



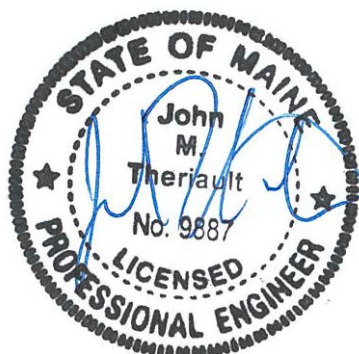
CITY OF BANGOR

Montgomery Street Storm Drain Extension

Request for Proposals

April 10, 2024

CITY OF BANGOR, MAINE
ENGINEERING DEPARTMENT



4-10-2024

JOHN M. THERIAULT, PE, PTOE
CITY ENGINEER

DEBBIE LAURIE
CITY MANAGER

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CITY OF BANGOR

**Request for Proposals
Montgomery Street Storm Drain Upgrades
Proposal No. P24-45**

**Purchasing Department
262 Harlow Street
Bangor, ME 04401
207-992-4282**

Issue Date: April 10, 2024

I. Introduction

The City of Bangor, Maine invites sealed proposals from qualified contractors to install approximately 188 linear feet of 12" HDPE storm drain, 126 linear feet of 12" HDPE underdrain, and 7 catch basins on Kenduskeag Avenue and Montgomery Street. This work will also include maintaining storm drain flows, erosion control, traffic control, and roadway restoration. Refer to "Scope of Services" and "Duration of Services" for additional information.

II. General Information

General information is available on the City's website at the following web address: www.bangormaine.gov/proposals. By submitting a response to this solicitation, the bidder accepts the responsibility for downloading, reading and bidding by the terms and conditions set forth in the City's "General Information for Vendors".

Hardcopies of the plans and specifications may be obtained at the Engineering Department, 1 Dutton Street, Bangor, Maine 04401, for a fifty dollar (\$50.00) charge. If plans need to be mailed, an additional fee of fifty dollars (\$50.00) will be charged for the cost of shipping.

III. Submission of Proposals

For consideration, submit the proposal Bid Form in an envelope marked "Proposal No. **P24-45: Montgomery Street Storm Drain Upgrades** by 2:00 P.M. on May 8, 2024.

Submission of documents can be completed by:

- A. **Emailing** to bids@bangormaine.gov ; or
- B. **Hand Deliver** to 262 Harlow Street, Bangor, ME (back entrance of building at City of Bangor entrance); or
- C. **US Post Office** addressed to 73 Harlow Street, Purchasing Department, Bangor, ME 04401; or
- D. **All Other Delivery Services** addressed to 262 Harlow Street, City of Bangor, Bangor, ME 04401.

All submissions should reference **“P24-45: Montgomery Street Storm Drain Upgrades”**. Proposals will be publicly opened at the time stated above in the temporary Council Chambers, 262 Harlow Street, Bangor, Maine (see **Appendix A - Meeting Location Map**).

A tabulation of all received proposals will be posted on the City's website by 4:30 P.M. on the opening date. Visit www.bangormaine.gov/bidtabs for results.

IV. Pre-bid Meeting

An informational **pre-bid meeting** will be held at **1:00 PM on Wednesday, April 17, 2024**, at the project site on Montgomery Street at the intersection with Kenduskeag Avenue, Bangor, ME.

V. Questions

All questions must be directed in writing to bids@bangormaine.gov no later than **4:30 P.M. on Friday, April 26, 2024**. The City will issue addenda as necessary in response to any questions or inquiries raised at the pre-bid meeting or submitted in writing by May 3, 2024 no later than 4:30 PM.

All addenda will be made available on the City's website. It is the responsibility of the proposer to check for any issuance of addenda. All signatures on proposals, amendments, or related correspondence must be by persons who are authorized to contractually bind the Proposer.

VI. Scope of Services

A bid form is included as Appendix B. Specifications are attached as Appendix C. Plans and details are attached as Appendix D.

The CONTRACTOR may visit the project site with City personnel to confirm the locations of proposed work and to discuss the specific scope of work. In addition, the scope of services includes, but is not limited to, the following:

- Provide a designated project manager.
- Provide a construction schedule.
- Provide and implement a traffic control plan.
- Provide adequate erosion control measures to protect adjacent natural resources in accordance with all state and local regulations.
- Obtain all necessary permits.
- Confirm the location of all existing utilities in the field.
- Replace site features after completion of installation as noted on plans.
- Install 188 linear feet of 12" HDPE storm drain, 126 linear feet of 12" HDPE underdrain, and seven 4-foot catch basins.
- Remove and Replace 32 linear feet of bituminous concrete curbing.
- Maintain all existing infrastructure including use of supports or other apparatuses to prevent damage while excavation takes place as needed or directed by the engineer.
- Maintain flow of existing storm drain at all times.
- Restore all pavement and curbing disturbed during the project as shown on plans.
- Restore all vegetated areas.

All work on, as shown on the plans, shall be completed by **August 30, 2024**.

VII. Instructions and Information for Proposers

The following provides a general description of information required in the proposals and the format to be followed. Proposers must furnish all information requested and follow the instructions as noted herein.

Proposers shall ensure that all information required herein be submitted with the proposal. Additional useful information pertaining to the Scope of Services, Contract Terms and Conditions, or Evaluation Criteria is appreciated and should be included in the proposal.

All Federal and State taxes must be excluded from the proposer price. A tax exemption certificate for the City of Bangor shall be furnished to the successful Proposer upon request.

VIII. Rejection

The City of Bangor reserves the right to reject any and all proposals received and to waive any informality, technical defect, or clerical error in any proposal as the interest of the City may require.

Rejection of any proposal shall be construed as meaning simply that the City does not deem the proposal to be acceptable or that another proposal is deemed to be more advantageous to the City for the particular services proposed.

IX. Withdrawal of Proposals

No Proposer may withdraw their proposal for a period of ninety (90) days from the date of opening. All proposals shall be subject to acceptance by the City during this period.

To withdraw a proposal prior to the opening, the Proposer shall request the withdrawal in writing. All costs associated with the withdrawal (i.e. mailing fees) will be borne by the Proposer.

X. Award

The City will select the proposal deemed most advantageous, appropriate and beneficial to the City. The contract will be awarded by the City to the Proposer best able to provide the services required.

The evaluation of proposals and determination of the award will be at the discretion of the City and its judgment shall be final and without right of recourse by any Proposer.

XI. Proposal Organization

1. Work Schedule:

The proposal shall include a work schedule and a brief description of the methods and resources the Proposer will employ to accomplish the proposed work.

2. Additional Items:

In addition to the General Qualifications, the following items must be provided:

- a. Performance and Payment Bond: Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract. Contractor shall obtain the required bonds from the surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located in issue bonds in the required amounts.
- b. Bid Security: Each bidder must submit with bid a certified check, bid bond or cash in the amount of 5% of his total bid price as his guarantee that the bidder will enter into the Contract, if awarded. Said check, bid bond, or cash will be returned to all except the two (2) lowest bidders immediately following the opening of bids, and the remaining sureties will be returned after the Owner and Contractor have executed the Contract. If the Contract has not been awarded within thirty (30) days of the bid opening the surety will be returned at any time thereafter to any bidder who so requests, so long as they have not been notified of the acceptance of the bid.

XII. Preparation

Before submitting a proposal, all prospective Proposers are encouraged to carefully examine the proposal documents, specifications, visit the City, and fully inform themselves as to the existing conditions and limitations under which the work will be performed.

Each Proposer shall make his/her proposal from his/her own examinations and estimates and shall not hold the City, its agents or employees responsible for any information received from them.

Proposals should be prepared providing a straight forward, concise delineation of the capabilities proposed to satisfy the requirements of the City. Completeness and clarity of content are requested. All brochures, presentations, and items submitted in support of proposals will become part of the contract.

XIII. Selection

Selection Criteria:

Each proposal will be evaluated according to the following criteria:

1. The qualifications and experience of the individual(s) who will perform the work.
2. The availability and capacity of the Proposer to perform the services required.

3. The cost of the services offered.
4. The ability to meet the schedule.

XIV. Warranty Period

All work will be guaranteed by the CONTRACTOR for a period of one year from the date the work reaches substantial completion, or the date that the utilities are placed in service.

XV. Consent Decree

All contractors and subcontractors are hereby notified that the City of Bangor has entered into a Consent Decree with the United States and the State of Maine. For the purposes of the Consent Decree, contractors and subcontractors are deemed agents of the City. Any and all work performed by contractors and subcontractors must conform with the terms of the Consent Decree. Contractors must familiarize themselves with the contents of the document and must make the document available to all subcontractors.

This document is available electronically at <http://www.bangormaine.gov/consentdecree> or in hard-copy in the City of Bangor's Engineering Department.



CITY OF BANGOR

Contract for Professional Services

This AGREEMENT made this _____ day of _____, 2024 by and between City of Bangor, a body politic in the State of Maine (hereinafter the "CITY"), and _____, (hereinafter the "CONTRACTOR").

The parties do hereby agree as follows:

Article 1: Services:

CONTRACTOR agrees to provide the personnel, supplies, equipment, labor, and all incidentals necessary for the following:

Complete the Montgomery Street Storm Drain Upgrades in accordance with proposal dated May 08, 2024, attached hereto.

All work, as shown on Sheet C1, shall be completed by **August 30, 2024.**

Article 2: CONTRACTOR's Performance:

CONTRACTOR accepts the relationship of trust and confidence established between itself and the CITY by this AGREEMENT and agrees to perform the services hereunder in the best and most expeditious and economical manner consistent with the interests of the CITY. The CONTRACTOR shall be, and remain, fully responsible to the CITY for the technical completeness, sufficiency and accuracy of all services furnished by or under this AGREEMENT and shall, without additional cost or fee to the CITY, correct and repair any errors or deficiencies in its performance including payment of attorney's fees.

Article 3: Quality of Service:

CONTRACTOR shall perform its services with care, skill, and diligence, in accordance with the applicable standards currently recognized by such trade, and shall be responsible for the quality, completeness, and thoroughness of all work furnished under this AGREEMENT. CONTRACTOR shall comply with applicable Federal, State and local laws, ordinances, codes and regulations

effective as of the date of this CONTRACT in performing its services. If CONTRACTOR fails to meet applicable standards, CONTRACTOR shall without additional compensation repair any errors or deficiencies in its work or other services.

