA
 Carrabassett Valley, ME

April 2013
 “GIS, Data Collection & CCTV to
 Manage Assets,” presented at
 Maine JETCC

Resilient Rings Island Preliminary Design, Salisbury, Massachusetts. Principal for the preliminary study and design of culverts and roadway improvements in the Rings Island community. Overall project study methods included hydraulic modeling of sea level rise impacts projected out to the year 2070, geotechnical investigations, permitting strategy analysis and wetland delineations. Team responsibilities include GPS surveying of the project area, preparation of preliminary design drawings for culvert and roadway improvements, as well as compiling all findings and recommended improvements into a basis of design report.

Hood Pond Dam, Derry, New Hampshire. Principal for the rehabilitation of Hood Pond Dam, a 560-foot-long, 31-foot-tall High Hazard earthen embankment dam. Work included wetland delineation, topographic survey, subsurface investigations, visual assessment of dam conditions, hydrologic and hydrology analyses, alternative repairs analysis, and development of design plans and specifications. The project also included the development of a hydrologic and hydraulic model of the Hood Pond watershed to develop inflow hydrographs to the pond and evaluate the hydraulic capacity of the dam in its existing condition as well as several conceptual-level alternative designs.

Upper Reservoir Dam, Goffstown, New Hampshire. Principal for the evaluation of the 345-foot-long High Hazard earth embankment dam with a concrete core wall constructed circa 1930. Repairs were required to manage a washout/sinkhole in the downstream slope abutment contact and an accumulation of eroded sand at the toe of the downstream slope. Conducted exploratory work with the use of an excavator and test pits to evaluate subsurface conditions, concrete core wall, and the evidence of seepage. The project included the design of recommendations to repair the downstream slope, install a mineral filter, and provide means for upper stormwater diversion as well as preparation of a reservoir refilling monitoring plan.

Wastewater Treatment Facility Diffuser Replacement, York Sewer District, York, Maine. Designer for the replacement of an outfall tee diffuser with a 24-inch HDPE multi-port diffuser located 1,600 feet off shore in the Atlantic Ocean. Work included development and modification to the WWTF plant hydraulic computer model, diffusion calculations, permitting, review of underwater investigation, and construction technique design.

Southern New Hampshire Regional Water Initiative (SNHRWI) Study, New Hampshire Department of Environmental Services (NHDES). Principal for the preliminary design and preliminary costing of water main extensions and water system improvements for the SNHRWI. A study was conducted to transmit over 3 million gallons per day (MGD) of water from Manchester Water Works water system to Plaistow, New Hampshire. Existing water systems in Atkinson, Derry, Hampstead, Londonderry, Salem, and Plaistow were assessed and preliminary recommendations were made to improve the capacity of each system, as necessary, to allow the transmission of water to each intended user. In addition, water main extensions in Derry, Windham, Salem, Atkinson and Plaistow, to connect the existing water systems, were also reviewed. The existing hydraulic model of each water system was combined into a cohesive regional water model and utilized to conduct multiple hydraulic analyses. Various demand conditions and water main options were assessed during the analysis.

BACKGROUND

2022-Present
Team Leader
Weston & Sampson

2018-2022
Senior Project Manager
Weston & Sampson

2015-2018
Project Manager
Weston & Sampson

2013-2015
Project Engineer
Weston & Sampson

2005-2013
& 1999-2004
Staff Engineer
Miller Engineering & Testing, Inc.

2004-2005
Geotechnical Engineer
PSI, Inc.

1998-1999
Field Engineer
SMW Seiko, Inc.

EDUCATION

2005
Master of Science
Geotechnical Engineering
University of Massachusetts, Lowell

1998
Bachelor of Science
Civil & Environmental Engineering
University of Massachusetts,
Amherst

PROFESSIONAL REGISTRATION

Professional Engineer:
Massachusetts No. 50328
New Hampshire No. 13858

Tom is a team leader in the firm's environmental and geotechnical program. He has more than 25 years of experience with geotechnical engineering design and has been responsible for managing multiple ongoing construction projects. His specific areas of expertise include foundation design, retaining wall and slope stability analyses, and dam safety engineering.



SPECIFIC PROJECT EXPERIENCE

Riverwalk Retaining Wall Replacement, Biddeford, Maine. Project manager and design engineer for replacement of approximately 200 linear feet of retaining wall along the Saco River. Sections of retaining wall failed and were significantly damaged after a period of heavy precipitation in October 2021. Work included inspection of failed and damaged sections of wall, temporary stabilization evaluation, subsurface explorations, survey of the damaged areas, FEMA support services, evaluation of replacement alternatives and report preparation, cost estimating, permitting, and design of an approximately 33-foot tall, 200-foot long soldier pile and lagging wall replacement. Construction is anticipated for Summer 2024.

Harrison Avenue Slope Repair, Gardiner, Maine. Project manager and design engineer for repair to an approximately 80-foot long by 44-foot tall section of soil slope along Harrison Avenue and the Cobbosseecontee Stream that failed after a period of heavy precipitation in May 2023. Work included inspection of the failed slope, FEMA support services, survey of the damaged area, evaluation of repair alternatives and report preparation, cost estimating, subsurface exploration, and repair design. Construction is anticipated for Fall 2024.

Beach Revetment, Manchester-by-the-Sea, Massachusetts. Geotechnical engineer for the revetment efforts at Singing Beach in this coastal town to improve the existing revetment structure and to preserve and protect the shoreline at Singing Beach against erosion and sea level rise. Responsible for coordination with the Conservation Agent and the contractor.

VTrans Route 279 East Slope Stabilization and Capping Plan, Bennington, Vermont. Geotechnical engineer responsible for field work and data analysis related to an earthen capping system and slope stabilization on an EPA Superfund site. Work included geotechnical drilling, slope stability analysis, preparation of construction plans and cost estimating.

Massasoit State Park Dam Rehabilitations, Taunton, Massachusetts. Project manager and dam safety engineer for rehabilitation of five earthen embankment dams in Massasoit State Park (Intermediate Size, High Hazard Structures ranging from 180 to 365 feet long and 10.5 to 18.5 feet tall). Work included coordination with Massachusetts DCR Office of Dam Safety, environmental permitting, repair of concrete outlet structures, raising the crest of one of the dams, and embankment improvements (including slope armoring), and mineral filter construction. Coordinated and completed engineering analyses; prepared drawings and specifications; coordinated environmental permit preparation and presentations; and provided bidding assistance.

Upper Reservoir Dam, Goffstown, New Hampshire. Project manager and dam safety engineer responsible for evaluating the 345-foot-long High Hazard earth embankment dam with a concrete core wall constructed circa 1930. Repairs were required to manage a washout/sinkhole in the downstream slope abutment contact and an accumulation of eroded sand at the toe of the downstream slope. Conducted exploratory work with the use of an excavator and test pits to evaluate subsurface conditions, concrete core wall, and the evidence of seepage. Designed recommendations to repair the downstream slope, install a mineral filter, and provide means for upper stormwater diversion. Also prepared a reservoir refilling monitoring plan. Design work is currently underway for complete dam rehabilitation.

Hood Pond Dam, Derry, New Hampshire. Project manager and dam safety engineer for rehabilitation of Hood Pond Dam, a 560-foot-long, 31-foot-tall High Hazard earthen embankment dam. Work included wetland delineation, topographic survey, subsurface investigations, visual assessment of dam conditions, hydrologic and hydrology analyses, alternative repairs analysis, and development of design plans and specifications.

Babson Reservoir Dam Rehabilitation, Gloucester, Massachusetts. Project manager and engineer for the rehabilitation of Babson Reservoir Dam, which involved modifications to the 630-foot-long earthen embankment including vegetation removal and flattening of the downstream slope to 2H:1V; concrete repair of the core wall, discharge channel walls, and gatehouse walls; construction of vertical and horizontal extensions to the concrete core wall and spillway walls; repair and modification to the spillway slab; construction of new stilling basin walls and foundations, and of a new discharge channel pipe and headwalls; and installation of downstream mineral filters. Prepared drawings for construction and managed office and field activities during construction, including review of pay requisitions and contractor submittals.

State Bridge #02677 Replacement, Guilford, Connecticut. Geotechnical engineer for replacement of the existing bridge culvert structure and elevating an approximate 600-foot-long earthen roadway embankment through a tidal area. Coordinated geotechnical fieldwork and laboratory testing, completed engineering analyses, and prepared a technical report including design recommendations for the bridge culvert and roadway embankment. Recommended elevating the embankment with lightweight fill or with conventional fill and deep foundation support to reduce consolidation-related settlement and to increase the factor of safety against global stability failure. Recommended support of the bridge culvert on steel H-piles driven to bedrock.

Sound Beach Avenue State Bridge #03954 Replacement, Greenwich, Connecticut. Geotechnical engineer for replacement of the bridge over Laddins Brook. Work included removal of the bridge and replacement with either a precast concrete arch bridge system, a three-sided precast concrete bridge frame, or a precast concrete box culvert. Work also includes full-depth pavement reconstruction to the surrounding roadways. Coordinated geotechnical fieldwork and laboratory testing, completed engineering analyses, and prepared a technical report including geotechnical earthwork and design recommendations. The box culvert was supported by compacted structural fill or a concrete mud mat and support of the abutments, wing-walls, and/or headwalls on conventional shallow spread footings on compacted structural fill or a concrete mud mat installed on the native sand deposits was recommended. Designed new pavements for surrounding roadways based on provided traffic data.

BACKGROUND

2022-Present
Senior Project Manager
Weston & Sampson

2020-2021
Project Manager
Weston & Sampson

2000-2020
Project Professional
Kleinfelder

1998-2000
Project Engineer
SFC Engineering Partnership, Inc.

EDUCATION

1998
Bachelor of Science
Civil Engineering
University of New Hampshire

PROFESSIONAL REGISTRATION

Professional Engineer
New Hampshire No. 12193

CERTIFICATIONS

Local Public Agency (LPA)
Certification Training, No. 1178,
DOT, New Hampshire

TRAINING

OSHA 10-Hour Construction Safety
and Health

PROFESSIONAL AFFILIATIONS

Structural Engineers of New
Hampshire

American Institute of Steel
Construction

Michael, a senior project manager in Weston & Sampson's transportation group, has over 20 years of civil and structural engineering experience, primarily focusing on the design and rehabilitation of bridges. His experience includes short, medium, and long bridges; simple-span bridge rehabilitation and replacement projects with steel girder; precast concrete beams; and precast concrete system and elements under the NHDOT Municipally Managed State Bridge Aid Program. Michael also has bridge preservation experience involving deck repairs, concrete repairs, and expansion joint replacements. In addition, Michael has successfully led the design and management of numerous projects from conceptual studies through preliminary plans, final design plans, and contract bid documents. He is proficient with NHDOT standards and procedures, and has led numerous bridge projects with construction administrative and inspection services.



