2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER

Bid Opening:
October 7, 2020
10:00 a.m.

PUBLIC WORKS DEPARTMENT

602 S. Main Street, Joplin Missouri 64801
Phone: 417-624-0820 Ext. 531 FAX: 417-625-4738

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NOTICE TO CONTRACTORS

Notice is hereby given that the Director of Public Works of the City of Joplin, Missouri, will accept sealed bids for the following improvements in the City of Joplin, Missouri:

Project:
2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER
CDBG GRANT No. B-20-MC-29-0008

This work consists of the renovation of existing 8-inch and 10-inch diameter gravity sewer pipe with the installation of Cured-In-Place Pipe (CIPP) including lateral connection repairs (LCR), open trench excavation for the installation of 8-inch and 10-inch diameter gravity sewer line point repairs, sewer service lateral line reconnections, manhole replacements, renovation of existing manholes by installing cementitious lining, and all other miscellaneous work required for completion of the project.

Copies of the plans and specifications are on file and may be examined at the office of the Director of Public Works located at 602 S. Main Street, 4th floor or on the City's website. Sealed bids must be received by said Director of Public Works before **10 A.M.** prevailing local time on **October 7, 2020** at which time all bids will be publicly opened and read aloud by the Director of Public Works at the Joplin City Hall, 602 S. Main Street, Joplin MO 64801 in the **4th floor conference room**.

This project is being supported with U.S. Department of Housing and Urban Development, Community Development Block Grant Entitlement grant funding. Therefore, certain restrictions and other federal requirements attach to this opportunity.

A MANDATORY Pre-bid Meeting will be held at 10:00 a.m., September 28, 2020, at the Joplin City Hall, 4th Floor Conference Room. All bidders are required to attend the Pre-Bid Meeting and sign the attendance sheet at the meeting. Bids received from bidders who have not attended the Pre-Bid Meeting and signed the attendance sheet at the meeting will be considered nonresponsive.

Wage rates for this project shall be in accordance with the most current wage rate determinations made by the US Federal Contractor Registration (Beta.SAM.gov) and the Industrial Commission of Missouri, both of which are on file in the Department of Public Works. The higher wage rate between the federal and state determinations shall be used for this project. The Contractor will use the Division of Labor Standards Form LS-57 to report all wages.

Missouri Law, 292.675 RSMO, requires the awarded contractor and its subcontractor(s) to provide a ten-hour occupational safety and health administration (OSHA) construction safety program (or a similar program approved by the Missouri Department of Labor and industrial relations as a qualified substitute) for their on-site employees (Laborers, workmen, drivers, equipment operators, and craftsmen) who have not previously completed such a program and are directly engaged in actual construction of the improvement (or working at a nearby or adjacent facility used for construction of the improvement), The awarded contractors and its subcontractor(s) shall require all such employees to complete this ten-hour program, pursuant to 292.675 RSMO, unless they hold documentation on their prior completion of said program. Penalties for non-compliance include contractor forfeiture to the City of Joplin in the amount of $2,500, plus $100 per contractor and subcontractor employee for each calendar day such employee is employed beyond the elapsed time period for required program completion under 292.675 RSMO

A detailed listing of all subcontractors shall be provided by the Bidder. In accordance with the Contract

Documents, documentation that the prospective General Contractor and its subcontractors meet minimum qualifications shall be provided and submitted.

The successful bidder will have to sign an agreement that they are enrolled and participating in a Federal Work Authorization Program ("FWAP") that ensures that all of its employees or agents or subcontractors have the legal right to work in the United States, as defined in 8 U.S.C. 1324a(h)(3) and RSMo § 285.525-285.555, and that it will maintain this compliance for the entire duration of its contract with the City of Joplin, and will provide an Affidavit of Compliance to the City stating the same.

Payment for this project will be made to the contractor in cash.

A bid bond or certified check for five percent (5%) of the total bid amount must accompany each bid. The successful bidder will be required to furnish a performance bond in the amount of his bid and shall, before entering on the work of said contract, be licensed as a contractor of the City of Joplin, Missouri. The Director of Public Works reserves the right to reject any or all bids.

The City of Joplin hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, or national origin in consideration for an award. Also, the contractor will be required to have an approved Affirmative Action Program. Attention of bidders is particularly called to the requirement that an Affirmative Action Program must be adopted by the contractor and approved by the Affirmative Action Committee of the City of Joplin before the contract may be executed.

SCOPE OF WORK

Project: 2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER

This work consists of the renovation of existing 8-inch and 10-inch diameter gravity sewer pipe with the installation of Cured-In-Place Pipe (CIPP) including lateral connection repairs (LCR), open trench excavation for the installation of 8-inch and 10-inch diameter gravity sewer line point repairs, sewer service lateral line reconnections, manhole replacements, renovation of existing manholes by installing cementitious lining, and all other miscellaneous work required for completion of the project.

Quantities and specific locations are subject to change depending on the bids received and as work progresses. See the project plan sheets for general locations and boundaries.

INFORMATION FOR BIDDERS

1. Receipt and Opening of Bids:

   The City of Joplin (herein called the "Owner"), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the City Hall, 4th Floor, 602 S. Main Street, Joplin, Missouri, 64804 until 10:00 a.m., October 7, 2020 and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to the City of Joplin, 602 S. Main Street, Joplin, Missouri and designated as bid for 2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER.

   The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within ninety (90) days after the actual date of the opening thereof.

2. Preparation of Bid: Each bid must be submitted on the required BID form, included as part of these specifications, and accompanied by Certification by Bidder Regarding Equal Employment Opportunity, Form HUD-950.1. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures, and the foregoing Certifications must be fully completed and executed when submitted.

3. Subcontracts: The bidder is specifically advised that any person, or other party, to whom it is proposed to award a subcontract under this contract:

   a. Must be acceptable to the procurer; and

   b. Subcontractors must comply with HUD requirements related to this funding, including certifications, in the event the bidder is successful in obtaining this work.

4. Telegraphic Modification: Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time, and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price, but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

5. Method of Bidding: The Owner invites the following bid(s): Unit Price submission for 2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER in compliance with project drawings, specifications and contract documents. Award of the contract shall be based upon the lowest responsive, responsible bid submitted for the Total Base Bid Amount. The OWNER reserves the right to add or subtract quantities from the Project Contract at the Unit Prices submitted, as necessary.

6. Qualifications of Bidder: The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the

Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

7. Bid Security: Each bid must be accompanied by a bid bond payable to the Owner for five percent (5%) of the total amount of the bid. As soon as the bid prices have been compared, the Owner will return all of the bonds except the three lowest responsible bidders. When the agreement is executed the bonds of the two remaining unsuccessful bidders will be returned. The bid bond of the successful bidder will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of a bid bond.

8. Liquidated Damages for Failure to Enter into Contract: The successful bidder, upon his failure or refusal to execute and deliver the contract and bonds required within 7 days after he received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

9. Time of Completion and Liquidated Damages: Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within NINETY (90) consecutive calendar days thereafter. Bidder must agree also to pay as liquidated damages, the sum of $1000.00 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

10. Conditions of Work: Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the contractor, in carrying out the work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

11. Addenda and Interpretations: No interpretation of the meaning to the plans, specifications, or other pre-bid documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to City Hall ATTN: Chris Parker 4th Floor, 602 S. Main Street, Joplin, MO 64801 or emailed to CParker@joplinmo.org and to be given consideration must be received at least five (5) days prior to the date fixed for the opening of bids. Interpretations, supplemental instructions or clarifications considered necessary by the Engineer in response to such questions will be issued in the form of written addenda to the contract documents and specifications which, if issued, will be posted to the City of Joplin Website on the www.Joplinmo.org webpage, not later than three days prior to the data fixed for the opening of bids. Questions received less than (5) days prior to the date for opening of bids may not be answered. Only answers issued by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

12. Security for Faithful Performance: Simultaneously with the delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this

contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner.

13. Power of Attorney: Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

14. Notice of Special Conditions: Attention is particularly called to those parts of the contract documents and specifications which deal with the following:

    a. Inspection and testing of materials.

    b. Insurance requirements.

    c. Wage rates.

    d. Stated allowances.

15. Laws and Regulations: The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

16. Method of Award - Lowest Qualified Bidder: If at the time this contract is to be awarded, the lowest Total Base Bid Amount for the 2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER project, submitted by a responsive, responsible bidder, does not exceed the amount of funds then estimated by the Owner as available to finance the contract; the contract will be awarded on the Total Base Bid Amount.

17. Obligation of Bidder: At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect or his bid.

    a. Bidders are informed that pursuant to Section 285.530, RSMo, as a condition of the award of any contract in excess of five thousand dollars ($5,000), the successful bidder shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation if a federal work authorization program with respect to the employees working in connection to the contracted services. Successful bidders shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection to the contracted services.

18. Safety Standards and Accident Prevention: With respect to all work performed under this contract, the contractor shall:

    a. Comply with the safety standards provisions of applicable laws, building and construction codes, and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.

b. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

c. Maintain at his office or other well-known place at the job site, all articles necessary for giving first aid to the injured, and shall make arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or adoctor's care.

19. Bidders are informed that the Project is subject to the requirements of Section 292.675, RSMo, which requires all contractors or subcontractors doing work on the Project to provide, and require its on-site employees to complete, a ten (10) hour course in construction safety and health approved by the Occupational Safety and Health Administration ("OSHA") or a similar program approved by the Missouri Department of Labor and Industrial Relations which is at least as stringent as an approved OSHA program. The training must be completed within sixty (60) days of the date of work on the Project commences. On-site employees found on the worksite without documentation of the required training shall have twenty (20) days to procure documentation or be subject to removal from the Project.

SPECIAL PROVISIONS

Project: 2020 East Town Infrastructure – Sanitary Sewer

Specifications: The contractor shall fully comply with the City of Joplin Standard Specifications, latest edition, except as noted herein. Standard specifications may be found at the following web address:

http://www.joplinmo.org/DocumentCenter/View/7374/Standard-Specs_030718?bidId=

The following specifications shall supplement and supersede the City of Joplin Standard Specifications: trenchless reconstruction specifications, generally; these can be found in Attachment C of these bid documents.

Details: The contractor shall fully comply with the City of Joplin Standard Details, latest edition, except as noted herein. Standard details may be found at the following web address:

http://www.joplinmo.org/DocumentCenter/View/4964

Sales Tax Exemption: Senate Bill 477 has expanded the provisions of Section 144.062 of the Revised Statutes of Missouri (RSMo) to allow contractors to make tax-free purchases of materials and equipment for projects owned by tax-exempt entities. This change in Section 144.062 RSMo became effective on August 28, 1994. Purchases of construction materials, by the Contractor, for this project are exempt from sales tax. Prior to being eligible for this exemption, the attached "Missouri Project Exemption Certificate" must be completed by the Owner and presented to the Contractor. For more information about this exemption, the bidder may contact the Missouri Department of Revenue, Technical Support Section, Jefferson City, Missouri (573-751-2836).

Project Specific Provisions

1. Contractor shall be responsible for any construction staking required to complete the project. The contractor shall protect and preserve the established benchmarks, monuments, and survey markers. The contractor shall carry sole responsibility for replacement of altered or destroyed survey references within the limits of construction.

2. Contractor shall be licensed to work in the City of Joplin.

3. Heavy Metals Remediation: Any excavation done on a City project is subject to lead, cadmium, and zinc testing. No excavated material is to be hauled off-site without first being tested by the City of Joplin at no additional cost to the Contractor. This project is located within a former smelter area, active during Joplin's mining days. As such, all excavated material on this project shall be stockpiled at the individual sites and tested for heavy metal contamination (lead, cadmium, zinc). The Contractor shall schedule testing with the City's designated staff in a timely fashion. A standard form shall be used to document the results of each test. The City and the contractor shall both receive a copy of the signed forms. Other requirements are as follows:

    a. Good Housekeeping – The contractor shall employ the use of waddles, tarps, etc., to

prevent any stockpiled material from leaving the work area, whether through runoff, wind, or construction activities. In no case shall any contaminated soil be stockpiled on private property or in park areas.

b. All contaminated excavated material shall be transported directly from the site(s) to the soil repository located 0.3 miles north of the intersection of West 7th Street and Malang Road, Joplin, Missouri. Transportation and disposal of all contaminated soil shall be measured per cubic yard of deposited material. Payment shall be at the unit price stated in the Bid Schedule and shall constitute payment for all earthwork, loading and unloading, hauling, disposal, water, tools, equipment, labor, and incidentals necessary to complete this section. Since the quantity of contaminated soil is unknown, the Bid Schedule includes a unit price and quantity for the purpose of comparing bids. The unit price set forth in the Bid Schedule for the transportation and disposal of contaminated material shall not be adjusted based on the actual quantity. The final quantity and contract price shall be adjusted based upon the actual volume of contaminated material disposed. Measurement and payment will only be made if the material is found to be contaminated above predetermined levels. If the material is not contaminated it shall be considered unclassified and shall be disposed of by the contractor at the contractor's expense.

4. Materials Testing: The contractor shall arrange and pay for all materials testing for the project.

5. The following are requirements for insurance to be on file in City Finance Dept.:
   a. Employer's Liability – Unlimited (as per RSMO 287.010 et seq.)
   b. Workmen's Compensation – Statutory
   c. Public Liability Insurance – per the requirements set forth in the Agreement between the City of Joplin and the Contractor.

8 Wage rates for this project shall be in accordance with wage rate determination made by the Missouri Department of Labor and Industrial Relations on file in the Department of Public Works or Davis-Bacon U.S. Department of Labor wage rates, whichever is higher. The wage rates applicable to this project have been predetermined as required by law and are set forth in the building specifications and are to be considered as a part of this Notice to Contractors.

9 Contractors are cautioned that unbalanced bids can be rejected. The City reserves the right to reject or delete any part of the bid.

10 The City will issue a notice to proceed after the signing of the contract.

11 Contractors shall abide by the requirements set by the United States Access Board for ADA guidelines and standards (ADAAG) by following the ADAAG standards for Public Right of Ways (PROWAG). The contractor is required to familiarize themselves with the PROWAG guidelines, latest edition. For any such work, the contractor shall verify in the field that all slope requirements are met. If the requirements cannot be met then it is the responsibility to notify the City Engineer immediately for redesign or an alternative slope requirement within the PROWAG guidelines.

12 Traffic control shall be the responsibility of the contractor and shall be in accordance with current MUTCD requirements. Temporary Traffic Control Plans (TTCPs), where needed, must be submitted to the City of Joplin's traffic engineer for review and approval prior to the issuance of a public announcement, which shall be made at least 24 hours prior to setting up temporary traffic control items in and around the work zone.

13 Digital plan files will be provided prior to awarding to the successful bidder.

DIVISION OF ENGINEERING DEPARTMENT OF PUBLIC WORKS

PROPOSAL

THE UNDERSIGNED hereby proposes to furnish the labor and material for:

Project: 2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER

In the City of Joplin, Missouri, according to the general specifications for such work on file in the office of the City Engineer and Director of Public Works, together with the terms and conditions stipulated in the general contract forms, now adopted by the City of Joplin, as advertised to be let on the 7th day of October 7, 2020 at 10:00 a.m. at the following prices to-wit:

Item No.	***Item Description***	***Unit***	***Qty.***	***Unit Price***	***Extended Total***
A	***CIPP (Cured In Place Pipe)***				
A1	Mobilization - MH to MH CIPP	LS	1	$	$
A2	8" Dia. CIPP	LF	2,684	$	$
A3	10" Dia. CIPP	LF	205	$	$
B	***CIPP Point Repair***				
B1	Mobilization - CIPP Point Repair	LS	1	$	$
B2	8" Dia. CIPP Point Repair	EA	6	$	$
C	***Trenchless LCR***				
C1	Mobilization - Trenchless LCR	LS	1	$	$
C2	Trenchless LCR Setup per Manhole-to-Manhole Segment	EA	31	$	$
C3	Trenchless LCR - 8" to 10" Dia. Main, 4" to 6" Lateral, 18" Long	EA	31	$	$
D	***MH Renovation***				
D1	Mobilization - MH Renovation	LS	1	$	$
D2	4' MH Renovation - Cementicious w/ Antimicrobial Additive	VF	88	$	$
E	***Open Cut Reconstruction of 8" to 10" Dia. Mainlines and Lateral Connections***				
E1	Mobilization - Open Cut Reconstruction	LS	1	$	$
E2	Additional Footage (>10'), 0'-6' Deep Under Turf	LF	5	$	$
E3	Mainline 6'-12' Deep Under Turf (up to 10' long)	EA	4	$	$
E4	Mainline 0’-6’ Deep Under Alleyway, Up to 10’ Long	EA	4	$	$
E5	Mainline 6' to 12' Deep Under Alleyway, Up to 10' Long	EA	10	$	$

Item No.	*Item Description*	*Unit*	*Qty.*	*Unit Price*	*Extended Total*
E6	Additional Footage (>10'), 6' - 12' Deep Under Alleyway	LF	15	$	$
E7	Mainline 0' -6' Deep Under Pavement, Up to 10' Long	EA	1	$	$
E8	Mainline 6'-12' Deep Under Pavement (up to 10' long)	EA	11	$	$
E9	Additional Footage (>10'), 6'-12' Deep Under Pavement	LF	30	$	$
E10	Lateral Connections 6' - 12' Deep Under Turf	EA	4	$	$
E11	Lateral Connections 0' - 6' Deep Under Alley	EA	4	$	$
E12	Lateral Connections 6' - 12' Deep Under Alley	EA	7	$	$
E13	Lateral Connections 0' - 6' Deep Under Pavement	EA	1	$	$
E14	Lateral Connection Repair Made During a Simultaneous Dig	EA	4	$	$
E15	Lead Contaminated Soil Disposal	CY	110	$	$
E16	Additional Crushed Stone Backfill	CY	110	$	$
E17	Sidewalk Repair	SY	10	$	$
E18	Concrete Pavement Repair	CY	10	$	$
	TOTAL BASE BID AMOUNT =			**$** _____	

BIDDER understands that they may be asked to provide a complete and detailed breakdown of bid item prices following opening of the bids but prior to award of contract. BIDDER also hereby certifies that the bid prices for each component of the project will be substantiated by submittal of a detailed cost breakdown of all components of the PROJECT to the ENGINEER prior to release of any payments to the BIDDER for work performed.

BIDDER understands and acknowledges that the bid items shown in this proposal represent a summary of major components of construction required. The bid price for each item shall include the cost of all adjacent or related items that are shown on the plans, are called for in the specifications, or are otherwise necessary to provide completely the improvements.

BIDDER agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) consecutive calendar days after the scheduled closing time for receiving bids.

BIDDER understands that the City has the right to waive any informalities and maintains the right to reject any or all bids.

The undersigned agrees to enter into a contract within seven (7) days from notice of award should this proposal be accepted, and enter into bonds with good and sufficient securities, to

complete the work on or before a date to be specified in the Notice to Proceed, and to fully complete the project within 90 consecutive calendar days thereafter. A penalty of $1000.00 per calendar day thereafter shall be instituted, the amount to be deducted from the contract price. In order to pay all labor employed and material used in connection with this work and to adjust all claims or liens that may arise in consequence of said work, to the satisfaction of the Director of Public Works, above said bonds shall also indemnify and save harmless the said City from all damages or injuries to any person or persons, either in the employ of the contractor, his agents, servants or employees. In the event of the failure of the undersigned to enter into such contract within seven (7) days of the award, then the deposit or certified check of five percent (5%) of the total bid amount as surety is therefore forfeited to the City of Joplin.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the Contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from the any obligation in respect to his BID.

The low BIDDER shall supply the names and addresses of the major material SUPPLIERS AND SUBCONTRACTORS when requested to do so by the OWNER.

Dated_____day of_____, 2020.

Company _____

Address _____

Signature _____

(Print Name) _____

AGREEMENT

CITY		CONTRACTOR	
CITY OF JOPLIN **602 S. MAIN STREET** **JOPLIN, MO 64801**		Name: Address:	
Attention:		Attention:	
Department: Engineering		Phone:	Fax:
Phone: 417-624-0820	Fax:		

THIS AGREEMENT, made and entered into this_____ day of_____, 20____, by the parties identified above.

WITNESSETH: That whereas, the Contractor has become the lowest responsible bidder for furnishing the supervision, labor, tools, equipment, materials and supplies and for constructing the following City improvements:

2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER

The City and Contractor agree to the following:

1. Manner and Time for Completion. The Contractor will furnish all supervision, labor, tools, equipment, materials and supplies necessary to perform, and to perform said work at Contractor's own expense in accordance with the contract documents and any applicable City ordinances and state and federal laws within 90 calendar days from the date Contractor is ordered to proceed, which order shall be issued by the Director of Public Works within 30 days after the date of this contract.

2. Prevailing Wages. The Contractor shall be required to pay their laborers and mechanics no less than the more stringent of either that required by the Department of Labor and Industrial Relations of the State of Missouri or the Department of Labor as defined in the Davis-Bacon Act.

a. **Missouri Wage Rate:** All labor utilized in the construction of the aforementioned improvements shall be paid a wage of no less than the "prevailing hourly rate of wages" for work of a similar character in this locality, as established and amended at any time by the Department of Labor and Industrial Relations of the State of Missouri. At any time the contractor is found to not have paid prevailing wages, the contractor shall forfeit as a penalty to the city one hundred dollars for each underpaid worker employed, for each calendar day, or portion thereof such worker is paid less than the said stipulated rates for any work done under this contract.

b. **Davis Bacon:** The Davis-Bacon Act (Title 40 U.S.C. Chapter 31, subchapter IV), requires that all contractors and subcontractors performing on federal contracts (and contractors or subcontractors performing on federally assisted contracts under the related Acts) in excess of $2,000 pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits listed in the contract's Davis-Bacon wage determination for corresponding classes of laborers and mechanics employed on similar projects in the area. Davis-Bacon labor standards clauses must be included in covered contracts. Apprentices may be employed at less than predetermined rates if they are in an apprenticeship program registered with the Department of Labor or with a state apprenticeship agency recognized by the Department. Trainees may be employed at less than predetermined rates if they are in a training program certified by the Department. Contractors and subcontractors on prime contracts in excess of $100,000 are required, pursuant to the Contract Work Hours and Safety Standards Act, to pay employees one and one-half times their basic rates of pay for all hours over 40 worked on covered contract work in a workweek. Covered contractors and subcontractors are also required to pay employees weekly and to submit weekly certified payroll records to the contracting agency.

3. Insurance Requirements. Without limiting any of the other obligations or liabilities of the Contractor, the Contractor shall secure and maintain at its own cost and expense, throughout the duration of this Contract and until the work is completed and accepted by the City of Joplin, insurance of such types and in such amounts as may be necessary to protect it and the interests of the City of Joplin against all hazards or risks of loss as hereunder specified or which may arise out of the performance of the Contract Documents. The form and limits of such insurance, together with the underwriter thereof in each case, are subject to approval by the City of Joplin. Regardless of such approval, it shall be the responsibility of the contractor to maintain adequate insurance coverage at all times during the term of the Contract. Failure of the Contractor to maintain coverage shall not relieve it of any contractual responsibility or obligation or liability in general or under the Contract Documents.

The certificates of insurance, including evidence of the required endorsements hereunder or the policies, shall be filed with the City within ten (10) days after the date of the receipt of Notice of Award of the Contract to the Contractor and prior to the start of work. All insurance policies shall require that the insurance company in question provide thirty (30) days written notice prior to modification or cancellation of such insurance. Such notices shall be mailed, certified mail, return receipt requested, to:

City of Joplin - Public Works, 602 S. Main Street, Joplin, MO 64801

Such policies shall name the City as an additional insured, with limits of liability not less than the sovereign immunity limits for Missouri public entities calculated by the Missouri Department of Insurance as of January 1 each calendar year and published annually in the Missouri Register pursuant to Section 537.610, RSMo. (See, http://insurance.mo.gov/industry/sovimmunity.php)

As of January 1, 2020, the minimum coverage for the insurance referred to herein shall be as set out below:

a. **Workers'Compensation….**Statutory coverage per RSMo 287.010 et seq

Employer's Liability……. $1,000,000.00

b. **Commercial General Liability Insurance** including coverage for Premises, Operations, Products and Completed Operations, Contractual Liability, Broad Form Property Damage, Independent Contractors, Explosion, Collapse, and Underground Property Damage and endorsed for blasting if blasting required. Such coverage shall apply to bodily injury and property damage on an "Occurrence Form Basis" with limits of at least Two Million Nine Hundred Five Thousand Six Hundred Sixty-four and no/100 Dollars ($2,905,664.00 for all claims arising out of a single accident or occurrence and at least Four Hundred Thirty-five Thousand Eight Hundred Forty-Nine and no/100 Dollars ($435,849.00) with respect to injuries and/or death of any one person in a single occurrence and an amount not less than at least $1,000,000 for all claims to property arising out of a single occurrence and at least $100,000 to any one owner with respect to damages to property. Contractor agrees that the proceeds of such insurance policy shall first be used to pay any award, damages, costs, and/or attorneys' fees incurred by or assessed against City, its employees, officers and agents, before payment of any award, damages, costs or attorneys' fees of Contractor, its employees, officers or agents. Contractor agrees to cause its insurer to name City as an additional insured on such insurance policy, including the City as an additional insured for coverage under its products-completed operations hazard, and said policy shall be primary and noncontributory.

c. **Automobile Liability Insurance** covering bodily injury and property damage for owned, non-owned and hired vehicles, with limits of at least Two Million Nine Hundred Five Thousand Six Hundred Sixty-four and no/100 Dollars ($2,905,664.00 for all claims arising out of a single accident or occurrence and at least Four Hundred Thirty-five Thousand Eight Hundred Forty-Nine and no/100 Dollars ($435,849.00) with respect to injuries and/or death of any one person in a single accident or occurrence.

d. **Owner's and Contractor's Protective Liability Insurance** to protect the City, its agents, servants and employees from claims which may arise from the performance of this Contract, with limits of at least Two Million Nine Hundred Five Thousand Six Hundred Sixty-four and no/100 Dollars ($2,905,664.00 for all claims arising out of a single accident or occurrence and at least Four Hundred Thirty-five Thousand Eight Hundred Forty-Nine and no/100 Dollars ($435,849.00) with respect to injuries and/or death of any one person in a single accident or occurrence.

The Owner's and Contractor's Protective Liability Insurance must:

(1) Be a separate policy with the named insured being: The City of Joplin, and

(2) Contain an endorsement that disclaims coverage for any claim barred by the doctrines of sovereign immunity or official immunity, except attorney's fees and other litigation costs incurred in defending a claim. Nothing contained in this policy (or this endorsement thereto) shall constitute any waiver of whatever kind of these defenses or sovereign immunity or official immunity for any monetary amount whatsoever.

e. **Builders Risk Insurance** for contracts involving unoccupied structures. The Contractor shall secure All Risk Builder's Risk Insurance. Unless specifically authorized by the City, the amount of such insurance shall not be less than the total contract price.

f. **Subcontracts**. In case any or all of this work is sublet, the Contractor shall require the subcontractor to procure and maintain all insurance required in subparagraphs (a), (b) and (c) hereof and in like amounts. Contractor shall require any and all subcontractors with whom it enters into a contract to perform work on this project to protect the City of Joplin through insurance against applicable hazards or risks and shall, upon request of the City, provide evidence of such insurance.

g. **Notice**. The Contractor and/or subcontractor shall furnish the City prior to beginning the work, the policy as specified in subparagraph (d), and satisfactory proof of carriage of all the insurance required by this contract, with the provision that policies shall not be canceled, modified or non-renewed without thirty (30) days written notice to the City of Joplin.

h. **Legislative or Judicial Changes.** In the event the scope or extent of the City's tort liability as a governmental entity as described in Section 537.600 through 537.650 RSMo is broadened or increased during the term of this agreement by legislative or judicial action, the City may require Contractor, upon 10 days written notice, to execute a contract addendum whereby the Contractor agrees to provide, at a price not exceeding Contractor's actual increased premium cost, additional liability insurance coverage as the City may require to protect the City from increased tort liability exposure as the result of such legislative or judicial action. Any such additional insurance coverage shall be evidenced by an appropriate certificate of insurance and shall take effect within the time set forth in the addendum.

4. Performance, Labor, and Materials Payment Bond: The Contractor shall furnish a Performance Bond and a Labor and Materials Payment Bond with surety approved by the City and on the forms approved by the City, each bond shall be in the amount of $_____ (full amount of contract) conditioned upon the full and faithful performance of all major terms and conditions of this contract and payment of all labor and material suppliers. It is further mutually agreed between the parties hereto that if at any time after the execution of this agreement and the surety bond(s) hereto attached for its faithful performance and payment of labor and material suppliers, the City shall deem the surety or sureties upon such bond(s) to be unsatisfactory, or if, for any reason, such bond(s) ceases to be adequate to cover the performance of the work, the Contractor shall, at its expense, within five (5) days after the receipt of notice from the City to do so, furnish an additional bond or bonds, in such form and amount, and with such surety or sureties as shall be satisfactory to the City. In such event no further payment to the Contractor shall be deemed to be due under this contract until such new or additional security for the faithful performance of the work and the payment of labor and material suppliers shall be furnished in a manner and form satisfactory to the City. The corporate surety on any performance or payment bond must be licensed by the State of Missouri and if the required bond exceeds $25,000.00 must be listed in United States Treasury Circular 570.

5. Certification Regarding Disbarment, Eligibility, Indictments, Convictions or Civil Judgements for all Federal Aid Projects: By signing and submitting the bid, the president or authorized official of the bidder, under penalty of perjury under the laws of the USA, shall certify that, except as noted in the exceptions, the company or any person associated therewith in the capacity of owner, partner, director, officer, principal investor, project director, manager, auditor or any position involving the administration of federal funds:
(Reference can be made to "The System for Award Management" website as a helpful resource).

a. Is not currently under suspension, debarment, voluntary exclusion or determination of ineligibility by any federal agency.

b. Has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past three years.

c. Does not have a proposed debarment or suspension pending.

d. Has not been indicted, convicted or had a civil judgment rendered against any of the listed parties by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

5.1 If there are any exceptions, the bidder shall submit the exceptions on company letterhead, signed by the bidder and inserted inside the bid submitted. Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, the bidder shall indicate to whom it applies, the initiating agency, and dates of action. Providing false information may result in criminal prosecution or administrative sanctions.

5.2 By signing the contract, the contractor shall further certify that all related subcontracts of $25,000 shall comply with this requirement. This includes all subcontractors, material suppliers and vendors.

6. Contractor's Responsibility for Subcontractors.

a. The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as Contractor is for the acts and omissions of persons it directly employs.

b. Contractor shall cause appropriate provisions to be inserted in all subcontracts relating to this work, to bind all subcontractors to Contractor by all the terms herein set forth, and insofar as applicable to the work of subcontractors and to give Contractor the same power regarding termination of any subcontract as the City may exercise over Contractor under any provisions of this contract.

c. Nothing contained in this contract shall create any contractual relation between the subcontractor and the City or between any subcontractors.

d. The Contractor shall not enter into any subcontract with any subcontractor who has been debarred, suspended, declared ineligible, or voluntarily excluded from participating in contacting programs by any agency of the United States Government or the City of Joplin.

e. The Contractor represents and warrants that it and its subcontractors are not debarred, suspended, or placed in ineligibility status under the provisions of 24 CFR 24 (government debarment and suspension regulations).

7. General Independent Contractor Clause. This agreement does not create an employee/employer relationship between the parties. It is the parties' intention that the Contractor will be an independent contractor and not the City's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri Revenue and Taxation laws, Missouri Workers' Compensation and Unemployment Insurance laws. The Contractor will retain sole and absolute discretion in the judgment of the manner and means of carrying out the Contractor's activities and responsibilities hereunder. The Contractor agrees that it is a separate and independent enterprise from the public employer, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This agreement shall not be construed as creating any joint employment relationship between the Contractor and the City, and the City will not be liable for any obligation incurred by the Contractor, including but not limited to unpaid minimum wages and/or overtime premiums.

8. Personnel. The Contractor represents that it has, or will secure at its own expense, all personnel required in performing the services under this Contract. Such personnel shall not be employees of or have any contractual relationship with the Owner. All the services required hereunder will be performed by the Contractor or under its supervision, and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under State and local law to perform such services. No person who is serving sentence in a penal or correctional institution shall be employed on work under this Contract.

9. Changes. The Owner may, from time to time, request changes in the scope of the services of the Contractor to be performed hereunder. Such changes, including any increase or decrease in the amount of the Contractor's compensation which are mutually agreed upon by and between the Owner and the Contractor, shall be incorporated in written and executed amendments to this Contract.

10. Breach of Contract Terms. Any violation or breach of terms of this contract on the part of the Contractor or the Contractor's subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the

rights of the parties of this contract. The duties and obligations imposed by the contract documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

11. Liquidated Damages. Time of completion of work by the Contractor is of the essence. Should Contractor, or in the case of default, the surety, fail to complete the work within the time specified in the contract, or within such extra time as may be allowed in accordance with City of Joplin Standard Specifications, Division 0000, General Requirements and Provisions, Section 0400.19, Contractor (or surety) shall be liable to the City in the amount of $1000 per day for each and every calendar day that the contract remains uncompleted after the time allowed for completion, as liquidated damages, and not as a penalty, it being stipulated that actual damages to the City and the public arising from Contractor's failure to timely complete the work would be difficult, if not impossible, to ascertain. The amount assessed as liquidated damages may be withheld from any moneys otherwise due to Contractor from the City.

12. Termination. The City reserves the right to terminate this contract by giving at least five (5) days prior written notice to the Contractor, without prejudice to any other rights or remedies of the City should the Contractor be adjudged a bankrupt, or if Contractor should make a general assignment for the benefit of its creditors, or if a receiver should be appointed for Contractor or for any of its property, or if Contractor should persistently or repeatedly refuse or fail to supply enough properly skilled workmen or proper material, or if Contractor should refuse or fail to make prompt payment to any person supplying labor or materials for the work under the contract, or persistently disregard instructions of the City or fail to observe or perform any provisions of the contract. If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner his obligations under this contract, or if the Contractor shall violate any of the covenants, agreements, or stipulations of this contract, the Owner shall thereupon have the right to terminate this contract by giving written notice to the Contractor of such termination and specifying the effective date thereof, at least five (5) days before the effective date of such termination. In such event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs, and reports prepared by the Contractor under this contract shall, at the option of the Owner, become the Owner's property and the Contractor shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder. Notwithstanding the above, the Contractor shall not be relieved of liability to the Owner for damages sustained by the Owner by virtue of any breach of the contract by the Contractor, and the Owner may withhold any payments to the Contractor for the purpose of set-off until such time as the exact amount of damages due the Owner from the Contractor is determined.

13. City's Right to Proceed. In the event this contract is terminated pursuant to Paragraph 8, then the City may take over the work and prosecute the same to completion, by contract or otherwise, and Contractor and its sureties shall be liable to the City for any costs over the amount of this contract thereby occasioned by the City. In any such case, the City may take possession of, and utilize in completing the work, such materials, appliances and structures as may be on the work site and are necessary for completion of the work. The foregoing provisions are in addition to, and not in limitation of, the rights of the City under any other provisions of the contract, city ordinances, and state and federal laws.

14. Termination for Convenience of City. The City shall have the right at any time by providing at least ten (10) days written notice to Contractor to terminate and cancel this contract, without cause, for the convenience of the City, and Contractor shall immediately stop work. In such event City shall not be liable to Contractor except for payment for actual work performed prior to such notice in an amount proportionate to the completed contract price and for the actual costs of preparations made by Contractor for the performance of the cancelled portions of the contract, including a reasonable allowance of profit applicable to the actual work performed and such preparations. Anticipatory profits and consequential damages shall not be recoverable by Contractor.

15. Guards and Lights. The Contractor agrees that during the performance of said work, adequate barricades, guards and warning signs, lights or devices consistent with the requirements contained in the Manual on Uniform Traffic Control Devices shall be provided by Contractor during construction.

16. Energy Efficiency. The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

17. Liability and Indemnity.

a. In no event shall the City be liable to the Contractor for special, indirect, or consequential damages, except those caused by the City's gross negligence or willful or wanton misconduct arising out of or in any way connected with a breach of this contract. The maximum liability of the City shall be limited to the amount of money to be paid or received by the City under this contract.

b. The Contractor shall defend, indemnify and save harmless the City, its elected or appointed officials, agents and employees from and against any and all liability, suits, damages, costs (including attorney fees), losses, outlays and expenses from claims in any manner caused by, or allegedly caused by, or arising out of, or connected with, this contract, or the work or any subcontract thereunder (the Contractor hereby assuming full responsibility for relations with subcontractors), including, but not limited to, claims for personal injuries, death, property damage, or for damages from the award of this contract to Contractor, notwithstanding any possible negligence, whether sole or concurrent, on the part of the City, its officials, agents and employees.

c. The Contractor shall indemnify and hold the City harmless from all wages or overtime compensation due any employees in rendering services pursuant to this agreement or any subcontract, including payment of reasonable attorneys' fees and costs in the defense of any claim made under the Fair Labor Standards Act, the Missouri Prevailing Wage Law or any other federal or state law. The City can require additional documentation as needed to ensure that the appropriate wage rates are being paid in order to ensure compliance to all state and federal rules, regulations and statutes.

d. The indemnification obligations of Contractor hereunder shall not be limited by any limitations as to the amount or type of damages, compensation or benefits payable by or for the Contractor, under any federal or state law, to any person asserting the claim against City, its elected or appointed officials, agents and employees, for which indemnification is sought.

e. The indemnification obligations herein shall not negate, abridge or reduce in any way any additional indemnification rights of the City, its elected or appointed officials, agents and employees, which are otherwise available under statute, or in law or equity.

f. Contractor affirms that it has had the opportunity to recover the costs of the liability insurance required in this agreement in its contract price. Contractor's obligation under this agreement to defend, indemnify, and hold harmless any person from that person's own negligence or wrongdoing is limited to the coverage and limits of the applicable insurance required of the Contractor under this agreement.

g. The Contractor shall indemnify and hold the City harmless for any penalties, fines, fees or costs, including costs of defense, which are charged or assessed by any Federal, state or local agency including, but not limited to, Environmental Protection Agency or Department of Natural Resources.

h. The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including cost and expenses for, or on account of any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract including its use by the Owner, unless otherwise specifically stipulated in the Contract Document.

i. License or Royalty Fees: License and/or Royalty Fees for the use of a process which is authorized by the Owner of the project must be reasonable, and paid to the holder of the patent, or his authorized license, direct by the Owner and not by or through the Contractor.

j. If the Contractor uses any design device or materials covered by letters, patent or copyright, he shall provide for such use by suitable agreement with the owner of such patented or copy- righted design device or material. It is mutually agreed and understood, that without exception the contract prices shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his Sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copy-righted design, device or materials or any trademark or copy-right in connection with work agreed to be performed under this contract, and shall indemnify the Owner for any cost, expense, or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

18. Copyright. No materials, to include but not limited to reports, maps, or documents produced as a result of this contract, in whole or in part, shall be available to the Contractor for copyright purposes. Any such materials produced as a result of this contract that might be subject to copyright shall be the property of the Owner and all such rights shall belong to the Owner.

19. Payment for Labor and Materials. The Contractor agrees and binds itself to pay for all labor done, and for all the materials used in the construction of the work to be completed pursuant to this contract.

20. Payment. The City will pay the Contractor in accordance with the rate set forth in the contract documents on file in the Public Works Department and by this reference made a part hereof, which shall constitute full and complete compensation for the Contractor's work provided hereunder. Such compensation will be paid in progress payments (less five (5) percent retainage), as established by the City, subject to receipt of a requisition for payment and a statement of work provided by the Contractor and agreement by both the City and the Contractor that the Contractor has fully performed the work to be paid for in such progress payments in conformance with the contract. If the City or the architect or engineer determines that a higher rate of retainage is required to ensure performance of the contract, the City may withhold up to ten (10) percent retainage until the work is fully completed and accepted by the City.

21. Contract Documents. The contract documents shall consist of the following:

a. This Contract
b. All Change Orders
c. Bid Plans and Specifications
d. City of Joplin Standard Specifications (Latest Revised Edition)
e. Special Conditions & Provisions
f. Proposal
g. Statement of Bidder's Qualifications
h. Acknowledgment
i. Performance Bond
h. Payment and Material Bond
k. Instructions to Bidders
l. Non-collusion Affidavit
m. Notice to Proceed

Notice to Contractors: This contract, together with the other documents enumerated in this paragraph, forms the contract between the parties. These documents are as fully a part of the contract as if attached hereto or repeated herein. The Contractor agrees to perform all of the work described in the contract documents and to comply with the terms and conditions defined therein for a total sum of ORIGINAL CONTRACT AMOUNT WRITTEN OUT ($) dollars, said amount being subject to any approved addenda or change order.

22. Subsurface Conditions. Contractor agrees that information contained in the published reports and public actions of the Missouri Division of Geology and Land Survey shall be conclusive and binding upon the Contractor as to what subsurface conditions at the job site are reasonably anticipated or reasonably foreseeable. Contractor acknowledges and agrees that it shall not be entitled to any adjustment in the Contract Sum or Contract Times for any concealed condition of any nature, including but not limited to unknown physical conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, in addition to the information contained in the published reports and public actions of the Missouri Division of Geology and Land Survey. Contractor recognizes that it has assumed the risks of concealed conditions and is being compensated for assuming these risks.

23. Flood Disaster Protection: This contract is subject to the requirements of the Flood Disaster Protection Act of 1973 (P.L.93-234). Nothing included as a part of this contract is approved for acquisition or construction purposes as defined under Section 3(a) of said Act, for use in an area identified by the Secretary of HUD as having special flood hazards which is located in a community not then in compliance with the requirements for participation in the National Flood Insurance Program pursuant to Section 201(d) of said Act; and the use of any assistance provided under this contract for such acquisition for construction in such identified areas in communities then participating in the National Flood Insurance Program shall be subject to the mandatory purchase of flood insurance requirements or Section 102(a) of said Act. Any contract or agreement for the sale, lease, or other transfer of land acquired, cleared or improved with assistance provided under this Contract shall contain, if such land is located in an area identified by the Secretary as having special flood hazards and in which the sale of flood insurance has been made available under the National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4001 et seq., provisions obligating the transferee and its successors or assigns to obtain and maintain, during the ownership of such land, such flood insurance as required with respect to financial assistance for acquisition or construction purposes under Section 102(a) of Flood Disaster Protection Act of 1973.

24. Environmental Compliance (24 CFR 85.36(i)(12)): The Contractor must comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 USC 1857 (H)), Section 508 of the Clean Water Act (33 USC 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR, Part 15) prohibiting the use of facilities included on the EPA List of Violating Facilities.

In addition to the foregoing requirements, all nonexempt contractors and subcontractors shall furnish to the owner, the following:

a) A stipulation by the Contractor or subcontractors, that any facility to be utilized in the performance of any nonexempt contract or subcontract, is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR Part 15, as amended.

b) Agreement by the Contractor to comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 USC 1857 c-8) and Section 308 of the Federal Water Pollution Control Act, as amended, (33 USC 1318) relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued thereunder.

c) A stipulation that as a condition for the award of the contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized, or to be utilized for the contract, is under consideration to be listed on the EPA List of Violating Facilities.

d) Agreement by the Contractor that he will include, or cause to be included, the criteria and requirements in paragraph (1) through (4) of this section in every nonexempt subcontract and requiring that the Contractor will take such action as the government may direct as a means of enforcing such provisions.

25. Conflict of Interest. In accepting this contract, Contractor certifies that no member or officer of its firm or corporation is an officer or employee of the City of Joplin, Missouri, or any of its boards or agencies, and further that no officer or employee of the City has any financial interest, direct or indirect, in this contract. All applicable federal regulations and provisions of R.S.Mo. Section 105.450 et seq. shall not be violated.

a. The Contractor covenants that he presently has no interest and shall not acquire any interest direct or indirect in the above described project or any parcels therein or any other interest which would conflict in any manner or degree with the performance of his services hereunder. The Contractor further covenants that in the performance of this Contract no person having any such interest shall be employed.

26. Assignment. The Contractor shall not assign any interest in this contract, and shall not transfer any interest in the same (whether by assignment or novation), without prior written consent of the City thereto, provided, however, that claims for money due or to become due to the Contractor from the City under this Contract may be assigned to a bank, trust company, or other financial institution without such approval. Notice of such assignment or transfer shall be furnished in writing promptly to the City and the bond surety. Any such assignment is expressly subject to all rights and remedies of the City under this agreement, including the right to change or delete activities from the Contract or to terminate the same as provided herein, and no such assignment shall require the City to give any notice to any such assignee of any actions which the City may take under this agreement.

27. Anti-Lobbying: The Contractor shall ensure that no federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

a. The Contractor will comply with the provisions of the Hatch Act (5 U.S.C. 1501 et seq.), which limits the political activity of employees.
b. If any funds other than federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the contractor shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

28. Anti-Kickback Back Rules. Salaries of personnel performing work under this Contract shall be paid unconditionally and not less often than once a month without payroll deduction or rebate on any account except only such payroll deductions as are mandatory

by law or permitted by the applicable regulations issued by the Secretary of Labor pursuant to the "Anti-Kickback Act" of June 13, 1934 (48 Stat. 948; 62 Stat. 740; 63 Stat. 108; Title 18 U.S.C. 874; and Title 40 U.S.C. 276c). The Contractor shall comply with all applicable "Anti-Kickback" regulations and shall insert appropriate provisions in all subcontracts covering work under this contract to insure compliance by the subcontractors with such regulations, and shall be responsible for the submission of affidavits required of subcontractors thereunder except as the Secretary of Labor may specifically provide for variations of or exemptions from the requirements thereof.

29. Nondiscrimination. The Contractor agrees in the performance of this contract not to discriminate on the ground or because of race, creed, color, national origin or ancestry, sex, religion, handicap, age, status as a protected veteran or status as a qualified individual with a disability, or political opinion or affiliation, against any employee of Contractor or applicant for employment and shall include a similar provision in all subcontracts let or awarded hereunder. The parties hereby incorporate the requirements of 41 C.F.R. §§ 60-1.4(a)(7), 29 C.F.R. Part 471, Appendix A to Subpart A, 41 C.F.R. § 60-300.5(a)ii and 41 C.F.R. § 60-741.5(a), if applicable.

a. This contractor and subcontractor shall abide by the requirements of 41 C.F.R. § 60-300.5(a). This regulation prohibits discriminations against qualified protected veterans, and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans.

b. This contractor and subcontractor shall abide by the requirements of 41 C.F.R. § 60-741.5(a). This regulation prohibits discrimination against qualified individuals on the basis of disability, and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified individuals with disabilities.

c. No person with responsibilities in operation of the project to which this grant relates will discriminate with respect to any program participant or any applicant for participation in such program because of political affiliation or beliefs.

30. Nonresident/Foreign Contractors. The Contractor shall procure and maintain during the life of this contract:

a. If the Contractor is a foreign corporation, a certificate of authority to transact business in the State of Missouri from the Secretary of State, unless exempt pursuant to the provisions of Section 351.570 R.S.Mo.

b. A certificate from the Missouri Director of Revenue evidencing compliance with the transient employer financial assurance law, unless exempt pursuant to the provisions of Section 285.230 RSMo.

31. Notices. All notices required or permitted hereinunder and required to be in writing may be given by FAX or by first class mail addressed to City and Contractor at the addresses shown above. The date of delivery of any notice given by mail shall be the date falling on the second full day after the day of its mailing. The date of delivery of notice by FAX transmission shall be deemed to be the date transmission occurs, except where the transmission is not completed by 5:00 p.m. on a regular business day at the terminal of the receiving party, in which case the date of delivery shall be deemed to fall on the next regular business day for the receiving party.

32. Statement that Project Federally Funded: It is understood that this contract is funded in whole or in part with CDBG-DR funds through the City of Joplin Community Development Block Grant Program as administered by COMMERCE and is subject to those regulations and restrictions normally associated with federally-funded programs and any other requirements that the state may prescribe.

33. Records and Audits. The Contractor shall maintain accounts and records, including personnel, property, and financial records, adequate to identify and account for all costs pertaining to the Contract and such other records as may be deemed necessary by the City to assure proper accounting for all project funds. These records will be made available for audit purposes to the City or any authorized representative, and will be retained for five years after the expiration of this Contract. The City of Joplin, the Department of Housing and Urban Development, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the Contractor which are directly pertinent to this specific contract, for the purpose of audits, examinations, and making excerpts and transcriptions.

a. All of the reports, information, data, etc., prepared or assembled by the Contractor under this Contract are confidential, and the Contractor agrees that they shall not be made available to any individual or organization without prior written approval of the Owner.

34. General Independent Contractor Clause. This agreement does not create an employee/employer relationship between the parties. It is the parties' intention that CONTRACTOR will be an independent contractor and not the City's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri revenue and taxation laws, Missouri workers' compensation and unemployment insurance laws. CONTRACTOR will retain sole and absolute discretion in the judgment of the manner and means of carrying out CONTRACTOR's activities and responsibilities hereunder. CONTRACTOR agrees that it is a separate and independent enterprise from the public employer, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize the skill necessary to perform the work. This agreement shall not be construed as creating any joint employment relationship between CONTRACTOR and the City, and the City will not be liable for any obligation incurred by CONTRACTOR, including but not limited to unpaid minimum wages and/or overtime premiums.

35. Equal Employment Opportunity. During the performance of this Contract, the Contractor agrees as follows:

a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, religion, or sex. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, national origin, religion, or sex. Such action shall include, but not be limited to, employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the City setting forth the provisions of this non-discrimination clause.

b) The Contractor will, in all solicitation or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, national origin, religion, or sex.

c) The Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Contract so that provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

d) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the City and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f) The Contractor shall ensure that the hours of minority and female employment and training must be substantially uniform throughout the length of the contract and throughout each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hour performed.

g) In the event of the Contractor's noncompliance with the non-discrimination clauses of this Agreement or with any of such rules, regulations, or orders, this Agreement may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

h) The Contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the City may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the City, the Contractor may request

the United States Government to enter into such litigation to protect the interests of the United States.

36. Women and Minority Business: The Contractor will use its best efforts to afford small businesses, minority business enterprises, women's business enterprises (including Section 3 businesses) and veteran –owned businesses the maximum practicable opportunity to participate in the performance of this contract. As used in this contract, the terms "small business" means a business that meets the criteria set forth in section 3(a) of the Small Business Act, as amended (15 U.S.C. 632), and "minority and women's business enterprise" means a business at least fifty-one (51) percent owned and controlled by minority group members or women. For the purpose of this definition, "minority group members" are Afro-Americans, Spanish-speaking, Spanish surnamed or Spanish-heritage Americans, Asian-Americans and American Indians. The Sub recipient and/or borrower may rely on written representations by businesses regarding their status as minority and female business enterprises in lieu of an independent investigation. The contractor must demonstrate to the City of Joplin's satisfaction that a good faith effort was made to ensure that minorities and women have been afforded equal opportunity to gain employment under the City of Joplin contract with the contractor. Payment may be withheld from a contractor's contract for failure to comply with these provisions.

a) Evidence of a "good faith effort" includes, but is not limited to:
b) The Contractor shall recruit prospective employees through the State Job bank website, managed by the Department of Labor and Workforce Development,
c) The Contractor shall keep specific records of its efforts, including records of all individuals interviewed and hired, including the specific numbers of minorities and women;
d) The Contractor shall actively solicit and shall provide the City of Joplin with proof of solicitations for employment, including but not limited to advertisements in general circulation media, professional service publications and electronic media.

37. Civil Rights Act of 1964. Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

38. Section 3 of the Housing and Urban Development Act of 1968

a) The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible, opportunities for training and employment be given to lower income residents of the project area and contracts for work, in connection with the project, be awarded to business concerns which are located in, or owned in substantial part by, persons residing in the area of the project.
b) The parties to this contract will comply with the provision of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability that would prevent them from complying with these requirements.
c) The consultant will send to each labor organization or representative of workers, if applicable, with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of his commitments under this Section 3 clause, and shall post copies of the notice in conspicuous place available to employees and applicants for employment or training.
d) The consultant will include this Section 3 clause in every subcontract for work, if applicable, in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Part 135. The contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR Part 135 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.
e) Compliance with the provisions of Section 3, the regulations set forth in 24 CFR Part 135, and all applicable rules and orders of the Department issued hereunder prior to the execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and

subcontractors, and its successors and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

39. Section 109(a) of the Housing and Community Development Act of 1974. No person in the United States shall on the grounds of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title. Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975, or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973, as amended, shall also apply to any such program or activity.

40. Section 110 of the Housing and Community Development Act of 1974

a) All laborers and mechanics employed by contractors or subcontractors in the performance of construction work financed in whole or in part with assistance received under this chapter shall be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a--276a-5): Provided, That this section shall apply to the rehabilitation of residential property only if such property contains not less than 8 units. The Secretary of Labor shall have, with respect to such labor standards, the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 (15 F.R. 3176; 64 Stat. 1267) and section 276c of title 40.

b) Subsection (a) of this section shall not apply to any individual that--
   i. performs services for which the individual volunteered;
   ii. does not receive compensation for such services; or
   iii. is paid expenses, reasonable benefits, or a nominal fee for such services; and
   iv. is not otherwise employed at any time in the construction work.

41. Affirmative Action for Handicapped Workers (Section 503 of the Rehabilitation Act of 1973 (USC793))

a) The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment, and to otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices, such as employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship.

b) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

c) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

d) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of the applicants and employees.

e) The Contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the contractor is bound by terms of Section 503 of the Rehabilitation Act of 1973 and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

f) The Contractor will include the provisions of this clause in every subcontract or purchase order of $2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontractor or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

42. Section 504 of the Rehabilitation Act of 1973, as amended, provides for nondiscrimination of an otherwise qualified individual solely on the basis of his handicap in benefiting from any program or activity receiving Federal financial assistance. All recipients must certify to compliance with all provisions of this Section.

43. Age Discrimination Act of 1975. No person in the United States, on the basis of age, be excluded from participation in, be denied benefits of, or be subjected to discrimination under, any program or activity receiving Federal financial assistance.

44. Authorized Employees. Contractor acknowledges that Section285.530, RSMo, prohibits any business entity or employer from knowingly employing, hiring for employment, or continuing to employ an unauthorized alien to perform work within the State of Missouri. Contractor therefore covenants that is not knowingly in violation of subsection 1 or Section 285.530, RSMo, and that it will not knowingly employ, hire for employment, or continue to employ any unauthorized aliens to perform work on the Project, and that its employees are lawfully to work in the United States.

45. Interest of Contractor and Employees. The Contractor covenants that he/she presently has no interest and shall not acquire interest, direct or indirect, in the study area or any parcels therein or any other interest which would conflict in any manner or degree with the performance of his services hereunder. The Contractor further covenants that in the performance of this Contract, no person having any such interest shall be employed.

46. Conflict of Interest.

a) No member of the governing body of the City and no other officer, employee, agent of the City and no other public official of the locality while employed or for one year thereafter, who exercises any functions or responsibilities in connection with the planning and carrying out of the program, shall have any personal financial interest, direct or indirect, in this Contract, and the Contractor shall take appropriate steps to assure compliance.

b) No member of or delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

47. Affidavit for Contracts Over $5,000.00. That pursuant to Missouri Revised Statute Sections 285.525 through 285.550, if this contract exceeds the amount of $5,000.00 and Contractor is associated with a business entity, Contractor shall provide an acceptable notarized affidavit stating that the associated business entity is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted services, and that said business entity does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. Additionally, Contractor must provide documentation for said business entity evidencing current enrollment in a federal work authorization program.

48. <u>CERTIFICATION OF NONSEGREGATED FACILITIES</u> (applicable to contracts and subcontracts over $10,000)

a) By the submission of this bid, the bidder, offeror, applicant or subcontractor certifies that he/she does not maintain or provide for his/her establishments, and that he/she does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. He/she certifies further that he/she will not maintain or provide for employees any segregated facilities at any of his/her establishments, and he/she will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained. The bidder, offeror, applicant or subcontractor agrees that a breach of this certification is a violation of the equal opportunity clause of this contract.

b) As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason.

c) He/she further agrees that (except where he/she has obtained for specific time periods) he/she will obtain identical certification from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the equal opportunity clause; that he/she will retain such certifications in his/her files; and that he/she will forward the following notice to such proposed subcontractors (except here proposed subcontractors have submitted identical certifications for specific time periods).

49. Nonresident/Foreign Contractors. The Contractor shall procure and maintain during the life of this contract:

a) If the Contractor is a foreign corporation, a certificate of authority to transact business in the State of Missouri from the Secretary of State, unless exempt pursuant to the provisions of Section 351.572 RSMo.

b) A certificate from the Missouri Director of Revenue evidencing compliance with the transient employer financial assurance law, unless exempt pursuant to the provisions of Section 285.230 RSMo.

50. General Independent Contractor Clause. This agreement does not create an employee/employer relationship between the parties. It is the parties' intention that the Contractor will be an independent contractor and not the City's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri revenue and taxation laws, Missouri workers' compensation and unemployment insurance laws. The Contractor will retain sole and absolute discretion in the judgment of the manner and means of carrying out the Contractor's activities and responsibilities hereunder. The Contractor agrees that it is a separate and independent enterprise from the public employer, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This agreement shall not be construed as creating any joint employment relationship between the Contractor and the City, and the City will not be liable for any obligation incurred by the Contractor, including but not limited to unpaid minimum wages and/or overtime premiums.

51. City Benefits. The Contractor shall not be entitled to any of the benefits established for the employees of the City nor be covered by the Worker's Compensation Program of the City.

52. Inspection. The authorized representative and agents of the City of Joplin and the Department of Housing and Urban Development shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.

53. Reporting Requirements. The Contractor shall complete and submit all reports, in such form and according to such schedule, as may be required by the Owner.

54. Occupational License. The Contractor shall obtain and maintain an occupational license with the City of Joplin, Missouri, if required by city code and any required state or federal license. The cost for this occupational license shall be borne by the Contractor. No contract will be executed by the City until this occupational license has been obtained and that the Contractor is current on any City taxes is verified.

55. Safety Training. Pursuant to Missouri Revised Statute Section 292.675, Contractors and subcontractors who sign a contract to work on public works projects must provide a 10-hour OSHA construction safety program, or similar program approved by the Department of Labor and Industrial Relations, to be completed by their on-site employees within sixty (60) days of beginning work on the construction project. Contractors and subcontractors in violation of this provision will forfeit to the public body $2,500 plus $100 a day for each employee who is employed without training. Public bodies and contractors may withhold/assess these penalties from the payment due to those contractors and subcontractors if found to be in non-compliance.

56. Affidavit for Contracts Over $5,000.00. That pursuant to Missouri Revised Statute Sections 285.525 through 285.550, if this contract exceeds the amount of $5,000.00 and Contractor is associated with a business entity, Contractor shall provide an acceptable notarized affidavit stating that the associated business entity is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted services, and that said business entity does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. Additionally, Contractor must provide documentation for said business entity evidencing current enrollment in a federal work authorization program.

57. Compliance with Laws. Contractor agrees to comply with all applicable federal, state and local laws or rules and regulations applicable to the provision of services and products hereunder. Contractor affirmatively states that payment of all local, state, and federal taxes and assessments owed by Contractor is current.

a. **PROVISIONS REQUIRED BY LAW DEEMED INSERTED.** Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and 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 or correction.

58. Entire Agreement. This agreement contains the entire agreement of the parties. No modification, amendment, or waiver of any of the provisions of this agreement shall be effective unless in writing specifically referring hereto, and signed by both parties.

59. Remedies. Except as may be otherwise found in the contract documents, all claims, disputes, counter-claims, and other matters in question between the Owner and Contractor arising out of or related to this agreement or the breech thereof, will be decided by arbitration if the parties hereto mutually agree, or in a court of competent jurisdiction within the state in which the Owner is located.

60. Jurisdiction. This agreement and every question arising hereunder shall be construed or determined according to the laws of the State of Missouri. Should any part of this agreement be adjudicated, venue shall be proper only in the Circuit Court of Jasper County, Missouri.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year herein stated.

CONTRACTOR

By: _____

Printed Name: _____

Title: _____

CERTIFICATE OF DIRECTOR OF FINANCE

I certify that the expenditure contemplated by this document is within the purpose of the appropriation to which it is to be charged and that there is an unencumbered balance of appropriated and available funds to pay therefor.

CITY OF JOPLIN, MISSOURI

_____

Leslie Haase, Director of Finance

By: _____

David Hertzberg, Public Works Director

APPROVED AS TO FORM

_____

Peter Edwards, City Attorney

COMMUNITY DEVELOPMENT

By: _____

Troy Bolander, Planning & Community Development Director

CONTRACTOR'S BOND NO.
FOR CITY CONTRACTS
PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That

Contractor

a Corporation, hereinafter called Principal, and

_____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

THE CITY OF JOPLIN, MISSOURI
602 S. MAIN STREET, JOPLIN, MO 64801

hereinafter called OWNER, in the total aggregate penal sum of xxxxxxxxxxxxxxxxxxxxxxxxxxxxx AND xx/100 DOLLARS ($xxxxxxxX.00) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the_____day of_____, 20__ , a copy of which is hereto attached and made a part hereof for the construction of:

2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, or any extensions thereof, which may be granted by the OWNER, with or with-out notice to the SURETY and during the one year guaranty period and if the PRINCIPAL shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said SURETY, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of

time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that it is expressly agreed that the BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment of the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", wherever used in this BOND, and whether referring to this BOND, the Contract or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

IN WITNESS, whereof, this the_____day of_____, 20_.

