Section 02536

Temporary Water Systems

REVISION TABLE

Revision Number	Revision Date	Description
2025-01	*12/19/2025*	• *Various minor edits throughout.* • *Requirement for pressure reducing valves (PRV) defined.* • *Added ball valves as allowable fittings for blowoffs and service connections.* • *Requirement for valves on temporary mains to be gate valves defined.* • *Requirement for systems with PRVs regarding backflow prevention defined.* • *Defined working hours and responsibility related to repairs on temporary system.*

PART 1 - GENERAL

1.01 SCOPE

A. In order to maintain uninterrupted water service to District customers, the Contractor shall provide temporary above ground water systems. The temporary water systems consist of mains, services and fire department outlets. The above ground systems shall be installed only for the duration of permanent water main replacement and removed promptly after main replacement is complete.

B. The temporary water system shall be active only between April 15th and October 15th.

1.02 SUBMITTALS

A. Submittals shall be provided by the Contractor to the Owner as outlined in Section 01300 for the following items related to the temporary water system:

1. A description of the pipe material, fitting type, and joining method for the proposed temporary water system.

2. Test results for all backflow prevention devices installed prior to testing as outlined in subsection 3.04.A.3.

3. Licensing for any plumbers performing work on the temporary water service connections and documentation of any permits required for that work as outlined in subsection 3.010.A.

4. A description of the inventory of spare parts available for the temporary water system as outlined in subsection 3.013.

1.03 DESIGN PARAMETERS

A. PVC

1. Pipe must have a pressure rating of 200 psi.

2. Pipe must have a listed Dimension Ratio of DR 21.

3. Pipe must be NSF 61 certified.

B. HDPE

1. Per AWWA C901, C906 and M55, the Allowable Total Pressure during Recurring Surge conditions equals 1.5 times the pipe's pressure class. Allowable Total Pressure during Occasional Surge conditions equals 2.0 times the pipe's pressure class.

2. Table 1 lists the required pressure classes, Allowable Total Pressure during Recurring and Occasional Surges for PE4710.

Table 1: PE4710 Preferred Pressure Classes per AWWA C906 and C901 (up to 80°F)

Pipe Dimension Ratio (DR)	**Pressure Class / Rating (psi)**	**Allowable Total Pressure during Recurring Surge (psi)**	**Allowable Total Pressure during Occasional Surge (psi)**	**Allowable Hydrotest (Field) Pressure (psi)**
DR 9	250	250	375	500
DR 11	200	300	400	300

1.04 DELIVERY, STORAGE, AND HANDLING

A. If any gouges, scrapes, or other damage to the pipe results in wall loss 10% or greater (of the pipe wall thickness), cut out that gouged section and do not use.

B. Pipe delivered for construction shall be strung and protected so as to prevent entrance of any foreign material.

PART 2 - PRODUCTS

2.01 PIPE

A. GENERAL

1. Only authorized District personnel shall operate control valves attached to these systems.

2. The Contractor shall follow the pipe manufacturer's installation guidelines when installing temporary systems.

3. Follow Manufacturer's installation instructions for cutting pipe.

B. PVC

1. An approved joint lubrication for the installation of potable water pipe shall be used on all joints prior to connecting pipe.

2. All PVC joints, including those on cut lengths of pipe, shall be grooved to provide a restrained joint. Pre-fabricated bends, elbows, and tees shall be used when changing direction.

3. Layout piping to minimize field grooving. Field grooving must be performed in accordance with all applicable Manufacturer's requirements.

4. Approved Manufacturers

a. North American Pipe Corporation Certa-Lok Yelomine restrained joint PVC pressure pipe and fittings

b. Victaulic Co. AquaMine restrained joint PVC pressure pipe and fittings

C. HDPE

1. FOUR (4) INCH AND LARGER PIPE PER AWWA C906

a. HDPE pipe with 4-inch and larger diameter shall be PE4710 conforming to the latest edition of ANSI/AWWA C906 and ANSI/NSF Standard 61.