SPECIFIC PROJECT EXPERIENCE

Ring's Island Flood Preparedness, Salisbury, Massachusetts. Assisting with this resiliency project, which included obtaining funding under the Massachusetts Municipal Vulnerability Preparedness (MVP) Action Grant program with the ultimate goal of providing preliminary design services to look at raising the elevation of the access/egress roads and improve tidal flushing through culvert replacements to address coastal flooding. Final design services will include simulation modeling to update the previous model and a wind-wave analysis to determine the wave conditions during storm events.

Interstate 95 Bridges, Maine Department of Transportation, Waterville, Maine. Worked on the design and construction phases for the deck replacement and substructure rehabilitation of six bridges including northbound and southbound structures at I-95 over County Road (four spans), over Messalonskee Stream (eleven spans), and over Main Street (three spans). Services included site inspection and condition evaluation; life cycle cost comparisons of rehabilitation and replacement alternatives; superstructure and pier analysis for the new widened deck and concrete parapets; elimination of a majority of the deck joints by running concrete deck continuously; and design and specification of concrete pier rehabilitation. (with former employer)

Backpack Bridges, Auburn, Maine. Structural engineer for preliminary design of the Auburn bridge, using bridge-in-a-backpack composite technology, as part of the Governor's Composites Initiative to support the use of structural composite technology in the state of Maine. Worked closely with Advanced Infrastructure Technologies, LLC (AIT), who provided the design of the superstructure. Developed concepts for cost-effective substructure units, headwalls, retaining walls, and foundations by working closely with AIT and MaineDOT. (with former employer)

Main Street Enhancements, University of New Hampshire, Durham, New Hampshire. Project engineer for improvements to 2,600 feet of the Main Street corridor in the core of the UNH campus. Work involved reconstruction and realignment of sidewalks throughout the corridor, revised traffic lane assignments to accommodate bicycle lanes in both directions, and the installation of four new bus turnouts. Responsible for structural engineering computations, field investigations, design calculations, and plan production for the reconstruction of the sidewalk structural slabs and utility vault roofs to allow for pedestrian ramps, crosswalks and a new drive entrance.

Construction Inspection Services, Plymouth, New Hampshire. As a field representative, provided construction observation services under the on-call construction services contract with the Town of Plymouth. Provided oversight on public and private roadways, drainage, and utility construction. Coordinated field activities with the Town staff, processed bond estimates and reductions, communicated with contractors, made recommendations for final acceptance, and documented record information.

Fort Revere Water Tower, Conditions Assessment, Hull, Massachusetts. Led a site inspection team and prepared a condition assessment report for the 110-year-old historic concrete water tower at Fort Revere, the first phase in the restoration effort, which was followed by recommended material testing analysis and design construction documents for rehabilitation of the significantly deteriorated concrete structure. Provided a range of probable construction costs for specific levels of repair. (2013 – 2013)

East Side Interceptor Relocation, Melrose, Massachusetts. Served as the lead structural engineer for relocation of a 30-inch diameter sewer interceptor serving one-third of the city's sewer system. Work required relocation to accommodate a synthetic turf football field planned above the existing sewer. Design challenges to address included the poor condition of the sewer, desire to avoid excavation in the future synthetic field (constructed above former wetlands), and protection of the interceptor from settlement given the presence of organic silt (peat) more than 20 feet below ground surface. Selected option consisted of pairs of helical piles with a precast concrete pipe cradle along a 700-foot length, providing a cost-effective solution to long-term pipe support. Work included a custom structural designed, cast-in-place concrete manhole structure at the downstream connection to the regional sewer system enabling a very old, brick arch sewer to remain in service, and use of horizontal elliptical precast concrete sewer pipe to pass under another old, oval brick sewer owned by the regional sewer authority. Work was completed under budget and allowed the football field construction to meet its deadline. (with former employer)

Yankee Gas LNG Facility, Concrete Rehabilitation Project, Waterbury, Connecticut. Provided technical expertise in the design and preparation of concrete rehabilitation and preservation contract documents for the LNG tank on the Yankee Gas facility in Waterbury. Work involved material sampling, cores, and visual condition assessment of the concrete tank followed by plan preparation for the concrete repairs and preservation details. (with former employer)

BACKGROUND

2023-Present
Practice Leader
Weston & Sampson

2022-2023
Senior Team Leader
Weston & Sampson

2018-2022
Senior Project Manager
Weston & Sampson

2011-2018
Project Manager
McFarland Johnson, Inc.

2010
Project Engineer
Kleinfelder/SEA

2002-2009
Project Manager
Greenman-Pedersen, Inc.

1997-2002
Access and Utility Supervisor
New Hampshire DOT Highway
Maintenance District 5

EDUCATION

1994
Bachelor of Science, *cum laude*
Civil Engineering
University of New Hampshire

PROFESSIONAL REGISTRATION

Professional Engineer:
Massachusetts No. 50065
New Hampshire No. 10650
Connecticut No. 0030580
Vermont No. 91133
Maine No. 13637
Florida No. PE85994
South Carolina No. 36732
North Carolina No. 048917
Delaware No. 24804

Professional Traffic Operations
Engineer #4394

Traffic Control Supervisor
Florida #46880

Local Public Agency Certification
Training (#1038) NHDOT

Jeff has nearly 30 years of transportation and traffic engineering, design, management, and permitting experience on a wide variety of public and private projects. He has worked on rural, urban, and interstate roadway and traffic design projects, roadway reconstructions, traffic calming strategies, roundabouts, safety improvements, and Complete Streets. He also has experience in the management of interdisciplinary projects, cost estimating, QC/QA, constructability reviews, construction administration, and is adept at communicating and developing consensus with community stakeholders the during public engagement process.



SPECIFIC PROJECT EXPERIENCE

On-Call Utility Engineering & Design Services A/E, Naval Facilities Engineering Command Mid Atlantic. Project manager responsible for the execution of roadway/resiliency engineering task orders totaling \$2 million in contract value. Specific task orders include:

- Perimeter Security Road Repairs, Cutler, Maine – Developing conceptual design alternatives for the restoration of eroded coastline and reconstructing perimeter roadway to resist changing climate and sea level rise. Designing elevation of roadway based upon combined effect of projected sea level rise, storm surges, and wave action.
- Redington/Valley Road Study, Takedown and Big Y Culverts, Rangeley, Maine – Preparing 75% design plans, specifications and estimates, and environmental permits for the replacement of two culverts along Navy Road. Performing a study of a portion of Redington/Valley Road to address existing flooding and erosion issues along Redington Stream. Evaluating alternatives for long-term roadway protection against future storm events, including slope stabilization, roadway relocation, and stream relocation.

Vermont Route 100A, Plymouth, Vermont. Project manager for the design of roadway and drainage improvements along Vermont Route 100A in Plymouth Notch where a section of the roadway was washed out during Tropical Storm Irene and required emergency repairs to reopen for traffic. Work included permanent improvements to the existing guardrail and a closed drainage system that used beehive style grates. Oversaw the design of grates to intercept more stormwater runoff in the roadside ditch, reducing bypass flow over traditional drainage style grates and requiring fewer catch basins to handle the same flow rate. Additional work included slope stabilization designed by a subconsultant using a wire mesh anchoring system. (with former employer)

Resilient Masterplan and Open Space and Recreation Plan, Westhampton, Massachusetts. Lead transportation engineer for preparation of a resilient local plan of development as well as an open space and recreation plan. Development of the plan includes sections on agriculture, forestry, mining, climate change, economic development, energy, facilities and services, historic and cultural resources, housing, natural resources, open space, recreation, and transportation.

PROFESSIONAL AFFILIATIONS

Institute of Transportation
Engineers, New England Section
(Junior Director of the Executive
Board, 2019-Present)

New Hampshire Institute of
Transportation Engineers
(Past President, 2016-2017)

Hanover Street Improvements, Lebanon, New Hampshire. Project manager responsible for providing preliminary design and engineering services for roadway improvements along a 2,300-foot stretch of Hanover Street. Work included evaluating the operations and geometric layout of three existing intersections. This evaluation was based on Complete Street techniques that can accommodate all users, including pedestrians, bicyclists, vehicles, and transit riders. Project efforts also include reviewing the existing underground utilities for repair, upgrade, or replacement, and providing improvements to the existing stormwater system.

Lahaye Drive at Mount Support Road, Lebanon, New Hampshire. Project manager responsible for overseeing the design of a conversion of the existing signalized intersection into a modified two-lane roundabout to improve operations and safety. The project also includes the design of a 1,500 linear feet of new shared use path. Project includes utility coordination for relocation of overhead utilities, environmental permitting, and public outreach.

Route One Corridor Study, Westerly, Rhode Island. Lead transportation engineer for development of a strategic plan to revitalize the Route One Corridor in Westerly. This major study of a five-mile commercial and residential corridor was completed on an expedited six-month schedule. It included several major public engagement events, a website, a public survey, stakeholder engagement and analysis of transportation, housing, economic development, aesthetics, and zoning.

Consulting Services for the American Rescue Plan Act (ARPA) Local Fiscal Recovery, South Kingstown, Rhode Island. One of two lead transportation engineers responsible for development of a strategic plan to revitalize five areas of the town and develop ARPA programming. Slated to receive \$8.95 million over two years under ARPA, South Kingstown hired Weston & Sampson to provide specialized project development, design, and grant management services to maximize the town's use of the ARPA funds to support their COVID-19 disaster response to economic recovery. These services include supporting the town with project management oversight and ensuring accountability, transparency, and compliance with all federal requirements.

Hanscom Drive at Old Bedford Road – Vandenberg Gate Complex, Hanscom Air Force Base, Lincoln, Massachusetts. Project manager responsible for overseeing the design, permitting, and construction of a \$15M design-build project to construct a new Entry Control Facility at the base entrance. Work includes the relocation of approximately 1,500 feet of Hanscom Drive, construction of a new single lane roundabout at the intersection of Hanscom Drive and Old Bedford Road, and construction of three new buildings. Project efforts also include the design of major drainage improvements to provide infiltration and improved water quality, as well as coordination with several federal and state agencies including ACOE, National Parks, and MassDOT.

Beacham Street and Williams Street Roadway Improvements, Chelsea, Massachusetts. Traffic engineer responsible for the analysis and design of improved operations and safety including revisions to horizontal and vertical alignments, redesign of several unsignalized intersections to improve access and safety and upgrading the existing traffic signal at the intersection of Spruce Street and Williams Street to include new equipment, lane assignments and refined geometry to improve operations and safety. Work along this corridor also includes the construction of a shared use path and improvements to the existing sidewalks and crosswalks including ADA compliant ramps, improved streetscape, landscaping, street lighting, and the upgrade and replacement of the existing drainage system.

BACKGROUND

2023-Present
Associate/Senior Technical Leader
Weston & Sampson

2022-2023
Senior Technical Leader
Weston & Sampson

2019-2022
Technical Leader
Weston & Sampson

2010-2019
Senior Professional
Kleinfelder

2005-2010
Teaching and Research Assistant
Department of Civil and
Environmental Engineering
Northeastern University

2004-2005
Design Engineer
Thermax India Ltd.