ATTEST: (SEAL)

_____ _____

Secretary Principal

Approved as to form this_____day

of_____, 20____. By _____

_____ By _____

City Attorney

ATTEST: (SEAL)

_____ _____

Secretary Surety

Approved this_____day of

_____, 20_____. By _____

_____ By _____

Director of Finance (Title)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is partnership, all partners should execute BOND.
IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

CONTRACTOR'S BOND NO.
FOR CITY CONTRACTS
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That

CONTRACTOR

a Corporation, hereinafter called Principal, and

_____

(Name of Surety)

_____

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

THE CITY OF JOPLIN, MISSOURI
602 S. MAIN STREET, JOPLIN, MO 64801

hereinafter called OWNER, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx and xx/100 DOLLARS ($xxxxxxxxxx.00) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the_____day of_____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extensions or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal or coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, all insurance premiums on said work, and for all labor cost incurred in such WORK including the stipulation in said contract requiring the payment of not less than the prevailing hourly rate of wages as found by the Department of Labor and Industrial Relations of the State of Missouri or by final judicial

determination of the Courts of the State of Missouri, including that by a SUBCONTRACTOR, and to any mechanic or material man lien holder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, any persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no suit or action shall be commended hereunder by any 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 OWNER, 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 for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials 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, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need to be made by a public officer. (b) After the expiration of one (1) year following the date of which PRINCIPAL ceased work on said CONTRACT, it being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction thereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract or the loan documents shall include any alteration, addition, extension or modification of any character whatsoever. PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS, whereof, this the_____day of_____, 20___.

ATTEST: (SEAL)

_____ _____

Secretary Principal

Approved as to form this_____day

of_____, 20___. By _____

_____ By _____

City Attorney

ATTEST: (SEAL)

_____ _____

Secretary Surety

Approved this_____day of

_____, 20___. By _____

_____ By _____

Director of Finance (Title)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is partnership, all partners should execute BOND.
IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

CDBG BIDDER QUALIFICATIONS & CERTIFICATIONS

Firm Name:

_____
(Company Name)

_____
(Address) (City, State, Zip Code)

_____
(Phone Number) (Fax Number) (E-mail)

Date: _____

Construction Capabilities:

□ General Contracting □ Electrical □ Plumbing

□ HVAC □ Demolition □ Earthmoving

□ Asbestos Abatement □ Other: _____

For Corporations Only:

Federal ID Number:

_____

Name of State(s) in which incorporated:

_____

Date(s) of incorporation:

_____

If not incorporated in Missouri:

1. Attach Certificate of Authority to do Business in Missouri
2. Certificate Number: _____ Date: _____

_____ _____
(President's Name) (Vice-President's Name)

_____ _____
(Secretary's Name) (Treasurer's Name)

For Partnerships Only: Date of Organization: _____

_____

Type of Partnership: □ General □ Limited □ Association

Names and Addresses of all partners: (use additional sheet if necessary)

1._____
(Name) (Address) (City, State, Zip Code)

2._____
(Name) (Address) (City, State, Zip Code)

General Information:

Federal ID Number: _____

Percent of work done by Contractor:_____Number of years in business: _____

or SSN:_____Number of Permanent Employees: _____

Geographical limits of operation: _____

If you have done business under a different name, please give name and location: _____

_____

Has firm ever failed to complete a project or defaulted on a contract? If so, state where and why:

_____

_____

Date: Dated this_____day of_____, 20_____.

Signatures:

□ Individual □ Partnership □ Joint Venture □ Corporation Business

Name: _____

Address: _____

_____

Telephone:_____ Fax Number:_____

Federal ID Number: _____ Social Security Number: _____

Duns Number: _____

Incorporated under the laws of the State of: _____

(If a corporation organized in a state other than Missouri, attach certificate of Authority to do business in the State of Missouri.)

_____ _____

(Bidder's Signature) (Corporate Secretary's Signature and Seal)

_____

(Typed or Printed Name of Signor) (Seal)

_____

(Partner/Joint Venture Signature)

_____

(Typed or Printed Name of Signor)

TABLE A: BIDDER'S PROPOSED SECTION 3 CONTRACTS/SUBCONTRACTS

Type of Contract (Business or Profession)	Total No.	Estimated Total Dollar Amount	Estimated No. of Contracts to Section 3 Businesses	Estimated Dollar Amount to Section 3 Businesses

_____
Company

_____
Project Name

_____
Project Number

_____
Person Completing Form

_____
Date

TABLE B: BIDDER'S SECTION 3 ESTIMATED NEW HIRES

Job Category	Estimated Total Positions Needed for Project	No. of Positions Occupied by Permanent Employees	No. of Positions Not Occupied	No. of Positions to be Filled with Section 3 Residents
Officer/Supervisors				
Professionals				
Technical				
Hsq Sales/Rental Mgmt.				
Office/Clerical				
Service Workers				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Trainees				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Trainees				
Others				

_____
Company

_____
Project Name

_____
Project Number

_____
Person Completing Form

_____
Date

TABLE C: CONTRACTOR'S SECTION 3 NEW HIRES REPORT

Job Category	Estimated Total Positions Needed for Project	No. of Positions Occupied by Permanent Employees	No. of Positions Not Occupied	No. of Positions to be Filled with Section 3 Residents
Officer/Supervisors				
Professionals				
Technical				
Hsq Sales/Rental Mgmt.				
Office/Clerical				
Service Workers				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Trainees				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Trainees				
Others				

_____

Company

_____

Project Name

_____

Project Number

_____

Person Completing Form

_____

Date

TABLE D: CONTRACTOR'S SECTION 3 BUSINESS UTILIZATION REPORT

Project Number	Prime Contractor	Address	Contract Amount	Federal ID No.

Name of Subcontractor	Section 3 Business*	Address and Phone Number	Trade, Service, or Supply	Contract Amount	Award Date	Competitive or Negotiated Bid	Federal Identification No.

Total Dollar Amount Awarded to Section 3 Businesses $

CERTIFICATION BY PROPOSED BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

{CONTRACTOR NAME} **{Project Number for Certification by Proposed Bidder Regarding Equal Employment Opportunity}**

INSTRUCTIONS:

The certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report before the owner approves the contract or permits work to begin under the contract.

BIDDER'S CERTIFICATION

NAME AND ADDRESS OF BIDDER (Include ZIP Code):

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

   □ YES □ NO

2. Compliance reports were required to be filed in connection with such contract or subcontract.

   □ YES □ NO

3. Bidder has filed all compliance reports due under applicable instructions.

   □ YES □ NO

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

   □ YES □ NO

NAME AND TITLE OF SIGNER (Please type):

SIGNATURE DATE

ANTI-LOBBYING CERTIFICATION

Section 319 of Public Law 101-121 prohibits recipients of Federal contracts, grants, and loans from using appropriated funds for lobbying the Executive or Legislative branches of the Federal Government in connection with a specific contract, grant, cooperative agreement, or loan.

The Federal Register (page 52070, dated December 20, 1989) specifically forbids the Department of Housing and Urban Development (HUD) from awarding contracts, grants, cooperative agreements, or loans unless the recipient has made an acceptable certification regarding lobbying.

This new requirement has since been narrowed to signed certifications for all awards of Federal funds over $100,000. This begins with the State's grant and applies to all grantees, contractors, subcontractors, suppliers, etc. for all contracts, grants, cooperative agreements, or loans over $100,000.

Failure of the grantee to obtain this certification from all awards of $100,000 or more will result in a program finding and suspended disbursement of Federal funds for the applicable activity or contract.

A copy of this certification can be found on the following page.

CERTIFICATION REGARDING GOVERNMENT-WIDE RESTRICTION ON LOBBYING

(For contracts, grants, cooperative agreements, and loans over $100,000)

The undersigned certifies, to the best of his knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards (at all tiers, including contracts under grants, loans, and cooperative agreements, subcontracts, and subgrants) over $100,000, and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction impost by Section 1352, Title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

_____

Name of Entity (city, county, contractor, etc.)

_____

Name of Certifying Official (Mayor, Presiding Commissioner, President, etc.)

_____ _____

Signature of Certifying Official Date

STATE OF MISSOURI

COUNTY OF_____

AFFIDAVIT
(as required by Section 285.530, Revised Statues of Missouri)

As used in this Affidavit, the following terms shall have the following meanings:

EMPLOYEE: Any person performing work or service of any kind for hire within the State of Missouri.

FEDERAL WORK AUTHORIZATION PROGRAM: Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603.

KNOWINGLY: A person acts knowingly or with knowledge,

(a) with respect to the person's conduct or to attendant circumstances when the person is aware of the nature of the person's conduct or that those circumstances exist; or
(b) with respect to a result of the person's conduct when the person is aware that the person's conduct is practically certain to cause that result.

UNAUTHORIZED ALIEN: An alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. 1324a(h)(3).

BEFORE ME, the undersigned authority, personally appeared_____ _____, who, being duly sworn, states on his oath or affirmation as follows:

1. My name is_____and I am currently the President of _____(hereinafter "Contractor"), whose business address is_____"and I am authorized to make this Affidavit.

2. I am of sound mind and capable of making this Affidavit and am personally acquainted with the facts stated herein.

3. Contractor is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the following services contracted between Contractor and_____.

4. Contractor does not knowingly employ any person who is an unauthorized alien in connection with the contracted services set forth above.

5. Attached hereto is documentation affirming Contractor's enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services.

Further, Affiant sayeth not.

_____

Affiant

Subscribed and sworn to before me this_____day of_____, 20___. Commission#

FEDERAL LABOR STANDARDS PROVISIONS

Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development
Office of Labor Relations

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. **Withholding.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. **(i) Payrolls and basic records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section l(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant ',to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds $100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

CERTIFICATE OF CONTRACTOR

_____ certifies that he/she is the _____
(Title)

of _____, the Contractor,
(Name of Contractor) (Address)

in a Contract dated _____, 20____, entered into between the Contractor and

City of Joplin, Missouri 602 South Main Street, Joplin, Missouri 64801,
(Name of Owner) (Address)

the Owner for the construction of **2020 EAST TOWN INFRASTRUCTURE – SANITARY SEWER**, the Project; and that he/she is legally authorized to and does make this certificate on behalf of said Contractor.

The undersigned, further certifies; (1) that all persons who have provided labor for the above-named Project, have been paid in full in accordance with rates for wages applicable to the Project, and (2) that the names of subcontractors and others providing labor for the Project, and the kind or kinds of services so provided are listed on the attached Subcontractor Disclosure Form and are attached hereto; and that a Final Waiver of Lien executed by each and all suppliers, materialmen, subcontractors and others providing materials and/or services has been obtained and delivered to the Owner.

By _____

Date _____

For _____

SUBCONTRACTOR DISCLOSURE FORM

COMPANY _____

List below the name of each subcontractor that will be furnishing labor or labor and material, the category of work that the Subcontractor will be performing (e.g. asphalt, concrete, earthwork, etc.)

SUBCONTRACTOR	CATEGORY OF WORK	DOLLAR VALUE
Name		
Address		
Phone Number		
Fax Number		

Name		
Address		
Phone Number		
Fax Number		

Name		
Address		
Phone Number		
Fax Number		

Name		
Address		
Phone Number		
Fax Number		

Name		
Address		
Phone Number		
Fax Number		

Name		
Address		
Phone Number		
Fax Number		

SIGNATURE_____TITLE_____DATE _____

STATE OF MISSOURI PREVAILING WAGE LAW AND RULES

Prevailing hourly rates of wages shown on the following annual wage order are hereby incorporated in the contract specifications and made a part thereof. Contractor's attention is particularly called to the Performance-Payment Bond form that includes provisions that will guarantee his faithful performance of the prevailing hourly wage requirements of the contract.

The Contractor shall be required to submit a certified copy of all weekly payrolls to the Owner and Engineer showing that the classification of workmen and the hourly wage rates being paid fully comply with the Wage Determination for the project.

The Contractor shall cause to be displayed a complete copy of the Wage Determination for the project as set forth in the Prevailing Wage Law.

Prior to Final Acceptance of the Project, the CONTRACTOR shall obtain and deliver in duplicate to the OWNER, through the ENGINEER, notarized Affidavits of Compliance With the Prevailing Wage Law, in the form attached hereto, from the CONTRACTOR and all subcontractors furnishing services for the Project.

PREVAILING WAGE LAW, CHAPTER 290

Section 290.210 through 290.340 As Amended RSMo 1987, 1986, & Cumm. Supp. 1993

290.210 Definitions - As used in Section 290.210 to 290.340, unless the context indicates otherwise:

(1) "Construction" includes construction, reconstruction, improvement, enlargement, alteration, painting, and decorating, or major repairs

(2) "Department" means the Department of Labor and Industrial Relations.

(3) "Locality" means the county where the physical work upon public works is performed, except that if there is not available in the county a sufficient number of competent skilled workmen to construct the public works efficiently and properly, "locality" may include two or more counties adjacent to the one in which the work or construction is to be performed and from which such workers may be obtained in sufficient numbers to perform the work, and that, with respect to contracts with the state highway commission, "locality" may be construed to include two or more adjacent counties from which workmen may be accessible for work on such construction.

(4) "Maintenance work" means the repair, but not the replacement of existing facilities when the size, type, or extent of the existing facilities is not thereby changed or increased.

(5) "Prevailing hourly rate of wages" means the wages paid generally in the locality in which the public works is being performed, to workmen engaged in work of a similar character including the basic hourly rate of pay and the amount of the rate of contributions irrevocably made by a contractor or subcontractor to a trustee or to a third person pursuant to a fund, plan, or program, and the amount of the rate of costs to the contractor or subcontractor which may be reasonably anticipated in providing benefits to workmen and mechanics pursuant to an enforceable commitment to carry out a financially responsible plan or program which was communicated in writing to the workmen affected, for medical or hospital care, pensions on retirement or death, compensation for injuries or illness resulting from occupational activity, or insurance to provide any of the foregoing, for unemployment benefits, life insurance disability and sickness insurance, accident insurance, for vacation and holiday pay, for defraying costs of apprenticeship or other similar programs, or for other bona fide fringe benefits, but only where the contractor or subcontractor is not required by other federal or state law to provide any of the benefits; provided that the obligation of a contractor or subcontractor to make payment in accordance with the prevailing wage determination of the department, insofar as Sections 290.210 to 290.340 are concerned, may be discharged by the making of payments in cash, by the making of irrevocable contributions to trustees or third persons as provided herein, by the assumption of an enforceable commitment to bear the costs of a plan or program as provided herein, or any combination thereof, where the aggregate of such payments, contributions, and costs is not less than the rate of pay plus the other amounts as provided herein.

(6) "Public Body" means the State of Missouri or any officer, official, authority, board or commission of the state or other political subdivision thereof, or any institution supported in whole or in part by public funds.

(7) "Public Works" means all fixed works constructed for public use or benefit or paid for wholly or in part out of public funds. It also includes any work done directly by any public utility company when performed by it pursuant to the order of the public service commission or other public authority whether or not it be done under public supervision or direction or paid for wholly or in part out of public funds, when let to contract by said utility. It does not include any work done for or by any drainage or levee district.

(8) "Workmen" means laborers, workmen, and mechanics.

290.220 Policy declared - It is hereby declared to be the policy of the State of Missouri that a wage of no less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, shall be paid to all workmen employed by or on behalf of any public body engaged in public works exclusive of maintenance work.

290.230 Prevailing wage rates required on construction of public works.

(1) Not less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, and not less than the prevailing hourly rate of wages for legal holiday and overtime work, shall be paid to all workmen employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work. Only such workmen as are directly employed by contractors or subcontractors in actual construction work on the site of the building or construction job shall be deemed to be employed upon public works.

(2) When the hauling of materials or equipment includes some phase of construction other than the mere transportation to the site of the construction, workmen engaged in this dual capacity shall be deemed employed directly on public works.

290.240 Department of Labor and Industrial Relations to enforce - make regulations

(1) The department shall inquire diligently as to any violation of Sections 290.210 to 290.340, shall institute actions for penalties herein prescribed, and shall enforce generally the provisions of Sections 290.210 to 290.340.

(2) The department may establish rules and regulations for the purpose of carrying out the provisions of Sections 290.210 to 290.340.

290.250 Prevailing wage, incorporation into contracts -- failure to pay, Penalty -- complaint of violation, public body or prime contractor to withhold payment. Every public body authorized to contract for or construct public works, before advertising for bids or undertaking such construction shall request the department to determine the prevailing rates of wages for workmen for the class or type of work called for by the public works, in the locality where the work is to be performed. The department shall determine the prevailing hourly rate of wages in the locality in which the work is to be performed for each type of workman required to execute the contemplated contract and such determination or schedule of the prevailing hourly rate of wages shall be attached

to and made a part of the specifications for the work. The public body shall then specify in the resolution or ordinance and in the call for bids for the contract, what is the prevailing hourly rate of wages in the locality for each type of workman needed to execute the contract and also the general prevailing rate for legal holiday and overtime work. It shall be mandatory upon the contractor to whom the contract is awarded and upon any subcontractor under him, to pay not less than the specified rates to all workmen employed by them in the execution of the contract. The public body awarding the contract shall cause to be inserted in the contract a stipulation to the effect that not less than the prevailing hourly rate of wages shall be paid to all workmen performing work under the contract. It shall also require in all contractor's bonds that the contractor include such provisions as will guarantee the faithful performance of the prevailing hourly wage clause as provided by the contract. The contractor shall forfeit as a penalty to the state, county, city, and county, city, town, district, or other political subdivision on whose behalf the contract is made or awarded ten dollars for each workman employed, for each calendar day, or portion thereof, such workman is paid less than the said stipulated rates for any work done under said contract, by him or by any subcontractor under him, and the said public body awarding the contract shall cause to be inserted in the contract a stipulation to this effect. It shall be the duty of such public body awarding the contract, and its agents and officers, to take cognizance of all complaints of all violations of the provisions of Sections 290.210 to 290.340 committed in the course of the execution of the contract, and when making payments to the contractor becoming due under said contract, to withhold and retain therefrom all sums and amounts due and owing as a result of any violation of Sections 290.210 to 290.340. It shall be lawful for any contractor to withhold from any subcontractor under him sufficient sums to cover any penalties withheld from him by the awarding body on account of said subcontractor's failure to comply with the provisions of Sections 290.210 to 290.340 and if payment has already been made to him, the contractor may recover from the amount of the penalty in a suit at law.

290.260 Determination of hourly rate for highways and transportation commission, when made, where filed, objections, hearing, determination

(1) The department, as it deems necessary, shall from time to time investigate and determine the prevailing hourly rate of wages in the localities. A determination applicable to every locality to be contained in a general wage order shall be made annually on or before July 1st of each year for the Missouri State Highways and Transportation Commission and shall remain in effect until supersede by a new general wage order. In determining prevailing rates, the department shall ascertain and consider the applicable wage rates established by collective bargaining agreements, if any, and the rates that are paid generally within the locality.

(2) A certified copy of the determination so made shall be filed immediately with the Secretary of State and with the department in Jefferson City. Copies shall be supplied by the department to all persons requesting them within ten days after the filing.

(3) At any time within thirty days after the certified copies of the determinations have been filed with the Secretary of State and the Department, any person who is affected thereby may object in writing to the determination or the part thereof that he deems objectionable by filing a written notice with the department, stating the specific grounds of the objection.

(4) Within thirty days of the receipt of the objection, the department shall set a date for a hearing on the objection. The date for the hearing shall be within sixty days of the receipt of the objection. Written notice of the time and place of the hearing shall be given to the objectors at least ten days prior to the date set for the hearing.

(5) The department, at its discretion, may hear each written objection separately or consolidate for hearing any two or more written objections. At the hearing, the department shall first introduce in evidence the investigation it instituted and the other facts that were considered at the time of the original determination that formed the basis for its determination. The department or the objector or any interested party thereafter may introduce any evidence that is material to the issues.

(6) Within twenty days of the conclusion of the hearing, the department must rule on the written objection and make the final determination that it believes the evidence warrants. Immediately, the department shall file a certified copy of its final determination with the Secretary of State and with the Department and shall serve a copy of the final determination on all parties to the proceedings by personal service or by registered mail.

(7) This final decision of the department of the prevailing wages in the locality is subject to review in accordance with the provisions of Chapter 536, RSMo. Any person affected, whether or not the person participated in the proceedings resulting in the final determination, may have the decision of the department reviewed. The filing of the final determination with the Secretary of State shall be considered a service of the final determination on persons not participating in the administrative proceedings resulting in the final determination.

(8) At any time before trial any person affected by the final determination of the department may intervene in the proceedings to review under chapter 536, RSMo, and be made a party to the proceedings.

(9) All proceedings in any court affecting a determination of the department under the provisions of Sections 290.210 to 290.340 shall have priority in hearing and determination over all other civil proceedings pending in the court, except election contests.

290.262 Determination of hourly rate by location and occupation title, when made, where filed-objections, hearings-final determination-notice to department by public body, when - (1) Except as otherwise provided in section 290.260, the department shall annually investigate and determine the prevailing hourly rate of wages in each locality for each separate occupational title. A final determination applicable to every locality to be contained in an annual wage order shall be made annually on or before July first of each year and shall remain in effect until superseded by a new annual wage order or as otherwise provided in this section. In determining prevailing rates, the department shall ascertain and consider the applicable wage rates established by collective bargaining agreements, if any, and the rates that are paid generally within the locality, and shall, by March tenth of each year, make an initial determination for each occupational title within the locality.

(2) A certified copy of the initial determinations so made shall be filed immediately with the

secretary of state and with the department in Jefferson City. Copies shall be supplied by the department to all persons requesting them within ten days after filing.

(3) At any time within thirty days after the certified copies of the determinations have been filed with the secretary of state and the department, any person who is affected thereby may object in writing to a determination or a part thereof that he deems objectionable by filing a written notice with the department, stating the specific grounds of the objection. If no objection is filed, the determination is final after thirty days.

(4) After the receipt of the objection, the department shall set a date for a hearing of the objection. The date for the hearing shall be within sixty days of the receipt of the objection. Written notice of the time and place of the hearing shall be given to the objectors at least ten days prior to the date set for the hearing.

(5) The department, at its discretion, may hear each written objection separately, or consolidate for hearing any two or more written objections. At the hearing, the department shall first introduce in evidence the investigation it instituted and the other facts that were considered at the time of the original determination that formed the basis for its determination. The department, or the objector, or any interested party thereafter may introduce any evidence that is material to the issues.

(6) Within twenty days of the conclusion of the hearing, the department shall rule on the written objection and make the final determination that it believes the evidence warrants. Immediately, the department shall file a certified copy of its final determination with the secretary of state and with the department and shall serve a copy of the final determination on all parties to the proceedings by personal service or by registered mail.

(7) This final decision of the department of the prevailing wages in the locality for each occupational title is subject to review in accordance with the provisions of Chapter 536, RSMo. Any person affected, whether or not the person participated in the proceedings resulting in the final determination, may have the decision of the department reviewed. The filing of the final determination with the secretary of state shall be considered a service of the final determination on persons not participating in the administrative proceedings resulting in the final determination.

(8) At any time before trial, any person affected by the final determination of the department may intervene in the proceedings to review under Chapter 536, RSMo, and be made a party to the proceedings.

(9) Any annual wage order made for a particular occupational title in a locality may be altered once each year, as provided in this subsection. The prevailing wage for each such occupational title may be adjusted on the anniversary date of any collective bargaining agreement that covers all persons in that particular occupational title in the locality in accordance with any annual incremental wage increases set in the collective bargaining agreement. If the prevailing wage for an occupational title is adjusted pursuant to this subjection, the employee's representative or employer in regard to such collective bargaining agreement shall notify the department of this adjustment, including the effective date of the adjustment. The adjusted prevailing wage shall be

in effect until the next final annual wage order is issued pursuant to this section. The wage rates for any particular job, contracted and commenced within sixty days of the contract date, which were set as a result of the annual or revised wage order, shall remain in effect for the duration of that particular job.

(10) In addition to all other reporting requirements of sections 290.210 to 290.340, each public body that is awarding a contract for a public works project shall, prior to beginning of any work on such public works project, notify the department, on a form prescribed by the department, of the scope of the work to be done, the various types of craftsmen who will be needed on the project, and the date work will commence on the project.

290.263 Hourly wage must equal or exceed federal minimum wage - The hourly wages to be paid as prescribed in Section 290.250 to workmen upon public works shall not be less than the minimum wage specified under Section 6(a)(1) of the Fair Labor Standards Act of 1938, as amended.

290.265 Wage rates posted, where - A clearly legible statement of all prevailing hourly wage rates to be paid to all workmen employed in order to execute the contract and employed on the construction of the public works shall be kept posted in a prominent and easily accessible place at the site thereof by each contractor and subcontractor engaged in the public works projects under the provisions of this law and such notice shall remain posted during the full time that any such workman shall be employed on the public works.

290.270 Declaration as to prevailing wages final - maximum wages and hours not limited - The finding of the department ascertaining and declaring the prevailing hourly rate of wages shall be final for the locality, unless reviewed under the provisions of Sections 290.210 to 290.340. Nothing in Sections 290.210 to 290.340, however, shall be construed to prohibit the payment to any workman employed on any public work of more than the prevailing rate of wages. Nothing in Sections 290.210 to 290.340 shall be construed to limit the hours of work that may be performed by any workman in any particular period of time.

290.280 Administration of oaths - subpoenas - enforcement of subpoenas - The authorized representative of the department may administer oaths, take or cause to be taken the depositions of witnesses, and require by subpoena the attendance and testimony of witnesses and the production of all books, records, and other evidence relative to any matter under investigation or hearing. The subpoena shall be signed and issued by the department's authorized representative. In case of failure of any person to comply with any subpoena lawfully issued under this section, or any refusal of any witness to produce evidence or to testify to any matter regarding which he may be lawfully interrogated, the authorized representative of the department may proceed to enforce obedience to the subpoenas in the manner provided by Section 536.077, RSMo, for administrative agencies. The authorized representative of the department shall have the power to certify to official acts.

290.290 Contractor's payroll records, contents - affidavit of compliance required - signs on motor vehicles and equipment, requirements - temporary stationary sign, when - exception -

(1) The contractor and each subcontractor engaged in any construction of public works shall keep full and accurate records clearly indicating the names, occupations, and crafts of every workman employed by them in connection with the public work together with an accurate record of the number of hours worked by each workman and the actual wages paid therefor. The payroll records required to be so kept shall be open to inspection by any authorized representative of the contracting public body or of the department at any reasonable time and as often as may be necessary and such records shall not be destroyed or removed from the state for the period of one year following the completion of the public work in connection with which the records are made.

(2) Each contractor and subcontractor shall file with the contracting public body upon completion of the public work and prior to final payment therefor an affidavit stating that he had fully complied with the provisions and requirements of this chapter, and no public body shall be authorized to make final payment until such affidavit is filed therewith in proper form and order.

(3) Each contractor and subcontractor engaged in any construction of public works shall have its name, acceptable abbreviation or recognizable logo, and the name of the city and state of the mailing address of the principal office of the company, on each motor vehicle and motorized self-propelled piece of equipment that is used in connection with such public works project during the time the contractor or subcontractor is engaged on such project. The sign shall be legible from a distance of twenty feet, but the size of the lettering need not be larger than two inches. In cases where equipment is leased or where affixing a legible sign to the equipment is impractical, the contractor may place a temporary stationary sign, with the information required pursuant to this subsection, at the main entrance of the construction project in place of affixing the required information on the equipment, so long as such sign is not in violation of any state or federal statute, rule, or regulation. Motor vehicles that are required to have similar information affixed thereto pursuant to requirements of a regulatory agency of the state or federal government are exempt from the provisions of this subsection.

(4) The provisions of subsection 3 of this section shall not apply to construction of public works for which the contract awarded is in the amount of two hundred fifty thousand dollars or less.

290.300 Actions for prevailing wages by workmen authorized - Any workman employed by the contractor or by any subcontractor under the contractor who shall be paid for his services in a sum less than the stipulated rates for work done under the contract, shall have a right of action for double whatever difference there may be between the amount so paid and the rates provided by the contract together with a reasonable attorney's fee to be determined by the court, and an action brought to recover same shall be deemed to be a suit for wages, and any and all judgments entered therein shall have the same force and effect as other judgments for wages.

290.305 Rebates by workmen prohibited, exceptions. No person, firm, or corporation shall violate the wage provisions of any contract contemplated in Sections 290.210 to 290.340 or suffer or require any employee to work for less than the rate of wages so fixed, or violate any of the provisions contained in Sections 290.210 to 290.340. Where workmen are employed and their rate of wages has been determined as provided in Sections 290.210 to 290.340, no person, either for himself or any other person, shall request, demand, or receive, either before or after such

workman is engaged, that such workman pay back, return, donate, contribute, or give any part or all of said workman's wages, salary, or thing of value, to any person, upon the statement, representation, or understanding that failure to comply with such request or demand will prevent such workman from procuring or retaining employment, and no person shall, directly or indirectly, pay, request, or authorize any other person to violate this section. This section does not apply to any agent or representative of a duly constituted labor organization acting in the collection of dues or assessments of such organization.

290.315 Deductions from wages agreement to be written, approval of public body required - All contractors required in Sections 290.210 to 290.340 to pay not less than the prevailing rate of wages shall make full payment of such wages in legal tender, without any deduction for food, sleeping accommodations, transportation, use of small tools, or any other thing of any kind or description. This section does not apply where the employer and employee enter into an agreement in writing at the beginning of said term of employment covering deductions for food, sleeping accommodations, or other similar items, provided such agreement is submitted by the employer to the public body awarding the contract and the same is approved by such public body as fair and reasonable.

290.320 Advertising for bids before prevailing wage is determined prohibited - No public body, officer, official, member, agent, or representative authorized to contract for public works shall fail, before advertising for bids or contracting for such construction, to have the department determine the prevailing rates of wages of workmen for each class of work called for by the public works in the locality where the work is to be performed as provided in Sections 290.210 to 290.340.

290.325 Awarding contract on payment without prevailing wage determinations prohibited - No public body, officer, official, member, agent, or representative thereof authorized to contract for public works shall award a contract for the construction of such improvement or disburse any funds on account of the construction of such public improvement, unless prevailing rates of wages of workmen for the class of work called for by such public works in the locality where the work is to be performed and such determination has been made a part of the specifications and contract for such public works.

290.330 Convicted violators of Sections 290.210 to 290.340 listed, effect of - The department after investigation, upon complaint or upon its own initiative, shall file with the Secretary of State a list of the contractors and subcontractors whom it finds have been prosecuted and convicted for violations of Sections 290.210 to 290.340 and such contractor or subcontractor, or simulations thereof, shall be prohibited from contracting directly or indirectly with any public body for the construction of any public works or from performing any work on the same as a contractor or subcontractor for a period of one year from the date of the first conviction for such violation and for a period of three years from the date of such subsequent violation and conviction thereof. No public body shall award a contract for a public works to any contractor or subcontractor, or simulation thereof, during the time that its name appears on said list. The filing of the notice of conviction with the Secretary of State shall be notice to all public bodies and their officers, officials, members, agents, and representatives.

290.335 Notice of violation, failure to comply, attorney general shall sue, injunctive relief

authorized - If it is found that a public body, contractor, or subcontractor has not complied with any of the terms of Sections 290.210 to 290.340, the department shall give notice of the precise violations in writing to such public body, contractor, or subcontractor. Sufficient time may be allowed for compliance therewith as the department deems necessary. After the expiration of the time prescribed in said notice, the department may, in writing, inform the Attorney General of the fact that such notice has been given, and that the public body, contractor, or subcontractor or the authorized representative or agent thereof to whom it was directed has not complied with such notice. Upon receipt thereof, the Attorney General shall, at the earliest possible time, bring suit in the name of the state in the circuit court of the county in which such public body is located or where any such contractor or subcontractor is engaged in any further work or payments thereunder if the contract has been awarded, until the requirements of such notice are fully complied with. The court may issue a temporary restraining order with due notice to the defendant in such action. The plaintiff shall, in any such injunctive action, post an adequate bond to be set by the circuit judge. Upon final hearing thereof, if the court is satisfied that the requirements of the notice by the department to the defendant were not unreasonable or arbitrary, it shall issue an order enjoining the awarding of such contract for a public works, or any further work or payments thereunder if the contract has been awarded, until the notice is fully complied with. Such injunction shall continue operative until the court is satisfied that the requirements of such notice have been complied with and the court shall have an exercise with respect to the enforcement of such injunctions all the power in it in other similar cases. Both the plaintiff and the defendant in such action have the same rights of appeal as are provided by law in other injunction proceedings.

290.340 Penalty for violation - Any officer, official, member, agent, or representative of any public body, contractor, or subcontractor who willfully violates and omits to comply with any of the provisions and requirements of Sections 290.210 to 290.340 shall be punished for each violation thereof by a fine not exceeding five hundred dollars, or by imprisonment not exceeding six months, or both such fine and imprisonment. Each day such violation or omission continues shall constitute a separate offense as contemplated by this section.

RULES OF DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
CHAPTER 3 - PREVAILING WAGE LAW RULES

8 CSR-30-3.010 Prevailing Wage Rates for Public Works Projects (Purpose: This rule sets forth prevailing wage requirements relative to work performed by workmen on public funded projects.)

(1) All public bodies of Missouri contemplating construction work must obtain from the department a determination of the prevailing hourly rate of wages in the locality (wage determination) that is applicable to that construction. The rates so determined shall be incorporated in the contract specifications and made a part of those specifications, except that construction contracts of the State Highway and Transportation Commission need not list specific wage rates to apply, but may refer to the wage rates contained in the appropriate General Wage Orders issued by the department, as applicable.

(2) Request for wage determinations shall be initiated at least thirty (30) calendar days before advertisement of the specifications for the contract for which the determination is sought. An exception from this provision will be made by the department only upon a proper showing of extenuating circumstances. The department has prepared and printed Form No. PW-1 for use in making a request. The form may be secured by writing Division of Labor Standards, P.O. Box 449, Jefferson City, Missouri 65102.

(3) A separate request must be filed for each separate project by the public body, except the State Highway and Transportation Commission, which will be furnished prevailing wage determinations under General Wage Orders. One public body cannot use the wage determinations made by this department for another public body even though both public bodies are located in the same county. Special wage determinations issued by the department only apply to the public body and its project described in the special wage determination.

(4) Each wage determination issued by the department shall contain the current wage rates prevailing in the locality at the time the determination is issued. To ensure that the current prevailing hourly rate of wages as established in the wage determination is paid on the public works project, the public works project must be started in good faith or a contract awarded for the project within one hundred eighty (180) days from the date the wage determination is issued. If the proposed public works project is not started in good faith or a contract is not awarded for completion of the project within one hundred eighty (180) days from the date the wage determination is issued, before proceeding with the project the public body shall request from the department an amended wage determination, containing the then current prevailing hourly rate of wages. The amended wage determination shall be subject to objection pursuant to the provisions of section 290.260, RSMo. An amended wage determination becomes final either by order of the Labor and Industrial Relations Commission or automatically if not objected to pursuant to section 290.260, RSMo. This final determination shall contain the prevailing wage rates to be paid on the project. This provision shall not apply to the General Wage Order issued by the department for the State Highway and Transportation Commission.

(5) It should be understood by all interested parties that the certified prevailing wage rates

determined by the department are minimum wage rates. The contractor may not pay less than the prevailing wage rates determined by the department for the project or contract awarded to him/her as set forth in the proposal on which s/he submitted his/her bid. Employees are free to bargain for a higher rate of pay and employers are free to pay a higher rate of pay.

(6) Where classification of workers not included in the original contract is desired, the public body shall request the department to issue a determination of the prevailing hourly rate of wages in the appropriate localities. In these cases, it shall be the responsibility of the public body to make an arrangement with the contract that would result in compliance with the wage determinations, as though they were a part of the original contract.

(7) The public body shall make examinations of the payrolls and other records of each contractor or subcontractor as may be necessary to assure compliance with the provisions of the law. In connection with those examinations, particular attention should be given to the correctness of classifications and any disproportionate employment of any workers. The examinations shall be of a frequency that may be necessary to assure conformity with the provisions of the law. An examination shall be made after the project has been substantially completed, but prior to the acceptance of the affidavit as required by section 290.290, RSMo. If any violation of sections 290.210 to 290.340, RSMo is discovered by the inspecting public body, it's their duty under section 290.250, RSMo to withhold and retain from payments to the contractor all sums and amounts due and owing as a result of any violation. Any violation shall be immediately reported to the Division of Labor Standards at P. O. Box 449, Jefferson City, Missouri 65102 or by telephone.

(8) Each month, the successful bid contractors shall submit certified copies of their current payrolls to the contracting public body. The public body, upon receipt of the payrolls on a project, shall keep the payrolls on file for a period of one (1) year from the date of submission of the final payrolls by the contractor. The payroll records shall set out accurately and completely the following: name and address of each worker, the class or type of worker, rate of pay, daily and weekly number of hours worked for each class or type of work performed, deduction made, and actual wages paid for each class or type of work performed by each worker. The payroll records shall be made available at all times for inspection by authorized representatives of the Department of Labor and Industrial Relations.

Woodman Engineering Company v. Butler, 442 SW2d 83 (Mo. App. 1969). The function of reviewing court in prevailing wage cases is to decide if the determination of the commission was authorized by law and was supported by competent and substantial evidence upon the whole record. A decision clearly contrary to the evidence should be set aside. However, all pertinent evidence and factors must be considered in determining the applicable prevailing wage.

City of Joplin v. Industrial Commission of Missouri, 329 SW2d 687 (Mo en banc 1959). Administrative agencies do not have authority to determine constitutionality of legislation. Determination of prevailing wage earnings by commission must be based upon all current relevant factors.

8 CSR 30-3.020 DEFINITIONS (PURPOSE: This rule sets forth the definition of certain terms for purposes of issuance and use of wage determinations under the Prevailing Wage Law, sections

290.210-290.340, RSMo and the rules in this chapter.

(1) The term construction of public works generally includes construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The term includes, without limitation, the construction of buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, heavy generators, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, dredging, shoring, rehabilitation and reactivation of plants, scaffolding, drilling, blasting, excavating clearing, and landscaping. The manufacture or furnishing of materials, articles, supplies, or equipment is not construction of public works within the meaning of the Prevailing Wage Law unless conducted in connection with and at the site of construction. The term construction of public works also means all work done in the construction or development of a public works project, including, without limitation, altering, remodeling, demolishing existing structures, installation on the site of the construction of items fabricated off-site, painting, and decorating, the transporting of materials and supplies to or from the site of the construction by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the construction by persons employed by the contractor or subcontractor.

(2) The term major repair, for purposes of identifying construction subject to the Prevailing Wage Law, means the repair of an existing facility, such as a roof or other existing system or work that performs a unique and necessary function, where the amount of repair involves twenty percent (20%) or more of the roof or other existing facility. If the size, type, or extent of the existing facilities is changed or increased, the work performed shall constitute construction subject to the Prevailing Wage Law. A project shall be considered to be maintenance work, as opposed to major repair subject to the Prevailing Wage Law, if the repair involves less than twenty percent (20%) of the existing facility and the size, type, or extent of the existing facility is not changed or increased.

(3) The term site of the building or construction job means the physical place(s) where the public works are to be constructed, and also means other adjacent or nearby property used by the contractor or subcontractor in that construction which can reasonably be said to be included in the site. Except as otherwise provided in this section, fabrication plants, mobile factories, batch plants, borrow pits, job headquarters, tool yards, and the like are part of the site of the building or construction job provided they are dedicated in a substantial degree to the performance of the public works project, and are so located in proximity to the actual construction location that it would be reasonable to include them. The dedication of seventy-five percent (75%) or more of the output of a fabrication plant, batch plant, and the like to the public works project raises a rebuttable presumption that such a facility is part of the site of the building or construction job. The presumption may be rebutted by evidence showing that the facility was established for other legitimate commercial purposes that make the facility useful well after the public works project has been completed. Not included in the site of the building or construction job are permanent home offices, branch plant establishments, fabrication plants and tool yards of a contractor or subcontractor whose location and continuance in operation are determined wholly without regard to a particular public works project. In addition, fabrication plants, batch plants, borrow pits, job headquarters, tool yards, and the like, of a commercial supplier or materialman which are

established by a supplier of materials for the project before opening of bids and not on the project site are not included in the site of the building or construction job. The permanent, previously established facilities are not a part of the site of the building or construction job, even where the operations for a period of time may be dedicated exclusively, or nearly so, to the performance of a public works project.

8 CSR 30-3.030 Apprentices and Trainees (PURPOSE: This rule sets forth the requirements for the payment of apprentice wages for workers employed on public works subject to the Prevailing Wage Law.)

(1) Journeyman's rate of pay shall be paid to all workers employed on public works construction except apprentices and trainees registered and participating in apprentice or trainee programs registered with the United States Department of Labor, Bureau of Apprenticeship and Training; and apprentices and trainees registered and participating in apprenticeship and skill training programs certified by the Secretary of the United States Department of Transportation as promoting equal opportunity in connection with federal-aid highway construction programs.

(2) Apprentices shall be permitted to work at less than the predetermined rate for the class or type of work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the United States Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training. The allowable ratio of apprenticeship to journeymen on the site of the construction for any class or type of workers shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on the payroll at an apprenticeship wage rate, who is not registered or otherwise employed as stated in this rule, shall be paid not less than the applicable wage rate on the wage determination for the class or type of work actually performed. In addition those apprentices performing work on the site of the construction who are in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the class or type of work actually performed. Every apprentice shall be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate for the class or type of worker specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices shall be paid the full amount of fringe benefits listed on the wage determination for the applicable class or type of work performed. In the event the Bureau of Apprenticeship and Training withdraws approval of an apprenticeship program, the contractor shall no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the class or type of work performed until an acceptable program is approved.

(3) Trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program that has received prior approval, evidenced by formal certification by the United States Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly

rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination for the applicable class or type of work performed. Any employee listed on the payroll at a trainee rate who is not registered and participating in a Training Plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(4) Workers employed on federal-aid highway construction projects may be paid at an apprentice or trainee rate of pay if enrolled in an apprenticeship or skill training program which has been certified by the Secretary of the United States Department of Transportation pursuant to 23 USC 113. In the event the Secretary of Transportation withdraws approval of a program, the contractor will no longer be permitted to pay workers less than the applicable predetermined rate for the work performed until an acceptable program is approved.

8 CSR 30-3.040 Classifications of Construction Work (PURPOSE: The Department of Labor and Industrial Relations has the responsibility under section 290.260, RSMo to determine the prevailing hourly rate of wages to be paid to workers engaged in work of a similar character. This rule establishes classifications of construction work for the department to use in determining the prevailing hourly rate of wages for work of a similar character.)

(1) All public works construction, for which the prevailing hourly rate of wages of workers are to be determined, shall be classified as either:

(A) Building construction; or
(B) Highway and heavy construction.

(2) Building construction shall mean the following:

(A) Building structures, including modification, additions or repairs, or both, to be used for shelter, protection, comfort, convenience, entertainment, or recreation, or for protection of people or equipment;
(B) Buildings at an airport project, such as terminal buildings, freight buildings, and any other construction necessary for the operation of the airport facilities;
(C) Stadiums, athletic fields, dressing rooms, bleachers, and all other buildings needed in connection with an athletic or entertainment facility;
(D) Entire buildings that are built aboveground in connection with highway, subway, or tunnel projects, such as tool stations or housing for mechanical equipment;
(E) Excavation for the building itself, including backfilling inside and outside the building;
(F) Storm and sanitary sewers inside the building and to the curb line;

(G) Work in connection with telephone, electrical, water, oil, gas, or fuel lines, or other utility or communication lines inside a building and to the curb line;
(H) Sidewalks other than those that are poured in connection with a street or road project;
(I) Driveways that are built to serve a building;
(J) Parking lots connected to a building and all structures built as parking facilities;
(K) Retaining walls built in conjunction with a building project;
(L) Demolition of a building(s) as part of the site preparation for new building construction;
(M) Landscaping of building sites or the planting of all shrubbery that is incidental to building construction as defined in section (2); and
(N) Work on water and wastewater treatment plants within the fence line.

(3) Highway and heavy construction shall mean the following:
(A) Work in conjunction with roads, streets, parkways, alleys, and highways, including, but not limited to grading, paving, curbing, signs, fences, guard rails, bridges, lighting, retaining walls, and landscaping;
(B) Work on viaducts, overpasses, underpasses, drainage projects, aqueducts, irrigation projects, flood control projects, reclamation projects, reservoir filtration and supply projects, water power, duct lines, distribution lines, pipe lines, locks, dikes, levees, revetments projects, excluding work specifically defined as building construction;
(C) Work in connection with underground construction on tunnels and shafts;
(D) Railroad work in its entirety, including elevated railroads;
(E) Main and side sewers;
(F) Work in connection with airports, such as runways, roads and streets, but excluding that which is listed as building construction;
(G) Work in connection with telephone, electrical, water, oil, gas, or fuel lines, or any other utility or communication lines from the curb line;
(H) Sidewalks when poured incidental to a street or road project;
(I) Parking lots not incidental to a building construction project; and
(J) Demolition of all buildings as part of site preparation for any highway and heavy construction as is otherwise defined in section (3).

(4) On public works contracts that involve both classifications of construction as defined in sections (2) and (3) of this rule, the Department of Labor and Industrial Relations shall issue a determination including both of these classifications.

8 CSR 30-3.050 Posting of Prevailing Wage Rates (PURPOSE: This rule sets forth the requirements for the posting of prevailing wage rates on public works projects subject to the Prevailing Wage Law.)

(1) Contractors and subcontractors engaged in public works projects shall post the prevailing hourly rate of wages in a dry, accessible place within the field office at the site of the building or construction job. On public works projects for which no field office is needed or established, such as road construction, sewer lines, pipelines and the like, a contractor/subcontractor may post the prevailing hourly rates of wages at the

contractor/subcontractor's local office or batch plant, so long as the contractor/subcontractor provides a copy of the prevailing hourly wage rates to any worker upon request. Prevailing hourly wage rates must be posted and maintained in a clearly legible condition for the duration of the public works project as provided by law.

AFFIDAVIT OF COMPLIANCE WITH THE PREVAILING WAGE LAW

Before me, the undersigned Notary Public, in and for the County of _____ State of Missouri, personally came and appeared

_____

(Name) (Position)

of the _____

(Name of the Company)

(A corporation) (a partnership) (a proprietorship) and after being duly sworn, did depose and say that all provisions and requirements set out in Chapter 290, Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works projects have been fully satisfied and there has been no exception to the full and complete compliance with said provisions and requirements with Wage Determination No.(s). _____issued by the Division of Labor Standards on the_____day of ,_____in carrying out the contract and work in connection with the construction of **2020 East Town Infrastructure – Sanitary Sewer** in the City of Joplin, Missouri, in Jasper County, Missouri, and completed on the_____day of_____, 20_____ .

_____

(Signature)

Subscribed and sworn to me this_____day of_____, 20____.

My Commission expires:_____.

_____

Notary Public

Missouri
Division of Labor Standards
WAGE AND HOUR SECTION

MICHAEL L. PARSON, Governor

Annual Wage Order No. 27

Section 049
JASPER COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by
Taylor Burks, Director
Division of Labor Standards

Filed With Secretary of State: **March 10, 2020**

Last Date Objections May Be Filed: **April 9, 2020**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	$31.86
Boilermaker	*$23.29
Bricklayer	*$23.29
Carpenter	**$40.76**
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	*$23.29
Plasterer	
Communications Technician	*$23.29
Electrician (Inside Wireman)	**$45.29**
Electrician Outside Lineman	*$23.29
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	*$23.29
Glazier	*$23.29
Ironworker	*$23.29
Laborer	$34.81
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	*$23.29
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	$29.97
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	*$23.29
Plumber	**$56.97**
Pipe Fitter	
Roofer	**$50.46**
Sheet Metal Worker	**$51.09**
Sprinkler Fitter	*$23.29
Truck Driver	*$23.29
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title.
Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.
**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

Heavy Construction Rates for
JASPER County

Section 049

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	$49.47
Millwright	
Pile Driver	
Electrician (Outside Lineman)	*$23.29
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	$40.72
General Laborer	
Skilled Laborer	
Operating Engineer	$47.99
Group I	
Group II	
Group III	
Group IV	
Truck Driver	$44.44
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received less than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OVERTIME
and
HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, **"overtime work"** shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January First;
The last Monday in May;
July Fourth;
The first Monday in September;
November Eleventh;
The fourth Thursday in November; and
December Twenty-Fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.

FEDERAL LABOR STANDARDS AND WAGE RATE REQUIREMENTS

ATTACHMENT TO FEDERAL LABOR STANDARDS PROVISION
SO-CALLED ANTI-KICKBACK ACT AND REGULATIONS PROMULGATED
PURSUANT THERETO BY THE SECRETARY OF LABOR,
UNITED STATES DEPARTMENT OF LABOR

TITLE 18, U.S.C., SECTION 374

(Replaces section 1 of the Act of June 13, 1934 (48 Stat. 948, 40 U.S.C. sec. 276b) pursuant to the Act of June 25, 1948, 62 Stat. 862)

KICKBACKS FROM PUBLIC WORKS EMPLOYEES

Whoever, by force, intimidation, or threat of procuring dismissal from employment, or by any other manner whatsoever induces any person employed in the construction, prosecution, completion, or repair of any public building, public work, or building, or work financed in whole or in part by loans or grants from the United States to give up any part of the compensation to which he is entitled under his contract of employment, shall be fined not more than $1,000 or imprisoned not more than five years, or both.

SECTION 2 OF THE ACT OF JUNE 13, 1934, AS AMENDED (48 Stat. 948,62 Stat. 862, 63 Stat. 108, 72 Stat. 967, 40 U.S.C. sec. 276c)

The Secretary of Labor shall make reasonable regulations for contractors and subcontractors engaged in the construction, prosecution, completion or repair of public buildings, public works, or buildings or works financed in whole or in part by loans or grants from the United States, including a provisions that each contractor and subcontractor shall furnish weekly a statement with respect to the wages paid each employee during the preceding week. Section 1001 of Title 18 (United States Code) shall apply to such statements.

…xxx…

Pursuant to the aforesaid Anti-Kickback Act, the Secretary of Labor, United States Department of Labor, has promulgated the regulations hereinafter set forth, which regulations are found in Title 29, Subtitle A, Code of Federal Regulations, Part 3. The term “this part” as used in the regulations hereinafter set forth, refers to Part 3 last above mentioned. Said regulations are as follows:

TITLE 29 – LABOR

Subtitle A – Office of the Secretary of Labor

PART 3 – CONTRACTORS AND SUBCONTRACTORS ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES.

Section 3.1 Purpose and scope.

This part prescribes “anti-kickback” regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c) popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public works, or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with Federally assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

Section 3.2 Definitions.

As used in the regulations in this part:

(a) The terms “Building” or “work” generally include construction activity as distinguished from manufacturing, furnishing of materials, or serving and maintenance work. The terms include, without imitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees and canals, dredging, shoring, scaffolding, drilling, blasting, excavating, clearing and landscaping. Unless conducted in connection with and at the site of such a building or work as is described in the foregoing sentence, the manufacture or furnishing of materials, articles, supplies, or equipment (whether or not a Federal or State agency acquired title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured of furnished) is not a “building” or “work” within the meaning of the regulations in this part.

(b) The terms “construction”, “prosecution”, “completion”, or “repair” mean all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting, and decorating, the transporting of materials and supplied to or from the building or work by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work by persons employed at the site by the contractor or subcontractor.

(c) The terms “public building” or “public work” include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.

(d) The term “building or work financed in whole or in part by loans or grants from the United States” includes building or work for whose construction, prosecution, completion, or repair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term does not include building or work for which Federal assistance is limited solely to loan guarantees or insurance.

(e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completion, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is “employed” and receiving “wages” regardless of any contractual relationship alleged to exist between him and the real employer.

(f) The term “any affiliated person” includes a spouse, child, parent, or other close relative of the contractor or subcontractor, a partner or officer of the contractor or subcontractor, a corporation closely connected with the contractor or subcontractor as parent, subsidiary or otherwise, and an officer or agent of such corporation.

(g) The term “Federal agency” means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentalities of the United States, and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies, and instrumentalities.

Section 3.3 Weekly statement with respect to payment of wages.

(a) As used in this section, the term employee shall not apply to persons in

classifications higher than that of laborer or mechanic and those who are immediate supervisors of such employees.

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, and shall be on form WH348, "Statement of Compliance", or on any form with identical wording. Sample copies of WH347 and WH348 may be obtained from the Government contracting or sponsoring agency and copies of these forms may be purchased at the Government Printing Office.

(c) The requirements of this section shall not apply to any contract of $2,000 or less.

(d) Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

[29 F.R. 95, Jan. 4, 1964, as amended at 33 F.R. 10186, July 17, 1968]

Section 3.4 Submission of weekly statements and the preservation and inspection of weekly payroll records.

(a) Each weekly statement required under §3.3 shall be delivered by the contractor or subcontractor within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or, if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available or shall be transmitted together with a report of any violation, in accordance with applicable procedure, prescribed by the United States Department of Labor.

(b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, hi-correct classification, rate of pay, daily and weekly number of hours worked, deductions

made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 Payroll deductions permissible without application to or approval of the Secretary of Labor.

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor.

(a) Any deduction made in compliance with the requirements of Federal State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.

(b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

(c) Any deduction of amounts required by court process to be paid to another, unless the deduction is in favor of the contractor, subcontractor, or any affiliated person, or when collusion or collaboration exists.

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representative of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability or for insurance to provide any of the foregoing or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, that the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either; (i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees: (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.

(e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deduction requested by the employer to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deduction voluntarily authorized by the employer for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessment: Provided, however, that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.

(j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1 938, as amended, and part 531 of this title. When such a deduction is made, the additional records required under §516.27(a) of this title shall be kept.

Section 3.6 Payroll deductions permissible with the approval of the Secretary of Labor.

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under §3.5. The Secretary may grant permission whenever he finds that.

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in the form of a commission, dividend, or otherwise.

(b) The deduction is not otherwise prohibited by law;

(c) The deduction is either (1) voluntarily consented to by the employee in writing

and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and

(d) The deduction serves the convenience and interest of the employee.

Section 3.7 Applications for the approval of the Secretary of Labor.

Any application for the making of payroll deductions under §3.6 shall comply with the requirements prescribed in the following paragraphs of this section.

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.

(b) The application shall identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions only on specific, identified contracts, except upon a showing of exceptional circumstances.

(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of §3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.

(d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.

(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 Action by the Secretary of Labor upon applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of §3.6 and shall notify the applicant in writing of his decision.

Section 3.9 Prohibited payroll deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under §3.6 are prohibited.

Section 3.10 Methods of payment of wages.

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

Section 3.11 Regulations part of contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see §5.5(a) of this subtitle.

Wage Rate Requirements

P.L. 111-88, "Making appropriations for the Department of the Interior, environment, and related agencies for the fiscal year ending September 30, 2010, and for other purposes," requires that all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to the Appropriations Act shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code.

P.L. 111-242, “Continuing Appropriations Act, 2011” (Continuing Resolution) extends the time period for including the Davis-Bacon provisions beyond September 30, 2010. Specifically the Continuing Resolution includes the following language: “Such amounts {are appropriated} as may be necessary, at a rate for operations as provided in the applicable appropriations Acts for fiscal year 2010 and under the authority and conditions provided in such Acts…”. EPA’s Office of General Counsel has opined that this statement in the Continuing Appropriations Act requires that the conditions that were made applicable by the language of the FY 2010 appropriation during the term of the Continuing Resolution.

Additional guidance can be located at DOL’s web site at http://www.wdol.gov/index.aspx

1. The Davis-Bacon (DB) prevailing wage requirements apply to the construction, alteration, and repair activity of infrastructure, including all construction, alteration and repair activity involving waste water or drinking water treatment plants is subject to DB. Prime contractors and subcontractors must follow the wage determination incorporated into the prime contract.

2. Contract and Subcontract provisions.

(a) Minimum wages.

(1) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(2) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The EPA award official shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage

determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the funding recipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the funding recipient (s) to the MDNR. The MDNR will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the MDNR or will notify the MDNR within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the funding recipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the funding recipient shall refer the questions, including the views of all interested parties and the recommendation of the MDNR, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The wage rate (including fringe benefits where appropriate) shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(6) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(7) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(b) Withholding.

(1) The funding recipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-

Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(c) Payrolls and basic records.

(1) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the funding recipient, that is, the entity that receives the grant or loan from the MDNR. As to each payroll copy received, the funding recipient shall provide written confirmation in a form satisfactory to the MDNR indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired.

Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the funding recipient (s) for transmission to the MDNR or EPA if requested by EPA, the MDNR, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the funding recipient (s).

(3) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(4) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (c)(3) of this section.

(5) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(6) The contractor or subcontractor shall make the records required under paragraph (c)(1) of this section available for inspection, copying, or transcription by

authorized representatives of the MDNR, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(d) Apprentices and trainees.

(1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less

than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(e) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(f) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(g) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(h) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a

subcontractor as provided in 29 CFR 5.12.

(i) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(j) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and funding recipient(s), MDNR, EPA, the U.S. Department of Labor, or the employees or their representatives.

(k) Certification of eligibility.

(1) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

3. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The following clauses shall be inserted in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in

the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The funding recipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the MDNR and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

4. Compliance Verification

(a) The funding recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence.

(b) The funding recipient must conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Funding recipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Funding recipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The funding recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The funding recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the funding recipient must spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Funding recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . In addition, during the examinations the funding recipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The funding recipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 4(b) and (c) above.

(e) Funding recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/esa/contacts/whd/america2.htm.

Statement of Compliance
(To be submitted with weekly payroll if not using form WH-347)

I hereby certify the following:

1) The payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being

maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

_____ _____

Signature of Contractor or Subcontractor Date

FEDERAL WAGE DETERMINATION

U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION

DETERMINATION FOR
FEDERAL WAGE RATES

"General Decision Number: MO20200001 09/11/2020

Superseded General Decision Number: MO20190001

State: Missouri

Construction Types: Heavy and Highway

Counties: Missouri Statewide.