1) HDPE pipes shall be extruded by a PPI member with dependent listings in PPI TR-4, and shall meet the requirements of AWWA C906.

2) Dimensions and tolerances for HDPE pipe and fittings shall meet the requirements of AWWA C906.

b. HDPE pipe shall be rated for use at a pressure class of 200 psi. The outside diameter of the pipe shall be based upon the DIPS sizing system.

c. Approved manufacturers are:

1) Central Plastics

2) Performance Pipe

3) WL Plastics

4) Infra Pipe Solutions

5) JM Manufacturing

6) Ipex

2. TWO (2) INCH PIPE PER AWWA C901

a. HDPE pipe with 2-inch diameter shall be PE 4710 conforming to the latest edition of ANSI/AWWA C901 and ANSI/NSF Standard 61.

b. HDPE pipes shall be extruded by a Plastics Pipe Institute (PPI) member with dependent listings in PPI TR-4, and shall meet the requirements of AWWA C901. Dimensions and tolerances for pipe and fittings shall meet the requirements of AWWA C901.

c. Per AWWA C901, PE4710 pipe shall have a pressure class (min) of 250 psi. The outside diameter of the pipe shall be based upon the IPS sizing system.

d. Approved manufacturers are:

1) WL Plastics

2) Performance Pipe

2.02 FITTINGS

A. PVC

1. All fittings must be made with grooved ends.

B. HDPE

1. FOUR (4) INCH AND LARGER PIPE PER AWWA C906

a. Butt Fusion Fittings – HDPE Fittings shall be made of PE4710 and with a minimum Cell Classification as shown in Section 2.01.C.1.a. All HDPE fittings shall meet the requirements of AWWA C906 and shall have a pressure rating equal to the pressure rating of the pipe to which the fitting is joined.

1) Molded fittings shall be manufactured, tested and marked per ASTM D3261.

2) Fabricated fittings shall be manufactured, tested and marked per ASTM F2206, or individual fittings standards.

b. Electrofusion Fittings - Fittings shall be made of HDPE material with a minimum material designation code of PE 4710 and with a minimum Cell Classification as noted in Section 2.01.C.1.a. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. Markings shall be according to ASTM F1055.

c. Flanges and Mechanical Joint adapters (MJ adapters) – Flanges and MJ adapters shall have a material designation code of PE4710 with a minimum Cell Classification as noted in Section 2.01.C.1.a. Flanges shall be made in accordance with ASTM F2880. MJ adapters shall be made to ASTM D3261. Flanges and MJ adapters shall have a pressure rating equal to the pipe to which it is joined unless otherwise specified on the plans.

Markings for molded or machined flange adapters or MJ adapters shall be per ASTM D3261.

2. TWO (2) INCH PIPE PER AWWA C901

   a. Butt Fusion Fittings – HDPE Fittings shall be made of PE4710 and with a minimum Cell Classification as shown in Section 2.01.C.2.a. All HDPE fittings shall meet the requirements of AWWA C901 and shall have a pressure rating equal to the pressure rating of the pipe to which the fitting is joined.

      1) Molded fittings shall be manufactured, tested and marked per ASTM D3261.

      2) Fabricated fittings shall be manufactured, tested and marked per ASTM F2206, or individual fittings standards.

      3) Socket fittings shall meet ASTM D2683.

   b. Electrofusion Fittings - Fittings shall be PE4710, with a minimum Cell Classification as noted in Section 2.01.C.2.a. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans.

   c. Flanges and Mechanical Joint adapters (MJ adapters) – Flanges and MJ adapters shall be PE4710, with a minimum Cell Classification as noted in Section 2.01.C.2.a. Flanged and MJ adapters can be made to ASTM D3261 or if machined, must meet the requirements of ASTM F2206. Flanges and MJ adapters shall have a pressure rating equal to the pipe unless otherwise specified on the plans. Markings for molded or machined flange adapters or MJ adapters shall be per ASTM D3261. Fabricated (including machined) flange adapters shall be per ASTM F2206.