2002-2004
Research and Teaching Assistant
Department of Civil Engineering
Indian Institute of Technology

EDUCATION

2010
Doctor of Philosophy
Environmental Engineering
Northeastern University

2004
Master of Science
Environmental Engineering
Indian Institute of Technology

2002
Bachelor of Science
Materials & Metallurgical
Engineering
Jadavpur University

CERTIFICATION

Municipal Vulnerability
Preparedness (MVP) Certified
Provider

AWARDS & HONORS

Clean Charles Award
Charles River Watershed
Association
2022

Indrani has nearly 20 years of experience as a water resources engineer and as technical lead in climate change resiliency projects, specializing in leading interdisciplinary teams and stakeholders through risk-based prioritization of adaptation solutions. She has industry-leading experience in translating climate change projections to engineering design criteria for new and existing infrastructure and modeling climate impacts for the purposes of vulnerability assessment and adaptation planning for many projects in the Northeast. She has worked with numerous municipalities and public agencies to model their exposure to coastal and stormwater flooding using the best available and most appropriate sea level rise, storm surge, and rainfall projections. She has extensive experience integrating climate projections in hydrologic/hydraulic models of urban storm and sanitary sewer systems. Indrani is frequently invited to be part of panel discussions on climate risk and resiliency at New England universities, and has won national awards for her contributions to the engineering profession. In addition, Indrani is fluent in Bengali, English, and Hindi.



SPECIFIC PROJECT EXPERIENCE

Wastewater Treatment Facility (WWTF) Climate Resilience Assessment, New Hampshire Department of Environmental Services (NHDES), Seabrook, New Hampshire. Provided resiliency services for this project that focused on the town's critically important wastewater treatment infrastructure, which collects and treats domestic, commercial, and industrial wastewater from most of the town. The WWTF and other system treatment components are all located on Wright's Island, making it particularly susceptible to sea level rise and coastal surge. Project work involves assessing the specific vulnerabilities at the site and identifying/evaluating up to four options for improving resiliency, as well as identifying effective communication and outreach methods.

Implementation of the Master Plan for Prescott Park, Portsmouth, New Hampshire. Technical lead responsible for translating the most recent climate change projections for New Hampshire into design criteria for both stormwater and coastal flood mitigation strategies. Providing technical support and advice related to the incorporation of resilient design strategies as part of the implementation of the master plan for historic waterfront Prescott Park and nearby Four Tree Island.

Coastal Climate Change Vulnerability Assessments and Adaption Plans, Various Locations. Served as technical lead for projects in Duxbury, Gloucester, Hingham, Hull, Marshfield, Oak Bluffs, Scituate, and Swampscott, Massachusetts, and Waterford, Connecticut. Led coastal flood modeling and mapping tasks, including the development of appropriate sea level rise and storm surge scenarios for present, medium-, and long-term time horizons. The resulting models and maps were used to assess the vulnerability of public infrastructure and natural resources and prioritize adaptation planning efforts. (with former employer)

AWARDS & HONORS (CONT.)

Clemens Herschel Award
Boston Society of Civil Engineers
and American Society of Civil
Engineers, 2014

Engineering News Record (ENR)
“Top 20 under 40” in the New
England Region, 2015

Cities4Tomorrow Award
Bloomberg Philanthropies
C40 Cities, 2017

Silver Award
ACEC/MA Engineering Excellence
Competition, 2015

Bronze Medal Excellence Award
Kleinfelder’s Annual Technical
Seminar, 2013

Don Douglas Award
Kleinfelder’s Annual Technical
Seminar, 2012

Ranked second in Environmental
Engineering and Management
Master’s Program
Indian Institute of Technology, 2004

Sankar Kumar Das Memorial
Silver Medal
Metallurgical and Materials Science
Engineering Examination
Jadavpur University, 2002

PROFESSIONAL AFFILIATIONS

Water Environment Federation
New England Water Environment
Association
American Society of Civil Engineers

PUBLICATIONS & PRESENTATIONS

“The Climate Response—
Government Leaders Take Action,
Evaluate Vulnerabilities Due to
Climate Change”
Informed Infrastructure
2016

“Driving through the pouring rain:
How to plan, prepare and adapt
America’s transportation networks
for climate change”
Informed Infrastructure
2015

“Effects of spatial resolution in
urban hydrologic simulations”
Journal of Hydrologic Engineering
2012

Resilient Stormwater Management and Implementation Plan, Waltham, Massachusetts. Technical Lead for current and future climate projection modeling and UHI modeling as part of a comprehensive assessment of the stormwater drainage system and flooding impacts. Work focused within the sub-watersheds of six major stream and culverts including future climate projections, rainfall volumes, urban heat island assessment and identification of nature-based solutions (NBS) to reduce flooding. Green Infrastructure (GI) opportunities were incorporated into H&H and UHI modeling scenarios, defining their effectiveness and impact on flooding and urban heat reduction.

East Boston Resilience Technical Analysis, Boston Planning & Development Agency (BPDA), East Boston, Massachusetts. Provided climate/coastal resiliency support, working in collaboration with the design team and the City of Boston to identify practicable solutions at two vulnerable locations along East Boston’s waterfront: Carlton Wharf and Lewis Mall. Helped identify technical considerations and strategies that emphasized accessible open space while providing critical flood protection for East Boston, including the MBTA Maverick Station. The project resulted in schematic designs for both locations that illustrated conceptual early concepts, practicable design alternatives, cost estimates, and next steps.

Building Resilience into the Design and Construction of Transportation Infrastructure, North Carolina Department of Transportation (NCDOT). Advise NCDOT on integrating resilience into ongoing planning and design projects, especially regarding frequent hurricane and coastal storm events. As owner’s representative, reviewing design criteria for proposed/upcoming projects across the state, developing resiliency design criteria and guidelines for transportation projects, and assisting in updating relevant standards and criteria based on most recent climate change projections.

Neponset River Watershed Regional Adaptation Strategy & Flood Model, Dedham, Massachusetts. Technical Lead for the development of a watershed-wide flood model for the Neponset River watershed that was funded through the Municipal Vulnerability Preparedness (MVP) Action Grant program. The project included the development of an integrated hydrologic and hydraulic (H&H) flood model of both the entire Neponset River Watershed as well as the Dedham Manor Neighborhood Area using PCSWMM software. The project also included a robust community engagement program, which involved a stakeholder mapping process to create an expanded database of stakeholder groups and community-based organizations, preparation of outreach materials for public meetings and environmental justice focus groups, and creation of a project website and GIS story map.

Resilient Massachusetts Action Team (RMAT) – Climate Resilience Guidelines and Standards, Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), Statewide, Massachusetts. Responsible as technical lead for working with the multi-agency RMAT and an interdisciplinary team to implement the State Hazard Mitigation Climate Adaption Plan (SHMCAP) and develop clear, consistent guidance on the selection of climate design standards, standardize implementation of climate standards in existing practices, and create metrics and a web-based tool to evaluate climate resilience in capital planning.

BACKGROUND

2024-Present
Senior Project Environmental
Scientist
Weston & Sampson

2022-2024
Project Environmental Scientist
Weston & Sampson

2020-2022
Environmental Scientist III
Weston & Sampson

2019-2020
Environmental Scientist I
Weston & Sampson

2017-2019
Assistant Project Manager
Stoney Ridge Environmental LLC

2014-Present
Graduate Student
University of New Hampshire

EDUCATION

Master of Science (in progress)
Environmental Conservation
University of New Hampshire

2011
Bachelor of Science
Environmental Science and
Anthropology
Minor in Biology
Franklin Pierce University

**PROFESSIONAL
REGISTRATION**

NH Certified Wetland Scientist
(CWS) #300

Certified Erosion, Sediment,
Stormwater Investigator (CESSWUI)
(application under review)

MACC Fundamentals for
Conservation Commissioners (in
progress)

**PROFESSIONAL
AFFILIATIONS**

New Hampshire Association of
Natural Resource Scientists

Massachusetts Association of

Devin is a New Hampshire Certified Wetland Scientist (CWS) with six years of experience focused on environmental conservation and permitting in Massachusetts and New Hampshire. She is familiar with local vegetation, identification of hydric soils, and indicators of hydrology. She is also experienced in conducting peer reviews in Massachusetts and New Hampshire.

**SPECIFIC PROJECT EXPERIENCE**

Resilient Ring's Island Design & Permitting, Salisbury, Massachusetts. Environmental scientist for this effort to increase the resilience of the Ring's Island neighborhood, which becomes isolated during extreme flooding events. Responsible for supporting the design and permitting efforts related to raising the road by 2.5 feet and widening culverts to reduce upland flooding in current and future climates and enhance the resiliency of over 30 acres of salt marsh.

Charles River Riverbank Vegetation Management Plan, Massachusetts Department of Conservation and Recreation. Environmental scientist responsible for supporting the development of the Charles Riverbank Vegetation Management Plan (RVMP), which utilizes an ecological-functions approach and incorporates parts of four communities (Boston, Cambridge, Newton, and Watertown) that play a role in permitting the plan. RVMP development included a complex public participation element involving interagency stakeholders and permit hearings. A key element of this process included funding review, economics, and resource availability for implementation.

Wetland Delineation Projects, Various Locations. Conducted numerous wetland delineation efforts throughout Massachusetts and New Hampshire using vegetation, soil, and hydrology indicators. Addressed wetland resource limits using required wetland delineation methods specified in the US Army Corps of Engineers' Wetlands Delineation Manual.

Medfield State Hospital Remediation, DCAMM, Medfield, Massachusetts. Wetlands scientist supporting long-term maintenance and monitoring efforts for the C&D Remediation Area capping system and associated restored wetlands. Responsible for assessing condition of wetlands vegetation, rain garden plantings, invasive species and other wetland-related items as part of bi-annual wetlands inspection requirements. Also responsible for wetlands permitting submittals for the site including Notice of Intent filings/hearings and Request for Certificate of Compliance.

Monson Developmental Center Landfill, DCAMM, Monson, Massachusetts. Wetlands Scientist responsible for conducting wetland delineation efforts using vegetation, soil, and hydrology indicators. Also responsible for wetlands permitting submittals for this site demolition, remediation, and landfill capping project which includes restoration of approximately 4,000 square feet of wetland resource area adjacent to the Quaboag River. Permitting efforts included preparation of Notice of Intent filings, attending site walks and local Conservation Commission hearings, and filing a Request for Certificate of Compliance.

Vegetative Management Plan for the Head of the Charles Regatta® Reunion Village Hospitality Area, Cambridge, Massachusetts. Environmental scientist responsible for supporting the preparation of a vegetation management plan (VMP) on behalf of the HOOCR and in cooperation with the Massachusetts Department of Conservation and Recreation (DCR). Supported VMP development on an accelerated schedule to address the need for vegetation/species management by targeting selective invasive and noxious plants along the riverbank at the location of the Reunion Village.

