

CITY OF GREENFIELD *Department of Public Works*

CONTRACT DPW 24-07

Sewer & Drain Lining and Sewer Manhole Lining Various Locations

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ADVERTISEMENT FOR BIDDERS DEPARTMENT OF PUBLIC WORKS 189 Wells Street Greenfield, MA 01301

Sealed Proposals addressed to the Department of Public Works, 189 Wells Street, Greenfield, Massachusetts and endorsed "Proposal for Contract DPW 24-07, Sewer & Drain Lining and SMH Lining" will be accepted by the Department of Public Works in the DPW Administration Building adjacent to the DPW Yard. Bids will be accepted until 2:00 p.m. on August 31, 2023, at which time said bids will be publicly opened and read aloud in the Administration Building Meeting Room.

The work includes cured-in-place lining (inversion method) of approximately 11,318 linear feet of gravity sewer and drain ranging in size from 15, 12, 10, 8, and 6-inch pipe at various locations; sewer manhole lining of approximately 150 vertical feet; sewer manhole chimney sealing; and the following related work: cleaning, root control, cutting protruding service connections, reconnecting lateral service connections, sealing and testing lateral service connections, connecting liner to existing manholes, and CCTV inspection.

The Engineer's opinion of probable cost is \$725,000.

Bidding Documents will be emailed upon request by contacting <u>alan.twarog@greenfield-ma.gov</u> or by downloading them from the City's Procurement Department's webpage at <u>https://greenfield-ma.gov/departments/procurement/current_bid_opportunities.php</u>. Bidding Documents will be available starting August 16, 2023.

The Bid Security from the Contractor in the form of cash, certified check, treasurer's check, or cashier's check, drawn upon a responsible bank in the Commonwealth of Massachusetts or a bid bond in the amount of five percent (5%) of the bid shall be made payable to the City of Greenfield, Massachusetts and shall be enclosed with the bid.

A 100% Performance Bond and 100% Payment Bond will be required of the successful bidder.

Attention is called to the following:

- A. Bids for this project are subject to the provisions of the Massachusetts General Laws Chapter 30, Section 39M, as amended.
- B. Wages are subject to Massachusetts minimum wage rates as per M.G.L. Chapter 149, Section 26 to 27H inclusive.
- C. The successful bidder must comply with Chapter 151B as amended, of the Massachusetts General Laws and with the provisions of Executive Order No. 74, as amended by Executive Order No. 116 dated May 1, 1975 pertaining to Equal Opportunity Anti-Discrimination and Affirmative Action.

The responsible and eligible bidder offering the lowest price shall be awarded the project, subject to the availability of funding. The City of Greenfield reserves the right to reject any or all bids or to waive any informalities in the bidding.

The Contract/Bid/Proposal awarding authority is:

City of Greenfield Department of Public Works Greenfield, Massachusetts

INFORMATION FOR BIDDERS

INFORMATION FOR BIDDERS

1.1 Location and work to be done.

The work herein specified to be done (herein sometimes referred to as the "Work") consists of cured-in-place lining (inversion method) of approximately 11,318 linear feet of gravity sewer and drain ranging in size from 15, 12, 10, 8, and 6-inch pipe at various locations; sewer manhole lining of approximately 150 vertical feet; sewer manhole chimney sealing; and the following related work: cleaning, root control, cutting protruding service connections, reconnecting lateral service connections, sealing and testing lateral service connections, connecting liner to existing manholes, and CCTV inspection.

The Contractor shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, and all other items necessary to do all the work required for the completion of the Work, as specified.

The Work to be done and paid for shall not be limited to the extent mentioned or described, but shall include all incidental work necessary or customarily done for the completion of the work.

1.2 **Questions Regarding Drawings and Documents.** In general, no answers will be given to prospective bidders in reply to an oral question if the question involves an interpretation of the intent or meaning of the Drawings or other Contract Documents, or the equality or use of products or methods other than those designated or described on the drawings or in the specifications. Any information given to bidders other than by means of the Drawings and other Contract Documents, including Addenda, as described below, is given informally, for information and the convenience of the bidder only and is not guaranteed. The bidder agrees that such information shall not be used as the basis of nor shall the giving of any such information entitle the bidder to assert any claim or demand against the Owner or the engineer on account thereof.

To receive consideration, such questions shall be submitted in writing to the City at least 7 days before the established date for receipt of bids. If the question involves the equality or use of products or methods it must be accompanied by drawings, specifications or other data in sufficient detail to enable the City to determine the equality or suitability of the product or method. In general, the City will neither approve nor disapprove particular products prior to the opening of Bids; such products will be considered when offered by the Contractor for incorporation into the Work.

The City will set forth as Addenda, which shall become a part of the Contract Documents, such questions received as above provided as in its sole judgment are appropriate or necessary and its decision regarding each. At least three days prior to the receipt of Bids, the Awarding Authority will send a copy of these Addenda to those prospective bidders known to have taken out sets of the Drawings and other Contract Documents.

The Contractor agrees to use the products and methods designated or described in the Specifications as amended by the Addenda.

1.3 **<u>Bidders to Investigate.</u>** Bidders are required to submit their Bids upon the following express conditions which shall apply to and be deemed a part of every Bid received, viz:

Bidders must satisfy themselves by personal examinations of the site of the work and by such other means as they may wish, as to the actual conditions there existing, the character and requirements of the Work, the difficulties attendant upon its execution, and the accuracy of all estimated quantities stated in the Bid.

1.4 **Information not Guaranteed.** All information given on the Drawings or in the Contract Documents relating to sub-surface and other conditions, natural phenomena, existing pipes and other structures is from the best sources at present available to the City. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

It is agreed and understood that the City does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes or other structures encountered during construction, will be the same as those indicated on the Drawings or in the other Contract Documents.

It is agreed further and understood that no bidder or contractor shall use or be entitled to use any of the information made available to it or obtained in any examination made by it in any manner as a basis of or ground for any claim or demand against the City, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise by expressly provided for in the Contract Documents.

1.5 <u>Submitting Bids.</u> All Bids must be upon the blank form for Bid annexed hereto, state the proposed price of each item of the Work, both in words and in figures, and be signed by the Bidder with its business address and place of residence. The Bid Security shall be enclosed with the Bid. In the event of a conflict in the bid amount, words shall govern.

Each bid shall be submitted to the City in a sealed envelope. On the outside of the envelope shall be written the bidder's name and address and the name of and description of the project for which the Bid is submitted.

If forwarded by mail, the sealed envelope containing the Bid and marked as directed above, must be enclosed in another envelope addressed to the City.

- 1.6 <u>**Time for Completion.**</u> The successful bidder will be required to substantially complete the Work by April 1, 2024.
- 1.7 **<u>Withdrawal of Bids.</u>** Except as hereinafter in this subsection otherwise expressly

provided, once its Bid is submitted and received by the City for consideration and comparison with other bid similarly submitted, the bidder agrees that it may not and will not withdraw it within 40 (forty) consecutive calendar days after the actual date of the opening of Bids.

Upon proper written request and identifications, Bids may be withdrawn as follows:

- 1. At any time prior to the designated time for the opening of Bids.
- 2. Provided the Bid has not therefore been accepted by the City at any time subsequent to the expiration of the period during which the bidder has agreed not to withdraw its Bid. Unless a Bid is withdrawn as provided above, the Bidder agrees that it shall be deemed open for acceptance until the City notifies a Bidder in writing that its Bid is rejected or that the City does not intend to accept it. Notice of acceptance of a Bid shall not constitute rejection of any Bid.
- 1.8 <u>Ability and Experience of Bidder.</u> No award will be made to any Bidder who cannot satisfy the City that it has sufficient ability and experience in this class of work and sufficient capital and plant to enable said firm to prosecute and complete the Work successfully within the time established for the project. The City decision or judgment on these matters shall be final, conclusive, and binding.

The Bidder is to submit a list of comparable projects completed within the past five (5) years with contact information, minimum of three (3) required.

The City may make such investigations as it deems necessary, and the Bidder shall furnish to the City, under oath if so required, all such information, and data for this purpose as the City may request.

- 1.9 <u>Bids.</u> The City may reject Bids which in its sole judgment are either incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities, or the City may waive such omissions, conditions or irregularities.
- 1.10 **<u>Right to Reject Bids.</u>** The City reserves the right to reject any or all Bids, or alternative Bid Items should the City deem it to be in the public interest to do so.
- 1.11 **Execution of Agreement.** The Bidder whose bid is accepted will be required and agrees to duly execute the AGREEMENT, after notification that the AGREEMENT is ready for signature, within 10 calendar days. All required documentation shall accompany the signed contract including but not limited to certificates of insurance, payment and performance bonds, debarment statement, contractor and subcontractor certifications and OSHA training certifications.

1.12 **Insurance Certificates.** The Contractor will not be permitted to start any construction work until it has submitted certificates covering all insurance called for, and has obtained approval in writing of such certificates from the City.

Before starting, and until completion of the guarantee period, the Contractor shall procure, deposit, and maintain with the City, insurance satisfactory to the City as follows:

- A. Workmen's Compensation and Employer's Liability Insurance as required by the Workmen's Compensation Laws of the Commonwealth of Massachusetts.
- B. Comprehensive Commercial Liability Insurance covering Bodily Injury and Property Damage (Broad Form) as follows:

Limits of Liability*	\$1,000,000 each occurrence
	\$2,000,000 aggregate

* or \$1,000,000 single limit combined Bodily Injury and Property Damage.

The Comprehensive Commercial Liability Policy shall provide insurance for the Contractor for Bodily Injury and Property Damage to third persons arising out of:

- 1. Work performed by the Contractor itself with its own employees, called "premises operations."
- 2. Work performed by its subcontractors, called "sublet work" or Independent Contractors (this is referred to as Contractor's Protective Liability).
- 3. The Contractor's liability assumed under this contract, called "Hold Harmless" clauses or indemnity agreement. (This is referred to as Contractual Liability Insurance).
- 4. Products liability coverage covering the completed building or installation or products furnished. (This is called Products Liability Insurance for the manufacturer and Complete Operations Liability Insurance for the Contractor).
- 5. If any work is to be performed below the surface of the ground, the coverage shall be extended to include protection against property damage caused by explosion (including blasting), collapse of structures and damage to underground pipes and utilities. (This is known as "XCU" coverage).
- C. Comprehensive Automobile Liability Insurance covering Bodily Injury and Property Damage, as follows:

Limits of Liability

Bodily Injury

\$500,000 each person \$1,000,000 each accident Property Damage

* or \$500,000 single limit combined Bodily Injury and Property Damage.

This insurance is to apply with respect to all owned or hired vehicles of the Contractor and non-ownership protection for all employees of the Contractor engaged in the performance of this contract.

D. All policies shall be so written that the City will be notified of cancellation or <u>restrictive</u> <u>amendment</u> at least 30 days prior to the effective date of such cancellation or amendment. Certificates from the insurance carrier stating the limits of liability and expiration date shall be filed in triplicate with the City before operations are begun. <u>Such certificates not</u> only shall name the types of policy provided, but also shall refer specifically to this <u>Contract* and article and the above paragraphs in accordance with which insurance is being furnished and shall state that such insurance is as required by such paragraphs of this Contract and shall be sufficiently comprehensive as to permit the owner to determine that the required insurance coverage has been provided without the necessity of examining the individual insurance policies.</u>

If the initial insurance expires prior to completion of the Work, renewal certificates shall be furnished by the date of expiration.

- * If blanket coverage is furnished, this particular Contract need not be referred to.
- E. The Contractor shall require each of its sub-contractors to procure and maintain until the completion of that sub-contractor's work, insurance of the types and to the limits specified in paragraphs A to C, inclusive, above. It shall be the responsibility of the Contractor to insure that all its sub-contractors comply with all of the insurance requirements contained herein relating to such sub-contractors.

No insurances required or furnished hereunder shall, in any way, relieve the Contractor of, or diminish any of its responsibilities, obligations and liabilities under the Contract.

1.13 <u>Comparison of Bids.</u> Bids will be compared on the basis of lump-sum or unit prices stated in the BID.

In the event that there is a discrepancy in the Bid between the lump-sum or unit prices written in words and figures, the prices written in words shall govern.

The City agrees to examine and consider each Bid submitted in consideration of the Bidder's agreements, as hereinabove set forth and as set forth in the BID.

1.14 **<u>Bid Security.</u>** The Bid Security from the contractor in the form of cash, certified check or treasurer's or cashier's check drawn upon a responsible bank in the Commonwealth of Massachusetts or a bid bond in the amount of five percent (5%) of the bid shall be made payable to the City of Greenfield, Massachusetts and shall be enclosed with the bid.

Each such check may be held by the City as security for the fulfillment the bidder's agreements as hereinabove set forth and as set forth in the BID. Should the bidder fail to fulfill such agreements, its bid check shall become the property of the City as liquidated damages; otherwise, the bid check shall be returned to the bidder as hereinafter provided.

Bid checks will be returned to all except the three lowest bidders within three days, Sundays and legal holidays excluded, after the owner and the accepted bidder have executed the AGREEMENT. In the event that the AGREEMENT has not been executed by both the accepted bidder and the owner within 40 consecutive calendar days after the opening of bids, the bid check will be returned promptly upon demand of any bidder who has not been notified of the acceptance of his bid.

None of the three lowest bids shall be deemed rejected, notwithstanding acceptance of any bid, until the AGREEMENT has been executed by both the City and the accepted bidder.

The bid deposit must be enclosed in the sealed envelope containing the bid.

- 1.15 **Disputes.** In the event of any dispute as to any of the terms and conditions of this contract, it shall be determined in accord with the laws of the Commonwealth of Massachusetts and the Courts of the Commonwealth of Massachusetts shall have exclusive jurisdiction of the same.
- 1.16 <u>Minimum Wage Rates.</u> In the employment of mechanics, teamsters, chauffeurs, and laborers in the construction of the public work projects, the Minimum Wage rates shall be paid as issued by the Commissioner of Labor and Industries of Massachusetts, in accordance with Sections 26 and 27 of Chapter 149, of the General Laws, as amended, and as included in Appendix A.
- 1.17 **Equal Employment Opportunity Anti-Discrimination and Affirmative Action.** The successful bidder must comply with Chapter 151B as amended, of the Massachusetts General Laws and with the provisions of Executive Order No. 74, as amended by Executive Order No. 116 dated May 1, 1975 pertaining to Equal Opportunity Anti-Discrimination and Affirmative Action.
- 1.18 **Notice to Proceed and Pre-Construction Conference.** A written Notice to Proceed shall be issued to the Contractor after receipt of proof of required insurance. No work shall be performed by the Contractor until it has received the Notice to Proceed.

Prior to the start of construction, the Contractor, all subcontractors, the project manager, and the owner shall attend a pre-construction conference. The conference will serve to acquaint the participants with the general plan of contract administration and requirements under which the Work is to proceed.

The date, time, and place of the conference will be furnished to the Contractor by the project manager.

1.19 **Bonds.** Performance, as well as Labor and Material Bonds are required in the full amount of the contract. Payment and Performance Bonds shall be for 100% of the contract price. The Bonding Company shall be acceptable to the Awarding Authority.

FORMS FOR BID

Bid Submission Checklist for all Bidders

- 1.
 _______ 5% Bid Bond

 2.
 ______ Proposal Form

 3.
 _______ Non-collusion/Tax Compliance Certification

 4.
 _______ Debarment Statement

 5.
 _______ Contractor's Certification

 6.
 _______ Sub-Contractor's Certification
- 7. _____ OSHA Training Certification
- 8. _____ List of projects of similar scope with contact information done within the past 5 years

Bidder's Name

PROPOSAL FORM

To the City of Greenfield, Massachusetts, (hereinafter called the "Owner") acting through its Department of Public Works, duly authorized therefore, who act solely for said City and without personal liability to themselves:

The undersigned _______, as bidder, declares that the only persons or parties interested in this bid as principals are those named herein; that the bidder has carefully examined the proposed form of Proposal and the Specifications (and amendments thereto); and he bids and agrees, if this bid is accepted, that the bidder will furnish all materials and labor necessary for the completion of the Work as specified in the Proposal, in the manner and time therein prescribed and according to the requirements of Owner as herein set forth.

The Bidder agrees that the Owner will have forty (40) consecutive days from date of opening to accept the bid, except as described in the specifications, the unit(s) at the price, therein. The Bidder also understands that the Owner reserves the right to accept or reject any or all bids and to waive any informalities in the Proposals if it is in the Owner's interest to do so. The Advertisement for Bidders, Information for Bidders, Specifications and Proposal Form attached thereto, shall become a contract upon the receipt by the Bidder of written acceptance of this bid by the Owner.

Item	Estimated	Brief Description;	Total
No.	Ouantity	Unit or lump sum price bid in both words and	Figure
		figures	0
1.	200*	Root removal, per lin. ft.,	
	lin. ft.		
		dollars	
		and cents (\$)	\$
2.		TELEVISION INSPECTION:	
2a.	11,318	Pre-Rehabilitation TV inspection, per lin. ft.,	
	lin. ft.		
		dollars	
		and cents (\$)	
			\$
2b.	11,318	Post-Rehabilitation (including guarantee	
	lin. ft.	period) TV inspection, per lin. ft.	
		dollars	
		and cents (\$)	\$

The Bidder will take in full payment, therefore, the following price(s):

3.		CLEANING:	
3a.	11,318 lin. ft.	Pre-Rehabilitation Sewer cleaning, per lin. ft.,	
		and cents (\$)	\$
3b.	11,318 lin. ft.	Post-Rehabilitation (including guarantee period) Sewer, cleaning, per lin. ft.	
		dollars and cents (\$)	\$
3c.	1,000* lin. ft.	Pre/Post-Rehabilitation Sewer heavy cleaning, per lin. ft.,	
		dollars and cents (\$)	\$
4.	5* connections	Cut protruding existing lateral service connections, per lateral service connection,	
		and cents (\$)	\$
5.	160 connections	Seal lateral service connections as specified, per lateral service connection,	
		dollars and cents (\$)	\$
6.		CURED-IN-PLACE SEWER & DRAIN PIPELINE REHABILITATION:	
ба.	571 lin. ft.	Line 15-inch VC drain between DMH 527 and DMH 1186, per lin. ft.,	
		and dollars)	\$
6b.	780 lin. ft.	Line 12-inch VC sewer, various locations, per lin. Ft.,	
		dollars	¢
		anu cents (\$)	Φ

6с.	2,854 lin. ft.	Line 10-inch VC sewer, various locations, per lin. Ft.,	
		and cents (\$)	\$
6d.	4,608 lin. ft.	Line 8-inch VC sewer, various locations, per lin. Ft.,	
		dollars and cents (\$)	\$
бе.	2,505 lin. ft.	Line 6-inch VC sewer, various locations, per lin. Ft.,	
		and dollars	\$
7.	78 connections	Connect new liner to existing manholes, per connection,	
		and dollars	\$
8.	160 connections	Reconnect existing lateral service connections, per connection,	
		and dollars	\$
9.	150 vert. ft.	Line sewer manhole, various locations, per vert. Ft.,	
		and dollars	\$
10.	14 each	Seal sewer manhole chimney, various locations, per each,	
		and dollars)	\$

11.	50* cu. yd.	Removal of debris material, per cu. yd.,	\$
12.	Lump sum	Mobilization (maximum 5% of items 1 through 11), the lump sum of,	\$

* Indeterminate quantity assumed for comparison of Bids.

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the annexed form of AGREEMENT, he/she will accept compensation as stipulated therein in full payment for such extra work.

The total price for the base bid, derived as described in the INFORMATION FOR BIDDERS under the heading "Comparison of Bids," is \$**_____.

.(in words)

As provided in the INFORMATION FOR BIDDERS, the bidder hereby agrees that he/she will not withdraw this BID within 40 consecutive calendar days after the actual date of the opening of BIDS and that, if the City shall accept this BID, the bidder will duly execute and acknowledge the AGREEMENT and furnish, duly executed and acknowledged, the required CONTRACT BONDS within ten (10) days after notification that the AGREEMENT and other Contract Documents are ready for signature.

Should the bidder fail to fulfill any of his agreements as hereinabove set forth, the City shall have the right to retain as liquidated damages the amount of the bid check which shall become the City's property.

This BID includes Addenda number *** _____, ____, ____, ____, ____, ____, ____,

- ** Bidder must fill in this blank
- *** To be filled in by Bidder if Addenda are issued.

The Bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the Bidder to fulfill its agreements as above provided.

The Bidder hereby certifies it shall comply with the minority manpower ration and specific action steps contained in the STATE REQUIREMENTS under Massachusetts Equal Employment Program, including the minority contractor compliance. Prior to the award of the Contract, the Contractor

must submit a Contractor's Certification of Compliance. The Contractor receiving the award of the Contract shall be required to obtain from each of its Sub-Contractors and submit to the contracting or administering agency prior to the performance of any work under said Contract a certification by said Sub-Contractor, regardless of tier, that it will comply with the minority manpower ratio and specific affirmative action steps contained in the Massachusetts Equal Employment Program.

(SEAL)

By _

(Signature and title of authorized representative)

(Business Address)

(City & State)

Date _____

The Bidder is a corporation incorporated in the State (or Commonwealth) of _____

_____(Bidder must add and delete, as necessary, to make this sentence read correctly).

(Note: If the Bidder is a corporation, affix corporate seal and give below the names of its president, treasurer, and general manager, if any; if a partnership, give full names and residential addresses of all partners, and if an individual, give residential address if different from business address.)

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person' shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature of individual submitting bid or proposal

Name of Business

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. Ch. 62C, Sec. 49A, I certify under the penalties of perjury that I, to the best of my knowledge and belief, am in compliance with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signature of individual submitting bid or proposal

Name of business

DEBARMENT STATEMENT (to be used for any public construction project)

Any person or corporation that fails to date, sign with original signature, and submit the following statement shall not be awarded this contract.

DEBARMENT (Chapter 550, Acts of 1991)

The undersigned certifies under penalties of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of Section 29F of Chapter 29 of the General Laws, or any other applicable debarment provisions of any other Chapter of the General Laws, or any Rule or Regulation promulgated thereunder.

DATE:_____

Typed or Printed Name of Person Signing

Authorized Official's Signature

Company or Corporation

A. Contractor's Certification Name of Project

A contractor will not be eligible for award of a contract unless such contractor has submitted the following certification, which is deemed a part of the resulting contract:

CONTRACTOR'S CERTIFICATION

_____ certified that:

1. it tends to use the following listed construction trades in the work under the contract

and

3. will obtain from each of its Sub-Contractors and submit to the contracting or administering agency prior to the award of any Sub-Contract under this contract the Sub-Contractor certification required by these bid conditions.

Signature of authorized representative of Contractor.

^{2.} will comply with the minority manpower ration and specific affirmative action steps required by law, and

B. Sub-Contractor's Certification

Name of Project

Prior to the award of any sub-contract, regardless of tier, the prospective sub-contractor must execute and submit to the prime contractor the following certification, which will be deemed a part of the resulting sub-contract:

SUB-CONTRACTOR'S CERTIFICATION

_____ certifies that:

1. it tends to use the following listed construction trades in the work under the sub-contract

and;

- 2. will comply with the minority manpower ration and specific affirmative action steps required by law; and
- 3. will obtain from each of the sub-contractors prior to the award of any sub-contract under this sub-contractor certification required by these bid conditions.

Signature of Authorized Representative

In order to ensure that the said sub-contractor's certification becomes a part of all sub-contractors under the prime contract, no sub-contract shall be executed until an authorized representative of the City agency (or agencies) administering this project has determined, in writing, that the said certification has been incorporated in such sub-contract, regardless of tier. Any sub-contract executed without such written approval shall be void.

OSHA TRAINING CERTIFICATION

Pursuant to M.G.L. Ch. 30, Sec. 39S(A), I certify under the penalties of perjury to the following:

- (1) that I am able to furnish labor that can work in harmony with all other elements of labor employed or to be employed at the work;
- (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and
- (3) that all employees to be employed in the work subject to this contract have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

(Signature of authorized representative of Bidder)

(Name of authorized representative of Bidder)

(Name of business)

AGREEMENT

AGREEMENT FOR CONTRACT DPW 24-07

Sewer & Drain Lining and Sewer Manhole Lining, Various Locations

THIS AGREEMENT, executed this _____ day of _____ in the year Two Thousand and Twenty-Three.

(herein referred to as the "AGREEMENT"), by and between the City of Greenfield, Massachusetts, acting by and through its Department of Public Works, duly authorized therefore, which acts solely for said City and without personal liability to itself, party of the first part, and ______ party of the second part.

WITNESSETH, that the parties to these presents, each in consideration of the undertakings, promises, and agreements on the part of the other herein contained, have undertaken, promised and agreed and do hereby undertake, promise, and agree, the party of the first part for itself, its successors and assigns, and the party of the second part for itself and its heirs, executors, administrators, successors and assigns, as follows:

The Contractor agrees to furnish all equipment, machinery, tools and labor, to furnish and deliver all materials required to be furnished and delivered in and about the improvement and to do and perform all work in accordance with specifications and conditions attached hereto and made a part hereof, in strict conformity with the provisions herein contained and the Advertisement for Bidders and Proposal hereto annexed, and the General Requirements and Special Provisions hereto annexed, and with the plans referred to therein. All said Plans, General Requirements, Special Provisions, Addenda, Advertisement for Bidders, and Proposal are hereby specifically made a part of this Contract as fully and to the same effect as if the same had been set forth at length herein.

In consideration of the foregoing premises, the Owner shall pay and the Contractor shall receive the prices stipulated in the BID made a part hereof as full compensation for everything furnished and done by the Contractor under this contract; including all work required, but not shown on the plans for the items herein mentioned, and for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any delay or from any unforeseen obstruction or difficulty encountered in the prosecution of the Work, and for all risks of every description connected with the Work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the Work as herein specified, and for well and faithfully completing the Work, and the whole thereof, as herein provided, such price or prices as are set out in the accompanying proposal, and for all work required, for which there is no item in the proposal, such compensation as is provided for in the aforesaid specification.

The Contractor's original bid price for this project is ______.

IN WITNESS WHEREOF, the Owner has caused this instrument to be signed and its corporate seal to be hereto affixed in its behalf, and the Contractor has caused this instrument to be signed in its behalf.

AGREEMENT FOR CONTRACT DPW 24-07

Sewer & Drain Lining and Sewer Manhole Lining, Various Locations

FOR THE OWNER,

By the _____

FOR THE CONTRACTOR,

Witness: _____

By the _____

(If a corporation, attach to each signed Agreement a notarized copy of the corporate vote authorizing the signatory to sign this Agreement.)

Approved as to Appropriation:

City Accountant

Certificate of Acknowledgment of Contractor if a Corporation

For AGREEMENT

State of)	
County of))	
On this	day of		, 20,
before me personally came			
to me known, who being by me c	luly sworn, did	l depose and s	ay as follows:
That he/she resides at			
and is the			
of			

the corporation described in and which executed the foregoing instrument; that he/she knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he/she signed thereto his/her name and official designation.

Notary Public (Seal)

My commission expires: _____

NOTICE TO PROCEED

	Date:
Project: Sewer & Drain Lining and Sewer Man	hole Lining, Various Locations
Owner: City of Greenfield, MA	Owner's Contract No.: DPW 24-07
Contract: Sewer & Drain Lining and Sewer Man	nhole Lining, Various Locations
Contractor:	
Contractor's Address:	

You are notified that the Contract Times under the above Contract will commence to run on______. On or before that date, you are to start performing your obligations under the Contract Documents. The date of Substantial Completion is <u>April 1, 2024</u>.

Before you may start any Work at the Site, Paragraph 1.12 of the Information for Bidders provides that you must deliver to the Owner (with copies to Engineer and other identified additional insured and loss payees) certificates of insurance which Contractor is required to purchase and maintain in accordance with the Contract Documents.

	Owner	
	Given by:	
	Authorized Signature	
	Title	
	Date	
Copy to Engineer		

BONDS

PERFORMANCE BOND

(NOTE: This Bond is issued simultaneously with the attached Labor and Materials Bond in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, _____

(an	individual.	a	partnership, a corporation)
ſ	un	mai viauui,	u	purmership, a corporation	,

duly organized under the Laws of the State (or Commonwealth) of ______,

and having a usual place of business at _____, as

Principal, and ______, a corporation duly

organized under the Laws of the State (or Commonwealth) of _____, and

having a usual place of business at _____

as Surety, are holden and stand firmly bound and obligated unto the City of Greenfield,

Massachusetts, as obligee, in the sum of _____,

lawful money of the United States of America to and for the true payment whereof we bind

ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, by means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated ______.

Has entered into a contract with the said obligee for _____

a copy of which AGREEMENT is attached hereto and by reference made a part hereof.

NOW THEREFORE, THE CONDITION of this obligation is such that if the Principal shall well and truly keep and fully and faithfully perform all of the terms and conditions of said AGREEMENT and of the "Contract Documents" referred to in said AGREEMENT (which collectively are hereinafter and in said AGREEMENT sometimes referred to as the "Contract") and all modifications thereof on the Principal's part to be performed, this obligation shall be void; otherwise it shall remain in full force and effect.

Whenever the said Principal shall be, and declared by the City to be in default under the said Contract, the City having performed the City's obligations thereunder, the Surety, for value received, shall promptly remedy the default, or, at the option of the City, shall promptly

- (a) Complete the said AGREEMENT and/or Contract in accordance with its terms and conditions, or
- (b) Obtain a bid or bids for submission to and the approval of the City for completing the said AGREEMENT and/or Contract and any modifications thereof in accordance with the terms and condition thereof, and upon determination by the City and the Surety of the lowest responsible and acceptable bidder, arrange for a contract between such bidder and the City, and make available to the City as the Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less a sum that shall be equal to the difference between the Contract price as fixed and provided in said AGREEMENT and/or Contract price as fixed and provided thereof to be paid thereunder to the Principal and the amount previously paid by the City to and/or for the account of and/or chargeable against the Principal, but not exceeding (including other costs and damages for which the Surety may be liable hereunder) the amount set forth in the first paragraph hereof.

The Surety, for value received, agrees further that no changes in, omissions from, or alteration, modifications or additions to the terms and provisions of said AGREEMENT, and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way affect the Surety's obligations on this Bond, and the Surety hereby waives notice of any such changes, omissions, alteration, modification, additions or extensions.

IN WITNESS WHEREOF, we have	hereunto set our hands and s	seals to
counterparts of this Bond, this	day of	
in the year Two Thousand and Twen	ty-Three.	
		(Seal)
	Principal	()()()()()
		(Seal)
	Principal	
		(Seal)
	Principal	
		(Seal)
	Surety	

 	(Seal)
Surety	
	(Seal)
Surety	、 ,

(NOTE: If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his/her power of attorney showing his/her authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.)

LABOR AND MATERIALS (PAYMENT) BOND

(NOTE: This Bond is issued simultaneously with the attached Performance Bond in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, _____

(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or Commonwealth) of _____,

and having a usual place of business at _____, as

Principal, and ______, a corporation duly

organized under the Laws of the State (or Commonwealth) of _____, and

having a usual place of business at _____,

as Surety, are holden and stand firmly bound and obligated unto the City of Greenfield,

Massachusetts, as obligee, in the sum of _____

lawful money of the United States of America to and for the true payment whereof we bind

ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, by means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated ______.

Has entered into a contract with the said obligee for _____

a copy of which AGREEMENT is attached hereto and by reference made a part hereof.

NOW, THEREFORE, THE CONDITION of this obligation is such that if the Principal shall promptly make payments to all claimants as hereinafter defined, for all labor performed or furnished and for all materials and equipment furnished for or used or in connection with the Work called for by said AGREEMENT and/or Contract and any modifications thereof, including lumber used, but not incorporated in said Work, and for the rental or hire of vehicles, tools and other appliances and equipment furnished for or used in connection with said Work, this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

- 1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, materials, and/or equipment used or reasonably required for use in the performance of the said Work, labor and materials, being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the said AGREEMENT and/or Contract and any modifications thereof.
- 2. The above named Principal and Surety hereby jointly and severally agree with the City that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials or equipment were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The City shall not be liable for the payment of any costs or expenses of any such suit.
- 3. No suit or action shall be commenced hereunder by a claimant,
 - (a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: The Principal, the City or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials or equipment for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials or equipment were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, City, or Surety at any place where an office is regularly maintained for the transaction of business, or served in the state in which the said Work is located, save that such service need not be made by a public officer;
 - (b) After the expiration of one (1) year following the date on which the Principal ceased work on said AGREEMENT and/or Contract and any modifications thereof, it being understood, however, that if any limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - (c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the said Work, or any part thereof, is situated, or in the United States District Court for the district in which the said Work, or any part thereof, is situated, and not elsewhere.
- 4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said AGREEMENT and/or Contract or said Work, whether or not claim for the amount of such lien be presented under and against this bond.

The Surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way affect the Surety's obligations on this Bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to _____ counterparts of this Bond, this _____ day of _____ in the year Two Thousand and Twenty-Three. (Seal) (NOTE: Principal If the Principal (Contractor) is a partnership, the Bond should be signed by each of the (Seal) partners. Principal If the Principal (Contractor) is a corporation, the Bond (Seal) should be signed in its correct Principal corporate name by its duly authorized officer or officers. (Seal) If this Bond is signed on Surety behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certi-(Seal) fied copy of his/her power of Surety attorney showing his/her authority to sign such Bonds. (Seal) Surety There should be executed an appropriate number of counterparts of the Bond corresponding to the number of counterparts of

the AGREEMENT.)
Certificate of Acknowledgment of Contractor if a Corporation

For CONTRACT BONDS

State of)					
County of) 55:					
On thisday of, 20,					
before me personally came					
to me known, who being by me duly sworn, did depose and say as follows:					
That he/she resides at					
and is the					
of					
the corporation described in and which executed the foregoing instrument; that he/s					

the corporation described in and which executed the foregoing instrument; that he/she knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he/she signed thereto his/her name and official designation.

Notary Public (Seal)

My commission expires: _____

SPECIAL CONDITIONS

SPECIAL CONDITIONS

TITLE

- 1.1 Construction Warning Signs
- 1.2 Traffic Control
- 1.3 Access to Property
- 1.4 Conflict or Inconsistency
- 1.5 Percentage of Progress Payments to be Retained
- 1.1 <u>Construction Warning Signs.</u> All construction warning signs shall be erected in accordance with the <u>Manual on Uniform Traffic Control Devices for Streets and Highways.</u> All construction warning signs shall be erected and maintained by the Contractor at their own expense.
- 1.2 **Traffic Control.** For control of moderate traffic, the Contractor shall provide an adequate number of flagmen employed at its own expense.

Whenever and wherever, in the opinion of the Engineer, traffic is sufficiently congested or public safety is endangered, the Contractor shall be responsible for furnishing uniformed special officers to direct traffic and to keep traffic off the highway area affected by construction operations. Such officers shall be in addition to the watchmen, required under other provisions of the contract. The Owner shall be responsible for payment of all uniformed special officers. The Contractor shall be responsible for scheduling all uniformed special officers with the Greenfield Police Dispatch at 413-773-5411 a minimum of 24 hours in advance. When scheduling, the Contractor shall inform Police Dispatch that they are working on behalf of the City of Greenfield DPW and all invoices shall be sent to 189 Wells Street. A minimum 4 hour notice is required to cancel a scheduled detail.

The employment or presence of traffic flagmen, special officers, or police shall, in no way, relieve the Contractor of any responsibility or liability, which is its under the terms of the Contract.

1.3 <u>Access to Property.</u> The Contractor shall maintain access to all properties whether over sidewalks or driveways through the use of ramps, bridges, or steel plating. Bridging is required for all properties where handicap accessibility must be maintained.

Temporary handicap ramps shall be constructed according to the Commonwealth of Massachusetts Architectural Barrier Board Regulations 521 CMR.

1.4 <u>**Conflict or Inconsistency.</u>** If there be any conflict or inconsistency between the provisions of the SPECIAL CONDITIONS and the provisions of the other Contract Documents, the provision of the SPECIAL CONDITIONS shall prevail. If there be any conflict or inconsistency between the provisions of the AGREEMENT and the provisions of any of the Contract Documents other than the SPECIAL CONDITIONS, the provisions of the AGREEMENT shall prevail.</u> 1.5 <u>**Percentage of Progress Payments to be Retained.</u></u> The percentage of value to be retained under that Subsection of the GENERAL CONDITIONS, entitled "Progress Estimates," shall be 5 percent.</u>**

GENERAL CONDITIONS

GENERAL CONDITIONS

TITLE

1.1	Definitions
1.2	Obligations and Liability of Contractor
1.3	Planning and Progress Schedules
1.4	Supervision of Work
1.5	Patents
1.6	Electrical Energy
1.7	Compliance with Laws
1.8	Provisions Required by Law Deemed Inserted
1.9	Permits
1.10	Not to Sublet or Assign
1.11	Delay by City.
1.12	Time for Completion
1.12	Liquidated Damages
1.13	Employ Sufficient Labor and Equipment
1 1 5	Handling and Distribution
1.15	Occupying Private Land
1.10	Interference With and Protection of Streets
1.17	Safety
1.10	Sanitary Regulations
1.17	Intoxicating Liquors
1.20	Access to Work
1.21	Examination of Work
1.22	Defective Work Etc
1.23	Detective work, Etc
1.24	Right to Materials
1.25	Changes
1.20	Evtre Work
1.27	Extension of Time on Account of Extra Work
1.20	Changes Not to Affact Dands
1.29	Claims for Damagas
1.50	A han dommant of Work on Other Default
1.31	Adandonment of work of Other Default
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1.34	Progress Estimates
1.35	Partial Acceptance
1.36	Final Estimate and Payment
1.37	Liens
1.38	Claims.
1.39	No Waiver
1.40	Liability of City
1.41	Guarantee
1.42	Cleaning Up
1.43	Legal Address of Contractor
1.44	Modification of Termination

1.1 **Definitions.** Wherever the words hereinafter defined or pronouns used in their stead occur in the Contract Documents, they shall have the following meanings:

The word "Owner" shall mean the City of Greenfield.

