Louviers
Water & Sanitation District

# Rules, Regulations, and Policies

## Revised and Adopted 2023

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– Adopted March 2023.

# Contents

# Article I - General Information

### 1.1 Purpose
The purpose of these consolidated Rules, Regulations, and Policies is to ensure an orderly and uniform administration of water and sewer operations within Louviers Water and Sanitation District, Louviers, Colorado. These administrative responsibilities are performed by Contractors engaged by the Louviers Water and Sanitation District Board of Directors who implement the policy and guidance of the District.

### 1.2 Authority
The District is a governmental subdivision of the State of Colorado and a corporate body with the powers of a quasi-municipal corporation. These powers are specifically granted for carrying out the objectives and purposes of the District as stated in the respective by-laws.

### 1.3 Policy
The Board of Directors of the District hereby declares that the Rules, Regulations, and Policies hereinafter set forth will serve a public use and are necessary to promote the health, safety, prosperity, security, and general welfare of the inhabitants of the District. All customers/users of the District are bound by these Rules, Regulations, and Policies as a matter of contract for which there is good and valuable consideration.

### 1.4 Scope
These Rules, Regulations, and Policies shall be effective for the District when approved by the Board of Directors of the District, are the comprehensive regulations which govern the operations and functions of the District.

### 1.5 Intent of Rules, Regulations, and Policies
These Rules, Regulations, and Policies shall be liberally construed to effect the general purpose set forth herein, and each and every part is separate and distinct from all other parts. No omission or additional material in these Rules, Regulations, and Policies shall be construed as an alteration; waiver; deviation; limitation, or restriction from any grant of power, duty, or responsibility imposed or conferred upon the Board of Directors by virtue of statutes now existing. Nothing contained herein shall be construed as prejudice or affect the right of the District to secure the full benefit and protection of any law which is now enacted or may subsequently be enacted by the Colorado General Assembly pertaining to the governmental or proprietary affairs of the District.

### 1.6 Amendment
The District through the Board of Directors shall retain the power to amend these Rules, Regulations, and Policies, with respect to the District, to reflect those changes determined to be necessary by the Board of Directors of the District. Prior public notice of these amendments shall not be required by the District when exercising its amendment powers pursuant to this Section.

### 1.7 Waiver, Suspension, or Modification of Rules

The Board of Directors, and if Board appointed, the District Manager, acting on instructions of the Board, shall have the sole authority to waive, suspend, or modify these Rules, Regulations, and Policies. Any such waiver, suspension, or modification must be in writing authorizing the specific action. Such waiver, suspension or modification is an exception to the Rules, Regulations, and Policies for the specific instance and shall not be construed as continuing for future instances. Waivers, suspensions, or modifications are not deemed an amendment of the Rules, Regulations, and Policies.

### 1.8 Inclusion in Contract

These Rules, Regulations, and Policies are automatically incorporated into every contract, written or oral, for service with the District whether expressly referenced or not, to the extent they are not inconsistent with the contract for service.

### 1.9 Rights and Authority

The District reserves the right to temporarily discontinue service to any property, at any time, for any reason deemed necessary or appropriate. The District shall have the right to revoke service to any property for violations of these Rules, Regulations, and Policies in accordance with the procedures set forth in these Rules, Regulations, and Policies.

### 1.10 Authority to Inspect

Authorized representatives of the District, upon presentation of a work order and identification, shall be permitted to enter upon all properties at all reasonable times for the purpose of inspection, observation, measurement, sampling, testing, and inspection of records of the water or sewer system, in accordance with the provisions of these Rules, Regulations, and Policies. Failure to permit such inspections, observations, measurements, samplings, testing, and/or inspection of records upon the request, in writing, of the Board of Directors or District Manager may result in a finding that permission is being denied to avoid discovery of a violation. Such finding may result in the disconnection of service to the property occupied by the party failing to permit the desired access, or other remedies as allowed under these regulations, subject to the hearing and appeal procedures set forth in ARTICLE IX- HEARING AND APPEAL PROCEDURES.

### 1.11 Violators Fined

Any person violating any of the provisions of these Rules, Regulations, and Policies shall become liable to the District for payment of a penalty of up to $1,000 and $500 per SFE plus any expense, loss, or damage including attorney fees for enforcement action, occasioned by reason of such violation. If any person causes damage to the District system by misuse, negligence, or other action on his/her part, the District shall hold that person liable for the cost of repair including any study, investigation, or consultant fees incurred. Such costs shall constitute a perpetual lien upon the violator's property as allowed by Section 32-1-1001, C.R.S., as amended, or a perpetual lien upon the property to which the District was providing services at the time of the violation, whichever the Board of Directors or District Manager deems appropriate.

# Article II - Definitions

Unless the context specifically indicates otherwise, the meaning of the terms used herein shall be as follows:

**2.1 Not used**

**2.2 Not used**

**2.3 Basement**
The lowest area within a structure, either partially or entirely below finish-grade with a finished floor, and intended for continuous habitation.

**2.4 Board**
"Board" and "Board of Directors" are the elected or appointed Board of Directors of the District who has responsibility for policy and management oversight of the water and/or sewer systems.

**2.5 Not used**

**2.6 Not used**

**2.7 Connection**

**2.7.1 Sewer**
A sewer connection is defined as a pipe that allows a continuous flow of sewage from a structure into a District main.

Connection for a sewer service line has not occurred if a connection of the water service line has not occurred or if an “air gap” exists within the sewer service line between the District’s main and the footer and/or foundation of the structure.

**2.7.2 Water**
A water connection is defined as a pipe that allows a continuous flow out of a District main, into a structure, and through the meter assembly.

Connection for a water service line has not occurred if an “air gap” exists within the service line between the District’s main and the structure or between the meter assembly, and the internal plumbing of the structure.

**2.8 Contractor**
"Contractor" is any person, firm, or corporation licensed or permitted to perform work and to furnish materials within the District. The Contractor will need to obtain a permit required by the county or town for work conducted in a public way.

**2.9 Not used**

**2.10 Not used**

**2.11 Customer**
"Customer" is any person or entity authorized to connect to and use the District's water or sewer systems. The word “Customer” effectively encompasses owner, renter, contractor, subcontractor, developer, etc. “Customer” is any person who applies to the District for a service connection, service disconnection, main line extension, or other such service agreement, or who attempts to have real property included within, or excluded from the District, as the case may be.

**2.12 District**

"District" is the “Louviers Water and Sanitation District” or “LWSD”.

**2.13 District Engineer**
"District Engineer" is the person or firm that has been authorized by the District to perform engineering services for the District.

**2.14 Not used**

**2.15 Board of Directors or District Manager**
"Board of Directors or District Manager" as used in these Rules, Regulations, and Policies is the person retained by the Board of Directors to administer and supervise the water and/or sewer affairs of the District.

**2.16 Not used**

**2.17 Inspector**
"Inspector" is a person or persons who, under the direction of the Board of Directors or District Manager, shall inspect all water and sewer connections, main lines and appurtenances, service line joints and bedding, installations of and repairs to meters, construction of and repairs to the water or sewer system and facilities of the District to ensure compliance with the Rules, Regulations, and Policies and construction standards.

**2.18 Not used**

**2.19 Not used**

**2.20 Not used**

**2.21 Permission to Connect**
Permission to Connect is the written permission to connect to or to enlarge the connection to the water or sewer systems of the District pursuant to the Rules, Regulations, and Policies. Permission may be granted by the Board of Directors or District Manager, or authorized District representative.

**2.22 Not used**

**2.23 Not used**

**2.24 Not used**

**2.25 Not used**

**2.26 Not used**

**2.27 Rules, Regulations, and Policies**
“Rules, Regulations, and Policies” are the formal Rules, Regulations, and Policies of the District which state the policy and procedures by which the water and sewer systems are operated. Rules, Regulations, and Policies also include all amendments and policies as set forth in the District minutes and resolutions.

**2.28 Service Line**
"Service Line" is any pipe, line, or conduit used or to be used (1) to provide water service from a water main or stub out to a building or (2) to provide sewer service from a building to a sewer interceptor, stub out, or collection line; whether the pipe, line, or conduit is connected or not. A water service line is owned and maintained by the District from the tap on the District water main to the property line, edge of easement, or curb stop valve, whichever is closer to the water main. A water service line tapped onto a private main shall remain property of the customer. The water service line from the curb stop valve into the building is owned and maintained by the customer. A sewer service line is owned and maintained by the customer from the building to the District sewer interceptor, the sewer main line, or a private main. Water and sewer service lines constructed by the customer shall be in accordance with these Rules, Regulations, and Policies.

**2.29 Sewer Main**
"Sewer Main" is any sewer main line or sewer interceptor used as a conduit for sewage in the District's sewer system and is owned and maintained by the District.

**2.30 Sewer System**
"Sewer System" is a network of sewer collection lines, sewer interceptors, sewer main lines, wastewater treatment facilities, appurtenances, accessories, or portion thereof owned and maintained by the District. Sewer service lines or any portion therein and private sewer mains are not considered part of the District’s sewer system.

**2.31 Shall or May**
Whenever "shall" is used herein, it shall be construed as a mandatory direction.

Whenever "may" is used herein, it shall be construed as a permissible, but not mandatory direction.

**2.32 Single Family Equivalent**
"Single Family Equivalent" (SFE) is a generic Residential Unit, the use of which is estimated to have an impact upon the water and/or sewer systems equal to that of the average single family (2.3 persons). One (1) SFE is up to 3,000 square feet.

**2.33 Not used**

**2.34 Not used**

**2.35 Stub Out**
"Stub out" is a connection device or line which is connected to the water or sewer main line and which is intended to facilitate the connection of a service line to the water or sewer system, either directly to the main line or indirectly through a private main. A stub out extends only from the main to the property line.

**2.36 Tap**
"Tap" is the connection of the privately owned service line to the water or sewer system, either directly to a stub out or at the curb stop valve or the main line, or indirectly through a private main line.

**2.37 Tap Fee**
"Tap Fee" is the payment to the District of a fee for the privilege of connecting to the water or sewer system. The amount of tap fees is based on the particular use of the facility being connected. See Appendix A - Schedule of Fees and Charges.

**2.38 Tiered Rate**
A "Tiered Rate" structure is a billing method, broken out into tiers, whereby the charge per thousand gallons of consumption becomes progressively more expensive as more water is used.

**2.39 Variance**
A "variance" is the written authorization from the District or District staff to act in a manner not in strict compliance with District Rules, Regulations, and Policies, specifications, or policies. A variance may be granted at the sole discretion of the District on the basis of undue hardship, or otherwise, not self-imposed.

**2.40 Wastewater System**
"Wastewater System" is any network of wastewater main lines, wastewater treatment facilities, appurtenances, accessories, or portion thereof, owned and maintained by the District.

**2.41 Water Main**
"Water Main" is any distribution line or transmission line used as a conduit for water in the District's water system and is owned and maintained by the District.

**2.42 Water Meter**
"Water Meter" is defined as all components between the amended or flanged ends of the meter body. Gaskets and fittings are not considered part of a water meter.

**2.43 Water System**
"Water System" is any network of water main lines, water treatment facilities, appurtenances, accessories, or portion thereof owned and maintained by the District.

**2.44 Any Other Term**
Any other term not herein defined shall be as defined by the American Water Works Association (AWWA) and Wastewater Pollution Control Federation (WPCF). The use of singular may also refer to plural. The use of the masculine gender includes the feminine or neuter gender.

# Article III - Liability and Ownership

### 3.1 Liability of District
The District shall not be liable or responsible for inadequate treatment or interruption of service brought about by circumstances beyond its control.

### 3.2 Condition Not Actionable
No claim for damage shall be allowed against the District by reason of the following conditions: blockage in the system causing the backup of sewage; damage caused by smoking of lines to determine connections to District lines; breakage of main lines; interruption of water or sewer service and the conditions resulting therefrom; damage from the breaking of any service or collection line, pipe, cock, or meter; failure of the water supply; shutting off or turning on water; installation of connections or extensions; damage caused by water running or escaping from open or defective faucets; burst service lines or breakage of other facilities not owned by the District; damage to water heaters, boilers, or other appliances resulting from shutting water off, or from turning it on, or from inadequate, excessive, or sporadic pressures; or from doing anything to the systems of the District deemed necessary by the Board of Directors or its agents.

### 3.3 Responsibility for Notification
The District has no responsibility to notify customers of any occurrence of the foregoing conditions.

### 3.4 Not used

### 3.5 Ownership of Facilities
All existing main lines and treatment works connected with and forming an integral part of the water or sewer system are the property of the District, unless a contract with customer provides otherwise. Ownership will remain valid whether the main lines and treatment works were constructed, financed, paid for, or otherwise acquired, by the District or by private parties. Transfer of ownership of main lines shall be in accordance with Section 6.3 Main Line Project Procedures for Developers. The developer is responsible for correction of construction deficiencies within the two-year warranty period. Exceptions to District ownership are private mains which specifically are not accepted by the District due to non-conformance to these Rules, Regulations, and Policies, the Standard Specifications for Water Line Construction, the Standard Specifications for Sewer Line Construction, and other approved standards of construction. Private mains are designated when ownership title cannot be provided free and clear.

#### 3.5.1 Ownership of Water Facilities
For water, the District owns and is responsible for the maintenance of the water service line up to and including the curb stop valve or the customer's property line or edge of easement, whichever is closer to the water main. The customer is responsible for the maintenance of the remaining portion of the service line serving his property. This

principle of ownership shall not be changed by the fact that the District may construct, finance, pay for, repair, maintain, or otherwise affect the customer's service line.

### 3.5.2 Ownership of Sewer Facilities

For sewer, the entire service line from the building to the main line is the property of the customer who is responsible for its maintenance. This principle of ownership shall not be changed by the fact that the District may construct, finance, pay for, repair, maintain, or otherwise affect the customer's service line.

### 3.5.3 Ownership of Water Meter

Each water meter shall become and is the property of the District. Ownership shall remain valid whether the meter is installed, financed, paid for, repaired, or maintained by another person or whether the meter is located on a privately owned and maintained service line. The meter is defined as the meter body and components contained therein. Gaskets and fittings are not considered part of the meter.

### 3.5.4 Not used

### 3.5.5 Existence of Easements

An easement, whether recorded or not, and whether the main line is actually within a recorded easement, is deemed to exist if a customer is receiving and accepting service from a service line connected to a main line. The District shall have access over said easement to effect repairs, maintenance and replacement.

## 3.6 Conditions of Ownership

The customer's ownership of the service line shall not entitle the customer to make unauthorized uses of the District's systems or to make alterations to the service line and the system once the service line has been connected to a District main line. All connections to the District main lines must be completed by a District authorized service line installer. All uses or changes in use of the service line, any appurtenances thereto, or changes in use of the property served at any time after the initial connection to the District system shall be subject to these Rules, Regulations, and Policies.

# Article IV - Operation and Maintenance of Water and Sewer Systems

### 4.1 Responsibilities of District

Except as otherwise provided by these Rules, Regulations, and Policies, the District is responsible for the operation and maintenance of the sewer and/or water systems in accordance with these Rules, Regulations, and Policies.

### 4.2 Design of Systems

Sewer systems must have adequate gravity drainage. Water systems must have adequate gravity fed finished water storage.

### 4.3 Use of Systems

Taps and service connections are approved for specific uses as stated on the water tap application and the sewer tap application. All connections to the District main lines must be completed by a District authorized service line installer. The Board of Directors or District Manager may request an inspection in accordance with Section 1.10 Authority to Inspect, to identify any unauthorized use for which the customer is subject to a fine in accordance with Section 1.11 Violators Fined.

#### 4.3.1 Notice of Changes

The customer shall notify the District prior to any expansion or addition to the service or any change in the use of the property served by the District and upon any change of ownership of said property and upon any substantial change in sewage characteristics. Any such change in use which, in the opinion of the District, will increase the burden placed on the District's system by the customer shall require a redetermination of the tap fee and monthly service charge, and a payment by the customer of any additional tap fee and monthly service charge resulting from the redetermination. When an expansion or change in use occurs that results in additional fees due, a credit for the existing use shall be given. Tap fees based on the current rate for the specific use as stated in the original permit shall be credited against the redetermined tap fee so that only the unpaid portion of any redetermined tap fee shall be due. However, if the redetermination results in a conclusion that the tap fee, if assessed currently, would be in an amount less than the tap fee originally paid, the redetermined fee shall not result in a refund to the customer. For example, if a structure changes from two units to three units without expanding the square footage of the structure, the additional tap fees shall be calculated giving full credit to the two units and the square footage for which tap fees were previously paid or payable.