   d. Mechanical Fittings for service pipes - Three primary mechanical fittings or connections can be used, which are: Stab or insert type; compression type; and clamp ring. Internal stiffeners shall be used for all mechanical fittings.

   e. Mechanical fittings shall be designed to restrain and to prevent pull-out or rotation.

   f. Service connections shall be electrofusion saddles with a brass or stainless-steel threaded outlet, electrofusion saddles, sidewall fusion branch saddles, tapping tees, or mechanical saddles.

   g. For electrofusion saddles with threaded outlet the size of the outlet shall be as shown on the plans. Electrofusion saddles shall be made from materials required in Section 2.01.C.2.a.

   h. For sidewall fusion saddles, the size of the saddle shall be as indicated on the plans. The saddle can be made in accordance to ASTM D3261 or ASTM F2206.

   i. Tapping tees shall be made to ASTM D3261 or D2683 and MSS SP-60.

2.03 PIPE AND FITTING IDENTIFICATION

A. PVC

1. The pipe shall be marked in accordance with the standards to which it is manufactured.

B. HDPE

1. The pipe shall be marked in accordance with the standards to which it is manufactured.

2. Markings shall include the following items: Nominal size (such as 12-inch), outside diameter base (such as DIPS), dimension ratio (such as DR 17), manufacturer's name or trademark, standard materials designation code (PE 4710), cell classification (e.g. PE 445574C), PE compound oxidative resistance for potable water (CC3), pressure class (such as PC 125), standard's designation (AWWA C906), manufacturer's production code, date of manufacture, mark of the certifying agency for potable water (such as NSF).

3. Color identification to identify pipe service is required. Stripes on the exterior pipe product shall be blue for potable water. Plain black HDPE pipe without color code markings may not be used.

2.04 VALVES

A. MAIN-LINE VALVES

1. PVC: Main-line isolation valves shall be resilient wedge gate valves. Restrained fittings shall be used for 4-inch and 6-inch valves. Valves shall be located as shown on the plan.

2. HDPE: Main-line isolation valves shall be resilient wedge gate valves. Valves shall be configured with Fusion by MJ Adapters. Valves shall be located as shown on the plan.

B. PRESSURE REDUCING VALVES

1. Pressure reducing valves shall be installed at connections of the temporary water system and the permanent water system (e.g., hydrant connections) when the permanent system has a static pressure that exceeds 80 psi. The pressure reducing valve shall be installed prior to activation of the temporary water system for service connections. Static pressure in the project area shall be depicted on the drawings. Pressure reducing valves shall be set such that the static pressure throughout the temporary water system does not exceed 60 psi.

C. BALL VALVES & CURB STOPS

1. Temporary water service lines and blowoffs shall be constructed with either a curb stop valve or a ball valve.

2. Curb stop valves utilized shall be in alignment with the requirements outlined in Section 02537.

3. Ball valves shall be brass quarter turn valves, lead free, NSF 61 certified, and rated for 160 psi. Handles shall be removed from each valve following installation and stored with the temporary main spare parts on site.

D. BLOWOFFS

1. 1-inch blowoffs shall be installed at the ends of all 2-inch temporary mains. The blowoff shall be constructed using a 1-inch brass curb stop or 1-inch brass ball valve.

2. 2-inch blowoffs shall be installed at the ends of all 4-inch or greater temporary mains. The blowoff shall be constructed using a 2-inch brass curb stop or 2-inch brass ball valve.

2.05 TEMPORARY FIRE CONNECTIONS

A. Temporary fire connections (temp hydrants) shall be connected to the temporary main with a 4-inch tee and 4-inch gate valve followed by a 90-deg fitting. A 4.5-inch NPT streamer port connection with cap shall be connected to the 90-deg fitting. The outlet of the connection shall be between one and two feet off the ground. All joints in connection shall be restrained, and the stream port and riser shall be anchored to the ground. The outlet and tee shall be braced adequately to withstand force of water pressure.

