SECTION 00 91 13
ADDENDUM

To all prospective Bidders and others concerned, YOU ARE HEREBY ADVISED THAT the Contract Documents for the above referenced Project are revised in accordance with the following:

Section	Description of Change
00 11 13	Remove old section and replace it with new section
33 05 09	Remove old section and replace it with new section

Sheet	Description of Change

Attachments to this Addendum:

_____

This Addendum is hereby incorporated into the original Contract Documents for the bidding referred to above and is considered as binding as though originally appearing therein. Receipt of this Addendum must be noted in the place provided in Section 00 42 43 - Proposal, dated November 9, 2026.

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SECTION 00 11 13
ADVERTISEMENT FOR BIDS

2025 Taylor Water Main Rehabilitation Design

City of Taylor has implemented online project bidding using **OpenGov** . Only electronic bids submitted through www.opengov.com will be accepted for this project.

Please reference the advertisement for bid shown in OpenGov for bid submittal dates and procedures for this project.

Bids will be received for the following Work:

This project includes the installation of approximately 49,600 LF of HDPE water main with sizes ranging from 8" to 16", 670 water services, 78 gate valves, 74 hydrants, and associated pavement repairs. The proposed work on Mary and Haskell Street must have final completion on or before Labor Day (Monday September 6, 2027) in order to allow for paving those streets before the end of the construction season through a separate contract. The proposed work on Wick Road will be completed on or before Friday November 10, 2027. This road is on schedule to be paved through the MDOT LAP program in 2028. The remaining work will be completed on or before Friday November 15, 2028..

Contract Documents may be examined at the following locations:

Contract Documents for bidding purposes are only available on OpenGov. Contract Documents can be viewed and downloaded by registering with OpenGov online (www.opengov.com).

A. Bids will be received electronically through OpenGov as outlined in Section 00 21 13 - Instruction to Bidders.

Each Bid will be accompanied by a bid bond, in the amount of at least **five (5)** percent of the amount bid, drawn payable to City of Taylor as security for the proper execution of the Agreement.

City of Taylor reserves the right to accept or reject any or all bids and to waive any informality in any bids should it consider same to be in its best interest.

The City of Taylor further reserves the right to waive defects in proposals, to enter into negotiations with any applicant, to re-solicit for proposals and to conduct an application evaluation review with any and all applicants. The City will not be responsible for any costs or fees associated with the preparation of a response to this request for proposals and/or qualifications.

The City of Taylor reserves the right to award 1, 2, 3, 4 or any combination thereof of all areas identified in this Proposal.

Bids may not be withdrawn for the period of 90 days after date of receiving bids.

Inquiries will be directed to Ben Clayton, Purchasing Director; contact information as provided in the "Invitation to Bid".

Questions will be received until 12-04-2026 at 10:00 AM. No further questions will be answered after this date and time.

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SECTION 33 05 09
PIPE BURSTING PRE-CHLORINATED HDPE PIPE FOR WATER MAIN

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This section describes pre-chlorinated high-density polyethylene (HDPE) pipe, including acceptable fusion technique and practice, safe handling and storage, and installation of the pipe by pipe bursting methods.

B. The pipe is intended to be installed in sections that can be completed on a daily basis; such that all water services are reconnected to the new main and no section of water main and no water services out of service more than 10 hours.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01 33 00 - Submittal Procedures

B. Section 31 23 16 - Structural Excavation and Backfill

C. Section 33 14 00 - Water Utility Distribution Piping

1.03 REFERENCE STANDARDS

A. Conform to the applicable portions of the following Standards for the Work:

1. ASTM D3261: Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
2. ASTM D3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
3. ASTM F1055: Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing
4. ASTM F2164: Standard Practice for Field Leak Testing of Polyethylene (PE) and Crosslinked Polyethylene (PEX) Pressure Piping Systems Using Hydrostatic Pressure
5. AWWA C111/A21.11: Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
6. AWWA C151/A21.51: Ductile-Iron Pipe, Centrifugally Cast
7. AWWA C153/A21.53: Ductile-Iron Compact Fittings
8. AWWA C600: Hydrostatic Testing Requirements
9. AWWA C651: Disinfecting Water Mains
10. AWWA C900: Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm)
11. AWWA C906: Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 65 In. (100 mm Through 1,650 mm), for Waterworks
12. AWWA M23: PVC Pipe—Design and Installation

13. AWWA C622: Pipe Bursting of Potable water mains 4-36 in.

1.04 DESCRIPTION

A. Pipe bursting water mains using Pre-Chlorinated HDPE Pipe will repeat the method, outlined below for each section of pipe being rehabilitated. These processes may be performed in series or in parallel with other sections of pipe within the job; however, each section will require these steps.