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	01/24/2020
2	02/07/2020
3	02/14/2020
4	03/13/2020
5	04/03/2020
6	04/24/2020
7	05/08/2020
8	05/15/2020
9	05/29/2020
10	06/05/2020
11	07/03/2020
12	07/24/2020

13	08/07/2020
14	08/14/2020
15	09/11/2020

CARP0002-002 05/01/2019

ST. LOUIS COUNTY AND CITY

	Rates	Fringes
Carpenters	$ 38.02	17.77

CARP0005-006 05/03/2015

CASS (Richards-Gebauer AFB ONLY), CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Carpenters:		
CARPENTERS & LATHERS	$ 36.34	15.55
MILLWRIGHTS & PILEDRIVERS	$ 36.34	15.55

CARP0011-001 05/01/2019

	Rates	Fringes
Carpenter and Piledriver		
ADAIR, AUDRAIN (West of Hwy 19), BOONE, CALLAWAY, CHARITON, COLE, COOPER, HOWARD, KNOX,LINN, MACON, MILLER, MONITEAU,MONROE, OSAGE, PUTNAM, RANDOLPH, SCHUYLER, SHELBY AND SULLIVAN COUNTIES	$ 32.28	17.77
ATCHISON, ANDREW, BATES, CALDWELL, CARROLL,DAVIESS, DEKALB,GENTRY, GRUNDY, HARRISON, HENRY, HOLT, LIVINGSTON, MERCER, NODAWAY,ST. CLAIR, SALINE AND WORTH COUNTIES	$ 30.76	17.77
AUDRAIN (East of Hwy.19), RALLS, MARION, LEWIS, CLARK AND SCOTLAND COUNTIES	$ 32.29	17.77
BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY,JASPER, LACLEDE, LAWRENCE, MCDONALD,		

NEWTON, OZARK, POLK,
STONE, TANEY, VERNON,
WEBSTER AND WRIGHT COUNTIES.$ 30.36 17.77
BENTON, MORGAN AND PETTIS...$ 30.81 17.77
BOLLINGER, BUTLER, CAPE
GIRARDEAU, DUNKLIN,
MISSISSIPPI, NEW MADRID,
PEMISCOT, PERRY, STE.
GENEVIEVE, SCOTT, STODDARD
AND WAYNE COUNTIES.....$ 32.14 17.77
BUCHANAN, CLINTON, JOHNSON
AND LAFAYETTE COUNTIES.....$ 31.49 17.77
CARTER, HOWELL, OREGON AND
RIPLEY COUNTIES.....$ 31.09 17.77
CRAWFORD, DENT, GASCONADE,
IRON, MADISON, MARIES,
MONTGOMERY, PHELPS,
PULASKI, REYNOLDS, SHANNON
AND TEXAS COUNTIES.....$ 32.13 17.77
FRANKLIN COUNTY.....$ 35.56 17.77
JEFFERSON AND ST. CHARLES
COUNTIES.....$ 38.02 17.77
LINCOLN COUNTY.....$ 34.00 17.77
PIKE, ST. FRANCOIS AND
WASHINGTON COUNTIES.....$ 32.92 17.77
WARREN COUNTY.....$ 34.44 17.77

ELEC0001-002 05/31/2020

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, FRANKLIN, IRON, JEFFERSON, LINCOLN, MADISON, MISSISSIPPI, NEW MADRID, PEMISCOT, PERRY,REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCOTT, STODDARD, WARREN, WASHINGTON AND WAYNE COUNTIES

	Rates	Fringes
Electricians	$ 40.61	27.06

ELEC0002-001 09/01/2018

ADAIR, AUDRAIN, BOONE, CALLAWAY, CAMDEN, CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, FRANKLIN, GASCONADE, HOWARD, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCON, LINN, MACON, MARIES, MARION, MILLER, MONITEAU, MONROE, MONTGOMERY, MORGAN, OREGON, OSAGE, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCHUYLER, SCOTLAND, SHANNON, SHELBY, SULLIVAN, TEXAS, WARREN AND WASHINGTON COUNTIES

	Rates	Fringes
Line Construction:		
Equipment Operator	$ 39.50	19.96
Groundman & Truck Driver	$ 30.36	16.67
Lineman & Cable Splicer	$ 45.90	22.27

ELEC0053-004 01/01/2020

	Rates	Fringes
Line Construction: (ANDREW, ATCHINSON, BARRY, BARTON, BUCHANAN, CALDWELL, CEDAR, CHRISTIAN, CLINTON, DADE, DALLAS, DAVIES,, DEKALB, DOUGLAS, GENTRY, GREENE, GRUNDY, HARRISON, HICKORY, HOLT, JASPER, LACLEDE, LAWRENCE, LIVINGSTON, MCDONALD, MERCER, NEWTON, NODAWAY, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, WORTH AND WRIGHT COUNTIES)		
Groundman Powderman	$ 32.27	16.09
Groundman	$ 30.12	15.38
Lineman Operator	$ 43.40	19.30
Lineman	$ 47.30	20.45
Line Construction; (BATES, BENTON, CARROLL, CASS, CLAY, HENRY, JACKSON, JOHNSON, LAFAYETTE, PETTIS, PLATTE, RAY AND SALINE COUNTIES)		
Groundman Powderman	$ 32.27	15.52
Groundman	$ 30.12	14.88
Lineman Operator	$ 43.40	18.80
Lineman	$ 47.30	19.95

ELEC0095-001 06/01/2019

BARRY, BARTON, CEDAR, DADE, JASPER, LAWRENCE, MCDONALD, NEWTON, ST CLAIR, AND VERNON COUNTIES

	Rates	Fringes
Electricians:		
Cable Splicers	$ 25.40	12.19
Electricians	$ 27.43	14.97

ELEC0124-007 08/26/2019

BATES, BENTON, CARROLL, CASS, CLAY, COOPER, HENRY, JACKSON, JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY AND SALINE COUNTIES:

	Rates	Fringes
Electricians	$ 40.79	22.92

ELEC0257-003 03/01/2020

AUDRAIN (Except Cuivre Township), BOONE, CALLAWAY, CAMDEN, CHARITON, COLE, CRAWFORD, DENT, GASCONADE, HOWARD, MARIES, MILLER, MONITEAU, OSAGE, PHELPS AND RANDOLPH COUNTIES

	Rates	Fringes
Electricians:		
Cable Splicers	$ 30.42	16.085
Electricians	$ 34.00	18.68

ELEC0350-002 12/01/2019

ADAIR, AUDRAIN (East of Highway 19), CLARK, KNOX, LEWIS, LINN, MACON, MARION, MONROE, MONTGOMERY, PIKE, PUTNAM, RALLS, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES

	Rates	Fringes
Electricians	$ 32.50	17.65

ELEC0453-001 09/01/2019

	Rates	Fringes
Electricians:		
CHRISITAN, DALLAS, DOUGLAS, GREENE, HICKORY, HOWELL, LACLEDE, OREGON, OZARK, POLK, SHANNON, WEBSTER and WRIGHT COUNTIES	$ 27.88	14.99
PULASKI and TEXAS COUNTIES	$ 32.53	15.46
STONE and TANEY COUNTIES	$ 23.67	14.17

ELEC0545-003 06/01/2020

ANDREW, BUCHANAN, CLINTON, DEKALB, ATCHISON, HOLT, MERCER, GENTRY, HARRISON, DAVIESS, GRUNDY, WORTH, LIVINGSTON, NODAWAY,

AND CALDWELL COUNTIES

	Rates	Fringes
Electricians:	$ 33.00	18.10

ELEC0702-004 12/30/2019

BOLLINGER, BUTLER, CAPE GIRARDEAU, DUNKLIN, MADISON, MISSISSIPPI, NEW MADRID, PEMISCOT, SCOTT, STODDARD AND WAYNE COUNTIES

	Rates	Fringes
Line Construction:		
Groundman - Class A	$ 30.31	29% + 7.75
Groundman-Equipment Operator Class II (all other equipment)	$ 38.46	29% + 7.75
Heavy-Equipment Operator Class I (all crawler type equipment D-4 and larger)	$ 43.88	29% + 7.75
Lineman	$ 53.51	29% + 7.75

ENGI0101-001 05/01/2020

ANDREW, ATCHISON, BATES, BENTON, BUCHANAN, CALDWELL, CARROLL, CHARITON, CLINTON, COOPER, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HENRY, HOLT, HOWARD, JOHNSON, LAFAYETTE, LINN, LIVINGSTON, MERCER, NODAWAY, PETTIS, SALINE, SULLIVAN AND WORTH COUNITES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 34.73	18.20
GROUP 2	$ 34.33	18.20
GROUP 3	$ 32.33	18.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers - 2; booster pump on dredge; bulldozer operator; boring machine (truck or crane mounted); clamshell operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman;

dredge operator; drill cat with compressor mounted (self-contained) or similar type self- propelled rotary drill (not air tract); drilling or boring machine (rotary-self-propelled); finishing machine operator; greaser; high loader-fork lift-skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); mechanics and welders (field and plants); mucking machine operator; pile drive operator; pitman crane or boom truck (all types); push cat; quad track; scraper operators (all types); shovel operator; sideboom cats; side discharge spreader; skimmer scoop operators; slip form paver operator (CMI, Rex, Gomeco or equal); la tourneau rooter (all tiller types); tow boat operator; truck crane; wood and log chippers (all types).

GROUP 2: A-frame truck operator; articulated dump truck; back filler operator; boilers (1); chip spreader; churn drill operator; compressor; concrete mixer operator, skip loader; concrete saws (self-propelled); conveyor operator; crusher operator; distributor operator; elevating grader operator; farm tractor (all attachments); fireman rig; float operator; form grade operator; hoisting engine (one drum); maintenance operator; multiple compactor; pavement breaker, self-propelled hydra-hammer (or similar type); paymill operator; power shield; pumps; roller operator (with or without blades); screening and washing plant; self-propelled street broom or sweeper; siphons and jets; straw blower; stump cutting machine; siphons and jets; tank car heater operator (combination boiler and booster); welding machine; vibrating machine operator (not hand held); welding machine.

GROUP 3: (a) Oiler;
(b) Oiiler driver
(c) Mechanic.

HOURLY PREMIUMS:

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .25) ABOVE GROUP 1 RATE: Dragline operator - 3 yds. & over; shovel 3 yds. & over; clamshell 3 yds. & over; Crane, rigs or piledrivers, 100' of boom or over (incl. jib.), hoist - each additional active drum over 2 drums

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .50) ABOVE GROUP 1 RATE: Tandem scoop operator; crane, rigs or piledrivers 150' to 200' of boom (incl. jib.)

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .75) ABOVE GROUP 1 RATE: Crane rigs, or piledrivers 200 ft. of boom or over (including jib.)

ENGI0101-005 04/01/2020

CASS, CLAY, JACKSON,PLATTE AND RAY COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 37.02	19.89
GROUP 2	$ 35.98	19.89
GROUP 3	$ 31.51	19.89
GROUP 4	$ 34.86	19.89

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers-2; booster pump on dredge; boring machine (truck or crane mounted); bulldozer operator; clamshell operator; concrete cleaning decontamination machine operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman; dredge operator; drillcat with compressor mounted (self-contained) or similar type self propelled rotary drill (not air tract); drilling or boring machine (rotary - self-propelled); finishing machine operator; greaser; heavy equipment robotics operator/mechanic; horizontal directional drill operator; horizontal directional drill locator; loader-forklift - skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); master environmental maintenance mechanic; mechanics and welders (field and plants); mucking machine operator; piledrive operator; pitman crane or boom truck (all types); push cat; quad-track; scraper operators (all types); shovel operator; side discharge spreader; sideboom cats; skimmer scoop operator; slip-form paver (CMI, REX, Gomaco or equal); la tourneau rooter (all tiller types); tow boat operator; truck crane; ultra high perssure waterjet cutting tool system operator/mechanic; vacuum blasting machine operator/mechanic; wood and log chippers (all types)

GROUP 2: ""A"" Frame truck operator; back filler operator; boilers (1); chip spreader;churn drill operator; concrete mixer operator, skip loader; concrete saws (self-propelled); conveyor operator; crusher operator; distributor operator; elevating grader operator; farm tractor (all attachments); fireman rig; float operator; form grader operator; hoisting engine (1 drum); maintenance operator; multiple compactor; pavement breaker, self-propelled hydra- hammer (or similar type); power

shield; paymill operator; pumps; siphons and jets; stump cutting machine; tank car heater operator (combination boiler and booster); compressor; roller operator (with or without blades); screening and washing plant; self-propelled street broom or sweeper; straw blower; tank car heater operator (combination boiler and booster); vibrating machine operator (not hand held)

GROUP 3: Oilers

GROUP 4: Oiler Driver (All Types)

FOOTNOTE:
HOURLY PREMIUMS FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($1.00) ABOVE GROUP 1 RATE:
Clamshells - 3 yd. capacity or over; Cranes or rigs, 80 ft. of boom or over (including jib); Draglines, 3 yd. capacity or over;
Piledrivers 80 ft. of boom or over (including jib);
Shovels & backhoes, 3 yd. capacity or over.

ENGI0101-022 05/01/2019

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER AND WRIGHT COUNTIES and CITY OF SPRINGFIELD

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 31.72	14.88
GROUP 2	$ 31.37	14.88
GROUP 3	$ 31.17	14.88
GROUP 4	$ 29.12	14.88

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader; asphalt plant console operator; autograder; automatic slipform paver; backhoe; blade operator - all types; boat operator - tow; boilers-2; central mix concrete plant operator; clamshell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine - 2 active drums; launch hammer wheel; locomotive operator; - standard guage; mechanic and welders; mucking machine;

off-road trucks; piledriver operator; pitman crane operator; push cat operator; quad trac; scoop operator - all types; shovel operator; sideboom cats; skimmer scoop operators; trenching machine operator; truck crane.

GROUP 2: A-frame; asphalt hot-mix silo; asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant man; asphalt plant mixer operator; asphalt roller operator; backfiller operator; barber-greene loader; boat operator (bridges and dams); chip spreader; concrete mixer operator - skip loader; concrete plant operator; concrete pump operator; crusher operator; dredge oiler; elevating grader operator; fork lift; greaser-fleet; hoisting engine - 1; locomotive operator - narrow gauge; multiple compactor; pavement breaker; powerbroom - self-propelled; power shield; rooter; side discharge concrete spreader; slip form finishing machine; stumpcutter machine; throttle man; tractor operator (over 50 h.p.); winch truck.

GROUP 3: Boilers - 1; chip spreader (front man); churn drill operator; clef plane operator; concrete saw operator (self-propelled); curb finishing machine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; roller operator, other than high type asphalt; screening & washing plant operator; siphons & jets; sub-grading machine operator; spreader box operator, self-propelled (not asphalt); tank car heater operator (combination boiler & booster); tractor operator (50 h.p. or less); Ulmac, Ulric or similar spreader; vibrating machine operator, not hand;

GROUP 4: Grade checker; Oiler; Oiler-Driver

HOURLY PREMIUMS:

The following classifications shall receive $ .25 above GROUP 1 rate:
Clamshells - 3 yds. or over; Cranes - Rigs or Piledrivers, 100 ft. of boom or over (including jib);
Draglines - 3 yds. or over; Hoists - each additional active drum over 2 drums; Shovels - 3 yds. or over;

The following classifications shall receive $ .50 above GROUP 1 rate:
Tandem scoop operator; Cranes - Rigs or Piledrivers, 150 ft. to 200 ft. of boom (including jib); Tandem scoop.

The following classifications shall receive $ .75 above GROUP 1 rate:
Cranes - Rigs or Piledrivers, 200 ft. of boom or over (including jib.).

ENGI0513-004 05/06/2019

FRANKLIN, JEFFERSON, LINCOLN, ST CHARLES, AND WARREN COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 34.36	27.36
GROUP 2	$ 34.36	27.36
GROUP 3	$ 33.06	27.36
GROUP 4	$ 32.61	27.36

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Backhoe, Cable; Backhoe, Hydraulic (2 cu yds bucket and under regardless of attachment, one oiler for 2 or 3, two oilers for 4 through 6); Backhoe, Hydraulic over 2 cu yds; Cableway; Crane, Crawler or Truck; Crane, Hydraulic - Truck or Cruiser mounted, 16 tons and over; Crane, Locomotive; crane with boom including jib over 100 ft from pin to pin; Crane using rock socket tool; Derrick, Steam; Derrick Car and Derrick Boat; Dragline, 7 cu yds and over; Dredge; Gradall, Crawler or tire mounted; Locomotive, Gas, Steam & other powers; Pile Driver, Land or Floating; Scoop, Skimmer; Shovel, Power (Electric, Gas, Steam or other powers); Shovel, Power (7 cu yds and over); Switch Boat; Whirley; Air Tugger with air compressor; Anchor Placing Barge; Asphalt Spreaker; Athey Force Feeder Loader, self-propelled; Backfilling Machine; Boat Operator - Push Boat or Tow Boat (job site); Boiler, High Pressure Breaking in Period; Boom Truck, Placing or Erecting; Boring Machine, Footing Foundation; Bullfloat; Cherry Picker; Combination Concrete Hoist and Mixer (such as Mixermobile); Compressor, Two 125 CFM and under; Compressor, Two through Four over 125 CFM; Compressor when operator runs throttle; Concrete Breaker (Truck or Tractor mounted); Concrete Pump (such as Pumpcrete machine); Concrete Saw (self-propelled); Concrete Spreader; Conveyor, Large (not selfpropelled) hoisting or moving brick and concrete into, or into and on floor level, one or both; Crane, Cimbing (such as Linden); Crane, Hydraulic - Rough Terrain, self-propelled; Crane, Hydraulic - Truck or Cruiser mounted - under 16 tons; Drilling machine - Self-powered, used for earth or rock drilling or boring (wagon drills and any hand drills obtaining power from other souces including concrete breakers, jackhammers and Barco equipmnet no engineer required); Elevating Grader; Engine Man, Dredge; Excavator or Powerbelt Machine; Finishing Machine, self- propelled oscillating screed; Forklift; Generators, Two through Six 30 KW or over; Grader, Road with power blade; Greaser; Highlift; Hoist, Concrete and Brick (Brick cages or concrete skips operating

or on tower, Towermobile, or similar equipment); Hoist, Three or more drums in use; Hoist, Stack; Hydro-Hammer; Lad-A-Vator, hoisting brick or concrete; Loading Machine such as Barber-Greene; Mechanic on job site

GROUP 2: Air Tugger with plant air; Boiler (for power or heating shell of building or temporary enclosures in connection with construction work); Boiler, Temporary; Compressor, One over 125 CFM; Compressor, truck mounted; Conveyor, Large (not self- propelled); Conveyor, Large (not self- propelled) moving brick and concrete (distributing) on floor level; Curb Finishing Machine; Ditch Paving Machine; Elevator (outside); Endless Chain Hoist; Fireman (as required); Form Grader; Hoist, One Drum regardless of size (except brick or concrete); Lad-A-Vator, other hoisting; Manlift; Mixer, Asphalt, over 8 cu ft capacity; Mixer, one bag capacity or less; Mixer, without side loader, two bag capacity or more; Mixer, with side loader, regardless of size, not Paver; Mud Jack (where mud jack is used in conjenction with an air compressor, operator shall be paid $ .55 per hour in addition to his basic hourly rate for covering both operations); Pug Mill operator; Pump, Sump - self powered, automatic controlled over 2""; Scissor Lift (used for hoisting); Skid Steer Loader; Sweeper, Street; Tractor, small wheel type 50 HP and under with grader blade and similar equipment; Welding Machine, One over 400 amp; Winch, operating from truck

GROUP 3: Boat operator - outboard motor, job site; Conveyors (such as Con-Vay-It) regardless of how used; Elevator (inside); Heater operator, 2 through 6; Sweeper, Floor

GROUP 4: Crane type

HOURLY PREMIUMS:

Backhoe, Hydraulic 2 cu yds or less without oiler - $2.00;
Crane,climbing (such as Linden) - $.50;
Crane, Pile Driving and Extracting - $ .50
Crane with boom (including job) over
100 ft from pin to pin - add $.01 per foot
to maximum of $4.00);
Crane, using rock socket tool - $ .50;
Derrick, diesel, gas or electric hoisting material
and erecting steel (150 ft or more above ground) - $ .50;
Dragline, 7 cu yds and over - $ .50;
Hoist, Three or more drums in use - $ .50;
Scoop, Tandem - $.50;
Shovel, Power - 7 cu yds and over - $ .50;
Tractor, Tandem Crawler - $ .50;
Tunnel, man assigned to work in tunnel or
tunnel shaft - $ .50;

Wrecking, when machines are working on
second floor or higher - $ .50

ENGI0513-006 05/01/2019

ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY, CAPE GIRARDEAU, CARTER, CLARK, COLE, CRAWFORD, DENT, DUNKLIN, GASCONADE, HOWELL, IRON, KNOX, LEWIS, MACON, MADISON, MARIES, MARION, MILLER, MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY, MORGAN, NEW MADRID, OREGON, OSAGE, PEMISCOT, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. FRANCOIS, STE. GENEVIEVE, SCHUYLER, SCOTLAND, SCOTT, SHANNON, SHELBY, STODDARD, TEXAS, WASHINGTON, AND WAYNE COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 29.69	27.16
GROUP 2	$ 29.34	27.16
GROUP 3	$ 29.14	27.16
GROUP 4	$ 25.49	27.16

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader, asphalt plant console operator; autograder; automatic slipform paver; back hoe; blade operator - all types; boat operator tow; boiler two; central mix concrete plant operator; clam shell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine 2 active drums; launchhammer wheel; locomotive operator standrad guage; mechanics and welders; mucking machine; piledriver operator; pitman crane operator; push cat operator; guad-trac; scoop operator; sideboom cats; skimmer scoop operator; trenching machine operator; truck crane, shovel operator.

GROUP 2: A-Frame; asphalt hot-mix silo; asphalt roller operator asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant mixer operator; backfiller operator; barber-greene loader; boat operator (bridge & dams); chip spreader; concrete mixer operator skip loader; concrete plant operator; concrete pump operator; dredge oiler; elevating graded operator; fork lift; grease fleet; hoisting engine one; locomotive operator narrow guage; multiple compactor; pavement breaker; powerbroom

self-propelled; power shield; rooter; slip-form finishing machine; stumpcutter machine; side discharge concrete spreader; throttleman; tractor operator (over 50 hp); winch truck; asphalt roller operator; crusher operator.

GROUP 3: Spreader box operator, self-propelled not asphalt; tractor operator (50 h.p. or less); boilers one; chip spreader (front man); churn drill operator; compressor over 105 CFM 2-3 pumps 4"" & over; 2-3 light plant 7.5 KWA or any combination thereof; clef plane operator; compressor maintenance operator 2 or 3; concrete saw operator (self-propelled); curb finishing mancine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; riller operator other than high type asphalt; screening & washing plant operator; siphons & jets; subgrading machine operator; tank car heater (combination boiler & booster); ulmac, ulric or similar spreader; vibrating machine operator; hydrobroom.

GROUP 4: Oiler; grout machine; oiler driver; compressor over 105 CFM one; conveyor operator one; maintenance operator; pump 4"" & over one.

FOOTNOTE: HOURLY PREMIUMS

Backhoe hydraulic, 2 cu. yds. or under Without oiler - $2.00
Certified Crane Operator - $1.50;
Certified Hazardous Material Operator $1.50;
Crane, climbing (such as Linden) - $0.50;
Crane, pile driving and extracting - $0.50;
Crane, with boom (including jib) over 100' from pin to pin add $0.01 per foot to maximum of $4.00;
Crane, using rock socket tool - $0.50;
Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above the ground) - $0.50;
Dragline, 7 cu. yds, and over - $0.50;
Hoist, three or more drums in use - $0.50; Scoop, Tandem - $0.50;
Shovel, power - 7 cu. yds. or more - $0.50;
Tractor, tandem crawler - $0.50;
Tunnel, man assigned to work in tunnel or tunnel shaft - $0.50;
Wrecking, when machine is working on second floor or higher - $0.50;

ENGI0513-007 05/06/2019

ST. LOUIS CITY AND COUNTY

	Rates	Fringes

Power equipment operators:

GROUP 1	$ 34.36	27.36
GROUP 2	$ 34.36	27.36
GROUP 3	$ 33.06	27.36
GROUP 4	$ 32.61	27.36

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Backhoe, cable or hydraulic; cableway; crane crawler or truck; crane, hydraulic-truck or cruiser mounted 16 tons & over; crane locomotive; derrick, steam; derrick car & derrick boat; dragline; dredge; gradall, crawler or tire mounted; locomotive, gas, steam & other powers; pile driver, land or floating; scoop, skimmer; shovel, power (steam, gas, electric or other powers); switch boat; whirley.

GROUP 2: Air tugger w/air compressor; anchor-placing barge; asphalt spreader; athey force feeder loader (self-propelled); backfilling machine; backhoe-loader; boat operator-push boat or tow boat (job site); boiler, high pressure breaking in period; boom truck, placing or erecting; boring machine, footing foundation; bull- float; cherry picker; combination concrete hoist & mixer (such as mixer mobile); compressor (when operator runs throttle); concrete breaker (truck or tractor mounted); concrete pump, such as pump-crete machine; concrete saw (self-propelled), concrete spreader; conveyor, large (not self-propelled), hoisting or moving brick and concrete into, or into and on floor level, one or both; crane, hydraulic-rough terrain, self-propelled; crane hydraulic-truck or cruiser mounted-under 16 tons; drilling machines, self-powered use for earth or rock drilling or boring (wagon drills nd any hand drills obtaining power from other sources including concrete breakers, jackhammers and barco equipment-no engineer required); elevating grader; engineman, dredge; excavator or powerbelt machine; finishing machine, self-propelled oscillating screed; forklift; grader, road with power blade; highlift. greaser; hoist, stack, hydro-hammer; loading machine (such as barber-greene); machanic, on job site; mixer, pipe wrapping machines; plant asphalt; plant, concrete producing or ready-mix job site; plant heating-job site; plant mixing-job site; plant power, generating-job site; pumps, two through six self-powered over 2""; pumps, electric submersible, two through six, over 4""; quad-track; roller, asphalt, top or sub-grade; scoop, tractor drawn; spreader box; sub-grader; tie tamper; tractor-crawler, or wheel type with or without power unit, power take-offs and attachments regardless of size; trenching machine; tunnel boring machine; vibrating machine automatic, automatic propelled; welding machines (gasoline

or diesel) two through six; well drilling machine

GROUP 3: Conveyor, large (not self-propelled); conveyor, large (not self-propelled) moving brick and concrete distributing) on floor level; mixer two or more mixers of one bag capacity or less; air tugger w/plant air; boiler, for power or heating on construction projects; boiler, temporary; compressor (mounted on truck; curb finishing machine; ditch paving machine; elevator; endless chain hoist; form grader; hoist, one drum regardless of size; lad-a-vator; manlift; mixer, asphalt, over 8 cu. ft. capacity, without side loader, 2 bag capacity or more; mixer, with side loader, regardless of size; pug mill operator; pump, sump-self-powered, automatic controlled over 2"" during use in connection with construction work; sweeper, street; welding machine, one over 400 amp.; winch operating from truck; scissor lift (used for hoisting); tractor, small wheel type 50 h.p. & under with grader blade & similar equipment; Oiler on dredge and on truck crane.

GROUP 4: Boat operator-outboard motor (job site); conveyor (such as con-vay-it) regardless of how used; sweeper, floor

HOURLY PREMIUMS:

Backhoe, hydraulic 2 cu. yds. or under without oiler	$2.00
Certified Crane Operator	1.50
Certified Hazardous Material Operator	1.50
Crane, climbing (such as Linden)	.50
Crane, pile driving and extracting	.50
Crane, with boom (including jib) over 100' (from pin to pin) add $.01 per foot to maximum of	4.00
Crane, using rock socket tool	.50
Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above ground)	.50
Dragline, 7 cu. yds. and over	.50
Hoist, three (3) or more drums in use	.50
Scoop, Tandem	.50
Shovel, power - 7 cu. yds. or more	.50
Tractor, tandem crawler	.50
Tunnel, man assigned to work in tunnel or tunnel shaft	.50
Wrecking, when machine is working on second floor or higher	.50

IRON0010-012 04/01/2020

	Rates	Fringes

Ironworkers:

ANDREW, BARTON, BENTON, CAMDEN, CEDAR, CHARITON, CHRISTIAN, COOPER, DADE, DALLAS, DAVIESS, DE KALB, GENTRY, GREENE, GRUNDY, HARRISON, HICKORY, HOLT, HOWARD, LACLEDE, LINN, LIVINGSTON, MERCER, MONITEAU, MORGAN, NODAWAY, POLK, PUTNAM, RANDLOPH, ST. CLAIR, SULLIVAN, TANEY, VERNON, WEBSTER, WRIGHT and WORTH Counties and portions of ADAIR, BOONE, MACON, MILLER and RANDOLPH Counties	$ 31.00	31.24
ANDREW, BARTON, BENTON, CAMDEN, CEDAR, CHARITON, CHRISTIAN, COOPER, DADE, DALLAS, DAVIESS, DE KALB, GENTRY, GREENE, GRUNDY, HARRISON, HICKORY, HOLT, HOWARD, LACLEDE, LINN, LIVINGSTON, MERCER, MONITEAU, MORGAN, NODAWAY, PETTIS, POLK, PUTNAM, RANDLOPH, ST. CLAIR, SULLIVAN, TANEY, VERNON, WEBSTER, WRIGHT and WORTH Counties and portions of ADAIR, BOONE, MACON, MILLER and RANDOLPH Counties	$ 30.55	30.44
ATCHISON, BATES, BUCHANAN, CALDWELL, CARROLL, CASS, CLAY, CLINTON, HENRY, JACKSON, JOHNSON, LAFAYETTE, PETTIS, PLATTE, SALINE, AND RAY COUNTIES	$ 34.00	31.24

IRON0321-002 09/01/2019

DOUGLAS, HOWELL and OZARK COUNTIES

	Rates	Fringes
Ironworker	$ 21.10	19.01

IRON0396-004 08/07/2019

ST. LOUIS (City and County), ST. CHARLES, JEFFERSON, IRON,

FRANKLIN, LINCOLN, WARREN, WASHINGTON, ST. FRANCOIS, STE. GENEVIEVE, and REYNOLDS Counties; and portions of MADISON, PERRY, BOLLINGER, WAYNE, and CARTER Counties

	Rates	Fringes
Ironworker	$ 34.91	27.36

IRON0396-009 08/07/2019

AUDRAIN, CALLAWAY, COLE, CRAWFORD, DENT, GASCONADE, MARIES, MONTGOMERY, OSAGE, PHELPS, PIKE, PULASKI, TEXAS and WRIGHT Counties; and portions of BOONE, CAMDEN, DOUGLAS, HOWELL, LACLEDE, MILLER, MONROE, OREGON, SHANNON and RALLS Counties

	Rates	Fringes
Ironworker	$ 30.44	27.36

IRON0577-005 06/01/2019

ADAIR, CLARK, KNOX, LEWIS, MACON, MARION, MONROE, RALLS, SCHUYLER, SCOTLAND, AND SHELBY COUNTIES

	Rates	Fringes
Ironworker	$ 26.60	24.00

IRON0584-004 06/01/2019

BARRY, JASPER, LAWRENCE, MCDONALD, NEWTON AND STONE Counties

	Rates	Fringes
Ironworkers:	$ 26.00	15.35

IRON0782-003 05/01/2019

CAPE GIRARDEAU, MISSISSIPPI, NEW MADRID, SCOTT, & STODDARD Counties; and portions of BOLLINGER, BUTLER, CARTER, DUNKLIN, MADISON, PEMISCOT, PERRY, RIPLEY, and WAYNE Counties

	Rates	Fringes
Ironworkers:		
Locks, Dams, Bridges and other major work on the Mississippi and Ohio River		

only	$ 31.63	24.27
All Other Work	$ 27.38	23.29

LABO0042-003 03/04/2020

ST. LOUIS (City and County)

	Rates	Fringes
LABORER		
Plumber Laborer	$ 34.07	16.07

LABO0042-005 03/04/2020

ST. LOUIS (City and County)

	Rates	Fringes
LABORER		
Dynamiter, Powderman	$ 34.07	16.07
Laborers, Flaggers	$ 34.07	16.07
Wrecking	$ 34.07	16.07

LABO0424-002 05/01/2020

	Rates	Fringes
LABORER		
ADAIR, AUDRAIN, BOONE, CALLAWAY, CHARITON, CLARK, COLE, COOPER, HOWARD, IRON, KNOX, LEWIS, LINN, MACON, MADISON, MARION, MILLER, MONITEAU, MONROE, PERRY, PIKE, PUTNAM, RALLS, RANDOLPH, REYNOLDS, ST. FRANCOIS, STE. GENEVIEVE, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES		
GROUP 1	$ 30.75	14.57
GROUP 2	$ 30.75	14.57
BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, CRAWFORD, DENT, DUNKLIN, GASCONADE, HOWELL, MARIES, MISSISSIPPI, NEW MADRID, OREGON, OSAGE, PEMISCOT, PHELPS, PULASKI, RIPLEY, SCOTT, SHANNON, STODDARD, TEXAS, WASHINGTON AND WAYNE COUNTIES		

GROUP 1	$ 30.75	14.57
GROUP 2	$ 30.75	14.57
FRANKLIN COUNTY		
GROUP 1	$ 32.86	14.57
GROUP 2	$ 33.46	14.57
JEFFERSON COUNTY		
GROUP 1	$ 32.91	14.57
GROUP 2	$ 33.51	14.57
LINCOLN, MONTGOMERY AND WARREN COUNTIES		
GROUP 1	$ 34.33	14.57
GROUP 2	$ 34.33	14.57
ST.CHARLES COUNTY		
GROUP 1	$ 34.33	14.57
GROUP 2	$ 34.33	14.57

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and

ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0579-005 05/01/2020

	Rates	Fringes
LABORER (ANDREW, ATCHISON, BUCHANAN, CALDWELL, CLINTON, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HOLT, LIVINGSTON, MERCER, NODAWAY and WORTH COUNTIES.)		
GROUP 1	$ 27.21	15.42
GROUP 2	$ 27.56	15.42
LABORER (BARRY, BARTON, BATES, BENTON, CAMDEN, CARROLL, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HENRY. HICKORY, JASPER, JOHNSON, LACLEDE, LAWRENCE, MCDONALD, MORGAN, NEWTON, OZARK, PETTIS, POLK, ST.CLAIR, SALINE, STONE, TANEY, VERNON, WEBSTER and WRIGHT COUNTIES)		
GROUP 1	$ 26.21	14.62
GROUP 2	$ 26.76	14.62
LABORER (LAFAYETTE COUNTY)		
GROUP 1	$ 27.76	14.87
GROUP 2	$ 28.11	14.87

LABORERS CLASSIFICATIONS

GROUP 1: General Laborers - Carpenter tenders; salamander tenders; loading trucks under bins; hoppers & conveyors; track men & all other general laborers; air tool operator; cement handler-bulk or sack; dump man on earth fill; georgie buggie man; material batch hopper man; material mixer man (except on manholes); coffer dams; riprap pavers - rock, block or brick; signal man; scaffolds over ten feet not self-supported from ground up; skipman on concrete

paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoline, oil drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator, all work in connection with hydraulic or general dredging operations; puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material or materials (where special protection is required); rubbing concrete; topper of standing trees; batter board man on pipe and ditch work; feeder man on wood pulverizers; board and willow mat weavers and cable tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 feet where compressed air is not used; abutment and pier hole men working six (6) feet or more below ground; men working in coffer dams for bridge piers and footings in the river; ditchliners; pressure groutmen; caulker; chain or concrete saw; cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground; mortarmen on brick or block manholes; toxic and hazardous waste work.

GROUP 2: Skilled Laborers - Head pipe layer on sewer work; laser beam man; Jackson or any other similar tamp; cutting torch man; form setters; liners and stringline men on concrete paving, curb, gutters; hot mastic kettleman; hot tar applicator; sandblasting and gunite nozzlemen; air tool operator in tunnels; screed man on asphalt machine; asphalt raker; barco tamper; churn drills; air track drills and all similar drills; vibrator man; stringline man for electronic grade control; manhole builders-brick or block; dynamite and powder men; grade checker.

LABO0663-002 04/01/2020

CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
LABORER		
GROUP 1	$ 31.28	16.33
GROUP 2	$ 32.49	16.33

LABORERS CLASSIFICATIONS

GROUP 1: General laborers, Carpenter tenders, salamander tenders, loading trucks under bins, hoppers and conveyors, track men and all other general laborers, air tool operator, cement handler (bulk or sack), chain or concrete saw, deck hands, dump man on earth fill, Georgie Buggies

man, material batch hopper man, scale man, material mixer man (except on manholes), coffer dams, abutments and pier hole men working below ground, riprap pavers rock, black or brick, signal man, scaffolds over ten feet not self-supported from ground up, skipman on concrete paving, wire mesh setters on concrete paving, all work in connection with sewer,water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipelines, power tool operator, all work in connection with hydraulic or general dredging operations, straw blower nozzleman,asphalt plant platform man, chuck tender, crusher feeder, men handling creosote ties on creosote materials, men working with and handling epoxy material or materials (where special protection is required), topper of standing trees, batter board man on pipe and ditch work, feeder man on wood pulverizers, board and willow mat weavers and cable tiers on river work, deck hands, pile dike and revetment work, all laborers working on underground tunnels less than 25 feet where compressed air is not used, abutment and pier hole men working six (6) feet or more below ground, men working in coffer dams for bridge piers and footings in the river, ditchliners, pressure groutmen, caulker and chain or concrete saw, cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground, mortarmen on brick or block manholes, signal man.

GROUP 2: Skilled Laborer - spreader or screed man on asphalt machine, asphalt raker, grade checker, vibrator man, concrete saw over 5 hp., laser beam man, barco tamper, jackson or any other similar tamp, wagon driller, churn drills, air track drills and other similar drills, cutting torch man, form setters, liners and stringline men on concrete paving, curb, gutters and etc., hot mastic kettleman, hot tar applicator, hand blade operators, mortar men on brick or block manholes, sand blasting and gunnite nozzle men, rubbing concrete, air tool operator in tunnels, head pipe layer on sewer work, manhole builder (brick or block), dynamite and powder men.

PAIN0002-002 09/01/2007

CLARK, FRANKLIN, JEFFERSON, LEWIS, LINCOLN, MARION, PIKE, RALLS, ST. CHARLES, ST. LOUIS (CITY & COUNTY), AND WARREN COUNTIES

	Rates	Fringes
Painters:		
Brush and Roller; Taper.....	$ 28.61	10.24

High work over 60 feet	$ 29.11	10.24
Lead Abatement	$ 29.36	10.24
Pressure Roller; High work under 60 ft	$ 28.86	10.24
Spray & Abrasive Blasting; Water Blasting (Over 5000 PSI)	$ 30.61	10.24
Taper (Ames Tools & Bazooka)	$ 30.21	10.24

PAIN0002-006 04/01/2020

ADAIR, AUDRAIN, BOONE, CALLAWAY, CHARITON, COLE, GASCONADE, HOWARD, KNOX, LINN, MACON, MONROE, MONTGOMERY, OSAGE, PUTNAM, RANDOLPH, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES and the City of Booneville.

	Rates	Fringes
Painters:		
Bridges, Dams, Locks or Powerhouses	$ 26.64	13.98
Brush and Roll; Taping, Paperhanging	$ 24.64	13.98
Epoxy or Any Two Part Coating; Sandblasting; Stage or other Aerial Work - Platforms over 50 feet high; Lead Abatement	$ 25.64	13.98
Spray; Structural Steel (over 50 feet)	$ 24.64	13.98
Tapers using Ames or Comparable Tools	$ 25.39	13.98

PAIN0003-004 04/01/2017

CASS, CLAY, CLINTON, JACKSON, JOHNSON, LAFAYETTE, PLATTE & RAY COUNTIES

	Rates	Fringes
Painters:		
Bridgeman; Lead Abatement; Sandblast; Storage Bin & Tanks	$ 31.96	16.96
Brush & Roller	$ 29.34	16.96
Drywall	$ 30.34	16.96
Paper Hanger	$ 29.84	16.96
Stageman; Beltman; Steelman; Elevator Shaft;		

Bazooka, Boxes and Power		
Sander; Sprayman; Dipping	$ 30.96	16.96
Steeplejack	$ 35.53	16.96

PAIN0003-011 04/01/2011

BATES, BENTON, CALDWELL, CARROLL, COOPER, DAVIESS, GRUNDY, HARRISON, HENRY, LIVINGSTON, MERCER, MONITEAU, MORGAN, PETTIS & SALINE COUNTIES

	Rates	Fringes
Painters:		
Bridgeman; Lead Abatement; Sandblast; Storage Bin & Tanks	$ 24.06	14.04
Brush & Roller	$ 22.67	14.04
Drywall	$ 22.84	14.04
Paper Hanger	$ 23.07	14.04
Stageman; Beltman; Steelman; Elevator Shaft; Bazooka, Boxes and Power Sander; Sprayman; Dipping	$ 23.56	14.04
Steeplejack	$ 26.82	14.04

PAIN0203-001 04/01/2012

BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, HOWELL, JASPER, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, and WRIGHT COUNTIES

	Rates	Fringes
Painters:		
Finisher	$ 20.18	11.33
Painter	$ 19.75	11.76
Sandblaster, High Man, Spray Man, Vinyl Hanger, Tool Operator	$ 21.18	11.33

PAIN1265-003 07/01/2013

CAMDEN, CRAWFORD, DENT, LACLEDE, MARIES, MILLER, PHELPS, PULASKI AND TEXAS COUNTIES

	Rates	Fringes
Painters:		

Brush and Roller	$ 25.64	13.27
Floor Work	$ 26.14	13.27
Lead Abatement	$ 27.89	13.27
Spray	$ 27.14	13.27
Structural Steel, Sandblasting and All Tank Work	$ 26.89	13.27
Taping, Paperhanging	$ 26.64	13.27

PAIN1292-002 09/01/2016

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, MISSISSIPPI, NEW MADRID, OREGON, PEMISCOT, PERRY, REYNOLDS, RIPLEY, SCOTT, SHANNON, STODDARD and WAYNE COUNTIES

	Rates	Fringes
Painters:		
Bridges, Stacks & Tanks	$ 30.85	11.64
Brush & Roller	$ 25.35	11.64
Spray & Abrasive Blasting; Waterblasting (over 5000 PSI)	$ 28.95	11.64

Height Rates (All Areas):
Over 60 ft. $0.50 per hour.
Under 60 ft. $0.25 per hour.

PAIN1292-003 09/01/2017

IRON, MADISON, ST. FRANCOIS, STE. GENEVIEVE and WASHINGTON COUNTIES

	Rates	Fringes
Painters:		
Bridges, Stacks & Tanks	$ 31.05	12.74
Brush & Roller	$ 25.70	12.74
Spray & Abrasive Blasting; Waterblasting (Over 5000 PSI)	$ 28.70	12.74

Height Rates (All Areas):
0ver 60 ft. $0.50 per hour
Under 60 ft. $0.25 per hour.

PAIN2012-001 04/01/2019

ANDREW, ATCHISON, BUCHANAN, DE KALB, GENTRY, HOLT, NODAWAY & WORTH COUNTIES

	Rates	Fringes
Painters:		
Brush & Roller	$ 31.26	17.26
Sandblaster	$ 32.76	17.26
Steeplejack	$ 36.33	17.26

PLAS0518-006 03/01/2020

BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, AND WRIGHT COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 24.44	12.11

PLAS0518-007 04/01/2020

CASS (Richards-Gebaur AFB only), CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Cement Masons:	$ 32.72	18.30

PLAS0518-011 04/01/2019

ANDREW, ATCHISON, BATES, BUCHANNAN, CLINTON, DEKALB, GENTRY, HENRY, HOLT, JOHNSON, LAFAYETTE, NODAWAY & WORTH COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 32.00	20.13

PLAS0527-001 04/01/2018

	Rates	Fringes
CEMENT MASON		
FRANKLIN, LINCOLN AND WARREN COUNTIES	$ 30.74	18.07
JEFFERSON, ST. CHARLES COUNTIES AND ST.LOUIS		

(City and County).....	$ 32.66	18.62

PLAS0527-004 06/01/2017

CRAWFORD, DENT, IRON, MADISON, MARION, PHELPS, PIKE, PULASKI, RALLS, REYNOLDS, ST. FRANCOIS, STE. GENEVIEVE, SHANNON, TEXAS, WASHINGTON COUNTIES

	Rates	Fringes
CEMENT MASON.....	$ 28.10	18.07

PLAS0908-001 05/01/2017

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, HOWELL, MISSISSIPPI, NEW MADRID, OREGON, PEMISCOT, PERRY, RIPLEY, SCOTT, STODDARD, AND WAYNE COUNTIES

	Rates	Fringes
CEMENT MASON.....	$ 27.60	15.73

PLAS0908-005 05/01/2017

BENTON, CALDWELL, CALLAWAY, CAMDEN, CARROLL, COLE, DAVIESS, GASCONADE, GRUNDY, HARRISON, LIVINGSTON, MACON, MARIES, MERCER, MILLER, MONTGOMERY, MORGAN, OSAGE, PETTIS & SALINE COUNTIES

	Rates	Fringes
CEMENT MASON.....	$ 27.60	15.73

PLUM0008-003 06/01/2020

CASS, CLAY, JACKSON, JOHNSON, AND PLATTE COUNTIES

	Rates	Fringes
Plumbers.....	$ 48.03	22.84

PLUM0008-017 06/01/2020

BATES, BENTON, CARROLL, HENRY, LAFAYETTE, MORGAN, PETTIS, RAY, ST. CLAIR, SALINE AND VERNON COUNTIES

	Rates	Fringes
Plumbers.....	$ 48.03	22.84

PLUM0045-003 08/01/2019

ANDREW, ATCHISON, BUCHANAN, CALDWELL, CLINTON, DAVIESS, DEKALB, GENTRY, HARRISON, HOLT, NODAWAY AND WORTH COUNTIES

	Rates	Fringes
Plumbers and Pipefitters.....	$ 37.75	23.65

PLUM0178-003 11/01/2019

BARRY, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, LACLEDE, LAWRENCE, POLK, STONE, TANEY, WEBSTER AND WRIGHT COUNTIES

	Rates	Fringes
Plumbers and Pipefitters.....	$ 31.75	15.12

PLUM0178-006 11/01/2019

BARTON, JASPER, MCDONALD AND NEWTON COUNTIES

	Rates	Fringes
Plumbers and Pipefitters		
Projects $750,000 & under...	$ 27.93	15.35
Projects over $750,000.....	$ 31.75	15.12

PLUM0533-004 06/01/2020

BATES, BENTON, CARROLL, CASS, CLAY, HENRY, HICKORY, JACKSON, JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY, SALINE, ST. CLAIR AND VERNON COUNTIES

	Rates	Fringes
Pipefitters.....	$ 48.53	22.55

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* PLUM0562-004 07/01/2020

ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY,CAMDEN, CAPE GIRARDEAU,CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, DUNKLIN, FRANKLIN, GASCONADE, GRUNDY, HOWARD, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCOLN, LINN, LIVINGSTON, MACON, MADISON, MARIES, MARION, MERCER, MILLER, MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY, NEW MADRID, OREGON, OSAGE, PEMISCOTT, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH,

REYNOLDS, RIPLEY, ST. CHARLES, ST.FRANCOIS, STE. GENEVIEVE, ST. LOUIS, SCHUYLER, SCOTLAND, SCOTT, SHANNON, SHELBY, STODDARD, SULLIVAN, TEXAS, WARREN, WASHINGTON,AND WAYNE COUNTIES.

	Rates	Fringes
Plumbers and Pipefitters		
Mechanical Contracts including all piping and temperature control work $7.0 million & under	$ 41.66	21.49
Mechanical Contracts including all piping and temperature control work over $7.0 million	$ 43.60	27.85

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* PLUM0562-016 07/01/2020

CAMDEN, COLE, CRAWFORD, FRANKLIN, JEFFERSON, MARIES, MILLER, MONITEAU, OSAGE, PHELPS, PULASKI, ST. CHARLES, ST. LOUIS (City and County), WARREN and WASHINGTON COUNTIES

	Rates	Fringes
Plumbers		
Mechanical Contracts including all piping and temperature control work $7.0 million & under	$ 40.41	21.49
Mechanical Contracts including all piping and temperature control work over $7.0 million	$ 43.60	27.85

TEAM0013-001 05/01/2019

	Rates	Fringes
Truck drivers (ADAIR, BUTLER, CLARK, DUNKIN, HOWELL, KNOX, LEWIS, OREGON, PUTNAM, RIPLEY, SCHUYLER AND SCOTLAND COUNTIES)		
GROUP 1	$ 30.34	13.75
GROUP 2	$ 30.49	13.75
GROUP 3	$ 30.61	13.75
GROUP 4	$ 30.50	13.75
Truck drivers (AUDRAIN, BOLLINGER, BOONE, CALLAWAY, CAPE GIRARDEAU, CARTER, COLE,		

CRAWFORD, DENT, GASCONADE,
IRON, MACON, MADISON, MARIES,
MARION, MILLER, MISSISSIPPI,
MONROE, MONTGOMERY, NEW
MADRID, OSAGE, PEMISCOT,
PERRY, PHELPS, PIKE, PULASKI,
RALLS, REYNOLDS, ST.
FRANCOIS, STE. GENEVIEVE,
SCOTT, SHANNON, SHELBY,
STODDARD, TEXAS, WASHINGTON
AND WAYNE COUNTIES)

GROUP 1	$ 31.07	13.75
GROUP 2	$ 31.22	13.75
GROUP 3	$ 31.34	13.75
GROUP 4	$ 31.23	13.75

Truck drivers (FRANKLIN,
JEFFERSON and ST. CHARLES
COUNTIES)

GROUP 1	$ 33.43	13.75
GROUP 2	$ 33.58	13.75
GROUP 3	$ 33.65	13.75
GROUP 4	$ 33.54	13.75

Truck drivers (LINCOLN and
WARREN COUNTIES)

GROUP 1	$ 32.08	13.75
GROUP 2	$ 33.23	13.75
GROUP 3	$ 32.30	13.75
GROUP 4	$ 32.19	13.75

TRUCK DRIVERS CLASSIFICATIONS:

GROUP 1: Flat Bed Trucks, Single Axle; Station Wagons; Pickup Trucks; Material Trucks, Single Axle; Tank Wagon, Single Axle

GROUP 2: Agitator and Transit Mix Trucks

GROUP 3: Flat Bed Trucks, Tandem Axle; Articulated Dump Trucks; Material Trucks, Tandem Axle; Tank Wagon, Tandem Axle

GROUP 4: Semi and/or Pole Trailers; Winch, Fork & Steel Trucks; Distributor Drivers and Operators; Tank Wagon, Semi-Trailer; Insley Wagons, Dumpsters, Half-Tracks, Speedace, Euclids and other similar equipment; A-Frame and Derrick Trucks; Float or Low Boy

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TEAM0056-001 05/01/2020

	Rates	Fringes

Truck drivers (ANDREW, BARTON, BATES, BENTON, CALDWELL, CAMDEN, CARROLL, CEDAR, CHARITON, CHRISTIAN, CLINTON, COOPER, DADE, DALLAS, DAVIESS, DEKALB, DOUGLAS, GREENE, HENRY, HICHKORY, HOWARD, JASPER, LACLEDE, LAWRENCE, LINN, LIVINGSTON, MONITEAU, MORGAN, NEWTON, PETTIS, POLK, RANDOLPH, ST. CLAIR, SALINE, VERNON, WEBSTER AND WRIGHT COUNTIES)

GROUP 1	$ 31.37	14.25
GROUP 2	$ 31.53	14.25
GROUP 3	$ 31.52	14.25
GROUP 4	$ 31.64	14.25

Truck drivers: (ATCHISON, BARRY, GENTRY, GRUNDY, HARRISON, HOLT, MCDONALD, MERCER, NODAWAY, OZARK, STONE, SULLIVAN, TANEY AND WORTH COUNTIES)

GROUP 1	$ 30.64	14.25
GROUP 2	$ 30.80	14.25
GROUP 3	$ 30.79	14.25
GROUP 4	$ 30.91	14.25

Truck drivers; (BUCHANAN, JOHNSON AND LAFAYETTE COUNTIES)

GROUP 1	$ 32.58	14.25
GROUP 2	$ 32.69	14.25
GROUP 3	$ 32.73	14.25
GROUP 4	$ 32.80	14.25

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Flat bed trucks single axle; station wagons; pickup trucks; material trucks single axle; tank wagons single axle.

GROUP 2: Agitator and transit mix-trucks.

GROUP 3: Flat bed trucks tandem axle; articulated dump trucks; material trucks tandem axle; tank wagons tandem axle.

GROUP 4: Semi and/or pole trailers; winch, fork & steel trucks; distributor drivers & operators; tank wagons semi-trailer; insley wagons, dumpsters, half-tracks, speedace, euclids & other similar equipment; A-frames and derrick

trucks; float or low boy.

TEAM0245-001 03/26/2012

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DALLAS, DENT, DOUGLAS, GREENE, HICKORY, HOWELL, JASPER, LACLEDE, LAWRENCE, MCDONALD, MILLER, NEWTON, OZARK, PHELPS, POLK, PULASKI, SHANNON, STONE, TANEY, TEXAS, VERNON, WEBSTER AND WRIGHT COUNTIES

	Rates	Fringes
Truck drivers:		
Traffic Control Service Driver	$ 20.45	0.00

PAID HOLIDAYS: New Year's Day, Decoration Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day, employee's birthday and 2 personal days.

TEAM0541-001 04/01/2020

CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 33.36	16.25
GROUP 2	$ 32.79	16.25
GROUP 3	$ 32.27	16.25

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Mechanics and Welders, Field; A-Frame Low Boy-Boom ruck Driver.

GROUP 2: Articulated Dump Truck; Insley Wagons: Dump Trucks, Excavating, 5 cu yds and over; Dumpsters; Half-Tracks: Speedace: Euclids & similar excavating equipment Material trucks, Tandem Two teams; Semi-Trailers; Winch trucks-Fork trucks; Distributor Drivers and Operators; Agitator and Transit Mix; Tank Wagon Drivers, Tandem or Semi; One Team; Station Wagons; Pickup Trucks; Material Trucks, Single Axle; Tank Wagon Drivers, Single Axle

GROUP 3: Oilers and Greasers - Field

TEAM0682-002 05/01/2017

ST LOUIS CITY AND COUNTY

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 33.30	13.79+a+b+c+d
GROUP 2	$ 33.50	13.79+a+b+c+d
GROUP 3	$ 33.60	13.79+a+b+c+d

a. PENSION: 5/1/2012 - $182.20 per week.

b. HAZMAT PREMIUM: If Hazmat certification on a job site is required by a state or federal agency or requested by project owner or by the employer, employees on that job site shall receive $1.50 premium pay.

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - Pick-up trucks; forklift, single axle; flatbed trucks; job site ambulance, and trucks or trailers of a water level capacity of 11.99 cu. yds. or less

GROUP 2 - Trucks or trailers of a water level capacity of 12.0 cu yds. up to 22.0 cu yds. including euclids, speedace and similar equipment of same capacity and compressors

GROUP 3 - Trucks or trailers of a water level capacity of 22.0 cu. yds & over including euclids, speedace & all floats, flatbed trailers, boom trucks, winch trucks, including small trailers, farm wagons tilt-top trailers, field offices, tool trailers, concrete pumps, concrete conveyors & gasoline tank trailers and truck mounted mobile concrete mixers

FOOTNOTE FOR TRUCK DRIVERS:

c. PAID HOLIDAYS: Christmas Day, Independence Day, Labor Day, Memorial Day, Veterans Day, New Years Day, Thanksgiving Day

d. PAID VACATION: 3 days paid vacation for 600 hours of service in any one contract year; 4 days paid vacation for 800 hours of service in any one contract year; 5 days paid vacation for 1,000 hours of service in any one contract year. When such an employee has completed 3 years of continuous employment with the same employer and then works the above required number of hours, he shall receive double the number of days of vacation specified above. When such an employee has completed 10 years of continuous employment with the same employer and then works the above required number of hours, he shall receive triple the number of days of vacation specified above. When such an employee has

completed 15 years of continuous employment with the same employer and then works the above required number of hours, he shall receive 4 times the number of days of vacation specified above.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or

""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

DAVIS-BACON ACT REQUIREMENTS
Funding Recipient Requirements

If the funding recipient encounters a unique situation at a site that presents uncertainties regarding Davis Bacon (DB) applicability, the funding recipient must discuss the situation with the MDNR before authorizing work on that site.

The funding recipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. The funding recipients may obtain wage determinations from the U.S. Department of Labor's web site, www.wdol.gov.

While the solicitation remains open, the funding recipient shall monitor www.wdol.gov. on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The funding recipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the funding recipients may request a finding from the MDNR that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The MDNR will provide a report of its findings to the funding recipient.

If the funding recipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the MDNR, at the request of the funding recipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The funding recipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

If the funding recipient carries out an activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the funding recipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

Funding recipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a funding recipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the funding recipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the funding recipient shall either terminate the contract or

ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The funding recipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

The funding recipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1, the following clauses:

1) The funding recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The funding recipient must use Standard Form 1445 or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

2) The funding recipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the funding recipient must conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. The funding recipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. The funding recipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

3) The funding recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The funding recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the funding recipient must spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. The funding recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . In addition, during the examinations the funding recipient shall verify evidence of fringe

benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

The funding recipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the funding recipient, that is, the entity that receives the grant or loan from the MDNR. As to each payroll copy received, the funding recipient shall provide written confirmation in a form satisfactory to the MDNR indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week.

The funding recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/esa/contacts/whd/america2.htm.

ATTACHMENT A: FREQUENTLY ASKED QUESTIONS (FAQS)

Section 3 of the Housing & Urban Development Act of 1968

GENERAL QUESTIONS

1. What is Section 3?

Section 3 is a provision of the Housing and Urban Development Act of 1968. The purpose of Section 3 to ensure that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal,
State and local laws and regulations, be directed to low- and very low income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

2. What does ―To the Greatest Extent Feasible Mean?

By to the ―Greatest Extent Feasible‖, the Department means the every effort must be made to comply with the regulatory requirements of Section 3. By this, the Department means that recipients of Section 3 covered financial assistance should make every effort within their disposal to meet the regulatory requirements. For instance, this may mean going a step beyond normal notification procedures for employment and contracting procedures by developing strategies that will specifically target Section 3 residents and businesses for these types of economic opportunities.

3. What does the term ―Section 3 resident‖ mean?

A ―section 3 resident‖ is: 1) a public housing resident; or 2) a low- or very low- income person residing in the metropolitan area or non-metropolitan county where the Section 3 covered assistance is expended.

4. What does the term Section 3 Business Concern mean?

Section 3 business concerns are businesses that can provide evidence that they meet one of the following criteria:

a) 51 percent or more owned by Section 3 residents; or
b) b) At least 30 percent of its full time employees include persons that are currently Section 3 residents, or were Section 3 residents within three years of the date of first hire*; or
c) c) Provides evidence, as required, of a commitment to subcontract in excess of 25 percent of the dollar award of all subcontracts to business concerns that meet one of the first two qualifications above.

*Example: Alysha was an unemployed Section 3 resident that was first hired by ABC Company on January 1, 2011. She received a raise of $2,500 in March 2012, thereby boosting her household income above the local low income level. ABC Company may continue to count Alysha as one of their Section 3 employees until December 31, 2013 (i.e. within three years of the date of first hire).

5. How does Section 3 differ from the Minority Business Enterprise/Women Business Enterprise programs?
Section 3 is both race and gender neutral. The preferences provided under this regulation are based on income-level and location. Section 3 regulations were designed to encourage recipients of HUD funding to direct new employment, training, and contracting opportunities to low-income residents, and the businesses that employ these persons, within their community regardless of race and/or gender.

To learn more about the Minority Business Enterprise and Women Business Enterprise programs, please contact HUD‘s Office of Small and Disadvantaged Business Utilization at 202-708-1428, or visit their website, located at: http://portal.hud.gov/portal/page/portal/HUD/program_offices/sdb.

6. How are ―low-income‖ and very low-income determined?

Low- and very-low-household income limits are determined annually by HUD. These limits are typically established at 80 percent and 50 percent of the median income for each locality by household size or the number of people residing in one house. HUD income limits may be obtained from: http://www.huduser.org/portal/datasets/il.html

7. What are ―metropolitan areas‖ and ―non-metropolitan counties?

Metropolitan area means a metropolitan statistical area (MSA), as established by the Office of Management and Budget. A non-metropolitan county means any county outside of a metropolitan area.

A current list of MSAs can be found at: http://www.census.gov/population/www/metroareas/metrodef.html

8. What is a ―new hire‖?

A new hire means a full-time employee for a new permanent, temporary, or seasonal position that is created as a direct result of the expenditure of Section 3 covered financial assistance.

9. Can laid-off workers that are ―re-hired‖ as a result of a HUD-funded project considered new hires?

Yes. Any employee that was not on the payroll of a recipient, developer, or contactor on the day that Section 3 covered assistance was provided can be counted towards the Section 3 minimum numerical goal for employment.

10. What is a Section 3 covered project?

A Section 3 covered project involves the construction or rehabilitation of housing (including reduction of lead-based paint hazards), or other public construction such as street repair, sewage line repair or installation, updates to building facades, etc.

11. Who is considered a recipient of Section 3 funding?

A recipient is any entity which receives Section 3 covered assistance, directly from HUD or from another recipient (i.e., a PHA; unit of State or local government; property owner; developer; etc). It does not include contractors or any intended beneficiary under the HUD program to which Section 3 applies, such as a homeowner or a Section 3 resident.

12. Which recipient agencies (or sources of HUD financial assistance) are required to comply with Section 3?

Public Housing Authorities (PHAs) regardless of size or number of units are required to comply with Section 3. One exception is PHAs that only receive or administer tenant-based Housing Choice (Section 8) Vouchers and do not utilize any of the financial assistance described above. Although they are exempt, compliance with Section 3 is encouraged.

Section 3 also applies to recipients of more than $200,000 from housing and community development programs. The following are a list of examples of such funds:

Community Development Block Grant (CDBG) HOME Investment Partnership
Neighborhood Stabilization Program Grants (NSP 1, 2 & 3)

- Economic Development Initiative (EDI)/Brownfield Economic Development Initiative Grants
- Housing Opportunities for Persons with AIDS (HOPWA) Homeless Assistance Grants (ESG)
- University Partnership Grants
- Economic Stimulus Funds (including CDBG-R and CFP Supplemental) 202/811 Grants
- Lead Hazard Control Grants

*Note: The requirements of Section 3 typically apply to recipients of HUD funds that will be used for housing construction, rehabilitation, or other public construction. Contact the Economic Opportunity Division at section3@hud.gov to determine applicability to a particular project/activity.

13. Can a non-profit organization be considered a ―business concern‖ for the purposes of Section 3?

Yes. A non-profit organization can be a legitimate business concern. Non-profit organizations must meet the criteria of a Section 3 business concern as defined at 24 CFR Part 135.5 in order to receive Section 3 preference.

14. What is a Service Area?

The Service area is the geographical area in which the persons benefiting from the Section 3 covered project reside. The Service Area shall not extend beyond the unit of local government in which the Section 3 covered financial assistance is expended.

APPLICABILITY

15. What is Section 3 covered assistance? Section 3 covered assistance includes:
Public and Indian Housing Operating Subsidy; Capital Funds; or Modernization assistance; and

Housing and community development assistance expended for housing rehabilitation, housing construction, or other public construction.

16. What are funding thresholds and how do they apply to Section 3 covered financial assistance?

Funding thresholds are minimum dollar amounts that trigger Section 3 requirements. There are no thresholds for public and Indian housing (PIH) programs. The requirements of Section 3 apply to all PIH programs regardless of the amount of assistance received from HUD.