2.06 BACKFLOW PREVENTION DEVICES

A. TEMPORARY WATER MAINS

1. A testable double check valve assembly backflow prevention device shall be installed at the connection of the temporary water system to the underground water system prior to testing of the temporary system piping. Where subsurface connections are made to the underground water system, the device shall be installed at the surface. The size of the device shall be the same nominal size as the temporary water main. The device shall meet the standards outlined in AWWA C510 and be lead free.

B. TEMPORARY WATER SERVICE CONNECTIONS

1. A non-testable dual check backflow prevention device shall be installed on all temporary water service connections that are made above ground. The size of the device shall be the same nominal size as the temporary water service. The device shall meet the standards outlined in ANSI/ASSE Standard 1024 and be lead free.

PART 3 - EXECUTION

3.01 PREPARATION

A. Temporary above ground water mains shall be installed in a manner to both protect the public water supply and to minimize customer service interruption. To allow the District to notify its affected customers, the Contractor shall provide the District a minimum of fifteen (15) working days' notice prior to installing any temporary lines.

3.02 SYSTEM LOCATION

A. A reference temporary main design has been included in the Drawings. The Contractor shall field-route the temporary water system piping as shown in the Drawings. Changes to the plan proposed by the Contractor may only be made with written approval by the Owner.

B. Temporary mains shall typically be installed behind sidewalks or along the edge, and within the public right of way. Temporary mains shall follow a uniform straight course and shall not bow to accommodate long sections of pipe. Temporary mains shall not be installed on private property. Temporary mains shall be installed in a manner that will not cause a hazard for pedestrians and/or traffic.

C. The route of temporary services lines installed from the mains to buildings shall be acceptable to the property owner.

D. Temporary water mains shall be installed such that there is no disturbance to existing sidewalk ramps.

3.03 CROSSINGS AND TRANSITIONS

A. Driveway crossings: 6-inch and 4-inch temporary mains shall be buried just below the surface of the driveway such that it is protected from overhead traffic. For temporary mains less than 4-inch, a gravel or cold patch raised berm shall be placed over temporary mains to prevent vehicles from dragging along the ridge.

B. Sidewalk crossings: An Americans with Disabilities Act (ADA) compliant ramp shall be constructed or placed over temporary mains to eliminate tripping hazards and allow for wheelchair access on affected sidewalks. Gravel and reclaimed asphalt pavement may not be used to ramp over temporary water piping.

C. Roadway crossings: Temporary mains shall be buried just below the surface of the roadway such that it is protected from overhead traffic. The pipe shall be protected with clean sand or material free from rocks, as the rocks tend to punch through the pipe when exposed to heavy traffic. The use of cold patch or QPR as fill material is acceptable.

D. Curbing or esplanade rise: To accommodate curb rise, pre-fabricated bends and/or elbows shall be used. Sweeping or bending the actual pipe is not an acceptable method unless the sweep lies flat on the ground and is not obstructing walkways. A traffic barrel shall be placed near the curb at offset connections to protect the offsets from being damaged by vehicles.

3.04 CONNECTIONS TO UNDERGROUND WATER SYSTEM

A. HYDRANT CONNECTIONS

1. Temporary water main shall be connected to an active hydrant using flanged HDPE Pipe connected to the hydrant port with brass or SAE 304 stainless steel fittings. The port that is utilized on the hydrant for the temporary connection shall be determined by the size of the connection (i.e., 2-inch pipe shall be connected to the 2.5-inch port, and 4 and 6-inch pipe shall be connected to the 4.5-inch port). The connection to the port shall be constructed with a National Pipe Taper (NPT) to HDPE transition. Piping supports and blocking shall be provided at all fittings.

B. CONNECTION TO UNDERGROUND WATER SYSTEM

1. Temporary water main shall be connected to the underground water system either through a tap on the existing water main or an installed tee as shown in the Drawings. Temporary water piping shall be directed to grade such that it surfaces outside of the paved roadway. These

connections shall have a valve at the main (corporation, tapping valve, or valve connected to the tee), as well as a valve or curb stop installed on the temporary water piping immediately where it surfaces. Any temporary water connections to the main must be removed at the end of the project as described in the Drawings.