#### 4.3.2 Inspection Required

Any customer believed to have changed equipment, service, or use of his property, in violation of this section, shall be notified of such belief by the District, and shall be afforded twenty (20) days from the date upon which the notice is mailed in which to respond to the District's notice. Any response by the customer must include permission to make an inspection of the property as the District may deem necessary to establish clearly

the nature of equipment, service and use of the property. Failure to respond may result in the District discontinuing service to the property.

### 4.3.3 Unauthorized Connection and Fees

No person shall be allowed to connect onto the sewer or water systems or to enlarge or otherwise change equipment, service, or use of property without prior payment of tap fees, approval of a permit for service, and adequate supervision and inspection of the tap by District employees. All connections to the District main lines must be completed by a District authorized service line installer. Any such connection, enlargement, or change without payment, approval, supervision, and inspection shall be deemed an unauthorized connection.

Any violation of this section shall result in the assessment of an unauthorized connection fee. The District shall take those steps authorized by these Rules, Regulations, and Policies and Colorado law regarding the collection of said fees.

Upon the discovery of any unauthorized connection, the then-current tap fee and accrued service charge, if any, shall become immediately due and payable, and the property shall automatically be assessed an additional unauthorized connection fee equal to the then-current tap fee per single family equivalent, as liquidated damages toward the District's costs associated with such unauthorized connections. The District shall send written notice to the customer benefited by such connection stating that an unauthorized connection has been made between the customer's property and the District facilities. The customer shall have twenty (20) days from the date the notice is mailed to pay the then-current tap fee and accrued service charges, if any. If not paid within this period, the District shall proceed in accordance with the provisions of Section 4.3.5 Revocation of Service.

### 4.3.4 Redetermination of Tap Fees

Following inspection, the District shall make a determination as to the change in the customer's equipment, service or use of the property in question, and shall redetermine any additional tap fees and service charges due. In the event the decision of the District is deemed unsatisfactory to the customer, the customer may present a complaint in accordance with ARTICLE IX - HEARING AND APPEAL PROCEDURES, of these Rules, Regulations, and Policies.

### 4.3.5 Revocation of Service

Service shall be revocable by the District upon non-payment of any valid fees or charges owed to the District. In the event of non-payment, the customer shall be given not less than twenty (20) days advance notice in writing of the revocation. The notice shall set forth:

1. The reason for the revocation;
2. That the customer has the right to contact the District, and the manner in which the District may be contacted for the purpose of resolving the obligations; and
3. That there exists an opportunity for a hearing in accordance with ARTICLE IX -

4. HEARING AND APPEAL PROCEDURES, of these Rules, Regulations, and Policies.

#### 4.3.6 Suspended Service

When a building is moved or destroyed and/or the water and sewer services are suspended, the original tap authorization shall remain, provided that a written request is made to, and approved by the Board of Directors or District Manager.

When a service line is abandoned permanently, the customer shall valve the water supply off at the main line (corporation stop valve), and plug the sewer service connection at the main. If the customer is not responsive within a reasonable time period as determined by the Board of Directors or District Manager, the District will valve the water supply and plug the sewer service line. The cost shall be charged to the customer and a lien filed on the property. Variances to this requirement will be considered on a case-by-case basis.

### 4.4 Tampering with Systems

#### 4.4.1 Unauthorized Use

No person shall uncover, alter, disturb, make any connection with, make an opening into, or backfill prior to inspection the water or sewer system without a written authorization from the District. Unauthorized uses of or tampering with the District's systems include, but are not limited to, change in customer's equipment, service or use of property, as defined in Section 4.3 Use of Systems; an unauthorized turn-on or turn-off of water service or a water main; burying valve boxes; modifying any water meter; and discharging prohibited sewage even though the same may be performed on a privately owned and maintained service line. All water use must be metered. Any unmetered use is considered to be unauthorized use, unless approved by the District.

#### 4.4.2 Malicious Damage to System

No person shall maliciously, willfully, or negligently, break, damage, destroy, cover, uncover, deface, or tamper with any portion of the District's system.

#### 4.4.3 Violators Prosecuted

Any person who shall violate the provisions of this Section 4.4 Tampering with Systems, shall be assessed a $2,000 fine for each violation, and shall be prosecuted to the full extent of Colorado law for tampering or malicious damage to District property.

### 4.5 Use of Water System

#### 4.5.1 Customer Responsibility

Each customer shall be responsible for all costs associated with the maintenance of the service line from the building to the curb stop, edge of easement or property line, whichever is closer to the main. In the event of customer service line break, the District shall respond to close the curb stop valve. The customer is responsible to repairing the service line between the curb stop valve and the building prior to the District restoring service to the customer. If no curb stop exists or the District is

unable to shut off water without disrupting the entire District, the District will repair the water service line. Costs to repair the water service line will be evaluated on a case-by-case basis and may be District or Customer responsibility.

### 4.5.2 Turn-On/Turn-Off of Service

All routine turn-on and turn-off of water service at a curb stop shall be performed only by District personnel. During emergencies, a customer may turn-off the water service at the curb stop valve. The District shall be notified of the turn-off and the circumstances at the earliest time. Only District personnel shall turn-on the water service.

When initial service is provided and when the turn-off/turn-on service is performed for a customer requiring maintenance to his service line, a service fee will not be charged. In other circumstances the District shall assess a single turn-off/turn-on charge in the amount of $50 for each turn-off and turn-on performed. In each case where turn-off of water service is caused by non-payment or late payment of service charges and fees, the turn-on service fee will be $100. The service fee will be increased in increments of $25 per instance of turn-on over a consecutive 12-month period. Payment of all charges and fees are required in full prior to turn-on of the water service. All other requests for a turn-off or turn-on of water service may be granted or denied by the District at the District's sole discretion.

The District will provide turn-on service for a tap for new construction only one time prior to the occupancy of the building served. At the time the water meter is set, service charges begin unless the District is requested to perform the turn-off. In this event the customer will be charged $50 when service is turned on.

### 4.5.3 Water Meters

Meter sizes for all applications shall be determined by the District. All connections to the District's water system shall include a water meter. All water meters shall have devices for remote reading. The type of water meter and location of the meter shall be subject to the approval of the District and accessible for maintenance (see APPENDIX B - WATER AND SEWER SERVICE LINE CONSTRUCTION SPECIFICATIONS). The District shall install the initial meter and the District shall have the right to test, remove, repair, or replace any and all water meters. Any meter not installed in accordance with District specifications shall be immediately replaced upon notification by the District. The customer shall be subject to a fine for illegal tampering of the water system. Each customer is responsible for notifying the District if his water meter is operating defectively. If any meter is suspected to be defective, the District shall diligently pursue repair or replacement of said meter at the District's expense unless the defect is a result of negligence or tampering by the customer. In this case the cost for repair or replacement shall be added to the service charge bill.

During the interim period prior to repair, the following procedure shall be enforced. The customer shall be given notice, by first-class mail, that the District suspects that the water meter is defective. The customer shall be given thirty (30) days in which to respond, which response shall include scheduling with the District an appointment for a meter

inspection and replacement. If the customer fails to respond, the customer's usage will be estimated.

The customer shall be given a second notice, by first-class mail, that the District suspects that the water meter is defective. The customer shall be given thirty (30) days in which to respond to the second notice, which response shall include scheduling an appointment for a meter inspection and replacement. If the customer fails to respond to the second notice, the District may disconnect the water service and charge the customer the base water rate and unmetered sewer rate while the service is disconnected. Service will be restored only upon payment of all fees and repair of the water meter. (See applicable District's Appendix A for base rate.)

### 4.5.4 Pressure Reducing Valve

A pressure-reducing valve (PRV) may be required at the discretion of the Board of Directors or District Manager in service lines upstream of the water meter, ensuring that the water meter and the building plumbing system, including any fire sprinkler system, are protected from fluctuating water main pressures. The pressure setting of the PRV shall not exceed 200 psi without written permission from the District.

### 4.5.5 Stop and Waste Type Valve

Stop and waste type valves are permitted only with the installation of an approved backflow prevention device. When closed, this type valve permits groundwater contamination of the service line. The customer is responsible for burying the service line with sufficient cover to prevent freezing, typically six feet of cover.

### 4.5.6 Repair of Service Line

Leaks, breaks and general maintenance of the water service line shall be the responsibility of the customer. The customer shall attempted to be notify immediately and shall be provided written notice by first class mail, that the water service line is defective and in need of repair. Customer shall institute repair or maintenance immediately. If satisfactory progress toward repairing the service line has not been completed in a timely manner or the District determines that environmental or property damage is being caused, the District shall shut off the water service until the service line has been repaired. If District requires service line to be repaired immediately to restore District-wide service, the District will complete the repair and invoice the customer. In addition, the District shall have the right to effect the repair, and the costs therefore shall constitute a lien on the property as provided for by C.R.S., 32-1-1001.

### 4.5.7 Safety Devices

Each customer having boilers and/or other appliances which depend on pressure or water in pipes, or on a continual supply of water, shall provide, at his own expense, suitable safety device to protect himself and his property against a stoppage of water supply or loss of pressure. The District expressly disclaims any liability or responsibility for any damage resulting from a customer's failure to provide such appropriate protection.

### 4.5.8 Fire Hydrants
It is unlawful for any person to operate District valves or fire hydrants. Law enforcement officers, personnel of the District, or personnel of a fire department are authorized to confiscate any hydrant wrench or valve shut-off key found to be used without written District authorization. Any violation shall be considered "Unauthorized Use" and will be subject to all fines and fees therein.

### 4.5.9 Clearances Around Hydrants
No landscaping, retaining walls, or buildings may obstruct the access to fire hydrants.

Minimum clearances must be maintained around fire hydrants to facilitate their use. Customers are responsible to maintain a seven-foot (7') clearance on either side (where 2" connectors are located), four-foot (4') clearance (including landscaping, retaining walls) on back, ten-foot (10') clearance in front (where steamer connection is located), and twenty-five-foot (25') clearance above all fire hydrants. The breakaway collar must be six inches (6") above the finished grade.

### 4.5.10 Bulk Water Sales
Fire hydrants for bulk water sales are allowed to be used by permit only. There are times when bulk water sales will not be allowed due to the adequacy of the District's water supply. Only District personnel are allowed to install and remove fire hydrant meters unless a written variance is issued. The customer will be subject to a penalty if he attempts to install or remove a fire hydrant meter. The customer is responsible for any damage, including vandalism or freezing, to fire hydrants or fire hydrant meters. The customer is responsible to provide adequate protection when freezing may occur. (See applicable District's Appendix A for permit, deposit and user fees.)

Fire hydrant water shall not be used for drinking purposes or irrigation.

## 4.6 Water Use Restrictions
The District is responsible for protecting an adequate supply of water to its consumers. The District recognizes that certain conditions may exist when water supply is temporarily limited. At the sole discretion of the Board, this Section 4.6 Water Use Restrictions, will go into effect for limited periods of time.

### 4.6.1 Waste
Water shall be used only for beneficial purposes and shall not be wasted. Any instance of flagrant runoff or waste will be considered a violation of these Water Use Restrictions and subject to the penalties provided for in Section 4.6.5 Violations. Water for irrigation of lawns and other outside uses shall be used pursuant to regulations of the District.

### 4.6.2 Restrictions of Use
If conditions of supply so limit the water supply of the District's water system that unrestricted water use may endanger the adequacy of that supply, the Board of Directors, exercising its discretion in the protection of the public health, safety, and welfare, may, by resolution, adopt the following emergency water use restrictions and such additional

regulations and restrictions as are reasonably calculated under all conditions to conserve and protect that supply and to insure a regular flow of water through the system. Emergency water use regulations and restrictions shall remain in force and effect until the Board determines that the conditions requiring their imposition no longer exist.

### 4.6.3 Remedies for Unauthorized Use

Any unauthorized use of water shall be paid for at the same rate as if that use had been authorized together with the costs incurred by the District in discovering and collecting for the unauthorized use. Such payments shall not in any way affect the right of the District to disconnect or suspend water service to any customer for unauthorized use, or to charge additional penalties or pursue such other remedies as may be authorized by law or approved by the Board of Directors of the District; nor shall it affect any criminal liability which may have attached by reason of such authorized use.

### 4.6.4 Seals and Detection Devices

The District may require that seals be attached to any water using system in or about a customer's premises in order to detect any unauthorized use of water from that system. If necessary, the District may also require that mechanical devices be attached to any water using system in or upon a customer's premises in order to detect any unauthorized use of water from such system. Such mechanical devices may be inspected on behalf of the District at any reasonable time.

### 4.6.5 Violations

The violation of any water use regulation or restriction or waste of water shall be considered grounds for the disconnection or suspension of water service to any customer, premises, building or water facility. The customer using the premises, building, or facility shall be responsible for complying with the regulations and/or restrictions and violators of said regulations and/or restrictions will be subject to fines imposed by the District and possible disconnection or suspension of water service.

### 4.6.6 Special Permits

The District may issue special permits as required for exceptions to water use regulations.

## 4.7 Use of Sewer System

### 4.7.1 Customer Responsibility

Each customer shall be responsible for all costs associated with the maintenance of the service line from the building to the sewer interceptor or sewer main.

### 4.7.2 Sewer Service Lines

Each customer shall be responsible for the total cost of constructing and maintaining the entire length of the sewer service line serving his property and/or any related service facilities, including but not limited to, private lift stations.

### 4.7.3 Repair of Service Lines

Leaks, breaks and general maintenance of the sewer service line shall be the

responsibility of the property owner. The customer shall be attempted to be notified immediately and shall be provided written notice by telephone, email and/or first class mail, that the sewer service line is defective and in need of repair. Customer shall institute repair or maintenance immediately. If satisfactory progress toward repairing the sewer service line has not been completed in a timely manner, or the District determines that environmental or property damage is being caused, the Board of Directors or District Manager shall shut off the water service until the sewer service line has been repaired. In addition, the District shall have the right to effect the repair. The cost therefore shall constitute a lien on the property of the customer as provided for by C.R.S., 32-1-1001.

### 4.7.4 Prohibited Discharges

No person shall discharge, or cause to be discharged, any storm water, surface water, groundwater, roof runoff, subsurface drainage, metal sludge, toxic matter, hazardous material, ignitable material, unprocessed industrial wastes to any sanitary sewer.

### 4.7.5 Not used

### 4.7.6 Not used

### 4.7.7 Not used

### 4.7.8 Not used

### 4.7.9 Sewer Main Access Easements

Any landscaping improvements shall be precluded from easements that are expressly designated and granted and upon which an access platform has been constructed, and which route is necessary to serve as the only access to District facilities. Examples of such improvements may include but are not limited to trees, berms, bushes, rock walls, and any landscaping or improvements that would inhibit the District's access to and along the access easement.

## 4.8 Line Locations

Upon request of a customer, the District will attempt to locate and mark all water and sewer lines to the best of its ability by using available information. Basic line locations will be made free of charge, but the District will not accept financial liability to any party for any costs incurred as a result of an inaccurate location.

# Article V - Application for Service

## 5.1 Service Areas

### 5.1.1 Service Within District Boundary
Water system and/or sewer system service will be furnished in accordance with the District's Rules, Regulations, and Policies to property included within and subject to the Rules, Regulations, and Policies of and taxation by the District.

### 5.1.2 Ability to Serve Letter
Ability to Serve letters for new projects shall be issued only upon proof of inclusion into appropriate District boundaries, submission of review fee deposit as estimated by District staff, and full payment of cash-in-lieu of water rights or water rights dedication. The finding of compliance with the necessary criteria and ultimate issuance of the Ability to Serve letter shall be at the sole discretion of the District. Prior to issuance of the Ability to Serve letter, no connections to the District's system shall occur.

### 5.1.3 Inclusions
A person who desires service and who owns land both within and outside the boundaries of the District, must include all of his land outside the District which is serviceable by the system and is contiguous to the parcel on which service is desired. A formal request for inclusion within the District shall be made to the District, on its standard form, by the applicant, accompanied by a non-refundable payment of $1,000 for legal fees and the estimated cost of processing the application for inclusion. Any additional costs or legal fees that may occur shall be assessed and paid prior to approval of inclusion by the Board. Until paid, such additional costs and fees shall be a lien upon the property.

### 5.1.4 Not Used

### 5.1.5 Water Dedication Policy Summary (District)
Any request for water service for: (1) uses in areas outside the District's service area; or (2) expanded water uses within the District's service area shall be subject to the District's water dedication policy, approved by Resolution attached hereto. The District's policy requires the dedication of water rights equal to 120 percent of the need of the proposed uses, or at the District's discretion, payment of cash-in-lieu of such water rights at the current rate set by the District. The party requesting service must provide evidence acceptable to the District regarding the amount of water required by the proposed use. The complete requirements for water dedication are set forth in the Resolution.