The Section 3 requirements apply to recipients of Housing and/or Community Development Assistance exceeding $200,000 combined from all sources in any one year. Section 3 covers the expenditure of any portion of those funds for any activity that involves housing construction, rehabilitation, or other public construction.

For example, a city receives $600,000 for CDBG, $150,000 in HOME Funding, and
$75,000 in NSP funding. This represents a total of $825,000 in housing and community development assistance. As such, any construction or rehabilitation activities funded by the city using those funds is covered by Section 3.
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17. Do the requirements of Section 3 apply to grantees on a ―per project‖ basis?

No. Any agency that receives covered assistance that exceeds $200,000 is required to comply with the requirements of Section 3 whenever any projects involving housing construction, rehabilitation, or other public construction are administered, regardless of the actual dollar amount of covered assistance that is invested into the individual project/activity.

18. If a project is funded with non-HUD assistance, do the requirements of Section 3 still apply?

Section 3 applies to projects that are fully or partially funded with HUD financial assistance. Projects that are financed with state, local or private matching or leveraged funds used in conjunction with HUD funds are covered by Section 3.

19. What dollar threshold amounts apply to contractors/subcontractors?

All contracts (or subcontracts) funded with Public and Indian Housing assistance, regardless of dollar amount or type of contract, is subject to the requirements of Section 3.

With respect to recipients of Housing and/or Community Development funding, all
contractors or subcontractors that receive covered contracts in excess of $100,000 for housing construction, rehabilitation, or other public construction are required to comply with the requirements of Section 3.

20. What responsibilities do contractors/subcontractors have if they receive Section 3 covered contracts?

If the contractor/subcontractor has the need to hire new persons to complete the Section 3 covered contract or needs to subcontract portions of the work to another business, they are required to direct their newly created employment and/or subcontracting opportunities to Section 3 residents and business concerns. The same numerical goals apply to contractors and subcontractors (i.e., 30 percent of new hires, 10 percent of construction contracts, and 3 percent of non-construction contracts). In addition, the contractor/subcontractor must notify the recipient agency about their efforts to comply with Section 3 and submit any required documentation.

21. Do the Section 3 requirements apply to material only contracts?

No. Section 3 does not apply to material only contracts or those that do not require any labor. For example, a contract for office or janitorial supplies would not be covered by Section 3. In this example, Section 3 would be encouraged but not required. However, a contract to replace windows that includes the removal of existing windows and the installation of new windows would be covered.

22. Are maintenance projects covered by Section 3?

Yes, but only for PIH funded programs administered by Public Housing Authorities.

23. Does the reduction and abatement of lead-based paint hazards constitute housing rehabilitation?

Yes, reduction and abatement of lead-based paint hazards does constitute housing rehabilitation and is covered by Section 3.

24. Are demolition projects covered by the requirements of Section 3?

Yes. Recipients of Section 3 covered assistance should make efforts to award a minimum of ten percent of the total dollar amount of all demolition contracts to Section 3 businesses.

25. Are professional service contracts covered under Section 3?

26. Does Section 3 apply to new hiring by a CDBG-Entitlement recipient?

Yes. If the recipient intends to use its HUD allocation to hire additional staff person(s) to perform work related to housing construction, rehabilitation, or other public construction, then the position(s) is covered by Section 3. However, if the local municipality uses a civil servant applicant process to hire new employees, compliance with the requirements of Section 3 may not be feasible.

27. Does Section 3 apply to new hiring by a Public Housing Authority?

Yes. Section 3 applies to all Public and Indian Housing capital, operating or development funds; therefore, new hiring done by the PHA (regardless of the position) is covered by Section 3.

28. For community development and other housing assistance, do the thresholds apply to the total amount of HUD assistance received or the amount of funds invested into Section 3 covered projects/activities?

The threshold applies to the total amount of HUD assistance received. Example: the City of Mountain View, receives $210,000 through the State CDBG program. The funds will be used as follows:

a. Housing rehabilitation- $180,000;
b. micro-enterprise revolving loan fund- $20,000; and
c. Fair housing counseling- $10,000.

City of Mountain View is subject to Section 3 requirements because they received over $200,000 in housing and community development funds. However, only the funds expended for Section 3 covered activities must comply with the requirements of Section 3. Therefore, the expenditure of the $180,000 is covered by Section 3. The remaining $30,000 that

was used for fair housing counseling and a revolving loan fund is not covered by Section 3.

29. Are contracts cumulative for reaching the Section 3 threshold?

No. Contracts for Section 3 covered projects are not cumulative. The requirements of Section 3 apply to each individual contract that meets the thresholds.

For example, if a recipient agency awards 3 housing rehabilitation contracts (at
$36,000; $50,000; and $20,000 for a cumulative total of $106,000) to one contractor for three different projects within a twelve month period, the contractor is not required to comply with the requirements of Section 3 because none of his contracts met the $100,000 threshold. Accordingly, the responsibility for meeting the requirements of Section 3 would remain with the recipient agency that awarded the contracts.

CONSISTENCY WITH OTHER LAWS

30. Does Section 3 apply to other State/local laws?

Yes. Compliance with Section 3 shall be achieved, to the greatest extent feasible, consistent with local laws and regulations. Accordingly, recipients of Section 3 covered assistance are required to develop strategies for meeting both the regulatory requirements at 24 CFR Part 135 and any other applicable statutes or regulations.

31. What is the relationship between Section 3 and Davis Bacon requirements?

Compliance with Section 3 must be achieved consistent with the requirements of Davis-Bacon. Certain construction contracts are subject to compliance with the requirement to pay prevailing wages determined under Davis-Bacon Act (40 U.S.C. 276a—276a–7) and implementing U.S. Department of Labor regulations in 29 CFR part 5. Additionally, certain HUD-assisted rehabilitation and maintenance activities on public and Indian housing developments are subject to compliance with the requirement to pay prevailing wage rates, as determined or adopted by HUD, to laborers and mechanics employed in this work.

32. What is the relationship between Section 3 and Minority Business Enterprises (MBEs)?

_Minority business enterprise‘ (MBE) means a business enterprise that is owned and controlled by one or more minority or socially and economically disadvantaged persons. Such disadvantage may arise from cultural, racial, chronic economic circumstances or other similar causes.

Section 3 preferences are race and gender neutral. A minority and/or woman owned business enterprise must provide evidence that it meets at least one criterion of a Section 3 business outlined above in order to receive preference under Section 3.
However, the Department anticipates that Section 3 will serve to support, and not impede, contract opportunities for minority business enterprises.

The MBE designation may provide preferences promoted by other statutes and regulations, such as goals for MBEs, and other socially and economically disadvantaged businesses. Additional information about the MBE program can be obtained by calling the HUD Office of Small and Disadvantaged Business Utilization at 202-708-1428.

RECIPIENT RESPONSIBILITIES

33. What are the responsibilities of recipient agencies under Section 3?

Recipients are required to ensure their own compliance and the compliance of their contractors/subcontractors with the Section 3 regulations, as outlined at 24 CFR §
135.32. These responsibilities include but may not be necessarily limited to the following.

Designing and implementing procedures to comply with the requirements of Section 3 in order to comply with Section 3: Recipient agencies must take an active role in ensuring Section 3 compliance. The first step is designing or planning and implementing procedures to ensure that all parties, including residents, businesses, contractors, and subcontractors, comply with Section 3.

Facilitating the training and employment of Section 3 residents: The recipient agency must act as a facilitator, connecting Section 3 residents to training and employment opportunities.

Facilitating the award of contracts to Section 3 business concerns: The recipient agency must also work to link developers and contractors with capable Section 3 business concerns. Additionally, recipient agencies, when necessary, may direct Section 3 business concerns to organizations that provide capacity building training.

Ensuring Contractor and Subcontractor Awareness of Section 3 Goals and Responsibilities: The recipient agency is responsible for ensuring that contractors and subcontractors are aware of, and in compliance with, Section 3 requirements.

Ensuring Compliance and Meeting Numerical Goals: Recipient agencies shall ensure compliance with Section 3 by assessing the hiring and subcontracting needs of contractors; regularly monitoring contractor compliance; assisting and actively cooperating with the Secretary of HUD in obtaining the compliance of contractors; Penalizing non-compliance; Providing incentives for good performance; and Refraining from entering into contracts with any contractor that previously failed to comply with the requirements of Section 3.

Reporting Requirements: Recipient agencies must document all actions taken to comply with the requirements of Section 3: Recipient agencies must submit a Section 3 Annual Summary Report (Form HUD-60002) for all covered

funding to the Office of Fair Housing and Equal Opportunity. Section 3 reports shall be submitted electronically online at: www.hud.gov/section3.

34. What are good strategies for targeting Section 3 residents and businesses?

In order to target Section 3 residents and businesses, recipients must establish and maintain an effective Section 3 program. HUD has found that hiring a Section 3 coordinator or assigning one individual the responsibility of coordinating all Section 3 related activities to be instrumental for reaching the employment and contracting goals.
It is recommended that recipient agencies establish procedures to certify Section 3 residents and Section 3 business concerns and incorporate some form of preference for employment and contracting opportunities. Thereafter, they should maintain a list of eligible residents and businesses by skill, capacity or interest and contact them on a periodic basis when employment and contracting opportunities are available.
Refer to the Section 3 Regulations at 24 CFR Part 135.32 for a listing of responsibilities and the Appendix to the Section 3 regulations for additional examples of effective strategies.

35. Are funds provided to recipients so that they can comply with the requirements of Section 3?

No. Since Section 3 requirements are only triggered when the normal expenditure of covered funds results in employment, training, or contracting opportunities, there is no need for the Department to provide funds to meet the recipient responsibilities set forth in the regulation.

36. Does Section 3 require recipient agencies to create new (or unnecessary) training, employment, and contracting opportunities?

Recipient agencies are not required to create jobs or contracts for Section 3 residents and business concerns simply for the sake of creating them. Section 3 requires that when employment or contracting opportunities are generated because a project or activity undertaken by a recipient of covered HUD financial assistance necessitates the employment of additional personnel through individual hiring or the awarding of contracts, the recipient must give preference in hiring to low- and very low- income persons and/or businesses that are owned by these persons or that substantially employ them.

37. Are Section 3 residents or business concerns guaranteed employment or contracting opportunities under Section 3?

Section 3 is not an entitlement program, there are no guarantees. Residents and businesses must be able to demonstrate that they have the ability or capacity to perform the specific job or successfully complete the contract that they are seeking.

Section 3 requirements provide preference to Section 3 residents and business concerns, but not a guarantee.

38. Are recipients, developers, and contractors required to provide long- term employment opportunities, and not

simply seasonal or temporary employment?

Recipients, developers, and contractors are required, to the extent feasible, to direct all employment opportunities to low- and very low-income persons- including seasonal and temporary employment opportunities. Employment goals are based on _new hires,‘ which are defined as full-time employees for permanent, temporary or seasonal employment opportunities.

Recipients, developers, and contractors are encouraged to provide long-term employment.

39. When might a recipient agency be exempt from the requirements of Section 3?

Typically, the Department does not grant any exemptions or waivers related to Section 3.

40. Are recipients required to request developers or contractors to make payments into Section 3 training or implementation funds?

No. Recipients are not required to request noncompliant contractors make payments into a fund.

Providing employment, training, and subcontracting opportunities to Section 3 residents and businesses must be the primary goal of developers/contractors. However, such a fund can be used in very specific instances as a penalty for noncompliance.

SECTION 3 PREFERENCE

41. How can a prospective Section 3 resident or business certify that they meet the eligibility requirements?

The individual or business must contact the agency or developer that they are seeking employment or contracting opportunities from (i.e., the PHA, city, or local government). They should identify themselves as a Section 3 resident or business and provide whatever documentation that the recipient agency requires under their certification procedures.

42. Who is responsible for certifying that residents and businesses meet the regulatory definitions under Section 3?

The regulation allows recipient agencies to use their discretion for developing specific procedures to meet the requirements of Section 3. This includes establishing their own standards/processes for verifying eligibility of Section 3 residents and businesses (or not). Each recipient is also free to accept or reject the standards/process used by other recipients or pay for the services of a third party vendor to determine eligibility. While HUD does not endorse the services of private, third party vendors, recipient agencies may employ such services at their discretion.

43. What are examples of acceptable evidence to determine eligibility as a Section 3 resident?

HUD does not prescribe that any specific forms of evidence to establish Section 3 eligibility. Sample certification documents can be found on the Section 3 website. Acceptable documentation includes, but is not limited to the following:

- Proof of residency in a public housing development;
- Evidence of participation in a HUD Youth build program operated in the metropolitan area (or non-metropolitan county) where the Section 3 covered assistance is spent;
- Evidence that the individual resides in the Section 3 area and is a low or very low-income person, as determined by local HUD income limits;

44. What are examples of acceptable evidence for determining eligibility as a Section 3 business?

HUD does not prescribe that any specific forms of evidence be required to establish Section 3 eligibility. Sample certification documents can be found on the Section 3 website. The business seeking the preference must be able to demonstrate that they meet one of the following criteria:

- 51 percent or more owned by Section 3 residents; or
- Has permanent, full time employees at least 30 percent of whom are currently Section 3 residents, or within three years of the date of first employment with the business concern were Section 3 residents; or
- Has a commitment to sub-contract in excess of 25 percent of the total dollar award of all sub-contracts to be

awarded to such businesses described above.

45. Are all public and Indian housing residents considered Section 3 residents regardless of their income?

Yes. Public and Indian housing residents need only show proof of residency in public housing within the metropolitan area (or non-metropolitan county). Other residents of the Section 3 area may need to show proof of residency in the metropolitan area (or non-metropolitan county) and meet the HUD income requirements.

46. Can recipient agencies allow residents or businesses to ―self-certify‖ that they meet the Section 3 eligibility requirements?

As previously mentioned, the regulation allows recipient agencies to use their own discretion to develop specific procedures for meeting the requirements of Section 3. Many recipient agencies choose to allow prospective Section 3 residents or businesses to self-certify their eligibility. The Department recommends that any self- certification should include a statement of penalty for falsifying information.

47. Are Section 3 business concerns only certified to receive preference in the community in which they are located?

No. While certification is locality specific, recipient agencies can count a Section3 business that is located outside of its immediate jurisdiction towards their efforts to meet the minimum numerical goals. However, recipient agencies should not provide preference to a Section 3 that is not located in their jurisdiction if a local Section 3 business has also submitted a qualified bid for a contract and can complete the work to be done. Refer to the order of priority preference for Section 3 contract opportunities at 24 CFR Part 135.36.

48. Does preference to a Section 3 business mean that the business should be selected if it meets the technical requirements of the bid, regardless of bid price?

No. As provided in 24 CFR 85.36(b) (8), contract awards shall only be made to responsible contractors possessing the ability to perform under the terms and conditions of the proposed contract. In order to meet the requirements of Section 3 and Federal Procurement laws, recipient agencies must develop procedures that are consistent with all applicable regulations.

49. Can contracting with MBE/WBE businesses count towards Section 3 contracting goals?

Section 3 is race and gender neutral. Only MBEs/WBEs that meet the eligibility criteria set forth in the regulation can they be counted towards the minimum goals for Section 3 contracting opportunities.

50. Does a business have to be incorporated to be considered a Section 3 eligible business?

A Section 3 business concern can be any type of business, such as a sole proprietorship, partnership or a corporation, properly licensed and meeting all legal requirements to perform the contract under consideration.

ECONOMIC OPPORTUNITIES/NUMERICALGOALS

51. How can residents and businesses locate recipient agencies that are required to comply with Section 3 in their area?

To find local recipients agencies, Section 3 residents or businesses should contact their local HUD office. To find your closest office, visit: www.hud.gov/localoffices

52. How can I find Section 3 businesses in my area?
Contact local recipient agencies to find Section 3 business concerns in your area.

53. What types of new employment opportunities are covered by Section 3?

For public and Indian housing (PIH) programs, all employment opportunities generated by the expenditure of operating, capital, and modernization assistance, including management and administrative jobs, technical, professional, construction and maintenance jobs, at all levels.

For housing and community development programs, all employment opportunities arising in connection with housing rehabilitation (including reduction and abatement of lead-based paint hazards); housing construction; or other public construction, including management and administrative jobs, technical, professional, building trades and non-construction jobs, at all levels.

54. Are recipient agencies required to meet the Section 3 goals, or are they optional?

The Section 3 numerical goals are minimum targets that must be reached in order for the Department to consider a recipient in compliance. Recipient agencies are required to make best efforts to the greatest extent feasible, to achieve the annual numerical goals for employment and contracting. If an agency fails to fully meet the Section 3 numerical goals, they must adequately document the efforts taken to meet the numerical goals (see Question #2 for a discussion of ―to the greatest extent feasible‖).

55. What are the Section 3 minimum numerical goals?

The minimum numerical goal for employment is thirty (30) percent of the aggregate number of new hires shall be Section 3 residents, annually- i.e., 3 out of 10 new employees needed to complete a Section 3 covered project/activity shall be Section 3 residents.

The minimum goals for contracting are:
§ Ten (10) percent of the total dollar amount of all Section 3 covered contracts for building trades work for maintenance, repair, modernization or development of public or Indian housing or building trades work arising in connection with housing rehabilitation, housing construction and other public construction, shall be awarded to Section 3 businesses; and

§ Three (3) percent of the total dollar amount of all non-construction Section 3 covered contracts shall be awarded to Section 3 businesses

56. What is considered a Section 3 covered ―non-construction‖ project?

Section 3 covered non-construction projects include maintenance contracts, including lawn care, re-painting, routine maintenance, HVAC servicing, and professional service contracts associated with construction (ex.: architectural, engineering, legal services, accounting, marketing, etc.).

57. What is considered "other" public construction?

Other public construction includes infrastructure work, such as extending water and sewage lines, sidewalk repairs, site preparation, installing conduits for utility services, etc.

58. Are the numerical goals the same as set-asides and quotas?

No. A set-aside guarantees that a specific portion of funds will be provided to a protected class. Section 3 goals are minimum numerical targets that a recipient of HUD Section 3 covered financial assistance must try to reach to attain compliance with Section 3.

59. What is the meaning of the ―safe harbor‖ determination?

When a recipient agency or contractor meets the numerical goals, the recipient or contractor is considered to be in compliance with Section 3, absent evidence to the contrary (i.e., evidence or findings obtained from a Section 3 compliance review).

60. What should recipient agencies or contractors do if they fail to meet the minimum numerical goals set forth in the regulation?

Recipient agencies and their contractors must adequately document all efforts taken to comply with the requirements of Section 3, and explain why despite their efforts
―to the greatest extent feasible‖; the minimum numerical goals were not met.

The Department will take each agency‘s explanation into consideration when making compliance determinations.

RECORDKEEPING AND REPORTING

61. What are the recordkeeping requirements of Section 3 recipient agencies?

Documentation of actions taken to comply with the employment, training and contracting requirements of Section 3, the results of actions taken and impediments encountered. Recipient agencies should maintain records of job vacancies, solicitation for bids or proposals, selection materials, and contract documents (including scope of work and contract amount), in accordance with Federal or State procurement laws and regulations. The documentation should demonstrate efforts taken towards the achievement of the Section 3 numerical goals.

62. Who is required to submit Section 3 reports?

Each direct recipient of Section 3 covered HUD financial assistance shall submit an annual report for the purpose of determining the effectiveness of Section 3. Section 3 summary reports, form HUD 60002, are required even if the recipient agency did not undertake any activities that triggered the requirements. Subrecipients, developers, and contractors should not submit Section 3 annual reports directly to the Department.

63. Where should Section 3 summary reports (Form HUD 60002) be submitted?

The Department has developed an online reporting system to allow grantees to submit Section 3 reports (form HUD 60002) directly to FHEO. Reports should be submitted online at: www.hud.gov/section3 from the Section 3 website.

64. After an agency submits its Section 3 report online, should a hard copy of the form also be submitted to HUD by fax, email, or mail?

No. Since the Department has an online reporting system, it s not necessary for agencies to submit hard copies (or paper copies) of reports to FHEO. The Department is making an effort to go ―paperless‖ and wants to reduce paper submissions of Section 3 reports.

However, it is recommended that grantees retain a copy of their completed Section 3 reports on file and optionally submit them as an attachment to their annual performance report if applicable (CAPERS report for CDBG, HOME and ESG Programs).

65. Are contractors or developers required to submit Section 3 reports directly to HUD?

No. Contractors and/or developers should not submit Section 3 reports to HUD. Only direct recipients (agencies) are required to submit Section 3 reports to HUD. Contractors should maintain adequate documentation to demonstrate compliance

with Section 3 and forward information to the direct recipient (i.e., the agency that awarded them a covered contract) as directed or upon request.

66. Should recipient agencies establish a reporting system for their contractors and subcontractors?

Yes, reports complied by contractors and subcontractors will assist the recipient agency in gathering the necessary data for submission to HUD.

67. When are Section 3 annual reports (Form HUD 60002) due?

Depending on the source of funding, annual reports should be submitted at one of three times:
1) At the time the recipient submits an annual performance report;
2) By January 10 of each year if no program annual performance report is required; or
3) Within ten (10) days of project completion, whichever is earlier.

§ PHAs should submit form HUD60002 by January 10th.

§ Grantees Awarded funding for Section 202/811 should submit form HUD 60002 by January 10th.

§ Grantees Awarded funding for CDBG, HOME and/or ESG should submit form HUD 60002 at the same time they submit the CAPER report.

§ Grantees Awarded funding for lead abatement activities should submit form HUD 60002 with their annual reports no later than September 30th.

68. Where can I find instructions for completing form HUD 60002?

Instructions for completing form HUD 60002 can be found on the Section 3 website at www.hud.gov/section3. Additional technical assistance for completing form HUD 60002 can be obtained by submitting an email request to: section3@hud.gov.

69. How can a recipient agency request a copy, make corrections, or delete its own Section 3 annual report?

The recipient agency should submit an email request to section3@hud.gov. Requests should contain the agency's name along with the year, grant number, and dollar amount of the report in question.

70. How can I obtain copies of 60002 reports for another local recipient agency?

Copies of 60002 reports for local recipient agencies for which you are not affiliated with can be obtained by completing and submitting a Freedom of Information Act (FOIA) request at: http://www.hud.gov/offices/ogc/foia/foiarequests.cfm.

71. Are agencies required to submit Form HUD 2516 to demonstrate compliance with Section 3?

No. Agencies are not required to submit Form HUD 2516 to demonstrate compliance with Section 3. In addition, while Form HUD 2516 does capture some Section 3 data, it is not sufficient to demonstrate overall compliance to the Department. The only form that should be submitted for Section 3 reporting requirements is form HUD 60002.

SECTION 3 COMPLAINTS

72. Who can file a complaint that alleges non-compliance with the requirements of Section 3?

Any Section 3 resident or Section 3 business (or authorized representative) seeking employment, training, or contracting opportunities generated by Section 3 covered assistance may file a complaint using form HUD 958.

73. Where should Section 3 complaints be submitted?

Effective November 2007, Section 3 complaints must be filed at the appropriate FHEO Regional Office where the violation occurred. Please visit www.hud.gov/offices/fheo to obtain the address and telephone number for FHEO regional offices.

74. Where can I find form HUD 958?

Copies of the Section 3 complaint form (HUD 958), filing instructions and mailing addresses may be obtained at: www.hud.gov/section3.

75. Is there a time limit for filing a Section 3 complaint?

Yes. Section 3 complaints must be filed no later than 180 days from the date of the action or omission upon which the complaint is based.

76. What happens during an investigation?

Once a timely complaint has been filed with the appropriate Regional Office, the Department will determine if the

compliant has jurisdiction or is covered by Section 3 regulations. An investigator will be assigned the case and will notify the respondent about the complaint. The respondent has the option of resolving the complaint or

contesting it. If the respondent contests or denies the allegations of noncompliance contained in the complaint, the investigator will proceed to gather facts or evidence from both parties. Thereafter, the investigator will prepare a letter of findings and either make a determination of noncompliance or dismiss the complaint.

77. What happens if HUD determines a recipient is in noncompliance?

Pursuant to 24 CFR 135.76, the Assistant Secretary will attempt, through informal methods, to obtain a voluntary and just resolution of the complaint. Where attempts to resolve the complaint informally fail, the Assistant Secretary will impose a resolution on the recipient and complainant. Any resolution imposed by the Assistant Secretary will be in accordance with requirements and procedures concerning the imposition of sanctions or resolutions as set forth in the regulations governing the HUD program under which the Section 3 covered assistance is provided.

78. Can complainants appeal the initial decision made in a Section 3 complaint? A complainant can submit a written appeal to the Assistant Secretary for Fair
Housing and Equal Opportunity in Washington, DC within 15 days after the Regional Office makes its determination. Requests should be sent to:

U.S. Department of Housing and Urban Development Office of Fair Housing and Equal Opportunity
451 Seventh Street, SW Room 5100
Washington, DC 20410

79. Where else can I file complaints alleging denied employment and contracting opportunities?

If you are denied employment and/or contracting opportunities, you may have standing to bring a complaint at HUD under Title VI of the Civil Rights Act and/or Section 109 of the Housing and Community Development Act of 1974.

You may also be eligible to bring complaints under other federal laws. The U.S. Equal Employment Opportunity Commission (EEOC) is responsible for enforcing federal laws that make it illegal to discriminate against a job applicant or an employee because of the person's race, color, religion, sex (including pregnancy), national origin, age (40 or older), disability or genetic information (medical history or predisposition to disease). For more information about your rights, please contact EEOC at: www.EEOC.gov.

The Department of Labor Office of Federal Contract Compliance Programs (OFCCP) enforces, for the benefit of job seekers and wage earners, the contractual promise of affirmative action and equal employment opportunity required of those who do business with the Federal government. More information about the services they provide can be obtained at: http://www.dol.gov/ofccp/

ATTACHMENT B: SUPPLEMENTAL GENERAL CONDITIONS

1 "OR EQUAL", "OR APPROVED ALTERNATE" CLAUSE

Whenever material or article required is specified or shown on the plans by using the name of the proprietary product or of a particular manufacturer or vendor, any material or article which will perform adequately the duties imposed by the general design will be considered an equal alternate and satisfactory, providing the material or article so proposed is of equal substance and function in the Engineer's opinion. However, substitute items shall not be purchased or installed without the Engineer's written approval. Descriptive data on any item offered as an equal or as an alternate, must be submitted to the Engineer at least fourteen (14) days prior to the bid opening and the Engineer will issue addenda prior to bid opening identifying manufacturers of approved equipment.

2. RIGHT OF ENTRY

The authorized representatives and agents of the OWNER, the ENGINEER, the Environmental Protection Agency, the Comptroller of the United States, the MISSOURI DEPARTMENT OF NATURAL RESOURCES, or any other duly authorized representative shall be permitted to inspect, review, and otherwise have access to all work, materials, payrolls, project records, personnel records, invoices of materials and equipment, and other relevant data and records for the Project for the purposes of making audit, examination, excerpts, and transcriptions. The CONTRACTOR shall make available to the representatives and agents suitable conveyance, personnel, and attendants for inspections and reviews, as well as ingress and egress to and from the Project.

3. CONTRACT DRAWINGS & SPECIFICATIONS

The CONTRACTOR shall receive six (6) sets of the contract drawings and specifications with the "Notice of Award". The CONTRACTOR shall maintain at the site for the OWNER one copy of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders, and other modifications, in good order, and marked to record all changes made during construction. These shall be available to the OWNER.

4. RECORD DRAWINGS

The CONTRACTOR shall deliver to the OWNER a complete set of Contract Drawings neatly recorded with all changes made during construction. These Drawings shall be labeled "Record Drawings" with the date of the submittal and the Contractor's name and signature clearly indicated. These "Record Drawings" shall be submitted following final acceptance of the Project and prior to the final payment.

5. WAIVER AND RELEASE OF LIEN AND CONTRACTOR'S CERTIFICATE

Prior to Substantial Completion by the CONTRACTOR of the Project, and prior to the receipt of payment of any amount in excess of ninety-five percent (95%) of the total final contract dollar

amount, the CONTRACTOR shall obtain and deliver in duplicate to the OWNER, through the Engineer, a notarized Final Waiver of Lien, in the form attached hereto, from all manufacturers, materialmen, subcontractors, and others furnishing services and/or materials for the Project.

These documents shall be accompanied by a Contractor's Certificate, in the form attached hereto, signed and notarized by the CONTRACTOR or his legal representative, certifying that all persons providing labor have been paid in accordance with wage rates applicable to the Project, and listing names of all suppliers, materialmen, subcontractors, and others providing goods and/or services for the Project.

WAIVER AND RELEASE OF LIEN

WHEREAS, the undersigned, _____
(Name of Manufacturer, Materialman, or Subcontractor)

has furnished to _____ the following:
(Name of Contractor)

_____
(Kind of Material & Services Furnished)

_____ for use in the construction of a project

belonging to the City of Joplin, Missouri .

NOW, THEREFORE, the undersigned, _____
(Name of Manufacturer, Materialman, or Subcontractor)

_____ for and in consideration of $_____

and other good and valuable consideration, the receipt whereof is hereby acknowledged, do(es) hereby waive and release any and all liens or right to or claim of lien, on the above-described project and premises, under any law, common or statutory, on account of labor or materials, or both, heretofore or hereafter furnished by the undersigned to or for the account of said:

_____ for said Project.
(Name of Contractor)

Given under my (our) hand(s) and seal(s) this ____ day of _____, 20____.

_____
(Name of Manufacturer, Materialman, or Subcontractor)

By: _____
President, Vice President, Partner, or Owner, or, if signed by other than one of the foregoing, accompanied by Power of Attorney, signed by one of the foregoing in favor of the Signer. (Use designation applicable)

ATTACHMENT C: SUPPLEMENTAL SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS

SUMMARY OF WORK..... 01010

1. GENERAL

    1.1 The work consists of furnishing all labor, materials, equipment, testing, tools, and supervision to complete the wastewater collection system cleaning, evaluations, and/or renovations, as described in the specifications and as directed by the Owner.

2. LOCATION

    2.1 Joplin, Missouri, in Jasper and/or Newton County depending on the location of the proposed renovations.

3. ACCESS

    3.1 Access to the site(s) is available via public roads and streets and easements.

4. PERMITS

    4.1 Secure all necessary permits from respective authorities.

5. SUMMARY OF WORK

    5.1 Work includes, but is not limited to the cleaning, evaluation, and renovation of the existing sanitary sewer collection system as directed by the Owner, utilizing CCTV inspection, the installation of cured-in-place pipe (CIPP), open trench point repairs, open trench and trenchless lateral connection repairs (LCR), the spray application of cementitious and/or epoxy lining onto existing manhole walls, and all other miscellaneous cleaning, evaluation, and renovation work as described in these specifications and as listed in the Bid Schedule.

    5.2 All work indicated on each work order is to be performed unless deleted by the Owner's change order.

    5.3 Inclusive in the work is close coordination with all appropriate jurisdictional agencies and responsibility for construction standards, traffic control, and safety requirements of these agencies.

6. RELATED DOCUMENTS

    6.1 Installation shall be as described in these specifications and supplemented as necessary by the City's standard construction details.

    6.2 Locate all existing underground installations, including service connections, in advance of excavating or trenching, by contacting the owners thereof, prospecting, and the use of the Company 1-800-DIG-RITE (344-7483), and other appropriate locating services.

    6.3 All damage to existing private and/or municipal utilities or improvements, including, but not limited to signs, mailboxes, buildings, trees, and property, shall be repaired, including the cost of all required materials, labor, and equipment. All repairs shall be made as authorized by the owner of the utility and/or party involved and in compliance with all jurisdictional requirements. Repair and/or replacement cost shall be considered incidental to the performance and perfection of the contract.

7. SCHEDULING OF WORK

7.1 Schedule all work, including location of utilities, to coordinate with appropriate jurisdictional agencies.

8. FIELD ENGINEERING

8.1 Furnish vertical and horizontal control staking as necessary for the execution of the work, as shown on the drawings. Modifications to avoid unknown or mislocated facilities are to be expected.

8.2 Avoid disturbing existing markers and property corners, and if disturbed, corners must be re-established by a Registered Land Surveyor.

9. REGULATORY REQUIREMENTS

9.1 Obtain all necessary permits and comply with all codes of construction or permit requirements as deemed necessary by the following:

9.1.1 City of Joplin

9.1.2 Missouri Department of Natural Resources

9.1.3 Missouri Department of Transportation

9.1.4 Department of the Army, Corp of Engineers

9.2 Pay for any bond, fees, other charges, design, work or materials associated with obtaining the necessary permits.

10. CONSTRUCTION STANDARDS

10.1 Generally applicable standards have been included in the specifications. Any other construction details otherwise required will be provided by the Engineer. Engineer may make substitutions of equivalent materials or assemblies for those shown in the standards.

11. REFERENCES AND ABBREVIATIONS

11.1 The latest edition of the following specifications cover certain specified materials and methods to be utilized. Abbreviations as used in the specifications shall mean the following:

11.1.1 AWWA: American Water Works Association.

11.1.2 AGA: American Gas Association

11.1.3 ASTM: American Society for Testing Materials

11.1.4 AASHTO: American Association of State Highway & Transportation Officials

11.1.5 ANSI: American National Standards Institute

11.1.6 API: American Petroleum Institute

11.1.7 ASA: American Standards Association

11.1.8 DOT: Federal Department of Transportation

11.1.9 AWS: American Welding Society

11.1.10 AREA: American Railway Engineering Association

11.1.11 ACI: American Concrete Institute

11.1.12 BOCA: Building Officials and Code Administrators

12. QUALITY CONTROL

12.1 Establish a quality control system to insure conformance of all items of work, including that of subcontractors, to applicable specifications and drawings with respect to the materials, workmanship, construction, finish, functional performance, and identification. The controls shall be adequate to cover all layout and construction operations, shall be keyed to the proposed construction sequence, and shall be subject to approval by the Engineer.

13. WORK IN PUBLIC THOROUGHFARES

13.1 Prior to excavating in public streets, all appropriate permits shall be obtained. Any traffic control plans required by regulatory agencies as part of their permit shall be prepared and carried out, at the contractor's expense, in accordance with the M.U.T.C.D., latest version. Barricades, signs, and signals shall be maintained. The signs shall indicate actual conditions that exist on the road ahead. Road excavation shall be completed and backfilled before work is stopped each day. If work cannot be completed in one day, the excavation shall be backfilled with crushed limestone and re-excavated the next working day.

14. ENVIRONMENTAL

14.1 In the event of spillage or discharge of oil to the environment, the Contractor shall comply with the provisions of Title 40 Code of Federal Regulations: Part 110 – Discharge of Oil: Part 112 – Oil Pollution Prevention; Part 300 – National Oil and Hazardous Substances Pollution Contingency Plans; and all applicable State, County, and municipal regulations.

14.2 The Contractor and the Owner, in their respective obligations under the terms of the Contract, shall conform to the provisions of the Clean Air Act (41 U.S.C. 7506©).

15. SAFETY

15.1 Precautions shall be exercised at all times by the Contractor for the protection of persons, employees, and property. The safety provisions of applicable laws, local building and construction codes (OSHA and manufacturer's safety requirements) shall be observed. The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work.

SPECIAL PROJECT REQUIREMENTS 01030

1. GENERAL

1.1 Sewer Line Renovation: In areas designated for the renovation of gravity sewer lines, sewers shall be reconstructed as directed by the OWNER in accordance with these specifications.

1.1.1 All sewer lines designated for renovation shall be cleaned and inspected by close circuit television (CCTV) to allow for the proper liner installation and to determine any condition that may prevent proper installation.

1.1.2 All necessary point repairs shall be made prior to renovation of the existing sewer line.

1.2 Manhole Renovation: For manholes designated to be renovated, they shall be coated with a cementitious and/or epoxy liner as outlined in specification Section 02609 – MANHOLE RENOVATION. As directed by the Owner, renovated manholes may also receive new Frame and Covers as well as a flexible chimney sealant. The Contractor shall adjust the finished rim elevations as necessary in order to match the existing finished grade.

1.3 Ownership and Disposal of Existing Sewer Line and Manhole Materials Removed from the Ground: Existing sewer line and manhole materials removed from the ground shall be disposed of by the Contractor in a manner consistent with state and local laws and regulations governing disposal of construction debris.

1.4 Protection of Existing Roadways: Contractor shall suitably protect existing State, County, and/or City roadway pavements from damage potentially caused by the use of heavy equipment. Where trenching runs parallel to existing pavement, plywood or other suitable materials shall be utilized to protect existing roadway surfaces from damage due to backhoe tracks and/or wheel loads, etc. Any associated repairs required for “parallel” roadway surfaces shall be solely at the Contractor’s expense.

1.5 Point Repair Excavation: Point repair excavations shall be installed in the same trench as the existing sewer, and as the existing sewer is removed. The point repair excavations may be installed with the existing sewer line "live".

1.5.1 Contractor shall utilize all methods, techniques, and equipment necessary to maintain unrestricted flow of wastewater during construction. Wastewater shall not be allowed to overflow from manholes or open trenches onto the ground surface. All wastewater shall either be directed through the trench to the downstream sections of the existing sewer line or around the open trench to downstream sections of the existing sewer line by portable, temporary pumping systems.

1.5.2 Contractor shall take care during construction to prevent surface runoff from entering sewer lines via open trench excavations and to prevent sewage entering waterways during stream crossings or any other construction activity.

1.5.3 The amount of trenching opened in a day shall not exceed the footage of sewer line that can be removed and replaced that day. No pipe gaps between sections of existing and replacement sewer lines shall be allowed to remain upon completion of a day’s work.

1.5.4 Any manhole-to-manhole section of replacement sewer shall be individually air tested per specifications immediately upon installation. Upon satisfactory completion of the air test, the Contractor shall complete the connection of existing sewer service laterals to the replacement sewer.

1.6 Lead Remediation: No excavated material is to be hauled off-site without first being tested for metal contamination. Any of the excess excavated material that exceeds the metals threshold

shall be hauled to the designated repository for proper disposal. The soil testing can be performed by the City of Joplin with proper notification. The amount of contaminated material is unknown. The City of Joplin will pay for the transportation and disposal of all contaminated material with the final quantity and contract price being adjusted accordingly. The unit price stated in the Bid Schedule for transportation and disposal of contaminated material shall remain unchanged no matter what the final disposed quantity is equal too. Refer to specification Section 02224 – LEAD REMEDIATION for additional details.

1.7 Contractor shall notify Owner by 8 A.M. daily as to the locations where crews will be working for that respective day. Each daily notification shall include the name and telephone number of each crew foreman.

MEASUREMENT AND PAYMENT 01200

1. GENERAL

1.1 The performance and perfection of the scope of work stated in these specifications and as directed by the Owner shall be either measured or shall be considered a requisite provision incidental to either measured work or to the perfection of the contract.

1.2 The items of performance listed in the Bid Schedule are the only items to be measured and for which a specific unit or lump sum price will be remitted. All remaining labor, material, supervision, equipment, and appurtenances requisite for performance shall be incidental to the measured items.

1.3 The cost to the Owner of incidental items shall be a part of the price for measured items, payment for which will be remitted to the Contractor upon acceptance of work by the Owner, and certified as complete by the Engineer.

TRAFFIC CONTROL 01577

1. GENERAL

1.1 This work shall consist of furnishing and installing temporary traffic control devices in accordance with the contract and as directed by the Owner or Engineer or as required by the applicable regulatory authority.

2. MATERIALS

2.1 All construction signs and reflective materials shall conform to the requirements of the Manual on Uniform Traffic Control Devices (MUTCD).

3. CONSTRUCTION REQUIREMENTS

3.1 Contractor shall be responsible for obtaining approval from the City, MoDOT, or County for all local street closures or lane closures on collector and arterial streets, depending on which authority has jurisdiction of the respective roadway. The Contractor shall provide the location, the estimated duration of the work, and which typical temporary traffic control detail will be utilized.

3.2 The requirements of this specification shall not relieve the Contractor of his responsibility for protecting both the public and the work.

3.3 Contractor shall be responsible for complying with all requirements of Part 6 – Temporary Traffic Control of the MUTCD. Use of the temporary traffic control details provided within this specification does not relieve the contractor of this responsibility.

3.4 Temporary Traffic Control on Local Streets:

3.4.1 The Contractor shall furnish, install, maintain, clean, and relocate all temporary construction signs, cones, and barricades, as necessary, when working in any local street or alleyway. All temporary signs and traffic control devices shall meet the requirements of Part 6 – Temporary Traffic Control found in the MUTCD and shall be kept legible, in alignment, and in good repair. All temporary signs shall be covered, set aside, turned, removed, or relocated as work progresses, or is completed and their necessity ceases to exist. All temporary traffic control devices shall be removed after completion of construction and shall remain the property of the contractor unless specified otherwise.

3.4.2 Under special circumstances and upon receipt of prior approval by the City and the Engineer, local street closures may be considered at the sole discretion of the Owner. The length of time that the Contractor may maintain roadway closures shall be kept to a minimum and shall be subject to the City's approval; but in no case, shall a roadway closure be allowed to be greater than five (5) calendar days. The Contractor shall furnish, install, maintain, and clean all temporary construction sings, cones, and barricades as shown on the temporary traffic control detail attached to this specification. All temporary traffic control devices shall be removed after completion of construction and shall remain the property of the contractor unless specified otherwise.

3.5 Temporary Traffic Control on Collector or Arterial Streets:

3.5.1 Short Duration Traffic Control: Short duration traffic control shall be required for work that occupies a single stationary location for period of up to 4-hours. The Contractor shall furnish, install, maintain, and clean all temporary construction signs and cones as shown on the temporary traffic control detail attached to this specification. All temporary traffic control devices shall be removed after completion of construction and shall remain the property of the contractor unless specified otherwise.

3.5.2 Short-Term Stationary Traffic Control: Short-term stationary traffic control shall be required for work that occupies a single stationary location for up to 1-working day (daylight hours only). The Contractor shall furnish, install, maintain, and clean all temporary construction signs, cones, and arrow boards as shown on the temporary traffic control details attached to this specification. All temporary traffic control devices shall be removed after completion of construction and shall remain the property of the contractor unless specified otherwise.

3.5.3 Intermediate-Term Stationary Traffic Control: Intermediate-term stationary traffic control shall be required for work that occupies a single stationary location for 3- or more calendar days (including nighttime hours). The Contractor shall furnish, install, maintain, and clean all temporary construction signs, cones, arrow boards, and changeable message boards as shown on the temporary traffic control details attached to this specification. All temporary traffic control devices shall be removed after completion of construction and shall remain the property of the contractor unless specified otherwise.

3.5.3.1 Changeable message boards shall be in-place a minimum of 48-hours prior to beginning construction.

3.6 The temporary traffic control details provided within this specification may need to be field adjusted to accommodate the actual traffic conditions found at the work zone. The Contractor shall be prepared to field adjust the temporary traffic control setup with the addition of signs and cones as determined by the City, County, or State DOT.

4. MEASUREMENT AND PAYMENT

4.1 Temporary traffic control on local streets shall not be measured or paid for separately but shall be considered incidental to the work of which it is a part.

4.2 Temporary traffic control for the closure of local streets shall be measured and paid for at the lump sum price stated in the Bid Schedule. This price and payment shall constitute full compensation for the installation, operation, maintenance, cleaning, repairing, and removing of the temporary traffic control devices for a period of up to five (5) calendar days.

4.3 Short duration traffic control within collector and arterial streets shall be measured and paid for at the lump sum price stated in the Bid Schedule. This price and payment shall constitute full compensation for the installation, operation, maintenance, cleaning, repairing, and removing of the temporary traffic control devices for a period of up to 4-hours.

4.4 Short-term stationary traffic control within collector and arterial streets shall be measured and paid for at the lump sum price stated in the Bid Schedule for the type of lane closure. This price and payment shall constitute full compensation for the installation, operation, maintenance, cleaning, repairing, and removing of the temporary traffic control devices for a period of up to 1-working day (daylight hours only).

4.5 Standard intermediate-term stationary traffic control within collector and arterial streets shall be measured and paid for at the lump sum price stated in the Bid Schedule for the type of lane closure. Standard intermediate-term stationary traffic control shall be a 3-calendar day period, including nighttime hours. This price and payment shall constitute full compensation for the installation, operation, maintenance, cleaning, repairing, and removing of the temporary traffic control devices for a period of up to 3-calendar days.

4.6 Additional intermediate-term stationary traffic control within collector and arterial streets shall be measured and paid for at the unit price stated in the Bid Schedule for the type of lane closure less the standard intermediate-term stationary traffic control period of 3-calendar days. This price and payment shall constitute full compensation for the additional operation, maintenance, cleaning, and repairing of the temporary traffic control devices.

DIVISION 2 - SITEWORK

CLEANING 02110

1. GENERAL

1.1 The work of this section consists of the daily removal of construction debris from the job site(s) and associated public streets, roads, easements, and rights-of-way used during construction. In addition, the final detailed cleaning of the site prior to final acceptance of the project is included.

2. MATERIALS - NONE

3. EXECUTION

3.1 General: The Contractor shall keep the construction site sufficiently clean so as to allow a safe and expeditious construction operation to be implemented. Periodically, and upon completion of the work and before acceptance and final payment is made, the Contractor shall clean and remove from the road rights-of-way, easements, public and private property, adjacent property, all surplus, discarded materials, perishable matter, rubbish and temporary structures. He shall restore in an acceptable manner all property, both public and private, which may have been damaged on account of the prosecution of the work and shall leave the roadway, easements, public and private property neat and presentable.

3.2 Open Burning: During construction of the project, efforts shall be taken to prohibit the open burning of refuse.

3.3 Dust Control: Excavation and operations may require control measures to prevent the creation of excessive dust.

3.4 Water Pollution Control: The Contractor shall exercise caution to guard against the degradation of the waters of the state due to construction-related pollutants (silt, debris, and petroleum products).

SANITARY SEWER EASEMENT CLEARING AND GRUBBING..... 02111

1. GENERAL

1.1 Description: The work of this section consists of furnishing all labor, materials, equipment, and tools necessary for performing all operations for the proper execution of all mowing, clearing, removing and disposing of vegetation, debris and other objectionable matter from within the limits of the sanitary sewer easement areas, except for trees and vegetation as designated to remain.

2. MATERIALS

None

3. EXECUTION

3.1 Clearing and Grubbing:

3.1.1 Unless specified by the Owner, the entire right-of-way or sanitary sewer easement area shall be cleared and all stumps, limbs, and trash removed and disposed of at an approved location. Trees, stumps, roots, brush, and other vegetation in the areas to be cleared shall be cut below the original ground surface. The Owner shall designate all areas of growth or individual trees which are to be preserved. Open burning of materials resulting from land clearing is strictly prohibited. Under no circumstances are brush, stumps, and other debris to be buried within the right-of-way or easement areas. Disposal of all materials, trees, vegetation, or other cleared and grubbed material shall be disposed of in accordance with all federal, state, and local laws

3.1.2 The Contractor shall conduct his operations in a manner to prevent limb, bark, or root injuries to trees, shrubs, or other types of vegetation that are to remain growing and also to prevent damage to adjacent properties. Any such plants or trees that are damaged by any clearing operations to such an extent as to destroy their value for shade or other landscape purposes shall be replaced by the Contractor, without any additional cost to the Owner.

3.1.3 The Contractor shall be responsible for the surface restoration of all areas affected by the clearing operations. Refer to specification Section 02480 – SURFACE RESTORATION.

3.1.4 Upon completion of the clearing operations, the Contractor shall clean the right-of-way or easement of remaining debris and equipment and leave the area with a neat and presentable appearance.

4. MEASUREMENT AND PAYMENT

4.1 Sanitary sewer easement clearing and grubbing shall be measured and paid for at the hourly unit prices as set forth in the Bid Schedule. Prior to beginning the clearing and grubbing operations, the Contractor shall provide an estimate of the number of hours required for the completion of the work. The Contractor shall not work more hours than estimated without receiving written pre-approval from the Owner. This price and payment shall constitute full compensation for all labor, materials, tools, equipment, disposal, cleanup, surface restoration, and incidentals required to complete the work of this section.

SANITARY SEWER OVERFLOW (SSO) CLEANUP 02130

1. GENERAL

1.1 Description: The work of this section consists of furnishing all labor, materials, equipment, and tools necessary for the proper cleanup of spilled sewage upon receiving notification of such a spill by the Owner.

2. MATERIALS

2.1 A solution of household bleach and water shall be utilized as a disinfectant as described in paragraph 3.3 below.

2.2 Powdered lime shall be utilized as described in paragraph 3.4 below.

3. EXECUTION

3.1 Owners Responsibility: The Owner shall be responsible for eliminating the active sanitary sewer overflow by restoring unrestricted wastewater flow or through the bypass pumping of wastewater as necessary. Additionally, the Owner shall contain the spill by plugging storm drains/inlets/pipes, constructing temporary berms, use of sandbags, or other methods as necessary. The Owner shall also be responsible for all documentation and reporting of the SSO event as required by the Missouri Department of Natural Resources.

3.2 Recovery of Spilled Sewage: The Contractor shall vacuum or pump all visible traces of spilled sewage and discharge into the sanitary sewer system or dispose of at the wastewater treatment facility as directed by the Owner.

3.2.1 If sewage has reached the storm drain system, a combination sewer jetter/vacuum cleaning truck should be utilized to vacuum out all structures and pipes that may contain sewage. All sewage collected by the combination sewer jetter/vacuum cleaning truck shall be discharged into the sanitary sewer system or disposed of at the wastewater treatment facility as directed by the Owner.

3.3 Disinfection: All areas that were contaminated from the SSO shall be disinfected with a solution of household bleach diluted 10:1 with water. Apply minimal amounts of the disinfectant solution using a hand sprayer or other method as approved by the Owner. Under no circumstances shall the disinfecting solution be allowed to run offsite, into waterways, or into the storm drain system. The application method, area, and volume of disinfectant applied shall be documented and submitted to the Owner.

3.3.1 Waterways: Disinfectant solution shall not be applied to a flowing waterway or any other surface drainage location that could result in an adverse impact on aquatic life.

3.4 Lime Application: Powdered lime shall be added to all contaminated areas in order to react with any remaining sewage/water/disinfectant. If a large amount of lime is required and a white pasty solution remains, it shall be vacuumed up and disposed of properly by the Contractor.

4. MEASUREMENT AND PAYMENT

4.1 SSO cleanup shall be measured and paid for at the hourly unit prices as set forth in the Bid Schedule. This price and payment shall constitute full compensation for all labor, materials (excluding lime), tools, equipment, and incidentals required in order to complete the work of this section.

4.2 The application of lime shall be measured and paid for by the pound. This price and payment shall constitute full compensation for all labor, materials, tools, equipment, and incidentals required in order to apply, collect, and dispose of the powdered lime.

EARTHWORK 02200
TRENCHING, BACKFILLING, AND COMPACTING 02221

1. GENERAL

1.1 Description: The work of this section consists of excavation of trenches, pits, and associated incidental elements relating to the construction of underground lines and appurtenances, and the backfilling of these excavations. There will be no distinction made in any definition or classification of excavation covered by this section between wet or dry materials below the surface of the earth. Trench excavation shall be considered as unclassified, which shall consist of all materials of whatever character encountered in the work, including soil, solid rock, fragmented rock, water, or other. Work under this section shall also include:

1.1.1 All sheeting, shoring, bracing, protection of adjacent property, preparation of all subgrades, storage of excavated materials, backfilling, tamping, grading, and surfacing.

1.1.2 The cost of diversion of surface water, and all pumping, draining, or otherwise dewatering of excavations.

1.1.3 All subsequent handling and disposal of such material, together with the preparation of all trench subgrade.

1.2 Protection of Adjacent Property: The Contractor shall protect all excavations and trenches from settlement or displacement by approved means of bracing and shoring. All existing underground utilities and structures and surface improvements and structures shall be protected and their functional purpose preserved.

2. MATERIALS

2.1 Earth Backfill: Earth backfill shall be earth previously excavated from the trench, free from perishable matter, frozen soil, stone over six (6) inches in its largest dimension, and other matter liable to become unstable when saturated with water and compacted.

2.2 Select Backfill: Where previously excavated earth is determined by the Engineer to be unsuitable for backfill, the Contractor shall obtain and place earth from an approved source.

2.3 All excavation shall be considered unclassified.

3. CONSTRUCTION

3.1 Trench Excavation:

3.1.1 All trench excavation shall be made with a sufficient working space to permit the placement, inspection, and completion of all work contemplated in the contract. Excavated material that is unsuitable for backfill, and all boulders exposed by trenching shall be removed from the work area. Trenches shall be excavated in accordance with the drawings for trench width relative to trench depth.

3.1.2 Trenches shall be excavated to six (6) inches below the bottom of the pipe when set to establish flow lines to provide clearance for the pipe bell and not less than six (6) inches of granular stone bedding material. Should the trench be excavated more than six (6) inches below the flow line, the Contractor shall use only granular stone bedding material to establish flow line grade.

3.1.3 Trench excavation shall, in all cases, be continuous from the ground surface to the established trench depth. Materials excavated shall be stockpiled at the sides of the trench and within established area limits so as to minimize inconvenience to the public, and damage to

vegetation and structures in the area.

3.1.4 When unstable ground is encountered, the trenching shall be carried out utilizing trench shoring, bracing, and shields to prevent cave-ins.

3.1.5 Trench width from six (6) inches below the bottom of the pipe to six (6) inches above the pipe joint shall be held to 24" minimum, or 1.4 times the pipe O.D., plus 12 inches. Trench width above these levels may be wider to accommodate shoring, bracing, and shields, but shall be kept within practical limits and shall be subject to the Engineer's approval.

3.1.6 Lines and Grades for Trench Excavation: The Contractor shall furnish and set all stakes for the lines and grades as shown on the drawings and shall furnish and set up for underground construction all batter boards required therefore, and shall provide all required labor for setting stakes and boards. The Contractor shall be held responsible for verification of lines and grades as established and shown on the plans. The Engineer may check the line and depth at any given point in the trench.

3.2 Record Drawings: Even though all excavation shall be considered unclassified for pay purposes, the Contractor shall clearly indicate on the Record Drawings (which he submits to the Owner per Supplemental General Conditions) the elevations and extent of all solid rock encountered during construction of the project.

3.3 Sheeting, Shoring, or Bracing: Sheeting, shoring, or bracing shall be placed by the Contractor wherever necessary for the proper preserving of any excavation, embankment, or structure. Where the ground is of such a character or other conditions are such as to render it necessary, the sheeting shall be closely driven and to such depth below the lowest point of the final excavation as may be required. The Contractor shall be held responsible for the sufficiency of all sheeting and bracing used, and for property damaged as the result of improper quality, strength, placement, maintenance, or removal of the same. No extra compensation will be made for sheeting and bracing, whether left in place or not. The Contractor shall, at his own expense shore up, protect, and insure from injury all buildings, retaining walls, piers and footings, storm sewers, sanitary sewers, gas lines, water lines, fences, curbs, trees, or other property liable to be injured during the process of the work, and he will be held responsible for all damage which may occur by reason of prosecution of the work. Sheeting, shoring, and bracing shall be provided, installed, and maintained to protect the excavation and insure open trench operations.

3.4 Removal of Water: The Contractor shall furnish and operate sufficient pumps and appliances, and shall provide all material, labor, etc. required to prevent interference with any work by water, ice, or snow. Damage of any kind resulting from insufficient pumping facilities or similar lack of proper conduct of the work shall be made good by the Contractor at his own expense. No structure and pipes shall be placed in water and water shall not be allowed to run into or cover any concrete work or pipe, or into or through any pipe, unless by special permission given by the Engineer in writing.

3.5 Clean-up and Maintenance of Backfilled Trenches: All excess excavation materials or blasting debris shall be cleaned up by the Contractor as directed. Backfilled trenches or other excavations that exhibit settlement prior to final acceptance of the entire project, wherein the top of backfill is below the original ground surface, shall be refilled, compacted, and smoothed to conform to the contours and elevations of the adjacent ground surface. Sod in lawns removed or damaged by settlement and/or the repair thereof, shall be replaced. Maintenance of backfill as described above shall be the responsibility of the Contractor for a period of one year after final acceptance of the work by the Owner.

3.6 Cleaning of Rights-of-Way and Easements: Upon completion of any portion of the work, all the land and rights-of-way shall be cleaned of all surplus material, earth, rubbish, etc. and left in a condition acceptable to the Owner. At all times, adequate clean up shall be provided to enable

normal passage of traffic to occur on all streets, alleys, and private driveways.

3.7 Backfilling:

3.7.1 Material used for backfilling of trenches shall be free from perishable matter and from other material liable to become unstable when saturated with water after having been compacted. No frozen material shall be used in backfill. Care shall be taken to prevent damage to the pipe and structures. Special precautions shall be taken in backfilling over pipes. No backfill shall be placed over any portion of pipes and/or joints not inspected by the Engineer. Debris, frozen material, large clods, stones, organic matter, or other unstable materials shall not be used for final backfill within two (2) feet of the top of the pipe. The granular stone bedding material shall be brought to a depth of at least six (6) inches over the top of the pipe bell, with this material carefully deposited in uniform layers not exceeding six (6) inches in depth, and each layer carefully and solidly tamped with mechanical tampers in such a manner as to avoid damage to pipe or disturbing completed work. Unless noted otherwise on the drawings, backfilling for the remainder of the trench shall be previously excavated gravel, sand, or earth, and shall contain no stone over ten (10) inches in its largest dimensions. Stones smaller than that size may be used in proportion not exceeding one part of stone and three parts of earth in any place. This backfilling shall be deposited and spread in layers and solidly tamped. Except as specified below for roadway crossings, trench backfill shall be compacted to Range C compaction requirements (Section 02250 – COMPACTION CONTROL AND TESTING). The method of securing adequate compaction will be approved by the Engineer. As the trenches are backfilled, the Contractor shall remove all surplus material and regrade the surface, leaving it in good order. The trenches shall be filled to the ground surface elevation which previously existed, unless shown otherwise on the drawings or the Engineer directs otherwise.

3.7.2 The Contractor may be required to settle certain backfill material with water, in addition to other backfilling procedures. The water will be furnished by the Contractor without cost to the Owner. Methods and procedures in using the water shall be approved by the Engineer prior to carrying out the operation.

3.7.3 Whenever, in the opinion of the Engineer, the excavated material is not suitable for backfilling the trench, or there is a deficiency of material, the Contractor shall, at his own expense, provide suitable material.

3.7.4 All excess excavation materials shall be cleaned up by the Contractor as directed. All backfilled trenches shall be maintained by the Contractor for a period of one year after Final Acceptance of the work by the Owner.

3.8 Roadway Crossings: At all open-cut crossings of proposed or existing roadways, and for all trenching within or along proposed or existing roadways, the trench shall be backfilled with crushed stone meeting ASTM C33, Gradation 67, in lieu of previously excavated material, and compacted level with the existing riding surface of the roadway. The crushed stone shall be deposited and spread in layers and solidly tamped to Range "A" compaction requirements set forth in Section 02250 - COMPACTION CONTROL AND TESTING. Final roadway surfacing shall be as called for on the drawings.

3.9 Private Drives, Field Entrances, etc.: At all open-cut crossings of private drives, field entrances, and the like, the trench backfill shall be deposited and spread in layers and solidly tamped to Range “B” compaction requirements set forth in Section 02250 – COMPACTION CONTROL AND TESTING. Private drives, etc. shall be backfilled “immediately” upon completion of the pipe lying across the drive. The driving surface shall be restored to its original condition immediately following proper compaction of the backfill.

3.10 Inspection: After completion of excavations, the Contractor shall notify the Engineer that the trench or excavation may be inspected; and prior to placement of materials other than shoring,

bracing, or sheeting, the excavation shall be observed by the Engineer.

4. MEASUREMENT AND PAYMENT

4.1 The work of this section shall not be measured or paid for separately but shall be considered incidental and included in the unit price set forth in the Bid Schedule for the work of which it is a part.

GRANULAR STONE BEDDING AND BACKFILL..... 02222

1. GENERAL

1.1 Description: The work of this section consists of furnishing, hauling, placing, and compacting granular stone for pipe bedding and granular stone backfill at the locations shown on the drawings.

2. MATERIALS

2.1 Granular Stone Pipe Bedding: Aggregate material shall be crushed limestone consisting of aggregate particles meeting the requirements of ASTM C-33, latest revision, gradation 67, 1-inch to No. 8 size as follows:

Sieve Size	Percent Passing
1"	100
3/4"	90 - 100
3/8"	20 - 55
No. 4	0 - 10
No. 8	0 - 5

2.2 Granular Stone Backfill: When granular stone backfill is required, the aggregate shall be well-graded, granular, crushed stone limestone identical to the stone pipe bedding material specified in paragraph 2.1.

3. EXECUTION

3.1 Granular Stone Pipe Bedding: Granular stone shall be placed in the trench and shaped so as to provide uniform support for the bottom quadrant of the pipe barrel. The bedding shall be not less than six (6) inches in thickness below the bottom of the pipe. Following placement of the pipe, the trench shall be filled with granular stone bedding material to a minimum compacted depth of six (6) inches above the pipe bell. Bedding installation in the trench shall be to the widths and depths as shown on the drawings.

3.2 Granular Stone Backfill: Granular stone of the specified gradation shall be utilized to backfill the trench where called for on the drawings and shall be placed in the trench in 24-inch layers and compacted to a density of not less than 95% of standard density as set forth in Section 02250 – COMPACTION CONTROL AND TESTING.