1. Deliver notice of service outage to each affected property owner in advance of work.
2. Chlorinate a length of product pipe to yield passing test results for potable water per AWWA C651, Regulatory Authority, and City standards. Collect and test two consecutive bacteriological samples 24 hours apart, and report as “Non-detect” from a certified lab before pipe installation.
3. Hydrostatic test of the pipe section per ASTM F2164 requirements.
4. Excavate a Burst Pit at one end of the section down to pipe grade for placement of the pipe bursting equipment.
5. Excavate an Insertion Pit at the opposite end of the section down to pipe grade for initial entry of the rod string.
6. Excavate service connection pits.
7. Isolate the section to be rehabilitated from the rest of the system so as to maintain pressure integrity of the system as well as preventing any backflow of chlorinated solution or non-potable water into the system.
8. Excavate and remove bends, tees and valves from the host pipe.
9. Assemble rod string feed it through the host pipe from Insertion Pit to Bursting Pit.
10. Attach bursting tools and new water main pipe to rod end at Bursting Pit.
11. Pull rod string back while simultaneously bursting existing pipe and pulling the new water main into the void.
12. Reattach service connections to the newly installed main. Close water services at stop box until main has been super-chlorinated and flushed to prevent resident exposure to high doses of chlorine.
13. Super-chlorinate the main for 15 minutes to 300 ppm. Use a de-chlorination unit to neutralize residual chlorine during flushing. Flush the newly installed main with potable water. After flushing, collect bacteriological samples at each sample site and confirm the absence of coliforms through laboratory analysis.
14. Inspect for leaks at new connections.
15. Make final connection of the new water main to the existing water system.
16. Issue a 24-hour “Boil Water” advisory to all residents in the affected area.
17. Feed the new water main from only one direction until the water is confirmed to be total coliform free.

B. It should be noted that items “7” through “17” are to be accomplished within a single 10-hour day to eliminate the need for any temporary services. The length of pipe to be burst per run (day) should be chosen to conform to this time frame. Items "4" through "6" (excavation items) may be performed one day prior to bursting operations to expedite process.

1.05 REQUIREMENTS

A. Provide a structurally sound, leak-proof, monolithic water main pipe for all piping identified for installation by pipe bursting methods. Assemble individual pipe lengths by butt-fusion unless otherwise specified. Fuse connecting fittings to the piping as required. Perform pressure testing and bacteriological testing on the full length of the pipe and obtain approval from the Engineer before bursting and installing the pipe.

1.06 QUALITY ASSURANCE

A. Qualifications:

1. Ensure the Contractor has documented experience of at least 3 years and 50,000 linear feet of pipe bursting with any material, as well as a minimum of 5,000 linear feet of successful pipe bursting with Pre-Chlorinated HDPE water main systems installations in the U.S. before bidding.

2. Submit certification from the pipe bursting equipment manufacturer to the Engineer before the preconstruction meeting, confirming that the company is fully trained in the use of the pipe bursting system.

3. Perform fusible HDPE pipe jointing with personnel trained and certified by the pipe manufacturer in butt-fusion and electro-fusion equipment, following the manufacturer’s recommended methods for new pipe connections. Ensure all personnel involved in installation are trained in proper handling and installation of the HDPE pipe.

4. Contractor must coordinate with the Engineer to establish a schedule indicating the linear feet of pipe bursting installation feasible in a day, based on existing conditions.

B. Fusion Technician Requirements:

1. Ensure the Fusion Technician is fully qualified by the pipe supplier to install fusible HDPE pipe of the type(s) and size(s) being used. Maintain qualification as current on the actual date of fusion performance on the project.

1.07 SUBMITTALS

A. Product Data:

1. Name of the pipe manufacturer and a list of the piping and quantities to be provided by manufacturer.

2. Product data and pipe supplier data indicating conformance with this specification and applicable standards, including written documentation regarding any intended variance from this specification and applicable standards. This will include experience of pipe supplier by years and number of projects; warranty information; and independent laboratory testing certification.

3. Pipe certification and testing in conformance with this specification and applicable standards indicating conformance from the pipe extruder per AWWA C906.