The word "Contractor" shall mean the party of the second part above designated.

The word "Specifications" when used herein shall be deemed to refer to both the General and Technical Specifications.

The words "herein", "hereinafter", hereunder" and words of like import shall be deemed to refer to the Contract Documents.

1.2 **Obligations and Liability of Contractor.** The Contractor shall do all the work and perform and furnish all the labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things (except as otherwise expressly provided herein) necessary and as herein specified for the proper performance and completion of the Work in the manner and within the time hereinafter specified, in strict accordance with the Specifications and other Contract Documents, in conformity with the directions and to the satisfaction of the City, and at the prices herein agreed upon.

All parts of the Work and all fixtures, equipment, apparatus and other items indicated in the Specifications and all work and material usual and necessary to make the Work complete in all its parts, including all incidental work necessary to make it complete and satisfactory and ready for use and operation, whether or not they are mentioned in the Specifications, shall be furnished and executed the same as if they were called for by the Specifications.

The Contractor shall conduct its work so as to interfere as little as possible with private business and public travel. Wherever and whenever necessary or required, the Contractor shall maintain fences, provide barriers, furnish watchmen, maintain lights, and take such other precautions as may be necessary to protect life and property.

The Contractor shall indemnify and save harmless the City and its officers, agents, servants, and employees from and against any and all claims, demands, suits, proceedings liabilities, judgments, awards, losses, damages, costs and expenses, including attorney's fees, on account of bodily injury, sickness, disease or death sustained by any person or persons or injury or damage to or destruction of any property, directly or indirectly arising out of, relating to or in connection with the Work, whether or not due or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, its officers, agents, servants or employees, any of its subcontractors, the City or any of its respective officers, agents, servants or employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agrees to pay for the defense of all such claims, demands, suits and proceedings.

The Contractor shall have complete responsibility for the Work and the protection thereof, and for preventing injuries to persons and damage to the Work and property and utilities on or about the Work, until final completion and final acceptance thereof. The Contractor shall, in no way, be relieved of its responsibility by any right of the City to

give permission or directions relating to any part of the Work, by any such permission or directions given, or by failure of the City to give such permission or directions. The Contractor shall bear all costs, expenses, losses and damages on account of the quantity or character of the Work or the nature of the land (including but not limited to subsurface conditions) in or under or on which the Work is done being different from those indicated or shown in the Contract Documents or from what was estimated or expected, or on account of the weather, elements, or other causes.

The Contractor shall conduct its operations so as not to damage existing structures or work installed either by itself or by other contractors. In case of any such damage resulting from its operations, the Contractor shall repair and make good as new the damaged portions at its own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall continue to be liable for the damage caused.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, their officers, agents, servants and employees as it is for its own acts and omissions and those of its officers, agents, servants and employees.

Should the Contractor sustain any loss, damage or delay through any act or omission of any other contractor or any subcontractor of any such other contractor, the Contractor shall have no claim against the City therefore, other than for any extension of time, but shall have recourse solely to such other contractor or subcontractor.

If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the Contractor or of any of its subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss or damage. The Contractor agrees to and does hereby indemnify and save harmless the City from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay and from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

The Contractor shall promptly pay all federal, state and local taxes which may be assessed against it in connection with the Work or its operations under the AGREEMENT and/or the other Contract Documents, including but not limited to, taxes attributable to the purchase of material and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

1.3 <u>Planning and Progress Schedules.</u> The Contractor shall submit to and for the approval of the Engineer, a detailed schedule of operations. The schedule shall show the proposed methods of construction and sequence of work and the time the Contractor proposes to complete the various items of work within the time specified in the Contract. The schedules are to be submitted within 10 days of contract award. No work shall begin until the Progress Schedule is approved by the Engineer.

If the Contractor's operations are materially affected by changes in the plans or in the quantity of the Work or if it has failed to comply with the submitted and approved schedule, the Contractor shall submit a revised schedule if requested by the Engineer within seven days after the date of the Engineer's request. This revised schedule shall

show how the Contractor proposes to prosecute the balance of the Work, so as to complete the Work within the time specified in the Contract.

1.4 **Supervision of Work.** The Contractor shall be solely responsible for supervision of the Work, shall give the Work the constant attention necessary to ensure the expeditious and orderly progress thereof, and shall cooperate with the City in every possible way.

At all times, the Contractor shall have as its agent on the Work a competent superintendent capable of reading and thoroughly understanding the Specifications, with full authority to execute the directions of the City, without delay, and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. The qualifications of the superintendent shall be submitted with the contract. Such superintendent shall not be removed from the Work without the prior written consent of the City. If, in the opinion of the City, the superintendent or any successor proves incompetent, the Contractor shall replace him/her with another person approved by the City; such approval, however, shall, in no way, relieve or diminish the Contractor's responsibility for the supervision of the Work.

Whenever the Contractor or its agent or superintendent is not present on any part of the Work where it may be necessary to give directions or instructions with respect to such Work, such directions or instructions may be given by the City to, and shall be received and obeyed by the foreman or any other person in charge of the particular work involved.

- 1.5 **Patents.** The Contractor shall indemnify and save harmless the City and all persons acting for or on behalf of the City from all claims and liability of any nature or kind, and all damages, costs and expenses, including attorneys' fees, arising from or occasioned by any infringement or alleged infringement of any patents or patent rights on any invention, process, material, equipment, article or apparatus, or any part thereof, furnished and installed by the Contractor, or arising from or occasioned by the use or manufacture thereof, including their use by the City.
- 1.6 <u>Electrical Energy.</u> The Contractor shall make all necessary applications and arrangements and pay all fees and charges for electrical energy for power and light necessary for the proper completion of the Work and during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections and meters.

The Contractor shall provide sufficient lighting so that all work may be done in a workman like manner when there is not sufficient daylight.

1.7 <u>Compliance with Laws.</u> The Contractor shall keep itself fully informed of all existing and future federal, state and local laws, ordinances, rules, and regulations affecting those engaged or employed on the Work, the material and equipment used in the Work or the conduct of the Work, and of all orders, decrees and other requirements of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Specifications or other Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree, or other requirement, the Contractor shall forthwith report the same to the City in writing. The Contractor shall, at all times, observe and comply with, and cause all its agents, servants, employees and subcontractors to observe and comply with all such existing and future laws, ordinances,

rules, regulations, orders, decrees and other requirements, and it shall protect, indemnify and save harmless the City, its officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, penalties, losses, damages, costs and expenses, including attorneys' fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulation, order, decree or other requirement, whether committed by the Contractor or any of its agents, servants, employees or subcontractors.

- 1.8 **Provisions Required by Law Deemed Inserted.** Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion.
- 1.9 <u>Permits.</u> The Contractor shall, at its own expense, take out and maintain all necessary permits from the county, municipal, or other public authorities; shall give all notices required by law; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the Work.
- 1.10 **Not to Sublet or Assign.** The Contractor shall constantly give its personal attention to the faithful prosecution of the Work, shall keep the same under its personal control, shall not assign the Contract or sublet the Work or any part thereof without the previous written consent of the City, and shall not assign any of the monies payable under the Contract, or its claim thereto, unless by and with the like written consent of the City and the surety on the contract bonds. Any assignment or subletting in violation hereof shall be void and unenforceable.
- 1.11 <u>**Delay by City.**</u> The City may delay the beginning of the Work or any part thereof if the necessary lands or rights of way for such work shall not have been obtained. The Contractor shall have no claim for additional compensation or damages on account of such delay, but shall be entitled only to an extension of time as hereinafter provided.
- 1.12 **<u>Time for Completion.</u>** The rate of progress shall be such that the Work shall be performed and completed in accordance with the Contract before the expiration of the time limit stipulated under INFORMATION FOR BIDDERS, except as otherwise expressly provided herein.

It is agreed that the rate of progress herein required has been purposely made low enough to allow for the ordinary and foreseeable delays incident to work of this character. No extension of time will be given for ordinary or foreseeable delays, inclement weather, or accidents, and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress and completing the Work within the stipulated time limit.

If delays are caused by acts of God, acts of Government, unavoidable strikes, extra work, or other causes or contingencies clearly beyond the control or responsibility of the Contractor, the Contractor may be entitled to additional time to perform and complete the Work, provided that the Contractor shall, within ten (10) days from the beginning of such delay notify the City, in writing, of the cause and particulars of the delay. Upon receipt

of such notification, the City shall review and evaluate the cause and extent of the delay. If, under the terms of the AGREEMENT, the delay is properly excusable, the City will, in writing, appropriately extend the time for completion of the Work. The Contractor agrees that it shall not have or assert any claim for nor shall it be entitled to any additional compensation or damages on account of such delays.

- 1.13 Liquidated Damages. In case the Contractor fails to complete the Work satisfactorily on or before the date of completion fixed herein or as duly extended as hereinbefore provided, the Contractor agrees that the City shall deduct from the payments due the Contractor each month, the sum of five hundred (\$500) dollars for each calendar day of delay. If the payments due the Contractor are less than the amount of such liquidated damages, said damages shall be deducted from any such monies due or to become due the Contractor, and, in case such damages shall exceed the amount of all monies due or to become due the Contractor, the Contractor or its surety shall pay the balance to the Owner.
- 1.14 **Employ Sufficient Labor and Equipment.** If, in the sole judgment of the City, the Contractor is not employing sufficient labor, plant, equipment or other means to complete the Work within the time specified, the City may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means as the City deems necessary to enable the Work to progress properly.
- 1.15 <u>Handling and Distribution.</u> The Contractor shall handle, haul, and distribute all materials on the different portions of the Work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by it, until the final completion and acceptance of the Work.
- 1.16 <u>Occupying Private Land.</u> The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials, or equipment, any land outside the rights-of-way or property of the Owner. A copy of the written consent shall be given to the Engineer.
- 1.17 **Interference With and Protection of Streets.** The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, it shall make such repairs or provide such temporary ways or guards as shall be acceptable to the City.

Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.

The Contractor shall, at least 24 hours in advance, notify the Police and Fire Departments, in writing, with a copy to the Department of Public Works, if the closure of a street or road is necessary. The Contractor shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion. 1.18 <u>Safety.</u> The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons including but not limited to its employees and employees of other contractors or subcontractors; members of the public; and employees, agents, and representatives of the City, and regulatory agencies that may be on or about the Work. The Contractor shall provide protection for all public and private property including but not limited to structures, pipes and utilities, above and below ground.

The Contractor shall provide and maintain all necessary safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and fire fighting equipment and shall take such other action as is required to fulfill its obligations under this subsection.

The Contractor shall comply with all applicable federal, state and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

The Contractor shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents. This responsible person shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

1.19 **Sanitary Regulations.** The Contractor shall provide adequate sanitary facilities for the use of those employed on the Work. Such facilities shall be made available when the first employees arrive on the site of the Work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the Work in suitable numbers and at such points and in such manner as may be required or approved.

The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. The Contractor shall rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the Owner, or on adjacent property.

The City shall have the right to inspect such facilities at all times to determine whether or not they are being properly and adequately maintained.

- 1.20 **Intoxicating Liquors.** The Contractor shall not sell and shall neither permit nor suffer the introduction or use of intoxicating liquors upon or about the Work.
- 1.21 <u>Access to Work.</u> The City and its officers, agents, servants and employees may at all times and for any and all purposes, enter upon the Work and the site thereof and the premises used by the Contractor, and the Contractor shall at all times provide safe and proper facilities therefore.
- 1.22 **Examination of the Work.** The City shall be furnished by the Contractor with every reasonable facility for examining and inspecting the Work and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring the uncovering or taking down portions of finished work by the Contractor.

Should the work thus uncovered or taken down prove satisfactory, the cost of uncovering or taking down and the replacement thereof shall be considered as extra work unless the original work was done in violation of the Contract in point in time or in the absence of the Engineer or his/her inspector and without his/her written authorization, in which case said cost shall be borne by the Contractor. Should the work uncovered or taken down prove unsatisfactory, said cost shall likewise be borne by the Contractor.

Examination or inspection of the Work shall not relieve the Contractor of any of its obligations to perform and complete the Work as required by the Contract.

1.23 **Defective Work, Etc.** Until acceptance and during the applicable guarantee period thereafter, the Contractor shall promptly, without charge, repair, correct or replace work, equipment, materials, apparatus or parts thereof which are defective, damaged or unsuitable or which in any way fail to comply with or be in strict accordance with the provisions and requirements of the Contract or applicable guarantee and shall pay to the City all resulting costs, expenses, losses or damages suffered by the City.

If any material, equipment, apparatus or other items brought upon the site for use or incorporation in the Work, or selected for the same, is rejected by the City as unsuitable or not in conformity with the Specifications or any of the other Contract Documents, the Contractor shall forthwith remove such materials, equipment, apparatus and other items from the site of the Work and shall at its own cost and expense make good and replace the same.

- 1.24 **<u>Precautions During Adverse Weather.</u>** During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the Work may be properly done, and satisfactory in all respects.
- 1.25 **<u>Right to Materials.</u>** Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus and other items furnished after they have been installed or incorporated in or attached or affixed to the Work or the site, but all such materials, equipment, apparatus and other items shall, upon being so installed, incorporated, attached or affixed, become the property of the City. Nothing in this subsection shall relieve the Contractor of its duty to protect and maintain all such materials, equipment, apparatus and other items.
- 1.26 <u>Changes.</u> The City may make changes in the Work and in the Specifications therefore by making alterations therein, additions thereto or omissions therefrom. All work resulting from such changes shall be performed and furnished under and pursuant to the terms and conditions of the Contract. If such changes result in an increase or decrease in the work to be done hereunder, or increase or decrease the quantities thereof, adjustment in compensation shall be made therefore at the unit prices stipulated in the Contract for such work.

Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the City authorizing the change, and no claim for additional compensation shall be valid unless the change is so ordered.

The Contractor agrees that it shall neither have or assert any claim for or be entitled to any additional compensation for damages or for loss of anticipated profits on work that is eliminated.

1.27 **Extra Work.** The Contractor shall perform any extra work (work in connection with the Contract but not provided for herein) when and as ordered in writing by the City, at the unit prices stipulated in the Contract for such work or, if none are so stipulated, either (a) at the price agreed upon before such work is commenced and named in the written order for such work, or (b) if the City so elects, for the actual cost of such work, as determined by the Contractor and approved by the City, plus a percentage of such cost, as set forth below. No extra work shall be paid for unless specifically ordered as such in writing by the City.

The cost of extra work done under (b) above shall include the actual cost to the Contractor of materials used and equipment installed, common and skilled labor, and foremen, and the fair rental of all machinery and equipment used on the extra work for the period of such use.

At the request of the City, the Contractor shall furnish itemized statement of the cost of the extra work ordered as above and give the City access to all records, accounts, bills and vouchers and correspondence relating thereto.

The Contractor may include in the cost of extra work the amounts of additional premiums, if any, (other than premiums on bonds) paid on the required insurance on account of such extra work, of Social Security or other direct assessments upon the Contractor's payroll by federal or other properly authorized public agencies, and of other approved assessments when such assessments are not normally included in payments made by the Contractor directly to its employees, but in fact, are, and are customarily recognized as, part of the cost of doing work.

The fair rental of all machinery and equipment shall be based upon the most recent edition of "Compilation of Rental Rates for Construction Equipment", published by the Associated Equipment Distributors, or a similar publication approved by the City. Rental for machinery or equipment shall be based upon an appropriate fraction of the approved monthly rate schedule. If said extra work requires the use of machinery or equipment not already on the site of the Work, the cost of transportation, not exceeding a distance of 100 miles, of such machinery or equipment to and from the Work shall be added to the fair monthly rate; provided however, that this shall not apply to machinery or equipment already required to be furnished under the terms of the Contract.

The Contractor shall not include in the cost of extra work any cost or rental of small tools, building, or any portion of the time of the Contractor, its superintendent, or its office and engineering staff.

To the cost of extra work done by the Contractor's own forces under (b) above (determined as stated above), the Contractor shall add 15 percent to cover its overhead, use of capital, the premium on the bonds as assessed upon the amount of this extra work, and profit.

In the case of extra work done under (b) above by a subcontractor, the subcontractor shall compute, as above, its cost for the extra work, to which it shall add 15 percent as in the case of the Contractor, and the Contractor shall be allowed an additional 15 percent of the subcontractor's cost for the extra work to cover the costs of the Contractor's overhead, use of capital, the premium on the bonds as assessed upon the amount of this extra work, and profit. Said subcontractor's cost must be reasonable and approved by the City.

If extra work is done under (b) above, the Contractor and/or subcontractor shall keep daily records of such extra work. The daily record shall include the names of men employed, the nature of the work performed, and hours worked, materials and equipment incorporated, and machinery or equipment used, if any, in the prosecution of such extra work. This daily record, to constitute verification that the work was done, must be signed both by the Contractor's authorized representative and by the City. A separate daily record shall be submitted for each extra work order no later than the proceeding day.

- 1.28 **Extension of Time on Account of Extra Work.** When extra work is ordered near the completion of the Contract or at any time during the progress of the Work which unavoidably increases the time for the completion of the Work, an extension of time shall be granted as hereinbefore provided.
- 1.29 <u>Changes Not to Affect Bonds.</u> It is distinctly agreed and understood that any changes made in the Work or the drawings or specifications therefore (whether such changes increase or decrease the amount thereof or the time required for its performance) or any changes in the manner or time of payments made by the City to the Contractor, or any other modifications of the Contract, shall in no way annul, release, diminish or affect the liability of the surety on the contract bonds given by the Contractor, it being the intent hereof that notwithstanding such changes the liability of the surety on said bonds continue and remain in full force and effect.
- 1.30 <u>Claims for Damages.</u> If the Contractor makes claim to any damages alleged to have been sustained by breach of contract or otherwise, it shall, within ten (10) days after occurrence of the alleged breach or within ten (10) days after such damages are alleged to have been sustained, whichever date is earlier, file with the City a written, itemized statement in triplicate of the details of the alleged breach and the details and amount of the alleged damages. The Contractor agrees that unless such statement is made and filed as so required, its claim for damages shall be deemed waived, invalid and unenforceable, and that it shall not be entitled to any compensation for any such alleged damages.
- 1.31 <u>Abandonment of Work or Other Default.</u> If the Work shall be abandoned, or any part thereof shall be sublet without previous written consent of the City, or the Contract or any monies payable hereunder shall be assigned otherwise than as herein specified, that the conditions herein specified as to rate of progress are not being complied with, or that the Work or any part thereof is being unnecessarily or unreasonably delayed, or that the Contractor has violated or is in default under any of the provisions of the Contract, or if the Contractor becomes bankrupt or insolvent or goes or is put into liquidation or dissolution, either voluntarily or involuntarily, or petitions for an arrangement or reorganization under the Bankruptcy Act, or makes a general assignment for the benefit of creditors or otherwise acknowledges insolvency, the happening of any of which shall be and constitute a default under the Contract, the City may notify the Contractor in writing, with a copy of such notice mailed to the surety, to discontinue all work or any

part thereof; thereupon the Contractor shall discontinue such work or such part thereof as the City may designate; and the City may, upon giving such notice by contract or otherwise as it may determine, complete the Work or such part thereof and charge the entire cost and expense of so completing the Work or such part thereof to the Contractor. In addition to the said entire cost and expense of completing the work, the City shall be entitled to reimbursement from the Contractor and the Contractor agrees to pay to the City any losses, damages, costs and expenses, including attorney's fees, sustained or incurred by the City by reason of any of the foregoing causes. For the purposes of such completion, the City may, for itself, of for any contractors employed by the City, take possession of and use or cause to be used any and all materials, equipment, plant, machinery, appliances, tools, supplies and such other items of every description that may be found or located at the site of the Work.

All costs, expenses, losses, damages, attorney's fees and any and all other charges incurred by the City under this subsection shall be charged against the Contractor and deducted and/or paid by the City out of the monies due or payable or to become due or payable under the Contract to the Contractor; in computing the amounts chargeable to the Contractor, the City shall not be held to a basis of the lowest prices for which the completion of the Work or any part thereof might have been accomplished, but all sums actually paid or obligated therefore to effect its prompt completion shall be charged to and against the account of the Contractor. In case the costs, expenses, losses, damages, attorney's fees and other charges together with all payments therefore made to or for the account of the Contractor shall be entitled to receive the difference, and, in case such costs, expenses, losses, damages, attorney's fees and other charges, together with all payments therefore made to or for the account of the Contractor, shall exceed the said sum, the Contractor shall pay the amount of the excess to the City.

- 1.32 **Prices for Work.** The City shall pay and the Contractor shall receive the prices stipulated in the BID made a part hereof as full compensation for everything performed and furnished and for all risks and obligations undertaken by the Contractor under and as required by the Contract.
- 1.33 **Formal Acceptance.** Fixing of the date of completion and acceptance of the Work or a specified part thereof shall only be effective when accomplished by a writing specifically so stating and signed by the City.
- 1.34 **Progress Estimates.** Once a month, except as hereinafter provided, the City shall make an estimate in writing of the total amount and value of the work done to the first of the month by the Contractor. The City shall retain 5 percent of such estimated value, as part security for fulfillment of the Contract by the Contractor and shall deduct from the balance of all previous payments made to the Contractor, all sums chargeable against the Contractor and all sums to be retained under the provisions of the Contract. The City shall pay monthly to the Contractor the balance not deducted and/or retained as aforesaid, except that payment may be withheld at any time, if in the judgment of the City, the work is not proceeding in accordance with the Contract. If the City deems it expedient to do so, it may cause estimates and payments to be made more frequently than once in each month. No progress estimate or payment need be made when in the judgment of the City, the total value of the Work done since the last estimate amounts to less than \$5,000.

Estimates of lump-sum items shall be based on a schedule dividing each such item into its appropriate component part, together with a quantity and a unit price for each part so that the sum of the products of prices and quantities will equal the contract price for the item. This schedule of values shall be submitted by the Contractor at minimum 10 days prior to a request for payment for and must have the approval of the City before the first estimated payment becomes due.

If the City determines that the progress of the Work will be benefited by the delivery to the site of certain materials and equipment, when available, in advance of actual requirement therefore and if such materials and equipment are delivered and properly stored and protected, the cost to the Contractor or subcontractor as established by invoices or other suitable vouchers satisfactory to the City, less the retained percentages as above provided, may be included in the progress estimates; provided always that there be duly executed and delivered by the Contractor to the City at the same time a Bill of Sale/Transfer of Title in form satisfactory to the City, transferring and assigning to the City full ownership and title to such materials or equipment.

1.35 **<u>Partial Acceptance.</u>** The City may at any time, in a written order to the Contractor (1) declare that it intends to use a specified part of the Work which, in its opinion, is sufficiently complete, in accordance with the Contract Documents, to permit its use; (2) enclose a tentative list of items remaining to be completed or corrected, and (3) fix the date of acceptance of that specified part of the Work.

Within 45 days after acceptance under this subsection, the City shall make an estimate, in writing, of the amount and value of the part of the Work, so accepted and shall pay said amount to the Contractor after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract, said payment to be made at the time of the next monthly progress estimate.

Acceptance by the City under this sub-section shall not relieve the Contractor of any obligations under the Contract Documents except to the extent agreed upon in writing between the City and the Contractor.

The City shall have the right to exclude the Contractor from any part of the Work which has been accepted, but the City will allow the Contractor reasonable access thereto to complete or correct items on the tentative/incomplete work list.

1.36 **<u>Final Estimate and Payment.</u>** As soon as practicable (but not more than sixty-five (65) days) after final completion of the Work, the City shall make a final estimate, in writing, of the quantity of work done under the Contract and the amount earned by the Contractor.

The City shall pay to the Contractor the entire amount found to be earned and due hereunder after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract. Except as in this sub-section otherwise provided such payment shall be made not later than fifteen (15) days after, but in no event before, the expiration of the time within which claims for labor performed or materials or equipment furnished must be filed under the applicable Lien Law, or, if such time is not specified by law, the expiration of thirty (30) days after the completion of the Engineer's final estimate. All

quantities shown on progress estimates and all prior payments shall be subject to correction in the final estimate and payment.

- 1.37 **Liens.** If, at any time, any notices of lien are filed for labor performed or materials or equipment manufactured, furnished, or delivered to or for the Work, the Contractor shall, at its own cost and expense, promptly discharge, remove or otherwise dispose of the same, and until such discharge, removal or disposition, the City shall have the right to retain from any monies payable hereunder an amount which, in its sole judgment, it deems necessary to satisfy such liens and pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce the same, or incurred in connection therewith or by reason thereof.
- 1.38 <u>Claims.</u> If, at any time, there be any evidence of any claims for which the Contractor is or may be liable or responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same, and until such claims are settled or disposed of, the City may retain from any monies which would otherwise be payable hereunder so much thereof as, in its sole judgment, it may deem necessary to settle or otherwise dispose of such claims and to pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce such claims, or incurred in connection therewith or by reason thereof.
- 1.39 <u>No Waiver.</u> Neither the inspection by the City, nor any order, measurement, approval, determination, decision of certificate by the City for the payment of money; nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the work by the City, nor any extension of time, nor any other act or omission of the City shall constitute or be deemed to be an acceptance of any defective or improper work, materials, or equipment nor operate as a waiver of any requirement or provision of the Contract, nor of any remedy, power or right of or herein reserved to the City, nor of any right to damages for breach of contract. Any and all rights and/or remedies provided for in the Contract are intended and shall be construed to be cumulative; and, in addition to each and every other right and remedy provided for herein or by law, the City shall be entitled as of right to a writ of injunction against any breach or threatened breach of the Contract by the Contractor, by its sub-contractors or by any other person or persons.
- 1.40 Liability of City. No person, firm or corporation, other than the Contractor, who signed the Contract as such, shall have any interest herein or right hereunder. No claim shall be made or be valid either against the City or any agent of the City and neither the City nor any agent of the City shall be liable for or be held to pay any money, except as herein provided. The acceptance by the Contractor of the payment as fixed in the final estimate shall operate as and shall be a full and complete release of the City and of every agent of the City of and from any and all claims, demands, damages and liabilities of, by or to the Contractor for anything done or furnished for or arising out of or relating to or by reason of the Work or for or on account of any act or neglect of the City or of any agent of the City or of any other person, arising out of, relating to or by reason of the Work, except the claim against the City for the unpaid balance, if any there be, of the amounts retained as herein provided.
- 1.41 <u>**Guarantee.**</u> The Contractor guarantees that the Work and services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same, shall be free from defects and flaws, and shall

be performed and furnished in strict accordance with the drawings, specifications, and other contract documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled.

The Contractor shall warranty all work to be free of defects for a minimum of one year from the date of substantial completion. Any work found to be deficient shall be repaired by the Contractor at no additional cost to the Owner.

- 1.42 <u>Cleaning Up.</u> The Contractor, at all times, shall keep the site of the Work free from rubbish and debris caused by its operations under the Contract. When the Work has been completed, the Contractor shall remove from the site of the Work all of its plant, machinery, tools, construction equipment, temporary work and surplus materials so as to leave the Work and the site clean and ready for use.
- 1.43 Legal Address of Contractor. The Contractor's business address and its office at or near the site of the Work are both hereby designated as places to which communications in a postpaid wrapper directed to the Contractor's business address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon the Contractor, and the date of such service shall be the date of receipt. The first named address may be changed at any time by an instrument, in writing, executed and acknowledged by the Contractor and delivered to the City. Service of any notice, letter or other communication upon the Contractor personally shall likewise be deemed sufficient service.
- 1.44 <u>Modification of Termination.</u> Except as otherwise expressly provided herein, the Contract may not be modified except in writing signed by the parties hereto.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT

<u>GENERAL</u>. The following subsections describe the measurement of and payment for the work to be done under items listed in the Bid.

Each unit or lump sum price stated in the Bid shall constitute full compensation as herein specified for each item of work completed in accordance with the drawings and specifications, including cleaning up.

ROOT REMOVAL.

- A. The length of sewers and drains to receive root removal to be paid for under this item shall be measured by the linear foot along the horizontal projection of the centerline of the sewer or drain, the lengths of manhole inverts (as measured between the inside walls of the manholes) being deducted. The length of sewers and drains receiving root removal to be paid for under this item shall be the actual linear footage of pipe, receiving root removal, and shall not necessarily include the entire pipe from manhole-to-manhole.
- B. The unit price shall constitute full compensation to cut off and remove all roots that protrude into the pipe or manhole including the cost of television inspection and all methods of flow control required for the proper removal of roots.

PRE/POST-REHABILITATION TV INSPECTION.

- C. The length of sewers and drains to be television inspected under the appropriate subdivision of this item shall be measured by the linear foot along the horizontal projection of the centerline of the sewer or drain, the lengths of manhole inverts (as measured between the inside walls of the manholes) being deducted.
- D. The unit prices under the appropriate subdivision of this item shall constitute full compensation for controlling if necessary and bypassing flows, inspecting the sewer and drain lines by closed circuit television inspections, and furnishing log reports, CDS and photographs of pipe defects. The unit price shall also include the cost for reverse set-ups when an obstruction prevents the camera from passing in the original direction in sewers or drains, and all other work incidental thereto and not specifically included for payment under other items.

PRE/POST-REHABILITATION SEWER CLEANING.

- A. The length of sewers and drains to be cleaned under the appropriate subdivision of this item shall be measured by the linear foot along the horizontal projection of the centerline of the cleaned sewer or drain, the lengths of manhole inverts (as measured between the inside walls of the manholes) being deducted.
- B. The unit price for cleaning shall constitute full compensation for cleaning of sewers and drains, with suitable hydraulic cleaning machinery as approved by the Engineer, for reverse set-ups of cleaning equipment if necessary. The cost associated with removal and disposal of debris material from the sewers and drains cleaned will be included for payment under the item for "Removal of Debris Material".

- C. The length of sewers and drains to receive heavy cleaning under the appropriate subdivision of this item shall be measured by the linear foot along the horizontal projection of the centerline of the sewer or drain, the lengths of manhole inverts (as measured between the inside walls of the manholes) being deducted.
- D. The unit price for heavy cleaning shall constitute full compensation for heavy cleaning of sewers and drains, with suitable heavy cleaning machinery as approved by the Engineer. The cost associated with removal and disposal of debris material from the sewers and drains cleaned will be included for payment under the item for "Removal of Debris Material".

CUTTING PROTRUDING SERVICE CONNECTIONS.

- A. The quantity of protruding service connection laterals cut-back at the connection to the sewer main to be paid for under this item shall be equal to the actual number of service connection laterals cut back to the satisfaction of the Engineer and recorded in the service connection lateral log sheets.
- B. The unit price for this item shall constitute full compensation for removal of protruding service connection laterals to be flush with the sewer pipe wall by means of internal remote controlled cutting devices at the locations specified herein including removal and disposal of debris and material generated by the cut-back of the connection, all television inspection and flow control required for the proper operation of the cutting device, and all methods of television inspection and flow control required for the proper operation of the cutting equipment.

SEALING LATERAL SERVICE CONNECTIONS.

- A. The number of lateral service connections sealed and tested to be paid for under this item shall be equal to the actual number of lateral service connections sealed and tested, to the satisfaction of the Engineer.
- B. The unit price under this item shall constitute full compensation for sealing of lateral service connections with gel type grouts as indicated and specified, including location records, cleaning and flushing to complete the work, chemical grouts and additives, and all methods of television inspection and flow control required for the proper operation of the sealing equipment. The unit price shall also include testing each lateral following sealing. Lateral service connections that do not pass the test shall be resealed and retested until they pass without any additional compensation.

CURED-IN-PLACE SEWER & DRAIN PIPE REHABILITATION (INVERSION METHOD).

- A. The length of cured-in place sewer and drain pipe liner to be paid for under this item shall be the actual lengths measured by the linear foot along the centerline of the sewer or drain, the lengths of manhole inverts (as measured between the inside walls of the manholes) being deducted.
- B. The unit price under this item shall constitute full compensation for lining the sewer or drain as indicated and as specified, including the cost of all necessary flow control and flow bypassing measures, testing, cleaning immediately following rehabilitation, and all other work incidental to the completion of the lining and not specifically paid for under other items.

CONNECTION TO MANHOLES.

- A. The number of connections of new liner to existing manholes to be paid for under this item shall be the actual number made.
- B. The unit price for this item shall constitute full compensation for making the connection, including, but not limited to, terminating new liner at manhole, verifying the invert elevation, making a secure and watertight seal to manhole wall, and all other appurtenant work incidental to construction of the connection and not specifically included for payment under other items.

RECONNECT EXISTING LATERAL SERVICE CONNECTIONS.

- A. The number of lateral service reconnections to be paid for under this item shall be equal to the actual number of lateral service connections reconnected upon completion of cured-in-place lining work.
- B. The unit price under this item shall constitute full compensation for reconnecting all lateral service connections that are determined from TV inspection performed prior to lining. The unit price shall include post television inspection to locate services identified prior to lining work for reconnection, cleaning of the existing pipeline, flow control measures, mechanical cutting equipment to reconnect the services, removal and disposal of any debris generated during reconnection, and all other work incidental thereto and not specifically paid for under other items.

SEWER MANHOLE LINING.

- A. The vertical feet of sewer manhole lining to be paid for under this item shall be the actual vertical feet of cementitous and epoxy liner applied to all interior manhole surfaces from the manhole bench to the manhole frame.
- B. The unit price under this item shall constitute full compensation for lining the sewer manhole as indicated and as specified, including the cost of all necessary flow control and flow bypassing measures, cleaning and surface preparation of the manhole, and all other work incidental to the completion of the lining and not specifically paid for under other items.

SEWER MANHOLE CHIMNEY SEALING.

- A. The number of sewer manhole chimneys sealed to be paid for under this item shall be equal to the actual number of sewer manhole chimneys sealed to the satisfaction of the Engineer.
- B. The unit price under this item shall constitute full compensation for sealing of the sewer manhole chimney as indicated and as specified, including the cost of cleaning and surface preparation of the manhole, and all other work incidental to the completion of the sealing and not specifically paid for under other items.

REMOVAL OF DEBRIS MATERIAL.

- A. Removal of debris material from manholes, sewers and drains specified for Pre-Rehabilitation cleaning shall be paid under this item by the cubic yard of debris material removed and disposed.
- B. The unit price under this item shall constitute full compensation for trapping and removing debris and sediment material from the manhole bottom and end of the sewer or drain, and all work incidental thereto and not specifically including for payment under other items.

MOBILIZATION.

- A. The lump-sum price for this item shall constitute full compensation for initiating the contract, exclusive of the cost of materials, and for mobilizing all machinery, tools, and other equipment necessary to carry on and complete the Work.
- B. The lump-sum price for this item shall not exceed five percent (5%) of the total amount of the base bid. Payment for this item shall be payable when the Contractor is operational on the site. For purposes of this policy, "operational" shall mean the substantial commencement of work on site.

TECHNICAL SPECIFICATIONS

SECTION 02752

SEWER LINE CLEANING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: Provide all equipment necessary for the proper cleaning of the sewers prior to the joint testing operations and/or closed circuit television inspection.
- B. Related Work Specified Elsewhere: Sewer line joint testing and closed circuit television inspection are specified in this Division.

1.2 <u>REFERENCE</u>

- A. The type of pipe cleaning (light vs heavy) shall be chosen based on the definitions in the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) Version 7.0 standards.
 - 1. Light cleaning definition Cleaning and removal of settled deposits when the deposits are less than the following percentage of the pipe diameter:
 - a. Pipe diameters less than or equal to 12-inches: < 25%
 - b. Pipes diameters between 13-inches and 24-inches: < 15%
 - c. Pipes diameters between 25-inches and 30-inches: < 10%
 - d. Pipe diameters greater than 30-inches: not applicable (use heavy cleaning)
 - 2. Heavy cleaning definition Cleaning and removal of settled deposits when the deposits are greater than the following percentage of the pipe diameter:
 - a. Pipe diameters less than or equal to 12-inches: > 25%
 - b. Pipes diameters between 13-inches and 24-inches: >15%
 - c. Pipes diameters between 25-inches and 30-inches: >10%
 - d. Pipe diameters greater than 30-inches: all pipes regardless of the amount of deposits

PART 2 - PRODUCTS

- 2.1 <u>MATERIALS</u>
 - A. High Velocity Hydro-Cleaning Equipment shall:
 - 1. Have a minimum of 400 feet of high pressure hose.
 - 2. Have multiple high velocity nozzles, as follows:
 - a. Standard 35 degree nozzle with multiple rear jets and one front jet.
 - b. Sand nozzle capable of transporting sand and gravel to the downstream manhole; and
 - c. Rotating nozzle for removal of grease and scale.
 - 3. Include a high velocity gun for washing and scouring manhole walls and floor.
 - 4. Be capable of producing flows from a fine spray to a long distance solid stream.
 - 5. Include a water tank, auxiliary engines and pumps, and a hydraulically driven hose reel.
 - 6. Have equipment operating controls located above ground.