4. MEASUREMENT AND PAYMENT

4.1 Granular stone bedding and backfill shall not be measured or paid for separately, but shall be included in the unit prices set forth in the Bid Schedule for the work of which it is a part.



CONTAMINATED SOIL REPOSITORY LOCATION MAP
JOPLIN MISSOURI

ALLGEIER, MARTIN and ASSOCIATES, INC.
CONSULTING ENGINEERS and SURVEYORS
7231 EAST 24th STREET JOPLIN, MISSOURI 64804 (417) 680 - 7200

02224-3

LEAD REMEDIATION 02224

1. GENERAL

1.1 Description: The objective of this work is to identify metals-contaminated soil on City Projects in compliance with the Jasper County Environmental Contamination Ordinance. Soils with lead concentrations greater than 400 parts per million (ppm) and cadmium levels greater than 75 ppm are considered contaminated. As necessary, the City Inspector or other approved soil testers shall perform pre-excavation or post-excavation characterization using X-ray fluorescence spectrometers (XRFs) to define the lateral extent of the excavation.

1.1.1 Any excavation done on a City project is subject to Lead and Cadmium testing. No soil is to be hauled off site or on site without first being tested to determine the metals content of said soil.

2. MATERIALS

2.1 Clean Soil: Clean soil is topsoil that is defined as selectively excavated, natural friable soil that is representative of soils in the vicinity which produce heavy growths of crops, grass or other vegetation. The topsoil shall be reasonably free from underlying subsoil, clay lumps, weed, litter, brush, roots, rocks or other objectionable material, which might be harmful to plant or turf growth. Topsoil shall not contain more than 20 percent clay by volume. Topsoil shall have a pH of between 6.0 and 7.5. If the pH is not within the allowable range, the Contractor shall add the material required to achieve this pH balance. Clean soil shall have soil lead concentrations of less than 100 ppm and soil cadmium concentrations of less than 40 ppm. Soil borrow area operations must be in compliance with any applicable state or federal regulations regarding such operations (i.e. erosion control, historic site approvals, etc.).

2.2 Clean Fill: Clean fill is defined as fill material that is representative of naturally occurring local subsoil. The fill shall be reasonably free from weed, litter, brush, roots, rocks greater than 4 inches in diameter or other objectionable material making it unsuitable for subsurface fill use including but not limited to, concrete, asphalt or mine waste material. Clean fill shall have soil lead concentrations less than 100 ppm and soil cadmium concentrations less than 40 ppm. Fill borrow area operations must be in compliance with any applicable state or federal regulations regarding such operations (i.e. erosion control, historic site approvals, etc.).

3. EXECUTION

3.1 Transportation and Disposal:

3.1.1 All contaminated excavated material shall be transported directly from the site(s) to the soil repository located 0.3 miles north of the intersection of West 7th Street and Malang Road, Joplin, Missouri. A map indicating the location of the soil repository follows. It is a restricted access site and is kept locked; notification must be given to the Inspector/Remediation Coordinator to gain access to the repository. Load tickets shall be maintained, however, since the repository area is within the limits of the Superfund site, hazardous waste manifesting of the loads is not required.

3.1.2 Transportation of excavated materials shall be accomplished by use of covered trucks. The Contractor shall ensure that materials are not blown or spilled along the haul route by use of an appropriate load covering material system.

3.1.3 Spillage associated with loading of the trucks shall be immediately cleaned up and loaded for transport by the Contractor. The Contractor shall ensure that roadways, alleys, and other public access areas are kept clean and not tracked with soil from the excavation areas.

4. MEASUREMENT AND PAYMENT

4.1 Soil testing is offered by the City of Joplin without any additional costs to the Contractor; however, if the Contractor chooses to utilize a different testing agency, there shall be no additional cost to the Owner.

4.2 Transportation and disposal of all contaminated soil shall be measured per cubic yard of deposited material at the location described in this specification. Payment shall be at the unit price stated in the Bid Schedule and shall constitute payment for all earthwork, loading and unloading, hauling, disposal, water, tools, equipment, labor, and incidentals necessary to complete this section.

4.2.1 Since the quantity of contaminated soil is unknown, the Bid Schedule includes a unit price and quantity for the purpose of comparing bids. The unit price set forth in the Bid Schedule for the transportation and disposal of contaminated material shall not be adjusted based on the actual quantity. The final quantity and contract price shall be adjusted based upon the actual volume of contaminated material disposed.

COMPACTION CONTROL AND TESTING 02250

1. GENERAL

1.1 Description: The work of this section consists of furnishing all equipment, labor, materials and incidentals to compact the various fill areas. Also, the Contractor shall provide the necessary testing facilities and equipment for soils and materials used in backfills and fill area.

2. MATERIALS: None

3. EXECUTION

3.1 Compaction Requirements: Compaction requirements for soils as controlled by methods of testing described herein are as follows:

Range A – In place compacted density of soil shall be greater than ninety-five (95) percent of maximum density at optimum moisture content.

Range B – In place compacted density shall be equal to or greater than ninety (90) percent of the maximum density at optimum moisture content.

Range C – In place compacted density shall be equal to or greater than eighty (80) percent of the maximum density at optimum moisture content.

Density range for compaction shall be as stated on the drawings or as specified herein. Compaction requirements for granular stone or sand, as controlled by methods of testing described herein shall be to a density of not less than ninety (90) percent of standard density.

3.2 Compaction Operations:

3.2.1 Trenches & Adjacent to Structures: Compaction shall be achieved using manually operated mechanical tampers or towed and self-propelled drum and vibrator tampers.

3.2.2 Roadways & Fills: Compaction shall be achieved using rollers, vibrators, compactors, or mechanical tampers.

3.2.3 Variances: The use of water jetting or similar techniques of compaction are prohibited as the sole means for compaction.

3.3 Moisture Content & Control:

3.3.1 Content: The moisture content requirements as determined under the methods of testing described herein are as follows:

Range A Compaction - The moisture content of the soil at the time of compaction shall be uniform and shall not be higher than four (4) percentage points above the optimum nor lower than the optimum of the soil involved.

Range B Compaction - The moisture content of the soil at the time of compaction shall be uniform and shall not be lower than three (3) percentage points below the optimum moisture content of the soil involved.

Range C Compaction - The moisture content of the soil at the time of compaction shall not be lower than five (5) percentage points below the optimum moisture content of the soil involved.

Compaction of Granular Stone or Sand: The moisture content shall be not less than ten (10) percentage points below the optimum content at the time of compaction.

3.3.2 Control:

3.3.2.1 Water Application: The moisture content of the soil at the time of compaction shall be within the moisture range designated. When the natural moisture content of the embankment soil does not fall within the required moisture range, water shall be added or the material shall be aerated, whichever is needed to adjust the soil to the proper moisture content. Water may be transported or distributed from calibrated tank trucks or the water may be added to the soil in the borrow and cut areas before hauling, as long as the moisture content of the soil at the time of compaction is uniform and within the designated moisture range.

3.3.2.2 Testing: No water shall be added without the consent of the Engineer and without providing him adequate test results to measure the quantities used. The amount of water to be added shall be only that amount that will, as determined by the field moisture tests, provide a moisture content in the soil to be within the required range plus a reasonable amount to compensate for evaporation and other avoidable losses. Satisfactory methods and sufficient equipment shall be used for the furnishing and handling of the water so there will be no undue loss due to evaporation. If water is added to cut areas or borrow pits, the surfaces of the areas or pits shall be maintained in such a manner that will prevent undue loss of moisture.

3.3.2.3 Visual Control: From other than the results of the moisture content test, the moisture content of the soil being compacted shall be considered as being too high to ensure compaction when, after repeated rollings with the sheepsfoot roller, the roller continues to pick up excessive amounts of soil and refuses to "build up" so that the tamping feet eventually ride the compacted surface.

3.4 Compacting Equipment:

3.4.1 Sheepsfoot Rollers: Sheepsfoot rollers shall conform to the following requirements: Tamping or sheepsfoot rollers shall consist of metal rollers, drums or shells, surmounted by metal studs with tamping feet projecting not less than six and one half (6½) inches from the surface of the rollers, drum, or shell. Tamping feet shall be spaced not less than six (6) inches nor more than twelve (12) inches measured diagonally center to center; and the cross-section area of each tamper foot, measured perpendicularly to the axis of the stud, shall not be less than four (4) nor more than twelve (12) square inches. The weight of tamping rollers shall be such that when fully loaded, the load on each tamper foot shall not be less than two hundred (200) pounds per square inch of cross-sectional area. The load per tamper foot will be determined by dividing the total weight of the roller (loaded) by the number of tamper feet in one (1) row parallel to the axis of the roller.

3.4.2 Pull-Type Steel Rollers: Pull-type steel rollers shall not have less than forty-eight (48) inches effective width of roll and shall be designed and constructed so that the weight per lineal inch of roll can be varied from two hundred (200) to at least three hundred (300) pounds.

3.4.3 Trench Rollers, Self-Propelling: The trench roller shall be an approved type and shall weigh not less than one hundred (100) pounds per inch of width.

3.4.4 Manually Operated Compactors: Equipment shall be in good mechanical condition and shall be capable of transmitting forceful vibrations or impacts to the various materials placed in construction.

4. SOIL TESTING

4.1 Testing Methods: Density tests as prescribed in these specifications will be made of the soil to be

used in the construction of the project to determine the standard density, the optimum moisture content and the moisture range required of the soil for satisfactory compaction. The field density and actual moisture content of the compacted material shall be determined as prescribed previously herein.

4.1.1 Standard Density: The standard density as determined by the standard compaction test shall be the density to which the field density is referred for comparison or percentage for each type of soil used in the work.

4.1.2 Optimum Moisture: The optimum shall be the moisture content corresponding to the maximum density on the standard compaction curve.

4.1.3 Moisture Range, Standard: The moisture range shall be limits of moisture content of the soil with the optimum as a reference.

4.1.4 Field Density: The field density shall be the density of the compacted material determined by the field density test.

4.1.5 Moisture Content: The moisture content shall be the actual moisture content of the soil in the compacted soil at the time of compaction.

4.2 Scope of Tests:

4.2.1 Borrow Areas: All areas selected to supply backfill and area fill materials requiring a specified compaction shall have moisture-density relationships determined by ASTM Designation D698, when the soil is initially excavated. Material shall also be tested for Atterberg limit values and shall be classified in accordance with the Unified Soils Classification System (USCS). In-place density of compacted soil shall be tested in accordance with ASTM designation D2167 or D2922, latest revision, to determine compliance with specifications. Specific testing locations will be determined by the Engineer.

4.2.2 Granular Stone & Sand: Granular stone and sand shall have moisture-density relationships determined by ASTM Designation D2049. In place density shall be determined by ASTM Designation D2167, ASTM 1557 or D2922.

4.2.3 Compacted Soil Sub-base Supporting Concrete, Steel, or Masonry Structures: Density shall be determined by a minimum of three samples and/or tests per structure, or two samples and/or tests per 1000 ft² of area, for each two lifts of fill by ASTM Test Designation D2167, or D2922.

4.2.4 Compacted Soil Sub-base Supporting Rigid & Flexible Pavements & Crushed Stone Surfacing: Density shall be determined by a minimum of three samples and/or tests, or two samples and/or tests per 300 S.Y. of area and for each 12 inches of fill.

4.2.5 Compacted Granular Stone or Sand Supporting Concrete, Steel, Masonry Structures, Rigid & Flexible Pavements: Density shall be determined by a minimum of three samples and/or tests per structure or two samples and/or tests per 300 S.Y. of area.

4.2.6 Compacted Trench Backfill: The number of density tests shall be a minimum of two per 100 L.F. of trench for each two lifts of backfill. Density tests shall be per ASTM D2167, ASTM D1557, or ASTM D2922, latest revisions.

5. MEASUREMENT AND PAYMENT

5.1 The work of this section shall not be measured or paid for separately, but shall be included in the unit prices set forth in the Bid Schedule for the work of which it is a part.

FINISH GRADING..... 02260

1. GENERAL

1.1 Description: The work of this section consists of bringing to finish grade the site and furnishing all labor, materials, tools, and equipment necessary to complete this section.

1.2 The work described in this section shall be performed on all areas of previously established lawns, yards, parkways, etc. that are disturbed by construction activities, except those areas noted on the drawings to receive crushed stone, asphalt, or concrete surfacing.

2. EXECUTION

2.1 The Contractor shall grade the earth as indicated on the drawings and as directed in the field by the Resident Project Representative.

2.2 The top four (4) inches of all excavated areas to be seeded or other areas indicated on the plans shall consist of topsoil. Topsoil shall not be placed until the area has been shaped, trimmed, and smoothed, and if the existing surface has become hardened or crusted, it shall be disked or raked so as to provide a bond with the layer of topsoil. The surface of the topsoil shall be free from lumps and clods and shall conform to the lines and grades shown on the drawings.

2.3 Areas within the construction limits shall be graded smooth and left with a neat and sightly appearance. The final grade around all structures shall be pitched to drain water away from the structures and toward the roadside ditches and natural drainageway.

2.4 The Contractor shall make all necessary arrangements for the procurement of adequate topsoil to fully cover the designated areas. This may require stockpiling of material stripped from the site or if adequate topsoil is not stockpiled, obtaining of topsoil from a location outside the project property.

3. MEASUREMENT AND PAYMENT

3.1 Finish grading shall not be measured or paid for separately, but shall be included in the unit price set forth in the Bid Schedule for vegetative surface restoration.

SHORING..... 02400

1. GENERAL

    1.1 Description: The work of this section shall consist of furnishing all equipment, labor, materials, tools, and incidentals necessary to provide for the protection of the personnel and to protect the excavations for both structural and trenching and existing structures; and as required by the applicable federal and state laws and regulations.

2. MATERIALS

    2.1 None.

3. METHODS

    3.1 Responsibilities: The Contractor is solely and totally responsible for the design, installation, maintenance, and safety of any shoring and/or bracing that may be required.

    3.2 Type of Shoring & Bracing: The type of shoring and bracing shall be that which is removable following the installation of the structure. No permanent type of shoring or sheeting shall be used which must remain within the limits of the excavation. The shoring or bracing shall be removed following approval by the Engineer of the excavation, installation of the structure, and installation of required backfill material.

4. MEASUREMENT AND PAYMENT

    4.1 Shoring shall not be measured or paid for separately, but shall be considered incidental to that work of which it is a part.

SURFACE RESTORATION 02480

1. GENERAL

1.1 Description: The work of this section consists of furnishing all labor, materials, tools, and incidentals necessary to restore the surface of all areas affected by construction, including landscaping, as required herein, replacement of fences, stone-lined ditches, walls, and embankments, and restoration of miscellaneous structures (mailboxes, street signs, etc.).

1.1.1 Type A Surface Restoration: Regardless of the site's previous condition, restoration consists of furnishing and placing topsoil (which may need to be hauled in), liming, seeding, mulching, laying netting as required, and otherwise preparing and establishing a uniformly grassed area as specified herein. Type A surface restoration shall be required on all areas disturbed by construction other than public or private streets and roads (or unless noted otherwise on the drawings).

1.1.2 Type B Surface Restoration: Consists of furnishing and placing all the necessary materials to restore areas affected by construction to a condition equal to that which existed prior to construction. Areas requiring Type B surface restoration shall be so designated on the drawings.

1.1.3 Pavement Repair and Replacement: Shall conform to Section 02575 – ROADWAY SURFACE AND SIDEWALK REPLACEMENT.

2. MATERIALS

2.1 Topsoil Stripped and Stored: Topsoil stripped, stored, and placed shall be fertile, friable, with liberal content of humus, and capable of sustaining vigorous plant growth.

2.2 Topsoil to Be Furnished: If the stripped topsoil is not adequate to complete the work, sufficient topsoil shall be furnished and shall be a natural, fertile, friable soil, possessing characteristics representative of productive soils in the vicinity. It shall be obtained from naturally well-drained areas. It shall not be excessively acid or alkaline (except for those plants requiring acid soil) nor contain toxic admixture of subsoil and shall be cleaned and reasonably free from clay lumps, stumps, roots, or similar substances, debris, or other objects which might be a hindrance to placing operations.

2.3 Lime: Lime shall be ground limestone containing not less than 85% of total carbonates and shall be ground to such a fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20 mesh sieve. Coarser material will be acceptable, provided the specified rates of application are increased proportionately on the basis of quantities passing the 100 mesh sieve.

2.4 Fertilizer: Commercial fertilizer shall be formula 12-12-12, and shall conform to the applicable state fertilizer laws. It shall be uniform in composition, dry and free flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

2.5 Herbicide: Herbicide shall be a pre-emergence type for mixing with soil designed to eliminate noxious weeds without harming landscape plants.

2.6 Lawn Materials: Grass seed shall be mixed and certified by the dealer and shall be 80% Kentucky 31 Fescue and 20% Korean Lespedeza by weight, and shall be uniformly sown.

2.7 Water: The Contractor shall make, at his expense, whatever arrangements may be necessary to insure an adequate supply of water to meet the needs of this contract. He shall also furnish all necessary hose, equipment, attachments, and accessories for the adequate watering of plants as

may be required to complete the work as specified.

2.8 Netting: Netting shall be a uniform, open, plain weave mesh of single jute yarn or 25 to 35 pound natural, unbleached kraft paper. Minimum width of netting fabric shall be 42 inches. Jute netting shall have 76 warp ends per 48-inch width and 41 weft ends per yard, minimum. Kraft paper netting shall have 5.5 warp yarns by 3.5 filling yarns per inch. Staples for anchoring netting shall be No. 11 gauge steel wire, six (6) inches long.

2.9 Mulch: Vegetative mulch shall be the shredded cereal straw from stalks of oats, rye, wheat, or barley. The straw shall be free of prohibited weed seeds as stated in the State Seed Law; shall be relatively free of all other noxious and undesirable seeds; and shall be clean, bright, and dry enough to spread properly. Binder emulsion shall be applied to prevent straw from blowing.

3. EXECUTION

3.1 All areas within the limits of finish grading not required to be developed otherwise shall be planted with grass in accordance with this specification.

3.2 Soils Test: The Contractor shall, at his own expense, contact the County Extension Agent and secure a soil test of the topsoil. If recommended by this test, the topsoil shall be limed in quantity recommended by the Extension Agent (generally a soil pH of 6.0 to 6.5 is desirable). Three copies of the soil test shall be sent to the Engineer along with recommendations on lime use. No work shall be started until approved by the Engineer. Estimates of lime requirements are as follows:

POUNDS OF GROUND LIMESTONE PER 1,000 SQUARE FEET

pH	Light Sandy Soil-Pounds	Medium Sandy Soil-Pounds	Loam & Silty Loam-Pounds	Clay Loam Pounds
4.0	90	120	172	217
4.5	82	112	157	202
5.0	7	90	127	150
5.5	52	67	97	120
6.0	None	None	None	None

3.3 Time of Planting for Lawns: The Contractor shall coordinate the work so that lawn areas will be topsoiled and graded to meet the planting schedule as follows:

3.3.1 Preferred Time of Planting: February 1 to April 20.

3.3.2 Alternate Time of Planting: September 1 to October 30. For this time of planting, the Contractor shall keep the lawn well watered through the summer, or until the project is accepted by the Owner.

3.4 The Engineer is aware that in some cases it would create a hardship to maintain the above schedule. If the Contractor wishes to make recommendations on other times when seeding could be done, the Engineer will consider these recommendations. However, methods or time of planting shall be agreed to, in writing, before commencing this portion of the work or the above schedule shall be followed.

3.5 Preparation of Topsoil: The topsoil shall be graded and uniformly compacted.

3.6 Sulphur: If the addition of sulphur is necessary, it shall be applied at a rate of two pounds per 1000 square feet.

3.7 Applying Fertilizer: Commercial fertilizer shall be applied at the rate of 20 pounds per 1,000 square

feet to the lawn areas being prepared for planting. Fertilizer may be applied with seed; however, application after sprouting of the lawn seed is preferred.

3.8 Sowing of Seed: Immediately before any seed is to be sown, the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable, and of uniformly fine texture. Lawn areas shall be seeded evenly at the rate of 200 pounds per acre, lightly raked, and watered with a fine spray. The method of seeding may be varied at the discretion of the Contractor on his own responsibility to establish a smooth, uniformly grassed lawn.

3.9 Mulching: Within 24 hours after seeding, mulch shall be spread evenly over the entire area at the rate of 2½ tons per acre.

3.10 Optional Establishment of Lawns: At the option of the Contractor, sod may be used for establishing all or part of grass lawn areas. Sod on slopes shall be held in place by wooden pins about one-inch square and six inches long driven through the sod into the soil until they are flush with the top of the sod. Before any sod is laid, all soft spots and inequalities in ground shall be corrected. Fertilizer spread shall be raked in. Sod shall be laid so that no voids occur and shall be tamped or rolled. The complete sodded surface shall be true to finish grade, even and firm at all points. Sod shall be placed so that the surface of the compacted sod will be slightly below the surrounding surface soil. All soils tests and pH adjustment specified previously shall be undertaken prior to sodding.

3.11 Clean-up: Any soil, manure, peat or similar material which has been brought onto paved areas by hauling operations, or otherwise, shall be removed promptly, keeping these areas clean at all times. Upon completion of the planting, all excess soil, stones, and debris which have not previously been cleaned up shall be removed from the site or disposed of as directed by the Engineer. All lawns and planting areas shall be prepared for final inspection.

3.12 Maintenance: Maintenance shall begin immediately after planting and shall continue in accordance with the following requirements:

3.12.1 Repairs: Repairs to lawns or replacements of plants necessary during the maintenance period due to removal, vandalism, or acts of neglect on the part of others may be done on request by the Owner and will be done at the expense of the Owner.

3.12.2 Maintenance: Lawns shall be protected and maintained by the Contractor by watering, mowing, and replanting as necessary for at least thirty (30) days and as much longer as is necessary to establish a uniform stand of the specified grasses, and until acceptance by the Owner.

3.13 Inspection: Inspections of the work to determine completion of contract work exclusive of possible replacement, will be made by the Engineer at the conclusion of the maintenance period upon written notice requesting such inspection submitted by the Contractor at least 10 days prior to the anticipated date. The condition of lawns will be noted and determination made by the Engineer and Owner as to whether maintenance shall continue in any part. After inspection, the Contractor will be notified in writing by the Engineer of acceptance of seeding work exclusive of the possible replacement.

3.14 Guaranty and Replacement: Lawns and planting shall be guaranteed for a maximum of one year after the conclusion of the maintenance period, or for the duration of one full growing season, after planting, whichever is longer, and shall be alive and in satisfactory growth at the end of the guaranty period, subject to normal care as recommended by this Contractor after acceptance of the work. At the end of the guaranty period, inspection will be made by the Engineer and a representative of the Owner upon written notice requesting such inspection submitted by the Contractor at least 10 days before the anticipated date. Any planting required under this contract that is dead or not in satisfactory growth, as determined by the Engineer and Owner's

representative, shall be removed from the site. These shall be replaced as soon as conditions permit, but during the normal planting season.

4. MEASUREMENT AND PAYMENT

4.1 Measurement and payment for Surface Restoration shall not be measured or paid for separately, but shall be included in the unit price set forth in the Bid Schedule for the work of which it is a part.

4.2 Repair and replacement of existing fences, mailboxes, street signs, stone-lined ditches, culverts, walls and embankments, and other miscellaneous structures shall not be measured or paid for separately, but shall be included in the unit price set forth in the Bid Schedule for the work of which it is a part.

CRUSHED STONE SURFACING 02511

1. GENERAL

1.1 Description: The work of this section consists of furnishing all labor, materials, equipment and tools for replacement of drive entrances and alleyways as necessary.

2. MATERIALS

2.1 Crushed Stone Surfacing: The graded stone shall consist of a natural or artificial mixture of hard, durable particles of coarse and fine limestone aggregate. The materials shall be free from soft or decomposed particles, and shall be uniformly graded so that it can be compacted into a hard dense mass. The natural or processed mixture shall conform to the following:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
2 inch	100
1 inch	55 - 85
3/4 inch	50 - 80
#4	30 - 60

Suitable material shall be added and uniformly blended if necessary to make natural stone conform to the required gradation. The stone base shall be compacted to not less than 95% of maximum density at optimum moisture content as determined by Mod. AASHTO T-99.

3. EXECUTION

3.1 Crushed Stone Surfacing: Where areas are shown on the drawings to receive crushed stone surfacing, they shall be excavated to the proper depth on which a course of crushed stone shall be placed. The crushed stone shall be placed and compacted in layers to a finished thickness of six (6) inches.

3.1.1 Contractor shall furnish, place, and compact a six (6) inch thick course of crusher run limestone on a prepared sub-grade. The number of layers and the thickness of each layer shall be constructed at the Contractor's option subject to the limitation that the compacted thickness of any one course or layer shall not exceed four (4) inches.

3.1.2 In no case shall the Contractor be permitted to place the granular base or manipulate it on muddy or frozen sub-grade. Any mixture containing frost or frozen particles shall not be placed on the sub-grade or compacted.

3.1.3 The crushed stone shall be handled in such manner as to avoid undue segregation. If segregation occurs or if the mixture becomes contaminated, such segregation or contaminated material shall be removed and replaced with material of suitable quality and gradation. Segregated or contaminated materials ordered removed by the Engineer shall be replaced at the sole expense of the Contractor.

3.1.4 Preliminary compaction shall be performed by means of pneumatic-tired rollers. After preliminary compaction has been secured, finish compaction shall be carried to completion by means of self-propelled steel-wheeled rollers weighing not less than ten (10) tons. Shaping and compacting shall be carried on until a true, even, uniform base course of proper grade, cross section, and density is obtained. Proper moisture content shall be maintained by wetting the surface or allowing it to dry as required during shaping and compacting operations. The use of excess water resulting in run-off or in the formation of a slurry on the surface shall be avoided. The stone base shall be compacted to not less than 95 percent of the maximum density of optimum moisture content as determined by Mod AASHTO T-99.

4. MEASUREMENT AND PAYMENT

4.1 Crushed stone paving shall not be measured or paid for separately, but shall be included in the unit price set forth in the Bid Schedule for that work of which it is a part.

SERVICE LATERAL LINE CLEANOUT..... 02608

1. GENERAL

1.1 Description: This section covers the furnishing of all tools, equipment, materials, supplies, and labor for the installation of service lateral line cleanouts as designated by the Owner.

2. PRODUCTS

2.1 Plastic Pipe: Shall be as specified in Section 02622 – PLASTIC PIPE.

2.2 Tracer Wire: Shall be as specified in Section 02722 – SANITARY SEWER SYSTEMS.

2.3 Frame and Cover: Frame and Cover shall be East Jordan Model 8500 and 6800, respectively or approved equal.

3. INSTALLATION

3.1 Cleanout (Open Cut Excavation):

3.1.1 The locations of cleanouts shall be coordinated with the Owner and the property Owner following pre-installation television inspection.

3.1.2 All service lateral line installed during the installation of a cleanout shall also include the installation of tracer wire as specified in Section 02722 – SANITARY SEWER SYSTEMS.

3.1.2 Cleanouts shall be installed as shown on the detail on the following page.

4. MEASUREMENT AND PAYMENT

4.1 Service Lateral Cleanout: The installation of service lateral cleanouts shall be measured as a complete in-place unit based on depth. Depth shall be measured from the natural ground surface elevation to the flow line elevation. Payment shall be made at the unit price set forth in the Bid Schedule for the depth and type of surfacing that exists above the proposed service lateral cleanout. This price and payment shall constitute full compensation for all excavation, bedding, backfill, surface restoration, pavement replacement, pipe, fittings, couplings, labor, materials, tools, equipment, and incidentals required for a complete and in-place installation.

MANHOLE RENOVATION..... 02609

1. GENERAL

1.1 Description: This specification shall govern all work, materials, and equipment required for the renovation of manholes for the purpose of eliminating inflow, infiltration and exfiltration, providing corrosion protection, repairing of voids, and restoration of the structural integrity of the substrate as a result of applying a monolithic fiber-reinforced structural cementitious liner, replacing the manhole frame and cover, adjusting the rim elevation to match the existing or proposed grade, and applying a flexible manhole chimney seal to existing brick, concrete, or other masonry construction material.

1.1.1 All personnel entering manholes shall comply with all safety requirements and must wear approved safety equipment as recommended by OSHA (Occupational Safety & Health Administration) and NIOSH (National Institute for Occupational Safety and Health) for confined space entry.

1.2 Described are procedures for adjusting the rim elevation and replacing the manhole frame and cover and procedures for cleaning, preparation, application, and testing of the cementitious liner and flexible chimney sealant. The applicator of the cementitious liner and flexible chimney sealant shall be approved and trained by the manufacturer, shall furnish all labor, equipment and materials for applying a corrosive resistant structural cementitious mixture to rebuild deteriorated structures back to original dimensions, restore structural integrity, eliminate infiltration, and the application of sealant to eliminate infiltration between the cover ring and chimney, using machinery specially designed for the application. All aspects of the application of the cementitious liner and flexible chimney sealant shall be in accordance with the manufacturer's recommendation and per the following specifications. The following work shall be described within this specification.

- Removal and disposal of existing manhole frame and cover;
- Installation of adjustment rings (minimum 3"), as necessary to bring finished rim elevation to grade.
- For small height adjustments (3" and less), Contractor shall shim the proposed frame and cover to the finished rim elevation and grout the space (both inside and outside) between the frame and concrete manhole or adjustment ring with non-shrink, non-metallic grout;
- Installation of new frame and cover (to be provided by the Owner and installed by Contractor);
- Removal of any loose and unsound material;
- Cleaning of the area to be sprayed;
- The elimination of active infiltration prior to making the application;
- The repair and filling of voids;
- The repair and sealing of the invert and benches;
- The spray application of a cementitious mix to form a structural monolithic liner;
- The spray application of a flexible sealant to prevent infiltration between manhole cover and frame and the manhole chimney.

1.3 Submittals: The following items shall be submitted to the Engineer prior to application:

1.3.1 A technical data sheet for each product used, including ASTM test results verifying product meets specifications and verifying product is suitable for its intended use.

1.3.2 Material Safety Data Sheets (MSDS) for all products used, including materials used for patching, profiling, & leak stoppage and corrosion protection.

1.3.3 Project guidelines and manufacturer recommendations.

1.3.4 Qualification of applicator.

1.3.4.1 Manufacturer certification stating that personnel have been trained and approved in the handling, mixing and application of the products to be used.

1.3.4.2 Certification that the equipment to be used for applying the products has been manufactured or approved by the manufacturer.

1.3.5 Design details for any additional ancillary systems and equipment to be used on site.

1.4 Delivery, Storage and Handling:

1.4.1 Materials are to be kept dry, protected from weather, and stored under cover protected from the elements.

1.4.2 Materials are to be stored between 40°F and 110°F. Do not store near flame, heat, or strong oxidants.

1.4.3 All materials are to be handled according to specific material safety data sheets.

1.5 Site Conditions:

1.5.1 Applicator shall conform to all local, state, and federal regulations including those set forth by OSHA, RCRA, and EPA, and other applicable authorities.

1.5.2 Method statements and design procedures are to be approved by the Owner when confined space entry or flow diversion bypass pumping is necessary in order for applicator to perform the specified work.

2. MATERIAL

2.1 Manhole Frame and Cover: Shall be provided by the City of Joplin.

2.2 Patching Material: A quick setting, fiber reinforced, high early strength, corrosion resistant, hand applied, calcium aluminate based cementitious material shall be used as a patching material to fill voids and to repair inverts. It shall be mixed and applied according to manufacturer's recommendations and shall have the following minimum requirements:

Compressive Strength	ASTM C109	>1800 psi, 1 hour >2600 psi, 24 hours
Minimum Bond	ASTM C882	>1600 psi, 28 days
Calcium Aluminate Cement	-	Sulfate Resistant
Applied Density	-	105 pcf ± 5 pcf
Shrinkage	ASTM C596	0% at 90% Relative Humidity

2.3 Infiltration Control Material: A rapid setting, high early strength, hand applied, cementitious material specifically formulated for leak control shall be applied to stop minor water infiltration. It shall be mixed and applied according to the manufacturer's recommendations and shall have the following minimum requirements:

Compressive Strength	ASTM C109	>1000 psi, 1 hour >2500 psi, 24 hours
Sulfate Resistance	ASTM C267	No weight loss after 15 cycles @ 2000 ppm
Freeze/Thaw Resistance	ASTM C666 Method A	100 cycles
Pull Out Strength	ASTM C234	14,000 lbs
Set Time		<1 minute

2.4 Grouting Material: A cementitious grout shall be used for stopping very active infiltration and filling voids and shall be mixed and applied according to the manufacturer's recommendations. The cementitious grout shall be volume stable, and have a minimum 28-day compressive strength of 250 psi. As determined by the manufacturer, the contractor shall be prepared to use a cementitious grout designed for special soil conditions that is volume stable and has a minimum 28-day compressive strength of 1000 psi. Chemical grouts may be required for stopping very active infiltration and shall be mixed and applied per the manufacturer's recommendation.

2.5 Cementitious Liner (manholes with no evidence of hydrogen sulfide corrosion): A cementitious liner shall be used to form a structural monolithic liner covering all interior substrate surfaces and shall be made with Type I Portland Cement reinforced with fiberglass rods not less than ½-inch in length. Liner shall be factory blended requiring only the addition of water at the jobsite. The contents shall have a dry bulk density of 82-85 pounds per cubic foot. When mixed with manufacturers' recommended amount of water it shall have a wet nozzle density in the range of 129 to 139 pounds per cubic foot and have a typical yield of 0.57 cubic feet per bag. The material shall meet or exceed industry standards and shall not have any basic ingredient that exceeds EPA maximum allowable limits for any heavy metal. The liner shall be installed per the manufacturer's recommendations and have the following minimum requirements:

Compressive Strength	ASTM C109	>9000 psi, 28 days
Tensile Strength	ASTM C496	>800 psi, 28 days
Flexural Strength	ASTM C293	>1200 psi, 28 days
Shrinkage	ASTM C596	0% at 90% Relative Humidity, 28 days
Bond	ASTM C882	>2000 psi, 28 days
Density (When Applied)	-	134 ± 5 pounds per cubic foot
Freeze/Thaw	ASTM C666 Method A	300 cycles, no visible damage

2.6 Cementitious Liner (manholes with evidence of hydrogen sulfide corrosion): A cementitious liner shall be used to form a structural monolithic liner covering all interior substrate surfaces and made from a blend of 100% pure fused aluminate clinker with a minimum aluminate content of 38% and reinforced with alkaline resistant fiberglass rods not less than ½-inch in length. Liner shall be factory blended requiring only the addition of water at the jobsite. The contents shall have a dry bulk density of 100-102 pounds per cubic foot with alkaline-resistant fiberglass rods. When mixed with manufacturers' recommended amount of water it shall have a wet nozzle density in the range of 140 to 150 pounds per cubic foot and have a typical yield of 0.48 cubic feet per bag. The material shall meet or exceed industry standards and shall not have any basic ingredient that exceeds EPA maximum allowable limits for any heavy metal. The liner shall be installed per the manufacturer's recommendations and have the following minimum requirements:

Compressive Strength	ASTM C109	>9000 psi, 28 days
Tensile Strength	ASTM C496	>800 psi, 28 days
Flexural Strength	ASTM C293	>1500 psi, 28 days
Shrinkage	ASTM C596	0% at 90% Relative Humidity, 28 days
Bond	ASTM C882	>3000 psi, 28 days
Density (When Applied)	-	145 ± 5 pounds per cubic foot
Freeze/Thaw	ASTM C666 Method A	300 cycles, no visible damage

2.7 Cementitious Liner with Antimicrobial Additive: A cementitious liner shall be used to form a structural monolithic liner covering all interior substrate surfaces complete with an antimicrobial additive which renders the concrete uninhabitable for bacteria growth. Cementitious material shall meet the requirements of paragraph 2.5 above. The antimicrobial additive shall be ConShield or engineer approved equal meeting the following requirements:

2.7.1 The liquid antibacterial additive shall be an EPA registered material and the registration number shall be provided to the Owner and Engineer for review prior to use in the project.

2.7.2 The antibacterial additive shall have successfully demonstrated prevention of microbial induced corrosion in sanitary sewers for a minimum of 5-years. A list of references shall be provided to the Owner and Engineer prior to use in the project.

2.7.3 The application Contractor shall be manufacturer trained and certified.

2.8 Epoxy Liner: A 100% solids epoxy protective liner shall be applied to the interior of manholes showing evidence of extreme hydrogen sulfide corrosion as directed by the City of Joplin. The epoxy shall be installed per the manufacturer's recommendations and have the following minimum requirements:

Compressive Strength	ASTM D695	>8800 psi
Tensile Strength	ASTM D638	>7700 psi
Flexural Strength	ASTM D790	>12,400 psi
Pull Off Strength	ASTM D4541	>350 psi
VOC	ASTM D2584	0%
Durometer Hardness	ASTM D2240	Shore D-70
Moisture Absorption	ASTM C413	<0.03%

2.9 Flexible Chimney Sealant: The sealant shall be designed to prevent leakage of water into the manhole through the frame joint area and the area above the manhole cone, including all extensions to the chimney area. Extensions shall include, but not be limited to: Lifting rings, brick, block, concrete, and other material that may have been used to achieve finished grade. The chimney seal shall remain flexible allowing for repeated vertical and horizontal movements of the frame due to frost lift, ground movement, or thermal expansion of pavements. The manhole chimney sealing system shall have the following minimum requirements:

Adhesion	ASTM D4541	>350 psi
Durometer Hardness	ASTM D2240	Shore A-75
Tensile Strength	ASTM D412	>1150 psi

2.10 Water: Water used to mix product shall be clean and potable. Questionable water shall be tested by a laboratory per procedure outline in ASTM C-94. Potable water need not be tested.

2.11 Pavement Replacement: Each manhole located under pavement shall have a minimum 5'x5'x10" thick diamond or 4' diameter x 10" thick concrete pavement repair patch installed around the new frame and cover. The concrete pavement shall be installed in a diamond configuration with the tip of the diamond facing the direction of traffic flow. All pavement disturbed during manhole frame and cover installation shall be replaced with concrete. Any concrete required in addition to the 5'x5' square or 4' circle shall be at the Contractor's expense. New concrete pavement shall be flush with surrounding existing pavement and new frame and cover.

3. EXECUTION

3.1 Prior to renovating the interior of any manhole, a new frame and cover shall be installed when directed to do so by the Owner. The frame and cover shall be provided to the Contractor by the Owner for the Contractor's installation. For rim height adjustments greater than 3-inches, the Contractor shall install precast concrete adjustment ring(s) in order for the finished rim elevation to match the elevation of the existing ground or pavement. For rim height adjustments less than 3-inches, the Contractor shall shim the proposed frame, as necessary, so that the finished rim elevation matches the elevation of the existing ground or pavement. The annular space between the frame and manhole shall then be grouted (both inside and outside) with material meeting the requirements of paragraph 2.4 above.

3.2 Weather Conditions: No application shall be made if ambient temperature is below 40°F. No application shall be made to frozen surfaces or if freezing is expected to occur within the substrate

within 24 hours after application. Precautions shall be taken to keep the mix temperatures at time of application below 90°F. Water temperature shall not exceed 80°F. Chill with ice if necessary.

3.3 Surface Preparation:

3.3.1 Place covers over invert to prevent extraneous material from entering sewer lines before cleaning.

3.3.2 All foreign material shall be removed from the manhole wall and bench using a high-pressure water spray (minimum 1500 psi). Unusual conditions such as heavy grease build-up or residues of industrial or processing wastes may require steam, chemical cleaning compounds, or surface abrading. Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer and chisel and/or scraper. Fill voids greater than 2-inches in depth with quick setting patching material meeting the requirements of paragraph 2.2 above.

3.3.3 Active Leaks shall be stopped using quick setting infiltration control material meeting the requirements of paragraph 2.3 above according to manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during the application. After application, the weep holes shall be plugged with the infiltration control material prior to the application of the final coat. When severe infiltration exists, drilling may be required in order to pressure grout using a cementitious grout or chemical grout. Manufacturer's recommendations shall be followed when pressure grouting is required.

3.4 Invert Repair:

3.4.1 After all preparations have been completed, remove all loose material and wash wall again.

3.4.2 Any bench, invert, or service line repairs shall be made at this time using a quick setting patching mix meeting the requirements of paragraph 2.2.

3.4.3 Repair inverts with visible damage and where infiltration is present. Vacuum testing is required. After blocking flow through manhole and thoroughly cleaning invert, the quick setting patch material shall be applied to the invert in an expeditious manner. The material shall be trowled uniformly onto the damaged invert at a minimum thickness of ½-inch at the invert extending out onto the bench of the manhole sufficiently to tie into the structural monolithic liner to be spray applied. The finished invert surfaces shall be smooth and free of ridges.

3.5 Application of Cementitious Liner Material:

3.5.1 Equipment: Applicator must use approved equipment designed and manufactured by the material supplier specifically for the application of cementitious liners in sanitary sewer systems. Specially designed machines consisting of a progressive cavity pump and an air system for low velocity spray application of product shall be used for applying the materials. Equipment shall be complete with water storage and metering system.

3.5.2 Mixing of Cementitious Liner Materials:

3.5.2.1 Linear material shall be mixed with water in accordance with the manufacturer's instructions. Use only the amount of water specified in the manufacturer's mixing procedures to produce a mix consistency that won't sag or run when applied on a vertical surface using the approved equipment.

3.5.2.2 When an antimicrobial additive is utilized as directed by the Owner, the amount added shall be as recommended by the manufacturer. This amount shall be included in the total water content of the Cementous liner. The additive shall be added into the mix water to ensure even distribution of the additive throughout the cementitious liner.

3.5.2.3 The prepared mix shall be discharged into a hopper and another batch prepared to occur in such a manner as to allow spraying continuously without interruption until each application is complete.

3.5.3 Saturated Surface: Ensure that the surface is damp and totally saturated with water, without noticeable free water droplets or running water, just before application of liner material.

3.5.3.1 When utilizing an antimicrobial additive within the Cementous liner, the antimicrobial additive shall be spray applied to the cleaned and prepared interior surface, just before application of the cementitious liner with antimicrobial additive.

3.5.4 Spraying: Spray apply the liner material in one (1) or more passes from the bottom of the wall to the bottom of the frame to form a structurally enhanced monolithic liner.

3.5.4.1 The minimum total thickness when complete shall be one (1) inch.

3.5.5 Finishing: Trowel the surface of sprayed liner material to a relatively smooth finish. Do not over trowel. Apply a brush finish to the trowel-finished surface.

3.5.6 Manufacturer's recommendations shall be followed whenever more than 24 hours have elapsed between applications.

3.5.7 Bench Application: The wooden covers shall be removed and the bench sprayed with liner material mixed per paragraph 3.5.2. Spray-apply liner material to produce a gradual slope from walls to invert to form a structurally enhanced monolithic liner. The minimum thickness at the invert shall be 1/2-inch. Round the full circumference of the intersection between the wall and the bench to a uniform radius. When complete the bench area shall not pond any water.

3.5.8 When utilizing a cementitious liner with antimicrobial additive, a color identifier-indicator shall be spray applied to the finished surface after the initial set.

3.6 Curing: Caution should be taken to minimize exposure of applied product to sunlight and air movement. Cover structure if time between application of additional coats is to be longer than 15 minutes. At no time should the finished product be exposed to sunlight or air movement for longer than 15 minutes before covering or closing access. In hot and arid conditions, manhole shall be shaded while renovation is in progress.

3.6.1 Concrete Curing Compound: Prepare surface with bonding agent in accordance with manufacturer's instructions.

3.6.2 Cure Time: Allow a minimum of 4 hours cure time before subjecting manholes to storm runoff and surcharge and a minimum of 6 hours cure time before subjecting manholes to force main impact.

3.7 Field Quality Control: All field quality control testing shall be at the Contractor's expense. Inspection by the Engineer or Owner or the waiver of inspection of any portion of the work described within this specification shall not relieve the Contractor of the responsibility to perform the work as specified.

3.7.1 Compressive Strength Test: Contractor shall cast four 2-inch cubes each day or from each pallet of material, label, package, and mail cubes to the manufacture for testing. Manufacturer shall test cubes for compressive strength in accordance with ASTM C 109 and submit test results to the Contractor and Engineer.

3.7.2 Leaks: Visually verify the absence of leaks.

3.7.3 Manhole Testing: All renovated manholes shall be tested in accordance with specification Section 02722 – SANITARY SEWER SYSTEMS. Testing shall not be performed earlier than 7 days after application.

3.8 Protection: Do not allow traffic for a minimum of 24-hours after final application of liner material.

3.9 Application of Epoxy Liner:

3.9.1 Applicator shall inspect the surface specified to receive the 100% solids epoxy protective lining prior to the application. Applicator shall notify the Owner of any noticeable disparity in the surfaces, which may interfere with the proper application of the epoxy liner.

3.9.2 Equipment: Applicator must use manufacturer approved equipment for the application of the epoxy liner in sanitary sewer systems.

3.9.3 Application procedures shall conform to the recommendations of the epoxy liner manufacturer, including, but not limited to, material handling, safety, and environmental controls for mixing and spray equipment.

3.9.4 Epoxy shall be applied from the base of the manhole frame and cover to the top of the manhole bench or as low as possible during normal flow conditions. Application must extend below the last manhole joint. Subsequent top-coating or additional coats of the epoxy shall occur within the products recoat window. Additional surface preparation procedures will be required if this recoat window is exceeded.

3.9.5 The minimum dry film thickness of the epoxy liner shall be 125 mils.

3.9.6 Testing and Inspection:

3.9.6.1 During application a wet film thickness gauge, meeting the requirements ASTM D4414 shall be used.

3.9.6.2 After the epoxy has set hard to the touch, it shall be inspected with high voltage holiday detection equipment. An induced holiday shall be made onto the coated concrete surface and shall serve to determine the minimum/maximum voltage to be used to test the coating for holidays at the particular area. All detected holidays shall be marked and repaired by abrading the coating with a 40-grit disc paper or other hand tooling method, cleaned, and additional epoxy shall be hand or spray applied to repair the area at no additional cost to the Owner. All touchup/repair shall follow the manufacturer's recommendations.

3.10 Application of Flexible Chimney Sealant: Once the cementitious liner or epoxy liner has adequately cured, a flexible chimney sealant shall be applied as directed by the Owner. The applicator shall be approved and trained by the manufacturer for the application of the chimney sealant. The sealant shall have the physical properties as described in paragraph 2.9 of this specification.

3.10.1 Manhole Chimney and Frame Preparation: Installer shall inspect all surfaces specified to receive the sealant prior to application. Applicator shall notify Owner of any noticeable disparity in the surfaces, which may interfere with the proper application of the sealant.

3.10.1.1 The substrate surface shall be cleaned and free of release agents, curing compounds, salts, efflorescence, laitance, sand, loose debris, dust, grease, chemical contamination, and any other foreign matter by sandblasting, shot blasting, mechanical scarification, or suitable chemical means.

3.10.1.2 Active leaks shall be stopped using infiltration control material as specified above in paragraph 2.3. Openings or gaps larger than 1/8-inch shall be patched using the patching material as specified above in paragraph 2.2.

3.10.1.3 Check pH of structural liner surfaces prior to application of chimney sealant. Rinse thoroughly to achieve a final pH as recommended by the manufacturer. Allow to dry thoroughly prior to coating.

3.10.2 Application procedures shall conform to the manufacturer's recommendations including material handling, mixing, safety, spray equipment and environmental controls during application.

3.10.3 The lining product shall have an aromatic urethane primer resin on the complete surface. The sealing system shall line the interior of the adjustment area from the cone/top manhole section up to and including the inside of the casting. The chimney sealant shall begin at a point at least 2-inches above the bottom of the casting and extend downward a minimum of 12-inches, or as necessary in order to overlap the cementitious lining or epoxy lining applied during manhole renovation.

3.10.4 The final thickness shall be a minimum of 170 mils of corrosion resistant aromatic flexible urethane resin coating.

3.10.5 Manhole cover shall be replaced immediately and traffic withheld for 30 minutes after application is complete.

4. MEASUREMENT AND PAYMENT

4.1 Manhole Frame and Cover Replacement: Manhole fame and cover replacement shall be measured as a complete in-place unit. The manhole frame and cover shall be provided by the Owner and installed by the Contractor. Payment shall be at the unit price stated in the Bid Schedule for the type of surface in which the frame and cover is installed. This price and payment shall constitute full compensation for all materials, labor, equipment, tools, surface restoration, pavement replacement, adjustment rings, grout, traffic control, and incidentals necessary for a complete installation flush with the existing surface elevation.

4.2 Cementitious Lining: Installation of the cementitious lining shall be measured for vertical depth of the existing manhole and type of cementitious lining (type I Portland cement, pure fused aluminate clinker, or type I Portland cement with antimicrobial additive). Vertical Depth shall be measured from the manhole rim elevation to the existing flow line out elevation. Payment shall be at the unit price per vertical foot basis stated in the Bid Schedule for the diameter of manhole and type of cementitious lining. This price and payment shall constitute full compensation for all materials, tools, labor, traffic control, patching, infiltration control, grouting, cementitious lining, curing, and all incidentals for a complete manhole renovation.

4.3 Epoxy Lining: Installation of the epoxy lining shall be measured for vertical depth of the existing manhole. Vertical Depth shall be measured from the manhole rim elevation to the existing flow line out elevation. Payment shall be at the unit price per vertical foot basis stated in the Bid Schedule for the diameter of manhole. This price and payment shall constitute full compensation for all materials, tools, labor, traffic control, patching, infiltration control, grouting, epoxy lining, curing, and all incidentals for a complete installation.

4.4 Cementitious and Epoxy Lining: Installation of the cementitious (type I Portland cement) and epoxy lining shall be measured for vertical depth of the existing manhole. Vertical Depth shall be measured from the manhole rim elevation to the existing flow line out elevation. Payment shall be at the unit price per vertical foot basis stated in the Bid Schedule for the diameter of manhole. This price and payment shall constitute full compensation for all materials, tools, labor, traffic

control, patching, infiltration control, grouting, cementitious lining, epoxy lining, curing, and all incidentals for a complete installation.

4.5 Flexible Chimney Sealant: Application of the flexible chimney sealant shall be measured for vertical depth. Vertical Depth shall be measured from the point of beginning (at least 2-inches above the bottom of the casting) to the point of termination (at least 12-inches or as necessary to overlap the cementitious lining). Payment shall be made at the unit price set forth in the Bid Scheduled for the diameter of existing chimney. This price and payment shall constitute full compensation for all materials, labor, equipment, tools, traffic control, flexible chimney sealant, and all incidentals for a complete installation.

MANHOLE RENOVATION USING CURED-IN-PLACE MANHOLE (CIPM) 02610

1. GENERAL

1.1 Description: This specification consists of the renovation of manholes for the purpose of eliminating inflow, infiltration, and exfiltration through the installation of a cured-in-place manhole (CIPM) consisting of a thermosetting resin-impregnated flexible felt tube. The CIPM shall be inserted into the host structure and expanded to fit tightly against the walls, benches, and inverts of an existing manhole by the use of pressurized air. Curing is accomplished by raising the temperature of the air used for inflation to cure the resin into a hard, impermeable structure.

1.1.1 All personnel entering manholes shall comply with all safety requirements and must wear approved safety equipment as recommended by OSHA (Occupational Safety & Health Administration) and NIOSH (National Institute for Occupational Safety and Health) for confined space entry.

1.2 Manufacturer and Installer Qualification Requirements: All Manufacturers and Contractors must meet the following criteria:

1.2.1 Manufacturer: A manufacturer's product shall be considered approved with the submission of an affidavit, included with the bid, and accompanying third party test results demonstrating that the product meets or exceeds the physical properties listed in Part 2 – Materials, of this specification. Additionally, the manufacturer shall provide documentation that the product has been used successfully in the wastewater industry for a minimum of 5 years. A list of references, including owner's name and contact information, shall be submitted with the bid documenting the 5-year period of successful installations.

1.2.2 Installer: The Installer must submit with their bid, correspondence from the Manufacturer stating that they are certified to install the Manufacturer's liner product. The Installer shall also provide a list of references, including owner's name and contact information, documenting successful installations over a period covering the previous 5 years.

1.3 Submittals: The following items shall be submitted to the Engineer prior to installation:

1.3.1 Product data;

1.3.2 Manufacturer's storage and installation instructions;

1.3.3 Shop drawings;

1.3.4 Curing/Stress relief schedule;

1.3.5 Bypass plan layout;

1.3.6 Public notification;

1.3.7 Safety plan;

1.3.8 Curing/Stress relief log

1.4 Warranty: The liner Manufacturer shall provide a written warranty to provide assurances against defects in material and workmanship. At a minimum, this warranty shall provide assurance against infiltration, further deterioration, and root intrusion for a non-prorated period of 20-years on materials and 5-years on workmanship from the date of installation for the repair or replacement of any failing condition of the liner.

1.5 The Contractor shall be responsible for all traffic control requirements as specified in Section 01577 – TRAFFIC CONTROL.

2. MATERIALS

2.1 Manhole Frame and Cover: Shall be provided by the City of Joplin.

2.2 Patching Material: A quick setting, fiber reinforced, high early strength, corrosion resistant, hand applied, calcium aluminate based cementitious material shall be used as a patching material to fill voids and to repair inverts. It shall be mixed and applied according to manufacturer's recommendations and shall have the following minimum requirements:

Compressive Strength	ASTM C109	>1800 psi, 1 hour >2600 psi, 24 hours
Minimum Bond	ASTM C882	>1600 psi, 28 days
Calcium Aluminate Cement	-	Sulfate Resistant
Applied Density	-	105 pcf ± 5 pcf
Shrinkage	ASTM C596	0% at 90% Relative Humidity

2.3 Infiltration Control Material: A rapid setting, high early strength, hand applied, cementitious material specifically formulated for leak control shall be applied to stop minor water infiltration. It shall be mixed and applied according to the manufacturer's recommendations and shall have the following minimum requirements:

Compressive Strength	ASTM C109	>1000 psi, 1 hour >2500 psi, 24 hours
Sulfate Resistance	ASTM C267	No weight loss after 15 cycles @ 2000 ppm
Freeze/Thaw Resistance	ASTM C666 Method A	100 cycles
Pull Out Strength	ASTM C234	14,000 lbs
Set Time		<1 minute

2.4 Grouting Material: A cementitious grout shall be used for stopping very active infiltration and filling voids and shall be mixed and applied according to the manufacturer's recommendations. The cementitious grout shall be volume stable, and have a minimum 28-day compressive strength of 250 psi. As determined by the manufacturer, the contractor shall be prepared to use a cementitious grout designed for special soil conditions that is volume stable and has a minimum 28-day compressive strength of 1000 psi. Chemical grouts may be required for stopping very active infiltration and shall be mixed and applied per the manufacturer's recommendation.

2.5 Cured-In-Place Manhole (CIPM): Liners shall be of the type that allows for the rehabilitation of a concentric, eccentric, or flat top manhole without removing the manhole ring and top cone section or corbel.

2.5.1 CIPM liner shall be no less than a three-layered composite system. Liner materials shall have a total pre-saturated fabric weight (i.e. weight before the application of epoxy resin) of forty-four (44) ounces, or fifty-six (56) ounces, or sixty-eight (68) ounces per square yard. The liner shall have the following physical properties:

Flexural Strength	ASTM D790	22,000 psi
Flexural Modulus	ASTM D790	900,000 psi
Tensile Strength	ASTM D638	12,000 psi

2.5.1.1 Layer #1 shall be twelve (12) ounces, or eighteen (18) ounces, or twenty-four (24) ounces pre-saturated weight. This structural fiberglass material shall be with modified epoxy resins and bonded to the existing substructure.

2.5.1.2 Layer #2 shall be a gas and liquid impermeable membrane of special non-porous materials with felt embedded on both sides. This layer shall be bonded to Layer #1 and Layer #3. The weight of this layer shall be twenty (20) ounces. Layer #2 shall be imbedded between the structural layers #1 and #3 of epoxy-fiberglass to guard against nicks, tears, and damage to the gas impermeable membrane.

2.5.1.3 Layer #3 shall be twelve (12) ounces, or eighteen (18) ounces, or twenty-four (24) ounces pre-saturated weight. This structural fiberglass material shall be impregnated with modified epoxy resins and bonded to the existing substructure.

2.5.1.4 Layers #1 and #3 of a singular CIPM liner shall always have an equal pre-saturated weight.

2.5.1.5 Other material weights for Layers #1 and #3 may be designated by the Owner if the parameters and conditions involving a particular structure or structures dictate usage of other weighted materials.

2.5.1.6 Owner shall designate the total pre-saturated weight of the composite material for each structure.

2.5.2 Inner Membrane: The CIPM liner shall be constructed such that the non-porous polyvinylchloride (PVC) inner membrane is protected from damage by the use of a structural fiberglass and epoxy layer on both sides. This inside surface protective layer is to protect the CIPM liner from impact damage, e.g. nicks from jet rodding machines and root cutters, hydro-vacuum nozzles, inspection cameras, survey equipment, and construction techniques used in pipeline rehabilitation. The non-porous PVC membrane shall not be exposed on the inside of the manhole. The importance of this protective layer cannot be overemphasized to protect the manhole from sulfides and other gases penetrating through nicks and cuts in an unprotected membrane. The CIPM liner must be impervious and without pinholes that shall allow hidden corrosion on the concrete behind the liner, which can cause the eventual failure of the liner and the manhole.

2.5.3 Acceptable manufacturers are McNeil Technologies, Terre Hill Composites, or Engineer approved equal.

3. EXECUTION

3.1 Prior to renovating the interior of any manhole, a new frame and cover shall be installed, when directed to do so by the Owner, as described in specification Section 02609 – MANHOLE RENOVATION.

3.2 Surface Preparation:

3.2.1 Manhole Steps: The Contractor shall remove any existing manhole steps. The steps shall be cut or removed flush or to within 1/2-inch of the existing manhole interior wall. Any remaining holes shall be patched flush prior to the application of the CIPM manhole with quick setting patching material meeting the requirements of paragraph 2.2 above.

3.2.2 All foreign material shall be removed from the manhole wall and bench using a high-pressure water spray (minimum 1500 psi). Unusual conditions such as heavy grease build-up or residues of industrial or processing wastes may require steam, chemical cleaning compounds, or surface abrading. Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer and chisel and/or scraper. Fill voids greater than 2-inches in depth with quick setting patching material meeting the requirements of paragraph 2.2 above.

3.2.3 Active Leaks shall be stopped using quick setting infiltration control material meeting the requirements of paragraph 2.3 above according to manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during the application. After application, the weep holes shall be plugged with the infiltration control material prior to the application of the final coat. When severe infiltration exists, drilling may be required in order to pressure grout using a cementitious grout or chemical grout. Manufacturer's recommendations shall be followed when pressure grouting is required.

3.2.4 Pipe Leakage: The Contractor shall plug the inlet pipe, inspect for infiltration leaks around the inlet and outlet pipes as well as in the invert channel. All leaks present shall be stopped using quick setting infiltration control material meeting the requirements of paragraph 2.3 above according to the manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during the application. After application, the weep holes shall be plugged with the infiltration control material prior to the application of the final coat. When severe infiltration exists, drilling may be required in order to pressure grout using a cementitious grout or chemical grout. Manufacturer's recommendations shall be followed when pressure grouting is required.

3.2.5 Trimming Laterals: The Contractor shall remove any drop pipes to within 2-inches of the wall. All other incoming laterals shall be trimmed within 2-inches of the interior wall. The sewer main line inlet and outlet opening(s) shall be properly trimmed within 4-inches of the wall in areas where such pipes protrude above the benches that form the invert channel. All incoming and outgoing lines shall be grouted with an approximate 60º taper with patching material meeting the requirements of paragraph 2.2 above, forming a filet with a radius of not less than 6-inches between the structure wall and each pipe. Such application of patching material shall extend at least 4-inches from the outlet onto the wall area making a smooth transition for the liner connection to the pipe openings.

3.3 Bypassing Sewage: The Contractor, when required, shall provide for the flow of sewage around the manhole designated for installation of CIPM. Plugging the line at the next manhole upstream and pumping the flow into the next manhole downstream shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Contractor shall submit to the Owner/Engineer a detail of the bypass plan prior to beginning installation.

3.4 CIPM Installation:

3.4.1 Scope: This work shall include the furnishing of all labor, materials, equipment, and testing for the rehabilitation of an existing brick, concrete block, or precast concrete manhole by installing a cured-in-place laminated composite that is bonded to the existing host structure.

3.4.2 Custom Fabrication: Liner material and components shall have been custom fabricated to fit the specific configuration of each existing structure prior to the commencement of the liner installation. Liner material shall be of the type that allows rehabilitation of concentric, eccentric, or flat top manholes without removing manhole ring, top section, flat-top, or corbel.

3.4.3 Monolithic Structure: The CIPM liner shall completely seal the manhole, bench, pipe inlet(s) and outlet(s), and the manhole frame in a monolithic method. No holes, cracks or seams in the liner shall be left unsealed.

3.4.4 Contractor Requirements: The Contractor shall furnish all labor, materials, equipment, and incidentals required to supply and install a chemical resistant CIPM Liner as directed by the Owner.