B. Fusion Report:

1. Prepare a fusion report for each fusion joint performed on the project, including any rejected joints. The Fusion Technician's joint report must include the following specific requirements:

a. Pipe Size and Dimensions

b. Machine Size

c. Fusion Technician Identification

d. Job Identification Number

e. Fusion Number

f. Fusion, Heating, and Drag Pressure Settings

g. Heat Plate Temperature

h. Time Stamp

i. Heating and Cool Down Time of Fusion

j. Ambient Temperature

1.08 JOB CONDITIONS

A. Soil Conditions:

1. Where soil conditions or obstructions are encountered that prevent the completion of pipe bursting Work started or in progress, develop and submit to the Engineer for review alternate methods of performing the Work. Perform no additional Work until completion of review by the Engineer of the alternate method proposed.

B. Protection:

1. Personnel:

a. Provide structures, safety equipment and professional services required to provide for the health and safety of the general public and of personnel involved in pipe bursting Work in accordance with the requirements of the regulatory agencies having jurisdiction.

2. Property, Utilities, and Structures:

a. Take all necessary measures to protect surrounding public and private property, adjacent buildings, roads, drives, sidewalks, drains, sewers, utilities, structures, and appurtenances from damage caused by pipe bursting work. The Contractor. will bear full responsibility and cover the cost for correcting any such damage.

3. Potholing:

a. Pothole existing underground utilities including sanitary sewers, sanitary leads, storm sewers, water mains, water services, gas mains, gas services, telephone lines, cable television lines, oil lines, etc. to ascertain the clearance between the utilities and the pipe to be burst and to ensure the pipe bursting will not adversely affect the existing utilities. Potholing is required and will not be paid for separately unless otherwise specified in the Proposal.

PART 2 PRODUCTS

2.01 HDPE WATER MAIN PIPE SYSTEMS

A. Pipe: AWWA C906, DR 11 (Pressure Class 200), Ductile Iron Pipe size. All HDPE materials must be listed and approved for use with potable water under ANSI/NSF standard 14. The exterior wall print line of all HDPE pipe must bear the AWWA C906 and the “NSF-pw” identification.

B. Material: PE 4710

C. Cell Classification: 445474C per ASTM D3350

D. Fittings:

1. Use mechanical joint, ductile iron compact fittings conforming to AWWA C153/A21.53 for ductile iron fittings, as shown on the plans. Ensure rubber gasket joints comply with AWWA C111/A21.11. Apply double thickness cement mortar lining and coal tar epoxy coating to the outside of the fittings. For joining ductile iron fittings to HDPE pipe, use fused Mechanical Joint Adapters with ductile iron backup rings.

2. Use Butt Heat Fusion Type HDPE fittings (tees, crosses, bends, etc.) and plugs, DR 11, per ASTM D3261, or Electrofusion Type fittings per ASTM F1055. Do not use compression fittings.

E. Pipe Joints: Butt Fusion Welded or Electrofusion Welded.

F. Valves and Hydrants:

1. As specified in Section 33 14 00 - Water Utility Distribution Piping.

2. Use Ductile Iron Pipe for hydrant leads from the hydrant tee to the hydrant, AWWA C151/A21.51, Class 54, with polyethylene encasement; or PVC, AWWA C900 pipe with restrained joints, DR 18 (235 psi); unless indicated otherwise on the plans.Join Ductile Iron or PVC pipe to the hydrant tee or gate valves using Mechanical Joint Adapters with Ductile Iron Backup rings.

3. Use HDPE for hydrant leads from the hydrant tee to the hydrant. Install Mechanical Joint Adapters with Ductile Iron Backup rings at the hydrant shoe.

G. Water Service Taps:

1. Electrofusion corporation saddles with 1-inch AWWA standard threads and brass corporation stops.

2. Stainless Steel, full circle, double bolt service saddle with spring washers and 1-inch brass outlet threads and designated by the manufacturer in writing as specifically approved for use on HDPE pipe; with brass corporation stops.

H. Allowable Leakage: Test the pipe at 150 psi for 1 hour per ASTM F2164. Allow zero leakage for fused HDPE pipe joints. Allow the following leakage per joint for gasketed fittings (based on a 150 psi test pressure):

Size	6"	8"	10"	12"	14"
Gal / Hr	0.010	0.013	0.017	0.020	0.023

2.02 FUSION JOINTS

A. Assemble HDPE pipe lengths in the field with butt-fused joints unless specified otherwise. Follow the pipe supplier's written instructions for this procedure.