Invasive Species Management Plan, Boston, Massachusetts. Identified invasive species on site. Prepared and implemented a management plan through permitting and field work consistent with the species lists compiled by the Massachusetts Invasive Plant Advisory Group (MIPAG). Followed up with post removal monitoring and reporting.

Prescott Park Phase 1 Improvements, Portsmouth, New Hampshire. Environmental scientist for the enabling engineering/permitting phase of work following the approval of the Prescott Park Master Plan. Work includes developing a research-based approach to resiliency design that can improve flooding conditions for the neighborhood in the future.

1 Pleasant Street Peer Review, Cohasset, Massachusetts. Conducted wetlands review for the proposed redevelopment of 1 Pleasant Street (also known as the James Brook Building). This multi-disciplinary peer review involved bylaw compliance, review of commercial/retail space, site plan layout, traffic and circulation, architectural features, landscaping, and affordable housing. The peer review included presentation at five public hearings and development of conditions of approval on behalf of the town.

Various Projects, Stoney Ridge Environmental LLC, Alton, New Hampshire. Responsible for state and local wetland/shoreland permitting, wetland delineations, sediment and erosion control inspections, vernal pool assessments, rare/endangered species surveys, and proposed conservation easement reports. Conducted fieldwork and provided technical guidance on permitting and environmental needs. Experienced in communicating with the New Hampshire Department of Environmental Services, Massachusetts Department of Environmental Protection, the Massachusetts Division of Marine Fisheries, and the local branch of the Army Corps of Engineers. (with former employer)

Various Projects, The University of New Hampshire, Durham New Hampshire. Participated in wetland conservation, restoration and mitigation projects that included data collection, site assessments, vegetation, water, soil and hydrologic evaluations, functional assessments, habitat identification, natural resource surveys, living shoreline installation, and critical habitat restoration. Work also involved grant writing, data configuration, report preparation, as well as educational outreach to the local community and professionals on various wetlands topics. Provided instruction of material to undergraduate and graduate students in several courses that covered topics such as the structure and functions of major wetland ecosystems, current issues in wetland management and methods commonly used to assess water resources. (with former employer)

BACKGROUND

2022-Present
Principal Planner
Weston & Sampson

2010-2022
Senior Principal
TRC

2002-2010
Environmental Planner/
Environmental Permitting Manager
URS Corporation

1998-2001
Environmental Planner
Earth Tech, Inc.

1997-1998
Intern
Massachusetts Port Authority
Environmental Management Unit

Sam is a senior principal planner at Weston & Sampson with a track record spanning 25 years of successfully managing the development and timely implementation of NEPA, MEPA, and permitting strategies for his energy, environmental, and transportation clients. These clients have included the City of Boston, the Massachusetts Department of Transportation Highway Division, the Massachusetts Bay Transportation Authority, Eversource, the Massachusetts Army National Guard, the Massachusetts Port Authority, CSX, The Port Authority of New York and New Jersey, ConocoPhillips, El Paso Corporation, and General Electric, among many others.



EDUCATION

1998
Master of Arts
Urban and Environmental Policy
Tufts University

1992
Bachelor of Liberal Arts,
cum laude
Government Harvard University
Extension School

PROFESSIONAL REGISTRATION

American Institute of Certified
Planners (AICP), American Planning
Association, No. 020158

PROFESSIONAL AFFILIATIONS

American Planning Association
(APA)

Environmental Business Council
of New England - Member
of Infrastructure Committee
Leadership Team

American Council of Engineering
Companies-Massachusetts (ACEC-
MA) Member of TALC Committee
and MassDOT Highway Partnering
Subcommittee

Construction Industries of
Massachusetts (CIM)

SPECIFIC PROJECT EXPERIENCE

Climate Resiliency Regulations Development, Boston Environment Department, Boston, Massachusetts. Principal environmental planner supporting the Boston Environment Department (BED) in drafting regulatory language to implement regulation of new resource areas established under the Boston Wetlands Ordinance. Resource areas included Land Subject to Coastal Storm Flowage, Vernal Pools, Expanded Riverfront, Coastal Floor Resiliency Zone, and Inland Flood Resiliency Zone. Working in close coordination with BED staff and The Rose Law Firm (Prime consultant for this assignment), served as a team member drafting regulatory language including resource area definitions, performance standards, and review thresholds. Also oversaw preparation of GIS based mapping products delineating the approximate locations and extents of new resources. The Phase II regulations developed by the project team were adopted by Boston in early 2022, and draft Phase III regulations are now in review with the public and stakeholders. (with previous employer)

12 Bridges Rehabilitation Program, MBTA, Gloucester, Cambridge, and Boston, Massachusetts. QA/QC oversight for environmental reviews and permitting of the bridge replacement projects in Gloucester, Cambridge, and Dorchester, including federal, state and local wetland/waterway regulatory programs, including NEPA Categorical Exclusions (CEs), US Coast Guard Bridge Permits, US Army Corps of Engineers Massachusetts General Permits, MassDEP 401 Water Quality Certification, MA Wetlands Protection Act Orders of Conditions, and guiding the projects through historical reviews under Section 106 of the National Historic Preservation Act (NHPA). (with previous employer)

Belden Bly Bridge Replacement, Massachusetts Department of Transportation, Lynn, Massachusetts. Environmental permitting project manager in support of project engineer. Services provided included NEPA Categorical Exclusion support, US Coast Guard permit support, US Army Corps of Engineers support, and MassDEP 401 Water Quality Certification support. Additional services provided during the design phase included preparation of an Essential Fish Habitat study, and sediment study, a pre-demolition hazardous materials survey of the existing bridge, MCP reporting, and wetlands/high tide line delineation services. (with previous employer)

PROFESSIONAL AFFILIATIONS (CONT.)

Massachusetts Association of
Consulting Planners (MACP)

American Public Transportation
Association (APTA)

New England Commerce and
Energy Association (NECA)

Coastal Oil Terminal Site Remediation, El Paso Corporation, South Boston, Massachusetts. Environmental permitting manager responsible for selected aspects of environmental permitting strategy and implementation associated with groundwater remediation and demolition of remaining oil terminal infrastructure at the Coastal Oil Terminal Site located on East First Street in South Boston prior to conveyance of the property to Massport. (with previous employer)

Glenwood Avenue Footbridge Rehabilitation Project, Boston, Massachusetts. As senior principal planner and environmental permitting lead, provided professional environmental permitting support services for the rehabilitation of the Glenwood Avenue footbridge over the Neponset River in the Hyde Park neighborhood of Boston. Working closely with Boston Public Works Department staff and the project designer, secured project authorization from the Boston Conservation Commission, and represented the City of Boston during engagement with the US Army Corps of Engineers (ACOE) resulting in a determination that no project authorization was required from the US ACOE under Section 404 of the US Clean Water Act. The project is currently under construction.

STA 385 Shunt Reactor and Harborwalk Extension Project, Eversource, South Boston, Massachusetts. Senior principal responsible for managing MEPA, Chapter 91 Permitting, Boston Conservation Commission and NPDES permitting/construction phase environmental oversight for the construction of a new shunt reactor and Harborwalk Extension located at STA 385 in South Boston. Also managed work to design the planned Harborwalk extension to meet MassDEP and City of Boston design standards as required under the Chapter 91 License issued by MassDEP. Specific responsibilities have included facilitation of Eversource communications with MassDEP waterways, Boston Conservation Commission (BCC) staff, and management/QA of the MEPA ENF for the project. (with previous employer)

Camp Edwards Small Arms Ranges, Massachusetts Army National Guard, Sandwich, Massachusetts. Environmental permitting manager responsible for managing MEPA review and other selected aspects of environmental permitting associated with the Massachusetts Army National Guard effort to re-open multiple small arms ranges located at Camp Edwards to support in-state training of Massachusetts soldiers prior to overseas deployments associated with the Global War on Terror. (with previous employer)

Logan International Airport Equipment Storage and Maintenance Facility, Massport, Boston, Massachusetts. Environmental permitting task manager responsible for preparation of environmental permitting scope and strategy components of Program Definition Report (PDR). Served as task manager for development of FAA NEPA documentation for the project. (with previous employer)

Dana Avenue Bridge Replacement Project, Boston Public Works Department, Boston, Massachusetts. Senior principal responsible for design coordination and Boston Conservation Commission permitting, permitting strategy development and managing construction phase compliance oversight services for the replacement of the Dana Avenue Bridge over the Neponset River in Hyde Park. The NOI filing developed and presented to the BCC was approved after a single public hearing and the project entered construction in Spring 2019. (with previous employer)

Kirk F. Bosma, M.C.E., B.S., P.E.
Senior Coastal Engineer/Innovation Director

EXPERTISE

Kirk F. Bosma, PE, is a Senior Coastal Engineer and Innovation Director at Woods Hole Group. He manages projects and develops engineering solutions related to climate change planning, coastal structure design, beach nourishment, beach management, inlet stabilization, water quality, environmental permitting, impacts of offshore dredging, marsh restoration, and coastal processes data collection. He holds expertise in habitat restoration, shoreline protection, and climate change planning projects for a diverse client base and specializes in applying numerical models to optimize engineering designs and reduce overall project life cycle costs. Has developed and applied the latest data and numerical methods toward capturing current and future flooding risk for climate change vulnerability assessments; developed comprehensive coastal flood risk assessments that incorporate storm surge risk coupled with increased precipitation and sea level rise; developed gray, green, and hybrid coastal engineering adaptations for fostering urban resiliency in a cost-effective approach; and been the project manager for both large coastal restoration and marsh restoration projects that have included evaluation of a variety of restoration alternatives and included the implementation of a comprehensive data collection and physical processes modeling programs.

QUALIFICATION SUMMARY

- More than 20 years of diverse professional experience in the fields of coastal sciences and engineering, specializing in the areas of project management, coastal flood risk modeling, shoreline protection design, marsh restoration, sea level rise and extreme storms, climate change adaptations, sediment transport, and littoral processes
- Leader in coastal flooding risk under a changing climate, including development of storm climatology for probabilistic flooding risk
- Implemented technically advanced storm assessments under a changing climate; sea level rise and extreme storm numerical modeling techniques to assess climate change adaptations
- Managed multi-disciplinary coastal and marine projects requiring team management, scientific analysis, environmental sensitivity, diverse coordination, and cost-effective solutions
- Developed various hydrodynamic and hydraulic models for water quality assessment, marsh restoration projects, discharge and mixing design, bridge scour, dredging impacts, and contaminated sediment fate and transport
- Numerical model experience with FVCOM, REF/DIF S, SWAN, STWAVE, ACES, BOUSS2D, GENESIS, RMA-Series, MIKE 21, CMS-Flow/Wave, EFDC, SED-2D CGWAVE, , CORMIX, WAVAD, XBEACH, ADCIRC and EDUNEKey Projects
- Key Projects (continued)



Education

1996– M.C.E.
Civil Engineering
University of Delaware
1994 – B.S.
Civil Engineering
Calvin College

Licenses and Registrations

P.E., Professional Engineer,
Massachusetts License #45849

Professional Affiliations

- Member, Association of Coastal Engineers (ACE)
- Member, Coasts, Oceans, Ports, and Rivers Institute (COPRI)
- Associate Member, American Society of Civil Engineers (ASCE)

Publications & Presentations

32

Work Experience

2001-Present Coastal
Engineer/Team Leader, Woods Hole
Group
1997-2001 Coastal Engineer,
Woods Hole Group
1994-1996 University of
Delaware (Teaching and Research
Asst.)