3.4.5 Protection of Host Structure: The CIPM liner shall be designed and installed to protect concrete, concrete block, brick, or other type surfaces from corrosion. The CIPM liner product shall be designed to stop infiltration, root intrusion, and further deterioration of the structure. The

interior surfaces to be protected shall include the walls, benches, pipe inverts, and the frame and cover.

3.4.6 Omissions of a specific item or component obviously necessary for the proper installation or a functioning liner shall not relieve the Contractor from the responsibility of supplying that specific item or component at no additional expense to the Owner.

3.4.7 The liner shall be installed and cured-in-place in strict accordance with the Manufacturer's written instructions. The liner may be installed and cured-in-place via a simultaneous pressurization blower system with steam heat injection or other Manufacturer approved process. The curing process shall typically be completed within four (4) hours.

3.4.8 Bonding: The CIPM lining of the structure shall result in a monolithic structure, bonded to the contours of the existing host structure. The liner shall be adequately bonded to the interior structure surface and be completely water tight from the frame and cover area to the transition area where the bench and invert channel(s) connect. This bonding process shall all also completely seal the manhole wall and bench areas to the inlet and outlet pipe(s).

3.5 Inspection: The completed installation shall be visually inspected to assure that dry spots are not present in the finished liner. This can also be accomplished by closed circuit television if visual inspection cannot be accomplished. No dry spots should be observed in the liner and no infiltration of groundwater should be observed coming through the liner or coming out at any place where the liner ends.

4. MEASUREMENT AND PAYMENT

4.1 Manhole Frame and Cover Replacement: Shall be measured and paid for as described in specification Section 02609 – MANHOLE RENOVATION.

4.2 Standard CIPM shall be measured as a complete, in-place unit for the standard depth manhole. Standard depth for manholes shall be 6-feet. Payment shall be made at the unit price stated in the Bid Schedule for the diameter of manhole. Price shall constitute full compensation for the labor, materials, equipment, tools, and incidentals necessary for a complete installation.

4.3 Extra CIPM depth shall be measured from the manhole rim elevation to the flow line out elevation, to the nearest tenth (0.1) of a foot less the standard depth defined for the standard CIPM listed above. Payment shall be made at the unit price per foot stated in the Bid Schedule for extra CIPM depth, complete and in-place, for the diameter of manhole listed.

PIPE AND FITTINGS 02610
PLASTIC PIPE 02622

1. GENERAL

1.1 The work of this section shall consist of furnishing, storing, and installing solid wall polyvinyl chloride (PVC) plastic pipe for gravity sewers.

2. MATERIALS

2.1 Solid Wall PVC Gravity Sewer Pipe: Solid wall gravity sewer PVC pipe shall meet the requirements of ASTM D3034, latest revision, for sizes 8" through 15" diameter, and ASTM F-679, latest revision, for 18" diameter and larger pipe. Wall thickness for 8" through 12" diameter pipe shall conform to SDR 35 for invert flow line depths of less than 10-feet. Wall thickness for 8" through 12" diameter pipes with average invert flow line depths between manholes of greater than 10-feet shall conform to SDR 26. Wall thicknesses shall not vary between manholes. Wall thicknesses for pipes 15" diameter and larger shall conform to SDR 26. Pipe shall be extruded with one end to serve as a spigot end and the other as a bell end, with a gasket groove molded inside for retention of a rubber gasket used in making the joint. Standard laying lengths shall be 12.5' or 20'.

2.1.1 Drop Impact Test: Pipe shall withstand, without failure at 73°F, an impact of a falling missile (20 pound Tup A) at the following levels, in accordance with ASTM D2444, latest revision.

Nom. Size (")	Ft.-Lbs.
4	150
6	210
8	210
10" to 15"	220

2.1.2 Pipe Stiffness: Minimum pipe stiffness (F/delta-y) at 5% deflection shall be 46 psi for all sizes when tested in accordance with ASTM D2412, latest revision.

2.1.3 Flattening: There shall be no evidence of splitting, cracking, or breaking when a specimen of pipe, six-inches long, is flattened between parallel plates in a suitable press until the distance between the plates is forty percent (40%) of the outside diameter of the pipe. The rate of loading shall be uniform and such that the compression is completed within two (2) to five minutes (5).

2.2 Sewer Service Lateral Lines and Cleanouts: Sewer service lateral lines and cleanouts shall be solid wall schedule 40 PVC pipe meeting the requirements of ASTM D1784 and ASTM D2665, latest revisions, for sizes 4" and 6".

2.2.3 All sewer service lateral lines and cleanouts shall include the installation of tracer wire as specified in Section 02722 – SANITARY SEWER SYSTEMS.

3. EXECUTION

3.1 Installation: Plastic pipe shall be installed as specified in Section 02722 – SANITARY SEWER SYSTEMS.

4. MEASUREMENT AND PAYMENT:

4.1 Plastic pipe shall be measured and paid for as specified in Section 02722 – SANITARY SEWER SYSTEMS.

SANITARY SEWER RENOVATION USING CURED-IN-PLACE PIPE (CIPP)..... 02625

1. GENERAL

1.1 Description: The work of this section consists of the reconstruction of pipelines and conduits by the installation of a cured-in-place pipe (CIPP) consisting of a thermosetting resin-impregnated flexible felt tube coated on one side with an impermeable plastic which is inverted into the original conduit by the use of a hydrostatic head or pressurized air. No pull-in method will be allowed. Curing is accomplished by circulating hot water or controlled steam throughout the length of the inverted tube to cure the resin into a hard, impermeable pipe with the plastic coating on the internal surface of the CIPP. The final product shall extend the entire length of the original pipe segment providing a continuous, tight-fitting and joint-less CIPP.

1.2 This specification references ASTM F1216 (Standard Practice for Renovation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube), ASTM D5813 (Cured-in-Place Thermosetting Resin Sewer Pipe) and ASTM D790 (Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics) which are made a part hereof by such reference and shall be the latest edition and revision thereof. Where conflicts exist between the referenced standard and this specification, this specification will govern.

1.3 Product and Contractor Qualification Requirements: The provided product shall have a 50 year design life, and in order to minimize the Owner's risk, only proven products with substantial long term track records will be approved. All Contractors must submit proof that they meet the below product and installer requirements of this section with their bid. In order for products and contractors to be deemed Commercially Acceptable and approved for this project they must meet the following criteria:

1.3.1 For a Manufacturer's inversion liner product to be considered commercially proven, a minimum of 1,000,000 linear feet or 4,000 manhole to manhole line sections of successful wastewater collection system installations in the U.S. must be documented to the satisfaction of the Owner.

1.3.2 The Manufacturer of the inversion liner product must operate under a quality management system that is third party certified to ISO 9001:2000 or other internationally recognized organization standards. Proof of certification shall be required for approval.

1.3.3 Third party test results for the sewer renovation product resin system supporting the long-term performance and structural strength of the product shall be submitted for approval, and such data shall be satisfactory to the Owner. No product will be approved without independent third-party testing verification.

1.3.4 For a Contractor to be approved by the Owner, the Contractor must satisfy all insurance, financial, and bonding requirements of the Owner, and must have successfully installed at least 200,000 linear feet of CIPP in wastewater collection systems.

1.3.5 For a Contractor to be approved by the Owner, the Contractor must submit with their bid correspondence from the Manufacturer stating that the Contractor is certified to install the Manufacturer's inversion liner product.

1.4 Submittals: The Contractor shall submit to the Engineer documentation which shall include shop drawings, ASTM standards, and manufacturer's data for the following items:

1.4.1 Lining materials to be installed;

1.4.2 Thermosetting resin to be utilized in producing the CIPP in accordance with these specifications;

1.4.3 Bypass plan layout;

1.4.4 Safety plan;

1.4.5 Design calculations for CIPP thickness of the liner system;

1.4.6 Procedures for preparing CIPP samples and testing of physical properties;

1.4.7 Pre-installation inspection reports;

1.4.8 Public Notification Plan.

1.5 The Contractor shall be responsible for all traffic control requirements as specified in Section 01577 – TRAFFIC CONTROL.

1.6 Safety: The Contractor shall carry out their operations in strict accordance with OSHA and NIOSH and the manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with scaffolding and entering confined spaces.

2. MATERIALS

2.1 Liner Tube:

2.1.1 The tube shall consist of one or more layers of absorbent non-woven felt fabric and meet the requirements of ASTM F1216, Section 5. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular shaped pipe sections.

2.1.2 The wet-out tube shall have a uniform thickness that when compressed at installation pressures will meet or exceed the calculated minimum design CIPP wall thickness.

2.1.3 The tube shall be manufactured to a size that when installed will tightly fit the internal circumference and length of the original pipe. In the event that under-sized pipe is present, the liner tube shall be manufactured so that overlap folds or wrinkles do not occur. Allowances shall be made for circumferential stretching during inversion.

2.1.4 The outside layer of the tube (before wet-out) shall be coated with a translucent, impermeable polyurethane or polyethylene plastic coating. This coating shall be an impermeable, flexible membrane that will contain the resin and facilitate monitoring of resin saturation during the resin impregnation (wet-out) process. This coating shall form the inner layer of the finished pipe and is required for enhancement of corrosion resistance, flow, and abrasion properties.

2.1.5 The tube shall be homogenous across the entire wall thickness containing no intermediate or encapsulated layers of any material. Additionally, no material shall be included in the tube that may cause delamination in the cured liner, and no dry or unsaturated layers shall be evident.

2.1.6 The wall color of the interior liner surface after installation shall be a light reflective color so that a clear detailed inspection with closed-circuit television equipment may be conducted.

2.1.7 The outside of the tube shall be marked for distance at regular intervals not to exceed 10 feet. Such markings shall include the Manufacturer's name or identifying symbol. The tubes must be manufactured in the USA.

2.1.8 The minimum length shall be that deemed necessary by the Contractor to effectively span the distance between manhole sections of the segment to be lined unless otherwise specified.

The Contractor is solely responsible for field verification of all pipe diameters and lengths prior to fabrication, wet-out and installation.

2.2 Resin:

2.2.1 The resin system shall be a corrosion resistant polyester or vinyl ester catalyst system that when properly cured, with the tube composite, meets the requirements of ASTM F1216, the physical properties herein, and those which are to be utilized in the design of the CIPP for this project. The resin shall produce a CIPP that will comply with the structural and chemical resistance requirements of this specification.

2.2.2 The resin shall be shipped directly from the resin manufacturer's facility to the CIPP wet-out facility. The resin shall not be sent to any intermediate mixing facility.

2.2.3 When requested by the Owner, the Contractor shall submit a Certificate of Authenticity from the resin manufacturer for each shipment to the wet-out facility to include the date of manufacture.

3. CIPP PRODUCT

3.1 Structural Requirements:

3.1.1 The CIPP shall be designed as per ASTM F1216, Appendix X1. The CIPP design shall assume no bonding to the original pipe wall.

3.1.2 Long-term testing must have been performed for flexural creep of the CIPP pipe material to be installed. Such testing results are to be used to determine the long-term, time dependent flexural modulus to be utilized in the product design. This is a performance test of the materials (tube and resin) and general workmanship of the installation and curing as defined within the relevant ASTM standard. A percentage of the instantaneous flexural modulus value (as measured by ASTM D790 testing) will be used in design calculations for external buckling. The percentage, or the long-term creep retention value utilized, will be verified by this testing. Retention values exceeding 50% of the short-term test results shall not be applied unless substantiated by qualified third party test data to the Owner's satisfaction. The materials utilized for the contracted project shall be of a quality equal to or better than the materials used in the long-term test with respect to the initial flexural modulus used in the CIPP design.

3.1.3 The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If separation of the layers occurs during field sample testing, new samples will be required to be obtained from the installed pipe. Any reoccurrence may cause rejection of the work.

3.1.4 The cured pipe material (CIPP) shall conform to the structural properties, as listed below:

Minimum CIPP Physical Properties

Property	Test Method	Results
Modulus of Elasticity	ASTM D790	400,000 psi
Flexural Stress	ASTM D790	4,500 psi

3.1.5 The minimum acceptable nominal (wet) liner thickness shall be based on the design considerations of ASTM F1216 or 6 mm for pipe 12-inches in diameter and less, 7.5 mm for pipe 15-inches in diameter, and 9.0 mm for pipe 18-inches in diameter, whichever is greater.

Design Safety Factor (typically used value)	=	2.0
Retention Factor for Long-Term Flexural Modulus to be used in Design (*As determined by long-term tests described in paragraph 3.1.2 and approved by the Owner*)	=	50%
Ovality (Calculated from X1.1 of ASTM F1216)	=	Not Less than 2%
Groundwater Depth (above invert of pipe)	=	Same as Soil Depth
Soil Depth (above crown of pipe)	=	Field Verify
Soil Density	=	120 pcf
Live Load	=	H20 Highway
Design Condition	=	Fully Deteriorated

3.1.6 Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the structural CIPP wall thickness computation.

3.2 Testing Requirements:

3.2.1 Chemical Resistance: The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical-testing requirements.

3.2.2 Hydraulic Capacity: Overall, the hydraulic cross-section shall be maintained as large as possible. The CIPP shall have a minimum of the full flow capacity of the original pipe before renovation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.

3.2.3 CIPP Field Samples: When requested by the Owner, the Contractor shall submit test results from field installations of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties specified in paragraph 3.1.4 have been achieved in previous field applications. Samples for this project shall be made and tested as described in paragraph 4.6.1.

4. EXECUTION

4.1 Installation Responsibilities for Incidental Items:

4.1.1 Cleaning of Sewer Lines: The Contractor shall remove all internal debris out of the sewer line that will interfere with the installation of CIPP. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition. All work shall be completed in accordance with Section 02956 – SEWER SYSTEM CLEANING.

4.1.2 Pre-CIPP Installation Inspection of Pipelines: Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of CIPP. These shall be noted and corrected. A DVD and suitable written log for each line section shall be produced, complete with all “live” service connections noted, for later reference by the Owner. Contractor shall utilize all techniques, as required, to distinguish between “live”, abandoned, and/or capped service connections. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the City.

4.1.3 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of

obstructions such as solids and roots that will prevent the insertion of CIPP. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process and cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

4.1.4 Sewer Line Sags: It shall be the responsibility of the Contractor to identify and make a point repair excavation of an existing sewer line when a pipe sag is greater than 25% of the cross-sectional area of the pipe. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

4.1.5 Renovation of Existing Manholes: Where existing manholes are to be renovated and the adjoining gravity sewer line is to be lined with CIPP, the Contractor shall install CIPP prior to renovating the existing manhole. CIPP installer shall leave a 3" stub of CIPP in the existing manhole to accommodate manhole renovation. Manhole renovation shall be completed as described in Section 02609 – MANHOLE RENOVATION.

4.1.6 Bypassing Sewage: The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Owner shall require a detail of the bypass plan to be submitted.

4.1.7 Public Notification: The Contractor shall make every effort to maintain sewer service usage throughout the duration of the project. In the event that a connection will be out of service, the longest period of no service shall be eight (8) hours. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

4.1.7.1 Written notice to be delivered to each home or business the day prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any potential problems.

4.1.7.2 Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

4.2 Installation: CIPP installation shall be in accordance with ASTM F1216, Section 7, with the following modifications:

4.2.1 Resin Impregnation: The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the potential loss of resin during installation through cracks and irregularities in the original pipe wall, as applicable.

4.2.2 Tube Insertion: The wet out tube shall be inverted into the pipeline using as defined within relevant ASTM standards previously stipulated. The tube should be inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.

4.2.3 Temperature gauges shall be placed between the tube and the host pipe's invert position to monitor the temperatures during the cure cycle.

4.2.4 Curing shall be accomplished by utilizing hot water under hydrostatic pressure or steam pressure in accordance with the manufacturer's recommended cure schedule. A cool-down process shall be conducted that complies with the resin manufacturer's specification. A liner curing and cool down log shall be maintained by the Contractor for each CIPP inversion.

4.3 Sealing Liner at Ends: Prior to the installation of the CIPP, the Contractor shall install hydrophilic waterstops to the interior circumference of the existing sewer at the inlet and outlet of each manhole, or as otherwise directed by the City. The waterstop material shall be Insignia by LMK or an engineer approved equal. End seal shall be composed of neoprene rubber with a mechanical fastener composed of spring loaded retaining rings. Install one end seal at each end of the existing line. Upon completion of CIPP installation the interface between the CIPP pipeline and the adjoining manhole shall be watertight.

4.4 Reinstatement of Branch Connections: It is the intent of these specifications that branch connections to buildings be re-opened to 100% of the original diameter without excavation, utilizing a remotely controlled cutting device, monitored by CCTV. The Contractor shall certify a minimum of two complete functional cutters plus key spare components are on the job site before each installation or are in the immediate area of the jobsite and can be quickly obtained at all times during liner installation. Unless otherwise directed by the Owner or his authorized representative, only active laterals shall be reinstated. In the event that a "non-active" lateral line has been reinstated, it shall be the Contractor's responsibility to install a CIPP point repair liner with no additional cost to the Owner. No additional payment will be made for excavations for the purpose of reopening connections unless approved by the Engineer prior to CIPP installation and the Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

4.4.1 The Contractor shall be prepared to utilize CCTV and dye tablets to verify "active" or "non-active" status of sewer service lateral lines. All costs associated with this work shall be the responsibility of the Contractor. Any branch connections serving open lots where the lateral line has been brought to the surface and securely capped shall be reinstated.

4.5 Liner Trimming: After the liner has been cured, the liner should be trimmed entering and exiting the manhole, so that 3" extends into the manhole. Also, a V-notch should be cut in the crown of the liner in the downstream manhole, so as to reduce future wear on television cables or cleaning equipment. For each inversion of two (2) or more line segments using a single liner, the liner should be cut flush with the trough at the intermediate manhole(s), so that there is no ponding on the bench of the manhole(s). If additional line segments enter these intermediate manhole(s), the liner should not obstruct the flow from these lines.

4.6 Inspection:

4.6.1 CIPP samples shall be prepared for each installation designated by the Owner/Engineer or approximately 20% of the project's installations. Pipe physical properties will be tested in accordance with ASTM F1216, Section 8, using either method proposed. The flexural properties must meet or exceed the values listed in paragraph 3.1.4 of this specification, Table 1 of ASTM F1216, or the values submitted to the Owner/Engineer by the Contractor for this project's CIPP wall design, whichever is greater.

4.6.2 Wall thickness of samples shall be determined in a manner consistent with 8.1.2 of ASTM D5813. The minimum wall thickness at any point shall not be less than 87.5% of the specified design thickness calculated in paragraph 3.1.5 of this document.

4.6.3 Post-CIPP CCTV Inspection: Installation shall be inspected visually by closed-circuit television (CCTV). Variations from true line and grade may be inherent because of the conditions of the original piping. No infiltration of groundwater should be observed. All service entrances should be accounted for and be unobstructed. The CCTV inspections shall be provided in a quality acceptable to the Engineer and/or Owner where the camera view is not underwater, blurry, or full of pixels distorting the picture. Video shall not be taken at such a speed so that the reviewer cannot properly identify objects in the camera's path. At each re-instated service connection, the CCTV camera shall come to a complete stop and the service shall be panned in its entirety to show a clear picture of the service lateral cutout and confirm the smoothness of the re-instated service. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the City.

4.7 All defects discovered during the post-CIPP CCTV inspection shall be corrected by the Contractor at his expense before the work is considered complete. Defects include any wrinkles in the finished liner that cause backwater greater than one-half (1/2) inch or that result in a reduction of pipeline hydraulic capacity.

4.8 Clean-Up: Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work. All work necessary to restore areas damaged by construction activities shall be restored in accordance with the applicable section for such required work contained within these project specifications.

4.9 All CCTV inspection shall be completed in accordance with Section 02959 – SEWER SYSTEM INSPECTION and Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

5. MEASUREMENT AND PAYMENT

5.1 CIPP installation shall be measured on a lineal foot basis from centerline to centerline of manholes. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of CIPP installed. All measurements and/or stationing shown on drawings and listed in the Bid Schedule reflect horizontal distances with no additional compensation made for vertical angle variations between stations. This price and payment shall constitute full compensation for supervision, all CCTV inspection, cleaning, cleaning water, debris removal and disposal, reinstatement of branch connections, reverse set-ups where required, computer disks/hard drives and logs/reports, location and status verification of service connections, traffic control, buried pipe/manhole locating, CIPP, labor, materials, equipment, and all necessary incidentals, together with all associated appurtenant work as required for a complete and in-place installation.

5.2 Point repair excavations shall be measured and paid for as specified in Section 02722 – SANITARY SEWER SYSTEMS.

SERVICE LATERAL RENOVATION AND REPLACEMENT..... 02626

1. GENERAL

1.1 Description: The work of this section consists of the open trench replacement or the trenchless renovation of the sanitary sewer service lateral to main line connection. The sanitary sewer service lateral lines and connections may vary in size from 4-inch to 6-inch diameter.

1.1.1 Open trench sanitary sewer service lateral replacement shall consist of the open trench replacement of the existing sanitary sewer service lateral to main line connection and the reconnection of the existing sewer service lateral. As determined by the Owner, the existing sanitary sewer service lateral line between the main line connection and the existing property or permanent easement line shall be replaced, including the open trench installation of a cleanout in some cases. In all instances where the sanitary sewer service lateral line is replaced and a cleanout is installed, the Contractor shall also install tracer wire to allow for locating the sanitary sewer service lateral line in the future.

1.1.2 Trenchless sanitary sewer service lateral to main line connection repair (LCR) shall consist of the trenchless installation of a resin-impregnated, flexible felt tube inverted into the existing sanitary sewer service lateral, a minimum of 18-inches, utilizing a pressure apparatus positioned in the main sewer line. Curing shall be accomplished by ambient steam or other Engineer approved method to cure the resin into a hard impermeable pipe-within-a-pipe. As determined by the Owner, the remaining existing sanitary sewer service lateral line between the main line connection and the existing property or permanent easement line shall be renovated using CIPP, including the open trench installation of a cleanout in some cases.

1.2 The Contractor shall be responsible for all traffic control as specified in Section 01577 – TRAFFIC CONTROL.

2. MATERIALS

2.1 Open Trench Lateral Line Replacement:

2.1.1 All material for the open-trench replacement of the existing sanitary sewer service lateral line and cleanouts shall be as specified in Section 02608 – SERVICE LATERAL LINE CLEANOUT, Section 02622 – PLASTIC PIPE, and Section 02722 – SANITARY SEWER SYSTEMS.

2.1.2 Open-trench sanitary sewer service lateral to main line replacement shall consist of the installation of a compression-fit type service connection or flexible PVC saddle, PVC sanitary sewer service line, and all the required fittings, pipe, couplings, etc. in order to reconnect to the existing sanitary sewer service lateral line. As determined by the Owner, the existing sanitary sewer service lateral line between the main line connection and the existing property or permanent easement line shall be replaced, including the open trench installation of a cleanout and tracer wire in some cases. The compression-fit type service connection or flexible PVC saddle shall connect directly to the newly installed CIPP and not the original host pipe.

2.1.3 All construction activity shall be contained within the existing sanitary sewer easement or City right-of-way. Temporary construction easements allowing work on private property have NOT been obtained.

2.2 Trenchless Lateral Line Renovation:

2.2.1 The liner tube shall be fabricated to a size that when installed will tightly fit the internal circumference and length of the original pipe. Allowance shall be made for circumferential stretching during inversion.

2.2.2 The outside layer of the tube (before inversion) shall be PU or PE coated with a flexible, impermeable material that clearly allows inspection of the resin impregnation (wet out) procedure. The PU or PE coating shall not be subject to delamination after curing.

2.2.3 The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that is subject to delamination in the CIPP. No dry or unsaturated layers shall be evident.

2.2.4 The wall color of the interior pipe surface after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment can be made.

2.2.5 The resin system shall be a 100% solids epoxy or silicate based system or a polyester or vinylester resin system that incorporates the use of hydrophilic O-Rings at all termination points of the liner.

2.2.6 The minimum length of the LCR within the main line shall be 16" and cover 360 degrees of the main line pipe interior.

2.2.7 The Contractor shall take care to ensure that the liner extends into the service connection at the main creating a watertight seal with the main liner, but that no portion of the lateral liner protrudes into the main at the completion of the installation.

2.2.8 The cured-in-place service lateral to main line connection repair liner shall be an LCR as manufactured by EPROS, LMK, BLD, SAK or Engineer approved equal.

2.2.9 All material for the open-trench installation of a cleanout shall be as specified in Section 02608 – SERVICE LATERAL LINE CLEANOUT, Section 02622 – PLASTIC PIPE, and Section 02722 – SANITARY SEWER SYSTEMS. Cleanout installation shall include all the required fittings, pipe, cleanout, and couplings as necessary, in order to connect the renovated service lateral line to the existing service lateral line.

2.2.10 All construction activity shall be contained within the existing sanitary sewer easement or City right-of-way. Temporary construction easements allowing work on private property have NOT been obtained.

3. EXECUTION

3.1 Open Trench Lateral Line Replacement:

3.1.1 The open-trench replacement of existing sewer service lateral lines shall be as specified in Section 02722 – SANITARY SEWER SYSTEMS. The open trench replacement of the existing sewer service lateral lines shall only take place at locations where the trenchless lateral line renovation cannot be completed due to the existing lateral line condition or as directed by the Owner. All open trench lateral line replacement work shall take place after the renovation of the main sewer line.

3.2 Trenchless Lateral Line Renovation:

3.2.1 Closed Circuit Television Inspection – Pre- and Post-Construction:

3.2.1.1 Before and after the renovation of the existing sewer service lateral line, the Contractor shall televise and record the condition of the lateral/main line connection.

3.2.1.2 Inspection of sewers shall be performed by experienced personnel, as certified by the manufacturer, and trained in locating breaks, obstacles, and service connections using closed

circuit television (CCTV) inspection.

3.2.1.3 All costs involved with the pre- and post-renovation CCTV inspection/video, shall be considered incidental and included in the bid item unit price for the lateral/main line connection repair.

3.2.1.4 All DVD's for this project shall be provided to the Owner. If the videos are of inferior quality or coverage, as determined by the Owner, the Contractor shall have that portion of the lateral/main line connection re-videoed at the Contractor's expense.

3.2.2 Installation: The following installation procedures shall be adhered to unless otherwise approved by the Engineer or the Resident Project Representative.

3.2.2.1 Access: The Contractor shall have access to the service lateral through the main sewer line's upstream and downstream manholes. At no time shall the Contractor have access to private property without written permission from the property Owner.

3.2.2.2 Safety: The Installer shall carry out his operations in strict accordance with all applicable OSHA standards. Particular attention is drawn to those safety requirements involving entering confined spaces.

3.2.2.3 Cleaning of Sewer Line: It shall be the responsibility of the Installer to remove internal debris out of the sewer line prior to lining.

3.2.2.4 Inspection of Pipelines: The interior of the pipeline shall be carefully video inspected to determine the location of any conditions which may prevent proper installation of CIPP service lateral liner into the existing service lateral, and it shall be noted so that these conditions can be corrected. A video recording and suitable log shall be provided to the Owner.

3.2.2.5 It is required that the service lateral be inactive during the time of installation. This is normally accomplished by requesting the Homeowner relinquish using their sewer services during the required period of installation and then notifying Homeowner when the work is complete.

3.2.2.6 Line Obstruction: If inspection reveals an obstruction or defect that prevents trenchless lateral line renovation, then the Contractor shall replace the existing service lateral line as described in paragraph 3.1 of this specification. Such excavation shall be approved in writing by the Owner prior to the commencement of the work. Any required open trench sewer service lateral line replacement shall take place after the main line renovation.

3.2.2.7 The main line pipe opening (lateral connection to the main) shall be prepared to accept the CIPP Service Lateral/Main Line Connection Repair Liner and the renovated main line pipe opening shall be 100% of the original pipe diameter.

3.2.2.8 There is no guarantee that cleanouts are available. As such, it shall be the Contractor's responsibility to install the lateral/main line connection repair liner without the use of a cleanout.

3.2.2.9 If, as directed by the Owner, a new lateral line cleanout is to be installed, the new cleanout shall be installed first and then the lateral service lining completed in order to obtain the best possible connection between the two.

4. MEASUREMENT AND PAYMENT

4.1 Open Trench Sewer Service Lateral Line Replacement:

4.1.1 Main Line Connection: The open trench installation of the proposed sanitary sewer service lateral line to main line connection shall be measured as a complete in-place unit based on depth. Depth shall be measured from the natural ground surface elevation to the flow line elevation. Payment shall be made at the unit price stated in the Bid Schedule for the depth, main diameter, and type of surfacing that exists above the proposed sanitary sewer service lateral to main line connection. This price and payment shall constitute full compensation for all excavation, bedding, backfill, surface restoration, compression-fit type service connection or flexible PVC saddle, connection to existing service lateral, labor, materials, tools, equipment, and incidentals required for a complete and in-place installation.

4.1.2 Service Lateral Line Replacement: The open trench replacement of the existing service lateral line shall be measured for length and depth. Length shall be measured from the main line connection to the point of connection between the existing sanitary sewer service lateral line and the replaced sanitary sewer service lateral line. Depth shall be measured from the natural ground surface elevation to the flow line elevation. Payment shall be made at the unit price set forth in the Bid Schedule for the depth, diameter of the pipe installed, and the type of surface under which the sanitary sewer service lateral line is installed. This price and payment shall constitute full compensation for all excavation, bedding, backfill, tracer wire, surface restoration, pavement replacement, pipe, fittings, couplings, labor, materials, tools, equipment, and incidentals required for a complete and in-place installation.

4.2 Trenchless Sewer Service Lateral Line Renovation:

4.2.1 Trenchless Main Line Connection: The trenchless renovation of the existing sanitary sewer service lateral to main line connection (LCR) shall be measured as a complete in-place unit, extending eighteen (18”) inches into the existing sanitary sewer service lateral, as measured form the inside edge of the renovated sewer main. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of connection installed. This price and payment shall constitute full compensation for all labor, materials, tools, equipment, and incidentals required for a complete and in-place installation.

4.2.2 Trenchless Service Lateral Renovation: The trenchless renovation of the existing sanitary sewer service lateral shall be measured for length. Length shall be measured from the end of the LCR, as described in paragraph 4.2.1, to the termination point of the lateral liner. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of CIPP installed. This price and payment shall constitute full compensation for all sewer line cleaning, CCTV inspection, labor, materials, tools, equipment, and incidentals required for a complete and in-place installation.

CURED-IN-PLACE PIPE (CIPP) END SEAL 02627

1. GENERAL

1.1 Description: The work of this section consists of the general methods, materials, and requirements for the installation of Cured-In-Place (CIP) pipeline end seals at the interface of the sanitary sewer pipe conduit and the adjoining manhole or similar access structure. This repair method is applicable for short segments less than five (5) feet in length. The intent of CIP pipeline end seals is to provide for the reconstruction of short lengths of pipeline conduits at the interface of the pipeline and the adjoining manhole by the installation of a resin-impregnated flexible tube which is inflated at the end of the pipeline so as to also bend or mold along the inside manhole wall contours to form a hard, impermeable, corrosion resistant cured-in-place pipe end seal; and thereby seal the end of the pipeline to the manhole wall, thus preventing water from migrating between the pipeline and the manhole wall. CIP pipeline end seal fabrication, installation, and curing processes shall conform to all applicable ASTM standards, requirements for liner thickness, cure time, installation method(s), testing, quality control, and other methods and processes as may be specified herein.

1.2 Product and Contractor Qualification Requirements: The system proposed (materials, methods, and workmanship) must be proven through previous successful installations to an extent and nature satisfactory to the Owner and the Engineer. Only previous installations that are commensurate with the size of the current project being proposed will be considered for approval purposes. Since CIPP is intended to have a fifty (50) year design life, only products deemed to have this performance will be accepted. All products and installers must be pre-approved prior to the formal opening of bids/proposals.

1.2.1 For a Product to be considered commercially proven, a minimum of five-hundred (500) pipeline end seals must have been successfully installed. The Manufacturer (Licensor) shall have completed sufficient testing to document that the materials and the method(s) of installation proposed will produce the desired long-term performance.

1.2.2 For an Installer (Contractor) to be considered commercially proven, the Installer must satisfy all insurance, financial, and bonding requirements of the Owner, and must have at least five (5) years of active experience in the commercial installation of the product being installed. The Installer shall be trained in appropriate CIP pipeline end seal installation and shall have installed sufficient quantities in diameters similar to those being proposed for this project.

1.2.3 For a Contractor to be approved by the Owner, the Contractor must submit with their bid correspondence from the Manufacturer stating that the Contractor is certified to install the Manufacturer's product.

1.3 Submittals: The Contractor shall submit to the Engineer documentation which shall include shop drawings, ASTM standards, and manufacturer's data for the following items:

1.3.1 Lining materials to be installed;

1.3.2 Thermosetting resin to be utilized in producing the CIPP in accordance with these specifications;

1.3.3 Bypass plan layout;

1.3.4 Safety plan;

1.3.5 Design calculations for CIPP thickness of the liner system;

1.3.6 Procedures for preparing CIPP samples and testing of physical properties;

1.3.7 Pre-installation inspection reports;

1.3.8 Public Notification Plan.

1.4 The Contractor shall be responsible for all traffic control requirements as specified in Section 01577 – TRAFFIC CONTROL.

1.5 Safety: The Contractor shall carry out their operations in strict accordance with OSHA and NIOSH and the manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with scaffolding and entering confined spaces.

2. MATERIAL

2.1 Cured-In-Place (CIP) Pipeline End Seal:

2.1.1 General: All CIP lining products shall comply with the latest edition of ASTM F1743. The finished end seal liner shall be fabricated from materials which when cured will be chemically resistant to and will withstand internal exposure to domestic sewage having a pH range of 5 to 11 and a temperature up to 150°Fahrenheit. The pipeline end seal liner shall be structurally designed for a minimum service life of 50 years.

2.1.2 Resin: The resin used in the curing process shall have the following characteristics:

2.1.2.1 The resin shall be a 100% solids, corrosion-resistant, two-part silicate- or epoxy-based resin system that is ambient-cured or steam-cured and includes all required catalysts and initiators such that when properly cured, creates a composite that meets or exceeds the applicable requirements of ASTM F1216, ASTM F1743, and ASTM D5813, the physical properties stated in these specifications, and the properties claimed in the submitted and approved CIP pipeline end seal liner design for this project. The resin system shall allow for the CIP pipeline end seal liner to stretch, conform, and bond to the original (host) pipe and the adjoining manhole in order to prevent infiltration into the manhole.

2.1.2.2 Resins may contain pigments, dyes or colorants which will not interfere with visual inspection of the cured liner.

2.1.3 Tube: The pipeline end seal tube that is installed into the host pipe and manhole interface and ultimately cured-in-place shall have the following characteristics:

2.1.3.1 The tube shall consist of one or more layers of a flexible, absorbent, needled (non-woven) fleece/felt fabric meeting the requirements of ASTM F1216, ASTM F1743, and ASTM D5813. The tube shall be capable of being thermo-bonded along the prescribed circumference and length, completely compatible with the resin system used, and able to withstand the installation pressures and curing temperatures utilized. The tube material shall be able to stretch to fit irregular pipe/manhole interface sections, bridge missing pipe/mortar segments, and negotiate bends/contours. Any seams in the tube shall be stronger than the non-seamed felt material.

2.1.3.2 The pipeline end seal liner thickness design for each pipe size shall be in accordance with ASTM F1216 as well as the requirements listed herein. In the liner thickness calculations, the following requirements and assumptions shall apply. If Contractor encounters conditions that require or result in deviations from these assumptions, Contractor shall consult with Owner and Engineer before installing liner.

2.1.3.2.1 The minimum acceptable cured-in-place liner thickness for CIP pipeline end seals for either partially- or fully-deteriorated pipe that is 15-inch diameter or less, shall be 6.0

millimeters (mm).

2.1.3.2.2 Pipeline end seals shall bond to the original (host) pipe.

2.1.3.2.3 The height of groundwater above the pipe shall be equal to the soil depth above the top of the pipe.

2.1.3.2.4 Soil density of 120 pounds per cubic foot.

2.1.3.2.5 The enhancement factor (K) shall be no greater than seven (7.0).

2.1.3.2.6 The minimum safety factor shall be two (2.0).

2.1.3.2.7 The flexural modulus of elasticity shall be reduced to no more than 50% to account for long-term effects and used in the design equation E_L.

2.1.3.2.8 The minimum CIP pipeline end seal service life shall be 50 years.

2.1.3.3 The pipeline end seal lining material shall be able to be fully impregnated with the liquid resin system, per the manufacturer's standards. The cured pipeline end seal lining material shall conform to the minimum structural standards listed below:

Minimum CIPP Physical Properties

Property	Test Method	Results
Modulus of Elasticity	ASTM D790	250,000 psi
Flexural Stress	ASTM D790	27,000 psi

2.1.3.4 The CIP pipeline end seal liner manufacturer shall have conducted long-term testing for flexural creep of the CIP liner material installed. Such tests shall have measured the performance of the materials (tube and resin) and general workmanship of the installation and curing procedures. The performance test results shall be used to determine the long-term, time-dependent flexural modulus to be utilized in the product design. A percentage of the instantaneous flexural modulus value is used in design calculations for external buckling. Retention values for the long-term flexural modulus shall be no more than 50% of the short-term test results. The materials utilized for this project shall be of a quality equal to, or better than, the materials used in the long-term performance tests with respect to the initial flexural modulus used in the CIPP design calculations.

2.1.3.5 The tube shall be fabricated to a size that, when installed, will tightly bond to the internal dimensions of the original conduit segment length and adjoining manhole interface to be sealed/reconstructed. Allowances shall be made for the longitudinal and circumferential stretching that occurs during placement of the tube as well as the minimum extension beyond the pipeline/manhole interface to be reconstructed in order to develop a firm adhesion/seal to portions of the host structures that have maintained structural integrity around the reconstructed interface. The hydraulic cross-section of the pipe liner shall be maintained as large as possible.

2.1.3.6 The tube diameter shall be that deemed necessary by the Contractor to effectively carry out the packer inflation process and seal the liner across the pipeline/manhole interface to be sealed/reconstructed. Wrinkles that exceed 1/2" in height or are between the 3 to 9 o'clock positions will not be allowed and must be removed prior to acceptance. Contractor shall be responsible for measuring and determining actual pipe diameters and lengths in the field.

2.1.3.7 The length of the tube liner shall be that deemed necessary by Contractor to effectively carry out the packer inflation process and seal the liner across the pipeline/manhole interface to be reconstructed. The pipeline end seal liner shall extend at least two (2) inches along the interior manhole wall along the entire interface circumference identified for reconstruction.

Contractor shall verify the lengths in the field before cutting the end seal liner to length.

2.1.3.8 The tube shall be homogeneous across the entire wall thickness and contain no intermediate or encapsulated elastomeric layers. No material shall be included in the tubes that are subject to delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

2.1.4 Fit and Thickness: The finished CIP pipeline end seal liner shall bond to the host pipeline at all observable points and shall meet or exceed the minimum thickness submitted per the design process. The material's properties shall meet or exceed the physical requirements as listed in the most current edition of ASTM F1216.

3. EXECUTION

3.1 Installation Responsibilities for Incidental Items:

3.1.1 Cleaning of Sewer Lines: The Contractor shall remove all internal debris out of the sewer line that will interfere with the installation of CIP pipeline end seal. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition. All work shall be completed in accordance with Section 02956 – SEWER SYSTEM CLEANING.

3.1.2 Pre-CIPP Installation Inspection of Pipelines: Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of CIPP. These shall be noted and corrected. A DVD and suitable written log for each line section shall be produced, complete with all "live" service connections noted, for later reference by the Owner. Contractor shall utilize all techniques, as required, to distinguish between "live", abandoned, and/or capped service connections.

3.1.3 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of CIPP. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process and cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.4 Bypassing Sewage: The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Owner shall require a detail of the bypass plan to be submitted.

3.1.5 Public Notification: The Contractor shall make every effort to maintain sewer service usage throughout the duration of the project. In the event that a connection will be out of service, the longest period of no service shall be eight (8) hours. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

3.1.5.1 Written notice to be delivered to each home or business the day prior to the

beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any potential problems.

3.1.5.2 Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

3.1.6 Locating Manholes and Access Points: It shall be Contractor's responsibility to coordinate with the Owner to locate, designate, and utilize all manholes or access points for the work. Owner shall provide access to any buried manholes, if necessary. Contractor is responsible for implementing an approved Traffic Control Plan.

3.1.7 Access to Water: Contractor shall make arrangements with local governing authority for the use, metering, and/or purchase of water required for sewer line renovation efforts.

3.2 Installation:

3.2.1 The Manufacturer and Contractor shall use equipment and methods adequate to protect the pipe, joint elements, and prevent shock contact of adjacent units during moving, storage, or installation. Damaged sections that cause reasonable doubt as to their structural strength or water-tightness shall be repaired by Contractor.

3.2.2 Contractor shall apply the approved resin onto the pipeline end seal liner on-site just prior to installation and provide all equipment required to install the pipeline end seal liner into the conduit and cure it once in place.

3.2.3 The CIPP liner shall be installed in accordance with the latest practices given in ASTM F1743 for resin-impregnated, pulled-in-place installations.

3.2.4 Resin-Impregnation and Wet-Out: Each pipeline end seal liner to be installed on the project shall be infused or impregnated with a thermo-setting bonding resin. This process shall include the following procedures:

3.2.4.1 The Contractor shall designate the location where the end seal liner will be impregnated with resin prior to installation. The resin shall be hand-applied and troweled onto the liner to achieve a uniform distribution of the resin throughout the material. This is considered the "wet-out" process. Installer or Contractor shall allow Engineer and Owner to inspect the materials and the "wet-out" procedure.

3.2.4.2 Only 100% solids resin systems which are approved by the pipeline end seal liner manufacturer shall be utilized.

3.2.4.3 The quantity of resin used for the liner's impregnation shall be sufficient to fill the volume of air voids in the liner with additional allowances made for any shrinkage or anticipated loss of resin through cracks and irregularities in the host pipe and manhole walls.

3.2.5 Insertion and Installation of Pipeline End Seal Liner: The insertion and installation of the pipeline end seal liner into the defective pipeline/interface segments shall conform to the following procedures:

3.2.5.1 Contractor shall wrap the impregnated liner material onto the installation packer and insert the packer with liner through the adjoining pipeline/manhole interface to be lined.

3.2.5.2 While in the host pipe, the packer with liner shall be placed at a position to fully reline the defective area to be reconstructed. Contractor shall use cameras, push rods, and positioning ropes/cables as necessary to ensure proper placement.

3.2.5.3 Contractor shall slowly inflate the packer to a safe and appropriate working pressure as recommended by the liner manufacturer.

3.2.5.4 Upon proper positioning and inflation, Contractor shall allow pipeline end seal to cure per manufacturer's recommendations.

3.2.6 Curing Pipeline End Seal Liner: Curing of the liner shall conform to the following procedures:

3.2.6.1 The curing period shall be for the duration recommended by the resin manufacturer based on the installation process used. The installation packer shall not lose air pressure during the curing process. Care shall be taken in the release of installation packer pressure so as not to damage the liner, host pipe, or any adjacent connections.

3.2.6.2 The finished pipeline end seal lining shall overlap at least two (2) inches along the interior manhole wall along the entire interface circumference in order to develop a firm adhesion/seal to portions of the host pipe and manhole wall that have maintained structural integrity around the reconstructed interface, and shall be bonded to the host pipe and interior manhole wall at all observable points of connection. The pipeline end seal lining shall be as free as commercially practical from visual defects such as foreign inclusions, dry spots, pinholes, and delamination. The lining shall be impervious and free of any leakage from the reconstructed interface to the surrounding ground or from the ground to the inside of the lined interface.

3.3 Reinstatement of Branch Connections: It is the intent of these specifications that branch connections to buildings be re-opened to 100% of the original diameter without excavation, utilizing a remotely controlled cutting device, monitored by CCTV. The Contractor shall certify a minimum of two (2) complete functional cutters plus key spare components are on the job site before each installation or are in the immediate area of the jobsite and can be quickly obtained at all times during liner installation. Unless otherwise directed by the Owner or his authorized representative, only active laterals shall be reinstated. In the event that a "non-active" lateral line has been reinstated, it shall be the Contractor's responsibility to install a CIPP point repair liner with no additional cost to the Owner. No additional payment will be made for excavations for the purpose of reopening connections unless approved by the Engineer prior to CIPP installation and the Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

3.3.1 The Contractor shall be prepared to utilize CCTV and dye tablets to verify "active" or "non-active" status of sewer service lateral lines. All costs associated with this work shall be the responsibility of the Contractor. Any branch connections serving open lots where the lateral line has been brought to the surface and securely capped shall be reinstated.

3.4 Inspection:

3.4.1 The physical properties of the installed CIP pipeline end seal shall be verified through laboratory testing of field samples. Contractor shall prepare one random sample per week or per twenty (20) pipeline end seals installed (per liner diameter). Contractor shall prepare samples from material taken from the tube and the resin system used and tested in accordance with ASTM F1216.

3.4.2 The samples shall be flat plate samples for all diameter of CIP pipeline end seals. The flat plate samples shall be taken directly from the wet-out tube, clamped between flat plates, and cured. The samples shall be tested by a third-party in accordance with ASTM F1216 for thickness and initial physical properties.

3.4.3 The wall thickness of samples shall be determined as described in ASTM F1216. The minimum wall thickness at any point shall not be less than the minimum design wall thickness as

calculated in the design or as specified herein. The flexural modulus must meet or exceed the value used in design.

3.4.4 Post Installation CCTV Inspection: Installation shall be inspected visually by closed-circuit television (CCTV). Variations from true line and grade may be inherent because of the conditions of the original piping. No infiltration of groundwater should be observed. All service entrances should be accounted for and be unobstructed. The CCTV inspections shall be provided in a quality acceptable to the Engineer and/or Owner where the camera view is not underwater, blurry, or full of pixels distorting the picture. Video shall not be taken at such a speed so that the reviewer cannot properly identify objects in the camera's path. At each re-instated service connection, the CCTV camera shall come to a complete stop and the service shall be panned in its entirety to show a clear picture of the service lateral cutout and confirm the smoothness of the re-instated service.

3.4.5 All defects discovered during the post-CIPP CCTV inspection shall be corrected by the Contractor at his expense before the work is considered complete. Defects include any wrinkles in the finished liner that cause backwater greater than one-half (1/2) inch or that result in a reduction of pipeline hydraulic capacity.

3.5 Clean-Up: Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work. All work necessary to restore areas damaged by construction activities shall be restored in accordance with the applicable section for such required work contained within these project specifications.

3.6 All CCTV inspection shall be completed in accordance with Section 02959 – SEWER SYSTEM INSPECTION and Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

4. MEASUREMENT AND PAYMENT

4.1 CIPP end seal installation shall be measured as a complete in-place unit. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of CIPP end seal installed. This price and payment shall constitute full compensation for all labor, materials, tools, equipment, and incidentals required for a complete and in-place installation.

CURED-IN-PLACE PIPE (CIPP) POINT REPAIRS..... 02628

1. GENERAL

1.1 Description: The work of this section consists of the general methods, materials, and requirements for the installation of Cured-In-Place Pipe (CIPP) for sectional point repairs within sanitary sewers. The intent of CIPP sectional point repairs is to provide for the reconstruction of short lengths of pipeline conduits by the installation of a resin-impregnated fiberglass tube which is inflated in a short length of the pipeline to form a hard, impermeable, corrosion resistant pipe-within-a-pipe. When cured, the CIPP will be formed to the original conduit and will be tight-fitting, chemically resistant, and water-tight over the repaired segment. This repair method is applicable for short segment repairs of five (5) feet and for conduit diameters up to twenty-seven (27) inches. Longer point repairs may be accomplished by installing multiple tubes end-to-end with a two (2) inch overlap of material where the tubes are joined. CIPP sectional point repair fabrication, installation, and curing processes shall conform to all applicable ASTM standards, requirements for liner thickness, cure time, installation method(s), testing, quality control, and other methods and processes as may be specified herein.

1.2 Product and Contractor Qualification Requirements: The system proposed (materials, methods, and workmanship) must be proven through previous successful installations to an extent and nature satisfactory to the Owner and the Engineer. Only previous installations that are commensurate with the size of the current project being proposed will be considered for approval purposes. Since CIPP is intended to have a fifty (50) year design life, only products deemed to have this performance will be accepted. All products and installers must be pre-approved prior to the formal opening of bids/proposals.

1.2.1 For a Product to be considered commercially proven, a minimum of 500 CIPP point repairs must have been successfully installed. The Manufacturer (Licensor) shall have completed sufficient testing to document that the materials and the method(s) of installation proposed will produce the desired long-term performance.

1.2.2 For an Installer (Contractor) to be considered commercially proven, the Installer must satisfy all insurance, financial, and bonding requirements of the Owner, and must have at least five (5) years of active experience in the commercial installation of the product being installed. The Installer shall be trained in appropriate CIPP point repair installation and shall have installed sufficient quantities in diameters similar to those being proposed for this project.

1.2.3 For a Contractor to be approved by the Owner, the Contractor must submit with their bid correspondence from the Manufacturer stating that the Contractor is certified to install the Manufacturer's product.

1.3 Submittals: The Contractor shall submit to the Engineer documentation which shall include shop drawings, ASTM standards, and manufacturer's data for the following items:

1.3.1 Lining materials to be installed;

1.3.2 Thermosetting resin to be utilized in producing the CIPP in accordance with these specifications;

1.3.3 Bypass plan layout;

1.3.4 Safety plan;

1.3.5 Design calculations for CIPP thickness of the liner system;

1.3.6 Procedures for preparing CIPP samples and testing of physical properties;

1.3.7 Pre-installation inspection reports;

1.3.8 Public Notification Plan.

1.4 The Contractor shall be responsible for all traffic control requirements as specified in Section 01577 – TRAFFIC CONTROL.

1.5 Safety: The Contractor shall carry out their operations in strict accordance with OSHA and NIOSH and the manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with scaffolding and entering confined spaces.

2. MATERIAL

2.1 Cured-In-Place Point Repair Liner:

2.1.1 General: All cured-in-place (CIP) lining products shall comply with the latest edition of ASTM F1743. The finished point repair pipe liner shall be fabricated from materials which when cured will be chemically resistant to and will withstand internal exposure to domestic sewage having a pH range of 5 to 11 and a temperature up to 150 degrees Fahrenheit. The point repair liner shall be structurally designed for a minimum service life of 50 years.

2.1.2 Resin: The resin used in the curing process shall have the following characteristics:

2.1.2.1 The resin shall be a corrosion-resistant, two-part silicate- or epoxy-based resin system that is ambient-cured or steam-cured and includes all required catalysts and initiators such that when properly cured, creates a composite that meets or exceeds the applicable requirements of ASTM F1216, ASTM F1743, and ASTM D5813, the physical properties stated in these specifications, and the properties claimed in the submitted and approved CIPP sectional point repair liner design for this project. The resin system shall allow for the CIPP sectional point repair liner to bond to the original (host) pipe.

2.1.2.2 Resins may contain pigments, dyes or colorants which will not interfere with visual inspection of the cured liner.

2.1.3 Tube: The point repair tube that is installed into the host pipe and ultimately cured-in-place shall have the following characteristics:

2.1.3.1 The tube shall be fabricated from a two-side fiberglass mat, comprised of a chopped fiber mat on one side, bonded to a woven fiberglass mat on the other side. The fiber mat shall meet the requirements of ASTM F1216, ASTM F1743 and ASTM D5813. The tube shall be capable of being thermo-bonded along the prescribed circumference and length, completely compatible with the resin system used, and able to withstand the installation pressures and curing temperatures utilized. The tube material shall be able to stretch to fit irregular pipe sections, bridge missing pipe segments, and negotiate bends. Any seams in the tube shall be stronger than the non-seamed felt material.

2.1.3.2 The point repair liner pipe thickness design for each pipe size shall be in accordance with ASTM F1216 as well as the requirements listed herein. In the liner thickness calculations, the following requirements and assumptions shall apply. If Contractor encounters conditions that require or result in deviations from these assumptions, Contractor shall consult with Owner and Engineer before installing liner.

2.1.3.2.1 The minimum acceptable cured-in-place liner thickness for CIPP sectional point repairs for either partially- or fully-deteriorated pipe that is 15-inch diameter or less, shall be 6.0 millimeters (mm).

2.1.3.2.2 Sectional point repair liners shall bond to the original (host) pipe wall.

2.1.3.2.3 The height of groundwater above the pipe shall be equal to the soil depth above the top of the pipe.

2.1.3.2.4 Soil density of 120 pounds per cubic foot.

2.1.3.2.5 The enhancement factor (K) shall be no greater than seven (7.0).

2.1.3.2.6 The minimum safety factor shall be two (2.0).

2.1.3.2.7 The flexural modulus of elasticity shall be reduced to no more than 50% to account for long-term effects and used in the design equation E_L.

2.1.3.2.8 The minimum CIPP service life shall be 50 years.

2.1.3.3 The point repair lining material shall be able to be fully impregnated with the liquid resin system, per the manufacturer's standards. The cured point repair lining material shall conform to the minimum structural standards listed below:

Minimum CIPP Physical Properties

Property	Test Method	Results
Modulus of Elasticity	ASTM D790	800,000 psi
Flexural Stress	ASTM D790	27,000 psi

2.1.3.4 The CIPP sectional point repair liner manufacturer shall have conducted long-term testing for flexural creep of the CIPP liner material installed. Such tests shall have measured the performance of the materials (tube and resin) and general workmanship of the installation and curing procedures. The performance test results shall be used to determine the long-term, time-dependent flexural modulus to be utilized in the product design. A percentage of the instantaneous flexural modulus value is used in design calculations for external buckling. Retention values for the long-term flexural modulus shall be no more than 50% of the short-term test results. The materials utilized for this project shall be of a quality equal to, or better than, the materials used in the long-term performance tests with respect to the initial flexural modulus used in the CIPP design calculations.

2.1.3.5 The tube shall be fabricated to a size that, when installed, will tightly bond to the internal circumference of the original conduit segment length to be reconstructed. Allowances shall be made for the longitudinal and circumferential stretching that occurs during placement of the tube as well as the minimum one-foot extension beyond each side of the conduit segment to be reconstructed in order to develop a firm adhesion to portions of the host pipe that have maintained structural integrity around the reconstructed segment. The hydraulic cross-section of the pipe liner shall be maintained as large as possible.

2.1.3.6 The tube diameter shall be that deemed necessary by the Contractor to effectively carry out the packer inflation process and seal the point repair liner across the conduit segment to be reconstructed. Wrinkles that exceed 1/2" in height or are between the 3 to 9 o'clock positions will not be allowed and must be removed prior to acceptance. Contractor shall be responsible for measuring and determining actual pipe diameters and lengths in the field.

2.1.3.7 The length of the tube liner shall be that deemed necessary by Contractor to effectively carry out the packer inflation process and seal the point repair liner across the conduit segment to be reconstructed. The point repair liner shall extend at least one-foot beyond the conduit segment length identified for reconstruction. Contractor shall verify the lengths in the field before cutting the point repair liner to length.

2.1.3.8 The tube shall be homogeneous across the entire wall thickness and contain no intermediate or encapsulated elastomeric layers. No material shall be included in the tubes that are subject to delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

2.1.4 Fit and Thickness: The finished CIPP sectional point repair liner shall fit tightly and bond to the host pipeline at all observable points and shall meet or exceed the minimum thickness submitted per the design process. The material's properties shall meet or exceed the physical requirements as listed in the most current edition of ASTM F1216.

3. EXECUTION

3.1 Installation Responsibilities for Incidental Items:

3.1.1 Cleaning of Sewer Lines: The Contractor shall remove all internal debris out of the sewer line that will interfere with the installation of CIPP point repair liner. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition. All work shall be completed in accordance with Section 02956 – SEWER SYSTEM CLEANING.

3.1.2 Pre-CIPP Installation Inspection of Pipelines: Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of CIPP. These shall be noted and corrected. A DVD and suitable written log for each line section shall be produced, complete with all "live" service connections noted, for later reference by the Owner. Contractor shall utilize all techniques, as required, to distinguish between "live", abandoned, and/or capped service connections.

3.1.3 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of CIPP. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process and cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.4 Bypassing Sewage: The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Owner shall require a detail of the bypass plan to be submitted.

3.1.5 Public Notification: The Contractor shall make every effort to maintain sewer service usage throughout the duration of the project. In the event that a connection will be out of service, the longest period of no service shall be eight (8) hours. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

3.1.5.1 Written notice to be delivered to each home or business the day prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor

they can call to discuss the project or any potential problems.

3.1.5.2 Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

3.1.6 Locating Manholes and Access Points: It shall be Contractor's responsibility to coordinate with the Owner to locate, designate, and utilize all manholes or access points for the work. Owner shall provide access to any buried manholes, if necessary. Contractor is responsible for implementing an approved Traffic Control Plan.

3.1.7 Access to Water: Contractor shall make arrangements with local governing authority for the use, metering, and/or purchase of water required for sewer line renovation efforts.

3.2 Installation:

3.2.1 The Manufacturer and Contractor shall use equipment and methods adequate to protect the pipe, joint elements, and prevent shock contact of adjacent units during moving, storage, or installation. Damaged sections that cause reasonable doubt as to their structural strength or water-tightness shall be repaired by Contractor.

3.2.2 Contractor shall apply the approved resin onto the sectional point repair liner on-site just prior to installation and provide all equipment required to install the point repair liner into the conduit and cure it once in place.

3.2.3 The CIPP liner shall be installed in accordance with the latest practices given in ASTM F1743 for resin-impregnated, pulled-in-place installations.

3.2.4 Resin-Impregnation and Wet-Out: Each point repair liner to be installed on the project shall be infused or impregnated with a thermo-bonding resin. This process shall include the following procedures:

3.2.4.1 The Contractor shall designate the location where the point repair liner will be impregnated with resin prior to installation. The resin shall be hand-applied and troweled onto the liner to achieve a uniform distribution of the resin throughout the material. This is considered the "wet-out" process. Installer or Contractor shall allow Engineer and Owner to inspect the materials and the "wet-out" procedure.

3.2.4.2 Only resin systems which are approved by the point repair liner manufacturer shall be utilized.

3.2.4.3 The quantity of resin used for the liner's impregnation shall be sufficient to fill the volume of air voids in the liner with additional allowances made for any shrinkage or anticipated loss of resin through cracks and irregularities in the host pipe wall.

3.2.5 Insertion and Installation of Point Repair Liner: The insertion and installation of the point repair liner into the defective pipeline segments shall conform to the following procedures:

3.2.5.1 Contractor shall wrap the impregnated liner material onto the installation packer and insert the packer with liner through an existing manhole or other access point.

3.2.5.2 While in the host pipe, the packer with liner shall be placed at the center of the defective area to be reconstructed. Contractor shall use cameras, push rods, and positioning ropes/cables as necessary to ensure proper placement.

3.2.5.3 Contractor shall slowly inflate the packer to a safe and appropriate working pressure to pop the binding wire and initiate any audible device that signifies sufficient inflation.

3.2.5.4 Upon proper positioning and inflation, Contractor shall allow point repair liner to cure per manufacturer's recommendations.

3.2.6 Curing Point Repair Liner: Curing of the liner shall conform to the following procedures:

3.2.6.1 The curing period shall be for the duration recommended by the resin manufacturer based on the lining process used. The packer shall not lose air pressure during the curing process. Care shall be taken in the release of packer pressure so as not to damage the liner, host pipe, or any adjacent connections.

3.2.6.2 The finished point repair lining shall overlap one foot on each side of the entire length of the defective area identified for reconstruction and shall be bonded to the host pipe at all observable points of connection. The point repair lining shall be as free as commercially practical from visual defects such as foreign inclusions, dry spots, pinholes, and delamination. The lining shall be impervious and free of any leakage from the pipe to the surrounding ground or from the ground to the inside of the lined pipe.

3.3 Reinstatement of Branch Connections: It is the intent of these specifications that branch connections to buildings be re-opened to 100% of the original diameter without excavation, utilizing a remotely controlled cutting device, monitored by CCTV. The Contractor shall certify a minimum of two (2) complete functional cutters plus key spare components are on the job site before each installation or are in the immediate area of the jobsite and can be quickly obtained at all times during liner installation. Unless otherwise directed by the Owner or his authorized representative, only active laterals shall be reinstated. In the event that a "non-active" lateral line has been reinstated, it shall be the Contractor's responsibility to install a CIPP point repair liner with no additional cost to the Owner. No additional payment will be made for excavations for the purpose of reopening connections unless approved by the Engineer prior to CIPP installation and the Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

3.3.1 The Contractor shall be prepared to utilize CCTV and dye tablets to verify "active" or "non-active" status of sewer service lateral lines. All costs associated with this work shall be the responsibility of the Contractor. Any branch connections serving open lots where the lateral line has been brought to the surface and securely capped shall be reinstated.

3.4 Inspection:

3.4.1 The physical properties of the installed CIPP point repair shall be verified through laboratory testing of field samples. Contractor shall prepare one random sample per week or per twenty (20) CIPP point repairs installed (per liner diameter). Contractor shall prepare samples from material taken from the tube and the resin system used and tested in accordance with ASTM F1216.

3.4.2 The samples shall be flat plate samples for all diameter of CIPP point repairs. The flat plate samples shall be taken directly from the wet-out tube, clamped between flat plates, and cured. The samples shall be tested by a third-party in accordance with ASTM F1216 for thickness and initial physical properties.