3.05 BACKFLOW PREVENTION

A. TEMPORARY WATER MAIN CONNECTIONS

1. The backflow prevention device shall be installed in the location shown in the Drawings.

2. The backflow device may only be removed at the Owner’s request and Engineer's written approval. Backflow devices shall normally remain installed until substantial completion. If otherwise removed, the device shall be replaced with a flanged HDPE spool piece.

    a. In the event a pressure reducing valve is required for the temporary water system, the backflow prevention device may be removed and replace with the pressure reducing valve following testing prior to activation for service connections.

3. Prior to activation of the temporary water system for testing, the backflow device shall be tested to ensure it is in proper working order by a person certified by the New England Water Works Associations or American Backflow Prevention Association. Documentation of a passing test shall be provided to the Owner. This test shall be performed following installation of the device, documentation of annual testing of the device from a previous installation shall not be accepted.

B. TEMPORARY SERVICE CONNECTIONS

1. See subsection 2.06.B.1.

3.06 TEMPORARY FIRE CONNECTION CONFIGURATION

A. Temporary fire connections (temporary hydrants) shall be installed in the temporary water system as indicated on the Drawings.

B. Temporary fire connections must be covered when the temporary main is not active.

3.07 JOINING METHODS

A. PVC

1. The pipe and fittings shall be joined by Certa-Lok joints in accordance with ASTM D3139.

B. HDPE

1. The pipe and fittings shall be joined by butt fusion or electrofusion couplings, mechanical joint (MJ) adapters, or by flange connections in accordance with manufacturer’s recommendations and as required in this document. Unless otherwise shown on Drawings and except for connections to existing utilities, all joints shall be fused.

    a. Butt Fusion: The pipe shall be joined by heat fusion of the ends. Prior to fusion the pipe shall be clean and the ends shall be cut square. Butt-fusion joining is applicable to pipes

that have the same nominal outside diameter and wall thickness, within one SDR. Refer to ASTM F2620, ASTM F3124, ASTM F3183 and ASTM F3190.

b. Saddle fusion: Saddle fusion shall be done in accordance with ASTM F2620 or TR-41 or the fitting manufacturer's recommendations and PPI TR-41. Saddle fusion joints shall be made by qualified fusion technicians.

c. Socket Fusion: Molded socket fusion fittings are only to be used for joining of 2-inch HDPE pipe. Socket fusion shall be done in accordance with ASTM F2620 or the fitting manufacturer's recommendations. Socket fusion is the process of fusing pipe to pipe, or pipe to fitting by the use of male and female ends that are heated simultaneously, and pressed together so the outside wall of the male end is fused to the inside wall of the female end.

d. Electrofusion: Electrofusion joining shall be done in accordance with the manufacturers recommended procedure and ASTM F1055, ASTM F1290, MAB-01 and MAB-02. The installer must remove oxidation from the pipe and maintain a clean surface on both pipe and fitting to ensure acceptable joint quality.

e. MECHANICAL

1) Mechanical connection of HDPE to auxiliary equipment such as valves, pumps, and fittings shall use flanges or mechanical joint adapters and other devices in conformance with the PPI Handbook of Polyethylene Pipe, Chapter 9 and AWWA Manual of Practice M55, Chapter 6. Mechanical connections shall be manufactured for HDPE pipe and approved by the connection manufacturer for use with polyethylene pipe. Flanges and MJ adaptors should be double checked for butterfly valve clearance to allow full disc rotation and movement prior to installation in the trench. Uncontrolled tapering or hand-beveling in the field is not allowed.

2) Mechanical connections on 2-inch pipe are available to connect HDPE pipe to other HDPE pipe, or a fitting, or to a transition to another material. The use of stab-fit style couplings is allowed, along with the use of metallic couplings of brass and other materials. All mechanical and compression fittings shall be recommended by the manufacturer for use with HDPE and with potable water. Refer to fittings manufacturers and to Polyethylene Piping Systems Field Manual for Municipal Water. Manufactured transition fittings are also available.