PART 3 - EXECUTION

3.1 <u>PERFORMANCE</u>

- A. Select cleaning equipment based on the conditions of the lines at the time the work commences.
 - 1. Light cleaning (as defined by NASSCO PACP): Use high pressure water jetting equipment, brushes and swabs.
 - 2. Heavy cleaning (as defined by NASSCO PACP): Use high pressure water jetting equipment specifically designed for the intended use.
- B. Use selected equipment to remove all dirt, grease, rock and other deleterious materials and obstructions.
- C. Protect existing sewer lines from damage caused by improper use of cleaning equipment.
- D. Take precautions to avoid damage or flooding to public or private property being served by the line being cleaned.
- E. Removal of Materials:
 - 1. Remove all solids and semi-solids at the downstream manhole of the section being cleaned.
 - 2. Passing material from one section of a line to another will not be permitted.
- F. Disposal of Materials: Remove from the site and dispose of all solids or other waste materials recovered during the cleaning operations in an approved manner.

3.2 <u>DETERMINING TYPE OF CLEANING</u>

A. All heavy cleaning must be coordinated with Resident Project Representative (RPR) or Engineer verbally or written for each pipe before any heavy cleaning commences.

3.3 FIELD QUALITY CONTROL

A. Acceptance of this portion of the work may be made upon completion of subsequent television inspection and shall be to the complete satisfaction of the Engineer.

END OF SECTION

SECTION 02753

TELEVISION INSPECTION OF SEWERS

PART 1 - GENERAL

1.1 **DESCRIPTION**

- A. Work Included: Furnish all necessary labor, materials, supervision and equipment to satisfactorily inspect gravity sewer lines and sewer service pipes as required by the Contract Documents by means of a closed circuit television (CCTV) system.
- B. Related Work Specified Elsewhere: Sewer line cleaning and sewer flow control are specified in the appropriate sections in this Division.

1.2 QUALITY ASSURANCE

A. CCTV work shall be completed and delivered per the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) Version 7.0 standards. Operators of CCTV equipment shall be currently certified in NASSCO PACP.

1.3 <u>SUBMITTALS</u>

- A. Provide shop drawings as specified in the General Conditions.
- B. Contractor shall submit copies of active NASSCO PACP certifications.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. The cameras shall be designed and constructed for sewer line inspection work. The mechanical design of the lens shall allow it to turn and rotate 360 degrees to provide a close up view of sewer pipe walls and sewer service pipes. The camera shall be designed to maintain proper orientation of the picture while the lens is turning and rotating.
- B. The cameras shall be operative in 100% humidity conditions.
- C. The lighting for the cameras shall be suitable to allow a clear picture of service pipes and the entire periphery of the mainline sewer pipe, such that joints, root intrusions, cracks, offset joints, deposits, etc. can be seen and identified by the Engineer.
- D. The lens focus and rotational capabilities and the light intensity will be remotely controlled from an above ground television "studio".
- E. The cameras shall produce a continuous, full color picture with a quality acceptable to the Engineer.

PART 3 - EXECUTION

3.1 <u>PERFORMANCE</u>

- A. Flow Control:
 - 1. A minimum of 75% of the periphery of the sewer line shall be visible at all times.
 - 2. The Engineer may require that the line be plugged so that the entire periphery can be inspected. For details on sewer flow control, see Section 02751.

B. Operation:

- 1. Perform inspection of sewer lines after lines have been suitably cleaned.
- 2. Lines will be suitably isolated from the remainder of the sewer line as required.
- 3. Move the cameras through the line in either direction at a moderate rate, not to exceed 30 feet per minute, as recommended by NASSCO PACP standards.
- 4. The Engineer may require Contractor to pull cameras back to get a second view of a section of the pipe.
- 5. Use manual winches, power winches, television cable reel powered rewinds, high-pressure hose and reels on jet-cleaning trucks, or a flexible pole, to move the camera through the sewer.
- 6. If, during the inspection operation, the camera will not pass through the entire pipe section, the Contractor shall set up the equipment so that the inspection can be performed from the opposite manhole on the pipe segment.
- 7. The screen monitor and winch operators shall be in full communication at all times.
- 8. Remove all wires, screens, sand bags, etc. used in the television inspection process from the sewers at the completion of inspection of each sewer section.
- C. Measurement:
 - 1. Measurement for location of defects, service connections, etc., shall be accurate to two tenths (0.2) of a foot over the length of the section being inspected.
- D. Records:
 - 1. Printed records shall be provided, reflecting location of defects, service connections, etc., and shall be recorded per NASSCO PACP standards and stored to a NASSCO PACP-certified digital reporting software:
 - a. Keep records and supply to the Engineer when the work has been completed.
 - b. Show the exact location in relation to adjacent manholes, of each infiltration point discovered by the television camera.
 - c. Show locations of laterals, unusual conditions, roots, break-in storm sewer connections, collapsed sections, presence of scale and corrosion, and other discernible features.
 - 2. Inventory the houses and apparent empty lots bordering each section of sewer line that is inspected and compare results to the number and location of house services found during the inspection. Log inconsistencies and report them to the Engineer.
 - 3. Database
 - a. One copy of the NASSCO PACP Exchange database shall be provided in digital format (MS Access).

- 4. Video / Photographs:
 - a. Two copies of the video shall be provided on an external hard drive, downloaded or output from a NASSCO PACP-certified software: one copy to the Engineer and one copy to the Owner.
 - b. The video shall be digitally recorded, indexed by pipe section (labeled by manhole number or other means acceptable to Engineer) and allow for printing of still photographs.
 - c. Photographs shall be printed at Engineer's request and shall be identified on the back as follows:

Date	;	Section: MH#	to MH#	
Diameter of Sewer	;	Distance from MH#	is	LF
Description of item pho	tog	graphed		

END OF SECTION

SECTION 02754

SEWER LINE JOINT TESTING AND SEALING

PART 1 - <u>GENERAL</u>

1.1 **DESCRIPTION**

- A. Work Included: Provide all necessary labor, materials, supervision and equipment to satisfactorily test and seal sewer line joints using the internal pipe joint sealing process.
- B. Related Work Specified Elsewhere: Sewer flow control and sewer line cleaning are specified in the appropriate sections in this Division.

1.2 **QUALITY ASSURANCE**

- A. References:
 - 1. NASSCO Recommended Guidelines for Sewer Collection System Rehabilitation, Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections
 - 2. ASTM F2304-03 Standard Practice for Rehabilitation of Sewers Using Chemical Grouting
 - 3. ASTM F2454-05 Standard Practice for Sealing Lateral Connections and lines from the mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting
- B. Acceptable manufacturers:
 - 1. Avanti International, Webster, Texas
 - 2. 3M, St. Paul, Minnesota
 - 3. Acceptable equivalent product

1.3 <u>SUBMITTALS</u>

- A. Product Data: Indicate physical and chemical characteristics, technical specifications, limitations and general recommendations regarding each material.
- B. Submit an outline of the procedures proposed to accomplish the work. Include a detailed description of the methods and equipment to be used for each operation.
- C. Inspection Logs: Provide color printed, closed circuit television (CCTV) inspection logs as hereinafter specified.
- D. Testing and Sealing Records: Provide printed testing and sealing records as hereinafter specified.
- E. Videotapes: Visual and audio record documenting CCTV inspection of conditions prior to testing and sealing, and testing and sealing operations inside the pipe.
- F. Provide a minimum 48-hours advance written notice of proposed testing schedules and testing procedures for review.

PART 2 - <u>PRODUCTS</u>

2.1 <u>MATERIALS</u>

- A. Chemical Sealant Material (Grout)
 - 1. Cured Material: Flexible as opposed to brittle; capable of withstanding freeze/thaw and wet/dry cycles without adversely affecting the seal; capable of withstanding submergence in water without degradation; capable of preventing the passage of water (infiltration) through the sewer pipe joint; and chemically stable and resistant to the mild concentrations of acids, alkalis, and organics found in normal sewage.
 - 2. Mixing of the component materials shall be compatible with field operations and not require precise measurements of the ingredients by field personnel.
 - 3. Residual sealing materials must be easily removable from the sewer line to prevent reduction or blockage of the sewage flow.
 - 4. Herbicide must be an integral part of the chemical sealant material for root control.
- B. Handle, mix, and store grout in accordance with manufacturers recommendations. The materials shall be delivered to the site in unopened manufacturer's containers.

PART 3 - EXECUTION

3.1 <u>PERFORMANCE</u>

- A. Equipment:
 - 1. CCTV system
 - 2. Testing device (packer):
 - a. Capable of isolating individual joints by creating a sealed void space around the joint being tested.
 - b. Constructed such that low pressure air can be admitted into the void area.
 - c. Shall contain a pressure gauge accurate to one tenth (0.1) psi in-line with the feed line to monitor the void pressure.
 - d. Capable of performing in active sewer lines where flows do not exceed 1/4 of the pipe diameter without resorting to any method of flow control.
- B. Preparation
 - 1. Bypass sewage flow to allow performance of work. Provide the necessary pumps, conduits and other equipment to divert the flow of sewage around the pipeline section in which work is to be performed.
 - 2. Clean sewer lines.
 - 3. Remove dirt, grease, rocks, sand and other materials and obstructions from the sewer lines to allow proper testing and sealing. All solids or semi-solids resulting from the cleaning operations shall be removed from the site and disposed as specified.
 - 4. Remove all line obstructions that will prevent testing and sealing. Cut protruding services flush with the main pipe and grout to ensure proper seal with sewer main and service connection. If conventional sewer rehabilitation equipment cannot remove an obstruction, then the Contractor shall notify the Engineer.

3.2 <u>TESTING</u>

- A. Test all joints except those with visible infiltration.
- B. Procedure:
 - 1. Pull television camera through sewer line in front of the packer.
 - 2. Position the packer on each joint to be tested.
 - 3. Inflate the bladders on each end of the packer.
 - 4. Apply four (4.0) psi pressure above the existing hydrostatic pressure on the outside of the joint to the void area created around the inside perimeter of the joint.
 - 5. Shut off the supply of air once the pressure has stabilized at the required amount.
 - 6. Monitor the void pressure for thirty (30) seconds.
 - 7. Repair the joint if the pressure drops more than one half (1/2) psi in the thirty (30) seconds.
- C. Water or chemical pressure testing may be used in lieu of air testing subject to review and approval by the Engineer.

3.3 <u>SEALING</u>

- A. Joints showing visible leakage, or joints that have failed the specified joint test shall be sealed as specified.
- B. Joint sealing shall be accomplished by forcing chemical sealing materials into or through faulty joints by a system of pumps, hoses, and sealing packers. Jetting or driving pipes from the surface that could damage or cause undermining of the pipe lines shall not be allowed.
- C. The basic equipment shall consist of a CCTV system, necessary chemical sealant containers, pumps, regulators, valves, hoses, etc., and joint sealing packers for the various sizes of sewer pipes. The packer shall be cylindrical and have a diameter less than the pipe size and have cables attached at each end to pull it through the line. The packer device shall be constructed in a manner to allow a restricted amount of sewage to flow. Generally, the equipment shall be capable of performing the specified operations in lines where flows do not exceed the maximum line flows for joint testing/sealing as recommended in NASSCO's Recommended Specifications for Sewer Collection System Rehabilitation, Pressure Testing and Grouting of Sewer Joints, Laterals and Lateral Connections.
- D. The packer shall be positioned over the faulty joint by means of a measuring device and CCTV camera in the line. The packer ends shall be expanded using controlled pressure. The expanded ends shall seal against the inside periphery of the pipe to form a void area at the faulty joint, now completely isolated from the remainder of the pipe line. Into this isolated area, sealant materials shall be pumped through the hose system at controlled pressures which are in excess of groundwater pressures. The pumping unit, metering equipment, and the packer device shall be designed so that proportions and quantities of materials can be regulated in accordance with the type and size of the leak being sealed.
- E. Residual sealing materials that extend into the pipe, reduce the pipe diameter, or restrict the flow shall be removed from the joint. The sealed joints shall be left reasonably flush with the existing pipe surface. If excessive residual sealing materials accumulate in the line, the pipe section shall be cleaned to remove the residual materials.

F. Upon completing the sealing of each individual joint, the packer shall be deflated until the void pressure meter reads zero pressure, then re-inflated and the joint retested as specified. Should the void pressure meter not read zero, the Contractor shall clean their equipment of residual grout material or make the necessary equipment repairs/adjustments to produce accurate void pressure readings. Joints that fail to meet the specified test criteria shall be resealed and retested until the test criteria can be met.

3.4 <u>TESTING AND SEALING RECORDS</u>

- A. Complete records shall be kept of joint testing and sealing performed in each pipe section. The records shall identify the following information:
 - 1. Identification of the section tested.
 - 2. The test pressure used.
 - 3. Location (footage) of each joint tested and/or sealed.
 - 4. Test results for each joint tested.
 - 5. Sealing verification results for each joint sealed.
- B. Record on an external hard drive all testing and sealing activities inside the sewer pipe. All external hard drives and necessary playback equipment shall be readily accessible for review by the Engineer during the project, after which time a copy of the external hard drive shall be provided.
- C. Use of standardized test and seal data sheets and NASSCO PACP data codes is required.
- 3.5 <u>INSPECTION</u>
 - A. Within a period of not less than 6 months and not more than 12 months after testing and sealing each section of pipe and laterals, the Contractor shall conduct a CCTV inspection of all locations. The Contractor shall notify the Engineer 48-hours in advance when the television inspection will take place. The television inspection shall include a color pan-and-tilt inspection of all areas that were sealed. Copies of the sets of CCTV database, reports, and videos produced from this inspection shall become the property of the Owner.

3.6 <u>WARRANTY</u>

- A. The Contractor shall include a one-year guarantee, from the date of the acceptance by the Owner, which includes the repair and/or re-grout of any defects including, but not limited to, root penetration, signs of infiltration, and cracks in the pipe or grouting material, which may appear because of faulty design, handiwork, or material furnished.
- B. Prior to the expiration of the guaranty period, an initial retest area consisting of the specific pipes shall be selected by the Owner. Pipes to be retested shall be randomly selected throughout the project area and shall be representative of the majority of the sealing work originally performed. The initial test area shall consist of at least 5%, but not exceed 10%, of the linear feet contained in the original project.
- C. Within the initial retest area, the Contractor shall retest all previously sealed joints as specified. Any joints failing the retest shall be resealed. If the failure rate of the retested joints is less than 5% of the joints retested, the work shall be considered satisfactory and no further retesting will be required. Payment for retesting the initial area shall be at the unit price bid for each item of work required (e.g., cleaning, CCTV)

inspection, testing, etc.). No compensation shall be provided for resealing (grouting) joints that fail.

- D. If in the initial retest area, the failure rate of the retested joints exceeds 5% of the joints retested, an additional retest area of equivalent size shall be selected, and all previously sealed joints shall be retested. This additional testing/sealing required beyond the initial retest area shall be accomplished at no cost to the Owner.
- E. Should as much as 25% of the original project be retested and fail to meet the 5% requirement, the Contractor will be required to provide the same number of crews as utilized in the original project so that the retesting will proceed at a more rapid rate.

END OF SECTION

SECTION 02756A

SEWER PIPE LINING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: Provide all equipment necessary for the manhole-to-manhole lining and spot lining via installation of "short" liners in sanitary sewer lines by the cured-in-place-pipe (CIPP) method and the reinstatement of sewer services.
- B. The system shall provide for the rehabilitation of pipes by the installation of a resin impregnated fiberglass or polyester tube patch inserted against the inside of the existing pipe utilizing air pressure (manhole-to-manhole lining) or an inflatable element and air pressure (short lining). Curing shall be accomplished by circulating steam to cure the resin into a hard, impermeable pipe within a pipe. The CIPP should extend over the length of the repair in a continuous, tight-fitting, watertight pipe within a pipe.
- C. Related Work Specified Elsewhere: Sewer flow control, sewer line cleaning, and television inspection of sewers are specified in this Division.

1.2 QUALITY ASSURANCE

- A. Standards:
 - 1. Cured-in-place-pipe (CIPP) shall meet all the requirements of ASTM F1216 (for direct inversion installation), ASTM F1743 (for pulled-in-place installations), and ASTM F2019 (for fiberglass reinforced pulled-in-place installations).
 - 2. Testing of CIPP shall meet all of the requirements of ASTM D638, ASTM D790, ASTM D792, and ASTM D5813.
- B. References:
 - 1. NASSCO (National Association of Sewer Service Companies) Recommended Specifications for Sewer Collection System Maintenance and Rehabilitation.
- C. Acceptable Contractors:
 - 1. Granite Inliner, LLC. (manhole-to-manhole lining and spot lining)
 - 2. Green Mountain Pipeline Services, Inc. (manhole-to-manhole lining and spot lining)
 - 3. Insituform Technologies, Inc. (only manhole-to-manhole lining)
 - 4. Or qualified equivalent contractor with a minimum of 5 years active experience in sewer pipe relining and a minimum of 100,000 feet of installed CIPP liner.
- D. Contractor's Staff
 - 1. The CIPP superintendent shall have a minimum experience of 3 years.
 - 2. The CIPP lateral reinstatement operator shall have a minimum experience of 1 year.
 - 3. If the above minimum years of experience for both roles cannot be met, an acceptable alternative is to have a manufacturer representative onsite during the lining work.
1.3 <u>SUBMITTALS</u>

- A. The Contractor shall submit to the Owner and/or Engineer, complete design calculations by a professional engineer for the liner that meet the requirements of ASTM F1216 or ASTM F1743 or ASTM F2019. The design shall be based on the following physical conditions of the existing pipe to be rehabilitated:
 - 1. All pipes shall be considered fully deteriorated.
 - 2. All pipes are subjected to a soil load of 120 lbs/cf with an H-20 live traffic load.
 - 3. The water table is assumed to be 3 feet below the ground surface.
 - 4. Pipe lengths and depths are shown on the Contract Documents.
 - 5. The maximum pipe ovality is 2%.
 - 6. The minimum wall thickness for CIPP liner is 4.5 mm.
 - 7. The minimum flexural modulus of elasticity of the cured liner shall be 250,000 psi, with a minimum flexural strength of 4,500 psi as tested in accordance with ASTM D-790.
- B. Contractor to submit materials and installation procedures for review by Owner and/or Engineer, including manufacturer information on resin, tube, coatings, manhole or liner end sealants, and service sealants; safety data sheets; an installation schedule; manufacturer's recommended liner installation minimum and maximum pressures; wetout schedule; the manufacturer's recommended curing schedule; means of obtaining and collecting samples for testing; method of monitoring liner temperature during curing; quality management programs; odor mitigation plan (in addition to or part of the projectwide health and safety plan); noise mitigation plan; plans for by-passing or handling of sewer flows; and traffic control.
- C. Contractor to submit video format with electronic video files on external hard drives of pre-installation CCTV inspection and post-lining CCTV inspection, and a 1-year warranty inspection as specified in Section 02753.
- D. Contractor to submit an outreach plan to the Engineer at least 1 week prior to the commencement of lining activities, this plan shall at minimum include a schedule for 1 week and 24 hour advance notices to residents who will be affected by the pipe relining, and samples of notices to be provided to residents.
- E. Contractor to submit documentation relative to the qualifications, training and experience of the installers.
- F. Contractor to supply an equipment listing including redundant tools and spare parts to be on site during the lining work.
- G. Contractor to submit a plan for providing and disposing of water if curing the liner by water.
- H. Contractor to submit an odor mitigation plan to be implemented during the liner installation.
- I. Contractor to supply information on proposed or potential repair and/or rehabilitation methods based on manufacturer's recommendations in the event of a failed liner installation including step-by-step repair procedure and how the finished product will meet the requirements of this contract specification.
- J. Prior to liner installation, Contractor shall supply wet-out logs, saturation charts, and curing schedules.
- K. During liner installation, Contractor shall collect, record, maintain, and supply temperature measurements and collected samples for testing.

PART 2 - PRODUCTS

- A. Pipe Liner
 - 1. The liner shall be fabricated from materials that are chemically resistant to exposure to domestic sewage and septic tank effluent.
 - 2. Liner material shall meet the requirements of ASTM F1216, ASTM F1743, or ASTM F2019.
 - 3. The fabric tube shall consist of one or more layers of absorbent non-woven felt fabric, felt/fiberglass, felt/carbon fiber, carbon fiber, or fiberglass.
 - 4. The resin shall be a corrosion resistant polyester or vinyl ester resin and catalyst system or epoxy and hardener system that when properly cured within the tube composite meets the requirements of ASTM F1216, ASTM F1743, or ASTM F2019.
 - 5. The completed liner shall be continuous, seamless, and jointless from manhole to manhole or the full length of the point repair.
 - 6. Liner shall be sized to provide a tight fit to the host pipe.
 - 7. The interior surface of the liner shall be a relatively light reflective color so that a clear detailed examination with closed circuit television equipment can be made.
 - 8. Liner thickness calculations are discussed in Part 1.
 - 9. Short liners are small sections of liner meant to repair smaller sections of defects within the existing pipe. These short liner locations are noted in the Contract Documents with approximate length of liners and the distance from upstream manhole and/or downstream manhole.
 - 10. The information on the existing pipeline(s) to be lined in the Contract Documents is provided for reference only and should be verified during CCTV inspection prior to spot relining. Any adjustments to the scope should be discussed with the Engineer prior to installation.
 - 11. All materials shall be stored and handled in accordance with the manufacturer's recommendations and consistent with the type or curing method to be used.
- B. Manhole End Seals
 - 1. The manhole end seals shall be a single-component, hydrophilic mastic water stop.
- C. Service connection grouting
 - 1. The grout materials and equipment used to seal service connections shall be in accordance with ASTMF2454.

PART 3 - EXECUTION

3.1 <u>GENERAL</u>

A. All work shall be done in compliance with all current OSHA safety regulations.

3.2 <u>BEFORE INSTALLATION</u>

A. Prior to conducting any work, Contractor shall deliver notices to all residents and/or building owners within the area of the pipe relining. Notice shall indicate when the work will take place and who to call with questions or in the event of an emergency. Notice to be accepted by the Owner prior to distribution.

- B. Contractor to control sewer flow and bypass pump per Section 02751.
- C. Prior to relining the sewer main, the sewer shall be cleaned in accordance with Section 02752 and inspected with CCTV equipment per Section 02753. Contractor to verify that the conditions of the sewers are acceptable for the methods of liner installation required. Prior to lining of pipe, Contractor shall trim back any protruding pipes/services extending into the pipe. Pipes shall be trimmed back to within ½-inch of the pipe wall, or as close as possible to avoid damaging the host pipe and also to prevent bulges in the liner to be installed.
- D. Active leaks shall be stopped prior to lining if they could, in the opinion of the Engineer, create pockets of trapped water or heat sinks which could cause improper curing of the liner.
- E. Contractor shall inspect the liner for any defects and if it had prematurely started to cure during transportation and storage.
- F. Install odor mitigation devices per submitted odor mitigation plan to deflect odors for both workers and general public.

3.3 LINING METHOD AND CURING

- A. The resin impregnated tube shall be installed in accordance with manufacturer's instructions using an air inflated tube or other method acceptable to the Engineer.
- B. The resin shall be cured in accordance with the resin manufacturer's instructions using circulated steam. Maintain a continuous log of temperature and pressure during curing.
- C. If the Owner approves the use of water to cure the CIPP, the water shall be provided by the Contractor and cannot be discharged to the Owner's sewer system collection system nor the storm drain collection system. The Contractor shall provide a plan for the water usage including but not limited to where the water is being collected and disposed of.
- D. After liner installation and curing, Contractor shall cool the liner down to at least 100 degrees Fahrenheit prior to commencing service reinstatement and collection of samples. Liner temperature during curing and cool-down shall be monitored by a thermocouple or temperature monitoring strip and recorded at least at 15-minute intervals.

3.4 <u>POST LINING INSTALLATION</u>

- A. After liner installation, curing, and cool down, the Contractor shall reinstate the existing service connections, using remote controlled equipment including a television camera meeting the requirements of Section 02753. The opening created for the service lateral shall be at least 95% of the original opening. After creating the hole in the liner, polish the edges of the hole to remove sharp edges and improve flow conditions from the service pipe into the lined sewer main. Coupons of the lining material removed during service reinstatement shall be collected at the downstream manhole and shall not be left within the sewer system.
 - 1. The Contractor shall grout and seal each service connection to prevent leakage between the existing pipe, the existing service connection, and the new liner. Any connections to the sewer main that are not to be reinstated after liner installation shall be coordinated with the Owner. It is the Contractor's sole responsibility to confirm with the Owner that a connection is to be abandoned and not reinstated to the main. For each connection not reinstated, the Contractor shall obtain a sign-off from the Owner, using the form included at the end of this Section.

B. Provide a watertight seal at the insertion and termination points in the manholes. Seal any annular space between the liner and host pipe in the manholes and provide for smooth merging of flows from other pipelines entering the manhole.

3.5 <u>TESTING</u>

- A. For every 2,500 linear feet of liner installed, two samples shall be processed and tested. If the project will have less than 2,500 linear feet of liner installed, a minimum of two samples shall be processed and tested.
 - 1. For pipe diameters less than 18-inches, restrained end samples shall be utilized and tested.
 - 2. For pipe diameters 18-inches and larger, flat plate samples shall be utilized and tested.
 - 3. The CIPP physical properties shall be tested in accordance with ASTM F1216, Section 8, using either allowed sampling method. The flexural properties must meet or exceed the values listed in Section 1.3 of this Specification and the values submitted to the Owner by the Contractor for this project's CIPP wall design, whichever is greater.
 - 4. The installed CIPP thickness shall be measured.
 - a. For pipe diameters less than 18-inches, the restrained end samples shall be measured for thickness.
 - b. For pipe diameters 18-inches and larger, two-inch cores sample shall be removed from the CIPP liner at the 12 o'clock position to check thickness. The core hole shall be repaired as recommended by the manufacturer.
 - 5. Testing shall be completed by an accredited, independent laboratory. Testing results shall be provided to the Owner and the Engineer within 7 days of receipt of such results.
- B. Following liner installation, leakage testing shall be performed on the liner.
 - 1. For pipe diameters less than 15-inches that were cured by steam, air testing shall be performed.
 - 2. For pipe diameters less than 15-inches that were cured by water, exfiltration leakage testing shall be performed on the liner according to the requirements of ASTM F1216.
 - 3. For pipe diameters between 15-inches and 30-inches, air testing or exfiltration leakage testing shall be performed on the liner according to the requirements of ASTM F1216.
 - 4. For pipe diameters larger than 30-inches, visual inspection of leakage is acceptable.

- C. After completion of the work, perform post-installation CCTV inspection of the completed liner and the restored service connections per the requirements of Section 02753. Any of the following defects that are observed shall be repaired immediately at the expense of the Contractor in accordance with the liner manufacturer's recommendations:
 - 1. Visible leaks, weeping or pinholes
 - 2. Fins, bulges, wrinkles or other obstructions located:
 - a. Outside of the flow line of the pipe that are 5% or greater of the crosssectional area of the host pipe shall be repaired.
 - b. In the lower third of the pipe or inside the flow line and in circumferential configuration that are 3% or greater of the cross-sectional area or 0.5-inches, whichever is smaller.
 - 3. Soft or uncured sections of the liner
 - 4. Visual discoloration or other visual anomalies
- D. During the one-year warranty period, any defects which will affect the integrity, the strength and/or leak resistance of the liner shall be repaired at the expense of the Contractor.
- E. At a time approaching the end of the one-year warranty period, the Contractor shall pay for a third party (approved by the Owner) to clean and CCTV inspect up to 15% of the total lined sewers in the contract. During the one-year warranty period, any defects which will affect the integrity, or the strength of the liner shall be repaired at the expense of the Contractor.

CONFIRMATION TO ABANDON AN EXISTING CONNECTION TO THE SEWER MAIN

Complete this form for each connection to the sewer main that is not reinstated after relining.

Connection Location:

Street Address:

_____ LF upstream/downstream (circle one) of MH ______ as indicated on CCTV inspection prior to relining of the main.

Purpose for Abandonment (check all that apply):

Service	No Longer Active	 Served by Separate Lateral
Connect	tion to Storm Drain	 Other:

Method of Determining Connection can be Abandoned:

 Dye Test	 Direction from Owner
 CCTV Inspection Visual	 Inspection
 Building Inspection	 Other:

Confirmation that Connection is to be Abandoned (not reinstated):

Owner

Contractor

Date

Date

Submit copy of the signed form to the Engineer.

END OF SECTION

SECTION 02756C

SEWER PIPE LINING USING UV CURING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: Provide all equipment necessary for the relining of sanitary sewer lines by the cured-in-place-pipe (CIPP) method and the reinstatement of sewer services.
- B. The system shall provide for the rehabilitation of pipes by the installation of a resin impregnated fiberglass or polyester tube patch inserted against the inside of the existing pipe utilizing air pressure (manhole-to-manhole lining) or an inflatable element and air pressure (short lining). Curing shall be accomplished by passing a UV light through the liner to cure the resin into a hard, impermeable pipe within a pipe. The CIPP should extend over the length of the repair in a continuous, tight-fitting, watertight pipe within a pipe.
- C. Related Work Specified Elsewhere: Sewer flow control, sewer line cleaning, and television inspection of sewers are specified in this Division.

1.2 QUALITY ASSURANCE

- A. Standards:
 - 1. Cured-in-place-pipe (CIPP) shall meet all the requirements of the following standards:
 - a. ASTM F1216 Standard Practice for rehabilitation of existing pipelines and conduits by the inversion and curing of a resin-impregnated tube
 - b. ASTM F1743 Standard Practice for rehabilitation of existing pipelines and conduits by pulled-in-place installation of cured-in-place thermosetting resin pipe
 - c. ASTM F2019 Standard Practice for rehabilitation of existing pipelines and conduits by the pulled-in-place installation of glass reinforced plastic cured-in-place thermosetting resin pipe
 - d. ASTM D790 Standard test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials
 - e. ASTM F2454 Standard Practice for Sealing Lateral Connections and lines from the mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting
- B. References:
 - 1. NASSCO (National Association of Sewer Service Companies) Recommended Specifications for Sewer Collection System Maintenance and Rehabilitation.
- C. Acceptable Contractors:
 - 1. Layne Inliner, LLC.
 - 2. Insituform Technologies, Inc.
 - 3. Vortex Companies
 - 4. Or qualified equivalent contractor with a minimum of 5 years' experience in sewer pipe relining and a minimum of 100,000 feet of installed CIPP liner.

D. Contractor's Staff

- 1. The CIPP superintendent shall have a minimum experience of 3 years.
- 2. The CIPP lateral reinstatement operator shall have a minimum experience of 1 year.
- 3. If the above minimum years of experience for both roles cannot be met, an acceptable alternative is to have a manufacturer representative onsite during the lining work.

1.3 <u>SUBMITTALS</u>

- A. The Contractor shall submit to the Owner and/or Engineer, complete design calculations for the liner that meet the requirements of ASTMs F1216, F1743, or F2019, whichever is applicable for the installation and curing methods to be used. The design shall be based on the following physical conditions of the existing pipe to be rehabilitated:
 - 1. All pipes shall be considered fully deteriorated and no bonding to the existing pipe shall be assumed.
 - 2. All pipes are subjected to a soil load of 120 lbs/cf with an H-20 live traffic load.
 - 3. The water table is assumed to be 3 feet below the ground surface.
 - 4. Pipe lengths and depths are shown on the Contract Documents and shall be verified by the Contractor during the pre-installation inspection.
 - 5. The maximum pipe ovality is 2%, unless documented, measured by the Contractor and submitted to the Engineer.
 - 6. The minimum wall thickness for a felt tube CIPP liner is 6 mm. The minimum wall thickness for a fiberglass reinforced tube CIPP liner is 2.8 mm.
 - 7. The minimum flexural modulus of elasticity of the cured liner shall be 250,000 psi, with a flexural strength of 4,500 psi, as tested in accordance with ASTM D-790.
 - 8. The calculations shall account for a 50-year design life and include a documented factor of safety.
- B. Contractor to submit materials and installation procedures for review by Owner and/or Engineer, including information on resin, tube material including certifications, internal and exterior liner coatings, a pre-liner layer if required, manhole and service sealants, an installation schedule, the manufacturer's recommended curing schedule, means of obtaining and collecting samples for testing, method of monitoring liner temperature during curing, and other quality management programs, plans for by-passing or handling of sewer flows, and traffic control.
- C. Contractor to submit video format with electronic video files on external hard drives of pre-installation CCTV inspection and post-lining CCTV inspection, and a 1-year warranty inspection as specified in Section 02753.
- D. Contractor shall provide the location of the wet-out facility to manufacturer the liner and include documentation of its permitting status and QA/QC controls. If requested in writing by the Engineer, the Contractor shall assist the Engineer in setting up an inspection of the wet-out facility in advance of the manufacturing of the liner.
- E. Contractor to submit an outreach plan to the Engineer at least 1 week prior to the commencement of lining activities, this plan shall at minimum include a schedule for 1-week and 24-hour advance notices to residents who will be affected by the pipe relining, samples of notices to be provided to residents, and an odor and noise

mitigation plan.

- F. Contractor to submit documentation relative to the qualifications, training and experience of the installers.
- G. Contractor to supply an equipment listing including redundant tools and spare parts to be on site during the lining work.
- H. Contractor to submit an odor mitigation plan to be implemented during the liner installation.
- I. Contractor to supply information on proposed or potential repair and/or rehabilitation methods based on manufacturer's recommendations in the event of a failed liner installation including step-by-step repair procedure and how the finished product will meet the requirements of this contract specification.
- J. Prior to liner installation, Contractor shall supply wet-out logs, saturation charts, and curing schedules.
- K. During liner installation, Contractor shall supply wet-out logs; curing schedules, including curing logs from the light train quality control software; and collected samples for testing.

PART 2 - PRODUCTS

- A. Pipe Liner
 - 1. The liner shall be fabricated from materials that are chemically resistant to exposure to domestic sewage and septic tank effluent.
 - 2. The resin, tube and curing methods shall be compatible with each other and the installation method to be used, in accordance with manufacturer's recommendations.
 - 3. The completed liner shall be continuous, seamless, and jointless from manhole to manhole.
 - 4. Liner shall be sized to provide a tight fit to the host pipe.
 - 5. The interior surface of the liner shall be a relatively light reflective color so that a clear detailed examination with closed circuit television equipment can be made.
 - 6. Interior and exterior liners shall be provided to mitigate styrene migration. The interior and exterior liners shall be included as part of the pipe design, or removed as part of the installation.
 - 7. Liner thickness calculations are discussed in Part 1.
 - 8. Liner material shall meet the requirements of ASTM F1216, F1743, or F2019, whichever is applicable based on the materials, installation and curing methods to be used.
 - 9. Short liners are small sections of liner meant to repair smaller sections of defects within the existing pipe. These short liner locations are noted in the Contract Documents with approximate length of liners and the distance from upstream manhole and/or downstream manhole.
 - 10. The information on the existing pipeline(s) to be lined in the Contract Documents is provided for reference only and should be verified during CCTV inspection prior to spot relining. Any adjustments to the scope should be discussed with the Engineer prior to installation.

- 11. All materials shall be stored and handled in accordance with the manufacturer's recommendations and consistent with the type or curing method to be used.
- B. Manhole End Seals
 - 1. The manhole end seals shall be a single-component, hydrophilic mastic water stop.
- C. Service connection grouting
 - 1. The grout materials and equipment used to seal service connections shall be in accordance with ASTMF2454.

PART 3 - EXECUTION

3.1 <u>GENERAL</u>

A. All work shall be done in compliance with all current OSHA safety regulations.

3.2 <u>BEFORE INSTALLATION</u>

- A. Prior to conducting any work, Contractor shall deliver notices to all residents and/or building owners within the area of the pipe relining. Notice shall indicate when the work will take place and who to call with questions or in the event of an emergency. Notice to be approved by the Owner prior to distribution.
- B. Prior to relining the sewer main, the sewer shall be cleaned in accordance with Section 02752 and inspected with CCTV equipment per Section 02753. Contractor to verify that the conditions of the sewers are acceptable for the methods of liner installation required. Prior to lining of pipe, Contractor shall trim back any protruding pipes/services extending into the pipe. Pipes shall be trimmed back to within ½-inch of the pipe wall, or as close as possible to avoid damaging the host pipe and also to prevent bulges in the liner to be installed. All debris from cleaning and trimming operations shall be removed from the sewer system and not flushed downstream.
- C. Active leaks shall be stopped prior to lining if they could, in the opinion of the Engineer, create pockets of trapped water or heat sinks which could cause improper curing of the liner.
- D. Contractor shall inspect the liner for any defects and if it had prematurely started to cure during transportation and storage.
- E. Install odor mitigation devices per submitted odor mitigation plan to deflect odors for both workers and general public.

3.3 LINING METHOD AND CURING

- A. The Contractor shall install and UV cure the liner per the method recommended by the liner manufacturer and as submitted in the shop drawing.
- B. Following liner installation and curing, leakage testing shall be performed on the liner according to the requirements of ASTM F1216.
- C. After liner installation and curing, Contractor shall cool the liner down to at least 100 degrees Fahrenheit prior to commencing service reinstatement and collection of samples. Liner parameters during curing and cool-down shall be monitored, and recorded from the quality control software guiding the light-train.