3.4.3 The wall thickness of samples shall be determined as described in ASTM F1216. The minimum wall thickness at any point shall not be less than the minimum design wall thickness as calculated in the design or as specified herein. The flexural modulus must meet or exceed the value used in design.

3.4.4 Post Installation CCTV Inspection: Installation shall be inspected visually by closed-circuit television (CCTV). Variations from true line and grade may be inherent because of the conditions

of the original piping. No infiltration of groundwater should be observed. All service entrances should be accounted for and be unobstructed. The CCTV inspections shall be provided in a quality acceptable to the Engineer and/or Owner where the camera view is not underwater, blurry, or full of pixels distorting the picture. Video shall not be taken at such a speed so that the reviewer cannot properly identify objects in the camera's path. At each re-instated service connection, the CCTV camera shall come to a complete stop and the service shall be panned in its entirety to show a clear picture of the service lateral cutout and confirm the smoothness of the re-instated service.

3.4.5 All defects discovered during the post-CIPP CCTV inspection shall be corrected by the Contractor at his expense before the work is considered complete. Defects include any wrinkles in the finished liner that cause backwater greater than one-half (1/2) inch or that result in a reduction of pipeline hydraulic capacity.

3.5 Clean-Up: Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work. All work necessary to restore areas damaged by construction activities shall be restored in accordance with the applicable section for such required work contained within these project specifications.

3.6 All CCTV inspection shall be completed in accordance with Section 02959 – SEWER SYSTEM INSPECTION and Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

4. MEASUREMENT AND PAYMENT

4.1 CIPP point repair installation shall be measured as a complete in-place unit with a minimum length of five (5) feet. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of CIPP point repair installed. This price and payment shall constitute full compensation for all labor, materials, tools, equipment, and incidentals required for a complete and in-place installation.

PRESSURE TESTING AND GROUTING OF SEWER PIPE JOINTS AND LATERALS 02629

1. GENERAL

1.1 Pipe Joint and Connection Test: The work of this section consists of providing all labor, materials, tools, equipment, and incidentals required for the testing of sewer pipe joints by applying a positive air pressure to the joints, monitoring, and recording the pressure in the void. The intent of joint and connection testing is to identify those sewer joints, lateral connections, and laterals that are not watertight and that can be successfully sealed by packer injection grouting. This document can be utilized for the following applications:

1.1.1 Test all joints in a mainline segment.

1.1.2 Test all service lateral connections from the sewer main to a predetermined distance up the sewer lateral.

1.1.3 Test all joints within a predetermined distance in laterals directly connected to manholes.

1.2 Pipe Joint Grouting: The work of this section consists of providing all labor, materials, tools, equipment, and incidentals required for grouting of main sewer line joints, joints in laterals connected to manholes, and lateral connections to the mains using the packer injection method.

1.2.1 Packer injection grouting is used to reduce the infiltration within the pipeline, seal annular space between liners and host pipes at lateral connections, seal pipe joints that have failed the joint test criteria, provide external pipe support but not a structural rehabilitation, by stabilizing soils outside the pipe and prevent further loss of pipe bedding into the pipe.

1.2.2 Packer injection grouting shall be accomplished by pressure injection of chemical grout into the soils encompassing the exterior of pipe joint. Chemical grouts shall be designed to be injected into the soil surrounding the pipe, which stabilizes the soil and forms a permanent impermeable seal called a grout/soil ring, and into the annular space between liners and host pipes. Adequate volumes of grout must be injected to form an effective seal. Adequate amounts of grout are based generally upon pipe size and field conditions. This application will be through structurally sound joints and lateral connections through penetrations from within the pipe by using the packer method in tandem with a closed-circuit television (CCTV) inspection system.

1.3 Contract requires work in active sewers. Contractor shall follow all federal, state and local requirements for safety in confined spaces and uniform traffic controls.

1.4 Additional safety considerations including safely handling, mixing, and transporting of chemical grouts should be provided by the grout manufacturer/supplier, and should include safe operating practices and procedures, appropriate personal protective equipment (PPE) for the various grouting operations, and proper storage, transportation, mixing, and disposal of grouts, additives, and their associated containers.

1.5 Require completion of grout handling and mixing training certification from the grout manufacturer/supplier for personnel working with chemical grouts and additives.

1.6 Submittals: The Contractor shall provide a minimum 48-hour advance written notice of proposed testing schedules and testing procedures for review and concurrence of the Engineer. The other following information shall be submitted to the Engineer for their review:

1.6.2 Equipment operating procedures and systems.

1.6.3 Chemical grout information:

1.6.4 Description of chemical grout material meeting the requirements of paragraph 2.3 of this specification.

1.6.5 Description of proposed additives meeting the requirements of paragraph 2.4 of this specification.

1.6.6 Manufacturers recommended procedures for storing, mixing, testing and handling of chemical grouts.

1.6.7 MSDS sheets for all materials to be used.

1.6.8 The manufactures & models of the packers to be utilized on the project.

1.7 Reference Standards to be Used:

1.7.1 National Association of Sewer Service Companies (NASSCO) prepared *Pipeline Assessment and Certification Program (PACP)*, TV inspection form and sewer condition codes.

1.7.2 ASTM F2304 Standard Practice for Rehabilitation of Sewers using Chemical Grouting (latest revision).

1.7.3 ASTM F2454 Standard Practice for Sealing Lateral Connections and lines from the Mainline Sewer Systems by Lateral Packer Method, Using Chemical Grouting (latest revision).

2. PRODUCTS

2.1 Testing and Grouting Equipment:

2.1.1 The basic equipment used for mainline pipe joints and for laterals connected to the mainline shall consist of a remotely operated color television camera capable of pan and tilt, joint testing device (referred to hereafter as a packer), and test monitoring equipment. The equipment shall be constructed in such a way as to provide means for introducing air under pressure into the void area created by the expanded ends of the packer against the host pipe and a means for continuously measuring, viewing and recording the actual static pressure of the test medium and grout within the void area only. The packer shall be of a size less than the diameter of the host pipe, with the cables at either end used to pull it through the line and may be constructed in such a manner as to allow a restricted amount of sewage to flow at all times. Packer shall be expanded by air pressure. Packers shall be of low void space construction with void volume given by the packer manufacturer.

2.1.2 The device for testing lateral connections shall consist of inflatable mainline end elements and a lateral grouting plug that creates a void area extending beyond the main connection. Whenever possible, use a lateral grouting plug sized to match the diameter of the lateral being grouted with an effective sealing length of at least two (2) feet. Where the lateral is capped, utilize alternate lateral grouting plug or equipment sized appropriately for the capped lateral. In cases were the lateral transitions from six (6) inch to four (4) inch in diameter, use a four (4) inch lateral grouting plug. However, it is possible that due to physical restrictions the lateral plug may not launch and thus the service may not be able to be grouted.

2.1.3 The basic equipment for 4-inch and 6-inch laterals connected to manholes shall consist of a flexible push-type packer and mini-push camera. The device for testing lateral pipe connected to the manhole shall be capable of testing the joints within two (2) feet of the lateral or to the cleanout, whichever comes first, from the manhole toward the building. If the lateral contains a transition, Contractor may change out diameters of push packer or grout lateral using only a four (4) inch push packer.

2.1.4 Void pressure data shall be transmitted from the void area to the monitoring equipment or video picture of a pressure gauge mounted on the packer and connected to the void area. All test monitoring shall be above ground and in a location to allow for simultaneous and continuous observation of the televising monitor and test monitoring equipment.

2.1.5 Grouting equipment shall consist of the packer, appropriate pumping and hosing systems capable of supplying an uninterrupted flow of sealing materials to completely fill the voids. Grout pumping system shall be sized to deliver a mixed volume of grout at a minimum of 3-gpm and 30-gallons of uninterrupted flow within 10-minutes.

2.1.6 Volume of mixed grout pumped must be capable of being measured and recorded for each grouted joint/connection. Generally, the equipment shall be capable of performing the specified operations in sewers where flows do not exceed 25% of pipe diameter unless permitted by Engineer.

2.1.7 Connection and lateral service sealing shall be accomplished using the lateral grouting plugs and push packers specified above. Provide back-up bladders for each packer on-site at all times during grouting procedures.

2.1.8 Equipment for cleaning lateral blockages shall be readily available while any lateral grouting work is being performed.

2.2 Grouts (General):

2.2.1 All grout materials must have the following characteristics:

2.2.1.1 While being injected, the grout must be able to react /perform in the presence of water (groundwater).

2.2.1.2 The ability to increase grout mix viscosity, density and gel strength by increased concentration of constituents or the use of approved additives.

2.2.1.3 The cured grout must withstand submergence in water without degradation.

2.2.1.4 The resultant grout formation must be homogeneous and prevent the passage of water (infiltration) through the pipe joint.

2.2.1.5 The grout must not be biodegradable.

2.2.1.6 The cured grout should be chemically stable and resistant to organics found in sewage.

2.2.1.7 Residual grout shall be easily removable from the sewer line to prevent blockage of the sewage flow.

2.2.2 Handle, mix, and store grout in accordance with the manufacturer’s recommendations. The materials shall be delivered to the site in unopened original manufacturer’s containers.

2.3 Chemical Grouts:

2.3.1 Water based chemical grouts shall have the following characteristics:

2.3.1.1 A minimum of 10% acrylamide base material by weight in the total grout mix. A higher concentration of acrylamide base material is recommended to increase strength or offset

dilution during injection.

2.3.1.2 The ability to tolerate some dilution and react in moving water during injection.

2.3.1.3 A viscosity of approximately 2 centipoise, which can be increased with approved additives.

2.3.1.4 A controllable reaction time from 10 seconds to 1 hour.

2.3.1.5 A reaction (curing) that produces a homogenous, chemically stable, non-biodegradable, firm, flexible gel.

2.3.1.6 The ability to increase mix viscosity, density and gel strength by increased concentrations of the mix constituents or by the use of approved additives.

2.3.1.7 The product manufacturer shall be Avanti AV-100, Avanti AV-118, or Engineer approved equal.

2.3.2 Acrylate base grout shall have the following characteristics:

2.3.2.1 A minimum of 10% acrylate base material by weight in the total grout mix.

2.3.2.2 The ability to tolerate some dilution and react in moving water during injection.

2.3.2.3 A viscosity of approximately 1-3 centipoise, which can be increased with approved additives.

2.3.2.4 A controllable reaction time from 10 seconds to 1 hour.

2.3.2.5 A reaction (curing) that produces a homogenous, chemically stable, non-biodegradable, firm, flexible gel.

2.3.2.6 The ability to increase mix viscosity, density and gel strength by the use of approved additives.

2.3.2.7 The product manufacturer shall be DeNeef AC-400, DeNeef Gelacryl SR, Avanti AV-160, or Engineer approved equal.

2.4 Additives: At the Contractor's discretion and according to field conditions, additives may be selected and used within the manufacturers recommended quantities.

2.4.1 Strengthening Agents:

2.4.1.1 For joint grouting, a latex or "diatomaceous earth" additive may be added to increase compressive and tensile strength. The quantity of strengthening agent additive shall be as recommended by the manufacturer and approved by Engineer.

2.4.1.2 The product manufacturer shall be Avanti AV-257 Icoset, DeNeef Reinforcing Agent, or engineer approved equal.

2.4.2 Root Inhibitor:

2.4.2.1 When roots are present, for joint and lateral connection joint grouting, a root deterrent chemical shall be added to control root re-growth. The quantity of inhibitor shall be as

recommended by the manufacturer and approved by Engineer.

2.4.2.2 The product manufacturer shall be Avanti AC-50W or Engineer approved equal.

2.4.3 Dye: A manufacturer approved water soluble dye without trace metals may be added to the grout tank(s) for visual confirmation.

2.4.4 Gel Time Modifier: A gel time extending agent may be used in accordance with the manufacturer's recommendations to extend gel time as necessary.

2.4.5 Freeze/Thaw: In those lines where the grouting material may be exposed to a freeze-thaw cycle, ethylene glycol or other Engineer approved additive shall be used to prevent chemical grout cracking once set.

2.4.6 When using non-soluble additives, the grout tanks must have mechanical mixing devices to keep the additives in suspension and maintain a uniform solution of grout and additive.

3. EXECUTION

3.1 Control Tests:

3.1.1 Packer Test: Demonstrate the acceptable performance of air test.

3.1.1.1 To insure the accuracy, integrity and performance capabilities of the testing equipment, a demonstration test will be performed in an above-ground eight (8) inch nominal diameter test cylinder suitable to contain the full length of the packer and sustain the void test pressure. The test cylinder shall be equipped with a void release valve to exercise a controlled release of pressurized air from the void area to test the packer under both sound and leaking conditions. The test cylinder shall also be equipped with a local pressure gauge (0-25 psi) within the void space.

3.1.1.1.1 With the void release valve sealed, inflate the packer and air test void to 7-10 psi. The observed void pressure at the test cylinder pressure gauge must be within ±1.0 psi of the reading in the control center/studio void pressure gauge and follow both up and down pressure changes (allowing time for pressure equalization).

3.1.1.1.2 If above test is passed, crack the release valve to simulate a very small leak. The cylinder shall be equipped with a void release valve to exercise a controlled release of the test media with the associated pressure drop to be equally displayed ±1.0 psi of the cylinder gauge and test monitoring equipment.

3.1.1.2 After entering each pipeline segment with the test equipment, but prior to the commencement of joint testing, position the packer on a section of sound sewer pipe between pipe joints, and perform a test as specified. The equipment shall hold a 7-10 psi test pressure for a period of 15 seconds with a pressure drop of less than 1 psi. In the event of a failed test, repair any defective equipment and re-test to verify proper operation of all equipment at no additional compensation. Should it be found that the surface or porosity conditions of the barrel of the sewer pipe cannot meet the joint test requirements, then the performance testing shall be waived or modified as determined by the Engineer.

3.1.1.3 If air testing cannot be performed successfully, repair or otherwise modify air test equipment and repeat the tests. This test may be required at any other time during the performance of joint testing work if the Engineer suspects the testing equipment is not functioning properly.

3.1.2 Pump Tests: At the beginning of the Contract, prior to application of grout, perform a pump

test to determine if proper ratios are being pumped from the grout component tanks at the proper rates and to measure pump rates. Use separate containers to capture the discharges from each of the grout component hoses, to simulate the actual volumes of each component through the interconnect hoses, hose reel and length of grout hose and confirm accuracy of grout pump totalizer. Take corrective action if ratios or rates are not within manufacturer's recommended standards.

3.1.3 Grout Tests: Perform and record a grout gel test in the presence of the Engineer by recording the grout tank solution temperature, catalyst tank solution temperature, ambient air temperature in truck, and gel time of the sample whenever the following conditions occur:

3.1.3.1 At the beginning of each day; the material in the hoses shall be recycled to the tanks and a sample shall be taken.

3.1.3.2 When new batches of grout are mixed.

3.1.3.3 Whenever the temperature in the tanks or ambient temperature have changed by more than +/- 10°F from the previous gel test.

3.2 Pipe Preparation:

3.2.1 Cleaning of Sewer Lines: The Contractor shall remove all internal debris out of the sewer line that will interfere with the pipe joint and connection test and/or joint grouting. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition. All work shall be completed in accordance with Section 02956 – SEWER SYSTEM CLEANING.

3.2.2 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the pipe joint and connection test and/or joint grouting. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process and cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.3 Roots and Loose Debris in Lateral Connections:

3.3.1 Remove all roots and loose debris from laterals connected to manholes for the length of lateral to be tested/grouted.

3.3.2 During mainline sewer cleaning or joint testing, document all lateral connections containing roots, mineral deposits or obstructive conditions that are either (a) greater than fine roots or (b) of a nature to prevent testing and sealing of connection. For each such connection, submit a screen shot image clearly showing the extent of roots or obstructive condition to the Engineer. Submit images in electronic format, labeled and organized in a manner to easily retrieve the image for the lateral connection in question. The list of lateral connections with roots shall include upstream and downstream manhole numbers and stationing. Engineer will review the list of lateral connections containing roots and obstructions and direct Contractor as to which laterals are to be (a) cleaned and grouted, (b) grouted without cleaning – in which case such lateral connection would be excluded from warranty testing, or (c) removed from the scope of work – in which case

no payment for such lateral will be made.

3.4 Joint Testing Procedure for Mainline Sewer and Laterals Connected to Manholes:

3.4.1 Joint testing pressure shall be equal to 0.5-psi per vertical foot of pipe depth plus 2-psi; however, test pressure shall not exceed 10-psi without the approval of the Engineer.

3.4.2 Test joints in laterals which are directly connected to manholes to at least 30-feet. If there is a transition in the laterals connected to manholes test the transition. Direct visual observation and measured cable lengths shall be used to position the lateral packer for laterals directly connected to manholes.

3.4.3 Individually test each sewer pipe joint at the above-specified pressure (and retest after sealing) in accordance with the following procedure:

3.4.3.1 Air Test Procedure:

3.4.3.1.1 The packer shall be positioned within the pipe in such a manner as to straddle the joint to be tested.

3.4.3.1.2 The packer ends shall be expanded so as to isolate the joint from the remainder of the pipe and create a void area between the packer and the pipe joint. The ends of the testing device shall be expanded against the pipe as per manufacturer's recommendations. If all attempts to isolate the joint fail, pump grout in an attempt to seal the leak around the packer end elements. The Contractor shall be paid the unit price for grout to seal the packer unless the Engineer determines that the sewer was inadequately cleaned or the packer is not performing properly, but will not be paid the unit price for joint grouting for this activity.

3.4.3.1.3 After the void pressure is observed to be equal to or greater than the required test pressure, the air flow shall be stopped. If the void pressure decays by more than 1.0-psi within 15 seconds, the joint will have failed the test and shall be sealed.

3.4.4 Upon completing the testing of each individual joint, the packer shall be deflated with the void pressure meter continuing to display void pressure. Should the void pressure meter fail to drop to 0.0-psi (+/- 0.5-psi), clean the test equipment of residual grout material or make the necessary equipment repairs in order to provide an accurate void pressure reading.

3.5 Lateral Connection Testing Procedure:

3.5.1 Lateral connection joint testing pressure shall be equal to 0.5-psi per vertical foot of pipe depth plus 2-psi; however, test pressure shall not exceed 10-psi without approval of the Engineer.

3.5.2 Air testing lateral connections shall be accomplished by isolating the area to be tested with the lateral connection packer and by applying positive pressure into the isolated void area. A pan and tilt camera shall be used to position the lateral packer for laterals directly connected to the mainline sewer. The lateral bladder shall be inverted from the mainline assembly into the lateral pipe and inflated. The mainline elements shall then be inflated to isolate the lateral connection and the portion of the lateral to be tested. A sensing unit shall monitor the pressure of the packer void and will accurately transmit a continuous readout of the void pressure to the control panel at the grouting truck or to a pressure gauge on the packer recorded by the CCTV camera.

3.5.3 The test procedure will consist of applying a controlled air pressure into each isolated void area. Air shall then be slowly introduced into the void area until a pressure equal to or greater than the required test pressure, but in no cases greater than 2-psi above the required test pressure, is observed on the pressure monitoring equipment. Once the designated pressure in the isolated void is displayed on the meter of the control panel, the application of air pressure will

be stopped and a 15 second waiting period will commence. The void pressure will be observed during this period. If the void pressure drop is greater than 2.0-psi within 15 seconds, the lateral shall be considered to have failed the air test and shall be grouted and retested.

3.5.4 After completing the air test for each individual lateral specified herein, deflate the lateral packer, with the void pressure meter continuing to display void pressure. If the void pressure does not drop to 0.0-psi (+/- 0.5-psi), clean the test equipment of residual grout material or make the necessary equipment repairs in order to provide an accurate void pressure reading.

3.6 Grout Preparation:

3.6.1 Follow the manufacturer's recommendations for the mixing and safety procedures.

3.6.2 Adjust gel time as necessary to compensate for changes in temperature in grout component tanks or hoses. The addition of dilution water to extend gel times is not acceptable unless resulting base grout tank only material exceeds 20% by weight for solution grouts.

3.6.3 During the grouting process, the Grouting Technician shall monitor the grout component tanks to make sure that proper ratios are being pumped. If unequal levels are noted in the tanks, repeat the pump test as described above and correct any defective equipment.

3.6.4 Gel times shall be calculated using the following formula unless Contractor experience and/or field conditions dictate otherwise. Any alterations of the gel time formula shall be approved by the Engineer.

$$Gel\ Time = \left(\frac{Volume\ of\ Pipe / Packer\ Void\ Space\ (gal)}{Pumping\ Rate\ (gpm)} \right) \left(\frac{60\,\text{sec}}{1\,\text{min}} \right) + 20\,\text{sec}(+/-5\,\text{sec})$$

Packer/Pipe void shall be defined as the volume between the inflated packer and the inside pipe wall when the packer is inflated per manufacturer recommendations.

For example: an 8" pipe with a packer void space of 0.3-gallons and a 3-gpm pumping rate would provide

$$Gel\ Time = \left(\frac{.3(gal)}{3(gpm)} \right) \left(\frac{60\,\text{sec}}{1\,\text{min}} \right) + (20\,\text{sec}) = 26\,\text{sec}(+/-5\,\text{sec})$$

3.7 Testing and Grouting Defects:

3.7.1 Testing and grouting will not be required on pipe exhibiting the following conditions or characteristics:

3.7.1.1 Longitudinally cracked, fractured or broken pipe.

3.7.1.2 Sections of the pipe with structural defects between joints.

3.7.1.3 Any sections of pipe or joints that are in such poor structural condition that in the judgment of Engineer or Contractor, significant structural damage of the pipe would occur as a result of the pressure test.

3.7.2 Any structurally undamaged joint that structurally fails (breaks) during testing and grouting that are documented on video to have been done under normal pressure conditions shall be the Owner's responsibility and cost to repair.

3.7.3 Grout all circumferential cracks and fractures or other defects as specified or as directed by Engineer. Do not test or grout any other pipe defects unless so specified or shown, or directed by Engineer to do so. Any structurally failed pipe or joint that is grouted at the Engineer's direction that further fails/breaks during testing and grouting that are documented on video to have been done under normal pressure conditions shall be the Owner's responsibility and cost to repair. Promptly repair any other sewer damage resulting from the Contractor's operations at no additional compensation.

3.8 Grouting (General): Grout all joint and lateral connections that failed the pressure test by the injection method. This shall be accomplished by forcing grout through a system of pumps and hoses into and through the joints of the sewer from the packer within the sewer pipe. Remove excess grout from pipe and laterals. Excess grout shall be defined as a thickness of grout that given its location, size and geometry, could cause a blockage. Flush or push forward to the next downstream manhole, remove from the sewer system, and properly dispose of excess grout.

3.9 Pipe Joint Sealing by Packer Injection Grouting for Mainline Sewers and Laterals Connected to Manholes:

3.9.1 Position the mainline packer over the joint or defect to be sealed by means of a CCTV camera in the line. Position the push/pull packer over the joint or defect to be sealed by a means of visual observation, marked push rod, or where a cleanout is available, through a CCTV camera in the lateral. For push packers, start work at the most distant point to be grouted. Take an accurate measurement of the location of the defect to be sealed using a portion of the packer as a point of reference for positioning the injection area of packer over the defect.

3.9.2 Pneumatically expand the packer sleeves such that they seal against the inside periphery of the pipe to form a void area at the joint now completely isolated from the remainder of the pipe line.

3.9.3 Pump grout materials, in stages if needed, into this isolated area to refusal and the void or surrounding soil has been filled or solidified with the goal of applying 0.25 to 0.5 gallons of grout per inch-diameter per pipe joint. Refusal is when the packer void pressure during grout pumping instantaneously rises or "spikes" by 4- to 5-psi or more above the normal void pressure experienced during grout pumping operation. Refusal may also be revealed when pumping void pressure exceeds the holding pressure of the packer end elements as evidenced by "blow-by" past the packer sealing end elements. Refusal shall mean, when the joint will not accept any more grout because it has flowed throughout the void, through any joint failure and into the surrounding soil; gelled or filled the available void space; and formed a cohesive seal stopping further grout flow, then the joint will have then been sealed. Record the amount of grout pumped on the sealing log. If sealing is not achieved refer to paragraph 3.9.5 of this specification.

3.9.4 Upon completion of the injection, deflate the packer to break away from the ring of gel formed by the packer void. The packer should then be re-inflated and the joint retested at a pressure equal to the initial test pressure. If the joint fails this air test, repeat the grouting procedure at no additional cost to the Owner, except for the additional grout used. Repeat this sequence of air testing, grouting and subsequent air testing until either the joint is sealed or it is determined that the grout consumption is too high (see paragraph 3.9.5 of this specification). The final determination to stop subsequent attempts to seal a joint will be made jointly between the Engineer and the Contractor. Should the void pressure meter not read 0-pisi ($\pm$ 0.5-psi), clean the equipment of residual grout or make the necessary equipment repairs/adjustments to produce accurate void pressure readings.

3.9.5 If a mainline or lateral joint requires more than 0.5 gallons of grout per inch-diameter per pipe joint, modify grouting procedure to perform stage grouting by pumping additional grout in up to 4-gallon increments, waiting 1 gel set cycle time or 1 full minute, whichever is greater between stages. Maximum number of stages shall not exceed two (2) stages of 4 gallons each unless

approved by Engineer.

3.10 Lateral Connection Sealing From the Mainline By Packer Injection Grouting:

3.10.1 Lateral connection sealing begins if the lateral connection does not pass the air test, shows evidence of leakage, has been successfully cleaned to remove roots, or where Contractor has been directed. The lateral packer shall remain in position during the pressure test, thus maintaining the isolated void. Pressure inject grout through the lateral packer into the annular space between the lateral grouting plug and the lateral pipe.

3.10.2 When pumping grout, operate the pumps until the mixed grout has flowed through any joint failure, through any annular space, and into the surrounding soil; gelled or filled the available void space; formed a cohesive seal stopping further grout flow; and minimum of 8-psi back pressure is achieved while pumping. As grout pumping continues the void pressure will slowly rise to a range of about 2- to 4-psi, continue pumping until a point where there is a sudden increase in the void pressure. This increase from 2- to 4-psi to over 8- to 10-psi takes place in a matter of a few seconds. If the grout pumped exceeds 1 gallon per foot of lateral bladder plus 3 gallons, it will be suspected that there are significant voids on the outside of the pipe or that the packer is not properly sealed. Check that the packer is sealed properly. If it is, modify grouting procedure to stage grouting by pumping additional grout equivalent to1 gallon plus 0.25 gallons per foot of lateral bladder, waiting 1 full minute, and retesting. The maximum number of stages shall not exceed two (2) stages unless authorized by Engineer.

3.10.3 Upon completion of the lateral connection sealing procedure, deflate the lateral bladder, re-inflate and air test the lateral connection a second time to confirm the sealing of the connection in accordance with the air testing procedure. If the lateral connection fails this air test, repeat the grouting procedure at no additional cost to the Owner, except for the additional grout used. Air tests after grouting laterals containing roots is not required.

3.10.4 Confirm lateral flow after sealing of each lateral connection. If a grout blockage exists, the Contractor shall immediately clear the lateral at no additional cost to the Owner. Blockages in the lateral that are not the result of grouting operations shall not be the responsibility of the Contractor.

3.10.5 After grouting lateral connections (with the appropriate size lateral bladder), a thin residual grout film may be present inside the lateral wall. The amount of residual grout film present is dependent on the lateral bladder used, geometry of the lateral and positioning of the packer. This thin layer of cured grout is normal and will eventually peel off the sidewall of the pipe. The residual chemical grout film is not “sandwiched” between two structures and will eventually peel off the sidewall of the pipe. This residual chemical grout film is not considered excess grout. Removal of residual grout shall be requested by the Engineer and paid for under the unit price for post lateral connection residual grout cleaning.

3.11 Joint Sealing Verification:

3.11.1 Record grouting of joints in conjunction with the testing of joints. Record the void pressure drop continuously on video and in writing immediately before sealing, and immediately after grouting. After the packer is deflated and moved, record on video the visual inspection of the joint.

3.11.2 Use of standardized test and seal data sheets and PACP data codes is highly recommended.

3.12 Disposal: Collect and properly dispose of cleaning materials used in the cleaning of the grouting equipment.

3.13 Post-Construction Inspection:

3.13.1 After grouting is complete, all pipe sections shall be final inspected by means of a color CCTV system. The inspection shall be conducted as per the NASSCO Pipeline Assessment and Certification Program. One set of DVD's and reports shall be submitted. Video recording shall include testing and sealing operations for each joint/lateral (including inflation and deflation over the joint/lateral) displaying the final air test of joints or laterals.

3.13.2 Upon completion of each pipe segment, submit to Engineer a report showing the following data for each joint and/or lateral connection tested, grouted or attempted to be grouted as required by PACP.

3.13.2.1 Identification of the sewer pipe section tested by assigned sewer ID (if available) and length.

3.13.2.2 Type of pipe material, diameter & depth of pipe to the surface at manholes.

3.13.2.3 Length of pipe sections between joints.

3.13.2.4 Test pressure used and duration of test.

3.13.2.5 Pass/fail results for each joint/connection tested.

3.13.2.6 Location stationing of each joint/connection tested and location of any joints/connections not tested with an explanation for not testing.

3.13.2.7 Volume of grout material used on each joint or connection.

3.13.2.8 Gel set time used (cup test results from tanks).

3.13.2.9 Grout mix record of the batches mixed including amount of grout and catalyst, additives, temperature of the grout solution in tanks.

3.13.2.10 Operator conducting testing and sealing shall be noted on the reports.

3.13.2.11 Video recordings: Video recording shall include testing and sealing operations for each joint/lateral (including inflation and deflation over the joint/lateral) displaying the final air test of joints or laterals.

3.14 Quality Control: Conduct warranty CCTV inspection of mainline sewers on all of the pipe sections which contain joint or lateral grouting. This work shall be completed during conditions of high ground water and shall commence a minimum of 11 months after substantial completion and be completed a maximum of 18 months after final completion. Any joints or lateral connections which were originally sealed and are observed to be leaking shall be re-sealed at no cost to the OWNER.

4. MEASUREMENT AND PAYMENT

4.1 Mainline pipe joint and connection testing shall be measured as a complete test for each joint or connection tested. Payment shall be at the unit price set forth in the Bid Schedule for the diameter of mainline sewer pipe tested. This price and payment shall constitute full compensation for all labor, material, tools, testing, and equipment necessary for a complete and valid test. If a test is incomplete due to the failure of the equipment the Contractor shall retest the joint or connection with no additional cost to the Owner.

4.2 Lateral connection testing shall be measured as a complete test for each lateral to mainline connection (4" or 6" diameter) tested. Payment shall be at the unit price set forth in the Bid Schedule for the diameter of mainline sewer pipe in which the test occurs. This price and payment shall constitute full compensation for all labor, material, tools, testing, and equipment necessary

for a complete and valid test. If a test is incomplete due to the failure of the equipment the Contractor shall retest the lateral connection with no additional cost to the Owner.

4.3 Testing of small diameter (4" or 6") sewer lines connected to manholes shall be measured and paid for as a complete test for each connection tested. Payment shall be at the unit price set forth in the Bid Schedule for the testing of small diameter lines connected to manholes. This price and payment shall constitute full compensation for all labor, material, tools, testing, and equipment necessary for a complete and valid test. If a test is incomplete due to the failure of the equipment the Contractor shall retest the lateral connection with no additional cost to the Owner.

4.4 Pipe joint sealing by packer injection grouting for mainline sewers shall be measured as a complete in place installation. The volume of grout or chemical grout shall be measured and paid for separately, refer to paragraph 4.7 below. Payment shall be at the unit price set forth in the Bid Schedule for the diameter of mainline sewer pipe. This price and payment shall constitute full compensation for all labor, material (excluding grout or chemical grout), tools, testing, equipment, CCTV inspection, joint seal verification, and incidentals necessary for a complete installation.

4.5 Lateral connection sealing (4" or 6" diameter) from the mainline by packer injection grouting shall be measured as a complete in place installation. The volume of grout or chemical grout shall be measured and paid for separately, refer to paragraph 4.7 below. Payment shall be at the unit price set forth in the Bid Schedule for the diameter of mainline sewer pipe. This price and payment shall constitute full compensation for all labor, material (excluding grout or chemical grout), tools, testing, equipment, CCTV inspection, joint seal verification, and incidentals necessary for a complete installation.

4.6 Sealing of small diameter (4" or 6") sewer lines connected to manholes shall be measured as a complete in place installation. The volume of grout or chemical grout shall be measured and paid for separately, refer to paragraph 4.7 below. Payment shall be at the unit price set forth in the Bid Schedule for the grouting of small diameter sewer lines connected to manholes. This price and payment shall constitute full compensation for all labor, material (excluding grout or chemical grout), tools, testing, equipment, CCTV inspection, joint seal verification, and incidentals necessary for a complete installation.

4.7 Normal grout or chemical grout injected as part of the pipe joint or lateral connection sealing shall be measured and paid for by the gallon.

SANITARY SEWER RENOVATION USING THERMOFORMED (FOLD AND FORM) PIPE..... 02630

1. GENERAL

1.1 Description: The work of this section consists of the reconstruction of pipelines and conduits by the installation of a thermoformed (fold and form) PVC pipe. When installed, the liner shall be a seamless, joint-less, solid wall PVC pipe that tightly conforms to the interior contours of the original host pipe. The liner shall be continuous from manhole to manhole.

1.2 This specification references ASTM F1947 (Standard Practice for Installation of Folded Poly (Vinyl Chloride) (PVC) Pipe into Existing Sewer and Conduit Rehabilitation), ASTM F1504 (Standard Specification for Folded Poly (Vinyl Chloride) Pipe for Existing Sewer and Conduit Rehabilitation, and ASTM D2122 (Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings) which are made a part hereof by such reference and shall be the latest edition and revision thereof. Where conflicts exist between the referenced standard and this specification, this specification will govern.

1.3 Manufacturer and Contractor Qualification Requirements: All Manufacturers and Contractors must meet the following criteria:

1.3.1 Manufacturer: A manufacturer's thermoformed liner product shall be considered commercially proven, with a minimum five (5) years of documented experience.

1.3.2 Installer: The Contractor must submit with their bid, correspondence from the Manufacturer stating that they are certified to install the Manufacturer's thermoformed liner product. The installer shall also provide a project superintendent that has a minimum of three (3) years of experience on similar rehabilitation projects.

1.4 Submittals: The Contractor shall submit to the Engineer documentation which shall include shop drawings, ASTM standards, and manufacturer's data for the following items:

1.4.1 Product Data;

1.4.2 Manufacturer's Storage and Installation Instructions;

1.4.3 Design Data;

1.4.4 Curing/Stress Relief Schedule;

1.4.5 Bypass plan layout;

1.4.6 Public Notification

1.4.7 Safety plan;

1.4.8 Field Measurements;

1.4.9 Pre-Installation Inspections;

1.4.10 Post-Installation Inspection;

1.4.11 Curing/Stress Relief Log;

1.4.12 Testing;

1.5 The Contractor shall be responsible for all traffic control requirements as specified in Section 01577 – TRAFFIC CONTROL.

1.6 Safety: The Contractor shall carry out their operations in strict accordance with OSHA and NIOSH and the manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with scaffolding and entering confined spaces.

2. MATERIALS

2.1 Liner: The pipe liner shall be extruded from a specially formulated polyvinyl chloride (PVC) compound that meets the physical properties indicated in paragraph 2.3 of this specification and the requirements of section 6 of ASTM F1504. The liner material shall be made only from a PVC compound especially design for sewer rehabilitation.

2.2 PVC Compound: The PVC compound used for the thermoformed PVC pipe shall conform to cell classifications 12334, 13223, 32334, or 33223 as provided in section 6 of ASTM F1504 and defined in ASTM D1784.

2.3 Structural Requirements: The physical properties of the PVC liner shall be as provided in ASTM F1504 for SDR 35.

2.4 Design Requirements: The liner shall be fabricated to a size which, when installed, will neatly fit the internal circumference of the host pipe. Allowance for circumferential expansion during installation shall be made.

2.4.1 The minimum design length shall be that which continuously spans the distance from the center of the inlet manhole to the center of the outlet manhole. The Contractor shall verify the lengths in the field before insertion of the liner.

2.4.2 The minimum thickness shall be SDR 35 or as determined by the design calculations and agreed to by the Owner. The minimum design thickness shall be calculated in accordance with the criteria set forth in appendix XI of ASTM F1947 and using a maximum reduction for long term modulus of 25%.

2.5 Chemical Resistance: The liner shall meet the chemical resistance requirements of ASTM F1504.

2.6 Hydrophilic end seals shall be used at each manhole termination.

3. EXECUTION:

3.1 Installation Responsibilities for Incidental Items:

3.1.1 Cleaning of Sewer Lines: The Contractor shall remove all internal debris out of the sewer line that will interfere with the installation of liner. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition. All work shall be completed in accordance with Section 02956 – SEWER SYSTEM CLEANING.

3.1.2 Pre-Lining Installation Inspection of Pipelines: Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of the liner. These shall be noted and corrected. A DVD and suitable written log for each line section shall be produced, complete with all "live" service connections noted, for later reference by the

Owner. Contractor shall utilize all techniques, as required, to distinguish between “live”, abandoned, and/or capped service connections. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the City.

3.1.3 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of the liner. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process and cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.4 Sewer Line Sags: It shall be the responsibility of the Contractor to identify and make a point repair excavation of an existing sewer line when a pipe sag is greater than 25% of the cross-sectional area of the pipe. Such excavation shall be approved in writing by the Owner’s representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.5 Renovation of Existing Manholes: Where existing manholes are to be renovated and the adjoining gravity sewer line is to be lined, the Contractor shall install the liner prior to renovating the existing manhole. Liner installer shall leave a 3” stub of pipe in the existing manhole to accommodate manhole renovation. Manhole renovation shall be completed as described in Section 02609 – MANHOLE RENOVATION.

3.1.6 Bypassing Sewage: The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Owner shall require a detail of the bypass plan to be submitted.

3.1.7 Public Notification: The Contractor shall make every effort to maintain sewer service usage throughout the duration of the project. In the event that a connection will be out of service, the longest period of no service shall be eight (8) hours. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

3.1.7.1 Written notice to be delivered to each home or business the day prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any potential problems.

3.1.7.2 Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

3.2 Installation:

3.2.1 Fold and Form installation shall be in accordance with the manufacturer’s installation specifications, ASTM F1947 and all other applicable ASTM Standards.

3.2.2 Pre-Shipment Testing: Before shipment from the factory the product shall be tested in accordance with the Manufacturer’s established quality control/quality assurance procedures. The

testing requirements of the manufactures QC/QA program must equal or exceed those specified in ASTM F1504.

3.2.3 End Seals: The Contractor shall install the hydrophilic end seals in the host pipe prior to insertion of the liner. The end seals shall be installed per the manufacturer's installation specifications.

3.2.4 Pre-Heating: Prior to insertion of the liner into the host pipe the Contractor shall pre-heat the liner per the manufacturer's installation specifications to allow for insertion of the tube into the sewer.

3.2.5 Pipe Liner Insertion: The liner shall be inserted into the sewer through existing manholes, without modification of the manholes. The end of the liner shall be prepared for attachment to the cable in accordance with the manufacturer's instructions. The connection between the pulling cable and the prepared end of the liner shall be a swivel device to prevent twisting of the liner as it is pulled through the host pipe. The heated liner coil shall be placed in such a manner as to prevent damage to the liner as it is pulled through the manhole and into the host pipe. Contractor shall take all possible steps to minimize the amount of stress exerted on the liner during insertion.

3.2.6 Stress Relief: After the liner has been inserted into the host pipe, and before the liner is inflated using air pressure, steam shall be applied to the liner to relieve the stresses imparted on the liner during the insertion. The liner shall be steamed until no more movement is visible due to the stress relief, plus an additional 10 minutes beyond that point.

3.2.3.1 The Contractor shall record the total amount of time that the liner was steamed for stress relief on the curing log.

3.2.7 Processing: The Contractor shall supply suitable heat source equipment to deliver steam through the lining section and uniformly raise the pressure and temperature in the liner to effect forming of the liner pipe. Suitable monitors shall be installed to gauge steam temperatures at the input and exhaust ends of the liner. Steam monitoring methods and forming period shall be per the manufacturer's installation instructions.

3.2.8 Cooling: After forming, the liner shall be cooled using compressed air. Cooling shall be deemed complete when the temperature of the exhaust air has remained constantly below 100°F, or ambient air temperature if ambient air temperature is above 100°F, for a minimum of 20 minutes.

3.2.9 Pipe Liner Trimming: After installation, the ends of the liner shall be cut off in the manhole. The cuts shall be smooth and parallel with the manhole wall. The finished liner shall protrude into the manhole sufficiently to form a bell at the pipe opening, but no more than 4 inches.

3.2.10 Lining Multiple Sewer Segments: The Contractor shall only line one sewer segment (manhole to manhole) at a time. Lining two or more sewer segments at a time by lining through an intermediate manhole shall not be allowed, except when approved by the project manager.

3.3 Reinstatement of Branch Connections: It is the intent of these specifications that branch connections to buildings be re-opened to 100% of the original diameter without excavation, utilizing a remotely controlled cutting device, monitored by CCTV. The Contractor shall certify a minimum of two complete functional cutters plus key spare components are on the job site before each installation or are in the immediate area of the jobsite and can be quickly obtained at all times during liner installation. Unless otherwise directed by the Owner or his authorized representative, only active laterals shall be reinstated. In the event that a "non-active" lateral line has been reinstated, it shall be the Contractor's responsibility to install a CIPP point repair liner with no additional cost to the Owner. No additional payment will be made for excavations for the purpose of reopening connections unless approved by the Engineer prior to CIPP installation and the

Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

3.3.1 The Contractor shall be prepared to utilize CCTV and dye tablets to verify “active” or “non-active” status of sewer service lateral lines. All costs associated with this work shall be the responsibility of the Contractor. Any branch connections serving open lots where the lateral line has been brought to the surface and securely capped shall be reinstated.

3.4 Field Samples:

3.4.1 Contractor shall collect samples as requested randomly by the Owner, but not more than 20% of installations. Contractor shall provide all labor and materials necessary to produce samples for laboratory and/or field testing. Contractor shall contract directly with a 3rd party certified laboratory for testing as required.

3.4.2 The wall thickness shall be measured in accordance with the applicable ASTM Standards. Test method to be determined by testing laboratory.

3.4.3 The flexural strength and flexural modulus of elasticity shall be determined in accordance with ASTM D-790.

3.4.4 Method for obtaining samples on 18” diameter or smaller pipe:

3.4.4.1 Prior to lining work, Contractor shall install a short piece of pipe, 12” minimum length, with an equal diameter. Hold sample pipe in place by a suitable heat sink, such as sandbags.

3.4.4.2 Line the testing pipe with the same tube as the sewer line being rehabilitated, and complete the cure process.

3.4.4.3 Cut and remove the sample pipe where the pipe enters the manhole.

3.4.4.4 Label the manhole number and date of installation, and submit the sample pipe to the laboratory for testing.

3.5 Post-Lining Installation Inspection of Pipelines: Installation shall be inspected visually by closed-circuit television (CCTV). Variations from true line and grade may be inherent because of the conditions of the original piping. No infiltration of groundwater should be observed. All service entrances should be accounted for and be unobstructed. The CCTV inspections shall be provided in a quality acceptable to the Engineer and/or Owner where the camera view is not underwater, blurry, or full of pixels distorting the picture. Video shall not be taken at such a speed so that the reviewer cannot properly identify objects in the camera’s path. At each re-instated service connection, the CCTV camera shall come to a complete stop and the service shall be panned in its entirety to show a clear picture of the service lateral cutout and confirm the smoothness of the re-instated service. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the Owner.

3.6 All defects discovered during the post-lining inspection shall be corrected by the Contractor at his expense before the work is considered complete. Defects include any wrinkles in the finished liner that cause backwater greater than one-half (1/2) inch or that result in a reduction of pipeline hydraulic capacity.

3.7 Clean-Up: Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the

work. All work necessary to restore areas damaged by construction activities shall be restored in accordance with the applicable section for such required work contained within these project specifications.

3.8 All CCTV inspection shall be completed in accordance with Section 02959 – SEWER SYSTEM INSPECTION and Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

4 MEASUREMENT AND PAYMENT

4.1 Thermoformed (fold and form) pipe installation shall be measured on a lineal foot basis from centerline to centerline of manholes. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of liner installed. All measurements and/or stationing shown on drawings and listed in the Bid Schedule reflect horizontal distances with no additional compensation made for vertical angle variations between stations. This price and payment shall constitute full compensation for supervision, all CCTV inspection, cleaning, cleaning water, debris removal and disposal, reinstatement of branch connections, reverse set-ups where required, computer disks/hard drives and logs/reports, location and status verification of service connections, traffic control, buried pipe/manhole locating, liner, labor, materials, equipment, and all necessary incidentals, together with all associated appurtenant work as required for a complete and in-place installation.

4.2 Point repair excavations shall be measured and paid for as specified in Section 02722 – SANITARY SEWER SYSTEMS.

SANITARY SEWER RENOVATION USING GLASS REINFORCED PLASTIC (GRP) CIPP CURED WITH UV-LIGHT 02631

1. GENERAL

1.1 Description: The work of this section consists of the reconstruction of pipelines and conduits by the pulled in place installation of a resin impregnated flexible fabric tube into an existing conduit followed by inflation with compressed air. Curing is accomplished by exposing the resin saturated tube to a UV-light source to cure the resin into a hard, impermeable pipe. The final product shall extend the entire length of the original pipe segment providing a continuous, tight-fitting and joint-less liner.

1.2 This specification references the following standards which are made a part hereof by such reference and shall be the latest edition and revision thereof. Where conflicts exist between the referenced standard and this specification, this specification will govern.

1.2.1 ASTM C581 – Standard Practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass Fiber Reinforced Structures, Intended for Liquid Service.

1.2.2 ASTM D543 – Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents.

1.2.3 ASTM D790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

1.2.4 ASTM D5813 – Standard Practice for Cured-in-Place Thermosetting Resin Sewer Pipe.

1.2.5 ASTM F1216 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.

1.2.6 ASTM F2019 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled In Place Installation of Glass Reinforced Plastic (GRP) Cured-In-Place Thermosetting Resin Pipe.

1.3 Manufacturer and Contractor Qualification Requirements: All Manufacturers and Contractors must meet the following criteria:

1.3.1 For a Manufacturer's liner product to be approved by the Owner, the Manufacturer shall have at least five (5) years of active experience in the municipal application of the proposed CIPP system. Additionally, the Manufacture shall have amassed a minimum of 250,000 linear feet or 1,000 manhole to manhole line sections of successful wastewater collection system installations within the U.S. in this timeframe.

1.3.2 For a Contractor to be approved by the Owner, the Contractor shall have at least five (5) years of active experience in the municipal application of the proposed CIPP system. Additionally, the Contractor shall have at least 125,000 linear feet or 500 manhole to manhole line sections of successful wastewater collection system installations within the U.S. in this timeframe. The Contractor shall also be certified by the Manufacturer for the installation of their product.

1.4 Submittals: The Contractor shall submit to the Engineer documentation which shall include shop drawings, ASTM standards, and manufacturer's data for the following items:

1.4.1 Product Data;

1.4.2 Manufacturer's Storage and Installation Instructions;

1.4.3 Design Data;

1.4.4 Bypass plan layout;

1.4.5 Public Notification;

1.4.6 Safety plan;

1.4.7 Field Measurements;

1.4.8 Pre-Installation Inspections;

1.4.9 Post-Installation Inspections;

1.5 The Contractor shall be responsible for all traffic control requirements as specified in Section 01577 – TRAFFIC CONTROL.

1.6 Safety: The Contractor shall carry out their operations in strict accordance with OSHA and NIOSH and the manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with scaffolding and entering confined spaces.

2. MATERIALS

2.1 General:

2.1.1 All components of the CIPP system shall be new and free of defects. The CIPP shall be continuous and of sufficient length to extend from manhole to manhole. The CIPP system shall be capable of conforming to the irregularities found in buried pipes requiring renewal, such as offset joints, fractured pipe, and otherwise disfigured pipe sections.

2.1.2 The CIPP system shall not contain intermediate or encapsulated elastomeric layers. No material shall be included in the tube's construction that may cause delamination in the cured CIPP product. No dry or unsaturated layers shall be visually or otherwise evident.

2.2 Fabric Tube:

2.2.1 The fabric tube shall consist of at least two separate tubes made of corrosion resist nonwoven or woven glass fibers capable of transporting the proposed resin system while withstanding the rigors of the installation and curing process in accordance with ASTM D5813 or ASTM F2019. The fabric tube shall be compatible with the resisn system to be used on this project. The material shall be able to stretch to fit any irregular pipe sections.

2.2.2 The fabric tube shall be manufactured to a size that, when installed following the manufacturer's stated installation instruction, will tightly fit the internal circumference and the length of the existing host pipe while simultaneously minimizing the creation of any wrinkles or fins on the interior wall surface. Allowances should be made for the normally anticipated longitudinal circumferential stretching that occurs during placement of the proposed fabric tube into the host pipe.

2.2.3 The fabric tube shall be manufactured to be uniform in thickness around its finished circumference and when subjected to the manufacturer's stated installation pressures shall meet or exceed the minimum finished wall thickness calculated for the subject segment of pipe.

2.2.4 Any plastic film attached to the tube on what will become the interior wall of the finished CIPP shall be compatible with the resin system used, translucent enough that the resin is clearly visible, and shall be firmly bonded to the felt or other material when it is to become a permanent

part of the finished CIPP. It shall also be formulated to create an impermeable barrier or membrane against the leaching of any volatile components of the resin system, such as styrene, prior to resin hardening taking place.

2.2.5 The external plastic film shall also provide a barrier to ambient light UV exposure and be robust enough to survive the rigors of the sliding of the tube into the host pipe. The tube shall have an allowance for the required circumferential and longitudinal stretching during installation.

2.3 Resin:

2.3.1 The resin system shall consist of a corrosion resistant polyester, vinyl ester, or epoxy catalyst system that when properly cured meets the minimum requirements given herein or those that are to be utilized in the design of the CIPP system.

2.3.2 Thixotropic agents that do not interfere with visual inspection may be added for viscosity control. Resins may contain pigments, dyes, or colors that do not interfere with visual inspection of the resin-impregnated CIPP or its required properties.

2.4 Hydrophilic End Seals: The ends of the installed CIPP entering and exiting the manholes shall be sealed with the following:

2.4.1 The hydrophilic waterstop shall be a single componenet chdrophilic mastic supplied in a cartridge or sausage. The material shall cure and swell in the presence of water.

2.4.2 The end seals shall be Swellseall WA gun grade polyurethane as manufactured by DeNeef Construction Chemicals or engineer approved equal.

2.5 CIPP Design Criteria: The design parameters for CIPP thickness calculations shall be based on the following or 6 mm for pipe 12-inches in diameter and less, 7.5 mm for pipe 15-inches in diameter, and 9.0 mm for pipe 18-inches in diameter, whichever is greater:

2.5.1 ASTM F1216, Appendix X1.

2.5.2 A minimum 50-year service life.

2.5.3 All pipes shall be considered partially deteriorated (subject only to those external loads that are likely to be transferred to the CIPP liner after its installation). Typically, these will be any external hydrostatic pressure from the groundwater and any live load from surface vehicular traffic. The groundwater depth shall be assumed to be equal to the depth of the existing sewer line.

2.5.4 A minimum overall safety factor of 2.0 shall be employed in the design calculations.

2.5.5 Paved roadway surfaces shall be assumed to have a live load rating of H20.

2.5.6 The depth of cover shall be field verified by the Contractor.

2.5.7 An ovality of 1.0% may be assumed for circular shaped pipes up to 12 inches in diameter in ridged host pipe materials exhibiting longitudinal fractures that are visually indicating some change in shape has occurred. No ovality beyond that allowed during manufacturing is required for rigid pipes that are not found to be so distressed (i.e. un-crakced and craked pipes). For larger diameter circular pipe shapes demonstrating fractures and changes in shape, the site specific ovality shall be determined by the Contractor using quantifiable measuring tools such as laser profiling.

2.5.8 A minimum enhancement factor (K) value of 7.0 for shall be utilized for circular shaped pipes up to 12 inches in diameter. For larger size pipes, the Engineer of Record shall employ an

enhancement factor commensurate with the size and DR of the proposed CIPP liner as per that given in the engineer literature.

2.5.9 Poisson's ratio shall be the actual ratio that has been determined by the CIPP system manufacturer for the hoop direction of the hardened CIPP.

2.5.10 The minimum short term flexural modulus of elasticity (ASTM D790) for the various types of CIPP (at 73°F) shall be 1,000,000 psi.

2.5.11 The flexural modulus of elasticity of the proposed CIPP system shall have a minimum creep retention factor of 0.60 for an estimated 50-year hydrostatic design loading period. The creep retention factor shall be determined by the CIPP system manufacturer through long-term, qualification testing lasting a minimum of 10,000 hours at an appropriate stress level. Documentation of the retention factor shall be submitted to the Engineer prior to any design calculations being made.

2.5.12 The design calculations shall use this value or the manufacturer's stated minimal flexural strength valve for the CIPP system being supplied for this project. The latter being the flexural strength value for the lower 95% confidence level value determined over a statistically significant number of tests.

3. EXECUTION

3.1 Installation Responsibilities for Incidental Items:

3.1.1 Cleaning of Sewer Lines: The Contractor shall remove all internal debris out of the sewer line that will interfere with the installation of liner. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition. All work shall be completed in accordance with Section 02956 – SEWER SYSTEM CLEANING.

3.1.2 Pre-Lining Installation Inspection of Pipelines: Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of the liner. These shall be noted and corrected. A DVD and suitable written log for each line section shall be produced, complete with all "live" service connections noted, for later reference by the Owner. Contractor shall utilize all techniques, as required, to distinguish between "live", abandoned, and/or capped service connections. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the City.

3.1.3 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of the liner. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process and cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.4 Sewer Line Sags: It shall be the responsibility of the Contractor to identify and make a

point repair excavation of an existing sewer line when a pipe sag is greater than 25% of the cross-sectional area of the pipe. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.5 Renovation of Existing Manholes: Where existing manholes are to be renovated and the adjoining gravity sewer line is to be lined, the Contractor shall install the liner prior to renovating the existing manhole. Liner installer shall leave a 3" stub of pipe in the existing manhole to accommodate manhole renovation. Manhole renovation shall be completed as described in Section 02609 – MANHOLE RENOVATION.

3.1.6 Bypassing Sewage: The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Owner shall require a detail of the bypass plan to be submitted.

3.1.7 Public Notification: The Contractor shall make every effort to maintain sewer service usage throughout the duration of the project. In the event that a connection will be out of service, the longest period of no service shall be eight (8) hours. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

3.1.7.1 Written notice to be delivered to each home or business the day prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any potential problems.

3.1.7.2 Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

3.2 Installation:

3.2.1 The CIPP shall be installed in accordance with the practices given in ASTM F2019. The quantity of resin used for the tube's impregnation shall be sufficient to fill the volume of air voids in the tube (97% < volume of resin actually used < 102%).

3.2.1.1 Material Saturation: Designate a location where the flexible tube will be impregnated with resin. Use a resin bath to thoroughly saturate the flexible tube prior to installation. All required environmental permits mandated from local, state, and federal levels must be obtained and kept onsite by the liner manufacturer. The liner manufacturer must be registered in accordance with ISO 9001:2008 for its Quality Management System.

3.2.2 UV-light cured CIPP systems shall proceed at the CIPP system Manufacturer's recommendation for the size and thickness of the proposed tube and the intensity and duration of the exposure to the photo-initiator's required UV-light wave length.

3.2.3 Delivery, Storage and Handling: The Contractor shall protect, store, and handle materials during transportation and delivery, while stored on-site, and during installation following Manufacturer's recommendations. The CIPP shall be maintained at a proper temperature in facilities to prevent premature curing at all times prior to installation. Any CIPP showing evidence of premature curing shall be rejected for use and will be removed from the site immediately. If any part of the CIPP material becomes damaged before or during insertion, it shall be repaired or replaced at the Contractor's expense before the work may proceed.

3.2.4 Hydrophilic End Seals: The Contractor shall insert continuous hydrophilic end seals to the interior circumference of the existing host sewer pipe at the inlet and outlet of each manhole along the length of the CIPP liner being installed.

3.2.5 Finished Mainline CIPP:

3.2.5.1 The finished CIPP shall be continuous over the entire reach and shall be free of any of the defects described in this Section.

3.2.5.2 The layers of the finished CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or such that the knife blade moves freely between the layers.

3.2.5.3 All layers, after cure, shall form one homogeneous structural pipe wall with no obvious indication that a part of tube was left unsaturated by resin.

3.2.5.4 The CIPP shall fit tightly to the internal circumference of the existing pipe. In the case of small diameter pipes there should be no visible annular space at the lateral openings.

3.2.5.5 Wrinkles or fins are undesirable cosmetic defects that may affect the operation of the subject reach of pipe. Where they occur, the engineer will utilize the industry acceptance criteria provided by NASSCO regarding the size and orientation of these defects in order to discern if they can be deemed as commercially acceptable. If they are not deemed acceptable they must be brought into compliance with this standard.

3.2.5.6 Hardened "lifts" in the finished CIPP are unacceptable and must be repaired in accordance with the CIPP Manufacturer's recommendation for the type of CIPP System that was used.

3.2.5.7 All other defects found, cosmetic or otherwise, shall be dealt with following the industry accepted standard practice as given in the NASSCO CIPP Inspector Training Program.

3.3 Reinstatement of Branch Connections: It is the intent of these specifications that branch connections to buildings be re-opened to 100% of the original diameter without excavation, utilizing a remotely controlled cutting device, monitored by CCTV. The Contractor shall certify a minimum of two complete functional cutters plus key spare components are on the job site before each installation or are in the immediate area of the jobsite and can be quickly obtained at all times during liner installation. Unless otherwise directed by the Owner or his authorized representative, only active laterals shall be reinstated. In the event that a “non-active” lateral line has been reinstated, it shall be the Contractor’s responsibility to install a CIPP point repair liner with no additional cost to the Owner. No additional payment will be made for excavations for the purpose of reopening connections unless approved by the Engineer prior to CIPP installation and the Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

3.3.1 The Contractor shall be prepared to utilize CCTV and dye tablets to verify “active” or “non-active” status of sewer service lateral lines. All costs associated with this work shall be the responsibility of the Contractor. Any branch connections serving open lots where the lateral line has been brought to the surface and securely capped shall be reinstated.

3.4 Pipe Liner Trimming: After installation, the ends of the liner shall be cut off in the manhole. The cuts shall be smooth and parallel with the manhole wall. The finished liner shall protrude into the manhole sufficiently to form a bell at the pipe opening, but no more than 4 inches.

3.5 Field Samples:

3.5.1 Contractor shall collect samples as requested randomly by the Owner, but not more than 20% of installations. Contractor shall provide all labor and materials necessary to produce samples for laboratory and/or field testing. Contractor shall contract directly with a 3rd party certified laboratory for testing as required.

3.5.2 The wall thickness shall be measured in accordance with the applicable ASTM Standards. Test method to be determined by testing laboratory.

3.5.3 The flexural strength and flexural modulus of elasticity shall be determined in accordance with ASTM D790.

3.6 Post-Lining Installation Inspection of Pipelines: Installation shall be inspected visually by closed-circuit television (CCTV). Variations from true line and grade may be inherent because of the conditions of the original piping. No infiltration of groundwater should be observed. All service entrances should be accounted for and be unobstructed. The CCTV inspections shall be provided in a quality acceptable to the Engineer and/or Owner where the camera view is not underwater, blurry, or full of pixels distorting the picture. Video shall not be taken at such a speed so that the reviewer cannot properly identify objects in the camera's path. At each re-instated service connection, the CCTV camera shall come to a complete stop and the service shall be panned in its entirety to show a clear picture of the service lateral cutout and confirm the smoothness of the re-instated service. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the City.

3.7 Clean-Up: Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work. All work necessary to restore areas damaged by construction activities shall be restored in accordance with the applicable section for such required work contained within these project specifications.

3.8 All CCTV inspection shall be completed in accordance with Section 02959 – SEWER SYSTEM INSPECTION and Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

4. MEASUREMENT AND PAYMENT

4.1 Work of this section shall be measured on a lineal foot basis from centerline to centerline of manholes. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of CIPP cured with UV light installed. All measurements and/or stationing shown on drawings and listed in the Bid Schedule reflect horizontal distances with no additional compensation made for vertical angle variations between stations. This price and payment shall constitute full compensation for supervision, all CCTV inspection, cleaning, cleaning water, debris removal and disposal, reinstatement of branch connections, reverse set-ups where required, computer disks/hard drives and logs/reports, location and status verification of service connections, traffic control, buried pipe/manhole locating, fabric tube, resin, curing, labor, materials, equipment, and all necessary incidentals, together with all associated appurtenant work as required for a complete and in-place installation.

4.2 Point repair excavations shall be measured and paid for as specified in Section 02722 – SANITARY SEWER SYSTEMS.

SANITARY SEWER RENOVATION USING CENTRIFUGALLY CAST CONCRETE PIPE (CCCP)... 02632

1. GENERAL

1.1 Description: The work of this section consists of the reconstruction of existing pipelines or conduits through the installation of a centrifugally cast concrete pipe (CCCP). CCCP system shall be CentriPipe or engineer approved equal.