Article 4: Project Team; Personnel; Independent CONTRACTOR:

CONTRACTOR represents that it has, or will secure at its own expense, all personnel required in performing its services under this AGREEMENT. Such personnel shall not be officers or employees of the CITY, or have any contractual relationship with the CITY.

The CONTRACTOR further agrees that consistent with its status as an Independent CONTRACTOR, its personnel will not hold themselves out to be, or claim to be, officers or employees of the CITY by reason of this AGREEMENT.

Article 5: City Representative:

The CITY shall assign an authorized representative, who shall act as the CITY's representative in all dealings with the CONTRACTOR for the project. CONTRACTOR's performance hereunder shall be subject to said representative's review and approval.

Article 6: City Responsibility:

CITY agrees to furnish or provide access to CONTRACTOR any information or material in its possession which is relevant to CONTRACTOR's performance hereunder and CITY staff will cooperate with CONTRACTOR. CONTRACTOR will not, without the CITY's written consent, disclose, or permit disclosure, by any officer, employee, agent, or subcontractor any information or material furnished or generated under this AGREEMENT.

Article 7: Performance:

CONTRACTOR agrees to perform in accordance with all reasonable requirements of the CITY. CITY agrees to cooperate in helping to implement any timeframe established. In the event of delay for reasons beyond its control and not its fault, CONTRACTOR may request necessary adjustments to said timeframe. The CITY representative may approve any adjustments and said approval will not be unreasonably withheld.

Article 8: Compensation:

Upon completion and acceptance of the tasks described in Appendix B, the amounts due the CONTRACTOR shall be paid upon the receipt of a properly supported invoice.

Article 9: Payment Terms:

Upon completion and acceptance of all work by the CITY, the amount due the CONTRACTOR under this AGREEMENT shall be paid upon the receipt of a properly supported invoice. Prior to receiving final payment, the CONTRACTOR shall certify and furnish lien waivers as satisfactory proof that all material and labor costs incurred herein have been fully paid and discharged. The CITY will retain five (5) percent of the payment as part security for fulfillment of this AGREEMENT by the CONTRACTOR and shall deduct from the balance all previous payments and all sums to be retained under the provisions of this AGREEMENT. Upon substantial completion, the CONTRACTOR may request partial drawdown of retainage. The CITY will retain two (2) percent of the payment for the duration of the one-year warranty period.

Article 10: Ownership of Documents:

All reports, memoranda, plans, specifications, and documents or other material to be developed by CONTRACTOR under this AGREEMENT shall be the property of the CITY and be promptly delivered to the CITY upon request. All data, internal reports, memoranda, notes, calculation estimates and any other internal documents used to prepare the documents and memoranda submitted to the CITY shall be deemed the CONTRACTOR's "work papers", and as such the "work papers" will remain the property of the CONTRACTOR generating that material.

CONTRACTOR shall be responsible for the protection and/or replacement of any work or material in its possession, including materials provided to CONTRACTOR by the CITY. The CONTRACTOR understands and agrees that all documents and materials provided to the CITY hereunder are or may be public documents and as such will be available generally to the public. Reasonable use of any such documents by the CITY or the general public shall not be subject to a claim for infringement of any copyrights claimed by the CONTRACTOR in such documents. The CITY has no responsibility for any use which may be made of them by any third party and the CITY may use them for any lawful purpose.

CONTRACTOR and SUBCONTRACTORS disclaim any liability to any party other than the CITY for any reliance on the documents and further, the CONTRACTOR and SUBCONTRACTORS disclaim any liability to the CITY if the reports and documents are relied upon or used for any purpose for which they are not intended.

Article 11: Confidentiality of Assignment:

CONTRACTOR will use its discretion where specific identification of any project or the CITY might be involved in obtaining research data. CONTRACTOR, however, will retain working papers, related data and analysis, and copies of the reports.

Article 12: Indemnification:

The CONTRACTOR shall indemnify, defend and hold harmless the CITY from and against all claims and actions, and all expenses incidental to such claims or actions, based upon or arising out of

damage to property or injuries to persons or other tortious acts caused or contributed to by the CONTRACTOR or anyone acting under its direction or control or in its behalf in the course of its performance under this AGREEMENT, provided the CONTRACTOR's aforesaid indemnity and hold harmless agreement shall not be applicable to any liability based upon the sole negligence of the CITY.

The CONTRACTOR hereby expressly agrees that it will defend, indemnify and hold the CITY harmless from any and all claims made or asserted by CONTRACTOR's agents, servants or employees arising out of CONTRACTOR's activities under this AGREEMENT. For this purpose, CONTRACTOR hereby expressly waives any and all immunity it may have under Maine's Workers Compensation Act in regard to such claims made or asserted by CONTRACTOR's agents, servants or employees. The indemnification provided under this paragraph shall extend to and include any and all costs incurred by the CITY to answer, investigate, defend and settle all such claims, including but not limited to the CITY's costs for attorney's fees, expert and other witness fees, the cost of investigators, and payment in full of any and all judgments rendered in favor of CONTRACTOR's agents, servants or employees against the CITY in regard to claims made or asserted by such agents, servants or employees.

Article 13: Insurance:

The CONTRACTOR shall arrange insurance for the minimum limits indicated and shall maintain the below listed coverage throughout the period of performance.

	<u>LIMITS</u>
a. Workers' Compensation Insurance	Statutory
Employer's Liability Insurance	\$500,000 each accident \$500,000 disease - policy limit \$500,000 disease - each empl.
b. Comprehensive General Liability (Public Liability) Insurance including:	
General Liability	\$2,000,000 each occurrence
Aggregate	\$4,000,000
Products, Completed Operations	\$2,000,000 each occurrence
Aggregate	\$4,000,000
Personal & Advertising Injury	\$ 500,000 each occurrence
Fire Damage	\$ 50,000 any one fire
Medical Expense	\$ 5,000 any one person
c. Automobile Liability Insurance (owned, hired & non-owned):	
Bodily Injury & Property Damage	\$1,000,000 combined single limit
d. The CONTRACTOR shall provide a waiver of any rights of subrogation which the CONTRACTOR may have against the OWNER, its agents or its employees.	

- e. Before any of the work is started under this CONTRACT, the CONTRACTOR shall file with the Purchasing Department a certificate of insurance containing the following information in respect to all insurance carried:
 - (1) Name of insurance company, policy number and expiration date;
 - (2) The coverage required and the limits on each, including the amount of deductible or self-insured retentions (which shall be for the account of the CONTRACTOR);
 - (3) A statement indicating that the OWNER shall receive thirty (30) days notice of cancellation or significant modification of any of the policies which may affect the OWNER's interest; and
 - (4) The OWNER as an additional insured (except Workers' Compensation Insurance).
- f. If any of the work performed under this CONTRACT includes blasting, excavating, pile driving or caisson work; moving, shoring, underpinning, razing or demolition of any structure or removal or rebuilding of any structural support thereof, or any subsurface or underground work, the Comprehensive General Liability Insurance policy shall include coverage for the explosion, collapse and underground hazards.

Article 14: Subcontractors:

If specialists or SUBCONTRACTORS are required to complete the services thereunder, CONTRACTOR shall propose such utilization for review and approval of the CITY. CONTRACTOR is and shall remain fully responsible for performance of all services hereunder.

Article 15: Termination:

Termination for Convenience: The CITY may terminate this AGREEMENT, in whole or in part, whenever the CITY determines that such termination is in the best interest of the CITY, without showing cause, upon giving 30 days written notice to the CONTRACTOR. The CONTRACTOR will not be reimbursed for any profits that may have been anticipated but have not been earned up to the date of termination.

Termination for Default: When the CONTRACTOR has not performed or has unsatisfactorily performed the AGREEMENT, the CITY may terminate this AGREEMENT for default. Upon termination for default, payment may be withheld at the discretion of the CITY. Failure on the part of a CONTRACTOR to fulfill contractual obligations shall be considered just cause for termination of the AGREEMENT.

Article 16: No Assignment:

CONTRACTOR shall not assign, sublet, sell, transfer or otherwise dispose of its interest in this AGREEMENT without the prior written approval of the CITY which shall not be unreasonably withheld.

This AGREEMENT shall be binding upon and inure to the benefit of the parties hereto, their successors and permitted assigns.

Article 17: Separate Contracts:

The CITY may let other agreements in connection with the work. CONTRACTOR shall cooperate, schedule and coordinate performance of the work with the work of any separate CONTRACTORS or contractors so as not to delay or interfere with their work, or the timely completion of their services.

Article 18: Nonwaiver:

Except as expressly provided in this AGREEMENT, the failure or waiver, or successive failures or waivers on the part of either party hereto, in the enforcement of any Condition, Covenant, or Section shall not render the same invalid, nor impair the right of either party hereto, their successors or permitted assigns, to enforce the same in the event of any subsequent breach thereof.

Article 19: Notices:

All notices required or permitted to be given under this CONTRACT or the specifications shall be in writing and shall be deemed to be properly and sufficiently given when deposited in the mail, postage prepaid, registered or certified, and addressed to the party entitled to receive such notice as set forth below or to such other address as that party shall subsequently designate to the other party by notice given in accordance with this section.

To CITY:

Richard May, Stormwater Manager
City of Bangor
73 Harlow Street
Bangor, Maine 04401

To CONTRACTOR:

CONTRACTOR
CONTRACTOR
CONTRACTOR
CONTRACTOR

Notice given in any other manner shall be deemed effective only when the written notice is actually received.

Article 20: Disputes:

Any disputes arising out of or in the course of this AGREEMENT which are not settled by mutual agreement of the parties must be settled by mediation or submitted to arbitration in accordance with the rules of the American Arbitration Association. This AGREEMENT shall be governed by and construed in accordance with the laws of the State of Maine.

Article 21: Compliance with Law:

CONTRACTOR shall comply with all applicable Federal, State and local statutes, ordinances and regulations in its performance hereunder. CONTRACTOR agrees to amend this AGREEMENT, if necessary, to comply with such law or regulations.