KEY PROJECTS

Assessing the Vulnerability of MassDOT's Coastal Transportation Systems to Future Sea Level Rise and Coastal Storms, and Developing Adaptation Strategies, MassDOT – Project Manager/Senior Coastal Engineer

Mr. Bosma led the vulnerability assessment of all MassDOT's coastal transportation systems in MA to sea level rise and extreme weather events. A key product of the project was the Massachusetts Coast Flood Risk Model (MC-FRM) - a highly resolved, numerical processes model developed to assess the combined impact of sea level rise, storm events, winds, tides, and waves. Results from the model, including probability of flooding, inundation depth levels, wave parameters, flood pathways, flood volumes, flood duration, and wind speeds, among others, have been adopted as the State standard for assessing risks and designing resilient projects.

Climate Change Vulnerability and Risk Assessment and Adaptation Study, Town of Duxbury, MA – Senior Engineer

Mr. Bosma was a key team project member for a coastal flooding vulnerability assessment focused on municipal infrastructure, facilities, and natural. Mr. Bosma used MC-FRM to analyze coastal flooding risks for present and future scenarios (2030, 2050, and 2070) and led the development of flexible, cost-effective engineering recommendations for the shoreline and vulnerable infrastructure to address sea level rise and storm surge.

Assessing Socio-Economic Impacts for the National and Emergency Coastal Resilience Funds, National Fish and Wildlife Foundation (NFWF) – Senior Coastal Engineer

Mr. Bosma is leading the development and implementation of a numerical modeling approach that compares the expected impacts from specified storm and sea-level rise scenarios on flood extent and depth, wave energy, and erosion risk with and without coastal resilience projects recently funded by NFWF. The outputs of the modeling will serve as the basis for measuring the avoided damages and socioeconomic benefits of the projects.

Hydrodynamic Characterization and Sediment Transport Potential at The Former Callahan Mine Property, Brooksville, ME, Maine Department of Transportation – Project Manager/Coastal Engineer

Managed and conducted a field data collection program, developed a numerical hydrodynamic model, and performed a sediment transport evaluation for a Superfund Site in Brooksville, ME. Goose Pond Estuary is a site of environmental concern and is classified as a Superfund site on the National Priorities List by the Environmental Protection Agency (EPA). The site is the former location of a zinc/copper open-pit mine where mining operations were conducted adjacent to and beneath the tidal estuary. When mining operations ceased, the property was flooded and it is now hydraulically influenced by the tides of Penobscot Bay, as well as a small upland stream. Utilizing the data collected, a 3-D hydrodynamic model was implemented, calibrated, and verified to characterize the circulation within the Goose Pond Estuary system. The model was used to simulate a range of surge events within Goose Pond. Finally, a sediment transport model was developed to determine the fate and transport of contaminated material within the estuarine system and Penobscot Bay.

The Maine Coast Flood Risk Model, ME, Maine Department of Transportation – Project Manager

Leading the development of the Maine Coast Flood Risk Model. Woods Hole Group (WHG) is working with the Maine Department of Transportation (Maine DOT) to evaluate coastal flood risks under a changing climate. The project, currently in progress, utilizes a dynamic, physics driven approach, within a probabilistic framework, to create geospatial risk data for coastal and estuarine areas throughout the State. The geospatial probabilistic data created as part of this project are intended to form a foundation for understanding and assessing climate-induced coastal risk and resilient project design for Maine's coastal communities. The centerpiece of the project will be the results of a highly resolved numerical hydrodynamic model. The model will incorporate the combined impacts of sea level rise, storm events (both tropical and extra-tropical), winds, tides, riverine discharge, as well as waves. Tropical and extra-tropical events will be simulated using an ensemble Monte Carlo approach to develop probabilistic distributions of flooding.

Zachary D. Stromer, M.S.

Coastal Scientist

EXPERTISE

Modeling and analysis of coastal hydrodynamics, waves, and sediment transport processes. Expertise in coastal, estuarine, fluvial geomorphology, geochemistry, and sedimentology. Experience utilizing programming languages and software packages to present, analyze, and solve a variety of engineering and scientific problems. Climate change vulnerability assessment and adaptation planning.



QUALIFICATION SUMMARY

- Coastal numerical modeling experience with ADCIRC, SRH-2D, SWAN, CMS-Wave, WHAFIS, EFDC, HEC-RAS, SLOSH, ACES, & XBeach.
- Programming experience with MATLAB, R, and Python3
- ArcGIS and QGIS data processing and visualization
- Strong skills in data analysis and interpretation
- Strong research, technical writing, and presentation skills
- Experience navigating HPC linux environments

WORK EXPERIENCE

2016-Present Woods Hole Group, Inc. (Coastal Scientist)
 2014-2016 University of Massachusetts - Amherst (Teaching Assistant)
 2014-2016 University of Massachusetts – Amherst (Research Assistant)
 2013 Woods Hole Oceanographic Institute (Field/Lab Technician)

Education

2016 – M.S.
 Geology
University of Massachusetts – Amherst
 2014 – B.S.
 Environmental
 Geology/Chemistry
Northeastern University

Publications & Presentations

3

KEY PROJECTS

Back River Salt Marsh Restoration Hydraulics and Hydrology Study, Woolwich, ME

Coastal Modeler on project to evaluate the potential structure replacement at the Route 1 crossing of the Back River Estuary in Woolwich, ME. A Hydraulics and Hydrology (H&H) study was conducted to assess restoring salt marsh, as well as to provide habitat and infrastructure resiliency in the face of rising sea levels. The study included a field data collection program, development of a two-dimensional hydrodynamic model (SRH-2D) together with model simulations for a range of environmental conditions, and an alternatives analysis for the culvert replacement at US-1.

Wave Modeling for Assessing Possible Resiliency Options for The Boston Harbor Islands

Developed regional-scale and local SWAN wave models of Boston Harbor to assess the impact of Harbor Islands on the wave climate within Boston Harbor. Results were utilized to develop conceptual designs for possible island enhancements with the goal of improving wave protection for both the Harbor and the Islands, as well as improving habitat and recreational opportunities.

KEY PROJECTS (CONT.)

MassDOT Massachusetts Coast Flood Risk Model, MA

Worked to expand Woods Hole Groups previous award-winning effort, the Boston Harbor Flood Risk Model, to encompass the entire state. The coupled ADCIRC/SWAN model was utilized to simulate both extra-tropical and tropical cyclone events using an ensemble Monte Carlo approach. Probabilistic results are being utilized to identify road and infrastructure risk around the state. The large state-wide grid has also been utilized to analyze tidal conditions across the state, including refining tidal datums and assessing tidal flushing rates for estuaries. Outputs from the model will be made available for use in a variety of applications, such as planning, regulation, and risk analysis. In the process of producing standardized flood risk products for across the state including probabilistic flood water levels, wave levels, as well as design flood elevation levels for use in future resiliency efforts.

Climate Adaptations for East Boston, MA

Developed conceptual designs for climate resiliency of several vulnerable sites throughout East Boston. Vulnerable sites were identified utilizing results from the MassDOT Boston Harbor Flood Risk Model (BH-FRM); an ADCIRC/SWAN coupled model incorporating a large suite of storm simulations and SLR scenarios to assess flooding risk throughout Boston. Proposed projects were incorporated into the BH-FRM model, and multiple storm scenarios of varying intensity were simulated to assess project effectiveness. Results from the modeling efforts will be utilized as part of a larger scale, multi-disciplinary project to assess the effectiveness and differences of green and/or grey adaptations for climate resiliency.

Multi-Hazard Mitigation Plan Update for Marshfield, MA

Performed an update to the Multi-Hazard Mitigation Plan for the Town of Marshfield to be in compliance with MEMA/FEMA guidance and meet CRS Program requirements. Additional and updated data were acquired on all natural hazards addressed in the plan and added hazards to match those highlighted by the State. Conducted a vulnerability assessment for Town-identified critical facilities, as well as Town-wide property and assets. Conducted an online survey to incorporate public goals and feedback on specific mitigation actions. Information was provided about the location, extent, frequency, past occurrences and likely impacts of all hazards.

The Maine Coast Flood Risk Model, ME

Lead modeler and technical development for the Maine Coast Flood Risk Model. Woods Hole Group (WHG) is working with the Maine Department of Transportation (Maine DOT) to evaluate coastal flood risks under a changing climate. The project, currently in progress, utilizes a dynamic, physics driven approach, within a probabilistic framework, to create geospatial risk data for coastal and estuarine areas throughout the State. The geospatial probabilistic data created as part of this project are intended to form a foundation for understanding and assessing climate-induced coastal risk and resilient project design for Maine's coastal communities. The centerpiece of the project will be the results of a highly resolved numerical hydrodynamic model. The model will incorporate the combined impacts of sea level rise, storm events (both tropical and extra-tropical), winds, tides, riverine discharge, as well as waves. Tropical and extra-tropical events will be simulated using an ensemble Monte Carlo approach to develop probabilistic distributions of flooding. The Maine Coastal Flood Risk Model (MEC-FRM) will draw on lessons learned and build upon the methodology previously utilized to create the Massachusetts Coastal Flood Risk Model (MC-FRM).

PROJECT APPROACH

As an interdisciplinary firm, Weston & Sampson will provide the majority of technical services for your project using experienced in-house staff who have successfully worked together on similar efforts throughout New England, as detailed in *Section A, Cover Letter*. **Principal-in-Charge Chris Perkins, PE**, and **Project Manager/Design Engineer Tom Strike, PE**, have worked together on many successful projects. They will effectively communicate with each other and with the City of Biddeford and will **coordinate and direct staff on tasks quickly** to bring the project in on time and within budget.

In this section, we summarize our **staff capacity and management approach**, including organizational capacity, schedule and cost control, and communications plan, followed by our detailed **technical approach**. Please refer to the organizational chart provided in *Section C, Project Team & Resumes*, for information regarding the roles and experience of our individual team members.

Capacity & Management Approach

Weston & Sampson's management approach to all projects is to work closely with our clients to develop the most feasible, cost-effective solutions. We focus on keeping projects on schedule and within budget, and we will ensure that the City of Biddeford is involved in the decision-making process at all stages of the project. As overall project manager, **Tom Strike, PE** will be responsible for monitoring task budgets and team member assignments and will meet regularly with our team members to discuss project progress and eliminate potential problems.