3.4 <u>POST LINING INSTALLATION</u>

- A. After liner installation, curing, and cool down, the Contractor shall reinstate the existing service connections, using remote controlled equipment including a television camera meeting the requirements of Section 02753. The opening created for the service lateral shall be at least 95% of the original opening. After creating the hole in the liner, polish the edges of the hole to remove sharp edges and improve flow conditions from the service pipe into the lined sewer main. Coupons of the lining material removed during service reinstatement shall be collected at the downstream manhole and shall not be left within the sewer system.
 - 1. The Contractor shall grout and seal each service connection to prevent leakage between the existing pipe, the existing service connection, and the new liner. Any connections to the sewer main that are not to be reinstated after liner installation shall be coordinated with the Owner. It is the Contractor's sole responsibility to confirm with the Owner that a connection is to be abandoned and not reinstated to the main. For each connection not reinstated, the Contractor shall obtain a sign-off from the Owner, using the form included at the end of this Section.
- C. Provide a watertight seal at the insertion and termination points in the manholes. Seal any annular space between the liner and host pipe in the manholes and provide for smooth merging of flows from other pipelines entering the manhole.
- D. The use of the video from the light train shall not be used for post inspection documentation purposes.
- 3.5 <u>TESTING</u>
 - A. For every 2,500 linear feet of liner installed, two samples shall be processed and tested. If the project will have less than 2,500 linear feet of liner installed, a minimum of two samples shall be processed and tested.
 - 1. For pipe diameters less than 18-inches, restrained end samples shall be utilized and tested.
 - 2. For pipe diameters 18-inches and larger, flat plate samples shall be utilized and tested.
 - 3. The CIPP physical properties shall be tested in accordance with ASTM F1216, Section 8, using either allowed sampling method. The flexural properties must meet or exceed the values listed in Section 1.3 of this Specification and the values submitted to the Owner by the Contractor for this project's CIPP wall design, whichever is greater.
 - 4. The installed CIPP thickness shall be measured.
 - a. For pipe diameters less than 18-inches, the restrained end samples shall be measured for thickness.
 - b. For pipe diameters 18-inches and larger, two-inch cores sample shall be removed from the CIPP liner at the 12 o'clock position to check thickness. The core hole shall be repaired as recommended by the manufacturer.
 - 5. Testing shall be completed by an accredited, independent laboratory. Testing results shall be provided to the Owner and the Engineer within 7 days of receipt of such results.

- B. Following liner installation, leakage testing shall be performed on the liner.
 - 1. For pipe diameters less than 15-inches that were cured by steam, air testing shall be performed.
 - 2. For pipe diameters less than 15-inches that were cured by water, exfiltration leakage testing shall be performed on the liner according to the requirements of ASTM F1216.
 - 3. For pipe diameters between 15-inches and 30-inches, air testing or exfiltration leakage testing shall be performed on the liner according to the requirements of ASTM F1216.
 - 4. For pipe diameters larger than 30-inches, visual inspection of leakage is acceptable.
- C. After completion of the work, perform post-installation CCTV inspection of the completed liner and the restored service connections per the requirements of Section 02753. Any of the following defects that are observed shall be repaired immediately at the expense of the Contractor in accordance with the liner manufacturer's recommendations:
 - 1. Visible leaks, weeping or pinholes
 - 2. Fins, bulges, wrinkles or other obstructions located:
 - a. Outside of the flow line of the pipe that are 5% or greater of the crosssectional area of the host pipe shall be repaired.
 - b. In the lower third of the pipe or inside the flow line and in circumferential configuration that are 3% or greater of the cross-sectional area or 0.5-inches, whichever is smaller.
 - 3. Soft or uncured sections of the liner
 - 4. Visual discoloration or other visual anomalies
- D. During the one-year warranty period, any defects which will affect the integrity, the strength and/or leak resistance of the liner shall be repaired at the expense of the Contractor.
- E. At a time approaching the end of the one-year warranty period, the Contractor shall pay for a third party (approved by the Owner) to clean and CCTV inspect up to 15% of the total lined sewers in the contract. During the one-year warranty period, any defects which will affect the integrity, or the strength of the liner shall be repaired at the expense of the Contractor.

<u>CONFIRMATION TO ABANDON AN EXISTING</u> <u>CONNECTION TO THE SEWER MAIN</u>

Complete this form for each connection to the sewer main that is not reinstated after relining.

Connection Location:

Street Address:

LF upstream/downstream (circle one) of MH ______ as indicated on CCTV inspection prior to relining of the main.

Purpose for Abandonment (check all that apply):

 Service No Longer Active
 Served by Separate Lateral

 Connection to Storm Drain
 Other:

Method of Determining Connection can be Abandoned:

 Dye Test	 Direction from Owner
 CCTV Inspection	 Visual Inspection
 Building Inspection	 Other:

Confirmation that Connection is to be Abandoned (not reinstated):

Owner

Contractor

Date

Date

Submit copy of the signed form to the Engineer.

END OF SECTION

SECTION 02758

MANHOLE REHABILITATION

<u>PART 1 - GENERAL</u>

1.1 <u>DESCRIPTION</u>

- A. Work Included: The work includes the rehabilitation of sewer manholes, including but not limited to:
 - 1. the removal of roots, mineral build-up and debris;
 - 2. the injection grouting of cracks and leaking joints;
 - 3. the sealing and lining of various manhole components;
 - 4. the epoxy coating of various manhole components;
 - 5. the adjustment to grade of frames and covers;
 - 6. the removal of steps;
 - 7. the installation / application of an applied seal at the joint of the manhole frame and chimney;
- B. The locations of the manholes to be rehabilitated are shown in Contract Documents.
- C. The intent of the manhole rehabilitation work is to correct the observed defect and prevent future deterioration using various products and procedures and methods either singularly or in combination.
- D. Related Work Specified Elsewhere:
 - 1. Final Sewer Testing Section 02755

1.2 DESCRIPTION OF METHODS

- A. Patch manhole or plug abandoned pipe connections: Non-shrink material to fill large voids in manhole and/or stop running water in manhole or plug abandoned pipes.
- B. Grout manhole: Manhole grouting (sealing) involves injection grouting to stop leakage includes surface preparation where required, drilling through the manhole walls, bench or table as identified, injecting grout material into the voids and earthen materials outside the structure; patching of the drill and grouting holes; and other associated work to stop leaks.
- C. Cementitious lining of manhole: Cementitious liner for precast, block or brick manholes includes the pressure washing of manhole and removal of all roots, deposits and loose debris and the lining of the manhole through the spray application and/or centrifugally spin-casting a cementitious-based liner to the inside of the manhole.
- D. Epoxy lining of manhole: Epoxy coating/liner includes the cleaning and surface preparation of the manhole, application of an epoxy coating system on the wall surfaces, and associated work.
- E. Applied urethane seal of manhole chimney: This work includes surface preparation for the applied seal, furnishing and installing the applied urethane seal to create a uniform barrier to prevent leakage of water into manhole.
- F. Internal mechanical seals: Install manufactured products that seal leaks within a manhole from frame to top of concrete walls via rubber seals held in place with extendable mechanical bands. Installing these seals includes the pressure washing of manhole and removal of all roots, deposits and loose debris and the sealing of the manhole through the installation of the mechanical seal.

- G. Removal and disposal of manhole steps: Removal and disposal of steps in sewer manholes, including surface preparation, cutting the steps, patching the steps' wall penetration and removal of debris.
- H. Repair/replacement of manhole bench, channel, and/or invert: Repair or construction of manhole bench, channel, and/or inverts in sewer manholes including surface preparation, masonry work, and disposal of excess materials.
- I. Miscellaneous manhole cleaning is typically incidental to other rehabilitation work and includes pressure washing, debris removal and other necessary work to properly prepare surfaces and manholes for the work to be performed. Protect pipe inlets and outlets to prevent debris from entering the collection system.
- J. Final acceptance: After the rehabilitation work has been completed, the manholes shall be visually inspected by the Engineer and tested (as required) in the presence of the Owner and/or Engineer.
- 1.3 <u>REFERENCES</u>
 - A. ASTM F2414-03 Standard Practice for Sealing Sewer Manholes Using Chemical Grouting
 - B. ASTM F2551 Standard Practice for Installing a Protective Cementitious Liner System in Sanitary Sewer Manholes
 - C. ASTM C150 Standard Specification for Portland Cement Type I
 - D. ASTM C33-86 Standard Specification for Concrete Aggregates
 - E. ASTM C78 Standard Test Method for Flexural Strength of Concrete; Using Simple Beam with Third Point Loading
 - F. ASTM C109/C109M-05 Standard Test Method for Compressive Strength of Hydraulic
 - G. Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
 - H. ASTM C157/C157M-06 Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
 - I. ASTM C267 Test Methods for Chemical Resistance of Mortars, Grouts and Monolithic Surfacings and Polymer Concretes
 - J. ASTM C309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete
 - K. ASTM C293-02 Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)
 - L. ASTM C321-00(2005) Standard Test Method for Bond Strength of Chemical-Resistant Mortars
 - M. ASTM C348-02 Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
 - N. ASTM C494-86 Standard Specification for Chemical Admixtures for Concrete
 - O. ASTM C496/C496M-04e1 Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
 - P. ASTM C666/C666M-03 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
 - Q. ASTM C882-05 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear

- R. ASTM C923-07 Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
- S. ASTM D412-06a Standard Test Methods for Vulcanized Rubber and Thermoplastic
- T. Elastomers -Tension
- U. ASTM D638-03 Standard Test Method for Tensile Properties of Plastics
- V. ASTM D395-03 Standard Test Methods for Rubber Property Compression Set
- W. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and
- X. Reinforced Plastics and Electrical Insulating Materials
- Y. ASTM D695-02a Standard Test Method for Compressive Properties of Rigid Plastics
- Z. ASTM D2240-05 Standard Test Method for Rubber Property Durometer Hardness
- AA. ASTM D-638-03 Standard Test Method for Tensile Properties of Plastics
- BB. ASTM D790-07 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- CC. ASTM D2344/D2344M-00(2006) Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
- DD. ASTM: D-3039 ASTM D3039/D3039M-00(2006) Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials
- EE. ASTM D543 Resistance of Plastics to Chemical Reagents.
- FF. ASTM D638 Tensile Properties of Plastics.
- GG. ASTM D695 Compressive Properties of Rigid Plastics.
- HH. ASTM D790 Flexural Properties of Unreinforced and Reinforced Plastics.
- II. ASTM D2240 Standard Test Method for Rubber Property—Durometer Hardness ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abrader
- JJ. ASTM D4414 Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages
- KK. ASTM D-4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- LL. ASTM D7234 Pull-off Strength of Coatings Using a Portable Adhesion Tester.
- MM. SSPC SP-13/NACE No. 6 Surface Preparation of Concrete
- NN. NACE SP0188 For performing holiday detection
- OO. CIGMAT Evaluation of Liner System for Wastewater Concrete and Clay Brick Facilities
- PP. ASTM G210 Severe Wastewater Analysis Test
- 1.4 QUALITY ASSURANCE
 - A. All work shall be performed in accordance with the National Association of Sewer Service Companies (NASSCO) Specification Guidelines, latest edition. Handiwork shall be first-class in all respects.
 - B. The Contractor shall have at least five years of experience with the rehabilitation technology and completed the rehabilitation technology on a minimum of 50

manholes.

- C. Contractor's personnel involved in the installation of material shall be certified by the manufacturer that they have successfully completed training in handling, applying and finishing the materials being used.
- D. The Contractor shall inspect pre-rehabilitation work, surface preparation, rehabilitation operations, and post-rehabilitation work.

1.5 <u>SUBMITTALS</u>

- A. Submit shop drawings in accordance with the General Conditions of the Contract Documents.
- B. Contractor to submit materials and installation procedures for review by Owner and/or Engineer including: manufacturer information on materials; safety data sheets; ASTM references; an installation schedule; manufacturer's recommended installation; the manufacturer's recommended curing schedule; chemical resistance; means of obtaining and collecting samples for testing; quality management programs; odor mitigation plan (in addition to or part of the project-wide health and safety plan); noise mitigation plan; plans for by-passing or handling of sewer flows; and traffic control.
- C. Submit detailed descriptions of the recommended procedures for handling and storing materials including a proposed method for monitoring temperatures of the storage location.
- D. Submit a detailed description of all required field-testing processes and procedures as applicable from the manufacturer.
- E. Contractor to supply information on proposed or potential repair and/or rehabilitation methods in the event of a failed rehabilitation component system installation including step-by-step repair procedure and how the finished product will meet the requirements of this contract specification.
- F. Submit a certified statement from the manufacturer that the contractor / installer is an approved installer and tester of the rehabilitation product with certificates of completed training for each crew member involved in each rehabilitation component.
- G. Submit the contact information and documentation for the third-party National Association of Corrosion Engineers (NACE) accredited inspector or manufacturer's representative who shall perform holiday (spark) testing on the manhole liner.
- H. Submit manufacturer's "Certification of Conformance" that lining materials meet or exceed the requirements of these Specifications.
- I. Submit a minimum of five recent verifiable references for similar project work in the United States indicating the successful application of the manhole rehabilitation as specified herein or to be furnished by the Contractor and applied in a similar project environment as included in these contract specifications.
- J. Submit documentation of a minimum of a five-year successful installation history of the products to be used.
- K. Submit other documents as specified in the appropriate Sections of this Division.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Rehabilitation component materials are to be kept dry, protected from weather and stored under cover and in accordance with manufacturer's recommendations.

B. Polymer and cementitious protective coating materials are to be stored at temperatures as recommended by the manufacturer and handled according to their SDS. Do not store near flame, heat, or strong oxidants.

PART 2 - PRODUCTS

2.1 PATCH MANHOLE

- A. Equipment Trowel
- B. Materials The mortar used shall be a non-shrink hydraulic cement.

2.2 <u>GROUT MANHOLE</u>

- A. Equipment: The basic equipment shall consist of pumps, containers, injection packers, hoses, valves, and all necessary equipment and tools required to seal manhole joints and leaks and/or seal the exterior surfaces. The chemical grout injection pumps shall be equipped with pressure meters that will provide for monitoring pressure during the injection of the chemical sealants. When necessary, liquid bypass lines equipped with pressure-regulating bypass valves will be incorporated into the pumping system.
- B. Materials:
 - 1. Hydrophilic polyurethane chemical grout for crack injections consists of premeasured, prepackaged polyurethane chemical grout with root inhibitor. The grout is designed for crack injections to react with water and form a water impermeable foam or gel mass unaffected by mildly corrosive environments. The grout shall be non-toxic, non-flammable, high flash point (225° F) hydrophilic polymer of the type which is applied in a crack or open joint. When mixed with water, the material shall expand up to 4 times its original volume and cure to a closed cell polyurethane foam.
 - 2. Hydrophobic polyurethane chemical grout for crack injections consists of premeasured, prepackaged polyurethane chemical grout with root inhibitor. The grout is designed for crack injections to form flexible gasket or plugs. The grout shall be non-toxic, non-flammable, high flash point (225° F) hydrophobic polymer of the type which is applied in a crack or open joint. When mixed with water, the material shall expand up to 4 times its original volume and cure to a tough, flexible, closed cell polyurethane foam.
 - 3. Hydrophobic polyurethane chemical grout for large voids consists of premeasured, prepackaged polyurethane chemical grout with root inhibitor that when mixed and makes contact with the water shall fill large voids in rock fissures, gravel layers and cracks in concrete structures and for the stopping of gushing water. The grout shall be non-toxic, non-flammable, high flash point (225° F) hydrophobic polymer of the type which is applied in a crack or open joint by use of a packer.
 - 4. Water: Potable from municipal/public water supply.
 - 5. Filler Gaskets: Oakum or other strong fibrous jute material that is saturated with grout to plug larger openings in combination with the polyurethane grout.
 - 6. Utilize proper grout for the intended application as recommended by the manufacturer. Grout conditions may be adjusted for catalyzing the reaction, inhibiting the reaction, lowering the freezing temperature of the grout solution,

adding fillers, providing strength, or for inhibiting root growth according to the instructions of the grout manufacturer and in the specified quantities as recommended by the grout manufacturer.

- 7. Utilize non-shrink grout for patching holes and filling gaps around pipe connections or left behind by drilling holes for injection.
- C. Acceptable Sealant Grout Manufacturers and Products are:
 - 1. Hydrophilic polyurethane chemical grout for crack injections
 - a. Avanti International AV-202 LV or AV-330
 - b. Sika Corporation SikaFix HH Hydrophilic
 - c. Or equal
 - 2. Acrylamide chemical grout for crack injection
 - a. Avanti International AV-100
 - b. Or equal
 - 3. Hydrophobic polyurethane chemical grout for crack injections
 - a. Avanti Grouts AV-248 Flexseal LV with AV-249 Catalyst LV
 - b. Sealing Systems, Inc. (S.S.I.) Aqua Seal
 - c. Alchemy- Spetec PUR F400
 - d. Or equal
 - 4. Hydrophobic polyurethane chemical grout for large voids
 - a. Avanti Grouts AV-275
 - b. Sika Corporation SikaFix HH+
 - c. Sealing Systems, Inc. (S.S.I.) Aqua Seal
 - d. Alchemy-Spetec PUR H100
 - e. Or equal

2.3 <u>CEMENTITIOUS LINER</u>

- A. Equipment: The basic equipment shall consist of pumps, containers, packers, hoses, nozzles, valves, and all necessary equipment and tools required to line manholes as required by the manufacturer.
- B. Materials: The liner mix shall be cement-based, fiber-reinforced calcium aluminate mortar specifically designed to prevent infiltration and restore structural integrity, and to be spray applied to form a structurally enhanced, monolithic cementitious liner covering all interior manhole surfaces. Minimum applied thickness shall be ½ inch but application thickness must provide a structurally stable manhole and form a barrier to water and gases. Material shall be premixed and specially formulated to resist hydrogen sulfide bacterial corrosion and abrasion in municipal sanitary sewer systems.

The lining material shall meet the following minimum requirements at 28 days:

Compressive Strength	ASTM C109	9,000 psi
Flexural Strength	ASTM C293	700 psi
Shrinkage @ 90% Humidity	ASTM C596	0%
Tensile Strength	ASTM C496	>600 psi
Sulfide Resistance	ASTM C267	no visible attack at
		pH 2 or greater

- C. Acceptable manufacturers and products are:
 - a. Strong Systems, Inc. Strong Seal QSR
 - b. AP/M Permaform Permacast Process
 - c. Quadex QM-1s Restore
 - d. Or approved equal

2.4 <u>EPOXY LINER</u>

- A. High Build Epoxy Coating System:
 - 1. Equipment: The basic equipment shall consist of pumps, containers, hoses, valves, and all necessary equipment and tools required to coat manholes as required by the manufacturer.
 - 2. Liner materials listed below are either a monolithic coating for the liner (such as Quadex product) or require multiple coatings for the epoxy liner (Epoxytec product).
 - 3. Base Coat Liner Materials A cementitious liner shall be utilized as the base coat liner to uniformly resurface and provide a barrier coat and structural reinforcement for rehabilitative conditions prior to the final coat utilizing the urethane-modified epoxy (UME). The same material specified above for manhole lining can be used for this base coat, provided it meets both specifications.
 - a. Material will be an ultra-high density strength, high build, silica fume, fiber-reinforced, corrosion resistant mortar, based on Portland cement fortified with micro silica.
 - b. Approved material shall exhibit the following physical properties:

Set Time at 77F ASTM C-403	24 hours
Modulus of Elasticity ASTM C-469	24 hours: 3,000,000+ psi
	28 days: 4,000,000+ psi
Flexural Strength ASTM C-293	24 hours: 600+ psi
	28 days: 800+ psi
Compressive Strength ASTM C-109	24 hours: 2,000+ psi
	28 days: 10,000+ psi
Tensile Strength ASTM C-307	600+ psi
Shear Bond ASTM C-882	>1,000 psi
Shrinkage ASTM C-157	< 0.005
Chloride Permeability ASTM C-1202	<250 Coulombs

- c. Acceptable Products and Manufacturers are:
 - i. Epoxytec International, Inc.
 - (1) For 1/16-inch to 1-inch thick coating Mortarrec Ceramico (#RCME-K1)
 - (2) For greater than 1-inch thick coating Mortartec Silicate (#RCHA1)
 - ii. Or equal

- 4. Final Coat Liner Materials Epoxy coating shall be resistant to all forms of chemical or bacteriological attack found in municipal sanitary sewer systems, including severe hydrogen sulfide (up to 600ppm).
 - a. Epoxy coating must be moisture tolerant to moisture levels of concrete up to 90%.
 - b. Epoxy coating must adhere to concrete with adhesion testing results in PSI that outperformed the cohesion of concrete (CIGMAT CT-2/3).
 - c. Epoxy coating shall be self-priming.
 - d. Approved material shall exhibit the following physical properties:

Solids by Volume ASTM D2697 Solvent (VOC) ASTM D3960 Water Absorption ASTM D1653 Tensile Strength ASTM D638 Flexural Modulus ASTM D790 Flexural Strength ASTM D790 Compressive Strength ASTM D695 Elongation ASTM D2370	100% 0% < 0.1 g/sq.m. 5,500 psi (min) 55,000 psi 8,000 psi (min) 7,000 psi (min) 30-40%
Complete Cure (min)	18 hours (77F)

- e. Acceptable Products and Manufacturers are:
 - i. Epoxytec International, Inc Uroflex (#UME38-G4T)
 - ii. Quadex Structure Guard
 - iii. Or equal
- B. High Build 100% solids structural epoxy coating system:
 - 1. Equipment: The basic equipment shall consist of pumps, containers, hoses, valves, and all necessary equipment and tools required to coat manholes as required by the manufacturer.
 - 2. Base Coat Liner Materials A cementitious liner shall be utilized as the base coat liner to uniformly resurface and provide a barrier coat and structural reinforcement for rehabilitative conditions prior to the final coat utilizing the urethane-modified epoxy (UME). The same material specified above for manhole lining can be used for this base coat, provided it meets both specifications.
 - 3. Structural Epoxy liner materials:
 - a. Epoxy coating shall be resistant to all forms of chemical or bacteriological attack found in municipal sanitary sewer systems, including severe hydrogen sulfide (up to 600ppm).
 - b. Epoxy coating must be moisture tolerant up to 100% and fully cure underwater.
 - c. Epoxy coating must adhere to concrete with adhesion testing results in PSI that outperformed the cohesion of concrete (CIGMAT CT-2/3).
 - d. Epoxy coating shall be self-priming.

e. Approved material shall exhibit the following physical properties:

Solids by Volume ASTM D2697	100%
Solvent (VOC) ASTM D3960	0%
Water Absorption ASTM D1653	< 0.1 g/sq.m.
Tensile Strength ASTM D638	8,500 psi
Flexural Modulus ASTM D790	700,000 psi
Flexural Strength ASTM D790	8,000 psi
Compressive Strength ASTM D695	14,000 psi
Elongation ASTM D2370	4-6%
Complete Cure	18 hours (77F)

4. Acceptable manufacturers and products are:

- a. Epoxytec International, Inc. CPP Structural Epoxy
- b. Sprayroq, Inc. Spray Wall
- c. Raven Lining Systems Raven 405
- d. Parson Environmental Products Parsonpoxy SEL-80
- e. Or equal

2.5 <u>APPLIED URETHANE CHIMNEY SEAL FOR MANHOLE CHIMNEY</u>

- A. Equipment
 - 1. The basic equipment shall consist of pumps, containers, injection packers, hoses, nozzles, brushes, valves, and all necessary equipment and tools required to apply urethane chimney seal as required by the manufacturer.
- B. Materials
 - 1. The urethane chimney seal materials shall be corrosion resistant.
 - 2. Mil thickness shall be determined by the manufacturer.
 - 3. The material shall have a minimum of 800% elongation per ASTM D412.
 - 4. The urethane chimney seal may require a primer resin applied to the entire surface before application. The sealing system shall line the interior of the adjustment area from the cone / top of the manhole and onto the inside of the casting.
 - a. If the manhole has been lined prior to the seal installation, the seal shall cover a maximum of 6 vertical inches to cover casting cone interface.
- C. Acceptable Manufacturers and Products include:
 - 1. Sealing Systems, Inc. FLEXSEAL
 - 2. Epoxytec International, Inc. Uroseal 45V
 - 3. CladLiner Cladseal
 - 4. Or equal

2.6 INTERNAL MECHANICAL SEALS

- A. Equipment
 - 1. The basic equipment shall be pressure washing equipment and suitable tools to install the mechanical seals.

- B. Materials
 - 1. Flexible sleeve:
 - a. Shall be a single piece of high-quality rubber suitable for a sewer environment of a sufficient size and flexibility to completely cover the area to be sealed and allow for post-installation expansion.
 - b. Sleeves shall have a minimum thickness of 3/16-inch.
 - 2. Expansion bands:
 - a. Shall be stainless steel with a minimum thickness of 16 gauge.
 - b. Bands shall be sized properly to be able to expand to the appropriate size of the area to be sealed and create sufficient pressure to create a watertight seal.
 - c. Bands shall be permanently held in place with a positively locking mechanism.
 - 3. Acceptable Manufacturers and Products include:
 - a. S.S.I. Internal Uni-band
 - b. Trelleborg NPC Flex Rib Chimney Seal
 - c. Or equal

2.7 <u>REMOVAL AND DISPOSAL OF MANHOLE STEPS</u>

A. Materials

1. Non-shrink grout.

2.8 <u>REPAIR/REPLACEMENT OF MANHOLE BENCH, CHANNEL AND/OR INVERT</u> A. Materials

- 1. Brick
 - a. Sound, hard, uniformly burned, regular and uniform in shape and size, compact texture, and satisfactory to the Engineer.
 - b. Immediately remove rejected brick from the work.
 - 2. Mortar
 - a. Composition (by volume):
 - i. 1 part Portland cement
 - ii. 1/2 part hydrated lime
 - iii. 4-1/2 parts sand
 - b. The proportion of cement to lime may vary from 1:1/4 for hard brick to 1:3/4 for softer brick, but in no case shall the volume of sand exceed 3 times the sum of the volume of cement and lime.
 - 3. Cement shall be Type II Portland cement.
 - 4. Hydrated lime shall be Type S.

- 5. Sand
 - a. Shall consist of inert natural sand.
 - b. Grading

Sieve	Percent Passing
No. 4	100
No. 8	95-100
No. 16	70-100
No. 30	40-75
No. 50	10-35
No. 100	2-15
No. 200	0-5

2.9 <u>MANHOLE COVER INSERT</u>

- A. Equipment
 - 1. The inserts are custom made. The Contractor shall contact the manufacturer to determine what measurements are required. The Contractor shall clean the interior of the frame before taking any measurements.
- B. Materials
 - 1. The high density, high molecular weight polyethylene copolymer shall meet ASTM D1248 standard.
 - 2. The material shall be corrosion resistant and have superior stress crack resistance.
 - 3. The material shall have a tensile strength of 3800 psi and an elongation factor of 800%, meeting all requirements of ASTM D638.
 - 4. The insert shall be manufactured to dimensions provided by the Contractor to allow easy installation within the manhole frame.
 - 5. The insert shall have one of the following systems for relieving gas and/or vacuum pressure from the manhole:
 - a. Two 3/16" ventilation holes are installed 180° apart, approximately 1" from the top of the insert, to allow for constant ventilation. This "no valve" method of ventilation should not be affected by grit accumulation, nor have any moving parts subject to corrosion. The venting system shall not allow water to completely fill the insert, which during cold weather could freeze and lift the manhole cover.
 - i. Vent holes shall not allow more than 5 gallons of inflow per 24 hours.

- b. An alternative ventilation system utilizes one valve manufactured of a polypropylene ethylene compound. The valve material shall be unaffected by temperatures within a range of -70°F to 350°F. The valve body and components shall be corrosion and wear resistant and be designed to release gas pressure at approximately 1 psi.
- i. Valve shall not allow more than 1 gallon of inflow per 24 hours.
- C. Acceptable Products and Manufacturers are:
 - i. Sealing Systems, Inc.
 - ii. Parson Environmental Products, Inc.
 - iii. Or equal

PART 3 - EXECUTION

3.1 <u>MANHOLE PRE-REHABILITATION INSPECTIONS</u>

- A. Prior to rehabilitation of manholes, the Contractor and Engineer will inspect each manhole to determine or confirm the scope of rehabilitation as outlined herein:
 - 1. Open each manhole with the Engineer present and look for visible cracks, leaks, or evidence of past leaks. Areas of particular interest are manhole section joints and pipe openings.
 - a. If available compare to the existing inspection and note any condition changes or discrepancies.
 - 2. Clean each manhole as outlined subsequently. After cleaning, again look for visible cracks, leaks or evidence of past leaks, and general condition of the manhole.
 - 3. Provide Engineer a written list of manhole defects at least three weeks before the scheduled work.
 - 4. The Engineer shall review and confirm the scope of required rehabilitation prior to work commencing. The Owner and Engineer reserve the right to modify the scope at each manhole as needed to obtain the proper rehabilitation. The Engineer shall provide written direction to the Contractor for any scope changes.

3.2 MANHOLE SURFACE PREPARATION

- A. Temporarily bypass pump wastewater around manholes, use flow through plugs, or otherwise divert flows as necessary.
- B. Clean interior surfaces of manhole of debris, dirt, oil, grease, remains of old coating materials, and any other extraneous materials.
- C. Pressure wash manhole walls to remove loose mortar, concrete and debris. Pressure washing levels, used for cleaning, shall be as recommended by the manufacturer.
- D. Repair irregularities in manhole using materials compatible with proposed resurfacing material, as recommended by the manufacturer.
- E. Repair leakage in manhole using materials compatible with proposed resurfacing material, specified in these contract specifications.
- F. Trim and grout pipe connection as required and/or specified.
- G. Remove manhole steps by cutting the steps flush with manhole surface. The holes shall be plugged with non-shrink hydraulic cement.
- H. Remove debris and roots from manhole and sewer connections.

- I. Handle cleaning water to prevent water and residue from causing damage.
- J. Do not discharge debris downstream through the sewer system.
- K. Filter solids-laden water through a de-silting device.
- L. Properly dispose of debris and residue from cleaning and other construction operations in a manner satisfactory to Owner and authority having jurisdiction over area where work site is located.

3.3 <u>MANHOLE PATCHING</u>

- A. Patching Procedures for Precast, Brick and Block Manholes:
 - 1. A high pressure washing of the manhole.
 - 2. Removal and disposal of all roots, deposits, and loose debris.
 - 3. Each hole shall be manually filled with mortar and troweled flush with the surface of the manhole walls or other surfaces. The mortar used shall be a non-shrink hydraulic cement.

3.4 MANHOLE GROUTING (SEALING)

- A. All surface preparations must be performed to meet or exceed manufacturer's recommendations prior to application.
- B. The grout shall be applied when temperatures are greater than 45°F. If temperature is less than 45 °F, contact the manufacturer and follow their recommendations. Temperature will affect grout cure times.
- C. Do not grout when ice is present in the area.
- D. To prevent spalling of concrete or unnecessary damage to manhole structures, the crack injection method of Variable Pressure Application Technique (VPAT) for sealing water infiltration is not allowed.
- E. For grouting to remove infiltration from cracks or manhole joints, the following shall apply:
 - 1. At each point of leakage within the manhole structure (including at pipe penetrations), a hole shall be carefully drilled from within the manhole and shall extend through the entire manhole wall. The holes shall be drilled adjacent to the crack or joint.
 - a. In cases where there are multiple leaks around the circumference of the manhole, fewer holes may be drilled, providing all leakage is stopped from these holes.
 - b. For grouting joints, drill the holes at 90° (degree) intervals.
 - 2. Grout ports or sealant injection devices shall be placed in these previously drilled holes in such a way as to provide a watertight seal between the holes and the injection device.
 - 3. A hose, or hoses, shall be attached to the injection device from an injection pump. Chemical sealing materials as specified shall then be pumped through the hose until material refusal is recorded on the pressure gage mounted on the pumping unit or a predetermined quantity of sealant has been injected. Ensure that chemical grout fills entire circumference of each manhole joint or pipe penetration, or other identified leakage point. Care shall be taken during the pumping operation to ensure that excessive pressures do not develop and cause damage to the manhole structure.

- 4. Upon completion of the injection, the ports shall be removed, and the remaining holes filled with mortar and troweled flush with the surface of the manhole walls or other surfaces. The mortar used shall be a non-shrink hydraulic cement.
- F. For curtain grouting to seal the exterior surface of the manhole to stop/prevent infiltration, the following shall apply:
 - Holes shall be carefully drilled from within the manhole and shall extend through the entire manhole wall. The holes shall be drilled at 90° (degree) intervals in multiple, vertical locations of the manhole. The minimum injection hole spacing shall be 12" (1 foot) to a maximum 36" (3 feet) in any direction. The highest set of grout ports shall be a few feet from the ground surface to prevent the ground from heaving.
 - 2. The drilled holes should be flushed with clean water before receiving packers.
 - 3. Grout ports or sealant injection devices shall be placed in these previously drilled holes in such a way as to provide a watertight seal between the holes and the injection device.
 - 4. Grout shall typically be injected through the lowest holes first, working the grout higher until the manhole is externally sealed with grout.
 - 5. Additional holes may be required to verify that the grout has encompassed the entire outside of the manhole.
 - 6. A hose, or hoses, shall be attached to the injection device from an injection pump. Chemical grouting (sealing) materials as specified shall then be pumped through the hose until material refusal is recorded on the pressure gage mounted on the pumping unit or a predetermined quantity of grout has been injected. Ensure that chemical grout fills entire circumference of each manhole joint or pipe penetration, or other identified leakage point. Care shall be taken during the pumping operation to ensure that excessive pressures do not develop and cause damage to the manhole structure.
 - 7. Upon completion of the grout injection,
 - a. The ports shall be removed.
 - b. Grout shall be removed as to be flush with the surface. Any extraneous grout on the surrounding surface will be removed.
 - c. The remaining holes filled with mortar and troweled flush with the surface of the manhole walls or other surfaces. The mortar used shall be a non-shrink hydraulic cement.

3.5 <u>CEMENTITIOUS MANHOLE LINING</u>

- A. Lining Procedures: Liner materials shall be mixed per manufacturer's written specifications and applied by either troweling, spray applying, and/or centrifugally spin-casting using equipment specifically designed to meet required thickness and application requirements as set forth by the manufacturer.
- B. All surface preparations must be performed to meet or exceed manufacturer's recommendations prior to application.
- C. Any active sewer flows shall be dammed, plugged or diverted as required to ensure that the liquid flow is maintained below the surfaces to be lined.

- D. Any active infiltration sources must be identified and stopped or handled in accordance with manufacturer recommendations prior to lining operations.
- E. Repair and lining materials must be applied by an experienced applicator of the specified cementitious material and in accordance with the manufacturer's recommendations.
- F. Minimum placement thickness shall be ¹/₂-inch or the manufacturer's recommendation, whichever is greater.
- G. Immediately following application, the cementitious liner material shall be troweled or brushed to achieve an even, consistent surface.
- H. Cementitious liner material shall be permitted to cure according to manufacturer recommendations.
- I. In locations where only the bench and channel area are identified to be lined, the lining shall extend up the walls of the manhole a minimum of 6-inches in order to provide a uniform coating to line the entire junction of the manhole wall and bench.
- J. In areas where the manhole walls are identified to be lined, the lining shall extend up beyond the top of the manhole chimney and onto the manhole frame, unless an internal mechanical seal is to be applied, in which case the lining shall continue to a point contained within the mechanical seal. At the lower extent, the manhole should be lined to the junction of the manhole wall and bench.
- K. Curing will take place once the manhole cover has been replaced. It is important that the manhole cover is replaced no more than 10-20 minutes after troweling is complete to avoid moisture loss in the material due to sunlight and winds.
- L. Material shall not be applied during freezing weather conditions. Material shall not be placed when the ambient temperature is 37 degrees Fahrenheit and falling or when the temperature is anticipated to fall below 32 degrees Fahrenheit for 24 hours.

3.6 EPOXY MANHOLE LINING

- A. Epoxy Coating Procedures: Epoxy coating shall be mixed per manufacturer's written specifications and spray applied using equipment specifically designed to meet required thickness and safety precautions.
- B. Contractor shall protect the uncured epoxy coating from water damage and in accordance with manufacturer recommendations.
- C. All surface preparations or base coat installations must be performed to meet or exceed manufacturer's recommendations prior application including providing proper moisture content of the interior surface of the manhole per the manufacturer's recommendations.
- D. Any active sewer flows shall be dammed, plugged or diverted as required to ensure that the liquid flow is maintained below the surfaces to be lined.
- E. Any active infiltration sources must be identified and stopped or handled in accordance with manufacturer's recommendations prior to lining operations.
- F. An approved certified applicator shall apply the protective epoxy coating.
- G. Minimum placement thickness, maximum application thickness and multiple coats, if required, shall be in accordance with manufacturer's recommendations.
- H. Epoxy coating shall be permitted to cure according to manufacturer recommendations.