Article 22: Extent of Agreement:

This AGREEMENT, with its attachments, represents the entire and integrated AGREEMENT between the CITY and CONTRACTOR and supersedes and replaces all terms and conditions of any prior agreements, arrangements, negotiations, or representatives, written or oral with respect to this AGREEMENT. This AGREEMENT may only be modified by written agreement of both parties.

Article 23: Changes:

The CITY may order changes in writing to the specifications within the general Scope of Work. If the changes involve an increase or decrease in the cost of or time required for performing the work, the CONTRACTOR shall so advise the CITY in writing and an equitable adjustment in costs or schedule will be negotiated.

As a condition to any increase in the cost of the work, the CONTRACTOR shall submit in writing adequately documented costs incurred for any authorized change for review, evaluation and approval by the CITY.

Article 24: Liquidated Damages

In case the CONTRACTOR fails to satisfactorily complete the entire work, or any phase of the work, contemplated and provided for under this AGREEMENT on or before the date of completion determined as described elsewhere herein, the City shall deduct from the payments otherwise due the CONTRACTOR each month the sum of one thousand dollars (\$500.00) for each calendar day, excluding only Sundays and legal holidays, of delay, which sum is agreed upon not as penalty but as fixed and liquidated damages for each day of such delay to be paid in full and

subject to no deduction. If the payments otherwise due the CONTRACTOR are less than the amount of such liquidated damages, said damages shall be deducted from any other moneys due or to become due the CONTRACTOR, and in case such damages shall exceed the amount of all moneys due or become due the CONTRACTOR, then the CONTRACTOR or his/her surety shall pay the balance to the CITY as appropriate.

Article 25: Cost Records and Accounting for Additional Services:

CONTRACTOR shall keep accounts, books and other records of all its billable charges incurred in performing services to the CITY and shall itemize and submit its billings to the CITY in such a manner as the CITY may reasonably direct. If no such direction is given, CONTRACTOR shall maintain books and accounts of chargeable costs in accordance with generally accepted accounting practices consistently applied, and in such a manner as to permit verification of all entries made.

For three (3) years from final payment under this AGREEMENT, CONTRACTOR shall preserve all such books and records, and shall upon three (3) day's written notice make such records available to the CITY for purposes of verifying the costs chargeable under the AGREEMENT.

Article 26: Authority to Execute:

This AGREEMENT contains all the terms, conditions and provisions pertaining to the work, there being no other understandings, agreements, warranties either express or implied, relative to the AGREEMENT that are not fully expressed herein.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be executed on the day and year first above written.

Witness:

City of Bangor (CITY)

David Little, Finance Director

Witness:

(CONTRACTOR)

BID Bond

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

The City of Bangor
73 Harlow Street
Bangor, ME 04401

BID

Bid Due Date:

Description *(Project Name and Include Location)*:

Montgomery Street Storm Drain Upgrades, Bangor, ME

BOND

Bond Number:

Date *(Not earlier than Bid due date)*:

Penal sum

\$

(Words)

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

By:

Signature

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest:

Attest:

Signature

Signature

Title

Title

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and

effect.

11. The term “Bid” as used herein includes a Bid, offer, or proposal as applicable.

Notice of Award

Date: _____, 2024

Project: Montgomery Street Storm Drain Upgrades

Owner: The City of Bangor, Maine

Owner's Contract No.:

Contract: Montgomery Street Storm Drain Upgrades

Engineer's Project No.: SW-012

Bidder:

Bidder's Address:

You are notified that your Bid dated May 8, 2024 for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for Montgomery Street Storm Drain Upgrades

The Contract Price of your Contract is _____ Dollars and zero Cents (\$00.00).

 copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

 1 sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [4] fully executed counterparts of the Contract Documents.
2. Other conditions precedent:

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

City of Bangor, Maine

Owner

By: _____

Authorized Signature

Title City Manager

Copy to Engineer

Notice to Proceed

Date: _____

Project: Montgomery Street Storm Drain Upgrades	
Owner: The City of Bangor	Owner's Contract No.:
Contract: Montgomery Street Storm Drain Upgrades	Engineer's Project No.:
Contractor:	
Contractor's Address:	

You are notified that the Contract Times under the above Contract will commence to run on **May _____, 2024**. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement, all work , as shown on Sheet C1, shall be completed by August 30, 2024.

Before you may start any Work at the Site, the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:

	Owner: City of Bangor
	Given by:
	Authorized Signature
	City Engineer
	Title

Date

Copy to Engineer

Copy to Contractor

Certificate of Substantial Completion

Project: <u>Montgomery Street Storm Drain Upgrades</u>	
Owner:	Owner's Contract No.: 1
Contract:	Engineer's Project No.: 1

This [tentative] [definitive] Certificate of Substantial Completion applies to:

- All Work under the Contract Documents: The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

- Amended Responsibilities Not Amended

Owner's Amended Responsibilities:

Contractor's Amended Responsibilities:

The following documents are attached to and made part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer _____ Date _____

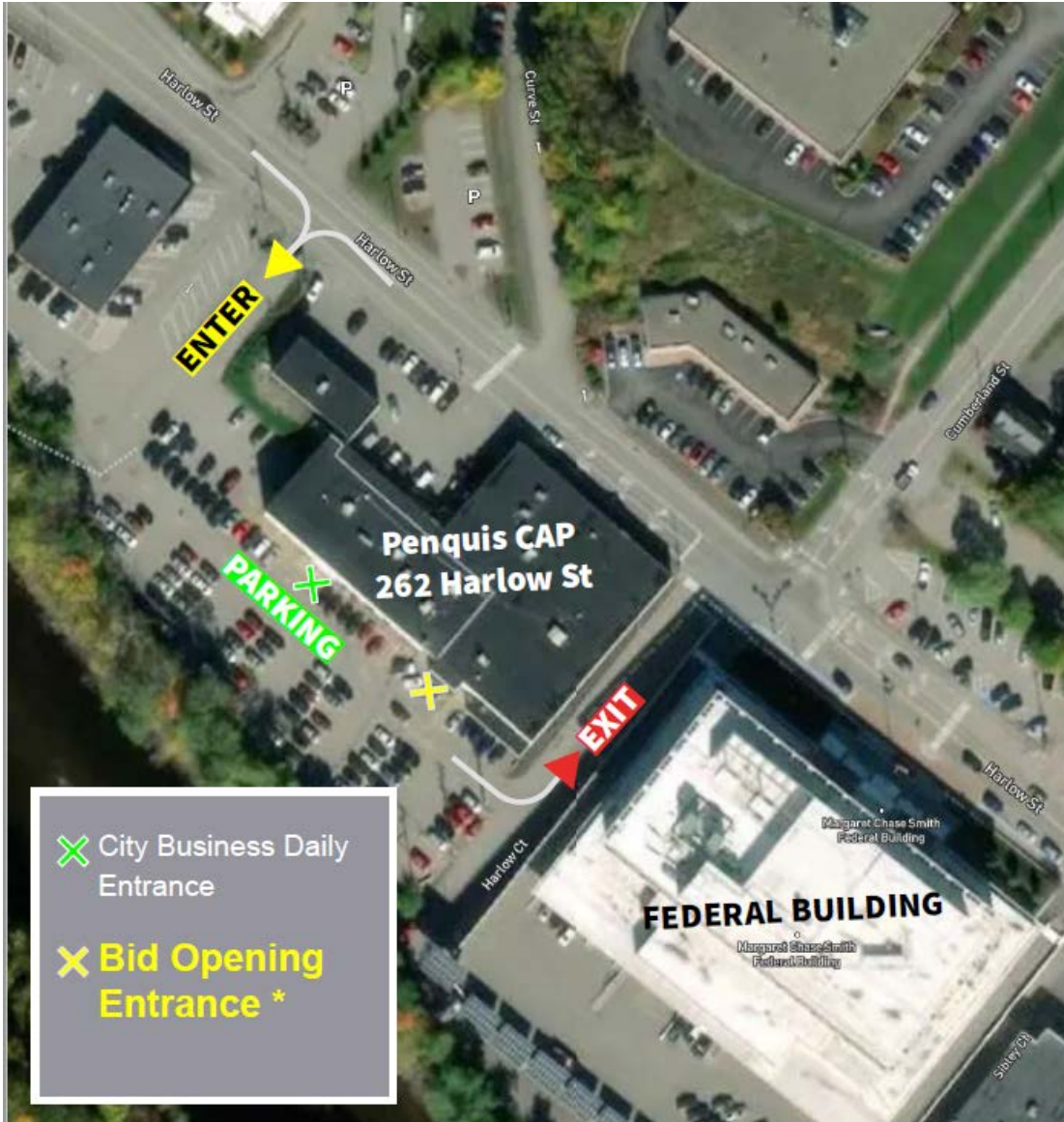
Accepted by Contractor _____ Date _____

Accepted by Owner _____ Date _____

EJCDC C-625 Certificate of Substantial Completion
Prepared by the Engineers Joint Contract Documents Committee and endorsed by the Construction Specifications Institute.

APPENDIX A

Meeting Location Map



* From Harlow Street, drive around to the back of the Penquis building (one-way traffic in parking lot). To the right, enter through glass vestibule door (yellow “X” on map above) and once in there, to the right, there is another glass door marked “Meeting Entrance”. Go to the end of that hallway and take a slight left. The room marked “Penobscot Conference Room” is the temporary Council Chambers location where Bid Opening meetings are held.

“Meeting Entrance” door will be opened 10 minutes prior to the scheduled meeting time.

**Request for Bids
Montgomery Street Storm Drain Upgrades**

Appendix B: Bid Form

Request for Proposals Montgomery Street Storm Drain Upgrades

BID FORM

Proposal must include this form. Failure to comply may result in disqualification of proposal. The costs listed below will be used to calculate value for completed work. The deadline for submittal of proposals is 2:00 p.m., Wednesday, May 8, 2024.

Item No.	Estimated Quantity	Pay Item, Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
----------	--------------------	--	----------------------------------

1.	1 LS	Mobilization (not to exceed 3% of total project bid) the lump sum price of _____ Dollars per lump sum (\$_____/LS	\$ _____
----	---------	--	----------

Includes but not limited to the cost of initiating the contract, general contract administration, procuring insurance and bonds, moving equipment, supplies, and materials to the site, and all incidentals.