1.1.1 This pipeline renovation method shall not be utilized in locations with “active” sanitary sewer service lateral line connections.

1.3 Submittals: The Contractor shall submit to the Engineer documentation which shall include shop drawings, ASTM standards, and manufacturer’s data for the following items:

1.3.1 Product Data;

1.3.2 Manufacturer’s Installation Instructions;

1.3.3 Design Data;

1.3.4 Bypass plan layout;

1.3.5 Public Notification;

1.3.6 Safety plan;

1.3.7 Field Measurements;

1.3.8 Pre-Installation Inspections;

1.3.9 Post-Installation Inspections;

1.4 The Contractor shall be responsible for all traffic control requirements as specified in Section 01577 – TRAFFIC CONTROL.

1.5 Safety: The Contractor shall carry out their operations in strict accordance with OSHA and NIOSH and the manufacturer’s safety requirements. Particular attention is drawn to those safety requirements involving working with scaffolding and entering confined spaces.

2. MATERIALS

2.1 Mortar:

2.1.1 Mortar used to repair deteriorated or absent pipe inverts shall be Permacast PL-12,000 or engineer approved equal. Approved equals shall have similar physical properties as follows:

Initial Set (70 °F, ASTM C-403)	Approximately 150 minutes
Final Set (70°F, ASTM C-403)	Approximately 240 minutes
Flexural Strength (24 hr, ASTM C-293)	Minimum 800 psi
Flexural Strength (28 day, ASTM C,293)	Minimum 1200 psi
Compressive Strength (24 hr, ASTM C,109)	5000 psi
Compressive Strength (28 day, ASTM C-109)	11,500 psi
Split Tensile Strength (ASTM C-496)	700 psi
Shear Bond (ASTM C-882)	1720 psi
Mod. Of Elasticity (28 day, ASTM C-469)	Minimum 3.48×10^6 psi
Freeze Thaw (ASTM C-666)	300 Cycle Pass

2.1.2 Mortar used for lining existing pipes shall be Permacast PL-8,000 or engineer approved equal. Mortar shall be mixed with water, creating a material which can be cast, pumped, or sprayed into areas 1/4-inch or larger. Mortar shall be able to be cast against plastic, metal, soil, and wood. Approved equals shall be submitted and approved by the Engineer, in writing, prior to bid opening. Approved equals shall have similar physical properties as follows:

Initial Set (70°F, ASTM C-403)	Approximately 150 min.
Final Set (70°F, ASTM C-403)	Approximately 240 min.
Flexural Strength (24 hr, ASTM C-293)	Minimum 600 psi
Flexural Strength (28 day, ASTM C-293)	Minimum 1080 psi
Compressive Strength (24 hr, ASTM C-109)	3,000 psi
Compressive Strength (28 day, ASTM C-109)	8,000 psi
Split Tensile Strength (ASTM C-496)	682 psi
Shear Bond (ASTM C-882)	2,100 psi
Mod. Of Elasticity (28 day, ASTM C-469)	Minimum 3.56×10^6 psi
Freeze Thaw (ASTM C-666)	300 Cycle Pass

2.2 Structural Requirements: The CCCP liner shall have a minimum design thickness as determined by the Manufacturer. Prior to installation, the Contractor shall submit a liner thickness design, stamped by a Professional Engineer registered in the State of Missouri.

2.2.1 Design thickness measurements shall be taken at the peak of corrugations.

3. EXECUTION

3.1 Installation Responsibilities for Incidental Items:

3.1.1 Cleaning of Sewer Lines: The Contractor shall remove all internal debris out of the sewer line that will interfere with the installation of CCCP. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition. All work shall be completed in accordance with Section 02956 – SEWER SYSTEM CLEANING.

3.1.2 Pre-Installation Inspection of Pipelines: Inspection of pipelines shall be performed by experienced personnel trained in locating breaks and obstacles using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of the CCCP. These shall be noted and corrected. A DVD and suitable written log for each line section shall be produced for later reference by the Owner. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the City.

3.1.3 Line Obstructions: It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of the CCCP. If pre-installation inspection reveals an obstruction that will prevent the installation process and cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.4 Sewer Line Sags: It shall be the responsibility of the Contractor to identify and make a

point repair excavation of an existing sewer line when a pipe sag is greater than 25% of the cross-sectional area of the pipe. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work. Point repair excavation shall be completed as described in Section 02722 – SANITARY SEWER SYSTEMS. Owner reserves the right to perform necessary point repair excavations with its own work force.

3.1.5 Bypassing Sewage: The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Owner shall require a detail of the bypass plan to be submitted.

3.1.6 Public Notification: The Contractor shall make every effort to maintain sewer service usage throughout the duration of the project. In the event that a connection will be out of service, the longest period of no service shall be eight (8) hours. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

3.1.6.1 Written notice to be delivered to each home or business the day prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any potential problems.

3.1.6.2 Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

3.2 Installation:

3.2.1 Existing pipelines without inverts shall be handled with care, to ensure no additional erosion takes place during the cleaning and pre-installation inspection operations. Pipelines do not need to be fully dried prior to CCCP installation; however, all standing water shall be removed from voids and low areas.

3.2.2 All holes and voids in the existing pipeline shall be filled with a high strength mortar meeting the requirements of paragraph 2.1.1 of this specification.

3.2.3 The valleys of all corrugations shall be filled with mortar meeting the requirements of paragraph 2.1.2 of this specification.

3.2.4 CCCP installation shall be in accordance with the manufacturer's submitted installation specifications.

3.2.5 Contractor may have to hand trowel lining mortar onto mitered ends of some pipes. All hand trowel work shall be considered incidental to the work of this section.

3.3. The Contractor shall provide quality assurance for the project by hiring an independent third-party laboratory to collect and test cubes of the lining mortar material. Two mortar cubes shall be taken randomly at each manhole to manhole installation.

3.3.1 Cubes shall be tested for 28-day compressive strength in accordance to ASTM C-109.

3.3.2 Cubes which deviate from the compressive strength of the mix design by more than 5% shall receive a payment deduction on that installation equal to the percent of deviation (i.e. mix design = 8,000 psi, field strength= 6,400 psi, deviation = 20%, payment for crossing decreased by 20%).

3.3.3 A copy of all test results shall be submitted to the Owner.

3.3.4 Contractor shall have, onsite, the means to monitor and record the thickness of lining mortar. Areas less than the design thickness shall receive additional material immediately.

3.4 Post-Installation Inspection of Pipelines: Installation shall be inspected visually by closed-circuit television (CCTV). No infiltration of groundwater should be observed. The CCTV inspections shall be provided in a quality acceptable to the Engineer and/or Owner where the camera view is not underwater, blurry, or full of pixels distorting the picture. Video shall not be taken at such a speed so that the reviewer cannot properly identify objects in the camera's path. Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-2). The Contractor shall utilize the most current manhole numbers as provided by the City.

3.5 All defects discovered during the post-CCCP inspection shall be corrected by the Contractor at his expense before the work is considered complete.

3.6 Clean-Up: Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work. All work necessary to restore areas damaged by construction activities shall be restored in accordance with the applicable section for such required work contained within these project specifications.

3.7 All CCTV inspection shall be completed in accordance with Section 02959 – SEWER SYSTEM INSPECTION and Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

4. MEASUREMENT AND PAYMENT

4.1 Work of this section shall be measured on a lineal foot basis from centerline to centerline of manholes. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of CCCP installed. All measurements and/or stationing shown on drawings and listed in the Bid Schedule reflect horizontal distances with no additional compensation made for vertical angle variations between stations. This price and payment shall constitute full compensation for supervision, all CCTV inspection, cleaning, cleaning water, debris removal and disposal, computer disks/hard drives and logs/reports, traffic control, CCCP thickness design, labor, materials, equipment, and all necessary incidentals, together with all associated appurtenant work as required for a complete and in-place installation.

4.2 Point repair excavations shall be measured and paid for as specified in Section 02722 – SANITARY SEWER SYSTEMS.

SANITARY SEWER SYSTEMS..... 02722

1. GENERAL

1.1 Description: The work of this section shall consist of installing the gravity sewer to the lines and grades as shown on the drawings and as specified herein.

2. MATERIALS

2.1 Gravity Sewer System: Unless otherwise directed by the Owner, gravity sewer lines shall be plastic pipe meeting the requirements of Section 02622 – PLASTIC PIPE.

2.2 Tracer Wire System: For the installation of all sanitary sewer service lateral lines with cleanouts, Contractor shall install #12 AWG High Strength, Copper Clad Steel (HS-CCS) tracer wire with a minimum 30 mil thick HDPE insulation. At all buried dead-end tracer wire locations (the mainline lateral line connection), the Contractor shall connect and install a drive-in magnesium grounding anode rod manufactured for this purpose.

3. EXECUTION

3.1 Handling, Receiving, and Delivery of Materials: All materials shipped by rail shall be carefully inspected for damage in transit in the cars. If damaged material is found, it shall not be unloaded except upon instructions from the official freight agent. In the event of damaged pipe, it may be lifted out of the cars and placed along the switch site, but no material shall be removed from the railroad company property. If materials are delivered by truck, they shall be inspected as they are unloaded. Damaged pipe shall not be left at the job site, but shall be removed promptly so that rejected material will not mistakenly be used in construction. All pipe, pipe fittings, and other accessories and materials shall be unloaded in such a way as to avoid damage due to shock. Under no circumstances shall pipe be dropped to the ground from cars or trucks. Special precautions shall be taken to prevent one pipe from striking another forcefully.

3.2 Storage: All materials shall be placed for storage in suitable places as approved by the Engineer. As pipe is placed along the intended alignment of the trench, it shall be placed with bell ends facing the direction in which work will proceed (upstream), unless otherwise directed.

3.3 Pipe Inspection: Before pipe is lowered into the trench, the pipe shall be inspected for defects. The pipe shall be rung with a light hammer to detect cracks. Any defective, damaged, or unsound pipe shall be rejected.

3.4 Pipe Cleaning: A thorough cleaning of each pipe section shall be done just before the section is lowered into the trench. A suitable swab shall be pushed through the pipe. The pipe shall be kept clean by approved means during and after laying.

3.5 Cutting Pipe: All cutting of pipe shall be done in a neat manner with the least amount of waste of pipe involved and without damage to existing or new pipe lines.

3.6 Pipe Installation: All pipes, pipe fittings, etc. shall be lowered into the trench piece by piece by means of derricks, ropes, or other suitable equipment. Under no circumstances shall pipe or other materials be dropped into the trench. The pipe shall be laid with bell holes upstream, i.e., in the direction of laying operations. Pipe shall be laid in a bed of granular stone as shown on the drawings and as specified in Section 02222 – GRANULAR STONE BEDDING AND BACKFILL. In all cases, full-length joints of pipe shall be used except in making closures. The pipe shall be laid on grade with a grade rod that has an iron heel for the invert and notches for the line stretched over the pipe between the grade boards. Grade lines shown on the profile drawings are the internal invert lines of the sewer pipe. Pipe laying machines, laser beams, or other devices may be used in lieu of a grade rod only with the prior approval of the Engineer. After the pipe is set

and on grade, granular stone bedding shall be deposited in the trench to a depth of at least six (6) inches over the top of the pipe. This shall be carefully deposited in uniform layers not exceeding six (6) inches with each layer carefully and solidly tamped in such a manner to prevent disturbance of the line and grade. Bedding and backfilling of the pipe shall be in accordance with Section 02221 – TRENCHING, BACKFILLING, AND COMPACTING. At the close of each day's work, or when pipe is not being laid, the end of the pipe shall be stopped to overcome possible uplift and prohibit contamination. Any pipe which settles before acceptance, or which is not in true alignment, shall be taken up and replaced by the Contractor at his expense.

3.7 Joints: At all pipe joints, the granular stone bedding shall be excavated sufficiently so that the pipe bell will not rest on the bedding materials, but all the weight of the pipe shall be evenly distributed along the entire length of the barrel of the pipe. Care shall be taken to insure that the joints of the pipe are clean and free of any foreign material, and constructed watertight at all points. Any leaks or other defects discovered at any time before the final acceptance of the work shall be immediately repaired, or that portion of the sewer rebuilt, if necessary.

3.8 Removal of Buildings, Structures, and Improvements: Where buildings, structures, improvements, or materials of value are encountered in the area where sewer line is to be installed, the Contractor shall provide for the removal, protection, and disposition of these elements. The Contractor shall consult with the Owner and Engineer relative to the proposed means of removal. All fences disturbed during construction shall be restored to a condition at least equal to that which existed prior to construction, unless specifically directed otherwise by the drawings. Certain repaired fence sections shall require installation of a fence gate. Locations of these gates shall be as called out on the drawings. Gates shall conform to the details shown on the drawings.

3.9 Separation of Sewer and Water Lines: When sanitary sewers are to be laid parallel to existing potable water lines, it will be necessary to maintain at least ten feet of horizontal separation between the sewer and water lines, measured outside edge to outside edge. At points where sewers cross under water mains with less than two feet of vertical separation, sewers shall be constructed of ductile iron with mechanical joints for ten feet each direction from the crossing point.

3.10 Sewer Service Lateral Lines: Sewer service lateral lines shall be replaced as described in specification Section 02626 – SERVICE LATERAL RENOVATION AND REPLACEMENT.

3.10.1 Slope: Four (4) inch diameter lateral lines shall be laid at a uniform minimum slope of 0.011 ft/ft (1.1%) and six (6) inch diameter lateral lines shall be laid at a uniform minimum slope of 0.006 ft/ft (0.6%).

3.10.2 Trenching, Bedding, and Backfilling: Shall be as specified in Section 02221 – TRENCHING, BACKFILLING, AND COMPACTING, and Section 02222 – GRANULAR STONE BEDDING AND BACKFILL.

3.10.3 Depth: Lateral lines shall be installed so as to have minimum 30 inches of cover above the top of the pipe.

3.10.4 Tracer Wire: For all proposed sanitary sewer service lateral line that is to include the installation of a cleanout, the Contractor shall install a tracer wire system that will allow for future locating. Tracer wire shall be installed at the bottom half of the pipe and secured (tapped/tied) at 5’ intervals. Tracer wire shall be brought to the surface at the cleanout and left with a minimum of 18” of excess slack wire coiled up and left under the proposed cleanout cover. At the mainline connection point, the Contractor shall install a magnesium grounding anode at the same depth as the existing sewer line and connect the tracer wire. Grounding anode shall be driven into the ground in a direction that is 180° from the tracer wire. Contractor shall verify that the tracer wire system is functioning at the completion of the sanitary sewer service later line installation. If tracer wire system is not functioning, Contractor shall repair the system and retest until a function tracer wire system is in place with no additional cost to the Owner.

3.10.5 Cleanouts: As directed by the Owner, lateral lines shall be installed with a single cleanout located as close as practical to the existing property or easement line. All construction shall be confined within the existing easement or City right-of-way. Cleanouts shall be as specified in Section 02608 – SERVICE LATERAL LINE CLEANOUT. Cleanouts shall not be located in depressions likely to collect surface water.

3.10.6 Connection of the service lateral to the sewer main shall be accomplished by use of a PVC tee or wye. Installation shall be in accordance to the manufacturer's written installation instructions.

3.10.7 Surface Restoration: Ground surfaces disturbed by construction of sewer service lateral lines shall be fully restored to a condition equal to that which existed prior to construction.

4. GRAVITY SEWER TESTING (MANHOLE TO MANHOLE OPEN TRENCH INSTALLATIONS ONLY):

4.1 General: All completed manhole to manhole open trench installation of sewers shall require pneumatic or hydrostatic testing for the purpose of locating potential infiltration and/or exfiltration within the system.

4.2 Pneumatic Testing Procedure: The Contractor shall perform low pressure air testing on all sections of completed sewer 8-inch through and including 24-inch diameters, in the presence of the Engineer. Completed sewer larger than 24-inch diameter may use hydrostatic testing. It will be the responsibility of the Contractor to furnish and operate equipment capable of making the required tests. Pneumatic plugs shall be utilized to isolate sewer sections for testing. Plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected. Pneumatic plugs shall resist internal test pressure without requiring external bracing or blocking. All air used shall pass through a single control panel and three individual hoses shall be used for connections from the control panel to 1) pneumatic plugs for inflation; 2) sealed line for introducing the low pressure air; and 3) to the sealed line for continually monitoring the air pressure rise in the sealed line. Equipment shall be Cherne Air-Loc equipment or approved equal. Testing methods and air leakage rates shall conform to ASTM F1417, latest revision, as a minimum. Otherwise, the following procedures shall be followed:

4.2.1 Pipe Above Groundwater Table: All pneumatic plugs shall be seal-tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the plugs of the pipe. After a manhole-to-manhole reach of pipe has been backfilled and cleaned and the pneumatic plugs are checked by the above procedure, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low-pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. At least two (2) minutes shall be allowed for the air pressure to stabilize. After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The portion of line being tested shall be termed "Acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig is not less than the time shown for the given diameters in the following table:

Pipe Diameter (inches)	Minimum Time (min.:sec.)	Max. Length (ft.) for Min. Time	Time (sec.) for Longer Length (L)
4	3:46	597	0.380 L
6	5:40	398	0.854 L
8	7:34	298	1.520 L
10	9:26	239	2.374 L
12	11:20	199	3.418 L
15	14:10	159	5.342 L
18	17:00	133	7.692 L
21	19:50	114	10.470 L
24	22:40	99	13.674 L
27	25:30	88	17.306 L
30	28:20	80	21.366 L
33	31:10	72	25.852 L
36	34:00	66	30.768 L

4.2.2 Pipe Below Groundwater Table: In areas where groundwater is known to exist, the Contractor shall install a one-half inch diameter capped pipe nipple, approximately 10" long, through the manhole wall on top of one of the sewer lines entering the manhole. This shall be done at the time the sewer line is installed. Immediately prior to the performance of the test, the groundwater shall be determined by removing the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The hose shall be held vertically and a measurement of the height in feet of water over the invert of the pipe shall be taken after the water has stopped rising in this plastic tube. The height in feet shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. For example, if the height of water is 11-1/2 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound and the timing remain the same.

4.3 Testing of Manholes and Large Diameter Sewer Lines: The Contractor will be required to make either hydrostatic or vacuum infiltration/exfiltration tests of all manholes and sewer lines larger than 24-inch diameter not pneumatically tested in the presence of the City, to demonstrate that the manholes and/or sewer lines are free of leaks. Each manhole-to-manhole section shall be tested. Satisfactory test results must be obtained before the line or any part thereof will be accepted.

4.3.1 Hydrostatic Testing: Where the top of the sewer is below water level, a one-half inch (½") galvanized pipe nipple is to be cast into each manhole wall and capped on the inside. The pipe nipple is to be located at the top of the inside bore of sewer pipe. All tests are to be conducted in the following manner:

4.3.1.1 Test plugs are to be placed in the end of each sewer pipe on the upstream side of both manholes and inflated to a maximum pressure of 16 psig. Plugs are to be thoroughly blocked to prevent them from blowing out. The sewer pipe and manhole shall be filled with water to a level four and one-half feet (4-½') above the groundwater level or seven (7') feet above the pipe invert, whichever is higher. Ten minutes shall then be allowed for absorption, after which the water level shall be brought back to the test elevation.

4.3.1.2 The specified head shall be maintained on the manhole for a period of eight (8) hours. Sufficient water shall be added to maintain this level. All water added shall be metered to within one-tenth of a gallon and recorded. The maximum allowable leakage shall be as specified herein. If zero (0) water loss is recorded after two (2) hours of testing, the testing may be considered complete, and the test section accepted.

4.3.1.3 The Contractor shall provide all water, pumping facilities, and metering facilities necessary to perform the tests. After each test, all test water is to be pumped out by the

Contractor.

4.3.2 Vacuum Testing: Vacuum testing, performed in accordance with this specification, shall be allowed as a substitute method for hydrostatic testing of manholes. The vacuum test equipment shall be approved by the Engineer prior to commencing manhole testing.

4.3.2.1 The vacuum "test head" assembly shall be placed inside the frame of the manhole cover, in order to include in the test the seal between the frame and the manhole cone section, slab, or adjusting rings.

4.3.2.2 Plugs shall be placed at least eight (8) inches inside all pipes entering the manhole. Location of plugs shall be such that when inflated, they are past the gasket seal or joint of the manhole and sewer pipe. All plugs shall be braced sufficiently to prevent the plug or pipe from becoming dislodged and drawn into the manhole.

4.3.2.3 A vacuum of at least 10½ inches mercury shall be drawn on the manhole. The valve on the vacuum line to the manhole shall be closed, and the vacuum line disconnected. The vacuum within the manhole shall then be adjusted to 10 inches of mercury by opening the vacuum line valve.

4.3.2.4 A liquid-filled pressure gauge having a face of 3½ inches and reading from zero to 30 inches of mercury shall be utilized.

4.3.2.5 The time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury must be equal to or less than the following values in order for the manhole to be considered as passing the vacuum test.

Manhole Depth	Time (minutes)
10 feet or less	2.0
10.1 feet to 15 feet	2.5
15.1 feet to 25 feet	3.0

4.3.2.6 If vacuum drops less than one (1) inch mercury within the test time, the manhole is considered acceptable and passes the test. If manhole fails and leaks, the contractor shall make the needed repairs and test again until satisfactory results are obtained. Test may be done before backfilling, but shall be repeated after backfill.

4.3.2.7 All safety procedures, placing of plugs, and bracing, labor, and other work required for testing will be the responsibility of the contractor.

4.3.2.8 The contractor shall supply all required test plugs, vacuum plate, and vacuum pump.

4.4 Infiltration/Exfiltration Allowance: Infiltration or exfiltration for sewers 8-inch through 24-inch diameter shall not exceed 200 gallons per inch of pipe diameter per mile per day for any section of sewer. Infiltration or exfiltration for sewers greater than 30-inch diameter shall not exceed 6000 gallons per day per mile of pipe. Infiltration or exfiltration for manholes shall not exceed 1.14 gallons per day per vertical foot of manhole.

4.5 Infiltration/Exfiltration Elimination: The Contractor shall locate all sources of infiltration and exfiltration in the sewer lines, manholes, and appurtenances, and shall correct deficiencies and eliminate infiltration/exfiltration sources in a manner approved by the Engineer. All sections of sewer line, manholes, and appurtenances shall be re-tested after corrections are finalized. The Contractor shall carry the sole responsibility for providing a sewer system having infiltration or exfiltration below the specified limits.

4.6 Deflection Test: Deflection test shall be performed on all flexible pipe not less than thirty days after the placement of final backfill. The deflection test shall consist of hand-pulling a rigid ball or mandrel through the installed pipe in the presence of the Engineer. The rigid ball or mandrel shall have a diameter equal to 95 percent of the inside diameter of the pipe. If the rigid ball or mandrel fails to pull through the pipe, the section being tested fails the test and will be replaced by the Contractor at no expense to the Owner.

5. MEASUREMENT AND PAYMENT

5.1 Manhole Testing: Manhole testing for renovated manholes shall not be measured or paid for separately, but shall be included in the unit price set forth in the Bid Schedule for the work of which it is a part. No payment shall be made for retesting.

5.3 Sewer Service Lateral Line Renovation and Replacement shall be measured and paid for as specified in Section 02629 – SERVICE LATERAL RENOVATION AND REPLACEMENT.

5.4 Point Repair Excavation: Point repairs of the sewer mains shall be measured for depth on a per each basis with a minimum length of 10 lineal feet. Depth shall be measured from the original ground surface to the flow line elevation. Payment shall be made at the unit price set forth in the Bid Schedule for the depth, diameter, and the type of surface under which the sewer line is installed. This price and payment shall constitute full compensation for the replacement of pipe, couplings, adaptors, excavation, trenching, bedding, backfill, pavement replacement, surface restoration, labor, materials, tools, equipment, and any incidentals required for a complete repair.

5.4.1 Point repair excavations in excess of the minimum 10 lineal feel shall be measured for depth and the additional length required for a complete repair. Depth shall be measured from the original ground surface to the flow line elevation. Payment shall be made at the unit price set forth in the Bid Schedule for the length, depth, diameter, and the type of surface in which the sewer line is installed. This price and payment shall constitute full compensation for the replacement of pipe, couplings, adaptors, excavation, trenching, bedding, backfill, pavement replacement, surface restoration, labor, materials, tools, equipment, and any incidentals required for a complete repair.

SEWER FLOW DIVERSION AND CONTROL 02955

1. GENERAL

1.1 Description: The work of this section shall consist of furnishing all labor, materials, tools, equipment, and incidentals necessary to control sanitary sewer flow during evaluation, rehabilitation, and emergency repairs. Limited sewage flow is acceptable during internal inspection of sanitary sewers. Complete stoppage or bypassing of flow shall be required for sewer line and manhole rehabilitation work.

1.2 Pumping and Bypassing: When pumping and bypassing is required, the Contractor shall provide pumps, conduits, and other equipment to divert and control sewage flows around manholes and/or sewer lines in which work is to be performed. Flow diversion and control shall be done in accordance with this specification.

2. EQUIPMENT

2.1 Provide temporary pumps, conduits, and other equipment to bypass sewage flow. Engines shall be equipped with mufflers and/or shall be enclosed so that noise level does not exceed 50 decibels or 10 decibels above ambient noise levels when measured at the building closest to noise source.

2.2 Pumps and bypass lines shall be of adequate size and capacity to handle flows that may be encountered during peak flow periods or from precipitation. The bypass system shall be constructed using materials and workmanship that shall prevent leakage during pumping operations.

2.3 Maintain sufficient equipment and materials on site to ensure continuous and successful operation of bypass and dewatering systems. Keep standby pumps fueled and ready for operation at all times. Maintain on site a sufficient quantity of valves, tees, elbows, connections, tools, sewer plugs, piping, and all other parts or system hardware to ensure immediate repair or modification of any part of system, as necessary.

2.4 Provide piping, joints, and accessories that are designed to withstand at least twice the maximum system pressure, or 50 psi, whichever is greater.

3. EXECUTION

3.1 Notification: The Contractor shall notify and provide reasonable access to all properties with the least amount of inconvenience to the Owner or the public. All available safety measures must be maintained.

3.2 Discharge of Bypassed Flows: Where flows are bypassed, bypassed flows shall be discharged into Owner's sanitary sewer system at locations approved by the Owner. No bypassed flows shall be discharged to ground surface, surface waters, storm drains, ditches, or gutters. Bypassing which results in groundwater contamination, surface water contamination or presents a threat to public health shall not be permitted.

3.3 Spills and Overflows: In the event sewage accidentally drains into a drainage system or street, the Contractor shall immediately stop the overflow, notify the Owner, and take all necessary actions to clean up and disinfect the spillage to the satisfaction of the Owner. If sewage is spilled on private property, the contaminated area shall be washed down, cleaned up and disinfected to the satisfaction of the Owner. Any and all overflow of sewage shall be immediately reported to the Owner.

3.4 Plugging or Blocking: A plug shall be inserted in the line upstream of the sewer line being worked. Plugs shall be designed so that all or a portion of upstream flow can be released. If sewer flow

control is required for sanitary sewer line or manhole inspections, flow shall be reduced to comply with the requirements of Section 02959 – SEWER SYSTEM INSPECTION. After completing work on the section of sewer line or manhole in question, flow through that section shall be restored to normal.

3.5 Sewer Backups: The Contractor shall indemnify and hold the Owner harmless for any sewer backup claims filed against the Owner, within the scope of the project, and during the warranty period, if caused by Contractor's action or lack thereof.

3.6 Incidental Work: All work required by this Contract and necessary to complete the project which is not specifically listed in the items of work in the bid form are considered incidental to the project. Cost for this incidental work shall be included in the unit cost for the bid items listed in the bid form.

3.7 Clean Up and Restoration: The Contractor shall keep premises free from accumulations of waste materials, rubbish, and other debris generated by Contractor's operations. Upon completion of bypass pumping, bypass piping shall be drained into existing sanitary sewers prior to piping being disassembled. Contractor is to save and/or restore, as nearly as possible, to original condition all damaged fences, bushes, trees, lawns and other improvements.

4. MEASUREMENT AND PAYMENT

4.1 Bypass pumping operations utilizing pumps smaller than 4-inches shall not be measured or paid for separately but shall be included and considered incidental to the work of which they are a part.

4.2 Bypass pumping shall be measured by the number of pumps utilized on an hourly basis for all 4-inch and larger pumps. Payment shall be made at the hourly unit price set forth in the Bid Schedule for the diameter of bypass pump (4" and larger) utilized during the bypass operation. This price and payment shall constitute full compensation for supervision, labor, materials, tools, equipment, pump, piping, couplings, floats, and necessary miscellaneous items required in order to provide continuous by-pass pumping operations on an hourly basis.

SEWER SYSTEM CLEANING..... 02956

1. GENERAL

1.1 Description: The work of this section shall consist of furnishing all labor, materials, tools, equipment, and incidentals necessary for sewer line cleaning (6" to 48" Diameter), manhole cleaning, and removing internal obstructions from the sanitary sewer collection system.

1.2 Light (Normal) sewer line cleaning shall include up to three (3) cleaning passes for the removal of sediment, rocks, debris, roots, obstructions, and grease accumulations from sections of sanitary sewers to allow for their television (CCTV) inspection.

1.3 Heavy sewer line cleaning shall include more than three (3) and up to ten (10) cleaning passes for the removal of sediment, rocks, debris, roots, obstructions, and grease accumulations from sections of sanitary sewers to allow for their television (CCTV) inspection.

1.4 It shall be assumed that the majority of the sewer lines in the City will not require heavy sewer line cleaning. Shall heavy cleaning be required; the Contractor shall obtain approval from the Owner prior to preforming the heavy cleaning services. All manhole cleaning required for the proper television inspection and/or cleaning of the main sewer lines shall be included and considered incidental to sewer line cleaning.

1.5 "Additional" Sewer Line Cleaning: If more than ten (10) cleaning passes are required in order for the sanitary sewer line to be television (CCTV) inspected, the Contractor shall obtain approval from the Owner prior to preforming any additional cleaning services. If so directed by the Owner, the Contractor shall preform additional sewer line cleaning services at the hourly rates set forth in the Bid Schedule in order to complete the cleaning of the sewer line to allow for its television (CCTV) inspection.

1.6 Manhole cleaning for the inspection of a manhole shall include removing all sediment, rocks, debris, roots, grease accumulations and obstructions from the manhole in order for it to be inspected as described within this specification.

1.7 The Owner shall provide access to all manholes. The Owner shall also provide a dumpsite for the disposal of the debris removed during cleaning operations. Unless stated otherwise, it is assumed that the disposal site will be at or near the wastewater treatment facility.

2. MATERIALS

2.1 Chemicals: Chemicals shall not be allowed without prior written approval of the Owner. In no case shall chemicals be used that may be considered hazardous or detrimental to the processes or equipment at the Owner's wastewater treatment facility.

2.2 Cleaning shall be done by high-velocity hydraulic (hydro-cleaning) equipment specifically designed for and capable of removing dirt, grease, rocks, sand, roots, and other materials and obstructions from buried sewer lines and from manholes.

2.3 Cleaning equipment shall have a selection of two or more high-velocity nozzles. Nozzles shall be capable of producing scouring action from between 15 to 45 degrees in all size lines to be cleaned, with nozzles capable of producing flows from fine spray to solid stream.

2.4 Cleaning equipment shall carry its own water tank, auxiliary engines, and high-pressure water pump. Pumps and bypass lines shall be of adequate size and capacity to handle flows that may be encountered during peak flow periods or from precipitation. The bypass system shall be constructed using materials and workmanship that shall prevent leakage during pumping operations.

2.5 Combination Unit Pump: Capable of pumping at least 80 gpm at 2,000 psi, measured at the beginning of the hose reel.

2.6 Water Pump: Shall be able to produce 2,000 psi while pulling full vacuum, completely independent from vacuum system, without affecting water pressure.

2.7 Water: Water for cleaning shall NOT be provided by the Owner. Contractor shall make arrangements with Missouri American Water Company for the purchase of water. All costs of water shall be considered incidental to the cleaning services.

3. EXECUTION

3.1 Sewer Line Cleaning:

3.1.1 Designated sewer lines shall be cleaned using methods and equipment described in this specification or other methods and equipment that have been pre-approved by the Owner. Internal obstructions shall be removed utilizing trenchless techniques whenever an obstruction is encountered that prevents the sewer line or manhole from being cleaned. Special care shall be taken during cleaning operations to assure almost complete removal of roots from joints. Procedures to remove internal obstructions may include use of equipment such as root saws or root cutters, porcupines, and jet machines equipped with hydraulically driven cutters.

3.1.2 If the cleaning of an entire sewer line section cannot be successfully completed from one manhole, Contractor shall set up equipment at the next manhole upstream or downstream, as required, and attempt cleaning again. In the event that successful cleaning cannot be performed, or if equipment fails to traverse the entire sewer line section, it will be assumed that a major blockage exists. Cleaning operations shall be suspended and the Contractor shall immediately notify the Owner that Additional Cleaning is required.

3.1.3 The Contractor shall take all necessary precautions in order to protect the sewer lines from damage that might be inflicted by improper use of cleaning equipment. The Contractor shall immediately notify the Owner if fresh soil, pieces of pipe, or other visible signs of potential problems are observed during cleaning operations.

3.1.4 The Contractor shall take all necessary precautions in order to ensure that cleaning operations do not cause water damage to properties, structures, and buildings that are connected to and served by the sewer lines being cleaned.

3.1.5 All damage to sewer lines or to connected properties, structures, and buildings that are the result of the Contractor's failure to take all necessary precautions shall be repaired or replaced to the Owner's satisfaction at the Contractor's expense.

3.1.6 The Contractor shall clean the entire manhole interior, including manhole benches and walls. Manhole cleaning shall be incorporated into line cleaning operation by scouring walls with high velocity nozzle after pipe segment cleaning operation is complete. Cleaning of manholes to allow for the television (CCTV) inspection of the sewer lines shall be considered incidental.

3.2 Manhole Cleaning Prior to Manhole Inspection:

3.2.1 Designated manholes shall be cleaned using methods and equipment described in this specification or other methods and equipment that have been pre-approved by the Owner. Special care shall be taken during cleaning operations to assure almost complete removal of roots, debris, gravel, sand, etc.

3.2.2 The Contractor shall take all necessary precautions to ensure that cleaning operations do

not cause damage to manholes, properties, structures, and buildings that may be connected to the manhole being cleaned.

3.2.3 All damage to manholes or to connected properties, structures, and buildings that are the result of the Contractor's failure to take all necessary precautions shall be repaired or replaced to the Owners' satisfaction at the Contractor's expense.

3.3 Removal of Debris: Gravel and sand collected during cleaning operations shall not be allowed to pass through to downstream sewers. Large, intact root balls and large debris (bricks, large rock, etc) shall be removed from the sewer and disposed of at a designated location by the Contractor with no additional costs for the Owner. All such disposal shall be in accordance with state and federal laws and regulations. Under no circumstances shall the Contractor discharge sewage or solids collected from downstream manholes onto streets or into ditches, catch basins or storm drains.

3.4 Clean Up: The Contractor shall keep premises free from accumulations of waste materials, rubbish, and other debris generated by Contractor's operations.

4. MEASUREMENT AND PAYMENT

4.1 Light (normal) sewer line cleaning (up to 3 cleaning passes) shall be measured on a lineal foot basis from centerline to centerline of manholes. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter and location (within Owner right-of-way or within a permanent easement) of the sewer line to be cleaned. This price and payment shall constitute full compensation for all work, material, tools, equipment, manhole cleaning as necessary, water, and debris disposal required in order to clean the sewer line.

4.2 Heavy sewer line cleaning (more than 3 and up to 10 cleaning passes) shall be measured on a lineal foot basis from centerline to centerline of manholes. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter and location (within Owner right-of-way or within a permanent easement) of the sewer line to be cleaned. This price and payment shall constitute full compensation for all work, material, tools, equipment, manhole cleaning as necessary, water, and debris disposal required in order to clean the sewer line. If heavy sewer line cleaning is required, the Contractor will be paid for the previously completed light sewer line cleaning.

4.3 Additional sewer line cleaning services shall be measured on an hourly basis. Payment shall be made at the hourly prices set forth in the Bid Schedule for the type of equipment and number of laborers required to clean the sewer line. This price and payment shall constitute full compensation for all work, material, tools, equipment, manhole cleaning as necessary, water, and debris disposal required in order to clean the sewer line. If additional sewer line cleaning is required, the Contractor will be paid for the previously completed light and heavy sewer line cleaning.

4.4 Manhole cleaning prior to the inspection of manholes shall be measured per occurrence. Payment shall be made at the unit price set forth in the Bid Schedule for the cleaning of manholes. This price and payment shall constitute full compensation for all work, material, tools, equipment, water, and debris disposal required in order to clean the manhole.

MECHANICAL CLEANING OF SANITARY SEWER (WINCHING)..... 02957

1. GENERAL

1.1 Description: The Contractor shall furnish all labor, equipment, tools, appliances and materials for cleaning the sewer system including the removal of debris, solids, sand, grease, roots, etc. from the sewer and manholes to restore the pipe to a minimum of 95% original capacity.

2. EQUIPMENT

2.1 Mechanical Cleaning (Winching): Mechanical cleaning, in addition to normal cleaning when required, shall be with approved equipment and accessories driven by power winching devices. All equipment and devices shall be operated by experienced operators so they do not damage the pipe during the cleaning process. Buckets, scrapers, scooters, porcupines, kites and other debris-removing equipment/accessories shall be used as appropriate and necessary in the field, in conjunction with approved power machines. Measures shall be taken to prevent roots, solids, debris, etc. from being allowed to flow downstream of the pipe being cleaned.

3. EXECUTION

3.1 Pre-Mechanical Cleaning Inspection: The Owner shall provide to the Contractor, the CCTV video inspection file or the attempted CCTV video inspection file of the pipeline designed for mechanical cleaning. The Contractor shall review the video in order to determine if mechanical cleaning (winching) is the proper cleaning technique to be utilized. The Contractor shall notify the Owner of any sewer line defect that may be damaged or unable to be cleaned with mechanical cleaning equipment prior to beginning mechanical cleaning operations.

3.2 The Owner shall pre-approve all mechanical cleaning prior to beginning cleaning operations. Internal obstructions shall be removed utilizing trenchless techniques whenever an obstruction is encountered that prevents the sewer line from being cleaned.

3.3 If the mechanical cleaning of an entire sewer line section cannot be successfully completed from one manhole, Contractor shall set up equipment at the next manhole, upstream or downstream as required, and attempt mechanical cleaning again. In the event that successful mechanical cannot be performed, or if equipment fails to traverse the entire sewer line section, it will be assumed that a major blockage exists. Mechanical cleaning operations shall be suspended and the Contractor shall immediately notify the Owner.

3.4 The Contractor shall take all necessary precautions in order to ensure that mechanical cleaning operations do not cause damage to the existing sanitary sewer system, service connections, or cause water damage to properties, structures, and buildings that are connected to and served by the sewer lines being mechanically cleaned.

3.5 All damage to sewer lines or to connected properties, structures, and buildings that are the result of the Contractor's failure to take necessary precautions shall be repaired or replaced to the Owner's satisfaction at the Contractor's expense.

3.6 Removal of Debris: Debris collected during mechanical cleaning operations shall not be allowed to pass through to downstream sewers. Debris shall be removed from the sewer and disposed of by the Contractor with no additional costs to the Owner. All such disposal shall be in accordance with state and federal laws and regulations. Under no circumstances shall the Contractor discharge sewage or solids collected from downstream manholes onto streets or into itches, catch basins or storm drains.

3.7 Post-Mechanical Cleaning CCTV: Upon completion of the mechanical cleaning, the Contractor shall visually inspect the sewer line by closed-circuit television (CCTV). The CCTV inspections

shall be provided in a quality acceptable to the Engineer and/or Owner where the camera view is not underwater, blurry, or full of pixels distorting the picture. Video shall not be taken at such a speed so that the reviewer cannot properly identify objects in the camera's path. At any location still showing debris or build-up, the CCTV camera shall come to a complete stop and the camera shall be panned in its entirety to show a clear picture of the remaining debris or build-up.

3.8 Cleanup: The Contractor shall keep premises free from accumulations of waste materials, rubbish, and other debris generated by Contractor's operations.

4. MEASUREMENT AND PAYMENT

4.1 Mechanical cleaning (winching) shall be measured on an hourly basis. Payment shall be made at the hourly unit prices set forth in the Bid Schedule for the type of equipment and number of laborers required for the mechanical cleaning of the sewer line. This price and payment shall constitute full compensation for all work, material, tools, equipment, water, post-CCTV inspection, and debris disposal required in order to mechanically clean sanitary sewer lines as directed by the Owner.

SEWER SYSTEM INSPECTION 02959

1. GENERAL

1.1 Description: The work of this section shall consist of furnishing all labor, materials, tools, equipment, and incidentals necessary to perform an internal closed-circuit television (CCTV) inspection of gravity sanitary sewer lines, sewer service lateral lines, and the internal optical inspection of sanitary sewer manholes.

1.2 Internal inspection of sewer lines and lateral lines shall be performed using a color closed-circuit television (CCTV) camera, and shall include video documentation presenting such information as location (consisting of both a street location and the provided manhole number), date, and footage counter, and a written inspection log.

1.3 Internal digital inspection of sanitary sewer manholes shall be performed using a camera(s) capable of capturing a 360° perspective view of the manhole, including capturing dimensional data in a 3D point cloud that allows the Owner to measure nearly any feature within the manhole. Manhole inspection shall be performed with the Panoramo SI from IBAK or engineer approved equal.

2. MATERIALS

2.1 Sanitary Sewer Line (PACP Compliant) and Sewer Lateral Line (LACP Compliant) Inspection:

2.1.1 Television Inspection Logs: Location records of the sewer mains and sewer lateral lines inspected and repaired shall be kept and maintained by the Contractor digitally in a PACP- (sewer mains) and LACP- (lateral lines) compliant software package certified by NASSCO, such as PipeTech or Owner approved equal. These location records shall clearly show the stationing location in relation to the starting manhole (upstream or downstream). Sewer lateral lines shall also be referenced to the corresponding property address. Observations shall be recorded by the Contractor in an approved digital delivery format and submitted to the Owner. Hard copies of the inspection reports shall be bound and submitted to the Owner with the digital data. The digital information shall contain multiple video inspection records and files that store each line segment as a unique digital record. Combining multiple segments on one form or digital record is not permitted.

2.1.2 The Contractor shall provide a digital video file in an MPG or AVI format of the inspection and repair area. These digital video files must include intelligible audio description in English of each observation, including the name of the line segment at the same time that the inspection is performed.

2.1.3 Digital Video Recordings: The purpose of digitally recording shall be to supply a visual and audio record of all line segments and lateral lines that are televised. The digital video playback speed shall be at the same speed that it was recorded. Slow motion or stop-motion playback features may be supplied at the option of the Contractor. Title of the video record shall remain with the Owner. The Contractor shall have all digital video and necessary playback equipment readily accessible for review by the Owner during the project. Each digital video file and digital associated log sheet(s) and/or field form(s) using free shareware shall be submitted to the Owner for review no later than thirty (30) days after the completion of the tape. The digital video file, including the audio portion, shall be a deliverable and will be required for completion of the work for each segment televised. The digital video files (recorded on the approved digital storage media) shall be indexed with the line segment and labeled appropriately.

2.1.4 All inspection information in a digital format shall be contained on a PACP- (sewer mains) and LACP- (lateral lines) compliant software package certified by NASSCO, such as PipeTech or Owner approved equal. Data shall also be exported into a spreadsheet or a database file type.

2.1.5 Video recordings shall be processed by the Contractor and delivered to the Owner after completion of CCTV inspection for review. A line segment or lateral line shall be considered complete for payment once the digital data has been delivered to the Owner, reviewed, and accepted.

2.2 Sanitary Sewer Manhole Inspection:

2.2.1 Digital Manhole Inspection: The digital data shall be captured by a 3D Optoscanner using two high resolution digital cameras with distortion free wide-angle lenses. The camera(s) shall scan the entire interior of the manhole in a few seconds in one single vertical run. The data shall be delivered to the Owner digitally in a software package, such as RapidView IBAK Panoramo SI Viewer or Owner approved equal. The data shall be 100% viewable when delivered to the Owner without the need for the Owner to purchase software or software licenses. The file names data shall be viewable by the manhole identification number given to the Contractor by the Owner.

2.2.1.1 The digital data shall viewable in the software package using three viewing options: 1) A 360° perspective view of the manhole which allows the inspection of the manhole from any angle and any elevation; 2) An unfolded view which allows the user to view the entire manhole surface on one screen; and 3) A geometric view which allows the user to measure features inside the manhole in three-dimensional space.

2.2.1.2 The digital data shall be capable of being exported in a .dxf format for use in any CAD program.

2.2.2 Manhole Inspection Logs: Along with the digital data, the Contractor shall record the following information during the manhole inspection:

- Manhole identification number (given to the Contractor by the Owner), including location description;
- Name(s) of the individuals performing the inspection;
- Field conditions during the inspection;
- Type and condition of the manhole frame and cover;
- Overall manhole condition and structure type (brick, precast, block, etc.);
- Any noticeable manhole defect(s) or observed inflow and infiltration.

2.2.2.1 These manhole inspection logs shall be recorded by the Contractor in an approved format (Microsoft excel) and submitted to the Owner along with the digital data described in paragraph 2.2.1

3. EXECUTION

3.1 Sanitary Sewer Line Inspection (PACP Compliant):

3.1.1 Sewer Flow Requirements: Flow in sewer pipe being inspected shall not exceed the depth of flow shown in the following table. Depth shall be as measured in the upstream manhole of the section being inspected. When depth of flow in upstream manhole exceeds the maximum depth of flow shown in the following table, flow shall be reduced to a level at or below the maximum depth shown by plugging or blocking the flow, or by pumping and bypassing of flow as specified in Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

Maximum Depth of Flow for TV Inspection

Nominal Pipe Diameter	Maximum Depth of Flow
6” – 10”	20% of pipe diameter
12” – 24”	25% of pipe diameter

3.1.2 Sewer lines and manholes shall be cleaned in accordance with the requirements of Section 02956 – SEWER SYSTEM CLEANING.

3.1.3 Sewer lines shall be CCTV inspected per the requirements of this specification.

3.1.4 Deliver electronic data and written logs to Owner upon completion of all cleaning and inspection for the work completed.

3.1.5 Owner shall have access to observe TV monitor and other operations at all times.

3.1.6 The following information shall be recorded on the audio track of the video: narrative of location, direction of view, manhole numbers, pipe diameter and material, date and time of inspection, and location of laterals and other key features.

3.1.7 The information presented in 3.1.6 shall also be visually displayed at the beginning and end of each manhole-to-manhole pipe segment. In addition, the data shall visually display the length in feet from starting point of each manhole-to-manhole pipe segment.

3.1.8 Sewer Identification: Electronic data and written inspection documentation shall include sewer line and manhole identifiers as given to the Contractor by the Owner.

3.1.9 Image Perspective: Camera image shall be down the center axis of pipe when camera is in motion. Provide 360-degree sweep of pipe interior at points of interest to more fully document condition of existing sewer. Points of interest may include, but shall not be limited to, the following: defects, obstructions, encrustations, mineral deposits, debris, sediment, lateral connections, and any location determined not to be clean. X and Y coordinates of each defect shall be provided.

3.1.10 Sewer Reach Length: Physically measure and record length of each sewer line segment from centerline to centerline of upstream and downstream manholes.

3.1.11 Inspection Rate: Camera shall be pulled through sewer in either direction, but if a section of sewer line has to be re-inspected for any reason, the camera during the re-inspection shall travel the same direction as the initial inspection. Maximum rate of travel shall be 30 feet per minute when recording.

3.1.12 Each file name shall include the upstream manhole number of the line segment as the first identifier followed by the downstream manhole number of the line segment (e.g. K13-30 to K13-25).

3.1.13 Clean Up: The Contractor shall keep premises free from accumulations of waste materials, rubbish, and other debris generated by Contractor's operations.

3.2 Sewer Lateral Line Inspection (LACP Compliant):

3.2.1 Access: The Contractor shall have access to the sewer lateral line through the main sewer line's upstream and downstream manholes. At no time shall the Contractor have access to private property without written permission from the Property Owner.

3.2.2 Sewer Lateral Line Flow Requirements: Flow in sewer lateral lines being inspected shall not interfere with the inspection or cause the inspection video to be incomplete or not viewable. If the flow within a lateral line is deemed excessive, the Contractor shall wait a few minutes to see if the flow subsides enough to allow for inspection. If necessary, the Contractor shall contact the Homeowner and request that they relinquish using their sewer lateral line temporarily during the inspection and then notify the Homeowner when the inspection is complete.

3.2.3 Sewer lateral lines shall be CCTV inspected per the requirements of this specification.

3.2.4 Deliver electronic data and written logs to Owner upon completion of all cleaning and inspection for the work completed.

3.2.5 Owner shall have access to observe TV monitor and other operations at all times.

3.2.6 The following information shall be recorded on the audio track of the video: narrative of location, direction of view, property address, pipe diameter and material, date and time of inspection, and location key features.

3.2.7 The information presented in 3.2.6 shall also be visually displayed at the beginning and end of each sewer lateral line. In addition, the data shall visually display the length in feet from starting point of upstream or downstream manhole.

3.2.8 Sewer Identification: Electronic data and written inspection documentation shall include sewer service lateral line identifiers as given to the Contractor by the Owner.

3.2.9 Image Perspective: Camera image shall be down the center axis of pipe when camera is in motion. Provide 360-degree sweep of pipe interior at points of interest to more fully document condition of existing sewer lateral line. Points of interest may include, but shall not be limited to, the following: defects, obstructions, encrustations, mineral deposits, debris, sediment, and any location determined not to be clean. X and Y coordinates of each defect shall be provided.

3.2.10 Each file name shall include the upstream manhole number as the first identifier followed by the number of the lateral line downstream (e.g. K13-35-5 would be for the 5th lateral line from the upstream manhole K13-35).

3.2.11 Clean Up: The Contractor shall keep premises free from accumulations of waste materials, rubbish, and other debris generated by Contractor's operations.

3.3 Sanitary Sewer Manhole Inspection:

3.3.1 Sewer Flow Requirements: Flow through the manhole being inspected shall be contained within the manhole invert. The manhole shall not be surcharged or flowing over/on the manhole bench. When depth of flow in the manhole exceeds the invert, flow shall be reduced to a level at or below the depth described above by plugging or blocking the flow or by pumping and bypassing of flow as specified in Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

3.3.2 Manholes shall be cleaned in accordance with the requirements of Section 02956 – SEWER SYSTEM CLEANING.

3.3.3 Manholes shall be inspected per the requirements of this specification.

3.3.4 Deliver digital and electronic data to the Owner upon completion of all cleaning and inspection for the work completed.

3.3.5 Owner shall have access to observe the digital inspection in real time on-site.

3.3.6 Manhole Identification: Digital and electronic data shall include the manhole identification as given to the Contractor by the Owner.

3.3.7 Clean Up: The Contractor shall keep premises free from accumulations of waste materials, rubbish, and other debris generated by Contractor's operations.

4. MEASUREMENT AND PAYMENT

4.1 Sanitary sewer line CCTV inspection (PACP compliant) shall be measured on a lineal foot basis from centerline to centerline of manholes. Payment shall be made at the unit price set forth in the Bid Schedule for the diameter of sewer line to be inspected. This price and payment shall constitute full compensation for all work, materials, tools, equipment, digital storage, delivery, and necessary incidentals required to inspect the sanitary sewer lines.

4.2 Sanitary sewer line inspection associated with sewer line renovation work (pre- and post-CCTV inspection for CIPP, LCR's, etc) shall not be measured and paid for separately but shall be considered incidental and included in the unit price set forth in the Bid Schedule for the work of which it is a part.

4.3 Sewer lateral line inspection (LACP compliant) shall be measured as a completed inspection for each lateral line. Payment shall be made at the unit price set forth in the Bid Schedule. This price and payment shall constitute full compensation for all work, materials, tools, equipment, digital storage, delivery, and necessary incidentals required to inspect the sewer lateral lines as described in this specification.

4.4 Sanitary sewer manhole inspections shall be measured as a completed inspection for each manhole. Payment shall be made at the unit price set forth in the Bid Schedule. This price and payment shall constitute full compensation for all work, materials, tools, equipment, digital storage, delivery, and necessary incidentals required to inspect manholes as described in this specification.

4.5 Bypass pumping for the CCTV inspection of sewer mains, lateral lines, and manholes shall be considered incidental if less than a 4-inch pump is required for flow control. If a 4-inch bypass pump or larger is required, bypass pumping shall be measured and paid for as described in specification Section 02955 – SEWER FLOW DIVERSION AND CONTROL.

ATTACHMENT D: PLANS

2020 East Town CDBG Project

N

Legend

- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

M09-55
M09-50
N COX AVE
FRANKLIN DR
N LANDRETH AVE
E PERSIMMON ST
M09-125
M09-75
N GALENA AVE
M09-200
E POOL ST
E WILSON ST
M09-195
M09-175
M09-130
M09-110
M09-80
M09-70
M09-35
N09-65
N09-60
N09-280
N09-285
E NORTH ST
N09-290
N09-295
N09-300
N09-305
N09-310
N09-315
N09-320
N09-325
N09-330
N ST LOUIS AVE
M09-170
M09-140
M09-135
M09-105
M09-65
M09-30
N09-55
N09-275
N09-270
N09-265
N09-260
N09-255
N09-250
N09-245
N09-240
N09-235
N09-230
N09-225
N09-220
M09-145
E FURNACE ST
N MINERAL AVE
E SPRING ST
M09-150
M09-100
M09-25
N09-50
N09-215
N09-210
N09-205
N09-200
N09-195
N09-190
N09-185
N09-180
N09-175
N09-170
N09-165
N09-160
O09-30
RAILROAD AVE
N SCHOOL AVE
N MICHIGAN AVE
N GARDEN AVE
N MCKEE AVE
E VALLEY ST
M09-85
M09-60
M09-155
M09-95
M09-55
M09-50
M09-20
N09-45
N09-110
N09-115
N09-120
N09-125
N09-130
N09-135
N09-140
N09-145
N09-150
O09-20
N HIGH AVE
M09-15
E HILL ST
N DIVISION AVE
M09-165
M09-160
M09-90
M09-45
N09-40
N09-105
N09-100
N09-95
N09-90
N09-85
N09-80
N09-75
N09-70
N RAILROAD AVE
N MURPHY BLVD
BROADWAY ST
S GALENA AVE
S MINERAL AVE
S COX AVE
S DIVISION AVE
S RAILROAD AVE
SCHOOL AVE
MICHIGAN AVE
HIGH AVE

2020 East Town CDBG Project

N

Measurements from M09-135

M09-140

M09-135

44 Ft

38 Ft

20 Ft

E POOL ST

1-1

Legend

- Open Cut LCR in pavement
- Point Repairs in pavement
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

2020 East Town CDBG Project

N

M09-60

M09-55

M09-50

N COX AVE

37 Ft

M09-20

Repairs on this line measured from M09-20

E HILL ST

Legend

- Point Repair in turf
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

2020 East Town CDBG Project

N

Legend

- Open Cut LCR in turf
- Point Repair in pavement
- Point Repair in turf
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

Repairs on this line measured from M09-95

M09-155

187 Ft

128 Ft

37 Ft

M09-95

N MINERAL AVE

N GALENA AVE

E HILL ST

2020 East Town CDBG Project

N

M09-85

M09-60

M09-55

M09-50

M09-95

200 Ft

211 Ft

Repairs on this line measured from M09-95

N MINERAL AVE

N COX AVE

E HILL ST

Legend

- Open Cut LCR in turf
- Point Repair in turf
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

2020 East Town CDBG Project

N

E HILL ST

N LANDRETH AVE

Legend

- Open Cut LCR in alley
- Point Repair in alley
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

M09-165

17 Ft

18 Ft

40 Ft

70 Ft

75 Ft

85 Ftt

Repairs on this line measured from M09-165

2020 East Town CDBG Project

N

E HILL ST

N MINERAL AVE

Legend

- Point Repair in alley
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

Repairs on this line measured from M09-160

70 Ft

M09-160

M09-90

2020 East Town CDBG Project



2020 East Town CDBG Project

N

N COX AVE

Legend

- Open Cut LCR in alley
- Point Repair in alley
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

Repairs on this line measured from M09-45

M09-45 — 46 Ft — 90 Ft — 197 Ft — 250 Ft — 268 Ft

2020 East Town CDBG Project

N

RAILROAD AVE

N RAILROAD AVE

N SCHOOL AVE

Legend

- Open Cut LCR in alley
- Point Repair in alley
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

Repairs on this line measured from N09-100

N09-105

295 Ft

192 Ft

94 Ft

73 Ft

N09-100

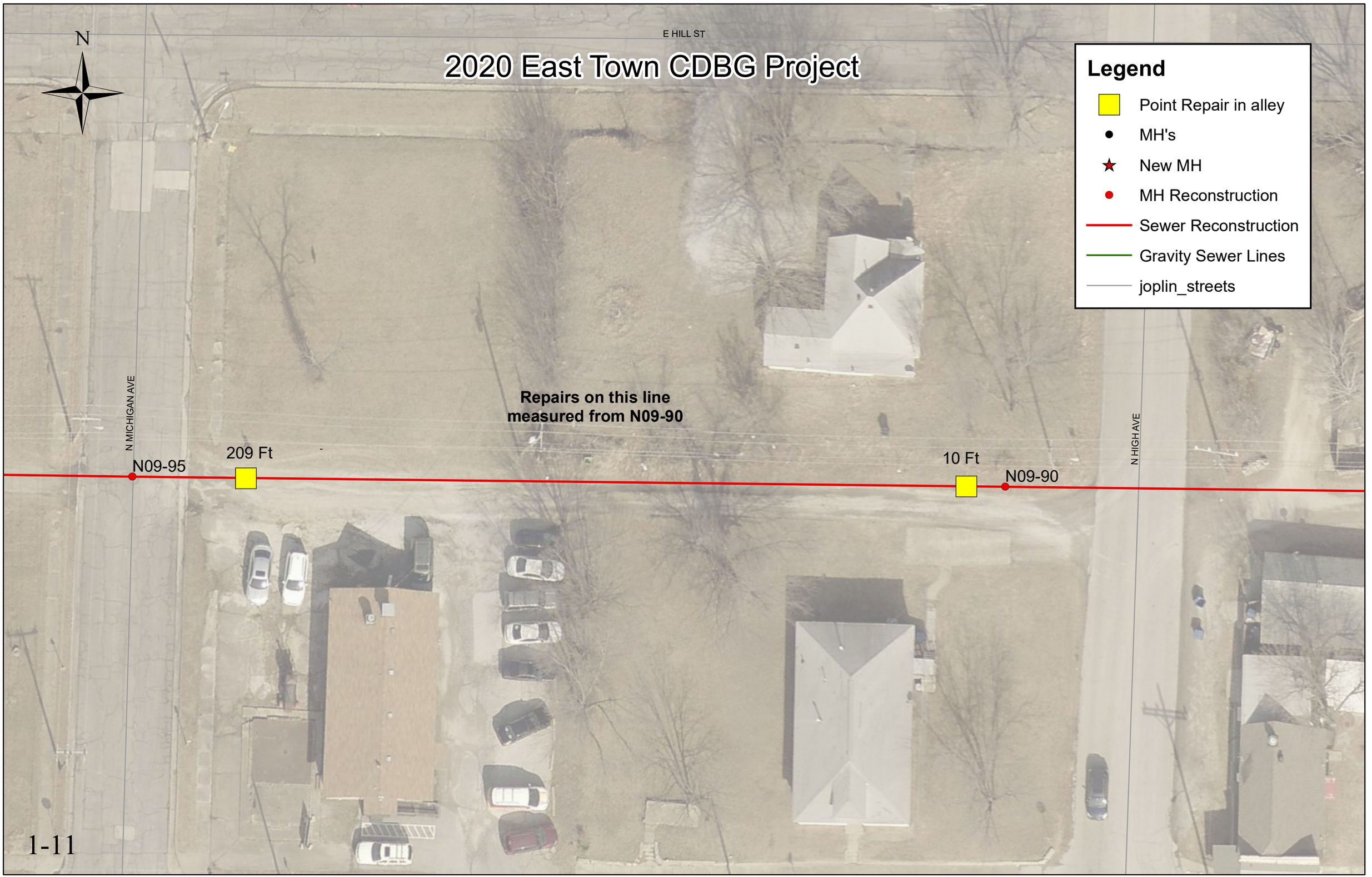
2020 East Town CDBG Project



Legend

- Open Cut LCR in alley
- Point Repair in alley
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

2020 East Town CDBG Project



2020 East Town CDBG Project

N

E HILL ST

N HIGH AVE

Repairs on this line measured from N09-85

N09-90

22 Ft

N09-85

4 Ft

Legend

- Open Cut LCR in alley
- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

2020 East Town CDBG Project

N

Legend

- MH's
- New MH
- MH Reconstruction
- Sewer Reconstruction
- Gravity Sewer Lines
- joplin_streets

N MINERAL AVE

N COX AVE

M09-110

M09-80

M09-70