### 5.1.6 Treated Water Storage Requirements
It shall be the policy of the District to require an owner of property and an owner of property changing the zoning of a property already within the District to provide treated water storage adequate to meet the needs of the properties, or at the option of the District to pay a fee in lieu of providing new treated water storage. See Appendix F.

### 5.1.7 Service Outside District Boundary

No water system and/or sewer system service shall be provided to property exclusively outside of the District, except upon the express written consent of the Board. Charges for furnishing service outside of the District shall be at the discretion of the Board. The charge for service furnished shall equal at least the cost of service, plus the estimated property tax and tap fees for which such property would be responsible if it were a part of the District. In every case where the District furnishes service to property outside the District, the District reserves the right to discontinue the service when, in the judgment of the Board of Directors, it is in the best interest of the District to do so.

## 5.2 Application for Service

### 5.2.1 Forms and Fees

Application for water and/or sewer service must be furnished to the District and accompanied by appropriate fees. A connection to the system shall be made only by District personnel upon authorized approval of the permit and a receipt indicating payment of all fees.

### 5.2.2 Tap Information Required

All information requested on the tap application must be completed. A site plan or improvement plan showing the location of the building relative to property lines, utility lines, curb stop valve box location, and all easements shall be provided for the tap application. A copy of the building permit, and a copy of the building floor plan shall be provided for the tap application. The building floor plan shall indicate the location of the water meter, and the remote reading device. For commercial applications, the District will require an Engineer's or Architect's assessment of the meter size necessary to serve the commercial and irrigation fixtures involved. The meter size is to be determined by the fixture count assessment according to the Uniform Plumbing Code.

### 5.2.3 Reassessment of Tap Fees

Should any information disclosed on the application prove at any time to be false, or should the applicant omit any information, the District shall have the right to: reassess the tap fee originally charged to the rate current at the time of discovery by the District of the false or omitted information, and/or disconnect the service in question, and/or back-charge the property in question for tap fees and service fees that may be due and owed, and/or charge any other additional fee or penalty specified in these Rules, Regulations, and Policies. Any reassessment, penalties, or other additional fees charged, with interest at the maximum legal rate on the entire balance upon and from the date of the original application, shall be due and payable immediately.

Should the metered consumption, documented sewage criteria, or approved usage exceed the conditions upon which the original tap fees were paid, the District reserves the right to reassess the tap fees originally charged to the rate current at the time of discovery by the District.

### 5.2.4 Winter Taps
During the winter months (October 15 to April 15), taps may be made by appointment, at the District's sole discretion, provided that the tap location is heated or protected from freezing.

## 5.3 Special Conditions

### 5.3.1 Lawn Irrigation System
A lawn sprinkler or irrigation system must be metered. If a lawn sprinkler or irrigation system is to be installed as part of the property development, this system may be independent of any commercial, domestic, or industrial uses and may be separately metered. The connection of the lawn sprinkler or irrigation system shall be inspected by the District prior to use. As dictated by the State of Colorado, all lawn irrigation systems must have a reduced pressure principal backflow prevention device installed on the system.

## 5.4 Conditional Service
The District reserves the right to issue a notice of conditional service against the property title where a condition(s) exists which is not in compliance with District Rules, Regulations, and Policies, but water and/or sewer service to the property may continue. The notice will provide that as a condition of receiving service the customer agrees to indemnify and hold the District harmless for any damage resulting from existence of the condition. Examples are connection to private mains not owned or maintained by the District, lack of easements for access and maintenance, and construction not in accordance with District specifications.

## 5.5 Denial of Service
The District reserves the exclusive right to deny application for service when, in the opinion of the District, the service applied for would create an excessive seasonal or other demand on the facilities. Denial may also be based upon an unresolved obligation between the District and the applicant, inadequate documentation of easements for main lines serving the property, or any other reason as determined by the District.

## 5.6 Cancellation of Permit
The District reserves the right to revoke any prior approval of a permit before service has been provided, and the right to revoke service after it has commenced for any violation of these Rules, Regulations, and Policies.

### 5.6.1 Revocation of Tap Rights
The right to connect to the District's system and to receive services under Section 4.3 Use of Systems, shall be revocable by the District upon non-payment of any fees owed to the District and remaining unpaid for a period of thirty (30) days, whether or not the customer owning the right to connect has actually connected to the District's system. Such revocations shall be conducted in accordance with the procedures outlined in Section 4.3.5 Revocation of Service. If the right to connect to the District's system is revoked, the customer may reacquire such tap rights by reapplying for service in

accordance with Section 5.2 Application for Service. The reapplication will be considered only after payment of all fees due and owed the District and the current tap fees charged by the District under these Rules, Regulations, and Policies.

## Article VI - Main Line Extensions

### 6.1 Main Line Extension by the District

The District may construct any main line if the Board deems it in the best interest of the District to do so. All main line extensions, which are so authorized, shall be bid competitively, when required by state law, and contract awarded under the authority of the Board. The contractor installing the main lines shall be responsible to the Board. The ORC shall supervise construction activity and coordinate all matters pertaining to the completion of the subject project, including permits, easements, material approvals, site inspection, acceptance, payments to the contractor, and field verify the as-built drawings. As-built data shall be provided in a digital format as per District specifications.

#### 6.1.1 Performance Payment and Warranty Bonds

Pursuant to C.R.S., Section 38-26-105 and -106, as amended, performance, payment and warranty bonds equal to the contract price at a minimum shall be furnished to the District by the contractor on all contracts with the District. All main lines, constructed in compliance with the contract specifications and District acceptance procedures, shall be accepted by the District upon completion of construction, subject to a two-year warranty period. Any defective work identified during the warranty period shall be promptly corrected by the contractor, without cost to the District. All daily inspection fees for warranty work required by any governmental authority, including the District, shall be paid by the contractor.

#### 6.1.2 Acceptance Procedures

Before the main lines are accepted by the District, the following procedures shall be completed by the contractor or applicant. The contractor or applicant shall certify the main lines and all appurtenances are free and clear of all liens and encumbrances; furnish to the District a warranty bond to cover all maintenance for two (2) years from the date of construction acceptance of the main lines by the District; provide the District digital field verified as-built drawings of all facilities constructed, including but not limited to easements, water valve locations, fire hydrant locations, water stub out locations, data on storage tanks, data on pumps, sewer stub out locations, coordinates of manholes, rim and invert elevations; provide inspection and test results; provide digital copy of all computer information available as per District specifications; and provide maintenance, operating, and parts manuals. District personnel shall be present for all pressure tests on water main lines plus any other tests as deemed necessary. All sewer main lines shall be televised and a copy of the televised tape and cut sheets shall be submitted to the District prior to final acceptance.

### 6.2 Main Line Extensions by Developers

The District has no obligation to extend any main line. At the discretion of the District, the District may permit an applicant to construct, at the sole expense of the applicant,

water and/or sewer main lines prior to their construction by the District. The applicant shall request intent to provide service from the District and subsequently enter into a written main line extension agreement with the District prior to proceeding with any contraction.

### 6.2.1 Locations of Main Line Extensions

Main lines shall be installed in road or street rights-of-way, as well as in easements granted to the District. Where required main lines must cross land not being subdivided or where such land is under the applicant's control for the granting of public rights-of-way, each applicant who desires service will, in consultation with and with the approval of the District, plat and grant to the District appropriate rights-of-way and easements in which main lines will be constructed.

### 6.2.2 Sewer Collection Lines

Sewer collection lines shall be designed and constructed to provide a means of access by District personnel using existing District equipment and capability for maintenance, flushing, and inspection. Lift stations are not allowed in District sewer collection systems, except by specific written approval by the District.

## 6.3 Main Line Project Procedures for Developers

### 6.3.1 Letter of Intent

During the concept design of a development which requires the construction of water or sewer main lines, the developer shall request the respective District to provide a letter expressing the intent to provide service. The developer's request shall include data on the number and type of residential, commercial or individual facilities, any irrigation systems, and other activities that would have an impact on water or sewer use. The request letter shall contain a description of water rights owned by the developer and a plan indicating the proposed development of the site. The District will analyze its ability to provide water and/or sewer service to the site. This analysis will determine the adequacy of existing distribution and/or collection system capability and the need to increase the capacity of any existing lines, equipment, or facilities. The analysis will also determine the need to oversize lines in the development site for anticipated future service needs. The District will provide a formal intent to serve the development site and include any conditions deemed appropriate. This letter of intent to serve should be available to the County Planning Commission and an incorporated town planning committee.

### 6.3.2 Oversizing Main Lines

Based on District estimates of future growth and use of a main line, the applicant shall construct oversized main line extensions as required by the District, at the District's expense for the incremental cost of the oversized line. The District shall recover the cost of oversizing, including reasonable interest, by connection of future service users or future main line extensions.

### 6.3.3 Application for Approval

All applicants desiring to construct a main line within the District shall submit a formal

application to the District. This application shall contain a legal description of the property to be served by the main line, the estimated number of service taps to be served, the type of structures, the use of the property, the easements to be conveyed, the detail construction plans and specifications for that extension, and any other information reasonably required by the District. Within a reasonable time, the District staff and consultants shall review the easements, plans, and specifications for conformance to District, county, and state specifications; submit the recommended plans, with appropriate documentation to the District for overall review, and recommend construction plan approval. If cost recovery is applicable, a Cost Recovery Agreement must be concluded in accordance with Section 6.4 Cost Recovery. Two sets of documents marked "Approved" by the District shall be returned to the applicant. The cost of such review for compliance shall be borne by the applicant.

### 6.3.4 Deposits with the District

Prior to the main line extension approval by the District, the applicant shall deposit with the District an amount sufficient to compensate the District for engineering fees, legal fees, and other costs anticipated to be incurred by the District as a result of the application and the construction of the main line. All reasonable inspection costs conducted by any governmental agency, including the District, shall be paid by applicant.

### 6.3.5 Acceptance of Main Lines

When construction of the main line is completed, the applicant shall notify the District and provide one set of District approved documents which has been marked to reflect field verified as-built conditions. The District will then inspect the main line, equipment, special structures, and easements for conformance to the approved requirements. Applicants who have completed construction and District inspection of main lines shall, before the main lines are accepted by the District, deed the main lines and appurtenances to the District free and clear of all liens and encumbrances, and furnish to the District a warranty bond for a two-year (2) period from the date of acceptance of the main lines by the District. Prior to the acceptance of the main lines by the District, the applicant shall provide the District with:

1. Legally recorded documents of all easements accompanying the main lines;
2. One set of four mil Mylar, field-verified as-built drawings;
3. One disk of spatial data in digital format as specified by District specifications;
4. Three (3) sets of all operation, maintenance, and part manuals for all electrical and mechanical equipment provided by the contract; and
5. A certified statement of the costs of the main lines.

No taps may be made onto the main line until Construction Acceptance has been granted by the District in writing, or by special written permission with the District.

## 6.4 Cost Recovery

The cost recovery contract policies and procedures of the District for water main extensions shall be coordinated through the Board of Directors.

# Article VII - Cross Connection Control

**7.1 Cross-Connection Control Authority**
The authority to implement and maintain this backflow and cross-connection control program is contained in the following legislative actions:

7.1.1 Colorado Revised Statutes (CRS), Section 25-1-114 and 25-1-114.1.

7.1.2 Colorado Primary Drinking Water Regulations (CPDWR), Article 12, Control of Hazardous Cross-Connections

7.1.3 Louviers Water & Sanitation District (District) Rules, Regulations, and Policies

7.1.4 Colorado Plumbing Code.

7.1.5 Uniform Plumbing Code of the International Plumbing and Mechanical Officials/ International Plumbing Code.

7.1.6 Uniform Swimming Pool and Mineral Bath Regulations.

7.1.7 Uniform Solar Code

**7.2 Reference Manuals Adopted for Guidelines on Cross-Connection Control**

7.2.1 Cross-Connection Control Manual, Colorado Department of Public Health and Environment, latest edition.

7.2.2 Definitions of terms used in this regulation are contained in the Cross-Connection Control Manual, Colorado Department of Public Health and Environment, latest edition.

**7.3 General Requirements**
All building plans must be submitted to the local plumbing official and approved prior to issuance of water service. Building plans must comply with the following:

7.3.1 Approved backflow prevention assemblies shall be installed on all commercial, industrial, and mixed usage properties, and fire sprinkler systems to protect the domestic water system from potential cross-connection contamination.

7.3.2 By law, residential properties are required to have backflow prevention assemblies. If the residential property does not contain hazards to the public water supply, which hazards include, but are not limited to, home photo labs, solar power systems connected to the potable water system, and auxiliary wells, the District does not require Device Inspection Reports. LWSD has a Cross Connection plan posted on the website.

7.3.3 Approved backflow prevention assemblies that provide containment shall be installed on all new service connections, and shall be located downstream from the meter, prior to any other connection.

7.3.4 The District requires that all building plans for new construction or remodels that involve plumbing be submitted to the District for review and approval prior to construction.

7.3.5 All backflow prevention assemblies required in Paragraph 7.3.1 shall be tested at the time of installation and annually thereafter. Test results must be submitted to the District on the District's form and all information on the form must be completed and legible. Testing of devices must be performed by a Backflow Prevention Assembly Tester, with a current and valid certification, recognized by the District.

7.3.6 Backflow prevention assemblies installed on fire sprinkler systems must meet the requirements of the local Fire Department and shall be Reduced Pressure Assemblies that provide full containment or isolation when the systems contain glycol. The reduction of pressure through these devices must be incorporated into the design of the fire sprinkler system.

7.3.7 Backflow prevention assemblies shall only be installed by a Master Plumber or by a licensed plumber or Cross-Connection Control Technician working directly under the supervision and authority of a Licensed Master Plumber. Double check type backflow prevention assemblies shall not be permitted on systems containing glycol.

7.3.8 Single Check Valves are not considered backflow prevention assemblies and shall not be permitted within the service area of the District.

7.3.9 The District reserves the right to require the replacement or modification of any backflow prevention assembly that the District's Cross-Connection Technician deems to present a potential hazard to the domestic water system.

7.3.10 Backflow prevention assembly valves are not to be used as the inlet or outlet valve of the water meter. Test cocks are not to be used as supply connections.

7.3.11 All costs for the design, installation, maintenance, repair, and testing of backflow prevention assemblies shall be borne by the customer.

7.3.12 The District shall have the right of entry to inspect any and all buildings and premises for cross connections relative to possible hazards, or to verify proper installation, testing, or repair of backflow prevention assemblies.

7.3.13 No grandfather clause exists. All Rules, Regulations, and Laws apply regardless of the age of the property or the service connection.

7.3.14 The District may discontinue service of water to any property, if an unprotected cross connection exists on such property that poses a significant risk to the domestic water system. Failure of a property owner to comply after proper notice in writing by the District, pertaining to the installation, maintenance, testing, repair, relocation, or inspection of a backflow prevention assembly may result in the disconnection of water service. Water service to a property may not be disconnected if the customer installs an approved air gap to separate any hazardous condition from the public water system. If disconnection of a water service is not feasible, the District has the authority to fine property owners an amount not to exceed $500 per day for any or all days the connection is out of compliance.

# Article VIII - Rates and Charges

### 8.1 General
The information contained in this Article is pertinent to all charges of whatever nature to be levied for the provision of sewer and/or water services. The rates and charges as established in Appendix A are in effect at this time, and shall remain in effect until modified by the individual District Board of Directors under the provisions of these Rules, Regulations, and Policies, and under the applicable statutes of the State of Colorado. Nothing contained herein shall limit the individual District from modifying rates and charges, or from modifying any classification.

### 8.2 Application of this Article
The rates, charges, and other information apply to customers inside the District, and shall not obligate the District with respect to services provided outside the District boundaries.

### 8.3 Standards of Consumption
For the purpose of levying fair, reasonable, uniform, and equitable charges, the classifications and related definitions are as defined in ARTICLE II - DEFINITIONS. The following additional conditions are used in rate and service charge applications.

### 8.4 Classification of Customers
For the purpose of levying fair, reasonable, uniform, and equitable charges, the classifications and related definitions are as defined in ARTICLE II - DEFINITIONS. The following additional conditions are used in rate and service charge applications.

### 8.4.1 Prepaid Tap Fees
Tap fees may be paid and tap fee applications issued anytime in advance of connection, in which case the commencement of service charges shall be governed by Section 4.5.2 Turn-On/Turn-Off of Service. No refund of tap fees will be paid. Please refer to Section 5.2.2 Tap Information Required.