2.	1 LS	Traffic Control the lump sum price of _____ Dollars per lump sum (\$_____/LS	\$ _____
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3.	1 FH	Flagging Hour the unit price of _____ Dollars per flagging hour (\$_____/FH	\$ _____
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Item No.	Estimated Quantity	Pay Item, Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
----------	--------------------	---	------------------------

4. **5**
CY Rock Removal
Unit Price per cubic yard of
_____ Dollars
per cubic yard (\$_____/CY) \$_____

Includes but not limited to all labor, materials, tools, and equipment necessary to excavate any rock larger than 2 cubic yards as necessary to install new work within the trench limits, and all incidentals.

5. **188**
LF 12" Ø HDPE storm drain pipe
Unit Price per linear foot
_____ Dollars
per linear foot (\$_____/LF) \$_____

Includes but not limited to excavation, removal and disposal of waste materials, installation of new pipe, pipe, fittings, connection to drain structures, backfill materials and their installation, compaction, grading, and all incidentals.

6. **126**
LF 12" Ø HDPE underdrain pipe
Unit Price per linear foot
_____ Dollars
per linear foot (\$_____/LF) \$_____

Includes but not limited to excavation, removal and disposal of waste materials, installation of new pipe, pipe, fittings, connection to drain manhole, connection to existing stormdrain, backfill materials and their installation, compaction, grading, and all incidentals.

7. **7**
EACH 4' Ø Catch Basin
Unit Price per Each of
_____ Dollars
per each (\$_____/Each) \$_____

Includes but not limited to furnishing all materials, equipment and labor necessary to install the structure to the required grade, excavation, removal and disposal of existing and waste materials, and all piping, fittings, and supports within the manholes as specified to form a complete unit, frame and cover, and adjusting to final grade prior to paving.

Item No.	Estimated Quantity	Pay Item, Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
----------	--------------------	---	------------------------

8.	32 LF	Bituminous Concrete Curb Unit Price per linear foot	
		_____ Dollars	
		per linear foot (\$_____) / LF	\$ _____

Includes but not limited to furnishing all materials, equipment and labor necessary to remove and replace existing bituminous concrete curbing as shown on the plans.

9.	33 TON	Hot Mix Asphalt 12.5 MM Unit Price per Ton of	
		_____ Dollars	
		per Ton (\$_____) / Ton	\$ _____

Includes but not limited to furnishing all materials, equipment and labor necessary to restore hot mix asphalt pavement disturbed during the installation of new drainage structures and piping and associated disturbance.

10.	33 TON	Hot Mix Asphalt 19 MM Unit Price per Ton of	
		_____ Dollars	
		per Ton (\$_____) / Ton	\$ _____

Includes but not limited to furnishing all materials, equipment and labor necessary to restore hot mix asphalt pavement disturbed during the installation of new drainage structures and piping and associated disturbance.

TOTAL PROJECT BID

_____ Dollars and
_____ Cents

(\$ _____)

Montgomery Street Storm Drain Upgrades Request for Bids

Appendix C: Technical Specifications

SUMMARY OF WORK

PART 1 - GENERAL

1.1 REQUIREMENT INCLUDED

- A. The work to be performed under this Contract consists of furnishing all tools, labor, equipment, materials providing startup services, and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, or other operations required for the fulfillment of the Contract in strict accordance with the specifications, drawings, and other Contract Documents as herein before defined, all of which are made a part hereof; and including such detail sketches as may be furnished by the Engineer from time to time during construction in explanation of said Contract Documents. The work shall be complete, and all work, materials, and services not expressly shown or called for in the Contract Documents which may be necessary for the complete and proper construction of the work in good faith shall be performed, furnished, and installed by the Contractor as though originally so specified or shown, at no increase in cost to the Owner.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Contractor shall complete all Work as specified or indicated in the Contract Documents titled "Montgomery Street Storm Drain Upgrades", dated April 10, 2024, prepared by The City of Bangor Engineering Department.

1.3 CONTRACT METHOD

- A. The work will be constructed under unit prices as indicated in the Bid Schedule.

1.4 WORK BY OTHERS

- A. The Contractor's attention is directed to the fact that work may be conducted at the site by other Contractors during the performance of the work under this Contract. The Contractor shall conduct its operations so as to cause a minimum of interference with the work of such other Contractors and shall cooperate fully with such Contractors to provide continued safe access to their respective portions of the site, as required to perform their respective contracts.

- B. Interference with Work on Utilities: The Contractor shall cooperate fully with all utility forces of the Owner or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the work, and shall schedule the work so as to minimize interferences with said relocation, altering, or other rearranging of facilities.

1.5 WORK SEQUENCE

- A. The Contractor shall construct work in phases or stages as required to accommodate Owner's occupancy requirements. The Contractor shall coordinate construction schedule and operations with Owner.

1.6 CONTRACTOR USE OF PROJECT SITE

- A. The Contractor's use of the project site shall be limited to its construction operations, including onsite storage of materials as needed for the immediate work, onsite fabrication facilities, and field offices.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1 MAINTAIN EXISTING WORKS

- A. Existing Operations

- 1. The existing sewer, water, and electrical must remain operable at all times during construction, or provisions must be made to provide temporary service in advance of discontinuing operation of an existing operation.

B. Maintain Operation

1. State and Federal regulations require that at all times during construction work under this Contract, existing utilities remain operational until the new utilities are accepted and on line.
2. The responsibility of the Contractor shall be to provide, maintain and operate all temporary facilities such as bypass wastewater pumping equipment, dams, sewers, conduits, valves and all other labor and equipment necessary to intercept the sewage flow before it reaches the points where it would interfere with his work, and carry it past his work such that essential transport of wastewater remains operational and effective.
3. The Contractor's operations shall not hinder the delivery, storage and use of materials and supplies, nor hinder staff duties, nor disrupt utility service.
4. The Owner must have access to the existing facilities at all times unless a specific exception is granted by the Owner.

C. Minimize Interference

1. The Contractor shall conduct operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, for review and approval by the Engineer and Owner, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as otherwise directed by Engineer.
2. It may be necessary to work outside of normal working hours to minimize interference. Work of connecting with, cutting into and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time and when the demands on the facilities best permit such interference. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand.
3. When making interconnections to active lines, perform such work at low flow times and in a manner to maintain flows. The Contractor is responsible for providing temporary

bypass pumping or other means as necessary to ensure continuous wastewater flow.

D. Existing Stormwater Flows

1. Existing flows vary significantly from hour to hour and season to season. The Contractor shall conduct operations to be prepared for these variable flow conditions. The Contractor shall provide to the Engineer, upon request, a written plan of the intended procedure for handling flows within the existing stormwater system during construction.

3.2 CONSTRUCTION SEQUENCE

- A. The Contractor shall submit to the Owner for review and acceptance, a complete schedule of proposed sequence of construction operations prior to commencing work.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

4.2 SCHEDULE OF PAYMENT ITEMS

Bid Item 1: Mobilization (not to exceed 3% of total project bid)

- a. Payment: Lump sum price as stated in the Proposal.
- b. Measurement: Lump sum upon completion of first full thirty-day pay period of work.
- c. Includes: The cost of initiating the Contract, general contract administration costs, procuring insurance and bonds, moving equipment, supplies, and materials to the site, and all other incidental start-up costs.

- d. Explanation: Payment for Mobilization will be made on the first payment requisition covering a full thirty-day pay period. Payment for mobilization will not be made prior to the completion of the first full thirty-day pay period of work performed by the Contractor.

END OF SECTION

QUALITY CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Inspection and testing laboratory services.

1.2 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Comply fully with manufacturers' instructions. If in conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.3 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or interference otherwise in any reference documents.

1.4 INSPECTION AND TESTING LABORATORY SERVICES

- A. Owner will appoint, employ, and pay for services of an independent firm to perform inspection and testing if required, unless specifically noted otherwise in Contract Documents.
- B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Engineer.
- C. Reports will be submitted by the independent firm to the Engineer, in duplicate, indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer. Payment for retesting will be the Contractor's responsibility.

END OF SECTION

TRAFFIC CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Maintenance of traffic through work area.
- B. Construction Parking Control.
- C. Flag Persons.
- D. Flares and Lights.
- E. Haul Routes.
- F. Traffic Signs and Signals.
- G. Removal.

1.2 RELATED SECTIONS

- A. Manual on Uniform Traffic Control Devices (MUTCD).
- B. Maine Department of Transportation, Standard Details, Highways and Bridges.

PART 2 - PRODUCTS

2.1 SIGNS, SIGNALS, AND DEVICES

- A. Traffic Control Signals: As approved by local jurisdictions.

- B. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdiction.
- C. Flag Person Equipment: As required by local jurisdiction.

PART 3 - EXECUTION

3.1 MAINTENANCE OF TRAFFIC THROUGH WORK AREA

- A. At least one lane of traffic must be maintained on all roads in the work area at all times.
- B. All detours around the work zone must be approved by the Engineer.

3.2 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with pedestrians, public vehicular traffic, public parking, and access by emergency vehicles, and Owner's operations.
- B. Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non- designated areas.

3.3 FLAG PERSONS

- A. Provide trained and equipped flag persons to regulate traffic during construction operations as directed by Engineer.

3.4 NIGHT AND OTHER HOURS OF LOW VISIBILITY

- A. Lights should be used to illuminate work area, equipment crossings, and other areas as necessary during low visibility times as directed by Engineer.

3.5 HAUL ROUTES

- A. Consult with authority having jurisdiction in establishing public thoroughfares to be used for haul routes and site access.

3.6 TRAFFIC SIGNS AND SIGNALS

- A. Traffic signage and signals shall conform with MUTCD as related to work zones.
- B. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations in accordance with MUTCD.
- C. Relocate as Work progresses, to maintain effective traffic control.

3.7 MDOT REQUIREMENTS

- A. Meet all applicable requirements of the Maine Department of Transportation.

3.8 REMOVAL

- A. Remove equipment and devices when no longer required.
- B. Repair damage caused by installation.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

4.2 SCHEDULE OF PAYMENT ITEMS

Bid Item 2: Traffic Control:

- a. Payment: Lump Sum price as stated in the Proposal.
- b. Measurement: Paid in proportion to percentage of Work completed at time of requisition.

- c. Includes all costs associated with traffic control including labor, barrels, cones, signage, police detail if required, and incidentals.