3.7 <u>APPLIED URETHANE SEAL OF MANHOLE CHIMNEY</u>

- A. All loose and protruding mortar and brick that would interfere with the chimney seal's performance shall be removed.
- B. All surface preparations must be performed to meet or exceed manufacturer's recommendations prior to application.
- C. Active leaks (infiltration) shall be sealed by a method as recommend by the urethane chimney seal manufacturer prior to installing the chimney seal.
- D. The Contractor shall obtain from the urethane chimney seal manufacturer in writing the materials compatibility and the recommended time required for the mortar to properly cure prior to installing the polymer chimney seal.
- E. Preparation of the chimney surface and casting using sandblasting as described by the manufacturer to ensure a clean surface. The surface shall be wiped with acetone. The substrate surface must be dry and free of sand, loose debris, dust, oil, grease, or chemical contamination. A blower may be required to completely dry the substrate surface or as recommended by manufacturer.
- F. The urethane chimney seal shall require the proper mixing of several components.
- G. If a primer is required, the primer shall cure properly before applying the urethane seal. The urethane chimney seal may be applied evenly by brush over the entire chimney area, including the frame joint area and the area above the manhole cone including all extensions to the chimney area.
- H. If the manhole has been relined prior to the seal installation, the seal shall cover a maximum of 6 vertical inches to cover casting cone interface.
- I. Installation procedures shall be in accordance with the manufacturer's recommended instructions.

3.8 INTERNAL MECHANICAL SEALS

- A. Prior to the installation, the Contractor is required to pressure wash (minimum of 3,000 psi) and thoroughly clean the inside of the manhole including frame, chimney, and walls. Remove all roots, deposits and loose debris.
- B. If manhole surface is rough or uneven to the extent that it will not allow a watertight seal, a single component quick set repair mortar shall be applied to create a smooth surface prior to installation.
- C. If there is an offset of more than 3" between the manhole frame and chimney, or manhole chimney and the manhole walls, the offset shall be corrected prior to installing the mechanical seal.
- D. Bands and rubber sleeve shall be reasonably clean, smooth, circular and free of debris, voids or other flaws that may prevent a watertight seal.
- E. Installation shall be in accordance with manufacturer's recommendations.
- F. The internal mechanical seal shall extend up onto the manhole frame. At the lower extent it shall extend to the lesser of 6" below the junction of the manhole wall or to the angle point on the cone section. If no angle point exists, the chimney to wall joint shall be sealed per the manhole sealing procedures described herein, and the internal mechanical seal shall extend to that joint.
- G. Following installation, the seal shall not impede or restrict access to the manhole.

3.9 <u>REMOVAL AND DISPOSAL OF MANHOLE STEPS</u>

- A. Remove and dispose of steps.
- B. Clean and prepare surface around removed steps to allow for adhesion of new grout to existing concrete. Any step material left in manhole wall shall also be prepared to allow for patching.
- C. Repair holes with hydraulic non-shrink grout.

3.10 <u>REPAIR/REPLACEMENT OF MANHOLE BENCH, CHANNEL AND/OR INVERT</u>

- A. Remove damaged parts of table, channel, and invert or the entire table, channel and invert from manhole and clean surfaces.
- B. Prepare and install brick invert, channel, and table.

3.11 MANHOLE COVER INSERT

- A. Clean the interior of the manhole frame.
- B. Verify manhole cover and frame dimensions.
- C. Install the insert onto the manhole frame.

3.12 <u>TESTING</u>

- A. General
- 1. The Contractor shall test 10 percent of each type of installed rehabilitation component system using a testing procedure described below. If more than 5 percent of the tested rehabilitation component systems fail, an additional 10 percent of the manholes shall be selected by Engineer for further testing by the Contractor. The process continues until the rehabilitation component system tested meets the requirements of the Contractor Documents to the satisfaction of the Engineer.
- 2. All manholes shall be visually inspected in the presence of the Engineer. Any leakage into the manholes in areas where a rehabilitation component system was installed by the Contractor shall be identified.
- 3. All visible leaks and defects observed during inspection and testing shall be repaired to the Engineer's satisfaction and at no additional cost to the Owner.
- 4. All touch-up/repair procedures for defects identified and/or areas where destructive testing samples were taken shall follow the manufacturer's recommendations and at no additional cost to the Owner.
- 5. Upon final completion of the work, the manufacturer shall provide a written certification to the Owner and the Engineer that the tests, test results, and repair materials were applied per the manufacturer's recommendations.
 - B. Testing Methods
 - 1. pH Test
 - a. The Contractor shall test the pH of the surface material.
 - 2. Cup Test
 - a. For acrylic grout resin
 - i. Fill a cup ¹/₄ full of the solution from Tank A and fill a second cup ¹/₄ full of the solution from Tank B.
 - ii. Pour contents of one cup into the other cup.
 - iii. Time how long it takes for the mixed solution to become a solid gel. Normal gel time is approximately 20 40 seconds.

- b. For hydrophilic grout resin
 - i. Stir into a cup, equal parts of water from the site and grout resin.
 - ii. Time how long it takes for the mixed solution to become a solid. Normal time to become is a solid is approximately 30 60 seconds.
- c. For hydrophobic grout resin
 - i. Fill a cup 5% full of water from the site.
 - ii. Stir in grout resin into the water.
 - iii. Time how long it takes for the mixed solution to become a solid. Normal time to become is a solid is approximately 30 60 seconds.
- 3. Slump Test
- a. Perform a slump test on the cementitious material for each sample.
- 4. Standard Cube Test for Cementitious Materials
 - a. Where specified, one 2-inch x 2-inch sample cube shall be taken for every 50 bags of cement material used. Samples shall be sprayed from nozzle. The samples shall be sent to an independent test laboratory for compression strength testing as described in ASTM C-109.
- 5. Wet Film Thickness Test
 - a. Wet film thickness gauge shall be used in accordance with ASTM D4414 Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gauges.
- 6. Adhesion Test
 - a. Adhesion testing is to verify the adhesion/mechanical bond of the coating to the substrate. Tests shall be conducted in accordance with ASTM D-4541, ASTM D-7234, or National Association of Corrosion Engineers (NACE) SP018.
 - b. Number of dollies and locations:
 - i. For manhole lining, a minimum of three 50-mm dollies shall be affixed to the coated surface at the cone area, mid-section and at the bottom of the structure or in areas suspect from non-destructive evaluation and testing.
 - ii. For chimney lining, a minimum of two 50-mm dollies shall be affixed to the coated surface at the chimney area or in areas suspect from non-destructive evaluation and testing.
 - c. The adhesive used to attach the dollies to the coating shall be rapid setting with tensile strengths in excess of the coating product and permitted to cure in accordance with manufacturer recommendations. The coating and dollies shall be adequately prepared to receive the adhesive.
 - d. Failure of the dolly adhesive shall be deemed a non-test and require re-testing. Prior to performing the pull test, the coating shall be scored to the substrate by mechanical means without disturbing the dolly or bond within the test area.

- e. Two of the three adhesion pulls shall exceed 300 psi or concrete failure with more than 50% of the subsurface adhered to the coating.
- f. Should a structure fail to achieve two successful pulls as described above, additional testing shall be performed at the discretion of the Engineer. Any areas detected to have inadequate bond strength shall be evaluated by the Engineer.
- g. Further bond tests may be performed in that area to determine the extent of potentially deficient bonded area and repairs shall be made by the Contractor.
- 7. Holiday (Spark) Test
 - a. The Contractor shall use an approved third-party NACE accredited inspector or manufacturer's representative to perform holiday (spark) tests in accordance with the coating manufacturer's recommendations and check for voids. These tests shall be performed in the presence of the Engineer.
 - b. After the epoxy coating product has properly set and cured in accordance with manufacturer instructions, all surfaces shall be inspected for holidays with high-voltage holiday detection equipment. Reference NACE RPO 188-99 for performing holiday detection.
 - c. All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional coatings can be hand applied to the repair area.
- 8. Leakage Test
 - a. Following the expansion of the lower band, a quality assurance test shall be performed to ensure effective sealing by pulling the upper section of the seal or extension inward to create a recess behind the seal where water can be poured. Pour the water behind the seal and observe the lower sealing area for any visible leaks. The sealing shall be considered effective if no water leaks from behind the seal at the lower sealing area.
- C. Testing Method per Rehabilitation Component System
 - 1. Grouting
 - a. Visual inspection throughout installation
 - b. Cup test before installation
 - 2. Cementitious Liner
 - a. Visual inspection throughout installation
 - b. Slump test before installation
 - c. Standard cube test before installation
 - d. Film thickness measurement after installation
 - e. Adhesion test after installation
 - 3. Epoxy Liner
 - a. Visual inspection throughout installation
 - b. Film thickness measurement after installation
 - c. Adhesion test after installation

- d. Holiday test after installation
- 4. Mechanical Frame Seal
 - a. Visual inspection throughout installation
 - b. Leakage test after installation
- 5. Applied Chimney Seal
 - a. Visual inspection throughout installation
 - b. Film thickness measurement
 - c. Adhesion test after installation
 - d. Holiday test after installation
- 6. Physical repairs such as drop pipe connections and plugging pipe openings.
 - a. Visual inspection throughout installation

3.13 WARRANTY INSPECTIONS

- A. The Engineer and Owner reserve the right to inspect the rehabilitated manholes during the warranty period (including during periods when the groundwater table is higher than at the time the work is completed). The Owner or Engineer shall notify the Contractor prior to inspection, and the Contractor shall be present during the inspection.
- B. Ten (10) percent of manholes rehabilitated shall be inspected, at locations randomly selected, by the Owner or Engineer.
 - 1. No infiltration or inflow shall be visible in the renewed manhole.
 - 2. If any rehabilitation component system fails the warranty inspection, the Owner shall inspect all rehabilitation component systems installed in the contract, together with Contractor.
- C. Any leakage or defects in the work found by this inspection shall be corrected by the Contractor at no additional cost to the Owner within one month.

END OF SECTION

SECTION 02765

SERVICE LATERAL CONNECTION LINER

PART 1 - GENERAL

1.1 <u>SCOPE OF WORK</u>

- A. The intent of this specification is to provide for the rehabilitation of selected active service lateral connections (SLC). All SLC liner work shall occur without excavation, by installation of a resin-impregnated, flexible liner in the form of an internal sleeve, extending a minimum of 18 inches up the lateral, up to the distance required to repair the defect as directed by the Engineer, to a maximum of 15 feet. The SLC liner system shall be compatible with the sewer mainline pipe material and the lateral pipe material. The portion of the liner within the mainline pipe shall be a full wrap style, unless otherwise approved by the Engineer.
- B. Furnish all labor, materials, equipment and incidentals required to install and test the service lateral connection liner and appurtenances complete as specified herein.
- C. The existing service lateral connections are a combination of wyes, tees or break-in type connections of varying sizes (4-6") and angles of entry. The Contractor is required to perform pre-construction inspection to verify existing conditions, pipe sizes, and the exact location of each active service lateral connection.
- D. Provide sewer flow control to maintain flows in the sewer system allowing the specified work to be performed in a manner acceptable to the Engineer.
- E. Service lateral connections shall be lined where indicated on the Contract Drawings and where directed by the Engineer.
- F. Refer to Appendices: NASSCO PACP Inspection Reports

1.2 <u>RELATED SECTIONS</u>

A.	Sewer Flow Control	Section 02751
B.	Sewer Line Cleaning	Section 02752
C.	Television Inspection of Sewers	Section 02753

1.3 <u>SUBMITTALS</u>

- A. Submit in accordance with Contract Documents the following:
 - 1. Shop drawings and schedules of all SLC liner materials and appurtenances required. Design data and specification data sheets listing all parameters used in the liner design and thickness calculations based on ASTM F1216, Appendix XI for fully deteriorated pipe. All SLC liner design calculations shall be sealed and signed by a registered professional engineer.
 - 2. Detailed procedure for installing the SLC liner.
 - 3. The name of the SLC liner manufacturer and the location of the facility where the SLC liner was manufactured.
 - 4. Contractor Qualifications: Submit copy of manufacturer's license certificate. A qualified bidder for installing a mainline/lateral connection and lateral repair system shall use a manufactured system that has a minimum five year history of satisfactory performance. Submit list of ten similar jobs within the past three

years that utilized the manufacturer's product. Provide project information including the project name, number of service connection laterals liners installed, project completion date and project references. The following information shall be submitted by the Contractor for review and approval;

- a. The number of years of experience in performing SLC lining projects.
- b. The name of the SLC lining manufacturer and supplier for previous work listed. The Contractor shall be an approved installer as certified and/or licensed by the liner manufacturer.
- c. A list of municipal clients that the Contractor has performed this type of work without defects or performance problems.
 - i. The list shall contain names and telephone numbers of persons to contact for the purpose of verifying previous satisfactory performance.
 - ii. A full description of the actual work performed.
 - iii. The list of municipal clients and description of projects shall include the number of SLC liners installed over the past three years.
- 5. Material Certification: Provide written certification from the manufacturer that all materials used in the work were manufactured and tested in accordance with the appropriate ASTM specification, and are used or installed in conformance with the manufacturer's recommendations.
- 6. Resident Notifications: The Contractor shall submit a copy of the initial resident notification as described in Section 1.8.
- 7. Storage and Delivery Procedures: The Contractor shall provide the SLC liner manufacturer's recommended storage and delivery procedures. This shall include storage and delivery temperatures, maximum time from wet-out to installation, and other pertinent information.
- 8. Safety Data Sheets: The Contractor shall submit Safety Data Sheets (SDS) for each component of the SLC liner system.
- 9. Test Results: Prior to use of any materials, the Contractor shall submit at their own expense the results of testing for the proposed materials as performed by an independent laboratory in conformance with these specifications. All submitted test data shall be performed on field installed samples within the last 12 months. Testing by an independent laboratory shall verify that the products to be used meet all minimum strength standards as set forth in ASTM F1216, Table 1. Testing shall also verify that any product to be used on this project meets the minimum chemical resistance requirements as established in ASTM F1743, Table 2, with the testing meeting the requirements of Section 7.2.1 of ASTM F1743.
- 10. Pipe Cleaning Narrative: The Contractor shall submit a narrative describing in sufficient detail the proposed methods of root cutting and cleaning of existing laterals. The narrative shall include the degree of cleaning as recommended by the SLC liner manufacturer and shall indicate approval of the proposed cleaning methods by the SLC liner manufacturer's technical representative.
- 11. Liner Thickness Calculations: The Contractor shall perform liner thickness calculations for each set of laterals in each manhole to manhole sewer line section and furnish them to the Engineer with supporting assumptions.

Calculations shall be done after cleaning, televising and other field inspections have been completed. The provided design parameters shall be used in the manufacturer's calculations. The finished SLC liner shall have a minimum thickness of two millimeters for four-inch diameter laterals and three millimeters for six-inch diameter laterals.

- 12. Curing Cycle and Cooling Rate: The Contractor shall submit the resin manufacturer's recommended curing cycle and cooling rate. The Contractor shall submit a copy of the cure logs for each lateral installation.
- 13. The Contractor shall submit two copies of the pre-installation television inspection video and log for each proposed SLC liner installation. Videos shall be submitted in DVD format, as well as a portable USB drive or other portable hard drive device.
- 14. The Contractor shall submit two copies of the final television inspection video and log for each completed SLC liner installation. Videos shall be submitted in DVD format, as well as a portable USB drive or other portable hard drive device.

1.4 <u>REFERENCE STANDARDS</u>

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
 - 2. ASTM F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
 - 3. ASTM F1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)
 - 4. ASTM D5813 Standard Specification for Cured-in-Place Thermosetting Resin Sewer Piping Systems
- B. Where reference is made to one of the above standards, the revision in effect at the time of the bid opening shall apply.
- 1.5 <u>QUALITY ASSURANCE</u>
 - A. The purpose of the SLC liner is to provide a permanent seal of the annular space of a sewer main and service connection as well as structural replacement of the lateral over the specified length. The SLC liner shall lock the sewer main in place with the service connection to provide a seal of the first joint or set of joints in the service lateral over the specified length and to provide for the repair of a damaged and/or leaking tapped service into the sewer main.
 - B. The Contractor performing the SLC liner work shall be fully qualified, experienced and equipped to complete this work expeditiously and in a satisfactory manner. See Paragraph 1.03.A.4 for the required Contractor qualifications.
 - C. The Contractor shall also be capable of providing crews as needed to complete the work without undue delay and within the contract time allotted.
 - D. The Owner may approve or disapprove the Contractor and/or manufacturer based on the submitted information and a follow up interview at the Owner's discretion.
 - E. The SLC liner shall be provided by a single manufacturer, who shall be responsible for the provision of all test requirements specified herein.
- F. Inspection of the SLC liner may also be made by the Engineer or Owner representative after delivery. The SLC liner shall be subject to rejection at any time on account of failure to meet any of the requirements specified, even if a sample liner has been accepted as satisfactory at the place of manufacture. Liners rejected after delivery shall be marked for identification and shall be removed from the job site immediately.
- G. Final Installed Liner Thickness: The final installed liner thickness shall not be less than the required thickness specified, or more than ten percent greater than the required thickness specified. The final installed liner thickness measurement shall be determined from liner samples, coupons retrieved from the sewer, or as deemed necessary by the Engineer. The Contractor shall be responsible for considering all site conditions and their installation process to determine the required liner thickness.

1.6 <u>SYSTEM DESCRIPTION</u>

A. The SLC liner shall be a seamless, one-piece product affixed to the walls of the existing service lateral pipe and the junction between the existing service lateral pipe and the sewer main. The SLC liner may also be a one-piece, tight fitting, corrosion-resistant and verifiable non-leaking, cured-in-place pipe with hydrophilic materials where the lateral tube shall assume no bonding to the existing service lateral pipe. The mainline portion of the SLC liner that connects to the main/lateral interface shall be a full wrap type. The lateral sleeve must be watertight with a uniform wall thickness. The carrier packer shall be specifically designed for four-inch to six-inch diameter service lateral connections and shall be manufactured to conform to either a wye, tee or break-in type connection. A corrosion resistant resin compatible with the installation process shall be used.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Care shall be taken in shipping, handling and storage of all components to avoid damaging the SLC liner. Extra care shall be taken during cold weather construction. Any liner damaged in shipment shall be replaced as directed by the Engineer.
- B. Any liner showing a split, tear, or has been handled in a way that may have caused damage, even though damage may not be visible, shall be marked as rejected and removed from the job site immediately.
- C. The SLC liner shall be maintained at a proper temperature in refrigerated facilities to prevent premature curing at all times prior to installation. The liner shall be protected from UV light prior to installation. Any liner material showing evidence of premature curing will be marked as rejected and removed from the job site immediately.

1.8 <u>PUBLIC NOTIFICATION</u>

A. The Contractor shall notify all property owners who discharge sewage directly into the sewer or SLC to be lined that their sewer service will be interrupted while the liner is being installed. Deliver written notices to each affected property owner one week prior to installation and again at 48 hours prior to the commencement of the work being conducted on their sewer service, including the date, start time and time when service will be completely restored. The Contractor shall also provide a telephone number that property owners can call for information related to the project work. The Contractor shall contact any home or business that cannot be reconnected within the

time stated in the written notice.

B. The maximum amount of time that any home or business shall be without sanitary sewer service shall be ten hours unless approved by the Owner. Any service that interrupted for longer than ten hours will be bypassed as directed by the Engineer at no additional cost to the Owner.

1.9 <u>GUARANTEE</u>

- A. All SLC liner installations shall be fully guaranteed by the Contractor and manufacturer for a period of one year from the date of acceptance. A written warranty shall be submitted. During this period, all serious defects discovered by the Owner shall be removed and replaced in a satisfactory manner by the Contractor at no additional cost to the Owner. The Owner reserves the right to conduct an independent television inspection on each liner installation, at their own expense, prior to completion of the guarantee period. Any defects replaced at that time shall be fully guaranteed by the Contractor and manufacturer for a period of one year from the date the defect was repaired. Wrinkles, blisters, dry spots in resin or other defects in the finished SLC or impacts to the flow capacity of the pipe will not be accepted. The Contractor's expense, in a manner that is satisfactory to the Engineer. Defects also include, but are not limited to, the following:
 - 1. Leakage through the liner or between the liner and pipe.
 - 2. Reduction of the liner thickness of more than ten percent.
 - 3. Separation of the liner from the pipe.
 - 4. Excessive wrinkles that restrict flow.
- B. All liners shall be as free from visual defects, such as foreign inclusions, dry spots, pinholes and delamination. The liner surface shall be free of leaks, cracks and crazing and shall have a smooth finish. Some minor waviness that will not appreciably decrease the flow cross section or affect the flow characteristics of the pipe shall be permissible, as approved by the Engineer.

PART 2 - PRODUCTS

2.1 <u>MATERIALS</u>

A. The SLC liner shall be a resin-impregnated, one-piece flexible polyester felt, nonwoven textile tube, needle punched felt, circular knit or circular braid, glass fiber reinforced plastic or equivalent material tube which is cured-in-place by an acceptable curing method. The thermo-set synthetic resin shall be suitable for the design conditions as well as the curing process. The SLC liner shall provide a service life of 50 years and shall have the minimum structural properties listed below:

Mechanical Property	Minimum Parameters
Flexural Strength (ASTM D790)	4,500 psi
Flexural Modulus of Elasticity (ASTM D790)	250,000 psi

B. The SLC liner shall be designed, fabricated and installed for the actual conditions encountered for each application, including the material of the host pipe, in

accordance with the applicable provisions of ASTM F1216, and shall meet the following minimum design conditions:

- 1. AASHTO H-20 live load with one truck passing.
- 2. Soil weight of 120 pounds per cubic foot, with a coefficient of friction Ku'= 0.130.
- 3. Assume that following feet of groundwater force will be exerted onto the pipe:

For Cover Depth over Pipe	Groundwater Force
< 10 ft	5 ft
> 10 ft and < 30 ft	25 ft
If depth is not provided	25 ft

- 4. Fully deteriorated pipe with two percent minimum ovality. If ovality of existing pipe is found to be worse, use actual percent up to two percent maximum.
- 5. Soil modulus of 1,000 psi.
- 6. Factor of Safety of two.
- 7. Soil Depth of Cover will be determined by field measurements.
- 8. Short Term Flexural Modulus of 250,000 psi.
- C. The SLC shall be designed to withstand all imposed loads, including live loads and hydrostatic pressure, if applicable. The SLC liner shall have sufficient wall thickness to withstand all anticipated external pressures and loads that may be imposed after installation. The design shall be performed and certified by a Professional Engineer licensed by the Commonwealth of Massachusetts.
- D. The SLC liner shall be manufactured and installed by:
 - 1. Maxliner, Martinsville, VA
 - 2. LMK Enterprises, Inc., Ottawa, IL
 - 3. Insituform Technologies, Inc., St. Louis, MO
 - 4. BLD Services LLC
 - 5. Or equal
- E. The SLC product shall extend from the mainline into the lateral connection by 15 feet and is a continuous, tight-fitting, watertight pipe-within-a-pipe to eliminate any visible ground water leakage and future root intrusion at the lateral to mainline connection. The SLC product system shall be compatible with the sewer mainline pipe material and the lateral pipe material. The portion of the liner within the mainline pipe shall be a full wrap style.
- F. Once cured, the SLC liner shall form a continuous, tight-fitting, hard, impermeable liner which is chemically resistant to domestic sewage over the expected lifetime of the rehabilitated pipe. The liner material and resin shall be completely compatible.
- G. The insert shall be continuous over the entire length of the rehabilitated sewer service lateral, extending a minimum of 18 inches up the lateral, up to the distance specified by the Engineer and a minimum of five inches on each side of the lateral for full wrap styles.
- H. A hydrophilic materials component may be used to form a sealing bond between the SLC product and the host lateral and main pipe walls. If the seal utilizes gaskets, the portion of the liner in the mainline pipe shall include hydrophilic materials and an epoxy-sealing component will not be required. Hydrophilic materials, if used, shall

be applied at the lateral interface as well as the terminating end of the lateral liner.

2.2 <u>RESIN</u>

- A. The resin system shall meet the requirements of ASTM F1216, Section 5.2 and/or ASTM D5813, Section 8.2.2. The resin installed SLC liner system shall comply with the structural requirements specified herein and shall provide chemical resistance for the flow media in the gravity pipe. The resin shall be compatible with the rehabilitation process, shall be able to cure in the presence or absence of water, and shall have an initiation temperature for curing as recommended by the resin manufacturer. Unless otherwise specified, provide a general purpose or enhanced strength, unsaturated, thermosetting, polyester, vinyl ester, epoxy or silicate resin and a catalyst system compatible with the installation process.
- B. Submit documentation from the resin manufacturer specifically describing the chemical characteristics of the resin system, including allowable mixing, impregnation, and handling time, transportation and storage time, and recommended curing cycle including temperatures, pressures, and times. The resin manufacturer's documentation must also include maximum allowable time for handling the impregnated tube prior to insertion and the maximum allowable elapsed time from insertion to exotherm. If remedial measures are available to extend either of the maximum allowable times indicated above, without affecting the physical properties of the resin, the resin manufacturer should describe these measures and the time limits beyond which even those measures will not prevent alteration of the physical properties of the resin.

PART 3 - EXECUTION

3.1 <u>PRE-INSPECTION</u>

- A. A recorded survey, in accordance with Section 02753, must be completed on the main line pipe and up the specified length of the lateral using a main line launch camera system to confirm that the proposed repair falls within the limitation parameters set by the manufacturer for the following aspects:
 - 1. The location and clock reference of the lateral connection to be lined.
 - 2. Any lateral connection offsets.
 - 3. Any intrusion from the lateral into the main.
 - 4. The angle at which the connection enters the main.
 - 5. Any changes in the angle of approach of the lateral for the required length to be lined.
 - 6. The potential flows entering the main from the lateral.
 - 7. The potential flows through the main.
 - 8. The diametric size of the lateral connection for the required length to be lined.
 - 9. The size of the main at the point of the lateral connection.
 - 10. The presence of active infiltration within the vicinity of the work area.
 - 11. The length of the lateral specified for the lining is suitable for lining.

3.2 <u>LINE PREPARATION</u>

- A. Prior to installing the SLC product, the area around the lateral sealing surface in both the main and the lateral shall be inspected. Waste product build-up, hard scale, roots, lateral cutting debris or resin slugs must be removed using high pressure water jetting equipment or in-line cutters. All laterals to be lined shall be cleaned as required prior to lining. The term "cleaned" shall mean the removal of all sand, dirt, roots, grease and all other solids of semi-solid materials from the interior face of the sewer main and lateral. The specified length of lateral shall be cleaned sufficiently to permit CIPP lining of the specified length of the lateral.
- B. It shall be the responsibility of the Contractor to clear the line of all obstructions such as solids.
- C. Prior to liner installation, the Contractor shall trim/cut back all intruding taps to allow for proper installation of the liner.
- D. Built-up deposits in the sewer main and lateral pipe walls shall be removed. The removal shall reach at least one foot beyond the SLC liner to allow the bladder to inflate tightly against the pipe walls, ensuring a smooth transition from the SLC liner to the existing pipe wall.
- E. The Contractor shall televise each lateral, in accordance with Section 02753, to provide a detailed record of existing conditions. Two copies of the pre-installation inspection videos shall be submitted to the Owner. The Contractor shall be responsible for having a copy of the pre-installation inspection videos in the field. Immediately prior to liner installation, the camera shall traverse the lateral to inspect for any debris which may have entered the line since the video of existing conditions was recorded.
- F. The Contractor shall stop all active infiltration prior to SLC liner installation using grout or other approved methods, as recommended by the manufacturer.
- G. Additional precautions must be taken when applying the sleeve to a sewer main that has been lined with a CIPP liner with a polyolefin coating. Refer to the manufacturer's recommendations if scarifying or scuffing the mainline CIPP liner.
- H. The Contractor shall be responsible for bypassing of sewage during the installation of the SLC liner. In cases where the temporary backup of sewage is accepted as a substitute for temporary bypassing, the Contractor shall be responsible for any damage caused by sewage backing up into sewer infrastructure, into properties or buildings or sewage backups that cause any sanitary sewer overflows (SSOs) and/or combined sewer overflows (CSOs).

3.3 <u>INSTALLATION</u>

- A. The SLC liner shall be vacuum-impregnated with resin (wet-out) under controlled conditions. The volume of resin used shall be sufficient to fill all voids in the textile lining material at a nominal thickness and diameter. The volume shall be adjusted by adding 5% to 10% excess resin for the change in resin volume due to polymerization and to allow for any migration of resin into the cracks and joints found in the existing pipe and lateral connection. There shall be no dry or unsaturated areas in the mainline sheet or lateral tube upon visual inspection.
- B. The SLC liner shall be loaded on the applicator apparatus, attached to a robotic manipulator device and positioned in the mainline pipe at the service lateral connection to be rehabilitated. For SLC full-wrap style liners with gaskets, the

mainline liner and bladder shall be wrapped around the "T" launching device. The robotic device used together with a television camera shall align the SLC liner with the service connection opening. The inserted SLC liner will then be inspected using the television camera to confirm that it is correctly positioned and/or centered in the lateral opening prior to curing. The insertion pressure will be adjusted to fully deploy the SLC liner into the lateral connection and hold it tight to the main and lateral pipe walls.

- C. The pressure apparatus shall include a bladder of sufficient length in both the main and lateral pipe to ensure that the inflated bladder extends beyond the ends of both the lateral tube and main line tube of the SLC liner. The inflated bladder shall press the end edges flat against the internal pipe walls, thus forming a smooth transition from the SLC liner to the main and lateral host pipe. There shall be no steps, ridges or gaps between the SLC liner and the inner diameters of the lateral and main upon completion.
- D. For SLC liners with gaskets, the main bladder shall be inflated. The inflated bladder shall cause the main sheet to unwrap and expand, forcing the hydrophilic materials between the main liner and main pipe and the lateral liner and lateral pipe. The main liner shall be pressed tightly against the main pipe.
- E. After insertion is completed, the recommended pressure must be maintained on the impregnated SLC liner, pressing the liner firmly against the inner pipe wall for the duration of the curing process. The liner shall be chemically cured at ambient temperatures or by using a suitable heat source. The use of sewage to invert or cure liners or calibration tubes is strictly prohibited.
- F. The completed SLC liner shall be continuous over the specified length of the sewer line section (including main-line and lateral) and be free from visual defects such as foreign inclusions, dry spots, pinholes, major wrinkles (greater than 2% of the pipe diameter) and delamination. The system shall be impervious and free of any leakage including exfiltration from the pipe to the surrounding ground or infiltration from the ground to inside the lined pipe.
- G. The completed SLC liner should not inhibit the passage of a closed circuit television (CCTV) inspection camera in either the sewer main or service lateral pipe. This includes the post-installation video inspection as well as future inspection or cleaning operations. SLC liners shall taper at each end of the main to provide a smooth transition for video equipment and maintain the proper flow in the sewer main. In all cases, the completed SLC liner must provide a watertight, verifiable non-leaking connection between the sewer main and sewer service lateral. Any defects discovered during the warranty period that affect the performance or inhibit video or cleaning operations in the sewer main or lateral shall be repaired at the expense of the Contractor in a manner acceptable to the Owner.
- H. Following installation of the SLC liner, the Contractor shall provide the Owner with an electronic video and recorded date identifying the location, the completed work and the restored condition of all rehabilitated service lateral connections. The Contractor shall televise each rehabilitated lateral to provide a detailed record of the completed installations. Upon completion, the Contractor shall submit two video inspections of all rehabilitated laterals, along with all accompanying log sheets. Videos shall be submitted in DVD format, as well as a portable USB drive or other

portable hard drive device.

- I. The Contractor shall immediately inform the Engineer of the location of any sewer service laterals where the SLC liner cannot be installed. These service locations will be identified, documented, video recorded, and the Contractor shall provide a brief explanation of why the SLC liner cannot be installed. The Contractor shall make no attempt to install the SLC liner in these services unless directed by the Engineer.
- J. Notify all property owners who discharge sewage directly into the sewer main or lateral to be lined that their sewage service will be interrupted while the SLC liner is being installed. Deliver written notices to each affected property owner one week prior to and again 48 hours prior to commencement of the work, listing the date, start time and time when the sewer service will be completely restored. See paragraph 1.8 of this Section for additional information regarding public notification.

3.4 TESTING AND ACCEPTANCE

- A. Laboratory testing of the lateral liner shall be based on sample liner that is installed above ground in a PVC SDR 35 pipe. The pipe is then cut in half and sent to a laboratory for flexural modulus testing and strength testing. A sample shall take place for every ten lateral pipe segments that are lined.
- B. Field acceptance of the SLC liner shall be based on the Engineer's evaluation of the installation, including CCTV inspection video review and review of the certified test data for the installed liner samples.
- C. Groundwater infiltration of the SLC liner upon completion shall be zero.
- D. All sewer service connections shall be open, clear and watertight.
- E. There shall be no evidence of splits, cracks, breaks, lifts, kinks, delamination or crazing in the SLC liner.
- F. The completed SLC liner should not inhibit the passage of a CCTV inspection camera in either the sewer main or service lateral pipe.
- G. If any defective liner is discovered during the warranty period, it shall be removed and replaced with a new liner or a new pipe at no additional cost to the Owner.

END OF SECTION

APPENDIX A

MASSACHUSETTS WAGE RATES



Governor

KIM DRISCOLL Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H LAUREN JONES Secretary

MICHAEL FLANAGAN Director

Awarding Authority:	City of Greenfield						
Contract Number:	DPW 24-07	City/Town:	GREENFIELD				
Description of Work:	Cured-in-place lining of app. 11,318 LF of pipe, sewer manhole lining of app. 150 VF	Cured-in-place lining of app. 11,318 LF of gravity sewer and drain ranging in size from 15, 12, 10, 8, and 6-inch pipe, sewer manhole lining of app. 150 VF, sewer chimney lining, and related work.					
Job Location:	Various						

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

• The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The annual update requirement is not applicable to 27F "rental of equipment" contracts. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.

• This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.

- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$35.95	\$13.41	\$16.01	\$0.00	\$65.37
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.02	\$13.41	\$16.01	\$0.00	\$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 (ZONE 3)	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2023 12/01/2023	\$34.25 \$34.88	\$9.40 \$9.40	\$16.59 \$16.59	\$0.00 \$0.00	\$60.24 \$60.87
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)	06/01/2023	\$34.25	\$9.40	\$14.53	\$0.00	\$58.18
	12/01/2023	\$34.88	\$9.40	\$14.53	\$0.00	\$58.81
	06/01/2024	\$36.08	\$9.40	\$14.53	\$0.00	\$60.01
	12/01/2024	\$37.28	\$9.40	\$14.53	\$0.00	\$61.21
	06/01/2025	\$38.53	\$9.40	\$14.53	\$0.00	\$62.46
	12/01/2025	\$39.77	\$9.40	\$14.53	\$0.00	\$63.70
	06/01/2026	\$41.07	\$9.40	\$14.53	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)	12/01/2026	\$42.36	\$9.40	\$14.53	\$0.00	\$66.29
ASBESTOS WORKER (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)	12/01/2020	\$34.29	\$12.80	\$8.95	\$0.00	\$56.04
ASPHALT RAKER LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2023	\$33.75	\$9.40	\$16.59	\$0.00	\$59.74
For apprentice rates see "Apprentice- LABORER"	12/01/2023	\$34.38	\$9.00	\$16.59	\$0.00	\$59.97
ASPHALT RAKER (HEAVY & HIGHWAY)	06/01/2023	\$33.75	\$9.40	\$14.53	\$0.00	\$57.68
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$24.29	\$9.40	\$14.53	\$0.00	\$59.21
	06/01/2023	\$34.30 \$25.59	\$9.40	\$14.55	\$0.00	\$50.51 \$50.51
	12/01/2024	\$33.38	\$9.40 ¢0.40	\$14.55 \$14.52	\$0.00	\$39.31 ¢(0.71
	12/01/2024	\$36.78	\$9.40	\$14.55	\$0.00	\$60.71
	06/01/2025	\$38.03	\$9.40	\$14.55	\$0.00	\$61.96
	12/01/2025	\$39.27	\$9.40	\$14.53	\$0.00	\$63.20
	06/01/2026	\$40.57	\$9.40	\$14.53	\$0.00	\$64.50
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)	12/01/2026	\$41.86	\$9.40	\$14.53	\$0.00	\$65.79
AUTOMATIC GRADER-EXCAVATOR (RECLAIMER)	06/01/2023	\$38.86	\$13.58	\$15.10	\$0.00	\$67.54
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$20.00	\$13.30 \$12.50	\$15.10	\$0.00	\$07.34 \$C9.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2023	\$39.81	\$15.58	\$15.10	\$0.00	\$08.49
BACKHOE/FRONT-END LOADER OPERATOR	06/01/2023	\$38.86	\$13.58	\$15.10	\$0.00	\$67.54
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.81	\$13.58	\$15.10	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12,01,2023	ψ59.01	ψ15.50	<i>QIUITO</i>	<i>Q</i> 0100	φ00.1 <i>9</i>
BARCO-TYPE JUMPING TAMPER	06/01/2023	\$33.75	\$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$34.38	\$9.00	\$16.59	\$0.00	\$59.97
For apprentice rates see "Apprentice- LABORER"						
BATCH/CEMENT PLANT - ON SITE	06/01/2023	\$38.33	\$13.58	\$15.10	\$0.00	\$67.01
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.28	\$13.58	\$15.10	\$0.00	\$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER	06/01/2023	\$34.25	\$9.40	\$16.59	\$0.00	\$60.24
LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$34.88	\$9.40	\$16.59	\$0.00	\$60.87
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY &	06/01/2023	\$34.25	\$9.40	\$14.53	\$0.00	\$58.18
HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$34.88	\$9.40	\$14.53	\$0.00	\$58.81
	06/01/2024 \$36.08 \$9.40 \$14.53 \$	\$0.00	\$60.01			
	12/01/2024	\$37.28	\$9.40	\$14.53	\$0.00	\$61.21
	06/01/2025	\$38.53	\$9.40	\$14.53	\$0.00	\$62.46
	12/01/2025	\$39.77	\$9.40	\$14.53	\$0.00	\$63.70
	06/01/2026	\$41.07	\$9.40	\$14.53	\$0.00	\$65.00
	12/01/2026	\$42.36	\$9.40	\$14.53	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
BOILER MAKER	01/01/2023	\$47.37	\$7.07	\$20.31	\$0.00	\$74.75
BOILERMAKERS LOCAL 29	01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Apprentice - BOILERMAKER - Local 29

Effecti	ve Date - 01/01/2023				Supplemental	
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
2	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
3	70	\$33.16	\$7.07	\$14.23	\$0.00	\$54.46
4	75	\$35.53	\$7.07	\$15.24	\$0.00	\$57.84
5	80	\$37.90	\$7.07	\$16.25	\$0.00	\$61.22
6	85	\$40.26	\$7.07	\$17.28	\$0.00	\$64.61
7	90	\$42.63	\$7.07	\$18.28	\$0.00	\$67.98
8	95	\$45.00	\$7.07	\$19.32	\$0.00	\$71.39

Effectiv	ve Date -	01/01/2024				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	65		\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
2	65		\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
3	70		\$33.68	\$7.07	\$14.23	\$0.00	\$54.98
4	75		\$36.09	\$7.07	\$15.24	\$0.00	\$58.40
5	80		\$38.50	\$7.07	\$16.25	\$0.00	\$61.82
6	85		\$40.90	\$7.07	\$17.28	\$0.00	\$65.25
7	90		\$43.31	\$7.07	\$18.28	\$0.00	\$68.66
8	95		\$45.71	\$7.07	\$19.32	\$0.00	\$72.10
Notes:							

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY	08/01/2023	\$50.81	\$11.49	\$20.37	\$0.00	\$82.67
WATERPROOFING) BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	02/01/2024	\$52.06	\$11.49	\$20.37	\$0.00	\$83.92
	08/01/2024	\$53.31	\$11.49	\$20.37	\$0.00	\$85.17
	02/01/2025	\$54.61	\$11.49	\$20.37	\$0.00	\$86.47
	08/01/2025	\$56.76	\$11.49	\$20.37	\$0.00	\$88.62
	02/01/2026	\$58.11	\$11.49	\$20.37	\$0.00	\$89.97
	08/01/2026	\$60.31	\$11.49	\$20.37	\$0.00	\$92.17
	02/01/2027	\$61.71	\$11.49	\$20.37	\$0.00	\$93.57

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Springfield/Pittsfield

Effecti	ive Date -	08/01/2023				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$25.41	\$11.49	\$20.37	\$0.00	\$57.27	
2	60		\$30.49	\$11.49	\$20.37	\$0.00	\$62.35	
3	70		\$35.57	\$11.49	\$20.37	\$0.00	\$67.43	
4	80		\$40.65	\$11.49	\$20.37	\$0.00	\$72.51	
5	90		\$45.73	\$11.49	\$20.37	\$0.00	\$77.59	

	Effecti	ve Date - 02/01/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	9
	1	50	\$26.03	\$11.49	\$20.37	\$0.00	\$57.89)
	2	60	\$31.24	\$11.49	\$20.37	\$0.00	\$63.10)
	3	70	\$36.44	\$11.49	\$20.37	\$0.00	\$68.30)
	4	80	\$41.65	\$11.49	\$20.37	\$0.00	\$73.51	l
	5	90	\$46.85	\$11.49	\$20.37	\$0.00	\$78.71	l
	Notes:							
	Appre	ntice to Journeyworker Ratio:1:5						
BULLDOZER/F	OWER	SHOVEL/TREE SHREDDER	06/01/2023	3 \$38.86	\$13.58	\$15.10	\$0.00	\$67.54
ENGINEERS LOCAL	L 98 rates see "	/CLAM SHELL OPERATING Apprentice- OPERATING ENGINEERS"	12/01/2023	3 \$39.81	\$13.58	\$15.10	\$0.00	\$68.49
CAISSON & UN LABORERS - FOUN	NDERP	INNING BOTTOM MAN	06/01/2023	3 \$44.73	\$9.40	\$17.97	\$0.00	\$72.10
			10/01/000		\$0.10	Φ17 O7	00.00	A = A A =

12/01/2023

06/01/2024

12/01/2024

06/01/2025

12/01/2025

06/01/2026

12/01/2026

\$45.98

\$47.46

\$48.93

\$50.43

\$51.93

\$53.48

\$54.98

\$9.40

\$9.40

\$9.40

\$9.40

\$9.40

\$9.40

\$9.40

\$17.97

\$17.97

\$17.97

\$17.97

\$17.97

\$17.97

\$17.97

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

For apprentice rates see "Apprentice- LABORER"

\$73.35

\$74.83

\$76.30

\$77.80

\$79.30

\$80.85

\$82.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING LABORER	06/01/2023	\$43.58	\$9.40	\$17.97	\$0.00	\$70.95
LABORERS - FOUNDATION AND MARINE	12/01/2023	\$44.83	\$9.40	\$17.97	\$0.00	\$72.20
	06/01/2024	\$46.31	\$9.40	\$17.97	\$0.00	\$73.68
	12/01/2024	\$47.78	\$9.40	\$17.97	\$0.00	\$75.15
	06/01/2025	\$49.28	\$9.40	\$17.97	\$0.00	\$76.65
	12/01/2025	\$50.78	\$9.40	\$17.97	\$0.00	\$78.15
	06/01/2026	\$52.33	\$9.40	\$17.97	\$0.00	\$79.70
	12/01/2026	\$53.83	\$9.40	\$17.97	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN	06/01/2023	\$43.58	\$9.40	\$17.97	\$0.00	\$70.95
LABORERS - FOUNDATION AND MARINE	12/01/2023	\$44.83	\$9.40	\$17.97	\$0.00	\$72.20
	06/01/2024	\$46.31	\$9.40	\$17.97	\$0.00	\$73.68
	12/01/2024	\$47.78	\$9.40	\$17.97	\$0.00	\$75.15
	06/01/2025	\$49.28	\$9.40	\$17.97	\$0.00	\$76.65
	12/01/2025	\$50.78	\$9.40	\$17.97	\$0.00	\$78.15
	06/01/2026	\$52.33	\$9.40	\$17.97	\$0.00	\$79.70
	12/01/2026	\$53.83	\$9.40	\$17.97	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR	06/01/2023	\$33.75	\$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$34.38	\$9.00	\$16.59	\$0.00	\$59.97
For apprentice rates see "Apprentice- LABORER"						
CARPENTER	03/01/2023	\$39.76	\$7.71	\$18.15	\$0.00	\$65.62

	Effecti	ve Date - 03/01/2	2023			Supplemental		
	Step	percent	Apprentice Base Wag	ge Health	Pension	Unemployment	Total Rate	
	1	50	\$19.88	\$7.71	\$1.38	\$0.00	\$28.97	
	2	60	\$23.86	\$7.71	\$1.38	\$0.00	\$32.95	
	3	70	\$27.83	\$7.71	\$13.95	\$0.00	\$49.49	
	4	75	\$29.82	\$7.71	\$13.95	\$0.00	\$51.48	
	5	80	\$31.81	\$7.71	\$15.35	\$0.00	\$54.87	
	6	80	\$31.81	\$7.71	\$15.35	\$0.00	\$54.87	
	7	90	\$35.78	\$7.71	\$16.75	\$0.00	\$60.24	
	8	90	\$35.78	\$7.71	\$16.75	\$0.00	\$60.24	
	Notes:							
		% Indentured After Step 1&2 \$26.46/3	r 10/1/17; 45/45/55/55/70/70/80/80 3&4 \$31.82/ 5&6 \$50.38/ 7&8 \$55.77					
	Appre	ntice to Journeywo	rker Ratio:1:5					
CARPENTER V CARPENTERS-ZON	WOOD	FRAME (I Frame)	04/01/20	023 \$24.1	16 \$7.21	\$4.80	\$0.00 \$	36.17

All Aspects of New Wood Frame Work

	Effective Date - 04/01/2023							Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	То	tal Rate	
	1	60		\$14.50	\$7.21	\$0.00	\$0.00		\$21.71	
	2	60		\$14.50	\$7.21	\$0.00	\$0.00		\$21.71	
	3	65		\$15.70	\$7.21	\$0.00	\$0.00		\$22.91	
	4	70		\$16.91	\$7.21	\$0.00	\$0.00		\$24.12	
	5	75		\$18.12	\$7.21	\$3.80	\$0.00		\$29.13	
	6	80		\$19.33	\$7.21	\$3.80	\$0.00		\$30.34	
	7	85		\$20.54	\$7.21	\$3.80	\$0.00		\$31.55	
	8	90		\$21.74	\$7.21	\$3.80	\$0.00		\$32.75	
	Notes:									
	% Indentured After 10/1/ Step 1&2 \$17.86/ 3&4 \$2		ed After 10/1/17; 45/45/55 17.86/ 3&4 \$20.22/ 5&6 \$	5/55/70/70/80/80 527.57/ 7&8 \$29.94						
	Apprentice to Journeyworker Ratio									
CEMENT MAS	SONRY/	PLASTERIN	١G	07/01/2023	\$45.82	\$12.70	\$17.97	\$0.87	\$	\$77.36
BRICKLAYERS LO	CAL 3 (SP	RINGFIELD/PI	TTSFIELD)	01/01/2024	\$46.83	\$12.70	\$17.97	\$0.87	\$	\$78.37

Apprentice - CARPENTER (Wood Frame) - Zone 3 Effective Date - 04/01/2023

Apprentice - CEMENT MASONRY/PLASTERING - Springfield/Pittsfield

Effectiv	ve Date -	07/01/2023				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50		\$22.91	\$12.70	\$15.49	\$0.00	\$51.10	_
2	60		\$27.49	\$12.70	\$17.97	\$0.87	\$59.03	
3	65		\$29.78	\$12.70	\$17.97	\$0.87	\$61.32	
4	70		\$32.07	\$12.70	\$17.97	\$0.87	\$63.61	
5	75		\$34.37	\$12.70	\$17.97	\$0.87	\$65.91	
6	80		\$36.66	\$12.70	\$17.97	\$0.87	\$68.20	
7	90		\$41.24	\$12.70	\$17.97	\$0.87	\$72.78	

Effecti	ve Date -	01/01/2024				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50		\$23.42	\$12.70	\$15.49	\$0.00	\$51.61
2	60		\$28.10	\$12.70	\$17.97	\$0.87	\$59.64
3	65		\$30.44	\$12.70	\$17.97	\$0.87	\$61.98
4	70		\$32.78	\$12.70	\$17.97	\$0.87	\$64.32
5	75		\$35.12	\$12.70	\$17.97	\$0.87	\$66.66
6	80		\$37.46	\$12.70	\$17.97	\$0.87	\$69.00
7	90		\$42.15	\$12.70	\$17.97	\$0.87	\$73.69

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR	06/01/2023	\$33.75	\$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$34.38	\$9.00	\$16.59	\$0.00	\$59.97
For apprentice rates see "Apprentice- LABORER"						
COMPRESSOR OPERATOR	06/01/2023	\$38.33	\$13.58	\$15.10	\$0.00	\$67.01
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.28	\$13.58	\$15.10	\$0.00	\$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CRANE OPERATOR	06/01/2023	\$42.36	\$13.58	\$15.10	\$0.00	\$71.04
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$43.31	\$13.58	\$15.10	\$0.00	\$71.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)	07/01/2023	\$55.51	\$9.65	\$23.70	\$0.00	\$88.86
PAINTERS LOCAL 55 - ZONE 3	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effecti	ve Date - 07/01/2023				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41	
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73	
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10	
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47	
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64	
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01	
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38	
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12	

	Effecti	ve Date - 01/01/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	То	tal Rate
	1	50	\$28.03	\$9.95	\$0.00	\$0.00		\$37.98
	2	55	\$30.83	\$9.95	\$6.66	\$0.00		\$47.44
	3	60	\$33.64	\$9.95	\$7.26	\$0.00		\$50.85
	4	65	\$36.44	\$9.95	\$7.87	\$0.00		\$54.26
	5	70	\$39.24	\$9.95	\$20.32	\$0.00		\$69.51
	6	75	\$42.05	\$9.95	\$20.93	\$0.00		\$72.93
	7	80	\$44.85	\$9.95	\$21.53	\$0.00		\$76.33
	8	90	\$50.45	\$9.95	\$22.74	\$0.00		\$83.14
	Notes:							
		Steps are 750 hrs.						
	Appre	ntice to Journeyworker Ratio:1:1						
DEMO: ADZEN	MAN		06/01/2023	3 \$43.73	\$9.40	\$17.82	\$0.00	\$70.95
LABORERS - ZONE	3 (BUILL	DING & SITE)	12/01/2023	3 \$44.98	\$9.40	\$17.82	\$0.00	\$72.20
For apprentice	rates see "	Apprentice- LABORER"						
DEMO: BACK	DEMO: BACKHOE/LOADER/HAMMER OPERATOR		06/01/2023	3 \$44.73	\$9.40	\$17.82	\$0.00	\$71.95
LADOKEKS - ZONE	з (BUILL	μινα α διτΕ)	12/01/2023	3 \$45.98	\$9.40	\$17.82	\$0.00	\$73.20

Issue Date: 08/07/2023

Der oppensive rates ses "Appensive- LABORER" CREADINGENT DEMO: BURNERS 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$72.95 For appendice rates see "Appendice- LABORER" 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$71.95 DEMO: CONCRETE CUTTERSAWYER 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$73.20 DEMO: CONCRETE CUTTERSAWYER 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$73.20 DEMO: JACKHAMMER OPERATOR 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: MARCENTOR 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: WRECKING LABORER 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: WRECKING LABORER 06/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 DEMO: WRECKING LABORER 06/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 DEMO: WRECKING LABORER 06/01/202	Classification	Effective Date	Base Wage	Health	Pension	Supplemental	Total Rate
DEMO. BURNERS LABORES - 20NE 3 (BURDING & STE) 0601/2023 12/01/2023 \$44.48 \$9,40 \$17.82 \$0.00 \$71.70 For apprenise rates es "Apprenise: LABORER" 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: CONCRETE CUTTERSAWYER LABORES - 20NE 3 (BURDING & STE) 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$73.20 For apprenise rates see "Apprenise: LABORER" 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$73.20 For apprenise rates see "Apprenise: LABORER" 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$72.95 For apprenise rates see "Apprenise: LABORER" 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$72.95 For apprenise rates see "Apprenise: LABORER" 06/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 For apprenise rates see "Apprenise: LABORER" 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$101.22 DEVER PLD CHILS (GONE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 <t< th=""><th>For apprentice rates see "Apprentice- LABORER"</th><th></th><th></th><th></th><th></th><th>Unemployment</th><th></th></t<>	For apprentice rates see "Apprentice- LABORER"					Unemployment	
L4002ES-200E J GULDING & SITE) 1201/2023 \$45.73 \$9.40 \$17.82 \$0.00 \$72.95 For apprentise rules see "Apprentise- LABORER" 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$73.20 For apprentise rules see "Apprentise- LABORER" 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$73.20 For apprentise rules see "Apprentise- LABORER" 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$71.70 L3002ES-20NE J OULDING & SITE) 12/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$71.70 L3002ES-20NE J OULDING & SITE) 12/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: CONCRECKING LABORER 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: SUBMER Solution & SITE) 12/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: SUBMER Solution & SITE) 06/01/2020 \$68.70 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: SUBMER Solution & SITE) 08/01/2020	DEMO: BURNERS	06/01/2023	\$44.48	\$9.40	\$17.82	\$0.00	\$71.70
For appendice rates see "Appendice: LABORER" DEMO: CONCRETE CUTTER/SAWYER For appendice rates see "Appendice: LABORER" 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$71.95 DEMO: SATE/F 12/01/2023 \$45.98 \$9.40 \$17.82 \$0.00 \$71.95 DEMO: LACKHAMMER OPERATOR LABORERS - ZONE 3 (BULLING & STE/F) 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$72.95 For appendice rates see "Appendice - LABORER" 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: MRECKING LABORER LABORER - ZONE 3 (BULLING & STE) 12/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 DEMO: WRECKING LABORER LABORER - ZONE 3 (BULLING & STE) 08/01/2020 \$68.70 \$9.40 \$17.82 \$0.00 \$72.20 DEVER TEOLOLI 56 (ZONE 3) 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 PULE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40	LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
DEMO. CONCERTE CUTTER/SAWYER 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$71.95 ABORERS - ZONE 3 (BULLDING & SITE) 12/01/2023 \$45.98 \$9.40 \$17.82 \$0.00 \$73.20 For appendice rates see "Appendice-LABORER" 12/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$73.20 DEMO: JACKHAMMER OPERATOR 12/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$70.95 LABORERS - ZONE 3 (BULLDING & SITE) 12/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$70.95 LABORERS - ZONE 3 (BULLDING & SITE) 06/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$70.95 LABORERS - ZONE 3 (BULLDING & SITE) 06/01/2023 \$44.98 \$9.40 \$23.12 \$0.00 \$70.95 DIVER PRIOCAL 56 (ZONE 3) PRIE DER/FERIOCAL 56 (ZONE 3) \$80.01/2020 \$86.70 \$9.40 \$23.12 \$0.00 \$81.59 PILE DRIVER LOCAL 56 (ZONE 3) PRIE DRIVER LOCAL 56 (ZONE 3) \$9.40 \$23.12 \$0.00 \$15.57 PILE DRIVER LOCAL 56 (ZONE 3) <	For apprentice rates see "Apprentice- LABORER"						
LABORES-20N2 3 (BULDING & SITE) 12/01/2023 \$45.98 \$9.40 \$17.82 \$0.00 \$73.20 For apprentice rates see "Apprentice- LABORER" 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$71.70 DEMO: JACKHAMMER OPERATOR 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$72.95 For apprentice rates see "Apprentice- LABORER" 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: VRECKING LABORER 06/01/2023 \$44.73 \$9.40 \$17.82 \$0.00 \$72.20 For apprentice rates see "Apprentice- LABORER" 06/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$81.59 PILE DRIVER LOCAL 56 (ZORE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$81.59 PILE DRIVER COCL 56 (ZORE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$10.6.12 PILE DRIVER COCL 56 (ZORE 3) 08/01	DEMO: CONCRETE CUTTER/SAWYER	06/01/2023	\$44.73	\$9.40	\$17.82	\$0.00	\$71.95
Der apprentice- tates ver "Apprentice- LABORER" DEMO: JACKHAMMER OPERATOR LABORERS - 2008 3 (BULLDNG & SITE) 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$71.70 For apprentice rates see "Apprentice- LABORER" 06/01/2023 \$45.73 \$9.40 \$17.82 \$0.00 \$72.95 Even prentice rates see "Apprentice- LABORER" 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$72.95 For apprentice rates see "Apprentice- LABORER" 06/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 For apprentice rates see "Apprentice- RLE DRIVER" 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$81.59 DIVER LOCAL 56 (ZONE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$81.59 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 For apprentice rates see "Apprentice- PLE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 DIVER SLUER (EFFLUENT) 08/01/2020 \$103.05 \$9.40 \$23.12 <td>LABORERS - ZONE 3 (BUILDING & SITE)</td> <td>12/01/2023</td> <td>\$45.98</td> <td>\$9.40</td> <td>\$17.82</td> <td>\$0.00</td> <td>\$73.20</td>	LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$45.98	\$9.40	\$17.82	\$0.00	\$73.20
DEMO: JACKHAMMER OPERATOR 06/01/2023 \$44.48 \$9.40 \$17.82 \$0.00 \$71.70 LABORERS - ZONE 3 (BUILDING & SITE) 12/01/2023 \$45.73 \$9.40 \$17.82 \$0.00 \$72.95 For apprentice rates see "Apprentice-LABORER" 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$72.95 DEMO: WRECKING LABORER 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$72.95 LABORERS - ZONE 3 (BUILDING & SITE) 12/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 For apprentice rates see "Apprentice-PILE DRIVER" 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$81.59 For apprentice rates see "Apprentice-PILE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 PILE DRIVER LOCAL 56 (20NE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$13.57 PILE DRIVER LOCAL 56 (20NE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$13.57 PILE DRIVER LOCAL 56 (20NE 3) 08/01/202	For apprentice rates see "Apprentice- LABORER"						
LABORES - LONE 3 (BULDING & SITE) 12/01/2023 \$\$45.73 \$\$9.40 \$\$17.82 \$0.00 \$\$72.95 For apprentice rates see "Apprentice- LABORER" 06/01/2023 \$\$43.73 \$\$9.40 \$\$17.82 \$0.00 \$\$70.95 IBORERS - ZONE 3 (BULLING & SITE) 12/01/2023 \$\$44.98 \$9.40 \$\$17.82 \$0.00 \$\$72.95 For apprentice rates see "Apprentice- LABORER" 06/01/2023 \$\$44.98 \$9.40 \$\$17.82 \$0.00 \$\$72.20 For apprentice rates see "Apprentice- LABORER" 08/01/2020 \$\$68.70 \$9.40 \$\$23.12 \$0.00 \$\$10.122 FOR apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$\$49.07 \$9.40 \$\$23.12 \$0.00 \$\$81.59 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$\$73.60 \$9.40 \$\$23.12 \$0.00 \$\$106.12 PILE DRIVER LOCAL 56 (ZONE 3) \$\$0.00 \$\$73.60 \$9.40 \$\$23.12 \$0.00 \$\$106.12 PILE DRIVER LOCAL 56 (ZONE 3) \$\$72.95 \$\$100.51 \$\$9.40 \$\$23.12 \$0.00 \$\$100.12 <tr< td=""><td>DEMO: JACKHAMMER OPERATOR</td><td>06/01/2023</td><td>\$44.48</td><td>\$9.40</td><td>\$17.82</td><td>\$0.00</td><td>\$71.70</td></tr<>	DEMO: JACKHAMMER OPERATOR	06/01/2023	\$44.48	\$9.40	\$17.82	\$0.00	\$71.70
For apprentice rates see "Apprentice-LABORER" 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$70.95 LABORERS - ZONE 3 (BUILDING & SITE) 12/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 For apprentice rates see "Apprentice-LABORER" 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$101.22 For apprentice rates see "Apprentice-PILE DRIVER" 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 DIVER TENDER (EFFLUENT) 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 For apprentice rates see "Apprentice-PILE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 DIVER TENDER (EFFLUENT) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$105.57 PILE DRIVER (DCLL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER (DCLL 56 (ZONE 3) 07/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 DIVER SUDCLA S6 (ZONE 3)	LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
DEMO: WRECKING LABORER 06/01/2023 \$43.73 \$9.40 \$17.82 \$0.00 \$70.95 For apprentice rates see "Apprentice LABORER" 08/01/2020 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 DIVER PLE DRIFE LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$81.59 DIVER TENDER PLE DRIFE LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 DIVER TENDER PLE DRIFE LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 DIVER TENDER (EFFLUENT) PLE DRIFE LOCAL 56 (ZONE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$135.57 DIVER SUURRY (EFFLUENT) PLE DRIFER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PRADBENDEG OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 56 \$0.16 \$13.57 \$141 \$0.00 \$73.92 ELECTRICLAN (Including Core Drilling) ELECTRICLANS LOCAL 7	For apprentice rates see "Apprentice- LABORER"						
LABORER* JONE 3 (BUILDING & STE) 12/01/2023 \$44.98 \$9.40 \$17.82 \$0.00 \$72.20 For apprentice rates see "Apprentice- LABORER" 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$101.22 DIVER DUCL 56 (ZONE 3) 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 DIVER TENDER PILE DRIVER* 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 DIVER TENDER (EFFLUENT) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 DIVER/SLURRY (EFFLUENT) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER LOCAL 56 (ZONE 3) 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 DRAWBRIDGE OPERATOR (Construct	DEMO: WRECKING LABORER	06/01/2023	\$43.73	\$9.40	\$17.82	\$0.00	\$70.95
For apprentice rates see "Apprentice- LABORER" DIVER 08/01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$101.22 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 DIVER TENDER (EFFLUENT) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$13.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER LOCAL 56 (ZONE 3) 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 DRAWBRIDGE OPE	LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$44.98	\$9.40	\$17.82	\$0.00	\$72.20
DIVER PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 80.01/2020 \$68.70 \$9.40 \$23.12 \$0.00 \$101.22 IVER TENDER PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 IVER TENDER PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 IVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$105.57 IVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 IDRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SERU LOCAL 888 07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$73.92 ELECTRICIANS LOCAL 7 12/31/2023 \$49.01 \$11.75 \$14.61 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 <	For apprentice rates see "Apprentice- LABORER"						
PILE DRIVER* For apprentice rates see "Apprentice- PILE DRIVER* DIVER TENDER PILE DRIVER (CALL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER* DIVER TENDER (EFFLUENT) PILE DRIVER* DIVER TENDER (EFFLUENT) PILE DRIVER* DIVER TENDER (EFFLUENT) PILE DRIVER* DIVER SLURRY (EFFLUENT) PILE DRIVER* DIVER SURRY (EFFLUENT) PILE DRIVER* DIVER SURRY (EFFLUENT) PILE DRIVER* DRAWBRIDGE OPERATOR (Construction) D7/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 PILE CRIVEL DRIVER* ELECTRICIAN (Including Core Drilling) PT/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$73.92 ELECTRICIAN (Including Core Drilling) \$07/02/2023 \$49.01 \$11.75 \$14.61 \$0.00 \$75.37 \$0/30/2024 \$50.01 \$12.00	DIVER	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice-PILE DRIVER" 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 DIVER TENDER PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice-PILE DRIVER" DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice-PILE DRIVER" DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice-PILE DRIVER" DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice-PILE DRIVER" DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice-PILE DRIVER" DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE SEIV LOCAL 888 \$11.50 \$14.41 \$0.00 \$73.32 ELECTRICIAN (Including Core Drilling) #///29//2023 \$48.01 \$11.50 \$14.41 \$0.00 \$75.37 #///29//2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 #///29//2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 #///29//2025 \$53.26 \$12.75 \$15.36 \$0.00 \$78.3	PILE DRIVER LOCAL 56 (ZONE 3)						
DIVER TENDER 08/01/2020 \$49.07 \$9.40 \$23.12 \$0.00 \$81.59 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 DIVER TENDER (EFFLUENT) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$105.12 DIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 PILE DRIVER LOCAL 56 (ZONE 3) 07/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 DRAWBRIDGE OPERATOR (Construction) 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 ELECTRICIAN (Including Core Drilling) 07/02/2023 \$48.01 \$11.50 \$14.41	For apprentice rates see "Apprentice- PILE DRIVER"						
For apprentice rates see "Apprentice-PILE DRIVER" DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) \$9.40 \$23.12 \$0.00 \$106.12 For apprentice rates see "Apprentice-PILE DRIVER" DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) \$08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 For apprentice rates see "Apprentice-PILE DRIVER" DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) \$08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 For apprentice rates see "Apprentice-PILE DRIVER" DRAWBRIDGE OPERATOR (Construction) DR/WBRIDGE - SEIU LOCAL 888 \$0.16 \$37.53 ELECTRICIAN (Including Core Drilling) ELECTRICIAN S LOCAL 7 \$07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 12/29/2024 \$51.06 \$12.50 \$15.21 \$0.00 \$79.87 12/28/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81	DIVER TENDER PILE DRIVER LOCAL 56 (ZONE 3)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$73.60 \$9.40 \$23.12 \$0.00 \$106.12 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 ELECTRICIAN (Including Core Drilling) 07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 12/29/2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 06/29/2025 \$52.16 \$12.50 \$15.21 \$0.00 \$79.87 12/28/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81.37 06/28/2026 \$54.41 \$13.00 \$15	For apprentice rates see "Apprentice- PILE DRIVER"						
For apprentice- PILE DRIVER" DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 ELECTRICIAN (Including Core Drilling) ELECTRICIANS LOCAL 7 07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$73.92 06/30/2024 \$50.01 \$11.75 \$14.61 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 12/29/2025 \$52.16 \$12.50 \$15.21 \$0.00 \$78.37 06/29/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81.37 06/28/2026 \$54.41 \$13.00 \$15.46 \$0.00 \$82.87	DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3)	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER" 08/01/2020 \$103.05 \$9.40 \$23.12 \$0.00 \$135.57 DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 ELECTRICIAN (Including Core Drilling) ELECTRICIANS LOCAL 7 07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$75.37 06/30/2024 \$50.01 \$11.75 \$14.61 \$0.00 \$76.87 12/29/2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 06/29/2025 \$52.16 \$12.50 \$15.21 \$0.00 \$79.87 12/28/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81.37 06/28/2026 \$54.41 \$13.00 \$15.46 \$0.00 \$82.87	For apprentice rates see "Apprentice- PILE DRIVER"						
For apprentice- PILE DRIVER" DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 ELECTRICIAN (Including Core Drilling) 07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$73.92 12/31/2023 \$49.01 \$11.75 \$14.61 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 12/29/2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 06/29/2025 \$52.16 \$12.50 \$15.21 \$0.00 \$79.87 12/28/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81.37 06/28/2026 \$54.41 \$13.00 \$15.46 \$0.00 \$82.87	DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 3)	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
DRAWBRIDGE OPERATOR (Construction) 07/01/2020 \$26.77 \$6.67 \$3.93 \$0.16 \$37.53 DRAWBRIDGE - SEIU LOCAL 888 07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$73.92 ELECTRICIAN (Including Core Drilling) 07/02/2023 \$49.01 \$11.75 \$14.61 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 12/29/2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 06/29/2025 \$52.16 \$12.50 \$15.21 \$0.00 \$79.87 12/28/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81.37 06/28/2026 \$54.41 \$13.00 \$15.46 \$0.00 \$82.87	For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN (Including Core Drilling) 07/02/2023 \$48.01 \$11.50 \$14.41 \$0.00 \$73.92 12/31/2023 \$49.01 \$11.75 \$14.61 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 12/29/2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 06/29/2025 \$52.16 \$12.50 \$15.21 \$0.00 \$79.87 12/28/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81.37 06/28/2026 \$54.41 \$13.00 \$15.46 \$0.00 \$82.87	DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
12/31/2023 \$49.01 \$11.75 \$14.61 \$0.00 \$75.37 06/30/2024 \$50.01 \$12.00 \$14.86 \$0.00 \$76.87 12/29/2024 \$51.06 \$12.25 \$15.06 \$0.00 \$78.37 06/29/2025 \$52.16 \$12.50 \$15.21 \$0.00 \$79.87 12/28/2025 \$53.26 \$12.75 \$15.36 \$0.00 \$81.37 06/28/2026 \$54.41 \$13.00 \$15.46 \$0.00 \$82.87	ELECTRICIAN (Including Core Drilling)	07/02/2023	\$48.01	\$11.50	\$14.41	\$0.00	\$73.92
06/30/2024\$50.01\$12.00\$14.86\$0.00\$76.8712/29/2024\$51.06\$12.25\$15.06\$0.00\$78.3706/29/2025\$52.16\$12.50\$15.21\$0.00\$79.8712/28/2025\$53.26\$12.75\$15.36\$0.00\$81.3706/28/2026\$54.41\$13.00\$15.46\$0.00\$82.87	ELECTRICIANS LOCAL /	12/31/2023	\$49.01	\$11.75	\$14.61	\$0.00	\$75.37
12/29/2024\$51.06\$12.25\$15.06\$0.00\$78.3706/29/2025\$52.16\$12.50\$15.21\$0.00\$79.8712/28/2025\$53.26\$12.75\$15.36\$0.00\$81.3706/28/2026\$54.41\$13.00\$15.46\$0.00\$82.87		06/30/2024	\$50.01	\$12.00	\$14.86	\$0.00	\$76.87
06/29/2025\$52.16\$12.50\$15.21\$0.00\$79.8712/28/2025\$53.26\$12.75\$15.36\$0.00\$81.3706/28/2026\$54.41\$13.00\$15.46\$0.00\$82.87		12/29/2024	\$51.06	\$12.25	\$15.06	\$0.00	\$78.37
12/28/2025\$53.26\$12.75\$15.36\$0.00\$81.3706/28/2026\$54.41\$13.00\$15.46\$0.00\$82.87		06/29/2025	\$52.16	\$12.50	\$15.21	\$0.00	\$79.87
06/28/2026 \$54.41 \$13.00 \$15.46 \$0.00 \$82.87		12/28/2025	\$53.26	\$12.75	\$15.36	\$0.00	\$81.37
		06/28/2026	\$54.41	\$13.00	\$15.46	\$0.00	\$82.87
01/03/2027 \$55.56 \$13.25 \$15.56 \$0.00 \$84.37		01/03/2027	\$55.56	\$13.25	\$15.56	\$0.00	\$84.37

	Effecti	ive Date -	07/02/2023				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Ra	te
	1	40		\$19.20	\$6.90	\$1.44	\$0.00	\$27.5	4
	2	45		\$21.60	\$6.90	\$1.44	\$0.00	\$29.9	94
	3	50		\$24.01	\$11.50	\$7.99	\$0.00	\$43.5	50
	4	55		\$26.41	\$11.50	\$7.99	\$0.00	\$45.9	00
	5	65		\$31.21	\$11.50	\$9.92	\$0.00	\$52.6	53
	6	70		\$33.61	\$11.50	\$11.20	\$0.00	\$56.3	1
	Effecti Step	ive Date - percent	12/31/2023	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Ra	te
	1	40		\$19.60	\$7.05	\$1.47	\$0.00	\$28.1	2
	2	45		\$22.05	\$7.05	\$1.47	\$0.00	\$30.5	57
	3	50		\$24.51	\$11.75	\$8.07	\$0.00	\$44.3	3
	4	55		\$26.96	\$11.75	\$8.07	\$0.00	\$46.7	8
	5	65		\$31.86	\$11.75	\$10.03	\$0.00	\$53.6	64
	6	70		\$34.31	\$11.75	\$11.34	\$0.00	\$57.4	0
	Notes:	Steps 1-2	are 1000 hrs; Steps 3-6 are 15	500 hrs.					
	Appre	entice to Jo	urneyworker Ratio:2:3****						
ELEVATOR CC	ONSTRU	UCTOR		01/01/2023	3 \$61.13	\$ \$16.08	\$20.56	\$0.00	\$97.77
ELEVATOR CONST.	RUCTOR	S LOCAL 41		01/01/2024	4 \$61.98	\$16.18	\$20.96	\$0.00	\$99.12
				01/01/2025	5 \$62.83	\$16.28	\$21.36	\$0.00	\$100.47
				01/01/2026	5 \$63.68	\$16.38	\$21.76	\$0.00	\$101.82
				01/01/2027	7 \$64.53	\$16.48	\$22.16	\$0.00	\$103.17

Apprentice - *ELECTRICIAN - Local* 7 Effective Date - 07/02/2023

	Effecti	ve Date -	01/01/2023				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$30.57	\$16.08	\$0.00	\$0.00	\$46.65	
	2	55		\$33.62	\$16.08	\$20.56	\$0.00	\$70.26	
	3	65		\$39.73	\$16.08	\$20.56	\$0.00	\$76.37	
	4	70		\$42.79	\$16.08	\$20.56	\$0.00	\$79.43	
	5	80		\$48.90	\$16.08	\$20.56	\$0.00	\$85.54	
	Effecti	ve Date -	01/01/2024				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	50		\$30.99	\$16.18	\$0.00	\$0.00	\$47.17	
	2	55		\$34.09	\$16.18	\$20.96	\$0.00	\$71.23	
	3	65		\$40.29	\$16.18	\$20.96	\$0.00	\$77.43	
	4	70		\$43.39	\$16.18	\$20.96	\$0.00	\$80.53	
	5	80		\$49.58	\$16.18	\$20.96	\$0.00	\$86.72	
	Notes:								
		Steps 1-2	are 6 mos.; Steps 3-5 are 1 y	ear					
	Appre	ntice to Jo	urneyworker Ratio:1:1						
ELEVATOR CO	NSTRU	JCTOR HE	ELPER	01/01/2023	3 \$42.79	\$16.08	\$20.56	\$0.00	\$79.43
ELEVATOR CONSTI	RUCTOR	S LOCAL 41		01/01/2024	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
				01/01/2025	5 \$43.98	\$16.28	\$21.36	\$0.00	\$81.62
				01/01/2020	5 \$44.58	\$16.38	\$21.76	\$0.00	\$82.72
				01/01/2027	\$45.17	\$16.48	\$22.16	\$0.00	\$83.81
For apprentice r	rates see "	Apprentice - I	ELEVATOR CONSTRUCTOR"						
FENCE & GUA	RD RA	IL ERECT	OR (HEAVY & HIGHWAY)	06/01/2023	\$33.75	\$9.40	\$14.53	\$0.00	\$57.68
EIDORERS - ZOIVE	5 (112/17	1 & 11011///	1)	12/01/2023	\$34.38	\$9.40	\$14.53	\$0.00	\$58.31
				06/01/2024	\$35.58	\$9.40	\$14.53	\$0.00	\$59.51
				12/01/2024	\$36.78	\$9.40	\$14.53	\$0.00	\$60.71
				06/01/2025	5 \$38.03	\$9.40	\$14.53	\$0.00	\$61.96
				12/01/2025	5 \$39.27	\$9.40	\$14.53	\$0.00	\$63.20
				06/01/2020	5 \$40.57	\$9.40	\$14.53	\$0.00	\$64.50
				12/01/2020	5 \$41.86	\$9.40	\$14.53	\$0.00	\$65.79
For apprentice r	rates see "	Apprentice- L	ABORER (Heavy and Highway)						
FIELD ENG.INS	ST/ROI NEERS LO	D-BLDG,S DCAL 98	ITE,HVY/HWY	06/01/1999	9 \$18.84	\$4.80	\$4.10	\$0.00	\$27.74
FIELD ENG.PA	RTY CI	HIEF:BLD DCAL 98	G,SITE,HVY/HWY	06/01/1999	9 \$21.33	\$4.80	\$4.10	\$0.00	\$30.23
FIELD ENG.SU	RVEY	CHIEF-BL DCAL 98	DG,SITE,HVY/HWY	06/01/1999	\$22.33	\$4.80	\$4.10	\$0.00	\$31.23

Apprentice - ELEVATOR CONSTRUCTOR - Local 41

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM INSTALLER	07/02/2023	\$48.01	\$11.50	\$14.41	\$0.00	\$73.92
ELECTRICIANS LOCAL /	12/31/2023	\$49.01	\$11.75	\$14.61	\$0.00	\$75.37
	06/30/2024	\$50.01	\$12.00	\$14.86	\$0.00	\$76.87
	12/29/2024	\$51.06	\$12.25	\$15.06	\$0.00	\$78.37
	06/29/2025	\$52.16	\$12.50	\$15.21	\$0.00	\$79.87
	12/28/2025	\$53.26	\$12.75	\$15.36	\$0.00	\$81.37
	06/28/2026	\$54.41	\$13.00	\$15.46	\$0.00	\$82.87
	01/03/2027	\$55.56	\$13.25	\$15.56	\$0.00	\$84.37
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE	07/02/2023	\$48.01	\$11.50	\$14.41	\$0.00	\$73.92
/ COMMISSIONINGELECTRICIANS LOCAL 7	12/31/2023	\$49.01	\$11.75	\$14.61	\$0.00	\$75.37
	06/30/2024	\$50.01	\$12.00	\$14.86	\$0.00	\$76.87
	12/29/2024	\$51.06	\$12.25	\$15.06	\$0.00	\$78.37
	06/29/2025	\$52.16	\$12.50	\$15.21	\$0.00	\$79.87
	12/28/2025	\$53.26	\$12.75	\$15.36	\$0.00	\$81.37
	06/28/2026	\$54.41	\$13.00	\$15.46	\$0.00	\$82.87
	01/03/2027	\$55.56	\$13.25	\$15.56	\$0.00	\$84.37
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN	06/01/2023	\$38.33	\$13.58	\$15.10	\$0.00	\$67.01
OFEKALING ENGINEEKS LOCAL 98	12/01/2023	\$39.28	\$13.58	\$15.10	\$0.00	\$67.96

Apprentice - OPERATING ENGINEERS - Local 98 Class 3

Effective Date -		06/01/2023		Suppleme						
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate			
1	60		\$23.00	\$13.58	\$15.10	\$0.00	\$51.68			
2	70		\$26.83	\$13.58	\$15.10	\$0.00	\$55.51			
3	80		\$30.66	\$13.58	\$15.10	\$0.00	\$59.34			
4	90		\$34.50	\$13.58	\$15.10	\$0.00	\$63.18			

Effecti	ve Date -	12/01/2023				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	60		\$23.57	\$13.58	\$15.10	\$0.00	\$52.25	
2	70		\$27.50	\$13.58	\$15.10	\$0.00	\$56.18	
3	80		\$31.42	\$13.58	\$15.10	\$0.00	\$60.10	
4	90		\$35.35	\$13.58	\$15.10	\$0.00	\$64.03	

Notes:

Steps 1-2 are 1000 hrs.; Steps 3-4 are 2000 hrs.