### 8.4.2 Factors and Usage
The fees and charges reflected in Appendix A for the applicable District are based upon recovery of cost requirements, factors of usage and physical conditions of plant and line structure.

### 8.4.3 Disputed Tap Application
If a dispute arises between the District and the applicant regarding the calculation of tap fees or the nature and use of the structure as it applies to Appendix A, the dispute will be settled in accordance with ARTICLE IX - HEARING AND APPEAL PROCEDURES.

### 8.5 Transfer of Tap Fees
Any approval of a request for a transfer of tap fees shall be in the sole discretion of the District. No tap fee paid on behalf of one property, or any portion thereof, may be transferred to any other property except under the following conditions:

1. The customer requesting the transfer is the common customer of the property for which the tap fee has been paid and the property to which the transfer of the tap fee, or portion thereof, is being requested. Both properties must be in the same District.

2. The customer requesting the transfer has no outstanding unpaid accounts with the District and has previously maintained good credit with the District.

3. The property to which the tap fee initially applied has never been connected to the District's system.

4. The customer requesting the transfer shall pay to the District the difference between the tap fee which would be charged on the date the transfer is requested for the property to which transfer is being sought, and the tap fee previously paid. In no event shall the District make a credit or refund. In the event a customer transfers only a portion of the total sum previously paid as a tap fee, the customer shall retain a credit for any non-transferred portion of the previously paid fee.

**8.6 Service Charge**
Service charges shall be as reflected in the Appendix A - Schedule of Fees and Charges. Service charges will begin when water service is turned on to the building.

Monthly service charges shall be suspended during any month(s) in which service through a newly constructed tap to a building prior to its occupancy has been turned off in accordance with Section 4.5.2 Turn-On/Turn-Off of Service. Service charges do not cease even if water turn off has occurred due to non-payment of monthly service charges, or for any other reason.

**8.7 Amended Tap Fees**
In those situations where a prospective user applies for a permit for service to a structure or use not defined in Section 8.4 Classification of Customers; or where, in the District's opinion, the structure represents a classification not contemplated in the establishment of the previously defined tap fee, the District shall establish a fair, reasonable, and equitable tap fee for the property.

**8.8 Amended Service Charges**
In those situations where, in the Board of Directors or District Manager's sole discretion, the service charges shown in Appendix A do not represent a fair, reasonable, and equitable charge for the intended use, the Board of Directors or District Manager may adjust the rates.

**8.9 Payment of Service Charges**
The policy of the District is to bill water and sewer service charges on a bi-monthly basis.

When a condominium or homeowners' association exists for a number of units receiving service from the District, the association shall receive one invoice per meter. The District will not bill individual customers within a multi-unit project without separate meters,

curb stops, shut-off valves, and services lines. The District shall have the right to issue only one bill for a multi-unit structure or development. Any structure serviced by a single service line with more than one Residential Unit which are not separately metered, shall establish one responsible party for water and sewer bills.

The customer shall pay to the District on the due date the full amount of that statement. If the customer believes the billing statement is in error, the customer must file a notice to the District of the presumed error, and request a clarification from the District. Upon review by the District and resubmittal and/or revision of the statement, payment shall be due no later than fifteen (15) days from the billing date of the resubmitted statement.

**8.10 Penalty for Late Payment**

Any time a customer is delinquent in payment (has an outstanding balance past the due date) of any charges due the District, the District shall assess a $15.00 (fifteen) penalty per month. The District shall further have the right, in its sole discretion, to terminate service to any customer who becomes thirty (30) days or more delinquent in payment for scheduled services; termination of service will follow the opportunity for a hearing as outlined in ARTICLE IX - HEARING AND APPEAL PROCEDURES.

The District shall assess to any customer who is late in payment of his account, all legal, court, disconnection, and other costs necessary to or incidental to the collection of the account.

Until paid, all such fees, rates, penalties, or charges shall constitute a perpetual lien on the property served. Any such lien may be foreclosed in the same manner as provided by the laws of Colorado for the foreclosure of mechanics' liens.

**8.11 Foreclosure Proceedings/Attorney's Fees**

After other efforts (letters, posted notices) to collect delinquent payments of any fee or charge imposed by the District under these Rules, Regulations, and Policies and/or Colorado law are exhausted, the District may initiate foreclosure proceedings as provided for by C.R.S., Section 32-1-1001(l)(j), as amended. In the event the District shall commence a foreclosure proceeding to collect any payments due and payable to the District, the party being foreclosed shall be charged all costs incurred in connection with the foreclosure proceedings including, but not limited to, reasonable attorney's fees which the court shall tax as a part of the costs of the proceedings. In the event payment is made by the customer prior to the foreclosure sale, the attorney's fees and all other fees outstanding against the account and relating to the subject property, must be paid as a precondition to the resumption of service to the property.

**8.12 Certification of Amounts to County Treasurer**

In addition to any other means of collecting delinquent fees, rates, tolls, penalties, charges, or assessments made or levied solely for water, sewer, or water and sewer services (including charges for availability of such service), the District may certify the delinquent amounts the County Treasurer for collection in the same manner as property taxes, in accordance with the provisions of statute C.R.S., 32-1-1101(e), as amended. The

District and County Treasurer shall charge a fee for the administrative costs of this collection method. This fee shall be added to all delinquent amounts, including other penalties and interest charges, before certification.

# Article IX - Hearing and Appeals Procedures

**9.1 Application**
The hearing and appeal procedures established by this Article shall apply to all complaints concerning the interpretation, application, or enforcement of the Rules, Regulations, and Policies of the District, and contracts related thereto, as they now exist or may hereafter be amended. The hearing and appeal procedures established by this Article shall not apply to the following complaints:

1. Complaints that arise with regard to personnel matters. These complaints shall be governed exclusively by the District's personnel rules.

2. Any other complaint which does not concern the interpretation, application, or enforcement of the Rules, Regulations, and Policies of the District, or contracts related thereto.

**9.2 Initial Complaint Resolution**
Complaints concerning the interpretation, application, or enforcement of Rules, Regulations, and Policies of the District must be presented to the Board of Directors or District Manager, or his designated representative. Upon receipt of a complaint, the Board of Directors or District Manager or his representative shall make a full and complete review of the allegations contained in the complaint, and shall take such action and/or make such determination as may be warranted. The complainant shall be notified of the action or determination by mail within twenty (20) days after receipt of the complaint.

**9.3 Hearing**
In the event the decision of the Board of Directors or District Manager or his representative is deemed unsatisfactory by the complainant, a written request for hearing may be submitted to the Board of Directors or District Manager within twenty (20) days from the date written notice of the decision was mailed.

If receipt of the request is timely and if all other prerequisites prescribed by these Rules, Regulations, and Policies have been met, the Board of Directors or District Manager or an appointed hearing officer shall conduct a hearing at the District's convenience. Every effort will be made to conduct the hearing within twenty (20) days after the receipt of the request. The hearing shall be conducted in accordance with and subject to all pertinent provisions of these Rules, Regulations, and Policies.

**9.4 Conduct of Hearing**
At the hearing, the Board of Directors or District Manager or appointed hearing officer shall preside. The complainant and representatives of the District shall be permitted to appear in person, and the complainant may be represented by any person of his choice, including legal counsel.

The complainant or his representatives and the District representatives shall have the right to present evidence and arguments; the right to cross-examine any person; and the right to oppose any testimony or statement that may be relied upon in support of or in opposition to the matter complained. The Board of Directors or District Manager or hearing officer may receive and consider any evidence which has probative value commonly accepted by reasonable and prudent persons in the conduct of their affairs. The Board of Directors or District Manager or hearing officer may ask questions of any representative in order to clarify further an issue relevant to the complaint.

The Board of Directors or District Manager or hearing officer shall determine whether clear and convincing grounds exist to alter, amend, defer, or cancel the interpretation, application, and/or enforcement of the Rules, Regulations, and Policies that are the subject of the complaint. The decision shall be based upon evidence presented at the hearing. The burden of showing that the required grounds exist to alter, amend, defer, or cancel the action shall be upon the complainant.

**9.5 Findings**

Subsequent to the hearing, the Board of Directors or District Manager or hearing officer shall make written findings and an order disposing of the matter and shall mail the findings and order to the complainant no later than twenty (20) days after the date of the hearing.

**9.6 Appeals to the Board of Directors**

In the event the complainant disagrees with the findings and order of the Board of Directors or District Manager or hearing officer, the complainant may, within twenty (20) days from the date of mailing of the findings and order, file with the District a written request for an appeal to the Board. The request for an appeal shall set forth, with specificity, the facts or exhibits presented at the hearing upon which the complainant relies and shall contain a brief statement of the complainant's reasons for the appeal. In response, the Board of Directors or District Manager or hearing officer shall compile a written record of the hearing consisting of:

1. Minutes of the hearing;

2. All exhibits or other physical evidence offered and reviewed at the hearing; and

3. A copy of the written findings and order.

The Board of Directors or District Manager or hearing officer may submit additional written comments that further clarify the hearing findings and order in response to the request for appeal.

The Board shall consider the complainant's written request for appeal and the written record of the hearing at the next regularly scheduled meeting held not earlier than ten (10) days after the filing of the complainant's request for appeal. Such consideration shall be limited exclusively to a review of the record of the hearing, any written clarifying

comments by the Board of Directors or District Manager or hearing officer, and the complainant's written request for appeal. No further evidence shall be presented by any party to the appeal and there shall not be the right to a hearing de novo before the Board of Directors.

### 9.7 Board's Findings

The Board shall make written findings and issue an Order concerning the disposition of the appeal. A notice of the decision shall be sent by mail to the complainant within twenty (20) days after the appeal hearing. The Board of Directors' findings shall be final.

### 9.8 Notice

A complainant shall be given notice of any hearing before the Board of Directors or District Manager, the hearing officer, or before the Board, by mail at least ten (10) days prior to the date of the hearing, unless the complainant requests or agrees to a hearing in less time, or to a waiver of formal notice. Notice is deemed given when placed in regular, postage prepaid U.S. mail.

# Appendix A - Schedule of Fees and Charges

**APPENDIX A**
**LOUVIERS WATER & SANITATION DISTRICT**
**SCHEDULE OF FEES AND CHARGES:**
**https://louvierswsd.colorado.gov/**

1. Water Meters

Meter sizes for all applications shall be determined by the District. The appropriate water meter shall be purchased from the District for new structures. Once installation of the meter has occurred, the District shall inspect the installation for compliance with District rules prior to water turn on.

2. Water Service Charges and Operations and Improvements Fees

Water Service Charges and Operations and Improvements Fess are billed every two months.

For metered consumption, the usage rate is adopted annually and posted on the District's website and in the District's budget.

3. Sewer Fees and Operations and Improvements

Sewer Fees and Operations and Improvements Fess are billed every two months. The usage rate is adopted annually and posted on the District's website and in the District's budget.

4. Tap Fee Rates: Set on December 24th, 2007 by Public Utilities Commission Decision

Water and Sewer: $8800 Single Bath, $9800 2 or more baths

5. NSF Charge: $25.00, but may be modified at any time by the District.

6. Final Bill Charge: $50.00, but may be modified at any time by the District.

7. Hydrant Meter Permit Fees

8. Permit Fee. Paid at the time of issuance of permit. $25.00, but may be modified at any time by the District.

9. Hydrant Meter Damage Deposit (if applicable). $1,000.00, but may be modified at any time by the District.

# Appendix B - Water and Sewer Service Line Construction Specifications

## CONSTRUCTION SPECIFICATIONS

### GENERAL REQUIREMENTS:

1. Rules & Regulations
The applicant, contractor, and customer are responsible for knowledge and compliance with these provisions of the Rules & Regulations. The requirements set forth in the latest edition of the *Perry Park Water and Sanitation District Standards and Specifications* shall apply for information omitted in these Rules, Regulations, and Policies.

These provisions are developed to insure that the service line extension to the water distribution and sewage collection systems is constructed in a manner not to impact adversely the total system.

Perry Park
Water & Sanitation District

# STANDARDS AND SPECIFICATIONS

## INDEX



Effective May 19, 2021, Resolution 21-038

Perry Park
Water & Sanitation District

# DIVISION 100

# GENERAL STANDARDS AND SPECIFICATIONS

## Part I – General

### 1.01 Scope

A. Definitions:

The meaning of the following terms used herein shall be as follows:

1. Board: "Board" and "Board of Directors" mean the Board of Directors of the District.

2. Constructor: "Constructor" means the landowner, developer, sub-divider or agency paying for the construction of lines and other facilities.

3. Contractor: "Contractor" means any person, firm or corporation authorized by the District to perform work and to furnish materials within the District.

4. Developer: "Developer" means any person or entity who owns land and/or is subdividing land, for resale and/or is seeking land served by the District, whether or not such land is included within the District's boundaries.

5. District: "District" means the Perry Park Water and Sanitation District, with principal place of business at 5676 W. Red Rock Drive, Larkspur, Colorado 80118.

6. District Engineer: "District Engineer" means that person or firm that has been authorized by the District to perform engineering services for the District.

B. The Perry Park Water and Sanitation District has the responsibility for oversite of construction, operation and maintenance of the water distribution, wastewater collection, and District treatment systems within the District. It is necessary that the District review and approve plans and specifications and issue permits for proposed extensions of or changes to the water distribution system and/or wastewater collection system prior to any construction. These standards and specifications have been compiled to ensure that plans and specifications are reviewed and approved by the District, that uniformity exists in construction of the water and wastewater systems, and that approved as-construction (as-built) drawings are furnished for operation and maintenance of completed facilities.

C. Construction of main line extensions and/or facilities as specified within Divisions 100, 200, or 300 of these Standards and Specifications may not be initiated without having first executed District main line extension agreements as described in the District's Standards and Specifications.

D. Design and construction of water distribution and wastewater collection main lines and service lines within the District shall meet or exceed the minimum requirements as set forth herein.

## 1.02 Pre-Construction Approval Requirements

A. Service feasibility studies are required by the District for all new applications for service which require a main line extension. A feasibility study can be requested by a landowner or Developer. The feasibility study shall be prepared at the expense of the requestor (either the landowner or the Developer). An initial deposit, determined on a case by case basis by the District, is required for all feasibility studies. Reference Feasibility Study Guidelines available from the District for more information. The Board of Directors is required to approve the feasibility study prior to moving into design phase.

B. All design calculations, plans and specifications for proposed wastewater or water systems and recorded plat of area shall be submitted to the District for review and approval. The District will provide submitted documents to the District's Engineer for review. If there are errors or comments to the submitted documents, District Engineer will return comments. The process will repeat until no comments remain by either District or District Engineer. When the submitted documents are acceptable to District and District Engineer, documents will be recommended to the Board of Directors for final approval. All associated review fees are the responsibility of the Developer.

C. After the Board approval, three (3) hard copy sets and one electronic (PDF) set of plans and specifications incorporating all corrections and/or suggested revisions shall be submitted to the District. The Developer's/Constructor's Registered Professional Engineer shall submit the required sets to the County Public Works Department for approval of work to be performed in County right-of-away.

D. No construction will be permitted until all required approvals and permits are obtained and all associated fees have been paid. Provide District with copies of approvals from County and any other required approval entities.

## 1.03 Plans and Specifications

A. Three (3) complete hard copy sets and one electronic (PDF) set of plans and specifications covering proposed construction shall be submitted to the District for approval.

B. Plans shall consist of a general plan or layout of the adjacent areas, which might be affected, showing either spot ground elevations or contour lines sufficiently to correctly show the existing surface topography, together with plan-profile drawings covering individual water distribution and wastewater collection main lines. Plans shall be drawn at a scale of not less than 1" = 50. Plans shall be prepared on 24" X 36" or 22" X 34" size sheets. Detail or supplement drawings to accompany plans shall be drawn on 11" X 17" size sheets. Plans shall show the size, location, and elevation of existing water distribution and wastewater collection main lines and facilities to which the proposed construction will connect. Elevations shall be as established by the USGS datum. The location of other existing utilities which might be affected by the proposed

construction shall be shown. The existing and final surface grades shall be clearly indicated.

1. Profile drawings shall be submitted to show location of required air vents and blow-offs. Profile plans of water distribution and wastewater collection lines shall be drawn at a scale of not less than 1" =50' horizontal and 1" =5' vertical.

C. Specifications covering the materials and requirements of construction shall be submitted with the plans when presented for approval. Specifications covering the materials, their suitability for local conditions, including soil characteristics, topography, system loads, etc., and requirements of construction shall be submitted with the plans when presented for approval to the District. In lieu of a separate specification manual, materials and construction requirements may be included on the plans dependent upon the extent and complexity of the proposed water or wastewater main line and/or facility construction.