B. Ensure joint strength equals the pipe strength as demonstrated by testing requirements. Complete all fusion joints according to this specification.

2.03 TRACER WIRE

A. Reinforced 7 x 7 stranded copper clad steel wire with 50 mil High Density Polyethylene insulation. Continuous copper cladding metallurgically bonded to a steel core through a continuous solid cladding process. Bare wire 0.208-inch O.D., 4700 pounds breaking strength. Wire to be Copperhead® or equal.

2.04 CONNECTIONS AND FITTINGS

A. Connection Hardware:

1. Use non-corrosive, high-strength, low-alloy steel bolts and nuts for buried service, meeting the characteristics specified in AWWA C111/A21.11, regardless of any other protective coating.

2.05 PIPE BURSTING SYSTEM EQUIPMENT

A. General:

1. Design and manufacture the pipe bursting system to force its way through the existing line by fragmenting the pipe and compressing the broken pieces into the surrounding soil as it progresses. Ensure the bursting unit generates sufficient force to burst and compact the existing pipeline, allowing for the insertion of the HDPE pipe.

B. Allowable Types of Pipe Bursting Systems:

1. Static Pipe Bursting Systems:

a. Characterize static pipe bursting systems with a tapered or blunt-nosed pull head that is pulled through the host pipe, breaking it by applying radial pressure. The host pipe fails by 'hoop' tensile stress applied by the head, fragmenting and pushing the broken pieces into the surrounding bedding and soil as the pull head progresses.

b. Follow the pull head with an expansion head that further pushes the fragmented pipe into the surrounding soil and bedding, expanding the diameter to allow the insertion of the HDPE pipe behind it. Do not use the pipe pull head, attached directly to the HDPE pipe, to expand or increase the diameter of the host pipe or the fragmented host pipe.

c. Pull head may be advanced by a hydraulic or winching mechanism, and may be connected by means of a cable, chain, or rod.

2. Hydraulic Pipe Bursting Systems:

    a. Equip hydraulic pipe bursting systems with a pull head featuring hydraulically actuated ‘petals’ that break the host pipe by applying radial pressure. The head applies hoop tensile stress to the host pipe, causing it to fail, fragment, and push the pieces into the surrounding bedding and soil as the pull head progresses.

    b. Follow the pull head with an expansion head that further pushes the fragmented pipe into the surrounding soil and bedding, expanding it to a diameter that permits the insertion of the HDPE pipe. Never use the pipe pull head, which is attached directly to the HDPE pipe, to expand or otherwise increase the diameter of the host pipe or fragmented host pipe.

    c. Pull head may be advanced by a hydraulic or winching mechanism, and may be connected by means of a cable, chain, or rod.

C. Pneumatic or percussive bursting systems are not be allowed.

PART 3 EXECUTION

3.01 DELIVERY AND OFF-LOADING

A. Bundle or package pipes in a way that ensures adequate protection of the ends during transportation to the site. Replace any pipe damaged in shipment at the Contractor's expense.

B. Inspect each pipe shipment prior to unloading to check for load shift or damage. Reject and remove any damaged pipe from the project site.

C. Check each pipe shipment for quantity, proper pipe size, color, and type.

D. Load, off-load, and handle pipe according to AWWA M23. Ensure pipe is not dropped or damaged. Reject and remove any damaged pipe from the project site.

3.02 JOINT FUSING

A. HDPE pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier’s recommendations.

B. Record and log each joint fusion using an electronic monitoring device (data logger) attached to the fusion machine. Submit joint fusion data to the Engineer in accordance with this specification.

C. Use only appropriately sized and outfitted fusion machines approved by the pipe supplier for the fusion process. Ensure fusion machines incorporate the following properties and elements:

1. Heat Plate: Ensure heat plates are in good condition with no deep gouges or scratches within the pipe circle being fused. Keep plates clean and free from contamination. Verify heater controls function properly, and check that the cord and plug are in good condition. Use appropriately sized heat plates capable of maintaining a uniform and consistent heat profile and temperature for the pipe being fused, following the pipe supplier’s recommendations.

2. Carriage: Ensure the carriage travels smoothly with no binding at less than 50 psi. Keep jaws in good condition with proper inserts for the pipe size being fused. Install insert pins without causing any interference to carriage travel.