END OF SECTION

SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes removal of surface debris, removal of designated paving, curbs, and concrete.
- B. Related Sections:
 - 1. Grading
 - 2. Excavation
 - 3. Rock Removal

1.2 SUBMITTALS

- A. See procedures as noted in Submittals.

1.3 QUALITY ASSURANCE

- A. Perform work in accordance with current version of the State of Maine, Department of Transportation, Standard Specifications – Highways and Bridges.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of existing conditions before starting work.
- B. Identify waste area for placing removed materials.

3.2 PROTECTION

- A. Temporary and permanent erosion control shall be installed in accordance with the current Maine DEP Best Management Practices Manual for Erosion and Sedimentation Control prior to disturbing any earth.
- B. Locate, identify, and protect utilities indicated to remain, from damage.
- C. Protect trees, plant growth, and features designated to remain as final landscaping.

- D. Protect benchmarks, survey control points, and existing structures from damage or displacement.

3.3 CLEARING

- A. Clear areas required for access to site and execution of Work.

3.4 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Remove paving, curbs, and concrete as indicated on Drawings. Neatly saw cut edges at right angle to surface.
- C. Remove abandoned trolley tracks as necessary to complete new work. Neatly cut edges at right angle to surface. Do not disturb excess pavement.
- D. Continuously clean up and remove waste materials from site. Do not allow materials to accumulate on site.
- E. Do not burn or bury materials on site. Leave site in clean condition.

PART 4 – MEASUREMENT AND PAYMENT

Incidental to Items 5, 6, 7, 8, 9, and 10.

END OF SECTION

EXCAVATION

PART 1 - GENERAL

2.2 SUMMARY

- A. Section includes excavating for test pits and new utility installation.
- B. Related Sections:
 - 1. Site Clearing
 - 2. Rock Removal
 - 3. Backfilling
 - 4. Trenching
 - 5. Rock Removal
 - 6. Sanitary Sewer and Storm Drain Structures
 - 7. Sanitary Sewer and Storm Drain Systems

2.3 FIELD MEASUREMENTS

- A. Obtain survey benchmarks from Owner.
- B. Verify that survey benchmark and intended elevations for the Work are as indicated.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

- C. Identify required lines, levels, contours, and datum.
- D. Identify known underground, above ground and aerial utilities. Stake and flag locations.
- E. Erect sheeting, shoring, and bracing as necessary in accordance with all Federal, State, and Local regulations.
- F. Provide dewatering and drainage as required to accomplish work of this section.
- G. Protect new construction, existing structures, existing utilities, plants, trees, etc., at all times. Report any damages immediately to Engineer and proper authorities.
- H. Use extreme caution when excavating near underground utilities. Employ manual excavation where necessary and as required by DigSafe or PUC Regulations as applicable.
- I. Inform appropriate utility or agency of all actions in vicinity of underground pipes, mains, conduits, wires, etc. Coordinate all work with appropriate utility or agency and comply with all requirements. Dig Safe must be contacted.

3.2 EXCAVATING

- J. Underpin adjacent structures, which may be damaged by excavation work, including utilities and pipe chases.
- K. Excavate subsoil required to accommodate paving and site structures.
- L. Machine slope banks to angle of repose or less, until shored.
- M. Excavate all materials regardless of nature of elevations and dimensions indicated plus sufficient space for forming, shoring, draining, inspection, etc. Excavate using open cut method unless otherwise indicated or permitted.
- N. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- O. Remove lumped subsoil, boulders, and rock up to 2 cubic yards measured by volume. Larger material will be removed under Section – Rock Excavation.
- P. Allow Engineer to inspect bottom of excavation for suitability of base material.
- Q. Remove unsuitable base material to a depth of at least 12 inches below any pipe or structure or to a depth directed by the Engineer and replace with compacted screened gravel or crushed stone or provide proper base as otherwise directed by Engineer. Place no footing, wall, structure, pipe, etc., on unsuitable material.
- R. Place no structure, pipe, etc., partially on earth and partially on rock. Remove rock and replace with compacted screened gravel or crushed stone.
- S. Protect excavation bottoms from frost and weathering. Place no structure, pipe, etc., on frozen or weathered ground.
- T. Notify Engineer of unexpected subsurface conditions and discontinue Work in affected area until notified to resume Work.
- U. Correct unauthorized excavation at no extra cost to Owner.
- V. Correct areas over-excavated by error in accordance with Backfilling.
- W. Stockpile excavated material remains City property. This material shall be disposed of as directed by the City Engineer.

3.3 FIELD QUALITY CONTROL

- X. Field inspection will be performed under provisions of Quality Control.
- Y. Provide for visual inspection of bearing surfaces.

3.4 PROTECTION

- Z. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
- AA. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

4.2 SCHEDULE OF PAYMENT ITEMS

Incidental to Items 5, 6, and 7.

END OF SECTION

ROCK REMOVAL

PART 3 - GENERAL

3.1 SUMMARY

- A. Section includes removal of rock uncovered during excavation, rock estimated to be present using ledge probes, and explosives to assist with rock removal.
- B. Related Sections:
 - 1. Site Clearing
 - 2. Excavation
 - 3. Trenching
 - 4. Backfilling

3.2 REFERENCES

- A. NFPA 495 - Code for Explosive materials.
- B. MDOT Standard Specifications - Highways and Bridges, current revision.

3.3 DEFINITIONS

- A. Rock is defined as any stone, boulder, or piece of concrete or masonry, two cubic yards or more in volume, and any hard natural material or rock ledge that will withstand removal by the usual mechanical excavation methods, such as power shovels or toothed bulldozer blades, and such that normally requires blasting or continuous drilling, wedging, sledging, or barring for removal. No soft or disintegrated rock which can be removed with a hand pick or power operated excavator shovel; no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere; and no rock exterior to the maximum limits of measurements allowed which may fall into the excavation will be measure or allowed. The Engineer shall be sole judge as to whether the material encountered shall be classified as rock in accordance with the above description.

3.4 QUALIFICATIONS

- A. Seismic Survey Firm: Company specializing in seismic surveys with five years documented experience.
- B. Explosives Firm: Company specializing in explosives for disintegration of rock, with five years documented experience.

3.5 REGULATORY REQUIREMENTS

- A. Conform to applicable code for explosive disintegration of rock and to NFPA 495 for handling explosive materials.

- B. Obtain permits from authorities having jurisdiction before explosives are brought to site or drilling is started.

3.6 SCHEDULING

- A. Schedule Work under the provisions of Section - Submittals.
- B. Schedule Work to avoid disruption to occupied buildings nearby.

PART 4 - PRODUCTS

4.1 MATERIALS

- A. Explosives: Type recommended by explosive firm following seismic survey and required by authorities having jurisdiction.
- B. Delay Device: Type recommended by explosives firm.
- C. Blast Mat Materials: Type recommended by explosives firm.

PART 5 - EXECUTION

5.1 EXAMINATION

- A. Verify site conditions and note subsurface irregularities affecting Work of this section.
- B. Beginning of Work of this section mean acceptance of existing conditions.

5.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Conduct pre-blast survey and document interior and exterior conditions of buildings and other structures within 500 feet of rock removal areas, making photograph and video record of existing conditions identifying existing irregularities prior to blasting.

5.3 ROCK REMOVAL - EXPLOSIVE METHOD

- A. If rock is uncovered requiring the explosives method for rock disintegration, notify the Engineer and execute as follows.
- B. Advise owners of adjacent buildings or structures in writing prior to executing seismographic survey. Explain planned blasting and seismic operations.
- C. Obtain a seismic survey prior to rock excavation to determine maximum charges that can be used at different locations in area of excavation without damaging adjacent properties or other work.

- D. Contractor shall provide seismographic monitoring during progress of blasting operations to be performed by qualified independent monitoring agent.
- E. Disintegrate rock and remove from excavation.
- F. Remove rock at excavation bottom to form level bearing surface.
- G. Remove shaled layers to provide a sound and unshattered base.
- H. In utility trenches, excavate to 6 inches below invert elevation of pipe and to width as necessary to complete utility installation trench width.
- I. Remove excavated material from site.
- J. Correct unauthorized rock removal in accordance with backfilling and compacting requirements of Section - Backfilling.
- K. Perform no blasting without informing Engineer, governing authorities, and other concerned parties. Conform to all local, state and federal regulations concerning blasting and pertinent provisions of the "Manual of Accident Contractors of America, Inc., of the "Construction Safety Rules and Regulations, adopted by the State Board of Construction Safety, Augusta, Maine, and Maine Department of Transportation "Standard Specifications" Section 107.12, Use of Explosives.
- L. Blast only with such quantities and strength of explosives and in such a manner as will break the rock approximately to the intended lines and grades and yet will leave the rock not to be excavated in an unshattered condition. Avoid excessive cracking of the rock upon or against which any structure will be built or installed and to prevent injury to existing pipes or other structures and property above or below ground. Cover rock where necessary with specified utility bedding material. Use blasting mats as necessary to protect adjacent facilities.
- M. Blast no closer than 20 feet from completed pipes, manholes, or other structure. Any damages to the Work resulting from blasting shall be repaired at the Contractor's expense.
- N. The contractor shall maintain and submit (if requested) to the Engineer accurate record of each blast. Show the general location of the blast, the depth and number of drill holes, the kind and quantity of explosive used, seismographic monitoring, and other data required for a complete record.

5.4 FIELD QUALITY CONTROL

- A. Field inspection will be performed under the provisions of Quality Control.
- B. Provide for visual inspection of foundation bearing surfaces and cavities formed by removed rock.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

4.2 SCHEDULE OF PAYMENT ITEMS

Bid Item 4: Rock Removal

- a. Payment: Unit price per each cubic yard as stated in the Proposal.
- b. Measurement: Per unit removed.
- c. Includes: All labor, materials, tools, and equipment necessary to complete the excavation including pre-blast surveys, drilling, blasting, monitoring, loading, removal by mechanical means, and disposing of the excess or unusable material outside the work limits and all else incidental thereto for which payment is not provided under other items. No payment shall be made for rocks excavated beyond the trench pay width as noted on the drawings.
- d. Explanation: Must be minimum of 2 cubic yards to be eligible for payment.