In organizing our project team and scheduling our staff for your project, we considered the commitments of our team members for other projects currently underway and the proposed project schedule. Weston & Sampson is committed to the City of Biddeford and will perform the scope of work utilizing the appropriate staff levels to meet your required schedule and budget.



Schedule Control: Upon authorization to proceed, our team members will be immediately available. In organizing and scheduling our key personnel for your project, we consider their commitments for other projects underway to ensure their availability throughout your project tasks. At key intervals, our staff will be 100% available, as necessary, to achieve project deliverable goals. As a multidisciplinary firm with more than 850 professional and technical staff, Weston & Sampson has the capacity and depth of resources to respond to your needs and assure the assignment of highly qualified personnel for all your project tasks.

Weston & Sampson has the depth of resources to respond to your needs and assure the assignment of highly qualified personnel for your project. During critical points, these personnel will devote 100% of their time, as needed, to complete the work within your timeframe.

We will make your project a priority within our firm, further ensuring thorough and timely completion of tasks. **Tom Strike, PE** will monitor the project schedule regularly and compare it to the target schedule. This, together with frequent communication and regular in-house progress meetings will ensure proper planning and coordination of the work, assignment of all necessary staff resources, timely execution, and quick response to any issues that may arise in any phase of the project.

Budget Control: Weston & Sampson is committed to utilizing sound financial management on your project and tracks accounts using the Vision project management and accounting software program. Vision allows project managers to access pertinent financial information at any time so that they may monitor the financial progress of their projects. Vision also allows project managers to check the time and expenses that are charged to a project during any given time period and project to date, the total money already billed to the client, and the project aging information (accounts receivables). **Tom Strike, PE**, will review all invoices prior to submitting them to you to check for accuracy and identify potential errors, such as incorrect time sheet entries.

Communications Plan: We believe that good communication will be essential to keeping your project on schedule. While **Tom Strike, PE** will be

your primary point of contact, **Chris Perkins, PE**, and the rest of the team will also be fully engaged with the progress and status of the work to keep the project progressing expeditiously and provide backup points of contact to ensure that you can always reach someone knowledgeable about the project to get answers to critical questions. As the project proceeds, Tom will regularly update the city on progress and supply information through email and by phone. Tom and Chris, and other staff on our team will attend in-person and/or virtual meetings to discuss and review critical items as appropriate.

Quality Control: To provide clients with quality engineering products and deliverables, we assign a technical review team of senior engineers, led by **Eric Reitter, PE, PMP**, to provide quality assurance/quality control (QA/QC). Eric will not be directly involved in the project design so he can provide an objective review of the overall work product and its constructability. We encourage the City of Biddeford to have staff participate in our key internal QA/QC meetings/reviews, providing valuable “on the spot” comments. This team approach will ensure quality engineering at each milestone and critical review of the technical, institutional, environmental permitting, and cost estimating components of the project. Weston & Sampson maintains a detailed internal QA/QC procedure and policy implementation program that is formally documented.

Technical Approach

SITE VISIT & KICK-OFF MEETING

Staff from our geotechnical, structural, and roadway engineering groups will begin the project by attending an in-person kick-off meeting with the City of Biddeford to discuss our approach and scope of work. Following this meeting, we will visit each of the four project site areas to document conditions and further discuss specific site details with the city.

TEMPORARY REPAIR & STABILIZATION

Roadways and seawalls in the project site areas sustained significant damage as a result of the January storm events. Roadway damage included localized surface buckling, loss of pavement subgrade support, shoulder erosion, and failure of roadway edges. Seawall damage included loss of entire sections of sea wall, localized loss and displacement of large stone riprap and any pre-

existing choke stone material, and apparent settlement of sections of seawall. Debris materials remain scattered across sections of the affected roadway areas. As a result of damage and presence of scattered debris, most roadways in the project site areas have been closed to vehicular traffic since the storm events as they are unsafe and impassible. Additionally, sections of the seawalls have been significantly displaced such that they are in a configuration that pose a safety hazard to the public.

We understand that the city intends to retain the services of a contractor to complete temporary roadway repairs and to shift sections of displaced seawalls so that the roadways can be opened to vehicular traffic. Roadway repairs are likely to include debris removal, pavement reclaiming, and localized backfilling of depressions. FEMA requires that damaged infrastructure, such as the project roadways and seawalls, be sufficiently protected from further damage while repair design is being completed. Costs to repair additional damage would not be covered by FEMA.

It is critical that the damaged areas, even though temporarily repaired as discussed above, be sufficiently protected from further damage. After temporary repair is complete, Weston & Sampson engineering staff will observe and document these areas. At this stage of the project, we will also retain the services of a professional surveying firm to complete topographic survey of each project site area, including the temporary repair measures. Our team of engineers and resiliency and coastal modeling specialists will use results of our field observations, topographic survey, and hydraulic data to evaluate how resilient existing and temporary repaired conditions are to withstand future damage from storms, wave action, or other events. Based on



our evaluation, and as necessary, we will design additional temporary repair and stabilization methods needed to resist further damage. Depending on the extent of repair and stabilization needed and procurement requirements, we will prepare plans and specifications that can be used to bid this portion of the project. We fully understand that this stage is critical to protect existing infrastructure and to maintain open roadways, and we will strive to complete all tasks needed for additional temporary repair and stabilization design in an agreeable timeframe.



FEMA will typically require documentation of all aspects of construction receiving disaster relief funding. Weston & Sampson will therefore provide construction administration services during temporary repair and stabilization work. These services will include full-time observations by engineering staff, attendance at meetings as required, and review and response to submittals and RFIs.

ALTERNATIVES ANALYSIS STUDY

We understand that the City of Biddeford intends to implement mitigation repair to the damaged areas so that the roadways and seawalls will be more resilient to future storm events. We also understand that the city will use disaster relief funds from FEMA to cover design and construction costs for mitigation repair. FEMA requires that mitigation repair meet a cost-effective requirement, which is 100 percent of the estimated, FEMA accepted replace in-kind costs. Therefore, mitigation repair costs will need to stay below the cost-effective value, which could limit the repair types possible for this project.

Weston & Sampson, together with team member Woods Hole Group and their work on the Maine Coast Flood Risk Model, has the expertise and institutional knowledge to evaluate the most effective mitigation repairs to storm damaged infrastructure.

We intend to evaluate several feasible alternatives for mitigation repair of each site area. These alternatives will consider available disaster funding, completion timeline, aesthetics, and, most importantly, project resiliency to damage from future extreme events and flooding. Our team member, [Woods Hole Group](#), is a regional leader in coastal modeling and is currently developing a [Statewide Maine Coast Flood Risk Model \(MEC-FRM\)](#) working with the Maine Department of Transportation (Maine DOT) to evaluate coastal flood risks under a changing climate. For this model, they are developing Maine coast specific design parameters for sea level rise/storm surge information on expected water surface elevation, wave heights, duration/frequency of overtopping, as well as future tidal datums. Information from the model for the City of Biddeford, which is not yet publicly available, will be used to provide design flood elevation for the alternatives for mitigation repair, as well as quantify the level of effective risk reduction for each mitigation repair alternative considered. In addition, the Maine Coast Flood Risk Model is using best available and most recent LiDAR data for Biddeford, which can also be used to supplement and confirm elevations for locations that may not be picked up or is outside the area of topographic survey.

Subsurface condition characteristics in the project site areas, including bedrock profile variability, need to be considered since they will have an impact on the evaluation of feasible mitigation repair

alternatives and the sustainability effectiveness of the alternatives. For example, areas with a relatively shallow bedrock profile might require different mitigation repair approaches than those with relatively thick deposits of sand or cohesive materials. We will therefore retain the services of a geotechnical drilling subcontractor to complete borings in each project site area to provide the necessary information on soil and bedrock.

We will communicate with the city during our analysis to provide timely updates, discuss alternatives being considered and their pros and cons, and facilitate feedback from the city. Ultimately, our alternatives analysis will produce cost-effective mitigation alternatives that will provide resiliency against future storm events. Given the unique nature of each project site area that sustained storm damage, different alternatives could be considered for each of these areas. Cost estimates will be prepared that will consider construction, permitting, and engineering design and construction administration services for each alternative in a format acceptable to FEMA.

We will summarize pre-failure and existing site conditions, topographic survey, subsurface conditions encountered in explorations, our alternatives analysis with mitigation repairs alternatives, cost estimates, and recommended mitigation repair alternative to be implemented at each project site area in an Alternative Analysis Report. Each recommended mitigation repair alternative will be selected based on costs and its resilient effectiveness.

FEMA CONSULTING SERVICES

Weston & Sampson has been working with the City of Biddeford during the FEMA negotiation process for the Riverwalk Retaining Wall Replacement project since 2021 and is also assisting the City of Gardiner, Maine through a similar process for a slope failure along the Cobbosseecontee Stream. We are therefore intimately familiar with this unique process and the rigorous tasks required by FEMA so that they will accept the scope of work and costs needed to complete necessary repairs. We have already assisted the city with cost estimates to restore a portion of the project to pre-failure conditions (replace in-kind estimate), which is the first step to receive funding for mitigation repair.

The next step in the FEMA negotiation process will be to provide a detailed cost estimate for the selected mitigation repair alternative(s). We will prepare this estimate using raw (without considering overhead and profit) unit costs for each element of construction from RSMeans or other sources acceptable to FEMA, such as recent costs from local contractors. We will provide backup information needed for the cost estimate that could include a scope of work narrative and construction method sketches. We anticipate that several remote and in-person meeting with FEMA and the city will be needed to finalize a mitigation cost estimate that will be accepted by FEMA. Weston & Sampson will attend these meetings and will be readily available to discuss issues as they arise during this rigorous process.

PERMITTING

Temporary repair/stabilization and mitigation work will be completed along the coastal plain, within areas of mapped dunes, and in environmentally sensitive areas. Efforts to complete this work will likely result in temporary and permanent impacts to these areas that will need to be considered when evaluating repair alternatives. These impacts will likely require preparation and approval of permit applications to complete the work. Based on our experience, it will be critical at the onset of the project

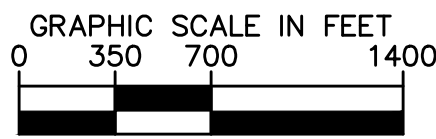
to reach out to applicable environmental permitting agencies to understand any and all agency restrictions and the types of permits required since they could have an impact on the types of temporary and permanent mitigation repair considered for this project.

We will contact each applicable permitting agency, including MEDEP, ACOE, CZM, NOAA, and MDMR, prior to the design of any temporary repair/stabilization and request pre-application phone conferences to discuss the project, confirm permit application requirements, and review any restrictions to temporary and permanent work. We will prepare and submit permit applications required to complete temporary repair/stabilization work on behalf of the city after permit-level design plans are complete. We anticipate that any permit application preparation and restrictions on work for temporary repair/stabilization will be minimal.