3. General Machine: Inspect the machine body for defects, missing parts, or potential safety issues before fusion.

4. Datalogger: Use the current version of the pipe supplier's recommended software. Ensure the handheld wireless unit is stored in a protective case. Keep the datalogger operations and maintenance manual with the unit at all times. For extended fusion periods, provide an independent 110V power source to extend battery life.

D. Provide the following additional equipment specifically required for the fusion process:

1. Pipe rollers shall be used for support of pipe to either side of the machine

2. Provide a weather protection canopy that allows full machine motion of the heat plate, fusion assembly, and carriage for fusion in inclement and/or windy weather.

3. Keep the fusion machine operations and maintenance manual with the fusion machine at all times.

4. Facing blades specifically designed for cutting HDPE pipe.

E. Joint Recording:

1. Record and log each fusion joint using an electronic monitoring device (data logger) connected to the fusion machine. Generate the fusion data logging and joint report through software specifically developed for the butt-fusion of thermoplastic pipe. Ensure the software registers and records the parameters required by the manufacturer and specifications. Log any data not captured by the data logger manually and include it in the Fusion Technician's joint report.

3.03 VERIFICATION

A. Grades, Lines, and Levels:

1. Prior to performing any pipe bursting operations, verify the grades, lines and levels to which the new Work is to be installed. Any Work required to adjust grades, lines and levels after Work has started will be at the expense of the Contractor performing the Work.

B. Potholing - Verifying Existing Structures and Utilities:

1. Prior to beginning any pipe bursting Work, contact the local one call system for locating buried utilities. Also contact the local municipalities, who may not be part of the one call system, to mark their buried facilities.

2. Excavate or pothole to verify the location and elevation of existing active utilities and structures that will remain and require protection from damage during the work. Ensure that verification includes, but is not limited to, gas mains, water mains, sanitary sewers, house leads, oil lines, telephone lines, cable television lines, electric lines, and any other similar buried utilities.

a. Where the vertical separation between the water main and the existing utility is less than 18-inches, excavate and lower the water main to maintain 18-inches of separation.

3. Determine amount of “humping” expected due to existing soil conditions and size of pipe burst. Notify the Engineer where existing utilities may be adversely affected due to the progress or performance of the Work.

4. Ensure excavation or potholing is conducted to determine the elevation of existing utilities crossing the proposed water main. This must be done at no additional cost to the project unless otherwise specified in the proposal. If needed, excavate existing utilities to relieve transient loading and prevent damage during the bursting operation.

5. Excavate and remove valves and fittings as necessary to complete the Work. Break out and excavate concrete encasements and thrust blocks before starting the Work.

3.04 EXCAVATION AND ACCESS PITS

A. Ensure the pit length maintains the minimum bending radius for the HDPE pipe as per the pipe supplier's specifications. Follow sheeting, shoring, and bracing requirements in accordance with Section 31 23 16 - Structural Excavation and Backfill.

B. Perform pit excavations at all points where the HDPE pipe will be inserted into the existing pipeline. Where possible, align access pit excavations with host pipe lateral connection points, valves, hydrants, or other appurtenance installations.

C. Locate the pits to minimize their number, maximize the footage of the new pipe installed in a single pull, and maintain access to all properties.

D. Complete the work within existing street rights-of-way or utility easements. Keep open excavations secure at all times with appropriate lights, signs, barricades, construction tape, etc.

E. Support the pipe on rollers or other approved friction-decreasing implements during joining and insertion to prevent overstressing or critical abrasion before or during installation.

3.05 TESTING

A. Hydrostatic Testing:

1. Hydrostatically test the pipe for leakage after jointing on the surface and before installation in the burst hole. Provide the pump, pipe, connections, hydrants, fittings, valves, necessary apparatus, gauges, meters, and all personnel required for conducting the test.

2. Expel all air from the pipe before applying the test pressure. If needed, make taps at higher elevation points and plug them afterward.

3. Allow the test section to equalize to a common temperature and pressure. Gradually increase pressure to required test pressure.

4. Hold the HDPE pipe at the test pressure for 4 hours prior to starting the test to allow for stabilization of the pipe’s expansion under the applied pressure.

5. Hold the full pressure for 1 hour.

6. Replace any faulty pipe fittings, valves, or accessories that permit leaks during testing with sound materials. Repeat the test until specified requirements are met.