END OF SECTION

TRENCHING

PART 6 - GENERAL

6.1 SUMMARY

- A. Section Includes:
 - 1. Excavate trenches for utilities from property lines to municipal utilities and for municipal utilities within rights-of-way.
 - 2. Compacted bedding under fill over utilities to subgrade elevations.
 - 3. Backfilling and compaction.

- B. Related Sections:
 - 1. Excavation
 - 2. Backfilling
 - 3. Rock Removal
 - 4. Hot Mix Asphalt Paving
 - 5. Sanitary Sewer and Storm Drain Structures
 - 6. Sanitary Sewer and Storm Drain Systems

6.2 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.

- B. ANSI/ASTM D698 - Test methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb. Rammer and 12 inch Drop.

6.3 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as shown on Drawing.

PART 7 - PRODUCTS

7.1 FILL MATERIALS

- A. Types as specified in Backfilling.

PART 8 - EXECUTION

8.1 EXAMINATION

- A. Verify fill materials to be reused are acceptable and obtain Engineer's approval.

8.2 PREPARATION

- A. Identify required lines, levels, contours and datum.
- B. Maintain and protect existing utilities in the work area.
- C. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
- D. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.
- E. Protect above and below grade utilities which are to remain.
- F. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with approved granular material and compact to density equal to or greater than requirements for subsequent backfill material.
- G. Cut pavement using a saw or other appropriate methods to provide a uniform edge and to minimize damage to remaining pavement. Do not use removed pavement as fill.

8.3 EXCAVATION

- A. Excavate subsoil required for storm sewers, sanitary sewers and water piping utilities.
- B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.
- C. Excavation shall not interfere with normal 45 degree bearing splay of foundations.
- D. Hand trim excavation if required for utility installation.
- E. Remove lumped subsoil, boulders, or rock measured by volume up to 2 cubic yards.
- F. Correct unauthorized excavation at no cost to Owner.
- G. Correct areas over-excavated by error in accordance with Section - Backfilling.
- H. Stockpile excavated material in area designated onsite and remove excess material not being used from site.

8.4 BEDDING

- A. Support pipe and conduit during placement and compaction of bedding fill.
- B. Do not compact crushed stone using mechanical methods.

8.5 BACKFILLING

- A. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- B. Granular Fill: Place and compact materials in continuous layers not exceeding 6 inches compacted depth.
- C. Soil Fill: Place and compact material in continuous layers not exceeding 8 inches compacted depth.
- D. Employ a placement method that does not disturb or damage pipe in trench.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Remove surplus fill materials from site.
- G. Leave fill material stockpile areas completely free of excess fill materials.

8.6 TOLERANCES

- A. Top Surface of Backfilling: Under paved areas plus or minus 1/2 inch from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

8.7 FIELD QUALITY CONTROL

- A. Field testing will be performed under provisions of Section – Quality Control.
- B. Tests and analysis of fill material will be performed in accordance with ANSI.ASTM D698 and Section – Quality Control.
- C. Compaction testing will be performed in accordance with ANSI/ASTM D698 and Section – Quality Control.
- D. If tests indicate Work does not meet specified requirements, remove Work, replace, compact and retest at no cost to Owner.

8.8 PROTECTION OF FINISHED WORK

- A. Maintain and protect new Work.

PART 9 – MEASUREMENT AND PAYMENT

- A. Incidental to items: 5, 6, and 7.

END OF SECTION

BACKFILLING

PART 10 - GENERAL

10.1 SUMMARY

- A. Section includes site filling, backfilling, fill aggregate subbase and aggregate base under paving; consolidation and compaction; fill for over-excavation.
- B. Related Sections:
 - 1. Grading
 - 2. Excavation
 - 3. Trenching
 - 4. Rock Removal
 - 5. Sanitary Sewer Structures
 - 6. Storm Drainage Structures

10.2 REFERENCES

- A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Course Aggregates.
- B. ANSI/ASTM D698 - Test method for Moisture Density Relations of Soils and Soil Aggregate Mixtures using 5 lb. Rammer and 12-inch Drop.
- C. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ASTM D2922 - Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).
- E. ASTM D2487 - Classification of Soils for Engineering Purposes.
- F. ASTM 4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- G. ASTM D1140 - Test Method For Amount of Material in Soils Finer than the No. 200 (75 - μ m sieve).

PART 11 - PRODUCTS

11.1 SUITABLE FILL AND BACKFILL MATERIAL REQUIREMENT

- A. General: Fill, backfill, and embankment materials shall be suitable selected or processed clean, fine earth, rock or sand, free from grass, roots, brush or other vegetation.

- B. Fill and backfill to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of earth materials having a maximum dimension no larger than 3 inches for structures and 1 inch for tape-coated pipe or PVC pipe.
- C. Suitable Materials: Soils not classified as unsuitable as defined in paragraph entitled "Unsuitable Material" herein, are defined as suitable material and may be used in fills, backfilling, and embankment construction subject to approval by Engineer, some of the material listed as unsuitable may be used when thoroughly mixed with suitable material to form a stable composite.
- D. Suitable materials may be obtained from on-site excavations, may be processed on-site materials, or may be imported. If imported materials are required to meet the requirements of this section or to meet the quantity requirements of the project, the Contractor shall provide the imported materials at no additional expense to the Owner unless a unit price item is included for imported materials in the bidding schedule.
- E. The following types of suitable materials are designated and defined as follows:
 - 1. COMMON BORROW
 - a. Common borrow shall consist of earth, suitable for embankment construction. It shall be free from frozen material, perishable rubbish, peat and other unsuitable material.
 - b. The moisture content shall be sufficient to provide the required compaction and stable embankment. In no case shall the moisture content exceed 4 percent above optimum.
 - b. The optimum moisture content shall be determined in accordance with ASTM D698.
 - 2. CRUSHED STONE
 - a. Crushed stone shall be durable crushed rock consisting of the angular fragments obtained by breaking and crushing solid or shattered natural rock and reasonably free from thin, flat, elongated, or other objectionable pieces. The crushed stone shall be reasonably free from sand, clay, loam, chemical decay, or deleterious materials and not more than one percent of material passing a No. 200 sieve will be allowed to adhere to the crushed stone. The crushed stone shall be uniformly blended according to the grading requirements listed in the following tables.

3/4 Inch Crushed Stone:

<u>Sieve Size</u>	<u>Weight Passing (%)</u>
1"	100
3/4"	95-100

1/2"	35-70
3/8"	0-25

3. SAND

- a. Sand shall be well-graded, coarse sand without excessive fines and free from loam, clay, and organic matter. Beach sand shall not be used. The grading requirements are as follows:

<u>Sieve Size</u>	<u>Weight Passing (%)</u>
3/8"	100
No. 4	95-100
No. 16	50-85
No. 50	10-30
No. 100	2-10

4. AGGREGATE SUBBASE

- a. Aggregate subbase shall be sand or gravel consisting of hard durable particles, which are free from vegetable matter, lumps, or balls of clay, and other deleterious substances. The gradation of the portion which will pass a 3-inch sieve shall meet the grading requirements of the following table:

<u>Sieve Size</u>	<u>Weight Passing (%)</u>
1/4"	25-70
No. 40	0-30
No. 200	0-7

- b. Granular subbase and gravel subbase shall not contain particles of rock, which will not pass the 6-inch square mesh sieve.
- c. Gradation tests shall conform to ASTM C136 except that the material may be separated on the 1/2-inch sieve.

5. AGGREGATE BASE

- a. Aggregate Base shall be screened or crushed gravel consisting of hard durable particles, which are free from vegetable matter, lumps or balls of clay, and other deleterious substances. The gradation of the part that passes a 3-inch sieve shall meet the grading requirements of the following table.

<u>Sieve Size</u>	<u>Weight Passing (%)</u>	
	<u>Screened</u>	<u>Crushed</u>
1/2"	35-75	45-70
1/4"	25-60	30-55

No. 40	0-25	0-20
No. 200	0-6	0-6

- b. Screened gravel base shall not contain particles or rock, which will not pass the 4-inch square mesh sieve. Crushed gravel base shall not contain particles or rock, which will not pass the 2-inch mesh sieve.

6. STRUCTURAL FILL

- a. Structural fill shall consist of a relatively free draining soil meeting the following gradation.

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
4"	100
3"	90-100
1/4"	25-90
#40	0-30
#200	0-7

7. REFILL MATERIAL

- a. Refill material for replacement of unsuitable material or rock excavation below grade shall be aggregate subbase material or crushed stone of 3/4 inch maximum size, free from silt, loam, and clay.

8. TILL MATERIAL

- a. Till material used for sewer trench check dams shall be a well-graded mixture of clay, silt, sand, and gravel with 25 to 45 percent of the material, by weight, passing the No. 200 sieve.

9. SELECT FILL

- a. Select fill shall consist of well graded granular material free of organic material and having no rocks with a maximum dimension greater than 4 inches and meeting the following gradation requirements, except where it is used for pipe bedding, in which case the maximum size shall be 2 inches.

<u>Sieve Size</u>	<u>Weight Passing (%)</u>
4"	100
3"	90-100
1/4"	25-90
#40	0-30
#200	0-6

10. BEDDING MATERIAL

- a. Where any of the above material is used for bedding materials, it shall further meet the following additional criteria. Bedding material shall be so graded that 100% will pass a one (1) inch screen and not more than 10% will pass a 200-mesh sieve. Gradation test results of the bedding material shall be submitted to the Engineer for approval. In the event abnormally unstable or wet conditions are encountered, bedding material shall be crushed stone, if directed by the Engineer. The following schedule gives bedding requirements for various types of pipe.

PVC, HDPE, Culverts 6" Minimum 3/4" Crushed Stone

11. FLOWABLE FILL

- a. Strength = 500 psi.

11.2 UNSUITABLE MATERIAL

- A. Unsuitable soils for fill and backfill material shall include soils which, when classified under the standard method for "Classification of Soils for Engineering Purposes" (ASTM D2487), fall in the classification of Pt, OH, CH, MH, or OL.
- B. In addition, any soil containing organic matter, having a plastic limit of less than 8 percent when tested in accordance with the requirements of ASTM D4318 and containing more than 25 percent of material, by weight, passing the No. 200 sieve when analyzed according to the requirements of ANSI/ASTM D1140, or any solid which cannot be compacted sufficiently to achieve the percentage of maximum density specified for the intended use, shall be classed as unsuitable material.