Apprentice to Journeyworker Ratio:1:6

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLAGGER & SIGNALER (HEAVY & HIGHWAY)	06/01/2023	\$25.98	\$9.40	\$14.41	\$0.00	\$49.79
LABOREKS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$25.98	\$9.40	\$14.41	\$0.00	\$49.79
	06/01/2024	\$27.01	\$9.40	\$14.41	\$0.00	\$50.82
	12/01/2024	\$27.01	\$9.40	\$14.41	\$0.00	\$50.82
	06/01/2025	\$28.09	\$9.40	\$14.41	\$0.00	\$51.90
	12/01/2025	\$28.09	\$9.40	\$14.41	\$0.00	\$51.90
	06/01/2026	\$29.21	\$9.40	\$14.41	\$0.00	\$53.02
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)	12/01/2026	\$29.21	\$9.40	\$14.41	\$0.00	\$53.02
FLOORCOVERER FLOORCOVERERS LOCAL 2168 ZONE III	03/01/2022	\$39.66	\$7.71	\$18.15	\$0.00	\$65.52

Ef	ffective Date -	03/01/2022				Supplemental		
St	ep percent		Apprentice Base Wage	Health	Pension	Unemployment	Tot	tal Rate
1	50		\$19.83	\$7.71	\$1.40	\$0.00		\$28.94
2	55		\$21.81	\$7.71	\$1.40	\$0.00		\$30.92
3	60		\$23.80	\$7.71	\$13.95	\$0.00		\$45.46
4	65		\$25.78	\$7.71	\$13.95	\$0.00		\$47.44
5	70		\$27.76	\$7.71	\$15.35	\$0.00		\$50.82
6	75		\$29.75	\$7.71	\$15.35	\$0.00		\$52.81
7	80		\$31.73	\$7.71	\$16.75	\$0.00		\$56.19
8	85		\$33.71	\$7.71	\$16.75	\$0.00		\$58.17
	otes: Steps are % After Step 1&	750 hrs. 10/1/17; 45/45/55/55/70/70/8 2 \$26.21/ 3&4 \$31.49/ 5&6 \$	80/80 (1500hr Steps) 549.96/ 7&8 \$55.29					
A	pprentice to J	ourneyworker Ratio:1:1						
FORK LIFT	ERSIOCAL 08		06/01/2023	3 \$38.55	\$13.58	\$15.10	\$0.00	\$67.23
For apprentice rates	s see "Apprentice-	OPERATING ENGINEERS"	12/01/2023	3 \$39.50	\$13.58	\$15.10	\$0.00	\$68.18
GENERATORS/LI	GHTING PLA	NTS	06/01/2023	3 \$35.10	\$13.58	\$15.10	\$0.00	\$63.78
OPERATING ENGINEE	See "Apprentice-	OPERATING ENGINEERS"	12/01/2023	3 \$36.05	\$13.58	\$15.10	\$0.00	\$64.73
GLAZIER (GLASS SYSTEMS)	S PLANK/AIR	BARRIER/INTERIOR	06/01/2020) \$39.18	\$10.80	\$10.45	\$0.00	\$60.43
GLAZIERS LOCAL 1333	3							

Apprentice - FLOORCOVERER - Local 2168 Zone III

Appro Effect	entice - GLAZIER - Local 1333 tive Date - 06/01/2020				Crea 1		
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
1	50	\$19.59	\$10.80	\$1.80	\$0.00	\$32.19	
2	56	\$22.04	\$10.80	\$1.80	\$0.00	\$34.64	
3	63	\$24.49	\$10.80	\$2.45	\$0.00	\$37.74	
4	69	\$26.94	\$10.80	\$2.45	\$0.00	\$40.19	
5	75	\$29.39	\$10.80	\$3.15	\$0.00	\$43.34	
6	81	\$31.83	\$10.80	\$3.15	\$0.00	\$45.78	
7	88	\$34.28	\$10.80	\$10.45	\$0.00	\$55.53	
8	94	\$36.73	\$10.80	\$10.45	\$0.00	\$57.98	
Notes	- — — — — — — — — — — —						
Appr	entice to Journeyworker Ratio:1:3						
RADER/TRENCHIN	NG MACHINE/DERRICK	06/01/2023	\$38.86	\$13.58	\$15.10	\$0.00	\$67.54
		12/01/2023	\$39.81	\$13.58	\$15.10	\$0.00	\$68.49
For apprentice rates see	Apprentice- OPERATING ENGINEERS				017.54		
HEETMETAL WORKERS L) .OCAL 63	07/01/2023	3 \$42.55	\$10.64	\$17.54	\$2.05	\$72.78
		01/01/2024	4 \$43.80	\$10.64	\$17.54	\$2.05	\$74.03
		07/01/2024	4 \$45.05	\$10.64	\$17.54	\$2.05	\$75.28
For apprentice rates see	"Apprentice- SHEET METAL WORKER"	01/01/202:	5 \$46.30	\$10.64	\$17.54	\$2.05	\$76.53
VAC (ELECTRICAI	L CONTROLS)	07/02/2023	3 \$48.01	\$11.50	\$14.41	\$0.00	\$73.92
ECTRICIANS LOCAL 7		12/31/2023	\$49.01	\$11.75	\$14.61	\$0.00	\$75.37
		06/30/2024	\$50.01	\$12.00	\$14.86	\$0.00	\$76.87
		12/29/2024	\$51.06	\$12.25	\$15.06	\$0.00	\$78.37
		06/29/202	5 \$52.16	\$12.50	\$15.21	\$0.00	\$79.87
		12/28/202:	5 \$53.26	\$12.75	\$15.36	\$0.00	\$81.37
		06/28/2020	5 \$54.41	\$13.00	\$15.46	\$0.00	\$82.87
For annentice rates see	"Apprentice_ FI ECTRICIAN"	01/03/2027	7 \$55.56	\$13.25	\$15.56	\$0.00	\$84.37
VAC (TESTING AN	D BALANCING - AIR)	07/01/202	3 \$42.55	\$10.64	\$17.54	\$2.05	\$72.78
IEETMETAL WORKERS L	OCAL 63	01/01/2024	4 \$43.80	\$10.64	\$17.54	\$2.05	\$74.03
		07/01/202	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
		01/01/202	5 \$46.30	\$10.64	\$17.54	\$2.05	\$76.53
For apprentice rates see	"Apprentice- SHEET METAL WORKER"		+ 10100	+-0.01			
VAC (TESTING AN	D BALANCING -WATER)	03/17/2023	3 \$46.96	\$9.55	\$17.10	\$0.00	\$73.61
UMBERS & PIPEFITTER	RS LOCAL 104	09/17/2023	3 \$47.96	\$9.55	\$17.10	\$0.00	\$74.61
		03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see	"Apprentice- PIPEFITTER" or "PLUMBER/P	IPEFITTER"					
VAC MECHANIC	PSIOCAL 10A	03/17/2023	\$46.96	\$9.55	\$17.10	\$0.00	\$73.61
JUMDERS & PIPEFIIIEF	I LOCAL 104	09/17/2023	3 \$47.96	\$9.55	\$17.10	\$0.00	\$74.61
For apprentice rates see	"Apprentice- PIPEFITTER" or "PI LIMBED/D	03/17/2024 IPEFITTER"	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see	"Apprentice- PIPEFITTER" or "PLUMBER/P	IPEFITTER"					

oprentice -	GLAZIER - Local 13
	06/01/0000

Issue Date: 08/07/2023

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS (HEAVY & HIGHWAY)	06/01/2023	\$34.25	\$9.40	\$14.53	\$0.00	\$58.18
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$34.88	\$9.40	\$14.53	\$0.00	\$58.81
	06/01/2024	\$36.08	\$9.40	\$14.53	\$0.00	\$60.01
	12/01/2024	\$37.28	\$9.40	\$14.53	\$0.00	\$61.21
	06/01/2025	\$38.53	\$9.40	\$14.53	\$0.00	\$62.46
	12/01/2025	\$39.77	\$9.40	\$14.53	\$0.00	\$63.70
	06/01/2026	\$41.07	\$9.40	\$14.53	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)	12/01/2026	\$42.36	\$9.40	\$14.53	\$0.00	\$66.29
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)	09/01/2022	\$44.05	\$13.80	\$17.14	\$0.00	\$74.99

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Springfield

Effective Date - 09/0	01/2022			Supplemental		
Step percent	Apprentice Base Wag	e Health	Pension	Unemployment	Total Rate	;
1 50	\$22.03	\$13.80	\$12.42	\$0.00	\$48.25	
2 60	\$26.43	\$13.80	\$13.36	\$0.00	\$53.59	1
3 70	\$30.84	\$13.80	\$14.31	\$0.00	\$58.95	
4 80	\$35.24	\$13.80	\$15.25	\$0.00	\$64.29	J
Notes: Steps are 1 year						
Apprentice to Journey	worker Ratio:1:4					
IRONWORKER/WELDER	03/16/20	23 \$38.91	\$8.25	\$22.70	\$0.00	\$69.86
IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)) 09/16/20	\$39.81	\$8.25	\$22.70	\$0.00	\$70.76
	03/16/20	24 \$40.66	\$8.25	\$22.70	\$0.00	\$71.61

E	ffecti	ve Date - 03/16/2023				Supplemental		
S	tep	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rat	e
1	1	60	\$23.35	\$8.25	\$22.70	\$0.00	\$54.3	0
2	2	70	\$27.24	\$8.25	\$22.70	\$0.00	\$58.1	9
3	3	75	\$29.18	\$8.25	\$22.70	\$0.00	\$60.1	3
2	1	80	\$31.13	\$8.25	\$22.70	\$0.00	\$62.0	8
4	5	85	\$33.07	\$8.25	\$22.70	\$0.00	\$64.0	2
6	6	90	\$35.02	\$8.25	\$22.70	\$0.00	\$65.9	7
E	and the section of th	ve Date - 09/16/2023	Apprentice Base Wage	Health	Pension	Supplemental Unemplovment	Total Rat	e
-	1	60	\$23.80	\$8.25	\$22.70	\$0.00	\$54.8	<u> </u>
2	2	70	\$23.89	\$0.25 \$8.25	\$22.70	\$0.00	\$J 1 .0 \$58.8	+ ?
-	3	75	\$27.87	\$0.25 \$2.25	\$22.70	\$0.00	\$J0.0 \$60.9	2
2	1	80	\$29.80	\$0.25 \$9.25	\$22.70	\$0.00	\$00.0 ¢(2.0	0
-	5	80	\$31.85	\$8.25 \$9.25	\$22.70	\$0.00	\$02.8 \$(4.7	0
(5	90	\$35.83	\$8.25 \$8.25	\$22.70 \$22.70	\$0.00 \$0.00	\$66.7	8
N	otes:							
A	ppre	ntice to Journeyworker Ratio:1:4						
JACKHAMMER	& PAV	VING BREAKER OPERATOR	06/01/2023	3 \$33.75	5 \$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE 3	(BUILL	DING & SITE)	12/01/2023	3 \$34.38	8 \$9.00	\$16.59	\$0.00	\$59.97
For apprentice rate	es see "	Apprentice- LABORER"						
LABORER			06/01/2023	3 \$33.50	\$9.40	\$16.59	\$0.00	\$59.49
LABORERS - ZONE 3	(BUILL	DING & SITE)	12/01/2023	3 \$34.13	3 \$9.40	\$16.59	\$0.00	\$60.12

Apprentice - IRONWORKER - Local 7 Springfield

Effectiv	e Date -	06/01/2023				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	60		\$20.10	\$9.40	\$16.59	\$0.00	\$46.09	
2	70		\$23.45	\$9.40	\$16.59	\$0.00	\$49.44	
3	80		\$26.80	\$9.40	\$16.59	\$0.00	\$52.79	
4	90		\$30.15	\$9.40	\$16.59	\$0.00	\$56.14	

Apprentice - LABORER - Zone 3 Building & Site

Effecti	ive Date -	12/01/2023				Supplemental		
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	60		\$20.48	\$9.40	\$16.59	\$0.00	\$46.47	
2	70		\$23.89	\$9.40	\$16.59	\$0.00	\$49.88	
3	80		\$27.30	\$9.40	\$16.59	\$0.00	\$53.29	
4	90		\$30.72	\$9.40	\$16.59	\$0.00	\$56.71	

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY)	06/01/2023	\$33.50	\$9.40	\$14.53	\$0.00	\$57.43
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$34.13	\$9.40	\$14.53	\$0.00	\$58.06
	06/01/2024	\$35.33	\$9.40	\$14.53	\$0.00	\$59.26
	12/01/2024	\$36.53	\$9.40	\$14.53	\$0.00	\$60.46
	06/01/2025	\$37.78	\$9.40	\$14.53	\$0.00	\$61.71
	12/01/2025	\$39.02	\$9.40	\$14.53	\$0.00	\$62.95
	06/01/2026	\$40.32	\$9.40	\$14.53	\$0.00	\$64.25
	12/01/2026	\$41.61	\$9.40	\$14.53	\$0.00	\$65.54

	Enecuv	e Date -	06/01/2023				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total	Rate
	1	60		\$20.10	\$9.40	\$14.53	\$0.00	\$4	14.03
	2	70		\$23.45	\$9.40	\$14.53	\$0.00	\$4	17.38
	3	80		\$26.80	\$9.40	\$14.53	\$0.00	\$5	50.73
	4	90		\$30.15	\$9.40	\$14.53	\$0.00	\$5	54.08
]	Effectiv	e Date -	12/01/2023				Supplemental		
-	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total	Rate
	1	60		\$20.48	\$9.40	\$14.53	\$0.00	\$4	14.41
	2	70		\$23.89	\$9.40	\$14.53	\$0.00	\$4	47.82
	3	80		\$27.30	\$9.40	\$14.53	\$0.00	\$5	51.23
	4	90		\$30.72	\$9.40	\$14.53	\$0.00	\$5	54.65
1	Notes:								
	Appren	TENEN	irneyworker Ratio:1:5			** **	016 50	<i>фо</i> . с с	.
LABORERS - ZONE 3	RPENTE B (BUILDI	NG & SITE)	EK	06/01/2023	\$33.50	\$9.40	\$16.59	\$0.00	\$59.49
For apprentice ra	ates see "A	pprentice- L	ABORER"	12/01/2023	\$34.13	\$9.40	\$16.59	\$0.00	\$60.12
LABORER: CEM	MENT F	INISHER	TENDER	06/01/2023	\$33.50	\$9.40	\$16.59	\$0.00	\$59.49
LABORERS - ZONE 3	8 (BUILDI	NG & SITE)		12/01/2023	\$34.13	\$9.40	\$16.59	\$0.00	\$60.12
For apprentice ra	ates see "A	pprentice- L	ABORER"						
LABORER: HAZ	ZARDO	US WAST NG & SITE)	E/ASBESTOS REMOVER	06/01/2023	\$33.47	\$9.40	\$16.72	\$0.00	\$59.59
For apprentice ra	ates see "A	nnrentice- I	ABORER"	12/01/2023	\$34.10	\$9.40	\$16.72	\$0.00	\$60.22
	SON TE	NDER	ADOREK	06/01/2022	\$24.50	\$0.40	\$16.50	\$0.00	\$60.40
LABORERS - ZONE 3	B (BUILDI	NG & SITE)		12/01/2023	\$34.30 \$25.12	\$9.40 \$0.40	\$16.59	\$0.00	\$60.49 \$61.12
For apprentice ra	ates see "A	pprentice- L	ABORER"	12/01/2023	\$35.13	\$9.40	\$10.39	\$0.00	\$61.12
LABORER: MAS	SON TE	NDER (H	IEAVY & HIGHWAY)	06/01/2023	\$33.75	\$9.40	\$14.53	\$0.00	\$57.68
LABORERS - ZONE 3	G (HEAVY	& HIGHWA	Y)	12/01/2023	\$34.38	\$9.40	\$14.53	\$0.00	\$58.31
				06/01/2024	\$35.58	\$9.40	\$14.53	\$0.00	\$59.51
				12/01/2024	\$36.78	\$9.40	\$14.53	\$0.00	\$60.71
				06/01/2025	\$38.03	\$9.40	\$14.53	\$0.00	\$61.96
				12/01/2025	\$39.27	\$9.40	\$14.53	\$0.00	\$63.20
				06/01/2026	\$40.57	\$9.40	\$14.53	\$0.00	\$64.50
				12/01/2026	\$41.86	\$9.40	\$14.53	\$0.00	\$65.79
For apprentice ra	ates see "A	pprentice- L	ABORER (Heavy and Highway)						
LABORER: MUI	LTI-TRA		DER	06/01/2023	\$33.50	\$9.40	\$16.59	\$0.00	\$59.49
LABUKEKS - ZUNE 3	BUILDI.	wo & SIIE)		12/01/2023	\$34.13	\$9.40	\$16.59	\$0.00	\$60.12
For apprentice ra	ates see "A	pprentice- L	ABORER"						
LABORER: TRE LABORERS - ZONE 3	LE REM 3 <i>(BUILDI</i>	UVER NG & SITE)		06/01/2023	\$33.50	\$9.40	\$16.59	\$0.00	\$59.49
		,		12/01/2023	\$34.13	\$9.40	\$16.59	\$0.00	\$60.12

Apprentice - LABORER (Heavy & Highway) - Zone 3

Issue Date: 08/07/2023

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LASER BEAM OPERATOR	06/01/2023	\$33.75	\$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE 3 (BUILDING & SITE) For apprentice rates see "Apprentice- LABORER"	12/01/2023	\$34.38	\$9.00	\$16.59	\$0.00	\$59.97
LASER BEAM OPERATOR (HEAVY & HIGHWAY)	06/01/2023	\$33.75	\$9.40	\$14.53	\$0.00	\$57.68
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$34.38	\$9.40	\$14.53	\$0.00	\$58.31
	06/01/2024	\$35.58	\$9.40	\$14.53	\$0.00	\$59.51
	12/01/2024	\$36.78	\$9.40	\$14.53	\$0.00	\$60.71
	06/01/2025	\$38.03	\$9.40	\$14.53	\$0.00	\$61.96
	12/01/2025	\$39.27	\$9.40	\$14.53	\$0.00	\$63.20
	06/01/2026	\$40.57	\$9.40	\$14.53	\$0.00	\$64.50
	12/01/2026	\$41.86	\$9.40	\$14.53	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
MARBLE & TILE FINISHERS	08/01/2023	\$41.37	\$11.49	\$19.53	\$0.00	\$72.39
BRICKLAYERS LOCAL 3 (SPR/P111) - MARBLE & TILE	02/01/2024	\$42.37	\$11.49	\$19.53	\$0.00	\$73.39
	08/01/2024	\$44.05	\$11.49	\$19.53	\$0.00	\$75.07
	02/01/2025	\$45.90	\$11.49	\$19.53	\$0.00	\$76.92
	08/01/2025	\$46.81	\$11.49	\$19.53	\$0.00	\$77.83
	02/01/2026	\$47.89	\$11.49	\$19.53	\$0.00	\$78.91
	08/01/2026	\$49.65	\$11.49	\$19.53	\$0.00	\$80.67
	02/01/2027	\$50.77	\$11.49	\$19.53	\$0.00	\$81.79

Apprentice - MARBLE-TILE FINISHER-Local 3 Marble/Tile (Spr/Pitt)

Effecti	ive Date -	08/01/2023				Supplemental	
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate
1	50		\$20.69	\$11.49	\$19.53	\$0.00	\$51.71
2	60		\$24.82	\$11.49	\$19.53	\$0.00	\$55.84
3	70		\$28.96	\$11.49	\$19.53	\$0.00	\$59.98
4	80		\$33.10	\$11.49	\$19.53	\$0.00	\$64.12
5	90		\$37.23	\$11.49	\$19.53	\$0.00	\$68.25
Notes:							
Appre	ntice to Jou	rneyworker Ratio:1:5					

MARBLE MASON/TILE LAYER(SP/PT)SeeBrick BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE

See "BRICK/STONE/ARTIFICIAL MASONRY(INCL.MASONRY WATERPROOFING)

MECH. SWEEPER OPERATOR (ON CONST. SITES)	06/01/2023	\$38.86	\$13.58	\$15.10	\$0.00	\$67.54
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.81	\$13.58	\$15.10	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANIC/WELDER/BOOM TRUCK	06/01/2023	\$38.33	\$13.58	\$15.10	\$0.00	\$67.01
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.28	\$13.58	\$15.10	\$0.00	\$67.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 3)	01/02/2023	\$40.16	\$8.58	\$21.57	\$0.00	\$70.31
MILLWRIGHTS LOCAL 1121 - Zone 3		4.5110	40.00			4.

]	Effecti	ve Date - 01/02/2023					Supplemental		
5	Step	percent	Appren	tice Base Wage	Health	Pension	Unemployment	Total R	Rate
-	1	55		\$22.09	\$8.58	\$5.72	\$0.00	\$36	5.39
	2	65		\$26.10	\$8.58	\$17.93	\$0.00	\$52	2.61
	3	75		\$30.12	\$8.58	\$18.98	\$0.00	\$57	\$57.68
	4	85		\$34.14	\$8.58	\$20.01	\$0.00	\$62	2.73
1	Notes:	Step 1&2 Appr. indentu		ve no pension,					_
İ		but do receive annuity. Steps are 2,000 hours	(Step 1 \$5.72, Step 2 \$	6.66)					
	Apprei	ntice to Journeyworker	Ratio:1:4						
MORTAR MIXER			06/01/2023	3 \$33.7	5 \$9.40	\$16.59	\$0.00	\$59.74	
LABORERS - ZONE 3	8 (BUILL	DING & SITE)		12/01/2023	3 \$34.3	8 \$9.00	\$16.59	\$0.00	\$59.97
For apprentice ra	ates see "	Apprentice- LABORER"							
OILER				06/01/2023	3 \$34.04	4 \$13.58	\$15.10	\$0.00	\$62.72
OPERATING ENGINI	EERS LC	OCAL 98		12/01/2023	3 \$35.2	7 \$13.58	\$15.10	\$0.00	\$63.95
For apprentice ra	ates see "	Apprentice- OPERATING EN	GINEERS"						
OTHER POWER	DRIV	EN EQUIPMENT - CL	ASS VI	06/01/2023	3 \$32.04	4 \$13.58	\$15.10	\$0.00	\$60.72
OPERATING ENGINEERS LOCAL 98			12/01/2023	\$32.9	9 \$13.58	\$15.10	\$0.00	\$61.67	
For apprentice ra	ates see "	Apprentice- OPERATING EN	GINEERS"						
PAINTER (BRID	GES/T	TANKS)		07/01/2023	\$55.5	1 \$9.65	\$23.70	\$0.00	\$88.86
PAINTERS LOCAL 35	- ZONE	3		01/01/2024	\$56.00	5 \$9.95	\$23.95	\$0.00	\$89.96
				07/01/2024	\$57.20	5 \$9.95	\$23.95	\$0.00	\$91.16
				01/01/202	5 \$58.40	5 \$9.95	\$23.95	\$0.00	\$92.36

Apprentice -	MILLWRIGHT - Local 1121 Zone 3	ľ

Effecti	ive Date - 07/01/2023				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41	
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73	
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10	
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47	
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64	
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01	
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38	
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12	

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective	Date -	01/01/2024

	Effecti	ive Date - 01/01/2024		Supplemental				
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	To	tal Rate
	1	50	\$28.03	\$9.95	\$0.00	\$0.00		\$37.98
	2	55	\$30.83	\$9.95	\$6.66	\$0.00		\$47.44
	3	60	\$33.64	\$9.95	\$7.26	\$0.00		\$50.85
	4	65	\$36.44	\$9.95	\$7.87	\$0.00		\$54.26
	5	70	\$39.24	\$9.95	\$20.32	\$0.00		\$69.51
	6	75	\$42.05	\$9.95	\$20.93	\$0.00		\$72.93
	7	80	\$44.85	\$9.95	\$21.53	\$0.00		\$76.33
	8	90	\$50.45	\$9.95	\$22.74	\$0.00		\$83.14
	Notes:							
		Steps are 750 hrs.						
	Appre	ntice to Journeyworker Ratio:1:1						
PAINTER (SPR	AY OR	SANDBLAST, NEW) *	07/01/2023	3 \$39.98	\$8.65	\$19.15	\$0.00	\$67.78
* If 30% or more	re of su	rfaces to be painted are new constructio	n, 01/01/2024	4 \$41.08	\$8.65	\$19.15	\$0.00	\$68.88
NE w paint rate	Shall De	, used. FAINTERS LOCAL 33 - ZOINE 3	07/01/2024	4 \$42.13	\$8.65	\$19.15	\$0.00	\$69.93

01/01/2025

\$43.23

\$8.65

\$19.15

\$0.00

\$71.03

Effect	ive Date - 07/01/2023							
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate		
1	50	\$19.99	\$9.65	\$0.00	\$0.00	\$29.64		
2	55	\$21.99	\$9.65	\$4.35	\$0.00	\$35.99		
3	60	\$23.99	\$9.65	\$4.74	\$0.00	\$38.38		
4	65	\$25.99	\$9.65	\$5.14	\$0.00	\$40.78		
5	70	\$27.99	\$9.65	\$17.33	\$0.00	\$54.97		
6	75	\$29.99	\$9.65	\$17.73	\$0.00	\$57.37		
7	80	\$31.98	\$9.65	\$18.12	\$0.00	\$59.75		
8	90	\$35.98	\$9.65	\$18.91	\$0.00	\$64.54		

Apprentice -	PAINTER Local 35 Zor	ne 3 - Spray/Sandblast - New
Eff	07/01/2022	

01/01/2024 Effective Date -

	Effect	ive Date - 01/01/2024			Supplemental			
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	t To	tal Rate
	1	50	\$20.54	\$9.95	\$0.00	\$0.00)	\$30.49
	2	55	\$22.59	\$9.95	\$4.43	\$0.00	1	\$36.97
	3	60	\$24.65	\$9.95	\$4.83	\$0.00)	\$39.43
	4	65	\$26.70	\$9.95	\$5.23	\$0.00)	\$41.88
	5	70	\$28.76	\$9.95	\$17.49	\$0.00)	\$56.20
	6	75	\$30.81	\$9.95	\$17.89	\$0.00)	\$58.65
	7	80	\$32.86	\$9.95	\$18.29	\$0.00)	\$61.10
	8	90	\$36.97	\$9.95	\$19.10	\$0.00)	\$66.02
	Notes							
	ĺ	Steps are 750 hrs.						
	Appre	entice to Journeyworker Ratio:1:1						
PAINTER (SP	RAY OR	SANDBLAST, REPAINT)	07/01/2023	3 \$35.65	\$9.65	\$19.70	\$0.00	\$65.00
PAINTERS LOCAL	2 33 - ZON	£ 3	01/01/2024	\$36.15	\$9.95	\$19.90	\$0.00	\$66.00
			07/01/2024	\$37.35	\$9.95	\$19.90	\$0.00	\$67.20

01/01/2025

\$38.55

\$9.95

\$19.90

\$0.00

\$68.40

Effective Date -		07/01/2023				Supplemental			
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate		
1	50		\$17.83	\$9.65	\$0.00	\$0.00	\$27.48		
2	55		\$19.61	\$9.65	\$4.35	\$0.00	\$33.61		
3	60		\$21.39	\$9.65	\$4.74	\$0.00	\$35.78		
4	65		\$23.17	\$9.65	\$5.14	\$0.00	\$37.96		
5	70		\$24.96	\$9.65	\$17.33	\$0.00	\$51.94		
6	75		\$26.74	\$9.65	\$17.73	\$0.00	\$54.12		
7	80		\$28.52	\$9.65	\$18.12	\$0.00	\$56.29		
8	90		\$32.09	\$9.65	\$18.91	\$0.00	\$60.65		

Apprentice -	PAINTER Local 35 Zone 3 - Spray/Sandblast - Repaint
Effective Date	- 07/01/2023

Effective Date - 01/01/2024

Effect	ive Date - 01/01/2024				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total	Rate
1	50	\$18.08	\$9.95	\$0.00	\$0.00	\$2	28.03
2	55	\$19.88	\$9.95	\$4.43	\$0.00	\$3	34.26
3	60	\$21.69	\$9.95	\$4.83	\$0.00	\$3	36.47
4	65	\$23.50	\$9.95	\$5.23	\$0.00	\$3	88.68
5	70	\$25.31	\$9.95	\$17.49	\$0.00	\$5	52.75
6	75	\$27.11	\$9.95	\$17.89	\$0.00	\$5	54.95
7	80	\$28.92	\$9.95	\$18.29	\$0.00	\$5	57.16
8	90	\$32.54	\$9.95	\$19.10	\$0.00	\$6	51.59
Notes	- — — — — — — —						_
	Steps are 750 hrs.						
Appro	entice to Journeyworker Ratio:1:1						
PAINTER / TAPER (B	RUSH, NEW) *	07/01/2023	3 \$36.93	\$9.65	\$19.70	\$0.00	\$66.28
* If 30% or more of sur	rfaces to be painted are new construction	on, 01/01/2024	\$37.43	\$9.95	\$19.90	\$0.00	\$67.28
ine w paint rate shall be	e used. <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2024	\$38.63	\$9.95	\$19.90	\$0.00	\$68.48

01/01/2025

\$39.83

\$9.95

\$19.90

\$0.00

\$69.68

Effecti	ve Date - 07/01/2023				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$18.47	\$9.65	\$0.00	\$0.00	\$28.12	
2	55	\$20.31	\$9.65	\$4.35	\$0.00	\$34.31	
3	60	\$22.16	\$9.65	\$4.74	\$0.00	\$36.55	
4	65	\$24.00	\$9.65	\$5.14	\$0.00	\$38.79	
5	70	\$25.85	\$9.65	\$17.33	\$0.00	\$52.83	
6	75	\$27.70	\$9.65	\$17.73	\$0.00	\$55.08	
7	80	\$29.54	\$9.65	\$18.12	\$0.00	\$57.31	
8	90	\$33.24	\$9.65	\$1,187.11	\$0.00	\$1,230.00	

Apprentice - PAINTER - Local 35 Zone 3 - BRUSH NEW

01/01/2024 Effective Date -

	Effect	ive Date - 01/01/2024				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total	Rate
	1	50	\$18.72	\$9.95	\$0.00	\$0.00	\$2	28.67
	2	55	\$20.59	\$9.95	\$4.43	\$0.00	\$3	34.97
	3	60	\$22.46	\$9.95	\$4.83	\$0.00	\$3	37.24
	4	65	\$24.33	\$9.95	\$5.23	\$0.00	\$3	39.51
	5	70	\$26.20	\$9.95	\$17.49	\$0.00	\$:	53.64
	6	75	\$28.07	\$9.95	\$17.89	\$0.00	\$5	55.91
	7	80	\$29.94	\$9.95	\$18.29	\$0.00	\$5	58.18
	8	90	\$33.69	\$9.95	\$19.10	\$0.00	\$6	52.74
	Notes:							_
		Steps are 750 hrs.						
	Appre	entice to Journeyworker Ratio:1:1						
PAINTER / TA	PER (BI	RUSH, REPAINT)	07/01/2023	3 \$34.25	\$9.65	\$19.70	\$0.00	\$63.60
PAINTERS LOCAL	33 - ZONI	£ 3	01/01/2024	4 \$34.75	\$9.95	\$19.90	\$0.00	\$64.60

07/01/2024

01/01/2025

\$35.95

\$37.15

\$9.95

\$9.95

\$65.80

\$67.00

\$0.00

\$0.00

\$19.90

\$19.90

L.L.							
Effecti	ive Date - 07/01/2023				Supplemental		
Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
1	50	\$17.13	\$9.65	\$0.00	\$0.00	\$26.78	
2	55	\$18.84	\$9.65	\$4.35	\$0.00	\$32.84	
3	60	\$20.55	\$9.65	\$4.74	\$0.00	\$34.94	
4	65	\$22.26	\$9.65	\$5.14	\$0.00	\$37.05	
5	70	\$23.98	\$9.65	\$17.33	\$0.00	\$50.96	
6	75	\$25.69	\$9.65	\$17.73	\$0.00	\$53.07	
7	80	\$27.40	\$9.65	\$18.12	\$0.00	\$55.17	
8	90	\$30.83	\$9.65	\$18.91	\$0.00	\$59.39	