3) Mechanical couplings that wrap around the pipe and act as saddles are made by several manufacturers specifically for HDPE pipe. All such saddles, tapping saddles, couplings and clamps shall be recommended by the manufacturer as being designed for use with HDPE pipe at the required pressure class (Section 1.02); all mechanical couplings shall be fully restrained either by themselves or by an alternate means.

f. Mechanical Joint/Flange: A flange assembly consists of a metal back-up flange or bolt-ring and a polyethylene flange adapter. MJ assembly consists of a MJ adaptor with gland ring, gasket and bolt kit. Both MJ adapters and flange adapters are fused onto the plain end of the pipe main. Bolting guidance for MJ connections is provided in AWWA C600 and guidance for flanges and gaskets is provided in PPI-TN38. Note that an HDPE flange adapter acts as both a flange and a gasket, and as such, no 'gasket' is required. For further information, refer to PPI TN38.

3.08 DISINFECTION

A. All 2-inch diameter and larger temporary mains shall be chlorinated, sampled, and tested for bacteria prior to activating any portion of the temporary mains in accordance with Section 02595 Disinfection of Water Mains.

3.09 PRESSURE TEST

A. All systems shall be watertight. A static pressure test shall be performed on all systems prior to disinfecting any portion of the system. Testing procedure shall be as follows:

1. Install a pressure gauge at the furthest end of the system.

2. Open main feed valve to fully charge the system with water and bleed all air.

3. Record the static pressure reading.

4. Close the main feed valve.

5. The system must hold static pressure for a minimum of 30 minutes with no losses.

3.010 RESTRAINT OF TEMPORARY WATER MAIN

A. The Contractor shall install the above-ground temporary water main in a manner to restrict the main from movement while active. The method and application of restraint (e.g., sand bags at changes of directions, burying the main) shall be determined by the Contractor as they see appropriate to maintain a safe and secure above-ground water system.

3.011 SERVICE LINE CONNECTIONS

A. GENERAL

1. Unless noted otherwise, all temporary individual service lines shall be 3/4-inch poly tube rated at a minimum working pressure of 160 psi.

2. Connection of the temporary service piping to exterior plumbing shall be performed by the Contractor with Owner oversight. The Contractor shall be responsible for shutting internal valving around the meter with Owner oversight prior to activating a temporary water service. Coordination with the building owner regarding entering the building to shut valving shall be the responsibility of the Contractor.

3. Anti-siphon sill cocks shall be disassembled by the Contractor or their licensed plumber with Owner oversight.

4. Excavating and connecting into existing underground service lines may be required where properties have malfunctioning sill cocks or no exterior plumbing. Alternately, Contractor may hire a licensed plumber to fix malfunctioning plumbing or install new exterior plumbing. Contractor is required to obtain all necessary state and/or local permits associated with the plumbing work. Licensing and permit information shall be provided to the Owner in advance of any work being completed. Contractor is responsible for coordinating with the building owner to determine the specific plumbing scope of work and schedule.

B. CONDITIONS REQUIRING UNDERGROUND SERVICE CONNECTIONS

1. If a building is served by a residential sprinkler system that is served after the meter and before a backflow preventer (e.g., NFPA 13D residential sprinkler system), the temporary service connection must be made behind the existing curb stop.

2. If a building to be connected is a commercial use and/or has a testable backflow prevention device installed on the domestic service line, the temporary domestic service connection must be made behind the existing control valve (e.g., curb stop).

3. If the meter on the service line cannot be isolated (i.e., there is not a valve on one or both sides of the meter), the temporary service connection must be made behind the existing curb stop.

C. BACKFLOW PREVENTION

1. See subsection 2.06.B.1.

D. PVC

1. The service lines shall be connected to a 3/4-inch factory tapped restrained joint coupling. This connection will be paired with a 3/4-inch close brass nipple, a 3/4-inch curb stop or 3/4-inch brass ball valve and a brass poly tube adapter 3/4-inch insert. The tube shall be extended to a sill cock (outside faucet) and connected using the same poly tube adapter. Prior to connecting the service, a garden hose connection, including a brass boiler drain or sill cock valve shall be installed in the line. All service lines shall be flushed prior to activating mains.