11.3 SUBMITALS

- A. Contractor shall submit testing in accordance with Submittals.

PART 12 - EXECUTION

12.1 EXAMINATION

- A. Verify fill materials to be reused are acceptable.

12.2 PREPARATION

- A. Scarify and recompact subgrade to density required for subsequent backfill materials.

- B. Cut out soft areas of subgrade not capable of insitu compaction. Backfill with an approved granular material and compact to a density equal to or greater than requirements for subsequent backfill material.
- C. Prior to placement of aggregate subbase course material in paved areas, compact subsoil to 95 percent of its maximum dry density in accordance with ANSI/ASTM D698.
- D. Prior to placement of backfill against foundation walls required to have structural bracing, install bracing in accordance with approved bracing scheme.

12.3 BACKFILLING

- A. Use suitable materials from excavations which conform to the requirements herein or are approved by the Engineer for backfill up to rough grade lines except where these specifications have more stringent or special requirements for certain parts of the contract work. Supply extra fill if there is not enough fill to complete the project. Use no material from any excavation as backfill unless approved by the Engineer.
- B. Material within two feet of top of roadway gravel in any areas to be paved or within five feet horizontally of any structure shall contain no stone having any dimension exceeding six inches. Excess and unsuitable excavated materials shall be removed from the site and satisfactorily disposed of. In the event sufficient suitable excavated material is not available for backfill, supply a granular backfill.
- C. Place materials in layers of thicknesses specified herein but in no case greater than 12 inches before compaction. Wet backfill when necessary, uniformly to obtain required density. Compact each layer with vibratory compactors before placing next layer.
- D. In cross-country runs, trenches shall be backfilled and mounded six inches above surrounding grade in addition to the normal compaction procedure.
- E. In street work, backfill above the stone to a depth of 24 inches below bottom of roadway gravel, placed in 12-inch layers and then compacted to required densities. Roadway gravel will be placed in 6-inch layers of base or subbase as specified and then compacted to required densities.
- F. In backfilling around structures, place material in 8-inch layers and then compact to required densities. Allow no heavy machinery within 5 feet of structure during placement. Place no material until structure can withstand the load. Place temporary backfill where required and remove when no longer required. Bring backfill up evenly on all sides of the structure.

- G. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- H. Maintain moisture content within 2 percent, plus or minus, of optimum moisture content of backfill materials to attain required compaction density.

12.4 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Quality Control.
- B. Tests and analysis of fill material will be performed in accordance with ANSI/ASTM D698 and Quality Control.
- C. Compaction testing will be performed in accordance with ANSI/ASTM D698 and Quality Control.
- D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.
- E. Frequency of Tests: Compaction Tests
 - 1. Trench - 1 test every 300 feet varying lifts.
 - 2. Site work - 1 test every 5,000 SF, each list.
 - 3. Underneath Structures - 1 per 1,000 SF per lift.
- F. Proof roll compacted fill surfaces under paving.
- G. Minimum densities following compaction shall be as follows:

<u>Fill and Backfill Location</u>	<u>Standard Proctor Density %</u>
Top 2 feet under pavement	95
Under or within 5 feet of structures	95
Fill for Erosion Repair Areas	92
Under pavements below top 2 feet	90
Trenches through unpaved areas	90
In embankment (including temporary)	90
Pipe bedding and trenching	90

- H. Compaction shall be accompanied by appropriate methods, i.e., vibratory compaction of granular materials, sheepsfoot compaction of cohesive materials, etc. In no case shall trench compaction be deemed adequate with the use of a non-compactive device such as a bulldozer or excavator bucket.

12.5 PROTECTION OF FINISHED WORK

- A. Protect and maintain finished Work as necessary.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

4.2 SCHEDULE OF PAYMENT ITEMS

- A. Backfilling Incidental to items: 5, 6, and 7.

END OF SECTION

PAVEMENT & SURFACE RESTORATION

PART 1 – GENERAL

1.1 Scope

Provide all labor, materials, equipment, operations, methods and procedures as specifically noted in these specifications and as indicated on the Drawings, together with all items necessary for or incidental to the completion of pavement and surface restoration in all areas disturbed by construction.

Paving shall be done in accordance with local and DOT paving specifications. All paving shall be approved by The Bangor Water District & City of Bangor. Contractor is required to obtain the necessary street opening permit from the City of Bangor.

The Contractor shall be responsible for all conditions set forth under the MDOT specifications. All roads must be satisfactorily paved before winter shutdown. The Contractor shall be responsible for maintaining any paving done through project duration, especially during winter shutdown.

Existing pavement in the project area consists of approximately 6-inches of asphalt over approximately 8-inches of concrete. Pavement shall be saw cut to the full depth and carefully excavated to provide smooth, straight trench sidewalls.

Pay limits for trench paving shall be as noted in Section 01015 – Measurement and Payment.

1.2 References

A. Maine Department of Transportation Standard Specifications Highways and Bridges, latest edition and supplementals thereof.

1.3 Quality Assurance

- A. Perform Work in accordance with Maine Department of Transportation Standard Specification - Highway and Bridges.
- B. Mixing Plant: Conform to State of Maine Department of Transportation Standards.
- C. Obtain materials from same source throughout.

1.4 Environmental Requirements

- A. Do not place asphalt when base surface temperature is less than 40-degrees F, or surface is wet or frozen.
- B. Apply bituminous prime and tack coats only when the ambient temperature in the shade is at least 50 degrees F for 12 hours immediately prior to application.
- C. Do not apply when the base surface is wet or contains an excess of moisture, which would prevent uniform distribution and the required penetration.
- D. Conform to applicable standards for paving work.

PART 2 - PRODUCTS

2.1 Bituminous Concrete Base Course

- A. MDOT Specification, Section 401.
- B. 3/4" (19mm) H.M.A., Binder.

2.2 Bituminous Tack Coat

- A. MDOT Specification, Section 409.
- B. Type MS-2, Emulsified Asphalt, Mixing.

2.3 Bituminous Concrete Surface Course

- A. MDOT Specification, Section 401.
- B. 1/2" (12.5 mm) H.M.A., Surface.

2.4 Accessories

Tack Coat: Homogeneous, medium curing, liquid asphalt, in accordance with Maine Department of Transportation Specifications.

2.5 Concrete Pavement

Concrete shall be a 1,500 PSI mix with a W:C ratio of approximately 1:1

PART 3 – EXECUTION

3.1 Bituminous Concrete Base Course

A MDOT Specification, Section 401.

3.2 Bituminous Tack Coat

A. Apply emulsified asphalt tack coat to curbing, gutters, manholes, pavement, etc., if required by Engineer to promote adequate bond. Generally, a tack coat will not be required for pavement placed immediately following the rolling of the underlying course.

B. Apply at a rate of 0.03 to 0.05 gallons/square yard; excess coating and/or fat spots will not be permitted.

3.3 Paving Schedules

Place compacted gravel below the following in accordance with details:

Temporary Surface Restoration in roadways where concrete is present:

Fill trench to surface grade with 1500 psi concrete. Concrete shall be placed prior to the end of each work week (Friday), the day before an observed legal holiday, or as otherwise directed by the Engineer.

Temporary Surface Restoration in roadways where no concrete is present:

Two inches (2") thick minimum of 12.5 MM, compacted. Temporary pavement shall be placed prior to the end of each work week (Friday), the day before an observed legal holiday, or as otherwise directed by the Engineer.

Permanent Surface Restoration in roadway trenches in areas where concrete is present:

8" thick layer of 1,500 PSI concrete

4" thick layer of HMA, compacted in three lifts, as follows: 2" of 12.5 MM HMA Binder course over

2" of 12.5 MM HMA Base course

Permanent Surface Restoration in roadway trenches in areas where no concrete is present:

6" thickness HMA, compacted in three lifts, as follows: 2" of 12.5 MM HMA wearing course over 2" of 12.5 MM HMA Binder course over 2" 19 MM HMA Base course

Permanent Surface Restoration in sidewalks:

2" thickness of 12.5 MM HMA, compacted

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

4.2 SCHEDULE OF PAYMENT ITEMS

Bid Item 9: Hot Mix Asphalt 12.5 MM Pavement

- a. Payment: Per Ton of hot mix asphalt installed.
- b. Measurement: Number of tons of hot mix asphalt installed. Contractor to provide truck slips to the owner at the end of each working day.
- c. Includes: Furnishing all materials, equipment and labor necessary to place, grade and compact hot mix asphalt.

Bid Item 10: Hot Mix Asphalt 19 MM Pavement

- a. Payment: Per Ton of hot mix asphalt installed.
- b. Measurement: Number of tons of hot mix asphalt installed. Contractor to provide truck slips to the owner at the end of each working day.
- c. Includes: Furnishing all materials, equipment and labor necessary to place, grade and compact hot mix asphalt.

END OF SECTION

SANITARY SEWER AND STORM DRAIN SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sanitary and Storm Sewer Piping.
- B. Laterals and connection to existing lateral piping.
- C. Fittings
- D. Cleanouts
- E. Testing
- F. Abandoning Existing Sewer Mains in Place

1.2 RELATED SECTIONS

- A. Excavation
- B. Sanitary and Storm Sewer Systems

1.3 REFERENCE STANDARDS

- A. ANSI/ASTM D3034 and/or ASTM F2736, ASTM F2764 - Sewer Pipe and Fittings.
- B. ASTM D3212 and/or ASTM F2736, ASTM F2764 - Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- C. ASTM 477 – Standard Specifications for Elastomeric Seals for joining plastic pipe.

1.4 SUBMITTALS

- A. Product data for pipe, pipe accessories including documentation that products comply with specification requirements.
- B. Manufacturer's recommendations and instructions for installation.

1.5 PROJECT RECORD DOCUMENTS

- 1. Documents for requirements of Contract Closeout including, but not limited to, warranties, testing, adjusting, spare parts, etc.
- 2. Accurately record location of pipe runs, connections, structures, and invert elevations.
- 3. Field measurements for locating ends of unconnected service laterals.
- 4. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver products on manufacturer's original skids, or in original unopened protective packaging.
- B. Store materials to prevent physical damage.
- C. Protect material during transportation and installation to avoid physical damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. PVC Pipe - John Mansville, Extrusion Technologies, Inc. or approved equal.
- B. Gravity Couplings - MaxAdaptor, or manufacturer's recommendation, or approved equal.
- C. RCP – Old Castle Precast, or approved equal.
- D. HDPE Pipe - Hancor, ADS or approved equal.