Once mitigation repair alternatives have been fully evaluated, we will again contact each permitting agency and request phone conferences to discuss the alternatives, types of permit application required, permit review timelines, and any restrictions that could impact our alternative designs. Results of these discussions will be included in the Alternatives Analysis Report.



Plotted By: Chekan, Craig Sheet: WINTER STORM COASTLINE DAMAGE Layout: DAMAGE INVENTORY PLAN January 18, 2024 08:33:12am X:_Task_Directory\2024-2024-004 - Winter Storm Coastline Damage CAD Sheets\C-100 - Damage Inventory Plan - Coast.dwg



DAMAGE INVENTORY PLAN

SCALE: 1" = 700'



- NOTE:**
- HORIZONTAL DATUM: NAD83 MAINE STATE PLANE, WEST, US FOOT (ME83-WF)
 - VERTICAL DATUM: NAVD88

WINTER STORM COASTLINE DAMAGE PREPARED FOR CITY OF BIDDEFORD	BIDDEFORD MAINE	CITY OF BIDDEFORD, MAINE ENGINEERING DEPARTMENT 205 MAIN STREET, P.O. BOX 586 BIDDEFORD, MAINE 04005 PHONE: 207-284-9118 WWW.BIDDEFORDMAINE.ORG	REVISIONS		BY
			No.	DATE	
SHEET NUMBER C-100					

DRAWING INFO
DATE 01/18/2024
SCALE AS SHOWN
DESIGNED BY CRC
DRAWN BY -
CHECKED BY -

**DAMAGE
INVENTORY PLAN**

105

President Joseph R. Biden, Jr. Approves Major Disaster Declaration for Maine

Release Date: March 21, 2024

WASHINGTON-- FEMA announced that federal disaster assistance has been made available to the [state of Maine](#) to supplement recovery efforts in the areas affected by severe storms and flooding on Jan. 9-13, 2024.

The president's action makes federal funding available to affected individuals in Cumberland, Hancock, Knox, Lincoln, Sagadahoc, Waldo, Washington and York counties.

Federal funding also is available to state, tribal and eligible local governments and certain private nonprofit organizations on a cost-sharing basis for emergency work and the repair or replacement of facilities damaged by the severe storms and flooding in Cumberland, Hancock, Knox, Lincoln, Sagadahoc, Waldo, Washington and York counties.

Federal funding is also available on a cost-sharing basis for hazard mitigation measures statewide.

Robert V. Fogel has been named the Federal Coordinating Officer for federal recovery operations in the affected areas. Additional designations may be made at a later date if requested by the state and warranted by the results of further assessments.

Individuals and business owners who sustained losses in the designated areas can begin applying for assistance by registering online at www.DisasterAssistance.gov, by calling 1-800-621- 3362 or by using the [FEMA App](#). If you use a relay service, such as video relay service (VRS), captioned telephone service or others, give FEMA the number for that service.



Page 1 of 1

March 14, 2024 (Revised April 19, 2024)

150 Dow Street, Tower 4, Suite 350, Manchester, NH 03101
Tel: 603.263.9296

Roby Fecteau
Director of Code Enforcement & Emergency Management
City of Biddeford
roby.fecteau@biddefordmaine.org

Re: **Proposal for Consulting Engineering Services - REVII
Storm Damage Repair, Biddeford, Maine**

Dear Roby,

Weston & Sampson Engineers, Inc. (Weston & Sampson) is pleased to submit this proposal to provide the City of Biddeford ("City") with consulting engineering services in support of repairs to critical roadway and seawall infrastructure that sustained damage during storm events in January 2024. The scope of services requested for this project were detailed in a January Request for Qualifications (RFQ) document and in a February 27, 2024 email, both prepared by the City. Our project understanding, proposed approach to the requested scope of service, and project fee are provided herein. This proposal revises our April 8, 2024 REVI proposal to include updates to the proposed scope included in Task 3 and related fee based on discussions with the City.



Project Understanding

City infrastructure along coastal areas, including roadways and seawalls, sustained significant damage due to storm surges during storm events on January 10th and 13th, 2024. Damaged areas that will require engineering services as part of this proposal are identified as Areas #1, #2, #5, and #7 on the Damage Inventory Plan included as part of the January RFQ. The roadways in these damaged areas were paved and the seawalls were mainly comprised of stacked stone riprap and boulders. Areas #1, #2, and #7 are characterized by small beaches and bedrock outcrops along the ocean side of the roadways and residential structures on the land side. Area #5 is characterized by a sandy beach on the ocean side of the roadway and a pond on the land side.

Weston & Sampson engineering staff visited these areas to observe conditions and damage extents. Roadway damage was observed to include localized pavement surface buckling, loss of pavement subgrade support, shoulder erosion, and failure of roadway edges. Seawall damage was observed to include loss of entire sections of stone seawall, localized loss and displacement of large stone riprap and any pre-existing choke stone material, and apparent settlement of sections of seawall. Many sections of the damaged areas remain closed to vehicular traffic.

We understand that the City has retained the services of a contractor to complete temporary roadway repairs and to shift sections of displaced seawalls so that the roadways can be opened to vehicular traffic. Roadway repairs are likely to include debris removal, pavement reclaiming, and localized backfilling of depressions. The full extent of the temporary repairs is not known at the time of the preparation of this proposal.

The City plans to complete mitigation repair to the damaged roadways and seawalls so that they will be resilient to future storm surge events. The intent of the consulting engineering services included as part of this proposal, as detailed below, is to develop temporary repair and stabilization approaches so that the roadways and beaches can be safely reopened and to develop permanent storm resilient roadway and seawall repair alternatives. It is possible that the damaged areas noted above may have different temporary and permanent repair alternatives.

Proposed Scope of Services

Phase A – Site Observations

1. **Project Kick-Off and Site Observations:** Attend an in-person kick-off meeting between Weston & Sampson and the City to discuss our approach and scope of work. Following this meeting, we will visit each of the four (4) damaged areas to document conditions and further discuss specific site details with the City. We assume that

temporary repair work completed by the City's contractor will be completed prior to our site visit. This meeting will be attended by up to two (2) Weston & Sampson engineering staff.

Phase B – Temporary Repair and Stabilization

1. Wetland Delineation: Conduct a field-delineation of wetland resource areas to characterize and identify areas within the jurisdiction of the Maine Natural Resources Protection Act (NRPA) and U.S. Army Corps of Engineers. Resource areas will be field verified by a qualified wetland scientist trained in wetland delineations using the methods described in the "Corps of Engineers Wetlands Delineation Manual" (1987). This work will include:
 - a. Site walk approximately 75 feet from the edges of pavement in the damaged project areas.
 - b. Identification of wetland resource areas based on vegetation, soils, and hydrology.
 - c. Flagging and documentation of resource areas including type of wetland, vegetation encountered, soils encountered, and types of hydrology present.
 - d. Locate flags using handheld GPS unit.

The field work will be documented with a Wetland Delineation Report. Included with the memo will be any utilized Army Corps of Engineers (ACOE) field data forms.

2. Survey & Base Maps: Complete field survey at each of the four (4) damaged areas to collect existing information and to produce base maps for the project. The topographic survey will include the roadways and walls in the damaged areas and areas within up to approximately 50 feet beyond the edge of roadway or to edges of City easements (whichever is further) on the land side and approximately 80 feet off the face of walls on the ocean side. Along the roadways, the survey will extend approximately 50 feet beyond the noticeable damaged limits. Field mapping will be sufficient to develop topographic plans of each damaged area with two-foot contours that are suitable to provide the topographic information needed for repair design evaluation and to develop permitting and construction plans. Locations of relevant features and wetland flags will also be recorded and shown on the base mapping.

The survey will be tied into the North American Vertical Datum of 1988 (NAVD88) and the State Plane Coordinate System using GPS-based technology. Right-of-Way lines will be ascertained however, property lines that intersect the Right-of-Way will be shown as approximate.

3. Temporary Repair and Stabilization:
 - a. *Design*: Based on our observations completed in Task 1 and survey data collected in Task 3, we will evaluate the resiliency of the temporary repair work completed by the City's contractor to temporarily withstand future damage from storms, wave action, and other events. This evaluation will consider the expected timeframe the temporary repair is expected to remain in place before permanent repair construction is expected to start. Based on our evaluation, and as necessary, we will design additional temporary repair and stabilization methods needed in each damaged areas to resist further damage. Since the nature and extent of additional temporary repair and stabilization efforts will not be known until we complete observations and evaluations, we assume for cost estimating purposes, that the repair for the seawall at each damaged area will include installation of additional large riprap protection on the ocean side of the roadways and installation of crushed stone or small riprap on the land side of the roadways. For the roadway repair, we assume that the work will include grading and installation of pavement binder course.

We will prepare a document that includes a narrative scope of additional temporary repair and stabilization work required inclusive of the four (4) damaged areas, a single plan with typical cross-sections/details and intended repair areas, and an estimate of quantities with cost for the additional items required to complete the work. We assume the preparation of bid/contract documents for construction of additional temporary repair and stabilization will not be required.

- b. *Construction Administration*: Weston & Sampson engineering staff will attend one (1) preconstruction meeting with the contractor and City, We will also observe and document the completed additional temporary repair and stabilization work for conformance with our requirements since FEMA will typically

require documentation of all aspects of construction receiving disaster relief funding. Our services do not include observation of construction work. For budgeting purposes, we assume one (1) day to complete our observation and documentation of the completed work. We will prepare a brief letter summarizing our observations and opinion on conformance of the work with repair requirements. We assume that we will review and respond to up to two (2) submittals and up to one (1) RFI from the contractor. We also assume attendance of up to two (2) 1-hour phone conferences by the Weston & Sampson project manager.

We will prepare and submit permit applications for additional temporary repair and stabilization construction as detailed in Task B.4 below.