7. If no visual leakage is observed, and pressure during the test phase remains steady (within 5 % of the test phase pressure) for the entire test period, a passing test is indicated.

8. Ensure the maximum permissible leakage measured by the water meter from the section of the main tested under pressure does not exceed the rate specified in Part 2 of this Section.

9. If retesting is necessary, depressurize the test section and correct any faults or leaks in the test section.

10. Test sections will normally not exceed 2,000 feet and in the event more than 2,000 feet of water main is tested, the permissible leakage will remain at the amount determined for 2,000 feet of pipe.

11. Water for testing shall be obtained from a potable water supply. The Contractor shall provide all water required at his own expense and shall make all necessary arrangements with the authority which controls the source of water system and shall be governed in his use of water by all rules and regulations imposed thereon by said authority.

12. Provide and remove temporary connections between the source water system and the mains constructed under this Contract. Ensure all temporary connections meet the approval of the Engineer, the authority controlling the water source, and Public Health authorities having jurisdiction.

B. Disinfection:

1. Disinfect the pipe for pipe bursting twice: once before installation and once after installation. Disinfect the pipe before installation and after pressure testing in accordance with AWWA C651 requirements. After installation, re-chlorinate the pipe using a slug method. Ensure that disinfection solutions containing chlorine do not exceed 12.5% active chlorine.

2. Disinfect the water main after completing hydrostatic testing and flushing of the new water main. Follow AWWA C651 guidelines to disinfect the entire piping system by introducing a chlorine-water solution throughout the water main piping. Apply the liquid mixture using a solution-feed chlorinating device.

3. Install the corporation stop and feed chlorine solution through it at the beginning of the main or valved section. Let a slow flow of water enter the main near the chlorine solution injection point, ensuring the chlorine dosage of the incoming water is at least 25 parts per million.

4. Maintain an open discharge at the far end of the section being chlorinated. Continue introducing the chlorine solution and water until the water discharged at the far end carries the required dosage of chlorine.

5. Open each outlet from the main as it fills with chlorinated water. Draw off sufficient water to ensure the full dosage of chlorine reaches each outlet.

6. Keep chlorine-treated water in the main for at least 24 hours. At the end of that period, ensure the chlorine residual at pipe extremities and other representative points is at least 10 ppm. If the residual is less than 10 ppm, reapply chlorine and repeat the retention period until the required 10 ppm residual is achieved.

7. Repeat the chlorination procedure if the initial treatment of any section of the mains is deemed ineffective by the Engineer. Continue until tests confirm that water sampled from the new mains meets the required standards.

8. Super-chlorinate the main with 300 mg/l of chlorine solution for 15 minutes after installation. Prevent back pressure that may cause reversal of flow in the chlorinated main. Maintain the pressure in the main to ensure chlorinated water does not flow into other sections of the main or the water system.

9. After installation and chlorination by the super-chlorination, the water main will be flushed and another bacteriological sample will be drawn and analyzed in accordance with AWWA C651.

10. Collect water samples and arrange for analyses at own expense. Ensure the testing laboratory and sample collection meet the approval of public health authorities having jurisdiction.

C. Bacteriological Analysis:

1. Collect not less than two (2) consecutive water samples taken 24 hours apart for bacteriological analysis prior to placing a water main in service. Ensure each analysis shows results meeting state and local drinking water standards.

2. Contractor, collect water samples and arrange for analyses at own expense. Collect samples in accordance with AWWA C651. Ensure the testing laboratory and sample collection meet the approval of the public agency having jurisdiction.

3.06 NOTIFICATION

A. Notify the Owner and all water users affected by the work a minimum of seven days before beginning work. Deliver a written notice on Owner letterhead to each user.

1. Advise the user that the water system will be temporarily shut down. Include details on the date, time, length, and duration of the water service interruption.

2. Ensure every user receives notification. Include telephone number(s) for contacting the Contractor at any time, day or night.

B. Provide a second written notice to the affected water users one working day prior to the actual water service interruption. Do not shut off water services for more than 10 hours unless approved by the Engineer.

C. Issue a precautionary "Boil Water" advisory to all water users at the completion of the installation. Hand deliver the advisory to all water consumers on the line. Keep the "Boil Water" advisory in effect until all pipe bursting in the entire section is completed and the last bacteriological sample is reported as "Non-detect" from a certified lab.