2.2 GRAVITY SEWER PIPE MATERIALS

- A. Polyvinyl Chloride (PVC) Non-pressure Sewer Pipe, conforming to ASTM Specification D3034.
 - 1. Class: SDR 35.
 - 2. Joints: Flexible Elastomeric Seals conforming to ASTM Specifications D3212.
 - a. All joints to be an integral part of pipe bell.
 - 3. Polyvinyl Chloride Resin Compound: Conforming to ASTM 1784.
 - 4. Rubber gaskets for use with PVC pipe; ASTM D1869, all joints to be an integral part of pipe bell.
 - 5. Elastomeric polyvinyl chloride fittings and reducers with stainless steel straps; meeting the requirements of ASTM C443, C425, C564, and D1869.
- B. Reinforced Concrete (RCP) Non-pressure Sewer Pipe, conforming to ASTM Specification C-76, ASTM C-443, AASHTO M170.
 - 1. Wall thickness: 5.5"
 - 2. Joints: seamless watertight construction, interconnecting.

2.3 STORM DRAIN PIPE MATERIALS

- A. High Density Polyethylene (HDPE) Non-pressure drainage pipe, conforming to ASTM Specification D3350.
 - 1. Class: HDPE (Smoothbore)
 - 2. Design: SICPE (Smooth Interior Corrugated Polyethylene Pipe).
 - 3. Joints: Pipe shall consist of a bell and spigot joint conforming to ASTM Specifications AASHTO M252 Type S, AASHTO M294 Type S. Joints shall be silt tight.
 - 4. Gaskets: Gaskets shall meet ASTM F477, and be an integral part of the pipe bell.
- B. High Density Polyethylene (HDPE) Non-pressure drainage pipe, conforming to Maine Department of Transportation Standard Specifications, November 2014

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Excavate test pits as necessary to verify locations and grades of existing utilities prior to beginning installation of sanitary sewer system.
- B. Verify that trench cut is ready to receive work, and excavations, locations, dimensions and elevations are as indicated on Drawings.
- C. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

- A. Hand trim excavations to required elevations. Correct over excavation with 3/4" crushed stone.
- B. Remove large stones, debris, or other hard matter which could damage pipes or impede consistent bedding, backfilling or compaction.

3.3 GRAVITY PIPE INSTALLATION

- A. Install pipes, fittings and accessories according to manufacturer's instructions.
- B. Place pipe on bedding in accordance with Section - Backfilling.
- C. Lay pipe to alignment, slope gradient and elevations noted on Drawings.
- D. Joints and joint material conforming to manufacturer's recommendations.

- E. Lay pipe without break, upgrade with bell end upstream.
- F. Install bedding at bottom, sides, and over top of pipe, to depths shown on Drawings.
- G. Install and bed pipe up to spring line; do not cover pipe without the presence of the Owner's representative.
 - 1. Work backfilled without presence of Engineer shall be uncovered at Contractor's expense.
- H. Manually "chink" bedding around pipe haunches for lateral support.
 - 1. Do not mechanically compact crushed stone over flexible pipe.
- I. Cover pipe with bedding to depth shown on drawings.
- J. Place excavated material or select granular backfill over pipe, as directed by Engineer.
 - 1. Place material in maximum 12-inch lifts.
 - 2. Increase compaction of each successive lift.
 - 3. Do not displace or damage pipe during compaction.
- K. Backfill and secure each pipe length prior to installing next length.
- L. Continue backfill placement to finish grade level.
- M. Protect pipes against impact shocks and free falls.
 - 1. Remove and replace damaged pipe.
 - 2. Place and tamper sufficient bedding material over and around pipe to prevent damage and movement.
- N. Install a water tight plug in open pipe ends when pipe laying not in progress.

3.4 SERVICE LATERALS

- A. Maintain sewer service laterals to buildings connected to existing sewer at all times during conduct of Work, unless otherwise instructed by Engineer.
 - 1. Make all necessary arrangements with property owners to assure no unnecessary disturbance or inconvenience of service resulting from Work.
- B. New sewer service laterals to consists of: wye, inserta-tee or approved equal where applicable, appropriate adapters, and sufficient pipe length to connect existing building laterals to new sewer.

1. New piping to extend from sewer main to existing sewer service as shown on the plans, or as directed by the Engineer.
 2. Location of existing service laterals shown on plans are approximate. Contractor responsible for field verification of actual lateral locations.
- C. Prior to connecting new lateral pipe to existing services notify Engineer.
1. Engineer to visually inspect condition of existing pipes.
 2. Engineer may stop construction on connections to dye test each service if existing pipe integrity or source is questionable.
- D. Cap, mark with witness stake, and take tie measurements to any service laterals not immediately connected to an existing pipe.

3.5 FIELD QUALITY CONTROL

- A. Examine pipes for defects, weak structural components, and deviations within allowable tolerances.
- B. Remove rejected materials from job site.
- C. Obtain Engineer Certification and installation conformance to specifications prior to backfilling.
- D. Install pipe to lines and grades shown on contract Drawings.
- E. Allowable Tolerances:
1. Pipe elevation: +/- 0.02 feet/100 feet.
 2. Horizontal layout: +/- 0.03 feet/100 feet.

3.6 PIPE LEAKAGE TESTING

- A. General
2. Test all lines after backfilling.
 3. Lines to meet infiltration limit of 100 gallons/day/inch/mile.
 - a. Limit inferred by air exfiltration test.
- B. Low Pressure Air Test
1. Perform test according to stated procedures in presence of Engineer.
 2. Equipment used, a minimum:
 - a. Pneumatic plugs with sealing length greater than or equal to pipe diameter.

- b. Plugs to resist test pressures requiring no external bracing.
 - c. Air used passing through single control panel.
 - d. Use three (3) individual hoses for following connections:
 - 1) From control panel to pneumatic plugs for inflation.
 - 2) From control panel to sealed line for introducing pressure air.
- 3. From sealed line to control panel for continually monitoring air pressure rise in sealed line.
- 4. Seal test plugs prior to actual test as follows:
 - a. Seal both ends of a length of pipe laid on ground.
 - b. Introduce air to plugs to 30 psig.
 - c. Pressurize pipe to 5 psig.
 - d. Plugs must hold without movement to pass.
- 5. Areas of known groundwater:
 - a. Install 1/2 inch diameter capped pipe nipple, 10-inches long, through manhole wall above an inlet line.
 - b. Prior to performing air test determine groundwater level as follows:
 - 1) Remove nipple cap.
 - 2) Blow air through nipple to clear.
 - 3) Connect clear plastic tube to nipple.
 - 4) Hold hose vertically and measure height of water.
 - 5) Divide height by 2.3 to obtain groundwater back pressure in psig.
- 6. After backfilling manhole to manhole segment:
 - a. After the sewer pipe has been cleaned and the pneumatic plugs checked, place the plugs in the sewer line at each manhole and inflate them.
 - b. Introduce low pressure air into the sealed sewer pipeline until the air pressure reaches 4 psig greater than the average groundwater pressure.
 - c. Allow a minimum of 2 minutes for the air pressure to stabilize to a minimum of 3.5 psig greater than the groundwater pressure. Groundwater is assumed to be at ground surface unless the Contractor can prove by otherwise by test pitting.
 - d. After the stabilization period, disconnect the air hose from the control panel to the air supply.

- e. The pipeline will be acceptable if the pressure decrease is not greater than 1/2 psig in the time stated in the following table for the length of pipe being tested:

<u>Pipe Diameter</u> <u>(inches)</u>	<u>Time (Min.) for Length of Pipe</u>			
	<u>0-100 ft</u>	<u>101-200 ft</u>	<u>201-300 ft</u>	<u>301-400 ft</u>
4	2.0	2.0	2.0	2.0
6	3.0	3.0	3.0	3.0
8	4.0	4.0	4.0	5.0
10	5.0	5.0	6.0	8.0
12	5.5	5.5	8.5	11.5
15	7.0	8.5	13.0	17.0
18	8.5	12.0	19.0	25.0
21	10.0	17.5	26.0	35.0
24	11.5	23.0	34.0	45.5
27 and larger	(not recommended)			

7. If pipe segment fails air test:
 - a. Perform necessary work to meet these requirements.
8. Provide, as necessary, proper plugs, weirs and necessary equipment to perform tests.
9. Testing of pipe sections to include service connection portions installed under this Contract.
10. Provide, as necessary, equipment to bypass flow around test segments.
 - a. Maintain service to services temporarily disconnected, capped or plugged for test.
11. Test each day's work.
 - a. Pipe laying may be stopped by Engineer if testing procedures or results are unacceptable.

3.7 VIDEO INSPECTION

A. General: Contractor shall contact City of Bangor Sewer Maintenance Department when the main has been completed to schedule CCTV inspection of new mains.

B. Any defects found during the video inspection shall be repaired to the satisfaction of the Engineer. The cost shall be incidental to the project.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

4.2 SCHEDULE OF PAYMENT ITEMS

Bid Item 5: 12" Ø HDPE Storm drain pipe

- a. Payment: Linear Foot price as stated in Proposal.
- b. Measurement: Number of linear feet of 12" Ø HDPE Storm drain pipe installed.
- c. Includes: Furnishing all materials, equipment and labor necessary to install all piping, and fittings, as specified.

Bid Item 6: 12" Ø HDPE underdrain pipe

- a. Payment: Linear Foot price as stated in Proposal.
- b. Measurement: Number of linear feet of 12" Ø HDPE Storm drain pipe installed.
- c. Includes: Furnishing all materials, equipment and labor necessary to install all piping, and fittings, as specified.

Bid Item 7: 4' Ø Catch Basin

- a. Payment: Price per each as stated in Proposal.
- b. Measurement: Number of 4' Ø Catch Basins installed.
- c. Includes: Furnishing all materials, equipment and labor necessary to install the structure to the required grade, testing, and all piping, fittings, and supports within

the structure as specified to form a complete unit, and frame and cover.

END OF SECTION

**Request for Bids
Montgomery Street Storm Drain Upgrades**

Appendix D: Civil Drawings