D. Upon completion of construction of water distribution, wastewater collection, and/or treatment facilities, as-constructed (as-built) drawings shall be submitted to the District's Engineer for review and approval prior to submitting three (3) original signed copies and one electronic (PDF) copy. These drawings are to be prepared by or under the supervision of a Registered Professional Engineer and each copy is to contain an original signature of the responsible engineer. Drawings shall show exact location of all main lines and appurtenances. In addition, all as-constructed (as-built) drawings shall include the following information:

1. Distance between water or wastewater main line and other utilities
2. Street names and widths
3. All mains and sizes
4. Materials of main lines
5. Distances from property lines
6. Block and lot numbers
7. House numbers
8. Measurements from main line to stub-out end. Ends of stub-outs must be tied into permanent reference points and elevations shown.
9. Size of water or wastewater taps
10. Orientation of north
11. The scales must be the same scale as those required for construction drawings (1" = 50')

12. Original signature and license number of certifying registered Professional Engineer.

13. Fire hydrant locations

14. Valve locations

15. Distance between fittings

16. All dead ends accurately reference to permanent reference points

17. All tapping sleeves, taps, and/or saddles shall be shown and type indicated

18. All couplings shall indicate type

19. Location of all bends (including vertical bends)

20. All invert and top of pipe and manhole ring elevations

21. Distances between manholes

F. Guarantee/Warranty

1. The developer of land within the District shall require his engineer to insert into the specifications on construction of water and/or wastewater main lines and facilities the following paragraph:

"All water and wastewater main lines and facilities shall be guaranteed to the Perry Park Water and Sanitation District for one year against faulty workmanship and material, supported by a bond acceptable to the District. The guarantee shall include the prompt repair or reimbursement for all labor, materials, workmanship, backfill and other items directly related to correction of defects in said main lines and facilities."

2. Evidence of the guarantee shall be furnished to the District prior to beginning of construction.

## 1.04 Construction

A. No person other than an agent or a contractor of the District shall uncover, make any connection with, or open into, use, alter, or disturb any District water or sewer system component or appurtenance, without a written permit from the District. No work shall commence until a permit is issued by the Perry Park Water and Sanitation District to the Contractor. The Contractor or Constructor shall obtain all other permits at no expense to the District.

B. A preconstruction meeting is required with the District, District Engineer, and District's construction agent at least 7 days prior to commencement of construction. The District, all other utilities, and affected agencies shall be notified at least 48 hours (exclusive of holidays and weekends) prior to commencement of planned construction and before restarting whenever construction is interrupted for any reason.

C. Submittals shall be provided to the District for approval prior to product installation.

D. All District water and sewer system infrastructure will be field located prior to construction. Connection locations to existing infrastructure is required to be potholed prior to excavation near the existing infrastructure.

E. The District shall be notified 48 hours prior to inspections, testing and connections.

F. All permits will expire in twelve months. Constructor must complete work for which permits have been issued within this period or apply to the District for a new permit.

G. The Contractor shall maintain access to the site and facilitate inspections by District's representative/agent.

H. The District's representative/agent shall have the authority to halt construction when, in his opinion, these specifications or standard construction practices are not being followed. Whenever any portion of these Specifications is violated, the District, by written notice, shall order further construction to cease until all deficiencies are corrected, at no cost to the District.

I. All water distribution and wastewater collection main lines and facilities shall be installed in public right-of-way or easements. All water main lines and facilities located, constructed, or placed within such rights-of-way or easements to be attached to the District's main lines and facilities shall become the property of the District upon completion, testing and final acceptance in writing by the District. Water or wastewater main lines and facilities shall not be approved/accepted by the District until Constructor installing the same shall convey and transfer title to such mains and facilities (including land or rights-of-way or easements to use said land for the construction, use, maintenance, repair, replacement and enlargement of said mains and facilities) by a conveyance in such form as shall meet the approval of the District's attorney. The cost of furnishing satisfactory title to all land, easements and/or rights-of-way shall be borne by the Constructor conveying same.

J. As-Built drawings shall be submitted within sixty days after completion of construction.

1. Maintain at site a set of clear, dry, legible set of plans showing in red the information required in this section. Record information as construction progresses.

2. Make available to the District's representative/agent during on-site visits these "Marked-up" plans.

**1.05 Contractor Guarantee and Warranty**

A. Evidence of the guarantee by bond acceptable to District shall be furnished to the District prior to final acceptance and shall not be approved until received.

B. Warranty. The Main Installer warrants that for a period of one year and the Service Line Installer warrants that for a period of one year, the water and/or sewer main and

service line installations shall be free from defects in materials or workmanship, and be fit for the purpose for which they were constructed.

C. Repairs. The Service Line Installer shall be responsible for promptly completing all repairs and maintenance of its water and/or sewer service line installations required on account of defective, damaged, flawed, unsuitable, nonconforming workmanship or materials.

If at any time prior to the expiration of the one year warranty period, the Perry Park Water and Sanitation District notifies the Service Line Installer of any defects or deficiencies with the water and/or sewer service line installations that are not deemed an emergency by the Perry Park Water and Sanitation District, the Service Line Installer shall repair or cause to be repaired any such defects or deficiencies within 48 hours of the Perry Park Water and Sanitation District's notification. In the event the Service Line Installer fails to make such repairs within such 48 hour period or, if such repairs cannot reasonably be accomplished within such 48 hour period and the Service Line Installer has not begun diligent efforts to make such repairs within such 48 hour period, the Perry Park Water and Sanitation District may, at its option, proceed to repair or cause the repair of the defects at the Service Line Installer's cost and expense, and recover from the Service Line Installer all damages caused thereby, including (without limitation) the cost of any and all incidental construction, administrative, legal or engineering expenses incurred by the District to complete such work. The Perry Park Water and Sanitation District's right to correct defects and deficiencies shall not give rise to a duty on the part of the Perry Park Water and Sanitation District to make such corrections for the benefit of the Service Line Installer or other persons or entities.

D. Emergency Repairs. In the event of emergency repairs which, in the opinion of the Perry Park Water and Sanitation District, must be made immediately in order to avoid or mitigate serious damage or loss or to maintain a reasonable level of water or sanitary sewer service, the Perry Park Water and Sanitation District may make such emergency repairs without prior notice to Service Line Installer and at Service Line Installer's cost and expense, but the Perry Park Water and Sanitation District shall give the Service Line Installer notice thereof as soon as reasonably possible to the Service Line Installer's contact information as included on the Service Line Installer List and Tap Application & Permit. If the Service Line Installer fails to respond or otherwise communicate with the Perry Park Water and Sanitation District within two (2) hours of the Perry Park Water and Sanitation District giving notice of an emergency event, the Perry Park Water and Sanitation District may, at its discretion, suspend or revoke the Service Line Installer's status as an Approved Service Line Installer.

**1.06 Traffic Regulations**

A. Conform to "Manual on Uniform Traffic Control Devices", U.S. Department of Transportation, or applicable statutory requirements of authority having jurisdiction.

B. At least one (1) lane on roads shall be kept open at all times. Traffic lanes must be reopened during non-working hours, except where approved by the County.

C. Private driveways shall not be blocked overnight.

D. Notify the Larkspur Fire Protection District, Sherriff's Department, Public or School Bus Service, and other emergency or public services that may be affected by impedance of traffic due to construction activities. Notify adjacent property owners, Douglas County Public Works and others as may be required.

**1.07 Final Project Acceptance Requirements**

A. Prior to project acceptance by the District, the following shall be provided to and approved by the District.

1. As-Constructed Drawings (As-Builts)

2. Guarantee/Maintenance Bond

3. Written acknowledgement of acceptance of warranty requirements

4. Shop Drawings – Submittals

5. Test Results

6. Permits

7. Operation and Maintenance Data

8. Written approval, acceptance and conveyance by applicable regulatory agencies, holders of applicable permits and property owners where easements have been obtained.

9. Installation of permanent reference marks (e.g. painted posts with painted reference distances) for all valves, manholes, and other buried operable/accessible facilities.

10. Others that may be required by the District.

END OF SECTION

Perry Park
Water & Sanitation District

# WATER DISTRIBUTION SYSTEM

## Division 200

## INDEX



Effective May 19, 2021, Resolution 21-038

Perry Park
Water & Sanitation District

# DIVISION 200

# SECTION 201

# MINIMUM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

## Part I – General

### 1.01 Scope

A. All water distribution system construction within the Perry Park Water and Sanitation District shall be accomplished in accordance with the requirements of these Specifications.

B. All construction activities shall comply with local and state codes and regulations.

C. All permitting, submittals, notifications, inspections, guarantees, bonds, drawings, specifications, and traffic regulations shall conform to Section 100 of these specifications.

## Part 2 – Design

### 2.01 General

A. Water distribution system main line design shall conform to the requirements of the State of Colorado "Design Criteria for Potable Water Systems," latest revision, by the Colorado Department of Public Health and Environment, or as specified herein, whichever is the more stringent.

### 2.02 Design Flow

A. All water main lines including those not designed to provide fire protection, shall be sized by a hydraulic analysis based on flow demands and pressure requirements prepared by the District's Engineer.

B. The normal design working pressure in the distribution system shall not be less than 35 psi. The system shall be designed to maintain a minimum pressure of 20 psi at the ground level at all points in the distribution system under all conditions of flow.

C. Fire flow requirements shall be 1000 gallons per minutes (gpm) for two hours in single – family residential areas.

D. The need for pressure reducing valves on a main line shall be determined on a case by case basis by the District. Individual service connections will require pressure reducing valves prior to the meter.

E. Future flows shall be considered in the hydraulic analysis and in determining water main line size.

**2.03 Water Distribution Main Lines**

A. No primary main line shall be less than 8".

B. Fire hydrants shall be fed by a minimum 6" fire hydrant service lateral from an 8" or larger main line.

C. 8" dead-end mainlines shall not exceed 400 feet of pipe.

D. Water distribution main and water service lines shall be provided with a minimum depth of cover of 6 feet below existing or planned finished grade whichever provides for the greater final depth.

E. Materials for water distribution main line construction shall conform to Section 202, Part 2 of these Standards. Used materials will not be accepted.

F. Water distribution main lines shall be located at least 10 feet horizontally, measured from outside of pipe to outside of pipe, from any existing or proposed sewer, storm or wastewater, when installed parallel.

G. When the water main line crosses a wastewater main line, the water main line must be laid above the wastewater main line, with a clearance of at least 18". When this is not practical, the wastewater main line shall be concrete encased 10 feet each side of the water main line.

H. Surface water crossings present special problems which shall be reviewed with the District Engineer before final plans are prepared or approved.

I. There shall be no connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the District's system. No individual wells shall be connected to a customer that is also connected to the District's system.

J. Service lines must be installed prior to pressure testing.

K. All hydrants, plugs, caps, tees and bends dzeflecting 11 ¼ degrees or more shall be installed with a concrete thrust block bearing against undisturbed soil.

L. All water main bends, caps, plugs, and tees shall be installed with mechanical restraints in addition to thrust blocks.

M. The need for blow off or drain valves at low points and air vacuum release valves at high points will be reviewed on a case by case basis. In no case will a dead end main line be accepted without a blowoff or hydrant for flushing out the distal end.

N. All water main lines shall be generally located on the higher side of the street near the roadway shoulder or in the easement along the property line.

O. Fire Hydrants

1. Fire hydrants shall be spaced and located as follows:

   a. At each intersection.

   b. When on a divided roadway, a hydrant shall be placed on each side of the roadway.

   c. In residential areas, fire hydrant spacing shall be no greater than 500 feet along the right-of-way

   d. Fire hydrant locations may be subject to review by the Larkspur Fire Protection District.

   e. Where main lines are installed outside of developer's area and these outside areas are presently not developed, then tees, plugs, and thrust blocks shall be installed at the spacing indicated above to accommodate future fire hydrant installation.

2. Fire hydrants must be fed by a minimum 6" supply line.

3. All fire hydrant assemblies that include bends, plugs, and/or tees shall be installed with mechanical restraints in addition to thrust blocks.

4. Fire hydrants shall conform to the material specifications in Section 202, Part 2 of these standards. Used materials will not be accepted.

5. Fire hydrant laterals shall be provided with a minimum depth of cover of 6 feet below existing or planned finished grade whichever provides for the greater final depth.

6. All hydrant installations must be on dedicated easements or public rights-of-way and are to be owned and maintained by the Perry Park Water and Sanitation District.

P. Valves

1. Valves shall generally be spaced such that no single break shall require more than 600 feet, one block length, or two fire hydrants, whichever is less, to be out of service during repairs except for major transmission mains where

longer spacing will be allowed. All distribution mains connecting to larger supply mains must include valves at the connection.

2. Valves generally shall be located at street intersections in line with an extension of a property line.

3. Valves shall conform to Section 202, Part 2 of these Standards.

4. All valves shall be installed with mechanical joint restraints.

Q. Tracer Wire

1. Tracer wire shall be installed on all water main lines and service lines. Tracer wire shall be taped directly to the pipe. Tracer wire shall be continuous between fire hydrants and services. Complete splices as required to maintain continuous connection.

2. Tracer wire test stations shall be installed at all curb stops and at all fire hydrants.

**2.04 Water Service Lines**

A. Service taps and construction of all service lines shall be done in accordance with the Rules and Regulations of the District and the District approved Site Plan.

B. Minimum service line allowed shall be ¾" diameter.

C. The Contractor shall keep an accurate record of service connections as to location, depth, size, and other pertinent data. Tap locations shall be tied to houses, other existing structures, or lot corners on the As-Built Drawings.

D. Service lines shall be installed using either open cut trench excavation or directionally drilling service line from the lot to the water main. If directional drilling is selected for installation, the Customer is responsible for service line ownership to the main line.

E. Curb stops with box shall be located at property line, and unless otherwise specified, within dedicated easements and where it is reasonably accessible for District personnel. The curb stop box shall be brought to 4-inches above final grade following lot construction and landscaping.

1. For directional drilled service lines, the service line shall be excavated at the property line and a curb stop and meter pit installed per District Standard Details. Extend tracer wire installed with the service line to the surface at the curb stop.

F. One service line is required per each Residential Dwelling. Each service line shall include a corporation stop, curb stop, and a water meter per District Standard Details.

G. Service lines shall generally be installed perpendicular to the property lot line.

H. Service lines shall be installed approximately 15 feet from the property line. Wastewater service lines shall be installed on the low side of the lot and spaced 10 feet from the water service line. Install water service lines on the same side of the lot as the wastewater service line.

**2.05 Final Project Acceptance Requirements**

A. Before final acceptance of any water main line, the following inspections and tests shall be performed by the developer's Contractor and witnessed by the District and the District Engineer.

1. Hydrostatic Pressure tests

a. Hydrostatic Pressure tests shall be performed by the Contractor and witnessed by the District Engineer. Coordinate with the District at a minimum of 48 hours prior to performing Hydrostatic Pressure tests.

2. Contractor shall complete water line disinfection and coordinate high-chlorination, low-chlorination, and bacteriological samples with the District. The District will complete high- chlorination, low-chlorination, and bacteriological tests. Provide 48 hours notification when scheduling tests with the District.

3. During the final project walkthrough, the Contractor shall provide equipment and staff to confirm that all valves (main line, curb stops, and fire hydrants) and service connections are operational. Valve box and curb stop box cover accessibility and alignment shall be checked during final walkthrough.

B. Water service lines shall be inspected by District personnel before backfilling. If a water service line is installed utilizing directional drilling method, the water service line requires hydrostatic pressure testing be performed by the Contractor and witnessed by a representative from the District. Coordinate with the District at a minimum of 48 hours prior to performing Hydrostatic Pressure tests.

**Part 3 – EXECUTION (NOT USED)**

END OF SECTION

Perry Park
Water & Sanitation District

# DIVISION 200

# SECTION 202

# SPECIFICATIONS FOR WATER DISTRIBUTION SYSTEMS

## Part I – General

### 1.01 Scope

A. All water distribution main line and water service line construction within the Perry Park Water and Sanitation District shall be accomplished in accordance with the requirements of this specification.

B. All construction activities shall comply with local and state codes and regulations.

C. All permitting, submittals, notifications, inspections, guarantees, bonds, drawings, specifications, and traffic regulations shall conform to Section 100 of these specifications.

## Part 2 – Products

### 2.01 General

A. The materials used in this work shall be all new and shall conform to the requirements for class, kind, size and material as specified below.

B. Pipe shall be clearly marked with type, class, and manufacturer. Markings shall be legible and permanent under normal conditions of handling and storage.

C. The contractor will submit project submittals and shop drawings which must be accepted by the Developer's/Constructor's Registered Professional Engineer and forwarded to the District's Engineer for approval.