E. HDPE

1. Small Service (≤ 2-inch)

a. An electrofusion service saddle or standard service saddle shall be used to make service connections. This connection will be paired with a 3/4-inch close brass nipple, a 3/4-inch curb stop or 3/4-inch brass ball valve and a brass poly tube adapter 3/4-inch insert. The tube shall be extended to a sill cock (outside faucet) and connected using the same poly tube adapter. Prior to connecting the service, a garden hose connection, including a brass boiler drain or sill cock valve shall be installed in the line. All service lines shall be flushed prior to activating mains.

2. Large Service (>2-inch)

a. A butt fused tee with a fusion by MJ adaptor to a gate valve shall be used to make service connections.

3.012 CONDITIONS OF ACTIVATION OF TEMPORARY SYSTEMS

A. ACTIVATION FOR TESTING

1. Prior to activation of the temporary water system for testing, the Contractor shall provide the Owner at a minimum the following:

a. Record of passing test results for all backflow prevention devices being utilized.

b. An inventory of all spare parts for the temporary system available, their location, and the method of access required for the part (e.g., lock code). The minimum requirements for this are outlined in Section 3.012.B.

B. ACTIVATION FOR SERVICE

1. Prior to activation of the temporary water system for service, the Contractor shall have achieved passing results in the following tests:

a. Pressure testing as outlined in Section 3.08 above.

b. Bacteria testing as outlined in Section 3.07 above.

3.013 MAINTENANCE OF TEMPORARY SYSTEMS

A. The contractor shall be responsible for maintaining the temporary systems during regular working hours including making repairs to the systems. The District's Inspector must be on site prior to any work, or repairs being performed on the temporary water systems. District crews will respond to all emergencies outside of regular working hours. All affected customers shall be notified as soon as possible prior to any service interruption.

1. Regular working hours should normally be defined as 7:00am to 5:00pm.

2. In the event of a break in the temporary water system while the Contractor is on site, the Contractor shall immediately repair the break under inspection by the District.

a. In the event that a break occurs outside of working hours and the Contractor is actively working on site, the Contractor shall be responsible for making the required repair.

3. Once temporary water main is activated and any number of services are connected, Contractor shall maintain an active presence on the project site during regular working hours unless otherwise approved by Owner.

4. Temporary water main that is left activated with no services connected for more than one (1) calendar week shall be flushed and sampled prior to connection of any services.

B. The contractor will keep an inventory of readily available spare parts on hand enabling quick response to address repair needs. Spare parts shall include at least two extra fittings for each type used and at least two lengths of pipe. The use of non-restrained joint couplings is prohibited. Joint leaks shall be cut out. The use of stainless-steel wrap around repair clamps over pinholes is acceptable.

1. The contractor must ensure that adequate resources are immediately dedicated to repair of the temporary water system in the event of a leak.

2. Inventory shall be periodically inspected by the Owner. In the event that the inventory does not have the required parts, the Contractor will be notified of the deficiency in writing. The Contractor will have two working days to replenish the spare parts inventory following the written notice. If the parts are not replaced, the Owner may halt work until the spare parts have been replenished at no additional expense to the Owner.

3.014 RESTORATION

A. The site shall be restored to its original condition following the removal of the temporary water system piping. This shall include, but shall not be limited to, removal of buried pipe, loaming and seeding affected grassed areas, sidewalk repair, trench repair, replacement of curbing, removal of material used for crossings, restoration of driveway entrances, and cleanup of storage area.

B. Restoration of sidewalk ramps to ADA Standards, and costs associated to that restoration, that is required due to disturbance to the ramp by temporary water mains installed by the Contractor or their Subcontractor shall be the responsibility of the Contractor.

-- END OF SECTION --