3.07 PROTECTION OF PRE-CHLORINATED PIPE

A. Give high priority to maintaining sanitary conditions within the water main before and after pipe bursting. Keep the pipe ends sealed at all times. Do not make connections in standing water; pump or bail out the water before making the connection or unsealing the pipe. Excavate areas under connections below the pipe invert.

B. Before joining a surface and before any special surface preparation to accommodate that joining, external surfaces should be clean and dry. Dust may be removed by wiping with clean, lint free cloth. Heavier deposits must be washed from the surface with soap and water and dried with a clean, lint free cloth.

C. If the interior of the pipe is exposed to any foreign matter, carry out one of the two following remedies:

1. Complete chlorination per AWWA C651 specifications for buried pipe.

2. Localized contamination at the end of the pipe may be removed and the contaminated interior surface of the pipe wiped with a solution of 1 to 5% hypochlorite disinfecting solution.

3.08 INSTALLATION

A. Concrete encasements shall be excavated and broken out prior to the bursting operation to allow the steady and free passage of the pipe bursting head.

B. HDPE pipe will be installed in a manner so as not to exceed the recommended bending radius.

C. Where HDPE pipe is installed by pulling in tension, the recommended Safe Pulling Force, according to the pipe supplier, will not be exceeded.

D. Insert new HDPE pipe immediately behind the bursting head in accordance with the pipe supplier’s recommended procedures. Use bursting equipment specifically designed and manufactured for the type of insertion process being used.

E. It is the Contractor’s responsibility to determine safe and feasible upsizing parameters with the existing size of host pipe, and size of proposed pipe bursting pull-in pipe, and the existing conditions under which the pipe is being installed.

F. Remove and replace any pipe damaged or over-stressed by the Contractor during installation at no additional cost to the Owner.

3.09 INSTALLATION ACCEPTANCE AND CLEANUP

A. Inspect the first six feet of HDPE pipe pulled into the receiving pit behind the pull head for damage. Depending on the gouging, abrading, or damage, accept, de-rate, reinstall, or reject the pipe as determined by the Engineer.

B. Return the project site to a condition equal to or better than its pre-construction state. Backfill and compact all excavations according to the drawings, specifications, and jurisdictional standards. Repair all pavement and hardscape per applicable jurisdictional standards, remove excess materials from the site, and re-landscape disturbed areas.

C. Remediate any evidence of surface upheaval immediately. Verify that all utilities, structures, and surface features in the project area are sound. Repair any damage to the satisfaction of the Owner of the damaged facility.

3.10 INSTALLING FITTINGS FOR FIRE HYDRANTS, GATE VALVES, TEES, CROSSES, ETC.

A. Cut fittings into the new pipe where required after boring and allowing it to relax sufficiently. Excavate the new pipe and make a precision cut.

1. Use fused mechanical joint adapters and fully restrained mechanical joint fittings for all connections to PVC, Asbestos Cement, or Ductile Iron water mains or appurtenances.

3.11 CONNECTION TO MAIN

A. Make final connections of HDPE pipe to existing water mains after allowing the new HDPE pipe to relax for a minimum of 24 hours.

B. Make connections of HDPE pipe to existing water mains using a full-circle Flex Restraint Collar fused to the HDPE pipe. Embed the collar in a 30” x 30” concrete thrust block poured to undisturbed earth, placed a maximum of 5 feet from the connection point.

C. Fully flush the section of newly installed pipe with a de-chlorination unit and ascorbic acid to neutralize the residual chlorine before making the connection. After flushing, connect the newly installed section to the main at both ends and reinstate service.

D. After the new main is placed in service and before the boil water advisory is rescinded, only one of the isolating valves on either side of the new pipe should be open. This will allow the pipe to be placed in service while not allowing the water from the new pipe to enter other parts of the distribution system. The other valve may be opened once the water has been determined total coliform free.

3.12 SERVICE CONNECTIONS

A. Connect service connections on the existing water main, which is to be burst or taken out of service due to this project, to the new main at the end of each day. Do not allow water services to be out of service for more than 10 hours.

B. After installing the new HDPE pipe, the Contractor is responsible for reconnecting existing water services. Use service leads of the size indicated in the plans and proposal. Tap the service connections to the new main line with electro-fusion corporation saddles and brass corporation stops, unless otherwise approved by the Engineer.

3.13 THRUST BLOCKS

A. Thrust blocks and thrust restrainers are required at all water main fittings.

END OF SECTION

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