D. When required by the District, the contractor shall furnish certification by the manufacturer that materials comply with the applicable specifications.

### 2.02 Water Main Lines

A. Ductile Iron Pipe:

1. Ductile iron pipe shall be manufactured and tested in accordance with ANSI A21.51 (AWWA C151) and ANSI A21.50 (AWWA C150) in the latest revision thereof. Cement mortar lining and bituminous coatings shall conform to ANSI 21.4 (AWWA C104) or latest version thereto. Minimum

class shall be 52. Bituminous coating applied to the outside shall be approximately 1 millimeter thick.

a. Push-on joints shall be single rubber gasket in accordance to ANSI A21.11 (AWWA C111), latest revision.

b. Mechanical joints shall be a bolted joint in accordance with ANSI A21.11 (AWWA C-111), latest revision.

c. Flange joints shall be in accordance with ANSI A21.10 (AWWA C110) latest revision. Flanged joints shall be faced and drilled to ASA standards.

d. All ductile iron pipe and fittings shall be adequately encased in polyethylene wrap regardless of soil resistivity test results.

B. PVC Pipe:

1. PVC pipe shall conform to the requirements of AWWA C900 (ductile iron pipe dimensions) latest revision or higher, per the District Engineer's recommendation. Minimum Class 305 (DR 14). PVC pipe shall bear the NSF Seal of Approval.

a. Joints shall be rubber-ring gasketed that conform to the requirements of ASTM F-477

2. PVC Pipe for potable water distribution shall be blue in color.

C. Fittings:

1. Fittings shall be cement mortar-lined cast iron of a minimum pressure rating of 250 psi and shall be in accordance with ANSI A21.10 – (AWWA C110) or ANSI A21.53 – (AWWA C153) or the latest version thereto.

a. Mechanical joints shall be a bolted joint in accordance with ANSI A21.11 (AWWA C-111), latest revision.

b. Flange joints shall be in accordance with ANSI A21.10 (AWWA C110) latest revision. Flanged joints shall be faced and drilled to ASA standards. Flange joints shall not be used in a buried application.

c. All ductile iron pipe and fittings shall be adequately encased in polyethylene wrap regardless of soil resistivity test results.

d. For mechanical joints or flanges installed underground, bolts shall be Stainless steel or low alloy steel such as "Cor-Ten" or "US Alloy".

D. Fire Hydrants:

1. The fire hydrant operating mechanism shall be of the straight line type, direct from stem nut to inlet valve. The main valve and the drain valve shall be a unit assembly attached directly to the stem. The operating nut style and size must match those being accepted by the local fire agency. Bury length shall be as required to bring hydrant to finished grade.

2. The main valve shall be 5 ¼ inches and shall be constructed so the main valve can be removed without excavating the hydrant.

3. The drain valves shall automatically open when the main valve is closed, and close when the main valve is opened.

4. The hydrant bottom and standpipe shall be made of cast iron. The above-ground portion of the hydrant shall be painted yellow with a durable weatherproof paint, and the below-ground portion shall be painted with corrosion resistant varnish finish.

5. The hydrant shall have two (2) 2 ½ inch hose nozzles and one (1) 4 ½ inch pumper nozzle. The nozzles shall be bronze with smooth interior surfaces with bell-shaped entrances to effect minimum friction loss. The nozzles shall be threaded National Standard Threads. The nozzle caps shall be the nut type and shall be connected to the hydrant with chains.

6. The hydrant shall be designed so the upper section breaks off when struck by a car or truck, to prevent major damage to the hydrant.

7. Hydrants shall be one piece to correct bury depth. The use of extensions shall not be allowed.

8. The top of the hydrant shall be constructed to prevent water from entering and shall include an oil reservoir or grease fitting for thread lubrication.

9. Fire hydrants shall meet or exceed AWWA C502, latest revision. Hydrants shall be Waterous Pacer (Model Number 250). Yellow, Open Left, Six Foot Minimum cover, NST Specifications, no substitutions.

E. Valves and Boxes:

1. The following valves will be acceptable for use:

   a. Resilient Seat Gate Valve conforming to AWWA C-509, latest revisions

   b. Butterfly valve conforming to AWWA C-504, latest revision

2. All valves used shall open by turning left or counter-clockwise

3. Valve boxes shall be cast iron, 5 ¼ inch diameter adjustable valve boxes. The valve box shall be of the screw type and of sufficient length for the pipe bury

as specified. The cast iron cover shall be a deep socket type with the word "WATER" cast in the top side.

4. Air-vac valves shall be combination air release valves as manufactured by Clow, Apco, or approved equal.

**2.03 Water Service Lines**

A. Copper service pipe shall be seamless and suitable for use as copper underground service connections. Soft copper tubing shall conform to ASTM Class K Specifications and U.S. Government Type K Specification WW-T-799. The use of Ford Grip Joint Compression Couplings with locking gripper ring or a Comparable Grip Joint Compression Coupling is required on all joints.

B. High Density Polyethylene (HDPE) pipe shall be AWWA C901 DR 9, pressure rated to 250 psi, unless otherwise required. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. The pipe shall be NSF 61 rated and suitable for potable water use. HDPE is allowed only after the meter pit for open trench installations. HDPE is allowed the entire length for directionally drilled service line except from the curb stop through the meter pit, which is required to be copper.

C. Curb stops shall be Ford B44 Series w/ compression type joint connections with locking gripper ring, or approved equal, for all curb stops.

D. Curb boxes shall be McDonald Box arch type 5601. Stationary rod and guide ring shall be required to bring the shut-off rod depth up to 3 feet or less.

E. Corporation stops shall be Ford FB1000 with compression type joint pipe and threaded on inlet end with AWWA Corporation stop thread or approved equal for all services.

F. Service saddles shall be double-strapped bronze.

1. Service saddles shall be used to connect small diameter service lines to main lines when shown on the Drawings. The saddle gasket shall be compressed between the saddle body and the main line by two (2) bronze straps which wrap around the main line and bolt through the saddle body. The service saddle shall be designed for a minimum working pressure of 200 psi.

   a. Manufacturer: Romac, Style 202B Saddle, or approved equal.

   b. Body: Cast from bronze in accordance with AWWA C800 and ASTM B 62. Body should be performed when used with ductile iron size PVC.

   c. Straps: (2) Silicon bronze per ASTM B 96, 2" wide per band providing uniform distribution of saddle load around PVC pipe.

   d. Nuts: Heavy Hex silicon bronze per Alloy Number C65100, 5/8-11 National Coarse.

e. Bolts: Silicon bronze per ASTM B 98, 5/8-11 National Coarse roll thread.

f. Gasket: Nitrile Butadiene Rubber with NSF 61 rating.

G. Meter Pits shall be 24-inch inner diameter. Meter pits shall be preformed fiber, no concrete meter pits allowed. Meter pits shall include 12" black cast iron lid as well as frost proof meter cover.

**2.04 Pipe Bedding**

A. All water main lines and service lines shall be bedded with granular materials. For water service lines installed utilizing directional drilling, bedding is required at all approach trenches and pits.

B. The following materials will be accepted:

1. Class #67 Bedding: This bedding shall consist of a durable crushed granular material with a well graded mineral aggregate mixture which will provide good stability. This bedding material is typically accepted in locations of swelling bedrock.

| Class 67 Gradation | |
|---|---|
| **Nominal Size** | **Percent Passing by Weight** |
| 3/4" | 90-100 |
| 3/8" | 20-55 |
| No. 4 | 0-10 |
| No. 8 | 0-5 |

2. Pipe Bedding Granular Material: Bedding meeting clean well graded sand or squeegee sand. Bedding material for service lines is required to meet this bedding material only. Meeting the gradation classification as follows:

| Pipe Bedding Granular Material | |
|---|---|
| **Nominal Size** | **Percent Passing by Weight** |
| 3/8" | 100 |
| No. 4 | 70-100 |
| No. 50 | 2-30 |
| No. 100 | 1-10 |
| No. 200 | 0-3 |

| Squeegee Sand Material | |
|---|---|
| **Nominal Size** | **Percent Passing by Weight** |
| 3/8" | 100 |
| No. 200 | 0-5 |

3. Natural Bedding: The existing soil bedding material is acceptable if service line is installed between April 1 and December 1. Rocks larger than 2" shall be removed from the bedding.

**2.05 Tracer Wire**

A. Tracer wire shall be 12 AWG insulated wire and color coded pe APWA uniform color code. Insulation shall be PVC with a minimum thickness of 0.060 inches.

B. Tracer wire test stations shall include cast iron locking lid marked "Test" with 15" ABS plastic box with 2-3/8" interior diameter.

C. Tracer wire splice kits shall be 3M Direct Bury Splice Kit DBR/Y-6.

**2.06 Marking Tape**

A. Marking tape must be purchased from the District.

**Part 3 – EXECUTION**

**3.01 General**

A. Furnish and install all pipe material and appurtenances, perform all testing, sterilization, cleaning to the lines and grades indicated on the drawings, record information on as-constructed drawings and maintain traffic barricades and construction site through course of work as specified herein.

B. Unload and handle pipes, fittings, and accessories so as to minimize the possibility of damage prior to installation.

C. No discolored, sun damaged, or weather damaged pipe will be accepted.

**3.02 Trenching, Backfill and Compaction**

A. General: All trenching shall be by open cut methods except where the presence of structures makes open cuts undesirable. In such instances, tunneling or jacking methods may be used providing written permission from the District is obtained prior to the use of such methods at each location. In no case will tunneling be permitted for distances greater than six (6) feet. When jacking is permitted, only persons experienced in that work using suitable equipment shall perform the jacking operation in no case shall excavating tools or equipment be allowed to precede the sleeve being jacked.

Trenches shall be excavated to the width necessary to permit the pipe to be laid and jointed properly and the backfill placed as specified, and as shown on the drawings included herein. The trench shall be excavated to the proper depth and the trench bottom shall be graded to provide uniform bearing and support for the joint to permit

the jointing to be performed properly and so that the pipe will be uniformly supported.

Whenever soil is encountered in the bottom of the trench that is incapable of supporting the pipe, such soils shall be removed and the trench backfilled and compacted to the proper grade with gravel bedding material. When rock is encountered in the bottom of the trench, the trench shall be over-excavated six (6) inches and backfilled and compacted to the proper grade with gravel bedding material. Not more than 400 feet of the trench may be left open at any time without approval in writing from the District and County.

The allowable width of the pavement removed for trench excavation shall be approved by the District and County. Trenches shall be excavated and maintained so that the horizontal distance from the top edge of the trench is not less than six (6) inches from the edge of the cut pavement.

B. Backfill and Compaction: All backfill material in trenches shall be compacted to a minimum of 95% of the maximum density as determined by ASTM Standard test D-698. The moisture content of the backfill material shall be at or above optimum moisture content when placed. Backfill on services lines outside of a driving surface and away from the main line trench shall be compacted to a minimum of 90%.

All backfill shall be brought up to equal height along each side of the pipe in such a manner as to avoid displacement. Wet, soft, or frozen material, snow, asphalt chunks, or other deleterious substances shall not be used for backfill.

From the bottom of the trench to twelve (12) inches above the highest point on the pipe, the backfill shall be compacted with hand-operated tamping equipment. The remainder of the backfill shall be placed in twelve (12) inch maximum lifts and may be compacted with motorized equipment of a size and type which will not injure the pipe.

Under no conditions will flooding or jetting be used as a means of compacting.

Backfill in proposed street areas shown by the drawings included herein shall be the same as that indicated above for backfill in trenches beneath pavements.

If driven sheet piling is used, it shall be cut off at or above the top of the pipe and the portion below the cut-off line shall be left in the ground.

Any settling of backfill at main lines, service lines, or meter pits shall be repaired by the Contractor under warranty and at no cost to the District.

C. Trench maintenance: Throughout the guarantee period, the Contractor and/or Constructor shall maintain and repair any trench settlement which may occur and shall make suitable repairs to any pavement, sidewalks, or other structures which may be damaged as a result of backfill settlement at no cost to the District.

D. Trench Dewatering: Where groundwater is encountered in the trench excavation, it shall be removed so that all pipe laying and other construction operations can be performed within the specifications. Water encountered in trench or manhole

excavations shall be removed by pumping, drained to sumps through sub drains or by other methods devised by the Contractor and acceptable to the District.

E. Bracing: The contractor shall provide bracing or alternate means of trench protection in accordance with all local, state and federal requirements including those adopted by the Occupational Safety Health Administration (OSHA). The District will not inspect for safety on the construction site nor will they be liable for means and methods used by the contractor. (Resolution 94-154, Adopted 7/20/1994)

F. Liability: Any structures which are disturbed shall be restored at no cost to the District. The Contractor shall proceed with caution in the excavation so that the exact location of underground structures, both known and unknown, may be determined, and the District shall not be held liable for the repair, or replacement when such structures are broke or otherwise damaged.

G. Soil Compaction Tests: Samples of representative embankment and structural backfill materials to be placed shall be tested to determine the maximum density and optimum moisture for these materials. Test for this determinate will be made using methods conforming to requirements of ASTM D-698. These test results shall be the basis of control for compaction effort.

The density and moisture content of each compact layer of embankment, structural and/or trench backfill will be determined in accordance with ASTM D-2167, or D-2922. Any material found to not comply with the minimum specified density shall be recompacted until the required density it obtained.

A minimum of one density test shall be performed:

1. Per 250 lineal feet of trench backfill or,

2. As required by the District or County.

All test results shall be submitted to the District for analysis and action, if necessary and shall become property of the District.

**3.03 Pipe Installation**

A. General: Proper implements, tools, materials, and facilities shall be provided and used for the execution of the work. Every precaution shall be taken to prevent foreign material from entering the pipe. If the pipe-laying crew cannot put the pipe in the trench and in place without getting earth in it, the District Engineer may require that before lowering the pipe into the trench, a tightly woven canvas bag of suitable size be placed over each end and left there until connection is to be made to the adjacent pipe. During laying operation, no debris, tools, clothing or other material shall be placed in the pipe. When pipe laying is not in progress, the open ends of the pipe and fittings shall be closed by a water tight plug or other means.

B. Pipe Laying: No pipe shall be laid when trench or weather conditions are unsuitable for such work.

C. Anchorage: Thrust blocking and restrained joints shall be provided on all pipes, tees, plugs, caps, valves, hydrants, and bends of 11-1/2 degrees or more. Such anchorage shall be constructed of concrete or of coated and wrapped tie rods.

D. Permissible Deflection of Joints: Wherever necessary to deflect pipe from a straight line either in a vertical or horizontal plane to avoid obstructions, or where radius curves are permitted, the degree of deflection shall be approved by the District's Engineer.

E. All fittings shall be wrapped with polyethylene plastic.

F. The minimum depth of cover shall be 6 feet to top of pipe.

G. Deviation for Utility Structures: Wherever existing utility structures, conduits, ducts, pipes or other obstructions to grade and alignment of the pipeline are encountered, they shall be permanently supported, protected, removed, relocated, or reconstructed by the Contractor through the cooperation of the Owner of the utility structure involved. Water main line locations shall be modified for future utilities where required.

There may be locations where the proposed water main line will cross existing sanitary wastewater main lines. At these crossings, a minimum 18-inch vertical clear separation shall be maintained, with the wastewater main line below the water line. Where the depth requirement over the proposed water main line does not allow a vertical clear separation of 18 inches above the existing sanitary wastewater main, the wastewater main line shall be concrete-encased for a minimum of 10 feet on each side of the proposed water main line and the proposed water main line shall be placed below the wastewater main line, maintaining a vertical clear separation of 18 inches.

H. Tracer Wire: Install with all water pipe, including service lines. Before completing backfilling, a tracer wire shall be taped directly on top of the pipe. The wire shall provide a continuous electrical conductor between fire hydrants. A tracer wire box shall be placed behind each fire hydrant and at each curb stop. Tracer wire boxes shall be added if required, so as to provide a maximum distance of 600 feet between tracer wire boxes on the new transmission main lines. Tracer wire boxes shall be added if required, so as to provide a maximum distance of approximately a town block on all other proposed water main lines. Each end of wire shall be brought up inside the tracer wire box to the ground surface and looped back with two (2) feet of wire free or fastened to the vertical metal rod inside the box. The wire shall be a minimum 12-gauge copper and shall be electrically continuous between tracer wire boxes.

In addition to tracer wire, where as described above, the Contractor shall install detectable tracer tape. Detectable tracer tape shall consist of a continuous aluminum foil core inseparable bonded on both sides with tough high-density cross-laminated plastic films pigmented in orange, blue, or other warning color. The tape shall be a minimum of 2 inches wide, imprinted with large contrasting words to warn of specific transmission line (i.e. buried water line below) which must repeat continuously for the entire length of the tape.