4. Temporary Repair Permitting: The level of effort for permitting and the types of applications required for temporary repair and stabilization construction are not fully known at this time. Permitting applications could be required from some or all of the agencies indicated below depending on the nature and extent of the temporary repair and stabilization at each damaged project area. Once permitting requirements are known, we will prepare permit applications for the environmental agencies indicated below. The fee for temporary repair and stabilization included in this proposal assumes all permitting agencies included below require permit applications, which may not be the case depending on the level of impacts from temporary repair and stabilization. Our fee will be adjusted once the level of impacts is evaluated.
 - a. Natural Resources Protection Act (NRPA) Individual Permit: Prepare and submit a Natural Resources Protection Act (NRPA) Individual Permit to Maine DEP for the proposed project. The project team will attend one (1) public hearing to discuss the project with the City, other stakeholders, and any abutters to the property. The NRPA Application task will include:
 - i. Prepare forms and notifications for the NRPA IP.
 - ii. Develop project narrative.
 - iii. Include support documentation of the project.
 - iv. Functional Assessment.
 - v. Statement of Avoidance and Minimization.
 - vi. Alternatives Analysis.
 - vii. Identify and notify abutters in accordance with filing requirements.
 - viii. Provide distribution of NRPA IP filing as required.
 - ix. Present project at public hearing.
 - x. Provide additional information as may be requested by ME DEP.
 - xi. Provide coordination throughout review and approval process.
 - b. Mandatory Shoreline Zoning Act (MSZA): Prepare and submit a Shoreland Zoning Ordinance Application to the City. The Mandatory Shoreland Zoning Act (MSZA) requires municipalities to adopt, administer, and enforce local ordinances that regulate land use activities in the shoreland zone. The Weston & Sampson project manager and permitting specialist will attend one public hearing to discuss the project with the City, other stakeholders, and any abutters to the property. The Shoreland task will include:
 - i. Prepare forms and notifications for Shoreland Zoning Ordinance.
 - ii. Develop project narrative.
 - iii. Include support documentation of the project.
 - iv. Identify and notify abutters in accordance with filing requirements.
 - v. Provide distribution of filing as required.
 - vi. Present project at public hearing.
 - vii. Provide coordination throughout review and approval process.
 - c. Section 404 Permit: Prepare and submit to the U.S. Army Corp of Engineers a Pre-Construction Notification (PCN) under Section 404 of the Clean Water Act. This permit is a federal permit required for work within waterways or wetlands. The ACOE permit has several thresholds, including bank and shoreline stabilization. This application will include:

- i. Prepare application, plans, narrative, justification for filling and structures.
 - ii. Submission based on PCN filing.
 - iii. Provide support documentation of material sampling and testing.
 - iv. Provide coordination throughout review and approval process.
- d. *Coastal Zone Management (CZM) Application*: Prepare and submit a CZM application. This is required for any work in a coastal community that is receiving federal funding and/or submitting a federal permit:
 - i. Prepare application, plans, narrative, justification for proposed project.
 - ii. Provide support documentation.
 - iii. Provide coordination throughout review and approval process.
- e. *Federal Section 7 Endangered Species Act*: Prepare and submit a permit application to the U.S. Fish and Wildlife Service (USFWS) and to NOAA Fisheries Service for coastal projects. This is required for any project with a federal nexus (federal permitting, federal funding, or on federal land). Online mapping will be used to inform the online USFWS and/or NOAA submission. We that the online submission alone will be sufficient for approval. Additional consultations with USFWS and NOAA past the initial online submission are not included as part of this proposal.
- f. *Maine's Marine Endangered Species Act*: Prepare and submit a permit application to the Maine Department of Marine Resources (MDMR) for coastal projects. Online mapping will be used to inform MDMR submission. We assume that the online submission alone will be sufficient for approval. Additional consultations with MDMR past the initial submission are not included as part of this proposal.
- g. *Maine Historic Preservation Commission Project Review*: Prepare and submit a permit application to the Maine Historic Preservation Commission/State Historic Preservation Officer (SHPO). Online mapping will be used to inform the historic submission. We assume that the online submission alone will be sufficient for approval. Additional consultations past the initial submission are not included as part of this proposal.

Permitting Assumptions:

- We have assumed the impacts will not be large enough to trigger higher level permitting efforts (Individual Permit through ACOE).
- Our permitting fee does include costs for studies or other design work that may be requested by the reviewing agencies once permits have been submitted.
- Fees for a SWPPP or USEPA NPDES Construction General Permit Notification are not included.
- We assume permit application feed will be paid by the City.
- The City will file at the Registry of Deeds if required.
- Our fee assumes only one round of response to comments for each reviewing agency.
- Additional consultations with USFWS and NOAA past the initial online submission are not included as part of the federal Endangered Species Act review. Additional consultations will require additional fee.
- We assume that the project will not require a “take” of any protected species or habitat.
- We assume that the project will not impact any historical resources.

Phase C – Permanent Repair Alternatives Analysis

1. Subsurface Explorations: Complete one (1) day of subsurface explorations in Area #5 (Fortunes Rock Road) to collect information of soil, groundwater, and bedrock properties/conditions along the roadway embankment. This information will be used to evaluate repair alternatives. Our opinion is that subsurface explorations are not needed at this stage of the project to evaluate repair alternatives in the other damaged areas since it appears that the bedrock profile is likely shallow below the roadways and along the seawall alignments.

We will retain the services of a drilling subcontractor to complete up to four (4) borings to depths up to approximately 20 feet with a truck-mounted drill rig along Fortunes Rock Road. Rock coring and groundwater monitoring well installation are excluded. Weston & Sampson engineering staff will observe the borings in the field, locate the borings based on taped distances from existing site features, and prepare boring logs.

The drilling subcontractor will contact DIGSAFE to mark below-grade public utilities following pre-marking of the boring locations by Weston & Sampson staff at the time of our project kick-off meeting. As this service is limited to public utilities, we will need the City to mark all private utilities (if any) in the boring areas. Weston & Sampson does not accept any responsibility for disruption to underground structures or utilities that have not been marked or have been marked incorrectly. The service of a private utility locator and/or vacuum rig can be provided for an additional cost.

The borings will be backfilled with drill cuttings and patched with asphalt cold patch in existing paved areas. Restoration of areas disturbed as a result of the fieldwork beyond backfilling and patching is not included. Excess drill cuttings will be disposed on-site. Permits, bonds, environmental services, special drilling methods, decontamination, off-site cutting/soil disposal, police details, and snow clearing are not included.

2. Alternatives Analysis Study: Complete analysis to evaluate up to three (3) mitigation repair alternatives for the roadways and embankments in each of the four (4) damaged areas. The analyses will consider cost-effectiveness (in terms of FEMA disaster relief funding), completion timeline, aesthetics, and project resiliency to damage from future extreme events and flooding.

*Depending on the nature and type of mitigation repairs alternatives considered from the damaged areas, support from our structural engineering group and our teaming partner, **Woods Hole Group**, may be needed to provide valuable input on the feasibility and the effectiveness of the alternatives. Support that could be needed include evaluation of type(s) of structural elements appropriate for mitigation repair and information on expected future flood elevations and wave heights. The breadth of support is not known at this time and will not become evident until we began our analysis. **For budgeting purposes, however, our proposed fee includes up to \$10,000 for structural engineering support and up to \$47,250 for Woods Hole Group consultation. These fees are included in our total project fee described in the next section of this proposal, but we will not initiate work on these items without the City's advance authorization. Additionally, if approved, we will bill only actual time accrued, similar to all scope items.***

We will prepare and Alternatives Analysis Report that will include the following:

- a. Summaries of pre-failure and existing site conditions, topographic survey, and subsurface conditions encountered in explorations.
 - b. Our alternatives analysis with mitigation repairs alternatives.
 - c. Cost estimates.
 - d. Recommended mitigation repair alternative to be implemented at each damaged area.
 - e. Expected regulatory agency permits needed and review timelines.
 - f. Our recommended mitigation repair alternative for each damaged area based on costs, its resilient effectiveness, and City input.
3. FEMA Consulting Services: We will prepare detailed cost estimates for the selected temporary and permanent mitigation repair alternatives. Our experience is that FEMA will require that the costs estimates be prepared using raw (without considering overhead and profit) unit costs for each element of construction from RSMeans or other sources acceptable to FEMA, such as recent costs from local contractors or the Maine Department of Transportation. For budgeting purposes, we assume up to four (4) cost estimates total (one for each damaged area). We will prepare a summary memorandum for each cost estimate that will include a scope of work narrative and construction method sketches.

The disaster relief funding and approval process with FEMA can be an iterative and lengthy process that requires frequent meetings, clarification emails and memorandums, and adjustments to cost estimates

based on FEMA reviews. Our budget for this task assumes the following will be required outside of our initial cost estimates and summary memorandums:

- a. The Weston & Sampson project manager and up to two (2) technical staff will attend up to six (6) 1-hour phone conference meetings with FEMA and the City to discuss mitigation repair and cost estimates.
 - b. The Weston & Sampson project manager and up to two (2) technical staff will attend up to two (2) in-person meetings with FEMA and the City in Biddeford to discuss mitigation repair and cost estimates. We assume four (4) hours for each meeting including travel.
 - c. The Weston & Sampson project manager and up to two (2) technical staff will attend up to ten (10) 1-hour phone conference meetings with the City to discuss FEMA disaster relief funding progress.
 - d. The Weston & Sampson project manager and up to two (2) technical staff will attend up to one (1) in-person meeting with the City in Biddeford to discuss FEMA disaster relief funding progress. We assume four (4) hours for this meeting including travel.
 - e. Preparation of up to four (4) memoranda providing clarifying information for the cost estimates.
 - f. Preparation of up to two (2) revisions of each cost estimate.
4. Permitting Evaluation for Permanent Repairs: We will contact applicable environmental permitting agencies once the permanent repair alternatives are selected and the approximate environmental impacts are known to evaluate permit applications that will be required for permanent repair construction and approximate application review timelines. For budgeting purposes, we assume that the permitting agencies listed in Section B.4 of this proposal will need to be contacted.

Proposed Fee

We propose to conduct the proposed scope of services for a not-to-exceed fee as described in the following table. The estimated fee for each phase and task described in this proposal is summarized in the table below.

Phase and Task	Task Fee	Total Phase Fee
Phase A – Site Observations		
Task 1 - Project Kick-Off and Site Observations	\$6,890	\$6,890
Phase B – Temporary Repair and Stabilization		
Task 1 – Wetland Delineation	\$8,882	
Task 2 – Survey & Base Maps	\$35,740	
Task 3 – Temporary Repair and Stabilization		
• Design	\$17,120	
• Construction Administration	\$7,997	
Task 4 – Temporary Repair Permitting (includes fees for all possible permits, to be adjusted once impacts from temporary repair and stabilization is known)	\$30,420	\$100,159
Phase C – Permanent Repair Alternatives Analysis		
Task 1 – Subsurface Explorations	\$7,366	
Task 2 – Alternatives Analysis Study (Base)	\$34,580	\$76,334 Base
• Discretionary Structural Engineering Budget	\$10,000	
• Discretionary Woods Hole Group Budget	\$47,250	
Task 3 – FEMA Consultation Services	\$24,388	
Task 4 – Permitting Evaluation for Permanent Repairs	\$10,000	\$133,584 Including Discretionary Items
Total Fee		\$183,383 Base
		\$240,633 Including Discretionary Items

We recommend establishing a total contract fee of **\$240,633** for this project. As discussed previously, we will only initiate work on structural engineering and Woods Hole Group tasks if granted advance authorization from the City. In this respect, we would not have to provide amendment requests if these tasks are needed.

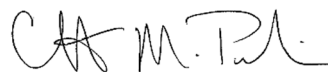
We look forward to working with you on this project. If you have any questions, please contact me by phone at 603-570-6312 or by e-mail at perkinsc@wseinc.com.

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.



Thomas J. Strike, PE
Team Leader



Christopher M. Perkins, PE
Vice President