Apprentice - PAINTER Local 35 Zone 3 - BRUSH REPAINT

				\$50.05	φ).00	ψ10.91	\$0.00		<i>(())</i>
	Effect	ive Date - 0	1/01/2024				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	То	tal Rate
	1	50		\$17.38	\$9.95	\$0.00	\$0.00		\$27.33
	2	55		\$19.11	\$9.95	\$4.43	\$0.00		\$33.49
	3	60		\$20.85	\$9.95	\$4.83	\$0.00		\$35.63
	4	65		\$22.59	\$9.95	\$5.23	\$0.00		\$37.77
	5	70		\$24.33	\$9.95	\$17.49	\$0.00		\$51.77
	6	75		\$26.06	\$9.95	\$17.89	\$0.00		\$53.90
	7	80		\$27.80	\$9.95	\$18.29	\$0.00		\$56.04
	8	90		\$31.28	\$9.95	\$19.10	\$0.00		\$60.33
	Notes:								— — I
		Steps are 750) hrs.						
	Appre	entice to Journ	eyworker Ratio:1:1						
PAINTER TRA	FFIC M	IARKINGS (H	EAVY/HIGHWAY)	06/01/2023	\$33.50	\$9.40	\$14.53	\$0.00	\$57.43
LABORERS - ZONI	E 3 (HEAV	Y & HIGHWAY)		12/01/2023	\$34.13	\$9.40	\$14.53	\$0.00	\$58.06
				06/01/2024	\$35.33	\$9.40	\$14.53	\$0.00	\$59.26
				12/01/2024	\$36.53	\$9.40	\$14.53	\$0.00	\$60.46
				06/01/2025	\$37.78	\$9.40	\$14.53	\$0.00	\$61.71
				12/01/2025	\$\$39.02	\$9.40	\$14.53	\$0.00	\$62.95
				06/01/2026	\$40.32	\$9.40	\$14.53	\$0.00	\$64.25
				12/01/2026	\$41.61	\$9.40	\$14.53	\$0.00	\$65.54
For apprentice	rates see	"Apprentice- LAB	ORER (Heavy and Highway)						
PANEL & PICI TEAMSTERS JOIN	KUP TR T COUNC	UCKS DRIVE	CR B	12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20
PIER AND DO	CK CO	NSTRUCTOR	(UNDERPINNING AND	0 08/01/2020	\$43.53	\$ \$9.40	\$23.12	\$0.00	\$76.05
DECK) PILE DRIVER LOC For apprentice	CAL 56 (ZC rates see	ONE 3) "Apprentice- PILE	DRIVER"						
PILE DRIVER	CAL 56 (ZC	ONE 3)		08/01/2020	\$43.53	\$ \$9.40	\$23.12	\$0.00	\$76.05

	Appre	ntice - PL	LE DRIVER - Local 56 Zon	e 3					
	Effect	ive Date -	08/01/2020				Supplemental		
	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Tota	al Rate
	1	0		\$0.00	\$0.00	\$0.00	\$0.00		\$0.00
	Notes:	Apprentice (Same as 1\$57.06/2	e wages shall be no less that set in Zone 1) 2\$61.96/3\$66.87/4\$69.32/5\$	n the following Steps;					
	Appre	entice to Jo	urneyworker Ratio:1:5						
PIPELAYER				06/01/202	3 \$33.75	\$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE	E 3 (BUIL	DING & SITE)		12/01/202	3 \$34.38	\$9.00	\$16.59	\$0.00	\$59.97
For apprentice	rates see	"Apprentice- L	ABORER"						
PIPELAYER (H	HEAVY	& HIGHW	AY)	06/01/202	3 \$33.75	\$9.40	\$14.53	\$0.00	\$57.68
LABORERS - ZONE	E 3 (HEAV	Y & HIGHWA	Y)	12/01/202	3 \$34.38	\$9.40	\$14.53	\$0.00	\$58.31
				06/01/2024	4 \$35.58	\$9.40	\$14.53	\$0.00	\$59.51
				12/01/2024	4 \$36.78	\$9.40	\$14.53	\$0.00	\$60.71
				06/01/202	5 \$38.03	\$9.40	\$14.53	\$0.00	\$61.96
				12/01/202	5 \$39.27	\$9.40	\$14.53	\$0.00	\$63.20
				06/01/202	6 \$40.57	\$9.40	\$14.53	\$0.00	\$64.50
				12/01/202	6 \$41.86	\$9.40	\$14.53	\$0.00	\$65.79
For apprentice	rates see	"Apprentice- L	ABORER (Heavy and Highway)						
PLUMBER & I	PIPEFIT	TER		03/17/202	3 \$46.96	\$9.55	\$17.10	\$0.00	\$73.61
PLUMBERS & PIP.	EFIIIER	S LOCAL 104		09/17/202	3 \$47.96	\$9.55	\$17.10	\$0.00	\$74.61
				03/17/2024	4 \$49.21	\$9.55	\$17.10	\$0.00	\$75.86

Apprentice -	PLUMBER/PIPEFITTER - Local 104
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Effecti	ffective Date - 03/17/2023 Supplemental										
Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total Rate				
1	45		\$21.13	\$9.55	\$10.10	\$0.00	\$40.78				
2	50		\$23.48	\$9.55	\$10.10	\$0.00	\$43.13				
3	55		\$25.83	\$9.55	\$10.10	\$0.00	\$45.48				
4	60		\$28.18	\$9.55	\$10.10	\$0.00	\$47.83				
5	65		\$30.52	\$9.55	\$10.10	\$0.00	\$50.17				
6	70		\$32.87	\$9.55	\$10.10	\$0.00	\$52.52				
7	75		\$35.22	\$9.55	\$10.10	\$0.00	\$54.87				
8	80		\$37.57	\$9.55	\$10.10	\$0.00	\$57.22				
9	80		\$37.57	\$9.55	\$17.10	\$0.00	\$64.22				
10	80		\$37.57	\$9.55	\$17.10	\$0.00	\$64.22				
Notes:	**1:1,2:5,3	3:9,4:12					- — — — 				

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC CONTROLS (TEMP.)	03/17/2023	\$46.96	\$9.55	\$17.10	\$0.00	\$73.61
PLUMBERS & PIPEFIITERS LOCAL 104	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY &	06/01/2023	\$33.75	\$9.40	\$14.53	\$0.00	\$57.68
HIGHWAY)	12/01/2023	\$34.38	\$9.40	\$14.53	\$0.00	\$58.31
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	06/01/2024	\$35.58	\$9.40	\$14.53	\$0.00	\$59.51
	12/01/2024	\$36.78	\$9.40	\$14.53	\$0.00	\$60.71
	06/01/2025	\$38.03	\$9.40	\$14.53	\$0.00	\$61.96
	12/01/2025	\$39.27	\$9.40	\$14.53	\$0.00	\$63.20
	06/01/2026	\$40.57	\$9.40	\$14.53	\$0.00	\$64.50
	12/01/2026	\$41.86	\$9.40	\$14.53	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)			*****			
POWDERMAN & BLASTER	06/01/2023	\$34.50	\$9.40	\$16.59	\$0.00	\$60.49
LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$35.13	\$9.40	\$16.59	\$0.00	\$61.12
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY)	06/01/2023	\$34.50	\$9.40	\$14.53	\$0.00	\$58.43
LABORERS - ZONE 5 (HEAVI & HIOHWAI)	12/01/2023	\$35.13	\$9.40	\$14.53	\$0.00	\$59.06
	06/01/2024	\$36.33	\$9.40	\$14.53	\$0.00	\$60.26
	12/01/2024	\$37.53	\$9.40	\$14.53	\$0.00	\$61.46
	06/01/2025	\$38.78	\$9.40	\$14.53	\$0.00	\$62.71
	12/01/2025	\$40.02	\$9.40	\$14.53	\$0.00	\$63.95
	06/01/2026	\$41.32	\$9.40	\$14.53	\$0.00	\$65.25
	12/01/2026	\$42.61	\$9.40	\$14.53	\$0.00	\$66.54
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PUMP OPERATOR (CONCRETE) OPERATING ENGINEERS LOCAL 98	06/01/2023	\$38.86	\$13.58	\$15.10	\$0.00	\$67.54
	12/01/2023	\$39.81	\$13.58	\$15.10	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPEKATING ENGINEERS"						
OPERATING ENGINEERS LOCAL 98	06/01/2023	\$38.33	\$13.58	\$15.10	\$0.00	\$67.01
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2023	\$39.28	\$13.58	\$15.10	\$0.00	\$67.96
READY-MIX CONCRETE DRIVER	05/01/2020	\$22.44	¢11.07	\$6.50	00.02	\$40.01
TEAMSTERS 404 - Construction Service (Northampton)	05/01/2020	\$22.44	\$11.07	\$0.50	\$0.00	\$40.01
RIDE-ON MOTORIZED BUGGY OPERATOR	06/01/2023	\$33.75	\$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$34.38	\$9.00	\$16.59	\$0.00	\$59.97
For apprentice rates see "Apprentice- LABORER"						
ROLLER OPERATOR	06/01/2023	\$37.72	\$13.58	\$15.10	\$0.00	\$66.40
OPERATING ENGINEERS LOCAL 98	12/01/2023	\$38.67	\$13.58	\$15.10	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Coal tar pitch) ROOFERS LOCAL 248	07/16/2023	\$38.91	\$10.35	\$18.00	\$0.00	\$67.26
For apprentice rates see "Apprentice- ROOFER"						
ROOFER (Inc.Roofer Waterproofng & Roofer Damproofg) ROOFERS LOCAL 248	07/16/2023	\$38.41	\$10.35	\$18.00	\$0.00	\$66.76

Арј	prentice - ROOFER - Loo	cal 248						
Eff	ective Date - 07/16/2023	3				Supplemental		
Ste	p percent	Apprentice Base	e Wage Health	n I	Pension	Unemployment	Total	Rate
1	60	\$23.0	5 \$10.35	5	\$0.00	\$0.00	\$3	3.40
2	65	\$24.9	7 \$10.35	5	\$18.00	\$0.00	\$5	3.32
3	70	\$26.8	9 \$10.35	5	\$18.00	\$0.00	\$5	5.24
4	75	\$28.8	1 \$10.35	5	\$18.00	\$0.00	\$5	7.16
5	80	\$30.7	3 \$10.35	5	\$18.00	\$0.00	\$5	9.08
6	85	\$32.6	5 \$10.35	5	\$18.00	\$0.00	\$6	1.00
7	90	\$34.5	7 \$10.35	5	\$18.00	\$0.00	\$6	2.92
8	95	\$36.4	9 \$10.35	5	\$18.00	\$0.00	\$6	4.84
Not								_
	Steps are 750 hrs.Roo	fer(Tear Off)1:1; Same as above						
Ap	prentice to Journeyworke	r Ratio:1:3						
OOFER SLATE / 7 OOFERS LOCAL 248	FILE / PRECAST CONCR	ETE 07/	16/2023	\$38.91	\$10.35	\$18.00	\$0.00	\$67.26
For apprentice rates	see "Apprentice- ROOFER"							
CRAPER		06/	01/2023	\$38.33	\$13.58	\$15.10	\$0.00	\$67.01
PERATING ENGINEER	S LOCAL 98	12/	01/2023	\$39.28	\$13.58	\$15.10	\$0.00	\$67.96
For apprentice rates	see "Apprentice- OPERATING EN	IGINEERS"						
ELF-POWERED F	COLLERS AND COMPAC	TORS 06/	01/2023	\$37.72	\$13.58	\$15.10	\$0.00	\$66.40
CAMPERS) PERATING ENGINEER For apprentice rates	S LOCAL 98 see "Apprentice- OPERATING EN	12/ NGINEERS"	01/2023	\$38.67	\$13.58	\$15.10	\$0.00	\$67.35
ELF-PROPELLED	POWER BROOM	06/	01/2023	\$35.10	\$13.58	\$15.10	\$0.00	\$63.78
PERATING ENGINEER	S LOCAL 98	12/	01/2023	\$36.05	\$13.58	\$15.10	\$0.00	\$64.73
For apprentice rates	see "Apprentice- OPERATING EN	IGINEERS"						
IEETMETAL WC	RKER	07/	01/2023	\$42.55	\$10.64	\$17.54	\$2.05	\$72.78
IEETMETAL WORKER	S LOCAL 63	01/	01/2024	\$43.80	\$10.64	\$17.54	\$2.05	\$74.03
		07/	01/2024	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
		01/	01/2025	\$46.30	\$10.64	\$17.54	\$2.05	\$76.53

Effect	Effective Date - 07/01/2023 Supplemental								
Step	percent	Apprentice Base Wage Health		Pension	Unemployment	Total Rate			
1	45	\$19.15	\$4.79	\$4.76	\$0.92	\$29.62			
2	50	\$21.28	\$5.32	\$5.29	\$1.03	\$32.92			
3	55	\$23.40	\$5.85	\$5.82	\$1.13	\$36.20			
4	60	\$25.53	\$6.38	\$6.35	\$1.23	\$39.49			
5	65	\$27.66	\$6.92	\$6.88	\$1.33	\$42.79			
6	70	\$29.79	\$7.45	\$7.41	\$1.44	\$46.09			
7	75	\$31.91	\$7.98	\$7.94	\$1.54	\$49.37			
8	80	\$34.04	\$8.51	\$15.42	\$1.64	\$59.61			
9	85	\$36.17	\$9.04	\$15.95	\$1.74	\$62.90			
10	90	\$38.30	\$9.58	\$16.48	\$1.85	\$66.21			

Apprentice - SHEET METAL WORKER - Local 63

	10	90	\$38.30	\$9.58 \$16.48		\$1.85		\$66.21	
	Effecti Step	ve Date - 01/01/2024 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	То	tal Rate	
-	1	45	\$19.71	\$4.79	\$4.76	\$0.92		\$30.18	
	2	50	\$21.90	\$5.32	\$5.29	\$1.03		\$33.54	
	3	55	\$24.09	\$5.85	\$5.82	\$1.13		\$36.89	
	4	60	\$26.28	\$6.38	\$6.35	\$1.23		\$40.24	
	5	65	\$28.47	\$6.92	\$6.88	\$1.33		\$43.60	
	6	70	\$30.66	\$7.45	\$7.41	\$1.44		\$46.96	
	7	75	\$32.85	\$7.98	\$7.94	\$1.54		\$50.31	
	8	80	\$35.04	\$8.51	\$15.42	\$1.64		\$60.61	
	9	85	\$37.23	\$9.04	\$15.95	\$1.74		\$63.96	
	10	90	\$39.42	\$9.58	\$13.92	\$1.85		\$64.77	
Ī	Notes:								
	Appre	ntice to Journeyworker Ratio:1:3							
SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B		12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66		
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B		12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95		
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 669			04/01/2021	\$43.14	\$10.55	\$16.41	\$0.00	\$70.10	
	Effecti	ive Date -	04/01/2021				Supplemental		
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	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Tota	al Rate
	1	45		\$19.41	\$7.75	\$0.00	\$0.00		\$27.16
	2	50		\$21.57	\$7.75	\$0.00	\$0.00		\$29.32
	3	55		\$23.73	\$10.55	\$8.15	\$0.00		\$42.43
	4	60		\$25.88	\$10.55	\$8.15	\$0.00		\$44.58
	5	65		\$28.04	\$10.55	\$8.40	\$0.00		\$46.99
	6	70		\$30.20	\$10.55	\$8.40	\$0.00		\$49.15
	7	75		\$32.36	\$10.55	\$8.40	\$0.00		\$51.31
	8	80		\$34.51	\$10.55	\$8.40	\$0.00		\$53.46
	9	85		\$36.67	\$10.55	\$8.40	\$0.00		\$55.62
	10	90		\$38.83	\$10.55	\$8.40	\$0.00		\$57.78
	Notes:								
	Appre	ntice to Jo	urneyworker Ratio:1:1						
TELECOMM	UNICATI	ON TECH	NICIAN	07/02/2023	3 \$48.0	\$11.50	\$14.41	\$0.00	\$73.92
ELECTRICIANS L	OCAL /			12/31/2023	3 \$49.0	\$11.75	\$14.61	\$0.00	\$75.37
				06/30/2024	4 \$50.0	\$12.00	\$14.86	\$0.00	\$76.87
				12/29/2024	\$51.0	\$12.25	\$15.06	\$0.00	\$78.37
				06/29/202	5 \$52.1	6 \$12.50	\$15.21	\$0.00	\$79.87
				12/28/202:	5 \$53.2	\$12.75	\$15.36	\$0.00	\$81.37
				06/28/2020	5 \$54.4	\$13.00	\$15.46	\$0.00	\$82.87
				01/03/202	7 \$55.5	\$13.25	\$15.56	\$0.00	\$84.37

Apprentice - SPRINKLER FITTER - Local 669 Effective Date - 04/01/2021

\$22.34

\$0.00

\$11.49

	Effect	ive Date - 07/02/2023				Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total Rate	
	1	40	\$19.20	\$6.90	\$1.44	\$0.00	\$27.54	
	2	45	\$21.60	\$6.90	\$1.44	\$0.00	\$29.94	
	3	50	\$24.01	\$11.50	\$7.99	\$0.00	\$43.50	
	4	55	\$26.41	\$11.50	\$7.99	\$0.00	\$45.90	
	5	65	\$31.21	\$11.50	\$9.92	\$0.00	\$52.63	
	6	70	\$33.61	\$11.50	\$11.20	\$0.00	\$56.31	
	Effect Step	ive Date - 12/31/2023 percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
	1	40	\$19.60	\$7.05	\$1.47	\$0.00	\$28.12	
	2	45	\$22.05	\$7.05	\$1.47	\$0.00	\$30.57	
	3	50	\$24.51	\$11.75	\$8.07	\$0.00	\$44.33	
	4	55	\$26.96	\$11.75	\$8.07	\$0.00	\$46.78	
	5	65	\$31.86	\$11.75	\$10.03	\$0.00	\$53.64	
	6	70	\$34.31	\$11.75	\$11.34	\$0.00	\$57.40	
	Notes:							
		Steps are 800 hours						
	Appre	entice to Journeyworker Ratio:1:1	·					
TERRAZZO FI	NISHE	RS	08/01/2023	3 \$61.34	\$11.49	\$22.34	\$0.00	\$95.17
BRICKLAYERS LOO	CAL 3 (SP	PR/PITT) - MARBLE & TILE	02/01/2024	\$62.59	\$11.49	\$22.34	\$0.00	\$96.42
			08/01/2024	\$64.69	\$11.49	\$22.34	\$0.00	\$98.52
			02/01/2025	5 \$65.99	\$11.49	\$22.34	\$0.00	\$99.82
			08/01/2025	\$68.14	\$11.49	\$22.34	\$0.00	\$101.97
			02/10/2026	5 \$69.49	\$11.49	\$22.34	\$0.00	\$103.32
			08/01/2026	5 \$71.69	\$11.49	\$22.34	\$0.00	\$105.52

02/01/2027

\$73.09

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 7

\$106.92

	Effective Date - 08/01/2023					Supplemental		
	Step	percent	Apprentice Base Wage	Health	Pension	Unemployment	Total R	ate
	1	50	\$30.67	\$11.49	\$22.34	\$0.00	\$64	.50
	2	60	\$36.80	\$11.49	\$22.34	\$0.00	\$70	.63
	3	70	\$42.94	\$11.49	\$22.34	\$0.00	\$76	.77
	4	80	\$49.07	\$11.49	\$22.34	\$0.00	\$82	.90
	5	90	\$55.21	\$11.49	\$22.34	\$0.00	\$89	.04
	Notes:							_
	Appre	entice to Journeyworker Ratio:1:	5					
TERRAZZO M	ECHAN	NIC	08/01/2023	3 \$62.42	\$11.49	\$22.31	\$0.00	\$96.22
BRICKLAYERS LOG	CAL 3 (SF	R/PIIT) - MARBLE & TILE	02/01/2024	4 \$63.67	\$11.49	\$22.31	\$0.00	\$97.47
			08/01/2024	4 \$65.77	\$11.49	\$22.31	\$0.00	\$99.57
			02/01/2023	5 \$67.07	\$11.49	\$22.31	\$0.00	\$100.87
			08/01/2023	5 \$69.22	\$11.49	\$22.31	\$0.00	\$103.02
			02/01/2020	6 \$70.57	\$11.49	\$22.31	\$0.00	\$104.37
			08/01/2020	6 \$72.77	\$11.49	\$22.31	\$0.00	\$106.57
			02/01/2027	7 \$74.17	\$11.49	\$22.31	\$0.00	\$107.97

Apprentice -	TERRAZZO FINISHER-Local 3 Marble/Tile ((Spr/Ptt)
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Apprentice - TERRAZZO MECH - Local 3 Marble/Tile (Spr/Pitt)

]	Effectiv	ve Date -	08/01/2023				Supplemental		
:	Step	percent		Apprentice Base Wage	Health	Pension	Unemployment	Total R	ate
	1	50		\$31.21	\$11.49	\$22.31	\$0.00	\$65.	.01
	2	60		\$37.45	\$11.49	\$22.31	\$0.00	\$71.	.25
	3	70		\$43.69	\$11.49	\$22.31	\$0.00	\$77.	.49
	4	80		\$49.94	\$11.49	\$22.31	\$0.00	\$83.	.74
	5	90		\$56.18	\$11.49	\$22.31	\$0.00	\$89.	.98
- []	Notes:								-
	Apprei	ntice to Jou	ırneyworker Ratio:1:5						
TEST BORING I	DRILL	ER	-	06/01/2023	3 \$47.58	\$9.40	\$17.97	\$0.00	\$74.95
LABORERS - FOUNL	DATION 2	AND MARINE	5	12/01/2023	3 \$48.83	\$9.40	\$17.97	\$0.00	\$76.20
				06/01/2024	4 \$50.31	\$9.40	\$17.97	\$0.00	\$77.68
				12/01/2024	4 \$51.78	\$9.40	\$17.97	\$0.00	\$79.15
				06/01/202	5 \$53.28	\$9.40	\$17.97	\$0.00	\$80.65
				12/01/202	5 \$54.78	\$9.40	\$17.97	\$0.00	\$82.15
				06/01/2020	5 \$56.33	\$9.40	\$17.97	\$0.00	\$83.70
				12/01/2020	5 \$57.83	\$9.40	\$17.97	\$0.00	\$85.20
For apprentice ra	ites see ".	Apprentice- L	ABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER HELPER	06/01/2023	\$43.70	\$9.40	\$17.97	\$0.00	\$71.07
LABORERS - FOUNDATION AND MARINE	12/01/2023	\$44.95	\$9.40	\$17.97	\$0.00	\$72.32
	06/01/2024	\$46.43	\$9.40	\$17.97	\$0.00	\$73.80
	12/01/2024	\$47.90	\$9.40	\$17.97	\$0.00	\$75.27
	06/01/2025	\$49.40	\$9.40	\$17.97	\$0.00	\$76.77
	12/01/2025	\$50.90	\$9.40	\$17.97	\$0.00	\$78.27
	06/01/2026	\$52.45	\$9.40	\$17.97	\$0.00	\$79.82
	12/01/2026	\$53.95	\$9.40	\$17.97	\$0.00	\$81.32
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER	06/01/2023	\$43.58	\$9.40	\$17.97	\$0.00	\$70.95
LADOREKS - FOUNDATION AND MARINE	12/01/2023	\$44.83	\$9.40	\$17.97	\$0.00	\$72.20
	06/01/2024	\$46.31	\$9.40	\$17.97	\$0.00	\$73.68
	12/01/2024	\$47.78	\$9.40	\$17.97	\$0.00	\$75.15
	06/01/2025	\$49.28	\$9.40	\$17.97	\$0.00	\$76.65
	12/01/2025	\$50.78	\$9.40	\$17.97	\$0.00	\$78.15
	06/01/2026	\$52.33	\$9.40	\$17.97	\$0.00	\$79.70
	12/01/2026	\$53.83	\$9.40	\$17.97	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
TRACTORS	06/01/2023	\$37.72	\$13.58	\$15.10	\$0.00	\$66.40
OF ERATING ENGINEERS LOCAL 90	12/01/2023	\$38.67	\$13.58	\$15.10	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
TUNNEL WORK - COMPRESSED AIR	06/01/2023	\$55.81	\$9.40	\$18.42	\$0.00	\$83.63
LABORERS (COMPRESSED AIR)	12/01/2023	\$57.06	\$9.40	\$18.42	\$0.00	\$84.88
	06/01/2024	\$58.54	\$9.40	\$18.42	\$0.00	\$86.36
	12/01/2024	\$60.01	\$9.40	\$18.42	\$0.00	\$87.83
	06/01/2025	\$61.51	\$9.40	\$18.42	\$0.00	\$89.33
	12/01/2025	\$63.01	\$9.40	\$18.42	\$0.00	\$90.83
	06/01/2026	\$64.56	\$9.40	\$18.42	\$0.00	\$92.38
	12/01/2026	\$66.06	\$9.40	\$18.42	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	06/01/2023	\$57.81	\$9.40	\$18.42	\$0.00	\$85.63
LADOREKS (COMI RESSED AIR)	12/01/2023	\$59.06	\$9.40	\$18.42	\$0.00	\$86.88
	06/01/2024	\$60.54	\$9.40	\$18.42	\$0.00	\$88.36
	12/01/2024	\$62.01	\$9.40	\$18.42	\$0.00	\$89.83
	06/01/2025	\$63.51	\$9.40	\$18.42	\$0.00	\$91.33
	12/01/2025	\$65.01	\$9.40	\$18.42	\$0.00	\$92.83
	06/01/2026	\$66.56	\$9.40	\$18.42	\$0.00	\$94.38
	12/01/2026	\$68.06	\$9.40	\$18.42	\$0.00	\$95.88
For apprentice rates see "Apprentice IABORER"						

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR	06/01/2023	\$47.88	\$9.40	\$18.42	\$0.00	\$75.70
LABORERS (FREE AIR TUNNEL)	12/01/2023	\$49.13	\$9.40	\$18.42	\$0.00	\$76.95
	06/01/2024	\$50.61	\$9.40	\$18.42	\$0.00	\$78.43
	12/01/2024	\$52.08	\$9.40	\$18.42	\$0.00	\$79.90
	06/01/2025	\$53.58	\$9.40	\$18.42	\$0.00	\$81.40
	12/01/2025	\$55.08	\$9.40	\$18.42	\$0.00	\$82.90
	06/01/2026	\$56.63	\$9.40	\$18.42	\$0.00	\$84.45
	12/01/2026	\$58.13	\$9.40	\$18.42	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE)	06/01/2023	\$49.88	\$9.40	\$18.42	\$0.00	\$77.70
	12/01/2023	\$51.13	\$9.40	\$18.42	\$0.00	\$78.95
	06/01/2024	\$52.61	\$9.40	\$18.42	\$0.00	\$80.43
	12/01/2024	\$54.08	\$9.40	\$18.42	\$0.00	\$81.90
	06/01/2025	\$55.58	\$9.40	\$18.42	\$0.00	\$83.40
	12/01/2025	\$57.08	\$9.40	\$18.42	\$0.00	\$84.90
	06/01/2026	\$58.63	\$9.40	\$18.42	\$0.00	\$86.45
	12/01/2026	\$60.13	\$9.40	\$18.42	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
WAGON DRILL OPERATOR	06/01/2023	\$33.75	\$9.40	\$16.59	\$0.00	\$59.74
LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$34.38	\$9.40	\$16.59	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	06/01/2023	\$33.75	\$9.40	\$14.53	\$0.00	\$57.68
	12/01/2023	\$34.38	\$9.40	\$14.53	\$0.00	\$58.31
	06/01/2024	\$35.58	\$9.40	\$14.53	\$0.00	\$59.51
	12/01/2024	\$36.78	\$9.40	\$14.53	\$0.00	\$60.71
	06/01/2025	\$38.03	\$9.40	\$14.53	\$0.00	\$61.96
	12/01/2025	\$39.27	\$9.40	\$14.53	\$0.00	\$63.20
	06/01/2026	\$40.57	\$9.40	\$14.53	\$0.00	\$64.50
	12/01/2026	\$41.86	\$9.40	\$14.53	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
WATER METER INSTALLER PLUMBERS & PIPEFITTERS LOCAL 104	03/17/2023	\$46.96	\$9.55	\$17.10	\$0.00	\$73.61
	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GAS	FITTER"					

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.) Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

APPENDIX B

CONTRACT DRAWINGS

2023 SEWER & DRAIN LININ



GREENFIELD, MA

LOCUS N.T.S.

JG	Image: Colspan="2">Image: Colspan="2" Colspa						
NTRACT #: 24-07							
WEDEGARTNER R OF PUBLIC WORKS VARNER RING SUPERINTENDENT AROG	REV. #						
DRAWING COVER DESIGN	This drawing and design is the property of the City of Greenfield. It may not be used for any purpose other than by the owner. The City Of Greenfield does not authorize the reproduction or conveyance of any information contained herein without prior written permission. 2023 SEWER & DRAIN LINING						
	Designed by:GRDate:8-8-2023SHEET:GRImage: Second						





9

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OWNER.



	PIPELINE SECTIONS TO BE LINED						
MH TO MH		SIZE	APPROX. PIPE LENGTH (FT.)				
607 - 283	7 MADISON CIRCLE - 11 MADISON CIRCLE	10"	143				
	TOTAL LE	NGTH	143'				

	PIPELINE SECTIONS TO BE LINED					
MH TO MH		SIZE	APPROX. PIPE LENGTH (FT.)			
203-200	65 HIGH STREET TO 68 - 70 HIGH STREET	0	01			
	TOTAL	LENGTH	31'			



Line Chimney as well

1. NO TREES OR TREE LIMBS ALONG THE ENTIRE ROUTE OF LINING SHALL BE CUT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

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- 2. HEADWALLS, SIGNS, GUARDRAILS AND ANY OTHER OBJECTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
- 3. LOCATION OF UTILITIES AND PROPERTY LINES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE SITE.
- 4. THE CONTRACTOR IS INSTRUCTED TO CONTACT DIG SAFE AT 1-800-322-4844 IN ADVANCE OF ANY CONSTRUCTION, AND CALL THE TOWN OF GREENFIELD ENGINEERING DEPT. AT 772-1528 FOR AN EXCAVATION/TRENCH PERMIT.
- 5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.
- 6. DURING CURED-IN-PLACE LINING OF SEWERS, THE CONTRACTOR WILL BE RESPONSIBLE FOR BYPASS PUMPING OF EXISTING SEWAGE FLOWS.
- 7. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL SERVICE CONNECTIONS ARE TO BE REINSTATED UPON COMPLETION OF THE CURED-IN-PLACE LINING WORK.
- 8. ALL PIPES OR OTHER UTILITIES DAMAGED DURING THE CONTRACTOR'S OPERATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE AT NO COST TO THE
- 9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER IN CONFORMANCE WITH ALL APPLICABLE CODES IN PROPER AND WORKMANLIKE MANNER.







	PIPELINE SECTIONS TO BE L	INED
МН ТО МН		
1261 - 1262	BETWEEN HOUSES #9 AND #13	
1262 - 1263	BETWEEN HOUSES #23 AND #25	
1263 - 121	# 37 TO INTERSECTION OF PHILLIPS ST. AND ELM ST.	







<u>GENERAL NOTES</u>

- 1. NO TREES OR TREE LIMBS ALONG THE ENTIRE ROUTE OF LINING SHALL BE CUT
- 2. HEADWALLS, SIGNS, GUARDRAILS AND ANY OTHER OBJECTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
- 3. LOCATION OF UTILITIES AND PROPERTY LINES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE SITE.
- 4. THE CONTRACTOR IS INSTRUCTED TO CONTACT DIG SAFE AT 1-800-322-4844 IN ADVANCE OF ANY CONSTRUCTION, AND CALL THE TOWN OF GREENFIELD ENGINEERING DEPT. AT 772-1528 FOR AN EXCAVATION/TRENCH PERMIT.
- 5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE
- 6. DURING CURED-IN-PLACE LINING OF SEWERS, THE CONTRACTOR WILL BE RESPONSIBLE
- 7. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL SERVICE CONNECTIONS ARE TO BE REINSTATED UPON COMPLETION OF THE CURED-IN-PLACE LINING WORK.
- 8. ALL PIPES OR OTHER UTILITIES DAMAGED DURING THE CONTRACTOR'S OPERATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE AT NO COST TO THE OWNER.
- 9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER IN CONFORMANCE WITH ALL APPLICABLE CODES IN PROPER AND WORKMANLIKE MANNER.











<u>GENERAL NOTES</u>

1. NO TREES OR TREE LIMBS ALONG THE ENTIRE ROUTE OF LINING SHALL BE CUT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. 2. HEADWALLS, SIGNS, GUARDRAILS AND ANY OTHER OBJECTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. 3. LOCATION OF UTILITIES AND PROPERTY LINES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE SITE. 4. THE CONTRACTOR IS INSTRUCTED TO CONTACT DIG SAFE AT 1-800-322-4844 IN ADVANCE OF ANY CONSTRUCTION, AND CALL THE TOWN OF GREENFIELD ENGINEERING DEPT. AT 772-1528 FOR AN EXCAVATION/TRENCH PERMIT. 5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. 6. DURING CURED-IN-PLACE LINING OF SEWERS, THE CONTRACTOR WILL BE RESPONSIBLE FOR BYPASS PUMPING OF EXISTING SEWAGE FLOWS. 7. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL SERVICE CONNECTIONS ARE TO BE REINSTATED UPON COMPLETION OF THE CURED-IN-PLACE LINING WORK. 8. ALL PIPES OR OTHER UTILITIES DAMAGED DURING THE CONTRACTOR'S OPERATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE AT NO COST TO THE

9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER IN CONFORMANCE WITH ALL APPLICABLE CODES IN PROPER AND WORKMANLIKE MANNER.

AT Checked by:









<u>GENERAL NOTES</u>

- 1. NO TREES OR TREE LIMBS ALONG THE ENTIRE ROUTE OF LINING SHALL BE CUT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- 2. HEADWALLS, SIGNS, GUARDRAILS AND ANY OTHER OBJECTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
- 3. LOCATION OF UTILITIES AND PROPERTY LINES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE SITE.
- 4. THE CONTRACTOR IS INSTRUCTED TO CONTACT DIG SAFE AT 1-800-322-4844 IN ADVANCE OF ANY CONSTRUCTION, AND CALL THE TOWN OF GREENFIELD ENGINEERING DEPT. AT 772–1528 FOR AN EXCAVATION/TRENCH PERMIT.
- 5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.
- 6. DURING CURED-IN-PLACE LINING OF SEWERS, THE CONTRACTOR WILL BE RESPONSIBLE FOR BYPASS PUMPING OF EXISTING SEWAGE FLOWS.
- 7. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL SERVICE CONNECTIONS ARE TO BE REINSTATED UPON COMPLETION OF THE CURED-IN-PLACE LINING WORK.
- 8. ALL PIPES OR OTHER UTILITIES DAMAGED DURING THE CONTRACTOR'S OPERATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE AT NO COST TO THE OWNER.
- 9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER IN CONFORMANCE WITH ALL APPLICABLE CODES IN PROPER AND WORKMANLIKE MANNER.

PIPELINE SECTIONS TO BE LINED					
LOCATION	SIZE	APPROX. PIPE LENGTH (FT.)			
OFF - STREET	10"	208'			
OFF - STREET	10"	266'			
OFF - STREET	10"	277'			
	TOTAL LENGTH	751'			
	LOCATION OFF - STREET OFF - STREET OFF - STREET	PIPELINE SECTIONS TO BE LINED LOCATION SIZE OFF - STREET 10" OFF - STREET 10"			

	MANHOLES TO BE LINED		
MH#	LOCATION	SIZE	APPROX. VERTICAL FT.
314	STERLING STREET OFF- STREET	48"	6.5'
1942	STERLING STREET OFF - STREET	48"	7.0'
1941	STERLING STREET OFF - STREET	48"	7.1'
1519	STERLING STREET OFF - STREET	48"	9.5'
	TOTAL VERTICA	AL FT.	30.1'







WHITE BIRCH AVE	DECK	DECK	7
	32	26	7
	GAR	GAR	M
	est est d d d d d d d d d d d d d d d d d d d	CB 5140	SMH #966 8" VC INV OUT (S): 6.7' DN Line Chimney As Well

	PIPELINE SECTIONS TO BE LINED			
			APPROX. PIPE	
4	LOCATION	SIZE	LENGTH (FT.)	
	White Birch Ave. and Harmony INT - 24 White Birch Ave.	8"	358'	
	TOTAL LENGTH		358'	
	·			

MANHOLES TO BE LINED			
LOCATION	SIZE	APPROX. VERTICAL FT.	
 White Birch Ave and Harmony Lane Intersection	40	0.0	
TOTAL VERTIC	AL FT.	6.6'	

<u>GENERAL NOTES</u>

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- 2. HEADWALLS, SIGNS, GUARDRAILS AND ANY OTHER OBJECTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
- 3. LOCATION OF UTILITIES AND PROPERTY LINES ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE SITE.
- 4. THE CONTRACTOR IS INSTRUCTED TO CONTACT DIG SAFE AT 1-800-322-4844 IN ADVANCE OF ANY CONSTRUCTION, AND CALL THE TOWN OF GREENFIELD ENGINEERING DEPT. AT 772-1528 FOR AN EXCAVATION/TRENCH PERMIT.
- 5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.
- 6. DURING CURED-IN-PLACE LINING OF SEWERS, THE CONTRACTOR WILL BE RESPONSIBLE FOR BYPASS PUMPING OF EXISTING SEWAGE FLOWS.
- 7. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL SERVICE CONNECTIONS ARE TO BE REINSTATED UPON COMPLETION OF THE CURED-IN-PLACE LINING WORK.
- 8. ALL PIPES OR OTHER UTILITIES DAMAGED DURING THE CONTRACTOR'S OPERATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE AT NO COST TO THE OWNER.
- 9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER IN CONFORMANCE WITH ALL APPLICABLE CODES IN PROPER AND WORKMANLIKE MANNER.











	MANHOLES TO BE LINED		
			APPROX.
H#	LOCATION	SIZE	VERTICAL FT.
227	9 Power Square	48"	7.6
	TOTAL VERTIC/	AL FT.	7.6

(GENERAL	NOT
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APPENDIX C

CCTV INSPECTION REPORTS & VIDEOS

All CCTV inspection reports and videos will be available via Drop Box. Prospective bidders must contact <u>alan.twarog@greenfield-ma.gov</u> for a Drop Box link to download these.