The tracer tape shall be installed above the centerline of all main lines. Future location of the tape will be by an inductive method, therefore, it is not required that the tape be spliced or that it be brought up inside valve boxes. The tape shall be placed in the trench during backfilling so as to be at the recommended depth below the finished ground surface for easy detection. The maximum depth of the tape shall be as recommended by the tape manufacturer, but in no case, shall it be buried less than 12 inches nor more than 24 inches below the finished ground surface.

I. All water main and water service lines shall have marking tape installed in trenches, between 12 to 24 inches above the pipe. Marking tape shall be placed in conjunction with tracer wire. Marking tape shall be in place at time of inspection.

**3.04 Directionally Drilled Water Service Lines**

A. Excavate approach trenches and pits as indicated in Section 3.02. Provide sump areas to contain drilling fluids.

B. Guide drill remotely from the ground surface to maintain alignment by monitoring signals transmitted from the drill bit. Monitor depth, pitch, and position of pilot bore. Adjust drill head orientation to maintain correct alignment.

C. Pipe Installation. Install reamer and pipe pulling head; select reamer with minimum bore diameter required for pipe installation. Attach pipe to pulling head and pull reamer and pipe to entry pit along pilot bore. Inject drilling fluid through reamer to stabilize bore and lubricate pipe. Protect and support pipe being pulled into bore such that pipe moves freely and is not damaged during installation. Do not exceed pipe manufacturer's recommended pullback forces. Install tracer wire continuously with each bore. Provide sufficient length of pipe to extend past termination point to allow connection to other pipe sections or allow transition to connect to alternate material. Maintain utility separation as indicated in 3.03.G. Allow minimum of 24 hours for stabilization after installing pipe before making connections to pipe. Mark locations and depth of bore with spray paint on paved surfaces and on wooden stakes on non-paved surfaces at 25-foot intervals. Upon completion of pipe installation, complete hydrostatic test of waterline.

D. The minimum depth of cover shall be 6 feet.

E. Install marking tape at all open pit locations.

F. Slurry Removal and Disposal. Contain excess drilling fluids at entry and exit points until recycled or removed from site. Remove drilling spoils from access pits. Do not discharge spoils into sanitary sewers, storm sewers, or other drainage systems.

G. Upon completion of drilling and pipe installation, remove drilling spoils, debris, and unacceptable material from approach trenches and pits.

**3.05 Connection of New Water Mains to Existing Water Main Lines**

A. Whenever possible, water main connections shall be made under pressure.

B. Prior to connecting to existing water mains, the District must be notified a minimum of 72 hours in advance of planned shutdown for approval. Shutdowns are not permitted on Fridays, Saturdays, or Sundays. Any residents who will be affected by the shutting off of water shall be given written advanced notice by the District as to when and for how long service will be interrupted. The notice shall be delivered at least 48 hours in advance of shut off and shall state the Contractor's name, address and telephone numbers (for both business and after-hours). All shut off times must be agreed to by the District prior to notices being issued and work must not be undertaken unless District personnel are present. Prior to connecting to existing water mains, the Contractor shall have all laborers, materials, and equipment ready to do the work, so as to keep the shutoff time to a minimum. As soon as possible after making the connections, the Contractor shall connect the new main as to prevent any contamination of the existing facilities. All new valves and fittings which cannot be disinfected by the standard chlorination method shall be sprayed internally and externally with a strong chlorine solution immediately before installation in to existing water main line.

The contractor shall construct temporary thrust blocks where necessary to expedite resumption of service in existing lines before permanent concrete thrust blocks have fully cured. Design of temporary thrust blocks shall be approved by the District Engineer before connection work begins.

**3.06 Setting Hydrants**

A. Hydrants shall be set so that at least the minimum pipe cover is provided for the branch supply line and the nozzles are at least eighteen inches (18") above finished grade. Each hydrant shall be blocked against the end of the trench with concrete, taking care to protect accessibility to bolts and to keep drainage holes open. Drainage shall be provided by installing gravel or crushed rock around the hydrant, and below the top of the hydrant to the point at least six inches (6") above the drain hole. All hydrants shall stand plumb with pumper nozzle perpendicular to the street. Parts of the hydrant below ground should be wrapped with polyethylene wrap, taking care not to cover up drainage holes.

Hydrants shall normally be set without the use of extensions. Extensions must be specifically authorized by the District before installation.

Immediately before installation of a hydrant, the following operations shall be performed:

1. The hydrant shall be thoroughly inspected.

2. The hydrant shall be thoroughly cleaned.

3. The hydrant shall be opened and closed as many times as may be necessary to determine if all parts are in proper working order, with valves seating properly and the drain valve operating freely.

**3.07 Setting Valves and Valve Boxes**

A. Valves and pipe fittings shall be set and jointed to new pipe conforming to the specified manner for cleaning, laying, and jointing pipe. Line valves shall be supported on blocks. All pressure tapping valves shall be supported on concrete blocks.

B. Valve boxes shall be firmly supported and maintained centered and plumb, over the wrench nut of the valve, with box cover flush with the surface of the finished pavement or at such other level as may be directed. Valve extension stems must be provided for valves installed with more than (6) feet of cover.

## 3.08 Hydrostatic Pressure Tests

A. After the pipeline is laid and blocked, each section as defined herein shall be hydrostatically tested. The procedure for hydrostatic tests shall be in accordance with AWWA C-651, latest revision. The minimum test pressures shall not be less than the pressure class of the pipe as specified, but in no case less than 150 pounds per square inch or the expected operating pressure or the pipe, whichever is higher. The required minimum test pressure shall be measured at the point of highest elevation. Maximum pressures shall be measured at the point of lowest elevation.

B. The Contractor shall provide all necessary equipment, additional valves and taps if necessary, and shall perform all work required in connection with the test at no cost to the District.

C. Prior to performing all hydrostatic pressure tests, the pipeline shall be completely filled with water by the District. Air shall be expelled by means of air relief valves, blow off valves, service connection or other means devised by the Contractor. Wherever necessary, taps shall be made at high points not provided with air reliefs; after expelling air, such taps shall be plugged as accepted by the District Engineer.

D. Test pressure shall be maintained without loss for a minimum of three (3) hours or until the test section is inspected and approved, whichever is the greater. Maximum leakage allowance during the test period shall be ten (10) gallons per day, per inch of inside diameter per miles of length.

E. In the event that leaks are found during hydrostatic pressure tests, or if it is not possible to maintain the test pressure without loss for the stipulated period, repairs shall be made and the test repeated until compliance is ascertained.

F. In the event that air is admitted to the pipeline after being expelled for the hydrostatic test, such air shall be removed prior to completion of the system and acceptance by the District. The air may be removed by methods described elsewhere. In no case shall the system be placed in operation prior the removal of the air.

G. Pipeline testing shall be conducted in increments as construction progresses. Increments in subdivisions, or other developed areas shall be coordinated with and acceptable to the District. Pipeline testing areas shall not exceed 2500 linear foot increments. Pipeline construction may occur simultaneously for the section while testing occurs.

## 3.09 Disinfection of Water Lines

A. Sterilized by chlorination in accordance with AWWA Standard C651, latest version thereto and as stated herein. Furnish all equipment, labor, materials, chemical tests for chlorine residual, and water for the proper disinfection of the water main lines.

B. Flush prior to chlorination as thoroughly as possible with the water pressure available. Sterilization of the water lines may be done simultaneously with hydrostatic testing where accepted by the District Engineer.

C. The chlorine-water mixture shall be made by the use of chlorine tablets or other method accepted by the District's Engineer. The chlorine tablets shall be used to obtain an initial dosage of 50 ppm or greater.

1. Chlorinated water shall be retained in the water main long enough to destroy non-spore forming bacteria. The period shall be at least 24 hours. After the chlorinated water has been retained for that period, the chlorine residual at the pipe extremities and at other representative points shall be at least ten (10) ppm. Should the disinfection procedure fail to produce satisfactory results, as evidence by chlorine residual, the chlorination procedure shall be repeated until acceptable results are obtained.

2. During the process of chlorinating the water mainlines, all valves and other appurtenances shall be operated while the water mainlines are filled with the heavily chlorinated water. Following chlorination all treated water shall be flushed from the water main lines by adding water at the ends. The chlorine residual after flushing shall be less than or equal to the chlorine concentration of water in the existing distribution system. Should the chlorine residual be greater than the chlorine concentration of water in the existing distribution system, flushing shall be repeated until satisfactory results are obtained.

## 3.10 Restoration of Street Surfaces

A. Asphalt and concrete replacement shall be done using materials and methods meeting or exceeding the Douglas County requirements. All pavement cuts shall be sharp-cut in a straight line prior to repaving.

B. On gravel road, the base shall be restored to its original condition.

END OF SECTION

Perry Park
Water & Sanitation District

# WASTEWATER COLLECTION SYSTEM

## Division 300

## INDEX



Effective May 19, 2021, Resolution 21-038

Perry Park
Water & Sanitation District

# DIVISION 300

# SECTION 301

# MINIMUM DESIGN STANDARDS FOR WASTEWATER COLLECTION SYSTEMS

## Part I – GENERAL

### 1.01 Scope

A. All wastewater collection system construction within the Perry Park Water and Sanitation District shall be accomplished in accordance with the requirements of these Specifications.

B. All construction activities shall comply with local and state codes and regulations.

C. All permitting, submittals, notifications, inspections, guarantees, bonds, drawings, specifications, and traffic regulations shall conform to Section 100 of these specifications.

## Part 2 – Design

### 2.01 General

A. Conform to the latest requirements of the Colorado Department of Public Health and Environment, Water Quality Control Division and to the District's existing Discharge Permit.

### 2.02 Design Flow

A. Sanitary wastewater main lines must be designed to carry the peak discharge and to transport suspended material so that deposits in the wastewater main line are precluded.

B. New wastewater systems shall be designed on the basis of an average daily per capita flow of not less than 100 gallons per day. This figure is assumed to cover normal infiltration, but an additional allowance should be made where conditions are unfavorable. Generally the wastewater main lines should be designed to carry, when running fully, not less than 400 gallons daily per capita for laterals and sub-main wastewater lines and not less than 250 gallons daily per capita for main, trunk, and outfall wastewater main lines. Per capita contributions are exclusive of sewage or other waste from industrial plants or commercial businesses.

### 2.03 Minimum Size

A. No public sanitary wastewater main line shall be less than 8 inches in diameter.

B. Minimum size of wastewater gravity service lines shall be 4 inches in diameter.

**2.04 Depth of Cover**

A. In general, sanitary wastewater main lines shall be designed of sufficient depth to permit floor drains from basements to be connected.

B. In no case shall sanitary wastewater main lines be designed from a depth of cover less than 36 inches without consideration given to ductile iron, or similarly protected wastewater line with or without insulation as circumstances may direct.

C. Proper consideration shall be given for load on the wastewater line because of width and depth of trench.

D. Services lines are required to be a minimum of 36 inches deep. In the condition where a individual sewer service forcemain is required, the service line is required to be a minimum of 6 feet deep.

**2.05 Alignment**

A. Wastewater main lines should be laid with straight alignment between manholes. Alignment tests such as “Lamping” must be conducted.

**2.06 Slope**

A. To prevent deposition of solids, all wastewater main lines should be so designed and constructed as to transport average wastewater flows at mean velocities of 2.0 feet per second, based on a reasonable formulation and roughness factor. The slope between manholes must be uniform. Where the above design would not be practical due to low tributary population, as would often be the case with laterals and sub-mains, 8-inch wastewater main lines must be installed at a slope of at least 0.4%.

B. Where velocities greater than 15 feet per second are attained, special provision shall be made to protect against displacement by erosion or shock.

**2.07 Manholes**

A. Manholes shall be installed at the end of each line: at all changes in grade, size, or alignment; at all wastewater main intersections; and at distances not greater than 400 feet for wastewater main lines 15 inches or less, and 500 feet for wastewater main lines 18 inches to 30 inches in diameter. For larger wastewater main lines, greater spacing is a possibility. Cleanouts should not be used in public wastewater systems to replace manholes.

B. An outside drop pipe should be provided for a wastewater line entering a manhole at an elevation of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert should be filleted to prevent solids deposition.

C. The minimum inside diameter shall have an internal diameter of four (4) feet for wastewater lines of 12-inch diameter or less and five (5) feet diameter for wastewater lines greater than 12-inches.

D. Floor troughs shall be furnished for all wastewater lines entering manholes.

E. The minimum drop through a manhole shall be 0.1 ft.; where there is a change in direction the drop shall be 0.2 ft. minimum.

**2.08 Materials**

A. Materials for construction are included in Section 302, Part 2 of these standards. Used materials will not be accepted.

**2.09 Joints and Infiltration**

A. Wastewater line joints shall be designed to minimize infiltration and to prevent the entrance of roots.

B. Leakage test shall be observed by the District's Engineer. Acceptable tests are specified in Section 302- 3.06 of these Standards.

**2.10 Service Line Connections**

A. Service connections to proposed wastewater main lines shall be made only to be wye installed at the time of connection.

B. Service connections to existing wastewater mains may be made by an approved saddle or by cutting in a wye fitting.

C. Minimum slope for 4-inch service lines shall be 1 percent. Minimum slope for 6-inch service lines shall be 0.5 percent. If service line depth exceeds 12 feet at property line, increase slope to a minimum of 2 percent grade or as required to provide approximately 12 feet of depth at the property line.

D. Where slope exceeds 19% or velocities exceed 15 feet per second, special provisions shall be made to protect against displacement / injury to the District's main lines and facilities.

E. Service lines shall generally be installed perpendicular to the property lot line. Provide deflection or bends as necessary at wastewater main connection to maintain perpendicular installation at the property line. Bends shall not exceed 45 degrees.

F. Service lines shall be installed approximately 15 feet from the property line. Wastewater service lines shall be installed on the low side of the lot and spaced 10 feet from the water service line. Install wastewater service lines on the same side of the lot as the water service line.

## 2.11 Tracer Wire

A. Tracer wire shall be installed on all wastewater main lines and service lines. Tracer wire shall be taped directly to the pipe. Tracer wire shall be continuous between manholes and services. Complete splices as required to maintain continuous connection.

B. Tracer wire test stations shall be installed at all sewer cleanouts and at all manholes.

## 2.12 Protection of Water Supplies

A. There shall be no physical connection between a public or private potable water supply system and a wastewater system or appurtenance thereto which would permit the passage of any wastewater or polluted water into the potable supply.

B. While no general statement can be made to cover all conditions, it is generally recognized that wastewater lines must be kept remote from public water supply wells or other water supply sources or structures.

C. Where wastewater main lines cross water main lines or come within 10 horizontal feet of each other, the water main shall be protected from contamination by the wastewater main line through one or more of the following:

1. The wastewater line shall be located a minimum of 18 inches clear distance vertically below the water main line.

2. Encase wastewater line in concrete for entire section where the wastewater line is within 10 feet of the waterline (shall be measured perpendicularly from waterline).

## 2.13 Roof and Foundation Drains

A. Under no circumstances shall roof drains, foundation drains, storm drains or sub-drains be connected to the sanitary wastewater system.

## 2.14 Service Line Cleanouts

A. Cleanouts shall be provided at all property lines. Cleanouts at the property line shall be installed at least 2 feet from the driveway.

B. Cleanouts shall be installed at intervals no more than 100 feet and at any bend in the alignment of the wastewater service line.

C. Cleanouts shall be installed in accordance with the District Standards, latest edition.

D. Cleanouts shall be installed as identified on the approved Site Plan.

## PART 3 – EXECUTION (NOT USED)

END OF SECTION

Perry Park
Water & Sanitation District

# DIVISION 300

# SECTION 302

# SPECIFICATIONS FOR WASTEWATER MAIN LINE AND SERVICE LINE CONSTRUCTION

## Part I – General

### 1.01 Scope

A. All wastewater main line and service line construction within the Perry Park Water and Sanitation District shall be accomplished in accordance with the requirements of these Specifications.

B. All construction activities shall comply with local and state codes and regulations.

C. All permitting, submittals, notifications, inspections, guarantees, bonds, drawings, specifications, and traffic regulations shall conform to Section 100 of these specifications.

## Part 2 – Products

### 2.01 General

A. The materials used in this work shall be all new and shall conform to the requirements for class, kind, size and material as specified below.

B. Pipe shall be clearly marked with type, class, and manufacturer. Markings shall be legible and permanent under normal conditions of handling and storage.

C. The contractor will submit project submittals and shop drawings which must be accepted by the Developer's/Constructor's Registered Professional Engineer and forwarded to the District's Engineer for approval.

D. When required by the District, the contractor shall furnish certification by the manufacturer that materials comply with the applicable specifications.

### 2.02 Pipe Materials

A. PVC pipe shall conform to ASTM D-3034, SDR 35. The pipe shall have bell and spigot joints with an approved gasketed joint.

B. Reinforced concrete pipe shall conform to ASTM C76 latest revision. Pipe joints shall conform to ASTM C361, section 7. Neoprene gasket shall conform to ASTM C361.

C. Service line pipe materials shall be PVC sewer pipe (ASTM D2665, D3033, or D3034).

D. PVC pipe shall for wastewater use shall be green in color.

**2.03 Manholes**

A. Manholes shall be precast concrete and shall have an internal diameter of four (4) feet for wastewater lines of 12-inch diameter or less and five (5) feet diameter for wastewater lines greater than 12-inches.

B. Precast manhole risers and cones shall be manufactured in conformity with ASTM Specification C478. All manhole cones shall be eccentric.

C. Manhole frames and covers shall be as indicated on drawings included herein.

D. Manhole steps shall be steel reinforced, copolymer polypropylene, 14-in wide, M.A. Industries INC. PF Series, or approved equal. Copolymer polypropylene shall conform to ASTM D4101 Classification PP200 B33450 Z02. Steel reinforcing shall be 1/2 –inch diameter, conforming to ASTM A615, Grade 60, and shall be continuous throughout rung.

E. Ram-Nek or approved equal shall be placed between manhole base and precast concrete sections and between individual precast sections, to prevent infiltration.

F. Concrete used in manhole bases and invert channels shall have a 28-day strength of 2500 psi and shall contain not less than five (5) sacks of Portland cement per cubic yard. All cement used in concrete and mortar shall conform to ASTM Specification C 150, Type II.

**2.04 Pipe Bedding**

A. Pipe Bedding:

1. All wastewater main lines shall be bedded with granular materials.

2. The following materials will be accepted:

   a. Class #67 Bedding: This bedding shall consist of a durable crushed granular material with a well graded mineral aggregate mixture which will provide good stability.

| Class 67 Gradation | |
|---|---|
| **Nominal Size** | **Percent Passing by Weight** |
| 3/4" | 90-100 |
| 3/8" | 20-55 |
| No. 4 | 0-10 |
| No. 8 | 0-5 |

3. The following materials will be accepted for service lines only:

   a. Bedding meeting clean well graded sand or squeegee sand. Meeting the gradation classification as follows:

| Pipe Bedding Granular Material | |
|---|---|
| **Nominal Size** | **Percent Passing by Weight** |
| 3/8" | 100 |
| No. 4 | 70-100 |
| No. 50 | 2-30 |
| No. 100 | 1-10 |
| No. 200 | 0-3 |

## 2.05 Tracer Wire

A. Tracer wire shall be 12 AWG insulated wire and color coded pe APWA uniform color code. Insulation shall be PVC with a minimum thickness of 0.060 inches.

B. Tracer wire test stations shall include cast iron locking lid marked “Test” with 15” ABS plastic box with 2-3/8” interior diameter.

C. Tracer wire splice kits shall be 3M Direct Bury Splice Kit DBR/Y-6.

## 2.06 Marking Tape

A. Marking tape must be purchased from the District.

## PART 3 – EXECUTION

### 3.01 General

A. Furnish and install all pipe material, manholes, cleanouts, perform all testing, cleaning and maintain record drawings as specified in the Standards.

### 3.02 Trenching, Backfill, and Compaction

A. General: All trenching shall be by open cut methods except where the presence of structures makes open cuts undesirable. In such instances, tunneling or jacking methods may be used providing written permission from the District Engineer is obtained prior to the use of such methods at each location. In no case will tunneling be permitted for distances greater than six (6) feet. When jacking is permitted, only persons experienced in that work using suitable equipment shall perform the jacking operation. In no case shall excavating tools or equipment be allowed to precede the sleeve being jacked.

Trenches shall be excavated to the width necessary to permit the pipe to be laid and jointed properly and the backfill placed as specified; and as shown on the drawings. The trench shall be excavated to the proper depth and the trench bottom shall be graded to provide uniform bearing and support for the pipe bedding and pipe for its entire length. Bell holes shall be provided at each joint to permit the jointing to be performed properly and so that the pipe will be uniformly supported.

Whenever soil is encountered in the bottom of the trench that is incapable of supporting pipe, such soil shall be removed to the depth directed and the trench backfilled and compacted to the proper grade with gravel bedding material. When rock is encountered in the bottom of the trench, the trench shall be over excavated six (6) inches and backfilled and compacted to the proper grade with gravel bedding material. Not more than 400 feet of the trench may be left open at any time without approval in writing by the District Engineer and the County.

The allowed width of the pavement removed for trench excavation shall be approved by the District and the County (or private road owner). Trenches shall be excavated and maintained so that the horizontal distance from the top edge of the trench is not less than six (6) inches from the edge of the cut pavement.

B. Backfill and Compaction: All backfill material in trenches shall be compacted to a minimum of 95 percent of maximum density as determined by ASTM Standard Test D-698. The moisture content of the backfill material shall be at or above optimum moisture content when placed.

From the bottom of the trench to twelve (12) inches above the highest point on the pipe the backfill shall be compacted with hand operated tamping equipment. The remainder of the backfill shall be placed in twelve (12) inch maximum lifts and may be compacted with motorized equipment of a size and type which will not injure the pipe.

Under no condition will flooding or jetting be used as a means of compacting.

Backfill in proposed street areas shown by the drawings included herein shall be the same as that indicated above for backfill in trenches beneath pavements.

If driven sheet piling is used, it shall be cut off at or above the top of the pipe and portion below the cut-off line shall be left in the ground.

C. Trench Maintenance: Throughout the guarantee period, the Contractor and / or Constructor shall maintain and repair any trench settlement which may occur and shall make suitable repairs to any pavement, sidewalks, or other structures which may be damaged as a result of backfill settlement at no cost to the District.

D. Trench Dewatering: Where groundwater is encountered in the trench excavation, it shall be removed so that all pipe laying and other construction operations can be performed within the specifications. Water encountered in trench or manhole excavations shall be removed by pumping, drained to sumps through sub drains or by other methods devised by the Contractor and acceptable to the District.

E. Bracing: The Contractor shall provide all necessary bracing to prevent cave-ins which might endanger life or property. The bracing shall be of sufficient strength and spacing to insure complete safety and shall be left in place until backfilling starts.

Where bracing is omitted and is required for protection of persons or property, the Contractor may be ordered to install bracing sufficient for the conditions. Such orders, or lack thereof, will in no way relieve the Contractor of his responsibility to adequately protect his excavation against caving or damage at all times. Temporary support, adequate protection and maintenance of all underground and surface structures, drains, wastewater lines and other obstructions encountered in the progress of the work shall be furnished by the Contractor at no cost to the District.

F. Liability: Any structures which are disturbed shall be restored at no cost to the District. The Contractor shall proceed with caution in the excavation so that the exact location of underground structures, both known and unknown, may be determined, and the District shall not be held liable for the repair, or replacement when such structures are broken or otherwise damaged.

G. Soil Compaction Tests: Samples of representative embankment and structural backfill materials to be placed shall be tested to determine the maximum density and optimum moisture for these materials. Test for this determinate will be made using methods conforming to requirements of ASTM D-698. These test results shall be the basis of control for compaction effort.

The density and moisture content of each compact layer of embankment, structural and/or trench backfill will be determined in accordance with ASTM D-2167, or D-2922. Any material found to not comply with the minimum specified density shall be recompacted until the required density it obtained.

A minimum of one density test shall be performed:

1. Per 250 lineal feet of trench backfill or,

2. As required by the District or County.

All test results shall be submitted to the District for analysis and action, if necessary and shall become property of the District.

**3.03 Wastewater Main Line Installation**

A. Proper implements, tools, materials, and facilities shall be provided and used for the safe and convenient prosecution of the work. Pipe manufacturer's installation instructions shall be followed and supplemented by these specifications.

B. Inspect pipe for defects or cracks. Any defective, damaged, discolored, faded, or unsound pipe shall be rejected.

C. All foreign matter shall be removed before laying pipe. Pipe shall be kept clean after laying. All openings along the wastewater line shall be securely closed and in the suspension of work; suitable watertight stoppers shall be placed to prevent earth, water, and other material from entering the wastewater line.

D. All wastewater pipe shall be bedded.

E. Pipe shall be laid to the lines and grades indicated on the construction drawings approved by the District.

F. Maintain alignment and grade using batter board, laser beam equipment, or surveying instruments.

G. Holes shall be dug for pipe bells so that the pipe will be supported through its entire length by the bedding.

H. Pipe laying shall proceed from the existing wastewater main line upgrade with the spigot ends pointed in the direction of the flow.

I. When connecting to existing wastewater main lines, take every precaution to prevent dirt or debris from entering the existing lines.

J. All wastewater main pipe shall have marking tape installed in trenches, between 12 to 24 inches above the pipe. Marking tape shall be placed in conjunction with tracer wire. Marking tape shall be in place at time of inspection.

**3.04 Construction of Manholes**

A. Concrete for each manhole base shall be placed after the wastewater mainlines have been extended beyond the manhole. The base shall not be less than six (6) feet in diameter and not less than eight (8) inches thick below the wastewater pipe invert.

B. Invert channels may be placed monolithically within manhole base or separately, if more convenient.

C. Ram-Nek or approved equal shall be placed between manhole base and precast concrete sections and between individual precast sections to prevent infiltration.

D. Precast grade rings, mortared in place, shall be used on the top precast cone to support the manhole frame to the final grade.

**3.05 Service Line Connections**

A. It shall be the duty of the Contractor to keep an accurate record of service connections as to the location, elevation of the service line at the property line, type of connection, etc. Service line inspections shall conform to the Rules and Regulations of the District.

B. Four (4) inch service lines shall be installed on a minimum 1 percent grade. Six (6) inch service lines shall be installed at a minimum 0.5 percent grade. If service line depth exceeds 12 feet at property line, increase slope to a minimum of 2 percent grade or as required to provide approximately 12 feet of depth at the property line.

C. Cleanouts shall be provided for as required by the District's Rules and Regulations at intervals no more than 100 feet and / or at any bend or angle in the alignment of the line. Cleanouts shall be installed in accordance with the Uniform Plumbing Code, latest edition. Bends shall not exceed 45 degrees.

D. Service lines shall be installed approximately 15 feet from the property line. Wastewater service lines shall be installed on the low side of the lot and spaced 10 feet from the water service line. Install wastewater service lines on the same side of the lot as the water service line.

E. On all service line installations, install a water-tight plug that will permanently remain in place until a structure is built on the lot that will begin utilizing the service line.

F. All service lines shall have marking tape installed in trenches, between 12 to 24 inches above the pipe. Marking tape shall be installed in conjunction with tracer wire and shall be in place at time of inspection.

**3.06 Tracer Wire**

A. Tracer wire shall be taped directly on all wastewater main pipe and all service lines. Splice new tracer wire to existing tracer wire, wherever present at existing pipeline connections and intersections.

B. Tracer wire test stations are to be located at all manholes and wastewater service line cleanouts at the property line. Provide a minimum of twelve inches (12") of slack wire in the test box.

## 3.07 Infiltration and Inspection

A. Upon completion of all utility construction and before any house and / or equivalent dwelling unit services are connected, tests will be required of all sanitary wastewater lines and manholes.

B. AIR TESTS: The contractor shall perform these tests with suitable equipment designed for air-testing wastewater lines.

The air test shall be made when the wastewater line is clean. The pipe or sections of pipe to be tested may be wetted before the air test. The line shall be plugged at each manhole with pneumatic balls. Low-pressure air shall be introduced into the plugged line until the internal pressure reaches four (4.0) p.s.i.g. greater than the average backpressure of any ground water pressure that may submerge the pipe. At least two (2) minutes shall be allowed for the air temperature to stabilize before readings are taken and the timing started.

The portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 3.6 to 3.0 p.s.i.g (greater than the average back pressure of any ground water that may submerge the pipe) in less time than listed below:

| Pipe Diameter (inches) | Minimum Allowable Minutes 3.6-3.0 P.S.I.G Pressure |
|---|---|
| 4 | 2.0 |
| 6 | 3.0 |
| 8 | 4.0 |
| 10 | 5.0 |
| 12 | 6.0 |
| 15 | 7.5 |
| 18 | 9.0 |
| 21 | 10.5 |
| 24 | 12.0 |

If the installation fails this test, the testing equipment shall be used to determine the location of the pipe leak.

All service line plugs shall be secured in place to prevent displacement during testing operations.

C. EXFILTRATION TEST: In lieu of the standard sanitary wastewater line air test, the contractor may make exfiltration tests on wastewater lines.

The test section shall be bulkheaded and the pipe subjected to a hydrostatic pressure produced by a head of water at a depth of three (3) feet above the invert of the wastewater line at the upper manhole under test. In areas where ground water exists, this head of water shall be three (3) feet above the existing water table.

This head of water shall be maintained for a period of one hour during which it is presumed that full absorption of the pipe body has taken place, and thereafter for a further period of one (1) hour for the actual test leakage. During this one (1) hour test period, the measured maximum allowable rate of exfiltration for any section of wastewater line, including service line stubs, shall be as listed below:

| Main Wastewater Line Diameter (inches) | Maximum Allowable Exfiltration- Gallons per Hour per 100 Feet |
|---|---|
| 4 | 0.8 |
| 6 | 1.2 |
| 8 | 1.6 |
| 10 | 2.0 |
| 12 | 2.4 |
| 15 | 2.8 |
| 18 | 3.2 |
| 21 | 3.6 |
| 24 & larger | 4.0 |

In case measurements indicate an exfiltration greater than the maximum allowable leakage, additional measurements shall be taken and continued until all leaks are located and the necessary repairs and corrective work have reduced the leakage in the section being tested below the maximum allowed by the Specifications. All repair work and materials used must be approved by the Districts Engineer. For purposes of the test, the line between adjoining manholes will be considered a section and will be tested as such.

The Contractor shall furnish the plugs, standpipe and other material and labor for placing the plugs and standpipe in the wastewater line and shall assist the District's Engineer in making measurements. The Contractor shall receive no additional compensation for making the leakage teats or corrective work necessary to reduce leakage below the maximum allowed by the Specifications.

The introduction of any substance into the water used for testing with the intent of sealing such leaks as may be indicated will not be permitted.

If results of either of these tests are not satisfactory, repairs or pipe replacement will be required until the District's Engineer is satisfied that the leakage requirements are being met.

D. INFILTRATION TEST: If the ground water level is greater than three (3) feet above the invert of the upper manhole and the District's Engineer give written approval, infiltration tests may be allowed in lieu of the above tests. The allowable leakage for this test will be the same as for the exfiltration test.

E. INSPECTION AND FLUSHING: Prior to final acceptance each section of the wastewater main line shall be video inspected. The District shall witness the video inspection and a copy of the DVD/files shall be provided to the District.

Upon completion of the Contract, the District's Engineer will carefully inspect all wastewater lines and appurtenances. Any unsatisfactory work shall be removed and replaced in a proper manner, at no cost to the District. The invert of the wastewater line and manholes shall be left smooth, clean and free from any obstructions throughout the entire line.

F. MANHOLE TESTING: Repair both outside and inside of joint to ensure permanent seal. Test manholes with manhole frame set in place. If unsatisfactory testing results are achieved, repair manhole and retest until results meets criteria. Repair visible leaks regardless of quantity of leakage. Manhole testing shall be completed with a representative of the District onsite. Complete vacuum testing in accordance with the following:

1. Comply with ASTM C1244. Plug pipe openings and securely brace plugs and pipe. Inflate compression band and create seal between vacuum base and structure. Connect vacuum pump to outlet port with valve open, then draw vacuum of 10 in. Hg. Close valve. Complete test for following durations:

| Manhole Diameter (ft) | Test Duration (seconds) |
|---|---|
| 4 | 60 |
| 5 | 75 |
| 6 | 90 |

Record vacuum drop during test period. If vacuum drop is greater than 1 in. Hg during testing period, repair and retest manhole. If vacuum drop of 1 in. Hg does not occur during test period, manhole is acceptable.

**3.08 Restoration of Street Surfaces**

A. Asphalt and concrete replacement shall be done using materials and methods meeting or exceeding the Douglas County Public Works Department requirements. All pavements shall be sharp cut in a straight line prior to repairing.

B. On gravel roads, the base shall be restored to its original condition.

END OF SECTION